Diablo Canyon Independent Safety Committee
July 1, 2018—June 30, 2019

Peter Lam, Chair
Per F. Peterson, Member
Robert J. Budnitz, Member

Approved: October 23, 2019
This report covers the activities of the Diablo Canyon Independent Safety Committee (DCISC) for the period July 1, 2018 through June 30, 2019. This is the twenty-ninth annual report of the DCISC. The report is presented in two volumes.

**Volume I** includes a report summary and Conclusions and Recommendation (Executive Summary), a brief introduction and history regarding the DCISC, Committee activities, and documents received by the DCISC during the reporting period (Section 1.0), DCISC public meetings (Section 2.0), a review and evaluation of Nuclear Regulatory Commission (NRC) assessments and issues (Section 3.0), Committee Member and Consultant investigation topical summaries (Section 4.0), DCPP performance indicators monitored by the DCISC (Section 5.0), open items being followed by the Committee (Section 6.0), follow-up of Pacific Gas and Electric (PG&E) actions on previous DCISC recommendations (Section 7.0), input to the Committee by members of the public (Section 8.0), and PG&E’s response (Section 9.0) to recommendation in this report. The conclusions and recommendation also appear in **bold face** type throughout the main body of the report with a discussion of the subject involved.

**Volume II** contains a list of documents received by the DCISC, public meeting notices and agendas and minutes, a DCPP operations summary for the reporting period and organization charts (Exhibit C), full investigation reports by Committee Members and Consultants (Exhibits D1–D9), a record of plant tours by the DCISC (Exhibit E), the DCISC Open Items List (Exhibit F), communications and correspondence with members of the public (Exhibit G), Nuclear Decommissioning Cost Triennial Proceeding Documents (Exhibit H), DCISC recommendations and PG&E responses for the previous period (Exhibit I), the DCISC informational brochure (Exhibit J), and a glossary of terms (Exhibit K).

The DCISC invites questions and comments on this report.
History and Introduction

The Diablo Canyon Independent Safety Committee (DCISC) was established as part of the June 24, 1988, settlement agreement which arose from the rate proceedings for the Diablo Canyon Nuclear Power Plant (DCPP). The DCISC was formed in late 1989 with the appointments of Committee Members and began formal review activities and meetings on January 1, 1990. The original settlement agreement (D.88-12-083) was terminated by the California Public Utilities Commission (CPUC) in its decision to open the state electricity markets to competition on January 1, 1998; however, under the provisions of the Commission’s Decisions 97-05-088, issued on May 21, 1997, and 04-05-055, issued on May 27, 2004, the DCISC will continue to function and fulfill its responsibilities as established under the terms of the 1988 settlement agreement.

The original settlement agreement provided for a three-member Independent Safety Committee for the purpose of “reviewing and assessing the safety of operations of DCPP”. The members serve three-year staggered terms and remain on the DCISC until a new appointment or their reappointment is made. To fill an expired term or a vacancy, the CPUC issues a public notice soliciting applications from interested persons or nominations by others of prospective candidates. Under the revised process in accordance with the restated charter, candidates are selected by the CPUC from the applications plus the incumbent, if willing to serve.

The candidates must be “persons with knowledge, background and experience in the field of nuclear power facilities and nuclear safety issues.” From the list of candidates, the new or returning member is appointed by the Governor of California, the Attorney General of California or the Chairperson of the California Energy Commission (CEC), whichever made the original appointment.

On May 27, 2004, the CPUC issued Decision 04-05-055. In its decision, the CPUC changed the nomination procedures by eliminating from the process the participation of PG&E and the Dean of Engineering at the University of California at Berkeley; modified the requirements for membership on the DCISC to add “knowledge and background in nuclear safety issues” to the “experience in the field of nuclear power facilities” and modified the DCISC’s mandate to require it to undertake public outreach in the community. The Decision concluded the DCISC
should retain the discretion to determine how best to accomplish its mandate and that the DCISC shall otherwise continue to exist and to operate and continued funding through cost-of-service rates. To implement this directive the DCISC has continued to expand its public outreach as described in Section 8.0 Public Input and Outreach and continues to consider additional outreach activities.

On January 25, 2007, the CPUC issued Decision 07-01-028. The CPUC had previously adopted new practices and expectations for the DCISC without concurrently restating the Committee’s charter to reflect the changes. In its decision, the CPUC granted the DCISC application for authority to restate its charter including the incorporation into the Restated Charter of several terms, conditions, changes and clarifications necessitated by, and previously authorized by, the CPUC which govern the composition, responsibilities and operations of the Committee. In its decision, the CPUC found the Restated Charter to be in the public’s interest as it reflects the latest authority and obligations of the DCISC. The Committee’s application was unopposed. On June 21, 2016, PG&E announced a Joint Proposal with Friends of the Earth, the Natural Resources Defense Council, Environment California, the International Brotherhood of Electrical Works Local 1245, Coalition of California Utility Employees, and the Alliance for Nuclear Responsibility to retire DCPP at the expiration of the current operating licenses. On August 11, 2016, PG&E filed an Application with the California Public Utilities Commission (CPUC) for approval of the retirement of DCPP, implementation of the Joint Proposal, and for recovery of associated costs through proposed ratemaking.

Under the Joint Proposal, PG&E will continue to operate DCPP at current levels through the current license periods. If the Application is approved by the CPUC, in 2024 PG&E would retire Unit-1, and in 2025 would retire Unit-2. To replace DCPP power, the Joint Proposal provides specific greenhouse gas (GHG)-free procurement requirements beginning in 2018 and continuing through 2031. The Committee will follow developments and activities at DCPP to assure continued nuclear safety during the remaining years of operation, if the joint proposal is adopted.

The Committee Members during this period were as follows:

On October 10, 2007, Robert J. Budnitz, Ph.D. was appointed by California Attorney General Edmund G. Brown Jr. to a term on the Committee expiring June 30, 2010. On April 15, 2010, Attorney General Brown announced the reappointment of Dr. Budnitz to a second three-year term on the Committee commencing July 1, 2010 through June 30, 2013. On June 27, 2013, the CPUC ratified its President’s selection of Dr. Budnitz as one of two candidates for appointment by Attorney General Kamala Harris to serve a three-year term on the DCISC for the period July 1, 2013 to June 30, 2016. During that period, Dr. Budnitz continued to serve as a member of the Committee pending his reappointment or replacement. On July 7, 2016, Attorney General Harris announced the reappointment of Dr. Budnitz to serve a three-year term on the
Committee commencing July 1, 2016 through June 30, 2019. Dr. Budnitz served as the DCISC Vice-Chair for this report period, July 1, 2017 through June 30, 2018.

On June 3, 2009, Peter Lam, Ph.D., was appointed by Chair Karen Douglas, J.D., of the California Energy Commission (CEC) to a three-year term on the Committee commencing July 1, 2009 through June 30, 2012. On July 12, 2012, CEC Chair Robert B. Weisenmiller, Ph.D., announced his reappointment of Dr. Lam to a second three-year term on the Committee commencing July 1, 2012 through June 30, 2015. Dr. Lam was reappointed by Dr. Weisenmiller to third three-year term on the Committee commencing July 1, 2015 and ending on June 30, 2018, and subsequently on June 6, 2018, Dr. Weisenmiller announced Dr. Lam’s appointment to a fourth three-year term on the Committee beginning on July 1, 2018 and ending on June 30, 2021. Dr. Lam served as DCISC Chair during this report period, July 1, 2017 through June 30, 2018.


Overview of Activities during the Current Period

The DCISC held three public meetings in the vicinity of the Diablo Canyon Power Plant and one public meeting at Berkeley, CA on the following dates:

- October 18–19, 2017, Avila Beach, CA—Public Meeting
- February 7–8, 2018, Avila Beach, CA—Public Meeting and Public Plant Tour
- May 22, 2018, Berkeley, CA—Public Meeting
- June 27–28, 2018, Avila Beach, CA—Public Meeting and Public Plant Tour

The Committee regularly performs the following activities:

- Three two-day public meetings each year in the vicinity of the plant
- Three tours of the Diablo Canyon Nuclear Power Plant each year with members of the public held in conjunction with the three public meetings
- Numerous fact-finding visits by individual Committee Members and Consultants to assess issues, review plant programs and activities, and
Interview PG&E personnel

- Reviews of technical documents received from PG&E, the Nuclear Regulatory Commission, various state and local agencies, and other interested parties. The DCISC requests, and PG&E routinely provides copies of essentially all relevant documents generated by PG&E, the NRC, and other parties.

- Visits by the DCISC Members and legal counsel to offices of the CPUC and appointing officials (the Governor of California, California Attorney General and California Energy Commission) to update them on DCISC activities

- Use of regular part-time technical consultants to assist the DCISC to perform assessments and reviews

- Use of legal counsel to advise the Committee on its activities

- Use of expert consultants, as needed

Technical Consultants & Legal Counsel

The Restated Charter provides the Committee may contract for services including the services of consultants and experts to assist the Committee in its safety review. The DCISC Members are assisted in their important work by technical consultants and legal counsel. For this report period those persons were:

Technical Consultant: Mr. R. Ferman Wardell, a Registered Professional Engineer, holds both Bachelor and Master of Science degrees in Nuclear Engineering from North Carolina State University. He is a 50-year veteran of the nuclear power industry, having been directly involved in design, quality assurance, operation and nuclear safety oversight activities for Duke Energy Corporation’s seven nuclear units. He was formerly Executive Assistant to the Chairman and CEO at Duke Energy. Mr. Wardell has been a Consultant to the DCISC since 1992.

Technical Consultant: Mr. Richard D. McWhorter, Jr., holds a Bachelor of Science in Mechanical Engineering from the United States Naval Academy. He is a 30-year veteran of the nuclear power industry. He served for ten years as a division officer and department head in the Navy’s nuclear submarine program in which he was responsible for the operation of his submarine’s nuclear power plant. Mr. McWhorter then served the U. S. Nuclear Regulatory Commission for ten years first as an Operator Licensing Examiner and then as Senior Resident Inspector at North Anna Power Station. He then was employed for two years as a Systems Engineering Manager for Dominion Virginia Power at North Anna Power Station. For ten years, Mr. McWhorter was employed at Old Dominion Electric Cooperative where he served as Vice President of Operations and Asset Management. Mr. McWhorter has been a Consultant to the DCISC since 2016.

Legal Counsel: Robert R. Wellington, Esq. has been Legal Counsel for the DCISC since its organization in 1989. He is a graduate of Stanford University and the University of California (Hastings) Law School. For over 20 years his practice has
been limited to representing several cities, regional wastewater and solid waste districts and other public agencies, including the DCISC. He advises the DCISC with regard to its legal and administrative matters.

Assistant Legal Counsel Robert Rathie, Esq. has been associated with the Committee through his work with the Wellington Law Offices since 1993. He obtained a bachelor’s degree in Social Science and History from Chico State University in 1972 and served for 15 years in the U.S. Merchant Marine as chief purser on board passenger and freight vessels in foreign trade. He received his Juris Doctor degree from Monterey College of Law in 1993. He is a member of the State Bar of California and the Monterey County Bar Association. He assists Mr. Wellington in advising the DCISC with regard to its legal and administrative matters.

The DCISC issues a report for each reporting year, which runs from July 1 to June 30. The report is approved by the Committee Members at the fall public meeting following the end of the reporting period. The first six-month interim report and subsequent twenty-six annual reports covered the periods January 1, 1990 – June 30, 2017.

This twenty-ninth annual report covers the period July 1, 2017—June 30, 2018.

The technical items covered during its public meetings were selected by the DCISC based on the DCISC’s own priorities concerning which technical issues are important to cover. PG&E then responds by providing presentations and experts to participate in the public meetings as requested. The following significant items were reviewed:

- Performance During the 20th Refueling Outage
- DCPP Joint Proposal
- DCPP Decommissioning Plan
- Spent Fuel Storage Technical Issues
- Status of NRC Performance Indicators
- Overview of Regulations and PG&E Programs for the Classification of Structures, Systems and Components
- Status of Completing the Transition to NFPA-805
- Results of 2017 Operating Plan and Key Elements of the 2018 Operating Plan
- Handling & Disposal of Damaged Spent Fuel
- Overview of FLEX Training
- Summary of NRC Evaluation of DCPP Tsunami
- Capital Project Planning
DCPP Employee Retention Plan

- NRC Matters
- Seismic Probabilistic Risk Assessment Project and Tsunami Hazard Analysis Results • Committee Discussion of Post-Shutdown Role Matrix and Ad Hoc Decommissioning Consultant

Individual Committee Members and consultants reviewed many other items in nine fact-finding visits, inspections and tours at DCPP. The DCISC keeps track of past, current and future items for review in its Open Items List (Section 6.0 and Volume II, Exhibit F).

A DCISC Member visited officials from the California Energy Commission to provide updates on DCISC activities, to discuss agency concerns and comments, and to provide copies of the Committee’s Annual Report.

Public input and questions were received at the public meetings, and by telephone, letter, and e-mail. Members of the public spoke at each of the four DCISC public meetings held during this reporting period. The DCISC has responded to all of their questions and requests during this period.

Overall Conclusion

The DCISC concludes that PG&E operated DCPP safely during the period July 1, 2017—June 30, 2018.

Specific Conclusions

Based on its activities, the DCISC has the following specific conclusions from the major review topics examined during the current reporting period (references to sections of this report are shown in parentheses). Conclusions are based on, but may vary from, information contained in Committee Fact-finding Reports in Exhibit D in Volume 2 of this report.

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Concerns:

Concerns are items, which, while not necessarily warranting recommendations, need enhanced continuing Committee review and scrutiny, or attention by PG&E. Concerns are monitored more actively and frequently by the Committee than other items. DCISC’s concern follows:

- PG&E entered into an agreement, the Joint Proposal, to close DCPP at the end of its original operating license (2024 for Unit 1 and 2025 for
Unit 2). As a result, the DCISC has specific interest/concerns in two areas and will follow them closely:

a. Retention of qualified, experienced personnel necessary to operate DCPP at an appropriate level of safety
b. Adequate spending on programs and equipment to preserve an appropriate level of nuclear safety

Recommendations:

None
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November 21, 2019

PG&E Letter ISC-19-001

Dr. Peter Lam
c/o The Diablo Canyon Independent Safety Committee
857 Cass Street, Suite D
Monterey, CA 93940


Dear Dr. Lam:


We are pleased that the DCISC has once again concluded that PG&E operated Diablo Canyon Power Plant (DCPP) safely and has no recommendation during this report period.

As you are aware, operating the plant conservatively to protect public health and safety is our highest priority, and we will continue to ensure that we fulfill this commitment.

We welcome the DCISC independent review and oversight, which contributes to the continued safe operation of DCPP.

Sincerely,

James M. Welsch
Senior Vice President, Generation and Chief Nuclear Officer

cc: Dr. Robert J. Budnitz
    Dr. Peter Lam
    Dr. Per F. Peterson
    Richard McWhorter
    Robert W. Rathie
    Ferman Wardell
For more information about DCISC contact:

Diablo Canyon Independent Safety Committee  
Office of the Legal Counsel  
857 Cass Street, Suite D  
Monterey, California 93940

Telephone:

In California call 800-439-4688  
Outside of California call 831-647-1044

Send E-mail to: dcsafety@dcisc.org
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1.5 Visits by DCISC Members to California State Agencies
1.6 CPUC Decision to Retire Diablo Canyon Power Plant (DCPP) at Expiration of Current Operating Licenses
1.7 Documents Provided to the DCISC
1.8 Documentation of DCISC Activities
29th Annual Report, Volume I, Section 2.0, Public Meetings

During its July 1, 2018 - June 30, 2019 reporting period, the Diablo Canyon Independent Safety Committee (DCISC) held three two-day Public Meetings and one open house in the vicinity of the plant and two public tours of Diablo Canyon Power Plant (DCPP) as part of its public outreach program.

2.1 Public Meetings

During this reporting period, the DCISC heard presentations from PG&E on DCPP activities and from Committee Members and Consultants on Committee activities and provided the opportunity for public input at the following DCISC public meetings:

- October 24-25, 2018, Avila Beach CA, Public Meeting and Public Plant Tour
- February 27-28, 2019, Avila Beach CA, Public Meeting
- June 4-5, 2019, Avila Beach CA, Public Meeting and Public Plant Tour

Minutes of the meetings are located in this report as described below. Copies of the Committee's Annual Reports are located in the Library Reference Department at the California Polytechnic State University at San Luis Obispo, California. Each meeting is streamed live on the internet on www.slospan.org and shown at various later times on one of the local public access television channels.

2.1.1 October 24-25, 2018 Public Meeting

A Notice of Meeting (see Volume II, Exhibit B.1) was published in the local newspaper and was mailed to the media and those persons on the Committee's service list (see Volume II, Exhibit B.13). The meeting agenda is shown in Volume II, Exhibit B.2, and minutes of the meeting are included in Volume II, Exhibit B.3.

A public tour of DCPP was conducted during the October 24, 2018 Public Meeting. Members of the public were given the opportunity to see much of the plant and hold discussions with DCISC Members and Consultants as well as with PG&E personnel. The public tour is described in Volume I, Section 8.

2.1.2 February 7-8, 2018 Public Meetings

A Notice of Meeting (see Volume II, Exhibit B.4) was published in the local newspapers, along with several display advertisements, and was mailed to the
media and those persons on the Committee's service list (see Volume II, Exhibit B.10). The meeting agenda is shown in Volume II, Exhibit B.5, and minutes of the meeting are included in Volume II, Exhibit B.6.

There was no public tour during the February 7-8, 2018 Public Meeting.

### 2.1.3 June 27-28, 2019 Public Meetings

A Notice of Meeting (see Volume II, Exhibit B.7) was published in the local newspapers, along with several display advertisements, and was mailed to the media and those persons on the Committee's service list (see Volume II, Exhibit B.10). The meeting agenda is shown in Volume II, Exhibit B.8, and minutes of the meeting are included in Volume II, Exhibit B.9.

A public tour of DCPP was conducted during the June 5, 2019 Public Meeting. Members of the public were given the opportunity to see much of the plant and hold discussions with DCISC Members and Consultants as well as with PG&E personnel. The public tour is described in Volume I, Section 8.

The DCISC also held an Open House in Avila Beach, CA on April 17, 2019. This is described in Section 1.6.
This section of the DCISC Annual Report describes the DCISC review of PG&E's interface with the US Nuclear Regulatory Commission (NRC). The NRC is the Federal regulatory entity charged with assuring the safety and security of domestic nuclear power plants; by agreement with the State, NRC also performs these functions for the State of California. As regulator, the NRC employs two full-time Resident Inspectors at the plant (and other specialist inspectors at its US headquarters and regional locations), performs and reports on its inspections at DCPP on matters of nuclear safety and security, investigates significant plant events, maintains a set of plant performance indicators, and performs an annual assessment of DCPP regulatory performance which it reports at a public meeting in the plant vicinity. The NRC also must approve significant changes, additions and deletions to plant designs, procedures and Technical Specifications.

PG&E is required to submit routine, periodic reports to the NRC on selected activities and submit special reports when triggered by off-normal plant incidents, events or occurrences.

The DCISC monitors the aforementioned activities and resulting documents in the following ways: (1) receipt and review of correspondence and reports between PG&E and the NRC, (2) on-site review (at fact-finding meetings at the plant) of selected NRC inspections, investigations and reports, (3) meetings with the NRC Resident Inspectors, and (4) presentations by PG&E at DCISC public meetings on NRC matters.

3.1 Summary of License Event Reports

3.1.1 Discussion and Required LERs

License Event Reports (LERs) are reports required of the nuclear power plant licensee by Nuclear Regulatory Commission (NRC) regulations when an off-normal event occurs. These events include operations or conditions outside of or in violation of station Technical Specifications (TS), procedures or NRC regulations. Events are to be promptly reported by telephone and by written report within 60 days of the event or initial knowledge of the event. Voluntary LERs are submitted for events, which NRC should know about, or are significant but are not specifically required by NRC. Each of these reports is reviewed in DCISC public meetings and
is mailed to each DCISC Member and Consultant.

The LER is the responsibility of the Licensee, in this case PG&E. Therefore, it is the Licensee who makes the determination of the level of risk or significance to safety of the event. The NRC has a Significance Determination Process, which sets forth its rules for making these determinations; however, events may be complex or may not easily fit the rules. The NRC may concur or it can question or challenge the Licensee's determination. Discussions or meetings may be required to reach understandings between the parties.

There was one LER reported during this reporting period. This is good performance. The event reported in the LER was a Unit 2 reactor trip that occurred on December 1, 2018. The trip occurred as designed due to the automatic operation of offsite electrical grid equipment designed to ensure grid reliability. Plant systems responded as designed, operators performed as expected, and the trip did not affect the health and safety of the public.

DCPP reported on this LER at a DCISC public meeting, and the DCISC received the LER in its monthly document package for review. DCPP's corrective action, as submitted in an April 2019 LER supplement to NRC, was determined satisfactory by the DCISC as described in Section 4.1.2 of this report.

3.1.2 Special Report LERs

There were no special LERs submitted by DCPP during the reporting period.

3.1.3 Voluntary LERs

There were no voluntary LERs during this period.

3.1.4 Reactor Trips Reported in LERs

During the reporting period, there was one automatic and no manual reactor trips reported. In the past five DCISC reporting periods the following numbers of trips have occurred:

<table>
<thead>
<tr>
<th>Reporting Period</th>
<th>Automatic</th>
<th>Manual</th>
</tr>
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<tbody>
<tr>
<td>2014/2015</td>
<td>0</td>
<td>1</td>
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<td>2015/2016</td>
<td>0</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>2018/2019</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

This reactor trip is described in Section 4.1.2 of this report. The number of reactor
trips continues to be commendably low.

3.1.5 Other Reports to NRC

There were no other significant reports made to NRC.

3.1.6 LER Trends

The following table depicts the LER history for DCPP for the last five DCISC reporting periods:

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Number of LERs Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/1/14–6/30/15</td>
<td>3</td>
</tr>
<tr>
<td>7/1/15–6/30/16</td>
<td>1</td>
</tr>
<tr>
<td>7/1/16–6/30/17</td>
<td>1</td>
</tr>
<tr>
<td>7/1/17–6/30/18</td>
<td>1</td>
</tr>
<tr>
<td>7/1/18-6/30/19</td>
<td>1</td>
</tr>
</tbody>
</table>

3.1.7 DCISC Evaluation and Conclusions

The DCISC recognizes that off-normal events will occur in any large complex system. The goal is to identify them and understand them and take action to minimize the consequences and likelihood of any significant increase in risk. The design basis for nuclear power plants involves defense-in-depth. This recognizes that in real systems, unanticipated events will occur, so protective systems are designed to provide protection even if systems do not always perform as anticipated. For this reason, it is important to investigate events and to share information about them with other plants. DCPP's performance in regard to LERs was good - one LER.

**DCPP's operations resulted in only one LER (due to an automatic reactor trip) reported during the current (July 1, 2018 - June 30, 2019) reporting period. This is good performance.**

3.2 NRC Inspection Reports and Enforcement Actions

3.2.1 Discussion

The NRC performs inspections at each nuclear power plant. The purpose is to determine how well the plant personnel are implementing and following NRC regulations, plant Technical Specifications, and other requirements, procedures, or commitments. Generally, better regulatory performance results in fewer inspections. NRC meets with the nuclear plant operator twice per year to review plant safety performance under the NRC Reactor Oversight Process (see Section 3.4 below). These meetings are usually public.
Inspections are performed by the plant Resident NRC Inspectors, inspectors from the NRC Region Office, experts from other NRC organizations, and NRC consultants. The bulk of inspections are routine, announced visits focusing on one or more specific areas of operation such as As Low As Reasonably Achievable (ALARA) radiation dose minimization program, maintenance, chemistry, security, operator examinations, or corrective actions. Special inspections are often made for investigation into previous events affecting plant safety and into special programs, such as NRC Generic Letter 89-10, Testing of Motor-Operated Valves.

Each inspection usually concludes with an exit meeting with licensee personnel, followed by a written inspection report. Inspections can result in the following categories of findings:

- **Unresolved Items** are items for which information is not yet available or awaiting licensee response or action.
- **Deviations** are variances from NRC regulations and/or licensee procedures or other requirements or commitments, which are not as severe as outright violations.
- **Findings** are NRC-identified or self-revealing issues of concern associated with a performance deficiency by the licensee.
- **Concerns**, typically including more than one individual weakness in a single area, are to alert the licensee to situations which could become violations if not corrected.
- **Non-cited Violations** are violations for which NRC credits the licensee for identifying the violation and/or for prompt, effective corrective action completed before or taken during the inspection. These are usually non-recurring, non-safety-significant items.
- **Violations** of NRC regulations, plant Technical Specifications, and other commitments, procedures, etc. require a formal response and corrective action. Violations carry four severity levels as described in Section 3.3, NRC Enforcement Actions and below.

Fewer violations generally mean better performance. Some in the industry believe having a significant number of non-cited violations indicates an effective, aggressive regulatory program, meaning the licensee quickly finds and corrects its own problems/violations rather than the NRC identifying them.

NRC considers items not in compliance with its regulations or with the licensee's commitments or procedures to be violations. Corrective action is required for all violations. NRC identifies four severity levels for violations.

Level I is the most severe, representing the most significant regulatory concern which usually involves actual or high potential impact on the safety of the public. Level IV violations are more than minor concern and should be corrected so as to
prevent a more serious concern. Civil penalties (monetary fines) are usually imposed for Level I and II violations, are considered for Level III, and usually not imposed for Level IV violations. Most low-level violations are reported as Non-cited Violations provided the licensee places the violation into its corrective action program and provided the violation is not willful or repetitive. NRC has increased its scrutiny of corrective action programs. The categorization of violations in this report follows NRC's actual classification in each notice of a violation.

NRC issued the following inspection reports during this reporting period:

3. IR 2017-406 August 21, 2017: NRC Material Control and Accounting Program Inspection
5. IR 2017-008 September 27, 2017: NRC Supplemental Inspection Report and Assessment Follow-Up Letter
6. IR 2017-003 October 26, 2017: Third Quarter Integrated Inspection Report
8. IR 2017-007 January 24, 2018: NRC Inspection of Implementing Strategies and Emergency Preparedness Plans to Address Fukushima Event
11. IR 2018-001 April 24, 2018: First Quarter 2018 Integrated Inspection Report
12. IR 2018-008 June 8, 2018: NRC Biennial Problem Identification and Resolution Inspection Report

NRC issued the following inspection reports during this reporting period:

1. IR 2017-008 June 8, 2018: 2018 Problem Identification and Resolution Inspection Report
2. IR 2018-002 July 24, 2018: 2nd Quarter Integrated Inspection Report
5. IR 2018-003 October 31, 2018: 3rd Quarter Integrated Inspection Report
8. IR 2018-006 March 4, 2019: Annual Assessment Letter

These inspection reports (plus assessment letter) are typical of recent previous periods for DCPP. Cross-cutting performance appears good with no cross-cutting themes identified by NRC. The DCISC receives all NRC inspection reports.

3.2.2 DCISC Review of Trends of Violations and NRC-Identified Issues

Non-Cited Violations (NCVs) are usually items of very low safety significance (called "Green"). All NCVs are entered into the DCPP Correction Action Program (CAP), and a Notification is issued. Notifications are reports used to identify and document plant problems in the CAP. The NCVs are reviewed for their safety significance, and cross-cutting issues. DCPP will perform an Apparent Cause Evaluation (ACE) for the NCVs as determined by plant director-level management.

NRC Non-Cited Violations (NCVs)

NCVs are violations of NRC regulations, which have very low safety significance, and, as such, are not "cited" as violations by NRC.

NRC violations are included in the DCPP CAP Trending Program and are not trended separately. An Event Trend Record (ETR) is issued for each NCV associated with an AT-NCV AR (A-type Non-Cited Violation Action Request). Periodic evaluation of the ETRs is undertaken to identify adverse trends.

NRC issued the following nine Non-Cited Violations and one Finding during the reporting period:

(Note: the following terms are used:

- \(\text{NCV} = \text{NRC Non-Cited Violation}\)
- \(\text{SLIV} = \text{NRC Safety Level IV Violation}\)
- \(\text{FIN} = \text{NRC Finding}\)
- \(\text{Green} = \text{NRC considers very low safety significance}\)
- \(\text{PG&E-Identified} = \text{violation was first found by PG&E and reported to NRC}\)
- \(\text{C-C Aspect} = \text{NRC cross-cutting category for the violation}\)

1. NCV (Green) - Failure to ensure materials intended for installation in a Diesel Generator Air Inlet Boot Seal conformed to procurement requirements.

Very low safety significance with no impact on public health and safety.
2. NCV (Green) - Failure to ensure that relief valve O-rings were appropriately classified for use in a safety related function.

*Very low safety significance with no impact on public health and safety.*

3. NCV (Green) - Failure to identify Diesel Generator room fire suppression control panel indicator light off-normal condition.

*Very low safety significance with no impact on public health and safety.*

4. NCV (Green) - Failure to correctly install flexible conduit to PORV solenoid valves per the associated Equipment Qualification requirements.

*Very low safety significance with no impact on public health and safety.*

5. NCV (Green) - Failure to perform required evaluations for scaffolding in place greater than 90 days.

*Very low safety significance with no impact on public health and safety.*

6. NCV (Green) - Failure to correct switchgear room ventilation damper issue in a timely manner.

*Very low safety significance with no impact on public health and safety.*

7. NCV (Green) - Corrective actions associated with a 2013 refueling outage Reactor Coolant Pump seal issue were not adequately applied to procedures for on-line control of drain tank level.

*Very low safety significance with no impact on public health and safety.*

8. NCV (Green) - Inadvertent Spray Additive Tank leak caused by maintenance on incorrect level transmitter.

*Very low safety significance with no impact on public health and safety.*

9. Finding (Green) - Issue associated with Unit 1 Polar Crane variable frequency drive motor was not promptly corrected.

*Very low safety significance with no impact on public health and safety.*

The history of violations for this and the previous four DCISC reporting periods is as follows:

<table>
<thead>
<tr>
<th>DCISC Reporting Period</th>
<th>Number of Inspections</th>
<th>Violation Severity Level</th>
<th>Violations Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/1/14–6/30/15</td>
<td>10</td>
<td>III 1 IV - Non-Cited 11</td>
<td>12</td>
</tr>
</tbody>
</table>
There were no NCVs in the last four quarters that had four or more common Cross-cutting Aspects. This means that the NRC does not need to closely monitor any particular Cross-cutting aspects, and that DCPP is not close to receiving an NRC Substantive Cross-cutting Issue.

3.2.3 DCISC Evaluation and Conclusions

The numbers of NRC inspections in prior periods had been fairly consistent at about ten, until this period for which there were five. This relatively low number is a direct result of good regulatory performance as measured primarily by NRC Performance Indicators (see Section 3.5 below). The DCISC will continue to follow NRC violations and trends.

The DCISC received reports and heard presentations by DCPP on each non-cited violation and finding at its public meetings and has reviewed each cited violation and DCPP's corrective actions, where applicable. DCPP corrective actions appeared adequate. There were no individual items of significance to warrant DCISC recommendations or actions.

All of DCPP's eight NCVs and one Finding were classified by the NRC as having "very low safety significance (Green)." The DCISC reviewed these violations and DCPP's respective corrective actions and concluded they were satisfactory.

3.3 NRC Performance Evaluations

The Nuclear Regulatory Commission (NRC) inspection, assessment, and enforcement programs for commercial nuclear power plants take into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC-licensed plants.

The NRC Revised Reactor Oversight Process (RROP) monitors licensee performance in three broad areas (called strategic performance areas):

1. Reactor Safety (avoiding accidents and reducing the consequences of accidents if they occur)
2. Radiation Safety (protecting plant employees and the public during routine operations)
3. Safeguards (protecting the plant against sabotage or other security threats).

The process focuses on licensee performance within each of "Seven Cornerstones" of safety in the three areas:

**Reactor Safety**
- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

**Radiation Safety**
- Occupational
- Public

**Safeguards**
- Physical
- Protection

To monitor these Seven Cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations:

1. Inspections
2. Performance Indicators

Inspection findings are evaluated according to their potential significance for safety, using the significance determination process, and assigned colors of GREEN, WHITE, YELLOW, or RED.

- GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance.
- WHITE findings indicate issues that are of low to moderate safety significance.
- YELLOW findings are issues that are of substantial safety significance.
- RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance Indicator data are compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, or RED.
GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections.

WHITE corresponds to performance that may result in increased NRC oversight at the Resident Inspector or Regional level.

YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight at the NRC Region level.

RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety. NRC response at the Agency level could include public meeting, utility-developed performance improvement plan, and/or special inspection teams.

The oversight process integrates performance indicators and inspections so the agency can reach objective conclusions regarding overall plant performance. The NRC uses an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

The NRC Performance Indicators (PIs) and Most Significant Inspection Findings Categorization for DCPP through the second quarter 2019 are depicted in Table 3.1 through 3.4 at the back of Section 3.0.

The NRC inspection program uses a risk-informed approach to select areas of the plant to inspect within each cornerstone. The selection is based on potential risk, past operational experience, and regulatory requirements.

Each calendar quarter, NRC inspectors and the regional office review plant performance indicators and inspection findings. Each year, NRC regional and headquarters offices make a final review, to include a more detailed assessment of plant performance over the 12-month period, preparation of a performance report, and preparation of a six-month inspection plan. The report is sent to each plant and discussed in a public meeting.

NRC Annual Assessment Letter March 4, 2019

The NRC determined the performance at Diablo Canyon Power Plant, Units 1 and 2, during the most recent quarter was within the Licensee Response Column, the highest performance category of the NRC's Reactor Oversight Process (ROP) Action Matrix, because all inspection findings had very low safety significance (i.e. , Green) , and all Pis were within the expected range (i.e., Green). Therefore, the NRC plans to conduct ROP baseline inspections at your facility.

The enclosed inspection plan lists the inspections scheduled through December 31, 2020. This updated inspection plan now includes planned security inspections.
which were formerly transmitted under separate correspondence. The NRC provides the inspection plan to allow for the resolution of any scheduling conflicts and personnel availability issues. Routine inspections performed by resident inspectors are not included in the inspection plan. You should be aware that the agency has proposed changes regarding engineering inspections (SECY-18-0113, "Recommendations for Modifying the Reactor Oversight Process Engineering Inspections") and is drafting proposed changes to the ROP for Commission consideration. Should the Commission approve changes to the ROP, the engineering and other region-based inspections are subject to change in scope, as well as schedule, beginning in January 2020. The inspections listed during the last 12 months of the inspection plan are tentative and may be revised. The NRC will contact you as soon as possible to discuss changes to the inspection plan should circumstances warrant any changes.

The DCISC understands this to mean acceptable regulatory performance and no increased inspections above baseline. The DCISC will continue to follow this area closely.

The DCISC concurs with the NRC assessment of DCPP's having acceptable regulatory performance and will continue monitoring DCPP regulatory performance.

3.4 DCISC Meetings with NRC Resident Inspector

The DCISC held 10 meetings with the NRC Resident Inspectors (NRC RIs) as follows:

July 10-11, 2018 Fact-finding Meeting (Volume II, Exhibit D.1, Section 3.8)

1. GSI-191 - "Assessment of Debris Accumulation on PWR Sump Performance"
2. Long-term role of DCISC after 2025
3. NRC Office of Decommissioning
4. NRC to hold public meeting on August 28
5. NRC interested in DCPP employee engagement

August 22-23, 2018 Fact-finding Meeting (Volume II, Exhibit D.2, Section 3.1)

1. Results of the Recent NRC Problem Identification and Resolution Inspection - No Issues
2. NRC Unresolved Item on Mission Times Used in Operability Evaluations
3. Preventive Maintenance Optimization Program
4. Upcoming NRC Public Outreach Meeting
September 5-6, 2018 Fact-finding Meeting (Volume II, Exhibit D.3, Section 3.6)

1. 230kV Switchyard Cold Wash Readiness Review Board meeting
2. Corrective Action Review Board meeting
3. The recent NRC Public Meeting held in San Luis Obispo
4. DCPP Vibration Monitoring personnel shortage
5. Digital Control System strategic review
6. Control Room Simulator update
7. Whether Operations is ready for FLEX events
8. Use of FLEX in PRA

November 7-8, 2018 Fact-finding Meeting (Volume II, Exhibit D.4, Section 3.1)

1. October Emergency Planning Exercise Observations
2. Decommissioning Planning
3. Recent Inspection Findings Regarding the Scaffolding Program and the Timeliness for the Resolution of Operability Assessments Requiring Compensatory Measures
4. Preventive Maintenance Optimization Project

December 4-5, 2018 Fact-finding Meeting (Volume II, Exhibit D.5, Section 3.5)

1. December 1, 2018 Unit 2 reactor trip

January 23-24, 2019 Fact-finding Meeting (Volume II, Exhibit D.6, Section 3.1)

1. Recent release of the NRC Staff's review of DCPP's Seismic Probabilistic Risk Assessment (PRA)
2. PG&E's announcement of its intent to file bankruptcy
3. Recent inspection results by Resident Inspectors and the NRC Triennial Fire Protection Inspection
4. DCPP's License Amendment Requests regarding Emergency Planning response times and changes to the Security Protected Area
5. Frequency of meetings between NRC Resident Inspectors and DCPP Managers and Officers

March 18-19, 2019 Fact-finding Meeting (Volume II, Exhibit D.7, Section 3.1)

1. Seismic PRA (Probabilistic Risk Assessment)
2. Spent Fuel Pool Seismic Capability
3. DCPP Long-Term Seismic Program
4. PG&E's Requests for Proposals for New ISFSI Casks
5. Unit 2 Containment Spray Inadvertent Operation
6. Unit 1 Reactor Head Suspended for Six Hours Event
7. Effects of PG&E Bankruptcy on Safety (None to date)
8. December 1, 2018 Unit 1 Reactor Trip Root Cause Evaluation
9. Reactor Vessel Embrittlement

April 16-17, 2019 Fact-finding Meeting (Volume II, Exhibit D.8, Section 3.1)

1. An NRC initiative to hold public meetings to discuss best practices for community engagement panels near decommissioning nuclear power plants.
2. Preliminary inspection results from first quarter Resident Inspector activities during which there were several violations of low safety significance identified, the details of which would be available when the report was issued.
3. Refueling Outage 1R21 Results, which were generally considered to have been good performance.

May 8-9, 2019 Fact-finding Meeting (Volume II, Exhibit D.9, Section 3.7)

1. DCISC History and Organization
2. NRC Branch Organization
3. DCPP Emergency Preparedness

Conclusions:

The DCISC meetings with the NRC Resident Inspectors are a useful opportunity to review the status of NRC's current issues with the plant and compare them with DCISC items of interest. DCISC meets regularly with the Senior and Resident Inspectors during fact-finding visits and will continue to do so.

3.5 DCISC Conclusions and Recommendations

Conclusions:
The DCISC received regular reports on the Nuclear Regulatory Commission (NRC) Performance Indicators, DCPP License Event Reports (LERs) sent to NRC, and NRC Inspection Reports and Enforcement Actions (violations) at each of its Public Meetings as well as copies of these documents throughout the reporting period. The DCISC investigated selected reports at its fact-finding meetings. The number of LERs has decreased significantly and was one during this period. This is the same as the previous period and represents good
The Committee notes that, although the NRC concluded that DCPP operated acceptably, it identified eight Non-cited Violations and one Finding of "very low safety significance." This appears to be an improvement from most previous periods.

The DCISC will continue to review DCPP's NRC regulatory performance during the next reporting period, paying particular attention to the number and significance of DCPP violations and LERs.

**Recommendations:**

None

Diablo Canyon 1 2Q/2018 Performance Summary
Diablo Canyon 1 2Q/2018 NRC Most Significant Inspection Findings

Most Significant Inspection Findings

<table>
<thead>
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<th>Safeguards</th>
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</table>
Diablo Canyon 2 2Q/2017 Performance Summary

Performance Indicators

Unplanned Scrams (G)
Safety System Functional Failures (G)
Reacto
Drill/Exercise Performance (G)
Occupational Exposure Control Effectiveness (G)
RETS/OCED Radiological Effluent (G)
Protected Area Equipment (G)

Unplanned Power Changes (G)
Emergency AC Power Systems (G)
Reactor Coolant System Leakage (G)
ERD Drill Participation (G)

Unplanned Scrams with Complications (G)
High Pressure Injection Systems (G)
Alert and Notification Systems (G)

Heat Removal Systems (G)
Residual Heat Removal Systems (G)
Cooling Water Systems (G)
Diablo Canyon 2 2Q/2016 NRC Most Significant Inspection Findings

Most Significant Inspection Findings

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</tr>
<tr>
<td>Q4/2018</td>
<td>No findings this quarter</td>
<td>No findings this quarter</td>
<td>No findings this quarter</td>
</tr>
<tr>
<td>Q3/2018</td>
<td>No findings this quarter</td>
<td>G</td>
<td>No findings this quarter</td>
</tr>
</tbody>
</table>
The DCISC reviews a broad spectrum of topics and issues at DCPP. Detailed reports of these topics are contained in Volume II, Exhibit B—DCISC Public Meeting Notices, Agendas and Reports and Volume II, Exhibit D—DCISC reports on Fact-finding meetings. This section contains summaries of these reports along with conclusions and any recommendations.

4.1 Conduct of Operations
4.2 Conduct of Maintenance
4.3 Engineering Programs
4.4 Human Performance: Human Errors and Improving Safety and Efficiency of Plant Performance
4.5 Nuclear Safety Culture, and Safety Conscious Work Environment
4.6 Performance Improvement Programs
4.7 Emergency Preparedness
4.8 Risk Assessment and Management
4.9 Nuclear Safety Oversight and Review
4.10 Radiation Protection
4.11 Quality Programs
4.12 Nuclear Fuel Performance
4.13 Equipment Reliability
4.14 Organizational Effectiveness and Development
4.15 System and Equipment Performance/Problems
4.16 Steam Generator Performance
4.17 Outage Management
4.18 Plant Safety-Security Interface
4.19 Independent Spent Fuel Storage Installation (ISFSI)
4.20 Earthquakes and Tsunamis
4.21 Fire Protection
4.22 Learning and Development Programs
4.23 Beyond Design Basis Events
4.24 Joint Proposal and Decommissioning
DCPP operational performance is reported in Volume II, Exhibit C, “Diablo Canyon Power Plant (DCPP) Operations”.

The DCISC Open Items List is a database used to track items for follow-up and monitoring. The List is updated and reviewed at each public meeting. The Open Items List included in Exhibit F in Volume II was used at the DCISC June 4-5, 2019 Public Meetings.
The DCISC has made 222 recommendations in its previous 28 Annual Reports. The recommendations, PG&E responses and DCISC dispositions from the previous DCISC reporting period are included in Exhibit I, Volume II, along with references to the location for the basis for each recommendation.

The DCISC had no recommendations in its 2015–2016 report.

The DCISC had one recommendation in this 2016–2017 report – see Section 4.20.3.

The DCISC had no recommendations in its 2017 - 2018 report.

The DCISC has no recommendations in this (2018 - 2019) report.

The DCISC concludes that the actions taken by PG&E relative to past DCISC recommendations have been satisfactory and have helped to maintain or improve safety and reliability.
The DCISC has welcomed and encouraged input from the public since its inception in 1990. As part of its Public Outreach Program, the Committee has established a number of channels of communication opportunities in an effort to foster public outreach. These are mainly in the form of three public meetings each year in the local community, along with three plant tours that are open to the public. Notice of these public meetings is published in local newspapers and on the DCISC website and is sent to persons on the DCISC’s Service Mailing List (see Volume II, Exhibit B-13), maintained in accordance with California Government Code §14911, and a notice was sent to all such persons and entities during this Annual Report period of the opportunity to receive notice of DCISC public meetings by email. The Committee’s public meetings are webcast in real time, available for subsequent viewing on the web through archived, streaming video, linked to each meeting agenda, and cablecast for subsequent broadcasts on the local government access channel, Channel 21. The Committee maintains a toll-free telephone line. The DCISC also issues public notices, press releases and advertisements. Input from the public has been received from many of these channels as described in this section of the report.

8.1 Telephone Calls and E-mails Received by the DCISC
8.2 DCISC Internet–Worldwide Web Page Activity
8.3 Comments Received at DCISC public meetings
8.4 DCISC Public Tours of DCPP
8.5 DCISC Evaluation

8.0 Public Input and Outreach

The DCISC has welcomed and encouraged input from the public since its inception in 1990. As part of its Public Outreach Program, the Committee has established a number of channels of communication opportunities in an effort to foster public outreach. These are mainly in the form of three public meetings each year in the local community, along with plant tours that are open to the public. Notice of these public meetings is published in local newspapers and on the DCISC website and is sent to persons on the DCISC's Service Mailing List (see Volume II, Exhibit B-13), maintained in accordance with California Government Code §14911, and a notice was sent to all such persons and entities during this Annual Report period of the opportunity to receive notice of DCISC public meetings by email. The Committee's public meetings are webcast in real time, available for subsequent
viewing on the web through archived, streaming video, linked to each meeting agenda, and cablecast for subsequent broadcasts on the local government access channel, Channel 21. The Committee maintains a toll-free telephone line. The DCISC also issues public notices, press releases and advertisements. Input from the public has been received from many of these channels as described in this section of the report.

8.1 Telephone Calls and E-mails Received by the DCISC

Telephone calls, e-mails, letters and other correspondence have been received by the DCISC Legal Counsel's office with questions, concerns, information and requests for information. During this reporting period, 31 calls and 40 e-mails or letters were received from individuals. The breakdown of these calls and e-mails is as follows:

<table>
<thead>
<tr>
<th>Number of Calls</th>
<th>Number of E-mails</th>
<th>Reason for Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>19</td>
<td>DCPP issues or nuclear information requests</td>
</tr>
<tr>
<td>29</td>
<td>21</td>
<td>Other (administrative, document requests, tour requests and miscellaneous)</td>
</tr>
</tbody>
</table>

When requested, answers, responses or documents were provided either during the exchange, a return call, or by email or documents from the Committee records. The DCISC Telephone/ Correspondence Log which provides a memorandum of contacts initiated by members of the public, citizen or public interest groups, the media or similar organizations is included as Exhibit G.1 and correspondence is included with Exhibit G.2.

The Committee maintains a California toll-free telephone number (800-439-4688), an E-mail address (dcsafety@dcisc.org) and a site on the worldwide web at www.dcisc.org for receiving questions, concerns or information to and from the public. The DCISC has developed an information pamphlet and an informational video describing the Committee and its function (see Volume II, Exhibit I). The pamphlet is provided to attendees at DCISC public meetings and plant tours and the informational video is used in connection with the public tours and on the Committee's website.

8.2 DCISC Internet - Worldwide Web Page Activity

The DCISC maintains a frequently updated web page on the worldwide web. Since the DCISC established its web page and presence on the internet in 1999 the Committee's goal has been to provide a convenient and accessible forum for interested members of the public to learn about the Committee, its history, background and role in safety oversight at DCPP; its current members and consultants; Volumes I and II of the Committee's latest Annual Report; previous
annual reports; the current schedule of future DCISC public meetings and public
tours, along with an interactive map to the PG&E Energy Education Center; and
the legal notice and agenda packet for the Committee's next public meeting, which
is posted on the website prior to the meeting. Changing the file names from
"html" to "php" has made it possible to quickly make changes to both the site
navigation and standard features such as the wording for the public tours and the
interactive maps.

The web page also provides visitors with an opportunity to download or print
pages from the DCISC web site and offers a convenient email link to permit
interested persons to communicate directly with the Committee and to receive an
expedited response to questions and concerns. When the Annual Report is
finalized, the entire report is published on the website and is also published and
distributed to local public libraries and interested persons on compact disk. The
website also includes a link to the Committee's Recommendations made in its
Annual Reports to PG&E from the 2000/2001 to the 2015/2016 annual report
periods.

The links on the DCISC's site on the worldwide web have been further developed
with information on CPUC Decision to retire DCPP at the end of its current
operating licenses from the NRC; the NRC staff assessment of DCISC's Post
Fukushima Seismic Hazard Reevaluation and the April 21, 2017 Decision of the
NRC's Director of Nuclear Reactor Regulation on DCPP operational safety and safe
shut down due to earthquake; the DCISC's review of the tsunami hazard and risk
at DCPP and its environs and Dr. Sewell's response of April 4, 2017 to questions
on the tsunami risk; and the DCISC's September 5, 2013 and October 17, 2014
evaluations of the Bechtel Final Assessment and Bechtel Addendum of Alternative
Cooling Technologies or Modifications to the Existing Once-Through Cooling
System for the Diablo Canyon Power Plant prepared for the State Water Resources
Control Board. The website continues to provide access to videos concerning the
replacement of Diablo Canyon's steam generators and spent fuel storage project in
a convenient and accessible forum for interested members of the public.

The Committee continues to post the agendas and now the agenda packet for all
its public meetings on the website, as well as general information about the
Committee, its members and consultants. A list of useful links is included to topics
of interest to the general public, to PG&E's website for information concerning
Diablo Canyon Power Plant, to the NRC and to the International Atomic Energy
Agency for agency and industry-related information and to an indexed webcast of
streaming video of its past public meetings through electronic archives and to the
public meetings in real time when they are in session.

The website also provides access to a convenient glossary of nuclear power terms
and a list of acronyms in common use in the industry. Both Volumes of this
Annual Report are available on the website in fully linked php-text format, as is an
animated depiction of the operation of a pressurized water nuclear reactor such as
those in operation at Diablo Canyon.
During the DCISC's October 24-25, 2018 public meeting, the live-streaming video of the meetings was accessed by visitors 42 times. The live streaming video feed of the DCISC's February 27-28, 2019 public meeting was similarly accessed 129 times. During the DCISC's public meeting on June 13-14, 2018, visitors accessed the live stream video approximately 24 times. These data represent the total number of times "live visitors" entered the site including those visitors who may have come and gone from the site more than once (i.e. "total page views").

The most meaningful statistics provided for July 1, 2018 through June 30, 2019 were the actual visits, that is, the "unique visitor" numbers, regardless of how many pages that visitor actually viewed on the DCISC's website during the period of this report included the following:

<table>
<thead>
<tr>
<th>Month</th>
<th>Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2018</td>
<td>899</td>
</tr>
<tr>
<td>August 2018</td>
<td>928</td>
</tr>
<tr>
<td>September 2018</td>
<td>770</td>
</tr>
<tr>
<td>October 2018</td>
<td>824</td>
</tr>
<tr>
<td>November 2018</td>
<td>703</td>
</tr>
<tr>
<td>December 2018</td>
<td>584</td>
</tr>
<tr>
<td>January 2019</td>
<td>666</td>
</tr>
<tr>
<td>February 2019</td>
<td>756</td>
</tr>
<tr>
<td>March 2019</td>
<td>816</td>
</tr>
<tr>
<td>April 2019</td>
<td>642</td>
</tr>
<tr>
<td>May 2019</td>
<td>755</td>
</tr>
<tr>
<td>June 2019</td>
<td>770</td>
</tr>
</tbody>
</table>

Top ten countries from which visitors accessed the site as of June 2020 were: United States, Saudi Arabia, Germany, the Russian Federation, Great Britain, Canada, Indonesia, Ukraine, France, and South Korea.

Among the most common "key words" typed into internet search engines for June 2020, such as Google Chrome, MS Internet Explorer, Firefox, Safari, Mozilla, Opera and Edge and others were: "regulating", "mail", "dcisc", "shops", "pressure", "air" and "machine".

The top ten downloads were:

- /26th-pdf.pdf
- /25th-pdf.pdf
- 21st-pdf.pdf
- /24th-pdf.pdf
- /27th-pdf.pdf
8.3 Comments Received at DCISC Public Meetings

During this period (July 1, 2018 - June 30, 2019), the Diablo Canyon Independent Safety Committee (DCISC) held three public meetings in the vicinity of Diablo Canyon Power Plant (DCPP). The two-day public meetings included numerous informational, programmatic and plant status presentations by PG&E and by Committee Consultants and questions and comments from the public. The Committee held an evening session on the first of the two days of the public meetings in February and June 2019. An evening session was not held in conjunction with the October 2018 in order that the Committee Members and Technical Consultants might attend a regularly scheduled meeting of the Diablo Canyon Decommissioning Engagement Panel held that evening in San Luis Obispo.

All public meetings are webcast in real time and cablecast afterwards on the local public access television station and by indexed webcast and all meetings are videotaped.

The DCISC encourages members of the public to attend and speak at its public meetings. Times are set aside throughout the meetings for public questions and comments. During the reporting period July 1, 2018 - June 30, 2019 nineteen different individuals spoke a total of seventy-six times. Seven individuals appeared and spoke at the October 24-25, 2018, meeting; twelve individuals appeared and spoke at the February 27-28, 2019, meeting; and six individuals appeared and spoke at the June 4-5, 2019 meeting. Five persons addressed the Committee during more than one of its public meetings.

The comments and questions, together with the Committee's and PG&E's responses, are contained in the public meeting minutes included in Volume II, Exhibits B.3, B.6, and B.9.
8.4 DCISC Public Tours of DCPP

The DCISC usually holds public tours in conjunction with its three public meetings each year in the San Luis Obispo local area. As part of the DCISC outreach program, each tour now provides an opportunity for interested persons to see the plant as interact with DCISC Members and Consultants. The tours conducted in October 2018 and June 2019 are described below. No tour was conducted in conjunction with the February 2019 public meeting.

8.4.1 October 24, 2018 Public Tour

On the morning of Wednesday, October 24, 2018, Diablo Canyon Independent Safety Committee (DCISC) Members Drs. Lam and Peterson, together with Committee Technical Consultant Mr. Wardell, accompanied by 14 members of the public, participated in a tour of Diablo Canyon Power Plant (DCPP). The members of the public responded to the advertisement concerning the public tour placed in a local area newspaper and on the DCISC’s website. The group assembled in the Pacific Gas & Electric Company’s (PG&E) Energy Education Center auditorium for a brief introduction of the DCISC and its Members and Technical Consultants and a discussion of the appointment of its members and the role and operations of the Committee and to view an informational video on the history, role and responsibilities of the Committee. Afterward, DCPP tour guide Ms. Diana Turk gave a safety and informational presentation with an overview of the power plant and how it operates. An opportunity was provided for questions.

The group then boarded a bus for the ride to the plant. During the drive information was presented on the history of the plant. The bus entered the plant site through the Avila Gate and the group received security badges and a briefing from PG&E representatives on PG&E’s land stewardship responsibilities and the various external features and buildings and was taken on a narrated drive-by of the Independent Spent Fuel Storage Installation (ISFSI), also known as the dry cask spent fuel storage facility.

The bus then arrived at the parking area. The members of the public and the DCISC Members and Technical Consultants visited the Glass-top Simulator Facility where PG&E representative Mr. Roger Reed provided a description and an opportunity to observe computer-based simulations run on the Simulator to train control room operators. The group then had the opportunity to view the Intake and Outfall Facilities where the plant pulls in and discharges cooling water from and to the Pacific Ocean.

The group then departed DCPP for return to the Energy Education Center and had the opportunity to discuss the plant with Drs. Lam and Peterson and Mr. Wardell. While the tour was taking place DCISC Member Dr. Robert J. Budnitz and Committee Technical Consultant Mr. McWhorter were on site for one hour to observe the evaluated emergency response exercise which was then taking place and later visited the Emergency Operations Facility on Los Osos Road to continue...
their observation of the emergency response exercise.

8.4.3 June 5, 2019 Public Tour

On the morning of Wednesday, June 5, 2019, DCISC Members Drs. Budnitz and Lam, together with Committee Technical Consultants Mr. McWhorter and Mr. Wardell and Assistant Legal Counsel Mr. Rathie, accompanied by 21 members of the public, participated in a tour of Diablo Canyon Power Plant (DCPP). The members of the public responded to the advertisement concerning the public tour placed in a local area newspaper and on the DCISC's website. The group assembled in the PG&E Energy Center auditorium for a safety message and a brief introduction of the DCISC and its Members and Technical Consultants and a discussion of the appointment of its members and the operations of the Committee and to view an informational video on the history, role and responsibilities of the Committee. Afterward, DCPP Marketing & Communications Representative Mr. Diana Turk, who also served as the group's escort during the tour, gave informational presentations about the plant and the operation of DCPP as a nuclear power plant. An opportunity was provided for questions.

The group then boarded a bus for the ride to the plant. During the drive information was presented on the history of the plant. The bus entered the plant site through the Avila Gate and the group received security badges and a briefing from PG&E representatives on the various external features and buildings and was taken on a narrated drive-by of the Independent Spent Fuel Storage Installation (ISFSI), also known as the dry cask spent fuel storage facility.

The bus then arrived at the parking area. The members of the public and the DCISC Members, Consultants and Counsel visited the Simulator Observation Room and observed an Emergency Response Exercise which was in progress during the visit. The group then had the opportunity to view the Intake and Outfall Facilities where the plant pulls in and discharges cooling water from and to the Pacific Ocean and to receive information from Mr. Bryan Cunningham, the System Engineer for the plant's cooling systems.

The group then departed DCPP for return to the Energy Education Center and had the opportunity to discuss the plant with individual DCISC members and consultants.

8.5 DCISC Evaluation

The DCISC has been relatively successful to date in implementing its Public Outreach Program as demonstrated by the descriptions above. The two public tours of DCPP during this report period were moderately subscribed. During this report period the DCISC conducted an Open House in the community which, while questions were posed and the discussion was lively, was sparsely attended. The DCISC continued to discuss its outreach programs during this report period and reached a decision to continue its tours of the power plant with members of the
public in conjunction with only certain of its public meetings during the next year.

The website and e-mail channels of communication are used with the frequency as indicated above. The public meetings during this period were attended or accessed by teleconference by between three to eight persons who both attended and also addressed remarks or questions to the Committee during those meetings. Attending one or more public meetings during this annual report period were a representative of Congressman Salud Carbajal's office and of the California Energy Commission, and several representatives of the Diablo Canyon Decommissioning Engagement Panel, Californians for Green Nuclear Power, a group promoting the use of nuclear power in California, as well as representatives of the San Luis Obispo Mothers for Peace and the Alliance for Nuclear Responsibility, non-profit organizations concerned with the local and nationwide dangers involving DCPP and with the dangers of nuclear power, weapons and radioactive waste on national and global levels. The Committee Members recognize the important mandate of the California Public Utilities Commission that the Committee conduct public outreach in the local San Luis Obispo area and will continue to explore and develop opportunities for interaction between the Diablo Canyon Independent Safety Committee and the public.
1.0 PG&E/DCPP Organization

The DCPP organization chart is included as an attachment.

2.0 Summary of Diablo Canyon Operations

2.0.1 Capacity Factor

During the assessment period of July 1, 2018, through June 30, 2019, Diablo Canyon's Combined "Capacity Factor" averaged 93.6% (Net Maximum Dependable Capacity). Capacity factor is the ratio of actual generation output during an operating period to its potential generation output during that period when operating continuously at Maximum Dependable Capacity.

Unit 1 Operating Event Summary

During the 12-month reporting period ending June 30, 2019, Unit 1's Capacity Factor was 88.8% (Net Maximum Dependable Capacity). This period included a 36.4-day refueling outage. The table below provides descriptions of operating events that impacted Unit 1 generation.

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Reduced to Power Level</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/28/18 - 11/30/18</td>
<td>Curtailment</td>
<td>55%</td>
<td>Storm seas and main condenser waterbox pick &amp; dredge cleaning</td>
</tr>
<tr>
<td>11/30/18 - 12/06/18</td>
<td>Curtailment</td>
<td>55%</td>
<td>Investigate and repair Main Feedwater Pump 1-1 vibration</td>
</tr>
<tr>
<td>02/04/19 - 02/09/19</td>
<td>Pre-Refueling</td>
<td>Off-line</td>
<td>Pre-1R21 Refueling Outage coast-down and shut-down</td>
</tr>
<tr>
<td>02/10/19</td>
<td>Refueling</td>
<td>Off-line</td>
<td>1R21 Refueling Outage 36.4 days</td>
</tr>
</tbody>
</table>
Unit 2 Operating Event Summary

During the 12-month reporting period ending June 30, 2019, Unit 2's Capacity Factor was 98.5% (Net Maximum Dependable Capacity). No refueling outage occurred during this period. The table below provides descriptions of operating events that impacted Unit 2 generation.

Unit 2 Power Generation-Impacting Events July 2018 - June 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Reduced to Power Level</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/15/18 - 09/16/18</td>
<td>Curtailment</td>
<td>50%</td>
<td>Main condenser waterbox pick &amp; dredge cleaning</td>
</tr>
<tr>
<td>12/01/18 - 12/04/18</td>
<td>Automatic Trip and Forced Outage</td>
<td>Off-line</td>
<td>Off-site grid protection system operational problem (not associated with Diablo Canyon Unit 2 operation)</td>
</tr>
<tr>
<td>12/15/18 - 12/16/18</td>
<td>Curtailment</td>
<td>98%</td>
<td>Repair Feedwater Heater 2-1B steam leak</td>
</tr>
<tr>
<td>12/18/18 - 12/20/18</td>
<td>Curtailment</td>
<td>47%</td>
<td>Storm seas and main condenser waterbox pick &amp; dredge cleaning</td>
</tr>
<tr>
<td>04/01/19 - 04/06/19</td>
<td>Curtailment</td>
<td>50%</td>
<td>Ocean cooling water system tunnel cleaning</td>
</tr>
</tbody>
</table>

2.0.2 Refueling Outages

The Unit 1 twenty-first refueling outage (1R21) included the following work efforts:

- Integrated Leak Rate Test
- Residual Heat Removal Weld Overlay
- Emergency Core Cooling System Interlock Modification
Reactor Coolant Pump (RCP) 1-1 Motor Overhaul
RCP 1-2 Seal Replacement
Reactor Coolant Pump Vibration Monitoring Upgrade
480V Switchgear Ventilation Seismic Gap Modification
480 V Vital Bus G Breaker Replacements
Feedwater Pump 1-2 Turbine Overhaul and 1-1 Bearing Replacement
Service Cooling Water Inlet Piping Lining
Turbine Building Deluge System Upgrade
Intake Travelling Screen Overhauls
235 Equipment Reliability Classification (ERC) 1 Periodic Maintenance (PM) Jobs and 305 ERC 2A/B PMs
Control rod guide tube swaps

1R21 began February 10, 2019 and completed on March 18, 2019. Outage goals and results were as follows:

<table>
<thead>
<tr>
<th>Performance Category</th>
<th>Goal</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recordable &amp; Disabling Injuries</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Nuclear Safety Events</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Human Performance Event Clock Resets</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Outage Duration (days)</td>
<td>≤40</td>
<td>36.4</td>
</tr>
<tr>
<td>Radiation Dose (Rem)</td>
<td>≤27</td>
<td>30.2</td>
</tr>
<tr>
<td>Significant Foreign Material Events (FME)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

2.0.3 Collective Radiation Exposures

The bulk of personnel radiation exposure occurs during refueling outages. For this reason, the total annual exposure is largely dependent upon the outage planning effectiveness, radiation levels, outage duration, number of outages conducted in the year and emergent maintenance activities.

Collective Radiation Exposure (CRE) for Refueling Outage 1R21 was 30.2 person-rem; achieving the lowest overall historical dose total for a unit 1 outage. DCPP attributes this excellent station dose performance to source term reduction, dose ownership, use of technology and improved outage awareness and planning. On-Line exposure typically amounts to about six person-Rem per year. Unit 1 and 2 collective radiation exposure performances are meeting industry goals. Both units are receiving full industry points for CRE.

2.0.4 Unplanned Reactor Trips

PG&E's goal is to have zero unplanned automatic reactor trips per unit per year while critical. Unnecessary reactor trips not only reduce plant capacity factor,
but they also represent unnecessary challenges to safety systems and may indicate substandard operating or maintenance practices. Manual trips are not counted because PG&E believes that this may inhibit operator-initiated trips and actions to protect equipment.

On December 1, 2018, Unit 2 experienced an automatic reactor trip (and turbine trip) as a result of a problem with the operation of a system protection scheme on the 500kV lines. This automatic shut-down was not associated with any operational problems with either unit at Diablo Canyon.

2.0.5 Unplanned Safety System Actuations

This indicator is the sum of the number of unplanned Emergency Core Cooling System (ECCS) actuations (whether the ECCS actuation set point has been reached or from a spurious or inadvertent ECCS signal) and the number of unplanned emergency AC power system actuations that result from the loss of power to a safeguards bus. For Diablo Canyon, ECCS actuations include actuations of the high-pressure injection system, the low-pressure injection system, or the accumulators. Such actuations should be avoided because the plant should be maintained in a safe configuration to preclude actuations, and unnecessary challenges to plant safety systems should be minimized. PG&E's goal for this indicator continues to be no unplanned ECCS actuations at DCPP.

No actuations occurred during the reporting period.

2.0.6 Chemistry Effectiveness Indicator (CEI)

DCPP has adopted the industry Chemistry Effectiveness Indicator (CEI) to measure overall station chemistry effectiveness. CEI is a metric that assesses the chemical and contaminant control practices for Primary and Secondary systems.

The CEI can range from 0 to 100 with a lower value demonstrating better chemistry control. CEI > 5 will impact the station's Industry Performance Indicator Index. CEI is an 18-month rolling indicator and is updated monthly.

The 18-month composite CEI for Unit 1 and Unit 2 was 0.00.

2.0.7 Fuel Reliability

The purpose of the fuel reliability indicator is to monitor progress in achieving and maintaining high fuel integrity. Failed fuel represents a breach in the initial barrier for preventing offsite release of fission products. Such failure also has a detrimental effect on operations and increases the radiological hazards to plant workers.

Based on measurement of both steady-state reactor coolant activity and transient iodine spiking, PG&E determined that both Units 1 and 2 operated without any
failed fuel rods during the 12-month reporting period. Unit 1 has operated without any failed fuel rods since the beginning of Cycle 5. The Unit 2 radiochemistry data indicates that Unit 2 has been operating without fuel defects since starting up Cycle 17 (June 2011).

PG&E continues to follow its fuel reliability programs, including the aggressive preventive maintenance inspection of new and irradiated fuel, continued implementation of procedural guidelines to prevent fuel damage during both power and refueling operations, implementation of chemistry controls, fuel assembly reconstitution for identified rod failures, tracking and disposition of damaged fuel assemblies and strict controls to exclude foreign material from the reactor coolant system.

2.0.8 Plant Organization
The DCISC tours the Diablo Canyon Power Plant during most fact-finding meetings to observe or inspect items it is reviewing. Also, the DCISC conducts plant tours with members of the public three times per year during its Public Meetings. For the two years following the terrorist events of September 11, 2001 no public tours were held. The DCISC resumed public tours at its June 2, 2004 public meeting. This exhibit includes a database of the areas of the plant DCISC and the public have toured.

Table 1–Ten-Year Record of DCISC Tours of DCPP (Through June 2019)

<table>
<thead>
<tr>
<th>Area No.</th>
<th>Location</th>
<th>System-Area</th>
<th>Tour No(s) (See Table 2) (Bold = Public Tour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB-1</td>
<td>TB—Buttress Area</td>
<td>Condensate Polishing System</td>
<td>*, 09-9, 17-3</td>
</tr>
<tr>
<td>TB-2</td>
<td>TB - El 73 NH/SH (U1&amp;2)</td>
<td>Condensate Pumps</td>
<td>*, 09-8, 17-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Condensate Cooler</td>
<td></td>
</tr>
<tr>
<td>TB-3</td>
<td>TB El 85 NH</td>
<td>Oily Water Separator Room</td>
<td></td>
</tr>
<tr>
<td>TB-4</td>
<td>TB—El 85 NH-SH (U1&amp;2 )</td>
<td>Condensate Booster Pumps</td>
<td>17-3</td>
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<td>Main Turbines, Generators &amp; Steam Leads &amp; Valves</td>
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<td>Gas Decay Tanks &amp; Comprsrs.</td>
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<td>Diesel Fuel Oil Storage Tank (buried)</td>
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<td>Outside, Radwaste Area</td>
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<td>500 kV Switch yard</td>
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<td>Fire Pumps, Piping &amp; Equipment</td>
<td>09-6</td>
</tr>
<tr>
<td>AB</td>
<td></td>
<td>Security System Components &amp; SAS</td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td></td>
<td>Seismic Gap Modifications</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Expansion Joint Failures</td>
<td></td>
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<tr>
<td></td>
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<td>Temporary Jumpers</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>Human Performance Lab</td>
<td>09-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simulation Lab</td>
<td>09-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radiation Monitoring System</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Outside Control Area, Firing Range,</td>
<td></td>
</tr>
<tr>
<td>Protected Control Area (including selected alarm stations, delay barriers, check points, vehicle barriers, gun ports, watch stations, and overall visible security features)</td>
<td>ISFSI Site</td>
<td>10-4, 10-6, 10-9, 12-3, 12-5, 12-8, 13-2, 13-6, 13-8, 14-3, 14-6, 14-8, 15-1, 15-3, 15-4, 15-8, 16-2, 16-5, 16-8, 17-5, 17-8, 18-6, 18-11, 19-4</td>
<td></td>
</tr>
<tr>
<td>Admin Bldg Tall Bookcase</td>
<td>12-7, 15-3, 15-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seismic Bracing</td>
<td>10-8, 12-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Room Ready Room</td>
<td>12-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tall Bookcase Seismic Bracing</td>
<td>10-8, 12-7, 17-1, 17-7, 18-10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Systems/areas marked with “∗” have also been visited on many tours due to their location along routes frequently traveled.

Legend:

- AB = Auxiliary Building
- FH = Fuel Handling Building
- TB = Turbine Building
- NH = North Half
- SH = South Half
- HX = Heat Exchanger
- El = Elevation
HVAC = Heating, Ventilation & Air Cond.
- U1&2 = Units 1 and 2 have separate facilities/equipment

Table 2–Ten-Year Chronological Record of Past DCISC DCPP Tours (Through June 2019)

<table>
<thead>
<tr>
<th>Tour No.</th>
<th>Date(s)</th>
<th>Participants</th>
<th>Locations-Components Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>09-7</td>
<td>2/11/09</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>09-8</td>
<td>3/3/09</td>
<td>RJB, JEB</td>
<td>SG Replacement, Turbine Building, EDG 1-2, MFW Pumps, CDN Pumps, Condensate Storage Tank, Outage Control Center</td>
</tr>
<tr>
<td>09-9</td>
<td>5/19/09</td>
<td>PFP, DCL, RFW</td>
<td>Turbine Building, EDG 1-3, Control Room, Intake Area, Discharge Cove, RCA Portal, SFPs 1 &amp; 2, Hot/Cold Machine Shops, Yard Area, Transformers</td>
</tr>
<tr>
<td>10-1</td>
<td>7/22/09</td>
<td>PFP, DCL, JEB</td>
<td>ISFSI, Admin. Building Protective Window Film</td>
</tr>
<tr>
<td>10-2</td>
<td>8/10/09</td>
<td>PL, WFC, RFW</td>
<td>Turbine Building (all levels), Emergency Diesel Gen. Room, Control Room, Alternate Shutdown Panel, Yard, Main Transformers, Ocean Intake &amp; Discharge</td>
</tr>
<tr>
<td>10-3</td>
<td>9/2/09</td>
<td>RJB, JEB</td>
<td>Control Room Simulator, Technical Support Ctr, Emergency Operations Ctr, Joint Information Ctr</td>
</tr>
<tr>
<td>10-4</td>
<td>12/9/09</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>10-5</td>
<td>12/16/09</td>
<td>PFP, RFW</td>
<td>Turbine Deck Units 1 &amp; 2, Control Room</td>
</tr>
<tr>
<td>10-6</td>
<td>2/10/10</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>10-7</td>
<td>3/16/10</td>
<td>RJB, RFW</td>
<td>Control Room Simulator, Turbine Building, Alternate Shutdown Control Panel, Emergency Diesel Generator Room, Plant Yard, Main Transformers, Main Steam Safety Valves</td>
</tr>
<tr>
<td>10-8</td>
<td>5/12/10</td>
<td>PFP, RFW</td>
<td>Units 1 &amp; 2 Spent Fuel Pools, SFP Pump, SFP Cleanup System, SFP Heat Exchanger, Training Building Tall Bookcase Seismic Bracing, Operations Ready Room Tall Bookcase Seismic</td>
</tr>
<tr>
<td>Date</td>
<td>Date</td>
<td>Public Tour</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
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<td>-----------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>10-9</td>
<td>6/2/10</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>11-1</td>
<td>7/6/10</td>
<td>PFP, DCL</td>
<td>Simulator, EOF, JIC</td>
</tr>
<tr>
<td>11-2</td>
<td>8/4/10</td>
<td>RJB, JEB</td>
<td>Main Lube Oil Room, CARDOX System</td>
</tr>
<tr>
<td>11-3</td>
<td>8/11/10</td>
<td>PFP, RFW</td>
<td>Simulator, EOF, JIC</td>
</tr>
<tr>
<td>11-4</td>
<td>11/17/10</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>11-5</td>
<td>2/15/11</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>11-6</td>
<td>4/19/11</td>
<td>PL, RFW</td>
<td>Unit 1 Vital Batteries and Racks, Battery Chargers, Switchgear, Vital Inverters and one train of Non-Vital Batteries and Chargers.</td>
</tr>
<tr>
<td>11-7</td>
<td>5/25/11</td>
<td>PFP, DCL</td>
<td>Auxiliary Building Control Panel, Control Room, Unit 2 Spent Fuel Pool, Containment, AB, TB</td>
</tr>
<tr>
<td>11-8</td>
<td>6/22/11</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>12-1</td>
<td>8/10/11</td>
<td>RJB, RFW</td>
<td>Observe Licensed Operator Training in Training Bldg.</td>
</tr>
<tr>
<td>12-2</td>
<td>11/16/11</td>
<td>PL, RFW</td>
<td>Turbine-Driven Auxiliary Feedwater Pumps</td>
</tr>
<tr>
<td>12-3</td>
<td>11/4/11</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>12-4</td>
<td>12/13/11</td>
<td>PFP, RFW</td>
<td>Compressed Air System Components</td>
</tr>
<tr>
<td>12-5</td>
<td>2/9/12</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>12-6</td>
<td>3/14/12</td>
<td>PL, RFW</td>
<td>Control Room Simulator, Emergency Operations Center, Joint Information Center</td>
</tr>
<tr>
<td>12-7</td>
<td>5/22/12</td>
<td>PFP, RFW</td>
<td>Control Room, Turbine Building All Levels, Yard, Cold Machine Shop, I&amp;C Shop. Outage Coord. Center</td>
</tr>
<tr>
<td>12-8</td>
<td>6/20/12</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>13-1</td>
<td>8/7/12</td>
<td>PFP, RFW</td>
<td>Emergency Auxiliary Saltwater Pump</td>
</tr>
<tr>
<td>13-2</td>
<td>10/10/12</td>
<td>Public Tour</td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>13-3</td>
<td>11/7/12</td>
<td>RJB, DCL</td>
<td>Control Room Simulator, Emergency Operations Center, Joint Information Center</td>
</tr>
<tr>
<td>13-4</td>
<td>12/5/12</td>
<td>PFP, RFW</td>
<td>Control Room Area, I&amp;C Lab, Admin.</td>
</tr>
<tr>
<td>Bldg.</td>
<td>Date</td>
<td>Location</td>
<td>Description</td>
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<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>13-5</td>
<td>1/16/13</td>
<td>PL, DCL</td>
<td>Control Room Simulator</td>
</tr>
<tr>
<td><strong>13-6</strong></td>
<td><strong>2/6/13</strong></td>
<td><strong>Public Tour</strong></td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>13-7</td>
<td>4/9/13</td>
<td>PFP, RFW</td>
<td>Mechanical Maintenance Shop</td>
</tr>
<tr>
<td><strong>13-8</strong></td>
<td><strong>6/5/13</strong></td>
<td><strong>Public Tour</strong></td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>14-1</td>
<td>9/10/13</td>
<td>PFP, RFW</td>
<td>Mechanical Maintenance Training Facility</td>
</tr>
<tr>
<td>14-2</td>
<td>9/12/13</td>
<td>PFP, RFW</td>
<td>Turbine/Generator Deck, Control Room, Condenser, Emergency Diesel Generators, Electrical Switchgear Room, Seismic Instrumentation and Detectors, Storage of B.5.b (Greater than design basis) emergency items, Main and Auxiliary Transformers</td>
</tr>
<tr>
<td><strong>14-3</strong></td>
<td><strong>10/9/13</strong></td>
<td><strong>Public Tour</strong></td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>14-4</td>
<td>11/20/13</td>
<td>RJB, DCL</td>
<td>Control Room, Turbine Building</td>
</tr>
<tr>
<td>14-5</td>
<td>12/11/13</td>
<td>PFP, RFW</td>
<td>Main Administration Building, Engineering Offices</td>
</tr>
<tr>
<td><strong>14-6</strong></td>
<td><strong>10/12/13</strong></td>
<td><strong>Public Tour</strong></td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>14-7</td>
<td>5/21/14</td>
<td>PFP, RFW</td>
<td>Simulator, Alternate Operations Support Center, Emergency Operations Center, Joint Media Center</td>
</tr>
<tr>
<td><strong>14-8</strong></td>
<td><strong>6/11/14</strong></td>
<td><strong>Public Tour</strong></td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td><strong>15-1</strong></td>
<td><strong>10/15/14</strong></td>
<td><strong>Public Tour</strong></td>
<td>Control Room Simulator, Security Building, Intake, Overlook, ISFSI</td>
</tr>
<tr>
<td>15-2</td>
<td>11/19/14</td>
<td>RJB, RFW</td>
<td>Liquid &amp; Gaseous Radioactive Waste Systems</td>
</tr>
<tr>
<td>15-3</td>
<td>12/2/14</td>
<td>PFP, DCL</td>
<td>Training Building 2nd Floor</td>
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<tr>
<td>15-3</td>
<td>12/3/14</td>
<td>PFP, DCL</td>
<td>Independent Spent Fuel Storage Facility (ISFSI)</td>
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<tr>
<td><strong>15-4</strong></td>
<td><strong>2/4/15</strong></td>
<td><strong>Public Tour</strong></td>
<td>Control Room Simulator, Main Turbine Deck, Control Room View, ISFSI</td>
</tr>
<tr>
<td>15-5</td>
<td>3/30/15</td>
<td>RJB, DCL</td>
<td>Unit 2 Spent Fuel Area</td>
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<tr>
<td>15-6</td>
<td>3/30/15</td>
<td>RJB, DCL</td>
<td>Outdoor Air Compressor Pads</td>
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<tr>
<td>15-7</td>
<td>5/29/15</td>
<td>PFP, DCL</td>
<td>Administrative Building 5th Floor</td>
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<tr>
<td><strong>15-8</strong></td>
<td><strong>6/17/15</strong></td>
<td><strong>Public Tour</strong></td>
<td>Control Room Simulator, Main Turbine Deck, Control Room View, ISFSI</td>
</tr>
<tr>
<td>ISFSI</td>
<td>Date</td>
<td>Description</td>
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<td>-----------------------------------------------------------------------------</td>
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<tr>
<td>16-1</td>
<td>6/10/15</td>
<td>RJB, RFW Simulator, Control Room</td>
<td></td>
</tr>
<tr>
<td>16-2</td>
<td>10/21/15</td>
<td>Public Tour Control Room Simulator, Main Turbine Deck, Control Room View, ISFSI, Intake</td>
<td></td>
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<tr>
<td>16-3</td>
<td>9/9/15</td>
<td>RJB, RFW Simulator, Emergency Operations Center, Joint Media Center</td>
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</tr>
<tr>
<td>16-4</td>
<td>12/8/15</td>
<td>PFP, RFW Glasstop Simulator</td>
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</tr>
<tr>
<td>16-5</td>
<td>2/3/16</td>
<td>Public Tour Control Room Simulator, Main Turbine Deck, Control Room View, ISFSI, Intake</td>
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<tr>
<td>16-6</td>
<td>3/9/16</td>
<td>PFP, RFW Units 1 &amp; 2 Residual Heat Removal Pumps</td>
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<td>16-7</td>
<td>5/17/16</td>
<td>RJB, RFW NFPA-805 Modifications</td>
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</tr>
<tr>
<td>16-8</td>
<td>6/21/16</td>
<td>Public Tour Control Room Simulator, Main Turbine Deck, Control Room View, ISFSI, Intake</td>
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</tr>
<tr>
<td>17-1</td>
<td>7/20/16</td>
<td>PFP, RFW DCPP Safety &amp; Health Expo</td>
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</tr>
<tr>
<td>17-2</td>
<td>11/2/16</td>
<td>RJB, RFW Simulator, Emergency Operations Center, Joint Media Center</td>
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</tr>
<tr>
<td>17-3</td>
<td>12/7/16</td>
<td>PFP, RDM Turbine Building General Tour</td>
<td></td>
</tr>
<tr>
<td>17-4</td>
<td>1/18/17</td>
<td>RJB, RFW Emergency Diesel Generator 2-3</td>
<td></td>
</tr>
<tr>
<td>17-5</td>
<td>2/8/17</td>
<td>Public Tour Control Room Simulator, ISFSI, Intake, Outfall</td>
<td></td>
</tr>
<tr>
<td>17-6</td>
<td>3/22/17</td>
<td>RJB, RFW Heater Drain Pumps, Main Feedwater Pumps, Main Turbine Oil Separators, Condenser, Yellowbird Tower</td>
<td></td>
</tr>
<tr>
<td>17-7</td>
<td>5/10/17</td>
<td>PFP, RFW 1. Unit 1 CCW pumps, heat exchangers, instrumentation, and piping and valves</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Turbine deck and lower floors with work on the High Pressure Turbine Rotor, Low Pressure Turbine Rotor, and selected turbine stop and control valves. Intake Structure with work on Traveling Screens and Circulating Water Pumps</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Containment during Outage 1R20</td>
<td></td>
</tr>
<tr>
<td>17-8</td>
<td>6/6/17</td>
<td>Public Tour Control Room Simulator, ISFSI, Intake, Outfall</td>
<td></td>
</tr>
<tr>
<td>18-1</td>
<td>7/25/17</td>
<td>PFP, RFW Unit 1 DC Power System</td>
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</tr>
<tr>
<td>18-2</td>
<td>8/9/17</td>
<td>PL, RFW Reactor Coolant System Chemical Sampling System</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date</td>
<td>Team</td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>------------</td>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>18-3</td>
<td>9/6/17</td>
<td>RJB, RDM</td>
<td>Auxiliary Saltwater System, Intake Structure</td>
</tr>
<tr>
<td>18-3</td>
<td>11/14/17</td>
<td>RJB, RFW</td>
<td>Auxiliary Feedwater System - Unit 1</td>
</tr>
<tr>
<td>18-4</td>
<td>12/13/17</td>
<td>PFP, RDM</td>
<td>Emergency Diesel Generator (EDG) Room 2-2</td>
</tr>
<tr>
<td>18-5</td>
<td>1/17/18</td>
<td>PL, RFW</td>
<td>Operator Rounds in EDG Rooms</td>
</tr>
<tr>
<td>18-6</td>
<td>2/7/18</td>
<td>Public Tour</td>
<td>Mechanical Maintenance Facility, ISFSI, Intake, Outfall</td>
</tr>
<tr>
<td>18-7</td>
<td>3/7/18</td>
<td>RJB, RDM</td>
<td>Non-Containment Outage Tour</td>
</tr>
<tr>
<td>18-8</td>
<td>3/7/18</td>
<td>RJB, RDM</td>
<td>Containment Outage Tour</td>
</tr>
<tr>
<td>18-9</td>
<td>4/17/18</td>
<td>PL, RFW</td>
<td>4kV Electrical System, Unit 2</td>
</tr>
<tr>
<td>18-10</td>
<td>5/2/18</td>
<td>PFP, RDM</td>
<td>Administration Building, I&amp;C Shop</td>
</tr>
<tr>
<td>18-11</td>
<td>6/3/18</td>
<td>Public Tour</td>
<td>Mechanical Maintenance Facility, ISFSI, Intake, Outfall</td>
</tr>
<tr>
<td>19-1</td>
<td>8/22/18</td>
<td>PL, RDM</td>
<td>Technical Training Classroom</td>
</tr>
<tr>
<td>19-2</td>
<td>9/5/18</td>
<td>RJB, RFW</td>
<td>Control Room Simulator</td>
</tr>
<tr>
<td>19-3</td>
<td>9/5/18</td>
<td>RJB, RFW</td>
<td>San Luis Obispo (SLO) County Office of Emergency Services</td>
</tr>
<tr>
<td>19-4</td>
<td>10/24/18</td>
<td>Public Tour</td>
<td>Control Room Simulator, ISFSI, Intake, Outfall</td>
</tr>
<tr>
<td>19-5</td>
<td>11/7/18</td>
<td>RJB, RDM</td>
<td>Turbine Deck and EDG Maintenance Work Areas, Seismically-designed Switchgear Room Walls</td>
</tr>
<tr>
<td>19-6</td>
<td>12/5/18</td>
<td>PFP, RFW</td>
<td>Unit 1 Spent Fuel Pool</td>
</tr>
<tr>
<td>19-7</td>
<td>1/23/19</td>
<td>RDM</td>
<td>EDG 1-2 Room</td>
</tr>
<tr>
<td>19-8</td>
<td>4/16/19</td>
<td>RDM</td>
<td>Control Room</td>
</tr>
<tr>
<td>19-9</td>
<td>5/8/19</td>
<td>PFP, RFW</td>
<td>Unit 1 Safety Injection Pumps, Radiation Control Area</td>
</tr>
</tbody>
</table>

* Systems/areas marked with “∗” have also been visited on many tours due to their location along routes frequently traveled.

Legend:

ADR = David Rossin
AFW = Auxiliary Feedwater
CCW = Component Cooling Water
CFCU = Containment Fan Cooler unit
CR = Control Room
CW = Circulating Water (condenser)
DCL = Dave Linnen
DFO = Diesel Fuel Oil
EDG = Emergency Diesel Generator
EGP = Gail dePlanque
EOF = Emergency Operations Facility
FDW = Feedwater
HC = Hyla Cass
HHW = Herb Woodson
ISFSI = Independent Spent Fuel Storage Inst.
JEB = Jim Booker
JIC = Joint Information Center
OCC = Outage Coordination Center
PFP = Per Peterson
PL = Peter Lam
PRC = Phil Clark
RCA = Radiation Control Area
RFW = Ferman Wardell
RHR = Residual Heat Removal
RJB = Robert Budnitz
RTL = Bob Lancet
SFP = Spent Fuel Pool
SG = Steam Generator
SI = Safety Injection
SPDS = Safety Parameter Display System
TB = Turbine Building
TSC = Technical Support Center
WEK = Bill Kastenberg
WFC = Bill Conway
WHO = Warren Owen
The DCISC Open Items List is an on-going list of items the DCISC tracks for follow-up, monitoring, or action. The list is updated at each of the three regularly scheduled DCISC Public Meetings per year.

Open Item Types: M = Monitor F = follow-up I = Issue Items in *italics* are new or revised
FF = Fact-finding Meeting, PM = Public Meeting, Q = Quarter

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Type</th>
<th>Open Item Category/Description</th>
<th>Last Actions</th>
<th>Next Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td></td>
<td>Conduct of Operations (CO)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO-7</td>
<td>M</td>
<td>Review DCPP storm response experience and strategy every two years [or as necessary] during or after annual winter storm season.</td>
<td>4/15FF 5/17FF</td>
<td>As necessary</td>
</tr>
<tr>
<td>CO-8</td>
<td>M</td>
<td>Monitor all reactor trips - automatic and manual (review trip LERs at public meetings). [Reviewed Dec. 2, 2018 Unit Reactor 2 trip and root cause at 12/18FF, 1/19FF and 3/19FF - satisfactory.]</td>
<td>1/19FF 3/19FF</td>
<td>6/19PM Post-trip FFs &amp; PMs</td>
</tr>
<tr>
<td>CO-9</td>
<td>F</td>
<td>Reactivity Management - review every 18 months. [Reviewed Reactivity Management 5/16FF and 4/18FF - satisfactory.]</td>
<td>List at end of OIL 4/18FF</td>
<td>Regularly</td>
</tr>
<tr>
<td>CO-10</td>
<td>M</td>
<td>Mispositioning Errors (Equipment Status) - monitor the status of mispositioning errors and actions to resolve. [Reviewed at 11/15FF - satisfactory.] [Reviewed QV assessment of 2R20 outage. Some mispositioning issues. Follow up on resolution.]</td>
<td>11/15FF 4/18FF 7/18FF</td>
<td>3 or 4Q19FF</td>
</tr>
<tr>
<td>CO-11</td>
<td>M</td>
<td>Operator concerns and issues - review periodically the status of operator concerns and issues. [Reviewed Ops Human Performance &amp; Ops Excellence Plan 8/16FF - satisfactory.] [Reviewed Ops Dept. performance 12/17FF - sat.] The DCISC team concluded [2/18PM] plans are in place to address areas identified for improvement in the Operations Department and the DCISC should continue to review Operations Department performance on a regular basis. [Reviewed Operations Dept. performance in 12/18FF - satisfactory.]</td>
<td>8/16FF  12/17FF  12/18FF</td>
<td>4Q19FF</td>
</tr>
<tr>
<td>CO-13</td>
<td>M</td>
<td>Review any implementations of the CAISO load following policy that result in DCPP transients. Review any initiatives to operate DCPP in different modes, such as load following due to renewable energy fluctuations, during its final years of operation. Include 230kV voltage stability issues. Dr. Peterson observed there is potential that an increase in the risk of transmission problems or outages might affect the availability of alternate off site power sources for DCPP due to increasing incentives to curtail power output because of production or grid-related reasons. Mr. Peck and Dr. Peterson agreed this might be a suitable topic for a future DCISC fact-finding which should include representatives from the PG&amp;E</td>
<td>6/16PM  3/16FF  12/17FF  5/19FF</td>
<td>12/18 FF</td>
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<tr>
<td>Code</td>
<td>Description</td>
<td>Notes</td>
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<tr>
<td>CO-14</td>
<td>F</td>
<td>The DCISC team found the operator retention project to be effectively managed but the Committee should follow this issue closely with reference to licensed operators and well as the station in general. [Reviewed Operator License Class plans 1/19FF - satisfactory.]</td>
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<tr>
<td>CM</td>
<td>Conduct of Maintenance (CM)</td>
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<tr>
<td>CM-7</td>
<td>I</td>
<td>Review PG&amp;E's progress in complying with (1) the amendment to 10CFR50.55a, which provides the requirements for ISI of containment structures (degradation) and (2) ASME Code requirements for steel liner weld inspections.</td>
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<tr>
<td>CM-10</td>
<td>M</td>
<td>On-line Maintenance: review the implementation of on-line maintenance bi-annually, including the 12-week Rolling Maintenance Schedule about how well it is working &amp; impacting risk. Review trend of amount of on-line maintenance. DCPP Assessment of Maintenance Risk and On-Line Maintenance Risk Procedures have been substantially upgraded with the addition of an Integrated Risk Review Team [Reviewed on-line maintenance risk 4/16FF and 4/18FF - satisfactory.] See list at end of OIL Regularly</td>
<td></td>
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<tr>
<td>CM-13</td>
<td>M</td>
<td>Review Maintenance Department performance measures, staffing, etc. approximately annually.</td>
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<tr>
<td>EN</td>
<td>Engineering Program (EN)</td>
<td>See list at end of OIL</td>
<td>Regularly</td>
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</table>
| EN-16 | DCPP Systems - review a system (or structure or component), system health, long-term plan, Maintenance Rule performance & walkdown with System Engineer at FFs.  
[Note: Systems reviewed are listed with dates at the end of this Open Items List.]  
8/17FF 12/18FF 4Q19FF | | |
| EN-19 | Review every 12-18 months major Engineering Programs, including Configuration Management, Management, System Engineering (system health & long-term plans), Valve Testing, Margin Management, Staffing, etc.  
[Note: Programs reviewed are listed with dates at the end of this Open Items List.]  
See list at end of OIL | | |
| EN-20 | Each Member should review or observe Plant Health Committee meetings.  
[Note: next action changed to "Regularly" and noted in table at the end of the OIL.] Ferman or Rick will check to see what other meetings would be of interest to the DCSIC.  
{Are there other regular meetings the DCISC should attend?}  
See list at end of OIL | | |
| EN-31 | The fact-finding team received an overview of the Engineering Excellence plan and should follow up in the future with a more detailed review of selected elements of the plan.  
8/17FF 12/18FF 4Q19FF | | |
<p>| HP   | Human Performance: Human Errors and Improving Safety &amp; Efficiency of Plant Performance                                                                                                                                 | | |
| HP-1 | Review human performance &amp; human behavior items (including error reduction programs, HP PIs, aberrant behavior) | 3/15FF 8/16FF 9/18FF | 9/19FF |
| HP-25 | M | Further observations and improvements in the Management Observation Program should be reviewed by DCISC. [Reviewed 4/19FF - satisfactory.] |
| HS-6 | F | Follow DCPP progress in establishing/improving its safety culture (and its subset Safety Conscious Work Environment, including Safety Culture Monitoring Panel, and including Employee Concerns &amp; Differing Professional Opinion Programs). [Reviewed ECP 10/17FF - sat.] |
| PI-1 | | DCPP Performance Improvement Programs: Corrective Action, Self-Assessment, Operating Experience [and line use of OE], Benchmarking, etc. Programs reviewed are listed with dates at the end of the Open Items List.] [Observed See list at end of OIL At least once per year |</p>
<table>
<thead>
<tr>
<th></th>
<th>Emergency Preparedness (EP)</th>
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<tbody>
<tr>
<td><strong>EP-2</strong></td>
<td>M</td>
<td>Attend and observe DCPP emergency drills and exercises annually [including Hostile Action Based Exercises], paying special attention to JIC communications to the media and public, including radiation release communications to the public, use of social media, coordination of information release with SLO County, and extension of drills to better exercise FMTs &amp; JMC.</td>
<td>2/17PM</td>
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<tr>
<td><strong>EP-3</strong> (New)</td>
<td>M</td>
<td>Emergency preparedness during decommissioning. [Met with SLO OES 9/18FF - satisfactory but potential for reduced monies.]</td>
<td>10/18PM</td>
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<tr>
<td><strong>RA</strong></td>
<td>Risk Assessment and Management (RA)</td>
<td></td>
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<tr>
<td><strong>RA-6</strong></td>
<td>F</td>
<td>Monitor Seismic Fragility Analysis progress. [Reviewed at 9/17 FF - satisfactory.] [Review after next submittal to NRC.] Review Seismic PRA annually. [Reviewed Seismic PRA 8/16FF - satisfactory.] [Review DCPP seismic PRA</td>
<td>8/16FF 9/17FF</td>
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<tr>
<td>NS</td>
<td>Nuclear Safety Oversight and Review (NS)</td>
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<td>NS-5</td>
<td>M</td>
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<td></td>
<td>Monitor NSOC meetings periodically to observe their processes and their review of nuclear safety issues. [Reviewed at 11/17FF - satisfactory.] [2/19 NSOC conflicted with PM.]</td>
<td>11/15FF 3/17FF Next meeting</td>
<td></td>
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<tr>
<td>NS-9</td>
<td>M</td>
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<td></td>
<td>Monitor DCPP's program to track INPO Areas for Improvement. Review with DCPP Coordinator. [Reviewed results of Aug/Sep INPO evaluation - satisfactory.] [Review results of August 2019 INPO evaluation 3Q19FF]</td>
<td>11/18FF 5/19FF 3Q19FF</td>
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<tr>
<th>RP</th>
<th>Radiation Protection (RP)</th>
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<tr>
<td>RP-3</td>
<td>M</td>
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<tr>
<td></td>
<td>Regularly review outage RP performance. [Reviewed 1R21 outage performance - satisfactory.]</td>
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<tr>
<td>RP-12</td>
<td>M</td>
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<td></td>
<td>Review annual DCPP radioactivity release report each year. Review at Summer or Fall FFs. [Reviewed radiation release reports 7/18FF - satisfactory.]</td>
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<tr>
<th>QP</th>
<th>Quality Programs (QP)</th>
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<tbody>
<tr>
<td>QP-3</td>
<td>M</td>
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<tr>
<td></td>
<td>Review the activities, organization and results of QV audits as well as PG&amp;E's outside biennial audits, including timeliness of corrective actions. Review annually - include 4th quarter QPAR with yearly results.</td>
</tr>
<tr>
<td>QP-9</td>
<td>F</td>
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<td></td>
<td>Software QA Program - [Reviewed at March 2018 FF - satisfactory.]</td>
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<tr>
<th>NF</th>
<th>Nuclear Fuel Performance (NF)</th>
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<tbody>
<tr>
<td>NF-9</td>
<td>M</td>
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<tr>
<td></td>
<td>Nuclear Fuel Performance &amp; Issues (review after RFOs). [Reviewed at 11/16FF -</td>
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<tr>
<td>ER</td>
<td>Equipment Reliability and Life Cycle Management (ER)</td>
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<tr>
<td><strong>ER-5</strong></td>
<td>M</td>
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<tr>
<td><strong>ER-7</strong> (Moved from CM-14)</td>
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<tr>
<td>OE</td>
<td>Organizational Effectiveness &amp; Development (OE)</td>
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<td>OE-1</td>
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<th>SE</th>
<th>System and Equipment Performance/Problems (SE)</th>
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<tr>
<td>SE-26</td>
<td>M</td>
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<tr>
<td>SE-39</td>
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<td>SE-40</td>
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<td>SE-52</td>
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<td>SE-53</td>
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<td>SG</td>
<td>Steam Generator Performance (SG)</td>
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<td>SG-1</td>
<td>M</td>
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<tr>
<td>OM</td>
<td>Outage Management (OM)</td>
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<td>OM-3</td>
<td>M</td>
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<td>OM-4</td>
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<td>SEC-3</td>
<td>M</td>
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<tr>
<td>SEC-4</td>
<td>M</td>
</tr>
<tr>
<td>SF</td>
<td>Independent Spent Fuel Storage Installation–ISFSI (SF)</td>
</tr>
<tr>
<td>SF-1</td>
<td>Monitor ISFSI operations, including cask transfer. Review following next campaign. <strong>[Reviewed ISFSI 7/18FF - satisfactory.]</strong> <strong>[Reviewed future movement of spent fuel 4/19FF - satisfactory.]</strong></td>
</tr>
<tr>
<td>SF-2</td>
<td>M</td>
</tr>
</tbody>
</table>
needs for opening casks to inspect fuel. Monitor SONGS & Humboldt Bay spent fuel transfer plans. Include corrosion of metals [[Reviewed at 12/16FF - satisfactory.] [Reviewed inspections 12/17FF - satisfactory.]]

<table>
<thead>
<tr>
<th>SF-3</th>
<th>M</th>
<th>Review the seismic adequacy of ISFSI in its license extension. Use latest seismic analysis.</th>
<th>6/18PM</th>
<th>4Q19FF RJB</th>
</tr>
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<tbody>
<tr>
<td></td>
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<td>SF-3 M Review the seismic adequacy of ISFSI in its license extension. Use latest seismic analysis.</td>
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<tr>
<td>SC</td>
<td></td>
<td>Seismic, Tsunami and Other External Events</td>
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<td>SC-3 M Long-Term Seismic Program: review periodically. Review significant seismic events as they occur. Reviewed at 6/09 PM. [Reviewed 3/10 FF - progress satisfactory. Continue to monitor.] DCPP Seismic study reviewed 3/15 FF &amp; to be presented by DCPP at 6/15PM. Shoreline Fault - follow activities and events with the Shoreline Fault. <strong>LTSP reviewed at 3/19FF - satisfactory.</strong></td>
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<tr>
<td>SC-12</td>
<td>F</td>
<td>Workplace seismic safety - review annually. [Reviewed at 5/18FF - some problems - follow up on resolution and Control Room procedures &quot;crash cart&quot; stability. [Discrepancies in workplace seismic standards (e.g., unbraced furniture) were caused by inadequate knowledge transfer during Building Services personnel turnovers, although the plant had a written standard. **Reviewed 5/19FF - overall satisfactory - but two examples of unsecured tall cabinets. Notifications written.]</td>
<td>2/16PM 5/18FF 7/18FF 5/19FF</td>
<td>12/19FF PFP</td>
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<td>SC-12 F Workplace seismic safety - review annually. [Reviewed at 5/18FF - some problems - follow up on resolution and Control Room procedures &quot;crash cart&quot; stability. [Discrepancies in workplace seismic standards (e.g., unbraced furniture) were caused by inadequate knowledge transfer during Building Services personnel turnovers, although the plant had a written standard. <strong>Reviewed 5/19FF - overall satisfactory - but two examples of unsecured tall cabinets. Notifications written.</strong>]</td>
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<p>| FP   |   | Fire Protection (FP)                                                                     |       |          |
|      |   | FP Fire Protection (FP)                                                                  |       |          |
|---|---|---|
| FP-5 | M | 7/17FF 11/17FF 1/19FF 3/19FF 1Q20FF |
| LD | Learning &amp; Development Programs (LD) |
| LD-3 | M | Review non-license technical, operations &amp; accredited training programs at least annually. [Reviewed Maintenance Training Programs 12/14FF - satisfactory.] [None available 12/18FF. Try 2Q19FF.] |
| | | 12/14FF 12/14FF 2Q19FF |
| LD-6 | F | Observe operator license, re-qualification, classes periodically in FF meetings. Include Enhanced Simulator Training.] [Observed Ops TCOA training &amp; Eng. DC Power System] [Reviewed FLEX training 11/17FF - sat.] [Reviewed licensed operator training plans 1/19FF - satisfactory.] |
| | | 12/16FF 8/18 FF 1/19FF 3or4Q20 FF |
| NR | Nuclear Regulatory Commission Items (NR) |
| NR-3 | M | Monitor the Non-Cited Violation Tracking &amp; Trending Program annually at the Jan/Feb Public Meetings. |
| | | 3/year Each PM |
| NR-4 | F | Meet with NRC Resident Inspectors regularly. |
| | | Most FFs Regularly |
| BDB | Beyond Design Basis Events (e.g, Fukushima Event) |
| BDB-6 | F | DCPP FLEX Status - review |
| | | 7/17FF 2Q20FF |</p>
<table>
<thead>
<tr>
<th>DEC</th>
<th>Decommissioning</th>
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<td>DEC-1</td>
<td>F</td>
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<tr>
<th>O</th>
<th>Other Items (O)</th>
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<td></td>
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<td>8/17FF 1/18FF 11/18FF</td>
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<td>4Q19FF</td>
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<thead>
<tr>
<th>Public Meeting Items (PM) (Reference: Public Meeting Minutes Pages)</th>
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<tbody>
<tr>
<td>2/16 PM 10</td>
<td>Permanent corrective action installing [4kV] solid-state relays will be completed during refueling outages 1R21 2R21. The fact-finding team concluded reasonable progress has been made but the DCISC should continue to monitor station progress with regard to the potential open phase conditions, which could affect plant safety systems. [Reviewed at 5/16FF - satisfactory. Continue to monitor.]</td>
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<tr>
<td>2/16PM 5/16F</td>
<td>Post 1R21 &amp; 2R21 RFOs</td>
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| June 2018 PM 9                                                     | Dr. Peterson remarked that offering employees opportunities for professional development might result in an |
|                                                                  | 6/18PM 5/19FF                                                   |

| Close |
operator strengthening his or her position for a subsequent career and it would be worthwhile for the Committee to investigate in a fact-finding setting the program for rotating personnel to obtain experience elsewhere in the organization with the expectation that they could return and contribute to DCPP through the end of its licensed operation.  *[Reviewed 5/19FF - satisfactory. Close here & keep SC-12 open.]*

<table>
<thead>
<tr>
<th>Date</th>
<th>No</th>
<th>Item Description</th>
<th>Date</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Oct. 2018 PM 4</td>
<td>F</td>
<td>A formal plant [workplace seismic safety] program is now in place and Mr. Wardell reported this item will be reviewed during Dr. Peterson's May 2019 fact-finding.  <em>[Reviewed 5/19FF - overall satisfactory - two examples of unsecured tall cabinets found. Notifications written. Close.]</em></td>
<td>10/18PM 5/19FF</td>
<td>Close</td>
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<tr>
<td>7</td>
<td>F</td>
<td>In response to Consultant McWhorter's question, Mr. Jones reported tranche two has a second component involving retraining and Mr. Harbor reported documents regarding tranche two and enrollment therein will be made available to DCPP's workforce in July of 2019. Dr. Budnitz stated the DCISC will review the rollout of tranche two during the summer of 2019 and Mr. Jones and Dr. Budnitz agreed a presentation should be tentatively scheduled for the October 2019 DCISC public meeting.</td>
<td>10/18PM 3Q19FF 10/19PM</td>
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<tr>
<td>8</td>
<td>F</td>
<td>He [Mr. Jones] reported part of the preplanning efforts to meet the charge from the CPUC is the completion of a fuel study</td>
<td>10/18PM 4/19FF</td>
<td>Awaiting DCPP Report</td>
</tr>
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that is now in its second draft for review to determine how DCPP can move past the ten-year window to achieve a seven-year window. Dr. Budnitz reported the DCISC will wait and watch the report which comes out of that evaluation.

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<th>Mr. Wardell remarked the DCISC has not reviewed cyber security issues in context of digital controls and the fact-finding team recommended the Committee should do so early in 2019. Mr. Wardell reported a system review of digital controls has been initiated to ensure the digital control systems will operate reliably through 2025 and this review should be complete by the end of 2018 and the fact-finding team recommended the DCISC review the results of this review in the first or second quarter of 2019 and this is now an item on the DCISC’s Open Items List. [Reviewed 3/19FF - satisfactory. Close.]</th>
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<tr>
<td>10</td>
<td>F</td>
<td>10/18PM 3/19FF</td>
</tr>
<tr>
<td>12</td>
<td>F</td>
<td>Mr. Wardell reported there has been a reduction in the numbers of notifications written in the Corrective Action Program and the Corrective Action Review Board is assessing the reasons for this. Mr. Wardell recommended the DCISC follow up on the results of the Corrective Action Review Board's findings during a future fact-finding.</td>
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<td>10/18PM 4/19FF</td>
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<tr>
<td>13</td>
<td>F</td>
<td>There was discussion as to whether FLEX equipment should be considered nuclear</td>
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<td>10/18PM 3/19FF</td>
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safety-related as FLEX is provided in addition to and not as a part of the plant's design basis. The Quality Assurance Department and the Geosciences unit will review the issue and provide a recommendation to management and Mr. Wardell reported this is an issue on which the DCISC should follow up. [Reviewed 3/19FF - FLEX not safety-related. Close.]

| 15 | F | He [Budnitz] further stated his recommendation to the CPUC would be to clarify the Restated Charter to provide that the DCISC should continue in existence until all of the fuel is in storage at the ISFSI when the radiological risks will have diminished substantially. 

However, Dr. Peterson stated his belief that at this time there is no urgency to resolve the question and the Committee should engage in developing an analysis of what its role might be, how the Committee might change, and the various factors that should be considered in greater detail. He remarked that when all the fuel is transferred to the ISFSI, the scope of any DCISC review would be quite small compared to present and for this reason, more study should be undertaken before the question of clarifying the Restated Charter is raised with the DCISC's appointing officials or with the CPUC. Dr. Peterson stated he does not believe it to | 10/18PM 2/19PM 6/19PM |
be timely for the DCISC to make a recommendation to the CPUC concerning a potential post-shutdown role for the DCISC as it is his belief that more work remains to be done before the DCISC will be in a position to make a fully informed determination and a good decision. Dr. Peterson recommended the Committee continue to consider the matter for a period of at least one year before asking for a decision from the CPUC or its appointing officials.

As members serve three-year, staggered terms, he [Budnitz] commented the clarification should not be postponed until 2024-2025 when DCPP is scheduled to cease operations but should take place at least three to four years before, as the CPUC will likely require time to come to its decision. Dr. Budnitz stated that he believes there is agreement among all current Members on this schedule. In response to Dr. Budnitz' query as to whether Drs. Lam and Peterson shared Dr. Budnitz' opinion that the Committee's eventual request of the CPUC as to a post-shutdown role for the DCISC should be in the form of a recommendation, Dr. Peterson replied that he did not believe a recommendation should be made this year and more due diligence and systematic review should be undertaken and a summary prepared as to the scope of
topics that might merit the Committee's review and how the Committee might be restructured, supported, funded and conduct its future activities but Dr. Peterson stated he believed a communication in the form of a recommendation would then be appropriate.

Dr. Lam stated that while he supports seeking clarification, although he could be persuaded otherwise, he remains very hesitant to make a recommendation concerning the continuance of the DCISC beyond 2025. He observed that in making such a recommendation the Committee will already have answered in the affirmative whether it should continue to exist and Dr. Lam does not believe that is an issue the Committee Members should decide. He stated he did not support a proposal which might set forth a recommendation as to what shape or form the Committee might make a material contribution after 2025 and he continues to view such a proposal as self-serving although such a proposal might be appropriate as an appendix to a letter seeking clarification on the Restated Charter.

Dr. Budnitz commented that such a letter might include separate attachments setting forth the individual Member's views.

Dr. Peterson stated this
discussion highlighted a number of actions the DCISC should now take and document in its Open Items List to develop a strong foundation for making a credible recommendation to the CPUC including looking at an alternative budget and structure for its fact-findings and public meetings and he commented a recommendation may not be necessary in context of a report seeking a decision that emerges out of condensing the discussion

16    F  Dr. Budnitz commented that such a letter might include separate attachments setting forth the individual Member's views.

Dr. Peterson stated this discussion highlighted a number of actions the DCISC should now take and document in its Open Items List to develop a strong foundation for making a credible recommendation to the CPUC including looking at an alternative budget and structure for its fact-findings and public meetings and he commented a recommendation may not be necessary in context of a report seeking a decision that emerges out of condensing the discussion about a post-shutdown role for the DCISC.

Dr. Budnitz reiterated his belief that the Committee should make a recommendation that it
<table>
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<tr>
<th></th>
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<th>should continue in existence after the plant is shut down until the final transfer of fuel from the spent fuel pools to the ISFSI has taken place.</th>
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<tr>
<td>17</td>
<td>F</td>
<td>Dr. Budnitz stated he has provided the names of three or four such persons for consideration by the DCISC as a decommissioning consultant, including one engineer who served as a chief nuclear officer at a nuclear power plant during its decommissioning decade. Dr. Budnitz stated that PG&amp;E will be engaging such persons and there is a possibility that one or more members of the DCISC might be appointed in the future who may have similar decommissioning-related experience and backgrounds. Dr. Peterson remarked it was important the DCISC schedule fact-finding with the decommissioning experts engaged by PG&amp;E. [Discuss further at February 2019 PM.]</td>
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<td>18</td>
<td>F</td>
<td>Dr. Budnitz suggested the Technical Consultants identify discrete, informative options or phases concerning post-shutdown review by the DCISC including an initial view of the character of the risk, including the security risk, and the utility of a continuing role for the DCISC during each option or phase. Dr. Peterson agreed and directed that these options be posted on the DCISC website in advance of its next</td>
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meeting in February 2019 with notice provided that the Committee is seeking input from the public and PG&E. [Completed by Technical Consultants and sent to the Committee for discussion at the February 2019 PM.]

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<th>Date</th>
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<tr>
<td>Feb 2019</td>
<td>F</td>
<td>Mr. McWhorter reported the RCPs were in good health but an issue was identified with an area on the turning vane where other plants have experienced bolt cracking. The bolts used at DCPP have a larger diameter than those which have cracked but this issue will need to be investigated.</td>
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<td>2</td>
<td>F</td>
<td>Mr. McWhorter reported the greatest impediment to faster removal of the fuel could be a site-specific, seismically-related, substantial expenditure required to be undertaken prior to cessation of operations as this could have budget implications for the safety of operations and the DCISC needs to be vigilant as to any impact on the safety of operations. Dr. Lam stated that the issue of whether or not there is some margin in the ten-year requirement for cooling time dictated by the plant's technical specifications was a subject worthy of further inquiry during future fact-finding.</td>
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<td>3Q19FF</td>
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<td>3</td>
<td></td>
<td>At that time [2013-2014] the Committee was told by PG&amp;E that NRC regulation B.5.b requires four times the number of assemblies as the number of assemblies in final core offload to be within the spent fuel pool</td>
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<td>4</td>
<td>He [Mr. Wardell] reported the fact-finding team found the Engineering Excellence Plan to be satisfactory and Mr. Wardell recommended the DCISC continue to follow the Engineering Excellence Plan on an annual basis. [This item included in Item EN-31. Close here.]</td>
<td>2/19PM</td>
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<td>5</td>
<td>Dr. Budnitz remarked the DCISC will follow up in the future concerning the December 1, 2018 trip of Unit 2. [Reviewed 1/19FF - satisfactory. Close.]</td>
<td>2/19PM</td>
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<td>6</td>
<td>Dr. Peterson remarked this [December 1, 2018 Unit 2 reactor trip caused by unusual grid conditions] is a serious issue and the DCISC has previously highlighted grid reliability as an issue for review as changes in generation in California have a good</td>
<td>2/19PM</td>
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probability of changing grid reliability and while DCPP can survive trips, and grid conditions do not make the plant unsafe or unable to respond, events such that experienced on December 1, 2018 are not good and issues grid-related issues challenge the potential availability of offsite power. Mr. McWhorter observed that the plant performed as designed on December 1, 2018 and the operators performed as expected and this is not to be taken for granted and reflects positively on the station.

Mr. John Geesman representing the Alliance for Nuclear Responsibility inquired as to the ramifications of the change in the remedial action scheme away from a low amperage condition and whether the conditions experienced on December 1, 2018 are being investigated by the California Independent System Operator (CAISO), the Federal Energy Regulatory Commission (FERC), and the North American Electrical Reliability Corporation (NERC).

Drs. Budnitz and Peterson responded the DCISC would conduct a fact-finding with PG&E to review the root cause evaluation and to review with DCPP the questions posed by Mr. Geesman.

<p>|   | Dr. Peterson stated that Ms. Swanson’s question concerning inspection of cracks and welds | 2/19PM 4/19FF | Close |</p>
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<th>in the vessel is one that should be scheduled for a future fact-finding. [Reviewed 4/19FF - satisfactory. Close.]</th>
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<td>8</td>
<td>David Weisman of the Alliance for Nuclear Responsibility was recognized. In response to Mr. Weisman's inquiry concerning whether the DCPP Fire Station building was designed to nuclear codes, Mr. Baldwin stated he would follow up concerning Mr. Weisman's question concerning whether the building was built to nuclear codes. Mr. Baldwin reported because the Fire Station is used to house FLEX equipment he believed that there were additional requirements for the structure as to its seismic capabilities.</td>
<td>2/19PM</td>
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<td>9</td>
<td>Dr. Peterson remarked that at the appropriate time, the DCISC will schedule a meeting with Mr. Guzzardi [SLO County Emergency Services Manager] and request him to make a presentation to the Committee, possibly at the DCISC's June 4-5, 2019 public meeting.</td>
<td>2/19PM</td>
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<td>10</td>
<td>In response to Consultant Wardell's comment concerning the need to assess any effect changes in safety-related systems may have on cyber protection, Mr. Tyman stated he could not address specifics of that issue in a public forum but offered to discuss the matter further with the Committee in confidential fact-finding. [Reviewed at 3/19FF - satisfactory. Close.]</td>
<td>2/19PM</td>
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<tr>
<td>11</td>
<td>Dr. Peterson observed that</td>
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perhaps it might be beneficial to revisit the Performance Indicators in that historically unplanned scrams were dominated by internally initiated scenarios and the scrams initiated by external events do not provide any safety significant evidence that a plant is not safe and, in fact, those trips provide evidence that a plant is safe and responded as designed. He remarked that as the electric grid is stressed more frequently now than in the past, externally initiated scrams are likely to become more frequent. Dr. Budnitz observed that different lessons are learned from internally initiated scrams as compared with externally initiated scrams. Dr. Lam observed and Mr. Hamzehee agreed that in this effort it may be worthwhile to look for leading indicators to predict future performance.

12 Dr. Peterson remarked, while he is generally satisfied that DCPP's decisions have been consistent with safety, opportunities may be missed for additional investment that could enhance safety such as new methods for monitoring health of equipment and for the use of wireless technologies. He observed there is a set of substantially improved tools that is not being utilized at DCPP due to their relatively new technology. Mr. Guess replied that DCPP has recently adopted the use of new software to allow real-time
reports on radiation dose during an outage. Dr. Peterson suggested the DCISC should continue to review not just where there have been reductions in the scope of activities but also where new capacities are being realized to enhance safety and ensure there is continued investment in new technologies. [DCPP wireless IT cancelled. Close.]

| 13 | Dr. Peterson stated the DCISC definitely needs to advise the CPUC that the Restated Charter requires clarification as to any role for the DCISC after electricity generation ceases. | 2/19PM | 6/19PM |

DCPP Systems/Components Reviewed Periodically

- 4 kV - April 2018
- 230 kV - Dec 2017
- 500 kV - Dec 2017
- Aux Feedwater - Nov 2017
- Aux Saltwater - Sep 2017
- Aux Bldg Ventilation - Mar 2017
- Centrifugal Charging Pumps - Mar 2017
- Component Cooling Water - May 2017
- Compressed Air - Mar 2017FF
- Condensate - Apr 2016
- Containment Structure - Sep 2016
- Containment Spray - August 2016
- Control Room Simulator - Sep 2018
- Control Room Ventilation - April 2018
- Digital Systems - Sep 2018
- DC Power - Apr 2019
- EDG - Jan 2019
- High Pressure Injection (Safety Injection) - May 2019
Plant Protection System - Nov 2017
Process Protection System Digital Upgrade - Jun 2016
Radiation Monitoring - Jan 2018
Radwaste Processing - Aug 2017
Reactor Coolant - Aug 2018 [Review 4Q19]
RCS Process Control System - Nov 2016
Reactor Coolant Pumps - Nov 2018
Refueling Equipment - Dec 2018
RHR - Mar 2016
Safety Injection Pumps Nov 2018
Spent Fuel Pool - May 2018
Steam Generators - Nov 2014

DCPP Programs Reviewed Periodically

AOV - May 2018
Benchmarking - Nov 2018
Boric Acid Corrosion Control - Apr 2018 (review biennially)
Buried Piping & Tanks - Jan 2017
Chemistry - Aug 2018
Cranes - Aug 2016
Configuration Management - May 2019
Corrective Action - CARB Jan 2019
Door Life Cycle Management Plan - Mar 2014
Emergency Preparedness Exercises - Nov 2018
Employee Concerns Program - Oct. 2017
Equipment Environmental Qualification - Aug 2017

*Equipment Reliability* - Mar 2019
Excellence Plan - March 2018
Fire Protection (Non-NFPA-805) - Mar 2017
Fire Protection (NFPA-805) - Aug 2018
Flow Accelerated Corrosion - Apr 2019
FME - Apr 2019

*In-service Inspection Program* - Apr 2019
Integrated Risk Assessment Program - Jun 2015
Large Motors - Jan 2019
Long-Term Capital Planning Process - Dec 2016
Margin Management - Jan 2017
MIDAS - Aug 2018
Nuclear Fuel Program - Aug 2017
On-Line Maintenance - Apr 2018
Operating Experience - Aug 2018 (review biennially)
Operability Assessment Program - Mar 2017
Operational Decision Making - Apr 2015
PRA Programs (non-seismic) - Sep 2017
Performance Improvement - Apr 2019
Performance Review Quarterly Meeting - May 2015
Plant Health Committee - Apr 2019
Reactivity Management - April 2018
Safety-Security Interface - Jul 2016
Self-Assessment - Sep 2016
Single Point Vulnerabilities - Jan 2015
Seismic PRA - Sep 2017
Seismically Induced System Interactions - 5/17FF (review biennially)
Software QA -- March 2018
System Engineering - Mar 2015
Transformers, Large - May 2018
Trending Analysis - Jan 2014
Troubleshooting - Jan 2015
Tsunami Hazard Analysis - Sep 2017
Vibration Monitoring - Sep 2018 3Q19 - new RCP VM system issues
The following exhibits describe contacts by members of the public during the reporting period.

- **Exhibit G.1 DCISC Telephone/Correspondence Log**
- **Exhibit G.2 Documents Received by the DCISC [112 page PDF file]**
- **Exhibit G.3 Comments Received at Public Meetings**
2018 Nuclear Decommissioning Cost Triennial Proceeding

Related Documents
BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric Company in the 2018 Nuclear Decommissioning Cost Triennial Proceeding. (U39E.)

Application 18-12-008


Application 18-07-013

RULING OF ASSIGNED COMMISSIONER AMENDING SCOPING MEMO CONSOLIDATING PROCEEDINGS AND MODIFYING PROCEEDING SCHEDULE

This ruling amends the Scoping Memo issued on February 14, 2019 to include additional concerns raised by Mothers for Peace and Alex S. Karlin through public comment to the California Public Utilities Commission (the Commission). This ruling also consolidates proceedings Application (A.)18-12-008 and A.18-07-013 and modifies the schedule as set forth below.

1. Background

On February 2, 2019 Mothers for Peace sent an email to Governor Gavin Newsom copying Commissioner Michael Picker\(^1\) expressing safety concerns as to Unit 1 of the Diablo Canyon Nuclear Power Plant (DCPP). On February 20, 2019, Alex S. Karlin sent a letter to the Commission\(^2\) raising concerns as to function, costs, and useful life of the Diablo Canyon Independent Safety Committee (DCISC). This ruling amends the scope of the proceeding to include the issue of embrittlement raised by Mothers for Peace and

\(^1\) E-mail to President Michael Picker dated February 4, 2019 attached hereto as Attachment 1.

\(^2\) Letter from Alex S. Karlin dated February 20, 2019 attached hereto as Attachment 2.
the issue concerning the function and sunset of the DCISC raised by Alex S. Karlin in public comment. Pacific Gas & Electric Company (PG&E) is to provide supplemental testimony consistent with this ruling.

2. Supplemental Testimony

As stated above, the Commission has received public comment from Mothers for Peace (Attachment 1) and Alex S. Karlin (Attachment 2) raising concerns regarding safety and decommissioning for DCPP. The Commission has a responsibility to consider these concerns, and in order to do so we need additional information from PG&E. PG&E is directed to provide additional testimony responding to the public comment attached to this ruling, including responses to the questions set forth below no later than March 15, 2019. The intervenors will have adequate time to address the supplemental testimony in their testimony to be served on July 15, 2019.

a. Mothers for Peace Public Comment

i. Respond generally to issues raised by Mothers for Peace February 4, 2019 e-mail (also dated February 2, 2019).

ii. Has the Nuclear Regulatory Commission (NRC) issued an exemption or other approvals concerning waiver or deferral of embrittlement testing for DCPP Unit 1? If the NRC has provided a determination or correspondence addressing this issue include documentation from NRC as an attachment with the supplemental testimony.

iii. Are there any safety concerns as to embrittlement that could lead to a premature shut down of Unit 1, and if so, how has PG&E addressed such safety concerns?

iv. Mothers for Peace public comment includes the following statement, “[t]he degree of embrittlement at Unit One can be easily and cheaply tested while the reactor is shut down for refueling.” Could the embrittlement at Unit 1 be tested consistent with this statement during the refueling period for Unit 1? Does PG&E intend to test Unit 1 during the refueling shut down?
b. Alex Karlin Public Comment

i. Address the issues raised in Alex S. Karlin’s letter generally.

ii. Alex S. Karlin states in his letter that “the DCISC currently has no legal authority to undertake any decommissioning activities or expenditures.” PG&E is to explain and provide the authority under which the DCISC is taking on activities to assess decommissioning activities, including posting information seeking a consultant to assess decommissioning activities.

iii. Alex S. Karlin states “…the DCISC is attempting to prolong its lifespan past 2025.” His letter continues with, “[n]either its [DCISC] charter, composition, knowledge, skills, nor experience empower the DCISC to review and/or advise [on] decommissioning.” Address each of these issues.

iv. Does the DCISC have authority to expend ratepayer funds to review decommissioning activities (including hiring staff for this purpose)? If ratepayer funds are being expended by PG&E to review decommissioning activities, provide the costs incurred to date or to be incurred and where such approval has been provided by the Commission. We note any approval for decommissioning activities must be reviewed and authorized in the Nuclear Decommissioning Cost Triennial Proceeding.

v. What are the estimated costs to ratepayers if the DCISC were to extend beyond 2025?

3. Consolidation of Proceedings

On March 4, 2019 PG&E filed a Motion to Consolidate A.18-07-013 with A.18-12-008. PG&E asserts that the additional information to be provided in accordance with the Administrative Law Judge’s (ALJ’s) February 6, 2019 ruling in A.18-07-008 overlaps significantly with the scope of A.18-12-008. PG&E argues that this creates an “unnecessary burden on all parties and is inefficient.

\[3\] ALJ’s Ruling Directing Parties to Provide Additional Information; Deferring Issuance of a Decision Pending Determination by the Nuclear Regulatory Commission on Request for “Specific Exemption” and Modifying Procedural Schedule, dated February 6, 2019.
We agree that there is a potential for the same issues to be litigated in both proceedings as there is significant overlap in information necessary to resolve both proceedings. This ruling therefore grants PG&E’s Motion to Consolidate A.18-07-013 and A.18-12-008.

4. Modification of Proceeding Schedule

The proceeding schedule is modified as set forth below.

<table>
<thead>
<tr>
<th>Event</th>
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<tr>
<td>PG&amp;E to provide supplemental testimony addressing the following:</td>
<td>March 15, 2019</td>
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<tr>
<td>- Spent Fuel Transfer Plan and Interactions with CEC</td>
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<tr>
<td>- Response to Mothers for Peace comments on embrittlement as to DCPP Unit One</td>
<td></td>
</tr>
<tr>
<td>- Response to Alex S. Karlin comments regarding DCISC</td>
<td></td>
</tr>
<tr>
<td>Summary status update as to any matters in PG&amp;E’s Bankruptcy related to DCPP and HBPP; and NRC Opinion on Bankruptcy-Related Questions posed in 2/6/19 Ruling and 2/14/19 Scoping Memo and Ruling if received by this date (if not received provide a status update and file within 2 business days of receipt from NRC).</td>
<td>March 15, 2019 [Additional status updates every 90 days]</td>
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<tr>
<td>Parties to meet and confer to address 2018/2015/2012 cost comparison information</td>
<td>April 2019</td>
</tr>
<tr>
<td>Workshops to discuss Development of DCE, Milestone Proposal, and Spent Fuel Management (SFM) Plans [PG&amp;E to provide at Least 10-day notice of all workshops- including notice that Commission decisionmakers may be present for workshops.]</td>
<td>April 1-2, 2019 DCE Development and Milestone Framework Proposal (SFM Plans Workshop to be scheduled in latter half of April or first week of May)</td>
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<tr>
<td>Event Description</td>
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<tr>
<td>PG&amp;E Supplemental Testimony addressing questions about decommissioning planning activities in 2/6/2019 Ruling in A.18-07-013</td>
<td>April 15, 2019</td>
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<tr>
<td>HBPP 2018 true up for reasonableness review</td>
<td>June 1, 2019</td>
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<tr>
<td>HBPP Site Tour [PG&amp;E to provide at least 10-day notice of tour and include that Commission decisionmakers may be present for tour]</td>
<td>3rd Quarter 2019</td>
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<tr>
<td>PG&amp;E update on request for specific exemption from NRC regulations restricting access to NDT for decommissioning planning [Intervenors will have 15 days from the date filed in this proceeding to provide comment on PG&amp;E’s update and any determination issued by the NRC]</td>
<td>July 2019</td>
</tr>
<tr>
<td>Intervenor Testimony Addressing All Issues [except response to PG&amp;E Update on Request for Specific Exemption from NRC Regulations Restricting Access to NDT for Decommissioning Planning]</td>
<td>July 15, 2019</td>
</tr>
<tr>
<td>Rebuttal Testimony</td>
<td>August 15, 2019</td>
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<td>Discovery Cut Off Deadline</td>
<td>September 9, 2019</td>
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<td>Evidentiary Hearings</td>
<td>September 23-27, 2019</td>
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<td>Post-Hearing Opening Briefs</td>
<td>October 23, 2019</td>
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<tr>
<td>Post-Hearing Reply Briefs</td>
<td>November 20, 2019</td>
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IT IS RULED that:

1. The scope of the proceeding is amended as set forth in this ruling.
2. Application (A.)18-12-008 and A.18-07-013 are hereby consolidated.
3. The proceeding schedule is modified as set forth in this ruling.

Dated March 7, 2019, at San Francisco, California.

/s/ MICHAEL PICKER
Michael Picker
Assigned Commissioner
ATTACHMENT 1

From: Swanson Lucy Jane <swanson.lucy@gmail.com>
Sent: Monday, February 04, 2019 11:12 PM
To: Picker, Michael <Michael.Picker@cpuc.ca.gov>
Subject: Safety issues Diablo Canyon nuclear plant

February 2, 2019

TO: Governor Newsom

CC: CPUC President Picker

RE: Safety issues at Diablo Canyon nuclear plant

Dear Governor Newsom:

San Luis Obispo Mothers for Peace (SLOMFP), a 501c3 nonprofit organization, has been the legal intervenor in matters regarding Diablo Canyon nuclear plant since 1973. We mailed a letter to you on December 26, 2018 regarding embrittlement of Diablo's reactor vessel in Unit 1 (copy attached). We have not yet heard back from you about our concerns-and we have other issues to share as well.

Pacific Gas & Electric Company (PG&E) filed for bankruptcy on January 29, and that certainly complicates safe operation.

Here are several of the key issues:

EMBRITTLEMENT: Since 2003 Diablo Canyon Unit One has a documented history of having a dangerously embrittled reactor vessel. Because the internal components of all nuclear reactors are subjected to intense heat, pressure, and radiation, critical metals and welds can lose their resiliency. Should a loss-of-coolant-accident necessitate emergency flooding of cooling water, embrittled components would shatter, leading to catastrophe. The degree of embrittlement at Unit One can be easily and cheaply tested while the reactor is shut down for refueling.

COMPONENT CRACKING: All reactor pressure vessels and other key components can crack over time. Unit One's age makes it imperative that remotely controlled ultrasound devices be deployed to inspect the reactor internally, which can be done relatively easily and inexpensively. In 2013, PG&E applied for and received permission to delay testing for cracking, and so the ultrasound test has not been conducted since 2005.

WASTE MANAGEMENT: It is essential to conduct a full evaluation of waste management issues at Diablo. PG&E's contract with the Holtec Corporation for dry cask storage ends in December of 2019. PG&E can and should extend a Request for Proposal to seek a more robust and longer-lived dry cask storage option.

PG&E has recently proposed keeping the remaining spent fuel in the storage pools until 2032. This proposal is completely unacceptable because the tightly packed spent fuel pools
are the plant components most vulnerable to terrorist attack. High-level radioactive waste would be better protected in improved dry cask storage. Given PG&E's pending bankruptcy, the company's financial and managerial competence to operate the Diablo Canyon nuclear plant safely is in question. San Luis Obispo Mothers for Peace calls on the Governor, the legislature, and the California Public Utilities Commission (CPUC) to exercise responsibility on behalf of the safety and welfare of the people of California. PG&E must test the Unit One reactor vessel for embrittlement and cracking during the upcoming refueling outage.

If PG&E and the Nuclear Regulatory Commission fail to take the precautionary actions described above, then the CPUC must exercise its powers to determine the energy sources that are in the best interests of the people of the state. The CPUC should rule that PG&E may no longer charge the rate-payers for operations at the Diablo Canyon nuclear plant. Renewable sources, complemented by increasing energy efficiency and conservation, are coming on line at such a rate that there are days when California must PAY neighboring states to siphon off excess energy to avoid overloading the grid.

The people of California deserve reliable and safe energy resources.

Sincerely;

San Luis Obispo Mothers for Peace

Board of Directors

Liz Apfelberg
Elizabeth Broussee
Elaine Holder Molly
Johnson Sherry
Lewis Linda Seeley
Jane Swanson

Jill ZamEk

CC: California Senator Bill Monning
California Assemblyman Jordan Cunningham
CPUC President Picker
U.S. Congressman Salud Carbajal

(END OF ATTACHMENT 1)
ATTACHMENT 2

February 20, 2019

Committee Members Budnitz, Peterson & Lam
Diablo Canyon Independent Safety Committee
857 Cass Street, Suite D
Monterey, CA 93940
dcsafety@dcsisc.org

Subject: Comments Concerning “Potential Continuing Role for the Committee to Review Decommissioning-Related Matters.”

Dear Committee Members Budnitz, Peterson and Lam:

The Diablo Canyon Independent Safety Committee website states that the DCISC is “seeking to receive comments from member of the public concerning a potential continuing role for the Committee to review decommissioning-related matters following the cessation of electricity generating operations by the DCPP.” Given that the DCISC is a ratepayer funded entity, I am submitting my comments as a ratepayer, a resident of San Luis Obispo, and a former administrative judge with the U.S. Nuclear Regulatory Commission.

COMMENTS

My main comment is that the DCISC should have no role regarding decommissioning. The DCISC charter limits its mission to reviewing the operation of DCPP and therefore the DCISC has no legal authority or role to deal with decommissioning, which, by definition will occur after the “cessation of operations” of DCPP. See 10 C.F.R. Section 50.82(a)(3).

The DCISC charter limits its mission to operational issues, not decommissioning:

The [DCISC] shall review Diablo Canyon operations for the purpose of assessing the safety of operations and suggesting and recommendations for safe operations.¹

Operations cease at decommissioning. Thus, the DCISC automatically sunsets when Diablo Canyon stops operating (2025). The DCISC is not authorized to address decommissioning.

I reminded the DCISC of these limitations in its October 25, 2018 meeting. Unfortunately, the DCICS is now attempting to hire a new consultant to start covering decommissioning,² and is starting to delve into decommissioning.³ This is not within its legal authority and is ultra vires.


² The DCISC website states that it seeking to hire a technical consultant (who would be paid by the ratepayers) to “assist the Committee in the identification of decommissioning related activities.”

³ The DCISC website asks for public comment on its draft “DCISC Post-Shutdown Summary” which acknowledges that it addresses “Phases Following Cessation of Operations.” (Emphasis added).
Basically, the DCISC is attempting to prolong its lifespan past 2025. Neither its charter, composition, knowledge, skills, nor experience empower the DCISC to review and/or advise decommissioning in a way that best promotes the public interest. This unilateral “mission creep” will likely cost PG&E ratepayers at least an additional 18 million dollars and should not be allowed.

REQUEST

I request that the DCISC refrain from any “potential continuing role” concerning “decommissioning-related matters” unless the DCISC charter is formally amended by the California Public Utilities Commission (CPUC) in a ratemaking case. The DCISC should withdraw its current advertisement seeking to hire a decommissioning consultant. Until that time, the DCISC should stick to its legally authorized mission and focus on DCPP operations.

As the DCISC is fully aware, the CPUC is currently engaged in two ratemaking proceedings that are likely to clarify whether ratepayers should pay for a decommissioning safety advisory panel, and, if so, what its composition should be and what role (if any) the DCISC should have. These are PG&E’s general ratemaking case A.18-12-009 and PG&E’s Nuclear Decommissioning Cost Triennial Proceeding A.18-12-008. **Attachment A** is a copy of my February 11, 2019 letter to the CPUC concerning these proceedings and DCISC’s ultra vires activities. The DCISC should await the resolution of these cases instead of trying to preempt the CPUC process.

CONCLUSION

The CPUC has the responsibility – in A.18-12-008 and A.18-12-009 – to review the situation thoughtfully and to charter an oversight entity with a mission and composition appropriate to the decommissioning of Diablo Canyon. It is a multi-billion dollar project that will take decades. The DCISC currently has no legal authority to undertake any decommissioning activities or expenditures.

Sincerely

Alex S. Karlin
askenvirolaw@gmail.com

cc: California Public Utilities Commission
Attachment: February 11, 2019 letter to CPUC

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4 Operating a nuclear power plant is very different from decommissioning one. The members of the DCISC were not hired for – nor does the record to show that they possess – “knowledge, skills or background” in decommissioning.

5 The DCISC is composed of 3 outsiders who are not stakeholders. It is not a suitable entity to serve as independent advisory board (on safety or any other matters) on the topic of decommissioning. See my January 10, 2019, letter to President Picker and the Commissioners regarding the need for an independent decommissioning advisory board.

6 DCISC currently costs ratepayers approximately $900,000 per year. Given that the decommissioning of Diablo Canyon is likely to take 20 years or more after 2025, allowing the DCISC to add decommissioning to its mission will cost ratepayers an 18 million dollars for an entity not authorized nor designed to handle this task.

(END OF ATTACHMENT 2)
PACIFIC GAS AND ELECTRIC COMPANY

SUPPLEMENTAL TESTIMONY RESPONDING TO MARCH 7, 2019 RULING OF ASSIGNED COMMISSIONER AMENDING SCOPING MEMO, CONSOLIDATING PROCEEDINGS AND MODIFYING PROCEEDING SCHEDULE

SUPPLEMENTAL TESTIMONY
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Attachments

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Attachment 3: Restated Charter for The Diablo Canyon Independent Safety Committee
PACIFIC GAS AND ELECTRIC COMPANY
SUPPLEMENTAL TESTIMONY RESPONDING TO MARCH 7, 2019
RULING OF ASSIGNED COMMISSIONER AMENDING SCOPING MEMO, CONSOLIDATING PROCEEDINGS AND MODIFYING PROCEEDING SCHEDULE
SUPPLEMENTAL TESTIMONY

A. Introduction

The purpose of this supplemental testimony is to provide information to the California Public Utilities Commission (CPUC or Commission) responsive to issues related to Diablo Canyon Power Plant (DCPP or Diablo Canyon) raised to the Commission by the San Luis Obispo Mothers for Peace (MFP) and Alex S. Karlin through public comment as directed by the Ruling of Assigned Commissioner Amending Scoping Memo, Consolidating Proceedings, and Modifying Proceeding Schedule, dated March 7, 2019 ("Ruling"). MFP raised safety concerns related to current operations of DCPP and about the waste management proposal presented in the site-specific Decommissioning Cost Estimate (DCE) for Diablo Canyon presented in the 2018 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP). Alex S. Karlin raised concerns related to the function, costs, and useful life of the Diablo Canyon Independent Safety Committee (DCISC).

B. Mothers for Peace Public Comment

The Ruling directs Pacific Gas and Electric Company (PG&E) to:
(1) address the issues raised in MFP letter generally; (2) address if the Nuclear Regulatory Commission (NRC) issued an exemption or other approvals concerning waiver or deferral of embrittlement testing for DCPP Unit 1. If the NRC has provided a determination or correspondence addressing this issue include documentation from NRC as an attachment with the supplemental testimony; (3) address if there are any safety concerns as to embrittlement that could lead to a premature shut down of Unit 1, and if so, how has PG&E addressed such safety concerns; and (4) address MFP public comment that, "[t]he degree of embrittlement at Unit One can be easily and cheaply tested while the reactor is shut down for refueling." Could the embrittlement at Unit 1 be
tested consistent with this statement during the refueling period for Unit 1? Does PG&E intend to test Unit 1 during the refueling shut down?

The MFP safety concerns are based on a faulty premise—that PG&E’s declaring bankruptcy calls into question its ability to safely operate Diablo Canyon. PG&E expects no impact to Diablo Canyon operations during the bankruptcy process. The bankruptcy court has approved PG&E’s Motions related to continuing operations and decommissioning planning at DCPP and decommissioning at Humboldt Bay Power Plant.

The MFP concerns about the waste management proposal included in the site-specific DCE will be addressed in this proceeding. PG&E’s proposal is based on its evaluation of pre- and post-shutdown accelerated transfer of Spent Nuclear Fuel (SNF). PG&E’s proposal is consistent with all NRC requirements for the spent fuel pools (SFP) and the Independent Spent Fuel Storage Installation (ISFSI) at Diablo Canyon and is the path forward that results in the SFP being emptied of spent fuel the soonest while minimizing the number of fuel assembly movements. Nonetheless, PG&E plans to issue a Request for Proposals (RFP) to vendors for dry cask storage system designs that may enable PG&E to accelerate transfer of SNF faster than is proposed in the DCE. In connection with this process, PG&E is filing supplemental testimony addressing spent fuel management concurrent with this testimony and will hold a workshop to address spent fuel management in early May 2019.

1. Embrittlement

Embrittlement pertains to the hardening of material due to neutron irradiation. Over time, the material properties change, reducing ductility and making the material more brittle. Tests for embrittlement—called Charpy tests—measure material properties and how likely a crack would be to propagate. Embrittlement usually occurs in a reactor vessel’s beltlime (middle) section, closest to the reactor fuel. PG&E is in full compliance with industry guidance and regulatory standards regarding our program to evaluate and protect against potential embrittlement. Under our program:

- We perform Pressurized Thermal Shock (PTS) evaluations and the NRC has confirmed that based on those evaluations and its independent analysis, we meet both the 40-year and 60-year screening criteria for Unit 1.
Additionally, we withdraw test samples, or coupons, for periodic testing. We have satisfied our NRC license requirements for testing the required number of coupons and currently plan to remove the next coupon for analysis in 2022.

The MFP concerns about DCPP Unit 1 reactor embrittlement stem from a 2013 NRC document related to the PTS analysis PG&E performed as part of the DCPP license renewal application (LRA) submitted in 2009. Based on the results of this analysis, the NRC included DCPP in a list of plants that would exceed the PTS screening criteria during their 20-year period of operation beyond their original 40-year licenses. By definition, this NRC document addressed the license renewal period, not the original operating license period. We met all 40-year (and 60-year) screening criteria for PTS on Unit 1.

The PTS rule described in Title 10, Section 50.61, "Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events," of the Title 10 of the Code of Federal Regulations (10 CFR 50.61), establishes screening criteria below which the potential for a reactor vessel to fail due to a PTS event is deemed to be acceptably low. In 2011, an updated PTS analysis using NRC-approved methods was performed, including use of surveillance data from other nuclear power plants with a reactor vessel material composition similar to DCPP Units. The updated PTS results showed that both DCPP Units 1 and 2 met 10 CFR 50.61 requirements for 60 years of operation. The LRA was amended in PG&E Letter DCL-11-136 to the NRC, dated December 21, 2011. In a letter to PG&E dated September 24, 2015, the NRC acknowledged the revised Unit 1 PTS values meet the criteria for 10 CFR 50.61 through 60 years of operation, included as Attachment 1. The NRC specifically stated, "The staff performed independent PTS calculations for the Unit 1 RPV beltline and extended beltline components (54 EFY) and has verified that all ferritic components in the beltline and extended beltline regions of the Unit 1 RPV will satisfy the PTS screening criteria for the components through 60 years of licensed operations (i.e., through 54 EFY)."

Based on the updated PTS analysis, there are no safety concerns pertaining to embrittlement that could lead to a premature shutdown of
Unit 1. This PTS analysis is valid through the end of the plant operating licenses for Unit 1 and 2. PG&E has not requested, and the NRC has not issued, any exemption allowing waiver or deferral of embrittlement testing for Unit 1 for its current operating license life.

2. Component Cracking

Component cracking is measured using ultrasonic inspection. The last inspection on Unit 1 was performed in spring 2014. It was a volumetric, ultrasonic inspection performed using Robotic Positioning Devices and Digital Data Acquisition System. The results of this inspection confirmed no reportable indications of cracking.

Testing with ultrasound devices is qualified to detect and dimension flaws within or near the surrounding base metal of the reactor vessel welds. The applied testing process does not provide information regarding the presence of embrittlement. Ultrasonic testing of the majority (~84%) of the Unit 1 reactor vessel belt-line (high fluence) welds was conducted during the Unit 1 18th refueling outage ending in March 2014. All of the inspected welds were found to be acceptable for continued service. Based on these results, PG&E requested, and the NRC approved, an extension request concerning inspections for component cracking. The NRC’s June 19, 2015 approval is included as Attachment 2.

The ultrasonic inspection technology required for reactor vessel inspections is complex, with strict qualification protocols for the personnel involved. The robotic underwater precise positioning and ultrasonic data acquisition systems needed are a qualified vendor supplied service and not owned by PG&E. Contrary to the MFP suggestion that this testing can be performed “cheaply,” a reasonable estimate for this service approaches $2 million. Furthermore, preparation for this testing entails removal of the reactor vessel lower internals structure to allow access to the reactor vessel shell. Removal of the lower internals structure is an infrequent evolution with a special set of radiological and industrial safety considerations. This structure was not removed in the 2019 Unit 1 refueling outage. Hence, no access for ultrasonic testing was planned or available during this outage.
3. Waste Management

The NRC approved the storage of a maximum of 1,324 SNF assemblies per DCPP SFP. The NRC concluded that the current requirements for SFP mitigation measures are sufficient to ensure adequate protection of public health and safety, as well as common defense and security. Further, the NRC has concluded that expediting SNF transfer from the SFPs would provide only a minor or limited safety benefit. Based on findings from the expedited fuel storage evaluation discussed in the 2018 NDCTP, the more cold fuel available in the SFPs, the more options PG&E has for implementing an expedited SNF offload to the DC ISFSI schedule (pre- or post-shutdown). Consistent with these evaluation findings, PG&E assumed a 7-year offload schedule in the 2018 NDCTP to align with the Commission's direction in the 2015 NDCTP decision and committed to further evaluating the offload duration through a RFP process.

PG&E plans to issue an RFP. After receipt of the vendor proposals, PG&E will conduct a detailed evaluation of the different cask vendor options including considerations such as: technology; safety; compliance with regulations, including meeting DCPP site-specific conditions and requirements; regulator, community, and stakeholder feedback; and the ability of the cask option to support an earlier final offload of SNF from the SFPs to the DC ISFSI (i.e., cost and schedule).

C. Alex S. Karlin Public Comment

The Ruling directs PG&E to: (1) address the issues raised in Alex S. Karlin's letter generally; (2) explain and provide the authority under which the DCISC is taking on activities to assess decommissioning activities, including posting information seeking a consultant to assess decommissioning activities; (3) address whether the DCISC charter empowers it to review and/or advise on decommissioning and whether the composition, knowledge, skills, and experience of the DCISC members lend themselves to review and/or advise on decommissioning; (4) address whether the DCISC has authority to expend ratepayer funds to review decommissioning activities and whether PG&E is expending ratepayer funds to review decommissioning activities; and (5) provide the estimated costs to ratepayers if the DCISC were to extend beyond 2025.
CPUC Decision 07-01-028 and Resolution E-3152 approved the current DCISC charter, which is attached as Attachment 3. The authority of the DCISC includes assessing the safety of DCPP operations. Assessing the safety of DCPP operations includes assessing decisions and operational strategy changes that may have the potential to affect safe operations. PG&E considers the authority of the DCISC to include decommissioning activities to the extent decommissioning activities may impact Diablo Canyon operations. The DCISC Charter, Section II. D. (2) provides the DCISC the authority to contract for services, including the services of consultants and experts, to assist the Committee in its safety review. Thus, the DCISC may solicit and pay consultant experts to advise the Committee and support its understanding of whether decommissioning activities will create operational safety concerns.

PG&E is generally aware that the DCISC is looking into whether it has a role to play after Diablo Canyon ceases operations in 2025. This awareness is a result of PG&E’s participation in the public meetings held by the DCISC at which it has addressed this issue. The DCISC operates completely independently of PG&E. PG&E is not directing the spending of ratepayer funds on decommissioning activities by the DCISC.

Authority to determine whether the DCISC has a role to play after Diablo Canyon ceases operations in 2025 rests entirely with the CPUC. Likewise, the Commission must determine whether the composition of the DCISC and the knowledge, skills and experience of the DCISC members are sufficient to provide a useful oversight role over decommissioning activities. Without an understanding of the scope and charter of a DCISC chartered beyond 2025, PG&E can’t provide a viable estimate of the cost to ratepayers to extend the DCISC beyond 2025. PG&E provides the actual DCISC expenditures for 2017, which were $770,171.44. In the 2020 General Rate Case, PG&E has forecasted an annual budget of $1,056,024 for the DCISC.

As stated previously, PG&E considers the authority of the DCISC to include decommissioning activities to the extent that decommissioning activities may require changes to the daily operations of Diablo Canyon that result in change to collective radiation exposure, industrial safety or plant reliability. The DCISC Charter does not currently authorize the DCISC to advise on decommissioning, but the DCISC does have the authority to make recommendations regarding
decommissioning activities to the extent those activities may impact safe
operation of Diablo Canyon.
PACIFIC GAS AND ELECTRIC COMPANY
ATTACHMENT 1
LETTER FROM NUCLEAR REGULATORY COMMISSION DATED
SEPTEMBER 24, 2015
September 24, 2015

Mr. Edward D. Halpin  
Senior Vice President and Chief  
Nuclear Officer  
Pacific Gas and Electric Company  
P.O. Box 56  
Mail Code 104/6  
Avila Beach, CA. 93424  

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE DIABLO CANYON POWER PLANT, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION – SET 38 (TAC NOS. ME2896 AND ME2897)  

Dear Mr. Halpin:  

By letter dated November 23, 2009, Pacific Gas & Electric Company (PG&E) submitted an application pursuant to Title 10 of the Code of Federal Regulations Part 54, to renew the operating licenses DPR-80 and DPR-82 for Diablo Canyon Power Plant, Units 1 and 2, respectively. The staff of the U.S. Nuclear Regulatory Commission (NRC or the staff) is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.  

These requests for additional information were discussed with Mr. Terry Grebel, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-1427 or by e-mail at richard.plass@nrc.gov.  

Sincerely,  

/RA by Jeff Mitchell for/  

Richard Plass, Project Manager  
Projects Branch 1  
Division of License Renewal  
Office of Nuclear Reactor Regulation  

Docket Nos. 50-275 and 50-323  

Enclosure:  
As stated  

cc: Listserv
September 24, 2015

Mr. Edward D. Halpin  
Senior Vice President and Chief  
Nuclear Officer  
Pacific Gas and Electric Company  
P.O. Box 56  
Mail Code 104/6  
Avila Beach, CA  93424  

SUBJECT:  REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE DIABLO CANYON POWER PLANT, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION – SET 38 (TAC NOS. ME2896 AND ME2897)

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Sincerely,

/RA by Jeff Mitchell for/

Richard Plasse, Project Manager  
Projects Branch 1  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

Enclosure:
As stated

cc: Listserv

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H – 22
Letter to E. Halpin from R. Plasse dated September 24, 2015

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE DIABLO CANYON POWER PLANT, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION – SET 38 (TAC NOS. ME2896 AND ME2897)

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RidsNrrPM DiabloCanyon Resource

R. Plasse
M. Wentzel
J. Danna
S. Lingam
S. Uttal, OGC
J. Lindell, OGC
E. Williamson, OGC
T. Hipschman, SRI
J. Reynoso, RI
G. Miller, RIV
W. Walker, RIV
W. Maier, RIV
D. McIntyre, OPA
V. Dricks, OPA
A. Moreno, OCA
R. Rihm, EDO
RAI 3.0.3.2.6-1

Background:

The annual update letter dated December 22, 2014, Enclosure 1, Attachment 7C, Exception 2, states an exception to conducting tests in accordance with NFPA 25 Section 6.3.1 "Flow Tests". The proposed alternative testing includes: (a) testing three fire water hose stations in accordance with NFPA 25 Section 6.3.1 every 5 years; (b) conducting a functional test on all of the in-scope hose stations every 3 years; and (c) opening a flushing connection or drain line at the end of branch lines in sprinkler piping during flow alarm testing in the auxiliary building and intake structure every 18 months. The proposed functional test includes "the absence of any indication of obstruction or other undue restriction of water flow," whereas testing for NFPA Section 6.3.1 verifies that "the water supply still provides the design pressure at the required flow" in the hydraulically most remote hose connection of each zone.

Issue:

It is not clear to the staff that the alternatives consisting of conducting a functional test on all of the in-scope hose stations every 3 years and opening a flushing connection or drain valve at the end of branch lines in sprinkler piping in the auxiliary building and intake structure include recording sufficient quantitative data to identify degraded performance or trends in the fire water system. In addition, there is no mention of opening drain connections for standpipe and sprinkler systems in the turbine building and radwaste storage facility. It is also not clear that testing three fire water hose stations in accordance with NFPA 25 Section 6.3.1 will provide assurance comparable to performing the test for each zone of the entire fire water system.

Request:

State the basis for why: (a) the alternative testing conducted in lieu of NFPA 25 Section 6.3.1 provides sufficient quantifiable data that is capable of being trended to detect degradation in the fire water system; and (b) testing three fire water hose stations in accordance with NFPA 25 Section 6.3.1 is sufficiently representative of the entire fire water system.

RAI 3.0.3.2.6-2

Background:

Annual update letter, dated December 22, 2014, Attachment 7C, Exception 5 for the Fire Water System program states that steel tanks will be inspected in accordance with NFPA-25, Section 9.2.6. However, it takes an exception to Section 9.2.6.4 by stating that any degradation will be entered into the corrective action program and an engineering evaluation will be performed to determine whether further actions are required. The update letter also states that the follow-up actions will be in accordance with either NFPA-25, Section 9.2.7 or Section 4.6.
NFPA-25, Section 9.2.6.4 states that tanks exhibiting signs of pitting, corrosion, or coating failure shall be tested in accordance with Section 9.2.7. NFPA-25, Section 9.2.7 states, “Where a drained interior inspection of a steel tank is required by 9.2.6.4, the following tests shall be conducted,” then specifies six specific tests. NFPA-25, Section 4.6, “Performance-Based Programs,” states that it provides an alternative means to comply with Section 4.5.2, “Frequency of Tests.” It continues by stating that since its inception, NFPA-25 has included a provision allowing an alternative method of performing inspection, testing and maintenance, “but this provision does not detail exactly how such an alternative method should be implemented.”

**Issue:**

It is unclear to the staff what criteria will be used to invoke the six tests specified in NFPA-25, Section 9.2.7 when degradation is exhibited on the interior of steel tanks, in accordance with Section 9.2.6.4. In addition, since Section 4.6 does not provide details on alternative inspection methods, it is unclear to the staff what alternative tests are being proposed to be conducted in lieu of those specified in Section 9.2.7.

**Request:**

State the basis and justify why entering degradation of the interior surface of steel tanks into the corrective action program will be sufficient to manage the effects of aging during the PEO when NFPA-25 states that testing shall be completed when degradation is noted.

**RAI 3.0.3.2.6-3**

**Background:**

Annual update letter dated December 22, 2014, Attachment 7C, Exception 6 for the Fire Water System program, states that inspection frequencies may be adjusted based on testing and inspection results, in accordance with NFPA-25, Section 4.6.

**Issue:**

Although NFPA-25, Section 4.6, “Performance-Based Programs,” allows adjustments to inspection frequencies, as noted in Section A.4.6, a performance-based program requires that a maximum allowable failure rate be established and approved by the authority having jurisdiction in advance of implementation. In addition, a formal process for reviewing failure rates and making adjustments to test frequencies must be documented and have concurrence from the authority having jurisdiction prior to any changes to the test program. Furthermore, adjusted frequencies must be technically defensible and supported by evidence of reliability, and data collection and retention must be established so that data used to alter frequencies are representative, statistically valid, and evaluated against firm criteria. Without the details relating to the proposed maximum allowable failure rate and the formal process for reviewing and making adjustments, the staff has insufficient information to evaluate this exception.
Request:

Provide details, as discussed in NFPA-25, Section 4.6, "Performance-Based Programs," for all aspects related to adjusting inspection or test frequencies based on past data. Alternatively, propose exceptions to specific inspection frequencies and provide the bases to justify the change to these frequencies.

RAI 3.0.3.2.6-4

Background:

The annual update letter dated December 22, 2014, revises LRA Section A1.13. The revised LRA Section A1.13 does not address whether the fire water system is normally maintained at required operating pressure and is monitored such that loss of system pressure is immediately detected and corrective actions initiated.

SRP-LR Table 3.0-1, as modified by LR-ISG-2012-02 states that the water-based fire protection system is normally maintained at required operating pressure and is monitored such that loss of system pressure is immediately detected and corrective actions initiated.

Issue:

LRA Section A1.13 is not consistent with SRP-LR Table 3.0-1, as modified by LR-ISG-2012-02 and a basis was not provided.

Request:

State the basis for not including a statement that the fire water system will be normally maintained at required operating pressure and monitored such that loss of system pressure is immediately detected and corrective actions initiated in the licensing basis for the period of extended operation.

RAI 3.1.2.2.3.1-1

Background:

By letter dated December 23, 2013 (PG&E Letter DCL-13-119), the applicant submitted its 10 CFR 54.21(b) annual update to its LRA. In this annual update, the applicant deleted a paragraph of LRA further evaluation Section 3.1.2.2.3.1, "Loss of Fracture Toughness due to Neutron Irradiation Embrittlement TLAA." This paragraph discussed the applicant’s pressurized thermal shock implementation for the Unit 1 reactor vessel. The applicant has also submitted annual updates to its LRA by letters dated December 20, 2011 (PG&E Letter DCL-12-124), and December 21, 2011 (PG&E Letter DCL-11-136).

Issue:

The staff is unclear why the applicant deleted this paragraph of the further evaluation Section 3.1.2.2.3.1. In its annual updates to the LRA, the applicant has provided updated time limited
agging analyses (TLAAs) associated with its neutron fluence pressurized thermal shock and upper shelf energy analyses for Units 1 and 2.

Request:

Justify why this paragraph in LRA Section 3.1.2.2.3.1 was deleted from the LRA. Otherwise, clarify how further evaluation of loss of fracture toughness due to neutron embrittlement, is addressed regarding the updated Pressurized Thermal Shock and Upper Shelf Energy TLAAs for Diablo Canyon Units 1 and 2.

RAI 3.4.2.3.1-1

Background:

As amended by letter dated February 25, 2015, LRA Table 3.4.2-1 states that internally coated/lined carbon steel piping, valves, and tanks exposed to sulfuric acid will be managed for loss of coating integrity by the Internal Coatings/Linings for In- Scope Piping, Piping Components, Heat Exchangers, and Tanks program. The AMR line items cite generic note H. LRA Table 3.4.2-1 does not describe the sulfuric acid environment or state the material of the coating/lining.

GALL Report AMP XI.M42, “Internal Coatings/Linings for In- Scope Piping, Piping Components, Heat Exchangers, and Tanks,” defines the scope of the program as “[p]iping, piping components, heat exchangers, and tanks exposed to closed-cycle cooling water, raw water, treated water, treated borated water, waste water, fuel oil, and lubricating oil.”

Issue:

GALL Report AMP XI.M42 does not identify sulfuric acid or any other acidic/caustic chemical environments as within the scope of the program. The periodicity of inspections stated in Table 4a of AMP XI.M42 is based on the environments stated in the “scope of program” program element (e.g., treated water, raw water). The staff lacks sufficient information to evaluate the applicant’s claim that internally coated/lined carbon steel exposed to sulfuric acid can be managed through its Internal Coatings/Linings for In- Scope Piping, Piping Components, Heat Exchangers, and Tanks program given that information on the coating material and environment was not provided.

Request:

1. Describe the operational environment of internally coated/lined carbon steel piping, valves, and tanks exposed to sulfuric acid in the Turbine Steam Supply System, identifying at a minimum: temperature, sulfuric acid concentration, and flow rate.

2. Identify the coating/lining being used on internally coated/lined carbon steel piping, valves, and tanks exposed to sulfuric acid in the Turbine Steam Supply System.
3. Justify why the Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks program inspection intervals are adequate such that the intended function will be maintained.

RAI 3.4.2.3.1-2

Background:

As amended by letter dated February 25, 2015, LRA Table 3.4.2-1 states that loss of coating integrity for internally coated/lined carbon steel piping, valves, and tanks exposed to sodium hydroxide will be managed by the Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks program. The AMR line items cite generic note H. LRA Table 3.4.2-1 does not describe the sodium hydroxide environment or state the material of the coating/lining.

GALL Report AMP XI.M42, “Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks,” defines the scope of the program as “[p]iping, piping components, heat exchangers, and tanks exposed to closed-cycle cooling water, raw water, treated water, treated borated water, waste water, fuel oil, and lubricating oil.”

Issue:

GALL Report AMP XI.M42 does not identify sodium hydroxide or any other acidic/caustic chemical environments as within the scope of the program. The periodicity of inspections stated in Table 4a, “Inspection Intervals for Internal Coatings/Linings for Tanks, Piping, Piping Components, and Heat Exchangers,” of AMP XI.M42 is based on the environments stated in the “scope of program” program element (e.g., treated water, raw water). The staff lacks sufficient information to evaluate the claim that loss of coating integrity for internally coated/lined carbon steel exposed to sodium hydroxide can be managed through the Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks program given that information on the coating material and environment was not provided.

Request:

1. Describe the operational environment of internally coated/lined carbon steel piping, valves, and tanks exposed to sodium hydroxide in the turbine steam supply system, identifying at a minimum: temperature and sodium hydroxide concentration.

2. Identify the coating/lining being used on internally coated/lined carbon steel piping, valves, and tanks exposed to sodium hydroxide in the turbine steam supply system.

3. Justify why the Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks program inspection intervals are adequate such that the intended function of the internally coated/lined carbon steel piping, valves, and tanks exposed to sodium hydroxide will be maintained.
RAI 3.4.2.3.1-3

Background:

As amended by letter dated February 25, 2015, LRA Tables 3.4.2-1 and 3.4.2-4 state that loss of coating integrity for internally coated/lined carbon steel piping, valves, and demineralizers exposed to secondary water will be managed by the Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks program. The AMR line items cite generic note H. LRA Table 3.0-1, "Mechanical Environments," defines secondary water as the following GALL Report environments: steam, treated water, treated water >60 °C, secondary feedwater/steam, and secondary feedwater.

GALL Report AMP XL.M42, "Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks," defines the scope of the program as "[p]iping, piping components, heat exchangers, and tanks exposed to closed-cycle cooling water, raw water, treated water, treated borated water, waste water, fuel oil, and lubricating oil."

Issue:

GALL Report AMP XL.M42 does not identify steam, treated water >60 °C, secondary feedwater/steam, secondary feedwater, or any other high temperature environments as within the scope of the program. The periodicity of inspections stated in Table 4a of AMP XL.M42 is based on the environments stated in the "scope of program" program element (e.g., treated water). The staff lacks sufficient information to evaluate the claim that loss of coating integrity for internally coated/lined carbon steel exposed to steam, treated water >60 °C, secondary feedwater/steam, secondary feedwater or any other high temperature environments can be managed through the Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks program given that information on the coating material and GALL Report environment was not provided.

Request:

1. Identify the GALL Report environments for internally coated/lined carbon steel piping, valves, and demineralizers exposed to secondary water in the turbine steam supply and condensate systems. Complete the additional requests below for each GALL Report environment not listed in the AMP XL.M42 "scope of program" program element (e.g., steam, treated water >60 °C, secondary feedwater/steam, secondary feedwater).

2. Identify the temperature of internally coated/lined carbon steel piping, valves, and demineralizers exposed to secondary water in the turbine steam supply and condensate systems for each GALL Report environment not listed in AMP XL.M42.

3. Identify the coating/lining being used on internally coated/lined carbon steel piping, valves, and demineralizers exposed to secondary water in the turbine steam supply and condensate systems for each GALL Report environment not listed in AMP XL.M42.
4. Justify why the Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks program inspection intervals are adequate such that the intended function of the internally coated/lined carbon steel piping, valves, and demineralizers exposed to secondary water will be maintained for each GALL Report environment not listed in AMP XI.M42.

RAI 4.2.1-1

Background:

Attachment 2 of the applicant’s 2011 annual update (December 21, 2011) indicates that a neutron fluence assessment of the beltl ine and extended beltl ine regions through the period of extended operation was performed by Westinghouse in WCAP-17299-NP, “Fast Neutron Fluence Update for Diablo Canyon Unit 1 and Unit 2 Pressure Vessels,” Revision 0, February 2011.

In the following reference, the applicant indicated that its methods used to develop the calculated reactor vessel fluence are consistent with the NRC-approved methodology described in WCAP-14040-NP-A, “Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves,” Revision 2, January 1996.

- WCAP-15985, Revision 0, “Analysis of Capsule V from Pacific Gas and Electric Company Diablo Canyon Unit 1 Reactor Vessel Radiation Surveillance Program,” January 2003 (ADAMS Accession No. ML031400342)

Issue:

The applicant did not clearly address whether the neutron fluence methodology used in WCAP-17299-NP, Revision 0 and the 2011 annual update is consistent with the methodology described in WCAP-14040-NP-A, Revision 2.

Request:

Clarify whether the neutron fluence calculational methodology used in WCAP-17299-NP, Revision 0 and the applicant’s 2011 annual update is consistent with the methodology described in WCAP-14040-NP-A, Revision 2. If not, provide additional information to demonstrate that the applicant’s fluence methodology adheres to Regulatory Guide 1.190.

RAI 4.2.3-1

Background:

In Pacific Gas and Electric Company (PG&E) Letter DCL-11-136 dated December 21, 2011, the applicant provided an update of the upper shelf energy (USE) analysis for ferritic components in the reactor pressure vessels (RPVs) of Diablo Canyon, Units 1 and 2. The applicant stated that, in accordance with Regulatory Guide (RG) 1.99, Revision 2, the USE data from Unit 1 surveillance Capsule V were determined not to be credible and were, therefore, not included in the USE projections for Unit 1 RPV components represented in the Diablo Canyon RPV...
surveillance program for Unit 1. Instead, the applicant stated that the USE values were projected to 54 effective full power years (EFPY) of operation using USE analysis methods and criteria that are given in Position 1.2 of RG 1.99, Revision 2.

Issue:

Page No. 1.99-2 in RG 1.99, Revision 2, establishes the following regulatory discussion regarding the application of Charpy-impact data for neutron fluence-dependent RPV adjusted reference temperature calculations and USE analyses:

When there are two or more sets of surveillance data from one reactor, the scatter of $\Delta T_{\text{NDT}}$ values about a best-fit line drawn as described in Regulatory Position 2.1 normally should be less than 28 °F for welds and 17 °F for base metal. Even if the fluence range is large (two or more orders of magnitude), the scatter should not exceed twice those values. Even if the data fail this criterion for use in ... $[\Delta T_{\text{NDT}}]$ ... shift calculations, they may be credible for determining decrease in upper-shelf energy if the upper shelf can be clearly determined, following the definition given in ASTM E185-82.

The staff seeks further justification why all capsule data (i.e., those from the Capsule S, Y, and V Charpy-impact tests of materials representing Weld Heat 27204 in the Unit 1 RPV material surveillance program) have not been applied to the 54 EFPI USE analyses for RPV weld components in Unit 1 fabricated from the same weld heat.

Request:

Justify why all capsule data (i.e., those from the Capsule S, Y, and V Charpy-impact test specimens for Weld Heat 27204 in the Unit 1 reactor vessel material surveillance program as reported and analyzed in WCAP-15958, Rev. 0) have not been used as the basis for calculating the 54 EFPI USE values for Unit 1 RPV weld components fabricated from the same weld heat (i.e., for the USE calculations of intermediate shell axial welds 2-442 A, B and C, and lower shell axial welds 3-442, A, B, and C).

RAI 4.2.2.4

Background:

In PG&E Letter DCL-11-136 (Dec. 21, 2011), the applicant provided an update of the pressurized thermal shock (PTS) analysis for ferritic components in the RPVs of Diablo Canyon, Units 1 and 2.

Issue 1:

The staff performed independent PTS calculations for the Unit 1 RPV beltl ine and extended beltl ine components (54 EFPI) and has verified that all ferritic components in the beltl ine and extended beltl ine regions of the Unit 1 RPV will satisfy the PTS screening criteria for the components through 60 years of licensed operations (i.e., through 54 EFPI). However, some of the analysis parameter values independently calculated by the staff differ from those reported
for RT\textsubscript{PTS} assessment parameters in license renewal application (LRA) Table 4.2-4 for Unit 1 or in LRA Table 4.2-5 for Unit 2.

Request 1:

a) Margin term values for Unit 1 RPV upper shell plates B4105-1 (Heat No. C2824-1) and B4105-2 (Heat No. C2824-2): Provide the $\sigma_u$ and $\sigma_a$ values used to calculate the margin term value for the RT\textsubscript{PTS} calculation and the basis for reporting a margin term value of 39.2 °F for these components.

b) Margin term values for Unit 1 RPV upper shell plate B4105-3 (Heat No. C2608-2B): Provide the $\sigma_u$ and $\sigma_a$ values used to calculate the margin term value for the RT\textsubscript{PTS} calculation and the basis for reporting a margin term value of 41.2 °F for these components.

c) Margin term values for Unit 1 RPV intermediate shell axial welds 2-442 A, B, and C, and lower shell axial welds 3-442 A, B, and C (all made from Heat No. 27204): Provide the $\sigma_u$ and $\sigma_a$ values used to calculate the margin term value for the RT\textsubscript{PTS} calculation and the basis for reporting the margin term value of 44.0 °F for these components.

d) Chemistry factor values for Unit 1 RPV intermediate shell axial welds 2-442 A, B, and C, and lower shell axial welds 3-442 A, B, and C (all made from Heat No. 27204): Provide the basis for reporting a chemistry factor of 214.1 °F for these components.

e) Chemistry factor values for Unit 2 RPV upper shell axial welds 1-201 A, B, and C, and intermediate shell axial welds 2-201 A, B, and C (all made from Tandem Heat 21935/12008): Provide the basis for reporting a chemistry factor of 204.6 °F for these components.

f) Provide the methodology basis (i.e., plant-specific, generic, NRC-generic, MTEB 5-2, etc.) of the RT\textsubscript{NDT(u)} value that was reported for each RPV beltline or extended beltline component referenced in LRA Table 4.2-4 and in LRA Table 4.2-5.

Issue 2:

In the revision of LRA Table 4.2-5 for Unit 2 PTS analysis, the applicant provided additional RT\textsubscript{PTS} calculations for the Unit 2 RPV lower shell axial welds 3-201 A, B, and C (Weld Heat No. 33A277) using surveillance data from Pressurized Water Reactor (PWR) RPV surveillance programs other than the programs for the Diablo Canyon units. Although this weld heat is not represented in any of the capsules in the Unit 2 RPV material surveillance program, the staff has determined the Charpy-impact weld test specimens for welds made from Weld Heat No. 33A277 were included in the RPV surveillance program for Farley Unit 1 (a Westinghouse unit), as well as those for Calvert Cliffs Unit 1 and Unit 2 (both are CE units). This weld heat is also included in the RPV surveillance programs for some U.S. boiling water reactors.
Request 2:

Identify and justify which of the sister plant RPV surveillance programs have been used as the sources of the surveillance data for the $RT_{PTS}$ values for Unit 2 RPV lower shell axial welds 3-201 A, B, and C (as made from Weld Heat No. 33A277) and which of the capsule reports from these are being used as the source of the surveillance data for these welds. Clarify whether there are any plant-specific operational condition differences of note (e.g., differences in operating temperatures for the sister plant units from Diablo Canyon Unit 2) that would need to be identified and factored into the $RT_{PTS}$ calculations for Unit 2 RPV lower shell axial welds 3-201 A, B, and C. If so, clarify how the differences in the operational characteristics have been factored into the $RT_{PTS}$ calculations for Unit 2 RPV lower shell axial welds 3-201 A, B, and C.

RAI B2.1.9-2

Background:

Annual update letter, dated December 22, 2014, states that microbiologically-induced RIC was identified in the auxiliary saltwater (ASW) system, and that the Open-Cycle Cooling Water System program manages the aging effects associated with the system. The letter states that the program inspects the ASW piping every fourth refueling outage to verify the integrity of the plastic pipe-liner and to detect indications of corrosion of the base material.

As amended by LR-ISG-2012-02, SRP-LR added further evaluation Section 3.3.2.2.8, "Loss of Material Due to Recurring Internal Corrosion." The further evaluation states that RIC can result in the need to augment AMPs beyond the recommendations in the GALL Report and recommends that if recurring aging effects are identified, the applicant addresses the following five aspects:

(a) why the program's examination methods will be sufficient to detect the recurring aging effect before affecting the ability of a component to perform its intended function, (b) the basis for the adequacy of augmented or lack of augmented inspections, (c) what parameters will be trended as well as the decision points where increased inspections would be implemented (e.g., the extent of degradation at individual corrosion sites, the rate of degradation change), (d) how inspections of components that are not easily accessed (i.e., buried, underground) will be conducted, and (e) how leaks in any involved buried or underground components will be identified.

Issue:

Although the need to augment AMPs beyond the recommendations in the GALL Report may not always be warranted if RIC is identified, the identification of RIC causes the staff to question the effectiveness of the aging management activities to ensure that the effects of aging are being adequately managed. While the staff's safety evaluation report (SER) previously concluded that the effects of aging will be adequately managed by this program, it is unclear to the staff whether the identification of RIC in the ASW system warrants augmented inspections by the Open-Cycle Cooling Water System program. It is also unclear to the staff whether prior internal corrosion occurrences resulted in any changes to the Open-Cycle Cooling Water System.
program, and whether the trend for internal corrosion occurrences in the ASW system is indicative of a program that adequately manages the effects of aging.

In addition, by letter dated February 25, 2015, the AMR items associated with loss of coating integrity for the carbon steel piping and valves with coating or lining in the ASW system were changed from the Open-Cycle Cooling Water System program to the Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks program. Consequently, it is unclear to the staff whether any aspects of the inspections for the ASW piping will be changed as allowed under the new program.

**Request:**

For the past occurrences, which led to the identification of RIC in the ASW system, discuss what changes were made to Open Cycle Cooling Water System program and provide the bases to demonstrate that current program will adequately manage any recurring aging effects. Provide specific information relating to the adequacy of the “every fourth refueling outage” inspection frequency to verify the integrity of the plastic pipe-liner and to detect indications of corrosion of the base material. Include a discussion about the trend for internal corrosion occurrences in the ASW system to show that the program adequately manages the recurring aging effects. Also include information relating to the five specific further evaluation aspects for managing RIC as stated in SRP-LR further evaluation Section 3.3.2.2.8 if not covered in the preceding items.

For the current inspections of the plastic pipe-liner, provide details about the extent (i.e., 100 percent or sample (with the bases for the sampling process)), and criteria for increasing frequency or sample size (if appropriate). Discuss whether the change for managing the loss of coating integrity from the Open-Cycle Cooling Water System program to the new Coatings/Linings program will result in any changes to the types, extent, and frequency of inspections that pertain to RIC.

**RAI B2.1.13-5**

**Background:**

Annual update letter dated December 22, 2014, states that RIC was identified in carbon steel components exposed to raw water in the fire protection system. The Fire Water System program was revised to address the changes to GALL Report AMP XI.M27 “Fire Water System.” The Update letter states that Fire Water System program will be enhanced as described in SER Section 3.0.3.2.6 to perform additional volumetric examinations and visual inspections of above ground fire water system piping. In addition, the program will be revised to address the changes to GALL Report AMP XI.M27 made by LR-ISG-2012-02, Section C, and the following revisions are sufficient to manage RIC in the fire protection system:

1. Internal and external visual inspections are performed on accessible exposed portions of fire water piping during plant maintenance activities, or at least once every 18 months for external visual inspections, and every 5 years for internal visual inspections. Consistent with LR-ISG-2012-02, Section C.iii.b, volumetric examination will not be used in lieu of prescribed visual examinations of the internal surface of piping. The inspections detect loss of material due to corrosion, ensure that aging effects are managed, and detect
surface irregularities that could indicate wall loss below nominal pipe wall thickness. When surface irregularities are detected, follow-up volumetric wall thickness examinations are performed.

2. Augmented volumetric wall thickness inspections are performed on 20 percent of the length of piping segments that cannot be drained or piping segments that allow water to collect in each five-year interval prior to the PEO. The 20 percent of piping inspected in each 5-year interval shall be in different locations than previously inspected piping.

As amended by LR-LSG-2012-02, SRP-LR added further evaluation Section 3.3.2.2.8. The further evaluation recommends that if recurring aging effects are identified the applicant address the following five aspects:

(a) why the program’s examination methods will be sufficient to detect the recurring aging effect before affecting the ability of a component to perform its intended function, (b) the basis for the adequacy of augmented or lack of augmented inspections, (c) what parameters will be trended as well as the decision points where increased inspections would be implemented (e.g., the extent of degradation at individual corrosion sites, the rate of degradation change), (d) how inspections of components that are not easily accessed (i.e., buried, underground) will be conducted, and (e) how leaks in any involved buried or underground components will be identified.

Issue:

Although the need to augment AMPs beyond the recommendations in the GALL Report may not always be warranted if RIC is identified, the identification of RIC causes the staff to question the effectiveness of the aging management activities to ensure that the effects of aging are being adequately managed. It is unclear to the staff whether prior internal corrosion occurrences resulted in any changes to the Fire Water System program, and whether the trend for internal corrosion occurrences within the system is indicative of a program that adequately manages the effects of aging. It is also unclear to the staff how the update letter addresses the further evaluation criteria in SRP-LR Section 3.3.2.2.8. For example, the applicant states that augmented volumetric wall thickness measurements will be performed on 20 percent of the piping segments that cannot be drained or piping segments that allow water manage RIC. The staff notes that corrosion in the fire protection system will likely occur in areas that cannot be drained, but it is not possible for the staff to conclude that only performing augmented inspections on piping segments that cannot be drained will adequately address RIC. In addition, the applicant does not describe decision points where an increase in the frequency or severity of RIC would result in increased inspections. Furthermore, the staff noted in SER - Section 3.0.3.2.6 that the applicant will perform opportunistic inspections of buried piping when excavated; however, it is unclear to the staff how this inspection procedure will adequately manage RIC of buried components before loss of intended function (e.g., leaks) occurs.
Request:

For the past occurrences which led to the identification of RIC in the fire protection system, discuss what changes were made to Fire Water System program and provide the bases to demonstrate that current program will adequately manage any recurring aging effects. Include a discussion about the trend for internal corrosion occurrences in the fire protection system to show that the program adequately manages the recurring aging effects. Also include the five further evaluation aspects for managing RIC as stated in SRP-LR further evaluation Section 3.3.2.2.8.

RAI B2.1.15-2

Background:

Attachment 17 of the applicant's 2014 annual update (December 22, 2014) states that participation in the Electric Power Research Institute (EPRI) (PWR) Supplemental Surveillance Program includes donation of up to seven Charpy V-Notch specimens (material Plate B5454-1) from the already tested Unit 2 Capsule V. The applicant indicated that, because the donated specimens will no longer be stored, the specimen donation is an exception to the Generic Aging Lessons Learned (GALL) Report (Rev. 1) aging management program (AMP) XI.M31 guidance that all pulled and tested capsules, unless discarded before August 31, 2000, are placed in storage for future reconstitution use, in case the surveillance program is reestablished.

10 CFR 50.61(c)(2) requires that licensees shall consider plant-specific information that could affect the level of embrittlement to verify that RT_{NRT} (adjusted reference temperature) for each vessel beltlime material is a bounding value for the specific reactor vessel. 10 CFR 50.61(c)(2) also states that this information includes but is not limited to the reactor vessel operating temperature and any related surveillance program results.

Issue:

The staff noted that LRA Table 4.2-3 indicates that the B5454-1 plate material is a reactor vessel beltlime material of Unit 2. It is unclear to the staff whether the applicant will consider test data on B5454-1 plate material, which will be obtained from the EPRI PWR Supplemental Surveillance Program, in its reactor vessel embrittlement evaluations such as evaluations to determine adjusted reference temperature and upper-shelf energy.

Request:

Clarify whether the applicant will consider test data regarding the B5454-1 plate material, which will be obtained from the EPRI PWR Supplemental Surveillance Program, in its reactor vessel embrittlement evaluations such as evaluations to determine adjusted reference temperature and upper-shelf energy. If not, provide justification for why the applicant will not consider the test data in its reactor vessel embrittlement evaluations.
RAI B2.1.18-3

Background:

As amended by letter dated December 22, 2014, LRA Section B2.1.18, “Buried Piping and Tanks Inspection Program,” states that for steel piping, where cathodic protection is not available or does not meet the acceptance criteria in LR-ISG-2011-03, “Changes to the Generic Aging Lessons Learned (GALL) Report Revision 2 Aging Management Program (AMP) X1.M41, ‘Buried and Underground Piping and Tanks’,” Table 4a, “Inspection of Buried Pipe,” footnote 2.C., the number of inspections will be based upon soil sampling results.

LR-ISG-2011-03, Table 4a footnote 2.C., recommends that inspections should be escalated to preventive action Category F if leaks have occurred in buried piping due to external corrosion, or significant coating degradation or metal loss has been detected in more than 10 percent of inspections conducted.

Issue:

Although soil sampling is one of the inputs to determine whether increased inspections should be conducted (i.e., preventive action Category F), LR-ISG-2011-03 AMP X1.M41, Table 4a, footnote E.ii, recommends that plant-specific operating experience should also be considered.

Request:

State and justify the basis for why plant-specific operating experience should not be considered in addition to soil sampling results when considering the need to implement preventive action Category F inspections.

RAI B2.1.18-4

Background:

As amended by letter dated December 22, 2014, the Buried Piping and Tanks Inspection Program does not state what buried component inspection findings would be considered as adverse indications. In addition, with the exception of cathodic protection acceptance criterion, the program does not state that it will be consistent with the “acceptance criteria” program element of LR-ISG-2011-03 AMP X1.M41.

LR-ISG-2011-03 AMP X1.M41 recommends that examples of adverse indications resulting from inspections include leaks, material thickness less than minimum, coarse backfill within 6 inches of a coated pipe or tank with accompanying coating degradation, and general or local degradation of coatings so as to expose the base material.

LR-ISG-2011-03 AMP X1.M41 recommends acceptance criteria such as: (a) if components show evidence of corrosion, the remaining wall thickness in the affected area should be determined and
(b) for hydrostatic tests, the test acceptance criteria is no visible indications of leakage and no drop in pressure within the isolated portion of the piping that is not accounted for by a temperature change in the test media or quantified leakage across test boundary valves.

**Issue:**

It is unclear to the staff whether the “detection of aging effects” and “acceptance criteria” program elements will be consistent with the GALL Report AMP XI.M41 because adverse indications were not defined and acceptance criteria were not stated for activities such as wall thickness verification and hydrostatic tests in lieu of visual inspections.

**Request:**

State what indications would be considered as adverse indications and the acceptance criteria for the program.

**RAI B2.1.18-5**

**Background:**

Amendment 48, dated December 22, 2014, states that there are no aging effects requiring management (AERM) for steel and stainless steel piping, piping components, and tanks encased in concrete. The amendment states that this is supported by SRP-LR Table 3.3-1 line item 3.3.1-112, which states that for steel piping embedded in concrete there are no AERM and no recommended AMP as long as the concrete meets certain attributes (i.e., low water-to-cement ratio, low permeability, and adequate air entrainment) and there is no plant-specific operating experience related to degradation of the concrete. For the stainless steel components embedded in concrete, the amendment cites line item 3.3.1-120, which states that there are no AERM and no recommended AMP. The amendment also states that a majority of the piping and piping components are within buildings where the potential for water intrusion into the concrete is very low. The amendment further states that there has been no plant-specific operating experience revealing aging effects for metallic components embedded in concrete. Amendment 48 further states that letter dated November 24, 2010, further justifies the lack of aging effects for piping embedded in concrete. This letter states, "[t]he ASW system piping that is not cathodically protected is encased in concrete. The concrete provides a noncorrosive environment for the steel piping such that CP is not necessary and there are no aging effects."

GALL Report Items E-42, EP-31, S-01, and SP-37 state that loss of material is managed for steel and stainless steel piping and piping components exposed to soil or concrete by AMP XI.M41.
Issue:

The staff has concluded that there is reasonable assurance that there are no AERM for components that are: (a) embedded in concrete that are within buildings and (b) not potentially externally exposed to water. However, for components where the concrete is exposed to soil, due to the potential for exposure to water, loss of material should be managed by LR-ISG-2011-03, AMP XI.M41.

Request:

For components that are embedded in concrete that are exposed to soil, state and justify the basis for why water will not penetrate the concrete and potentially cause loss of material.

RAI B2.1.22-5

Background:

GALL Report AMP XI.M29, "Aboveground Metallic Tanks," as revised by Interim Staff Guidance for License Renewal (LR-ISG)-2012-02, states that verification of the effectiveness of the AMP is performed to ensure that degradation is not occurring in inaccessible locations, such as exterior portions of the tanks in contact with concrete. Table 4a, "Tank Inspection Recommendations," in LR-ISG-2012-02 recommends that volumetric inspections be conducted on the external surfaces of tank bottoms and shells exposed to concrete to manage the aging effect of loss of material.

By letter dated December 22, 2014, multiple sections of the LRA were amended in response to LR-ISG-2012-02. Enclosure 1, Attachment 7D, of the letter states that the stainless steel refueling water storage tanks, carbon steel condensate storage tanks, and carbon steel transfer storage tank are outdoor and sit on concrete foundations. LRA Tables 3.2.2-1 and 3.2.2-5 were revised to include aging management review (AMR) items for these tanks that reference the Inspection of Internal Surfaces of Miscellaneous Ducting and Piping Components Program. The AMR items cite plant specific notes indicating that the tank bottoms are to be volumetrically inspected for loss of material. Attachment 7D also states that these tanks are encased in concrete and that there are no aging effects to be managed for the external surfaces.

Issue:

The tank bottoms and side walls are both exposed to concrete; however, the aging effect of loss of material is only being managed for the tank bottoms. It is unclear to the staff what actions will be taken to ensure that degradation is not occurring at inaccessible locations of tank shells, specifically the external surfaces of the tank shells exposed to concrete.

Request:

State the basis for ensuring that degradation is not occurring at the external surfaces of tank shells for the stainless steel refueling water storage tanks, carbon steel condensate storage tanks, and carbon steel transfer storage tank given that volumetric inspections are not being performed in accordance with Table 4a of AMP XI.M29 in LR-ISG-2012-02.
RAI B2.1.22-6

Background:

Annual update letter, dated December 22, 2014, provides changes to the LRA that address issues from LR-ISG-2012-02, "Aging Management of Internal Surfaces, Fire Water Systems, Atmospheric Storage Tanks, and Corrosion Under Insulation." Attachment 7A of the letter states that, as discussed in LR-ISG-2012-02, Section A, recurring internal corrosion (RIC) was identified in copper alloy components exposed to potable water in the makeup water system, and the internal surfaces of these components are managed by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program. The letter also states:

following a failure of the copper components exposed to potable water due to RIC, this program will be used to either: (a) replace the component with a material that is more corrosion-resistant; (b) take corrective actions to prevent recurrence of the RIC; (c) perform augmented inspections to detect aging before a loss of function occurs, or; (d) credit mitigating actions in accordance with NEI 95-10, Appendix F.

As modified by LR-ISG-2012-02, SRP-LR includes further evaluation Section 3.3.2.2.8, "Loss of Material due to Recurring Internal Corrosion." The further evaluation section recommends that if recurring aging effects are identified the applicant addresses the following five aspects:

(a) why the program's examination methods will be sufficient to detect the recurring aging effect before affecting the ability of a component to perform its intended function, (b) the basis for the adequacy of augmented or lack of augmented inspections, (c) what parameters will be trended as well as the decision points where increased inspections would be implemented (e.g., the extent of degradation at individual corrosion sites, the rate of degradation change), (d) how inspections of components that are not easily accessed (i.e., buried, underground) will be conducted, and (e) how leaks in any involved buried or underground components will be identified.

With regard to potential augmented requirements, SRP-LR Section 3.3.2.2.8 states that these include:

alternate examination methods, (e.g., volumetric versus external visual), augmented inspections (e.g., a greater number of locations, additional locations based on risk insights based on susceptibility to aging effect and consequences of failure, a greater frequency of inspections), and additional trending parameters and decision points where increased inspections would be implemented.

In addition, as modified by LR-ISG-2012-02, GALL AMP XL.M38, "Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components," states that if RIC has occurred, a plant specific program will be necessary unless this program includes augmented requirements.
to ensure that any recurring aging effects are adequately managed. The modified AMP XLM38
also states that this program may be used if the failed material is replaced by one that is more
corrosion-resistant. The staff’s intent was for all of the susceptible material to be replaced with
more corrosion-resistant material, not just the components that fail.

Issue:

Although the need to augment AMPs beyond the recommendations in the GALL Report may not
always be warranted if RIC is identified, the identification of RIC causes the staff to question the
effectiveness of the aging management activities to ensure that the effects of aging are being
adequately managed. The annual update letter states that one of the four approaches that
could be taken following a failure is to "perform augmented inspections to detect aging before a
loss of function occurs." However, GALL AMP XLM38 includes the detection of aging effects
and the need for corrective actions before loss of intended function (i.e., failure). Since RIC has
been identified in copper alloy components in the makeup water system, it is unclear to the staff
which of the four approaches was used to resolve this issue in the past. Unless one of the other
four approaches was taken for these past occurrences (which should have provided a long term
solution and precluded the need for managing this issue), the staff is unclear what augmented
inspections were performed and if these condition monitoring activities are continuing and will
continue during the period of extended operation (PEO).

Request:

For the prior occurrences which led to the identification of RIC in copper alloy components of
the makeup water system, provide information relating to how these issues were previously
addressed. If past activities did not provide a long term solution and preclude the need for
managing this issue, provide details related to augmented inspections that will be included in
the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program
and discuss how RIC will be identified before loss of intended function occurs throughout the
PEO. Include information relating to the five specific further evaluation aspects for managing
RIC as stated in SRP-LR further evaluation Section 3.3.2.2.8.
PACIFIC GAS AND ELECTRIC COMPANY
ATTACHMENT 2
LETTER FROM NUCLEAR REGULATORY COMMISSION DATED
JUNE 19, 2015
June 19, 2015

Mr. Edward D. Halpin
Senior Vice President and
Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Power Plant
P.O. Box 56, Mail Code 104/6
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON POWER PLANT, UNIT NO. 1 – REQUEST FOR ALTERNATIVE RPV-U1-EXTENSION TO ALLOW USE OF ALTERNATE REACTOR INSPECTION INTERVAL REQUIREMENTS (TAC NO. MF4678)

Dear Mr. Halpin:

By letter dated August 18, 2014, as supplemented by letter dated March 20, 2015, Pacific Gas and Electric Company (the licensee) proposed an alternative to the inservice inspection (ISI) interval requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, Paragraph IW-2412, “Inspection Program B,” for Diablo Canyon Power Plant (DCPP), Unit 1. Inspection Program B requires volumetric examination of essentially 100 percent of reactor pressure-retaining welds identified in Table IW-2500-1 once each 10-year interval. Pursuant to Title 10 of the Code of Federal Regulations (10 CFR), paragraph 50.55a(2)(50.55a(a)(3)(i) at the date of application), the licensee requested to use a proposed alternative to extend the DCPP Unit 1 reactor pressure vessel (RPV) inspection interval from 10 to 20 years. The paragraph headings in 10 CFR 50.55a were changed by Federal Register notice dated November 5, 2014 (79 FR 65776), which became effective on December 5, 2014 (e.g., 10 CFR 50.55a(a)(3)(i) is now 50.55a(z)(1), and 50.55a(a)(3)(ii) is now 50.55a(z)(2)). The cross-reference tables, which are cited in the notice, can be found in the Agencywide Documents Access and Management System (ADAMS) at Accession Nos. ML14015A191 and ML14211A050.

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of the licensee’s submittal and, as set forth in the enclosed safety evaluation, concludes that extending the ISI interval from 10 to 20 years will provide an acceptable level of quality and safety because the DCPP, Unit 1 RPV is bounded by Westinghouse Electric Company, LLC topical report WCAP-16168-NP-A, Revision 3, “Risk-Informed Extension of the Reactor Vessel In-Service Inspection Interval,” October 2011, which supports the request, and the request met all of the provisions set forth in the WCAP and the NRC staff’s safety evaluation for the WCAP dated July 26, 2011. Further, the NRC concludes that the licensee’s alternative to the implementation plan is acceptable on the basis that the change creates a more uniform distribution of plant inspections over the extended ISI interval. However, the proposed 2025 inspection must be performed before May 6, 2025, to stay within the allowed 10 additional years for the third ISI interval. By e-mail dated May 11, 2015 (ADAMS Accession No. ML15132A306), the licensee agreed to perform the examination by the specified date. Therefore, pursuant to

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10 CFR 50.55a(z)(1), the NRC staff authorizes the licensee's alternative ISI schedule for the specified welds for extension to May 2025.

All ASME Code, Section XI, requirements for which relief was not specifically requested and approved in the subject request for relief remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact Siva Lingam at 301-415-1564 or via e-mail at Siva.Lingam@nrc.gov.

Sincerely,

Michael T. Markley, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-275

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv
SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING REQUEST FOR ALTERNATIVE RPV-U1-EXTENSION TO ALLOW USE OF

ALTERNATE REACTOR INSPECTION INTERVAL REQUIREMENTS

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNIT 1

DOCKET NO. 50-275

1.0 INTRODUCTION

By letter dated August 18, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14230A618), as supplemented by letter dated March 30, 2015, (ADAMS Accession No. ML15089A595), Pacific Gas and Electric Company (PG&E, the licensee) submitted a relief request, which proposed an alternative to the in-service inspection (ISI) interval requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Section XI, Paragraph IWB-2412, “Inspection Program B,” for Diablo Canyon Power Plant (DCPP), Unit 1. Inspection Program B requires volumetric examination of essentially 100 percent of reactor pressure-retaining welds identified in Table IWB-2500-1 once each 10-year interval. Pursuant to Title 10 of the Code of Federal Regulations (10 CFR), Part 50, Section 50.55a(2)(1), the licensee requested the use of a proposed alternative to extend the DCPP, Unit 1 reactor vessel inspection interval from 10 years to 20 years on the basis that the alternative provides an acceptable level of quality and safety.

The paragraph headings in 10 CFR 50.55a were changed by Federal Register notice dated November 5, 2014 (79 FR 65776), which became effective on December 5, 2014 (e.g., 10 CFR 50.55a(a)(3)(i) is now 50.55a(z)(1), and 50.55a(a)(3)(ii) is now 50.55a(z)(2)). The cross-reference tables, which are cited in the notice, can be found in the ADAMS Accession No. ML14015A191 and ADAMS package Accession No. ML14211A050.

2.0 REGULATORY REQUIREMENTS

In-service inspection of the ASME Code Class 1, 2, and 3 components is performed in accordance with Section XI of the ASME Code and applicable addenda as a way to detect anomaly and degradation indications so that structural integrity of these components can be maintained. This is required by 10 CFR 50.55a(g), except where specific relief has been granted by the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.55a(g)(6)(i). The regulations in 10 CFR 50.55a(z) state that alternatives to the requirements of paragraphs (b) through (h) of 10 CFR 50.55a or portions thereof may be used, when authorized by the Director, Office of Nuclear Reactor Regulation. A proposed alternative must be

Enclosure
submitted and authorized prior to implementation. The applicant or licensee must demonstrate that: (1) the proposed alternative would provide an acceptable level of quality and safety; or (2) compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), components (including supports) that are classified as ASME Code Class 1, 2, and 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions and addenda of the ASME Code, that become effective subsequent to editions specified in paragraphs (g)(2) and (3) of this section, to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the successive 120-month inspection intervals (following the initial 120-month inspection interval) must comply with the requirements in the latest edition and addenda of the ASME Code, which was incorporated by reference in 10 CFR 50.55a(a) 12 months before the start of the 120-month interval (or the optional ASME Code Cases listed in NRC Regulatory Guide (RG) 1.147, Revision 17, "Inspection Code Case Acceptability, ASME Section XI, Division 1," October 2014; ADAMS Accession No. ML13339A889), subject to the conditions listed in 10 CFR 50.55a(b).

RG 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials," May 1988 (ADAMS Accession No. ML003740284), describes general procedures acceptable to the staff for calculating the effects of neutron radiation embrittlement of the low-alloy steels currently used for light-water-cooled reactor pressure vessels (RPVs).

RG 1.174, Revision 1, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," November 2002 (ADAMS Accession No. ML023240437), describes a risk-informed approach, acceptable to the NRC, for assessing the nature and impact of proposed licensing basis changes by considering engineering issues and applying risk insights.

RG 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence," March 2001 (ADAMS Accession No. ML010890301), describes methods and assumptions acceptable to the NRC staff for determining the RPV neutron fluence.

The licensee has requested relief from ASME Code requirements pursuant to 10 CFR 50.55a(g)(6)(i). The DCPP, Unit 1 third 10-year ISI interval is based on the ASME Code, Section XI, 2001 edition through 2003 addenda. ASME Code, Section XI, 2001 edition without addenda applies to ultrasonic examinations performed per ASME Code, Section XI, Appendix VIII requirements. The applicable ASME Code, Section XI for the fourth 10-year ISI interval for DCPP will be the 2007 edition with 2008 addenda. Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request, and the Commission to grant, the relief requested by the licensee. The end date for the DCPP, Unit 1 third 10-year ISI interval is May 6, 2015.

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3.0 TECHNICAL EVALUATION

3.1 Background

The ISI of Categories B-A and B-D components consists of visual and ultrasonic examinations intended to discover whether new flaws have initiated, whether pre-existing flaws have extended, and whether pre-existing flaws may have been missed in prior examinations. These examinations are required to be performed at regular intervals, as defined in Section XI of the ASME Code.

3.1.1 WCAP-16168-NP, Revision 2

By letter dated July 26, 2011 (ADAMS Accession No. ML111810242), the NRC staff issued revised final safety evaluation (SE), which found that the Westinghouse Electric Company, LLC (Westinghouse) topical report WCAP-16168-NP, Revision 2 (the WCAP), "Risk-Informed Extension of the Reactor Vessel In-Service Inspection Interval," is acceptable for referencing in licensing applications for pressurized-water reactors (PWRs) designed by Westinghouse, Combustion Engineering, Inc., and Babcock and Wilcox, Inc. (B&W). The WCAP was developed to support a risk-informed assessment of extensions to the ISI intervals for ASME Code, Section XI, Examination Category B-A and B-D components, from 10 to 20 years using data from three different PWR plants (referred to as the pilot plants) representing each of the vendors.

The analyses in the WCAP used probabilistic fracture mechanics tools and inputs from the work described in NUREG-1806, "Technical Basis for Revision of the Pressurized Thermal Shock (PTS) Screening Limit in the PTS Rule (10 CFR 50.61): Summary Report," dated May 24, 2006 (ADAMS Accession No. ML061580318), and NUREG-1874, "Recommended Screening Limits for Pressurized Thermal Shock (PTS)," March 1, 2007 (ADAMS Accession No. ML070860156). The PWR Owners Group (PWROG) analyses incorporated the effects of fatigue crack growth and ISI data. Design basis transient data was used as an input for the fatigue crack growth evaluation. The effects of ISI data were modeled consistently with the previously-approved probabilistic fracture mechanics codes WCAP-14572-NP-A, "Westinghouse Owners Group Application of Risk-Informed Methods to Piping Inservice Inspection," February 1999 (ADAMS Accession Nos. ML012630327, ML012630349, and ML012630313). These effects were inputs into the evaluations performed with the "Fracture Analysis of Vessels - Oak Ridge" (FAVOR) computer code. All other inputs were identical to those used in the PTS risk re-evaluation underlying 10 CFR 50.61a, "Alternative Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events."

The PWROG concluded, as a result of these studies, that the ASME Code, Section XI, 10-year ISI interval for Examination Category B-A and B-D components in PWR RPVs can be safely extended from 10 to 20 years. This conclusion, based on the results from the pilot plant analyses, was considered to apply to any plant designed by the three PWR vendors.

represented in the pilot plant study, as long as certain critical plant-specific criteria (defined in Appendix A of the WCAP) are bounded by the analysis for the applicable pilot plant.

3.1.2 Summary of NRC Staff Evaluation for WCAP-16168-NP, Revision 2

The NRC staff issued a final SE dated July 26, 2011, superseding the initial SE dated May 8, 2008 (ADAMS Accession No. ML081060053), in the WCAP that addressed the PWROG's request for clarification of the information needed in applications utilizing the WCAP. In this letter, the staff concluded that the methodology presented in the WCAP is consistent with the guidance provided in RG 1.174, Revision 1 and is acceptable for referencing in requests to implement alternatives to ASME Code inspection requirements for PWR plants in accordance with the limitations and conditions specified in the SE. In addition to showing that the subject plant is bounded by the pilot plants/parameters identified in Appendix A in the WCAP, the SE requires the following:

1. Licensees must demonstrate that the embrittlement of their RPV is within the envelope used in the supporting analyses. Licensees must provide the 95th percentile total through-wall cracking frequency (TWCF$_{TOTAL}$) and its supporting material properties at the end of the period in which the relief is requested to extend the ISI from 10 to 20 years. The 95th percentile total TWCF (TWCF$_{95\%\, TOTAL}$) must be calculated using the methodology in NUREG-1874. The RT$_{MAX\, HJ}$ and the shift in the Charpy transition temperature produced by irradiation defined at the 30 ft-lb energy level, $\Delta T_{30}$, must be calculated using the methodology documented in the latest revision of RG 1.99 or other NRC-approved methodology.

2. Licensees must report whether the frequency of the limiting design basis transients during prior plant operation are less than the frequency of the design basis transients identified in the PWROG fatigue analysis that are considered to significantly contribute to fatigue crack growth.

3. Licensees must report the results of prior ISI of RPV welds and the proposed schedule for the next 20-year ISI interval. The 20-year inspection interval is a maximum interval. In its request for an alternative, each licensee shall identify the years in which future inspections will be performed. The dates provided must be within plus or minus one refueling cycle of the dates identified in the implementation plan provided to the NRC in PWROG letter OG-10-238 dated July 12, 2010 (OG-10-238: ADAMS Accession No. ML11153A033).

4. Licensees with B&W plants must (a) verify that the fatigue crack growth of 12 heat-up/cool-down transients per year that was used in the PWROG fatigue analysis bounds the fatigue crack growth for all of its design basis transients and (b) identify the design bases transients that contribute to significant fatigue crack growth.

5. Licensees with RPVs having forgings that are susceptible to underclad cracking and with RT$_{MAX\, HJ}$ values exceeding 240 °Fahrenheit (F) must submit a plantspecific evaluation to extend the inspection interval for ASME Code, Section XI.
Category B-A and B-D RPV welds from 10 to a maximum of 20 years because the analyses performed in the WCAP are not applicable.

6. Licensees seeking second or additional interval extensions shall provide the information and analyses requested in Section (e) of 10 CFR 50.81a.

WCAP-16168-NP-A, Revision 3, which contains this SE for the WCAP, was issued in October 2011 (ADAMS Accession No. ML11306A084; referred to as the WCAP-A in the rest of this SE).

3.2 **Proposed Alternatives**

3.2.1 **Description of Proposed Alternatives**

The licensee proposes to defer the ASME Code required Categories B-A and B-D weld ISI for DCPP, Unit 1 until 2025. This schedule differs slightly from the schedule proposed in the revision to PWRG OG-10-238 in that the licensee also proposed to change the number of inspections performed in 2015 and 2025. These changes will be further discussed in Section 3.3 of this SE.

3.2.2 **Components for Which Relief is Requested**

The affected component is the DCPP, Unit 1 RPV. The following examination categories and item numbers from IWB-2500 and Table IWB-2500-1 of the ASME Code, Section XI, are addressed in this request:

<table>
<thead>
<tr>
<th>Examination Category</th>
<th>Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-A</td>
<td>B1.11</td>
<td>Circumferential Shell Welds</td>
</tr>
<tr>
<td>B-A</td>
<td>B1.12</td>
<td>Longitudinal Shell Welds</td>
</tr>
<tr>
<td>B-A</td>
<td>B1.21</td>
<td>Circumferential Head Welds</td>
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<td>B-A</td>
<td>B1.22</td>
<td>Meridional Head Welds</td>
</tr>
<tr>
<td>B-A</td>
<td>B1.30</td>
<td>Shell-to-Flange Weld</td>
</tr>
<tr>
<td>B-D</td>
<td>B3.30</td>
<td>Nozzle-to-Vessel Welds</td>
</tr>
</tbody>
</table>

3.2.3 **Basis for Proposed Alternative**

The basis for the proposed alternative is WCAP-A. Plant-specific parameters for DCPP, Unit 1 are summarized in the enclosure to the licensee's letter dated August 18, 2014. The format of the information is patterned after that found in Appendix A of the WCAP-A.

All of the critical parameters listed in Tables 1, 2, and 3 of the enclosure to the submittal are bounded by the WCAP-A Westinghouse pilot plant.

3.3 **NRC Staff Technical Evaluation**

The NRC reviewed the licensee’s proposal to extend the DCPP, Unit 1 ISI interval in order to determine whether the licensee met the risk-informed criteria set forth in the WCAP-A for a Westinghouse plant. By showing that DCPP, Unit 1 is bounded by the Westinghouse pilot plant analysis with respect to the five criteria discussed in Section 3.1.2 of this SE, the licensee would

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have a sufficient technical basis for extending the ISI in accordance with the provisions of the WCAP-A. The DCPP, Unit 1 RPV has a single layer cladding and is bounded by the Westinghouse pilot plant basis.

The licensee stated that two complete 10-year ISIs have been performed on DCPP, Unit 1. During the most recently completed ISI (2005), one indication was found in the beltline region. The indication was found to be acceptable per Table IWB-3510-1 of the ASME Code, Section XI. The indication was neither within the inner 1/10th of the reactor vessel thickness, nor deeper than 1 inch from the clad-base metal interface, making the indication acceptable per the requirements of the alternate PTS Rule (10 CFR 50.61a).

The licensee proposed an examination date that deviates from the latest reviewed implementation plan, CG-10-238 for the PWROG plants. The current schedule would require that six ASME Code required volumetric examinations of the reactor vessel full penetration pressure-retaining Examination Category B-A and B-D welds be conducted in 2015 while two examinations be conducted in 2025. The licensee proposed to postpone performing its examination from the third ISI, which was scheduled for 2014, to the fourth ISI interval, scheduled for 2025 plus or minus one refueling outage. This change would decrease the number of plant inspections in 2015 from six to five and increase the number of plant inspections in 2025 from two to three. The NRC concludes that the licensee’s alternative to the implementation plan is acceptable on the basis that the change creates a more uniform distribution of plant inspections over the extended interval. However, the proposed 2025 inspection must be performed before May 8, 2025, to stay within the allowed 10 additional years for the third ISI interval. By e-mail dated May 11, 2015 (ADAMS Accession No. ML15132A306), the licensee agreed to perform the examination by the specified date.

Table 3 of the licensee’s submittal provided the TWCF of the limiting axial weld, plate, and circumferential weld, as well as the critical parameters needed to perform the calculations. In order to calculate the shift in the Charpy transition temperature produced by irradiation defined at the 30 ft-lb energy level, ΔT_{30}, the licensee used the methodology provided in RG 1.99, Revision 2. The licensee reported that the TWCF_{95-TOTAL} for DCPP Unit 1 was 5.56 \times 10^{-9} per year, which is well within the Westinghouse pilot plant requirement of less than 1.76 \times 10^{-8} per year. The NRC staff performed an independent set of calculations, which verified the results reported by the licensee; therefore, the staff finds the TWCF_{95-TOTAL} acceptable.

With regard to the frequency and severity of design basis transients, the licensee was required to show that DCPP, Unit 1 has a number of heatup/cooldown transients bounded by that of the Westinghouse pilot plant basis (seven heatup/cooldown cycles per year). The NRC staff requested that the license provide the plant design basis for DCPP, Unit 1’s heatup/cooldown cycles per year. The licensee responded stating that the projected number of reactor coolant system transient cycles for 60 years of operation is provided in Table 4.3-2 of the DCPP, Unit 1 License Renewal application dated November 23, 2009 (ADAMS Accession No. ML093340125). After reviewing the table, the staff agrees that the frequency of the limiting design basis transients during prior plant operation are less than the frequency of the Westinghouse design basis transients identified in the PWROG fatigue analysis.

In summary, the licensee’s submittal demonstrated that the RPV for DCPP, Unit 1, is bounded by the limitations set forth in the WCAP-A and the associated SE from the NRC staff. The
licensee adequately confirmed that the DCPP, Unit 1 RPV meets all of the applicable requirements set forth in the WCAP-A. DCPP, Unit 1 is a Westinghouse plant so the fourth requirement stated in Section 2.3 related to B&W plants is not applicable. Furthermore, the licensee did not report any forgings that are susceptible to underclad cracking so the fifth requirement also is not applicable to this plant. Lastly, the licensee is not currently seeking additional interval extensions, so the sixth and final requirement is not applicable.

4.0 CONCLUSION

The NRC staff has completed its review of the licensee's submittal for an alternative ISI extension to allow use of alternate reactor inspection interval requirements for DCPP, Unit 1. The staff concludes that extending the third ISI interval for Categories B-A and B-D components from 10 years to 20 years will not result in any considerable increase in risk. This conclusion is based on the fact that the DCPP, Unit 1 RPV is bounded by the WCAP-A and the request met all of the provisions set forth in the WCAP-A and the NRC's SE. Therefore, the request will provide an acceptable level of quality and safety. Pursuant to 10 CFR 50.55a(z)(1), the NRC staff authorizes the licensee's alternative ISI schedule for the specified welds for extension to May 2025. The examination of the Category B-A and B-D components for DCPP, Unit 1 shall be conducted prior to the end of the extended third interval.

All ASME Code, Section XI, requirements for which relief was not specifically requested and approved in the subject request for relief remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributors:  A. Young, NRR
                          S. Sheng, NRR

Date: June 19, 2015
10 CFR 50.55a(z)(1), the NRC staff authorizes the licensee’s alternative ISI schedule for the specified welds for extension to May 2025.

All ASME Code, Section XI, requirements for which relief was not specifically requested and approved in the subject request for relief remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact Siva Lingam at 301-415-1584 or via e-mail at Siva.Lingam@nrc.gov.

Sincerely,

/RA/

Michael T. Markley, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-275

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv
PACIFIC GAS AND ELECTRIC COMPANY

ATTACHMENT 3

RESTATED CHARTER FOR THE DIABLO CANYON

INDEPENDENT SAFETY COMMITTEE
RESTATED CHARTER FOR THE  
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE  

I. Formation and Membership of the Committee.  
   A. Composition and Responsibility of the Committee.  
      (1) An Independent Safety Committee (the "Committee") shall be established  
      consisting of three members, one each appointed by the Governor of the State of California, the  
      Attorney General and the Chair of the California Energy Commission ("CEC"), respectively,  
      serving staggered three-year terms. The Committee shall review Diablo Canyon Power Plant  
      ("Diablo Canyon") operations for the purpose of assessing the safety of operations and  
      suggesting any recommendations for safe operation. Neither the Committee nor its members  
      shall have any responsibility or authority for plant operations, and they shall have no authority to  
      direct PG&E personnel. The Committee shall conform in all respects to applicable federal laws,  
      regulations and Nuclear Regulatory Commission ("NRC") policies.  
   
   B. Appointment of Committee Members.  
      (1) Candidates for Committee membership shall be selected from those persons  
      responding to an open request for applications. The California Public Utilities Commission  
      ("CPUC") shall provide for public comment on qualified applicants by posting on the CPUC's  
      homepage (www.cpuc.ca.gov) a link to information concerning the name of each qualified  
      applicant, along with a summary of his or her qualifications and a statement identifying any  
      potential conflict of interest, an Applicant's Application for Nomination shall address those items  
      enumerated in Section I.C. The President of the CPUC shall provide to the appropriate  

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appointing authority a list of not more than three qualified candidates as alternatives to the
reappointment of that authority's designated Committee member whose term is expiring. The
incumbent member, if he or she consents, shall be deemed an additional candidate. Each
subsequent appointment shall be for a three-year term.

(2) Should a Committee member not complete the appointed term, the authority
who appointed that member shall appoint a replacement to serve for the unexpired portion of the
term from the most recent list of candidates selected by the President of the CPUC in accordance
with the appointment procedures set forth herein.

(3) The President of the CPUC shall review each application to assess the
applicant's qualifications, experience and background, including any conflict of interest and
comment received from the public, and shall propose as candidates only persons with
knowledge, background and experience in the field of nuclear power facilities and nuclear safety
issues who demonstrate they have no conflict of interest as set forth in Section I.C. The CPUC
Energy Division shall prepare, circulate for public comment and place on the CPUC's public
agenda a resolution ratifying the President's selection of not more than three qualified candidates
and an incumbent member.

C. Conflict of Interest.

(1) No person shall serve as a member of the Committee if he or she has received
$250.00 or more in income (as defined in Government Code Section 82030, but excluding
dividends or interest from stocks or bonds) or gifts (as defined in Government Code 82028) from
PG&E or an affiliated company within twelve months prior to the start of his or her original
term, or if he or she has, at the time of the commencement of service, an investment (as defined
in Government Code Section 82034) worth $1,000.00 or more in PG&E or any affiliated company. In addition, no member of the Committee shall make, participate in making, or in any way attempt to use his or her official position to influence any action of the Committee in which he or she knows or has reason to know that he or she has a financial interest. The provisions of the Political Reform Act, including implementing regulations and rulings, as applied to Government Code Section 87100 shall be used to determine whether a member has a conflict of interest.

(2) Members of the Committee shall file a Statement of Economic Interest at the same time and in the same manner as designated employees of the CPUC must file under the Political Reform Act and CPUC Conflict of Interest Code. Members of the Committee shall disclose any investment in or income from the following:

(a) An electric corporation subject to the jurisdiction of the CPUC, including any parent, subsidiary or affiliated business entity;

(b) A business entity that regularly supplies natural gas, nuclear fuel, fuel oil or other forms of energy to an electric corporation subject to CPUC jurisdiction;

(c) Any business entity that has done more than $10 million of work on the design, construction, engineering or operation of the Diablo Canyon power plant.

Copies of the members' Statements shall be available for public inspection.

(3) No person shall serve as a member of the Committee if he or she has a prior history of supporting or opposing PG&E as a witness or intervenor in nuclear licensing or CPUC proceedings associated with Diablo Canyon.
D. **Commencement of Term.**

(1) The list of candidates shall be submitted to the appointing authorities on or before January 1 of each year. Appointments shall be made by March 1 of each year. Each Safety Committee term shall commence on July 1 of the year of appointment. If any such deadline is missed, the relevant action shall be taken or shall occur at the earliest possible date thereafter.

E. **Exercise of Powers.**

(1) The Chair of the CEC and the President of the CPUC shall exercise their powers after consultation with their respective commissions in public session.

II. **Scope of Committee Operations.**

A. **Receipt of Reports and Records.**

(1) The Committee shall have the right to receive on a regular basis such of the following operating reports and records of Diablo Canyon as the Committee may request. Such reports and records shall be provided quarterly as available:

(a) Automatic scrams while critical;

(b) Significant events;

(c) Safety system actuations;

(d) Forced outage rate;

(e) Collective radiation exposure;

(f) Industrial safety loss time accident rate;

(g) NRC public reports and evaluations of Diablo Canyon; and
(h) Such other reports pertinent to safety as may be produced in the course of operations and may be requested by the Committee.

B. **Annual Site Inspection.**

(1) The Committee shall have the right to conduct an annual examination of the Diablo Canyon site. If the Committee requires additional information regarding a specific issue the Committee may request such information and, upon proper notice to PG&E, conduct a site visit to investigate that issue.

(2) PG&E shall cooperate with the Committee in arranging times for the Committee's visits to the site and shall be responsible for insuring the cooperation of PG&E employees and contractors in providing information and access to the plant and facilities of PG&E and to pertinent records. Any such site visit must comply with all applicable federal laws, regulations and NRC policies, including laws, regulations and policies governing screening of persons who may participate in site inspections.

C. **Committee Reports and Recommendations.**

(1) The Committee shall prepare an annual report, and such interim reports as it deems appropriate, which reports shall include any recommendations of the Committee. The report shall be submitted first to PG&E, and PG&E shall respond in writing within 45 days. PG&E's response shall be made part of the report which shall then be submitted to the CPUC, the Governor, the Attorney General and the CEC. The CPUC, the Governor, the Attorney General and the CEC, or any one of them, may file a request pursuant to 10 CFR Sec. 2.206 for the Director of Nuclear Reactor Regulation to institute a proceeding to require PG&E to adopt
any safety recommendation made by the Committee. PG&E is free to oppose any such recommendation before the NRC.

D. Confidentiality of Information

(1) In the course of review of Diablo Canyon operations, Committee members may receive confidential information. Federal law restricts disclosure of certain information; accordingly, Committee members shall seek approval of the NRC for access to such information and shall comply with all laws, regulations and policies applicable to access to, possession and use of such information. To the extent that PG&E believes that other information sought by the Committee, not regulated by the Atomic Energy Act, constitutes confidential business information, the disclosure of which might injure PG&E in its business, PG&E may so designate that information. Information so designated shall be treated as confidential and not disclosed outside the Committee unless a majority of the Committee challenges the propriety of the claim of confidentiality by vote taken within 30 days of designation. A dispute between the Committee and PG&E on a claim of confidentiality shall promptly be submitted to binding arbitration.

Committee members and all persons who receive confidential information in the course of or as a result of the Committee's activities shall have a duty to maintain the confidentiality of that information and, in addition to complying with the requirements of federal law and regulations, shall execute a confidentiality agreement prior to receiving any confidential information.

(2) The Committee may contract for services, including the services of consultants and experts, to assist the Committee in its safety review. Disclosure of PG&E information or records to any such person shall be governed by the provisions of this agreement in the same manner as disclosure to members of the Committee. No disclosure of confidential
information shall be made to any person who does not have a need to receive the information in order to assist the Committee in its safety review. Nor shall such disclosure be made to any person known to have a conflict of interest.

(3) This provision shall not preclude the Committee from submitting relevant information to the NRC or to the CPUC, the Governor, the Attorney General, or the CEC to the extent permitted by federal law. Prior to the disclosure of any confidential information, however, the Committee shall give PG&E notice of its intention to do so and an opportunity to designate specific documents or information which should not be publicly disclosed and to seek to prevent public disclosure by the entity to which disclosure is made.

E. Compensation of the Committee

(1) Members of the Committee shall be compensated in an amount established by the CPUC commensurate with fees PG&E pays for similar services. Each member shall receive an $8,000.00 annual retainer and, in the event a member performs more than 40 hours of work on Committee business between July 1 and the following June 30, such hours shall be compensated at $200.00 per hour. PG&E shall file annually, on April 1, a report updating commensurate fees for comparable services and concurrent with that report, an advice letter with proposed revisions to the compensation levels.

(2) The fees and expenses of the Committee and its contractors shall be paid by PG&E and PG&E shall be entitled to recover those amounts through its cost-of-service rates. An authorized Committee budget not exceeding $673,077.00 for calendar year 1996, with a 1.5% annual escalation for every year thereafter, has been established, which includes all costs, member compensation, travel expenses, contracting fees, staff salaries and audit expenses. The
compensation of Committee members, which is included in the budget, is tied to the fees paid by PG&E for similar services. Therefore, the rate of change in the budget could differ from the rate of change in the compensation paid to committee members.

(3) The Committee and its contractors shall keep accurate books, records and accounts, which shall be open to inspection and audit by the CPUC or its designee and by PG&E. Such audit shall include review of the reasonableness of fees and expenses and review for conflict of interest.

F. Public Outreach

(1) The Committee shall undertake public outreach in the affected community, including, but not limited to, assuring that the Committee meetings are videotaped and broadcast. To the extent that public outreach results in an increase in costs associated with the Committee, beyond any annual authorized funding level, the Committee's budget shall be increased by the same amount and PG&E shall be entitled to recover that amount through a CPUC-determined increment to PG&E's cost-of-service rates.
## DC|SC Post-Shutdown Summary - D R A F T - For Discussion Purposes

<table>
<thead>
<tr>
<th>Plant Status →</th>
<th>Phases Following Cessation of Operations</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Phase A</td>
</tr>
<tr>
<td></td>
<td>Spent Fuel Pools Operational.</td>
</tr>
<tr>
<td></td>
<td>Decommissioning beginning</td>
</tr>
<tr>
<td></td>
<td>ISFSI Operational</td>
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<table>
<thead>
<tr>
<th>Areas for DCISC Review ↓</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>7</th>
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</thead>
<tbody>
<tr>
<td>Health of Safety Systems</td>
<td>All Systems*</td>
<td>SFP-Related Systems</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Health of Electrical and Other Supporting Systems</td>
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<td>SFP-Related Systems</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Operator Staffing, Training, and Licensing</td>
<td>Yes</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Regulatory Compliance</td>
<td>Yes</td>
<td>Yes</td>
<td>TBD**</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Offsite Emergency Preparedness</td>
<td>Yes</td>
<td>Yes</td>
<td>TBD**</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>No</td>
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<tr>
<td>Quality Verification and Related Activities</td>
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<td>SFP-Related Systems</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Engineering &amp; Other Programs</td>
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<td>SFP-Related Systems</td>
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<td>Human Performance</td>
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<tr>
<td>Performance Improvement and Corrective Action Programs</td>
<td>Yes</td>
<td>Yes</td>
<td>TBD**</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>Fire Protection</td>
<td>Yes</td>
<td>SFP-Related Systems</td>
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<td>No</td>
<td>No</td>
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<tr>
<td>Areas for DCISC Review</td>
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<td>Phases Following Cessation of Operations</td>
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<tr>
<td></td>
<td>Reactors Shutdown with Fuel Remaining in Reactors.</td>
<td>Phase A</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Spent Fuel Pools Operational.</td>
<td>Phase B</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Decommissioning beginning</td>
<td>Decommissioning in Progress</td>
<td></td>
<td></td>
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<tr>
<td>ISFSI Operational</td>
<td>ISFSI Operational</td>
<td>ISFSI Operational</td>
<td>ISFSI Operational</td>
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<tr>
<td></td>
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<td>Decommissioning Complete.</td>
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<td></td>
</tr>
</tbody>
</table>

| 11 Beyond Design Basis & FLEX | Yes | SFP-Related Systems | No | No |
| 12 ISFSI Operations | Yes | Yes | TBD** | No |
| 13 ISFSI Storage Cask Aging Management | Yes | Yes | TBD** | No |
| 14 Management of Risk from External Hazards | Yes | SFP-Related Systems | TBD** | No |
| 15 Decommissioning Planning and Execution | Yes | SFP-Related Systems | No | No |
| 16 Nuclear Safety Culture and Employee Concerns Programs | Yes | Yes | TBD** | No |
| 17 Radiological Protection and Health Physics, including Worker Radiation Safety and Annual Reports | Yes | Yes | TBD** | No |
| 18 Interface Between Security and Safety | Yes | Yes | TBD** | No |
| 19 Plans and Execution of Spent Fuel Shipments Departing DCPP for Long-Term Storage or Disposal | No | No | No | No |
## DC|SC Post-Shutdown Summary - D R A F T - For Discussion Purposes

<table>
<thead>
<tr>
<th>Plant Status</th>
<th>Phase A</th>
<th>Phase B</th>
<th>Phase C</th>
<th>Phase D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spent Fuel Pools Operational.</td>
<td>Spent Fuel Pools Operational.</td>
<td>Decommissioning in Progress.</td>
<td>ISFSI Operational and/or spent fuel being shipped from site</td>
<td></td>
</tr>
<tr>
<td>Decommissioning beginning</td>
<td>Decommissioning beginning</td>
<td>ISFSI Operational</td>
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</tr>
<tr>
<td>ISFSI Operational</td>
<td>ISFSI Operational</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Areas for DC|SC Review ↓

#### RISK

- Significant risk of radiological release but less than during power operation.
- Risk from a potential accident from spent fuel pool, begins as important, diminishes to lower risk in a few years, and becomes much less important toward the end of Phase B.
- Risk from fuel transfer and decommissioning activities is low.
- Residual risk of an accident that could release important radioactivity to the plant site and the environment will be quite small.
- Radiological risk from the decommissioning activities will be low due to radioactive decay and will diminish later in the decommissioning process as the number of radioactively contaminated components becomes fewer and fewer.
- Risk from a radiological release from the ISFSI will remain quite small.

#### ESTIMATED TIME/DURATION

- **TBD** but probably a period of months
- 10 YEARS AFTER SHUT DOWN
- TBD
- TBD
### DCISC Post-Shutdown Summary - DRAFT - For Discussion Purposes

<table>
<thead>
<tr>
<th>Plant Status →</th>
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<td>ISFSI Operational</td>
<td>ISFSI Operational</td>
</tr>
</tbody>
</table>

### Areas for DCISC Review ↓

**PROPOSED RECOMMENDATION CONCERNING DCISC REVIEW**

<table>
<thead>
<tr>
<th></th>
<th>DCISC review should continue but with reduced scope and should probably terminate when all fuel is at the ISFSI, but defer final recommendation until middle of Phase B</th>
<th>TBD</th>
<th>Unnecessary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No change</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* *Systems important to safety or affecting safety systems

** TBD – The need for future DCISC review to be considered during Phase B

4
BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric
Company in the 2018 Nuclear
Decommissioning Cost Triennial
Proceeding. (U39E.)

Application 18-12-008

Application of Pacific Gas and Electric
Company for Authorization to Establish
the Diablo Canyon Decommissioning
Planning Cost Memorandum Account
(U39E).

Application 18-07-013

MOTION FOR PARTY STATUS OF THE
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

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Attorneys for the DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

March 15, 2019
BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric Company in the 2018 Nuclear Decommissioning Cost Triennial Proceeding. (U39E.)


Application 18-12-008

Application 18-07-013

MOTION FOR PARTY STATUS OF THE DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

In accordance with Rules 1.4 and 11.1 of the Rules of Practice and Procedure ("Rules") of the California Public Utilities Commission ("Commission"), the Diablo Canyon Independent Safety Committee ("DCISC" or "Committee") hereby submits its Motion for Party Status in the above-captioned consolidated proceeding, which is intended to address issues relevant to the planned decommissioning of the Diablo Canyon Nuclear Power Plant ("DCPP") owned and operated by Pacific Gas and Electric Company ("PG&E"). Pursuant to Rule 1.4(a)(4), the DCISC hereby requests party status in that proceeding.

In compliance with the requirements of Rule 1.4(b), the DCISC hereby describes its interest in the consolidated proceeding and states the factual and legal contentions the DCISC intends to present and their relevance to this proceeding.
I. DESCRIPTION OF THE DCISC AND ITS INTEREST IN THIS PROCEEDING

A. The Role of the DCISC

The DCISC is a creature of the Commission. By Decision ("D.") 88-12-083, the Commission adopted a settlement agreement among PG&E, the Division of Ratepayer Advocates ("DRA"),\(^1\) and the California Attorney General, resolving numerous issues relating to the reasonableness of costs associated with the DCPP and its future operations. That agreement included a provision establishing the DCISC as an independent, three-member committee responsible for monitoring the safety of PG&E's operation of the DCPP, with a budget from PG&E's revenues ultimately charged to ratepayers. D.88-12-083, App. C, Paragraph 16. A statement setting the qualifications and procedures for appointment of members to the DCISC and defining the scope of the Committee's operations and responsibilities was attached to the Settlement Agreement and was approved by the Commission. See, D.88-12-083, App. C, Att. A.

The Commission intended the DCISC to be comprised of persons with knowledge, background, and experience in the field of nuclear power plant operations, and was given the responsibility to "review Diablo Canyon operations for the purpose of assessing the safety of operations and suggesting any recommendations for safe operation." \(\text{Id.}\), Paragraph I.1. Over the 30 years of the Committee's existence and the DCPP's successful operations, the President of the Commission has nominated, and the Governor, the Attorney General, and the Chair of the California Energy Commission, have respectively appointed a succession of highly qualified experts to the three seats on the DCISC.

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\(^1\) Predecessor to the present Public Advocates Office.
Neither the DCISC nor its members were assigned any responsibility or authority for plant operations, nor were they given authority to direct PG&E personnel. Rather, their role was—and remains—to serve as "a useful monitor of safe operation of Diablo Canyon," providing "an added level of assurance to the public that Diablo Canyon will continue to operate safely." D.88-12-083, at 85 (Finding of Fact 22).

B. DCISC's Interest in This Proceeding

Over the past six months, in the context of growing public interest in and regulatory attention to PG&E’s plans for decommissioning the DCPP in anticipation of the expiration of its current Operating Licenses in 2025, the DCISC has entertained discussions at its public meetings of issues relating to the decommissioning process.

In the course of the DCISC's public meeting held October 24-25, 2018, at the Committee's request, Mr. Tom Jones, PG&E's Director of Strategic Initiatives at the DCPP, offered an informational presentation on the status of DCPP decommissioning planning, the Community Engagement Panel, and proposed changes to NRC decommissioning regulations, and Dr. David Victor, Ph.D., Chairman of the Community Engagement Panel for the San Onofre Nuclear Generating Station ("SONGS") provided an oral report on his experience as a member of the SONGS Community Engagement Panel, including consideration of SONGS decommissioning experience to date.

At its most recent public meeting, held February 27-28, 2019, the DCISC's agenda included an informational discussion by Committee members and consultants of options and a potential role for the DCISC after expiration of the Operating Licenses for the DCPP, the possible engagement of a consultant to assist in identifying decommissioning-related issues, and opportunities for cooperation between the DCISC and the Diablo Canyon Decommissioning Engagement Panel.
Mr. Alex S. Karlin was among members of the public who offered comments in the context of the informational presentations relating to decommissioning at the DCISC's October 24-25, 2018 public meeting. Mr. Karlin subsequently corresponded with both the Commission and the DCISC, expressing his views that the DCISC should have no role regarding decommissioning as to do so is not within its legal authority.

The Assigned Commissioner's Ruling Amending Scoping Memo Consolidating Proceedings and Modifying Proceeding Schedule, issued March 7, 2019 in this proceeding, appended Mr. Karlin's letter of February 20, 2019 to the DCISC and directed PG&E to provide additional testimony responding to issues raised in Mr. Karlin's letter, including his assertions that the DCISC currently has no legal authority to undertake any decommissioning activities or expenditures, has no power to review or advise on decommissioning, and is attempting to impose costs on PG&E ratepayers by prolonging its lifespan past 2025.

The DCISC will review with interest whatever testimony PG&E submits with respect to the various issues Mr. Karlin has raised. In accordance with the schedule included in the Assigned Commissioner's Ruling of March 7, the DCISC may find it appropriate to submit intervenor testimony addressing issues presented by Mr. Karlin and others and by PG&E's testimony on those issues. To the extent the issues raised by Mr. Karlin present issues of fact, the DCISC may also consider it appropriate to participate in the evidentiary hearings scheduled for September 2019, and may also choose to submit post-hearing briefs.

II. FACTUAL AND LEGAL CONTENTIONS

The DCISC is unanimous in its opinion that it has not, to date, exceeded its authority. The Committee has not expended significant efforts or costs reviewing or
considering the review of DCPP decommissioning plans or plans for post-shutdown spent fuel management. Small amounts of time have been spent discussing the possibility of a future role for the Committee after the DCPP ceases making electricity, including reviewing the safety aspects of post-shutdown spent fuel management and the safety aspects of decommissioning. The DCISC also has discussed the possible need for a modification to its Commission-approved charter\(^2\) should a future role be determined to be appropriate, and has informally briefed the Diablo Canyon Decommissioning Engagement Panel on the current charter and activities of the DCISC (in response to the Panel's request). The Panel further inquired into the role the DCISC could play in advising them on a continuing basis. The Committee has informally expressed an interest in doing so but has not made a commitment to do so.

The DCISC's discussions of the possibility of a future role after the nuclear power plant ceases making electricity began in response to requests from members of the public who opined that the DCISC should play a future role in overseeing the safety of plant operations during the post-shutdown period, including in particular the safe management of spent fuel following cessation of operations and also possibly including the safety of the decommissioning activities themselves. Additionally, the DCISC's discussions on any possible post-shutdown safety oversight role have always included the likelihood that its role would be reduced in scope, funding requirements would be reduced accordingly, and the appointment of members with expertise specific to spent-fuel management and decommissioning could be needed.

\(^2\) In Decision 07-01-028 the Commission granted the DCISC's application for authority to restate its charter. In its Decision, the Commission found the Restated Charter to be in the public's interest as it reflected the latest authority and obligations of the DCISC. The Committee's application was unopposed.
There is certainly a valid and continuing role for the DCISC under its charter in reviewing the possible effects of decommissioning activities upon the safety of current DCPP operations. Staffing, capital project planning, and spent fuel management are just a few examples of safety-significant plant activities that are currently being affected, or could be affected soon, by future plans for decommissioning.

The DCISC affirms its commitment and actions to operate within the limits of its charter. If the evidentiary record developed in this proceeding indicates that an ongoing role for the DCISC is appropriate and that its authority to pursue such a role requires or would be clarified by amending its Charter, then it may be appropriate for the Commission to consider adopting such an amendment in the context of this proceeding. Alternatively, it may be appropriate for the DCISC to submit a separate application to the Commission requesting such amendment of its charter.

III. COMMUNICATIONS

Communications and correspondence regarding these proceedings should be directed to the following individuals. The following DCISC representative should be added to the service list as a “party”:

Martin A. Mattes
NOSSAMAN LLP
50 California Street, 34th Floor
San Francisco, CA 94111
Tel.: (415) 398-3600
Fax: (415) 398-2438
E-mail: mmattes@nossaman.com
The following additional representative of DCISC should be added to the "information only" portion of the service list:

Robert W. Rathie
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE
857 Cass Street, Suite D
Monterey CA 93940
Toll Free (in CA): (800) 439-4688
Tel.: (831) 647-1044
Fax: (831) 373-7106
E-mail: info@dcisc.org

IV. CONCLUSION

DCISC's participation in this proceeding will not prejudice any party and will not delay the schedule or broaden the scope of this proceeding. For the reasons stated above, DCISC respectfully moves for a ruling granting this Motion for Party Status.

Respectfully submitted,

NOSSAMAN LLP

Robert R. Wellington
Robert W. Rathie
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857 Cass Street, Suite D
Monterey CA 93940
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Fax: (831) 373-7106
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    Martin A. Mattes

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Attorneys for the DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

March 15, 2019
SECOND RESTATEMENT OF THE CHARTER FOR THE DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

I. Formation and Membership of the Committee.

A. Composition and Responsibility of the Committee.

(1) An Independent Safety Committee (the "Committee") shall be established consisting of three members, one each appointed by the Governor of the State of California, the Attorney General and the Chair of the California Energy Commission ("CEC"), respectively, serving staggered three-year terms. The Committee shall review Diablo Canyon Nuclear Power Plant ("Diablo Canyon") operations for the purpose of assessing the safety of operations and suggesting any recommendations for safe operation and shall terminate its review in accordance with Section III. Safety of operation shall mean activities in connection with generation of electricity by Diablo Canyon and/or the operation of the Diablo Canyon Spent Fuel Pools and related support systems and the Diablo Canyon Independent Spent Fuel Storage Installation ("ISFSI"), including the transport of nuclear fuel to and from Diablo Canyon’s Spent Fuel Pools and the storage of nuclear fuel within the Spent Fuel Pools and the transport and storage of nuclear fuel to and within the ISFSI or elsewhere at Diablo Canyon. Neither the Committee nor its members shall have any responsibility or authority for plant operations, and they shall have no authority to direct Pacific Gas & Electric Company ("PG&E") personnel. The Committee shall conform in all respects to applicable federal laws, regulations and Nuclear Regulatory Commission ("NRC") policies.
B. Appointment of Committee Members.

(1) Candidates for Committee membership shall be selected from those persons responding to an open request for applications. The California Public Utilities Commission ("CPUC") shall provide for public comment on qualified applicants by posting on the CPUC's homepage (www.cpuc.ca.gov) a link to information concerning the name of each qualified applicant, along with a summary of his or her qualifications and a statement identifying any potential conflict of interest, an Applicant's Application for Nomination shall address those items enumerated in Section I.C. The President of the CPUC shall provide to the appropriate appointing authority a list of not more than three qualified candidates as alternatives to the reappointment of that authority's designated Committee member whose term is expiring. The incumbent member, if he or she consents, shall be deemed an additional candidate. Each subsequent appointment shall be for a three-year term.

(2) Should a Committee member not complete the appointed term, the authority who appointed that member shall appoint a replacement to serve for the unexpired portion of the term from the most recent list of candidates selected by the President of the CPUC in accordance with the appointment procedures set forth herein.

(3) The President of the CPUC shall review each application to assess the applicant's qualifications, experience and background, including any conflict of interest and comment received from the public, and shall propose as candidates only persons with knowledge, background and experience in the field of nuclear power facilities and nuclear safety issues who demonstrate they have no conflict of interest as set forth in Section I.C. The CPUC Energy Division shall prepare, circulate for public comment and place on the
CPUC's public agenda a resolution ratifying the President's selection of not more than three qualified candidates and an incumbent member.

C. Conflict of Interest.

(1) No person shall serve as a member of the Committee if he or she has received $500.00 or more in income (as defined in Government Code Section 82030, but excluding dividends or interest from stocks or bonds) or gifts (as defined in Government Code 82028) from PG&E or an affiliated company within twelve months prior to the start of his or her original term, or if he or she has, at the time of the commencement of service, an investment (as defined in Government Code Section 82034) worth $2,000.00 or more in PG&E or any affiliated company. In addition, no member of the Committee shall make, participate in making, or in any way attempt to use his or her official position to influence any action of the Committee in which he or she knows or has reason to know that he or she has a financial interest. The provisions of the Political Reform Act, including implementing regulations and rulings, as applied to Government Code Section 87100 shall be used to determine whether a member has a conflict of interest.

(2) Members of the Committee shall file a Statement of Economic Interest at the same time and in the same manner as designated employees of the CPUC must file under the Political Reform Act and CPUC Conflict of Interest Code. Members of the Committee shall disclose any investment in or income from the following:

(a) An electric corporation subject to the jurisdiction of the CPUC, including any parent, subsidiary or affiliated business entity;
(b) A business entity that regularly supplies natural gas, nuclear fuel, fuel oil or other forms of energy to an electric corporation subject to CPUC jurisdiction;

(c) Any business entity that has done more than $10 million of work on the design, construction, engineering or operation of the Diablo Canyon power plant.

Copies of the members' Statements shall be available for public inspection.

(3) No person shall serve as a member of the Committee if he or she has a prior history of supporting or opposing PG&E as a witness or intervenor in nuclear licensing or CPUC proceedings associated with Diablo Canyon.

D. Commencement of Term.

(1) The list of candidates shall be submitted to the appointing authorities on or before January 1 of each year. Appointments shall be made by March 1 of each year. Each Safety Committee term shall commence on July 1 of the year of appointment. If any such deadline is missed, the relevant action shall be taken or shall occur at the earliest possible date thereafter.

(2) In accordance with Government Code Section 1302, a Committee member shall continue to discharge his or her duties until reappointed or replaced.

E. Exercise of Powers.

(1) The Chair of the CEC and the President of the CPUC shall exercise their powers after consultation with their respective commissions in public session.
II. **Scope of Committee Operations.**

A. **Receipt of Reports and Records.**

(1) The Committee shall have the right to receive on a regular basis such of the following operating reports and records of Diablo Canyon as the Committee may request. Such reports and records shall be provided quarterly as available:

(a) Automatic scrams while critical;
(b) Significant events;
(c) Safety system actuations;
(d) Forced outage rate;
(e) Collective radiation exposure;
(f) Industrial safety loss time accident rate;
(g) NRC public reports and evaluations of Diablo Canyon; and
(h) Such other reports pertinent to safety as may be produced in the course of operations and may be requested by the Committee.

B. **Annual Site Inspection.**

(1) The Committee shall have the right to conduct examinations of the Diablo Canyon site. If the Committee requires additional information regarding a specific issue the Committee may request such information and, upon proper notice to PG&E, conduct a site visit to investigate that issue.

(2) PG&E shall cooperate with the Committee in arranging times for the Committee's visits to the site and shall be responsible for insuring the cooperation of PG&E employees and contractors in providing information and access to the plant and facilities of
PG&E and to pertinent records. Any such site visit must comply with all applicable federal laws, regulations and NRC policies, including laws, regulations and policies governing screening of persons who may participate in site inspections.

C. Committee Reports and Recommendations.

(1) The Committee shall prepare an annual report, and such interim reports as it deems appropriate, which reports shall include any recommendations of the Committee. The report shall be submitted first to PG&E, and PG&E shall respond in writing within 45 days. PG&E's response shall be made part of the report which shall then be submitted to the CPUC, the Governor, the Attorney General and the CEC. The CPUC, the Governor, the Attorney General and the CEC, or any one of them, may file a request pursuant to 10 CFR Sec. 2.206 for the Director of Nuclear Reactor Regulation to institute a proceeding to require PG&E to adopt any safety recommendation made by the Committee. PG&E is free to oppose any such recommendation before the NRC.

D. Confidentiality of Information

(1) In the course of review of Diablo Canyon operations, Committee members may receive confidential information. Federal law restricts disclosure of certain information; accordingly, Committee members shall seek approval of the NRC for access to such information and shall comply with all laws, regulations and policies applicable to access to, possession and use of such information. The Committee is subject to the California Public Records Act (Government Code Section 6250 et seq.). To the extent that PG&E believes that information sought by the Committee, not otherwise regulated by the Atomic Energy Act, is confidential under the California Public Records Act and/or constitutes confidential business information, the
disclosure of which might injure PG&E in its business, PG&E shall so designate that information and the basis on which PG&E believes the information is exempt from disclosure. If the Committee receives a demand for disclosure of information so designated by PG&E the Committee shall notify PG&E and lawfully object and defend any rights the Committee may have to non-disclosure of the confidential information. A dispute between the Committee and PG&E on a claim of confidentiality shall promptly be submitted to binding arbitration. Committee members and all persons who receive confidential information in the course of or as a result of the Committee’s activities shall have a duty to maintain the confidentiality of that information and, in addition to complying with the requirements of federal and state law and regulations, shall execute a confidentiality agreement prior to receiving any confidential information.

(2) The Committee may contract for services, including the services of consultants and experts, to assist the Committee in its safety review. Disclosure of PG&E information or records to any such person shall be governed by the provisions of this agreement in the same manner as disclosure to members of the Committee. No disclosure of confidential information shall be made to any person who does not have a need to receive the information in order to assist the Committee in its safety review. Nor shall such disclosure be made to any person known to have a conflict of interest.

(3) This provision shall not preclude the Committee from submitting relevant information to the NRC or to the CPUC, the Governor, the Attorney General, or the CEC to the extent permitted by federal law. Prior to the disclosure of any confidential information, however, the Committee shall give PG&E notice of its intention to do so and an opportunity to
designate specific documents or information which should not be publicly disclosed and to seek
to prevent public disclosure by the entity to which disclosure is made.

E. Compensation of the Committee

(1) Members of the Committee shall be compensated in an amount established by
the CPUC commensurate with fees PG&E pays for similar services. Each member shall receive
a $10,000.00 annual retainer and, in the event a member performs more than 40 hours of work on
Committee business between July 1 and the following June 30, such hours shall be compensated
at $250.00 per hour. PG&E shall file annually, on April 1, a report updating commensurate fees
for comparable services and concurrent with that report, an advice letter with proposed revisions
to the compensation levels.

(2) The fees and expenses of the Committee and its contractors shall be paid by
PG&E and PG&E shall be entitled to recover those amounts through its cost-of-service rates. An
authorized Committee budget not exceeding $673,077.00 for calendar year 1996, with a 1.5%
annual escalation for every year thereafter, has been established, which includes all costs,
member compensation, travel expenses, contracting fees, staff salaries and audit expenses.
Funds provided for the fees and expenses of the Committee and its contractors which remain
unspent and uncommitted on December 31 of a calendar year will be returned to PG&E to be
applied as a credit to its cost-of-service rates. The compensation of Committee members, which
is included in the budget, is tied to the fees paid by PG&E for similar services. Therefore, the
rate of change in the budget could differ from the rate of change in the compensation paid to
committee members.
(3) The Committee and its contractors shall keep accurate books, records and accounts, which shall be open to inspection and audit by the CPUC or its designee and by PG&E. Such audit shall include review of the reasonableness of fees and expenses and review for conflict of interest.

F. Public Outreach

(1) The Committee shall undertake public outreach in the affected community, including, but not limited to, assuring that the Committee meetings are conducted in accordance with the Bagley–Keene Open Meeting Act and videotaped and broadcast. To the extent that public outreach results in an increase in costs associated with the Committee, beyond any annual authorized funding level, the Committee’s budget shall be increased by the same amount and PG&E shall be entitled to recover that amount through a CPUC-determined increment to PG&E’s cost-of-service rates.

G. Outreach to Other Reviewing Committees

(1) The Committee shall undertake outreach concerning matters within its purview with other review committees established by the CPUC (e.g., the Independent Peer Review Panel for Seismic Studies at Diablo Canyon Power Plant) and by PG&E (e.g., the Diablo Canyon Decommissioning Engagement Panel) including, but not limited to, providing advanced copies of its public meeting agendas and, upon request, copies of its non-confidential documents and reports.
III. Termination of Committee's Review of Diablo Canyon Operations.

A. The Committee will terminate its review of safety of operation upon further order of the CPUC or upon the date of successful completion of the transfer of all nuclear fuel from both Diablo Canyon Spent Fuel Pools to the ISFSI. The Committee will then prepare and submit a final annual or an interim report and terminate its activities within twelve months of that date.
BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA


And Related Matter.

Application 18-07-013

Application 18-12-008

ADMINISTRATIVE LAW JUDGE'S RULING DENYING THE MOTION OF THE DIABLO CANYON INDEPENDENT SAFETY COMMITTEE FOR PARTY STATUS

This ruling denies the motion by the Diablo Canyon Independent Safety Committee (DCISC) for party status. Rule 1.4(c) of the Commission's Rules of Practice and Procedure gives the Administrative Law Judge (ALJ) discretion to grant or deny party status. Rule 1.4(c) states:

The assigned Administrative Law Judge may, where circumstances warrant, deny party status or limit the degree to which a party may participate in the proceeding.

As discussed below it would be inappropriate to grant party status to an entity that exists to advise the Commission on matters concerning Diablo Canyon Power Plant (DCPP), and where DCISC has not shown that its charter or any other authority provides for it to participate in a proceeding before the Commission as a party.

The DCISC was created by the Commission through the adoption of a Settlement Agreement in Decision (D.) 88-12-083 to monitor the safety of PG&E's
operation of Diablo Canyon. The DCISC was created as an advisory committee to the Commission and the appointing entities\textsuperscript{1} to "review Diablo Canyon Power Plant ...[DCPP] operations for the purpose of assessing the safety of operations and suggesting any recommendations for safe operations."

The DCISC Charter states that "[n]either the Committee nor its members shall have any responsibility or authority for plant operations, and they shall have no authority to direct PG&E personnel."\textsuperscript{2} DCISC's primary purpose, in accordance with its' Charter, is to prepare a report which PG&E shall have an opportunity to respond to and such response will then be made part of the report and submitted to the Commission, the Governor, the Attorney General, and the California Energy Commission (CEC).\textsuperscript{3} The president of the Commission provides the appointing authority (the Governor, the Attorney General, or the CEC) with "a list of not more than three qualified candidates as alternatives to the reappointment of that authority's designated Committee member", and the President of the Commission shall review each application to assess the applicant's qualifications, experience and background, including any conflict of interest and comment received from the public." The Charter also states that "[n]o person shall serve as a member of the Committee if he or she has a prior history of supporting or opposing PG&E as a witness or intervenor in nuclear

\begin{footnotes}
\footnote{The appointing entities each appoint one of the three members to the DCISC. The appointing entities are the Governor's Office, the Attorney General, and the California Energy Commission (CEC).}
\footnote{Restated Charter for the DCISC adopted in Commission D.07-01-028.}
\footnote{See DCISC Charter at Section II.C}
\end{footnotes}
licensing or CPUC proceedings associated with Diablo Canyon."⁴ The charter does not provide for an enumerated power that would allow the DCISC to participate as a party in any proceeding before the Commission.⁵ To the contrary provisions of the Charter infer, as an advisory committee to the Commission and the appointing authorities, it would be a conflict of interest for the DCISC to participate as a party in such proceeding, particularly one involving DCPP.

The DCISC seeks party status in this proceeding primarily to respond to the questions presented in the Assigned Commissioner’s Ruling Amending Scoping Memo Consolidating Proceeding and Modifying Proceeding Scheduled issued March 7, 2019 (March 7, 2019 Ruling). Providing comment and recommendations as to the questions presented in the March 7, 2019 Ruling does not require that the DCISC be a party to the proceeding.⁶

This ruling allows the DCISC to prepare and respond to the questions presented to PG&E in the March 7, 2019 Ruling by submitting such responses to the Commission’s Energy Division staff, David Zizmor at david.zizmor@cpuc.ca.gov. The responses may also be served on the proceeding service list and may become part of the formal record in the proceeding through attachment to a future ruling issued by the assigned ALJ. During the course of the proceeding the DCISC may submit written comments concerning the issues

⁴ DCISC Restated Charter at Section 1.C(3).

⁵ In fact, the Restated Charter does not affirmatively allow for the DCISC to pursue any action in a formal forum as a party, including enforcement actions as to safety recommendations. "The CPUC, the Governor, the Attorney General and the CEC, or any one of them, may file a request pursuant to 10 CFR 2.206 for the Director of Nuclear Reactor Regulation to institute a proceeding to require PG&E to adopt any safety recommendations made by the Committee.” [DCISC Restated Charter at 11.C(1)].

⁶ Questions presented in comment letter of former NRC ALJ Alex S. Karlin concerning the role of the DCISC and decommissioning.
raised in its motion for party status directly to Energy Division staff. These comments may become part of the official record of the proceeding through attachment to rulings of the assigned ALJ.

Additionally, nothing in this ruling prevents the DCISC from submitting public comment on issues set forth in the proceeding through written comment and during public participation hearings. We intend to hold at least one public participation hearing in San Luis Obispo. The DCISC has an opportunity to state its position as public comment for the record at that time. For further information regarding public participation in Commission proceedings DCISC or any person interested in providing public comment who is unfamiliar with the Commission’s procedures or who has questions about how to provide such comment should contact the Commission’s Public Advisor at (866) 849-8390 or (415) 703-2074, or (866) 836-7825 (TTY-toll free), or send an e-mail to public.advisor@cpuc.ca.gov

**IT IS RULED**

1. The March 15, 2019, motion for party status filed by the Diablo Canyon Independent Safety Committee is denied.

2. The Diablo Canyon Independent Safety Committee may participate in the proceeding through the submission of comments directly to staff or by submission of public comment consistent with Commission rules, policies and practice.

3. The Diablo Canyon Independent Safety Committee (DCISC) may provide comments responding to the questions set forth in the Assigned Commissioner’s Amended Scoping Memo issued on March 7, 2019. The DCISC is to provide these comments if any to Energy Division staff, David Zizmor at david.zizmor@cpuc.ca.gov and may serve the service list with such comments.
4. The Diablo Canyon Independent Safety Committee (DCISC) is to remain on the proceeding service list for information and participants in the proceeding are to continue to serve electronic copies of filings to the DCISC.

Dated June 6, 2019 at Sacramento, California.

/s/ DARCIE L. HOUCK
Darcie L. Houck
Administrative Law Judge
BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA


And Related Matter.

Application 18-07-013

Application 18-12-008

INFORMATION REGARDING SERVICE

I have electronically served all persons on the attached official service list who have provided an e-mail address for A.18-07-013 et al.

Upon confirmation of this document's acceptance for filing, I will cause a copy of the filed document to be served by U.S. mail on all parties listed in the "Party" category of the official service list for whom no e-mail address is provided.

Dated June 6, 2019, at San Francisco, California.

/s/ GABRIELA PEREZ
Gabriela Perez
N O T I C E

Persons should notify the Process Office, Public Utilities Commission, 505 Van Ness Avenue, Room 2000, San Francisco, CA 94102, of any change of address to ensure that they continue to receive documents. You must indicate the proceeding number on the service list on which your name appears.

*****************************************************************************************

The Commission’s policy is to schedule hearings (meetings, workshops, etc.) in locations that are accessible to people with disabilities. To verify that a particular location is accessible, call: Calendar Clerk (415) 703-1203.

If specialized accommodations for the disabled are needed, e.g., sign language interpreters, those making the arrangements must call the Public Advisor at (415) 703-2074 or TDD# (415) 703-2032 five working days in advance of the event.
******* SERVICE LIST *******
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A1812008

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## DCISC Recommendations & PG&E Responses

<table>
<thead>
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<th>Rec. No.</th>
<th>DCISC Conclusion or Recommendation</th>
<th>Conclusion or Recommendation Reference</th>
<th>PG&amp;E Response/Action</th>
<th>PG&amp;E Response/Action Reference</th>
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<td>Recommendations: None</td>
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<td>-</td>
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<tr>
<td>Annual Report Conclusion</td>
<td>PG&amp;E entered into an agreement, the Joint Proposal, to close DCPP at the end of its original operating license (2024 for Unit 1 and 2025 for Unit 2). As a result, the DCISC has specific interest/concerns in two areas and will follow them closely: 1. Retention of qualified, experienced personnel necessary to operate DCPP at an appropriate level of safety: 2. Adequate spending on programs and equipment to preserve an appropriate level of operational safety</td>
<td>Executive Summary: Page ES-10</td>
<td>We are pleased that the DCISC has once again concluded that PG&amp;E operated Diablo Canyon Power Plant (DCPP) safely during the report period. As you are aware, operating the plant conservatively to protect public health and safety is our highest priority, and we will continue to ensure that we fulfill this commitment. We welcome the DCISC’s independent review and oversight, which contributes to the continued safe operation of DCPP.</td>
<td>None</td>
<td>Follow</td>
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DCISC INFORMATIONAL BROCHURE
APPOINTMENT OF DISES WORKERS

The process which triggered the committee's appointment of the DISES workers is outlined in the following paragraphs. The committee was convened to address concerns about the performance and standards of DISES workers under its jurisdiction. The committee's mandate is to assess and recommend appropriate measures to enhance the quality and efficiency of DISES workers' services.

PUBLIC OUTREACH & COMMUNICATION

Public outreach and communication are essential components of the committee's work. The committee emphasizes transparency and engagement with the public to ensure that its recommendations are informed by broad participation. Public feedback is solicited through various channels, including community meetings, public notices, and online platforms.

APPOINTMENT OF CANOE INDEPENDENT SAFETY COMMITTEE

The Independent Safety Committee (ISC) has been established under the auspices of the CANOE program. The ISC is tasked with conducting independent safety assessments and standardizing safety practices across the CANOE program.

GENERAL INFORMATION

For more detailed information about the CANOE program and its components, please visit the official website. The CANOE program aims to enhance safety and efficiency in the management of CANOE projects, with a focus on environmental and social responsibility.
Aging Management is a program for monitoring and dispositioning materials and components whose characteristics change with time or use. PG&E defines aging management as "Engineering, operations, and maintenance activities to control age-related degradation and to mitigate failures of systems, structures, or components (SSC) that are due to aging mechanisms."

As Low As Reasonably Achievable (ALARA) refers to maintaining offsite radioactive releases and occupational radiation exposures as low as achievable in a reasonable, cost-effective manner.

Bank as used in “main bank transformer” or “main transformer bank” references refers to a set of installed electric transformers.

Benchmarking is the act of reviewing and evaluating practices at other nuclear plants, which are known for excellence in a specific area, for incorporation or improvement at one’s plant

Capacity Factor is the fraction of power actually produced compared to the maximum which could be produced by operating at full power during a period of time (expressed in percent).

Civil Penalty is a penalty in the form of a monetary fine levied by the Nuclear Regulatory Commission for a significant violation of its regulations.

Control Rods are long slender metal-clad rods which move into or out-of nuclear fuel assemblies in the reactor core to control the rate of the nuclear fission process. The rods contain a neutron absorbing material which, when inserted into the fuel, absorb neutrons, slowing down the fission rate and thus the heat generation rate and reducing the power level of the reactor.

Cross-cutting Aspect – a nuclear plant activity that affects most or all of NRC’s safety cornerstones, which include the plant's corrective action program, human performance, and "safety-conscious work environment." A Substantive Cross-cutting Issue refers to a performance deficiency characteristic that compromises more areas than just the specific situation in which it occurred.

Design Bases are the current features and criteria upon which the nuclear plant is designed and are also the bases for Nuclear Regulatory Commission review and approval.
**Diesel Generator (DG)** is a standby source of emergency electrical power needed to power pumps and valves to provide cooling water to the fuel in the reactor to prevent its overheating and possible melting. The diesel generator is designed to start up and provide power automatically if normal power is lost.

**Emergency Operations Center (EOC)** is the facility away from the immediate vicinity of the plant which is used to direct the operations for mitigation of and recovery from an accident.

**Emergency Preparedness (EP)** is the assurance that the plant and its personnel are practiced and prepared for postulated emergencies to be able to mitigate them and recover with a minimum of damage and health effects.

**Engineered Safety Features (ESF)** are the features (systems and equipment) engineered into the plant to mitigate the effects of anticipated and postulated accidents.

**Erosion/Corrosion** is a phenomenon which takes place in carbon steel power plant water systems. The inside metal pipe will continually corrode due to galvanic action, forming a magnetite coating as erosion (due to high water velocity and/or changes in flow direction) continually wears away the magnetite layer, permitting the corrosion layer to reform, etc. The continual combination of effects wears away and thins the pipe wall.

**Escalated Enforcement Action** is action taken by NRC beyond a notice of violation of its requirements for a single severe violation or recurring violations. Examples include a civil penalty, suspension of operations, and modification or revocation of a license to operate a nuclear plant.

**Final Safety Analysis Report (FSAR)** is the document which describes the plant design, safety analysis, and operations for Nuclear Regulatory Commission review and approval for licensing for plant operation.

**Fitness for Duty (FFD)** describes the state of an employee (cleared to access the nuclear plant) being in sound enough physical and mental condition to adequately and safely carry out his or her duties without adverse effects.

**High Impact Team (HIT)** is a term denoting a multi-disciplinary or multi-functional team of people put together to focus on solving a particular problem or perform a particular task. The disciplines included are those necessary to effectively accomplish the task.

**High Level Waste (HLW)** is highly radioactive waste, usually in the form of spent fuel (or fuel which has been discharged from the reactor as waste) containing a high level (as defined by NRC regulations) of radioactive fission products. HLW is handled remotely, using water or a thick container as a radiation shield.

**Individual Plant Examination (IPE)** is a level 2 Probabilistic Risk Assessment (PRA) analysis of plant accident sequences. The analysis includes core damage progression through the release of radioactive material to the containment and the subsequent
containment failure but stops short of determining potential impact on the public or property. The NRC requested all nuclear plants be analyzed in this way to get a better understanding of severe accident behavior. An **IPEEE** is an IPE which is initiated by External Events to the plant.

**INPO, the Institute of Nuclear Power Operators** is a nuclear industry group formed after the Three Mile Island accident to help improve nuclear plant operations through regular assessments of each nuclear plant, evaluations, best practices, and nuclear operator training accreditation.

**ISFSI**, or Independent Spent Fuel Storage Installation, is the term for DCPP’s on-site storage facility for the dry cask storage of spent nuclear fuel.

**Inservice Inspection (ISI) and Inservice Testing (IST)** are the practices of inspecting and testing certain selected components periodically during their service lives to determine degradation patterns and to repair, if necessary, any degradation beyond acceptable limits.

**Leg** – with reference to the Hot Leg or Cold Leg refers to piping trains leading to or from the reactor vessel. The Hot Leg removes heat and the Cold Leg provides cooling water to the vessel and nuclear core.

**Licensee Event Reports (LERs)** are reports from the plant operator to the Nuclear Regulatory Commission describing off-normal events or conditions outside established limits at a nuclear plant.

**Line Organization** refers to the direct reporting supervisory chain in an organization through which orders and information flow. It is also known as the “chain of command.”

**Loss of Offsite Power (LOOP)** is an occurrence whereby the normal supply of electrical power from offsite is interrupted. Nuclear reactors need power from offsite when shutdown for spent fuel cooling and residual heat removal. There are usually several sources of offsite power; however, loss of all sources would result in the automatic start-up of the diesel generators to supply power.

**Low Level Waste (LLW)** is waste containing a low level of radioactivity as defined by NRC regulations. LLW is usually in the form of scrap paper, plastic, tape, tubing, filters, scrap parts, dewatered resins, etc. LLW requires packaging to prevent the spread of contamination but little radiation shielding.

**Maintenance Rule** is the NRC proposed rule which requires that nuclear power plant licensees monitor the performance or condition, or provide effective preventative maintenance of certain structures, systems and components against licensee-established goals. The Rule becomes effective July 10, 1996.

**Microbiologically-Influenced (or Induced) Corrosion (MIC)** is corrosion, usually in the form of pitting, on steel piping systems containing stagnant or low-flow water
conditions. The corrosion is caused by surface-attached microbe-produced chemicals which attack the piping surface. Depending on severity, MIC is controlled by mechanical and chemical cleaning combined with biocides.

**Mid-Loop Operation** is an infrequently-used refueling outage procedure in which, after shutdown and a cooling period, reactor coolant is lowered below the hot and cold legs, permitting work to be performed in a relatively dry environment. The operation is a relatively high-risk condition due to the potential for loss of cooling.

**Misposition** means a positionable component, such as a valve, placed or left out of the required position for existing plant conditions when the component’s required position is tracked by a station status control tool, such as a procedure, drawing, or valve list.

**Motor-Operated Valves** are valves opened or closed by remotely- or locally-operated integral electric motors. The valves are used in power plant piping systems to divert, block or control the flow of steam or water.

**Notification**, formerly known as an “Action Request” or “AR” is a document, which is used to identify and track resolution of a problem and incorporate it into the Corrective Action Program.

**Nuclear Excellence Team (NET)** is an organization of several well-qualified senior people whose mission is "To improve plant performance through the use of performance-based self-assessments within the NPG (Nuclear Power Generation) organization." The Team is augmented by at least one other PG&E and one outside individual with expertise appropriate to the particular investigation.

**Nuclear Regulatory Commission (NRC)** is the Federal agency which regulates and licenses the peaceful uses of domestic nuclear and radioactive applications such as nuclear power plants, experimental nuclear reactors, medical and industrial radioisotope applications, radioactive waste, etc.

**Nuclear Steam Supply System (NSSS)** is the nuclear reactor and its closely associated heat removal systems which produce steam for the turbine. The NSSS usually includes the nuclear reactor, nuclear fuel, reactor coolant pumps, pressurizer, steam generators, and connected piping.

**Operational Capacity Factor** is the capacity factor as measured between, but not including, refueling outages.

**Primary Side and Secondary Side** refer, respectively, to the Reactor Coolant System, which is used to remove heat from the nuclear reactor and the Main Steam and Feedwater Systems which provide cooling to the Steam Generators and generate and provide steam to the Turbines.

**Probabilistic Risk Assessment (PRA)** is a formal process for quantifying the frequencies and consequences of accidents to predict public health risk.

**Protected Area** is the outermost area of the nuclear plant which is protected by physical
means, a security system, and security force to prevent unauthorized entry (see also Vital Area).

**Quality Assurance (QA)** comprises all those planned and systematic actions necessary to provide confidence that a structure, system or component will perform satisfactorily in service.

**Reactor Coolant System (RCS)** is the collection of piping, reactor vessel, steam generators, pumps, pressurizer, and associated valves which function to circulate water through the reactor to remove heat.

**Reactor Oversight Process** is the process by which the NRC monitors and evaluates the performance of commercial nuclear power plants. Designed to focus on those plant activities that are most important to safety, the process uses inspection findings and performance indicators to assess each plant’s safety performance.

**Refueling Outage** is a normal shutdown of a nuclear power unit to permit refueling of the reactor, along with maintenance, inspections and modifications. Typical DCPP refueling outages occur about every 18 months and last for about two months. The outages are numbered by unit number (1 or 2), "R", and the consecutive outage number. For example, "1R5" is the fifth refueling outage for Unit 1 since start-up.

**Reliability Centered Maintenance (RCM)** is the practice of maintaining equipment on the basis of the logical application of reliability data and expert knowledge of the equipment, i.e., a systems approach. Normal preventive maintenance (PM) is performed on the basis of time, i.e., maintenance operations are performed on a schedule to prevent poor performance or failure.

**Residual Heat Removal (RHR)** is the removal of the residual heat generated in the reactor fuel after reactor shutdown to prevent the fuel overheating and possibly melting. The heat removal is performed by a set of pumps, piping, valves and heat exchange equipment circulating water by the fuel while the reactor is shut down.

**Safety System Functional Audit and Review (SSFAR)** is an investigation of a single plant safety system from all perspectives such as design basis, operations, maintenance, engineering, testing, materials, problems and resolutions, quality control, etc. The review is performed by a multi-functional team and can last several months.

**Simulator** is a simulated nuclear power reactor control room with gauges, instruments and controls connected to a computer. The computer is programmed to behave like a nuclear reactor and respond to operator actions and commands. The simulator is used in training nuclear operators in controlling the reactor and responding to simulated transients and accidents.

**Single Point Vulnerability (SPV)** is an individual component, which does not have a significant level of component redundancy and whose failure alone could adversely impact the system or plant performance. DCPP defines a SPV as “a High-Critical component whose failure results in a plant trip or derate >2%.”
**Spent Fuel Pool (SFP)** is an in-plant stainless-steel-lined concrete pool of water into which highly radioactive spent nuclear fuel is stored when it has been discharged from the reactor. The spent fuel is maintained in the pool until its ultimate disposal is determined.

**Steam Dump Valve** is a device to discharge (dump) steam from the power plant piping to lower its pressure and reduce the energy in the line. This is done to permit faster shutdowns.

**Steam Generator** is a large, vertical, inverted-U-tube-and-shell heat exchanger with hot reactor coolant on its tube side transferring heat to and boiling the non-nuclear feedwater to form steam on the shell side. Besides transferring heat, the steam generator is important as a barrier between the nuclear and non-nuclear coolants.

**Surveillance** is the process of testing, inspecting, or calibrating components and systems to assure that the necessary quality is maintained, operation is within safety limits, and operation will be maintained within limiting conditions.

**Technical Specifications (TS)** are the rules and limitations by which the plant is operated. They consist of safety limits, limiting safety system and control settings, limiting conditions for operation, surveillance requirements, description of important design features, administrative controls, and required periodic and special notifications and reports.

**Technical Support Center (TSC)** is the in-plant facility which directs plant activities in mitigating accidents and minimizing their effects.

**Trains** refers to individual functional lines of system piping, components, or wiring which are usually independent of other parallel lines, which have the same redundant function.

**Trip** (or scram) is the shutting down of the nuclear reactor by inserting control rods which shut down the nuclear fission process. An automatic trip is initiated by plant monitoring systems when one or more parameters differ from preset limits. A manual trip is initiated by plant operators in an off-normal event to prevent preset limits from being exceeded or as a backup to the automatic system.

**Vital Area** is an area inside the plant within the Protected Area which contains equipment vital for safe operation.
The Diablo Canyon Independent Safety Committee ("DCISC") was established as one of the terms of a settlement agreement entered into by the Division of Ratepayer Advocates ("DRA") of the California Public Utilities Commission ("CPUC"), the Attorney General ("AG") for the State of California, and Pacific Gas and Electric Company ("PG&E"). The settlement agreement, dated June 24, 1988, was intended to cover the operation and revenue requirements associated with the two units of PG&E's Diablo Canyon Nuclear Power Plant ("Diablo Canyon") for the 30-year period following the commercial operation date of each unit. The agreement arose out of rate proceedings that had been pending before the CPUC for four years, and which included numerous hearings and pre-trial depositions. Just prior to the commencement of trial, the DRA, the AG and PG&E prepared and entered into the settlement agreement and submitted it to the CPUC for approval.

The agreement provided that:

"An Independent Safety Committee shall be established consisting of three members, one each appointed by the Governor of the State of California, the Attorney General and the Chairperson of the California Energy Commission ("CEC"), respectively, serving staggered three-year terms. The Committee shall review Diablo Canyon operations for the purpose of assessing the safety of operations and suggesting any recommendations for safe operations. Neither the Committee nor its members shall have any responsibility or authority for plant operations, and they shall have no authority to direct PG&E personnel. The Committee shall conform in all respects to applicable federal laws, regulations and Nuclear Regulatory Commission ("NRC") policies."

The agreement further provided that the DCISC shall have the right to receive certain operating reports and records of Diablo Canyon, and that the DCISC shall have the right to conduct an annual examination of the Diablo Canyon site and such other supplementary visits to the plant site as it may deem appropriate. The DCISC is to prepare an annual report and such interim reports as may be appropriate, which shall include any recommendations of the Committee.

The settlement agreement and its supplemental implementing agreement were referred to the CPUC for review and approval. Following hearings before a CPUC
Administrative Law Judge and the Commission itself, the CPUC, in December 1988 in Decision 88-12-083, approved the settlement agreement, finding that it was reasonable and "in the public interest" and that the "Safety Committee will be a useful monitor of safe operation at Diablo Canyon."

As required by the provisions of certain CPUC decisions and of Assembly Bill 1890 enacted by the California Legislature in 1996, which mandated electric utility rate restructuring and deregulation, PG&E filed an application which proposed a rate-making treatment for Diablo Canyon which would have priced the plant's output at market rates by the end of 2001. On May 21, 1997, the CPUC issued Decision 97-05-088 which, while making the Diablo Canyon settlement adopted in Decision 88-12-083 of no further force and effect, found that the DCISC remains a key element of monitoring the safe operation of Diablo Canyon and continued the DCISC. Decision 97-05-088 ordered that the DCISC remain in existence under the terms and conditions of the settlement agreement (Decision 88-12-083, Appendix C, Attachment A) until further order of the CPUC.

On May 27, 2004, the CPUC issued Decision 04-05-055, the Test Year 2003 General Rate Case, setting the PG&E's revenue requirements for its electric generation operations. In Decision 04-05-055 the CPUC also: 1) adopted a Stipulation between the DCISC, PG&E, the Office of Ratepayer Advocates (formerly the "DRA"), The Utility Reform Network, the CEC and the San Luis Obispo Mothers for Peace which provided for the DCISC's continued existence and funding through PG&E's cost-of-service rates, at the funding levels established by Decision 97-05-088 and based on the DCISC's funding for calendar year 1996 with a 1.5% annual escalation each year thereafter; 2) changed the nomination procedures for DCISC membership to eliminate from the process the participation of PG&E and the Dean of Engineering at the University of California at Berkeley; 3) modified somewhat the qualification requirements for DCISC membership; and 4) added a new requirement for public outreach in the local, San Luis Obispo area community to the DCISC's mandate.

On January 25, 2007, the CPUC issued Decision 07-01-028. The CPUC had previously adopted new practices and expectations for the DCISC without concurrently restating the Committee's charter to reflect those changes. In Decision 07-01-028, the CPUC granted the DCISC application for authority to restate its charter including the incorporation into the Restated Charter of several terms, conditions, changes, and clarifications necessitated by, and previously authorized by, the CPUC which govern the composition, responsibilities and operations of the Committee. In its Decision, the CPUC found the Restated Charter to be in the public's interest as it reflects the latest authority and obligations of the DCISC. The Committee's application was unopposed.

The first "Interim Report on Safety of Diablo Canyon Operations," covering the period of January 1 through June 30, 1990, was adopted by the DCISC on June 6, 1991, and there have been twenty-eight annual reports since then. This twenty-
ninth annual report covers the period July 1, 2018 - June 30, 2019, and this report was adopted by the DCISC at a public meeting in Avila Beach, CA on October 23, 2019.
A request for applications is publicly noticed by the CPUC. After receipt of the applications, and an opportunity for public comment on qualified applicants, a list of candidates is selected by the CPUC and provided to the appointing agencies. In accordance with the Restated Charter:

"The President of the CPUC shall review each application to assess the applicant's qualifications, experience and background, including any conflict of interest and comment received from the public, and shall propose as candidates only persons with knowledge, background and experience in the field of nuclear power facilities and nuclear safety issues who demonstrate they have no conflict of interest . . ."

In July 1989, when CPUC President G. Mitchell Wilk announced the initial list of nine candidates nominated for appointment to the DCISC, he noted that

". . . an independent safety committee clearly requires members who could demonstrate objectivity and independence. For this reason, none of the nominees has testified for PG&E or any other party before the CPUC or the Nuclear Regulatory Commission in any proceeding regarding Diablo Canyon."

The Restated Charter provides:

"No person shall serve as a member of the Committee if he or she has a prior history of supporting or opposing PG&E as a witness or intervenor in nuclear licensing or CPUC proceedings associated with Diablo Canyon.

1.2.1 Robert J. Budnitz
1.2.2 Peter Lam
1.2.3 Per F. Peterson
1.2.4 Technical Consultants & Legal Counsel
On October 10, 2007, Robert J. Budnitz, Ph.D. was appointed by California Attorney General Edmund G. Brown Jr. to a term on the Committee expiring June 30, 2010. On April 15, 2010, Attorney General Brown announced the reappointment of Dr. Budnitz to a second three-year term on the Committee commencing July 1, 2010 through June 30, 2013. On June 27, 2013, the CPUC ratified its President's selection of Dr. Budnitz as one of two candidates for appointment by Attorney General Kamala Harris to serve a three-year term on the DCISC for the period July 1, 2013 to June 30, 2016. During that period, Dr. Budnitz continued to serve as a member of the Committee pending his reappointment or replacement. On July 7, 2016, Attorney General Harris announced the reappointment of Dr. Budnitz to serve a three-year term on the Committee commencing July 1, 2016 through June 30, 2019. On August 14, 2019, California Attorney General Xavier Becerra announced his reappointment of Dr. Robert J. Budnitz to a three-year term on the DCISC beginning on July 1, 2019 and ending on June 30, 2022.

Dr. Robert J. Budnitz has been involved with nuclear-reactor safety and radioactive-waste safety for many years. In March 2017 he retired from the scientific staff at the University of California's Lawrence Berkeley National Laboratory, where he worked on nuclear power safety and security and radioactive-waste management. Since his formal retirement, he has continued to work on these same subjects through a one-person private consulting service. In February 2017 he was elected to the National Academy of Engineering. From 2002 to 2007 he was at the University of California's Lawrence Livermore National Laboratory (LLNL), during which period he worked on a two-year special assignment (late 2002 to late 2004) in Washington to assist the Director of the Department of Energy's (DOE's) Office of Civilian Radioactive Waste Management to develop a new Science & Technology Program. Prior to joining LLNL in 2002, he ran a one-person consulting practice in Berkeley CA, for over two decades. In 1978-1980, he was a senior officer on the staff of the U.S. Nuclear Regulatory Commission, serving as Deputy Director and then Director of the NRC Office of Nuclear Regulatory Research. In this two-year period, Dr. Budnitz was responsible for formulating and guiding the large NRC research program that constituted over $200 million/year at that time. His responsibilities included assuring that all major areas of reactor-safety research, waste-management research, and fuel-cycle-safety research necessary to serve the mission of NRC were adequately supported.
From 1967-1978, he was on the staff of the Lawrence Berkeley National Laboratory (LBNL), serving in 1975-1978 as Associate Director of LBNL and Head of LBNL's Energy & Environment Division. During this period, the programs under his direction were in a large mix of diverse areas relevant to DOE, including energy-efficiency, deep-geologic radioactive waste disposal, solar energy, geothermal energy, fusion energy, transportation technology, chemical-engineering for alternate fuels, environmental instrumentation, air-pollution phenomena, and energy policy analysis. He earned a Ph.D. in experimental physics from Harvard in 1968.

Dr. Budnitz served as the DCISC Chair for this report period, July 1, 2018 through June 30, 2019.
On June 3, 2009, Peter Lam, Ph.D., was appointed by Chair Karen Douglas, J.D., of the California Energy Commission (CEC) to a three-year term on the Committee commencing July 1, 2009 through June 30, 2012. On July 12, 2012, CEC Chair Robert B. Weisenmiller, Ph.D., announced his reappointment of Dr. Lam to a second three-year term on the Committee commencing July 1, 2012 through June 30, 2015. Dr. Lam was reappointed by Dr. Weisenmiller to third three-year term on the Committee commencing July 1, 2015 and ending on June 30, 2018, and subsequently on June 6, 2018, Dr. Weisenmiller announced Dr. Lam's appointment to a fourth three-year term on the Committee beginning on July 1, 2018 and ending on June 30, 2021.

Dr. Peter Lam, Administrative Judge Emeritus of the U.S. Nuclear Regulatory Commission, is an international authority of nuclear reactor operating experience, and a leading expert on nuclear reactor safety and risk assessment. Dr. Lam is now the principal of EMM International, a consulting company with a group of experts in the nuclear industry. In his 18 years of public service as an Administrative Judge, Dr. Lam has presided over numerous public proceedings to decide technical issues of national and international significance involving the use of nuclear energy and materials. Judge Lam's jurisdiction covered all 104 nuclear power plants, some 21,000 medical and material licensees, and nuclear waste storage in the United States. The ultimate resolution of these significant technical issues has contributed to the enhancement of nuclear reactor safety.

Prior to his judicial appointment 18 years ago, Dr. Lam had extensive technical and managerial experience in the nuclear energy business over a period of 20 years. He was a nuclear engineer at General Electric Company, participating in the design and analysis of boiling water reactor advanced fuels. Dr. Lam served as a program manager at Argonne National Laboratory, managing the research and development of advanced fast reactor metal fuels. He was a manager at Science Applications, Inc., and a consultant at NUS Corporation, both major consulting firms in the nuclear industry. Dr. Lam's responsibilities there involved the management of probabilistic risk assessments of operating nuclear reactors. He managed a group of technical specialists in the U.S. Nuclear Regulatory Commission in the analysis and evaluation of nuclear reactor operating experience. Dr. Lam was also a visiting faculty member at California State University at San Jose, and at George Washington University.
Dr. Lam has published 71 technical papers and reports in national and international journals and in proprietary company publications, which focus on major issues in nuclear transport theory, nuclear reactor fuel design, nuclear reactor operating experience, and nuclear reactor safety. Judge Lam has also issued over 110 published judicial decisions related to some 50 cases of litigations. These judicial decisions resolve a wide range of technical and legal issues regarding nuclear reactor safety, nuclear waste disposal, and other civilian use of nuclear technology.

Dr. Lam has presented lectures at International Atomic Energy Agency (IAEA) international conferences in Austria, Korea, and Spain, on significant results in comprehensive analyses of nuclear reactor operating experience. He has chaired an IAEA working group to develop a technical treatise for the analysis and evaluation of operating experience of the world's nuclear reactors. These activities contribute to the international exchange of important information to improve nuclear reactor safety.

Dr. Lam earned a Ph.D. and a M.S., both in nuclear engineering, from Stanford University in 1971, and 1968, respectively. He earned a B.S., in mechanical engineering, from Oregon State University in 1967. His four-year undergraduate study at Oregon State University and his four-year graduate study at Stanford University were fully funded by eight consecutive scholarships and fellowships.

Per F. Peterson is the Floyd Professor of Nuclear Engineering at the University of California, Berkeley. Since July 2017 he has also served as the Chief Nuclear Officer for Kairos Power, a start-up company developing advanced reactor technology. He previously chaired the Nuclear Engineering department from 2000 to 2005 and from 2009 to 2012 and chaired the Energy and Resources Group at U.C. Berkeley from 1998 to 2000. He received his BS in Mechanical Engineering at the University of Nevada, Reno, in 1982. After working at Bechtel on high-level radioactive waste processing from 1982 to 1985, he received a MS degree in Mechanical Engineering at the University of California, Berkeley in 1986 and a Ph.D. in 1988. He was a JSPS Fellow at the Tokyo Institute of Technology from 1989 to 1990 and a National Science Foundation Presidential Young Investigator from 1990 to 1995. He is past chairman of the Thermal Hydraulics Division (1996-1997) and a Fellow (2002) of the American Nuclear Society, a recipient of the Fusion Power Associates Excellence in Fusion Engineering Award (1999) and has served as editor for three technical journals.

Prof. Peterson's research in the 1990's contributed to the development of the passive safety systems used in the GE ESBWR and Westinghouse AP-1000 reactor designs. Currently his research group focuses primarily on heat transfer, fluid mechanics, and regulation and licensing for high temperature reactors, principally designs that use liquid fluoride salts as coolants. He is author of over 110 archival journal articles and over 120 conference publications on these topics.

On January 29, 2010, U.S. Department of Energy Secretary Dr. Steven Chu appointed Prof. Peterson as a member of the Blue Ribbon Commission on America's Nuclear Future ("BRC"), established by President Obama to provide
recommendations for solutions to manage the Nation's spent fuel and high-level waste. He co-chaired the BRC's Reactor and Fuel Cycle Technology Subcommittee with Senator Pete Domenici. He has served as a member or chair of numerous advisory committees for the national laboratories and National Research Council. He participated in the development of the Generation IV Roadmap in 2002 as a member of the Evaluation Methodology Group, and has co-chaired its Proliferation Resistance and Physical Protection Working Group since 2002.

Dr. Peterson served as DCISC Vice-Chair during this report period, July 1, 2018 through June 30, 2019.
The Restated Charter provides the Committee may contract for services including the services of consultants and experts to assist the Committee in its safety review. The DCISC Members are assisted in their important work by technical consultants and legal counsel. For this report period those persons were:

Technical Consultant: Mr. R. Ferman Wardell, a Registered Professional Engineer, holds both Bachelor and Master of Science degrees in Nuclear Engineering from North Carolina State University. He is a 53-year veteran of the nuclear power industry, having been directly involved in design, quality assurance, operation and nuclear safety oversight activities for Duke Energy Corporation's seven nuclear units. He was formerly Executive Assistant to the Chairman and CEO at Duke Energy. Mr. Wardell has been a Consultant to the DCISC since 1992. In this capacity he participates in technical and programmatic reviews of the safety of Diablo Canyon nuclear operations, DCISC public meetings, and development of the DCISC fact-finding reports and its annual reports. Mr. Wardell also serves as nuclear consultant to the minority owner of the North Anna Power Station, a nuclear plant in Virginia.

Technical Consultant: Mr. Richard D. McWhorter, Jr., holds a Bachelor of Science in Mechanical Engineering from the United States Naval Academy. He is a 30-year veteran of the nuclear power industry. He served for ten years as a division officer and department head in the navy's nuclear submarine program in which he was responsible for the operation of his submarine's nuclear power plant. Mr. McWhorter then served the U. S. Nuclear Regulatory Commission for ten years first as an Operator Licensing Examiner and then as Senior Resident Inspector at North Anna Power Station. He then was employed for two years as a Systems Engineering Manager for Dominion Virginia Power at North Anna Power Station. For ten years, Mr. McWhorter was employed at Old Dominion Electric Cooperative where he served as Vice President of Operations and Asset Management. Mr. McWhorter has been a Consultant to the DCISC since 2016. In this capacity he participates in technical and programmatic reviews of the safety of Diablo Canyon nuclear operations, DCISC public meetings, and development of the DCISC fact-finding reports and annual reports.

Legal Counsel: Robert R. Wellington, Esq. has been Legal Counsel for the DCISC since its organization in 1989. He is a graduate of Stanford University and the University of California (Hastings) Law School. For over 20 years his practice has
been limited to representing several cities, community service, regional wastewater and solid waste districts and other public agencies, including the DCISC. He advises the DCISC with regard to its legal, regulatory and administrative matters.

Assistant Legal Counsel Robert Rathie, Esq. has been associated with the Committee through his work with the Wellington Law Offices since 1993. He obtained a bachelor's degree in Social Science and History from Chico State University in 1972 and served for 15 years in the U.S. Merchant Marine as chief purser on board passenger and freight vessels in foreign trade. He received his Juris Doctor Degree from Monterey College of Law in 1993. He is a member of the State Bar of California and the Monterey County Bar Association. He assists Mr. Wellington in advising the DCISC with regard to its legal, regulatory and administrative matters.
29th Annual Report by the Diablo Canyon Independent Safety Committee, July 1, 2018—June 30, 2019

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29th Annual Report, Volume I, Section 1.3, DCISC Public Meetings and Plant Tours

The DCISC held four public meetings on the following dates:

- **October 24-25, 2018, Avila Beach CA Public Meeting and Public Plant Tour**
- **February 27-28, 2019. Pismo Beach CA Public Meeting**
- **June 4-5, 2019, Avila Beach, CA Public Meeting and Public Plant Tour**

These are described in Section 2.0.

The DCISC also held an Open House in Avila Beach, CA on April 17, 2019. This is described in Section 1.6.
29th Annual Report, Volume I, Section 1.4, Committee Member Site Inspection Tours and Fact-finding Meetings

The DCISC Members and Consultants visit Diablo Canyon regularly to conduct fact-finding meetings and tour areas of the plant to review operational activities and inspect systems, equipment or structures which the Committee has under review or has interest. A record of these fact-finding meetings is contained in Volume II, Exhibits D.1 - D.9, and plant tours and inspections are listed in Exhibit E.

1.4.1 Inspections and Fact-finding meetings by Robert J. Budnitz

To Diablo Canyon on September 5–6, 2018, with Consultant Wardell to: observe a meeting of the Plant Health Committee; receive an update on the status of the Control Room Simulator and Digital Control Systems; review the Vibration Monitoring Program; observe meetings of the Corrective Action Review and the Readiness Review Boards; meet with the NRC Senior Resident Inspector; review the Fire Probabilistic Risk Assessment (PRA) upgrade and the status of the PRA Plant-Response Model; meet with the Diablo Canyon Station Services Director; receive an update on human performance; and to meet with San Luis Obispo Office of Emergency Services.

To Diablo Canyon on November 7-8, 2018, with Consultant McWhorter to: meet with the NRC Resident Inspector; meet with a Diablo Canyon officer; track the resolution of Areas for Improvement identified by the Institute of Nuclear Power Operations (INPO); review the health of reactor coolant pumps and seals; observe the response to a fire alarm in the Administration Building; receive an update on the health of the Safety Injection System; review Maintenance Department performance; review the seismic qualifications of the Switchgear Room walls; receive information on decommissioning planning; review Benchmarking Programs; receive information on the Preventive Maintenance Optimization Project; observe a muster meeting of the Emergency Response Organization; and to review emergency planning.

To Diablo Canyon on March 18–19, 2019, with Consultant Wardell to: meet with the NRC Senior Resident Inspector; meet with a Diablo Canyon officer; review safety-related designation of FLEX equipment; receive an update on the Long Term Seismic Program; review plant performance during the twenty-first refueling outage for Unit 1; receive an update on the Equipment Reliability Process and the Fire Door Life Management Program; and receive information on cyber security for
digital control systems.

1.4.2 Inspections and Fact-finding meetings by Peter Lam

To Diablo Canyon on August 22–23, 2018, with Consultant McWhorter to: meet with the NRC Senior Resident Inspector; observe licensed operator continuing training; review performance of the Learning Services Department; review Diablo Canyon's implementation of the National Fire Protection Association 805 Program; meet with a Diablo Canyon director; review the Operating Experience Program; receive an update on the Meteorological Information and Dose Assessment System; review performance of the Chemistry Department; and receive an update on Reactor Coolant System health.

To Diablo Canyon on January 23–24, 2018, with Consultant McWhorter to: meet with the NRC Senior Resident Inspector; review and assessment of the health of large motors; review the results of the NRC's Triennial Fire Protection Inspection; review the Safety Plan and Safety Schedule for the twenty-first refueling outage for Unit 1; observe a meeting of the Corrective Action Review Board, review the Quality Verification organization's 2018 audit and 2019 audit plan; receive an update on the health of the emergency diesel generators; receive an update on licensed operator staffing; review the cause and corrective actions for a recent Unit 2 trip; and meet with a Diablo Canyon officer.

To Diablo Canyon on April 16–17, 2019, with Consultant McWhorter to: meet with the NRC Senior Resident Inspector; review the future movement of spent fuel; review DC Power Systems; review the Performance Improvement and Foreign Material Exclusion Programs; attend a meeting of the Plant Health Committee; review the results of the Management Observation Program; receive an update on the Flow Accelerated Corrosion Program; receive information on in-service inspection and relief requests; tour and observe operations in the Control Room; and meet with PG&E Vice President and Chief Nuclear Officer.

1.4.3 Inspections and Fact-finding meetings by Per F. Peterson

To Diablo Canyon on July 10–11, 2018, with Consultant Wardell to: review the Annual Radioactive Release and Environmental Monitoring Reports; receive an update on NRC Generic Issue GSI-1919 concerning Containment sump debris; review turnover in the System Engineering staff; receive an update on Quality Verification's assessment of the twentieth refueling outage for Unit 2; make an assessment of workplace seismic safety issues; observe Site Alignment workshop; meet with Diablo Canyon Senior Director of Nuclear Services; meet with the NRC Senior Resident Inspector; review the Preventive Maintenance Optimization Initiative; receive an update on operations at the Independent Spent Fuel Storage Installation; and review the process used for fuel procurement.

To Diablo Canyon on December 4–5, 2018, with Consultant Wardell to: review transportation of high-level spent fuel; review corrective actions identified by the
Quality Assurance organization; review the Engineering Excellence Plan; receive an update on the Delivering the Nuclear Promise initiative; review the upgrades made to the spent fuel pool bridge cranes; meet with the NC Senior Resident Inspector; meet with the Senior Station Director of Nuclear Services; review component health monitoring by the Preventive Maintenance Optimization organization; review plans for the twenty-first refueling outage of Unit 1; and receive information on decommissioning waste disposal.

To Diablo Canyon on May 8-9, 2019, with Consultant Wardell to: meet with PG&E Vice President and Chief Nuclear Officer, review INPO's assessment and observations of the Operations Departments; receive an update on professional development opportunities for Diablo Canyon employees; review the use of wireless information technology in the Powerblock; receive information on the High Pressure Inspection (Safety Injection) System; review configuration management; meet with the NRC Senior Resident Inspector; review the California Independent System Operator's protocol regarding load following; attend a meeting of the Notification Review Team and an Emergency Response Organization muster; and review issues concerning workplace seismic safety.

1.4.4 Tours of DCPP by DCISC Members and Members of the Public During the Period July 1, 2017—June 30, 2018

The DCISC has conducted tours of Diablo Canyon Power Plant each year with members of the public in conjunction several public meetings during a calendar year. The tours are noticed in advance in the local newspaper and on the DCISC's website, and members of the public sign up in advance. During these tours, members of the public and the Committee Members and Consultants hold individual discussions concerning the DCISC, Diablo Canyon, and nuclear power. The tours have continued to be moderately subscribed by members of the public and are considered by the DCISC as an important aspect of its public outreach activities.

Public tours were conducted at the October 24, 2018 and June 13, 2019 public meetings with the DCISC Members, and Consultants. No tour was conducted in conjunction with the February 2019 public meeting and the Committee continues to assess the effectiveness and utility of its public tours in context of its mandate to conduct public outreach in the local area. The tours in October 2018 and June 2019 were attended by 14 and 21 members of the public respectively. The tours no longer pass through security to enter controlled/protected areas of the plant. The DCISC appreciates PG&E’s cooperation in facilitating these tours with members of the public and continues to consider them to continue to be a valuable part of the DCISC's public outreach to the local community and the public at large.

The DCISC has worked with PG&E to offer another option for the members of the public to tour Diablo Canyon to that offered by PG&E in conjunction with its plant tour program. These tours are described in Volume II, Exhibit E. The DCISC will continuing to assess attendance and the efficacy of the public tours in furtherance of its public outreach efforts.
The DCISC's preference is to schedule annual meetings between its Members and their respective appointing entities and with the Commissioners or representatives of the California Public Utilities Commission to provide background on and information regarding current activities of the Committee.

On January 22, 2019, DCISC Chair Dr. Robert J. Budnitz and Assistant Legal Counsel Robert Rathie met in Los Angeles, California, with Chief Assistant Attorney General Angela Sierra and Deputy Attorney General Megan Hey. The discussion during the meeting included reviewing the history of the DCISC and its current activities including the use of the Open Items List to track items identified for follow up and review and the regular fact-finding visits made to Diablo Canyon by individual members and consultants. The DCISC representatives also reviewed the results to date of participation in Diablo Canyon's Employee Retention Program and the recent issuance by the CPUC of Decision 18-11-024, implementing the provisions of Section 712.7 of the California Public Utilities Code added by the passage of California Senate Bill 1090 (SB 1090). Dr. Budnitz also explained and discussed the differing code compliance requirements applicable to plant systems, structures and components and the status of the NRC review of PG&E's seismic risk assessment for Diablo Canyon. Also reviewed during this meeting were current and proposed plans, proposed schedules and the relative risk associated with the storage of nuclear fuel in the spent fuel pools and within Diablo Canyon's Independent Spent Fuel Storage Installation ("ISFSI") during and following cessation of generation operations. The participants also briefly discussed a potential role for the DCISC following cessation of generation operations.

On February 19, 2019, at the request of California Energy Commission (CEC) Chair Dr. Robert Weisenmiller, DCISC Member Dr. Peter Lam and Assistant Legal Counsel Robert Rathie participated in a conference call with Dr. Weisenmiller, CEC Executive Director Mr. Drew Bohan and CEC Senior Nuclear Policy Advisor and Emergency Response Coordinator Dr. Justin Cochran. During this telephone conference, Dr. Lam provided an update on the recent rating received by Diablo Canyon from the Institute of Nuclear Power Operations. The DCISC representatives received information from the CEC representatives that the CEC believes that the funds allocated for decommissioning and for Employee Retention and Severance Programs are afforded protection in PG&E's bankruptcy filing. Dr. Lam discussed the degree and the schedule for any curtailment of NRC inspection activities during the period following generation operations. The DCISC
representatives discussed the DCISC's previous review of an issue raised by representatives of the group San Luis Obispo Mothers for Peace concerning the potential for embrittlement of the Diablo Canyon Unit-1 reactor vessel. Dr. Lam also reviewed the plans, proposals and schedules for spent fuel transfer from the reactor vessels to the spent fuel pools and dry cask storage within the ISFSI, including the issues involved and the time required if a new, site-specific dry cask storage canister were to be licensed for use at Diablo Canyon as part of the license renewal proceedings for the ISFSI. The DCISC and CEC representatives also briefly discussed the potential for a continuing, albeit reduced, role for the DCISC to continue to review Diablo Canyon operations following cessation of electricity generation operations concerning which Dr. Weisenmiller, on behalf of the CEC, previously provided a letter of support.

On April 10, 2019, DCISC Chair Dr. Robert J. Budnitz, Assistant Legal Counsel Robert Rathie and Special Counsel for Regulatory Affairs Martin Mattes, Esq. met at CPUC Headquarters in San Francisco, California with CPUC Regulatory Analyst David Zizmor, Esq. and CPUC Assistant General Counsel Jason Reiger, Esq. During this meeting, the attendees discussed the impact of decommissioning-related activities at Diablo Canyon during the period when electricity generation operations continue and following cessation of those operations. Discussion also included the role of Diablo Canyon personnel to the plant's Employee Retention Program, capital projects previously planned but which have now been cancelled due to the planned shutdown of the plant by 2025, the process for final shutdown of the reactors, the schedule and transport of nuclear fuel to the spent fuel pools, disassembly and removal of plant equipment and the possibilities of repurposing certain facilities. Radiological risk factors associated with these activities were reviewed as was the role of Cal-OSHA in decommissioning the power plant.

At the April 10 meeting, the DCISC representatives reviewed the relationship and the efforts to date to coordinate activities between the DCISC and the Diablo Canyon Decommissioning Engagement Panel formed by PG&E to provide community input into decommissioning Diablo Canyon. There was discussion concerning the public comments received concerning a possible post-shutdown role for the DCISC and the reduction in scope of the DCISC's review which might continue following cessation of electricity generation operations. The CPUC and DCISC representatives agreed that an ambiguity exists in the DCISC's present Restated Charter concerning the scope of the CPUC's intent as to a post-shutdown role for the DCISC and that this issue will require clarification. Three possible scenarios were discussed including: (1) the DCISC terminating its activities upon cessation of electricity generation; (2) the DCISC continuing in a reduced role to review fuel storage and transportation for a fixed period or until all spent nuclear fuel is in dry cask storage and within the ISFSI; and (3) the DCISC continuing to review spent fuel and transportation related issues while also undertaking an expanded role to review other, yet to be defined, on-site decommissioning operations. It was noted that concerning this latter role the requirements for DCISC membership would need to be changed to include expertise and experience with on-site, industrial-type decommissioning activities unrelated to nuclear/spent
fuel storage and transportation.

The parties also discussed the possible resolution of the ambiguity in the DCISC Restated Charter within the 2018 Nuclear Decommissioning Cost Triennial Proceedings (2018 NDCTP) in which a Motion filed by the DCISC for party status was currently pending and the option that the DCISC might offer a recommendation through the CPUC Energy Division as to which identified alternative might provide the DCISC with the ability to offer the most value to PG&E's ratepayers and the public. The DCISC representatives affirmed that the Committee Members were unanimous in their belief that the DCISC has not to date engaged in any activities which are outside the remit provided by its present Restated Charter and that the DCISC is committed to a fully transparent and public process, including reaching out to each of the State agencies which appoint its members, concerning whether it is to have any post-shutdown role and, if so, the nature of that role.
29th Annual Report by the Diablo Canyon Independent Safety Committee, July 1, 2018—June 30, 2019
Preface | Executive Summary
Volume I TOC | Volume II TOC | PG&E Response | Contact the DCISC

29th Annual Report, Volume I, Section 1.6, Retirement of Diablo Canyon Power Plant at Expiration of its Current Operating Licenses

1.6.1 Background

On June 21, 2016, PG&E announced a Joint Proposal with Friends of the Earth, the Natural Resources Defense Council, Environment California, the International Brotherhood of Electrical Works Local 1245, Coalition of California Utility Employees and the Alliance for Nuclear Responsibility to retire Diablo Canyon at the expiration of the current operating licenses from the NRC and to abandon license renewal activities for both units.

The Joint Proposal provided for PG&E's continued operation of Diablo Canyon at present generation levels through the current NRC license periods with retirement of Unit-1 in 2024 and retirement of Unit-2 in 2025. The Joint Proposal provided for replacement of Diablo Canyon's power by the procurement of 2,000 gigawatt hours of energy efficient power by the end of 2024 and for recovery by PG&E of its investment in Diablo Canyon including for prior activities in furtherance of relicensing the plant.

To replace Diablo Canyon power, the Joint Proposal provided for specific greenhouse gas-free procurement requirements which would commence in 2018 and continue through 2031. The Joint Proposal also provided for PG&E to implement employee retention and severance programs to retain existing employees through a retention incentive payment program of a 25% bonus based on an employee's annual salary in accordance with two tranches (i.e., a division or a portion of a whole) followed by the severance program, and to provide resources and assistance to transitioning workers. The Joint Proposal also proposed that PG&E would continue to provide funding to the San Luis Obispo local community after 2025 to replace lost tax revenue.

On August 11, 2016, PG&E filed Application 16-08-006 ("Application") with the California Public Utilities Commission (CPUC) for approval of the retirement of Diablo Canyon, implementation of the Joint Proposal, and for recovery of associated costs through proposed ratemaking.

In summary, in its Application PG&E sought authorization from the CPUC to:

- Retire Diablo Canyon by the end of its current operating licenses from the NRC, that is, by November 2, 2024 for Unit-1 and by August 26, 2025 for
Unit-2.

- Recover the full book value of both units by the time they cease operations.
- Conduct procurement activities in three separate tranches related to the replacement of power generated by Diablo Canyon with greenhouse gas (GHG)-free energy resources beginning in 2018 and continuing through 2031 (tranches two and three were subsequently withdrawn from the Application and a request made that the matter of replacement power be addressed in the CPUC's Integrated Resource Planning Proceedings).
- Recover $352.1 million in costs for an Employee Retention Program, to implement an employee severance program, and $11.3 million to retrain eligible Diablo Canyon employees.
- Continue to provide support to state and local authorities for emergency preparedness activities during decommissioning.
- Provide $85 million for a Community Impacts Mitigation Program to help offset property tax loss for San Luis Obispo County local entities.
- Recover $52.7 million in costs associated with license renewal activities; and an unspecified amount for cancelled capital projects.

On November 8, 2017, CPUC Administrative Law Judge Allen issued a Proposed Decision Approving the Retirement of Diablo Canyon. The Proposed Decision included denying PG&E's request to recover in its rates the community impact funding proposed for the San Luis Obispo area and recommended consideration of electricity procurement to replace Diablo Canyon power should be addressed in the CPUC's Integrated Resources Planning procurement proceedings. The Proposed Decision also did not include full funding for the Employee Retention Program instead reducing the ratepayer-supported employee retention incentive payments from 25% to 15% per year.

On January 11, 2018, the CPUC voted unanimously to adopt Decision 18-01-022 approving PG&E's Application to retire Diablo Canyon by 2025, approving PG&E's recovery in its rates the costs associated with the retirement of the power plant; incurred for license renewal expenses; to retain Diablo Canyon employees until scheduling closing, and to retrain workers. The Decision, which was issued on January 16, 2018, in approving $211.3 million and not the $352.1 million sought by PG&E, did not approve full funding by the ratepayers for the Employee Retention Program as proposed in PG&E's its Application, directing, consistent with the Proposed Decision, that the ratepayer-supported employee retention incentive payments be reduced from 25% to 15% per year. The CPUC denied in its entirety PG&E's request to recover in its rates the community impact funding provided to the San Luis Obispo area and determined that consideration of electricity procurement to replace Diablo Canyon power should be addressed in the CPUC's Integrated Resources Planning procurement proceedings. The Commission denied an Application for Rehearing of Decision 18-01-022 filed by the group Californians for Green Nuclear Power on October 1, 2018.
On February 12, 2018, State Senator William Monning introduced SB 1090 to require the CPUC to approve the full funding requested by PG&E in its Application for the Community Impact Mitigation and the Employee Retention Programs and require the CPUC to ensure that the Integrated Resources Planning procurement proceedings avoid any increase in emissions of greenhouse gases as the result of the retirement of Diablo Canyon.

On March 7, 2018, PG&E formally requested the NRC to withdraw its license renewal application for both Diablo Canyon units.

On May 1, 2018 PG&E announced its formation of the Diablo Canyon Decommissioning Engagement Panel (DCDEP) consisting of 11 members of the local community to provide community input to PG&E on topics including, but not necessarily limited to, the site-specific decommissioning plan; potential future uses of the site, facilities and lands; the economic impacts resulting from the closure of the power plant; emergency planning; used fuel storage; and the 2018 NDCTP.

1.6.2 29th Annual Report Period

During this annual report period, on the evening of October 24, 2018, following their regularly scheduled public meeting in Avila Beach and at the invitation of the DCDEP, the DCISC Members and Technical Consultants attended a regular meeting of the DCDEP as observers. In December 2018, the DCDEP issued its Strategic Vision document to provide information on the process to decommission the power plant and on the recommendations by the DCDEP that reflect the community’s wishes for what will occur before, during and after decommissioning. On March 13, 2019, at the invitation of the DCDEP, DCISC Chair Dr. Budnitz attended and presented remarks during the DCDEP’s meeting regarding spent fuel management. Dr. Budnitz stated that he was the current Chair of the DCISC and would try to present the DCISC’s position on various topics where he was confident that the DCISC’s position was clear, however, he was nevertheless speaking for himself and not as an official spokesman for the DCISC on that occasion.

On December 7, 2018, the CPUC issued Decision 18-11-024, modifying in part Decision 18-01-022 in compliance with California Public Utilities Code Section 712.7, added by SB 1090, authorizing PG&E: (1) to collect an additional $225.8 million in rates over the amounts authorized in Decision 18-01-022, that is: (i) in the additional amount of $140.8 million for the Employee Retention Program through the existing ratemaking treatment for Diablo Canyon; and (ii) in the additional amount of $85 million for the Community Impacts Programs through the nuclear decommissioning non-bypassable charge; (2) ensuring the Integrated Resource Planning energy procurement process is designed to avoid any increase in emissions of greenhouse gases as a result of the retirement of Diablo Canyon; (3) establishing an expedited Tier 1 advice letter process for implementing the rate increases for the Employee Retention and Community Impacts Programs; and (4) closing the proceeding.
On December 13, 2018, PG&E submitted prepared testimony in the 2018 NDCTP. The purpose of the NDCTP is to review PG&E's updated nuclear decommissioning cost estimates and determine the necessary customer contributions to fully fund the nuclear decommissioning trusts to the level needed to decommission PG&E's two nuclear power plants located at Diablo Canyon and at Humboldt Bay California. In the 2018 NDCTP PG&E will present the first detailed, site-specific decommissioning cost estimate and schedule for post shutdown treatment of spent fuel for Diablo Canyon for CPUC review and approval.

In its testimony filed on December 13, 2018, PG&E stated the current dry cask storage design in use at the Diablo Canyon ISFSI is limited by the ISFSI Technical Specifications to a minimum cooling of 10 years for the amount of burnup of the DCPP spent nuclear fuel. The Technical Specifications limits are based on the design basis accident evaluations using the physical properties of the storage system. To accelerate the transition from wet storage to dry storage of spent nuclear fuel before a 10-year cooling time, a dry cask storage design system with a heat load capacity higher than the one currently licensed by the NRC for the Diablo Canyon ISFSI would need to be licensed by the NRC and implemented by Diablo Canyon.

On January 29, 2019 due to extensive litigation and significant liabilities resulting in a deteriorating financial situation due to wildfires in California during 2017 and 2018 potentially impacting upon the corporation and the utility, and in accordance with a previously announced plan, PG&E Corporation and Pacific Gas and Electric Company entered Chapter 11 reorganization in bankruptcy. During this annual report period, the DCISC has continued to monitor and investigate operations at Diablo Canyon to assess any impact from the bankruptcy on the safety of operations including any impact on decommissioning planning which might or could have an impact on continuing electricity generation operations as a result. Reports of the DCISC's investigation are included in this Annual Report.

On March 7, 2019, the Assigned Commissioner, CPUC President Michael Picker, issued an Amended Scoping Memo in the 2018 NDCTP. In the Amended Scoping Memo, PG&E was directed to respond to additional concerns raised through public comment to the CPUC by San Luis Obispo Mothers for Peace expressing safety concerns as to Unit 1 and to concerns raised by Mr. Alex S. Karlin concerning the functions, cost, and useful life of the DCISC. PG&E provided Supplemental Testimony responding to both concerns.

On March 15, 2019, after consulting with CPUC Energy Division staff, the DCISC filed a Motion for Party Status in the 2018 NDCTP in order to present testimony as an intervenor to address the issues presented by Mr. Karlin as to the role of the DCISC and to address the possible need for a modification of its Commission-approved Restated Charter should a future post-generation role for the DCISC be determined to be appropriate and should the 2018 NDCTP provide the appropriate forum to pursue such modification. In its Motion, the DCISC stated that it has not
to date exceeded its authority under the present Restated Charter nor has it expended significant effort or funds reviewing post-shutdown decommissioning-related matters.

At each of its public meetings during this annual report period, following comments received from members of the public and representatives of certain non-governmental organizations, the DCISC discussed the issue of a continued role to review decommissioning activities after the power plant ceases to generate electricity. At its public meetings on February 7 and June 4, 2019, the Committee received and considered a risk-based, draft post-shutdown summary of possible areas for the DCISC's continued review following cessation of electricity generation at Diablo Canyon. Minutes of each public meeting are contained in the Annual Report in Volume II, Exhibits B.3, B.6, and B.9.

On April 17, 2019, DCISC Member Dr. Peter Lam, Technical Consultant Richard McWhorter and Assistant Legal Counsel Robert Rathie held an open house event in Avila Beach attended by five persons to provide an opportunity to informally discuss matters, exchange views and ask questions concerning the DCISC's review of safety of operations at Diablo Canyon and to express opinions and ideas concerning the possibility of the DCISC continuing to play a role in reviewing activities in connection with decommissioning Diablo Canyon after the cessation of generation activities.

During the public meeting on June 4, 2019, the Committee Members considered three alternate versions of proposed modifications of the present Restated Charter and, if party status were to be granted in the 2018 NDCTP, the Members directed that preparations be made to present all three alternatives as part of the DCISC's testimony in the 2018 NDCTP. The Members further directed that as a part of that testimony a provisional recommendation be offered, that being the version of the proposed modification of the Restated Charter which would define "safety of operations" as activities in connection with generation of electricity by Diablo Canyon and/or the operation of the Diablo Canyon spent fuel pools and related support systems and the Diablo Canyon ISFSI, including the transport of nuclear fuel to and from Diablo Canyon's spent fuel pools and the storage of nuclear fuel within the spent fuel pools and the transport and storage of nuclear fuel to and within the ISFSI or elsewhere at Diablo Canyon. The Committee Members also directed: (i) that a risk-based assessment, in terms of both the probabilities and the consequences, for recommending the preferred version as well as the respective risk associated with each of the other two identified alternatives should be included in the testimony; (ii) that certain other alternatives also be identified; and (iii) that the testimony include recognition that the nature of any post-generation role for the Committee would necessarily entail a significantly reduced scope of review and accordingly the Committee would require fewer resources.

On June 6, 2019, Administrative Law Judge Houck issued her ruling denying the DCISC's Motion for party status in the 2018 NDCTP. The ruling allows the DCISC to prepare and respond to questions presented to PG&E in the March 7, 2019
Amended Scoping Memo by submitting its responses to the Commission's Energy Division staff and serving those responses on the service list in the proceeding. The ruling provides that the Committee's responses may become part of the official record of the 2018 NDCTP proceedings through their attachment to a future ruling issued by the Administrative Law Judge.

Documents including: the March 7, 2019, 2018 NDCTP Amended Scoping Memo; PG&E's Supplemental Testimony of March 15, 2019; the DCISC's Motion for Party Status in the 2018 NDCTP; the draft post-shutdown summary of possible areas of DCISC continued review discussed at its February and June 2019 public meetings; the recommended alternate version of the Committee's present Restated Charter discussed at the June 4, 2019 DCISC public meeting; and the June 6, 2019 Ruling denying the DCISC’s Motion for party status in the 2018 NDCTP are included in Volume II, Exhibit H.

The DCISC recognizes the commitment under its present Restated Charter to continue to monitor and report on safety of operations at Diablo Canyon, including reviewing any effect of decommissioning-related activities on those operations while the plant continues to generate electricity, and the DCISC will continue to provide information to the public and to the Governor, the California Energy Commission, the California Attorney General, and to the CPUC on developments which may have an impact on safety of operations at Diablo Canyon.
The Restated Charter provides that the DCISC shall have the right to receive on a regular basis specified operating reports and records of Diablo Canyon, as well as such other reports pertinent to safety as may be produced in the course of operations and may be requested by the Committee. Over the past 29 years, thousands of PG&E and Nuclear Regulatory Commission documents (relating to both historical and current operations) have been provided to the DCISC. Document lists for this annual report period are shown in Volume II, Exhibit A.
DCISC activities and meetings are documented for public information in several ways as described below. The Committee's documents are available at the Reference Department at the California Polytechnic University (Cal Poly) R.E. Kennedy Library in San Luis Obispo, California.

The DCISC's Annual Report, covering the period July 1 through June 30, is a comprehensive description of Committee activities throughout the period. The report is published in two volumes and in a compact disk format and is made available on the Committee website (www.dcisc.org) and is provided to local San Luis Obispo city and county public libraries and to any interested persons.

Minutes of each public meeting are contained in the Annual Report in Exhibits B.3, B.6, and B.9.

Reports of DCISC visits to the Diablo Canyon Power Plant are contained in the Annual Report in Exhibits D.1 through D.9.

During this report period the DCISC screened an informational video concerning its history, role and responsibility, appointment of members and operation of the Committee. This video was shown during the February 2019 public meeting and in conjunction with both public tours conducted in this report period.

DCISC public meetings are webcast in real time and cablecast over the San Luis Obispo local government access television channel, Channel 21, and are available online at all times through indexed, archived streaming video at the link provided on the Committee's website to www.slo-span.org.

The DCISC issues press releases before and, on occasion, after its public meetings concerning topics it believes to be of particular interest.
Notice of Meeting

A legal notice of the plant tour and public meeting and several display advertisements were published in local newspapers and mailed to the media and those persons on the Committee's service list. Information on the public tour and a copy of the meeting agenda were also posted on the Committee's website at www.dcisc.org.

Public Tour of Diablo Canyon Power Plant

On the morning of Wednesday, October 24, 2018, Diablo Canyon Independent Safety Committee (DCISC) Members Drs. Lam and Peterson, together with Committee Technical Consultant Mr. Wardell, accompanied by 14 members of the public, participated in a tour of Diablo Canyon Power Plant (DCPP). The members of the public responded to the advertisement concerning the public tour placed in a local area newspaper and on the DCISC’s website. The group assembled in the Pacific Gas &Electric Company’s (PG&E) Energy Education Center auditorium for a brief introduction of the DCISC and its Members and Technical Consultants and a discussion of the appointment of its members and the role and operations of the Committee and to view an informational video on the history, role and responsibilities of the Committee. Afterward, DCPP tour guide Ms. Diana Turk gave a safety and informational presentation with an overview of the power plant and how it operates. An opportunity was provided for questions. The group then boarded a bus for the ride to the plant. During the drive information was presented on the history of the plant. The bus entered the plant site through the Avila Gate and the group received security badges and a briefing from PG&E representatives on PG&E’s land stewardship responsibilities and the various external features and buildings and was taken on a narrated drive-by of the Independent Spent Fuel Storage Installation (ISFSI), also known as the dry cask spent fuel storage facility.
The bus then arrived at the parking area. The members of the public and the DCISC Members and Technical Consultants visited the Glass-top Simulator Facility where PG&E representative Mr. Roger Reed provided a description and an opportunity to observe computer-based simulations run on the Simulator to train control room operators. The group then had the opportunity to view the Intake and Outfall Facilities where the plant pulls in and discharges cooling water from and to the Pacific Ocean.

The group then departed DCPP for return to the Energy Education Center and had the opportunity to discuss the plant with Drs. Lam and Peterson and Mr. Wardell. While the tour was taking place DCISC Member Dr. Robert J. Budnitz and Committee Technical Consultant Mr. McWhorter were on site for one hour to observe the evaluated emergency response exercise which was then taking place and later visited the Emergency Operations Facility on Los Osos Road to continue their observation of the emergency response exercise.

Conclude Public Tour

Agenda

I Call to Order - Roll Call

The October 24, 2018, public meeting of the Diablo Canyon Independent Safety Committee, the ninety-first meeting of the DCISC, was called to order by Committee Chair, Dr. Robert J. Budnitz, at 1:15 P.M. at the Point San Luis Conference Room at the Avila Lighthouse Suites in Avila Beach, California.

Present:

Committee Member Robert J. Budnitz
Committee Member Peter Lam
Committee Member Per F. Peterson

Absent:
None

II Introductions

Dr. Budnitz welcomed those present in the room, introduced himself and reviewed briefly his professional background and briefly reviewed the appointment to the DCISC by officials of the State of California and the professional backgrounds of each of his fellow Members, Dr. Per F. Peterson, the appointee of the Governor, and Dr. Peter Lam, the appointee of the Chair of the California Energy Commission (CEC). Dr. Budnitz serves on the Committee as the appointee of the California Attorney General. The Chair then introduced and briefly described the professional background of each
the Committee’s Technical Consultants, Mr. R. Ferman Wardell, P.E. and Mr. Richard D. McWhorter Jr. and introduced Legal Counsel Robert R. Wellington. Dr. Budnitz then introduced and recognized Mr. Hector Garcia, Support Manager in the office of PG&E Vice President and Chief Nuclear Officer Mr. James Welsch. Dr. Budnitz reported Mr. Garcia also ably serves as the principal liaison and point of contact for the Committee with PG&E and DCPP.

### III Public Comments and Communications

The Chair reviewed the procedures and advice from the agenda for the meeting concerning receipt of comments from members of the public wishing to address remarks to the Committee and invited anyone who wished to address remarks to the Committee Members concerning matters not on the agenda for this public meeting to do so now.

Dr. Lam recognized and acknowledged the presence in the audience of Judge Alex Karlin, a former colleague of Dr. Lam’s and Dr. Lam remarked Judge Karlin is one of the appointees to the Diablo Canyon Decommissioning Engagement Panel (DC DEP). Dr. Lam invited Judge Karlin to address some remarks to the Committee.

Judge Karlin confirmed his service on the DC DEP which was formed in May 2018 and he renewed a prior invitation to the DCISC to attend the meeting of the DC DEP to be held that evening in San Luis Obispo, California. Judge Karlin reported the DC DEP was created by PG&E at the behest of the California Public Utilities Commission (CPUC) to serve as a conduit for information between the local community, PG&E and DCPP on matters concerning the decommissioning of DCPP. Judge Karlin reported PG&E has provided thorough and careful support through the process of the eleven members of the DC DEP holding monthly meetings concerning decommissioning funding, the decommissioning process, and the re-use of land and facilities. Judge Karlin then introduced Dr. Nancy O’Malley and Ms. Linda Seeley, fellow members of the DC DEP present in the audience for this public meeting.

Judge Karlin remarked he previously provided a chart to the DCISC with a comparison of different decommissioning oversight groups for decommissioned or decommissioning nuclear power plants and he commented the DC DEP was intended to be quite different from the San Onofre Community Engagement Panel formed to oversee the decommissioning of the San Onofre Nuclear Generating Station located in Pendleton, California. Judge Karlin remarked the DC DEP was also quite different from the DCISC which was created by the CPUC.

Dr. Budnitz thanked Judge Karlin for his remarks and confirmed that the
Members of the DCISC received the comparison mentioned by Judge Karlin and intend to attend the meeting later in the evening of the DC DEP.

Dr. Gene Nelson, who serves in a volunteer capacity as legal assistant and government liaison for the group Californians for Green Nuclear Power (CGNP) was recognized and he observed that CGNP has acted as an intervenor in opposition in the proceedings before the CPUC which approved PG&E’s voluntary application to close DCPP by 2025. Dr. Nelson reported the CPUC has rejected CGNP’s application for a rehearing in the matter of the closure of DCPP but that the status of PG&E’s application is designated as “reopened” on the CPUC’s website.

Mr. David Weisman, a representative of the group Alliance for Nuclear Responsibility (A4NR) was recognized. Mr. Weisman observed that A4NR has assembled a set of formal written comments concerning the DC DEP and A4NR has suggestions and certain questions concerning the future direction of the DC DEP which anyone may review on the A4NR website at www.a4nr.org. Dr. Budnitz confirmed that the DCISC has received and reviewed the document mentioned by Mr. Weisman.

Ms. Linda Seeley, speaking on behalf of the group San Luis Obispo Mothers for Peace (MFP) was recognized. Ms. Seeley stated MFP would like the DCISC to investigate the designation made in 2003 by the Nuclear Regulatory Commission (NRC) that DCPP Unit-1 is among the five most embrittled reactors in the U.S. Ms. Seeley stated that when the Unit-1 reactor vessel was manufactured in 1967 the knowledge of the effect of exposure to radioactivity on the vessel welds was not as well understood as it is today and it was her belief that the welds in Unit-1 contained a higher concentration of copper than is used in reactor vessels manufactured more recently. She commented that it was her understanding that this concentration of copper contributes to the embrittlement identified in the Unit-1 reactor vessel. She remarked that she understood that analysis of certain samples of the metal used in a reactor vessel, known as coupons, can reveal the existence of microscopic cracking which contributes to embrittlement and that ultrasonic testing is also performed in the effort to detect cracking due to embrittlement. Ms. Seeley stated it was informed that three coupons from Unit-1 have been analyzed and there are no plans to do any further analysis. Dr. Peterson stated that the three coupons which have been tested were located in the vessel in areas which exposed them to substantially more neutron radiation than would be experienced by the reactor vessel for the entirety of its operational life and therefore additional coupons were not required for analysis. Ms. Seeley stated that DCPP has applied to the NRC and received an exemption from the requirement to perform ultrasonic testing of the reactor vessel which was to have otherwise been performed in 2015 and the result is no additional ultrasonic testing will be performed for Unit-1 during its expected lifetime. Ms. Seeley stated her
understanding that it would cost approximately $200,000 to perform the ultrasonic testing during the refueling outage for Unit-1 scheduled in February 2019 and she commented perhaps the community could raise the funds necessary if PG&E lacked the funding to perform the tests.

Dr. Lam replied he was unaware of the exemption from the NRC regulations cited by Ms. Seeley and Dr. Peterson commented the DCISC would look into the issue raised by Ms. Seeley at its next fact-finding in December 2018. Dr. Budnitz commented that the vessel is not brittle; rather all metals are subject to embrittlement in certain circumstances and at very cold temperatures and there is a difference between being brittle and being susceptible to embrittlement. As a reactor vessel is generally always kept at a high temperature, it remains ductile and provided reactor shutdown proceeds in an orderly way, the vessel will not be susceptible to forces which could subject it to fracture due to embrittlement. He remarked the danger comes from the injection of cold water. The NRC established alternate regulations found at 10 CFR 50.61 and 10 CFR 50.61(a) governing what is known as pressurized thermal shock with 10 CFR 50.61(a) taking into account more recent metallurgical knowledge which enables nuclear power plants to do a much more realistic analysis to demonstrate the vessel is safe against cold water injection than was possible under 10 CFR 50.61 which Dr. Budnitz described as very conservative. Dr. Budnitz stated it was his understanding DCPP has conducted analyses under 10 CFR 50.61(a) which show the vessels are not subject to embrittlement, Dr. Lam recalled that PG&E initially elected to use 10 CFR 50.61 and the coupon data was reassuring. Dr. Budnitz stated the DCISC has reviewed this issue previously and was convinced at that time the vessels were not susceptible to the pressurized thermal shock phenomenon and this would remain so through 2025. Dr. Lam commented that while he initially had concerns about the NRC’s motivation in promulgating 10 CFR 50.61(a) he is now convinced that the alternate regulation is based upon better science. Mr. Wardell reported the issue of the exemption from ultrasonic testing was reviewed by the Committee previously and it was found that the exemption was applicable to a portion of the test and was due to the geometry of the reactor vessel which prevented the use of instruments to get an accurate reading. He offered to provide information to Ms. Seeley on the Committee’s review of that issue.

Ms. Sherry Lewis, a representative of MFP was recognized. Ms. Lewis inquired with reference to Ms. Seeley’s concern as to what item on the DCISC Open Items List pertained to the Committee’s review of these issues. Mr. Wardell replied Item SE-26 was the applicable reference.

IV Consent Agenda

The first item on the Consent Agenda was approval of the Minutes of the
Committee’s June 13-14, 2018 public meeting held in Avila Beach, California. The Members and Technical Consultants reviewed the draft of the June 2018 Minutes provided with the agenda packet for this meeting. Items were discussed and reviewed for follow-up or for future action and clarification was provided to Legal Counsel concerning certain references in the draft Minutes and regarding typographical or editorial corrections, as well as concerning substantive changes to be made to the final version of the June 2018 Minutes. The Minutes as revised and corrected will be part of the final version of the Committee’s 28th Annual Report on the Safety of Diablo Canyon Power Plant Operations (Annual Report) for the period July 1, 2017 to June 30, 2018.

There were no public comments on June 2018 Minutes and on a motion by Dr. Lam, seconded by Dr. Peterson, the Minutes of the Committee’s February 2018 public meeting were adopted as amended subject to inclusion of the revisions discussed and changes provided to its Legal Counsel.

V Action Items


The Chair requested Consultant Wardell to lead the discussion concerning preparation of the 28th Annual Report. Mr. Wardell reported three drafts were circulated for review and a draft of the Executive Summary was provided for final review and as the basis for discussion regarding approval of the report. The Committee Members discussed with Mr. Wardell the basis for Specific Conclusion No. 1 concerning the reduction in the rate of identification of violations of very low safety significance as this could be a sign of good performance but it could also be indicative of a certain complacency in reporting issues which could lead to a violation. The Members discussed and agreed that the reference in the 28th Annual Report in Specific Conclusion No. 1, concerning a reduction in the rate of identification of violations of a very low safety significance, should state this appears to be an improvement from most periods and the DCISC will continue to carefully review this trend. The Members then discussed and decided to delete a Concern based upon the DCISC continuing to monitor PG&E’s ongoing program to work with the local, state and federal agencies to assure adequate emergency preparedness in the event of a significant accident. The Committee will continue to monitor the issue vigilantly but it was judged this issue does not require enhanced Committee review or scrutiny.

Dr. Peterson recognized the efforts of Mr. Wardell and Consultant McWhorter and Assistant Legal Counsel Rathie in compiling the Annual Report and,
upon his motion, seconded by Dr. Lam, the Committee’s 28th Annual Report was unanimously approved. Mr. Wellington reported the 28th Annual Report, with PG&E’s response incorporated, will be posted on the Committee’s website at www.dcisc.org, distributed in two bound volumes, as a CD and, following the Committee’s approval, on a usb drive.

Following the discussion and approval of the 28th Annual Report, Dr. Gene Nelson of CGNP was recognized. Dr. Nelson remarked that with regard to the Concern included in the Annual Report regarding the retention of qualified, experienced personnel necessary to operate DCPP to the end of its operational lifetime, the only impact to employee retention of which Dr. Nelson was aware concerned personnel who were in training to become reactor operators. He stated no reactor operators were impacted by proposed changes to the Joint Proposal, entered into by PG&E, together with Friends of the Earth, the Natural Resources Defense Council, Environment California, the International Brotherhood of Electrical Works Local 1245, Coalition of California Utility Employees and the Alliance for Nuclear Responsibility (Joint Proposal) to retire DCPP at the expiration of the current operating licenses for each unit.

B. Update on Financial Matters and Committee Activities.

The Chair requested Legal Counsel Wellington to provide this report. Mr. Wellington reported that the Committee completed calendar year 2017 and will complete calendar year 2018 within the amount of funding provided by PG&E’s ratepayers for the Committee’s operation and, following its normal practice, any funds unspent at the end of 2018 should be returned by the Committee for credit to the ratepayers. Mr. Wellington directed the attention of the Committee to the list of planned activities for the remainder of 2018 and for 2019 prepared by Mr. Wardell which was included in the agenda packet for the meeting.

C. Discussion of Issues on Open Items List:

Dr. Budnitz requested Consultant Wardell lead a review of items on the Open Items List which Dr. Budnitz described as an important tool used by the Committee to establish priorities and to track and follow technical issues, concerns, and information identified as requested or to be provided on a periodic basis and for subsequent action during fact-finding or public meetings. Items that are captured on the Open Items List which represented changes from the prior version of the list were shown in italicized red text on the version of the Open Items List provided with the agenda packet for this meeting. Items concerning which action was taken included the following

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<table>
<thead>
<tr>
<th>Item</th>
<th>Re:</th>
<th>Action Taken/Next Action</th>
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<tbody>
<tr>
<td>CO-10</td>
<td>Mispositioning Errors</td>
<td>Move to 3Q/4Q19 FF</td>
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<tr>
<td>CO-11</td>
<td>Operator Concerns &amp; Issues</td>
<td>Next Action 12/18 FF PFP/RFW</td>
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<tr>
<td>CO-13</td>
<td>Implementation of CASIO</td>
<td>Next Action 12/18 FF PFP/RFW</td>
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<td>-</td>
<td>Load-following Policies Resulting in DCPP Transients</td>
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<tr>
<td>CO-14</td>
<td>Operator Retention Project</td>
<td>Move to 1Q19 FF</td>
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<tr>
<td>CM-13</td>
<td>Maint. Dept. Performance Measures</td>
<td>Next Action 11/18 FF RJB/RDM</td>
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<td>EN-31</td>
<td>Engineering Excellence Plan</td>
<td>Next Action 12/18 FF PFP/RFW</td>
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<tr>
<td>HP-25</td>
<td>Management Observation Program</td>
<td>Move to 1Q/2Q 19 FF</td>
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<tr>
<td>HS-6</td>
<td>Safety Culture/SCWE</td>
<td>10/18 Public Meeting</td>
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<td>EP-2</td>
<td>Observe Emergency Drills &amp; Exercises</td>
<td>Next Action 3Q19 FF</td>
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<td>EP-3</td>
<td>Emergency Preparedness during Decomm.</td>
<td>Add as New Item</td>
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<td>RA-5</td>
<td>Non Seismic PRA Program</td>
<td>Move to 4Q19 RJB</td>
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<tr>
<td>RA-6</td>
<td>Seismic Fragility Analysis</td>
<td>Move to 4Q19 RJB</td>
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<tr>
<td>QP-3</td>
<td>QV Audits</td>
<td>Move to 1Q19 FF</td>
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<td>ER-6</td>
<td>Equipment Reliability Process (new item)</td>
<td>Next Action 12/18 FF PFP/RFW</td>
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<td>SE-49</td>
<td>Emergency Diesel Generators</td>
<td>Next Action 12/18 FF</td>
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<td>PFP/RFW\SF-SF-2</td>
<td>Relative Risk - Cask &amp; Pool Fuel Storage</td>
<td>Next Action 4Q19 FF RJB</td>
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<td>SF-3</td>
<td>Seismic Adequacy of the ISFSI</td>
<td>Next Action 4Q19 FF RJB</td>
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<td>SC-12</td>
<td>Workplace Seismic Safety</td>
<td>Next Action 5/19 FF PFP/RFW</td>
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<tr>
<td>FP-5</td>
<td>Review NFPA 805 Program &amp; System</td>
<td>Next Action 1/19 FF</td>
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<td>LD-3</td>
<td>Review Non Licensed Training Programs</td>
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<td>DEC-1</td>
<td>Review Decommissioning</td>
<td>Next Action 11/18</td>
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<td>Plans</td>
<td>FF RJB/RDM</td>
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<td>DEC-4 Differing Categories of Waste Produced</td>
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<td>O-1 Observation of Work Processes in the Plant</td>
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<td>2/18 PM-4 Transportation of Casks Offsite</td>
<td>Next Action 12/18 FF PFP/RF</td>
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<td>2/18 PM-6 List of Cancelled Projects</td>
<td>Next Action Awaiting DCP</td>
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<td>2/18 PM-7 Preventive Maintenance Optimization</td>
<td>Next Action 11/18 FF RJB/RDM</td>
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<td>2/18 PM-10 Inspect Non Load Bearing Walls in the 4kvDC Bus Room</td>
<td>Next Action 11/18 FF RJB/RDM</td>
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<td>2/18 PM-14 NRC Requirements re Staffing</td>
<td>Next Action 1Q19 FF</td>
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<td>2/18 PM-15 Review of County OES Resources</td>
<td>Next Actions 1Q19 FF/June 19 PM</td>
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<td>2/18 PM-19 Delivering the Nuclear Promise Initiative</td>
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<td>6/18 PM-6 QV Assessment-Confined Space Program</td>
<td>Next Action 12/18 FF PFP/RFW</td>
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1*Key to abbreviations used: Dr. Robert J. Budnitz (RJB), Dr. Peter Lam (PL), Dr. Per F. Peterson (PFP), Mr. Richard D. McWhorter (RDM), and Mr. R. Ferman Wardell (RFW), Fact-Finding Meeting (FF), Quarter (Q), Public Meeting (PM), Review (Rev).

List of DCPP Systems/Components Reviewed Periodically

<table>
<thead>
<tr>
<th>Component</th>
<th>Action</th>
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<tr>
<td>RCS Process Control</td>
<td>Remove Duplicate Item</td>
</tr>
<tr>
<td>Margin Management</td>
<td>Review date for next review</td>
</tr>
<tr>
<td>Steam Generators</td>
<td>Review after R21 refueling outages</td>
</tr>
</tbody>
</table>

In response to a question from Ms. Lewis, a representative of MFP, during the discussion of the Open Items List the Members confirmed that they discussed with DCPP the possibility of the public having an opportunity to observe an emergency drill but for procedural reasons involving not just DCPP but also County, State and Federal agencies participating in emergency drills it was determined this would not be possible. In response to Ms. Lewis request to receive copies of the reports which are the subject of Open Item RP-12 (DCPP radioactive release reports), Mr. Wardell stated
those documents are publicly available through the NRC. Dr. Gene Nelson of CGNP remarked he participated in preparations for an emergency exercise in the past and found that the facilities do not afford much room for observers.

During the discussion of the Open Item List, Judge Alex Karlin was recognized. Judge Karlin remarked it was his impression that the DCISC’s principal interest in decommissioning at the time is due to its potential impact during the period of plant generation operations and the DCISC is exploring issues regarding a potential role for the DCISC once the plant ceases generating electricity. Judge Karlin stated he had not recently reviewed the Restated Charter for the DCISC as to the Committee’s responsibilities for review during operation and, while the DCISC has considerable technical expertise, the Committee does not represent the community or stakeholders in PG&E’s shutdown of DCPP. He observed the DC DEP is a citizen volunteer group which was recently created but he commented the DC DEP may not have sufficient strength and duration as that shown by the DCISC over its more than twenty years of operation. Judge Karlin stated his opinion that it was important for the DC DEP to understand and interface with the DCISC to preclude overlapping efforts and to learn from each other. The Members and Technical Consultants responded to Judge Karlin and stated that there is a specific item on the DCISC agenda for this public meeting to discuss these and other issues related to decommissioning DCP. Dr. Budnitz confirmed, in response to Judge Karlin’s inquiry, that the Restated Charter for the DCISC was approved by a CPUC decision.

Ms. Linda Seeley, a member of MFP and of the DC DEP, was recognized during the review of the Open Items List and she inquired whether the DCISC has expertise in the matter of dry cask storage of spent nuclear fuel. The Members confirmed that the existing procedures and facilities for effecting dry cask storage of spent nuclear fuel are subjects upon which the Committee has engaged in considerable review and if the DCISC continues a review role following shutdown, this is a topic on which the Committee will need to retain its competencies. Ms. Seeley remarked that she has a very strong desire, as a member of the DC DEP, to ensure DCP sets an example of the safest dry cask storage possible and in considering re-purposing of DCP facilities post-shutdown, perhaps a research facility focused on safely storing nuclear waste might be an appropriate use.

Dr. Gene Nelson, a representative of CGNP, was recognized during the review of the Open Items List. Dr. Nelson stated it is important to appreciate the rapid decay rate of radioisotopes found in so called spent nuclear fuel as the longer-lived products have a much lower specific activity and 300 years from the present time the radioactivity from spent fuel will be comparable to that used when newly purified material is extracted.
Items identified in the Open Items List with the agenda packet for this meeting which were identified by Mr. Wardell as appropriate for closure were approved for closure.

A short break followed

VI Information Items Before the Committee

A. Informational Presentations Requested by the Committee.

Dr. Budnitz introduced Mr. Bruce Watson, Certified Health Physicist and Chief of the Reactor Decommissioning Branch, Office of Nuclear Material Safety and Safeguards of the NRC. Dr. Budnitz remarked Mr. Watson has important responsibilities for the way the NRC regulates, oversees and assures the safety of decommissioning activities for nuclear facilities. Dr. Budnitz reported Mr. Watson would be making another presentation later that evening to the DC DEP at its meeting in San Luis Obispo, California.

Brief Remarks on Reactor Decommissioning & Proposed Changes to Decommissioning Regulations - Mr. Bruce Watson, Chief, NRC Reactor Decommissioning Branch.

Mr. Watson stated he welcomed the opportunity to speak to the DCISC and provide information on how the NRC accomplishes its mission of ensuring safety and security in safely decommissioning a nuclear power plant including in the management of spent fuel. He commented the NRC is an independent federal agency established to license and regulate the civilian use of radioactive materials in the U.S. and to ensure adequate protection of public health and safety. To carry out this responsibility the NRC has strict rules governing decommissioning of a nuclear power plant involving cleanup of radioactively contaminated plant systems and structures and the removal of spent fuel. Mr. Watson stated the NRC regulates cleanup of radiological hazards and the cleanup of non radiological hazardous materials is regulated by the federal Environmental Protection Agency (EPA). Site restoration and reutilization is the responsibility of the property owner and the State.

Mr. Watson reported the decommissioning process for a nuclear power plant begins with formal written notification to the NRC by the licensee that nuclear operations have permanently ceased and that the fuel has been removed from the reactor vessel. Within two years after notification of permanent shutdown, the licensee is required to submit its Post Shutdown Decommissioning Activity Report (PSDAR) which must contain a description and schedule for the planned decommissioning, an estimate of the expected cost of decommissioning, and an evaluation of the potential environmental impacts of decommissioning. No significant decommissioning-related activities may take place until 90 days after the NRC receives and confirms
the adequacy of this information. A public meeting is held in the vicinity of
the power plant to receive public comment on the PSDAR.

Mr. Watson reported there are two primary approaches to accomplishing
decommissioning. The first method entails the immediate dismantlement
and the second entails deferred dismantlement, or safe-store (SAFSTOR).
The licensee is permitted to adopt either method at various periods, i.e., to
go back and forth from dismantling facilities to SAFSTOR. Mr. Watson
remarked issues such as the potential dose to its workforce, the availability
of decommissioning funds, access to low-level waste burial sites, potential
reuse of the site and stakeholder input are just some of the factors licensees
use to make a decision. Mr. Watson reported that the NRC requires
decommissioning be completed within 60 years of the cessation of plant
operations. NRC oversight continues throughout all phases of the
decommissioning process to determine and ascertain that decommissioning
activities are conducted safely, spent fuel is being stored safely and
activities at the site are conducted in accordance with applicable regulations
and commitments and the administrative controls put in place by the
licensee are adequate and comply with regulatory requirements. Those
controls include self-assessments, audits to identify any declining trends,
corrective actions, design controls, safety reviews, maintenance,
surveillance, radiation protection and effluent control. Mr. Watson reported
that at least one NRC resident inspector remains onsite during initial
decommissioning phases, until the complexity and risk are suitably reduced
and then NRC oversight shifts to specialized inspectors assigned from the
NRC regional offices or from NRC headquarters.

Mr. Watson reported the public has several opportunities to participate in
the decommissioning process including after submission of the PSDAR,
following the NRC’s receipt of the termination plan and prior to the issuance
of any license amendments, NRC meetings with its licensees are open to the
public except when a discussion involves proprietary information, safeguards
or classified materials.

Mr. Watson stated before commencing nuclear operations the licensee must
establish a financial mechanism such as a trust or guarantee to ensure
sufficient funds will be available to pay for decommissioning and when the
plant is operating must report to the NRC every two years on the status of
this funding for each reactor. This report must estimate the minimum
amount required for decommissioning using formulas developed by the NRC.
Mr. Watson reported that many factors can affect the cost of
decommissioning and those costs, that is, the cost for radiological
decommissioning only, have ranged from $280 million to $612 million. He
reported the latest decommissioning funding status report to the NRC for
DCPP submitted by PG&E in 2016 show that DCPP Unit-1 has $1.2 billion
and Unit-2 $1.5 billion for decommissioning costs. In response to Dr.
Budnitz’ inquiry, Mr. Watson reported these funds could be designated for the entire cost of decommissioning, as some utilities differentiate between radiologically-related costs and total cost and some do not. Mr. Watson confirmed in response to Dr. Lam’s inquiry that if PG&E reserved exactly the minimum amount presently required for radiologically-related decommissioning costs that the NRC would not impose additional financial requirements. Mr. Watson stated that a plan with such a minimal amount would, over a maximum lifetime of 60 years, be expected to reasonably increase in accordance with a formula developed by the NRC to be sufficient to complete radiological decommissioning. Mr. Watson reported that it is the individual states’ public utilities commissions that regulate collection of decommissioning funds.

Dr. Peterson remarked that it is well known that almost anything done in California may be expected to be more costly than if it were done in another state and he inquired if this was factored into the NRC’s funding requirements. Mr. Watson responded that the utilities operating within California are expected to know and understand the costs and the processes which will need to be followed in decommissioning a nuclear power plant and to address the matter of the cost with the CPUC to ensure the utilities receive adequate funding.

In closing his remarks, Mr. Watson stated he welcomes the DCISC’s interest in the NRC’s regulatory mission as it pertains to decommissioning and he will discuss later in the evening at the DC DEP’s public meeting, which the Members of the DCISC will attend, the proposed rulemaking changes under consideration which may affect decommissioning which he stated are intended to make the process more efficient. In response to Dr. Budnitz’ inquiry Mr. Watson stated the proposed changes are principally changes to administrative guidance and will not result in any substantive changes in the level of protection or the safety significance afforded by the present regulations governing decommissioning. Mr. Watson gave as an example changes to the emergency plans based upon risk significance as fuel is moved to dry storage, under the expected proposed rulemaking this would be codified as opposed to requiring a license amendment as is the case under the current regulations. He agreed with Dr. Lam’s characterization of the proposed rulemaking as intended not as a change in the level of safety but rather as a change to how that same level of safety is accomplished.

In response to Dr. Budnitz, Mr. Watson confirmed, although the functional levels of its review change, for example with emergency planning, environmental monitoring, security and radiation exposure for the workforce, over the term and progress of decommissioning the NRC remains involved while spent fuel remains in the spent fuel pools, as it is transferred and finally entirely contained in dry cask storage but decommissioning activities are continuing, and finally upon conclusion of decommissioning
when all fuel is in casks. Mr. Watson remarked that the NRC’s principal inspectors during the dismantling phase are health physicists. Mr. Watson reported the NRC has considerable experience with decommissioning, having terminated licenses for more than 80 nuclear facilities including ten nuclear power plants under its rules since 1997.

In response to Consultant McWhorter’s inquiry, Mr. Watson reported the reports which a licensee submits every two years to confirm a reasonable amount of funding exists to decommission a facility are not site-specific. The site-specific decommissioning cost estimate is provided to and reviewed by the NRC five years prior to a plant’s permanent cessation of operations and must be updated in the PSDAR. Once the plant enters decommissioning, a decommissioning funding report is required to be submitted by the licensee every year. Mr. McWhorter remarked and Mr. Watson agreed that for DCPP that date is fast approaching. Mr. Watson remarked that with reference to any of the nuclear power plants decommissioned or being decommissioned in California to date no funding issues have been identified. In response to Dr. Lam’s observation, Mr. Watson stated the licensee’s trustee of the decommissioning funds is permitted to invest the funds in certain investments to ensure a minimum rate of return of two percent above inflation.

Following Mr. Watson’ presentation, the floor was opened for comments by members of the public.

Dr. Gene Nelson, representing CGNP, was recognized. Dr. Nelson remarked that decommissioning funds are collected by PG&E at the rate specified by the CPUC. He stated concerning the issue of regulation, he is amongst a group of scientists and engineers who have criticized the reliance by the NRC in its official filings on what he described as a scheme called Linear No Threshold or LNT which Dr. Nelson stated lacked a rigorous scientific basis. He referred the Committee and Mr. Watson to an article in Forbes magazine by Dr. James Conca and stated that the issue of reliance on LNT is one the nuclear industry will have to confront in the future.

Judge Alex Karlin was recognized and stated his remarks concerned the legal status of the proposed rulemaking discussed by Mr. Watson and he remarked that while Mr. Watson’s organization and others at the NRC have been working diligently for a number of years, the proposed rules have yet to be formally proposed as they have not yet gone to the NRC Commissioners for approval, after which there will be an opportunity for public comment. Judge Karlin stated it is his understanding the NRC is seeking to issue the final rules by the end of 2019.

Ms. Sherry Lewis, a representative of MFP was recognized. In response to Ms. Lewis query, Dr. Budnitz confirmed the amounts cited in Mr. Watson’s
presentation as available with respect to Unit-1 and Unit-2 represented funds presently available and no information was presented by Mr. Watson concerning what the final cost of decommissioning both DCPP units might be and NRC regulatory provisions are in place concerning how those funds may be invested. In response to Ms. Lewis question as to the effect of a bankruptcy by PG&E, Drs. Peterson and Budnitz stated that when PG&E entered bankruptcy in 2001 decommissioning funds were protected.

Ms. Linda Seeley, a Member of the DC DEP, was recognized. In response to Ms. Seeley, Dr. Budnitz confirmed that a large set of NRC regulations and regulatory guidance now exists concerning decommissioning and Ms. Seeley’s impression that license amendments were required as decommissioning-specific regulations were absent was incorrect. Mr. Watson confirmed, in response to Ms. Seeley’s query, that PG&E would have the option at times to switch from actively decommissioning DCPP to SAFSTOR, provided the facility was completely decommissioned within 60 years.

Mr. David Weisman, a representative of A4NR was recognized. Mr. Weisman remarked that a principal concern expressed by members of the public during meetings of the San Onofre Community Engagement Panel was a lack of trust in the oversight role of the NRC as the regulator of decommissioning the San Onofre Nuclear Generating Station (SONGS). Mr. Weisman remarked that SONGS efforts to replace its steam generators resulted in a fiasco for which Southern California Edison International, the operator of SONGS, Mitsubishi, the manufacturer of the failed steam generators, and the NRC were all responsible, He observed that when SONGS announced plans for replacement of its steam generators in response to letters of concern from U.S. Senators Feinstein and Boxer the NRC assured the Senators and the public that special oversight and inspection would be conducted. Instead the steam generators malfunctioned and led to the premature closure of SONGS with South California Edison’s ratepayers having to pay hundreds of millions of dollars. Mr. Weisman observed that this leads him to the conclusion that when the NRC fails to regulate, it is the ratepayers who suffer financially.

Mr. Weisman remarked that a recent issue with SONGS spent fuel loading campaign when a spent fuel canister became stuck on a small metal lip has led to a shutdown and a cancellation or hold on SONGS cask loading campaign as procedures and protocols will need to be rewritten and for which ratepayers will eventually pay. Mr. Weisman commented that the issue with the stuck spent fuel canister occurred on August 3, 2018 and was reported to the NRC on August 6, 2018 during a telephonic exit meeting with the NRC. Subsequently on August 8, 2018, the inspection report, the result of a year-long inspection, concluded that SONGS met all required activities identified in the Holtec firm’s (the manufacturer of SONGS’ HI STORM spent fuel storage system) certificate of compliance with one non
cited violation identified for design control of field changes and without recognition of what Mr. Weisman stated Southern California Edison now recognizes is an unacceptable condition. He remarked the NRC’s failure of oversight somehow ends up costing Californians although the authority granted to the NRC by the federal government prevents Californians from having much say in these matters.

Mr. Weisman closed his remarks by observing there are verifiable reasons to believe the suspicions of those who suspect the NRC’s regulations may not be as robust as claimed. Mr. Watson remarked in response to Mr. Weisman’s comments that with respect to spent fuel management, utilities receive reimbursement from the U.S. Department of Energy so costs cited by Mr. Weisman may not necessarily come directly from California ratepayers. Mr. Watson observed that trust must be earned and built upon and with any individual mishap trust is immediately attacked.

The Chair reminded the members of the audience and those viewing the public meeting on the internet through a livestream feed, that Mr. Watson would be making another presentation later that evening to the DC DEP.

**VII Committee Member Reports and Discussion**

**A. Public Outreach, Site Visits and Other Committee Activities; Scheduling and Confirmation of Future Fact-findings and Public Meetings:**

Mr. Wellington directed the Members’ attention to the green colored pages in the agenda packet for this public meeting which list all of the DCISC’s scheduled public meetings and fact-findings to date.

The Members turned to the matter of confirming and scheduling public meetings of the DCISC. Public meetings are now scheduled for February 13-14, 2019 (subsequently changed to February 27-28, 2019), June 5-6, 2019 (the original date for the June 2019 having been changed from June 19-20, 2019), October 23-24, 2019, and a public meeting was scheduled for February 12-13, 2020.

Fact-finding visits were confirmed and scheduled as follows2*

[2018] November 7-8 RJB/RDM; December 12-13 PFP/RFW; and

[2019] January 23-24 PL/RDM; March 18-19 RJB/RFW; April 17-18 PL/RDM; May 8-9 PFP/RFW; July 16-17 RJB/RDM; August 21-22 PL/RFW; September 11-12 RJB/RDM; November 6-7 RJB/RFW; December 10-11 PFP/RDM; and

*Abbreviations used: Robert J. Budnitz (RJB); Peter Lam (PL); Richard D. McWhorter (RDM); Per F. Peterson (PFP); R. Ferman Wardell (RFW)

The Members and Consultants observed that the fact-finding schedule is subject to change based on emergent activities at DCPP.

B. Documents provided to the Committee:

Mr. Wellington directed the Committee's attention to the list of documents received since its last public meeting in June 2018. A copy of the list was included with the public agenda packet for this meeting.

VIII Technical Consultant & Legal Counsel Reports & Receive, Approve and Authorize Transmittal of Fact Finding Reports to PG&E

The Chair requested Consultant Wardell to report on a fact-finding visit to DCPP. Mr. Wardell reported on the July 10-11, 2018 fact-finding visit to DCPP with Dr. Peterson. Mr. Wardell stated activities conducted and topics reviewed with PG&E during that visit included the following:

- Annual Radiological Release and Environmental Monitoring Report - Mr. Wardell stated this report documents radiation releases, planned and otherwise. All releases in the Annual Radiological Release Report were planned and measured releases during the report period and represented very low fractions of permitted releases. Mr. Wardell reported the Environmental Monitoring Report showed a person at the site boundary 24 hours every day for 365 days would have received one millirem of radiation exposure due to the proximity of DCPP which compares very favorably to the annual average of 300 millirem for someone living in the U.S. Mr. Wardell reported since DCPP began operation there have been no increases in background radiation levels around the site.

- NRC Generic Issue GSI-191, Containment Sump Debris - Mr. Wardell described this as a long-standing issue and reported DCPP has increased the size of the Containment sumps twice and performed analysis of chemicals and debris which could accumulate in the Containment sump during a loss of coolant accident and analyzed the effect on water recirculation and cooling. DCPP needs to complete some calculations and to incorporate design changes into the plant’s design basis. When this is accomplished it is anticipated the NRC will issue a closure letter and Mr. Wardell reported DCPP expects to close this important and very complex issue by September 2019.

- System Engineering Staff Turnover - the fact-finding team met with System Engineering organization management to review turnover in
the System Engineering Program. Mr. Wardell reported the turnover was principally related to personnel transferring within the station and the System Engineering organization is increasing hiring efforts, implementing a summer intern program, and bringing new engineers into a career engineering program to provide them with a diverse base of experience within the Engineering organization. The Engineering Fix-It-Now (EFIN) Program has been expanded to take part of the workload from the system engineers, administrative burdens have been reduced, and the Component Engineering Program has been expanded. Future staffing needs are also being assessed.

- **Quality Verification 2R20 Outage Assessment - Quality Verification (QV) found that operators during Outage 2R20 did not take appropriate action to verify equipment configuration and the issue was identified as an Area Requiring Management Attention And placed in the Corrective Action Program. Mr. Wardell stated the DCISC would follow up on this issue at the December 2018 fact-finding.**

- **Workplace Seismic Safety - Mr. Wardell stated DCISC review includes identification of items including furniture the displacement of which during an earthquake could injure personnel or block access to critical areas in the plant. Some deficiencies were identified in May 2018 and Mr. Wardell reported the fact-finding team found all these to have been corrected and were caused by personnel turnover in the Building Services organization. A formal plant program is now in place and Mr. Wardell reported this item will be reviewed during Dr. Peterson’s May 2019 fact-finding.**

- **Observe Alignment Workshop - this workshop was conducted to foster the alignment of employees to the DCPP Excellence Program and on the goals and expectations set by management. Mr. Wardell stated the workshop included a good discussion.**

- **Meeting with Senior Director, Nuclear Services, Jan Nimick - Mr. Wardell and Dr. Peterson discussed with Mr. Nimick the System Engineering organization staffing issues, the fact-finding team’s experience concerning workplace seismic safety, the Site Alignment Workshop and a possible future role for the DCISC following plant shutdown in 2025.**

- **Meeting with NRC Senior Resident Inspector - the fact-finding team met with the Senior NRC Resident Inspector, Mr. Chris Newport, to discuss the role of the NRC’s Office of Decommissioning, learned the NRC’s annual public meeting is to be held on August 28, 2019, discussed issues related to employee engagement in work, and the DCISC and NRC’s review of employee engagement and staffing.**

- **Preventive Maintenance Optimization Initiative - Mr. Wardell described this initiative as a cost and personnel savings effort which involves a**
cross-discipline team reviewing the more than 12,639 preventive maintenance activities to assess the need for and optimize these activities by determining the appropriate frequency and correct scope. The cross-discipline team has reviewed 8,474 preventive maintenance activities and eliminated 1,148, changed the frequency of 2,151 and changed the scope of 219 and Mr. Wardell described this as good progress. He reported the DCISC will review these efforts at a fact-finding in December 2018.

- Independent Spent Fuel Storage Installation (ISFSI) Operations Update - Mr. Wardell stated the ISFSI was in a loading campaign at the time of the July 2018 fact-finding and this successful campaign concluded in August 2018. Future campaigns are planned for 2020, 2021 or 2022. Mr. Wardell reported DCPP plans to begin efforts to relicense the ISFSI in 2022 as the license from the NRC will expire in 2024 or 2025. The fact-finding team also reviewed the issue of the potential for stress corrosion cracking and through-wall cracking of the spent fuel canisters and Mr. Wardell reported these issues will be addressed in the relicensing. Dr. Budnitz observed that DCPP has a new seismic hazard site evaluation which the DCISC will review in context of the license renewal for the ISFSI.

- Nuclear Fuel Procurement Process - Mr. Wardell stated the fact-finding team reviewed with DCPP nuclear fuel engineers’ plans to change the fuel cycle, which has typically been 21 months, in preparation for plant shutdown in 2024-2025. He reported DCPP will be using 18-month cycles through the end of plant operations in 2025 so as to schedule outages in spring and fall and Mr. Wardell reported the DCISC representatives found there would be little or no impact on nuclear safety from this change.

Dr. Gene Nelson of CGNP was recognized and he remarked one of the issues involved with a 21-month refueling cycle is it requires refueling outages to be moved into periods of peak demand for electricity and, as DCPP provides 9%-10% of California’s electric power generation, that is a significant consideration and he reported the California Independent System Operator (CAISO) was required to declare a stage one emergency on the power grid last year due to a heat wave and peak demand during a refueling outage.

Upon a motion by Dr. Lam, seconded by Dr. Peterson, the July 10-11, 2018 Fact Finding Report was approved and its transmittal to PG&E authorized.

Once the Committee’s fact finding reports are approved at a public meeting they are no longer considered to be in draft form and are made available in a binder for inspection by members of the public, together with information concerning the professional backgrounds of the Committee’s technical consultants involved with preparation of its fact finding reports. Fact finding
The Chair requested Consultant McWhorter to report on a fact-finding visit to DCPP. Mr. McWhorter reported on the August 22-23, 2018 fact-finding visit to DCPP with Dr. Lam. Mr. McWhorter stated topics reviewed with PG&E during that visit included the following:

- **Meet with NRC Resident Inspector** - the fact-finding team discussed with the NRC Senior Resident Inspector, Mr. Chris Newport, the mission times used in operability evaluations when equipment is declared inoperable to determine how long the plant can operate without affecting safety function and what design basis documents are necessary to establish those times for purpose of operability evaluations. Mr. McWhorter reported the NRC has opened an unresolved item on this issue. Dr. Lam and Mr. McWhorter also reviewed the Preventive Maintenance Optimization Program with the Senior Resident Inspector and confirmed the NRC is also reviewing that program to ensure that any reduction in maintenance is appropriate.

- **Observe Licensed Operator Continuing Training** - Mr. McWhorter described this as a routine class for licensed and non-licensed operators conducted as a regular part of operators’ rotating schedule which provides one week of training every five or six weeks for a total of 10-12 weeks training each year. The Operations Training Program is accredited by the Institute of Nuclear Power Operations (INPO) and Mr. McWhorter described it as a very structured, formal program. The subject matter of the class observed by the DCISC fact-finding team was the new emergency action level scheme developed through a guidance document developed by the Nuclear Energy Institute (NEI) and approved by the NRC. The class involved the use of the emergency action level flow chart which is posted in the Control Room and in the emergency centers and is utilized to determine the proper classification for an event which must usually be done within 15 minutes. Mr. McWhorter stated the instructor provided guidance on the use of human performance tools and in conservative decision making. He described the class as well conducted and the instructor as well prepared and including appropriate interaction with the class asking appropriate questions which were focused on the objectives. Mr. McWhorter reported that following their observation of the training class he and Dr. Lam had lunch with some of the operators and had a very good dialogue. He reported operators indicated they were satisfied in their jobs and expressed pride in the safety record established for DCPP and voiced no safety concerns, but the operators did express concern for the future including regarding the effectiveness of the second tranche of the Employee Retention Program. Mr. McWhorter reported the fact-finding team was sensitive to any subtle indications that operational staff morale was being negatively affected by the
Learning Services Department Performance - Mr. McWhorter reported the Learning Services Department is responsible for the plant’s training program and is presently rated in Green status\(^3\) which represents an improvement over White status for the last few years. He described the resolution of several long-standing issues with the Simulator as being the result of upgrades to that facility and principally responsible for its improved health status. The Learning Services Excellence Plan was reviewed and includes several action steps to be taken in the next one or two years to further improve performance. Mr. McWhorter reported there will be an NRC Requalification Inspection scheduled for next spring and DCPP is working with a pilot program developed by INPO for changing the requalification examination process and is working to improve the Expert Instructor Development Program to increase the depth of knowledge and instruction ability of the training program instructors. The fact-finding team reviewed staff turnover in the Learning Services Department and found the supervisory staff to have been relatively stable but with slightly more turnover than expected for other personnel. Mr. McWhorter observed that Learning Services operations will ramp down over time as the plant approaches cessation of operations. There is an initial operator class forming for 2019 but over time there will be no more such classes offered. Mr. McWhorter reported overall the DCISC team found the performance of the Learning Services Department to be appropriately focused on maintaining excellence in training services during a period of significant transition.

\(^3\)On a scale of Green indicating a healthy performance and White indicating that achievable action plans are in place to return performance to healthy status. A Yellow rating would indicate the indicator shows deficient performance and needs improvement and Red would indicate unsatisfactory performance.

National Fire Protection Association 805 Program (NFPA 805)- the DCISC fact-finding team confirmed DCPP completed transition to NFPA 805 regulations as scheduled in mid-2018 including modifications to Unit-2, accomplished during Unit-2’s most recent refueling outage, and making final programmatic changes for Unit-2 after that outage. Mr. McWhorter reported there is some work remaining to close out documentation and a matrix will be prepared of the more than 900 documents pertaining to the transition to NFPA 805. The NRC will conduct its triennial Fire Protection Inspection which will be the first such inspection since implementation of NFPA 805 and the DCISC will review the results of that inspection early in 2019. Mr. McWhorter stated the DCISC fact-finding team concluded DCPP
satisfactorily completed its implementation of the NFPA 805 regulatory program including physical modification and programmatic processes.

- **DCISC Member’s Meeting with DCPP Officer** - Dr. Lam met with PG&E Vice President, Nuclear Generation, and Chief Nuclear Officer Mr. Jim Welsch to review the plant’s efforts to continue implementation of the requirements of the Joint Proposal to retire DCPP by 2025 and concerning the role and activities of the DC DEP. Dr. Lam stated he found these priorities to be well placed.

- **Operating Experience Program** - Mr. McWhorter reported the Operating Experience Program processes approximately 35 to 50 operating experience notifications each week which come from the INPO consolidated event reporting system and from the NRC, vendors, peer committees and from exchanges with other nuclear facilities. These are entered into the Operating Experience database, managed by the Operating Experience coordinator, and are forwarded to a DCPP subject matter expert for review for determination if the information is applicable to DCPP. For those found applicable a record is created in the database of the disposition of the information and further review is conducted which must be completed within 60 days to determine if corrective actions are necessary. Mr. McWhorter reported the Operating Experience Program is in Green health status and the fact-finding team concluded DCPP continues to effectively manage operating experience.

- **Meteorological Information and Dose Assessment System (MIDAS)** - MIDAS software is used to assist in making emergency protective action recommendations in the event of a release of radiation and MIDAS uses information from weather reporting, radiation monitors and field monitoring team to determine areas which could be subject to radiation at certain levels. Mr. McWhorter reported MIDAS software has been in service since 2015 and has been updated several times. MIDAS is a different system from that used by San Luis Obispo County and the NRC and that system is known as RASCAL. MIDAS and RASCAL sometime produce differing outputs with MIDAS using very site-specific weather data whereas RASCAL uses National Weather Service data. Both systems work to provide data to decision makers. Approximately 20 persons maintain MIDAS qualifications and are assigned to the four emergency response teams. Mr. McWhorter stated the DCISC team concluded MIDAS continues to be properly maintained and is ready for use in the event of an emergency.

- **Chemistry Department Performance** - Mr. McWhorter reported, overall, the Chemistry Department is in Green health status. The Chemistry Effective Indicator measures the chemistry in the secondary feedwater that is supplied to the steam generators and has found minimal deposits and very low levels of sludge within the steam generators. The Chemistry Department also measures chemistry on the primary side for
the reactor coolant with no major issues identified. The Chemistry Department is fully staffed but staff will be reduced as the plant approaches its closure date. The DCISC fact-finding team concluded the Chemistry Department performance remains good and the Department is maintaining proper primary and secondary side chemistry.

- Reactor Coolant System (RCS) Health - Mr. McWhorter reported the RCS transfers heat from the reactors to the steam generators and also serves as a primary pressure boundary for preventing a release of radiation. Issues were previously identified concerning the reactor coolant pump (RCP) seals and significant work has taken place to change electrical and pump seals over the past few years and performance of these seals has generally improved. Mr. McWhorter reported issues were identified with pressurizer safety valve leakage during reactor start-up. DCPP engaged a third party consulting firm to perform an analysis which determined that the leakage was due to stress being caused by thermal expansion on the tailpipe which put stress on the safety valve. A modification was performed on Unit-2 during its last refueling outage to reconfigure the tailpipe to better accommodate thermal expansion and the leakage was thereby eliminated. A similar modification is planned for Unit-1 during its next refueling outage. Overall, the RCS is rated in White health status which is due in part of flaws in the Residual Heat Removal System (RHR) penetrations on the RCS for which exemption requests have been submitted to the American Society of Mechanical Engineers for Section 11 evaluations until overlays can be completed on both units. The RCS also has issues related to the RCP Vibration Monitoring System ability to retain data and Mr. McWhorter replied this system is scheduled to be replaced. Mr. McWhorter reported that during an NRC Design Basis Inspection of the power operated relief valves, electrical cables were found not to meet equipment qualification guidelines as they lacked loops in the conduit such that water running downward would drip from the conduit and would not be prevented from running onto the electrical connections on the valves. Mr. McWhorter reported the DCISC fact-finding team found the RCS health to be acceptable with some emerging issues.

Following Mr. McWhorter’s presentation, Dr. Gene Nelson of CGNP was recognized. Dr. Nelson stated that he attended a meeting of the American Nuclear Society’s Utility Working Conference and learned from a vendor at that event how static electricity, when a three-phase drive is used to run a pump, can cause erosion of pump seals and he wanted to alert the DCISC to what he described as a rather curious phenomenon.

Upon a motion by Dr. Peterson, seconded by Dr. Lam, the August 22-23, 2018 Fact Finding Report was approved and its transmittal to PG&E
The Chair called upon Legal Counsel Wellington to report on administrative, regulatory and legal matters.

Mr. Wellington reported that the general information brochure and the informational video used to disseminate information about the DCISC to members of the public have recently been updated. He reported that with the passage of SB 1090 and the signature by the Governor, full funding has now been restored to the Employee Retention Program. In concluding his report, Mr. Wellington stated the Committee’s website presently averages 930 unique visits each month with most visits coming from, in order, the U.S., Canada, Uzbekistan, Russia and Germany.

IX Adjourn Afternoon Meeting

The Chair thanked the technicians of AGP Video who provide recording and livestream broadcast of all DCISC public meetings and announced the DCISC would resume this public meeting at 8:30 A.M. on the following day. He then adjourned the afternoon meeting of the DCISC at 5:15 P.M.

[XIX] Later that evening, the DCISC Members and Technical Consultants attended a regularly scheduled meeting of the Diablo Canyon Decommissioning Engagement Panel held in San Luis Obispo.]

X Reconvene For Morning Meeting

Dr. Budnitz reconvened the morning meeting of the DCISC at 8:30 A.M. and welcomed those present.

X***** Committee Member Comments

Dr. Budnitz introduced and briefly reviewed the backgrounds of his colleagues on the Committee, Drs. Peter Lam and Per Peterson, the Committee’s Technical Consultants Mr. R. Ferman Wardell and Mr. Richard D. McWhorter, and Deborah Mall, Esq., an attorney with the DCISC Legal Counsel’s office.

XI Public Comments and Communications

Dr. Lam recognized and acknowledged the presence in the audience of Dr. Justin Cochran, California Energy Commission (CEC) Senior Nuclear Policy Advisor and he invited Dr. Cochran to address the Committee. Dr. Cochran stated he was present to represent CEC Chair Dr. Robert B. Weisenmiller and Dr. Weisenmiller sends his appreciation to the Committee and it staff for the important work they perform each year. Dr. Cochran stated he looks
forward to the information to be presented at this public meeting and to reviewing the associated reports produced by the Committee.

XII Information Items Before the Committee

A. Informational Presentations Requested by the Committee of PG&E Representatives.

The Chair introduced the PG&E and the other presentations to be made at this public meeting and remarked they were placed on the agenda at the request of the Committee. He requested Mr. Cary Harbor, Director of Nuclear Business Operations, to introduce the first of the informational presentations requested by the Committee for this public meeting. Mr. Harbor stated he has more than 30 years of experience in the nuclear industry at DCPP in functional areas including Operations, Maintenance, Construction, and Regulatory Services. Mr. Harbor then introduced Mr. Tom Jones, Director of Strategic Initiatives at DCPP, and Mr. Harbor reported Mr. Jones has more than 20 years of experience in regulatory and governmental relations issues.

Update on the Status of DCPP Decommissioning Planning, the Community Engagement Panel, Funding, and Proposed Changes to the NRC Decommissioning Regulations.

Mr. Jones reported California Senate Bill 1090 was approved by Governor Brown on September 19, 2018 and this legislation directed the CPUC to revise CPUC Decision 18-01-022, which approved retirement of DCPP, to increase funding to the full amount proposed by PG&E for the Employee Retention Program and to reinstate the Community Impacts Mitigation Program. Mr. Jones stated SB 1090 results in all of the commitments made in the Joint Proposal and the settlement process being met.

Mr. Jones reported DCPP experiences a turnover rate of approximately 100 employees, out of 1,500 total DCPP employees, each year and 94% of the current eligible workforce are now enrolled in the first tranche of the Employee Retention Program and he displayed graphs of the retention program statistics and demographics and reported that employees over the age of 60, who are closest to retirement constitute some of the DCPP workforce who have opted not to participate in the Employee Retention Program. He reported DCPP employees fall into two main groups, those younger than 40 and those older than 50 with a “gap” between the ages of 43 to 51. Mr. Jones reported the 94% participation rate is higher than other employee retention programs benchmarked by DCPP which averaged participation rates around 85%. He reported that following passage of SB 1090, which increased the retention incentive from 15% to 25% of employee compensation, employees were allowed to reenroll in the program.
and those previously enrolled were automatically continued at the higher rate. Tranche one will continue now with the enrolled population until 2021.

**In response to Consultant McWhorter’s question, Mr. Jones reported tranche two has a second component involving retraining and Mr. Harbor reported documents regarding tranche two and enrollment therein will be made available to DCPP’s workforce in July of 2019. Dr. Budnitz stated the DCISC will review the rollout of tranche two during the summer of 2019 and Mr. Jones and Dr. Budnitz agreed a presentation should be tentatively scheduled for the October 2019 DCISC public meeting.** Mr. Jones confirmed Consultant McWhorter’s observation that tranche two of the Employee Retention Program will provide information on continuing opportunities with PG&E for employees whose positions at DCPP will be phased out as the plant moves toward closure by 2025. Mr. Jones observed that some of the DCPP workforce will be eligible for severance payments at that time. Mr. Harbor remarked that CPUC funding for retraining will not be released until 2021 but PG&E will use existing programs to assist its employees in developing skills necessary to secure continued employment. Mr. Jones reported DCPP employees have participated in rotation programs where crafts personnel from DCPP were assigned to other PG&E facilities and these rotation efforts will continue with a full program scheduled for roll out in 2021.

Mr. Jones stated the Joint Proposal provides for emergency planning to continue at current levels until such time as the Plant’s 10 CFR Part 50 License from the NRC is retired. California Assembly Bill 361 provides for PG&E and other agencies that support nuclear-related emergency planning activities for operating nuclear facilities to be reimbursed. The Joint Proposal, CPUC Decision 18-01-022, and SB 1090 provide for PG&E to seek continued funding in the Nuclear Decommissioning Cost Triennial Proceedings (NDCTP) filings with the CPUC for local governments’ emergency planning purposes after the plant ceases generation activities. In response to Dr. Peterson’s observation, Mr. Jones confirmed that the NRC’s regulatory framework for emergency planning is risk-informed and so will change as the hazards change, including no longer having site area emergency or a general emergency designations, but DCPP expects a higher level of funding support than usual will be available for the San Luis Obispo County emergency response capabilities. Mr. Jones displayed and discussed a graph of the timeline for emergency planning efforts, the future phases of operation and the dates in which they are anticipated to occur.

Mr. Jones reported the Nuclear Decommissioning Cost Triennial Proceeding (NDCTP) establishes estimates for funding requirements to undertake decommissioning of the facility and PG&E believes that, at present, it is underfunded with funding approval being $2.7 billion. He reported the SONGS Decommissioning Trust is currently funded to approximately $4.4 billion. He reported for the 2018 NDCTP, PG&E will be providing a site-
specific estimate as previous NDCTP filings for DCPP used a generic study prepared by TLG Services, Inc. (TLG) used by the industry which is ostensibly only for radiological remediation and does not include all the activities required by the State of California and the County of San Luis Obispo. Mr. Jones reported that decommissioning DCPP will in some ways be more challenging than decommissioning SONGS as site access is more limited and a significant portion of decommissioning costs is driven by the distance from the facility to a waste repository. Mr. Jones agreed with Dr. Budnitz’ observation and with Mr. Watson’s statements made during the meeting of the DC DEP held the previous evening that the $2.7 billion on hand is adequate to cover the scope of radiological decommissioning but it is the other costs which will need to be assessed in the 2018 and future NDCTPs and he confirmed Dr. Budnitz observation that the SONGS data could be in some ways representative of the total cost to decommission DCPP. Dr. Peterson observed California’s permitting process has created challenges for SONGS and Mr. Jones remarked that the carrying costs which result from unplanned enforced delay are quite significant and the TLG study found those costs for DCPP to be $85 million per year and therefore DCPP intends to commence efforts in 2019 to obtain the required permits and he stated that advanced planning will be essential in these efforts.

Mr. Jones stated the NDCTP includes the official cost estimates for decommissioning the facility and reviews the decommissioning projects from the previous NDCTP filing. He remarked PG&E in its prior NDCTP filing did not do an adequate job in meeting the CPUC burden of evidence requirements on a number of topics including security, removal of the Intake Cove breakwater and waste disposal costs. The NDCTP also reviews the financial performance of the trust funds. He provided a timeline of the NDCTP process which typically takes 14-15 months and provides an opportunity for the participation of intervenors in the proceedings. He remarked PG&E is expecting there will be more entities and agencies seeking to participate as intervenors in its 2018 NDCTP.

Mr. Jones reported that PG&E’s preferred approach to decommissioning DCPP is for the plant to proceed directly into active decommissioning rather than enter the period known as SAFSTOR. He stated PG&E is using a “bottom up” approach to reach an estimate of the cost of decommissioning and has launched the DC DEP to provide a broad public outreach program to ensure input is received from the local community and is also seeking input from the regulator. The next NDCTP filing is due to be submitted to the CPUC in December 2018 with subsequent filings due in 2021, which Mr. Jones described as an update, and in 2024, for what he described as a true-up estimate. He reviewed the direction from CPUC Decision 18-01-022 which required a public stakeholder process before disposition may be made of the DCPP facilities or land and he observed that the decommissioning projects contemplate there will be some repurposing of assets and
disposition of land which includes at present 14 miles of coastline and 12,000 acres. He displayed aerial photos and briefly discussed PG&E’s approach to conducting this required public outreach which includes the DC DEP, the plant tour program, public talks and a speaker’s bureau, digital and social media campaigns and outreach to elected and appointed officials, DCPP employees and the NRC. He provided what he termed a dashboard of the interest in various topics with the disposition of the land being by far the greatest area of interest to date. Concerning safety, Mr. Jones reported that expression of interest may be lower than other areas due to the plant’s excellent safety record and because decommissioning is still seen as something that will occur far in the future.

Mr. Jones remarked PG&E has met with the California State Lands Commission on the issue of the potential removal of the Intake Cove breakwater which would require the expenditure of $300 million and the movement of more than 700,000 cubic years of material. He confirmed Dr. Peterson’s observation that the breakwater currently serves as a reef area and provides a very healthy marine environment in the Intake Cove. Prior to the imposition of a one-mile marine exclusion zone offshore from the plant, the Intake Cove served as a harbor of safe refuge for mariners. He then displayed photographs with overviews of the plant site showing the various areas of lands presently lying within PG&E’s control and commented the lands to the south of the plant site are held by the Eureka Energy Company, an unregulated affiliate of PG&E, while the plant site consisting of more than 700 acres is subject to the 10 CFR Part 50 License restrictions. He remarked that facilities on the plant site are much larger than other facilities located elsewhere in San Luis Obispo County with the DCPP Administration Building consisting of 150,000 square feet which is 50% larger than the largest building in downtown San Luis Obispo. He reported interest has been expressed by the California State University system in some of the facilities but an anchor tenant must have sufficient resources available to be able to run the sewage and desalination systems which serve DCPP’s facilities.

In response to Mr. McWhorter’s question, Mr. Jones reported the 230kV Switchyard will be removed but the 500kV Switchyard will remain as it is a key part of the grid route which runs to Fresno and to Bakersfield. Mr. Jones remarked there is presently interest in development of offshore wind power and the area of DCPP might serve as a natural adjunct to those efforts. He reported when Morro Bay Power Plant closed some years ago there was significant development of solar power facilities on the Carrizo Plain which resulted in two of the ten largest solar plants in the world now being located in San Luis Obispo County.

In response to Consultant Wardell’s question as to the date of 2068 being given as the date for pickup of dry cask storage of spent fuel, Mr. Jones stated this date was an estimate and PG&E’s Phase 3 of its decommissioning
efforts has a long life. Mr. Jones stated that the project phasing is all predicated on a successful 2018 NDCTP filing which will then lead into the approval phase where approval of discretionary actions will be sought from the NRC for license amendments as necessary. Concurrently, PG&E will pursue modifications to its lease with the State Lands Commission and go to the California Coastal Commission and potentially the County of San Luis Obispo for development permits, as he pointed out removal of facilities is considered as development under California law. Once approvals are in hand PG&E will move to the decommissioning phase, which for Phase 2 would include removal of the Intake Cove breakwater, with Phase 3 consisting of the removal of dry cask storage which, based on projections from the U.S. government, could see fuel shipped offsite in 2065-2068 with a few years more necessary to remove the ISFSI and restore the site completely by 2072. Mr. Jones stated all this is clearly an estimate but must serve as the basis for regulatory guidance.

In concluding his presentation, Mr. Jones displayed and discussed a photo showing the areas and facilities involved for the various decommissioning project phases and he remarked that if facilities were repurposed, there could be a savings to PG&E’s ratepayers as under decommissioning regulations in California there is no profit allowed to the utility for decommissioning. He then displayed and discussed another graphic showing the regulatory process for the period 2018-2025 and the numerous activities and associated guidance principles which include maintaining high safety standards in performing all decommissioning work. Mr. Jones remarked that some of this work will be nuclear-related and be contracted out to a specialized workforce but much of it is a massive demolition project.

In response to Dr. Lam’s comment Mr. Jones confirmed that he works with PG&E’s Director of State Agency Relations, Mr. Mark Krausse, on decommissioning issues and a succession program is in place to ensure PG&E is not dependent on one or a few individuals for its decommissioning efforts. He reported there are approximately 25 persons now working on regulatory issues and the decommissioning team now consists of 30 more individuals to assist with contract management for the more than 100 contractors who are assisting in the development of cost estimates. Mr. Jones reported the decommissioning staff members are eligible to participate in the Employee Retention Program. Mr. Jones reported some individuals will see the decommissioning as a legacy career project and this is attractive from a recruitment perspective. Mr. Jones remarked the DCPP Decommissioning organization will change and evolve over time from a regulatory, finance and procurement organization to a compliance and execution organization.

Dr. Budnitz observed that all the guiding principles displayed by Mr. Jones were common to every facility that has undergone decommissioning with
the exception of the principle that the facility is to be decommissioned in the shortest amount of time practicable and Dr. Budnitz observed this is a principle upon which the public should focus to understand the risk, cost, and staffing implications as this principle places a constraint, although a positive constraint in Dr. Budnitz’ view, on many of the detailed decisions that are going to need to be made. In response to Dr. Lam’s observation that at some point the plant could proceed into SAFSTOR and decommissioning funding would continue to grow, Mr. Jones reported the 2018 NDCTP is focused on the strategy of proceeding immediately into active decommissioning as the annual carrying cost of $85 million is a significant cost. Dr. Budnitz remarked that any decision to proceed from active decommissioning to SAFSTOR could only be made at the highest level of PG&E’s Board of Directors. Dr. Budnitz observed that the DCISC’s Restated Charter assigns it a responsibility to monitor and report on safety and in proceeding to decommission in the shortest practicable time there may be inadvertent compromises to safety and the DCISC will remain vigilant in this regard to make sure this does not occur.

In response to Consultant McWhorter’s inquiry on acceleration of the removal of spent fuel from the spent fuel pools over a seven-year period, Mr. Jones reported the graphics he displayed showing that level of the acceleration was the direction provided by the CPUC in its 2015 NDCTP. He reported the current license technical specifications for DCPP require closer to ten years. Mr. Jones remarked that some facilities have achieved accelerated movement of spent fuel in as short as three years but to change the timeline dictated in DCPP’s current technical specifications would require a license amendment. Mr. Jones reported the DCPP spent fuel casks are not the same as those used at SONGS and have a different heat removal capacity. He stated that without the required license amendment from the NRC the timeline for the movement of spent fuel will not change. He reported part of the preplanning efforts to meet the charge from the CPUC is the completion of a fuel study that is now in its second draft for review to determine how DCPP can move past the ten-year window to achieve a seven-year window. Dr. Budnitz reported the DCISC will wait and watch the report which comes out of that evaluation. In response to Consultant McWhorter’s query, Mr. Jones stated that seven years does not represent the best possible number but rather the timeline now being established by SONGS which was the benchmark set by the CPUC for DCPP’s evaluation.

Dr. Gene Nelson, representing CGNP, was recognized. Dr. Nelson stated CGNP participated as an adverse intervenor in the CPUC proceedings concerning retirement of DCPP and opposed the decision to shut down the plant. He previously provided to the Committee the legal filing CGNP made seeking legal redress against the CPUC for granting permission to retire DCPP which he stated includes a challenge based upon any change in
intensity of use in the coastal zone triggering certain requirements which were not met by the CPUC’s decision, thereby making that decision procedurally deficient. He remarked that the NRC published a notice in the Federal Register on April 23, 2018 that it has granted PG&E’s request to withdraw its license renewal application conditioned on the CPUC approval of the retirement of the plant and if the CPUC’s action is overturned by the courts that would mean PG&E’s withdrawal of its application to renew the licenses for DCPP would be vacated.

Dr. Budnitz thanked Mr. Jones for a very helpful presentation

B. Informational Presentation Requested by the Committee (Cont’d.)

The Chair welcomed Dr. David G. Victor, Ph.D., Chairman of the Community Engagement Panel (SONGS CEP) for the San Onofre Nuclear Generating Station (SONGS) and remarked that while the Diablo Canyon Decommissioning Engagement Panel (DC DEP) has just begun its work, the SONGS CEP has been in existence for a long while and the experience of the SONGS CEP has important relevance for the DC DEP although some of the issues are different. Dr. Budnitz reported the DCISC invited Dr. Victor to share his experience and insight with the DCISC, the DC DEP members present in the audience today and with the public.

San Onofre Nuclear Generating Station Decommissioning Experience; Dr. David Victor, University of California, San Diego, Chair of the San Onofre Community Engagement Panel.

Dr. Victor stated that while DCPP and SONGS are on different time schedules with reference to decommissioning, the plant operators are communicating with each other as are the activist communities and he was pleased to be here this afternoon to share observations about the SONGS CEP experience. Dr. Victor stated that in these remarks he was offering his personal views and observations and was not speaking on behalf of the SONGS CEP. Dr. Victor observed that SONGS is sited on land owned by the U.S. Navy which is a very different situation than at DCPP as far as issues relating to site restoration. He remarked SONGS is located in the midst of a densely populated and very high income area and there is a huge amount of political attention and community engagement focused on what is taking place with that plant, both when SONGS was operational and in its decommissioning. He remarked that the same level of intensity may or may not be present concerning decommissioning DCPP.

Dr. Victor reported the SONGS CEP was formed in 2014 and consists of 18 all-volunteer members who are elected or appointed public officials, represent non-governmental organizations, business, environmental and the Native American communities. The members of SONGS CEP were selected
by the Southern California Edison Company (Edison), the operator of SONGS, in consultation with a number of other stakeholders. Dr. Victor stated his acceptance of the Chair has proven to be an interesting but not an easy experience. SONGS CEP holds quarterly meetings and conducts workshops on technical topics as they arise. Typically each quarterly meeting includes one or two presentations by subject matter experts. He reported that the SONGS CEP is not a decision-making body and has no official governmental oversight function and he remarked that there are many layers of oversight responsibilities and that another layer of oversight would be less useful than a mechanism to provide a conduit between Edison as the operator of SONGS and the communities that are affected by the decommissioning process. Dr. Victor emphasized that this needs to be a two-way conduit. He remarked that until the SONGS CEP was created many people did not have a clear understanding of what the timetable for decommissioning would be and he urged PG&E to make available a simple version of the timing for the phases of the decommissioning project.

Dr. Victor reported he also sits on the advisory board for the Institute of Nuclear Power Operations (INPO) and for the Electric Power Research Institute (EPRI) and he is a political scientist by training. He remarked that many persons with technical training and expertise tend to view members of the public as uninformed but he stated that view is a recipe for failure as it prevents the functioning of the two-way conduit he described as essential in context of nuclear power issues. He stated there is a tendency amongst nuclear professionals to believe they understand the risk and the public just needs to learn more which leads to a failure to understand the different ways that many members of the public understand and appreciate the risks, and in the experience of the SONGS CEP both Dr. Victor and Edison have come to appreciate the value of a functional two-way conduit in assisting them to understand the concerns of the various communities.

In response to Dr. Peterson’s comment that the survey conducted by PG&E on the concerns people have about the closure of DCPP produced no responses based on security concerns and only five responses identifying safety as a concern, Dr. Victor remarked that this may be due and represent one of the major values of the SONGS CEP and the manner in which it is structured, in that it is not a formal decision making body which allows it wide latitude in its investigations and most of the panel consists of elected officials and local agency representatives who are regularly required to weigh costs and benefits of differing interests in the local community. Dr. Peterson remarked, and Dr. Victor agreed, the fact that elected officials are playing a role in the process is comforting as the purpose of a representative democracy is for people to collectively identify those individuals who will represent their interest. Dr. Victor stated the activities of the SONGS CEP have on occasion become the focus of debate in local cities concerning membership on the panel which he sees as evidence the
panel is delivering a value in the sense it is revealing information about what is happening at the plant and assisting the plant’s operator to make decisions.

In response to Dr. Budnitz observation that 18 persons on a panel is a large number, Dr. Victor agreed and remarked that some members devote more time than others to the panel but a smaller number of members would necessitate removing some voices from the community. In response to Dr. Lam’s query, Dr. Victor confirmed that the SONGS CEP is a purely advisory body and does not make decisions as such but rather the leadership on the panel makes recommendations or observations. In response to Dr. Lam’s question, Dr. Victor stated his role as Chair of the SONGS CEP is to identify topics for its meetings and to identify areas where public concern exists and to meet and consult with members of the public. He stated, in response to Dr. Budnitz inquiry, that the panel has some industry experts as members, including a former president of the American Nuclear Society and has the ability to reach out to the NRC and he remarked the NRC staff has been extremely helpful. To date, Dr. Victor reported the SONGS CEP has not hired technical consultants as most of its review is strategic in nature. He remarked the SONGS CEP is in the process of identifying beyond design basis events that could affect an ISFSI-only site, such as might result from a terrorist attack, and is collecting scientific information and identifying potential remediation for such events. Previously, the panel organized a series of workshops when Edison was in the process of making a decision concerning spent fuel canisters one of which featured Dr. Peterson as a speaker. In this effort Dr. Victor authored a White Paper regarding the options and the strategic import of that decision.

Dr. Victor stated the SONGS CEP has written to and received visits from representatives of the CEC on the issue of consolidated storage of nuclear waste, including spent fuel, proposed to be located in New Mexico and Texas and he stated everyone is a victim of the federal government’s failure to deliver on its promise of a permanent repository. He remarked that by accelerating changes in federal law, the date by which fuel can be removed from nuclear facilities can be advanced and this is an issue shared by SONGS and DCPP. Dr. Victor observed that if nuclear operators can help establish a model for how community engagement is done through the various decommissioning panels, it may help build the support needed for interim storage which he described as a massive public good for California and the nation.

Dr. Budnitz observed, and Dr. Victor confirmed, that SONGS never had a body similar to the DCISC and Dr. Budnitz stated the DCISC has been in communication with the DC DEP and has offered to provide assistance with questions within the DCISC’s purview. Dr. Victor commented that in its review of beyond design basis events, the SONGS CEP role will be to open a
two-way conduit and keep it open and focused on technically grounded issues in context of what is possible and what is not possible and in that effort the SONGS CEP does need to have the capacity to access some level of technical expertise. He stated this expertise comes either from the panel members or from Edison. Dr. Victor reported each meeting of the SONGS CEP includes a public comment period at the end of the meeting and the panel is now in the process of determining how it might be more responsive to the public without the meetings becoming too acrimonious. He reported 18 months ago the SONGS CEP devoted two public meetings to seismic risk and subsequently organized a series of briefings at cities around the area. In this effort, Dr. Victor reported, some members of the public attempted to mischaracterize the seismic risk and meetings were held with experts to review how seismic risk analysis is performed.

Dr. Victor displayed photos of SONGS as it is today and how the site would appear following removal of the plant facilities. He remarked that going to SAFSTOR was never an option for Edison. He reported he was surprised by the extent to which the local communities were unaware of the fact that spent fuel will remain onsite after the other plant facilities are removed. He remarked this concern on behalf of the public is not one that is amenable to risk - benefit calculation because technically trained experts categorize the risk at that point from the ISFSI to be essentially zero but the public at large does not necessarily share this assessment. Dr. Victor stated that one meeting of the SONGS CEP each year has been devoted to the issue of management and stewardship of the ISFSI and its defense-in-depth aging management programs. Dr. Peterson stated that in his experience these concerns have largely disappeared from the public consciousness at other facilities. Dr. Victor replied this may be true at facilities such as Maine Yankee, Zion and Yankee Rowe nuclear power stations but he observed these facilities are located outside California in mainly rural areas and he stated that based on the concern on these issues expressed by residents about the issue of spent fuel remaining onsite at SONGS he would expect DCPP to see far more attention and concern about the same issue in decommissioning than otherwise might be expected. Dr. Victor stated the SONGS CEP has heard from members of the public with safety concerns and he remarked the default position concerning the nuclear industry is that things will be done safely, however, given the manner in which SONGS was shut down after the failure of its steam generators there was a certain loss of trust amongst members of the public and this has engendered safety concerns including around seismic risk and ISFSI design. Dr. Victor observed that the public’s self-reported concerns will evolve as the decommissioning process continues and he observed the issues of ISFSI site stewardship and site operations at decommissioned nuclear power plants are now very different than when Rancho Seco Nuclear Generating Station was decommissioned by the Sacramento Municipal Utility District (in 1989).
Dr. Budnitz subsequently commented that DCPP and SONGS are both operated by profit-making investor-owned utilities while Rancho Seco was operated by a municipal utility district which does not make a profit and that may create a different perception because the municipal utility district was not accused by the public of doing something adverse to the public interest because of profit. Dr. Victor stated Edison in its briefings to the SONGS CEP has been forthcoming in explaining that the funds used for decommissioning are ratepayer funds and therefore its decisions concerning decommissioning activities are not driven by profit-based motives.

Dr. Victor observed the concerns about the preparedness of first responders has been a concern based on the fact that from a risk point of view the footprint of the site in decommissioning does not shrink as quickly as the risk and this has been an important part of the two-way conduit communication pathway he described and may or may not be addressed by the CPUC in its decisions but is something that no one seems to have thought much about in detail when SONGS decommissioned. He commented SONGS CEP has representatives from organized labor on the panel and jobs are a significant concern but unlike DCPP most of SONGS’ workforce did not live in the local community and the representation of multiple communities is an important consideration.

Dr. Victor stated that SONGS CEP is reviewing what defense in depth concepts look like in context of an ISFSI-only site as far as monitoring and inspecting the spent fuel storage canisters, assessing the potential for stress corrosion cracking and dealing with potential worst-case scenarios. He remarked this is an area where the nuclear industry including the Nuclear Energy Institute (NEI) has not really been prepared to talk with the public. Dr. Victor commented the nuclear industry needs to be prepared to talk with the public in English and not couched in technical or mathematical terms. He remarked that concerning aging management of spent fuel canisters and the ISFSI there is a high comfort level within the industry which the public does not share. He observed that many of the technologies needed, for instance, to do robotic inspections of the canisters do not exist now but persons inside the industry are confident they can be developed but for persons outside the nuclear industry, their impression is simply that the technologies and tools do not exist. He commented that SONGS CEP includes discussion of timetables for development of technical capacities in context of its reviews of these types of issues. Dr. Peterson commented he was disappointed that in licensing the spent fuel canisters, the consequences of having a tight aperture crack were not analyzed and the canisters were licensed to be perfect rather than allowing for imperfections and he agreed with Dr. Victor’s observations on the effect on the level of trust engendered in the public by such actions.

Dr. Victor reviewed an incident at SONGS with a shim design for the Holtec
firm’s spent fuel canisters which created concern amongst members of the public which, based on the technical assessment of the canisters’ continuing ability to reject heat, was not entirely shared by the technical community. He remarked the SONGS CEP and Edison both need to do a better job of articulating and explaining the various layers of defense and why a multilayered defense process makes the canister system more robust. Dr. Peterson observed that a fundamental tenet of the operation of complex technologies is that nothing is perfect and therefore one needs to be in a constant mode of identifying problems and the absolute worst thing that can happen is to start treating minor issues as major issues because this will lead to a culture of concealment which is self-reinforcing. He remarked problems need to be identified at a low level of significance, fixed and then the technology moves forward with a culture of reporting those types of problems. Dr. Victor agreed but remarked the public perception is driven by what shows up on the news but he stated at SONGS there is increasing levels of transparency and Dr. Peterson agreed this was a good solution. Dr. Victor stated he has had differences with but has been impressed by Edison’s willingness to engage in the effort to foster transparency.

Dr. Victor further described the incident he referred to previously which resulted when a canister which was being lowered into the Holtec firm’s system became jammed on a ring unbeknownst to the crane operator, a subcontractor to Holtec, who continued to lower the rigging. This incident was reported to the NRC as a worker safety issue not as a nuclear safety matter but became a subject of concern when a subcontractor gave a presentation which portrayed the incident as being a nuclear safety-related near-miss. Edison has now stopped its spent fuel offloading campaign and there is more public focus on the campaigns. The NRC is finishing its report on the incident. Dr. Victor stated this was an example where the reaction from Edison and from the SONGS CEP has been to make everything done in response as transparent as possible including conducting town hall meetings with members of the public. Dr. Victor stated the SONGS CEP has included Edison’s contractors and the subcontractors as part of its public presentations to help them understand how important it is to engage with the public and he encouraged the DC DEP to do the same at the proper time.

Dr. Victor stated there is no answer to the question of whom do you trust because that answer depends upon your perspective. He stated he initially understood that levels of trust in Edison would be low due to the steam generator situation but he was astonished at the low level of trust in the NRC and he commented this should be an issue of concern for the NRC. He remarked the NRC’s reaction may be to talk more but not to listen as much but he acknowledged NRC oversight of decommissioning is more complex than he initially anticipated. Dr. Peterson remarked the NRC has the burden
of regulation and must operate within a very restricted framework as to how it communicates and in context of proprietary and security-related information. Dr. Peterson remarked that this demonstrates the need for and utility of independent advisory panels such as the DCISC which report to public officials and are not burdened with responsibility or capability for regulatory decision making. Dr. Budnitz remarked the DCISC, like the SONGS CEP, is empowered to operate without the burden of authority and this allows it to do certain things but that attribute is not enough to engender trust among all the different sectors of the public who hold differing views. Dr. Victor remarked the SONGS CEP strategy has been to spend a great amount of time listening and trying to understand the different perspectives but there will be a segment of the public that will never trust anything the panel or any institution does and he has become resigned to this fact. He stated he believes the SONGS CEP’s job is to listen often, to understand, foster transparency and to ensure the discussion is technically grounded but understandable in English but from an outside perspective due to the nature of politics, this can seem chaotic. When the pros and cons of how something may affect the community are provided, it is up to the community to identify the extreme voices and those that are trying to make technically informed, responsible decisions. Dr. Budnitz remarked that having elected officials and labor representatives serving on the SONGS CEP assists in opening a dialogue with those organizations and he remarked the DC DEP does not have that type of representation. Dr. Victor reported his view is there is a fraction of the public that is very focused on SONGS and some do not believe they are represented on or by the SONGS CEP.

In closing his remarks, Dr. Victor emphasized the practice of the SONGS CEP in engaging experts and to focus upon keeping the discussion technically grounded and understandable to the layperson and he commented that the SONGS CEP engaged in activities early on to demonstrate its relevance.

Dr. Gene Nelson, representing CGNP, was recognized. Dr. Nelson stated CGNP was founded in 2013 and one of its principal missions is to serve as an educational resource to assist the public in understanding technical issues. He remarked CGNP initially worked with PG&E on the common goal to keep DCPP operating but subsequently PG&E decided to go in a different direction. He stated it is important for the public to have an appreciation of the real risks of nuclear power operations and to recognize the implausible and improbable scenarios which he stated clearly do bring donations to groups opposed to nuclear power. Dr. Nelson stated that the nuclear industry in his view has done a terrible job of education and he stated he applauds the DCISC for its role in providing a forum for education.

Ms. Sherry Lewis stated she serves as a representative for MFP but was
speaking on her own behalf. Ms. Lewis remarked it is very important to talk and to listen. She remarked that the perception there is a lack of concern in the local area about security and safety is likely due to the activities of Mothers for Peace and the Alliance for Nuclear Responsibility which emphasize safety and serve as watchdogs. Ms. Lewis commented that it is her belief that much of the public remains in denial about the danger of radiation and she observed that nuclear waste remains a very real problem no matter how much effort is put into keeping it safe.

Mr. David Weisman, representing A4NR, was recognized. Mr. Weisman thanked Dr. Victor for his presentation and the DCISC for having made the arrangements for Dr. Victor's appearance. He remarked the DCISC has again “gone the extra mile” even if it did take a year from the time Mr. Weisman first suggested an invitation be issued to Dr. Victor. In response to Ms. Lewis’ comments, Mr. Weisman stated that while A4NR fancies itself as a safety watchdog it is also an advocate for ratepayers and believes that safety must be translated into dollars and cents. Mr. Weisman observed that Edison’s delay in the SONGS spent fuel loading campaign will translate to a cost, especially if new procedures and new equipment are required and the decommissioning period is extended which costs will eventually filter back to Edison’s ratepayers or to federal taxpayers. Mr. Weisman remarked that an August 8, 2018 exit meeting between Edison and the NRC regarding an inspection period from June 2017-June 2018 found the spent fuel loading ISFSI procedures to have only one minor non-cited violation but now there are plans to redesign and provide video surveillance, etc. He stated this is an example of why there is a lack of trust among the public, particularly at SONGS, in the NRC and that may be an issue as well for DCPP. He remarked on the history of DCPP including the original seismic assessment and the emergence of the Hosgri seismic fault as examples of issues which engender a distrust of the regulator. Mr. Weisman stated Dr. Victor’s comments about the need for transparency were well-taken points.

Mr. Chuck Anders, a resident of Arroyo Grande, California, was recognized. Mr. Anders stated he serves as the independent facilitator for the DC DEP. He reported that of the almost 500 individual comments from members of the public concerning DCPP decommissioning issues, the majority deal with land use and plant facilities. However, he remarked the DC DEP made it very clear that in no way did the panel intend to minimize the importance of safety concerning ongoing operations or fuel storage. Mr. Anders inquired to what extent might the fact of the DCISC having provided an independent safety-related oversight function have an impact on the comments the DC DEP received from the public. He stated the lack of a body for SONGS similar to the DCISC may be impacting the comments being received by the SONGS CEP. Dr. Budnitz responded that there is no committee similar to the DCISC anywhere else in the U.S. and it is very hard to judge the effect the DCISC may at this point in time be having on the public’s perception of the
issues as DCPP moves toward decommissioning. Dr. Lam remarked there may be linkage between the DCISC raising public awareness of the importance of reactor safety and the relative lack of questioning received by the DC DEP. Dr. Peterson observed that independent advisory panels provide a systematic way for the public to get questions answered by the operator of the facility and this ability to get questions answered and concerns addressed has likely made a significant difference. Consultant Wardell remarked that he sees the Committee’s role and his role as a consultant as including the responsibility to take the technical aspects of the subjects of DCISC review and make reports to the public in a way they can understand and have the ability to ask questions. Consultant McWhorter commented with reference to the earthquake which occurred in the vicinity of the North Anna Nuclear Generating Station in Virginia in 2011 there was an extreme amount of public interest following that event where Mr. McWhorter learned the importance of public forums which he stated add value to an open and transparent process wherein questions are raised and answered. Dr. Victor stated his belief that it is the non-statutory nature of the SONGS CEP that provides it a huge asset and gives flexibility, provided the operator has confidence in the panel and allows the panel to operate. He commented that no one can really answer Mr. Anders’ question. Although the NRC serves as an independent regulator it does not appear to engender the necessary trust and, the experience at SONGS due to the failure of its steam generators introduced a different dynamic which made the public not trust institutions. He stated that creating venues with some common fact basis where the public can repeatedly raise questions may be the best one can do. Dr. Victor stated he agreed with a comment by Dr. Lam that the failure of SONGS steam generators was not entirely the fault of the NRC and Dr. Victor stated that the more interaction one has with those involved with that decision and the more one learns about how an organization functions, the more it is understandable how such a thing could happen.

Judge Alex Karlin was recognized. Judge Karlin stated he resides in San Luis Obispo, California, and serves as a member of the DC DEP. He stated he was not speaking on behalf of the panel but as an individual. Judge Karlin remarked the DC DEP does not have a chairman nor does it have structure of any kind. It is a body of eleven individuals who are trying to assist the decommissioning process. Judge Karlin stated he believes the SONGS CEP can provide a model for the DC DEP and for the local community. He remarked that the comments which were identified as related to safety were not categorized and he stated DCPP is probably the most controversial nuclear power plant in the U.S. and issues about the plant have been litigated many times including with the U.S. Supreme Court. He remarked this is the reason for the existence of the DCISC and he commented there is no reason to believe the local community is complacent concerning safety issues at DCPP. Judge Karlin stated there is a significant difference between the composition and qualifications of the SONGS CEP and the DC DEP.
concerning familiarity with the nuclear industry and with respect to technical knowledge. He commented having elected officials on the SONGS CEP provides it a vital resource which the DC DEP needs but currently lacks, as elected officials are immersed in local politics, work in institutions that have resources, and possess insights about what is feasible so as to help guide the focus of the SONGS CEP. Judge Karlin stated that while he appreciates the DCISC’s offer to the DC DEP to call upon the Independent Safety Committee for technical assistance, it is his belief the DC DEP should also have the independent ability to judge technical issues and not be reliant on the DCISC. Judge Karlin observed that the restated Charter for the DCISC provides for its role in assessing safety of operations but that in accordance with 10 CFR 50.81 when the plant is shut down and enters decommissioning operations will have ceased in accordance with NRC regulations and the DCISC would be outside its remit at that time.

Dr. Justin Cochran was recognized. Dr. Cochran stated that in his role with the CEC to review all California’s nuclear facilities and radiological processes he has found the DCISC to be of significant value in that it is an expert panel that can act as an independent check and reference for information received from other entities including nuclear operators, the nuclear industry, the NRC and other federal agencies. Dr. Cochran stated that in his conversations with his peers from other states they have expressed appreciation for the DCISC as being a resource they lack.

The Chair expressed the thanks of the Committee to Dr. David Victor for his attendance at this public meeting and stated Dr. Victor’s presentation was very valuable for the DCISC, for the public and for the DC DEP. Dr. Peterson expressed his admiration also for the many impressive contributions Dr. Victor has made outside his service on the SONGS CEP to the field of climate change and Dr. Peterson remarked that trust and confidence are two issues which overlap with Dr. Victor’s role in addressing climate change and with his service on the SONGS CEP.

**B. Informational Presentations Requested by the Committee of PG&E Representatives (Cont’d.)**

Dr. Budnitz requested Mr. Harbor to introduce the next presentation. Mr. Harbor stated DCPP Operations Director Mr. Adam Peck was present to make that presentation and he reported Mr. Peck holds a Bachelor of Science degree in electrical engineering, has held a senior reactor operator license and held leadership roles in the Engineering and Operations organizations.

**Presentation on the State of the Plant including Key Events, Highlights and Station Activities, and Employee Retention/Staffing Trends since the DCISC’s June 2018 Public Meeting.**
Mr. Peck reported both units are presently operating at 100% power with a probabilistic risk assessment (PRA) status of Green. All NRC Performance Indicators are in Green status. Since the last public meeting of the Committee in June 2018 Unit-1 has remained at 100% power with no nuclear safety challenges. Unit-2 reduced power to 50% in mid-September 2018 for condenser cleaning to remove organic materials which build up on the condenser tube sheets. This maintenance activity was completed and Unit-2 returned to full power. Mr. Peck reported maintenance was performed on Emergency Diesel Generator 1-1 during a major maintenance outage window of 7-days duration.

Mr. Peck displayed graphs showing the daily load profiles for both units for the last four months and for the last twelve months. Mr. Peck reported the capacity factor for Unit-2 is 84.52% compared to 92.31% for Unit-1 due to refueling outage 2R20 which had a duration of 37 days.

Mr. Peck reported upcoming station activities include:

- NRC Emergency Planning Inspection - week of October 22, 2018;
- Quality Verification Audit - completed in the week of October 22, 2018;
- RC Triennial Fire Protection Audit - completes week of October 29, 2018; and

Mr. Peck reported staffing is essential to the success of DCPP and to maintaining excellent performance through the remaining lifetime of the plant. He reported workforce attrition to date in 2018 is slightly less than the historical average which he attributed to the effectiveness of the Employee Retention Program, with a subscription rate of 94% of the workforce. He reported tranche two retention agreements will be made available in July 2019 and this will provide information to inform additional changes for which action plans or contingencies would need to be developed. He reported, under the sponsorship of the Chief Nuclear Officer, a People Committee with Mr. Harbor as its Chair with the Senior Director of Nuclear Engineering Services, the Station Director and the Organizational Effectiveness and Learning Services Director and Human Resources business partners serving as its permanent members, has been established to review departmental functional assessments including workforce planning, knowledge transfer and succession planning to ensure staffing expectations are met and support is provided from the station and from PG&E corporate to maintain high levels of plant performance. In response to Dr. Lam’s inquiry, Mr. Peck reported 2019 will be a two-outage year for DCPP and 2019 will also have World Association of Nuclear Operators (WANO) and NRC’s inspections. In response to Dr. Lam’s further inquiry, Mr. Peck stated
the decommissioning effort has not distracted from his organization’s current focus nor has there been a diversion of resources due to the decommissioning efforts underway and Mr. Peck stated that personnel assigned to decommissioning continue to participate and support the plant during outages and emergency exercises. There are now approximately 16 persons assigned to the decommissioning organization which he described as a small fraction of the 1,300 persons presently employed by DCPP.

In response to Dr. Budnitz’ inquiry concerning a curtailment of power on Unit-1 on May 22, 2018 due to an issue with the main feedwater pump, Mr. Peck stated an annunciator alarm was received in the Control Room about 6:00 p.m. that the main feedwater pump had tripped, however, the pump had not tripped and should not have tripped. The alarm indication was evaluated and Mr. Peck stated a conservative decision was taken at an operational decision-making meeting to ramp the unit to assist trouble shooting when it was found the incident involved a spurious indication. As that spurious indication was generated by a switch with the ability to trip the main feed pump it was determined that trouble shooting and maintenance should not be performed on the switch without curtailing the operation of the unit involved but the activity needed to be performed or the main feed water pump could possibly be tripped at any time until the problem was identified and fixed. It was determined the cause was not the switch but rather within the conduit between the switch and the annunciator and there was no risk or challenge to the plant. Trouble shooting was completed and the plant returned to full power within 24 hours. In response to Dr. Budnitz’ query Mr. Peck confirmed that the same issue was not present on the other unit and he reported that upon review DCPP did not locate any operating experience reports specific to this issue from other facilities although he remarked that wires rubbing within conduits and causing a ground is not an uncommon occurrence.

**XIV Adjourn Morning Meeting**

The Chair adjourned the morning meeting of the Committee at 11:45 A.M.

**XV Reconvene For Afternoon Meeting**

DCISC Chair Dr. Robert J. Budnitz called the afternoon public meeting of the DCISC to order at 1:00 p.m. and Dr. Budnitz recognized his colleague Dr. Peter Lam present in the meeting room and stated DCISC Members Dr. Peterson was present and would return to the meeting in a few minutes.

**XVI Committee Member Comments**

There were no comments by any Member at this time.
XVII Public Comments and Communications

Ms. Sherry Lewis, a representative of MFP, was recognized. In response to Ms. Lewis’ question seeking an update on events following the accident to the Fukushima Dai-Ichi Nuclear Power Plant in Japan (Fukushima) on March 22, 2011, Dr. Lam reported the need for the government to provide a stipend to individuals displaced by the accident has cost the government approximately $200,000,000 each month and mitigation measures have resulted in a shortage of storage tanks which led to the re filtration of water which may possibly now be discharged into the Pacific Ocean although Dr. Budnitz remarked that no decision on the discharge of this water has been made as yet. Ms. Lewis stated she is concerned about the health effects and stated her belief that doctors are not permitted to equate health problems such as thyroid or other cancers to the effects of the Fukushima disaster. Dr. Budnitz stated that following the accident at Fukushima, the Japanese utilities formed an organization akin to INPO which is known as the Japan Nuclear Safety Institute (JANSI) and that he has undertaken some consulting work for the JANSI in the area of seismic safety. Ms. Lewis commented, in light of Dr. Victor’s presentation earlier in the public meeting and his emphasis on the importance of communication, it appears that the communication is lacking between the government and the Japanese public. Dr. Lam observed the accident at Fukushima illustrates the paramount importance of reactor safety and he categorized nuclear operations as a technology that is complicated, complex and unforgiving.

Dr. Gene Nelson, representing CGNP, was recognized. Dr. Nelson stated a recent broadcast on Australia’s version of the 60 Minutes television program included video footage from within Fukushima Unit-3, which was the most heavily damaged unit, and Dr. Nelson commented this film footage showed a remarkable amount of remediation has been done and he stated it is unfortunate that fact does not get much attention from the news media. He observed that safety systems worked and defense in depth was validated because nothing has been detected above the normal statistical variation and the Tokyo Electric Power Company (TEPCO), the operator of Fukushima, had made a significant error, for financial reasons, when TEPCO located the plant, not as many experts advised, that is, higher in elevation than its actual location. Dr. Nelson observed the nuclear industry has paid a great price for TEPCO’s mistake. Dr. Lam remarked that Japanese regulators licensed the plant for a 250-year flood assessment and prior to the accident the plant had an impeccable safety record and the accident was the result of a tsunami calculated to have a recurrence rate of once in 1,000 years but he agreed with Dr. Nelson that had certain safety equipment been available the accident might not have occurred as it did. Dr. Nelson observed that Fukushima’s location cannot be compared to that of DCPP as a large subduction zone does not exist close offshore from DCPP. Dr. Nelson observed the Onagawa Nuclear Power Plant in Japan, which he stated had a
stronger safety culture than at Fukushima, experienced greater ground acceleration and a larger tsunami but survived and actually served to shelter persons displaced by the earthquake and tsunami.

Dr. Budnitz thanked Ms. Lewis and Dr. Nelson for their comments.

XVIII Information Items Before the Committee (Cont’d.)

C. Informational Presentations Requested by the Committee of PG&E Representatives.

Dr. Budnitz requested Mr. Harbor to continue with the informational presentations for this public meeting. Mr. Harbor introduced Mr. Hossein Hamzehee. Mr. Harbor reported Mr. Hamzehee has more than thirty years of nuclear power experience including extensive experience as a Branch Chief with the NRC.

Update on the Status of NRC Performance Indicators, Licensee Event Reports, NRC Notices of Violation, and Issues Raised by NRC Resident Inspectors.

Mr. Hamzehee stated DCPP is rigorously inspected by the NRC and is committed to the highest standard of safety and constantly re-evaluates its operations and emergency planning to protect public health and safety. He reported he would provide an overview of DCPP performance based on NRC’s Performance Indicators since the last meeting of the DCISC in June 2018. He remarked his presentation would cover approximately four months of NRC inspections consisting of approximately 1,800 hours of inspection time. During this period NRC staff identified four violations all with very low safety significance.

During the period June - September 2018 DCPP met all Green performance expectations for all NRC performance indicators. Mr. Hamzehee reviewed and briefly discussed some of the 16 performance indicators reviewed by the NRC, and concerning which data is collected daily, as currently being within Green status as follows.

- Unplanned Scrams per 7000 Critical Hrs
- Unplanned Power Changes per 7000 Critical Hrs
- Unplanned Scrams with Complications
- Safety System Functional Failures
- Mitigating Systems Performance Index, Emergency AC Power System
- Mitigating Systems Performance Index, High Pressure Injection System
- Mitigating Systems Performance Index, Heat Removal System
Mitigating Systems Performance Index, Residual Heat Removal System
- Mitigating Systems Performance Index, Cooling Water Systems
- Reactor Coolant System Activity
- Reactor Coolant System Leakage
- Drill/Exercise Performance
- ERO Drill Participation
- Alert & Notification System
- Occupational Exposure Control Effectiveness
- Radiological Effluent Occurrence

Mr. Hamzehee described the safety significance characterizations used for the performance indicators as either Green (very low), White (low to moderate) Yellow (substantial) or Red (high). Green non cited violations indicate very low safety significance, with no impact to public health and safety.

Mr. Hamzehee reported there were no Licensee Event Reports issued by PG&E for the period June - September 2018 and there were four non cited violations (NCV) as follows:

- Non Cited Violation (Green) - for failure to ensure materials intended for installation in a diesel generator air inlet boot seal confirmed to procurement requirements. All defective diesel generator boot seals that were in operation were replaced.

- Non Cited Violation (Green) - self-identified by DCPP for failure to ensure that relief valve o-rings were appropriately classified for use in a safety-related context. The o-rings were commercial rather than safety-related grade and an operability determination was performed which concluded all o-rings were functional. All commercial grade o-rings will be replaced with safety grade o-rings. Mr. Hamzehee observed the difference in grade does not mean the o-rings were not functional.

- Non Cited Violation (Green) - for failure to identify Diesel Generator Room fire suppression control panel indicator light off-normal condition. A trouble light on Emergency Diesel Generator 1-1 was illuminated which indicated the automatic operation of the fire suppression system for that specific panel could have been prevented. Mr. Hamzehee stated procedures have been revised to require checking the lights.

- Non Cited Violation (Green) - identified during the NRC Problem Identification and Resolution Inspection in April 2018 for failure to correctly install flexible conduit to the power operated relief valve solenoid per the associated equipment qualification requirements. In
the presence of steam or moisture the flexible conduit would allow moisture to vent out of the system and buildup could potentially damage the valve. An operability determination was performed which involved entering Containment to inspect the valves and the determination concluded all the valves were operational with no steam accumulation.

Mr. Hamzehee stated DCPP’s overall performance is Green with respect to NRC Performance Indicators. He reviewed inspection activities since the last meeting of the DCISC in June 2018 as follows:


In response to Consultant McWhorter’s inquiry concerning the NRC having opened an unresolved item on mission times used in operability violations, Mr. Hamzehee stated DCPP’s Final Safety Analysis Report (FSAR) includes a reference on how long it can take to recover offsite power availability so as to determine how long the emergency diesel generators (EDGs) must be available and operable. When the Callaway Nuclear Generating Station in Missouri experienced a problem, the plant was unable to establish with the NRC a basis for using seven days as its EDG mission time and when this issue was reviewed at DCPP by the Senior Resident NRC Inspector, the inspector noticed that DCPP was using 24 hours which was not consistent with the FSAR, as DCPP’s FSAR does not include a reference to “mission time.” Mr. Hamzehee stated that 24 hours was selected based upon a PRA study as a 24-hour period is well beyond what is needed for safe shut down and to maintain the plant in safe shutdown condition. Because the NRC Resident established that the FSAR is the controlling document an unresolved issue was opened on this matter and until the issue is resolved the NRC Resident directed that seven days be used instead of 24 hours as a bridging strategy. Mr. Hamzehee stated this issue was important because in order to do an operability assessment when equipment fails you have to assume some mission time for the equipment.

In response to Dr. Peterson’s question as to credit given for the FLEX diesel generators now onsite Mr. Hamzehee stated the NRC is reviewing the matter and will issue guidelines. Mr. Hamzehee stated credit for the presence of FLEX equipment in the plant’s PRA is also an issue as the NRC regulations
require ensuring that if licensees are going to take credit for FLEX equipment there is some means of assuring its reliability and availability and regulatory guidelines will be issued as to how FLEX is to be included in the Maintenance Rule if credit is to be taken in the PRA. Dr. Budnitz reported the American Nuclear Society/American Society of Mechanical Engineers (ANS/ASME) Committee on which Dr. Budnitz serves as the Co-Chair is contemplating standards for how to do the analysis of FLEX in the PRA and the committee hopes to issue those standards in the near future. Dr. Budnitz stated it is important for the public to know if an accident were to occur the FLEX equipment is available and training has been conducted. Mr. Hamzehee confirmed that the NRC has inspected DCPP and has worked with its Operations staff and the NRC was pleased with the results.

Dr. Lam observed there was a minor NCV that was identified and corrected by DCPP staff but he stated there must be numerous other pieces of equipment that should receive the same level of focus and attention and he inquired how Mr. Hamzehee’s staff can ensure that equipment is monitored adequately. Mr. Hamzehee replied there are procedures and each day Operations, Maintenance, Engineering personnel and the system engineers walk-down the plant to ensure all equipment is operable and available and anything found is entered into the Corrective Action Program. Mr. Hamzehee stated the plant uses a risk-informed approach to identify risk-significant components, equipment, and systems and these key systems are readily familiar to all licensed operators.

Dr. Gene Nelson, a representative of CGNP was recognized and remarked that he continues to be impressed by the job PG&E is doing at DCPP.

Ms. Sherry Lewis, a representative of MFP, was recognized. Ms. Lewis stated she was confused by references to “Green” as a health and a performance indicator. Dr. Budnitz confirmed that reference to “Green” in those contexts may have different meanings. Ms. Lewis stated her assumption that if the EDG generator light issue were a safety-significant issue there would be defense in depth measures available. Dr. Budnitz confirmed Ms. Lewis observation and stated that this is why it was judged to be of lower safety significance because it was not the only indicator. Mr. Hamzehee stated that regardless of the indication as green, white, yellow or red, the NRC has requirements and regulations and when those regulations are not met a violation or a finding is issued. When the significance of the violation is determined then the color is assigned. Yellow or white indications result in a more intensive inspection regime and more severe consequences.

Mr. Harbor introduced the final presentation by PG&E for this public meeting and stated that presentation would be an overview of nuclear safety culture and be made by Mr. Matt Hayes, Director of Organizational Performance and Learning Services at DCPP. Mr. Harbor reported Mr. Hayes has more than
fifteen years of nuclear industry experience including in the areas of training, radiation protection and organizational effectiveness.

**Update on Nuclear Safety Culture, Safety Conscious Work Environment and Employee Concerns Program.**

Mr. Hayes stated a key element of nuclear power plant safe operations is safety culture and he reviewed the traits of a healthy nuclear safety culture as including an environment where employees will raise concerns at a low level and the plant management team will respond and correct issues. He stated a healthy nuclear safety culture requires a collective commitment from leaders and individuals to emphasize safety over competing goals to ensure the protection of people and the environment. Key elements of a healthy nuclear safety culture include an individual commitment to safety, personal accountability, a questioning attitude, and effective safety communication as well as management’s commitment to safety leadership, safety values and actions, decision-making, and a respectful work environment.

Mr. Hayes reported a safety conscious work environment (SCWE) is another key element of a healthy nuclear safety culture. It represents an environment where individuals feel free and are open and willing to identify and raise issues, questions or concerns, express differing professional opinions or viewpoints dealing with nuclear or radiological safety, quality, security, environmental or regulatory compliance and to do so without fear of retaliation. Issues identified within the context of a SCWE are addressed promptly with timely feedback provided to the initiator.

Mr. Hayes stated that the Nuclear Safety Culture Monitoring Panel (NSCMP) reports to him and assesses nuclear safety culture using the recommendations of NEI publication 09-07, “Fostering a Healthy Nuclear Safety Culture,” which places primary responsibility on management to provide an ongoing holistic, objective, transparent and safety-focused process. He reported the process evaluates inputs from the Corrective Action Program, performance trends, NRC inspections, industry evaluations, audits, and operating experience, independent and self-assessments, and the Employee Concerns Program. The NSCMP monitors these inputs to identify early indications of potential concern in the work environment that merit additional attention by the organization. The process is directed by station procedures. The NSCMP is comprised of experienced personnel with diverse backgrounds. Membership is limited to protect the confidentiality of personal information and its reports are provided to the site leadership team.

Mr. Hayes remarked the Employee Concerns Program (ECP) provides an alternate venue for employees to raise concerns, seek intervention and
consultation or to request an independent investigation for resolution of nuclear safety and quality concerns. The ECP is comprised of three independent, qualified, team members who report directly to the Chief Nuclear Officer. Mr. Hayes reported that no concerns were raised with the ECP during 2018.

Mr. Hayes stated DCPP has undergone a number of NRC inspections that examined its nuclear safety culture with the latest concluding in October 2018. The NRC inspections, as well as recent NSCMP assessments, indicate that DCPP continues to exhibit the traits of a healthy nuclear safety culture. Mr. Hayes said that as part of a day-to-day commitment to excellence, DCPP continues to learn from and make improvements to its nuclear safety culture.

In concluding his presentation, Mr. Hayes observed that PG&E is a safer, better company when all employees are encouraged to speak up and the leadership team is committed to listening up, and to following up. He stated nothing is more important than safety and maintaining a culture where everyone feels comfortable sharing their ideas and concerns is essential to operating safely. Mr. Hayes reported that whenever DCPP employees see a safety issue or concern, they are encouraged to speak up immediately.

Dr. Budnitz remarked that a situation where a significant number of low level issues are raised during one year, which is then followed by a year in which far fewer concerns are raised has been a concern of the DCISC based on the numbers of concerns raised in 2017 as compared to 2016 and prior years. Dr. Budnitz remarked that an understanding of that trend cannot rely on data alone but requires additional information. Mr. Hayes replied the NSCMP reviews the numbers of notifications (the initiating document for entry into the Corrective Action Program) and compares the number of notifications generated with prior years. He stated the results of interviews with employees and the level of detail supplied by the notifications did not support a finding that there were issues adverse to employees raising concerns. Mr. Hayes stated that DCPP is the fourth nuclear power plant with which he has been associated and the threshold level for initiating notifications at DCPP is in line with the other plants with which he is familiar. Mr. Hayes observed the ECP is available to employees to raise concerns in a confidential and anonymous forum. Mr. Harbor remarked the NRC periodically conducts its Problem Identification and Resolution Inspection which is a team inspection devoting a significant amount of resources to investigation of the plant’s safety culture and DCPP management has the benefit of the feedback from and results of the NRC assessment. He further observed that INPO also places primary importance on and assesses safety culture during its reviews and conducts interviews and holds discussions with plant personnel at various levels.
In response to Dr. Lam’s inquiry, Mr. Hayes stated members of the labor unions serve on the NSCMP and within the Organizational Performance and Learning Services organization he leads. Mr. Hayes commented that he believes the unions see great benefit in having a healthy nuclear safety culture and management and union efforts in support have proven to be a mutually beneficial partnership.

In response to Consultant McWhorter’s query concerning the need to maintain a healthy nuclear safety culture during the period when the plant is proceeding to closure, Mr. Hayes stated DCPP recognizes its programs, including programs fostering nuclear safety culture, exist in an environment of both climate and culture and he confirmed that, given the decision to retire DCPP by 2025 the climate has changed. The formation of the People Committee was a response to this to monitor and assess plans for continuing employee engagement, staffing, succession planning and other issues. Mr. Harbor remarked DCPP recognizes the need to assess how its employees continue to feel about raising issues or engaging with management and is conducting anonymous surveys, called Pulse Surveys, in that effort which reach out to approximately 400 plant staff on a quarterly basis and the results of the Pulse Surveys are reviewed by the People Committee.

The Chair thanked Mr. Hayes for a very helpful presentation and remarked the DCISC has reviewed nuclear safety culture at DCPP in the past and will continue to do so over the next years as a considerable amount of transformation takes place.

XIX Technical Consultant Report & Receive, Approve and Authorize Transmittal of Fact Finding Report to PG&E (Cont’d)

The Chair requested Consultant Wardell to report on a fact-finding visit to DCPP on September 5-6, 2018 with Dr. Budnitz. Mr. Wardell stated topics reviewed with PG&E during that visit included the following:

- Observe Plant Health Committee Meeting - Mr. Wardell reported the Plant Health Committee meets biweekly and provides an opportunity for high level managers and directors to review the health of systems, components and the plant. Each system is assigned a health rating and Mr. Wardell reported there are currently no systems rated as unhealthy. The meeting reviewed the status of the now fully implemented FLEX equipment programs including a concern raised by an operator concerning whether the training provided to Operations personnel on FLEX procedures and guidelines is sufficient to allow operators to carry out their responsibilities. Mr. Wardell stated the DCISC should follow up on this during the scheduled December fact-finding visit. The Plant Health
Committee meeting also included review of the top ten equipment reliability issues and Mr. Wardell reported that the fact-finding team found none of these issues to have safety-related significance.

- Control Room Simulator Status - Mr. Wardell reported every nuclear power plant has a control room simulator and at DCPP the Simulator is a complete copy of the DCPP Control Room. The Simulator is run by a computer which mimics the operation of the plant and is used to train and test operators and for emergency exercises. He reported DCPP has completed a five-year Simulator computer review with upgrades to the Simulator’s hardware and software to provide assurance the Simulator will operate reliably through 2025.

- Digital Control Systems Status - Mr. Wardell reported some control systems have moved from electro-mechanical operation to computer control which enhances their reliability and flexibility and provides much better control to the operators. **Mr. Wardell remarked the DCISC has not reviewed cyber security issues in context of digital controls and the fact-finding team recommended the Committee should do so early in 2019.** Mr. Wardell reported a system review of digital controls has been initiated to ensure the digital control systems will operate reliably through 2025 and this review should be complete by the end of 2018 and the fact-finding team recommended the DCISC review the results of this review in the first or second quarter of 2019 and this is now an item on the DCISC’s Open Items List.

- Vibration monitoring Program - this program is a part of the DCPP Preventive Maintenance Program and includes vibration monitoring, lubrication control and infrared thermography inspection. DCPP has installed permanent vibration monitors on some major components and has several hundred portable vibration monitors available for use as needed. The fact-finding team found the program to be successful although **the team was concerned about the reduction in staffing for the Vibration Monitoring Program and Mr. Wardell stated the team recommends DCISC review the Vibration Monitoring Program during 2019 to assess any impact on its effectiveness.** Dr. Peterson observed that in context of overall reduction in preventive maintenance as the plant proceeds to shut down one would expect a more, rather than a less intensive program. Mr. Wardell reported the fact-finding team’s concern was conveyed to the Senior Director of Station Services during the fact-finding visit.

- Observe Corrective Action Review Board Meeting - Mr. Wardell stated this is a senior oversight review board for the Corrective Action Program and meets almost every day to review many of the notifications to that program. The Board also provides an effectiveness review of the Corrective Action Program. **Mr. Wardell reported there**
has been a reduction in the numbers of notifications written in the Corrective Action Program and the Corrective Action Review Board is assessing the reasons for this. Mr. Wardell recommended the DCISC follow up on the results of the Corrective Action Review Board’s findings during a future fact-finding. The Corrective Action Review Board meeting also discussed results of an audit by the Quality Assurance Department which found the Geosciences unit was not using approved quality assurance procedures in its work concerning the Geoscience unit’s assessment of FLEX equipment. There was discussion as to whether FLEX equipment should be considered nuclear safety-related as FLEX is provided in addition to and not as a part of the plant’s design basis. The Quality Assurance Department and the Geosciences unit will review the issue and provide a recommendation to management and Mr. Wardell reported this is an issue on which the DCISC should follow up. Mr. Wardell stated the fact-finding team found the meeting to be effective.

- Observe Readiness Review Board Meeting - Mr. Wardell reported this is a management group that does not meet regularly but rather meets as needed to review upcoming procedures. The meeting attending by the DCISC representatives was to review the cold wash of the Unit-2 230kV insulators. The insulators require cleaning due to moisture and dust accumulations and a cold wash is performed by the transmission group at PG&E. Mr. Wardell stated the fact-finding team found the Readiness Review Board review to be thorough and resulted in a positive review of the cold wash procedures. Mr. Wardell stated the Readiness Review Board also meets prior to a restart following refueling outages.

- Meet with NRC Senior Resident Inspector - the DCISC representatives met with the Senior Resident Inspector, Mr. Chris Newport, concerning the topics reviewed during the fact-finding visit and also concerning the use of FLEX in probabilistic risk assessment (PRA).

- Fire PRA Upgrade and Status of the PRA Plant-Response Model - Dr. Budnitz reported the DCISC fact-finding team met with the PRA group and reviewed the latest update of the PRA for fire events. Dr. Budnitz stated the Fire PRA looks at accident scenarios which could be initiated by or arise from an internal fire. Dr. Budnitz stated the Fire PRA is a complicated area and the DCPP effort has been peer reviewed and received an excellent review and is now available for use by the plant. The Fire PRA is used any time there is a configuration change made to make sure that in addition that the accident sequences at issue have not been made somehow more probable or the consequences made more severe. Dr. Budnitz stated he found the DCPP Fire PRA to be first class and capable of supporting not only the transition to NFPA 805 regulations but many other applications. Dr. Budnitz reported the fact-finding team also reviewed the main PRA model for how the plant
responds to a transient which causes equipment to fail or stop. He stated that while the plant is designed to cope with such events and to shut down safely, the PRA is used to identify areas where through an unfortunate combination of other failures following the initiating failure an accident might emerge rather than the plant safely shutting down. The PRA model evaluates those accident sequences and has been peer reviewed and judged to be one of the very best in the nuclear industry. DCPP has for the past several years been in the process of updating its PRA to address changes made to the plant over the years and the PRA model has been revised to reflect that the as-built plant differs from the plant’s original configuration. Dr. Budnitz stated that without those changes, the PRA would not be realistic. Dr. Budnitz reported the DCISC representatives found the DCPP main PRA as updated to be more than satisfactory. Dr. Budnitz stated the ANS/ASME Standards Committee which Dr. Budnitz Co-Chairs is responsible for maintaining the standards of how one performs PRA analysis and he remarked that DCPP deserves commendation for its recent work.

- Meet with Mr. Jan Nimick, Station Services Senior Director - the DCISC representatives discussed the topics reviewed during the fact-finding with Mr. Nimick, including the concern by the DCISC team with the reduction in staffing for the Vibration Monitoring Program and they discussed the NRC public meeting which was to be held in San Luis Obispo on August 28, 2018.

- Human Performance Update - Mr. Wardell reported DCPP continuously tracks human error events as site level events, department level events or station clock resets. He reported over the past eleven years site level events have declined from approximately 25 during each refueling outage to two per outage which Mr. Wardell described as an impressive performance. Mr. Wardell reported the DCISC representatives concluded DCPP is doing a good job in reducing human error events. Dr. Budnitz observed part of the significant decrease is due to training and procedures and, in part, to careful attention to safety culture and he stated these aspects have made a major impact on reducing human error at DCPP. Mr. Wardell commented DCPP has adopted and uses a series of human error prevention tools which have been effective in reducing human error.

- Meet with San Luis Obispo County Office of Emergency Services - the DCISC fact-finding team met with Mr. Ron Alsop, the Director of the San Luis Obispo County Office of Emergency Services (OES) and found the OES has received very good reviews from the Federal Emergency Management Agency (FEMA) during several exercises. **Mr. Wardell reported the OES is working on issues concerning the transition to decommissioning and that Mr. Alsop has expressed his concern about the proposed NRC guidelines that would reduce funding for emergency planning as the plant proceeds through**
defueling and into decommissioning. Mr. Wardell stated it was his understanding from Mr. Jones presentation that site level and general emergency designations will be eliminated as the risk level from the fuel and from accidents at the shut down plant are reduced. Mr. Wardell suggested this is an issue that should warrant additional DCISC follow up. Dr. Budnitz reported the DCISC team learned that Mr. Alsop will be retiring at the end of 2018 and he complimented Mr. Alsop’s efforts as a stalwart and important part of the emergency planning efforts and, on behalf of the DCISC, he wished Mr. Alsop well in his retirement.

Dr. Gene Nelson, a representative of CGNP, was recognized. Dr. Nelson stated that DCPP is a recognized industry leader in the transition from analog to digital control systems. He commented this was an important issue as many vendors of analog systems have either gone out of business or no longer make parts for those systems. He remarked that digital systems provide much more system flexibility and more redundancy. Dr. Nelson stated he was concerned about the comments on the Vibration Monitoring Program, as a conference he recently attended included information from the airline industry on its success in achieving safer operation, better reliability and cost benefit from the use of additional monitoring systems which make those systems smarter and capable of gathering more data. He stated the reduction in staffing in the DCPP Vibration Monitoring Department as described by Mr. Wardell causes him concern. Dr. Budnitz replied that the DCISC is alert to the issue and has discussed it with station management and will follow up as appropriate.

Upon a motion by Dr. Peterson, seconded by Dr. Lam the September 5-6, 2018 Fact Finding Report was accepted and its transmittal to PG&E authorized.

XX Concluding Remarks & Discussion by Committee Members of Future DCISC Activities

A. Future Actions by the Committee. The Chair observed that this item was addressed previously during the meeting.

B. Discussion and Possible Direction re: a Future Role for DCISC After Expiration of Operating Licenses for DCPP Including Possible Engagement on an ad hoc basis of a Consultant to Assist in Identification of Decommissioning-related Issues.

Dr. Budnitz observed the DCISC Charter and its subsequent Restated Charter were granted by the California Public Utilities Commission. He stated the restatement of the Charter did not change the mandate conferred upon the DCISC to review and report on operational safety of the plant. However,
the Restated Charter is ambiguous as to whether the Committee is to continue to fulfill that mandate after the plant ceases generating electricity. The issue before the Committee today is to try to resolve that question which Dr. Budnitz observed is ultimately a decision for the CPUC and the officials and entities that appoint the DCISC’s members, the Governor, the California Attorney General and the Chair of the California Energy Commission.

Dr. Budnitz reported after the DCISC public meeting in June, he drafted a letter which was circulated to the other Members and the Technical Consultants setting forth his views on and analysis of the question of a post-shutdown role for the DCISC. Dr. Budnitz explained the risk to the public of a radiological release is greater when the plant is operating than it will be when it is shut down. But when the plant ceases to generate electricity the risk is not zero during the period when (1) fuel remains in the reactor vessel, (2) spent fuel is moved from the vessel to the spent fuel pool, (3) the fuel in the pools cools radioactively and thermally, and (4) all fuel is transferred from the spent fuel pool to the ISFSI. During each of these periods, the radiological and security risks decrease compared to the risk during generation operations, until the risk becomes quite low when all fuel is in dry cask storage at the ISFSI. Dr. Budnitz stated his personal belief that in considering making a recommendation concerning the post-shutdown continuance of the DCISC the Committee Members would not be engaging in a self-serving exercise. He further stated his recommendation to the CPUC would be to clarify the Restated Charter to provide that the DCISC should continue in existence until all of the fuel is in storage at the ISFSI when the radiological risks will have diminished substantially. He remarked that although the safety risk is low as the spent fuel cools in the spent fuel pools for a few years, there is an issue of assuring decommissioning activities protect the health and safety of workers on the site during that period.

Dr. Lam stated he agreed with Dr. Budnitz analysis of the risk implications before, during and after decommissioning and Dr. Lam believes making a request now to the CPUC to clarify the Committee’s Restated Charter may be in order. Dr. Lam stated his view that clarification may be appropriate was also informed by the comments earlier in this public meeting by Judge Karlin who observed that the NRC’s regulations provide that decommissioning begins when plant generation operations cease. Dr. Lam stated he was not convinced, however, that this is the appropriate time to seek clarification on the matter of the continuance of the Committee from the CPUC.

Dr. Peterson stated he concurred with Dr. Budnitz that it is important that the issue of the Committee’s post-shutdown continuance be raised with the CPUC as a strict interpretation of the Restated Charter could imply the
Committee must cease its work upon the cessation of generation operations but that may not be the interpretation the parties who participated in the creation of the Committee’s Restated Charter intended. However, Dr. Peterson stated his belief that at this time there is no urgency to resolve the question and the Committee should engage in developing an analysis of what its role might be, how the Committee might change, and the various factors that should be considered in greater detail. Dr. Peterson commented the DCISC has reviewed the scope of its current review and upon cessation of generation operations, although there may be some additions to the scope, the overall scope of DCISC review will be reduced and may not merit the current expenditure of funds for the Committee’s operation. He remarked that when all the fuel is transferred to the ISFSI, the scope of any DCISC review would be quite small compared to present and for this reason, more study should be undertaken before the question of clarifying the Restated Charter is raised with the DCISC’s appointing officials or with the CPUC. Dr. Peterson observed that members of the DC DEP may be interested in having the DCISC review and make recommendations on certain questions within the purview of the DC DEP. Dr. Peterson stated he does not believe it to be timely for the DCISC to make a recommendation to the CPUC concerning a potential post-shutdown role for the DCISC as it is his belief that more work remains to be done before the DCISC will be in a position to make a fully informed determination and a good decision. Dr. Peterson recommended the Committee continue to consider the matter for a period of at least one year before asking for a decision from the CPUC or its appointing officials.

Dr. Budnitz observed there is agreement that at some point clarification should be sought from the CPUC concerning the ambiguity in the Restated Charter concerning a post-shutdown role and he observed that clarification is needed at least a few years prior to the plant shutting down as the appointment process for membership on the Committee requires the consideration of the Governor, the Attorney General and the Chair of the Energy Commission. He observed that at the present time, membership on the Committee requires experience in nuclear power facilities and nuclear safety issues and Dr. Budnitz observed these requirements do not include decommissioning. As members serve three-year, staggered terms, he commented the clarification should not be postponed until 2024-2025 when DCPP is scheduled to cease operations but should take place at least three to four years before, as the CPUC will likely require time to come to its decision. Dr. Budnitz stated that he believes there is agreement among all current Members on this schedule. In response to Dr. Budnitz’ query as to whether Drs. Lam and Peterson shared Dr. Budnitz’ opinion that the Committee’s eventual request of the CPUC as to a post-shutdown role for the
DCISC should be in the form of a recommendation, Dr. Peterson replied that he did not believe a recommendation should be made this year and more due diligence and systematic review should be undertaken and a summary prepared as to the scope of topics that might merit the Committee’s review and how the Committee might be restructured, supported, funded and conduct its future activities but Dr. Peterson stated he believed a communication in the form of a recommendation would then be appropriate.

Consultant Wardell stated he agreed with the points, conclusion and recommendation as stated in Dr. Budnitz’ proposed letter and he agreed with Drs. Lam and Peterson that this was not a matter which requires action by the Committee this year and he believes guidance should be provided to the CPUC concerning a post-shutdown role for the DCISC at varying stages of the decommissioning process.

Consultant McWhorter stated he was in general agreement with Dr. Budnitz’ proposed letter and with Drs. Lam and Peterson as to the need for more time to consider certain matters. Mr. McWhorter stated his belief that the matter should be resolved sooner rather than later as the CPUC will likely need time to adjudicate a decision and as the plant approaches the end of its licenses from the NRC, in the event of a major event resulting in equipment damage or a new regulatory issue it is possible that DCPP may shut down its reactors and cease all generation operations before the scheduled date of 2025. He also observed that the public during the DCISC’s public meetings has expressed a desire for clarity as to a possible post-shutdown role for the Committee.

Dr. Budnitz remarked that it was important that the Committee hear from the public concerning the matter of a possible post-shutdown role for the DCISC and he urged members of the public present or who attended this meeting online through livestream video, or who access its proceedings subsequently, to express their views to enable the DCISC to make a fully informed recommendation to the CPUC. He remarked that out of 100 reactors on 60 sites in the United States, only the two reactors at Diablo Canyon have an independent safety committee.

Dr. Lam stated that while he supports seeking clarification, although he could be persuaded otherwise, he remains very hesitant to make a recommendation concerning the continuance of the DCISC beyond 2025. He observed that in making such a recommendation the Committee will already have answered in the affirmative whether it should continue to exist and Dr. Lam does not believe that is an issue the Committee Members should decide. He stated he did not support a proposal which might set forth a recommendation as to what shape or form the Committee might make a material
contribution after 2025 and he continues to view such a proposal as self-serving although such a proposal might be appropriate as an appendix to a letter seeking clarification on the Restated Charter. Dr. Budnitz commented that such a letter might include separate attachments setting forth the individual Members’ views.

Dr. Peterson queried what PG&E plans for its Nuclear Safety Oversight Committee (NSOC) after the plant ceases generating electricity as Dr. Peterson observed the incremental effort for PG&E to support the DCPP is actually quite small since most of this work is also performed in support of the NSOC. Dr. Budnitz replied that the internal nuclear safety committees at nuclear power plants which have shut down are replaced by a comparable committee with decommissioning expertise. Dr. Peterson stated this discussion highlighted a number of actions the DCISC should now take and document in its Open Items List to develop a strong foundation for making a credible recommendation to the CPUC including looking at an alternative budget and structure for its fact-findings and public meetings and he commented a recommendation may not be necessary in context of a report seeking a decision that emerges out of condensing the discussion about a post-shutdown role for the DCISC. Dr. Budnitz reiterated his belief that the Committee should make a recommendation that it should continue in existence after the plant is shut down until the final transfer of fuel from the spent fuel pools to the ISFSI has taken place.

Ms. Jane Swanson, a representative of MFP, was recognized. Ms. Swanson suggested the DCISC make inquiry and seek the DC DEP members’ thoughts and opinions on what type of function might be appropriate for the DCISC during different stages of decommissioning. She further suggested the Committee might invite and seek public opinion from the people it serves, especially those in the local community, through a series of questions posted on the DCISC’s website.

Dr. Gene Nelson, a representative of CGNP, was recognized. Dr. Nelson commented on Dr. Victor’s emphasis earlier during this public meeting on the importance of communication. He stated the DCISC has built up a great deal of good will in the local community and it would be tragic to see it discarded. Dr. Nelson stated CGNP is seeking to prevent the shutdown of DCPP. He remarked that Mr. Jones set as the annual cost of doing nothing during decommissioning as $85 million and the cost of funding the DCISC is a pittance in comparison. Dr. Nelson stated his opinion that the function of the DCISC will remain important and the continued existence of the Committee will result in a savings to the ratepayers. If CGNP is not successful, Dr. Nelson stated the Members of the DCISC need to consider a post-shutdown role for the Committee. Dr. Nelson suggested that a transcript of Dr. Victor’s remarks be provided to the CPUC on the issue of
community engagement. He further observed he supported Ms. Swanson’s idea of asking questions of the community concerning a post-shutdown role for the DCISC. Dr. Peterson stated he appreciated and thanked Dr. Nelson for his comments as he agreed that Dr. Nelson’s observations that a committee like the DCISC could serve a very useful role in helping state and government agencies, as well as the public to make good decisions.

Ms. Sherry Lewis, a representative of MFP, was recognized. Ms. Lewis inquired whether if the DCISC were discontinued, it could subsequently be reconstituted if there was a problem such as a terrorist attack on the ISFSI. Ms. Lewis also inquired whether in the event of a canister leak at the ISFSI a spent fuel pool would be required. Dr. Budnitz replied that there is simply no answer at this time as to whether the DCISC might be reconstituted if it were to disband. As to the question about a canister leak, Dr. Peterson replied that the transport cask is licensed such that the canisters are not required to play any safety role, so once a leaking canister were placed within a transport cask, which could be accomplished without the need for a spent fuel pool, the leaking canister could be transported. Dr. Peterson stated it was quite unlikely there would be a need to return a canister to a spent fuel pool to be opened. He also observed that it would be difficult to mobilize a release out of a cracked canister and he commented he was puzzled by Holtec firm’s decision to license its canisters without considering what might happen were there to be a small aperture crack caused by stress corrosion cracking, as assuming the canisters to be perfect creates a very heavy burden and risk a loss of credibility in the manufacturer. Dr. Peterson remarked it is important for the public to understand that financial economy in decommissioning activities does not translate to increased profit for the utility.

Dr. Budnitz remarked that once all the fuel is in dry storage and the plant facilities completed removed, as is the case with the former Yankee Rowe Nuclear Generating Station in Massachusetts there are no activities to monitor other than a fence line, a guard in place and occasional visits by the NRC to ensure that there is no change to the radiation environment and Dr. Budnitz stated he did not understand why any committee would be needed for something that essentially has no operations. He reiterated his view that once the fuel is in dry storage there is no further need to review safety, although decommissioning may be continuing and the risk is not zero but the safety issues associated at that point would be related to occupational safety which is a much different discipline than that of the DCISC in reviewing reactor safety, generation operations or, potentially, radiological decommissioning.

In response to Dr. Lam’s inquiry, Dr. Budnitz stated a decommissioning expert would be a person with technical engineering expertise in designing and managing decommissioning processes at nuclear power plants and
analyzing them in terms of safety and efficacy. Dr. Budnitz reported there is a division of the American Nuclear Society for issues related to the fuel cycle and decommissioning and the organization holds proceedings and conferences and sessions at its annual meetings when advances in design and construction, and responses to adverse decommissioning conditions are reviewed and discussed. Dr. Budnitz stated he has provided the names of three or four such persons for consideration by the DCISC as a decommissioning consultant, including one engineer who served as a chief nuclear officer at a nuclear power plant during its decommissioning decade. Dr. Budnitz stated that PG&E will be engaging such persons and there is a possibility that one or more members of the DCISC might be appointed in the future who may have similar decommissioning-related experience and backgrounds. Dr. **Peterson remarked it was important the DCISC schedule fact-finding with the decommissioning experts engaged by PG&E.**

Dr. Gene Nelson, a representative of CGNP, was recognized. Dr. Nelson observed there are experts in the area of decommissioning but any such individuals should have the highest caliber of engineering knowledge in decommissioning matters. Dr. Budnitz stated that none of the current members of the DCISC have such expertise, but if such a member were appointed, it might not be necessary for the DCISC to consider engaging a decommissioning consultant. Dr. Nelson remarked changing DCISC member qualifications might also be an issue that needs to be raised with the CPUC.

In summary, the Committee agreed to proceed to do additional due diligence in support of drafting a letter to the CPUC concerning a post-shutdown role for the DCISC. Dr. Peterson directed that this item should remain as a regular item on the Committee’s public meeting agendas for the future. Dr. Budnitz suggested the Technical Consultants identify discrete, informative options or phases concerning post-shutdown review by the DCISC including an initial view of the character of the risk, including the security risk, and the utility of a continuing role for the DCISC during each option or phase. Dr. **Peterson agreed and directed that these options be posted on the DCISC website in advance of its next meeting in February 2019 with notice provided that the Committee is seeking input from the public and PG&E.** Dr. Budnitz observed that several years ago, PG&E made efforts to terminate the existence of the DCISC but more recently DCPP management has expressed its full support for the Committee.

C. Further Information to Obtain/Review. Mr. Garcia stated he would review the schedule for public meetings and fact-findings discussed during this public meeting and respond by email.

D. Scheduling of Future Site Visits, Study Sessions and Meetings. This item was
taken up previously and there was no discussion prior to adjournment.

XXI Adjournment of Ninety-first Public Meeting

Dr. Budnitz thanked the technicians of AGP Video who provide livestreaming and audio and video recording of the DCISC’s public meetings and he complimented them on their professionalism and attention to quality.

There being no further business, the ninety-first public meeting of the Diablo Canyon Independent Safety Committee was adjourned by its Chair, Dr. Robert J. Budnitz, at 3:45 P.M.
Notice of Meeting

A legal notice of the public meeting and several display advertisements were published in local newspapers and mailed to the media and those persons on the Committee's service list. Information on the public tour and a copy of the meeting agenda were also posted on the Committee's website at www.dcisc.org.

Agenda

I Call to Order - Roll Call

The February 27, 2019 public meeting of the Diablo Canyon Independent Safety Committee (DCISC), the ninety-second public meeting of the Committee, was called to order by Committee Chair Dr. Robert J. Budnitz at 9:00 A.M. in the Crow’s Nest Conference Room at the Pismo Lighthouse Suites in Pismo Beach, California. Dr. Budnitz welcomed those present to the meeting and he briefly reviewed the appointment and professional background of the other two members of the DCISC: Dr. Peter Lam, a retired U.S. Nuclear Regulatory Commission (NRC) Administrative Judge and the appointee of the Chair of the California Energy Commission; and Per F. Peterson, of the University of California Berkeley and a principal of Kairos Power firm, the appointee of the Governor of California. Dr. Budnitz reported he is retired from Lawrence Berkeley National Laboratory and serves on the DCISC as the appointee of the California Attorney General.

Present:

- Committee Member Robert J. Budnitz
- Committee Member Peter Lam
- Committee Member Per F. Peterson
Absent:

- None

II Introductions

Dr. Budnitz acknowledged and welcomed the members of the public in attendance. Public meetings of the Committee are viewed in real-time over streaming video at www.dcisc.org and www.slospan.org and are videotaped for later broadcast on the local public access television station. The Chair then briefly reviewed the backgrounds of the Committee’s Technical Consultants and Counsel; Mr. R. Ferman Wardell, P.E., retired from Duke Energy Corporation; and Mr. Richard D. McWhorter, Jr., who previously served on the NRC staff as a Senior Resident Inspector and has now retired from Old Dominion Electric Cooperative; and its Assistant Legal Counsel, Robert W. Rathie of the Wellington Law firm. Dr. Budnitz recognized and acknowledged the presence of Mr. Hector Garcia, Support Manager to Pacific Gas &Electric Company’s (PG&E) Chief Nuclear Officer, who serves as the DCISC’s principal liaison with the plant.

III Public Comments and Communications

The Chair reviewed the process for changing the order of items on the agenda and the procedures for addressing comments to the Committee. He then inquired whether there were any members of the public present who wished to address remarks to the Committee on items not appearing on the agenda for this public meeting and he reviewed the advice from the agenda concerning items or issues which are brought to the attention of the members by the public during public meetings.

Mr. John Geesman representing the Alliance for Nuclear Responsibility was recognized. Mr. Geesman stated that with the recent bankruptcy filing by PG&E the vigilance of the Committee is required in a fashion in which it has not been to date. Mr. Geesman observed the bankruptcy process will subject a number of decisions which PG&E management would ordinarily make to the scrutiny of a variety of outside parties and this could have a profound impact on PG&E’s spending commitments. Mr. Geesman observed PG&E has announced substantial cuts in capital expenditures at Diablo Canyon Power Plant (DCPP) and some cuts in operations and maintenance are not clearly quantified. Beginning in 2018, PG&E introduced its Affordability Initiative and Mr. Geesman challenged the DCISC to inspect each and every cancelled project to ensure the cancellation does not have significant safety implications and to monitor the DCPP’s retention of its employees. Mr. Geesman reported PG&E announced and subsequently retracted a short-term incentive plan for some of its employees and he observed this has potentially profound safety implications.
Dr. Budnitz reported that since the Joint Proposal, entered into by PG&E, together with Friends of the Earth, the Natural Resources Defense Council, Environment California, the International Brotherhood of Electrical Works Local 1245, Coalition of California Utility Employees and the Alliance for Nuclear Responsibility (Joint Proposal) to retire DCPP at the expiration of the current operating licenses for each unit, the DCISC has held a series of fact-findings and presentations during its public meetings and will continue to do so and he confirmed Mr. Geesman’s observation that the bankruptcy filing adds an additional layer of complexity to the plans to retire DCPP. Dr. Lam stated that since the Joint Proposal was announced on June 21, 2016, at every on-site meeting he has held with PG&E prior to the bankruptcy filing he has not found any cancelled projects or reduction in expenditures to be commensurate with the appropriate safety review.

Dr. Gene Nelson representing Californians for Green Nuclear Power (CGNP) was recognized. Dr. Nelson made reference to a promised press release issued by the NRC concerning the trip of Unit 2 on December 1, 2018, as a consequence of load rejection. Dr. Nelson stated CGNP has obtained information the this load rejection was caused by large amounts of intermittent solar and wind power relative to the load and he stated this was a significant event as it implies intermittent power, with a huge fossil-fueled backup, is displacing zero-carbon highly reliable nuclear power. Dr. Nelson stated CGNP is disappointed that it has received no further information on the Unit 2 trip from the NRC. Dr. Budnitz and Mr. McWhorter stated that a report on this event, which Dr. Budnitz stated is not the first such event industry-wide, will be made at this public meeting and the DCISC is continuing to investigate this event and will do so during a fact-finding visit scheduled for March 2019.

IV Consent Agenda

A Approval of Minutes

A draft of the Minutes of the October 24-25, 2018 public meeting of the DCISC held in Avila Beach, California was included in the public agenda packet. The Members and Consultants discussed and reviewed the Minutes including clarification and revision of substantive items to be included in the final version and follow up actions to be taken and provided clarification regarding typographical errors and the accuracy of certain references in the Minutes. Editorial comments, clarifications, direction and substantive changes were received concerning the draft of the October 2018 Minutes and will be incorporated in a final version.

Minutes of the Committee’s public meetings in their final as approved form become part of its Annual Reports on Safety of Diablo Canyon Nuclear Power Plant Operations (Annual Report). On a motion by Dr. Peterson, seconded by Dr. Lam, the Minutes of the Committee’s October 2018 public meeting were approved as amended and subject to inclusion of the changes provided to the Committee’s
Assistant Legal Counsel. The October 2018 Minutes will be part of the Committee’s 29th Annual Report.

V Action Items


Mr. Garcia read a portion of PG&E’s Response to the DCISC’s 28th Annual Report wherein PG&E stated it was pleased the DCISC once again concluded that the plant was operated safely and that the DCISC had no recommendations during this report period. Mr. Garcia stated DCPP welcomes the DCISC’s independent review and oversight which contributes to the safe operation of DCPP.

On a motion made by Dr. Lam, seconded by Dr. Peterson, the DCISC unanimously accepted PG&E’s Response to the Committee’s 28th Annual Report.

B. Update on Financial Matters and Committee Activities.

Assistant Legal Counsel Rathie reported that the Committee financial year is the calendar year and it appears the DCISC has finished 2018 substantially within the amount of funds provided by the PG&E ratepayers for its operation. Surplus funds remaining from the grant funds which are provided for the Committee’s activities by PG&E’s ratepayers under the California Public Utilities Commission (CPUC) decisions which created and continued the DCISC’s operations will be returned to PG&E for credit to its ratepayers. Once accounting is completed all funds remaining unspent from 2018 will be returned to the ratepayers through PG&E. The final remittance will be determined once all invoices have been received and paid for 2018. Mr. Rathie reported the Committee is awaiting payment of funds for the first quarter of 2019. In concluding his remarks on financial matters, he reported that the DCISC has recently changed from City National Bank to Mission Bank. Mr. Rathie reported that the matter of consultant compensation would be deferred until after the closed session to be conducted later during this public meeting. Dr. Peterson remarked that the Committee’s funding increases by 1.5% each year while the compensation furnished to its members has not increased for some time. Mr. Rathie remarked that because the Committee expends funds at varying levels during the calendar year it is difficult to forecast spending and in his opinion the Committee has been a prudent steward of the funds provided for its operation. Dr. Budnitz reported that during his service on the DCISC the Committee has never made a decision not to pursue a line of inquiry due to a concern over funding and that safety should always be the paramount motivation for the Committee in its lines of inquiry. Dr. Peterson remarked that when the Committee in the past approached the limit of its funding allocation, those instances have all generally been associated with the need to procure additional external support. Dr. Budnitz observed that as DCPP approaches closure by 2025 he does not foresee any diminution of the DCISC’s program of work.
C. Discussion of Issues on Open Items List.

Dr. Budnitz requested Consultant Wardell lead a review of items on the Open Items List, an important tool used by the Committee to track and also follow up on issues, concerns, and information identified for subsequent action during future fact-finding or as agenda topics for public meetings. Mr. Wardell reported that items shown in red italicized text were new items since the last Open Items List was distributed. Items discussed or concerning which action was taken included the following:*1

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<thead>
<tr>
<th>Item</th>
<th>Re:</th>
<th>Action Taken</th>
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<tbody>
<tr>
<td>RA-5</td>
<td>PRA Program</td>
<td>Consider “non seismic” inclusion; include seismic PRA with fire PRA, delete external flooding and tsunami</td>
</tr>
<tr>
<td>RA-6</td>
<td>Seismic Fragility Analysis</td>
<td>Delete</td>
</tr>
<tr>
<td>ER-6</td>
<td>Health Monitoring</td>
<td>Next action 4Q19 FF</td>
</tr>
<tr>
<td>SF-1</td>
<td>Monitor ISFSI Operations</td>
<td>Next action 6/19 PM Holtec Presentation</td>
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<tr>
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<td>Long-term Seismic Program</td>
<td>Delete all but 1st line Next action 4Q19 FF</td>
</tr>
<tr>
<td>DEC-3</td>
<td>Decommissioning Role</td>
<td>Remove reference to Matrix (completed)</td>
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<tr>
<td>2/18 PM-4</td>
<td>Transportation of Casks Offsite</td>
<td>Move to Main List review annually</td>
</tr>
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*2 Key to abbreviations used: Fact-finding (FF); Probabilistic Risk Assessment (PRA); Public Meeting (PM); Quarter (Q).

Following review of the Open Items List Ms. Rochelle Becker, Executive Director of the Alliance for Nuclear Responsibility, was recognized. Ms. Becker reported that at the recent meeting of the Diablo Canyon Decommissioning Engagement Panel (DC DEP), formed by PG&E to review information and provide input from the local community on PG&E’s decommissioning plans and activities, a representative of the cask manufacturer made a presentation. During this presentation it was remarked that political opposition to transportation of nuclear waste to centralized or consolidated waste storage facilities has resulted in those facilities not being used to their capacities.

Ms. Sherry Lewis, a representative of San Luis Obispo Mothers for Peace, was recognized. Ms. Lewis inquired whether manufacturers other than the Holtec International firm (Holtec) might be invited to make presentations to the DCISC. Dr. Peterson stated he believed there would be little practical value in such
presentations because there is very little space for consolidated storage at DCPP as the existing pads are on the same geological unit as the plant which enables the same seismic characterization. He remarked in order to achieve decommissioning, Holtec’s technology will be necessary unless one is willing to expend significant funds to provide an alternative. Dr. Lam observed the license for the Independent Spent Fuel Storage Installation (ISFSI) will soon need to be renewed and DCPP has a mandate from the California Energy Commission to expedite removal of spent fuel from wet to dry storage.

Dr. Peterson observed that the hazard from spent fuel stored in the spent fuel pools is dominated by the high level of heat generated from fuel that has been recently unloaded from the reactor and the hazard associated with the spent fuel pools does not depend on how fast they are unloaded. Dr. Peterson stated an expedited initial offload may actually result in a longer period of time being required to completely empty the pools than if offloading were initially conducted at a slower pace and subsequently at a more rapid rate. Dr. Peterson reported that for safety reasons freshly off-loaded fuel is located in the spent fuel pools in proximity to older fuel to increase overall thermal inertia. In response to Ms. Lewis’ observation that the safest option would be to have fewer assemblies and more water, Dr. Peterson stated this was incorrect (in the case of high density rack designs) and contrary to license requirements for storage of freshly off-loaded fuel as older assemblies actually increase the safety of the pools. It is after a period of approximately 18 months, when all the assemblies are considered to be old, that the question of the optimal way to expedite removal of the fuel from the pools becomes relevant in terms of safety and cost. Dr. Budnitz stated the DCISC was surprised by PG&E’s recent proposal regarding removal of fuel from the spent fuel pools made in the 2018 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP). Dr. Budnitz confirmed Dr. Peterson’s observation concerning the increase in safety afforded by having older assemblies in proximity to freshly off-loaded assemblies when compared to a configuration with nothing in the pools but freshly off-loaded fuel and water. Dr. Peterson confirmed Ms. Lewis’ observation that there is no practical way to now change the racking configuration in the DCPP spent fuel pools which was necessitated by the failure of the federal government to provide for removal of spent fuel to a federal repository, a failure that is being paid for by the U.S. taxpayers and due to federal accounting protocols is not a factor in Congress’ annual federal budget considerations. Dr. Budnitz remarked that while PG&E could decide to require proposals from other vendors for spent fuel storage systems, the DCISC’s present assumption is that all of the casks, existing and to be ordered, to be used at DCPP will be provided by Holtec.

In response to Ms. Lewis’ question concerning the availability of the Open Items List prior to a public meeting, Mr. Rathie reported the list is included in the agenda packet which is made available on the Committee’s website at www.dcisc.org and through the Public Document Room at the R.E. Kennedy Library at the California Polytechnic State University at San Luis Obispo (Cal Poly) a few days prior to each public meeting.
Mr. John Geesman representing the Alliance for Nuclear Responsibility was recognized. Mr. Geesman stated PG&E’s proposal to defer any new off-loading campaign for spent fuel until 2032 would effectively ignore fresh fuel which would be placed in the pools. Mr. Geesman stated that PG&E announced at the meeting of the DC DEP that it would be conducting a request for proposals for spent fuel storage systems at the beginning of the third quarter of 2019. Mr. Geesman observed an optimization projection for spent fuel is computationally a very intensive task which does not allow much of a qualitative discussion about the level of the hazard unless information is provided on a quantitative basis concerning the capacity of the casks to be used. Mr. Geesman stated the Alliance for Nuclear Responsibility and others believed that PG&E had agreed several years ago to implement a strategy for removal of the fuel from the spent fuel pools that has yet to take place, but he reported it does appear that PG&E is now engaging with the California Energy Commission on this issue and he expressed his hope that this engagement will include a public forum. Dr. Lam described as a critical and optimistic assumption the matter of DCPP obtaining in a short period of time a license for new casks, as DCPP does not use a generically-licensed cask but rather employs a site-specific cask design due to seismic considerations. Dr. Lam reported he sat on the Atomic Safety and Licensing Board (ASLB) panel which approved the installation of dry cask storage for DCPP and wrote the consensus opinion on the technical merits of dry cask storage at DCPP. Mr. Geesman stated he appreciated the role Dr. Lam played in the prior effort to license the ISFSI and the casks used at DCPP and reported that Holtec has described its efforts to license a cask which would require only a three-year cooling period and this potential change in technology, and possibly in regulations, will be an issue to be considered in the NDCTP. Mr. Geesman stated his belief that the calculations proffered by PG&E for deferring spent fuel loading campaigns until 2032 would be much different if the assumption was that newer and different casks were to be used.

Dr. Budnitz thanked the members of the public for their comments and stated the matters described would be a subject of the DCISC’s continuing review. In response to the Committee’s invitation to a representative of the Holtec firm to attend and made a presentation at the DCISC’s June 2019 public meeting, the Members directed that an offer be made to compensate Holtec for expenses in connection with the DCISC’s invitation.

On a motion by Dr. Peterson, seconded by Dr. Lam, the Committee unanimously accepted the Open Items List.

On a motion by Dr. Peterson, seconded by Dr. Lam, the Committee unanimously approved remitting unspent funds from the 2018 grant for its operations to PG&E for credit to its ratepayers.

A short break was taken.
VI Committee Member Reports and Discussion

Dr. Budnitz asked Mr. Rathie to describe and screen the informational video produced by the Committee and AGP Video on the history, role and operation of the DCISC. Mr. Rathie and Mr. Bob Lloyd of AGP Video who was present remarked the screening this morning was an opportunity for the Committee Members and the Technical Consultants and the members of the public to provide comments on the video. The video was then screened. Mr. Rathie thanked the Members, Technical Consultants and the public for their attention and expressed his thanks for Mr. Lloyd for his work on the informational video.

A. Public Outreach, Site Visits and Other Committee Activities; Agenda Items, Scheduling, and Confirmation of Future Fact-findings and Public Meetings:

Mr. Rathie reported that on January 22, 2019 Dr. Budnitz and he attended a meeting held in Los Angeles with Chief Assistant Attorney General Angela Sierra and Deputy Attorney General Megan Hey to discuss matters in connection with the Committee and its activities in furtherance of reviewing operational safety at DCPP. On February 19, 2019, Mr. Rathie and Dr. Lam participated in a conference call with California Energy Commission Chair Dr. Robert Weisenmiller and Senior Nuclear Policy Advisor and Emergency Coordinator Dr. Justin Cochran and members of Dr. Weisenmiller’s staff concerning matters involving the schedule of spent fuel transfer at DCPP. Mr. Rathie reported that Dr. Weisenmiller has since resigned from his position as the Chair of the Energy Commission.

The Members then turned to the matter of confirming and scheduling public meetings of the DCISC. Mr. Rathie directed the Members’ attention to the green colored sheets in the agenda packet with dates of public meetings and fact-finding. Future public meetings are scheduled for the Committee for June 4-5 (rescheduled due to conflicts from June 5-6) which will include a public tour on June 4 [later changed to June 5], for October 23-24, 2019 and for February 12-13, 2020. The Members then scheduled a public meeting of the DCISC for June 16-17, 2020, with all meetings scheduled to date to be held in Avila Beach, California.

Fact-finding visits were confirmed and scheduled as follows: 2  


2 Abbreviations used: Robert J. Budnitz (RJB); Peter Lam (PL); Richard D. McWhorter (RDM); Per F. Peterson (PFP); R. Ferman Wardell (RFW)
Mr. Garcia reported refueling outage 1R22 is tentatively scheduled to commence on September 27 and conclude on October 27, 2020.

Ms. Rochelle Becker of the Alliance for Nuclear Responsibility reported that Mr. David Hochschild has recently been appointed as the Chair of the California Energy Commission, replacing Dr. Weisenmiller.

B. Documents Provided to the Committee:

Mr. Rathie directed the Committee's attention to the list of documents received from PG&E on a monthly basis since its last public meeting in October 2018. A copy of the list was included with the public agenda packet for this meeting.

VII Staff-Consultant Reports & Receive, Approve and Authorize Transmittal of Fact Finding Report to PG&E

A. The Chair requested Consultant McWhorter to report on the November 7-8, 2018, fact-finding visit with Dr. Budnitz to DCPP.

- Meet with NRC Resident Inspector - Mr. McWhorter reported the DCISC representatives met with the NRC’s Resident Inspector to review and compare observations of the October Emergency Planning Exercise, the NRC’s identification of issues concerning timeliness and tracking of operability assessments for scaffolding in the field, and the Preventive Maintenance Optimization Program and the performance-based approach being utilized by that Program.

- Meeting with DCPP Directors - the DCISC team met with DCPP Directors Mr. Cary Harbor and Mr. Jan Nimick to discuss items reviewed during the fact-finding visit.

- Tracking and Resolution of Institute of Nuclear Power Operations (INPO) Areas for Improvement and DCPP Mid-Cycle Assessment - Mr. McWhorter reported that due to privacy agreements, INPO’s concerns are kept confidential but, overall, he reported DCPP has completed most of the corrective actions for the INPO-identified areas of improvement and is on track to complete all in a timely manner. Mr. McWhorter reported the INPO Mid-Cycle Assessment has being generally a positive assessment.

- Health of Reactor Coolant Pumps and Seals - Mr. McWhorter reported each of the eight reactor coolant pumps (RCP) employs a seal package consisting of three seals, with the first seal experiencing most of the differential pressure to provide leak-off protection for Reactor Coolant System (RCS) leakage during normal operation, a back-up seal to the first seal, and a third seal to ensure the RCS does not leak into Containment. The seal package is cooled by component cooling water and seal injection is provided through the
Chemical Volume and Control System (CVCS). Mr. McWhorter reported that the seals have experienced issues in the past with debris introduced by the CVCS but corrective actions appear to have been effective with no recent issues experienced with debris getting into the seals and causing excessive leakage. Dr. Budnitz observed there has never been an accident at a nuclear power plant caused by a problem with a RCP seal but it is an important potential accident sequence and therefore RCP seal integrity is very important. Mr. McWhorter reported over the last few years all eight seal packages have been replaced with those employing the Westinghouse Shield System which incorporates a passive thermal shutdown seal into the seal package which provides for thermal expansion to push the seal into contact with the pump shaft and thereby entirely close the path for leakage at high temperature conditions. Seal replacement typically occurs every three operational cycles due to wear and barring any problems each of the eight RCPs will probably undergo one more seal replacement during the operational lifetime of the plant. **Mr. McWhorter reported the RCPs were in good health but an issue was identified with an area on the turning vane where other plants have experienced bolt cracking. The bolts used at DCPP have a larger diameter than those which have cracked but this issue will need to be investigated.** In response to Dr. Peterson’s inquiry, Mr. McWhorter confirmed the turning vanes are static and he was unaware of any other problems with the turning vanes although there would be safety and operational implications to the RCPs and foreign material and vibration issues leading to shutting down of the unit if a turning vane were to become loose. Mr. McWhorter stated the fact-finding team found the RCPs continue to perform well without significant problems with all replacement seal packages now installed and no abnormal or new issues having occurred as a result of the replacement of the seals.

- **Observation of Response to Fire Alarm in Administration Building** - Mr. McWhorter reported a fire alarm activated in the Administration Building during the DCISC representatives’ visit and approximately 200 persons were successfully evacuated expeditiously and safely. He reported the alarm did not sound loudly on the sixth floor and some persons in the computer room did not hear the alarm and this issue has been entered into the Corrective Action Program. The cause for the alarm was determined to have been related to a fire detector that was replaced two days earlier in an area of the building undergoing renovation.

- **Safety Injection System Health** - the Safety Injection System (SIS) consists of two injection pumps and four passive accumulators that inject water into the RCS in case of an accident. Surveillance is performed periodically and the SIS for both units was rated in Green health status$^3$ with the only one issue identified with hydro-locking of portions of SIS piping during certain configurations that could occur only on Unit 2 and this was addressed by a procedure change. The SIS was reviewed by the DCISC in 2015 for non-conforming welds for which code relief was approved by the NRC to allow its
continued operation and Mr. McWhorter reported the DCISC reviewed the surveillance procedures for the welds, which are inspected quarterly to ensure they have not cracked or leaked. He stated the fact-finding team found the SIS to be in good health with no major issues.

∗3 On a scale of Green indicating a healthy performance and White indicating that achievable action plans are in place to return performance to healthy status. A Yellow rating would indicate the indicator shows deficient performance and needs improvement and Red would indicate unsatisfactory performance.

Maintenance Department Performance - the DCISC representatives discussed with the DCPP Assistant Maintenance Director the transfer of the Maintenance Support Department from Strategic Projects to the Maintenance Department due to the expected decrease in the number of capital projects undertaken by the Strategic Projects organization. Maintenance is also making a transition to the use of a new third-party maintenance support contractor and Mr. McWhorter reported many employees of the former contractor would be retained and will be paired with the new contractor’s employees to take advantage of the former contractor’s employees’ experience. Focus areas for the Maintenance Department include backlog reduction, refueling outage preparation, and improving the timeliness and the priority of work lists. The Maintenance organization is also preparing for the generator re-stacking project to be performed during the next refueling outage for Unit 2. Mr. McWhorter reported the Preventive Maintenance Optimization Program has resulted in the reduction of certain preventive maintenance tasks and activities which has allowed more Maintenance resources to be placed upon corrective maintenance activities. The Maintenance organization is also continuing to monitor the effectiveness of corrective actions regarding scaffolding, human performance, and departmental staffing issues. Current staffing for the Maintenance Department consists of 306 persons and due to normal attrition this is less than its previous staffing level of 318 persons. During 2020, a reduction in Maintenance staffing by 77 positions is planned due to anticipated reductions in preventive and corrective maintenance projects as cessation of operations approaches. Mr. McWhorter displayed photos of the Emergency Diesel Generator (EDG) Maintenance Work Area, the EDG room and the Turbine Deck, all of which were clean and in good order with evidence of adherence to work control procedures identified during the fact-finding team’s tour.

Seismic Qualification of Switchgear Room Walls - Mr. McWhorter and Dr. Budnitz inspected the seismic reinforcements of the Switchgear Room walls as a result of inquiries made during the June 2018 DCISC public meeting. Mr. McWhorter reported these are non-load-bearing walls which employ significant bracing on both sides which is bolted through the walls. He
reported the walls are in generally good condition and maintained with the bracing in place. Dr. Budnitz observed that, were these walls to fail in an earthquake, the electrical onsite power for the EDGs and the switchgear could be compromised and the walls are also necessary to protect the EDGs from fire.

- Decommissioning Planning - the DCISC representatives received information on the 2018 NDCTP. They also discussed the issue of removing waste from the site during decommissioning by barge, which was determined to be problematic due to permitting requirements and the need to be able to recover anything lost overboard and, therefore, ocean transport is not presently under consideration for decommissioning-related waste removal and disposal purposes. The DCISC team also received information on PG&E’s proposals to shorten the period required for off-loading fuel from the spent fuel pools to dry casks storage from ten to seven years and licensing requirements of the casks used by DCPP. Mr. McWhorter reported the greatest impediment to faster removal of the fuel could be a site-specific, seismically-related, substantial expenditure required to be undertaken prior to cessation of operations as this could have budget implications for the safety of operations and the DCISC needs to be vigilant as to any impact on the safety of operations. Dr. Lam stated that the issue of whether or not there is some margin in the ten-year requirement for cooling time dictated by the plant’s technical specifications was a subject worthy of further inquiry during future fact-finding.

- Benchmarking Programs - Mr. McWhorter reported the DCISC team reviewed benchmarking efforts by DCPP which involves studying performance and best practices by others in the nuclear industry in furtherance of DCPP’s efforts to identify gaps and develop recommendations to improve performance. Benchmarking is undertaken both formally and informally with 6 formal benchmarking visits and 33 informal contacts having taken place during 2018. Formal benchmarking includes a report to the Corrective Action Review Board (CARB) while Mr. McWhorter reported informal benchmarking is quite broad and may involve peer-to-peer contacts which are documented in the Corrective Action Program. During 2018 benchmarking included issues concerning cyber security, security target sets, protective equipment postings, and the INPO senior management course. Mr. McWhorter reported the DCISC representatives found the Benchmarking Programs to be active and productive.

- Preventive Maintenance Optimization Project - Mr. McWhorter reported this Project involved review of over 10,000 Maintenance procedures and resulted in changes in frequency of preventive maintenance, elimination of preventive maintenance activities and changes in the scope of preventive maintenance activities. Changes were initiated using the Preventive Maintenance Change Request System which he described as a formal system for change review. Four Preventive Maintenance Change Requests were reviewed by the fact-
finding team to change the motor inspection frequency for SIS Pump 1-1 from two to four years; to change the calibration frequency on the turbine lube oil reservoir level switches from every two refueling outages to every three; for pressure control valves for the steam dumps to deactivate maintenance procedures as the system is no longer used; and for a change to the scope of lubrication of the safety injection valves to be consistent with industry practice. Mr. McWhorter stated the engineers associated with the Preventive Maintenance Optimization Project confirmed the project has taken much time and attention from the Engineering organization and the DCISC fact-finding team found the changes initiated by program to be appropriately documented and technically sound.

- Observation of Emergency Response Organization Muster Meeting - the DCISC representatives attended this training session with one of the four Emergency Response Organization teams which Mr. McWhorter described as being informative with a good discussion.

- Emergency Planning - the DCISC fact-finding team met with Emergency Response Organization (ERO) Manager Mr. Mike Ginn to discuss the results of the October 2018 emergency planning exercise, a portion of which Mr. McWhorter and Dr. Budnitz observed during their visits to the Simulator Facility, the Emergency Operations Facility and to the Joint Information Center on October 24, 2018. Mr. McWhorter reported the exercise was well run and the DCISC representatives’ observations were positive. Of the 170 exercise objectives, 167 were satisfactorily met. The three that were not met and have been entered into the Corrective Action Program concerned a misunderstanding of the time involved for NRC notification, drill control preparation and execution, and mis-communication of personnel in the field about briefings having been inconsistently received from the ERO and from the Control Room. Mr. McWhorter reported that following cessation of generation operations, the ERO will continue unchanged for 18 months but once that period passes the organization will be scaled down commensurate with risk. A license amendment request will be submitted to the NRC in connection with scaling down the ERO organization. Mr. McWhorter reported that, overall, the October 2018 Emergency Planning Exercise was successful.

Following Mr. McWhorter’s report, Mr. John Geesman representing the Alliance for Nuclear Responsibility was recognized. Mr. Geesman reported PG&E used an assumption in the 2012 NDCTP of twelve years with respect to the time required by DCPP technical specifications that some fuel must remain in the spent fuel pools. This was found by the CPUC to be unreasonable and was changed to a ten-year assumption in the 2015 NDCTP, which was also found by the CPUC to be unreasonable and PG&E was directed to benchmark against the San Onofre Nuclear Generating Station (SONGS) schedule for removal of spent fuel to dry cask which provides for fuel removal within seven years of SONGS closure. Mr. Geesman stated this is an important issue to the CPUC due to the cost of extra security during decommissioning. He reported PG&E has now come back in the
2018 NDCTP with a seven-year assumption that relies on new cask technology which may very well make the 2018 assumption unreasonable. Mr. Geesman stated he recognizes that, to the degree any pre-shutdown expedited cask loading is encouraged or directed, safety considerations come very much into play as the cask loading process has a significant risk profile. Mr. Geesman reminded the Members of the DCISC that during the 2013-2014 time frame each of them encouraged and praised PG&E for expediting the transfer of spent fuel to dry cask storage and this is cost-free as the cost is paid by the U.S. taxpayers. At that time [2013-2014] the Committee was told by PG&E that NRC regulation B.5.b requires four times the number of assemblies as the number of assemblies in final core offload to be within the spent fuel pool inventories, which number has changed for reasons Mr. Geesman stated he did not understand from 605 assemblies to 730 assemblies, but now appears to have stabilized at 760 assemblies. PG&E at that time was planning on a regular transfer campaign schedule that would maintain the 760 assemblies in each of the two spent fuel pools. Mr. Geesman stated the current PG&E plan would now allow 760 assemblies to become 1,300 assemblies. Dr. Lam replied that Mr. Geesman’s remarks were very well received by the Committee and worthy of further inquiry.

Upon a motion made by Dr. Peterson, seconded by Dr. Lam, the November 7-8, 2018 Fact Finding Report was unanimously accepted by the Committee and its transmittal to PG&E was authorized. The November 2019 Fact Finding Report will become a part of the Committee’s 29th Annual Report.

B. Administrative, Regulatory and Legal Matters

Dr. Budnitz called upon Mr. Rathie to make this report. Mr. Rathie reported the Committee’s 28th Annual Report for the period July 1, 2017 through June 30, 2018 is now available and on the Committee’s website at www.dcisc.org. The report will also be made available in compact disk and usb thumb drive formats. He reported the Committee has recently changed banks and has implemented a new bill payment system which has been well received by the members and technical consultants as well as by the Committee’s accounting firm. Mr. Rathie reported the next appointment of a member of the DCISC will be made by the California Attorney General and Dr. Budnitz is joined by two other candidates for this position. The CPUC is now soliciting public comments on the candidates. In conclusion Mr. Rathie reported that the Committee’s website averaged 874 unique visitors each month during 2018 with most visitors coming from the United States, Poland, Romania, France and Japan in that order. He remarked, and Dr. Budnitz concurred, that the website is a very important tool in the Committee’s public outreach efforts and a great deal of information can be conveniently and easily accessed at the website.

VIII Adjourn Morning Meeting
The Chair adjourned the morning meeting of the DCISC at 12:05 P.M.

**IX Reconvene for Afternoon Meeting**

Dr. Budnitz convened the afternoon meeting of the DCISC at 1:30 P.M. He reported Dr. Peterson will not be present at the start of the afternoon session but will join it later in the afternoon.

**X Committee Member Comments**

There were no comments by the Members at this time.

**XI Public Comments and Communications**

Dr. Budnitz invited any members of the public to address remarks on any item not on the Committee’s agenda. There was no response to his invitation.

**XII Technical Consultant Report & Receive, Approve and Authorize Transmittal of Fact Finding Report to PG&E (Cont’d)**

C. The Chair requested Consultant Wardell to report on the December 4-5, 2018, fact-finding visit with Dr. Peterson to DCPP.

- Transporting High Level Spent Fuel - Mr. Wardell reported the multipurpose canisters manufactured by Holtec hold 32 spent fuel assemblies each (MPC-32) and are enclosed in the HI-STORM overpack which is set up vertically and bolted to the concrete pad in the ISFSI. The HI-STORM overpack cannot be used for transportation. When the fuel is transported offsite the MPC-32s will be transferred to HI-STAR 100 casks and the U.S. Department of Energy (DOE) will take charge of the fuel and perform the transportation. Mr. Wardell reported the preliminary strategy at this point in time is that the spent fuel be transported by heavy haul trucks to a rail spur in Pismo Beach where it would be transferred to rail cars for transport to the disposal facility of DOE’s choice.

- Quality Assurance Assessment Action Items - the Quality Assurance organization (QA) performed a quality assurance audit of the Operations Department and the plant’s technical specifications. Operations was found to be performing well but 17 deficiencies were identified. Mr. Wardell reported none of the deficiencies were significant and procedure changes were made through the Corrective Action Program to address most of the deficiencies. The DCISC fact-finding team concurred with QA’s determination that the identified deficiencies were satisfactorily addressed.

- Operations Performance Indicators - The DCISC representatives reviewed 21 performance indicators for the Operations Department. Of these, 19 were determined to be in Green status; 2 indicators in Yellow status, the first for High Pressure Injection System Availability due to a valve interlock problem,
and the second for Hours Critical Breaker Open due to a delay in connecting to the grid following a refueling outage. Mr. Wardell reported the performance indicators for Reactivity Management and Protective Tagging were both Green. Mr. Garcia reported the indicator for High Pressure Injection System Availability is expected to return to Green status in April 2019.

\^4 On a scale of Green indicating a healthy performance and White indicating that achievable action plans are in place to return performance to healthy status. A Yellow rating would indicate the indicator shows deficient performance and needs improvement and Red would indicate unsatisfactory performance.

- **Engineering Excellence Plan** - Mr. Wardell stated the Engineering Excellence Plan is intended to provide outstanding operational focus for engineering and to act as the Engineering organization’s technical conscience to ensure nuclear safety. Mr. Wardell reported that a self-assessment performed in December 2018 concluded DCPP did exhibit a healthy technical conscience and no deficiencies were identified. **He reported the fact-finding team found the Engineering Excellence Plan to be satisfactory and Mr. Wardell recommended the DCISC continue to follow the Engineering Excellence Plan on an annual basis.**

- **Meet with NRC Senior Resident Inspector** - The DCISC representatives met with NRC Senior Resident Inspector Mr. Chris Newport to discuss a recent plant trip for which at the time of the fact-finding visit the exact cause had yet to be determined. Mr. Wardell reported that this event will be reviewed at the March 2019 fact-finding with Dr. Budnitz.

- **Delivering the Nuclear Promise** - Mr. Wardell remarked the initiative called Delivering the Nuclear Promise is an industry initiative developed by the Nuclear Energy Institute (NEI) as a set of efficiency improvements to keep costs down and to enhance the value of nuclear power in a competitive energy environment. He reported DCPP has implemented 56 of the 62 efficiencies recommended by the initiative. Mr. Wardell remarked the fact-finding team’s concern was to ensure nuclear safety is maintained with the implementation of processes and efficiencies recommended by the initiative and the DCISC team concluded that nuclear safety has been maintained.

- **Spent Fuel Bridge Cranes** - Mr. Wardell reported the Spent Fuel Bridge Cranes are original equipment but as they have aged some problems developed with the electrical systems which caused delays during refueling outages. DCPP upgraded the electrical and control systems prior to the last refueling outage for Unit 2 and the Spent Fuel Bridge Crane performed very well during 2R20. Upgrades to the Unit 1 Spent Fuel Bridge Crane were completed prior to 1R21 which is now in progress. Mr. Wardell displayed photos of the fact-finding team at work in the area of the Unit 2 Spent Fuel Pool and on the Spent Fuel Bridge Crane and reported that as safety-related equipment the crane is seismically secured when in operation or otherwise.
Meet with DCPP Senior Director, Nuclear Services - Dr. Budnitz and Mr. Wardell met with Senior Director for Nuclear Services Mr. Jan Nimick to discuss the Unit 2 trip, to receive an update on cyber security, and to convey to Mr. Nimick a concern regarding the adequacy of staffing for the Vibration Monitoring Group. Mr. Wardell reported that a subsequent fact finding determined the resources available to the Vibration Monitoring Group are adequate. The DCISC representatives also discussed operational readiness for a FLEX⁵ Program event and the Corrective Action Review Board’s (CARB) action item to increase FLEX training for operators.

Post Preventive Maintenance Optimization Health Monitoring - the DCISC fact-finding team reviewed the performance of equipment and the monitoring and performance by system engineers after the implementation of the Preventive Maintenance Optimization Program and spoke with system engineers and received information on up to 26 differing sources used with various components and systems to monitor performance. Mr. Wardell described this effort as a very comprehensive program and the DCISC team reviewed performance monitoring agreements for the Auxiliary Feedwater System and the Residual Heat Removal System. The fact-finding team determined the monitoring efforts were satisfactory and recommended that the DCISC perform a more in-depth review in the future and follow up on a regular basis.

Outage 1R21 - The DCISC representatives met with the Outage Director to review the scope of the outage.

Decommissioning Waste Disposal - Mr. Wardell stated the DCISC representatives learned that there is a plan to recycle or reuse as much and as many of the resources as possible, including possibly retaining certain buildings for other uses and leaving the breakwater in place as a harbor. General debris will need to be cleaned from the site and shipped by rail to a landfill in Arizona. Mr. Wardell stated an Executive Order by Governor Gray Davis prohibits radioactive waste from demolition of a nuclear power plant to be disposed of within California and, while the spent fuel will remain at the ISFSI, Class C high level waste such as the steam generators and the reactor vessels will need to be segmented and shipped by rail to a disposal facility in Utah. Lower level, Class B, waste will be shipped by truck to a facility in Texas. Mr. Wardell stated the shipments he referred to are now expected to occur between 2038 and 2068.

*⁵ FLEX is not an acronym but describes a strategy developed by the nuclear industry to provide diverse and flexible coping strategies to address the loss of safety-related systems due to beyond design basis events.

Ms. Sherry Lewis representing San Luis Obispo Mothers for
Peace was recognized. In response to Ms. Lewis’ query, Mr. Wardell reported that, generally, only non-radioactive waste is proposed for recycling or reuse at the plant site. Dr. Budnitz stated there is a protocol in the NRC’s regulations for reuse of radioactive waste whose radioactivity has diminished to low enough levels and PG&E is required to follow those NRC regulations. In response to Ms. Lewis inquiry concerning the Executive Order, Mr. Geesman reported the order arose in context of the Ward Valley controversy (circa 1988 – 1996, a proposal for a low-level radioactive waste disposal facility to have been located in Ward Valley, California) and is directed at disposal of any decommissioning waste, preventing its disposal in any California landfill. Mr. Geesman remarked the Executive Order was supposed to be followed by subsequent actions of the Department of Public Health but, to the best of Mr. Geesman’s knowledge, this never occurred.

Upon a motion by Dr. Lam seconded by Dr. Budnitz the December 4-5, 2018 Fact Finding Report was accepted and its transmittal to PG&E authorized.

XIII Information Items Before the Committee

Dr. Budnitz introduced and requested Mr. Tom Baldwin, DCPP Director of Nuclear Site Services, to introduce the first presentation and presenter to the Committee. Mr. Baldwin thanked Dr. Lam and introduced Ms. Paula Gerfen, DCPP Station Director, and asked Ms. Gerfen to make the first of the informational presentations requested by the Committee of PG&E for this public meeting. Mr. Baldwin reported Ms. Gerfen has more than 25 years of nuclear experience and has held leadership positions in the Engineering, Maintenance, and Operations organizations and has held a Senior Reactor Operator’s license at DCPP.

State of the Plant Update including Key Events, Highlights, Organizational Changes, Bankruptcy Announcement, and Station Activities since the DCISC’s October 2018 Public Meeting Including the Cause and Corrective Actions for the December 2018 Trip of Unit 2; and Work Scheduled During the 21st Refueling Outage for Unit-1 (1R21).

Ms. Gerfen stated she would be reviewing plant operation and performance since the last public meeting of the DCISC in October 2018. She reported Unit 1 is currently at day 18
of a refueling outage scheduled for 31 days and 15 hours and is on schedule. Unit 2 is safely operating at 100 percent power with Probabilistic Risk Assessments (PRA) of “Green.” All NRC Performance Indicators (PIs) are “Green.” Unit 1 curtailed to 50% power in November 2018 due to storms producing ocean swell activity which can sweep kelp into the condenser and result in the need to clean the main condenser. Repairs on a main feedwater pump were also performed during this curtailment. Unit 2 tripped offline on December 1, 2018, while work was ongoing on the Unit 1 main feedwater pump, due to a grid protection system actuation. Unit 2 later curtailed to 50% power in the middle of December 2018 to perform a “pick and dredge” operation on the condenser and to repair a steam leak.

Ms. Gerfen displayed graphs showing the load profile performance for both units for the last four months and for the last twelve months and she reviewed and discussed the key scope items for refueling outage 1R21 as follows:

- Integrated Leak Rate Test (ILRT)
- RHR structural weld overlay
- Emergency Core Cooling System (ECCS) interlock modification
- Reactor Coolant Pump 1-1 motor overhaul (rotor/stator)
- Reactor Coolant Pump vibration monitoring upgrade
- 480V switchgear ventilation seismic gap modification
- 480 V vital bus G breaker replacements
- Feedwater pump 1-2 turbine overhaul
- Feedwater pump 1-1 pump bearing replacement
- Service Cooling Water inlet piping lining
- Turbine building deluge system upgrade
- 3 intake traveling screen overhauls

In response to Consultant McWhorter’s inquiry Ms. Gerfen replied that performing the ILRT at the commencement of the outage provided a benefit as the majority of the alignments required for that test are in place. Mr. Garcia was the test director for the ILRT and he reported this test is performed every 15 years and requires pressurization of Containment to 45 ½ psi to verify that there is no leakage.
Ms. Gerfen discussed the Unit 2 reactor trip due to Special Protection Scheme (SPS) actuation which occurred on December 1, 2018. She reported the SPS protocol was put into place in 2006 as a result of a grid inter-tie event in the late 1990s which affected power supplies across the Western U.S. The purpose of the SPS is to prevent a dual unit load rejection due to a grid event and also to prevent grid instability that could result from a dual unit trip. Ms. Gerfen reported that since SPS was put in place, grid conditions have changed and continue to change. The conditions experienced on December 1, 2018 were very different than what had been anticipated in 2006 and two of the 500kV lines feeding DCPP sensed a low amperage condition which met the SPS actuation requirements and Unit 2 tripped as designed. Since the December 1, 2018 trip, compensatory measures have been taken to prevent another trip due to this issue. DCPP is working with PG&E’s Electric Operations organization to redesign the SPS to remove compensatory measures and not provide for SPS actuation due to low amperage conditions.

Ms. Gerfen reported a full evaluation of the Unit 2 trip is underway using the corrective action process and a root cause evaluation has been completed which indicates a review of grid conditions should have been conducted on a scheduled frequency. In response to Dr. Budnitz’ inquiry Ms. Gerfen stated the trip and resulting plant shutdown were completely normal in every way with no equipment or human performance issues. In response to Mr. McWhorter’s question, Ms. Gerfen stated that the periodic review of grid conditions should have been conducted by the Electric Operations organization but there should also have been an awareness by DCPP of how the grid could impact operations. Dr. Budnitz stated he recalled that approximately two years ago he met with representatives of PG&E’s Electric Operations organization concerning the attempt to accurately forecast changing grid conditions and Dr. Budnitz recalled that some changes were made. Ms. Gerfen confirmed the December 1, 2018 trip resulted from a load imbalance and the unit trip prevented cascading grid instability and failures in the DCPP switchyards. Dr. Budnitz remarked the DCISC will follow up in the future concerning the December 1, 2018 trip of Unit 2.
Ms. Gerfen reported on January 29, 2019, PG&E filed for Chapter 11 bankruptcy. She stated this has not had an impact on plant operations which continue as before the filing and PG&E has not changed its support for DCPP from a financial perspective nor has corporate oversight of DCPP changed. Ongoing listening sessions and corporate webcasts are providing information to employees and have been useful in keeping employees focused on safety. Ms. Gerfen stated Mr. Baldwin was instrumental in developing an employee health index which tracks items such as the number of Notifications written, the rate of increase of industrial safety events, employee concerns, etc., and DCPP leadership continues to monitor a list of performance measures on a daily basis. In response to Dr. Lam’s observation concerning the decrease in the value of PG&E’s stock, which forms a basis for bonuses and stock options available to management and employees, Ms. Gerfen stated that Vice President and Chief Nuclear Officer Mr. Jim Welsch has led conversations with employees sharing the impact of the bankruptcy on leadership and on the need to remain focused on performance when at work at the plant. She stated employees understand that bonuses which may have been available in prior years are not an option for 2018.

Dr. Gene Nelson representing Californians for Green Nuclear Power was recognized. Dr. Nelson stated his research confirmed that among the most rigorous tests a nuclear power plant can face is a full load rejection. He observed that DCPP having come through the December 1, 2018 trip as well as it did is a tribute to excellent and ongoing training and on the robust design of the power plant. Dr. Budnitz observed that the Institute of Electrical and Electronic Engineers (IEEE) Code used in the U.S. and internationally mandates a careful and robust design based on a good deal of experience with past plant transients. Dr. Lam stated that 30 years ago nuclear power plants tripped with a great deal more frequency, although as Dr. Budnitz observed trips due to grid conditions were not common in that era. Dr. Peterson remarked this is a serious issue and the DCISC has previously highlighted grid reliability as an issue for review as changes in generation in California have a good probability of changing grid reliability and while DCPP can survive trips, and grid conditions do not make the plant unsafe or unable to respond, events such as that experienced on December 1, 2018 are not good and grid-related issues challenge the
potential availability of offsite power. Mr. McWhorter observed that the plant performed as designed on December 1, 2018 and the operators performed as expected and this is not to be taken for granted and reflects positively on the station.

Mr. John Geesman representing the Alliance for Nuclear Responsibility inquired as to the ramifications of the change in the remedial action scheme away from a low amperage condition and whether the conditions experienced on December 1, 2018 are being investigated by the California Independent System Operator (CAISO), the Federal Energy Regulatory Commission (FERC), and the North American Electrical Reliability Corporation (NERC). Drs. Budnitz and Peterson responded the DCISC would conduct a fact-finding with PG&E to review the root cause evaluation and to review with DCPP the questions posed by Mr. Geesman.

Ms. Jane Swanson of San Luis Obispo Mothers for Peace was recognized. Ms. Swanson stated Mothers for Peace remain advocates for testing Unit 1 during its refueling outage for evidence of reactor vessel embrittlement due to the copper content of its welds and for a remote controlled ultrasonic test for cracks in the vessel or the welds which Mr. Swanson stated was previously scheduled for 2015. Ms. Swanson stated Unit 1 has not been tested for embrittlement since 2003 and PG&E has applied for permission from the NRC to forego ultrasonic testing for cracks and welds until 2025, by which time the plant will have ceased operation. Dr. Budnitz replied the DCISC looked carefully at the issue of reactor vessel embrittlement some years ago and the Committee has reviewed the issue since that time and is convinced that the rate of neutron fluence or radiation of the vessel was of a certain degree sufficient to show that Unit 1 did not have embrittlement concerns prior to 2025. Dr. Budnitz observed that a vessel is not embrittled per se as it operates at temperatures that make it ductile, however, if the vessel is allowed to cool rapidly embrittlement may occur. Dr. Budnitz remarked that the industry now understands and has a great deal more realistic information available concerning vessel embrittlement than was previously the case. Dr. Lam stated, despite his earlier misgivings about the changes in NRC regulations, he was now also reasonably persuaded
that DCPP is not at risk for reason of embrittlement of its reactor vessels for a period of 60 years after it commenced operation primarily because of the demonstration afforded by the condition of coupons, made of material identical to the vessel, placed in the reactor vessels in locations where neutron fluence would be the most severe.

Dr. Peterson stated that Ms. Swanson’s question concerning inspection of cracks and welds in the vessel is one that should be scheduled for a future fact finding. Dr. Budnitz remarked that the American Society for Mechanical Engineers (ASME) Code has specific provisions regarding inspection of a vessel and either the inspection must be conducted or justification for why an inspection can be delayed must be provided. Dr. Budnitz commented the NRC has a number of staff members whose technical reputation in this field is well established. Mr. Wardell requested a copy of the exemption request referred to by Ms. Swanson and Ms. Swanson agreed to try to locate and provide the document to the DCISC.

The Chair expressed the thanks and appreciation of the Committee to Ms. Gerfen for her presentation and he acknowledged the refueling outage now in progress makes great demands upon Ms. Gerfen’s time and availability.

XIV Information Presentation by a Committee Member

Seismic Risk Analysis Results.

Dr. Budnitz began his presentation by stating he would address how large nuclear plants such as DCPP are designed against earthquakes, how earthquake engineers analyze the plants to understand their strength, and what PG&E did in its recent analysis, why they did it, what they learned, and what uncertainties remain.

Dr. Budnitz stated the seismic characteristics of the plant site are assessed by seismologists and those in the earth sciences disciplines to develop information concerning what potential earthquakes may be generated in the nearby environment by sources, how big those earthquakes may be, their spectra, and what other characteristics they may have. He observed that seismic faulting may produce earthquakes of differing sizes and characteristics and the
The seismic scientific community has methods to try to understand how earthquakes occurred in the past by studying the structure of faults. Dr. Budnitz stated the amplitude of shaking, the duration of the event, and the frequency content of the earthquake are all relevant and he observed some equipment is very sensitive to high frequency motion and some structures are impacted more by low frequency motion. It is important therefore that seismologists develop an understanding of the frequency spectrum and the propagation of motion caused for every earthquake that might occur in the vicinity. In this respect, Dr. Budnitz commented, DCPP is fortunate in that a number of very small earthquakes have been monitored and have revealed a great deal about the nearby fault structure.

Dr. Budnitz stated seismologists have produced for every nuclear plant site a probabilistic seismic hazard analysis (PSHA) and this knowledge becomes the starting point for any design of a seismic structure but he acknowledged even the best analyses contain considerable and important uncertainties throughout as the analyses required are very complex. He observed that the duration, motion and frequency experienced at the site of any earthquake will be attenuated at the site of a plant and the facility must be designed with this consideration in mind. Dr. Budnitz reported that seismic energy also changes from what is experienced at ground level when the energy goes into a building, structure, or a piece of equipment located within due to the building or structure's mass. Civil engineers have developed sophisticated analysis methods to assess how the seismic energy will propagate through a structure including what the seismic energy will be at the base of a structure and at any point within. Again, he remarked that experiencing and monitoring very small earthquakes greatly assists in confirming this analysis. Dr. Budnitz reported that shaker tables are also used for large and small structures and equipment to better understand and calibrate the effect of seismic motion, and the spectrum of data acquired in this fashion is used in the design of plant structures and equipment. He reported this information also informs the various design codes issued by organizations such as the American Society of Mechanical Engineers (ASME), the Institute of Electrical and Electronics Engineers (IEEE), the American Concrete Institute, the American Institute of Steel Construction, etc., which are in use worldwide but Dr. Budnitz observed that nuclear design codes have much
stronger requirements than those used for a non-nuclear-standard building construction.

Dr. Budnitz reported that standard building codes are developed to protect life safety not necessarily to ensure that a building or a structure will survive. Design codes for nuclear related designs require that buildings and structures must remain elastic, that is, they must be in the same condition after an event as before and survive without anything but the most superficial non-structural damage. This is to ensure the structure and the equipment it contains can be as functional after an event as before. The end point for seismic design of nuclear structures, systems and components is this elastic response which requires more difficult and expensive engineering, not only to achieve but also to demonstrate that it is achieved. In addition to shaker table testing, there is a community of experts that conduct examinations after every significant seismic event anywhere in the world to assess the ground motion experienced and the resulting damage.

Dr. Budnitz reported the seismic design basis and the double design earthquake basis for DCPP were reassessed in the 1970s and 1980s based upon the effects of an earthquake on the Hosgri Fault whose frequency of occurrence was at that time not fully understood by the NRC because the studies lacked a detailed explanation. However, in the intervening years a great deal of exploration and study has been done and there is a much better understanding of the spectrum and how motion produced by local earthquakes propagates from the source. Dr. Budnitz stated the probability that the Hosgri Fault, to which parameters DCPP is designed, will produce the largest earthquake of which it is capable has been determined to be approximately 10^-4 per year (or one chance in ten thousand per year). After the accident at the Fukushima Daiichi Nuclear Power Plant (Fukushima Daiichi) in Japan in March 2011, the NRC required every U.S. nuclear power plant to reanalyze its PSHA, including for DCPP earthquakes larger than the Hosgri Fault could produce but whose probability is very much less. Dr. Budnitz stated understanding the size, duration and magnitude of these larger but less frequent events is important.

Dr. Budnitz described a key question for any nuclear structural engineer is how big an earthquake it might take
to cause a building, structure or piece of equipment at the site to fail and be incapable of performing its safety function. He stated the basis for that understanding is the result of a large number of tests, data and experience from real earthquakes and a considerable amount of analysis. He stated he is a member of the community that is engaged in this process and he acknowledged that there is a considerable amount of uncertainty involved as the data is not extensive and can sometimes be difficult to interpret. Dr. Budnitz remarked inquiries must go beyond just the failure of a structure or piece of equipment as they must also address accident sequences which take place when more than one item fails. He remarked there is not one component in a nuclear plant whose failure results in a large accident but rather large accidents are produced through a sequence of failures and it is therefore necessary to understand the probability of any potential accident sequence and the tool used to do this is probabilistic risk analysis (PRA).

Dr. Budnitz described efforts beginning in the early 1970s to complete an analysis of all the accident sequences at the Peach Bottom Atomic Power Station in Pennsylvania and at Surry Power Station in Virginia. Several hundred accident sequences were identified, many of them because the plants had been designed against them, and in the first five or six years following these analyses several more accident sequences were identified but Dr. Budnitz reported that in the intervening decades no additional accident sequences have been identified. There are now approximately 50 seismic PRAs and the community of experts has a high degree of confidence, but not an absolute certainty, that no accident sequences have been overlooked. He reported the first seismic PRAs were done in the late 1970s and demonstrated how seismic sequences are often different from other accident sequences. This is because of the capability of an earthquake to damage several components simultaneously which causes complications to the manner in which an accident sequence may emerge and makes for a very complex analysis including, but not limited to, the fact that more intervention and action is required of the operators in the control rooms to address multiple failures.

Dr. Budnitz stated the DCPP Seismic PRA completed circa 1986 was the most extensive study ever done up to that time and he characterized it as the “gold standard” which
was studied by everyone in the world who was performing any analysis of this type. Dr. Budnitz remarked with the DCPP 1986 Seismic PRA there was still a considerable amount of uncertainty but he described the structure of the analysis as being very fine. In the intervening years no one has identified an accident sequence which was not addressed by the DCPP Seismic PRA. Following the NRC mandate after the accident to Fukushima Daiichi, additional probabilistic seismic hazard analysis, building upon that previously undertaken, was performed and this work has now been outside peer reviewed and reviewed by the NRC’s staff. Dr. Budnitz stated in his professional experience he has never seen a seismic PRA analysis as extensive, thorough, and as carefully done, including exploring the uncertainties, as that for DCPP. Dr. Budnitz reported that circa 1995-1997, he chaired the committee that established the standards by which seismic PRA analysis is performed and he stated in his opinion the DCPP seismic PRA analysis remains the gold standard in the community of professionals who engage in seismic probabilistic hazard analysis.

Dr. Budnitz reported the DCPP Seismic PRA makes certain assumptions including that offsite power will be unavailable from the grid. In that situation, DCPP is dependent upon its emergency diesel generators (EDGs) but the EDGs also have a certain failure factor in a very strong earthquake. Dr. Budnitz commented the current analysis in this regard is likely slightly pessimistic but that is desirable in context of PRA. Without the EDGs every pressurized water reactor such as DCPP is reliant upon its turbine driven auxiliary feedwater pump which does not run on electricity but rather runs on steam and as long as the turbine driven auxiliary feedwater pump is operable, water can be kept in the reactor vessel for cooling. However, the turbine driven auxiliary feedwater pump requires operators to properly align its direct current, battery powered, controls. Loss of this control function in the scenario described by Dr. Budnitz could result in a reactor accident, but in approximately 50% of the possible accident scenarios if the operators act correctly the reactor can be saved. Data concerning the likelihood of operator error is available and is an important part of PRA analysis but again the fact of an earthquake adds a level of complexity to any analysis and accordingly, with a relatively high degree of uncertainty, a higher probability of human error. Dr. Budnitz reviewed the
accident at Fukushima Daiichi and reported that for the first three or four days following the accident the operators performed error-free. Dr. Budnitz reported that the loss of water from the spent fuel pools is also a huge concern, but for DCPP a structural analysis of its two Spent Fuel Pools shows them to be very robust, actually stronger that the Fuel Handling Building itself in which they are located. A study was made concerning failure of certain panels in the Control Room and the seismic strength of those panels was analyzed and found them to be a weak point from which, in the event of failure, the plant might be unable to recover.

Dr. Budnitz reported the DCPP Seismic PRA update computed that the probability of an accident leading to core damage was $3 \times 10^{-5}$ which means three parts in a hundred thousand per year or one in 30,000 per year, with an uncertainty factor of 10 either way meaning the probability could be larger or smaller, and he stated this was well within the range that the NRC considers acceptable for plants such as DCPP. As most core damage accidents do not lead to a large release, for those core damage accident scenarios that do lead to a large release the computation was roughly about one in five which Dr. Budnitz stated, overall, was not a very accurate number. Dr. Budnitz stated the reason the uncertainty factor is as big as it is results from a not very robust understanding of the frequency on which large earthquakes occur and the response of humans in about one-half these accident sequences is difficult to quantify. He remarked the important insight from the seismic hazard probability analysis is that it is known which accident sequences contribute to core damage or core damage with a large release and there have been no additional accident sequences identified for a considerable period of time. It is known which sequences are large contributors and which sequences are small contributors with a quantification of why this is the case and this information has been extensively reviewed by the entire community engaged in the study of seismic hazard probability. Dr. Budnitz remarked that the best analysis anyone can do still has numerical uncertainties but those uncertainties do not affect the conclusions that emerge from the work that the bottom-line probabilities for core damage or core damage with a large release are really small and what are the principal contributors to those events.

Dr. Lam thanked Dr. Budnitz for an excellent presentation.
In response to Dr. Lam’s comment that it is what we do not know that can detrimentally affect the analyses described by Dr. Budnitz, Dr. Budnitz replied Dr. Lam’s statement used inductive reasoning in that it was a statement intrinsically incomplete by definition, and the fact that you don’t know what you don’t know is an important caveat to the statement that no new accident scenarios have been identified for a considerable period of time.

Mr. John Geesman, representing the Alliance for Nuclear Responsibility was recognized. Mr. Geesman thanked Dr. Budnitz for an excellent presentation and inquired whether an uncertainty factor of ten meant the core damage sequence described by Dr. Budnitz as one in 30,000 per year could actually be one in 300,000 per year. Dr. Budnitz confirmed Mr. Geesman’s statement and added that the uncertainty factor meant the core damage sequence could also be one in 3,000 per year. In response to Mr. Geesman’s inquiry concerning magnitude saturation, Dr. Budnitz stated this concept is dependent upon the size of the rupture and the location of the rupture in context of how the earthquake will affect a point located some distance away. That is, identical earthquakes propagate to a location and produce ground motion in different ways due to differences in intervening soils. Dr. Budnitz reported that longer ruptures produce more energy but the ground motion at a site some distance away will not be proportionate to the difference in energy released because of this attenuation factor and that this diminishment of ground motion in response to a large earthquake farther away is termed magnitude saturation. In response to Mr. Geesman’s inquiry, Dr. Budnitz stated that the DCPP Administration Building was not designed to nuclear codes. Dr. Peterson remarked that the Administration Building is well constructed and a key issue is making sure that personnel working within the Administration Building will not be injured or have their access impeded in a seismic event and much work and improvement has gone on in this effort at DCPP.

Ms. Sherry Danoff, a member of the local community was recognized. Ms. Danoff remarked that there are additional faults besides the Hosgri Fault in the vicinity of DCPP and she inquired whether the inter-connectivity of the various faults has been analyzed. Dr. Budnitz confirmed this analysis has been performed and he remarked that the
relatively recently identified Shoreline Fault could be linked to the Hosgri Fault but the potential of the largest motion of the Shoreline Fault is within the largest motion of the Hosgri Fault, but that rupture of two in conjunction could be larger than a single rupture. He reported there are other faults in the vicinity such as the San Luis Bay and Los Osos Faults, as well as the larger but farther distant San Andreas Fault which were also analyzed.

Mr. David Weisman of the Alliance for Nuclear Responsibility was recognized. In response to Mr. Weisman’s inquiry concerning whether the DCPP Fire Station building was designed to nuclear codes, Mr. Baldwin stated he would follow up concerning Mr. Weisman’s question concerning whether the building was built to nuclear codes. Mr. Baldwin reported because the Fire Station is used to house FLEX∗⁶ equipment he believed that there were additional requirements for the structure as to its seismic capabilities.

∗⁶ FLEX is not an acronym but describes a strategy developed by the nuclear industry to provide diverse and flexible coping strategies to address the loss of safety-related systems due to beyond design basis events.

Mr. Weisman further inquired how, with all the probabilistic calculations, evaluation of accident scenarios and designs no one anticipated the events that occurred to Fukushima Daiichi on March 11, 2011. Drs. Budnitz and Peterson responded that it is simply not understood how such events were missed and to have done so was a gross failure. Dr. Peterson commented that a similar situation exists at the present time in Oregon where there has not been adequate protection for members of the public from a large tsunami which is sure to occur and is likely overdue. In response to Mr. Weisman’s inquiry about what is being done in the seismic analysis community to prepare future preparers of probabilistic risk assessments to include previously unthinkable and unimaginable hazards, Dr. Budnitz responded that the large earthquake in 2011 off the coast of Japan which caused the tsunami which resulted in the accident to Fukushima Daiichi was understood by the seismic community in Japan, however, its potential effects were not analyzed. The earthquake which occurred tens of miles offshore and caused the tsunami was the largest
earthquake the Japanese mainland has experienced in recorded history. Offsite power at Fukushima Daiichi was lost and the emergency diesel generators started as designed. Dr. Budnitz stated as far as can be determined, although the earthquake considerably exceeded Fukushima Daiichi’s seismic design basis, there was no seismic damage to the station and a sister nuclear power plant located up the coast, Fukushima Daiini, did not suffer similar damage and was able to successfully shut down. At Fukushima Daiichi because the emergency diesel generators were located at a low level they were not adequately protected from the tsunami. Dr. Peterson commented that the Japanese nuclear regulatory system is vastly different from that in the U.S. as it did not have the capacity to challenge decisions made previously even though research revealed these types of tsunamis recur on a thousand-year basis and, despite this knowledge, the Japanese regulators took no effective action. Dr. Peterson observed the accident to Fukushima Daiichi could likely have been greatly mitigated by the installation of watertight doors to protect the plant’s diesel generators. Drs. Budnitz and Peterson observed that it is always necessary to recognize in any potential accident analysis that something could have been missed. Dr. Lam confirmed Dr. Budnitz observation and stated Dr. Budnitz is critically aware that completeness is always an issue in the risk assessment community. Dr. Lam observed nuclear technology is an exceeding complex and unforgiving technology and the accident at Fukushima Daiichi has to date resulted in $200-$300 billion in liability for the Japanese central government and has practically bankrupted Tokyo Electric Power Company, the owner of Fukushima Daiichi.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson reported that the experience of the Onagawa Nuclear Power Plant (Onagawa), located closer to the epicenter of the earthquake and which experienced greater peak ground acceleration and a higher tsunami, was quite different than that of Fukushima Daiichi. Dr. Nelson reported Onagawa suffered negligible damage and served as an emergency shelter and demonstrated that proper mitigation is possible with a proper mindset. Dr. Peterson observed that Onagawa was much better protected than the nearby town and many of the plant’s employees lost their families due to the tsunami. Dr. Nelson remarked the nuclear power regulator in the U.S. operates
independently of the plant owners and has the authority to shut down any plant if it determines it is not safe. He remarked the DCISC also serves as an independent backstop to the regulator and there is a very robust safety culture in the U.S. which makes claims that the situation in the U.S. is equivalent to that in Japan concerning the accident at Fukushima Daiichi a false equivalent. Dr. Nelson stated the North Anna Nuclear Generating Station in Virginia is built essentially on solid base rock creating a very low attenuation effect. He remarked this is a much different situation from that in California where the entire state is underlain by numerous inactive faults which serve to attenuate seismic ground motion including at DCPP.

Ms. Sherry Lewis of Mothers for Peace was recognized. Ms. Lewis stated she found Dr. Budnitz presentation troubling due to his reference to uncertainties in contrast to a seeming confidence that all accident sequences have been identified. Dr. Budnitz replied that in his presentation he did not claim that all accident sequences have been identified only that no new accident sequences have been identified for some considerable period of time. Ms. Lewis remarked that human error is also a big unknown. Dr. Budnitz replied that what is known for each identified accident sequence is what humans have to do and how long they have to do it and this information is part of the accident sequence probability analysis. Ms. Lewis stated it was her impression that what she termed “unknown unknowns” were what she described as a “deep pit” and that Dr. Budnitz’ remarks instilled a false level of confidence. Ms. Lewis stated she believes there are additional accident scenarios yet to be identified. Dr. Budnitz reiterated that while no additional accident sequences have been identified for a considerable period of time it is not impossible that additional sequences might identified be in the future. Dr. Budnitz remarked while analysis can provide information in terms of a risk number, can identify the important contributors to that analysis, and can identify the numerically known uncertainties, it is up to Ms. Lewis and to others to decide whether operation of a nuclear power plant is safe or not but the important thing is that this decision needs to be an informed decision. Dr. Peterson observed the NRC’s safety goal is to ensure nuclear power is as safe as, or safer than, other ways of producing energy. Ms. Lewis stated her concern regarding nuclear power goes to its long term effect on future generations and she is motivated in her opposition
by what she described as “all the lies.” Dr. Budnitz and Ms. Lewis exchanged views on the long term effects of the accident at Fukushima Daiichi and the differences between the types and duration of radiation released by the accident in Japan compared to the type and duration of the danger posed by the spent nuclear fuel stored at the ISFSI.

Dr. Nancy O’Malley, a local community member, was recognized. In response to Dr. O’Malley’s inquiry Dr. Budnitz confirmed the annual probability of $3 \times 10^{-5}$ which he cited earlier during his presentation was in reference to seismic activity and does not reflect a probability for terrorist attacks or other matters independent of seismic activity. In response to Dr. O’Malley’s inquiry Dr. Budnitz stated the risk results from the probabilistic risk assessment for non-seismic initiators of core damage are about the same as for the seismic risk and he confirmed the probabilities would be added together and the margin or error could possibly be greater than a factor of ten. Dr. Budnitz remarked the quantification of uncertainty is a complex and unsettled scientific area. He stated it is not known how to quantify the annual probability of a large release from a terrorist attack but the principal accident sequences, including sequences initiated by an insider that might be initiated by such an attack have been identified and this has led to the NRC adopting counter measures. The NRC also coordinates its security regulations with the federal Department of Homeland Security. Dr. Lam remarked that public discussion of acts of malice is impermissible in any NRC licensing hearing. Dr. Peterson observed that nuclear power plants are well-protected and offer a hard target for terrorists while other facilities with the capability of having high consequences are considered to be more likely and accessible targets.

In response to Dr. O’Malley’s question on the operation of the turbine driven auxiliary feedwater pump, Dr. Budnitz replied the pump is run by steam that comes off of the hot reactor but the pump controls rely on DC power from either a DC bus or batteries and, if powered from batteries those batteries need to be recharged which requires AC power. Dr. Peterson observed the steam turbines for pressurized water reactors such as DCPP can be operated manually and at DCPP the steam turbines could run almost in perpetuity as they do not have a heat sink problem such as experienced by the boiling water reactors at Fukushima.
Daiichi. Dr. Budnitz remarked one of the more important accident sequences includes plant operators failing to take action to keep the Auxiliary Feedwater System operating and while the probability of this was quantified as low, it is not zero. Drs. Peterson and Budnitz confirmed Dr. O’Malley’s observation that water to cool DCPP’s reactors is also available using gravity from the raw water reservoirs located above the power block, from the ocean and, subject to their respective seismic capacities, from the Condensate Water and Fire Water Storage Tanks. Dr. Budnitz observed that the new reactor coolant pump seal packages described earlier by Mr. McWhorter provide a much longer coping period to address the problem of a pressurized water reactor gradually losing coolant in the primary system through seal leakage.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson stated that as a result of his involvement with the local Red Cross he has been part of exercises held at DCPP and he believes that concerns about a terrorist attack are overblown as the plant is well protected at multiple locations by very effective defensive measures. Dr. Budnitz observed that matters of plant security are outside the DCISC’s remit, with the caveat that the Committee does review security-related effects on the operational safety of DCPP.

**XV Closed Session**

Personnel Matter (Government Code §1126). The Committee Members held a closed session with legal counsel to discuss the matter listed on the agenda.

**XVI Adjourn Afternoon Meeting**

The Chair adjourned the afternoon meeting at 5:20 p.m.

**XVII Reconvene for Evening Meeting**

Dr. Budnitz convened the evening meeting of the DCISC at 5:30 p.m.

**XVIII Committee Member Comments**

There were no comments by the Members at this time.
XIX Public Comments and Communications

Dr. Budnitz invited any members of the public to address remarks on any item not of the Committee’s agenda.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized and expressed his appreciation to Dr. Budnitz for Dr. Budnitz’ presentation during the afternoon session.

Mr. Joe Ivora, a retired DCPP employee and member of Californians for Green Nuclear Power was recognized. Mr. Ivora stated pollution kills 19,000 people every day worldwide and he observed that no person has ever been killed by nuclear power in the U.S. and the waste nuclear power produces is controlled and represents spent fuel that could be reused. He commented there are new designs for producing fission power and he stated that from his experience in constructing nuclear power plants he does not believe the general public realizes just how much care and design goes into their construction.

Mrs. Mary Ivora, a member of Californians for Green Nuclear Power was recognized. Mrs. Ivora inquired as to why, as DCPP is recognized within the nuclear industry as an excellent performing and well maintained facility, PG&E agreed to close DCPP rather than attempt to sell the plant and if this option was considered. Mrs. Ivora remarked that nuclear power plants located in the New York area have been sold and the decision by the German government to close nuclear power plants in that country has resulted in the cost of electricity increasing and the air becoming dirtier. Dr. Budnitz stated the DCISC has no information responsive to Mrs. Ivora’s inquiry. Mr. John Geesman, representing the Alliance for Nuclear Responsibility, was recognized to reply to Mrs. Ivora’s inquiry. Mr. Geesman stated that his 19 years’ experience as an investment
banker convinces him that if PG&E could have sold DCP to a credible buyer it would have done so as the PG&E Board of Directors owes a fiduciary duty to the company’s shareholders. However, Mr. Geesman stated that as PG&E is in bankruptcy the question of whether DCP is a marketable asset or a liability will likely be raised by the creditor’s committee and if the plant is determined to be a liability it is possible it could close earlier than planned. Dr. Budnitz stated the issues described by Mrs. Ivora and Mr. Geesman are outside of the Committee’s remit with the exception as to how they could affect the safety of operations at DCP.

**XX Information Items Before the Committee (Cont’d)**

Assistant Legal Counsel Rathie was recognized and reported that the Committee Members met in closed session earlier in the day on the matter listed on the agenda and received information and provided direction and no reportable action was taken.

Dr. Budnitz asked Mr. Baldwin to continue with the informational presentations requested by the Committee for this meeting. Mr. Baldwin then introduced Mr. Mike Ginn, the leader of the Emergency Preparedness Organization (ERO) and asked Mr. Ginn to make the next presentation to the Committee. Mr. Baldwin reported Mr. Ginn brings more than 35 years’ experience in the energy industry and currently serves on the Board of Directors with the American Red Cross for San Luis Obispo and Santa Barbara Counties.

**Update on Emergency Preparedness Programs; Results of the October 24, 2018 Evaluated Emergency Exercise; and Emergency Preparedness Following Cessation of Operations.**

Mr. Ginn reported he would discuss the results of the October 24, 2018 Evaluated Exercise, during which time Dr. Budnitz and Mr. McWhorter were onsite to observe a portion of the exercise. Mr. Ginn reported the purpose of the exercise was to evaluate the capabilities of the ERO and other agencies to implement plans and procedures to protect the health and safety of the public and determine the adequacy of facilities, equipment and supplies needed in support of a potential emergency at DCP. Evaluated exercises are required to be conducted every two years and these exercises are evaluated by the NRC and by the
Federal Emergency Management Agency (FEMA). Mr. Ginn reported Mr. Baldwin assumed the lead role for PG&E during the October 2018 exercise.

Mr. Ginn reported the October 2018 exercise demonstrated good performance overall concerning the ERO personnel adequately demonstrating at both onsite and offsite facilities reasonable assurance of the ability to protect the health and safety of plant employees and the public. Major elements tested during the exercise included an integrated response to ensure ERO personnel effectively coordinated and communicated with State and County agencies to support joint offsite response efforts. Major ERO elements tested included personnel effectively implemented the site Emergency Plan, testing major elements of the plan and demonstrating key knowledge and skills. Mr. Ginn commented San Luis Obispo County Office of Emergency Services (OES) Manager Mr. Ron Alsop recently retired from that position and has been replaced in that position by Mr. Joe Guzzardi. **Dr. Peterson remarked that at the appropriate time, the DCISC will schedule a meeting with Mr. Guzzardi and request him to make a presentation to the Committee, possibly at the DCISC’s June 4-5, 2019 public meeting.** The DCISC Members and Technical Consultants expressed their appreciation and best wishes to Mr. Alsop for his cooperation and appearances before the DCISC and upon his retirement.

Mr. Ginn reported the exercise scenario commenced with Unit 1 at 50% power for circulating water tunnel cleaning and Unit 2 at 100% power. The scenario postulated an explosion of the auxiliary feedwater motor-driven pumps as the initiating condition and an Alert was initially declared. An access impediment was included in the exercise with the postulated damage to the roadway on Avila Beach Drive at the existing bridge to test coordination between the plant and the County with regard to alternate ingress and egress routes. A steam generator tube rupture was simulated and this led to declaration of a General Emergency, the highest level of emergency and protective action recommendations were issued.

Mr. Ginn summarized the results of the October 24, 2018 Evaluated Emergency Exercise concerning Classifications, Notifications & Protective Action Recommendations (PARS).
as follows:

- Classifications - 3 out of 3 timely & accurate
- Notifications - 3 out of 3 timely & accurate
- PARS - 1 out of 1 timely & accurate
- PAR Notifications - 1 out of 1 timely & accurate
- Overall results 8 out of 8 timely & accurate = 100%.

Mr. Ginn identified and discussed three challenges or weaknesses identified during the October 2018 evaluated exercise. These include a delay in notification to the NRC following notification to State and County which is required to be made within one hour or immediately after notification to State and County. Mr. Ginn stated this was due to the Control Room participants having decided to transfer notification responsibility to the Technical Support Center and this resulted in a 20 minute delay in notification to the NRC. Training is being provided to address this deficiency. A weakness was identified concerning drill control and timing of the exercise scenario which must match the event progression in the Simulator. Dispatch of operators by the Shift Manager/ Senior Reactor Operator from the Control Room during the simulated event and the coordination and interaction with the Operational Support Center which is responsible to ensure personnel are protected in the event of a change in radiological conditions was also identified as an area for improvement. Procedures will be reviewed and benchmarking has been undertaken.

Mr. Ginn reported the FEMA dispatched 25 evaluators to observe and evaluate the exercise and the NRC brought a team of 5 evaluators. He reported performance by the State and County representatives was judged excellent with no Level 1 or Level 2 findings. Mr. Ginn concluded this portion of his presentation by stating the October 2018 Evaluated Emergency Exercise confirmed the requirements of Code of Federal Regulations Title 44 CFR 350 continued to be met to assure that offsite plans are adequate to protect the health and safety of the public. He remarked that as DCPP has four separate ERO teams, several drills and exercises are required to build proficiency and test abilities of all the teams and he described a focus area during 2019 as including the efforts of the Emergency Preparedness Program to maintain a highly skilled ERO through
challenging drills and exercises. The 2019 ERO training and drill schedule is as follows:

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<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>01/24/19</td>
<td>Drill Exercise Performance (DEP) Tabletop</td>
</tr>
<tr>
<td>01/30/19</td>
<td>Health Physics (HP) Drill (semi-annual)</td>
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<tr>
<td>04/10/19</td>
<td>ERO Team Training (4-hours)</td>
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<tr>
<td>04/24/19</td>
<td>ERO Team Training (4-hours)</td>
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<td>05/08/19</td>
<td>ERO Team Training (4-hours)</td>
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<tr>
<td>05/15/19</td>
<td>ERO Team Training (4-hours)</td>
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<tr>
<td>06/05/19</td>
<td>Full Scope Training Drill</td>
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<tr>
<td>06/18/19</td>
<td>Full Scope DEP Evaluated Drill - WANO</td>
</tr>
<tr>
<td>07/24/19</td>
<td>Full Scope DEP Evaluated Drill</td>
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In response to a question from Mr. McWhorter, Mr. Ginn replied the WANO peer review component is a post-Fukushima Daiichi development which will take place every four years and Mr. Ginn remarked the WANO peer review will utilize essentially the same concepts as other emergency management performance evaluations. In response to a query from Dr. Lam, Mr. Ginn estimated more than 1,000 persons participated in the October 2018 Evaluated Emergency Exercise which took place without significant organizational problems. In response to Dr. Peterson’s inquiry, Mr. Ginn confirmed American Nuclear Insurers (ANI) works closely with the DCPP Emergency Response Organization and attends the Emergency Preparedness Working Group meetings and, on occasion, ANI representatives are integrated into the finance portion of a response and actively participate in an exercise and conduct training with the last time this occurred being in 2016. In response to Consultant Wardell’s inquiry as to whether plans are in place in case an actual accident or event happened during an exercise, Mr. Ginn confirmed that contingency plans are in place to terminate the drill in that event and the drill participants are briefed on this contingency. The actual event would be addressed by personnel already in place for the drill scenario and Mr. Ginn confirmed this has never occurred at DCPP.

Mr. Ginn discussed emergency preparedness issues following cessation of operations and reported he continues to work with DCPP’s decommissioning team and with
industry peers on this topic. He provided a graph which was provided by the NRC showing a comparison between emergency planning requirements for operating reactors and decommissioning reactor sites and he observed differences in requirements for emergency planning zones, available classification and notification requirements of events, the need for onsite and offsite facilities, and biennial exercises. Mr. Ginn commented for decommissioning sites the primary emergency planning focus is on spent fuel pool events and there is a transition from a primarily radiological emergency preparedness program to focus on “all hazards” planning. He reported for decommissioning sites an Alert event classification is the highest level of emergency. In response to Dr. Peterson’s observation that there is a different level of risk associated with spent fuel which is within 18 months or more removal from placement in a core, Mr. Ginn confirmed that the offsite emergency response facilities are not closed immediately upon cessation of generation operations. Mr. Ginn reviewed the four levels of emergency planning transition in decommissioning and the emergency planning to be in place for each:

- Level 1 - Post Shutdown Emergency Planning (shutdown and estimated duration of approx. 18 months following shutdown).
- Level 2 - Permanently Defueled Emergency Planning (fuel moving from pools to ISFSI, estimated duration greater than five years).
- Level 3 - ISFSI Only Emergency Planning (unknown duration).
- Level 4 - Permanent or Interim Waste Storage Available (unknown availability).

Dr. Peterson remarked that after the first 18 months the off-loaded fuel heat decay rates drop considerably. He stated the heat load from a freshly off-loaded fuel exceeds that of all the fuel that has accumulated over decades of operation in the spent fuel pool to date. Dr. Peterson commented there is a significant change in planning for emergency response capabilities after the 18-month period has passed. Mr. Ginn displayed a graph of the illustrative milestones in emergency preparedness from power operations through the four levels of decommissioning. He commented that the 10 CFR Part 50 License from the NRC
will continue through Levels 1 and 2 with the 10 CFR Part 72 License for spent fuel storage remaining in place until the Department of Energy accepts custody of the spent fuel. Mr. Ginn stated that in each decommissioning phase the ERO will review reliability and redundancy of communications capabilities, equipment, emergency training, adequacy of funding, and maintenance of the ERO facilities. He remarked the Joint Proposal provides for funding of the emergency preparedness aspects for the offsite agencies. He confirmed, in response to Dr. Lam’s observation that over time, as decommissioning proceeds, the number of emergency planning requirements decreases. In response to Dr. Budnitz comment Mr. Ginn confirmed the NRC is considering new regulations governing emergency planning requirements in decommissioning and DCPP, along with its peer nuclear facilities preparing for or having entered decommissioning will continue to follow this issue.

Mr. Baldwin then introduced Mr. Jordan Tyman and asked Mr. Tyman to make the next presentation to the Committee. Mr. Baldwin reported Mr. Tyman holds a Degree in Mechanical Engineering and has more than ten years project management experience including next generation reactor design and construction for Westinghouse. He reported Mr. Tyman has led the efforts at DCPP to implement cyber security rules and regulations.

**Cyber Security Programs for Protection of Critical Digital Assets.**

Mr. Tyman reported in his presentation he would provide an update on implementation of the DCPP Cyber Security Program and the NRC’s Cyber Security Rule. He reported DCPP has now completed full implementation of NRC Cyber Security Rule 10 CFR 73.54 and the DCPP Cyber Security Program fully complies with the NRC approved Cyber Security Plan (CSP) and NEI 08-09, Revision 6 “Cyber Security Plan for Nuclear Power Reactors.” Full implementation was completed in December 2017.

Mr. Tyman stated the purpose of the Cyber Security Rule and Program is to protect DCPP’s critical digital assets and to protect the plant and the health and safety of the public. Specifically, the Cyber Security Program provides protection of critical digital assets and plant systems associated with:
- Safety-related and important-to safety functions
- Security functions
- Emergency preparedness functions, including offsite communications
- Support systems and equipment

Mr. Tyman stated the NRC’s rules provide a process to assess and manage changes to prevent or mitigate adverse effects on plant safety. Additional measures are applied to protect the system if a safety-security interface is identified to ensure cyber security requirements don’t impact plant safety. Throughout implementation, detailed lab testing was performed on critical digital assets prior to implementing cyber security controls in the plant to ensure no adverse impacts. In response to Dr. Lam’s inquiry Mr. Tyman confirmed that applying security controls to digital assets must ensure that design or safety function is not impacted by unintended adverse consequences. In response to Dr. Peterson’s question Mr. Tyman confirmed some safety-related digital equipment required modification. Mr. Tyman confirmed Dr. Budnitz’ observation that as the threat environment has evolved and changed, each change requires reevaluation of the cyber security-safety interface and this is an ongoing process and the challenge is to stay continually ahead of the threat.

Dr. Peterson remarked he believes that by making electronic systems more robust for cyber security their reliability is also improved and he opined that this is true in particular with respect to human error and, as one of the principal goals of cyber security is to prevent malicious human error, the cyber security protocol also makes those systems more robust against inadvertent human error. Mr. Garcia remarked that with physical security as well as cyber security, the principal goal is to maintain the context of the impact on plant operations and to ensure there are no safety implications. Dr. Budnitz remarked that in order to provide the necessary level of cyber security some compromise to plant configuration would have to be introduced and it is a challenge to ensure those compromises are minimized. **In response to Consultant Wardell’s comment concerning the need to assess any effect changes in safety-related systems may have on cyber protection, Mr. Tyman stated he could not address specifics of that issue in a public forum but**
offered to discuss the matter further with the Committee in confidential fact-finding. Mr. Tyman stated, in general, configuration and control is maintained such that if there are changes to the plant as part of the normal design change process, the Cyber Security organization is incorporated into those procedures and a cyber security review is conducted including to assess changes to a digital component to ensure cyber security controls are not compromised. In response to Dr. Budnitz inquiry about critical digital assets Mr. Tyman replied that approximately 50% of critical digital assets are security-related and review is conducted to ensure there is no unintended impact on DCPP’s physical security capabilities.

Mr. Tyman generally confirmed Dr. Lam’s observation that DCPP is essentially an island in that it does not rely on any external physical communications for its safety-related functions. In response to Consultant Wardell’s observation that a vendor might introduce an outside digital asset into DCPP’s system Mr. Tyman reported that the Cyber Security Program monitors and has protection in place for this type of situation. In response to Consultant McWhorter’s query concerning the December 2018 trip of Unit 2 due to grid conditions actuating the Switchyard’s Special Protection System (SPS) to trip the generator, Mr. Tyman stated the SPS is governed and overseen by the North American Electric Reliability Corporations’ (NERC) Critical Infrastructure Protection (CIP) regulations and there is a clearly defined boundary, which the NRC terms the “Brightline Survey” within the DCPP’s switchyards between the NRC’s Cyber Security and the NERC CIP regulations. Dr. Budnitz observed DCPP is designed to withstand actuation of the SPS provided its actuation is not coordinated with anything else. Mr. Tyman confirmed that part of his job is to assess areas where loss of the grid might be coordinated with other events.

Mr. Tyman reported that the Cyber Security Program has implemented a comprehensive program including more than 30 procedures and processes integrated into station procedures to ensure DCPP regulatory requirements are meet and maintained, and not undone by design change and detailed cyber security controls have been implemented to harden critical digital assets and control portable media. The Cyber Security Program has implemented new cyber security technologies to enhance security posture and
provide ongoing monitoring and detection of instantaneous potential cyber threats.

In response to Dr. Budnitz’ comment, Mr. Tyman stated DCPP shares information and works closely with its industry peers and participates in the NEI’s Cyber Security Task Force. He remarked DCPP receives and responds to information from the intelligence community on specific threats or concerns. In response to Consultant Wardell’s query, Mr. Tyman confirmed cyber security monitoring goes on continuously, seven days per week on a 24-hour per day basis and drills and tests are performed to test cyber security systems and DCPP employees. In response to Consultant McWhorter, Mr. Tyman replied that the Cyber Security Program, while it is implemented by an independent team of approximately five persons and is dedicated to DCPP, also works very closely with PG&E’s corporate Information Technology group and the corporate cyber security team. In his reply to Dr. Budnitz’ inquiry Mr. Tyman confirmed that in response to a changing threat environment the NRC regulatory framework and its regulations have not changed significantly in their overall guidance but there have been changes in interpretation of the regulatory framework on how to best protect the plant. Mr. Tyman stated that he believes the approach taken by U.S. nuclear power plants to protect from cyber threats is equivalent but that there are differences in security system design and in how cyber security plans have been implemented over a very long period of time across the industry and therefore implementation has evolved in the way cyber protection programs are implemented but a clear dialogue does take place between plants as to how cyber security controls are implemented.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. In response to Dr. Nelson’s inquiry, Mr. Tyman stated the supervisory control and data acquisition (SCADA) systems and the business-related systems about which articles have appeared in the media as having experienced outside intrusion are not protected by the Cyber Security Program but are within the NERC CIP and PG&E corporate and DCPP Information Technology protection schemes.

In response to Mothers for Peace representative Ms. Sherry Lewis’ inquiry Mr. McWhorter stated NERC regulates the
reliability of electric systems across the U.S. including non-nuclear power plants and NERC has made extensive efforts at new cyber security regulations to protect critical infrastructure. Mr. Tyman confirmed in response to Dr. Budnitz’ request that the NERC CIP rules are very similar to the NRC’s CIP rules.

XXI Adjourn Evening Meeting

The Chair adjourned the evening meeting of the Committee at 6:55 p.m.

XXII Reconvene for Morning Meeting

The February 28, 2019, morning public meeting of the Diablo Canyon Independent Safety Committee was called to order by its Chair, Dr. Robert J. Budnitz at 9:00 A.M. Dr. Budnitz welcomed those persons present in the audience. Dr. Budnitz invited any of the members who wished to make remarks to do so at this time.

XXIII Committee Member Comments

There were no comments from Members at this time.

XXVI Comments and Communication

The Chair reviewed the invitation to address the Committee on matters not on the agenda for this public meeting and invited any comments from members of the public who wished to address the Committee to do so now.

Ms. Jane Swanson, representing Mothers for Peace was recognized. Ms. Swanson reported that a meeting and conference call would be held this date between PG&E and the NRC to discuss PG&E’s plan not to perform an inspection of the interior of the reactor vessel. Ms. Swanson reported Mothers for Peace planned to participate on this call. Mr. McWhorter reported that the DCISC has the issue of in-service inspection of the reactor vessels identified by Ms. Swanson on an agenda for a fact finding scheduled in April 2019.

XXV Information Items Before the Committee (Cont’d)

Assistant Legal Counsel Rathie reported the date for the
June 2019 public meeting of the DCISC has been changed from June 5-6 to June 4-5, 2019 and that the meeting would be held at the Avila Lighthouse Suites in Avila Beach, CA. Mr. Rathie reported that the Committee Members met in closed session on February 27, 2019, and acted to increase the rates of compensation furnished to the Committee’s Technical Consultants. Accordingly as of March 1, 2019 the hourly rate payable to Consultant Wardell will be $250.00 and that payable to Consultant McWhorter will be $225.00.

Dr. Budnitz asked Mr. Baldwin to continue with the informational presentations requested by the Committee for this meeting. Mr. Baldwin then introduced the Manager of the DCPP Nuclear Regulatory Services Department, Mr. Hossein Hamzehee, and asked Mr. Hamzehee to make the next presentation to the Committee. Mr. Baldwin reported Mr. Hamzehee was previously employed by the NRC at the level of a Branch Chief in charge of probabilistic risk assessment and brings extensive engineering experience in the industry including at other nuclear power plants.

Update on the Status of NRC Performance Indicators, Licensee Event Reports, NRC Notices of Violation and Issues Raised by NRC Resident Inspectors

Mr. Hamzehee reported DCPP is rigorously inspected by the NRC and the plant is committed to the highest standards of safety, continually reevaluating the operations and emergency plans. He stated his report to the Committee would cover the period from October 2018 through January 2019 which represents approximately 1,800 hours of NRC inspections and during this period DCPP met all Green performance standards as measured by the NRC Performance Indicators. In response to Consultant Wardell’s inquiry, Mr. Hamzehee stated that none of the Performance Indicators was approaching the threshold for White status. During this period DCPP submitted one Licensee Event Report (LER) and received two very low level violations from the NRC both of which were categorized as of very low safety significance. Mr. Hamzehee briefly discussed some of the Performance Indicators and provided a summary of the Indicators, which are also available to members of the public on the NRC’s website, including:

- Unplanned Scrams per 7000 Critical Hrs
- Unplanned Power Changes per 7000 Critical Hrs.
- Unplanned Scrams with Complications
- Safety System Functional Failures
- Mitigating Systems Performance Index, Emergency AC Power System
- Mitigating Systems Performance Index, High Pressure Injection System
- Mitigating Systems Performance Index, Heat Removal System
- Mitigating Systems Performance Index, Residual Heat Removal System
- Mitigating Systems Performance Index, Cooling Water Systems
- Reactor Coolant System Activity
- Reactor Coolant System Leakage
- Drill/Exercise Performance
- ERO Drill Participation
- Alert & Notification System
- Occupational Exposure Control Effectiveness
- Radiological Effluent Occurrence

Concerning the indicator for unplanned scrams, Dr. Peterson inquired whether there was a difference in the effect of an unplanned scram dependent upon whether the initiating event was internal or external. Dr. Peterson remarked the December 1, 2018 unplanned scram was caused by conditions on the electric grid which were completely out of DCPP’s control. Mr. Hamzehee replied that any time the plant trips due to an unplanned condition the event will be counted against the Performance Indicator for unplanned scrams, however, planned trips such as those initiated for refueling outages are not counted. He reported that more than three unplanned scrams in 7,000 hours is sufficient to turn the indicator from Green to White. Dr. Budnitz observed with the improved reliability of U.S. nuclear power plants being much better than was the case some years ago, three unplanned trips in 7,000 operational hours is unlikely to occur. Mr. Hamzehee observed that reactors are designed to trip in certain conditions and the challenge is to understand the cause of a trip and ensure a reactor does not unnecessarily trip, as any trip challenges
the plant’s safety systems.

Dr. Budnitz remarked that the improved performance of U.S. nuclear power plants is due to a greater understanding and remedying of many of the potential failures which could cause plants to trip. Dr. Lam remarked that he would have a concern if a reactor operator had not experienced a trip over a ten year operational period. Dr. Lam reported that 30 years ago when he was engaged in evaluating operating experience for the NRC, the NRC received about 10,000 LERS each year including between 10-12 reactor trips for some units each year. Mr. Hamzehee opined that a reactor trip in and of itself is not a bad thing to happen and the public should understand that it is because some are unplanned due to systems not responding as intended or the plant not tripping as designed that prompt review to ensure those scenarios don’t reoccur. Mr. Hamzehee reported the installation of special protection schemes some ten years ago greatly assisted in reducing the number of Anticipated Transients Without Scram events which have occurred since.

Mr. Hamzehee remarked concerning the December 1, 2018 plant trip that the plant was designed to trip to protect the electric grid and it responded as designed. Dr. Peterson observed that perhaps it might be beneficial to revisit the Performance Indicators in that historically unplanned scrams were dominated by internally initiated scenarios and the scrams initiated by external events do not provide any safety significant evidence that a plant is not safe and, in fact, those trips provide evidence that a plant is safe and responded as designed. He remarked that as the electric grid is stressed more frequently now than in the past, externally initiated scrams are likely to become more frequent. Dr. Budnitz observed that different lessons are learned from internally initiated scrams as compared with externally initiated scrams. Dr. Lam observed and Mr. Hamzehee agreed that in this effort it may be worthwhile to look for leading indicators to predict future performance.

Dr. Peterson remarked that while the industry may consider externally initiated and internally initiated scrams separately, it will be important to capture data on externally initiated trips which involve any complication during
shutdown as these are safety-significant events. Dr. Budnitz remarked that 40 years ago the nuclear industry experienced approximately 1,000 trips each year spread amongst approximately 100 reactors and it was necessary for the NRC to decide which of these to analyze in detail, as many were similar. However, today as there are far fewer trips each is analyzed in detail and the NRC has developed a program to analyze accident precursors. Dr. Peterson observed that implementation of digital controls has greatly improved plant performance and there is strong evidence that digital systems can provide substantive safety benefits. Dr. Peterson noted that new reactor designs are designed to fail to a safe state without digital control or any safety-related source of electrical power. Dr. Peterson remarked the safety significance of digital control is vastly different if one has passive as opposed to active safety.

Mr. Hamzehee reported on the single Licensee Event Report (LER) issued during October 2018 through January 2019. LER 2018-001-00 was issued in January 2019 regarding the Unit 2 reactor trip that occurred on December 1, 2018. He reported plant systems responded as designed, and the trip did not affect the health and safety of the public. The reactor trip occurred due to the automatic operation of offsite electrical grid equipment designed to ensure grid reliability. Mr. Hamzehee stated that the DCISC has and will receive extensive information on this event.

Mr. Hamzehee reported that safety significance for violations is characterized as Green (very low), White (low to moderate), Yellow (substantial), or Red (high) safety significance. In response to Dr. Peterson’s inquiry, Mr. Hamzehee reported that very few Red violations are issued by the NRC to the plants and often no Red violations are issued in a calendar year. He reported on the NRC’s Reactor Oversight Process Action Matrix multiple Yellow violations would result in enhanced inspection activity. He reported that under what the NRC terms traditional enforcement, the Reactor Oversight Process colors are not used and violations are assigned severity levels with Severity Level One being the most serious. He then reported on the two violations received since the last meeting of the DCISC.

- Non-Cited Violation (Green) – for failure to perform required evaluations for scaffolding which had been in place for more than 90 days. Mr. Hamzehee reported
procedure was not followed for temporary scaffolding to do safety evaluations for scaffolds left in place for more than 90 days to ensure there will be no impact on safety-related equipment in proximity to the scaffolding. This was identified by the NRC inspectors and the issue was reviewed relative to both units and entered into the Corrective Action Program and an extent of condition review was performed. Scaffolds that were not needed were immediately removed and safety evaluations were performed for those left in place which had not been evaluated and none were found to be outside requirements. Dr. Budnitz remarked that this was an indicator of a breakdown in procedure as each scaffold would have had to have proper evaluation for its temporary installation. Mr. Hamzehee agreed with Dr. Budnitz and confirmed this represented a recent inadequacy in following plant procedures.

- Non-Cited Violation (Green) – for failure to correct switchgear room ventilation damper issue in a timely manner. Mr. Hamzehee reported this issue involved the 4kV switchgear and cable spreading rooms located in the vicinity of the Turbine Deck and a concern regarding a high energy line-break which, if the damper were in the open position, could result in high humidity entering into the switchgear room and potentially impacting operability of equipment in the 4kV switchgear room. The damper is designed to activate to close the opening in the event of a high energy line-break but the damper was found to be unable to close as designed, which would be a safety compromise if such a line-break were to occur. When this was discovered an immediate operability assessment was performed and compensatory measures were taken by closing the damper. Mr. Hamzehee confirmed Dr. Budnitz’ observation that this represents a compromise to ventilation in the area and Mr. Hamzehee confirmed that further evaluation determined there were no other unintentional consequences or safety impacts involved and determined the compensatory measure could be made as a permanent change and the licensing basis document has been revised. In response to Dr. Lam’s comment regarding the analysis not going further than assessing precursors, Mr. Hamzehee stated the thorough evaluation required for the licensing basis
change included all safety-related equipment and concluded that the damper could remain closed. Mr. Garcia remarked that this was an old legacy item that was identified by DCPP when calculations from the 1980s and 1990s were reviewed and the violation represented failure to correct the issue in a timely manner and extent of condition was verified to ensure that in the future designs will be finalized in a timely manner. Dr. Lam remarked that it is necessary to assess these low level safety significant types of conditions as precursors to events that may have great safety significance.

Mr. Hamzehee stated that for the four months since the last DCISC public meeting DCPP fully met all Green Performance Indicators and the NRC inspection reports during the October - January 2018 period included the Resident Inspector’s Integrated Inspection Report, the Triennial Fire Protection Program Inspection, and the Security Inspection Report, all of which have been provided to the DCISC for its review. In response to Mr. McWhorter’s observation that the Triennial Fire Protection Report consisted of just two pages, Mr. Hamzehee stated the new format for NRC reports is not intended to indicate that the inspections were not thorough and resource intensive. He remarked the Triennial Fire Protection Program Inspection was a very thorough and resource-intensive inspection but as no violations were identified NRC management has determined that unless violations or safety-significant issues are found, it is not a good use of the NRC inspector’s time to develop lengthy and detailed reports and he confirmed Mr. McWhorter’s observation that with this new reporting protocol it is possible that violations of minor significance that were not cited will not appear in the inspection report. Dr. Lam stated he found the strategy to issue only a summary report to be ill advised as it undermines public confidence in the NRC’s inspection efforts by failing to address the breath and scope of the inspections. Mr. Hamzehee remarked that perhaps the industry should consider providing feedback to the NRC on its inspection reporting protocol. Dr. Lam observed that perhaps the main reports can be shorter but accompanied by detailed appendices which would serve to document the scope, thoroughness and extent of the inspection activities. Mr. McWhorter observed the new inspection report format will now require the DCISC in fact-finding to inquire as to the details and findings of each NRC inspection and Mr.
Hamzehee responded that his organization stands ready to assist the DCISC in this effort.

In response to Mr. McWhorter’s inquiry concerning a release request from code requirements regarding the in-service inspection for the reactor vessel, Mr. Hamzehee stated that relief requests are made for certain parts of ASME Section 11 inspection requirements due to issues of inaccessibility or high radiation in certain areas and these requests for relief must meet certain criteria required by the NRC. He stated he would be willing to provide details of any recent requests for in-service inspection relief with the DCISC during fact-finding.

Ms. Jane Swanson of Mothers for Peace was recognized. In response to Ms. Swanson’s inquiry, Dr. Budnitz explained that the Performance Indicator for Reactor Coolant System Leakage evaluates both units separately and the fact that this metric is reported as a Performance Indicator does not mean that there was a particular event involving the Reactor Coolant System leaking but rather it serves as a metric of performance to measure systemic performance and detect any adverse trend.

Mr. Baldwin then introduced Director of Quality Verification Mr. Ken Cortese and asked Mr. Cortese to make the next presentation to the Committee. Mr. Baldwin remarked Mr. Cortese has more than 35 years’ experience in the nuclear industry including leadership roles in the Chemistry and Safety organizations.

**Quality Verification’s Perspective on Plant Performance, Top Issues, and the Quality Performance Assessment Report.**

Mr. Cortese stated Quality Verification’s (QV) role is to ensure DCPP complies with regulations and it performs this function through the audit process and through quality control inspections to ensure the station identifies and closes gaps to excellence. The QV organization assesses compliance with the DCPP Quality Assurance Plan, Chapter 17 of the plant’s Final Safety Analysis Report (FSAR) in accordance with 10 CFR 50 Appendix B. Mr. Cortese stated as QV Director he reports directly to Chief Nuclear Officer Mr. Jim Welsch. In response to Dr. Budnitz’ inquiry, Mr. Cortese reported the QV organization consists of 26 persons. In response to Consultant Wardell’s query Mr.
Cortese replied the quality assurance audit function is under his leadership.

Mr. Cortese reported that during the period July to November 2018, DCPP exhibited traits reflecting a strong nuclear safety culture and effectively implemented the Quality Assurance Program consistent with regulatory requirements and its commitments to the NRC. He stated he would provide a performance summary, based upon performance indicators, self-assessment results, results of audits and inspections and interviews, and observations in the field for the Chemistry, Engineering, Fire Protection and Radiation Protection organizations overall performance which he reported is considered excellent. The Operations, Maintenance, Emergency Planning, and Performance Improvement organizations overall performance is consistently meeting expectations, while Learning Services performance is considered to be adequate with improvement opportunities in various aspects with actions in place to address these opportunities.

- Engineering: overall performance is considered excellent with continued strong equipment reliability and a strong Preventative Maintenance Optimization evaluation and support program. An area for improvement was identified within the Maintenance organization to support resolution of Scaffold program requirements.

- Radiation Protection: overall performance is considered excellent including organizational support in managing radiation dose both online and during outages. No violations or findings from two recent NRC audits

- Chemistry: overall performance is considered excellent with an industry leading Chemistry Effectiveness Indicator of 0.0 for both Units. An area for improvement was found concerning degradation of resin performance for the Condensate Polisher on Unit 1 which has resulted in a slight increase in sulphate in the Steam Generators but within guidelines. Mr. Budnitz observed and Mr. Cortese agreed that concerning this issue it is important to evaluate both actual performance and the performance of the Chemistry organization team. Mr. Cortese replied that both actual performance and the team’s performance were, in QV’s estimation, performing in an excellent
manner.

- Emergency Planning (EP): overall performance is consistently meeting expectations with improved drill and exercise performance and stability in the Emergency Response Organization. Minor change management issues associated with implementation of Emergency Planning procedure changes were identified.

- Operations/Operational Focus: overall performance is consistently meeting expectations and strong actions to stay ahead of proficiency issues and to address changing workforce demographics are being taken. Event free operation includes 6000+ days without a reactor trip on Unit 1 which Dr. Budnitz characterized as a performance indicator of unusual strength. Minor adherence issues were identified to place-keeping standards and verification practices.

- Maintenance: overall performance is consistently meeting expectations with focus on maintenance technical fundamentals and a strong focus on planning, preparation, and execution of maintenance tasks especially during refueling outages. An issue was identified with the slow resolution of the scaffold documentation issues discussed previously by Mr. Hamzehee.

- Fire Protection: overall performance is considered excellent and staffing has improved in engineering positions related to fire protection. The NRC’s Triennial Fire Protection Inspection report reflected positive program performance with only two minor violations.

- Performance Improvement: overall performance is consistently meeting expectations with a stable and experienced team supporting cause determinations and managing the Corrective Action Program and continuous learning.

- Learning Services: overall performance is considered adequate with various improvement opportunities identified. Overall station focus is on training to improve performance but some training program requirements are not being effectively implemented. Issues were identified with a risk performance evaluation where the proper tools were not in place prior to commencing the evaluation and with implementation of a procedural requirement to conduct
Mr. Cortese reported that during the period November 2018 –February 2019, QV conducted 3 audits, 16 assessments, and 80 observations. Audits were performed of the Maintenance, Chemistry/Radiochemistry and Emergency Preparedness organizations and the results included 1 finding, 25 deficiencies, and 9 recommendations. Assessments resulted in 1 finding and 1 Area Requiring Management Attention with 20 deficiencies identified. In response to Consultant Wardell’s inquiry Mr. Cortese stated a deficiency is a condition adverse to quality and is secondary to a finding or a recommendation and represents a minor condition identified during QV oversight activities that impacts the quality or non-quality of a program, process, system, structure or component. In response to Dr. Lam’s observation Mr. Cortese reported that recommendations and deficiencies address different levels of performance and therefore a recommendation is not associated with each identified deficiency. Mr. Garcia reported that each deficiency identified is entered into the Corrective Action Program. Dr. Budnitz observed and Mr. Cortese agreed that recommendations are frequently developed through benchmarking, that is, reviewing procedures and practices at other nuclear power plants. In response to Consultant Wardell’s query Mr. Cortese replied the QV organization’s assessments include both functional performance and performance in meeting quality requirements. In response to Consultant Wardell’s further inquiry Mr. Cortese reported that quality control inspections are entirely separate and independent of the line organizations and he commented this practice is consistent with the majority of plants in the industry. In response to Dr. Budnitz’ observation, Mr. Cortese replied that in-service inspections differ from QV’s inspections in that QV work packages are designed to compare the criteria to the work in the field.

Mr. Cortese identified three improvement opportunities identified by QV as including Scaffold Program adherence, effective change management, and Operations use of human performance tools. Concerning Scaffolding Program adherence, described by Mr. Hamzehee previously, QV identified a lack of urgency and the issue was elevated to the Maintenance Director’s level and a procedure was developed to require a specific code be created in the SAP
Program for each scaffold which triggers a licensing basis impact evaluation (LBIE) by the Engineering organization. Regarding change management, Mr. Cortese stated in the review of the scaffold adherence and procedure implementation issues, it was determined elements of change management could have been improved and a cause analysis was performed and actions implemented as a result to ensure the change identified is aligned with its implementation. Concerning use of human performance tools by Operations, Mr. Cortese stated the issues identified were low level issues and an adverse trend notification was initiated which resulted in actions including a configuration control plan and coaching session on use of human performance tools.

In conclusion, Mr. Cortese reported that QV determined, overall, plant performance remains strong and is on a stable trajectory and the QV organization will continue to monitor and challenge the organization. In response to Dr. Lam’s question Mr. Cortese stated that while he reports directly to the CNO it is only very rarely that he has found the need to elevate an issue to the CNO’s attention to assert organizational leverage on behalf of QV. He stated that when QV reports on an audit finding or deficiency at an exit meeting the CNO is present in the room to reinforce the importance of the issues identified. In response to Dr. Lam’s query as to how a difference in technical opinion might be resolved, Mr. Cortese stated that an Operational Decision-Making meeting or a meeting of the outage management team would be convened and, in that event as QV Director he has authority to immediately stop the work in question. Mr. Cortese reported QV includes technical expertise from engineers, a licensed senior reactor operator, and qualified individuals in chemistry and radiation protection within the QV organization and in response to Dr. Lam Mr. Cortese affirmed QV’s role is to audit and evaluate compliance but not to implement change. In response to Consultant Wardell’s query Mr. Cortese reported the QV organization is itself evaluated every two years by industry peers from other plants as to its ability to perform audits and assessments and DCPP’s QV organization was judged to be performing well during its last evaluation. In response to Consultant McWhorter’s inquiry Mr. Cortese reported the QV organization maintains a good relationship with the Nuclear Safety Oversight Committee (NSOC) and the NSOC rates each audit, assessment and Quality Performance
Assessment Report. Mr. Cortese remarked workers represent the first barrier to deficient performance, the line supervisors the second barrier, QV is the third barrier and organizations such as the DCISC, the NSOC INPO, and the NRC act as a fourth barrier to deficient performance.

Following Mr. Cortese presentation, Mr. John Geesman representing the Alliance for Nuclear Responsibility was recognized. Mr. Geesman stated the Alliance had received and reviewed the October 2018 NSOC Report which referred to vacancies and turnover in the Chemistry and Engineering organizations and he requested further information on this issue. Mr. Garcia responded that there is now a designated person whose principal role is to assess workforce strategies and a part of this effort includes monitoring attrition numbers and comparing the data to prior years in DCPP organizations including Engineering. Mr. Garcia observed at the present time those data do not indicate any rate of attrition in any DCPP organization that would give rise to heightened concern. Dr. Lam commented DCPP has employed a rational and systematic approach to assuring sufficient numbers of reactor operators remain available. Dr. Budnitz remarked during the NSOC meetings he has attended or for which he reviewed the NSOC’s reports, the NSOC concern was anticipatory and he commented in his review DCPP’s diligence in anticipating retirements has been strong but as the plant may only have six more years of operational life this will become more of a challenge. Mr. Cortese stated that from QV’s perspective the issue would be the identification of a decline or inability to perform the functions required by the Quality Assurance Program and he reported with current staffing there have been no such indications. He reported the Chemistry and Radiation Protection organizations sometimes share technicians and there are strategies and plans in place to address workforce attrition. Dr. Lam observed that workforce attrition can result not only in a quantitative loss of staffing but also qualitative degradation and loss of institutional memory. Dr. Budnitz and Mr. Wardell remarked that when the Committee received expressions of concern from the Vibration Monitoring group about staffing issues, the information was immediately provided to plant management. Mr. Wardell commented that the issue with the Vibration Monitoring group occurred during a period of reorganization when the system engineers were relieved of component engineering duties. Mr. Garcia stated that workforce strategy for DCPP
includes assessing the need for required training to be able to perform a job and DCPP’s strategy is focused through the projected operational life of both Units. Mr. Garcia reported that an offer will be extended to DCPP employees to participate in the second tranche of the Employee Retention Program and this will provide yet another data point to ensure an adequate workforce.

A short break followed.

XXVI Technical Consultant Report & Receive, Approve and Authorize Transmittal of Fact Finding Report to PG&E (Cont’d)

D. The Chair requested Consultant McWhorter to report on the January 23-24, 2019, fact-finding visit with Dr. Lam to DCPP.

- Meet with NRC Resident Inspector - Mr. McWhorter reported the fact-finding team met with NRC Senior Resident Inspector Mr. Chris Newport to discuss recent inspection findings including the Triennial Fire Protection Inspection report and future reports being abbreviated from what was provided in past reports. Mr. McWhorter reported the team learned the Senior Resident Inspector typically meets with various levels of plant management, including with the CNO, on a weekly basis.

- Health of Large Motors - Mr. McWhorter reported large motors are those of 4kV or higher or those that supply 250 horsepower or greater and the program to monitor large motors was recently moved from the System Engineering organization to the Component Engineering organization. He reported long range plans for large motors are nearing closure with completion of rewinding of motors for six of the eight reactor coolant pumps (RCP) with the final two pump motors to be rewound during 2019 during refueling outages for both units. The RCP motor rewinding schedule is on a twelve-year rotation with the first being done in 2014 so it should not be necessary to commence another cycle prior to the plant’s anticipated closure by 2025. Mr. McWhorter reported there is a single spare component cooling water pump motor which can be adapted for use on either unit and there are spare motors for the Containment Fan Cooler Units (CFCU)
on hand and the in-service CFCU motors can be refurbished if required. Mr. McWhorter reported the replacement or refurbishing of large motors is considered and categorized as a capital rather than a preventive maintenance expense and, with the plant scheduled to close, plans to purchase new large motors have been curtailed. Overall, the Large Motor Program is in White status due to issues with motor bearings on Auxiliary Saltwater Pump 2-1 due to an installation issue and a high bearing temperature on Condensate Booster Pump 2-1. Dr. Lam remarked that assuming system degradation is linear and is constantly monitored, truncating replacement or future maintenance of large motors should not impact system reliability and the DCISC representatives found the Large Motor Program to be acceptable.

- NRC Triennial Fire Protection Inspection Results - Mr. McWhorter reported this was a very extensive inspection with five inspectors reviewing 200 documents over a three-week period. The inspection focused on six areas, all electrical in nature and selected based on risk perspective, including the Unit 1 Cable Spreading Room, Unit 2 Solid State Protection Room, Unit 1 12kV Switchgear Room and all Unit 2 4kV Switchgear Rooms. Overall, Mr. McWhorter reported there were only two minor violations both of which related to documentation and design change packages. Dr. Lam observed the Committee has received numerous concerns from the public on the state of fire protection at DCPP and he remarked the plant’s transition from Appendix R regulations to National Fire Protection Association 805 (NFPA 805) regulations has provided improved protection relative to the approach employed by the regulatory scheme which recognizes that not every fire barrier is of equal importance but rather fire barrier importance is dependent upon combustible inventory, the proximity of safety equipment and the potential for fire propagation. Mr. McWhorter reported the Fire PRA was modified to align fully with the modifications made to the plant to support the transition to NFPA 805 regulations and, as the risk numbers fell within the acceptance criteria it was not necessary to submit the Fire PRA to the NRC for further review.

- Refueling Outage 1R21 Safety Plan and Safety
Schedule - The Safety Plan highlights areas of potential risk in the outage schedule and provides an evaluation of each of the different conditions during the outage where safety functions need to be maintained. Checklists are completed regularly to assure the assumptions for abnormal procedures for core cooling can be maintained and enough equipment and power is on hand and available to remain in service during an outage to cool the core. A risk management program, known as Phoenix utilizes a deterministic approach to assess outage safety, the outage schedule, and to monitor out of service equipment and ensure defense in depth is maintained at N+1 (N being the number of pieces of equipment required and +1 being one redundant piece of equipment to maintain safety function). Phoenix assess colors for windows within the outage schedule, with Green being greater than N+1, Yellow being N+1, Orange being N and Red being less than N. Red and Orange are considered unacceptable and during 1R21 there were three Yellow windows. Mr. McWhorter reported the Safety Plan appeared comprehensive and effective in precluding unacceptable safety standards during outage 1R21.

- Observe Corrective Action Review Board (CARB) - the CARB meets regularly to review and manage the Corrective Action Program and review documents including root cause evaluations, extent of condition evaluations and Notifications, the document which enters an issue into the Corrective Action Program, that have been screened by the Notification Review Team. Mr. McWhorter reported the CARB reviewed in detail a corrective evaluation review for a records management system trend including why prior corrective actions were not effective. Mr. McWhorter reported the DCISC fact-finding team concluded the CARB review was thorough and effective and the action taken to continue the corrective evaluation review of the records management system issue to be appropriate.

- Quality Verification 2018 Audits and 2019 Audit Plan - the DCISC representatives reviewed the 2019 Audit Plan which includes a total of 14 audits. The Fact-finding team reviewed audits for Cyber Security and Maintenance. Cyber Security had two minor findings from the audit related to implementation of this new
program not having been fully carried out and for Maintenance several findings were identified, including issues with scaffolding and records management and the two audits resulted in 24 Notifications which Mr. McWhorter stated was a typical number for the audits. The DCISC team concluded the Quality Assurance Audit Program appeared to be effectively managed.

- Health of Emergency Diesel Generators (EDG) - Mr. McWhorter reported Unit 1's EDGs are rated in Green status with several actions completed including addressing the effect of high winds on EDG cooling, oil leakage of cylinder head pushrod grommets and the fuel oil day tank level switches and fuel oil transfer pump level switches. For Unit 1 EDGs the only remaining issue is to replace their analog governors with digital control governors. For Unit 2 the EDGs are rated in White status with the same issues discussed relative to Unit 1 having been addressed and the resolution of issues with the fuel booster pump for EDG 2-3 and start timers having been resolved. The replacement of the analog governors and the fact Unit 2 is not as far along in dealing with the level switch problem is responsible for its White status designation. Mr. McWhorter reported eight items remain to be completed from the EDG Reliability Improvement Plan and the plan will remain open until three cycles of data are available to show the performance of the EDGs has improved. EDG start reliability was described as excellent and is measured by start failures every 20, 50 and 100 starts and all were zero for both Units with the exception of EDG 1-1 which had two start failures in the last 100 starts with the last having occurred in September 2015. EDG availability has been improved by a reduction in the duration of maintenance windows. Mr. McWhorter reported the DCISC representatives toured EDG 1-2 as well as the silencer room above the EDGs and he displayed a photo taken during the tour. The DCISC fact-finding team concluded DCPP has resolved nearly all the significant issues with the EDGs.

- Licensed Operator Staffing Update - Mr. McWhorter reported NRC minimum staffing requirements are two senior reactor operators and three reactor operators per shift, combined for both Units. The driving force for DCPP staffing requirements stems from procedures
required to implement the Emergency Plan and for both DCPP Units a total of four senior reactor operators and five reactor operators, as well as 16 other non-licensed persons are required for each shift. In addition at DCPP there is usually one additional senior reactor operator on each shift. To maintain an adequate number of licensed operators DCPP is training new operators and has additional licensed operators, outside of those assigned to shifts, available if needed. One training class will finish in 2019, another in 2020 and a third class for eight senior reactor operators and 26 reactor operators will commence in 2019 and finish two years later. Mr. McWhorter reported this will likely be the final class for licensed operator training at DCPP but this is dependent upon the operators’ response to the second tranche of the Employee Retention Program. The DCISC representatives found staffing plans to be adequate and the number of licensed operators appears to be adequate through cessation of operations in 2025. Dr. Lam stated credit is due to DCPP for imposing almost double the NRC requirements for minimum staffing. Mr. McWhorter stated exceeding NRC minimum staffing requirements is typical in the industry but DCPP’s requirements are likely somewhat greater than average.

- Cause and Corrective Actions for Unit 2 Trip - Mr. McWhorter reported Unit 2 was tripped on December 1, 2018 due to a generator load rejection caused by an opening of the generator output breaker triggered by the Special Protection System (SPS) located in the 500kV Switchyard. At the time of the trip Unit 1 was operating at 50% power and Unit 2 at 100% power. Unit 2 tripped as designed and the operators performed as expected. The root cause evaluation was not complete at the time of the fact-finding and will be reviewed by the DCISC at a fact-finding in March 2019. Mr. McWhorter reported the SPS was installed in 2006 to protect against grid instability with the concurrence of the Western Electric Coordinating Council (WEC) which concluded that if both DCPP reactors tripped at the same time, this could result in grid instability and cause the loss of the WEC’s Western Interconnect. Specifically, the SPS was intended to protect the plant from the situation of having two of three 500kV transmission lines out of service and all the plant’s output going out on one transmission line and both
units then tripping and causing resulting grid instability. For the Unit 2 trip, the SPS sensed the current on two of the three 500kV lines was less than 200 amps and this triggered the actuation of the system. Mr. McWhorter reported DCPP is assessing using breaker indications on the lines as a substitute for line current in the future. He reported the SPS has been in service since 2006 and this is the first time it has triggered a unit trip, which he remarked is indicative of changes in the energy market that affect flow of power on the grid. Pending completion of the root cause evaluation, a control system has been set up to provide an alarm to alert the operators in the Control Room should conditions on the grid again approach actuation of the SPS in order that they have the opportunity to take action if necessary to avert a trip. The DCISC fact-finding team judged that the initial corrective actions to return Unit 2 to service were appropriately managed.

- Meet with DCPP Officer - Dr. Lam met with CNO Mr. Jim Welsch to discuss items reviewed during the fact-finding and other issues of mutual interest.

On a motion by Dr. Peterson, seconded by Dr. Lam, the January 23-24, 2019 Fact Finding Report was unanimously accepted and its transmittal to PG&E was authorized.

**XXVII Adjourn Morning Meeting**

The Chair adjourned the February 28, 2019 morning meeting of the Committee at 11:45 A.M.

**XXVIII Reconvene for Afternoon Meeting**

Dr. Budnitz convened the afternoon meeting of the DCISC at 1:00 p.m.

**XXIX Committee Member Comments**

There were no comments by the Members at this time.

**XXX Public Comments and Communications**

Dr. Budnitz invited any members of the public to address remarks on any item not of the Committee’s agenda. There
was no response to this invitation.

XXXI Information Items Before the Committee (Cont’d)

Dr. Budnitz asked Mr. Baldwin to continue with the informational presentations requested by the Committee for this meeting. Mr. Baldwin then introduced Mr. Shane Guess, a principal in charge of workforce planning and strategy at DCPP. Mr. Baldwin reported Mr. Guess holds a Senior Reactor Operator License and a Bachelor of Science Degree in Nuclear Engineering and has 16 years’ experience in the nuclear industry including roles in Operations, Engineering, Training and Business Operations. Mr. Baldwin then asked Mr. Guess to make the final informational presentation to the Committee for this public meeting.

Results of the 2018 Operating Plan and Key Elements of the 2019 Operating Plan.

Mr. Guess began his presentation by referring to a slide showing what he termed Line-of-Sight to Generating Excellence which he described as a roadmap for employees showing how their work connects to the company’s goals. He identified six focus areas for the 2018 Operating Plan as consisting of: safety; people; reliability; affordability; risk, compliance and ethics; and regulatory and external strategy. Mr. Guess reported during 2018 DCPP experienced successes including the 2R20 refueling outage which was the best in DCPP history for safety, human performance, and dose, the chartering of the Nuclear People Committee to ensure a proficient, knowledgeable, engaged workforce is available to the end of the plant’s operational lifetime. Several successful NRC inspections took place in 2018 including Problem Identification and Resolution, Component Design Basis, and the Triennial Fire Protection inspections. A Mid-Cycle Self-Assessment was conducted between INPO evaluations which determined all areas identified for improvement have discrete action plans in place. DCPP also submitted a License Amendment Request for a 90-minute response time for the Emergency Response Organization which Mr. Guess stated will allow the plant to add personnel to that organization.

Mr. Guess reviewed plant performance relative to the metrics established for the 2018 Operating Plan. The safety
and reliability indicator goal was 95 and that goal was met, which Mr. Guess observed was the highest possible score achievable for 2018. The goal for online reliability loss factor was 0.24% and performance was 0.42% due to reduction in power on Unit 1 to address vibration with main feedpump 1-1. The goal for collective radiation exposure was set at 43.46 Rem and actual was 38.58 Rem. The goal for preventable motor vehicle accidents was ≤1 and there were three accidents during 2018. The goal to have no significant regulatory findings was met and DCPP remained in Column 1 of the NRC’s Reactor Oversight Process. In response to Dr. Peterson’s inquiry, Mr. Guess and Mr. Garcia replied that PG&E’s Nuclear Generation organization does not require the level of motor vehicle use as compared to other PG&E business lines and Nuclear Generations incidence of preventable motor vehicle accidents is holistically lower than the company’s other lines of business. Mr. Guess reported there were three lost work days due to injury in 2018.

Mr. Guess discussed the key elements of the 2019 Operating Plan which he stated is focusing on safe and reliable operation through 2025. Mr. Guess reviewed significant events scheduled during 2019 as including two refueling outages with 2R21 being a very extensive outage, a WANO evaluation, the third year of the Tier 1 (tranche one) Employee Retention Program and extension of Tier 2 (tranche two) of that Program, and an NRC Security Inspection with a force-on-force drill. He discussed and described the 2019 focus areas as follows:

- **Safety** - encouraging employees to speak up with any issues they may see as unsafe and for leadership to listen and take appropriate followup action. Emphasis will continue on aligning behaviors to standards.

- **People** - providing support for the Nuclear People Committee to ensure an adequate workforce remains in place and good models exist for succession planning, leadership development, and knowledge transfer and retention.

- **Reliability** - working as a team to ensure safe and reliable operations and taking immediate and proactive measures to address any sign of a decline or degradation of equipment performance. DCPP will leverage operating experience and continue industry
benchmarking activities. Use of human performance tools will be emphasized including situational awareness.

- **Affordability** - operating the station in a manner that is consistent with the affordability expectations of PG&E customers without compromising safety. Efforts will continue in the effort to implement the NEI’s bulletins regarding Delivering the Nuclear Promise, to continue the Continuous Improvement initiative, and to achieve greater efficiency in maintenance processes and more autonomy for the Maintenance organization.

- **Risk, Compliance, & Ethics** - ensuring a compliance program mitigates risk and results in zero significant findings or violations. Leverage both quantitative and qualitative risk assessment tools when possible and remain in Column 1 of the NRC’s Reactor Oversight Process and drive ethical and compliant behaviors. In response to a comment from Dr. Peterson, Mr. Guess confirmed that DCPP resources including personnel and processes, the Corrective Action Program and risk assessment tools have been shared within other PG&E organizations outside of Nuclear Generation in the effort to address problems and issues elsewhere within the company.

- **Regulatory & External Strategy** - leveraging external stakeholder input including from the DCISC, the NSOC, and the NRC to improve performance and achieve successful results from NRC inspections.

Mr. Guess returned to the Line-of-Sight to Generating Excellence slide describing PG&E’s mission, vision and focus areas. He stated DCPP’s focus is intended to integrate the culture with the action expected of all employees and ensure accountability in all the work done while encouraging an open culture which encourages dialogue and focuses on performance generating excellence. Mr. Guess stated that every decision is intended to be in support of an operational focus to operate DCPP safely and reliably while remaining cognizant of opportunities to improve and be more efficient in reducing cost. In response to Dr. Lam’s inquiry concerning competing interests in protecting safety and ensuring affordability, Mr. Guess provided the Preventive Maintenance Optimization Program as an example which focuses upon maintaining equipment at the correct maintenance frequency and not performing unnecessary
work. This has resulted in a reduction of the frequency of maintenance for some equipment and a corresponding savings which in certain cases has enhanced safety by reducing the risk which is always inherent in performing maintenance activities. Mr. Garcia stated safety is never compromised and any aspect of safety of operations is not used by DCPP in assessing improvement to affordability.

Dr. Budnitz observed that technological advances have enabled some activities to be done better at less cost with less intrusive methods. Dr. Peterson observed there is always a possibility that affordability could come at the cost of safety and it will require the DCISC’s review to ensure this is not the case and there may be instances where the DCISC disagrees with DCPP. Mr. Baldwin remarked that changes made to reduce operating costs are subject to senior leadership review and assessed by a Site Affordability Committee and by the PG&E Corporation and it is routine that challenges are raised as to any unintended consequences. Mr. Baldwin reported monitors and metrics are in place to monitor plant performance and ensure any incipient decline in performance is identified and corrected. Mr. Baldwin reported DCPP has also sought to achieve savings in third party expenditures to contractors through competitive bidding given the limited number of refueling outages remaining until the plant is expected to close. Future planned refueling outage dates have also been revised to reduce the need to purchase additional nuclear fuel. Dr. Peterson remarked, while he is generally satisfied that DCPP’s decisions have been consistent with safety, opportunities may be missed for additional investment that could enhance safety such as new methods for monitoring health of equipment and for the use of wireless technologies. He observed there is a set of substantially improved tools that is not being utilized at DCPP due to their relatively new technology. Mr. Guess replied that DCPP has recently adopted the use of new software to allow real-time reports on radiation dose during an outage. Dr. Peterson suggested the DCISC should continue to review not just where there have been reductions in the scope of activities but also where new capacities are being realized to enhance safety and ensure there is continued investment in new technologies. He noted that many DCPP employees will seek future employment elsewhere within PG&E and such investments would be proactive and enhance the professional development of
those individuals by providing them with new skill sets.

Ms. Sherry Lewis, representing Mothers for Peace was recognized. Ms. Lewis stated she takes issue with the statement that safety will always win out over costs. In reference to Dr. Budnitz’ request that Ms. Lewis provide an example illustrating her statement, Dr. Budnitz referred Ms. Lewis to the DCISC’s Open Items List which tracks the items the Committee reviews on a regular basis and he remarked the DCISC representatives are constantly on alert for the issue of safety versus affordability and the possibility that as the plant nears the end of its operational life safety could be compromised heightens the Committee’s awareness of the issue. Dr. Budnitz stated during his service on the DCISC he cannot recall an instance where DCPP was found to be cutting corners on cost at the expense of safety but he observed that since the announcement of the plan to shutdown DCPP even more diligence in this regard will be required by the Committee in the future. Ms. Lewis stated that PG&E’s plan to delay off-loading spent fuel from the spent fuel pools to dry cask storage may represent an area of cost savings prevailing over safety. Dr. Budnitz responded that this was a valid comment and the Committee is planning to review PG&E’s plans for spent fuel storage but at this point in time the plan described by Ms. Lewis has had no effect on safety.

Dr. Budnitz thanked Mr. Guess for an excellent presentation and reported that at the Committee’s request Mr. Guess reduced the planned length of his presentation to accommodate the Committee’s discussion of the following item.

XXII Informational Discussion by Committee Members, Consultants and Counsel

The Chair presented the background for this item and reported that during the last two public meetings the DCISC received comments from members of the public concerning the possibility that the DCISC’s mandate to review operations at DCPP might be extended beyond the date when the second reactor ceases making electricity and the plant shuts down. Dr. Budnitz observed there are safety risks after a nuclear power plant shuts down and the DCISC’s Restated Charter from the CPUC is ambiguous as to what activities under the Restated Charter constitute
operations. He remarked that in accordance with California’s Bagley Keene Open Meeting Act the Committee Members can only discuss this issue at a noticed public meeting.

Dr. Budnitz observed the Committee’s initial inclination was to seek clarification informally from CPUC staff on this matter but it has now been determined upon the advice of Counsel that the issue will require formal clarification from the CPUC. Dr. Budnitz observed there are several possibilities for a post-shutdown role for the DCISC and the Committee’s Technical Consultants and Assistant Legal Counsel developed for review at the October 2018 public meeting a Post-Shutdown Summary as a draft for discussion purposes and the Committee has made that document available on its website. The options identified in that Summary vary over time in accordance with differences in risk. Dr. Budnitz emphasized that, to date, there has been no decision taken by the Members concerning this issue. He reported Assistant Legal Counsel Rathie has spoken with CPUC staff and the Committee has been asked to commence a dialogue with the CPUC Energy Division staff that will allow this issue to be addressed in a timely way because, although the plant is scheduled to cease generating electricity by 2025 the possibility exists that it could close sooner. Dr. Budnitz remarked the Committee has discussed whether the dialogue with the CPUC should include a recommendation by the DCISC as to a continuing role but this is still an open question. The Committee has also discussed the possibility of hiring a consultant on an ad hoc basis to assist and advise it concerning a post-shutdown role but that matter has been put on hold pending clarification of issues pertaining to the Restated Charter. Dr. Budnitz reported the Committee to date has spent minimal time and resources exploring this matter but the issue has been discussed during fact-finding with DCPP personnel.

Dr. Budnitz stated the period of time shortly after a nuclear power plant ceases generating electricity and the fuel is still in the reactor vessel, and then later after the fuel is moved to a spent fuel pool, are a high risk periods. These risks extend throughout the first years when the fuel remains fresh and therefore dangerous but as time passes the danger diminishes and conditions eventually permit the fuel to be transferred from a spent fuel pool to dry cask storage where it is safer. Therefore, Dr. Budnitz expressed his view that following shutdown there is a significant danger to the
public of a large release of radiation but after the passage of time the danger of a release diminishes even if the spent fuel pool were to lose water inventory. He remarked that were the Committee to continue in existence after DCPP ceases generating electricity, initially its role might not be very different from the role it fulfills today but he commented that decommissioning activities are separate from activities in furtherance of spent fuel management. The principal risk from decommissioning a power plant and subsequently demolishing or re-purposing its systems, structures and components lies in the realm of industrial safety. Dr. Budnitz noted that the risk of an offsite hazard to the public during that decommissioning activity is very minimal and, in Dr. Budnitz view, that issue and the industrial aspects of decommissioning would not warrant a safety committee such as the DCISC. Dr. Budnitz stated it was his view the scope of the DCISC’s review could sensibly be extended to include oversight and review of the handling of spent fuel during its hazardous period but would not extend to the period after the fuel is in dry cask storage nor to the occupational hazards of decommissioning activities. Dr. Budnitz suggested a letter be written on behalf of the Committee to the CPUC and to the entities and officials that appoint the members of the DCISC explaining the issue and making a recommendation or, in lieu of proposing a recommendation asking the recipients of the DCISC’s letter to develop a recommendation.

Dr. Lam commented he was initially disinclined for the DCISC to initiate a dialogue with the CPUC concerning a revision of its Restated Charter as he felt that in doing so the Committee would appear to be acting in a self-promoting manner. Dr. Lam stated that within the context of Dr. Budnitz’ remarks, he would not object to the initiation of a discussion on the basis described by Dr. Budnitz but it is really for the CPUC and the DCISC’s appointing authorities do decide on the viability of a post-shutdown role.

Dr. Peterson observed that the Diablo Canyon Decommissioning Engagement Panel (DC DEP), formed by PG&E, has expressed interest in having the DCISC remain as a technical resource. Dr. Peterson added that he did not believe the CPUC in creating the DCISC considered the definition of the term “operation” to be identical to that used by the NRC and likely considered that cessation of
operation occurs when the electricity stops being made although many other activities resembling operation continue, particularly around the handling of spent fuel and in connection with the spent fuel pools. **Dr. Peterson stated the DCISC definitely needs to advise the CPUC that the Restated Charter requires clarification as to any role for the DCISC after electricity generation ceases.** Dr. Peterson stated he shared Dr. Lam’s concern that the information the DCISC might provide to the CPUC could be weakened if it were proposed in the form of a recommendation regarding a future role and he stated at this time he favors providing information to support a decision. Dr. Peterson stated and Dr. Budnitz agreed that while generation continues along with planning for decommissioning, the DCISC has legitimate reason, without a change to the Restated Charter, to continue its oversight of aspects of decommissioning that could impact current operational safety and this is akin to the Committee’s oversight of security at DCPP. Dr. Peterson observed that when both reactors have ceased electricity generation operation there is a very rapid and significant change in the nature of operation of the plant. When the fuel is off-loaded to the spent fuel pools, within about 18 months thereafter the decay heat rates for the fuel assemblies drop below the threshold where the assemblies present any substantive concern even in wet storage because heat removal, even with high density racking, is sufficient to manage a wide range of contingencies. In the interim period, Dr. Peterson stated he could foresee a continuing role for the Committee but once that phase has passed, the scope of review work would drop off precipitously. Dr. Peterson observed that because California is within the top decile in the U.S. in terms of the cost of electricity, the continuance of the Committee needs to also be viewed through the perspective of PG&E’s ratepayers and he opined that a budget for the DCISC for its technical review, post-shutdown work, could be significantly less than it is currently. He recognized that a post-shutdown role might encompass reorganization in terms of public meetings, fact-findings, etc., but he suggested retention of the Committee’s ability to receive and respond to public input and questions should remain a valuable aspect of any post-shutdown role. **Dr. Peterson concluded that the DCISC should now explore ways to ask the CPUC to review its Charter and consider clarifying a role after cessation of electricity generation role based on the hazards, the options,**
and the resulting changes to the Committee’s operations without the Committee necessarily expressing a preference.

Assistant Legal Counsel Rathie reported that in his discussions with the CPUC Energy Division staff a proposed road forward on the issue of a post-shutdown role for the Committee included the Committee filing a formal Application with the CPUC for a second restatement of its Charter and that this process would require a public process affording an opportunity for a dialogue to all stakeholders and interested persons. Mr. Rathie stated this would also require consultation with the entities who appoint the members of the DCISC and the then Chair of the California Energy Commission, Dr. Robert Weisenmiller, has provided a letter in support of a post-shutdown role for the DCISC. In response to Dr. Budnitz’ query concerning the efficacy of a letter from the Committee, Mr. Rathie replied that while that option remains open to the Committee it is his understanding the CPUC Energy Division staff are looking to open a dialogue on the Committee regarding filing of an Application as the venue for the CPUC to address the issues under discussion. He reported an Application would take a minimum of eight months and possible more than one year to process depending on whether the DCISC’s Application was opposed or challenged on an evidentiary basis and a scoping memo and a pre-hearing conference would be part of that process. Mr. Rathie suggested the Committee Members consider delegating to the Office of the DCISC Legal Counsel and the DCISC Chair the ability to engage in the process he described. Dr. Budnitz confirmed that part of the dialogue with the CPUC would be the identification and discussion of options which could include the DCISC terminating its review activities upon cessation of electricity generation, extending its review function for a limited time, or for a longer period with a clarified scope. Dr. Budnitz observed that with a clarified scope it would be useful to address the relationship, if any, between the DCISC and the DC DEP.

Dr. Lam reported that the Committee and the CPUC have both received letters from a member of the public demanding that the DCISC cease its activities in connection with decommissioning and that the Office of the DCISC Counsel, specifically Mr. Rathie, expressed a different interpretation of NRC regulations concerning when
decommissioning begins based upon the NRC’s requirement that decommissioning must be completed within 60 years. Therefore, Dr. Lam stated there may be an overlap between operations and decommissioning and, if so, the Committee’s present Restated Charter can be understood to extend to decommissioning activities. Dr. Lam stated that as the spent fuel pool is licensed under 10 CFR Part 50, under that license regime the present Restated Charter for the Committee’s review of operations would continue while the spent fuel pools are in operation. Dr. Lam stated he concurred with Mr. Rathie’s suggestion as to delegation of this matter.

In response to Dr. Budnitz’ inquiry concerning the need for clarification of the relationship between the DCISC and the DC DEP, Mr. Rathie responded PG&E’s 2020 General Rate Case and the Nuclear Decommissioning Cost Triennial Proceedings (NDCTP) now before the CPUC are very large and lengthy proceedings and as the NDCTP addresses funding for the DC DEP there may be a request from the CPUC in that proceeding for input or information from the DCISC on issues concerning the DC DEP and the Committee may want to consider how best to provide that input.

Dr. Budnitz reported that the DCISC has received requests from the DC DEP for a representative to attend two meetings of the DC DEP. The DC DEP is holding a meeting on March 13, 2019, to discuss issues related to the safe storage of spent fuel and Drs. Peterson and Lam concurred that having a representative of the DCISC attend and make a presentation would be within the scope of the DCISC’s mandate under its present Restated Charter and Dr. Budnitz was designated to represent the DCISC at the March 13, 2019 meeting of the DC DEP. During that meeting Dr. Budnitz will express his personal views on issues within the purview of the DCISC. An invitation from the DC DEP is pending for a DCISC representative to attend a meeting of the DC DEP on June 12, 2019 [to discuss the DC DEP’s role, function and structure].

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson stated his group has not given up on its goal of keeping the plant running safely beyond 2025 and he commended to the Committee the excellent graphics presented by Mr. Ginn at the meeting the previous evening which Dr. Nelson stated illustrate safety as a
function of time.

Dr. Lauren Brown, the designated liaison of the DC DEP to the DCISC, was recognized. Dr. Brown read from the DC DEP Vision Statement which included a recommendation to the CPUC that the CPUC consider extending the existence of the DCISC beyond conclusion of power generation at DCPP so that its independence, technical and safety expertise may continue to be available to the DC DEP and to the local communities in San Luis Obispo County during the decades of decommissioning. Dr. Brown stated it was important to note that one person on the DC DEP dissented from that recommendation and from the invitation extended to the DCISC to attend and provide information to the DC DEP at its meeting on March 13, 2019. Dr. Budnitz confirmed that he would represent the DCISC and attend and make a presentation at the March 13th meeting of the DC DEP and the DCISC is eager to continue to provide what support it can to the DC DEP. In response to Dr. Brown’s inquiry concerning the public process to engage the community, Dr. Budnitz and Mr. Rathie confirmed that opportunities would be afforded for all interested parties, including PG&E, to provide input and the draft Post Shutdown Summary has been made available at www.dcisc.org.

Mr. Greg Haas, District Representative the Honorable Congressman Salad Carbajal was recognized. Mr. Haas stated in January 2019, the Nuclear Energy Innovation and Modernization Act was passed by Congress to require the NRC to establish metrics and milestones for licensing and other regulatory actions and Mr. Haas stated Congressman Carbajal would welcome the DCISC’s input, as one of the requirements of the Act is for the NRC to hold public meetings and Congressman Carbajal has requested that a meeting be held in the San Luis Obispo area which may also include information concerning the San Onofre Nuclear Generating Station. Dr. Budnitz commented that if as a result of the Act the NRC proposes to issue new regulations or guidance, that will necessarily involve a public process. Mr. Haas replied that as the only independent nuclear safety committee in the nation this provides a great opportunity for the DCISC to provide its input and Congressman Carbajal hopes that the DCISC’s perspective will be part of the input received by the NRC.

Dr. Nancy O’Malley, a community member and a member of
the DC DEP, was recognized. Dr. O’Malley thanked Dr. Budnitz for his agreement to attend the next meeting of the DC DEP and she stated she agreed with a statement made earlier that things are being done now to place the plant in a position ready for decommissioning. She stated that the community is very concerned about a potential buildup of spent fuel in the DCPP spent fuel pools and about whether a new dry cask storage system will be acquired for DCPP. Dr. Budnitz replied that the proposal for spent fuel storage and a schedule for its transfer from the spent fuel pools made recently by PG&E in the NDCTP has not yet been reviewed by the DCISC. Dr. Budnitz stated that plan differs from PG&E’s earlier proposals for spent fuel management and the DCISC has not yet had the opportunity to review it in detail. The DCISC will review the safety implications of the plan proposed by PG&E in the NDCTP during a fact-finding scheduled for March 2019. Dr. Lam commented that during his service as an NRC Administrative Judge he approved the license for the ISFSI at DCPP and he characterized PG&E’s plan as proposed in the NDCTP as making the critical assumption that PG&E can procure a license for new casks with enhanced heat removal capability within a two to three year period, which Dr. Lam described as exceptionally optimistic.

Technical Consultant Wardell remarked that he believed that if the Committee were to continue after cessation of electricity generation operations, the scope of its review should be limited to review of the safety of spent fuel operations and spent fuel storage and not include the decommissioning process itself. Mr. Wardell stated he supported the DCISC engaging with the DC DEP and he believed that a proposal should be made to the CPUC concerning a post-shutdown role for the Committee rather than waiting for direction from the CPUC. Mr. Wardell stated he agreed with Dr. Nelson that Mr. Ginn’s PowerPoint was useful to explain the risks of various stages of DCPP’s transition to and subsequently into shut down status.

On a motion made by Dr. Peterson, seconded by Dr. Lam, and in response to Mr. Rathie’s suggestion, the Committee unanimously agreed to delegate to the Office of the DCISC Legal Counsel, in conjunction with the Committee Chair or his designee, responsibility to commence coordination with the necessary parties in an Application proposal regarding a second restatement of the DCISC’s Charter; and to consult
with the CPUC on how best the DCISC can provide context and/or respond to the CPUC’s requests for information in this process.

**XXIII Concluding Remarks & Discussion by Committee Members of Future DCISC Activities**

The Chair reported the next public meeting of the DCISC will be held on Tuesday and Wednesday, June 4-5, 2019, at the Avila Lighthouse Suites Point San Luis Conference Facility in Avila Beach, California.

**XXVII Adjournment of Ninety-Second Public Meeting**

There being no further business, the ninety-second public meeting of the Diablo Canyon Independent Safety Committee was then closed by its Chair, Dr. Robert J. Budnitz, at 2:45 P.M.
Notice of Meeting

A legal notice of the plant tour and public meeting and several display advertisements were published in local newspapers and mailed to the media and those persons on the Committee's service list. Information on the public tour and a copy of the entire meeting agenda packet were also posted on the Committee's website at www.dcisc.org.

Agenda

I Call to Order - Roll Call

The June 4, 2019, public meeting of the Diablo Canyon Independent Safety Committee, the ninety-third meeting of the DCISC, was called to order by Committee Chair Dr. Robert J. Budnitz at 8:00 A.M. at the Point San Luis Conference Room at the Avila Lighthouse Suites in Avila Beach, California.

Present:

- Committee Member Robert J. Budnitz
- Committee Member Peter Lam
- Committee Member Per F. Peterson

Absent:

- None

II Introductions

Dr. Budnitz welcomed those present in the meeting room, introduced himself and
briefly reviewed the appointment to the DCISC by officials of the State of California and the professional backgrounds of each of his fellow Members, Dr. Per F. Peterson, the appointee of the Governor of California, and Dr. Peter Lam, the appointee of the Chair of the California Energy Commission (CEC). Dr. Budnitz serves on the Committee as the appointee of the California Attorney General. The Chair then introduced and briefly described the professional background of each the Committee’s Technical Consultants, Mr. R. Ferman Wardell, P.E. and Mr. Richard D. McWhorter Jr. and introduced Assistant Legal Counsel Robert W. Rathie. Dr. Budnitz then introduced and recognized DCPP Director of Nuclear Site Services Mr. Tom Baldwin and Chief Nuclear Officer Support Manager Mr. Hector Garcia present to act as meeting facilitators. Dr. Budnitz reported Mr. Garcia also ably serves as the principal liaison and point of contact for the Committee with PG&E and within the DCPP organization.

III Public Comments and Communications

The Chair reviewed the procedures and advice from the agenda for the meeting concerning receipt of comments from members of the public wishing to address remarks to the Committee on matters on and not on the agenda for a public meeting and invited anyone who wished to address remarks to the Committee Members concerning matters not on the agenda for this public meeting to do so now. There was no response to the Chair’s invitation.

IV Action Items

A. Update on Financial Matters and Committee Activities.

The Chair requested Assistant Legal Counsel Rathie to provide this report. Mr. Rathie reported the Committee has received two payments for calendar year 2019 provided by PG&E’s ratepayers in accordance with a California Public Utilities Commission (CPUC) decision and that continued funding for the DCISC’s operations has not been affected by the recent PG&E bankruptcy filing. Mr. Rathie stated that Senior Advising Nuclear Procurement Specialist at DCPP Mr. Brian DeCaires has provided valuable assistance to the Committee’s accountants and Legal Counsel’s office in securing uninterrupted funding for 2019. Mr. Rathie reported the Committee completed calendar year 2018 within the amount of funding provided for the Committee’s operations and following its normal practice any funds unspent at the end of 2018 should now be returned by the Committee to PG&E for credit to its ratepayers. He commented it appears that DCISC expenditures for 2019 may be somewhat greater than for 2018 but at this point in time it appears the Committee will also complete 2019 within the amount of its operational funding grant.

On a motion made by Dr. Budnitz, seconded by Dr. Peterson, the Committee unanimously approved return of unspent grant funds from its calendar year 2018 operations to PG&E for credit to its ratepayers.
Mr. Rathie directed the Members’ attention to the list of planned activities for the remainder of 2019 and for 2020 prepared by Mr. Wardell that was included in the agenda packet for the meeting.

**B. Discussion of Issues on Open Items List:**

Dr. Budnitz asked Consultant Wardell to lead a review of items on the Open Items List which Dr. Budnitz described as a very important tool used by the Committee to establish priorities and to track and follow issues, concerns, and information identified as requested or to be provided on a periodic basis and for subsequent action during fact-finding or public meetings. Items captured on the Open Items List which represent changes from the February 2019 version of the list were shown in bold red text on the version of the Open Items List provided with the agenda packet for this meeting. Items concerning which action was taken included the following: 

<table>
<thead>
<tr>
<th>Item</th>
<th>Re:</th>
<th>Action Taken/Next Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO-10</td>
<td>Mispositioning Errors</td>
<td>Next Action 12/19 FF</td>
</tr>
<tr>
<td>CO-11</td>
<td>Operator Concerns &amp; Issues</td>
<td>Next Action 12/19 FF</td>
</tr>
<tr>
<td>CM-13</td>
<td>Maint. Dept. Performance Measures</td>
<td>Next Action 12/19 FF</td>
</tr>
<tr>
<td>EN-20</td>
<td>Observe Plant Health Committee Mags.</td>
<td>Next Action 8/19 or 11/19 FF</td>
</tr>
<tr>
<td>EP-3</td>
<td>Emergency Preparedness During Decommission.</td>
<td>Next Action 7/19 or 8/19 FF</td>
</tr>
<tr>
<td>(Meet with new OES Manager)</td>
<td>Invite for 10/19 PM</td>
<td>PFP: clarify re post-cessation of Ops changing ERO response capabilities</td>
</tr>
<tr>
<td>RA-5</td>
<td>Non Seismic PRA Program</td>
<td>Next Action 9/19 FF</td>
</tr>
<tr>
<td>RA-6</td>
<td>Seismic Fragility Analysis</td>
<td>Next Action 2Q20 FF</td>
</tr>
<tr>
<td>NS-5</td>
<td>Monitor NSOC Mtgs.</td>
<td>Next Action 11/19 FF</td>
</tr>
<tr>
<td>NS-9</td>
<td>Monitor INPO AFIs</td>
<td>Next Action 11/19 FF</td>
</tr>
<tr>
<td>RP-3</td>
<td>Review Outage RP Performance</td>
<td>Next Action 12/19 FF</td>
</tr>
<tr>
<td>RP-12</td>
<td>Review Radioactivity Release Reports</td>
<td>Next Action 7/19 FF</td>
</tr>
<tr>
<td>NF-9</td>
<td>Nuclear Fuel</td>
<td>Next Action 12/19 FF</td>
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<tr>
<td>Performance</td>
<td>Next Action</td>
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<tr>
<td>SE-39 Concrete Intake Structures</td>
<td>12/19 FF</td>
<td></td>
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<tr>
<td>SE-42 Safety System Function Failure</td>
<td>2Q20 FF</td>
<td></td>
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<tr>
<td>SE-52 Fuel Handling Equipment</td>
<td>12/19 FF &amp; Close</td>
<td></td>
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<tr>
<td>SG-1 Steam Generators</td>
<td>12/19 FF</td>
<td></td>
</tr>
<tr>
<td>OM-3 Outage Coordination Center</td>
<td>11/19 FF</td>
<td></td>
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<tr>
<td>OM-4 Outage Safety Plan</td>
<td>9/19 FF</td>
<td></td>
</tr>
<tr>
<td>OM-5 Foreign Material Exclusion Training</td>
<td>7/19 FF</td>
<td></td>
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<tr>
<td>SF-1 ISFSI Operations</td>
<td>2Q20</td>
<td></td>
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<tr>
<td>SF-2 Cask/Poll Storage Relative Risk</td>
<td>2Q20</td>
<td></td>
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<tr>
<td>SF-3 Seismic Adequacy of ISFSI</td>
<td>2Q20</td>
<td></td>
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<tr>
<td>LD-3 Non Licensed Training Programs</td>
<td>7/19 FF</td>
<td></td>
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<tr>
<td>BDB-6 FLEX Status - Training &amp; Implementation</td>
<td>9/19 or 11/19 FF</td>
<td></td>
</tr>
<tr>
<td>2/16 PM-10 4kV Solid-state Relays</td>
<td>12/19 FF</td>
<td></td>
</tr>
<tr>
<td>10/18 PM-7 Employee Retention Program - Tranche 2</td>
<td>9/19 FF &amp; 10/19 PM</td>
<td></td>
</tr>
<tr>
<td>10/18 PM-8 Spent Fuel Movement Timing Study</td>
<td>Move to DEC-1</td>
<td></td>
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<tr>
<td>2/19 PM-1 RCP Turning Vanes Bolts</td>
<td>7/19 FF</td>
<td></td>
</tr>
<tr>
<td>2/19 PM-2 Expenditures re Fuel Removal Study Moved/Merged</td>
<td>Close</td>
<td></td>
</tr>
<tr>
<td>2/19 PM-3 Nos. of Assemblies in SFPs per B.5.b</td>
<td>8/19 FF</td>
<td></td>
</tr>
<tr>
<td>2/19 PM-4 Engineering Excellence Plan</td>
<td>Move to EN Category</td>
<td></td>
</tr>
<tr>
<td>2/19 PM-9 Meeting with County OES Manager</td>
<td>7/19 FF &amp; 10/19 PM</td>
<td></td>
</tr>
<tr>
<td>2/19 PM-11 Performance Indicators re Internally Initiated vs. Externally Initiated Scrams</td>
<td>Move to Grid Reliability &amp; Close</td>
<td></td>
</tr>
</tbody>
</table>
During review of the Open Items List Mr. Baldwin was recognized and reported in response to Item 2/19 PM-8 that the new DCPP Fire Station was seismically designed to the criteria required by the analyses of the Hosgri Fault, an offshore seismic fault zone, plus an additional 25% margin and he characterized the Fire Station as a very robust and substantial structure. Dr. Peterson observed during review of the Open Items List on his last visit to DCPP the Vehicle Inspection Station had been removed and the process used to inspect vehicles has been simplified and changed; however, access remains quick for firefighting equipment.

C. Nomination and Election of Chair and Vice Chair for the July 1, 2019 - June 30, 2020 Term.

On a motion made by Dr. Budnitz, seconded by Dr. Peterson, the Committee elected Dr. Lam to the position of DCISC Chair and, on a motion made by Dr. Budnitz, seconded by Dr. Lam, Dr. Peterson was elected to the position of DCISC Vice-Chair for respective terms of office from July 1, 2019 through June 30, 2020.

In response to an inquiry from Dr. Gene Nelson, a representative for Californians for Green Nuclear Power, Dr. Budnitz stated that the next appointment of a Committee member by the California Attorney General was pending and there were two other candidates, beside Dr. Budnitz, recommended as qualified following the CPUC nomination process and receipt of public comment. Therefore, it would be inappropriate for Dr. Budnitz to accept nomination for the position of DCISC Chair or Vice-Chair while this matter is pending before the Attorney General.

VI Committee Member Reports and Discussion

A. Public Outreach, Site Visits and Other Committee Activities:

Dr. Lam reported that with Consultant McWhorter and Mr. Rathie he conducted an open house event in Avila Beach, California on April 17, 2019 to receive comments and communications from the public concerning the possible revision of the
Committee’s Restated Charter to provide for a post-shutdown role for the Committee. The open house was attended by five members of the public including the facilitator and three members of the Diablo Canyon Decommissioning Engagement Panel (DCDEP) a community group formed by PG&E to foster an open and transparent dialogue between members of the local community and PG&E on topics regarding the decommissioning of DCPP. Mr. McWhorter remarked the open house provided a productive opportunity for the public to have at times an intense discussion with a member of the DCISC and to understand and assist in defining the future relationship between the DCISC and the DCDEP which remains an important issue for both bodies. Dr. Peterson agreed that these issues merit further discussion by the DCISC as part of the DCISC’s broader obligation to conduct public outreach in the local community. Dr. Peterson commented that, given the low public turnout he suggested that the Committee should defer conducting any more open houses on this topic.

Dr. Budnitz reported that in response to an invitation extended by the DCDEP he attended and made an informational presentation during the DCDEP’s regularly scheduled meeting held on March 13, 2019, in San Luis Obispo. His remarks concerned the role of the DCISC and issues regarding the management and storage of spent nuclear fuel. Dr. Budnitz stated he believed the meeting was an effective session and the meeting was well attended by the public. Dr. Budnitz further reported that on May 15, 2019 he participated in a telephone conversation with Mr. Greg Haas, District Representative for U.S. Representative Hon. Salud Carbajal, and Mr. Haas also attended the March 13, 2019 meeting of the DCDEP and was following up on some questions from the Congressman concerning the recent refueling outage and the interaction between the DCISC and the DCDEP including the matter of a possible continuing post-shutdown role for the DCISC. Finally, Dr. Budnitz reported that during the past week he received a telephone call from Deputy Attorney General Megan Hey inquiring about the DCISC’s current activities and future plans.

The Members turned to the matter of confirming and scheduling public meetings of the DCISC. Public meetings are now scheduled for October 23-24, 2019, February 12-13 and June 16-17, 2020 (subsequently, after this public meeting, the date was changed to June 24-25, 2020). The Members and Consultants then scheduled a future public meeting of the Committee for September 30-October 1, 2020. Due to a refueling outage scheduled for October 4 through November 13, 2019, the Committee determined not to conduct a tour with members of the public in conjunction with its October 2019 public meeting.

Fact-finding visits were confirmed and scheduled as follows:\footnote{2}

[2019] July 22-23 PFP/RDM; August 21-22 PL/RFW; September 11-12 RJB/RDM; November 6-7 RJB/RFW; December 10-11 PFP/RDM; and
The Members and Consultants observed that the fact-finding schedule is subject to change based on scheduled or emergent activities at DCPP and Mr. Garcia stated he would provide confirmation of the scheduled dates.

2 Abbreviations used: Robert J. Budnitz (RJB); Peter Lam (PL); Richard D. McWhorter (RDM); Per F. Peterson (PFP); R. Ferman Wardell (RFW).

B. Documents Provided to the Committee:

Mr. Rathie directed the Committee's attention to the list of documents received since its last public meeting in February 2019. A copy of the list was included with the public agenda packet for this meeting.

VI Information Items Before the Committee

The Chair requested Mr. Tom Baldwin, Director of Nuclear Site Services to introduce the first of the informational presentations requested by the Committee for this public meeting. Mr. Baldwin introduced DCPP Director of Nuclear Work Management Mr. Dennis Petersen. Mr. Baldwin reported Mr. Petersen is a licensed Senior Reactor Operator with more than 35 years’ experience at DCPP where he has held a number of leadership positions in the Operations, Quality Verification, Training, and Work Management organizations.

Performance During the 21st Refueling Outage for Unit 1 (1R21) Including Key Activities, Performance Indicators, Results Achieved, Fuel and Steam Generator Inspection Results, Unexpected Equipment Issues and Open Items.

Mr. Petersen stated refueling outage 1R21 commenced on February 10, 2019 at midnight and concluded on March 18, 2019 at 10:50 a.m. Mr. Petersen described the key activities during the outage including:

- Containment Integrated Leak Rate Test
- Residual Heat Removal line weld overlay
- Reactor Coolant Pump 1-1 rotor and stator replacement
- Reactor Coolant Pump 1-2 seal replacement
- Main Feedwater Pump 1-1 overhaul
- Main Feedwater Pump 1-2 turbine overhaul
- Service Cooling Water inlet piping liner installation
- 480V ventilation seismic gap modification
Concerning outage safety and defense-in-depth strategies Mr. Petersen reported defense-in-depth levels were maintained to ensure key safety functions were satisfied. High-risk and infrequently performed tests and evolutions included:

- Initial drain to lowered reactor coolant inventory for reactor disassembly and reassembly
- Refueling cavity drain to lowered reactor coolant inventory following core reload
- Vital bus transfer and integrated safeguards testing
- Initial criticality of the new reactor core
- Performance of heavy lifts over the reactor core
- Integrated Leak Rate Test

In response to Consultant Wardell’s inquiry Mr. Peterson reported the vital bus transfer and integrated safeguards testing as well as the initial drain down were reviewed prior to the outage in the Simulator Facility (a full-scale mock-up of the Unit 1 Control Room). In response to Consultant Wardell’s further inquiry Mr. Petersen reported that initial criticality is tested by the operating crew during normal training some weeks prior to an outage and he observed differences are very small in the reactor core from one refueling outage to the next.

Mr. Petersen reviewed performance metrics during 1R21 as follows:

<table>
<thead>
<tr>
<th>Performance Metric</th>
<th>Goal</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Near Hit events</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nuclear Safety Events</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Site Clock resets</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Outage duration (Days)</td>
<td>40</td>
<td>36.5</td>
</tr>
<tr>
<td>ALARA – (As Low As Reasonably Achievable (Person Rem))</td>
<td>27</td>
<td>30.2</td>
</tr>
<tr>
<td>Power Ascension (Days)</td>
<td>5</td>
<td>4.75</td>
</tr>
</tbody>
</table>

In response to inquiries from the Committee concerning DCPP not having met the ALARA goal Mr. Petersen reported the 30.2 person rem dose was accumulated through thousands of very low doses spread amongst perhaps five hundred to one thousand individuals working on the site during the outage. Dr. Budnitz observed that flying in an aircraft on a round trip across the country a person accumulates about a 5 millirem dose and Dr. Peterson observed that aviation workers are not monitored in the way workers at a nuclear power plant are monitored. Dr. Budnitz observed that on his visits to the plant he has observed that great care is taken when personnel are required to enter radiologically controlled areas. Mr. Petersen
reported that some of the total dose was accumulated due to emergent work performed during 1R21. In response to Consultant Wardell’s inquiry Mr. Petersen stated he would need to check and report back as to the highest dose received by any individual and the spectra of the dose received by workers during 1R21.

Dr. Peterson remarked the metric for achieving 30 days of post outage online operation is no longer as relevant as it once was due in part to the use of digital feedwater control. Mr. Petersen reported Unit 1 has been reliably at full power following the end of 1R21. Dr. Peterson stated that the topic of the types of tasks that generate the highest dose would be an appropriate topic for the DCISC during a future fact-finding. Mr. Peterson observed those activities would likely include reactor disassembly and reassembly, fuel handling, work on reactor coolant pumps and some corrective maintenance tasks such as leak repair and boric acid cleanup and valve maintenance. Mr. Petersen, in response to Dr. Budnitz’ inquiry, reported that power ascension following 1R21 was somewhat faster than expected due to time intentionally allowed in the schedule for emergent scope work for saltwater leakage in the condensers and during 1R21 there was no significant scope expansion or emergent work due to condenser leakage.

Mr. Petersen reviewed the results achieved during 1R21 as follows:

- Integrated Leak Rate Test (ILRT)
- Residual Heat Removal (RHR) suction line Structural Weld Overlay
- Zero significant Human Performance Events
- Improved Outage Scope Review Team
- Line ownership of ALARA continues to be a strength
- Safely completed emergent scope on Main Feedwater Pump 1-1

In response to Consultant McWhorter’s inquiry concerning when a foreign material exclusion (FME) issue becomes a human performance issue Mr. Petersen reported that not all FME events are human performance-related but he remarked he would have to review plant procedures to provide a response to Mr. McWhorter’s query; however, he remarked that human-related FME events are very rare and the Station-level threshold for same is quite high and generally involves significant damage. Mr. Petersen confirmed that the work on the reactor coolant pump (RCP) seals was planned during 1R21 and was not therefore considered emergent work or work performed as part of a preventive maintenance interval. In response to Dr. Peterson’s inquiry as to whether Reactor Coolant Pump (RCP) seal maintenance is included on the outage critical path Mr. Petersen stated the work was not on the critical path. In response to Consultant McWhorter’s query Mr. Petersen reported Department-level events during refueling outages have been declining in number and DCPP uses the same threshold for...
such events as other nuclear power plants. Department-level events during 1R21 were on par with past outages with approximately two such events per outage.

Mr. Petersen reviewed fuel and steam generator inspection results as follows:

- No fuel defects
- No significant fuel findings
- No Steam Generator inspections were scheduled, nor were they required

Mr. Petersen reported that during 1R21 DCPP brought in 959 temporary workers to assist in outage related work activities. He then identified follow-up items from 1R21 as including:

- Fuel handling equipment reliability
- Timely and accurate schedule updates
- Translating procedures into schedule logic
- Injury prevention

Concerning the item on translating procedures into schedule logic, Mr. Petersen reported this item stems from a difference of opinion during 1R21 between the Outage and Operations Departments as to performing activities on the outage schedule in parallel or in sequence. Mr. Petersen commented that operators in the Control Room remain in command of the unit and have the absolute discretion concerning such matters. He stated that Operations has lost some veteran operators and operator experience levels are somewhat less than in past years and this lower comfort level, together with some concern about the RCP seals was part of the reason for the issue with procedure scheduling. Mr. Petersen reported all of the above items are documented using SAP software to track corrective actions within the Corrective Action Program.

Dr. Gene Nelson of the group Californians for Green Nuclear Power was recognized. Dr. Nelson contrasted the experience of DCPP’s replacement of its steam generators with that of the San Onofre Nuclear Generating Station (SONGS) in southern California in replacing the SONGS’ steam generators. He remarked the DCPP replacement steam generators used materials containing corrosion resistant alloys and this resulted in DCPP not having to inspect the Unit 1 steam generators during 1R21. Dr. Peterson remarked that there is little concern that DCPP’s steam generators will not be able to give good service during the remainder of the plant’s operating life.

Ms. Sherry Lewis of the group San Luis Obispo Mothers for Peace was recognized. Ms. Lewis inquired concerning the dose received by workers during 1R21 and stated she would be interested in learning the highest dose received by any individual during 1R21. Dr. Budnitz replied the NRC has an individual dose limit
which if it were to be exceeded or even approached would have been reported and such a report would have significant consequences for PG&E as the DCPP licensee. Dr. Budnitz discussed with Ms. Lewis the incidence of dose during flight in an aircraft and remarked that it is important to monitor both individual and cumulative exposures. In response to Ms. Lewis’ comment Dr. Budnitz confirmed that in accordance with NRC regulations a preoperational baseline study of radionuclides around the site of DCPP was performed several years prior to the plant commencing operation so these data could be used during and following nuclear operations at the site. Ms. Lewis stated her understanding that concerning the accident in 2011 to the Fukushima Dai-ichi Nuclear Power Plant in Japan, doctors are not allowed to equate illness with radiation.

A short break followed Mr. Petersen’s presentation.

Mr. Baldwin introduced Mr. Hossein Hamzehee DCPP Manager of the Regulatory Services Department and reported Mr. Hamzehee has more than 30 years’ experience in the nuclear industry and holds Master of Science Degrees in Nuclear and Mechanical Engineering and Mr. Hamzehee brings extensive experience as an NRC staff member to his role at DCPP including at the level of an NRC Branch Chief.

Update on the Status of NRC Performance Indicators, Licensee Event Reports, NRC Notices of Violation and Issues Raised by NRC Resident Inspectors and Major Regulatory Issues (Open Compliance Issues and License Action Requests).

Mr. Hamzehee reported DCPP is rigorously inspected by the NRC and remains committed to the highest standard of safety. In response to Dr. Peterson’s remark, Mr. Hamzehee confirmed that DCPP is also inspected by the DCISC, the Institute of Nuclear Power Operators (INPO), as well as by its internal Nuclear Safety Oversight Committee (NSOC) and Plant Safety Review Committee (PSRC). Mr. Hamzehee commented that the NRC focuses principally upon regulatory requirements. He confirmed, in response to Dr. Peterson’s observation, the plant is also periodically inspected by representatives of American Nuclear Insurers. Mr. Hamzehee remarked that it was important in the nuclear context to have independent and redundant oversight and inspection activities to improve safety and bring differing perspectives to performance and this oversight has made the nuclear industry one of the safest of all U.S. industries. He also cited the role of the Electric Power Research Institute in ensuring reliability and availability.

Mr. Hamzehee stated in his presentation he would provide an overview of DCPP performance, based on NRC’s Performance Indicators, since the last meeting of the DCISC for the period February 2019 through May 2019. He remarked his presentation would cover approximately four months of NRC inspections involving ~1,800 hours of inspection time. During this DCPP met Green performance expectations for all NRC performance indicators. Three violations of very low safety significance were issued by the NRC since the last DCISC meeting in February
2019. Mr. Hamzehee reviewed and briefly discussed some of the 16 performance indicators reviewed by the NRC, concerning which data are collected daily and all of which are presently within Green health status as follows.

- Unplanned Scrams per 7000 Critical Hrs.
- Unplanned Power Changes per 7000 Critical Hrs.
- Unplanned Scrams with Complications
- Safety System Functional Failures
- Mitigating Systems Performance Index, Emergency AC Power System
- Mitigating Systems Performance Index, High Pressure Injection System
- Mitigating Systems Performance Index, Heat Removal System
- Mitigating Systems Performance Index, Residual Heat Removal System
- Mitigating Systems Performance Index, Cooling Water Systems
- Reactor Coolant System Activity
- Reactor Coolant System Leakage
- Drill/Exercise Performance
- ERO Drill Participation
- Alert & Notification System
- Occupational Exposure Control Effectiveness
- Radiological Effluent Occurrence

In response to Consultant McWhorter's inquiry Mr. Hamzehee stated that a significant percentage of all U.S. nuclear power plants also report meeting all NRC Performance Indicators and failure to do results in augmented and enhanced inspection activity by the NRC.

Mr. Hamzehee reported one Licensee Event Report (LER) was issued during February 2019 through May 2019. This LER was Supplement 1 to LER 2018-001 and was issued in April 2019 regarding the Unit 2 automatic reactor trip with Auxiliary Feedwater System (AFW) actuation that occurred on December 1, 2018 due to load rejection from a 500kV line. As discussed by Mr. Hamzehee at the previous DCISC public meeting in February 2019, the reactor trip occurred due to the automatic operation of offsite electrical grid equipment designed to ensure grid reliability. The supplement to the initial LER, which was issued in January 2019 within 60 days of the event, was issued in April 2019 to document the final cause and corrective action information associated with the event. This information was still considered preliminary when the original LER was issued.

Mr. Hamzehee described the safety significance characterizations used for the
performance indicators as either Green (very low), White (low to moderate) Yellow (substantial) or Red (high). Green non cited violations (NCVs) indicate very low safety significance, with no impact to public health and safety.

Mr. Hamzehee report on NRC Violations February 2019– May 2019 and stated there were three violations, two were NCVs and one was a Finding issued as follows:

- **Non Cited Violation (Green)** - Corrective actions associated with a 2013 refueling outage reactor coolant pump seal back-filling issues which were not adequately applied to procedures for online control of drain tank level that could lead to seal damage. The same event occurred in January 2018 as a result of a pressure imbalance interaction between the Pressurizer Relief Tank and the Reactor Coolant Drain Tank. No cross-cutting aspect was assigned. Mr. Hamzehee reported the NRC assigns cross-cutting aspects when the deficient performance is reflective of current performance.

- **Non Cited Violation (Green)** - in March 2019 for inadvertent Spray Additive Tank leak with sodium peroxide caused by incorrect maintenance performed on a level transmitter. This event caused the Department-level clock to be reset and station-wide communication was issued for this human performance event. (Cross-cutting aspect H.12 –Avoid Complacency.)

- **Finding (Green)** - associated with an issue with the Unit 1 Polar Crane variable frequency drive motor which was not promptly corrected. The Polar Crane is used during refueling to lift, remove, and replace the reactor vessel head. In response to Dr. Lam’s inquiry Mr. Hamzehee stated the failure of the variable drive motor resulted in the Polar Crane remaining in place for approximately six hours with the vessel head suspended while a cause evaluation was performed but Mr. Hamzehee reported the vessel head was not in danger of being dropped as a result of the failure of the variable frequency drive motor. He reported this Finding represented a failure to apply lessons learned previously. Mr. Baldwin stated the identified vulnerability was not formalized into operating instructions for the cranes and he confirmed that this particular control system could not fail in such a way that the vessel head would drop. Dr. Peterson observed the variable frequency drive motor was not in the original design for the crane and was most likely a modification that was made at some point and this would be a potential topic for DCISC review during fact-finding. Cross-cutting aspect assigned as P.3 -Resolution.

Mr. Hamzehee stated DCPP’s overall performance is Green with respect to NRC Performance Indicators. He reviewed inspection activities since the last meeting of the DCISC in February as follows:

In response to Consultant McWhorter’s observation concerning the five NCVs received by DCPP in the past six months Mr. Hamzehee replied that this was not an unusually high number of NCVs or outside the distribution received by other nuclear plants and until 2018, DCPP was one of the lowest plants in terms of its receipt of NCVs in NRC Region IV.

Mr. Hamzehee stated any time a nuclear power plant seeks to deviate from its licensing basis documentation, the NRC’s prior approval is required. One mechanism used to obtain that approval is by submitting a license amendment request (LAR). He then provided a high-level review concerning the status of pending LARs submitted in the last three months for DCPP as follows:

- **90-Minute ERO Staff Augmentation:** a LAR was submitted to NRC in September 2018. Responses to NRC requests for additional information were completed in May 2019. NRC approval of LAR is expected by September 2019. If approved this would increase the staff augmentation time from 60 to 90 minutes and thereby increase the number of responders available to the Emergency Response Organization by allowing employees living farther from DCPP to serve as qualified responders. Dr. Peterson stated this LAR required a thorough assessment of workforce availability and he stated he hoped the NRC would approve this LAR. Dr. Lam observed that rather than relaxing regulatory requirements this LAR would effectively increase the number of qualified emergency response personnel and Dr. Lam observed this is important as DCPP is a unique site in that it occupies a very expansive site.

- **Intake Reclassification:** a LAR was submitted to NRC in February 2019. NRC approval of LAR is expected by February 2020. The reason for submitting this LAR is based upon the size of the plant site including the Owner Controlled Area and the Protected Area and the goal is to make the most effective use of plant security personnel. As this is a security-related matter, Mr. Hamzehee stated he could not explore with the DCISC many of the details of the LAR but he confirmed that access to the Intake Structure would continue to be monitored. Dr. Peterson reported the DCISC confines its review of security-related issues to ensuring that physical security measures do not result in a degradation of safety and he stated this LAR appears not to have such an effect. Mr. Hamzehee agreed and reported the interface between security and safety is also reviewed by the plant to ensure there are no unintended consequences of proposed changes. In response to Consultant Wardell’s inquiry, Mr. Hamzehee stated that in connection with this LAR no direct credit was taken for the FLEX initiative.

- **Full Spectrum Loss of Coolant Accident (LOCA):** a LAR was submitted to NRC in December 2018. NRC approval of the LAR is expected by February 2020. Mr. Hamzehee stated the NRC previously identified generic issues with thermal conductivity degradation of nuclear fuel under accident conditions and Westinghouse has developed a methodology in response for a full
spectrum LOCA which has been endorsed by the NRC. He reported if approved this would provide a more up to date methodology for analyzing LOCAs of all sizes and would assist DCPP in addressing the generic issue regarding thermal conductivity degradation. If this LAR is approved DCPP would be one of the first plants in the nation to apply the new methodology.

Mr. Hamzehee reviewed other notable regulatory items as follows:

- **Open-Phase Condition**: based on a 2012 open-phase occurrence at the Byron Nuclear Generating Station in Illinois. U.S. nuclear plants have installed instrumentation which monitors, detects and protects against an open-phase condition in switchyard/offsite power. The NRC and the industry are evaluating the use of risk insights to allow instrumentation in monitoring only mode rather than enabling the trip function. DCPP has installed a monitoring device for both units but Mr. Hamzehee stated the technology is not mature enough to enable the trip function, as to do so could place the plant in an unnecessary condition in the event an open-phase condition did not exist. He reported DCPP is continuing to work with the industry to develop and apply a risk-informed approach while retaining the monitoring function which would allow the operators to manually trip the reactor in the event of a true open-phase condition.

- **Tornado Missile Risk Evaluator**: Mr. Hamzehee reported the industry is developing a methodology that allows a risk-informed approach to evaluate tornado missile hazards and effects on plant structures and equipment. The nuclear industry is also discussing a simplified approach for adopting the use of 10 CFR 50.59 rather than preparing a LAR. He remarked that there may be a significant number of power plants in the U.S. that are outside their licensing basis for tornado missile risk with plants located in the southern part of the U.S. being at the most risk. Dr. Budnitz observed the tornado risk within the first ten or twenty kilometers inland from the coast is very low. Mr. Hamzehee agreed and stated the probability of having a safety-related system impacted by a tornado is approximately 10-7 per year and he described this issue for DCPP as being mainly a compliance issue and not a safety issue. Dr. Budnitz stated there is an American National Standard (ANS) and American Society of Mechanical Engineers (ASME) standard for performing a probabilistic risk assessment (PRA) of tornadoes to produce a risk-informed analysis. Dr. Budnitz observed the ANS/ASME standard is in the process now of being substantially upgraded through the work of a committee which Dr. Budnitz chairs. The new standard should be issued in the next six to nine months and is expected to put into place a standard methodology for doing the analysis. Dr. Budnitz stated
that while the risks are low, they are not zero.

In response to Consultant Wardell’s request, Mr. Hamzehee briefly discussed the triennial Force-on-Force NRC Inspection and remarked this inspection is very resource intensive and generally results in a number of minor violations. The last such inspection at DCPP did not identify any violations and the NRC concluded the DCPP Security organization and the force-on-force response inspection team are very strong and effective.

Ms. Sherry Lewis of Mothers for Peace was recognized. Ms. Lewis stated she was concerned about Mr. Hamzehee’s the description of the reactor head being suspended for six hours while the Polar Crane was inspected and the possibility of a seismic event during that time. Dr. Budnitz replied that the ground motion from an earthquake would propagate upward and as there is considerable seismic activity in the region of DCPP this seismic motion has been monitored and analyzed for in-structure response including the motion affecting the reactor head to assist in understanding and calibrating how that motion amplifies or its frequency changes. Dr. Budnitz stated he has reviewed that analysis. Dr. Peterson confirmed that the Polar and Spent Fuel Pool Cranes are analyzed for seismic response and to assure that a substantial margin is available, including for those times when they are carrying a load, to ensure that the load will not fall. Drs. Budnitz and Peterson replied that the six hours when the head was suspended was a relatively brief period. Dr. Lam agreed but remarked that he also shared Ms. Lewis’ concern.

The Chair thanked Mr. Hamzehee for his presentation.

Mr. Baldwin introduced DCPP Corrective Action Supervisor Mr. Shawn LaForce and reported Mr. La Force is an Electrical Engineer with more than 25 years’ experience at DCPP including in the Fire Protection, Engineering, Regulatory Compliance, and Telecommunication organizations.

Update on the Status of the Performance Improvement Program, the Corrective Action Program and the Results Being Achieved.

Mr. La Force described the performance improvement model as consisting of monitoring performance monitoring and finding problems in the field, review of condition reports which are documented as Notifications, use of the Corrective Action Program to identify, plan and identify solutions followed by implementation of the solution and continuance of performance monitoring. He described the elements of the Performance Improvement Program as consisting of:
Corrective Action Program (CAP)
Self-Assessment
Benchmarking
Use of Operating Experience – incoming and outgoing
Performance Monitoring and Trending
Use of Human Performance Tools
Field Engagement and Coaching (Observations)

Mr. La Force stated the CAP is directed at finding and fixing problems and at improving the plant’s safety culture. He reported DCPP is among the most prolific writers of Notifications in the industry with 22,000 to 25,000 Notifications written each year. Once in the CAP, issues are assessed for risk and evaluated and the resulting corrective and preventive actions are tracked to completion with a goal of having completion achieved within 180 days. Notification writers are notified when actions are complete and the plant has implemented a satisfaction survey. Mr. La Force reported some issues for which a closure notice was issued have been subsequently reopened for additional investigation based on the response of the person who initiated the Notification. He stated industry efforts at simplification have been implemented in the effort to reduce the program’s burden. After an issue is submitted to the CAP it is screened by a panel including representatives of Engineering, Operations, Maintenance and Performance Improvement organizations and a significance level and an analysis type, as well as an issue owner, are assigned. Senior plant leadership independently review issues adverse to quality on a weekly basis to ensure the appropriate assignment of significance levels and cause evaluation. The Quality Verification organization and the NRC resident inspectors also review condition reports. Mr. La Force confirmed that as part of the process the work control shift foreman reviews Notifications shortly before they are entered into the CAP for operability, safety-related and extent-of-condition issues to determine whether the Notification may have application to the other DCPP unit.

Mr. La Force described the cause evaluation determination levels assigned by the Performance Improvement Program in accordance with the significance level of each issue, with the most frequent cause evaluation for approximately 80% of problem resolution being by a Work Group Evaluation process. Approximately 20-30 issues each year are reviewed at the level of Cause Evaluation, and between one and three issues every year receive the highest level of evaluation through a Root Cause Evaluation.
Mr. La Force described the purpose of self-assessments as intended to provide a structured methodology for revealing the activities and performance of an organization and to identify performance gaps against internal and external standards. Self-assessments strategically target known or potential performance issues for further investigation. During 2018 DCPP performed 59 formal self-assessments but Mr. La Force reported that many other self-assessment activities take place each year on an informal basis. He described Benchmarking as a tool to provide self-awareness of performance when measured against the performance and best practices of others in and outside of the nuclear industry. Mr. La Force reported DCPP benchmarks against other nuclear facilities, PG&E’s internal lines of business, and within comparable industries such as the petroleum and aviation industries. There were 54 formal benchmarking activities by DCPP during 2018. To date, for 2019 Mr. La Force reported there are 142 conditional reports written that are tracking self-assessments and benchmarking.

Mr. La Force briefly described the Operating Experience Program as a system established by INPO to track events, issues and lessons learned from other stations. The Performance Improvement organization has one person working full-time on reviewing and evaluating operating experience reports and, when appropriate, documenting operating experience in the Corrective Action Program. For 2018 there were 882 operating experience events reviewed and determined to be potentially applicable to DCPP.

Mr. La Force reported performance monitoring and trending involves the review and use of CAP data, observations, safety and human performance events, self-assessments, benchmarking and use of safety culture data as well as feedback received from the DCISC, the Nuclear Safety Oversight Committee (NSOC) a safety review committee internal to DCPP, INPO, and the NRC and the observations of the behaviors of workers by leadership. Performance Improvement Coordinators are assigned to review these data to identify trends. Mr. La Force stated recently DCPP has begun performing rapid trend identification and issue response during refueling outages.

Mr. La Force displayed a photo and he described the use of human performance tools by personnel working in the plant. Dr. Peterson remarked that the use of electronic tablets which could photograph, capture and record work in the field offers significant opportunities to reduce the potential for human error and improve cause evaluation and he observed the use of electronic tools with those capabilities is much more prevalent in other industries than in the nuclear industry. Mr. La Force agreed with Dr. Peterson and he reported DCPP began five years ago to increase its use of electronic work packages but has not
Mr. La Force discussed field engagement and coaching efforts which he reported involve getting station leaders into the workplace in a positive effort to provide immediate coaching, feedback and reinforcement. Plant leadership attend the pre-job morning briefings, known as tail boards, and make observations in the field when trends are identified to evaluate whether or not a systemic problem exists. Observation review meetings are conducted with department managers, supervisors and plant staff and data are collected and reviewed by the Performance Improvement organization.

During 2018 DCPP conducted 59 formal self-assessments, 54 formal benchmarks, 882 operating experience reviews and shared 85 issues within the industry and with INPO through the Performance Improvement organization’s efforts. Mr. La Force displayed a graph showing the decline in the number of conditions adverse to quality which has been reduced from 400 items as of May 17, 2017 to approximately 260 items as of March 2019 and he reported this downward trend continues. He confirmed Dr. Peterson’s observation that there was some correlation of these data with scheduled refueling outages.

Mr. La Force reported human performance events have declined from approximately 90 in 2012, to six in 2017, three in 2018 and two to date in 2019 and he commented that while the industry is experiencing a decline in human performance events DCPP continues to do better than the industry in this metric which he attributed to DCPP’s early and consistent use of human performance tools. In response to Consultant McWhorter’s inquiry Mr. La Force stated the definition of a Station-level event has not changed and DCPP has gone 1,754 days to date since recording its last Station-level event. In response to Consultant Wardell’s query Mr. LaForce stated that the decline in Notifications from approximately 25,000 over the last few years to 22,000 forecasted for 2019 was the result of some large scale projects either completing or being cancelled such as the License Basis Verification Project which was completed and the License Renewal Project which was cancelled. He reported the DCPP Nuclear Safety Culture Monitoring Panel reviewed this issue and did not find that a chilled environment existed at DCPP for reporting problems. In response to Dr. Budnitz’ comment Mr. La Force confirmed that DCPP remains today in the top quartile within the nuclear industry for human performance in accordance with INPO’s ranking.

In concluding his presentation Mr. La Force summarized and observed the Performance Improvement Program at Diablo Canyon is effective as
demonstrated by the following:

- Corrective Action Program inventory is decreasing
- The Performance Improvement Program’s effectiveness
- Process simplification aligns with industry efforts
- Self-assessments ensure alignment with established guidance
- Benchmarking ensures performance is seen in relation to others
- Human performance tools effectively reduce errors
- Number of events continues to improve
- Operating experience is reviewed, incorporated and shared, thus improving safety
- Trend analyses enable early identification of changes in performance
- Field engagement ensures leaders are aware of performance and promotes real-time feedback

The Committee Members thanked Mr. La Force for a very informative presentation.

VII  Staff-Consultant Report & Receive, Approve and Authorize Transmittal of Fact Finding Reports to PG&E

The Chair requested Consultant Wardell to report on a fact-finding visit to DCPP. Mr. Wardell reported on the March 18-19, 2019 fact-finding visit to DCPP with Dr. Budnitz. Mr. Wardell stated activities conducted and topics reviewed with PG&E during that visit included the following:

- Meeting with NRC Senior Resident Inspector - Mr. Wardell reported the topics discussed were topics both the DCISC and the NRC resident inspection team were currently investigating.
- Meeting with DCPP Officer - the DCISC fact-finding team met with PG&E Senior Vice President, Generation, and Chief Nuclear Officer Mr. Jim Welsch. Mr. Welsch reported that as of March 2019 he has joined the Diablo Canyon Decommissioning Engagement Panel (DCDEP) and the next two public meetings of the DCDEP will take up the matter of a risk analysis of using trucks as compared to barges for moving spent fuel when the opportunity to transport spent fuel offsite is available. The DCISC representatives also discussed with Mr. Welsch plans for issuing a request for proposals for a new dry cask storage system which may be solicited later in 2019. The meeting discussion also covered the December 1, 2018, Unit 2 reactor trip which will be the topic of a presentation later
FLEX +3 Equipment Safety-Related Documents - Mr. Wardell reported the Corrective Action Review Board (CARB) studied whether FLEX equipment should be considered safety-related and the result of that study was that FLEX is not considered officially safety-related because FLEX is not subject to the normal NRC design basis requirements. However, Mr. Wardell reported that although not safety-related, FLEX equipment is high quality commercial grade equipment and is generally seismically designed and FLEX equipment is stored so as to be able to provide capable components in an emergency situation.

+3 FLEX is not an acronym but describes a strategy developed by the nuclear industry to provide diverse and flexible coping strategies to address the loss of safety-related systems due to beyond design basis events.

Long Term Seismic Program Update - Dr. Budnitz reported since receipt of its license for operations from the NRC, as part of that license, DCPP has been required to have a Long Term Seismic Program (LTSP). Dr. Budnitz observed DCPP is unique among U.S. nuclear plants in this regard. The LTSP is an ongoing effort to continue to understand the seismic environment at the site which is the highest seismic environment for any nuclear power plant in the U.S. To meet this licensing commitment PG&E has deployed instruments in the area and, as required by the NRC, created a group which continues to analyze earthquakes and this group has included what Dr. Budnitz described as some of the top experts in the world in this field including Drs. Lloyd Cluff and Norman Abrahamson, both members of the National Academy of Engineering. Dr. Budnitz reported that he has reviewed the work of the LTSP as well as that of the Independent Peer Review Panel, established by the California Public Utilities Commission (CPUC) to review seismic studies of the plant site. He remarked these studies involve developing an understanding of the energy propagation from an earthquake to the plant site and then into the plant structures, systems, and components to understand how the plant as a whole may be expected to respond in the event of a large seismic event. These efforts require an understanding of accident sequences in context of overall seismic risk. Dr. Budnitz reported the fact-finding team found the LTSP continues to be an excellent program which is benchmarked by many other nuclear plants both in the nation and internationally. Dr. Budnitz reported the DCISC has learned PG&E is committed to funding the LTSP for so long as there are any hazardous activities at the site and to provide
funding levels in excess of what is required by the NRC.

- Review 1R21 Performance - Mr. Wardell reported this topic was covered earlier during this public meeting by Mr. Petersen.

- Equipment Reliability Process Update - Mr. Wardell reported this program reviews and assesses the reliability of safety-related equipment or equipment important to generation. He described the Equipment Reliability Process as employing excellent and comprehensive procedures including an Equipment Reliability Index for which all but two measures are in Green, or good standing, and two are in Yellow status, indicating work continues toward meeting expectations.

- Door Life Management Program Update - Consultant Wardell reported this program has focused on impaired fire doors and the program continues to be strong and has made good progress. The Fix It Now (FIN) response teams are now repairing more doors than the teams are replacing which means the doors can be restored to full function in less time than required for replacement and for less cost. Mr. Wardell reported the DCISC team found the Door Life Management Program to be healthy and efficient.

- Cyber Security for Digital Control Systems - Mr. Wardell reported that the cyber threat environment has increased since this program was completed and implemented in 2017 to meet NRC requirements. The DCISC’s fact-finding team concentrated its review upon protection for digital control systems as those controls are part of critical digital assets. He reported DCPP is considered to be an “island” with reference to cyber connectivity as there are no direct outside electronic connections for any of the plant’s safety-related systems including digital control systems. Protections have also been implemented to protect digital assets from internal threats. Dr. Budnitz remarked the ANS/ASME standards committee he chairs has established a working group of experts, including representatives from DCPP and three other nuclear sites, to develop a guidance document to perform advanced analysis of digital control systems and their vulnerabilities to cyber attack and he confirmed Mr. Wardell’s observation about the threat environment for such systems having significantly increased over time.

Upon a motion by Dr. Budnitz, seconded by Dr. Lam the March 18-19, 2019 Fact Finding Report was approved and its transmittal to PG&E authorized.

Once the Committee’s fact finding reports are approved at a public meeting they are no longer considered to be in draft form and are
made available in a binder for inspection by members of the public, together with information concerning the professional backgrounds of the Committee’s technical consultants involved with preparation of its fact finding reports. Fact finding reports become part of DCISC’s Annual Reports.

The Chair requested Assistant Legal Counsel Rathie to report on administrative, regulatory and legal matters.

Mr. Rathie reported that with Dr. Budnitz and the Committee’s Special Counsel for Regulatory Affairs Mr. Martin Mattes he attended a meeting held on April 10, 2019 at the CPUC’s San Francisco headquarters with representatives of the CPUC’s Energy and Legal Affairs Divisions concerning a possible post-shutdown role for the Committee. He also reported that an Amended Scoping Memo was issued on March 7, 2019 in the 2018 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP) in which issues were addressed regarding matters raised in that proceeding by the San Luis Obispo Mothers for Peace concerning examination of the Unit 1 reactor vessel during refueling and by Mr. Alex S. Karlin, a PG&E ratepayer, resident of San Luis Obispo and former NRC Administrative Law Judge concerning the Committee’s review of and actions it has taken in context of a possible post-shutdown role for the DCISC. Mr. Karlin is a member of PG&E’s Diablo Canyon Decommissioning Engagement Panel (DCDEP) but stated that his communication with the CPUC was not sent in his capacity of a member of the DCDEP. Mr. Rathie reported the DCISC has filed a Motion seeking status as a party in the NDCTP principally to address the issues raised by Mr. Karlin and is presently awaiting a ruling. Mr. Karlin. He reported that should the DCISC’s motion be granted written testimony is scheduled to be filed with the CPUC by July 15, 2019.

Mr. Rathie reported the plant tour with members of the public scheduled later in this public meeting will also include screening of the DCISC informational video and the Committee office is now posting the complete agenda packet online at www.dcisc.org before every public meeting to give interested members of the public access to materials to be discussed at the meeting. He reported that over the last five months the Committee’s website has averaged 724 unique visitors each month, that is, individual visits to the site regardless of how many pages are viewed or downloaded. These visits, in order of the number of visitors, were from the United States, France, Saudi Arabia, the Russian Federation, Britain and Japan. Activity during public meetings from persons accessing the meetings through livestreaming video is reported in each annual report.

VIII Adjourn Morning Meeting
The Chair adjourned the morning meeting of the DCISC at Noon.

IX Reconvene for Afternoon Meeting

Dr. Budnitz convened the afternoon meeting of the DCISC at 1:30 P.M. and welcomed those present.

X Committee Member Comments

There were no comments by members at this time.

XI Public Comments and Communications

Dr. Budnitz invited any member of the public who wished to address remarks to the Committee to do so at this time. Mr. Klaus Schumann of Paso Robles, California was recognized.

Mr. Schumann began his remarks with a request that the DCISC stay involved with the safety of DCPP after expiration of its operating licenses, at least until all spent fuel assemblies are removed from the spent fuel pools and placed in dry cask storage. He stated the community would benefit if the Committee were to stay in place to address safety-related issues until that time.

Mr. Schumann thanked Dr. Budnitz for the remarks Dr. Budnitz delivered at the March 13, 2019 public meeting of the DCDEP. He stated he appreciated Dr. Budnitz' acknowledgement of the dangers of nuclear waste and cesium 137 in particular. Mr. Schumann stated he agreed with Dr. Budnitz' characterization of the dangers of nuclear waste and he stated he has been involved with issues related to nuclear waste since 1995. Mr. Schumann opined it is universally accepted that dry cask storage of nuclear waste is somewhat safer than storing it in spent fuel pools although he remarked he understood Dr. Budnitz to have said that storage in spent fuel pools was also very safe. Mr. Schumann stated it was his opinion that ‘all eggs in two baskets’ was less safe than ‘all eggs in 138 individually protected baskets.’ He remarked that PG&E had previously begun the process of lowering the density of the two spent fuel pools at DCPP and since the opening of the ISFSI the density of the fuel loading in the pools has decreased by approximately 47%. Mr. Schumann urged the DCISC to take a position on the issue of spent fuel transfer as he stated the community is very much concerned by the magnitude of the density which would result from accumulating spent fuel remaining in the spent fuel pools as opposed to continuing to store fuel in dry cask. He questioned whether the DCISC would support the safest alternative or the financial interest of PG&E. He reported PG&E has proposed to stop its program of accelerated transfer and to retain spent fuel assemblies in the pools such that they will be at their full capacities by 2025 and remain at that capacity for another ten years. Mr. Schumann stated he finds this
to be a dangerous proposal with potentially catastrophic consequences which would be much greater than if fuel was moved to dry cask on an expedited basis. Mr. Schumann provided a copy of the written remarks he submitted to the DCDEP on March 13, 2019 for the record of the DCISC and he directed the DCISC’s particular attention to PG&E’s report to the DCDEP, figure 6-2 on page 69, which shows the difference in the respective inventories in the pools with accelerated transfer compared to retaining spent fuel in the pools through cessation of operation which, Mr. Schumann reported, would result in 94% more spent fuel assemblies in the pools than would be the case if accelerated transfer were to continue. He inquired as to the position of the DCISC on this issue and observed that in his remarks on March 13, 2019, Dr. Budnitz, speaking on his own behalf, commented that there would not be much difference whether the fuel stayed in the pools or not. Mr. Schumann inquired concerning the possibility of PG&E possibly acquiring different casks which may be able to accommodate more fuel assemblies.

Dr. Budnitz confirmed that when he spoke during the March 13, 2019 meeting of the DCDEP he was expressing his personal opinions and he could not on that occasion speak for the DCISC. He remarked that at that time the Committee had just been made aware of the proposal to divert from accelerated transfer to a system whereby spent fuel assemblies would be retained in the spent fuel pools for a longer duration than would be the case under an accelerated transfer regime. Dr. Peterson stated the DCISC is looking very carefully at the questions and issues posed by Mr. Schumann. Dr. Peterson reported that the hazards associated with the fuel assemblies in the spent fuel pools change remarkably rapidly once the reactor is shut down because those hazards are associated principally with fuel that has been freshly off-loaded from a reactor that has high decay heat generation rates, but after a period of eighteen months the hazards associated with loss of water drop off significantly as the heat generation is reduced. Drs. Peterson and Budnitz observed that due to the federal government having defaulted in commitments made in the Nuclear Waste Policy Act the responsibility for the cost for spent fuel storage incurred by nuclear utilities lies with federal taxpayers and not with PG&E or its ratepayers. Mr. Schumann noted those costs are estimated at $54.7 million for each spent fuel pool at DCPP. Dr. Budnitz observed in this context that part of the consideration of a schedule for fuel transfer is related to financial cost and implications of the transfer on other decommissioning-related activities. Dr. Peterson stated that providing a mix of older and younger fuel is a necessary and appropriate consideration when conducting a dry cask storage loading campaign and there are scenarios where delaying the initial filling of dry cask canisters results in all of the fuel being transferred sooner from the spent fuel pools.

Dr. Lam stated he shared Mr. Schumann’s major concerns regarding accelerated transfer from wet to dry storage. Mr. Rathie remarked that were the Committee to take a position on this issue that matter would need to be on the agenda for a public meeting. Dr. Budnitz remarked the DCISC’s interest is not primarily with
cost but with the safety implications of the various proposed scenarios and the Committee is in the process of considering these issues and would perhaps do so at its next public meeting.

Mr. Schumann stated that as a member of the San Luis Obispo County Nuclear Waste Management Committee from 1996 and 2002 he has been involved in many of these same issues over that time. He reported local residents are specifically concerned about the 192 assemblies that at the time of the decommissioning of a unit will be placed into the spent fuel pool in an extremely hot condition where they must stay for at least seven years. Mr. Schumann opined that an accelerated transfer campaign whereby 300-450 assemblies would be resident in the pool at the time of final core discharge is the safer option as opposed to 1,100 assemblies which would be resident in the pool in the absence of continuance of an accelerated spent fuel loading campaign. Dr. Budnitz remarked that the safety concern in either scenario described by Mr. Schumann is much greater in the first two years after core offload. Dr. Peterson commented that after the eighteen-month interval between scheduled refueling outages the decay heat generated by all the assemblies in the pool prior to full core offload is lower than the heat generated by the freshly offloaded fuel. Dr. Peterson reported PG&E is required by NRC regulation to have a minimum number of older assemblies in the pools as this increases the safety of the fuel in the pools for their present racking configuration due to the thermal inertia of the very low heat generation of the fuel assemblies in the cells adjacent to freshly offloaded fuel and this substantially changes the risk and hazard associated with loss of water from the pool. Mr. Schumann reiterated his belief that having 1,100 assemblies as opposed to 300 makes a difference in terms of safety to which Dr. Peterson replied that remarkably this is not the case. Dr. Peterson observed that as the plant performs a full core offload during every refueling outage the hazard is essentially the same.

Dr. Lam stated his belief that, as PG&E’s proposal is contingent upon the assumption that PG&E can issue and receive responses to a request for proposal and successfully obtain a new license from the NRC for the new casks and contract with a selected vendor and procure the new casks within a two-year period in his opinion these are very optimistic assumptions. Dr. Budnitz commented any such proposal could only be implemented with the approval of the CPUC.

Ms. Sherry Lewis of Mothers for Peace was recognized. Ms. Lewis requested that the Committee place the matters raised in the discussion with Mr. Schumann on an agenda for a future public meeting. Ms. Lewis observed that all the fuel assemblies within a spent fuel pool are hot but some are just not as hot as others. She stated her opinion that if the space occupied by assemblies which are not as hot as others were replaced by water, that would assist in cooling the assemblies remaining in the pool which helps make a case for accelerated transfer. Dr. Budnitz observed that assemblies that have been in a spent fuel pool for at least five years do not require water for cooling and can be placed in dry cask storage and cooled by air.
XII Information Items Before the Committee (Cont’d.)

Dr. Budnitz requested Mr. Baldwin to continue with the informational presentations requested of PG&E by the Committee for the public meeting. Mr. Baldwin introduced the Director of the DCPP Operations Department Mr. Adam Peck. Mr. Baldwin reported Mr. Peck is a graduate of the U.S. Naval Academy and a former naval officer with U.S. Navy nuclear experience. Mr. Peck holds a Senior Reactor Operator License and has led the Control Room staff as Director of Operations in safely operating both units as well as previously serving as DCPP Director of Engineering.

December 1, 2018, Unit 2 Reactor Trip - Results of the Final Root Cause Evaluation and Corrective Actions.

Mr. Peck reported he would discuss the results of the Root Cause Evaluation of the Unit 2 Special Protection System (SPS) actuation and resulting reactor trip. Mr. Peck stated he served as the root cause sponsor which involves leadership oversight and support to understand the causal methods and the follow-on corrective actions. On December 1, 2018 Mr. Peck reported the SPS, a PG&E Electric Operations organization grid protection feature for DCPP, had an undesired actuation which resulted in a Unit 2 trip.

Mr. Peck confirmed a root cause evaluation was conducted to address this event. A root cause evaluation is defined as a formal investigation that uses industry-accepted analysis methods to determine the root cause(s) of a problem. The root cause evaluation is conducted by eight to ten individuals and generally occupies six to ten weeks.

Mr. Peck stated the SPS is designed to protect the grid; it prevents a DCPP dual unit trip by tripping one unit when certain grid conditions exist whereby a dual unit trip could result in widespread blackouts and further challenges to the grid. He reported the SPS was installed in 2006 based on grid conditions at that time and this was the first instance of SPS actuation since it was installed.

Mr. Peck reported on December 1, 2018, at approximately 10 A.M., Unit 2 tripped from 100% power due to the SPS actuation which opened the 500kV output breakers and resulted in the unit trip. There were no nuclear safety, equipment, or other challenges. He reported all equipment, personnel and procedures responded as designed and ensured a safe shutdown of Unit 2. Mr. Peck remarked that while operators routinely train to respond to a trip this was the first trip for Unit 2 since 2014. Unit 1 has not experienced a trip since 2002.

Mr. Peck reported that Unit 2 tripped due to the low amperage on the 500kV lines when the SPS remote outage detection logic, located offsite at the Gates and Midway Transmission Substations, incorrectly determined that two of DCPP’s three
500 kV lines were out of service. To prevent a dual unit trip the SPS logic selected Unit 2 to trip. As an immediate response the SPS remote outage detection logic was disabled and risk mitigation measures were developed which include ramping a single unit down to below the actuation set point of the SPS scheme any time a 500 kV line is out of service for either planned or unexpected maintenance. The mitigation measures will remain in place until the logic can be redesigned and installed during the 2R21 refueling outage scheduled for December 2019. In response to Consultant Wardell’s query, Mr. Peck confirmed that the SPS logic has the capability of selecting which unit will be tripped based upon a number of inputs. **Mr. Peck stated DCPP does not ‘own’ the special expertise required to redesign the SPS logic and he offered to review with the DCISC during a future fact-finding the method of how the SPS logic functions to select the unit it will trip.**

Mr. Peck stated DCPP is essentially a customer of the PG&E Electric Operations organization in terms of emergency offsite power for both units for the 500kV and the 230kV power supplies. A joint root cause evaluation was performed, led by DCPP with the PG&E Electric Operations organization and this effort included DCPP Operations, Electrical Systems Engineering, Performance Improvement, PG&E Electric Operations and Engineering, Transmission Planning, System Protection, the Transmission Grid Control Center and the Remedial Action Scheme (RAS) Operations organizations. Mr. Peck reported a number of opportunities for improvement were identified in this effort.

Mr. Peck reviewed the results of the root cause investigation and the mitigating actions taken or to be taken. Root Cause 1a was a latent design vulnerability which represented a legacy issue, having existed from the original installation of the SPS. The SPS remote outage detection logic had a latent design vulnerability in that the SPS looked at amperage on the 500kV lines but did not have an indication of actual breaker position at the remote substations and this vulnerability was exposed when power path flows on the grid changed, combined with DCPP Unit 1 having ramped to 50% prior to the Unit 2 trip. Mr. Peck reported the grid flow at the time of actuation was unusual and was based on conditions outside of DCPP or PG&E’s control. This resulted in the SPS logic sensing low flows on two of DCPP’s three 500kV lines and therefore justified the trip signal. In response to Consultant McWhorter’s inquiry Mr. Peck replied DCPP was not involved in the 2006 installation of the SPS with the rigor that would be expected today. He described the corrective actions taken and planned to prevent recurrence as including redesign and implementation of SPS remote outage detection logic to make the SPS scheme secure and to mitigate logic vulnerabilities due to changing grid conditions including power path flows and generation changes. Mr. Peck reported DCPP is in the process of completing modeling of conditions on the grid and he reported that installation of new SPS logic can only be done during a refueling outage.

Mr. Peck commented that the SPS design process was not adequate in that the
initial design vulnerability was not recognized or mitigated in the original Electric Operations design process. The process did not identify vulnerabilities for this one-of-a-kind design and did not ensure they were mitigated. In response the Electric Operations organization has agreed to ensure DCPP and Electric Operations are both involved in identification of design vulnerabilities.

Mr. Peck described the second root cause identified as being that required evaluations by the Electric Operations organization of changing conditions on the electrical grid were not fully completed as required every five years as conditions on the grid continued to change. This represented what Mr. Peck described as a missed opportunity to identify vulnerabilities in the SPS and to recommend corrective actions. Procedures have been revised to prevent recurrence and to specify periodicity, roles, responsibilities and accountability for completion of evaluations of grid conditions including an independent review of the evaluations by DCPP as a customer of the grid protection scheme.

In response to Consultant Wardell’s question, Mr. Peck reported that while some corrective actions have been completed implementation of the new SPS logic design is tied to the next Unit 2 refueling outage which is scheduled to commence in September and finish in December 2019. In response to Dr. Budnitz’ inquiry Mr. Peck confirmed the Electric Operations organization is in many instances responsible for preparation and execution of the new SPS design but he confirmed that DCPP is now very involved and vested in the oversight of these efforts by Electric Operations and contact between the two organizations is ongoing every week at the senior vice president level. Dr. Budnitz commented that while nuclear power plants are designed for trips such as Unit 2 experienced in December 2018, such events challenge plant systems and in the case of the December 2018 event the trip was not necessary.

Dr. Budnitz inquired whether Mr. Peck or any of his colleagues had calculated the contingent core damage probability of the plant experiencing additional challenges from the December 2018 initiating event. Mr. Peck replied that from a root cause perspective the team did not look at changes to the probabilistic risk analysis. Dr. Budnitz opined that the core damage probability would be approximately $10^{-5}$ per year due to a loss of offsite power initiating event. He commented and Mr. Peck agreed that the Probabilistic Risk Assessment group at DCPP is well positioned to perform this calculation which would assist in putting the December 2018 trip in context. In response to Consultant McWhorter’s inquiry, Mr. Peck stated the SPS has a number of different logic inputs and only the remote outage detection logic input was disabled in response to the December 2018 Unit 2 trip. Mr. Peck remarked the root cause evaluation for the December trip DCPP identified that in July 2018 the two 500kV lines going south from the plant (one of the three 500kV lines goes north) saw low amperage which met two of the three coincidence for SPS activation and in that same year grid flow resulted in low current in the northern single line which met one of the three SPS indications in the grid control center. Mr. Peck stated these events represented missed opportunities to
understand the SPS’ vulnerability.

Dr. Lam remarked that thirty years ago a nuclear power plant tripped on average of ten times each year and the effort and resources DCPP has applied to this single trip is indicative of how much progress DCPP and the industry have made in terms of reliability.

In response to Consultant Wardell’s question earlier in Mr. Peck’s presentation, Mr. Garcia observed the SPS logic resulting in the trip of Unit 2 in December 2018 included evaluation of SPS data that Unit 1 was at that time due to enter a refueling outage in approximately two months and the need for adequate power to be able to restart Unit 1 should it be tripped by the SPS.

Ms. Sherry Lewis of Mothers for Peace was recognized. In response to Ms. Lewis’ question as to what the SPS activation was intended to protect, Dr. Budnitz and Mr. Wardell replied the SPS is intended to protect from a dual unit trip in the event of a ‘sag’ in the grid and to prevent the resulting disruption to or collapse of the grid with resulting blackouts in the event of a dual unit trip. Mr. Peck confirmed Dr. Budnitz and Mr. Wardell’s observation and stated the DCPP 500kV lines form the backbone of the Western Electric Grid System and disruption of the grid can affect the power supply to California, Oregon, Washington and all the way out to Mississippi. The SPS performs this protective function by removing megawatts (MW) being pushed out to the grid by DCPP to stabilize it from any challenges. When the SPS senses that two of the three 500kV lines are blocked, SPS logic assesses that the plant must be producing too much power for the single remaining 500kV line and it removes some of that power from the grid by tripping one unit.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. In response to Dr. Nelson’s inquiry Mr. Peck replied that with both units operating there is approximately 1,000 amps spread across the lines, dependent on the flow of power going north to south or vice versa and upon many other variables such as the time of day, the weather conditions, and grid demand. The actuation set point for the SPS is set at approximately 180 amps on the line, so if the current falls below 180 amps the SPS determines that this reading indicates only the loading on an open end of the 90-mile long transmission lines and the SPS logic actuates a single unit trip. In response to Dr. Nelson’s second inquiry Mr. Peck stated the five-year reviews of grid conditions are intended to understand changes that evolve concerning the grid and to identify any changes that may be required to remedial action schemes.

The Chair recognized Mr. Greg Haas, District Representative for U.S. Representative Hon. Salud Carbajal who was present in the audience.

Mr. Peck made the next informational presentation to the Committee.
Presentation on the State of the Plant including Key Events, Highlights and Station Activities since the DCISC’s February 2019 Public Meeting.

Mr. Peck stated he would be reviewing plant operation and performance since the last public meeting of the DCISC in February 2019. He reported both units are now operating safely at 100 percent power with a probabilistic risk assessment (PRA) of “Green.” All NRC Performance Indicators are “Green.” He reported Unit 1 successfully completed its twenty-first refueling outage (1R21) and is approaching 90 days of reliable operation since 1R21 concluded. Unit 2 was curtailed to 50% power in April 2019 shortly after 1R21 to conduct tunnel and condenser cleaning due to marine growth. Mr. Peck reported the NRC conducted a Force-on-Force Inspection at DCPP in May 2019 and Mr. Peck reported a great deal of effort goes into these Force-on-Force Inspections.

Mr. Peck reviewed the daily load profile for the past four months including the outage duration for 1R21 from mid-February to mid-March 2019 and the Unit 2 tunnel cleaning shortly thereafter. He then reviewed the daily load profile for the last twelve months which included the Unit 2 automatic trip in December 2018 and curtailment due to Pacific Ocean storm surge activity and the curtailment of Unit 1 in December 2018 to address a bearing vibration problem with a main feedpump which resulted in Unit 1 being at 50% power when the automatic trip of Unit 2 occurred. In response to Consultant Wardell’s inquiry concerning a notation as to reduced generation due to warm ocean temperatures, Mr. Peck stated that DCPP’s megawatt output can be affected by the efficiency of the Pacific Ocean which serves as the plant’s heat sink. August and September generally see the warmest ocean temperatures along the California coast and during these months the plant produces on average 10 to 20 megawatts less power and he confirmed Mr. Wardell’s observation that this was not a regulatory limit but is the result of the effect of warmer ocean temperatures on generation efficiency.

Mr. Peck reported on and briefly discussed upcoming station activities including:

- INPO Fire and Emergency Planning Inspection - June 17, 2019.
- INPO Operations Crew Performance Evaluation - July 15, 2019
- World Association of Nuclear Operators (WANO) Peer Review - August 12, 2019
- Unit 2 Refueling Outage 2R21 including Main Generator Stator Upgrade Project - Commencing September 22, 2019 and scheduled for 85 days duration

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. In response to Dr. Nelson’s inquiry concerning whether there was flexibility in scheduling refueling outages based upon grid conditions Mr. Peck replied that there was minimal flexibility, as typically the design of the core and the time between refueling outages will be determined so as to use as much fuel as possible
and accordingly there would generally be only one to two weeks available for postponement of a scheduled refueling outage.

A short break followed.

The Committee Members then took up the only item on the Consent Agenda, scheduled for later in the meeting. This item was approval of the Minutes of the Committee’s February 27-28, 2019 public meeting held in Pismo Beach, California. The Members and Technical Consultants reviewed the draft of the February 2019 Minutes provided with the agenda packet for this meeting. Items were discussed and reviewed for follow up or for future action and clarification was provided to the Assistant Legal Counsel concerning certain references in the draft Minutes and regarding typographical or editorial corrections, as well as concerning substantive changes and corrections to be made to the final version of the February 2019 Minutes. The Minutes as revised and corrected will be part of the final version of the Committee’s 29th Annual Report on the Safety of Diablo Canyon Power Plant Operations (Annual Report) for the period July 1, 2018 to June 30, 2019.

There were no public comments on February 2019 Minutes and on a motion by Dr. Budnitz, seconded by Dr. Peterson, the Minutes of the Committee’s February 2019 public meeting were accepted as amended subject to inclusion of the corrections, revisions and changes discussed which Members and Consultants provided to Mr. Rathie.

**XIII Informational Discussion by Committee Members Consultants & Counsel**

Following discussion and approval of the February 2019 Minutes, the Members and Consultants discussed the invitation received from the Diablo Canyon Decommissioning Engagement Panel (DCDEP) for a representative of the DCISC to attend the DCDEP’s regularly scheduled meeting on June 12, 2019, to provide remarks on the strengths, weaknesses and opportunities for improvement in the DCDEP’s charter from PG&E. Mr. Rathie remarked the DCDEP’s discussion in June 2019 will take place in context of the receipt of a letter by the CPUC President and by the DCISC from Mr. Karlin, a member of the DCDEP, seeking a change in the composition of the DCDEP and suggesting opportunities for changing the role of the DCDEP. The Committee and Consultants discussed the question of whether this request fell within the DCISC’s mandate to conduct public outreach in the local community. They recognized that the DCISC’s interaction with the DCDEP is not dependent upon the DCDEP’s organizational structure or its mission and that the DCISC Members and Consultants possess no particular expertise and lack specific information on how a local San Luis Obispo community engagement panel should be organized. Therefore, a consensus was reached for the DCISC Legal Counsel’s office to respond on behalf of the DCISC and respectfully decline the DCDEP’s invitation to attend its June 12, 2019 public meeting but in that response to confirm that the DCISC remains available to the DCDEP in the future as a resource.
Committee Discussion of Options and a Potential Role for the DCISC After Expiration of the Operating Licenses for DCPP, Review of Revised Charter(s) for the DCISC, and Discussion of Participation in the 2018 Nuclear Decommissioning Cost Triennial Proceedings.

The Chair reported that Martin Mattes, Esq., DCISC Special Counsel for Regulatory Affairs, would be participating in the discussion of this item remotely via Skype. Dr. Budnitz asked Mr. Rathie to provide background information on the topic.

Mr. Rathie reported that at the time of the February 2019 DCISC public meeting the Committee’s Legal Counsel’s office received direction from the Members concerning scheduling a meeting with the CPUC Energy Division staff to discuss what, in view of the scheduled closure of DCPP by 2025, appears to be an ambiguity in the DCISC’s Restated Charter concerning the scope of the Committee’s review in light of the lack of a definition in the Committee’s Restated Charter of what constitutes “operations.” Mr. Rathie reported that on March 7, 2019, an Amended Scoping Memo was issued in the 2018 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP) which addressed issues raised by Mothers for Peace concerning reactor vessel embrittlement and issues raised by Mr. Karlin concerning the scope and propriety of the DCISC review of issues relating to decommissioning of DCPP. Mr. Rathie reported that on March 15, 2019, the DCISC filed a Motion for party status in the NDCTP which, at the time of this public meeting remains pending before the assigned Administrative Law Judge (ALJ). If granted, Mr. Rathie stated the venue to determine the status and role of DCISC after the plant ceases to generate electricity was most likely to be in the NDCTP. Mr. Rathie further reported that with Dr. Budnitz and Mr. Mattes on April 10, 2019 he attended a meeting with CPUC Public Utilities Regulatory Analyst David Zizmor, Esq. and CPUC Assistant General Counsel Jason Reiger, Esq. to discuss obtaining clarification of what the CPUC representatives agreed was an ambiguity in the Committee’s Restated Charter.

Mr. Rathie reported the original Charter for the DCISC was granted by the CPUC in 1988 and the CPUC subsequently granted the DCISC a Restated Charter in 2007 to address certain changes made to the Committee’s operation since its inception. Since the issuance of the Joint Proposal entered into by PG&E together with Friends of the Earth, the Natural Resources Defense Council, Environment California, the International Brotherhood of Electrical Works Local 1245, Coalition of California Utility Employees and the Alliance for Nuclear Responsibility (Joint Proposal) in June 2016 to retire DCPP at the expiration of the current operating licenses for each unit, the Committee has heard from several members of the public concerning continuing the DCISC after the plant shuts down and also from the DCDEP. He reported the DCDEP included a recommendation in its recent Vision Statement that the DCISC stay in operation after cessation of generation operations. Working with the Committee’s Technical Consultants, Mr. Rathie
reported three alternative versions of a possible Second Restatement of a Charter for the DCISC were developed for review during this meeting and copies of all three were available for public review in the meeting room.

In summary the three alternate versions of a second restatement provide as follows:

- **Version 1** - provides for the DCISC to terminate its safety review upon the date of successful completion of the transfer of all nuclear fuel from both DCPP spent fuel pools to the ISFSI.
- **Version 2** - provides for the DCISC to terminate its safety review upon the date when permanent cessation of power operations has occurred.
- **Version 3** - provides for the DCISC to terminate its safety review upon the later of eighteen months after the date of permanent cessation of power operations or the date an analysis has been completed that demonstrates that the decay heat produced by the nuclear fuel in both spent fuel pools has diminished such that there are no possible design-basis events that could result in a radiological release exceeding the limits established by the U.S. Environmental Protection Agency early-phase Protective Action Guidelines at the exclusion area boundary.

Mr. Rathie observed that the interests of the PG&E ratepayers who provide funding for the Committee operations should play an important part in the Committee’s consideration of this matter. While DCPP continues to operate and to generate electricity the DCISC has previously considered and concluded that its present mandate under the 2007 Restated Charter from the CPUC provides for the DCISC to continue to review matters that are resulting from or are related to decommissioning activities. He remarked should the DCISC’s motion for party status in the NDCTP not be granted, another avenue is open to the DCISC to seek clarification of the ambiguity in the Restated Charter through filing an Application in a separate proceeding seeking a second restatement of the Restated Charter from the CPUC. Finally, Mr. Rathie stated that one of the principal issues before the Committee at this public meeting is to decide whether to make a recommendation concerning this matter to the CPUC and even if the Committee’s Motion is not granted the discussion of the matter can serve to inform a subsequent Application by the Committee.

Dr. Budnitz stated the Committee could select among the three versions or could rank them in order of preference or the Committee could decide to take no position on any of the three or to reject all three and direct that new versions be prepared. He observed that it is still not known whether the DCISC will be allowed to participate in the NDCTP.4

4 On June 6, 2019, ALJ Houck issued her Ruling denying the DCISC’s Motion for party status in the 2018 NDCTP.
Mr. Mattes reported the Amended Scoping Memo in the NDCTP, issued by the Assigned Commissioner on March 7, 2019, included reference to Mr. Karlin’s challenge to the authority of the DCISC to undertake any expenditures related to decommissioning and this issue is therefore within the scope of the NDCTP. He reported the deadline for the Committee to submit prepared written testimony addressing the issues raised by Mr. Karlin and to make a recommendation for a second restatement of the Charter in the NDCTP is on or before July 15, 2019 and the DCISC would need to be prepared at that time to have a Member attend as a witness and be subject to cross-examination on those topics at the evidentiary hearings which are scheduled for the week of September 23-27, 2019, with opening and reply briefs due during October and November 2019, with a proposed decision due 90 days thereafter, likely by late February 2020.

Dr. Budnitz observed and Mr. Mattes agreed that it would be important to now discuss which of the three versions of a second restatement the Committee may wish to recommend and direct counsel to prepare testimony for review in accordance with Committee procedures.

Dr. Peterson stated the Committee has already reviewed and issued a table summarizing the items from the Open Items List which the Members believe would be appropriate for their continued review if the Committee were to continue activities after cessation of electricity generation and this is useful as it assists in communicating to the CPUC and to any interested parties how the scope of the DCISC’s review and accordingly the cost of that review would be reduced.

Dr. Budnitz moved that the Committee recommend to the CPUC Version 1 as the appropriate second restatement of its Charter and to explain to the CPUC why the Committee reached this conclusion and why Version 2 or Version 3 was not selected. Dr. Lam stated he was inclined to support Dr. Budnitz proposal as it is his belief that the most critical mission of the Committee is safety review of the storage and movement of spent fuel as well as review of generation related activities at the plant. He stated it was his belief that it would be a major failure by the Committee if it were to walk away from safety review of spent fuel storage.

Dr. Peterson questioned whether it is within the Committee’s authority to offer a recommendation to the CPUC concerning continuance of the Committee and he opined that the issue of continuance of the Committee after cessation of generation is a policy decision which requires weighing a set of factors that are beyond the competence or capability of the Committee. Dr. Peterson suggested presenting a set of options along with their implications and the cost of each and recommending that the CPUC choose between them. Dr. Lam stated that before issuance of the Amended Scoping Memo he was fully in support of Dr. Peterson’s position but with issuance of the Amended Scoping Memo he believes a response including an endorsement of a single version of an alternate second restatement may be appropriate.
Dr. Budnitz stated the CPUC’s decision to form the DCISC was related to the added value it provides. He observed the risk is greater when the units are operating than when they are not but even when both units cease operations there is a substantial risk in the initial post-operational period related to loss of cooling to the spent fuel pools which could produce a significant release. He observed that after the last operational core from Unit 2 is off-loaded there will be two young, full cores in the spent fuel pools which has never before happened at DCPP as current shutdown schedules are staggered. At that point he remarked the danger of a zirconium fire which would produce a large release is greater than the prior risk of any potential release from either of the spent fuel pools. Dr. Budnitz stated his belief that the public’s concern about a large release extends until at least eighteen months have passed since the second unit ceases operation, when the potential for a zirconium fire is reduced or almost eliminated and to terminate the DCISC’s review any earlier, such as proposed by Version 2, would result in short-changing the public. Dr. Budnitz remarked that the post generation risk of a large release is less than if the reactors were operating but the consequences would be great and it is the consequences rather that the probability that concern many members of the public. He affirmed his belief that the Committee should offer to the CPUC its recommended preference between Versions 1 and 3 and explain the risks associated with all three versions.

Dr. Lam observed the three versions of a second restatement essentially offer different definitions of what constitutes operations and Dr. Peterson’s concern might be addressed by the Committee expressing no preference as to those definitions. Mr. Rathie stated that with respect to risk he believes the CPUC would be looking to the DCISC for an assessment.

Mr. Mattes observed Version 2 would terminate the DCISC upon cessation of generation operations while Versions 1 and 3 define operations as extending through the post-generation storage of nuclear fuel but have differing termination clauses and the Committee may wish to propose that the CPUC define the concept of operations in a way that limits or extends the Committee. Dr. Budnitz remarked he viewed the process of defining operations as emerging from the Committee’s recommendation and he suggested that the Committee on the basis of the risk he described continue at least through the period provided by Version 3 and explain in its testimony the distinctions and options available between Version 3 and Version 1 and why the Committee was not recommending Version 2. Dr. Budnitz also recommended explaining to the CPUC the Committee’s perception of the local community’s impression of the value provided by the DCISC.

Dr. Peterson observed that much of what Dr. Budnitz described consists of policy determinations which are not within the Committee’s purview. He remarked that the Committee exists because it was created by the CPUC and provided with a Charter. Dr. Peterson stated that while the hazards associated with DCPP do not disappear upon cessation of generation they are lessened substantially and
eighteen months following cessation of generation there is a further substantial reduction in risk. He further noted that when all fuel is within the ISFSI there is again a large reduction in risk and the question of where it makes sense to continue to expect the ratepayers to pay for the DCISC is a policy decision. Dr. Budnitz reiterated his view that the Committee ought to make a recommendation concerning a possible post-shutdown role and express a preference and base that preference on a risk assessment. Dr. Lam expressed his concern that making a recommendation might be seen by some as self-promotion on the part of the Committee. Dr. Budnitz and Dr. Peterson discussed the value added by the DCISC and Dr. Budnitz remarked in his discussion with members of the public in other communities people often express a desire for a committee similar to the DCISC in their communities even if only to provide access to otherwise unavailable information.

The Committee Members then discussed the process for collectively developing written testimony in the event the Committee is granted party status in the NDCTP and Mr. Mattes confirmed the ability to subsequently supplement written testimony in a CPUC proceeding is very limited. Mr. Mattes observed that in its written testimony it would be logical that any recommendation by the Committee as to a post-shutdown role would flow from a discussion of the Committee’s assessment of risk and the duration of the risk. Dr. Peterson observed the spent fuel pools do not factor into the probabilistic risk assessments as a significant source of risk. Dr. Budnitz agreed but he stated his opinion was not based upon a concern about probabilities of the risk but rather about his belief that the public bases its concerns on the consequences of the risk of a release. Dr. Peterson stated his observation that there is no probability of a large release once two or three years have passed after cessation of generation but until that time there is a small, but not zero, probability of a large release and Dr. Budnitz again expressed his view that the risk together with the potential consequences should be explained by the Committee. Dr. Lam proposed a compromise, suggesting the Committee dismiss Version 2 and propose Versions 1 and 3 to the CPUC without expressing a preference for either of the two versions. Dr. Budnitz stated he could subscribe to Dr. Lam’s suggestion provided an explanation of the distinctions between Version 1 and Version 3 were incorporated in the Committee’s testimony. Consultant McWhorter observed one of the principal differences between Version 1 and Version 3 lies in the ability of a release to go offsite and the changes which occur to emergency planning once that risk is eliminated. Consultant Wardell remarked that in his opinion the DCISC should express its view to the CPUC, as the policy maker, on the nuclear safety issues raised in connection with spent fuel accidents for the periods under discussion. Mr. Wardell stated the Committee should dismiss a recommendation based on Version 2 and explain its rationale for doing so and select either Version 1 or Version 3, explaining its rationale for doing so and the resulting diminution of the Committee’s scope of review and activities as its recommendation in its testimony.
in the NDCTP. Mr. Wardell further expressed his opinion that Version 1 should be the basis for any recommendation to the CPUC.

Dr. Peterson stated the Committee should consider bringing forward Version 1 as its recommendation and provide discussion in its testimony in the NDCTP concerning alternative points in time when the Committee’s activities might be terminated and acknowledging that after cessation of generation the Committee’s role and scope would be substantially reduced. Mr. Mattes stated that Dr. Peterson’s suggestion provided a clear path to proceed to draft testimony in the NDCTP, which would be in a question and answer format, to convey the DCISC’s recommendation and its rationale for choosing among alternatives based upon the corresponding risk in terms of their probabilities and consequences and the corresponding diminution of the Committee’s role after generation ceases. Mr. Mattes stated he believed this course of action would avoid confusion or an erroneous interpretation of the DCISC’s position by the CPUC.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson suggested the Committee should develop a table to summarize the risk and consequences of each of the identified alternatives. Drs. Budnitz and Peterson and Mr. McWhorter briefly discussed revising the Committee’s Draft Post-Shutdown Summary, which describes the anticipated scope of the Committee’s review during four phases following cessation of generation, to include the probabilities and the consequences of the risk in each category. Dr. Nelson confirmed Mr. Mattes’ advice that the CPUC does not freely allow written testimony in its proceedings to be subsequently supplemented and he encouraged the DCISC to express its recommendation in full in its written testimony.

Mr. Sherry Lewis of Mothers for Peace was recognized. Ms. Lewis stated her view that the DCISC represents a valuable resource for the local community although as an anti-nuclear person she is often frustrated by some of the discussion at DCISC public meetings. She observed the DCISC provides a forum where the public can come and raise issues and have them addressed by the Committee. Ms. Lewis observed that the principal reason the Committee was created and exists today was due to the involvement of the California activist community. Dr. Peterson remarked that technologies that have both intrinsic hazards and potential for benefits and which cross different disciplines are dependent upon effective regulation but a committee such as the DCISC which has oversight but not regulatory authority provides valuable flexibility in serving as a conduit for the public.

Upon a motion by Dr. Peterson, with a second by Dr. Lam, the Committee unanimously approved presenting written testimony to the CPUC in the NDCTP, should party status be granted in that proceeding, regarding its recommendation of Version 1 as a proposed Second Restated Charter for the DCISC and directing and delegating to Legal Counsel and the Committee’s Technical Consultants development of the necessary supporting materials to be submitted to explain the
other alternatives considered by the Committee and the rationale for its recommendation that Version 1 be adopted by the CPUC. On a motion by Dr. Lam, seconded by Dr. Budnitz, the Committee then unanimously approved designating Dr. Budnitz to work with the Committee’s Legal Counsel and Technical Consultants to develop the Committee’s testimony in the NDCTP. Finally, upon a motion made by Dr. Lam, seconded by Dr. Peterson, the Committee unanimously approved the supervision of the testimony in the NDCTP by Dr. Peterson in accordance with the Committee’s procedures and for Dr. Peterson to be designated as the DCISC’s witness for the CPUC hearings on the NDCTP during the week of September 23-27, 2019.

XIV Adjourn Afternoon Meeting

The Chair adjourned the afternoon meeting of the Committee at 5:40 P.M.

XV Reconvene for Evening Meeting

The June 4, 2019, evening session of this public meeting of the Diablo Canyon Independent Safety Committee was called to order by its Chair at 5:45 P.M. Dr. Budnitz welcomed those present.

XVI Committee Member Comments

There were no comments by any Member at this time.

XVII Public Comments and Communications

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson reported that Californians for Green Nuclear Power remains very much engaged in efforts to keep DCPP operating beyond 2025 and have been developing novel and new legal strategies to support its continued safe operation.

XVIII Information Items Before the Committee (Cont’d.)

The Chair introduced Mr. Jearl Strickland, Executive Consultant to the Holtec International firm and remarked that Mr. Strickland was employed at DCPP for a very long time and during that period Mr. Strickland held a number of important responsibilities including serving in the area of spent fuel management and storage issue.

Informational Presentation by Holtec International on Nuclear Fuel Management and Storage at DCPP.

Mr. Strickland stated his presentation would include discussion of nuclear fuel and how it is stored, the Holtec HI-STORM 100 storage system, transportation of spent nuclear fuel, licensing issues and cask availability for eventual transportation of
spent fuel offsite, and the plans for Holtec’s consolidated interim storage facility being developed in New Mexico. He reported that Holtec is a privately owned company that has been in business since 1986 and the firm is known for its innovation, self-financed research and development efforts, and for holding dozens of patents on product lines and materials. Mr. Strickland stated Holtec exhibits a strong nuclear safety culture and provides a good quality assurance program. He reported Holtec initially developed high density racking systems for spent fuel pools and subsequently developed dry storage systems and equipment. Holtec has also been involved in development of a 160MW small modular reactor for use overseas with work on that design taking place at Holtec’s facility in Camden, New Jersey. Holtec also contracts with or purchases retired nuclear power plants to perform decommissioning. Mr. Strickland reported 116 nuclear power plants around the world use Holtec systems and more than 1,280 dry spent fuel storage systems have been loaded by Holtec personnel to date.

Mr. Strickland reported the fuel assemblies used in a nuclear reactor to produce heat are typically used for that purpose for up to five years and then placed in a spent fuel pool for cooling for five to seven years before being moved to dry cask storage. He reported that much work has gone into licensing efforts to shorten the duration fuel must remain in a spent fuel pool to as short as one to two years after final removal of the fuel from the reactor thereby enabling plants to move fuel from wet to dry storage sooner so as to proceed with fully decommissioning a power plant.

Mr. Strickland displayed photos of the multipurpose canister (MPC) and the steel and concrete overpack used for dry storage and he described the functions of the MPC’s various component parts. He reported for DCPP a site-specific license for the Holtec system was granted by the NRC which, due to high seismic activity in the vicinity and unique to DCPP, requires the overpack to be anchored to the pad. In response to Consultant Wardell’s question, Mr. Strickland replied the function of the 9-inch thick lid which seals the otherwise ½-inch thick MPC is to provide radiation shielding for workers who must work on top of the MPC when welding the lid after drying of the fuel has taken place. In response to Consultant McWhorter’s question, Mr. Strickland stated the MPCs used at DCPP are standard cylinders and provide both physical and radiation shielding for the fuel inside with the only difference from the MPC used at other plants being that at DCPP the MPCs are somewhat shorter due to a constraint with height of the door from the Fuel Handling Building and accordingly the decision was made to shorten the MPCs so as not to have to manipulate the MPCs more than necessary.

He reported a completely loaded HI-STORM storage system weighs approximately 170 tons and therefore it cannot be transported by truck on a public highway. The HI-STORM system is based upon a passive heat removal technique and requires only minimal maintenance. The design basis requirements for DCPP require that the HI-STORM be designed to resist damage from missiles, tornadoes and seismic events and he described the various threats to the integrity of the HI-STORM
system that were analyzed as a part of the NRC licensing process and included in the Final Safety Analysis Report (FSAR). Mr. Strickland reported that many of these same considerations were also analyzed and assessed in the NRC’s licensing process for the DCPP Independent Spent Fuel Storage Installation (ISFSI). He remarked that the Electric Power Research Institute (EPRI) has also done studies confirming the robust nature of the MPCs when stored within the HI-STORM overpack. Mr. Strickland reported that at the ISFSI site boundary the dose is approximately 5 millirem per year while a person receives on average 620 millirem from natural background radiation alone each year and would receive a 5 millirem dose during a round trip airline flight across the U.S.

Mr. Strickland observed that the reference to “multi-purpose” in the designation “Multi-Purpose Canister” is to recognize that the MPC is able to be transferred from the storage overpack to a transportation overpack and transported offsite to a federal repository or to a consolidated interim storage facility. He reported Holtec has licensed the HI-STAR 190 and the HI-STAR 100 transportation casks for this purpose and transportation of spent nuclear fuel is highly regulated by the NRC and the U.S. Department of Transportation (DOT), with the NRC overseeing design, manufacture and use of the MPCs and the transportation casks and the DOT coordinating with the NRC to establish rules for packaging and regulating various carriers and to set standards for routes. The HI-STAR 100 is licensed under 10 CFR Part 71 for use to transport MPC’s from PG&E’s Humboldt Bay Nuclear Power Plant and from DCPP. Mr. Strickland displayed a video showing the robustness of the transportation canisters which must be designed to survive four successive accidents including accidents as a result of fire, being dropping, being punctured, and being submerged in water. He displayed a map of the U.S. showing the sites of nuclear power facilities with stored fuel onsite and the location of the two planned consolidated interim storage facilities planned to be located in New Mexico and Texas.

Mr. Strickland reported Holtec is in the process of developing its planned consolidated interim storage facility to be located at a remote site in New Mexico and the facility is intended to utilize the Holtec UMAX system to store fuel below grade and to accommodate fuel assemblies including those stored in Holtec MPCs as well as for spent fuel assemblies stored in the Orano and Trans-Nuclear firms’ dry cask storage systems. Mr. Strickland stated the consolidated interim storage facility is based on the premise that it will provide safe, secure, retrievable and temporary storage to withstand both natural and man-made events without a release. Mr. Strickland stated these facilities are not intended as a replacement for a federal repository, such as was planned at Yucca Mountain, Nevada, but rather for interim storage for a period of at least 100 years until such a facility or facilities are available. Holtec is planning now for construction of its New Mexico facility starting in 2021 and for being able to accept shipments starting in 2023 and Mr. Strickland briefly reviewed with the Committee the licensing process with the NRC involving both the design basis and environmental aspects of the facility. He reported that Holtec expects the NRC staff will complete its review and make its
decision by July 2020. In response to Dr. Lam’s query Mr. Strickland stated the requests for additional information made in the process were extensive but Holtec was able to be very responsive to the NRC. He confirmed Dr. Peterson’s observation that in order for the U.S. Department of Energy (DOE) to avail itself of consolidated interim storage opportunities legislation will be required and he stated such legislation is presently under consideration.

In response to Dr. Peterson’s inquiry about parallel activity by Orano to license a similar interim consolidated storage facility, Mr. Strickland reported Orano suspended its NRC licensing application but it is his understanding Orano’s licensing efforts have now been resumed. In response to Consultant McWhorter’s inquiry Mr. Strickland stated his understanding that the request for proposals issued by PG&E for DCPP is not proposing to use different casks but rather to afford PG&E the opportunity to understand what options are available and to allow PG&E to make its decision whether to continue with the same Holtec systems. He remarked Holtec intends to provide a number of options in that process for PG&E including moving from a 32-assembly capacity MPC to a 37-assembly capacity MPC which would require a new transfer cask but would remain in compliance with DCPP seismic restraint conditions. Mr. Strickland stated licensing changes would also be required to shorten the duration of time the fuel is in the spent fuel pools from five to seven years to approximately two years. In response to Dr. Budnitz’ inquiry concerning if a revised or more advanced system were to be implemented, Mr. Strickland replied that as long as the vendor met the licensing basis that includes the seismic design basis for DCPP, PG&E should have the option of either loading under a general license for the remainder of the fuel or being able to include the vendor’s license revision into its site-specific license. In response to Dr. Budnitz’ comment about the effects of the marine environment at DCPP on the MPCs, Mr. Strickland stated that materials used for the MPC have continued to evolve and today consist of 316L steel as its predominant material. Mr. Strickland stated when his current assignment for Holtec at the San Onofre Nuclear Generating Station (SONGS) is concluded, he intends to become actively involved with assisting the State of California to develop a solution to be able to move spent nuclear fuel out of high seismic zones and coastal environments to an interim storage facility if a federal repository is still unavailable. In response to Consultant McWhorter’s inquiry about inspection techniques, Mr. Strickland reported Holtec and the fuel storage industry are working on that issue and the General Electric company has developed a robotic camera system that is magnetic and can be placed on the MPC within the overpack to perform a detailed inspection but additional advancements in inspection techniques are being developed. He commented as a part of the license renewal for its ISFSI DCPP must develop a detailed inspection program.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson inquired concerning what is being done proactively at DCPP to prevent misposition errors in connection with spent fuel loading activities such as occurred at SONGS. Mr. Strickland stated DCPP and SONGS use different systems with the
UMAX system used at SONGS being a below grade system. He stated the UMAX system alignment tolerances are very different from the alignment tolerances required at the DCPP Cask Transfer Facility which, due to its design and level surface, are very stable, predictable and repeatable with the transfer cask transporter being anchored to the ground in a seismically stable configuration during the transfer operation.

Ms. Jill ZamEk of Mothers for Peace was recognized. In response to Ms. ZamEk’s inquiry concerning storage of high burn-up fuel Mr. Strickland replied the MPCs now in use at DCPP are designed to store high burn-up fuel. He reported the initial license application for the ISFSI specifically excluded high burn-up fuel because at that time DCPP did not want to address high burn-up fuel in context of obtaining its site-specific license, as there was an immediate need to transport fuel that was not high burn-up from wet to dry storage. He reported the initial license amendments processed for the ISFSI addressed moving high burn-up fuel using the same MPCs and accordingly high burn-up fuel is currently stored at the ISFSI. He stated Holtec’s proposal to PG&E to move to a 37-assembly MPC which includes high burn-up fuel will also include a thermal analysis to allow higher heat loads in each MPC and reduce the time the spent fuel spends in the pools. He remarked that Holtec’s proposal will likely recommend that DCPP not wait until operations cease to start moving spent fuel and that in some three to four years the transition to the new MPCs should begin to reduce the spent fuel pool inventories and thereby shorten the overall duration to go from cessation of operations to having all fuel stored within the ISFSI, thereby smoothing the transition into full decommissioning. Mr. Strickland confirmed Dr. Peterson’s observation that the issue of the storage of high burn-up fuel also turns on how the MPCs are dried, with vacuum drying having never been used at DCPP. Dr. Peterson observed vacuum drying exposes fuel to conditions beyond what it experiences in service in the reactor and has resulted in hydriding and other issues with storage of high burn-up fuel. Dr. Peterson reported and Mr. Strickland confirmed the only method used to dry spent fuel within the MPCs at DCPP has been helium drying which maintains the fuel below its previous maximum in-service temperature.

Ms. Jane Swanson of Mothers for Peace was recognized. Ms. Swanson inquired regarding which agency was responsible to ensure the local roads and bridges would be capable of supporting vehicles transporting spent fuel; what Mr. Strickland meant when he referred to license renewal; and concerning Mr. Strickland’s reference to fuel being removed from the pools within three or four years. In response, Mr. Strickland reiterated that he does not speak for PG&E and his reference to fuel being removed from the spent fuel pools in three to four years was a part of the proposal Holtec expects to make to PG&E. He replied his reference to license renewal was to the license renewal required for the ISFSI not for the power plant for which the request to the NRC for license renewal has been withdrawn. Dr. Budnitz and Mr. Strickland replied that the U.S. Department of Transportation and Cal Trans would be the agencies the NRC would rely upon for an assessment of local roadways and infrastructure.
Dr. Nancy O’Malley, a member of the DCDEP, was recognized. Dr. O’Malley stated she was making this inquiry on her own behalf as to whether she was correct in her understanding that a new cask system might allow fuel to be removed from the spent fuel pools as soon as two years after its was initially stored in the pool. Dr. Budnitz responded that while Dr. O’Malley’s statement was technically feasible that does not mean such a cask system would be approved by the NRC and there are differences in fuel from one site to another. Mr. Strickland agreed but he observed that a limiting condition for DCPP is related to the ventilation provided for the HI-STORM while it is in the Cask Transfer Facility but he commented that one of the license submittals Holtec has now pending with the NRC would bring the duration for spent fuel storage down to just over one year and other spent fuel storage firms are working on similar proposals. In response to Dr. O’Malley’s inquiry about ownership of fuel that has been transferred to a consolidated interim storage facility Dr. Peterson responded, in accordance with the Nuclear Waste Policy Act, the U.S. Department of Energy formally holds ownership of spent fuel upon its removal from a plant site and could then contract with a firm operating a consolidated interim storage facility for storage services.

Ms. Sherry Lewis of Mothers for Peace was recognized. In response to Ms. Lewis query as to whether Holtec or another consolidated interim storage operator could decide to reprocess spent fuel Dr. Peterson stated that would not be possible as it would require a decision by the Department of Energy to do so, not Holtec. In response to Ms. Lewis question as to the need for a 9-inch lid on the MPC Drs. Peterson and Budnitz responded the purpose of the thickness of the lid is to provide shielding for workers when the lid is being welded shut or inspected and the MPCs are otherwise designed to provide only minimal shielding from radiation as one of the principal functions of the overpack is to provide protection from radiation. In response to Ms. Lewis question concerning responsibility for payment of road and infrastructure inspection and improvements Dr. Budnitz commented fuel cannot be transported unless the routes are found to be capable of accepting the loads.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson and Mr. Strickland confirmed that when an MPC is transported it is removed from its storage overpack and placed in a transport cask designed for use on roads and railroads and its weight is reduced substantially from 170 tons to 125 tons. Dr. Peterson stated the transport cask provides equivalent shielding to the storage overpack through the use of more steel and lead and less concrete.

In response to Ms. Lewis question about storage of spent nuclear fuel beyond a period of 100 years to 300, 5000 or 1,000 years in the future, Dr. Budnitz replied that no one in the federal government or otherwise has yet planned for what is to become of spent fuel during the periods referenced by Ms. Lewis and this is an open question. Dr. Peterson remarked assessments have shown the MPCs will likely have a service life of well over 100 years in terms of corrosion and service
but they will require continued monitoring and possibly repackaging of the fuel and Dr. Peterson stated it was his hope that future generations will be more rationale than current and past generations have been in dealing with spent fuel.

The Chair introduced Mr. Chris Newport, the Senior resident Inspector for DCPP to make the next presentation.

**Remarks by the NRC Senior Resident Inspector for DCPP.**

Mr. Newport thanked the Committee for the opportunity to address remarks to the DCISC and to provide information to the public on the role of the NRC and that of its Resident Inspector Program in connection with operating nuclear reactors and the NRC reactor oversight process and he stated his remarks were intended in furtherance of the public outreach portion of the mission of the NRC. He reported as Senior Resident Inspector for DCPP he is assisted by NRC Resident Inspector Mr. John Reynoso. Mr. Newport reviewed the NRC’s Mission Statement which provides “the NRC licenses and regulates the Nation’s civilian use of radioactive materials to provide reasonable assurance of adequate protection of public health and safety and to promote the common defense and security and to protect the environment.” Mr. Newport stated those words were very carefully chosen and he pointed out that the DOE and the U.S. Navy each have separate regulatory schemes for their oversight of government reactors and nuclear weapons.

Mr. Newport stated the NRC consists of five commissioners and answers directly to the U.S. Congress. The commissioners are political appointees not nuclear professionals and no more than three commissioners can be affiliated with one political party which he observed operates to provide stability within the organization when there is a change of administration in Washington D.C. Mr. Newport reported the NRC’s headquarters are located just outside of Washington D.C. and the U.S. is divided by the NRC into four regions, with DCPP being within Region IV which has the largest land area of the four regions. Region IV’s headquarters are located in Arlington, Texas.

Mr. Newport reported every operating nuclear reactor in the U.S. has at least two full-time resident inspectors assigned and both he and Mr. Reynoso are local residents and work full-time at DCPP to inspect and observe the actions of DCPP and PG&E to ensure the plant is operated in compliance with its license from the NRC. The NRC resident inspectors have unfettered access anywhere within DCPP and they tour the plant on a daily basis. In response to Dr. Peterson’s inquiry Mr. Newport stated that in his and Mr. Reynoso’s daily interactions with plant staff, management and leadership they have found that DCPP continues to demonstrate a strong nuclear safety culture with personnel being willing to report safety concerns and he reported there have been no indications that staff are cynical or bitter with respect to the current bankruptcy filing by PG&E or the impending closure of the plant by 2025 which he agreed are issues which have the capacity to affect the lives of many DCPP employees.
Mr. Newport stated resident inspectors are required to hold a bachelor’s degree in a technical field and undergo a two-year formal training program and two to four weeks of additional training each year, together with quarterly and annual objectivity reviews. Resident inspectors are only allowed to remain assigned to one power plant for a maximum term of seven years. He briefly reviewed both his professional background and that of Mr. Reynoso.

In response to Consultant McWhorter’s query Mr. Newport stated the role of a resident inspector includes emergency response as well as inspection responsibilities and one inspector always remains within the local area with the ability to be on site promptly and to then remain in contact from either the Emergency Operations Facility or the Control Room with the NRC Emergency Response Centers in Arlington, Texas and in Washington D.C. Mr. Newport reported DCPP has computer links whereby all plant information is sent to the NRC’s facilities in Texas and Washington D.C. He reported, if necessary, the NRC inspectors have the authority to order PG&E and DCPP personnel to take actions. Dr. Budnitz commented that he was on the NRC staff at the time of the accident in 1979 at the Three Mile Island Nuclear Generating Station in Pennsylvania and at that time the NRC did not have a resident inspector program. Dr. Budnitz commented that had such a resource been available the response by the operators at Three Mile Island could have been very different.

Mr. Newport stated in their role as resident inspectors he and Mr. Reynoso must observe twenty surveillance inspections each year and generally will schedule time to observe any unusual or infrequently performed activities at the plant. He remarked this baseline inspection program provides an excellent sample of how DCPP is being operated. Each day Mr. Newport said he visits the Control Room to read the operations logs and review emails and the Notifications generated during the last 24 hours and attends daily plant management meetings. Each morning there is a phone call scheduled with the NRC regional office concerning activities at DCPP. In response to Dr. Peterson’s inquiry concerning self-reported or self-revealing issues or issues which are initially discovered by the resident inspectors, Mr. Newport replied DCPP has not recently experienced a large number of self-revealing issues as the plant has operated well and has not received a large number of violations compared to other sites. Mr. Newport stated he and Mr. Reynoso continually assess the rigor of their inspection activities. In response to Dr. Lam’s query Mr. Newport replied he would inform Region IV headquarters if a serious issue with high risk significance were discovered and additional NRC inspection teams would likely be dispatched to DCPP in that event, but for lower level issues Region IV management receives a briefing each quarter concerning violations pending documentation, to ensure that enforcement protocols are consistent across all sites in the region. He commented that as resident inspectors he and Mr. Reynoso can seek assistance from the NRC’s regional or national headquarters with regard to technical issues and he reported that he has never experienced direct intervention from any NRC headquarters with reference to
technical inspection findings.

Mr. Newport reported annual funding for the NRC is provided in a total amount of approximately $1 billion and this amount has been in a decline in recent years due to the size of the industry having been reduced. He reported approximately 80% of the NRC’s funding is paid for by the licensees, such as PG&E, and he observed this was a very different case than for other regulated industries. In 2018 the NRC resident inspectors and regional inspection teams performed approximately 6,300 hours of total inspection activity, with 2,500 hours of that total representing direct inspection activity. Regional inspection teams perform inspections in specialized areas such as emergency preparedness, fire programs, radiation protection and certain in-service inspections. Mr. Newport reported all inspection reports with the exception of security or safeguards related information are publicly available including through the NRC website and he commented he tries very hard to create inspection reports that a reasonably informed member of the public can understand. He reviewed the NRC’s Reactor Oversight Process (ROP) and the Action Matrix used in the ROP which he described as key to how the NRC performs its oversight of commercial nuclear reactors. Performance indicators and color-coded risk significance indicators are used as metrics in this process and contribute to determining what level of oversight a plant will receive from the NRC, with poor performing plants demonstrating performance with a higher level of risk-significance receiving greatly enhanced levels of NRC inspection activity including more public meetings and press releases. Mr. Newport reported the majority of U.S. commercial nuclear power plants including DCPP are now within Licensee Response Column 1 on the ROP Action Matrix indicating their performance meets or exceeds the NRC’s performance metrics. In describing the colors used by the NRC to indicate findings of risk significance Mr. Newport stated Green indicates very low risk, White indicates an elevated risk but still a low risk, while Yellow or Red represent safety-significant issues and, although extremely rare, if a plant were to receive a Yellow or a Red finding that would have a major impact.

Dr. Peterson thanked Mr. Newport for his presentation and for meeting with the DCISC during its frequent fact-finding visits to the plant to discuss insights and review issues being followed by the NRC and by the DCISC.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. In response to Dr. Nelson inquiry about Mr. Newport’s actions following the December 1, 2018 Unit 2 trip due to grid conditions (discussed earlier at this meeting), Mr. Newport reported he was offsite at the time of the trip but was immediately contacted by the plant and promptly reported the trip to Region IV headquarters. He stated his first job once arriving on site was to assess the condition of the plant and to make sure the plant was stable. He then gathered the impressions of the operators as to what had caused the unit to trip and he provided that information to Region IV. Mr. Newport then spent the rest of the weekend reviewing plant data and plant alarm response recorders to ensure the plant responded in accordance with his assessment and as designed. When it was determined that the issue was
due to grid conditions, Mr. Newport then reviewed the causation determination to ensure it was correct and sat in on management and leadership meetings concerning the plans to restart Unit 2. Mr. Newport reported that over that period of time he worked 12 to 15 hours each day and he remarked this was for an uncomplicated plant trip with no issues.

XIX Adjourn Evening Meeting

The Chair adjourned the afternoon meeting of the Committee at 7:30 P.M.

Public Tour of Diablo Canyon Power Plant

On the morning of Wednesday, June 5, 2019, DCISC Members Drs. Budnitz and Lam, together with Committee Technical Consultants Mr. McWhorter and Mr. Wardell and Assistant Legal Counsel Mr. Rathie, accompanied by 21 members of the public participated in a tour of Diablo Canyon Power Plant (DCPP). The members of the public responded to the advertisement concerning the public tour placed in a local area newspaper and on the DCISC’s website. The group assembled in the PG&E Energy Center auditorium for a safety message and a brief introduction of the DCISC and its Members and Technical Consultants and a discussion of the appointment of its members and the operations of the Committee and to view an informational video on the history, role and responsibilities of the Committee. Afterward, DCPP Marketing & Communications Representative Ms. Diana Turk, who also served as the group’s escort during the tour, gave informational presentations about the plant and the operation of DCPP as a nuclear power plant. An opportunity was provided for questions.

The group then boarded a bus for the ride to the plant. The bus entered the plant site through the Avila Gate and the group received security badges and a briefing from PG&E representatives on the various external features and buildings and was taken on a narrated drive-by of the Independent Spent Fuel Storage Installation (ISFSI), also known as the dry cask spent fuel storage facility.

The bus then arrived at the parking area. The members of the public and the DCISC Members, Consultants and Counsel visited the Simulator Observation Room and observed an Emergency Response Exercise which was in progress during the visit. The group then had the opportunity to view the Intake and Outfall Facilities where the plant pulls in and discharges cooling water from and to the Pacific Ocean and to receive information concerning the plant’s cooling systems from DCPP Nuclear Environmental Services Supervisor Mr. Bryan Cunningham.

The group then departed DCPP for return to the Energy Education Center and had the opportunity to discuss the plant with individual DCISC members and consultants.

XX Reconvene for Afternoon Meeting
Dr. Budnitz convened the afternoon meeting of the DCISC at 1:00 P.M. and welcomed those present. He remarked the Committee conducted a very successful plant tour with members of the public earlier in the day and recommended members of the public who wish to tour the plant with the DCISC watch for public notice of the next tour. Due to a scheduled refueling outage, the Committee is not conducting a public tour in conjunction with its October 23-24, 2019 public meeting.

XXI Committee Member Comments

There were no comments by Members at this time.

XXII Public Comments and Communications

There were no comments from members of the public at this time.

XXIII Consent Agenda

The Chair reported the only item on the Consent Agenda was taken up during the afternoon of June 4, 2019 (see above) when the Minutes of the Committee’s February 27-28, 2019 public meeting held in Pismo Beach, California were unanimously approved as revised.

XXIV Technical Consultant Reports & Receive, Approve and Authorize Transmittal of Fact Finding Reports to PG&E (Cont’d.)

The Chair requested Consultant McWhorter to report on a fact-finding visit to DCPP on April 16-17, 2019 with Dr. Lam. Mr. McWhorter stated topics reviewed with PG&E during that visit included the following:

- Meeting with NRC Senior Resident Inspector - Mr. McWhorter stated the DCISC representatives met with NRC Resident Inspector Mr. John Reynoso and discussed the NRC initiative to conduct public meetings in locales with ongoing decommissioning-related activities and that a request is pending concerning such a meeting to be held in the local San Luis Obispo area. The fact-finding team also discussed results of the NRC first quarter inspection which were at that time in draft form and the generally positive results of the 1R21 refueling outage.

- Future Movement of Spent Fuel - the fact-finding team reviewed the technical specification limits for the minimum amount of time spent fuel must remain in a spent fuel pool after its final removal from the reactor core. Mr. McWhorter stated this is a complex topic but the short answer to the question, at this time, is a minimum of five years. He displayed a table which was created as part of Section 10.2 of the Updated Final Safety Analysis Report (UFSAR) for the ISFSI which sets forth the default maximum heat loads for high burn-up
fuel assemblies considered for placement within the 32-assembly capacity MPC currently in use at DCPP and what the maximum burn-up must be for the different assemblies to be assigned a location within defined regions within a MPC. He reported there are both inner and outer regions within a MPC and each has different heat limits. In order to meet these limits high burn-up fuel can require more than ten years in a spent fuel pool before it can be loaded in a certain region within a MPC. Following Mr. Wardell’s report on the May 8-9, 2019 fact-finding, Mr. McWhorter reported that per the UFSAR for the ISFSI Region 1 of the MPC consists of 12 assemblies and is located in the center of the MPC and high burn-up fuel is allowed to be loaded in Region 1 while assemblies with a lesser heat load are loaded in the 20 areas available in Region 2, on the outside circumference of the MPC, to balance the heat load and radiation shielding requirements and to set up large scale circulation of helium within the MPC, up the center and down the outside of the MPC. Dr. Budnitz observed that apart from using the default tables, DCPP could perform a separate analysis and apply for a configuration exemption if it believes the overall performance of a proposed loading plan meets the higher level criteria but the only reason to do so would likely be due to a decision to rearrange certain spent fuel pool configurations or fuel loading parameters but the method defined in the UFSAR would still need to be used for any exemption. Dr. Lam observed he believes the seven to nine-year duration PG&E used in its recent submittal to the CPUC may be an accurate estimate of DCPP spent fuel pool duration and for high burn-up fuel the duration is now more than five years using the current tables and approved methodology. Mr. McWhorter reported the fact-finding team also inquired concerning PG&E’s issuance of a request for proposals for spent fuel storage systems and he confirmed Mr. Strickland’s statement earlier in this public meeting that PG&E hopes to take advantage of advances in knowledge and technology since the ISFSI was licensed, including in the use of advanced materials. He commented on the importance of the materials used for a MPC to have higher thermal conductivity to enable the heat from the assemblies to be conducted to the outer shell of the MPC and then to the outside. The present MPC design limits each fuel assembly to approximately 28kW but there are studies that show the use of different materials could possibly raise that level to as high as 50kW which would allow earlier loading of assemblies while keeping the temperature of the fuel below the point where zirconium hydriding of the cladding might take place. Mr. McWhorter remarked that advances in modeling for thermal properties have also improved which provides a greater understanding of the thermal properties of a MPC and what happens inside the MPC. The DOE has done heat transfer studies at the North Anna Nuclear Generating Station in Virginia using instrumentation placed inside a MPC with high burn-up fuel and these advances and studies seem to indicate that there is perhaps considerable margin included in previous analyses that could possibly be recouped to allow hotter assemblies to be loaded. Mr. McWhorter stated PG&E hopes to receive information on these options through the responses to the request for proposals and to learn how
the time required for DCPP spent fuel to remain in the spent fuel pools might be reduced in order to minimize the overall inventory in the pools, which is of considerable concern in the local community based upon a current proposal by PG&E to the CPUC to retain existing fuel inventories in the pools for seven years. Mr. McWhorter reported there are currently no MPCs on order for DCPP and the plant’s goal is to complete the process to apply for an amendment to the ISFSI license by 2021 and to complete licensing approval and procurement of the MPCs in time to support use of new MPCs or new technology by 2025 which he described as a very challenging schedule.

- Reactor Vessel In-Service Inspection and Relief Requests - Mr. McWhorter remarked this item was included in the agenda for the fact-finding due to comments received from members of the public. He explained a relief request was submitted by DCPP in late 2018 concerning visual examination of the Uni1 1 reactor vessel’s four hot leg nozzles to ensure there were no foreign materials on the nozzles and the relief request permits this examination to be done by a lower resolution camera at a different calibration with differing verification requirements than would be otherwise required by the ASME Code. Mr. McWhorter reported this exemption issue is part of an industry effort coordinated by the Electric Power Research Institute.

Concerning vessel weld inspections, Mr. McWhorter reported Unit 1 had 100% of its vessel welds robotically inspected in 2005 and during the 2013 ten-year inspection there were problems experienced with the robot used for the inspection and only 84% of the vessel welds were inspected at that time. Subsequent to the 2013 inspection, PG&E sought and received an exemption from the NRC to extend the ten-year inspection interval for the Unit 1 vessel welds from ten to twenty years. Had approval not been granted the next inspection would have taken place in 2015 but now that inspection would take place in 2025 if the plant were not closing by that date. Accordingly, Mr. McWhorter reported there are no plans to do further inspections of the Unit 1 vessel welds. Dr. Budnitz observed that because the ASME Code allows exemptions, with PG&E’s relief request granted DCPP remains in compliance with the ASME Code. Dr. Budnitz reported the defined basis for granting such relief requests is set forth in the ASME Code and requires specific evidence and detailed analysis of the specific welds as well as the fluids and conditions to which they are exposed. Mr. McWhorter reported that in the 2005 and 2013 inspections of the vessel welds there were no indications found that exceeded established thresholds and no indications of growth and most of the indications were original construction indications. He reported Unit 2 had 100% of its vessel welds inspected in 2016 and were the plant not scheduled to close by 2025, Unit 2 would be due for its next inspection in 2026.

- Performance Improvement Program - the DCISC fact-finding team reviewed the assessment done by the Performance Improvement Program of the decline in the numbers of Notifications generated during the past few years. The assessment determined there is no single reason for the decline and there was no reluctance found on the part of employees to generate a
Notification nor have there been any changes to the numbers of Notifications generated anonymously. The causes for the decline in Notifications were determined to be improved human performance, the reduction in the number of capital projects being undertaken and the reduction in preventive maintenance activities as the plant approaches closure. Mr. McWhorter reported there have been some personnel changes in the management of the Performance Improvement Program. In response to the DCISC representatives’ inquiry, the Performance Improvement Program representatives responded there have been no effects on performance of the DCPP workforce due to the PG&E bankruptcy filing. He reported a self-assessment was performed during 1R21 for human performance event rates and no changes were found. There were no Department-level events during 1R21. Mr. McWhorter reported the department most closely watched by the Performance Improvement Program for any decline in performance is the Maintenance Department as it generally has the higher turnover rates and the highest numbers of temporary workers.

- Foreign Material Exclusion (FME) Program - Mr. McWhorter reported the DCISC reviews this program following each refueling outage and the DCISC team found it to be generally healthy. Three threats were experienced during 1R21: first, when a D-ring was found in the reactor cavity after the cavity had been found to be cleared; second, when workers on the reactor head allowed a tool to come loose from its lanyard and drop into the mechanism and the magnet used to retrieve the parts broke, and third, when a contractor in the condenser water box dropped a piece of inspection equipment into the circulating water inlet which was submerged at the time and required a scuba diver to retrieve. DCPP has concluded from these three events, an increase from one event during 2R20, that there needs to be improved awareness of FME requirements and several FME awareness bulletins were issued during 1R21. Mr. McWhorter recommended that while the FME Program is effective, the DCISC should follow up concerning FME training for temporary workers during a future fact-finding. During 2R21 a large project is scheduled for the main generator which will result in creation of a large FME area and DCPP has engaged a firm which previously performed work on a turbine at the plant to perform the generator and the associated FME work during 2R21 as in the past this contractor has demonstrated its ability to successfully do this type of work.

- Observe Plant Health Committee (PHC) - Mr. McWhorter reported the PHC conducted a tactical meeting focusing on Operations which the DCISC representatives observed. The PHC reviewed the lists maintained of issues identified by operators and the role of the PHC was to assess the plans developed to address and resolve those issues. Mr. McWhorter reported the discussion by the PHC was detailed and focused on operational safety and additional follow up was initiated where required.

- Management Observation Program - Mr. McWhorter reported the fact-finding team reviewed the change in focus of this program which is now intended to
get first-line supervisors into the plant with their workers and to document
their observations in quarterly Operations Review Meetings (ORM) facilitated
by a departmental performance improvement coordinator and to develop
corrective actions if needed. The role of DCPP managers and directors is now
to define how often the first-line supervisors go out into the plant and to
participate in the ORMs and be responsible to review the results of the ORMs
and determine if a focus area exists across departments.

- Flow Accelerated Corrosion (FAC) Program - Mr. McWhorter stated flow
accelerated corrosion of piping can occur where high temperature mixed fluid
flow results in the fluid with the highest concentration of steam and water
causing carbon steel pipe to corrode. He reported DCPP has replaced a great
deal of piping which was subject to FAC with alloy piping which is not
susceptible to FAC. DCPP is currently replacing the polisher piping to eliminate
FAC and generally the inspection activity for FAC during refueling outages is
declining. Mr. McWhorter reported there were no unsatisfactory results from
the 27 inspections performed for FAC during 1R21.

- Direct Current (DC) Power Systems - Mr. McWhorter stated the DC Power
System consists of batteries, chargers and inverters and all were found to be
in satisfactory condition. He reported that it is unclear at present how long
DCPP will be required to maintain the DC Power System following cessation of
operations as the system is required to support spent fuel pool operations and
other station equipment and instrumentation, as the DC Power System
provides power in the event offsite power or power from the emergency
diesel generators is lost. Mr. McWhorter reported DCPP is presently assessing
which systems will be required after cessation of generation operations.

- Meet with DCPP Officer - Dr. Lam reported during his meeting with Senior
Vice President and Chief Nuclear Officer Mr. Jim Welsch they discussed Mr.
Welsch having recently joined the DCDEP and the effect of the PG&E
bankruptcy filing on budget and employee morale at DCPP. Dr. Lam reported
Mr. Welsch confirmed there has been no effect from the bankruptcy on the
budget for DCPP’s operations but future budgets may require review by the
assigned bankruptcy judge. Dr. Lam reported the information he
received in this meeting indicated there has been no adverse effect to
date on morale at DCPP as a result of the bankruptcy but he
suggested the DCISC should continue to review this issue.

- Control Room Observation - during Dr. Lam’s meeting with Mr. Welsch,
Consultant McWhorter stated he visited the Control Room and found it in neat
and orderly condition and he observed that the communication that was
taking place in the Control Room was conducted in a formal manner,
employing three-way communication techniques.

Following Mr. McWhorter’s presentation, Ms. Sherry Lewis of Mothers for Peace
was recognized. Ms. Lewis asked several questions as follows. In response to Ms.
Lewis’ question on the table used by Mr. McWhorter to describe heat load
limitations for high burn-up fuel assemblies, Mr. McWhorter stated these data are
based upon how much of the fuel has been burned in the reactor and accordingly
how long that assembly must remain in the spent fuel pool and the location it can
occupy within a MPC in accordance with heat transfer requirements. In response to
Ms. Lewis’ question concerning Unit 1 vessel weld inspections in 2005 and 2013
Mr. McWhorter replied there was no growth observed for indications when 2005
results were compared to 2013 results and he confirmed in 2013 16% of the welds
in certain locations, which locations were not reviewed by the DCISC fact-finding
team, were not inspected due to problems with the robotic inspection device. Dr.
Budnitz explained in response to Ms. Lewis query that for an exemption to be
made to the ASME Code a broad community of experts must agree on the specific
criteria including certain material properties to define the basis for that exemption
and each individual exemption requires a demonstration by both the licensee and
the independent experts, metallurgists in the case of the vessel weld exemption,
and review by the NRC that the defined basis is met. Dr. Lam stated that the
DCISC should schedule further review during fact-finding of the
exemption request and the basis for its approval. Mr. McWhorter observed
that much of the applicable documentation is available within the NRC’s system. In
response to Ms. Lewis’ observations about the FME results during 1R21 Dr. Budnitz
observed having foreign material in a circulating water system is not a good thing
but during 1R21 the FME Program worked such that foreign material was
discovered and removed before it could be introduced into circulating water and he
observed the three events described by Mr. McWhorter during his report were
distinct occurrences in separate locations. In response to Ms. Lewis’ concern about
training, Mr. McWhorter replied the DCISC has plans to further review changes to
supplemental worker training during outages and Dr. Budnitz observed some
supplemental outage workers are nuclear professionals while others are engaged
from local hiring halls and may have little or no nuclear experience but he
observed no supplemental workers are allowed to go into the power plant without
having received training on nuclear-related practices. Dr. Lam observed the
bankruptcy filing by PG&E and PG&E’s legal obligation to give notice before that
filing raised some concerns in the contractor community on whether payment
would be forthcoming and Dr. Lam speculated this may have had an adverse effect
on the time available for temporary outage worker training. In response to Ms.
Lewis’ inquiry about MPC current available inventories at DCPP Dr. Budnitz replied
that it is the DCISC’s understanding that there are at present no MPCs available at
DCPP to be loaded with spent fuel. Dr. Budnitz observed that should DCPP make
its decision, following receipt of responses to its request for proposals to change
the MPCs it has used in the past and thereby to take advantage of certain design
changes including, but not limited to, MPCs with a higher capacity, NRC approval
for such a licensing change will be required and obtaining that approval would not
be a quick process. Dr. Lam stated that PG&E’s estimate of two years to go
through the licensing process for new MPCs was in his view exceptionally
optimistic. Ms. Lewis stated it was her belief that PG&E may be purposefully
postponing a decision.
Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson reported that in the past he has been employed as a temporary outage worker at DCPP and he confirmed that he was provided training, which included information on avoiding events which would lead to foreign material being introduced into a system before there was any opportunity to do any work at the plant.

Upon a motion made by Dr. Budnitz, seconded by Dr. Peterson, the April 16-17, 2019 Fact Finding Report was accepted and its transmittal to PG&E authorized.

The Chair then requested Consultant Wardell to report on a fact-finding visit to DCPP on May 8-9, 2019 with Dr. Peterson. Mr. Wardell stated topics reviewed with PG&E during that visit included the following:

- Meeting with DCPP Officer - Senior Vice President and Chief Nuclear Officer
  Mr. Jim Welsch - Mr. Wardell reported the DCISC representatives discussed with Mr. Welsch some of the improvements in security including the elimination of the outer vehicle inspection station, for which approval was received from the NRC, and the matter discussed earlier in the meeting by Mr. Hamzehee concerning the pending request to remove the Intake Structure and areas in proximity from the vital protected area. The DCISC fact-finding team reviewed the plant’s impressive performance during the NRC’s Force-on-Force Inspection. Mr. Welsch also discussed with the fact-finding team the bankruptcy filing which Mr. Welsch reported was principally motivated to facilitate protection of the company from the costs of recent wildfires but has not affected the budget for DCPP. Mr. Wardell reported that the decision to terminate certain capital projects was made before the bankruptcy filing and those decisions were unrelated to the bankruptcy matter.

- Institute of Nuclear Power Operations (INPO) Observation of Operations - Mr. Wardell reported this observation by INPO of the Maintenance, Engineering and Operations organizations was conducted in advance of the August 2019 full evaluation by INPO and included observation of the actions of operators in the Control Room; review of clearance performance when components are taken out of service for maintenance; review of infrequently performed evolutions; review of a Containment spray pump event; and drain down and mode changes to startup during the latter stages of an outage. Mr. Wardell reported this INPO observation yielded very positive results with a few minor areas identified for improvement.

- Configuration Management Program - Mr. Wardell reported the Configuration Management Program ensures that the plant’s components and configuration match the as-built drawings and the design requirements. He reported after a refueling outage there are modifications and projects performed in the plant on equipment and components and it takes some time for the as-built drawings to be integrated into the Configuration Management Program’s
database. Mr. Wardell reported the performance indicators for the Program were mostly in Green status with two currently in White status based on activities stemming from the 1R21 outage. He stated the DCISC fact-finding team found the Configuration Management Program to be satisfactory.

- **Wireless Information Technology (IT) in the Powerblock** - Mr. Wardell reported the Powerblock consists primarily of the Turbine and the Auxiliary Buildings and some years ago DCPP began to implement a wireless policy to facilitate data collection and transmission within the Powerblock. However, these efforts were placed on hold after issuance of the Joint Proposal and following a scoping analysis the wireless technology project was found to be too complex and expensive. Mr. Wardell confirmed this item has been closed for DCISC review on the Open Items List.

- **High Pressure Injection (Safety Injection) System** - this system is also known at DCPP as the Safety Injection System and the DCISC representatives met with the system engineer, reviewed the system and piping diagrams, and received an explanation of its operation as a part of the Emergency Core Cooling System used in the event of a loss of coolant accident to provide water to cool the core. Mr. Wardell reported the system has double redundancy and is seismically designed as required for a safety-related system. The DCISC team toured the Safety Injection System pump rooms with the system engineer and found them to be clean and orderly. He reported the system health is in Green status for both units.

- **Professional Development of DCPP Employees** - Mr. Wardell reported in recognition that many employees will lose employment at DCPP upon the planned cessation of operations, DCPP has opened its Employee Resource Center to assist employees to explore opportunities and options including retirement, continuation of their careers including what Mr. Wardell described as a generous tuition assistance plan, opportunities in the local area in government or the private sector, and for employment at other nuclear facilities or at DCPP during its decommissioning period. Mr. Wardell stated the fact-finding team found the Employee Resource Center to be very effective in providing assistance to DCPP employees.

- **Meet with NRC Senior Resident Inspector** - the DCISC representatives met with Mr. Chris Newport, the NRC’s Senior Resident, and with Mr. Tony Vegel, Director of the Division of Reactor Projects for NRC Region IV, and discussed the history, organization and role of the DCISC and issues related to emergency preparedness.

- **California Independent System Operator (CAISO) Load Reductions** - Mr. Wardell reported the DCISC team reviewed the agreements and protocols in place between DCPP and the CAISO that establish communication channels for nonemergency power reduction by DCPP when required by the CAISO. Mr. Wardell stated such reductions do not constitute load following. He reported DCPP and the CAISO have agreed on a two-hour notice requirement for reductions of between 35 and 200MW and a twelve-hour notice requirement
for power reductions by DCPP of 200MW or greater, with DCPP having the option to determine which unit to ramp to achieve the requested reduction. Mr. Wardell stated that most such requests are not expected to result in a reduction of $\geq 50\%$ of the power plant’s generation capacity. He reported, to date, the CAISO has not made any requests for DCPP to curtail power production. Mr. Wardell stated the fact-finding team found the program and the communication protocol to be effective to accomplish load reduction on an occasional basis if necessary.

- **Notification Review Team Meeting** - the DCISC representatives observed a meeting of the Notification Review Team. Notifications are the electronic documents used by personnel to document problems in the plant. Approximately 22,000 Notifications are created each year with approximately 50-100 Notifications created daily during a non-outage period. Mr. Wardell reported all Notifications are dispositioned based upon their significance and significant issues are reviewed the same day they are received by work control personnel and by the Control Room shift manager. Other Notifications are processed the following day by the Notification Review Team using One Note, a collaborative computer program which Mr. Wardell described as an effective tool. The Corrective Action Review Board selects and reviews significant Notifications each week and performs a high level review for these Notifications. Mr. Wardell stated the fact-finding team concluded the Notification Review Team is an effective and efficient organization.

- **Emergency Response Organization (ERO) Muster Meeting** - the DCISC representatives met with and observed a muster meeting of one of the four ERO teams. Each ERO team consists of approximately 70 persons and one team is on call for response at all times and the four teams rotate the on-call status every two weeks. Each team is required to maintain proficiency training and this training is conducted during the beginning of each team’s two-week on-call period during what are termed ERO muster meetings. During these meetings the teams receive information on updates to procedures and technologies and information on operating experience from other nuclear stations. Each meeting also includes a dynamic learning activity. Mr. Wardell stated the muster meeting observed by the DCISC fact-finding team was effective and professional and included good discussion by the team members.

- **Workplace Seismic Safety** - Mr. Wardell reported workplace seismic safety includes ensuring items such as furniture are secured in the plant in a manner that they cannot fall, move or otherwise block passageways or injure personnel and thereby impede their ability to respond to events in the plant. He reported both PG&E’s corporate offices and DCPP have standard requirements for bracing furniture and the DCISC has been tracking performance in this area for some time and has frequently found items which were unsecured or which were secured improperly. During this fact-finding visit two instances of unsecured furniture were found in the radiation control area equipment room and in the new Employee Resource Center. Mr. Wardell
reported that Notifications were immediately created for both areas and the DCISC representatives concluded the Workplace Seismic Safety Program has been implemented with partial effectiveness and during the fact-finding they discussed the program with Mr. Tom Baldwin who serves as the program manager.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized following Mr. Wardell’s report. Dr. Nelson remarked that he has seen misleading statements that DCPP should be considered to operate in load following mode but he observed that if California had a rationally designed loading order, which he stated it does not, there would be no need for such consideration.

Ms. Sherry Lewis of Mothers for Peace was recognized. Ms. Lewis commented on the lack of mention of issues with the fire doors in Mr. Wardell’s report and Mr. Wardell responded he reported on that matter in his previous fact-finding report during the meeting and that the efforts to repair the fire doors are proceeding in a satisfactory fashion.

Upon a motion by Dr. Lam, seconded by Dr. Peterson the May 8-9, 2019 Fact Finding Report was accepted and its transmittal to PG&E and inclusion in the Committee’s 29th Annual Report were authorized.

**XXV Concluding Remarks & Discussion by Committee Members of Future DCISC Activities**

Mr. Garcia reported he would review the proposed scheduling of Committee activities earlier in this meeting and confirm or, if necessary, propose changes in the dates selected by the Members.

Dr. Budnitz expressed the thanks of the Committee to the technicians of AGP Video who are responsible for audio and visual recording and livestreaming of the DCISC’s meetings and to Mr. Rathie and Ms. Denise Righetti of the Committee’s Legal Counsel’s office for their efforts in support of the Committee’s public meetings. The Chair also expressed the thanks and appreciation of the DCISC to the members of the public who attended and participated in this public meeting.

**XXVI Adjournment of Ninety-third Public Meeting**

There being no further business, the ninety-third public meeting of the Diablo Canyon Independent Safety Committee was adjourned by its Chair Dr. Robert J. Budnitz at 2:40 P.M.
4.0 Summary of Major DCISC Review Topics

4.1 Conduct of Operations

4.1.1 Overview and Previous Activities

During the previous reporting period, the DCISC reviewed the following topics related to the conduct of operations at five Fact-finding Meetings:

- Observe Chemistry Sampling Process
- Operator Staffing Adequacy
- Observe Auxiliary Feedwater System Pump Control Valve Periodic Test
- Operations Department Performance
- Observe Operator Rounds in Plant
- Reactivity Management

The DCISC concluded in the last period that a Chemistry technician correctly followed proper Chemistry, Radiation Protection and Human Performance practices in obtaining a pressurized Reactor Coolant System sample. The plant and Chemistry Laboratories appeared orderly and clean. DCPP appeared to be appropriately planning for operator staffing, taking into account potential early and normal retirements, resignations, and the possible effects on staffing of the Joint Proposal, which requires plant shutdown in 2025. Plans to observe an Auxiliary Feed Water valve surveillance test were cancelled due to a delay in Maintenance valve preparation. The system components and plant itself appeared to be in good condition. External organizations noted areas for improvement in the Operations Department, and DCPP has moved to implement appropriate corrective actions and include those actions in the Department Excellence Plan. DCPP had not been requested by the California Independent System Operator to implement any procedures for load following. An observation of an operator on data recording rounds in an Emergency Diesel Generator room was positive in that the operator stressed personnel safety as well as good human performance practices. The DCPP Reactivity Management Program was satisfactorily designed and implemented with tight controls and Green (good) performance.
measures.

4.1.2 Current Period Activities

During the current period, the DCISC received presentations on the conduct of operations at six Fact-finding Meetings and one Public Meeting. The following topics were reviewed:

- Chemistry Department Performance
- Operations Performance Indicators
- Licensed Operator Staffing Update
- Cause and Corrective Actions for Unit 2 Trip
- Control Room Observations
- California Independent System Operator Load Following

Chemistry Department Performance (Volume II, Exhibit D.2, Section 3.8)

Overall, Chemistry Program health at the station was "Green" (Healthy) as measured by numerous performance indicators. The primary performance indicator was the Chemistry Effectiveness Indicator (CEI) which summarized performance from the following contributing indicators:

- Water Chemistry
- Metal Transport
- Reactor Material Integrity
- Contamination Control

The CEI for Unit 1 showed "Green" (Healthy) performance for all contributing indicators for the last seven straight quarters. Unit 2's CEI showed "Green" (Healthy) performance for all contributing indicators for the last five straight quarters. With the combined CEI effectively at zero, DCPP was in the top quartile of Chemistry performance for the U.S. nuclear industry.

One of the major drivers for the good performance was DCPP's successful management of secondary plant water chemistry, which in turn reduced the potential for condenser tube leaks. When DCPP decided in 2008 to not replace the condenser tubes, it was also decided that the plant would rely heavily on the use of condensate polishers during startup to ensure that secondary water quality was maintained at a high level. Although it was expensive to operate the polishers, that strategy had resulted in the low number of condenser tube leaks. As a result, impurities were kept from entering the Steam Generators, in which outage inspections routinely found that secondary side sludge levels were extremely low. The condenser in-leakage rates were less than 0.6 gallons per day on both units. One challenge that remained for the station was the occurrence of high levels of...
iron (corrosion products) in the system during startups. To address this issue, DCPP was focusing on the use of Carbohydrazide to scavenge oxygen in the system at low temperatures.

Regarding water chemistry in the primary (reactor) section of the plants, performance was good with no major chemistry issues. DCPP primarily used hydrogen and lithium to scavenge oxygen and control water pH, respectively, and there had been no problems maintaining primary water chemistry parameters within industry guidelines. One area of concern with primary water chemistry was the level of long-lived radioactive nuclides, which lead to high dose rates in containment during outages. In general, the presence of such nuclides (such as cobalt-60) was driven by maintenance activities and not by water chemistry.

Regarding the current staffing levels in the Department, the Department was currently fully staffed having just filled one open supervisory position in June. Some attrition was expected to come, and some of those positions would likely be eliminated when vacated over the next two years. Additionally, given some recent turnover of personnel, the overall experience level in the Department had been steadily declining. The staff expected the Department to be completely eliminated when the plant ceased operations in 2025.

The Chemistry Department overall performance at DCPP was good, and the Department was appropriately managing emerging issues. Primary and secondary Chemistry indicators place DCPP in the top quartile in the U.S. industry in maintaining Chemistry parameters.

Operations Performance Indicators (Volume II, Exhibit D.2, Section 3.9)

The DCISC reviewed the following Operational Focus Area Performance Indicators:

- Operational Focus
- Operational Transient Events
- Scram with Complications
- Power Change 7000 hours
- Operational Decision-Making Events
- Reactivity and Fuel Handling Events
- Operations Personnel-Related Events
- Safety System Unplanned Unavailability Index
- Limited Condition of Operation Entries
- Clearance and Tagging Events
- Hours Critical Breaker Open
- Component Mispositioning Events
Operator Workarounds
Control Room Deficiencies
Unplanned Shutdown Limited Conditions of Operations
Outage Risk Level Changes
Senior Reactor Operator and Reactor Operator Class Completions
Reactor Operator Program Completion
Percent Total Reactor Coolant System Leakage
Percent Technical Specification Unidentified Leakage
Percent Technical Specification Primary-to-Secondary Leakage

Each of the above indicators was Green, except the following two Yellow indicators:

1. High Pressure Injection System Availability - this was Yellow due to a valve interlock problem and to a pump anti-rotation pin failure. Modifications to resolve these issues were to be completed in 2019 with Outage 1R21 completion. This 36-month indicator should return to Green in 36 months, assuming no further issues.

2. Hours Critical Breaker Open - this was Yellow due to units being critical more hours than planned before generator breakers were closed. The delays were caused by the need to repair selected components before generator breakers were closed. DCPP expected to return to Green by the end of 2018.

One major individual Operations performance indicator was that for Reactivity Management. Reactivity is a measure of how the nuclear fission process was behaving as being controlled by Operations. This monthly indicator was a measure of the significance of events affecting reactivity. Unit 1 score was 99.3/100, and Unit 2 score was 98.0/100, both well into the Green range (>95.0/100). This was good performance.

Another major individual Operations performance indicator was that for Protective Tagging. This was a measure of how well Operations controls equipment clearance tags, which provide protection for personnel working on plant systems and components which are normally electrically live or contain hot, high pressure water or steam. The current measure was 100/100, excellent performance.

**DCPP Operations Performance Indicators overall were Green indicating good performance. Two indicators were Yellow (needing improvement) for High Pressure Injection System Availability and for Hours Critical Breaker Open. Both of these were being resolved with a return to Green expected for the former in 2019 and the latter in 2018.**

Licensed Operator Staffing Update (Volume II, Exhibit D.6, Section 3.8)
The purpose of this meeting was to obtain and review the minimum staffing numbers for operators as defined by the NRC and PG&E and to review DCPP's plans to ensure that the minimum staffing numbers could continue to be met through the cessation of operations in 2025. DCPP staffing requirements were contained in procedure OP1.DC35, "Plant Logs," a copy of which was reviewed by the DCISC. The minimum staffing requirements for licensed operators required by the plant Technical Specifications and 10 CFR 50.54 are shown in the table below:

<table>
<thead>
<tr>
<th>NRC-required Minimum Staffing Requirements (total for two units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Reactor Operators (SROs)</td>
</tr>
<tr>
<td>Reactor Operators (ROs)</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

The minimum staffing requirements required by DCPP's procedure were over and above those required by the NRC license and were primarily based on commitments made to the NRC regarding providing adequate staff on shift at the plant in order to fulfill the duties required of the plant's Emergency Plan. The minimum staffing procedural requirements to meet the Emergency Plan commitments are shown in the table below:

<table>
<thead>
<tr>
<th>DCPP-required Minimum Staffing Requirements (total for two units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift Manager (SRO)</td>
</tr>
<tr>
<td>Shift Foreman (SROs)</td>
</tr>
<tr>
<td>Licensed Operators (ROs)</td>
</tr>
<tr>
<td>Other Non-licensed Personnel</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>16</td>
</tr>
</tbody>
</table>

The typical staffing for a shift included at least one additional licensed SRO and one additional licensed RO. On average, five SROs and six ROs were assigned to each of the five rotating shifts. There was a license amendment request pending before the NRC that would reduce the minimum number of ROs from five to four, but DCPP currently planned to maintain an average of six ROs on each shift. DCPP's main intent in submitting the amendment was to provide some additional margin or flexibility for staffing should that be needed in the future.

Regarding DCPP's plans for ensuring that the staffing requirements would continue to be met through the cessation of plant operations in 2025, there were two major elements to licensed operator staffing management that were used to ensure the requirements would be met in the future. First was to provide adequate training for new licensed operators. There were three licensed operator classes in progress as shown in the table below:

<table>
<thead>
<tr>
<th>Class Number</th>
<th>Number of Operators</th>
<th>Planned Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>L171</td>
<td>4 SRO &amp; 5 RO</td>
<td>1Q 2019</td>
</tr>
<tr>
<td>L181</td>
<td>8 SRO &amp; 7 RO</td>
<td>1Q 2020</td>
</tr>
<tr>
<td>L191</td>
<td>SRO &amp; 16 RO</td>
<td>1Q 2021</td>
</tr>
</tbody>
</table>
It was anticipated that class L191 would be the last class of licensed operators at DCPP. Another class could be manned, if needed; but it was not forecasted that it would be required at this time. From the start of a class to the taking of the NRC examination typically required 18-24 months.

The other planning element that was considered in meeting the future needs for licensed operators was the number of off shift personnel that currently held active licenses. These personnel could be moved back on shift to meet the staffing requirements, if needed. There were a number of licenses held by individuals outside of operations (typically 10 to 12) as well as a number of licenses held by individuals off shift but still in the Operations Department (typically 10). All of these licenses were maintained as active NRC Licenses, although some of the individuals might not maintain proficiency. Those individuals maintaining proficiency were required to participate in an Operations training week once every five weeks (20% of their work time). If an active license holder was not proficient, approximately 40 hours of training and watch standing would be required to reestablish proficiency.

It was also noted that similar attention had been given to reviewing staffing for non-licensed operators and significant numbers of such had been hired in the last four years as a result of the projected future needs. Overall, the DCISC concluded that DCPP appears to have adequate plans in place to ensure that the future staffing needs for licensed operators would continue to be met through the cessation of operations in 2025.

**DCPP appeared to have adequate plans in place to ensure that the future staffing needs for licensed operators would continue to be met through the cessation of operations in 2025.**

**Cause and Corrective Actions for Unit 2 Trip (Volume II, Exhibit D.6, Section 3.9, and Exhibit B.9)**

At the time of the Unit 2 trip on December 1, 2018, Unit 1 was operating at reduced power, approximately 50%, for condenser waterbox cleaning. Unit 2 was tripped by the Special Protection System (SPS), which is a sensing and relay system contained in the DCPP 500 kV Switchyard. All plant equipment responded as designed, and operators appropriately responded to the trip by placing the plant in a stable, hot shutdown (Mode 3) condition. Following reviews of the trip, the Unit 2 reactor was restarted on December 2, 2018, and was returned to generation service on December 3, 2018.

The SPS was installed in 2006 following studies in the early 2000s by the Western Electricity Coordinating Council which concluded that grid instabilities could occur if a two-unit DCPP trip occurred when two of three 500 kV lines connecting DCPP to the grid were out of service. Accordingly, the SPS was designed to send a trip signal to the unit output breakers of one unit if it sensed a loss of two of the three power lines tying DCPP to the grid. Specifically, the SPS is armed when total net
output from DCPP exceeded 1700 Megawatts (MW) and actuated if it detected that two lines are lost by sensing if a line’s current drops below 220 amps. On the day of the Unit 2 trip, none of the three 500 kV lines connecting DCPP was actually out of service. However, the current on the two lines from DCPP’s 500 kV switchyard to the Midway switchyard fell below the 220-amp setpoint. With total DCPP generation greater than 1700 MW and a low current sensed on the two lines, the SPS performed its function as designed and sent a signal to open the generator output breakers on one of the DCPP units (Unit 2 in this case). When the output breakers opened, Unit 2 Reactor subsequently tripped as designed due to the magnitude of the load rejection. The low-line-current situation had not previously occurred in the previous 13 years of SPS operation, and it was thought that changes in the flow of electricity were possibly driven by changing electricity market conditions throughout the area.

Prior to this event, Control Room Operators were not provided with any way to monitor the SPS due primarily to generator and transmission company information segregation requirements. As an immediate corrective action and prior to unit restart, an alarm was created to estimate DCPP output and transmission line loading and alert Operators if a condition approaching SPS actuation were to occur. The DCISC concluded that equipment and personnel performed as expected during the trip, and the unit return to service was appropriately managed. However, the DCISC should review the final RCE once it is approved and available.

**DCPP equipment and personnel performed as expected during a trip on December 1, 2018, and the unit's return to service was appropriately managed. However, the DCISC should review the final Root Cause Evaluation once it is approved and available.**

The following is a summary of DCPP's presentation on this topic at the DCISC's June 2019 Public Meeting: On December 1, 2018, the Special Protection System (SPS), a PG&E Electric Operations organization grid protection feature for DCPP, had an undesired actuation which resulted in a Unit 2 trip. The SPS was designed to protect the grid; it prevents a DCPP dual unit trip by tripping one unit when certain grid conditions exist whereby a dual unit trip could result in widespread blackouts and further challenges to the grid. The SPS was installed in 2006 based on grid conditions at that time and this was the first instance of SPS actuation since it was installed. The SPS actuation opened the 500kV output breakers and resulted in the unit trip. There were no nuclear safety, equipment, or other challenges. All equipment, personnel and procedures responded as designed and ensured a safe shutdown of Unit 2. While operators routinely train to respond to a trip, this was the first trip for Unit 2 since 2014. Unit 1 had not experienced a trip since 2002.

Unit 2 tripped due to the low amperage on the 500kV lines when the SPS remote outage detection logic, located offsite at the Gates and Midway Transmission Substations, incorrectly determined that two of DCPP's three 500 kV lines were out
of service. To prevent a dual unit trip, the SPS logic selected Unit 2 to trip. As an immediate response to the trip the SPS remote outage detection logic was disabled and risk mitigation measures were developed which include ramping a single unit down to below the actuation set point of the SPS scheme any time a 500 kV line is out of service for either planned or unexpected maintenance. The mitigation measures would remain in place until the logic can be redesigned and installed during the 2R21 refueling outage scheduled for December 2019.

Regarding this equipment, DCPP was essentially a customer of the PG&E Electric Operations organization in terms of emergency offsite power for both units for the 500kV and the 230kV power supplies. A joint root cause evaluation was performed, led by DCPP with the PG&E Electric Operations organization and this effort included DCPP Operations, Electrical Systems Engineering, Performance Improvement, PG&E Electric Operations and Engineering, Transmission Planning, System Protection, the Transmission Grid Control Center and the Remedial Action Scheme (RAS) Operations organizations. A number of opportunities for improvement were identified in this effort.

The primary Root Cause was identified to be a latent design vulnerability which represented a legacy issue, having existed from the original installation of the SPS. The SPS remote outage detection logic had a latent design vulnerability in that the SPS looked a amperage on the 500kV lines but did not have an indication of actual breaker position at the remote substations. This vulnerability was exposed when power path flows on the grid changed, combined with DCPP Unit 1 having ramped to 50% prior to the Unit 2 trip. The grid flow at the time of actuation was unusual and was based on conditions outside of DCPP or PG&E's control. This resulted in the SPS logic, sensing low flows on two of DCPP's three 500kV lines and therefore justified the trip signal. Corrective actions were taken and planned to prevent recurrence as including redesign and implementation of the SPS remote outage detection logic to make the SPS scheme secure and to mitigate logic vulnerabilities due to changing grid conditions including power path flows and generation changes. DCPP is in the process of completing modeling of conditions on the grid and the installation of new SPS logic can only be done during a refueling outage.

The second Root Cause was identified as being that required evaluations by the Electric Operations organization of changing conditions on the electrical grid were not fully completed as required every five-years as conditions on the grid continued to change. This represented a missed opportunity to identify vulnerabilities in the SPS and to recommend corrective actions. Procedures had been revised to prevent recurrence and to specify periodicity, roles, responsibilities and accountability for completion of evaluations of grid conditions including an independent review of the evaluations by DCPP as a customer of the grid protection scheme.

Control Room Observation (Volume II, Exhibit D.8, Section 3.11)
The DCISC Consultant observed that the Control Room was neat and orderly with a professional atmosphere being maintained at all times during the observation. Communications between Operations personnel were clear, concise, and performed using 'three-way' methodology. The Consultant reviewed the Operations Plan of the Day and briefly discussed the status of activities with the Unit 1 Senior Reactor Operator.

The DCISC Control Room was neat and orderly with a professional atmosphere being maintained.

California Independent System Operator Load Reductions (Volume II, Exhibit D.9, Section 3.8)

The DCISC reviewed the following document, which is an agreement between the plant and California Independent System Operator (CAISO): "Communications with Generator and Transmission Organizations," Revision 27, Dated July 2, 2018. The purpose of this document was to establish communications and agreements regarding DCPP power reductions requested by CAISO to protect the California transmission grid. This was not a load following agreement per se. That is, DCPP does not load follow, which would be power reductions and returns on a daily or other regular basis. Rather, this agreement covered infrequent power reduction requests from CAISO when the transmission grid needs it for stability. The agreement covered, for example, non-emergency power reductions of 35-200 MW with a two-hour warning or >200 MW reduction with a 12-hour warning. When received, DCPP selects which unit in which to reduce power. DCPP has not been asked by CAISO to reduce power.

DCPP is not designed for regular load following; however, it can modulate power to accommodate expected CAISO requests. Similar evolutions have occurred in the past when DCPP temporarily reduced power to one or more units up to 50% power in the case of winter storms when increased kelp in the intake bay adversely affects the flow of plant cooling water in the plant intake. These transients have gone smoothly.

The DCISC concluded that DCPP had an effective communication and load reduction agreement with the California Transmission organization.

4.1.3 Conclusions and Recommendations

Conclusions:

DCPP Operations Performance Indicators overall were Green indicating good performance. Two indicators were Yellow (needing improvement) for High Pressure Injection System Availability and for Hours Critical Breaker Open. DCPP appeared to have adequate plans in place to ensure that the future staffing needs for licensed operators would continue to be met through the cessation of
operations in 2025. DCPP equipment and personnel performed as expected during a trip on December 1, 2018, and the unit's return to service and Root Cause Evaluations were appropriately managed. DCPP had an effective communication and load reduction agreement with the California Transmission organization.

Recommendations:

None
4.2 Conduct of Maintenance

4.2.1 Overview and Previous Activities

The following are maintenance-related items the DCISC reviewed in the previous reporting period:

- Maintenance Department Performance
- Foreign Material Exclusion Program
- Use of Portable Electronic Devices in Power Block
- Electronic Work Management System
- On-line Maintenance Status

The DCISC concluded the following during the previous reporting period:

**DCPP Maintenance performance is generally satisfactory with initiatives for improvement in selected areas, such as Foreign Material Exclusion and the work order process. Maintenance is beginning to use electronic work orders to streamline the work order process and reduce paper. On-line maintenance is performed effectively with emphasis on managing risk caused by taking equipment out of service while operating.**

4.2.2 Current Period Activities

During the current period, the DCISC reviewed the following topics:

- Preventive Maintenance Optimization Initiative
- Maintenance Department Performance
- Foreign Material Exclusion (FME) Program

**Preventive Maintenance Optimization Initiative (Volume II, Exhibit D.1 Section 3.9 and Exhibit D.4, Section 3.11)**

DCPP has 12,639 Preventive Maintenance (PM) activities. They have initiated a project to optimize these PM activities by reviewing all of them "...by a cross discipline team to validate whether the PM is still needed, the frequency is appropriately established, and the scope is providing the value to the station in..."
Safety and Reliability." The reviews take place during outage and online to tactically implement value based maintenance for cost effectiveness. The Project is to be completed in early October 2018.

The PMO Project team went line-by-line through the MPs and reviewed the history, basis, current frequency, and impact to maintenance for each MP. Approximately 4000 total changes to MPs were initiated through approximately 1000 Preventive Maintenance Change Requests (PMCRs). Recommended changes were divided into three categories:

1. Except for approximately 2000, which are not due to be performed until after 2025.
   - Category 1 - Change frequency,
   - Category 2 - Deactivate, or
   - Category 3 - Change scope.

MPs that were directly tied to the NRC's Maintenance Rule or regulatory commitments were typically not reviewed, as it was generally considered that any possible efficiency gains would not be worth the sizeable effort that would be required to make any changes in those cases.

A summary of the final results that were achieved by the PMO Project is as follows:

<table>
<thead>
<tr>
<th>Total applicable MPs</th>
<th>10,436</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total MPs Reviewed</td>
<td>10,436</td>
</tr>
<tr>
<td>Frequency Changed</td>
<td>2,853</td>
</tr>
<tr>
<td>Eliminated</td>
<td>1,454</td>
</tr>
<tr>
<td>Scope Changed</td>
<td>274</td>
</tr>
</tbody>
</table>

All of the changes coming from the PMO Project were being done in accordance with DCPP's governing procedure. When PMCRs were initiated by the Project, they were documented as a Deferred, Non-critical (DN) class of task Notification in the SAP system. Once initiated, the review and approval of the PMCR Notification depended primarily on the classification of the original MP. In accordance with the administrative procedure, all original MPs were classified according to the following priorities:

- Priority 1 - Regulatory/Critical (such as equipment related to regulatory requirements, classified as safety-related, bounded by design calculations, or associated with outside agencies, such as the National Fire Protection Association),
- Priority 2 - Programmatic (such as non-critical equipment that supports operation of critical equipment), or
- Priority 3 - Economic (equipment not Priority 1 or 2 but providing cost benefit
When the PMO Project team initiated a PMCR on a Priority 1 MP, the PMCR was referred to the Engineering Department for a detailed review. If the team initiated a PMCR on a Priority 2 or 3 MP, the PMCR was referred to the Maintenance organization for a less detailed review. The applicable reviewers would complete their review and either approve or disapprove the PMCR. At the time of the Fact-finding Meeting, all of the first reviews were complete and all but 149 of the PMCRs (15%) were approved during the first review. Those PMCRs that could not be approved on the first review were the subject of Round 2 of the PMCR Project. 

Round 2 consisted of a meeting of the full project review team, about 40 individuals, wherein they would together provide a further review for each of the PMCRs not approved in Round 1. The additional review would either provide new information/direction for processing the PMCR or would approve cancellation of the PMCR.

The DCISC reviewed this process against the governing procedure and found that it was consistent the procedural requirements. Meaning, the implementation of the PMO Project was being conducted in accordance with existing procedures for making changes to MPs. The Fact-finding Team also reviewed the procedure to ascertain that it contained appropriate guidance to ensure that adequate maintenance would continue to be performed on critical components. The team found that the procedure required that the PMCR consider and document why the change was technically acceptable, describe and consider the possible failure of the subject equipment, and check that no applicable regulatory requirements or design basis calculations would prohibit making the change. Additionally, for PM changes to critical equipment, a PM Change Risk Assessment was required in which the reviewer was required to consider and document both the probability and the consequence of failure for the subject equipment.

DCPP provided the DCISC with copies of four completed PMCRs representing several of the categories. The PMCRs provided to the team were:

<table>
<thead>
<tr>
<th>Number</th>
<th>Category</th>
<th>Priority</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>50978307</td>
<td>1</td>
<td>1</td>
<td>Safety Injection Pump 1-1, Change Motor Inspection Frequency From Two to Four Years</td>
</tr>
<tr>
<td>50984632</td>
<td>1</td>
<td>2</td>
<td>Turbine Lube Oil Reservoir Level Switches (4), Change Calibration Frequency from Every Two Refueling Outages to Every Three Refueling Outages</td>
</tr>
<tr>
<td>50980731</td>
<td>2</td>
<td>2</td>
<td>Pressure Control Valves for 35% Steam Dumps (18), Deactivate MPs for Calibration</td>
</tr>
<tr>
<td>50980563</td>
<td>3</td>
<td>1</td>
<td>Safety Injection Valves 8821A/B (4), Change Scope of Lubrication MPs</td>
</tr>
</tbody>
</table>
The DCISC reviewed the above PMCRs and found them to be appropriately prepared. In particular, it was noted that the two Priority 1 PMCRs contained very detailed technical evaluations that included the equipment's function, the MP's full scope and history, applicable regulatory requirements, test data history, DCPP and industry operating experience, and the consequences of equipment failure.

The DCPP Preventive Maintenance Optimization Project was being performed in accordance with appropriate administrative procedures that controlled changes to Preventive Maintenance Activities. Preventive Maintenance changes affecting critical components were being properly evaluated to ensure that the risk of failure of those components was not being adversely affected.

**Maintenance Department Performance (Volume II, Exhibit D.4, Section 3.11)**

The DCISC reviewed recent changes to the organization of the Maintenance Department. Earlier in 2018, oversight of the Maintenance Support Contractor was moved from the Strategic Projects Group and placed under the Maintenance Director. The organizational change was driven in part by the anticipated reduction in the number of major capital projects that would be expected as DCPP approached the end of its operating license. Additionally, the services of a new Maintenance Support Contractor were obtained, and the previous contractor was terminated. The transition to the new contractor appeared to be going well with many of the workers experienced at DCPP moving from the old contractor to the new contractor. Additionally, the Department was working to provide training for new, less experienced contractor personnel and to pair more experienced contractor personnel with them on work assignments.

The current management focus areas for the Department were as follows:

- Reducing the backlog of corrective maintenance items,
- Preparing for Refueling Outage 1R21 (planned to begin in February 2019), and
- Improving the timeliness of completing work on the Priority Worklist.

The effects of the reductions in the number of preventive maintenance activities under the Preventive Maintenance Optimization (PMO) Project were beginning to be seen in the Department in that resources were being freed up to focus on reducing the backlog of corrective maintenance work. DCPP's goal was to move into the top quartile for the industry as measured by having a low number of Deferred Non-critical (DN) corrective maintenance items. Regarding outage preparations, the Department was using the Maintenance Support Contractor as much as possible to complete work that could be done before the start of the outage. A Priority Worklist was maintained by Operations and given high visibility via being published daily in the plant Plan of the Day. The Department had established a goal to reduce the number of Priority Worklist items to less than 40.
A copy of the current Priority Worklist tracking graph indicated that the value for the current month was 53 and on a downward (good) trend, albeit slowly. Other current priorities for the Department included repairing roofs and doors, elevators, and exterior fire system panels. The Department was also working to prepare for the Unit 2 Generator Stator restacking during Refueling Outage 2R21 in autumn 2019. Mr. Bryant also informed the team that the stator-restacking project was currently undergoing a risk-benefit analysis by an outside consultant.

Regarding issues raised by the Quality Assurance organization, the Department was working to support the identification and removal of scaffolding that had been in place for longer than 90 days without a Licensing Basis Impact Evaluation, an issue first identified by NRC inspectors. Also, the Department continued to monitor the effectiveness of corrective actions taken in response to concerns with electrical safety practices identified in 2017. Currently, the actions appear to have been effective, but the Department planned to wait until the next Refueling Outage was completed before considering the issue closed. Lastly, the Department was working to improve overall human performance through initiatives to improve maintenance fundamentals and by using the "Plan, Prepare, Execute" model. It was believed that these efforts were being effective as there had been no Department-level human performance events since March 2018, which represented a significant improvement in the rate of event occurrences. The DCISC was also provided a copy of the Maintenance Department Key Performance Indicators, and it was observed that the majority of the indicators (approximately 30 total) were green with no red indicators and only one yellow indicator.

The current staffing was 306, which was down slightly from 318. The small difference represented the absorption of several retirements, departures for long-term disabilities, and unfilled vacancies. There were no plans to reduce the workforce in 2019. However, it was currently forecasted that there would be a reduction of about 77 positions in 2020. The reduction would be representative of the reduced workload as the number of Preventive Maintenance tasks and capital projects naturally declined as DCPP approached the end of its operating license. He also noted that DCPP has not recently encountered any difficulties in recruiting and hiring new personnel when needed.

The DCISC toured areas of the plant containing areas of active maintenance activity. One of the areas reviewed was the Turbine Deck where a small, two-story office structure was undergoing renovations. The work area included scaffolding, safety rails and temporary stairs, along with temporary air conditioning units provided in support of a replacement of the HVAC unit on top of the office structure. The area was very neat and appeared to have all of the expected work controls in place. The team also toured the 1-2 Emergency Diesel Generator (EDG) area where a scheduled major maintenance outage was in progress. The EDG work area was very clean and well organized, and the team verified that written maintenance procedures were present and being used in the work area. Pictures of the two active work areas are shown below.
Turbine Deck Maintenance Work Area
DCPP's Maintenance Department appeared to be performing its responsibilities well with no major issues. Areas of management focus were appropriate, and corrective actions to improve human performance appear to be effective. Tours of active work areas found them to be well organized and having all of the expected work controls in place.

Foreign Material Exclusion (FME) Program (Volume II, Volume II, Exhibit D.8, Section 3.5)

DCPP's FME Program is governed by procedure AD4.ID6, "Foreign Material Exclusion Program," a copy of which was provided and reviewed by the DCISC. The purpose of the FME Program is to prevent the undesired and potentially harmful intrusion of foreign materials into plant systems or components. Situations in which this intrusion can most likely occur are during maintenance when normally closed systems and environments are open or during inspections or tests under those same types of conditions. In such situations, it is important to maintain control of tools, fasteners, repair parts, replaced parts, safety items, and residue resulting from the work, items attached to clothing, and anything else that could become loose and enter a system or environment. The vast majority of FME
problems typically occur during plant outages when many system repairs, modifications, inspections, and tests are performed.

DCPP considered its FME Program as generally healthy, although there was an identification of a negative trend (documented in SAPN 51017975) during the recent 1R21 Refueling Outage. During this outage, there were three events classified as "Threats," which were defined by the procedure as, "an error in FME implementation that if not detected would result in personnel injury, significant plant equipment damage, fuel failure, or loss of generation." The three FME Threats identified during Refueling Outage 1R21 were:

- FME found in the Reactor Cavity prior to Reactor Head lift. A "D-ring" was found in the cavity that was postulated to have been dropped prior to the area being cleared for the head lift. No record of a possible source of the FME was identified.
- Material not logged into FME area. A tethered box wrench was dropped onto the Reactor Head. During the initial attempted retrieval of the wrench, a magnet became stuck and broke into scattered pieces which then required additional retrieval efforts.
- Dropped object in condenser waterbox. A vendor dropped a lanyard into the waterbox plenum which then required a diver to retrieve the item.

The above three Threats during Refueling Outage 1R21 were a significant increase over the single Threat that was identified during the previous Refueling Outage. As corrective action for the negative trend, the Performance Improvement Coordinators performed an analysis and found that programs and procedures were adequate but that the awareness of station expectations for adherence to the procedures needed improvement. As a result, three awareness bulletins were generated and distributed to station staff, copies of which were provided to the DCISC. FME Program expectations were also communicated via the Plan of the Day for review with all crews at the start of a workday during the outage. Post-outage meetings had identified future enhancements to outage worker training that could be useful to ensure that leadership's expectations for FME Program compliance were fully communicated.

The DCISC was interested in how FME activities would be managed during the refurbishment of the Main Generator planned to occur during the upcoming 2R21 Refueling Outage. DCPP expected the FME Program to be managed by the contractor performing the generator refurbishment. That contractor had a history of successfully managing FME Programs for Main Turbine work during previous outages at DCPP.

**DCPP's Foreign Material Exclusion (FME) Program performance during the 1R21 Refueling Outage was not as good as past outages as shown by the identification of three FME events classified as "FME Threats." Actions taken with respect to those events appear to be appropriate. The DCISC**
should review the current program for temporary outage worker training and recent changes to that program during a future meeting.

4.2.3 Conclusions and Recommendations

Conclusions:

DCPP Maintenance performance is generally satisfactory with initiatives for improvement in selected areas, such as Preventive Maintenance Optimization Foreign Material Exclusion.

Recommendations:

None
4.3 Engineering Programs

4.3.1 Overview and Previous Activities

The following are engineering-related items the DCISC reviewed in the previous reporting period:

1. Equipment Qualification Process
2. Engineering Excellence Plan
3. Equipment Reliability Process Status
4. Boric Acid Corrosion Control Program
5. System Engineering Managed Programs
6. Commercial Grade Dedication Program

The DCISC concluded the following during the previous reporting period:

The DCPP Engineering Program appeared to be functioning satisfactorily with improvements being targeted in its Excellence Plan.

4.3.2 Current Period Activities

During the current period, the DCISC had presentations on engineering programs at eight Fact-finding meetings. The following topics were reviewed:

1. System Engineering Staff Turnover
2. Vibration Monitoring Program
3. Engineering Excellence Plan
4. Component Health Monitoring
5. Door Life Management Program
6. Flow Accelerated Corrosion Program
7. In-service Inspection and Relief Requests
8. Configuration Management

System Engineering Staff TurnoverEquipment Qualification (EQ) Process (Volume
II, Exhibit D.1, Section 3.3

DCPP is tackling Systems Engineering staffing in two ways. First, they are increasing hiring efforts, including augmentation of the summer intern program from which new permanent hires are often made. Second, DCPP is making organizational adjustments in Engineering. This includes the following:

- Assigning new Systems Engineers to the Early Career Engineering Program to provide them opportunities to experience diverse areas of Engineering.
- Expanding the EFIN (Engineering Fix It Now) Group to reduce the short-term "fix it" responsibilities of System Engineers.
- Reducing the administrative burden on System Engineers, following the guidelines of the Nuclear Energy Institute's Delivering the Nuclear Promise Program, and focus their work more on longer-term, strategic concerns.
- Expanding Component Engineering to take this aspect of component responsibilities off System Engineers.
- Utilizing knowledge transfer more vigorously when key personnel leave than in the past.
- Looking ahead more critically at future staffing needs.

DCPP was experiencing success in its engineering hiring and organizational transformation and lessening the administrative burden of its engineers;

The DCISC Fact-finding Team believed that DCPP had recognized its high turnover in System Engineering and was taking the appropriate actions to resolve it.

Engineering Excellence Plan (Volume II, Exhibit D.5, Section 3.4)

The purpose and vision of this Plan are to: "Provide outstanding operational focus to DCPP to ensure safe, reliable, and affordable operation by acting as the organization's technical conscience for the design and licensing basis compliance and excellence in equipment reliability for the long term."

The 2018 attributes of the Engineering Excellence Plan are as follows:

- Ensure nuclear safety by continuing to advocate as the DCPP Technical Conscience (defined below):
  - Implement revisions of industry technical conscience guidelines.
  - Perform technical conscience self-assessment (see below).
  - Develop communication plan and implement in advance of Outage 1R21 to reinforce technical conscience.
- Support successful execution of the Preventive Maintenance Optimization.
(PMO) Project
- Develop project charter
- Review PMO process with engineering staff
- Perform PMO reviews (see Section 3.9, Health Monitoring)

- Improve Security Equipment Reliability
  - Integrate Security equipment into existing equipment reliability processes

- Improve behaviors and adherence to written standards by leaders and engineers through effective leadership observations and review meetings
  - Share observations regarding procedure use and adherence at Observation Review Meetings
  - Review procedure use and adherence trends at Integrated Performance Meetings
  - Include procedure use and adherence components in pre-1R21 dynamic learning activities

- Execute a plan for expansion of qualifications among engineers including rotations
  - Develop a qualification matrix to determine current qualifications in Engineering and number of qualified individuals
  - Target engineers to complete qualifications and schedule for completion

- Improve monthly forecasting process to provide more accurate and predictable results that are representative of current situation and that can be used for quarterly and year end projections
  - Institute joint project status review with all Project Managers
  - Review project forecast for upcoming months for all projects jointly with key support organizations to obtain realistic picture of resource support

- Determine 2020 organizational structure and transition plan and implement first step by August 2018
  - Develop transitional organization for 2018 and expected organization for 2020 based on guidance from EB (Efficiency Bulletin) 17-28. This will mean a larger Fix It Now (FIN) Team and movement of engineers from system engineering to component engineering.
  - Implement new organization by August 2018

Engineering had made good progress on these items and had initiated a formal assessment of its "technical conscience," which is described below.

The nuclear industry, via the Nuclear Energy Institute, implemented a "technical conscience" philosophy in response to recent engineering and technical errors,
which were contributing to consequential events throughout the industry. Some caused early shutdowns of three nuclear units. **Technical conscience is the personal obligation leaders and individuals internalize and exercise to ensure plant operation, maintenance, and engineering activities are conducted in a manner that upholds plant design requirements and preserves operating, design and safety margins.**

DCPP initiated a self-assessment to determine to what degree DCPP has a healthy technical conscience. Overall, the Assessment Team concluded that DCPP exhibited a healthy technical conscience demonstrated by the assessment not identifying any deficiencies, and that the identified gaps did not represent significant deviations from the industry Technical Conscience principles. There were five gaps and four enhancements identified, resulting in eight recommendations.

**The DCPP Engineering Excellence Plan was satisfactory. It included "technical conscience," for which a formal self-assessment was comprehensive and appropriately intrusive based on the discussion with Mr. Nugent and on review of the self-assessment report. The report concluded overall that DCPP exhibited a healthy technical conscience with no deficiencies and some identified gaps and suggested enhancements. The assessment report recommendations appeared appropriate to the DCISC Fact-finding Team.**

**Post Preventive Maintenance Optimization Health Monitoring (Volume II, Exhibit D.5, Section 3.9)**

The DCISC had concluded (Section 4.2.2) that the PMO reviews satisfactorily evaluated the consequences of equipment failure, a potential result of changes to equipment PMs. Additionally, this December 2018 FFT looked further into post-PMO performance monitoring, which tracks and trends equipment performance to assure for the long term any possible negative effects of the PM change.

System Engineers (SEs), as per their governing procedure TS5.ID1, "System Engineering Program," are responsible for performance monitoring and trending. This utilizes a graded approach based on system significance to safety and reliability. The SEs develop a performance monitoring strategy and agreement to include the following:

- The scope and frequency for monitoring
- Normal operating bands for critical system parameters
- Trend frequency
- Alarm and alert limits for identification and notification before the normal band is exceeded
- How trending will be performed
- Responsible group for trending and monitoring
The SE uses the following sources to monitor performance:

- Plant computer systems
- Operator logs and rounds information
- Periodic engineering walkdowns
- Predictive maintenance activity results
- Surveillance and other performance test results
- Equipment failure records and orders
- Plant diagnostic systems (computer-based trending analysis with auto-analysis and alarms)
- Unplanned LOC entries and accrued time
- Unplanned safety system unavailability
- System walkdown results and material condition
- Non-outage corrective maintenance work requests for critical components
- Overdue and late critical preventive maintenance tasks
- Operator workarounds and burdens
- System functional failures
- Repetitive equipment or system performance issues
- Predictive maintenance
- Open operability evaluations
- Open operational decision making
- Existing degraded or nonconforming conditions
- Open temporary configuration changes
- Open Part 21 issues
- Availability of critical spares
- Ability of budget to support strategies
- Equipment reliability clock resets
- Maintenance Rule status and margin
- Vendor/OEM recommendations/guidance

The DCISC received and reviewed performance monitoring agreements for the following two safety-related systems: Steam-driven Auxiliary Feedwater System and Residual Heat Removal System. These agreements identified the following degradation mechanisms for which there were degradation indicators, parameters to trend, expected value or range, action value, tool or method, and trend frequency.
For the Auxiliary Feedwater System the following examples of degradation indicators were specified for the pump and various valves:

- Abnormal bearing wear, damaged or misaligned components, control system failure
- Pump impeller erosion and bearing usage wear
- Thermal degradation of motor
- Pump impeller erosion and bearing wear
- Thermal degradation of valve motor, stem binding
- Abnormal wear, binding, aging, corrosion, inadequate lubrication, faulty electrical connections
- Packing failure, loss of bolt preload, gasket failure, corrosion, and fracture
- Setpoint drift
- Abnormal chemistry sample results

These indicators and their sources appeared satisfactory to the DCISC.

It appeared that DCPP's preventive maintenance change review process and periodic monitoring process were satisfactory methods to prevent and/or identify negative safety effects of its Preventive Maintenance Optimization Program.

Door Life Management Program Update (Volume II, Exhibit D.7, Section 3.7)

Door impairments include problematic hinges, handles, skin failures, locks, closers, etc. Such impairments typically result from normal use as plant doors typically experience tens of thousands of openings and closings per year. There are 27 impaired doors being worked in 2019. Six are fire doors, which are getting highest priority. The last of the impaired fire doors is scheduled to be replaced or repaired by early May 2019.

The DCPP Door Life Management Program is still intact and going strong. Personnel appear to be on top of any door impairments, especially fire doors and others, which are needed for safety-related purposes, such as High Energy Line Break protection of vital equipment. The Fix It Now (FIN) Team has been assigned the job of identifying and repairing/replacing any impaired doors. This brings an adequate level of resources to assure repairs/replacements are performed quickly and efficiently.

The DCPP Door Life Management Program appears healthy and effective at identifying and resolving impaired doors, especially fire doors.

Flow Accelerated Corrosion Program

Flow-Accelerated Corrosion (FAC) is a phenomenon in which the oxide layer
and actual metal normally present on carbon steel piping materials dissolves into
the water or steam/water flows and becomes eroded away by the impingement of
high flow water or steam. This dissolution gradually reduces the piping wall
thickness; left unchecked, it can lead to piping failure. The objective of the DCPP
FAC Program is to provide a high degree of confidence against the rupture of FAC-
susceptible piping systems, primarily for personnel safety because most FAC-
susceptible piping was contained in non-safety related systems. DCPP's program
is governed by plant procedure TS1.NE1, "Flow Accelerated Corrosion Monitoring
Program," a copy of which was provided to the DCISC Fact-finding Team. This
procedure discussed, among other things, the identification of FAC susceptible
systems, predictive modeling, plant and industry operating experience, ultrasonic
inspection techniques, component acceptance standards, program performance
criteria, piping repair and replacement, and FAC Engineer Qualifications.

The program included the identification of elbows, tees, and other components and
configurations, which were most susceptible to FAC because of the moisture,
content and flow velocity, the piping geometry, and the piping material (primarily
carbon steel). In general, DCPP has, over the history of the plant, been
aggressive at replacing sections of piping susceptible to FAC with alloy materials
that are not as susceptible. These efforts include replacing high pressure #1 and
#2 extraction steam piping and final feedwater piping. Currently, DCPP was
focused on replacing portions of the Condensate Polisher system that were
susceptible to FAC due primarily to the low pH value of water contained in that
system. Seven sections of piping in the polisher system were recently replaced
during Refueling Outage 1R21.

The FAC Program establishes inspections of piping wall thicknesses to be
performed during each outage. After the inspections are completed, data is
entered into a software program that tracks degradation and predicts areas
requiring future inspections or possible replacements. As a result of DCPP's
aggressive replacements, the number of piping replacements typically is now low
compared to the rest of the nuclear industry. Additionally, the number of
inspections required during each outage is being reduced as the cessation of
operations approaches. For example, 47 inspections were performed during
Refueling Outage 1R20 and 27 inspections were performed during Refueling
Outage 1R21. It was expected that most components inspected during the recent
Refueling Outage 1R21 would not need to be inspected again prior to the cessation
of operations.

DCPP continues to manage its Flow Accelerated Corrosion Program
effectively. The numbers of inspections and replacements performed as a
part of the Program are trending down and will continue to do so as DCPP
approaches the date for the cessation of operations.

Reactor Vessel In-service Inspection Program and Relief Requests

DCPP proposed to submit an American Society of Mechanical Engineers (ASME)
ISI Code relief request to the NRC. The relief request was only a proposed relief request, and a formal relief request had not yet been submitted to the NRC. The request was to reduce the visual inspection requirements for the internal surfaces of the reactor vessel hot leg nozzles. The visual inspections were currently required to meet the ASME Examination Category visual VT-3 examination requirements. The proposed relief request would provide an alternative method that did not fully meet the VT-3 examination requirements but would be sufficient to meet the intent of the regulations. The alternative method would be to use typical foreign material and debris inspection cameras to inspect the inside surfaces of the hot leg nozzles in lieu of higher resolution cameras that were required to meet the current VT-3 examination requirements. The alternative method would be considered not to be a reduction in safety as it would meet the stated basis of the current examination requirement, which was to detect any presence of foreign objects and not to inspect weld quality. These requirements originated from Electric Power Research Institute (EPRI) documents that were used as the bases for the current code requirements. EPRI was currently leading a project to reduce these examination requirements and DCPP was a lead plant for submittal of these proposed changes to the NRC for approval.

The Unit 1 Reactor Vessel last received an internal inspection in 2013 during Refueling Outage 1R18 (picture below). During that inspection, 84% of the Reactor Vessel belt line welds were successfully inspected via robotic inspection equipment. The remaining welds were not inspected during that outage due to multiple problems with the robotic inspection equipment. In lieu of inspecting the remaining welds during the next outage, DCPP submitted an exemption request to extend the inspection interval to 20 years, and the NRC approved the request in 2015 (ML15168A024). Under the approved exemption, the Unit 1 welds were not required to be examined again until May 2025 and as such would not need to be examined again prior to the Unit 1 cessation of operations in 2024. The team reviewed a copy of the NRC approval and verified that information was correct.
2015 Unit 1 Reactor Vessel Weld Inspections

The Unit 2 Reactor Vessel last received an internal inspection in 2016 during Refueling Outage 2R19. During that inspection, 100% of the weld inspections were satisfactorily completed, and no exemption requests were needed. The Unit 2 welds would also not need to be examined again prior to the cessation of operations for Unit 2 in 2025.

Typical results of the reactor vessel weld inspections for both units usually included some weld indications that were below the thresholds that would require further action for additional monitoring or repairs. Most of the indications identified were small, related to the original fabrication of the vessel, and had been verified not to be growing over time.

**DCPP's Reactor Vessel In-service Inspection Program is continuing to ensure the acceptable integrity of the reactor vessel welds and is being performed in compliance with the applicable requirements.**

**Configuration Management Program (Volume II, Exhibit D.9, Section 3.3)**

Configuration Management (CM) is defined as: "a systematic approach for identifying, documenting, and changing the characteristics of a facility's Structure, System, or Component (SSC) and ensuring that conformance is maintained between the design requirements, physical plant configuration, and facility
configuration information. DCPP programs, processes, and procedures assure that CM elements conform at all times, all changes are authorized and conformance can be verified." The DCISC received and reviewed DCPP Program Directive CF-1, Configuration Management, Dated 10/17/12, which it concluded was satisfactory.

In Program Directive CF-1 above, Configuration Management is said to be in "equilibrium" when the three elements of Configuration Management (i.e. design requirements, physical plant configuration, and facility configuration information) conform to one another. Accomplishing this requires the effective implementation of other station programs that are closely related to configuration management and include: Document Control, Inspections, Design Control, Work Control, Procurement Control, Test Control, Modification Control, Materials Control, Setpoint Control, Maintenance, Licensing Basis Documents, Tagging Program, and Control and Use of Supplier Information.

Effective Configuration Management therefore involves what is referred to as a "graded approach" by which the level of analysis, documentation, and actions necessary to define a configuration management requirement are made commensurate with a number of considerations, including:

- The relative importance to safety, safeguards, and security
- The magnitude of any hazard involved
- The life cycle stage of a facility
- The mission of the facility
- The particular characteristics of a facility

The effectiveness of a Configuration Management Program can be impacted by the number of activities in which a station is engaged that can alter the physical configuration of plant systems or their supporting document. Accordingly, station-wide performance in Configuration Management is reported monthly in the station's Plant Performance Improvement Report (PPIR). The one page listing for Configuration Management displays a rating for each of nine specific Performance Indicators (PIs) that are reflective of performance in Configuration Management.

The DCISC received and reviewed the DCPP Configuration Management PIs for April 2019. The overall rating of the 12 indicators was Green (good). Ten individual indicators were Green, and one (Number of Open Design Change Memoranda) was Red (Unacceptable) and another (Percent Drawing Changes >180 Days) was Yellow (Deficient). These two indicators were rated as such because of the large amount of outage work and Security work and are expected to return to green in the second quarter of 2019.

The DCPP Configuration Management Program appeared satisfactory to the DCISC Fact-finding Team. Its overall performance indicator has consistently been Green.
4.3.3 Conclusions and Recommendations

Conclusions:

The DCPP Engineering Program functions reviewed by the DCISC, including staffing, vibration monitoring, component health monitoring, door life management, flow accelerated corrosion, in-service inspection relief, and configuration management, appeared to be functioning satisfactorily with improvements being targeted in its Excellence Plan.

Recommendations:

None
Human Performance is usually used to refer to as "human error" and the term is used herein in that manner. The issues around plant safety and plant efficiency having to do with human error reduction are also included in this section. The goal of the human performance program is to reduce the number of human errors to improve plant safety and plant efficiency by improving human performance.

During the previous period, the DCISC did not review any human performance-related topics, per se, at Fact-finding Meetings, although it did monitor human performance via such measures as outage performance, operations department performance, etc.

4.4.2 Current Period Activities

During the current period, the DCISC had presentations on human performance at one Fact-finding Meeting. The following topic was reviewed:

- Human Performance Update

Human Performance Update (Volume II, Exhibit D.3, Section 3.10)

DCPP continuously tracked human error events to detect trends and to serve as a basis for making changes for human performance improvement. Events were categorized as to their severity as follows (most severe to least severe):

- Site Level Events (SLE)
- Department Level Events (DLE)
- Section Clock Resets (SCRs)

Because refueling outages are times with significantly higher levels and significance of work, SLEs and DLEs were recorded during outages. DCPP shared
with the DCISC the trends of SLEs and DLEs from Outage 2R13 through Outage 2R20, a period of about 11 years. SLEs dropped from levels of about 25 per outage to two per outage. DLEs dropped from levels of about two-to-three to zero during this time. This was significant and excellent performance improvement.

The Performance Improvement Group performed a quick hit self-assessment of Outage 2R20 human performance tool use and effectiveness. The assessors used the Human Factors Analysis and Classification System (HFACS) to evaluate 2R20 events. There were 20 SCRs and one DLE evaluated versus 42 events (40 SCRs and 2 DLEs) during Outage 1R20. (There were no SLEs during 2R20.) The assessment concluded that Omitted Actions (i.e., leaving out necessary task steps) was the most prevalent unsafe act during work execution. This agreed with human performance expert views. The assessment report recommended, among other things, that a strategy involving pre-outage training be developed for the reduction of omission errors for Outage 1R21. DCPP will complete this action during the 1R21 pre-outage training as recommended (and will complete all other assessment recommendations).

DCPP's outage, site, and department level human performance event trends improved significantly over the last three sets of outages. This was noteworthy performance. DCPP is continuing to improve its performance by tacking lower level events.

4.4.3 Conclusions and Recommendations

Conclusions:

DCPP's outage, site, and department level human performance event trends improved significantly over the last three sets of Refueling Outages. DCPP was continuing to work to improve future performance through the tacking of lower level events.

Recommendations:

None
4.5 Nuclear Safety Culture, and Safety Conscious Work Environment

4.5.1 Overview and Previous Activities

The purpose of Nuclear Safety Culture, and Safety Conscious Work Environment (SCWE) is twofold: 1) the health of the individual employee, and 2) nuclear and personnel safety as the context and requirement for all DCPP employees. Included in the area are all health related issues. This section also focuses on Safety as a contextual, cultural requirement.

In the previous reviewing period (2017-2018) the DCISC reviewed the following:

- DCPP Safety Culture

The DCISC concluded the following:

**DCPP's nuclear safety culture appears strong according to its Nuclear Safety Dashboard and from early results of its latest Nuclear Safety Culture Survey.**

4.5.2 Current Period Activities

During the current period, the DCISC reviewed the following topics that focused specifically on Health, Nuclear Safety Culture, or Safety Conscious Work Environment:

- DCPP Safety Culture, Safety Conscious Work Environment, and the Employee Concerns Program

**Update on Nuclear Safety Culture, Safety Conscious Work Environment and Employee Concerns Program (Volume II, Exhibit B.3)**

DCPP reported that a key element of nuclear power plant safe operations is safety culture and the traits of a healthy nuclear safety culture include an environment where employees will raise concerns at a low level and the plant management team will respond and correct issues. A healthy nuclear safety culture requires a collective commitment from leaders and individuals to
emphasize safety over competing goals to ensure the protection of people and the environment. Key elements of a healthy nuclear safety culture include an individual commitment to safety, personal accountability, a questioning attitude, and effective safety communication as well as management's commitment to safety leadership, safety values and actions, decision-making, and a respectful work environment.

A safety conscious work environment (SCWE) is another key element of a healthy nuclear safety culture. It represents an environment where individuals feel free and are open and willing to identify and raise issues, questions or concerns, express differing professional opinions or viewpoints dealing with nuclear or radiological safety, quality, security, environmental or regulatory compliance and to do so without fear of retaliation. Issues identified within the context of a SCWE are addressed promptly with timely feedback provided to the initiator.

The DCPP Nuclear Safety Culture Monitoring Panel (NSCMP) assesses nuclear safety culture using the recommendations of Nuclear Energy Institute publication 09-07, "Fostering a Healthy Nuclear Safety Culture," which places primary responsibility on management to provide an ongoing holistic, objective, transparent and safety-focused process. The DCPP process evaluates inputs from the Corrective Action Program, performance trends, NRC inspections, industry evaluations, audits, and operating experience, independent and self-assessments, and the Employee Concerns Program. The NSCMP monitors these inputs to identify early indications of potential concern in the work environment that merit additional attention by the organization. The process is directed by station procedures. The NSCMP is comprised of experienced personnel with diverse backgrounds. Membership is limited to protect the confidentiality of personal information and its reports are provided to the site leadership team.

The DCPP Employee Concerns Program (ECP) provides an alternate venue for employees to raise concerns, seek intervention and consultation or to request an independent investigation for resolution of nuclear safety and quality concerns. The ECP is comprised of three independent, qualified, team members who report directly to the Chief Nuclear Officer. DCPP reported that no concerns were raised with the ECP during 2018.

DCPP has undergone a number of NRC inspections that examined its nuclear safety culture with the latest concluding in October 2018. The NRC inspections, as well as recent NSCMP assessments, indicate that DCPP continues to exhibit the traits of a healthy nuclear safety culture. DCPP observed that PG&E is a safer, better company when all employees are encouraged to speak up and the leadership team is committed to listening up, and to following up, and nothing is more important than safety and maintaining a culture where everyone feels comfortable sharing their ideas and concerns is essential to operating safely. Whenever DCPP employees see a safety issue or concern, they are encouraged to speak up immediately.
The DCPP NSCMP reviews the numbers of notifications (the initiating document for entry into the Corrective Action Program) and compares the number of notifications generated with prior years. The results of interviews with employees and the level of detail supplied by the notifications did not support a finding that there were issues adverse to employees raising concerns. The ECP is available to employees to raise concerns in a confidential and anonymous forum. The NRC periodically conducts the DCPP Problem Identification and Resolution Inspection which is a team inspection devoting a significant amount of resources to investigation of the plant's safety culture and DCPP management has the benefit of the feedback from and results of the NRC assessment. INPO also places primary importance on and assesses safety culture during its reviews and conducts interviews and holds discussions with plant personnel at various levels.

DCPP stated members of the labor unions serve on the NSCMP and within the Organizational Performance and Learning Services organization he leads. DCPP believes the unions see great benefit in having a healthy nuclear safety culture and management and union efforts in support have proven to be a mutually beneficial partnership.

DCPP recognizes its programs, including programs fostering nuclear safety culture, exist in an environment of both climate and culture and he confirmed that, given the decision to retire DCPP by 2025 the climate has changed. The formation of the People Committee was a response to this to monitor and assess plans for continuing employee engagement, staffing, succession planning and other issues. DCPP recognizes the need to assess how its employees continue to feel about raising issues or engaging with management and is conducting anonymous surveys, called Pulse Surveys, in that effort which reach out to approximately 400 plant staff on a quarterly basis and the results of the Pulse Surveys are reviewed by the People Committee.

**The DCISC believes the results of the February 2017 DCPP Nuclear Safety Culture Survey show that DCPP continues to exhibit the traits of a healthy nuclear safety culture.**

### 4.5.3 Conclusions and Recommendations

**Conclusions:**

DCPP's nuclear safety culture appears strong according to its Nuclear Safety Culture Monitoring Panel and from early results of its latest Nuclear Safety Culture Survey.

**Recommendations:**

None
Performance Improvement Programs include multiple programs included in DCPP's Performance Improvement Initiatives, such as Corrective Action, Industry Operating Experience, Benchmarking, Self-Assessments, etc. Many consider these to be "learning" programs whereby the organization learns to improve from its and others' experiences.

As have all nuclear plants, DCPP has implemented a Corrective Action Program (CAP). The CAP is a formal, controlled process used to identify and correct problems which occur. A key part of the CAP is root cause analyses, which are utilized to ascertain the real causes of problems or events such that corrective actions can be taken to prevent their recurrence. During the previous reporting periods, the DCISC has reviewed the DCPP CAP and numerous events, which were identified and resolved using the CAP. The NRC refers to these types of programs as Problem Identification and Resolution.

During the previous reporting period, the DCISC reviewed the following topics related to Performance Improvement Programs at four Fact-finding Meetings:

- Meeting with Three Performance Improvement Coordinators
- Observe Corrective Action Review Board Meetings
- Management of Data in the Performance Improvement Program
- Leadership Engagement in the Performance Improvement Processes
- Equipment Data Collection, Trending and Retention

The DCISC concluded in the last period that DCPP's Performance Improvement Department, along with its Performance Improvement Coordinators appeared to be an effective asset for plant problem solving and continuous improvement. The Fact-finding Team's observation of one Corrective Action Review Board meeting was hindered by the fact that a quorum was not present for the meeting. A Corrective Action Program Notification was submitted for the lack of a quorum, and those present at the meeting made a productive use of the time. A second Corrective Action Review Board meeting was performed efficiently and effectively.
It was evident that members were prepared, facilitated open and effective discussion, and made clear decisions and action assignments. The DCPP Performance Improvement Department effectively reviews information from the Corrective Action Program to identify adverse trends and initiate appropriate corrective actions. DCPP plans for augmented leadership engagement in Performance Improvement processes appeared appropriate. DCPP routinely collects data from plant equipment, and such data can be manually collected and analyzed on an as needed basis. Possible future uses of advanced or automated equipment data monitoring systems are being reviewed, but no plans currently exist for the installation of such systems.

4.6.2 Current Period Activities

During the current period, the DCISC reviewed Performance Improvement Programs at seven Fact-finding Meetings and one Public Meeting. The following topics were reviewed:

- Operating Experience Program
- Observe Corrective Action Review Board Meetings
- Observe Readiness Review Board Meeting
- Benchmarking Program
- Delivering the Nuclear Promise
- Performance Improvement Programs
- Wireless Information Technology in the Power Block
- Notification Review Team Meeting

Operating Experience Programs (Volume II, Exhibit D.1, Section 3.6)

DCPP's Operating Experience (OE) Program was governed by procedure OM4.ID3, "Operating Experience Program." The program was managed by a single person, the station OE Coordinator, and sponsored by the Performance Improvement Coordinator. Industry OE information came from two primary paths: 1) an Industry Consolidated Event System (ICES), and 2) other sources, including NRC, industry vendors, peer committees, engineering news, etc. From these sources, the Plant received 25 to 50 OE event reports per week. These OE Reports were entered into an OE Database for tracking, and the information considered to be relevant to DCPP was transmitted to department Subject Matter Experts (SMEs; typically from Operations, Maintenance, or Engineering) who reviewed the material for specific applicability to their areas and determined if action was required. Their reviews were formally documented and retained in the OE Database. In addition to receiving industry OE Reports, DCPP also transmitted its own OE Reports to both the NRC and to others in the industry via its own entries into the ICES system. Typically, DCPP reported three to five OE events per month to the industry.
If the OE event was determined to be applicable to DCPP, the SME created a Notification (SAPN) in DCPP's SAP information management system in order to initiate and track further actions. Some higher categories of OE events, such as Level 1 and Level 2 Industry Event Reports from ICES, bypassed the screening process and went automatically into SAP. Once entered into the SAP system as a Notification, the OE event must be fully reviewed for applicability and any corrective actions for DCPP must be developed and assigned within 60 days. The 60-day standard was closely tracked, and no exceptions were allowed. Within the last year, only one OE Notification failed to be fully processed within the 60-day standard, and that occurred when closure for an item was rejected late in the 60-day period during its review by the Corrective Action Review Board.

One recent issue with the program's implementation was revealed by an NRC Resident Inspector's identification that an OE event was not properly reviewed in 2011. The station investigated further and determined that 226 OE reports from 2011 and 2012 were not properly screened during a period when the OE Coordinator position was vacant. As corrective action, DCPP initiated additional reviews for all of the affected OE Reports.

**DCPP continued to maintain an active and effective Operating Experience Program.**

**Observe Corrective Action Review Board Meetings (Volume II, Exhibit D.3, Section 3.5, and Exhibit D.6, Section 3.5)**

The Corrective Action Review Board (CARB) was governed by DCPP Procedure OM4.ID15, "Corrective Action Review Boards" and its purpose was to provide a significant venue for station personnel to demonstrate commitment to Corrective Action Program (CAP) excellence. The CARB fulfilled a need for senior management oversight of the CAP and this oversight function included:

- Reviewing Root Cause Evaluations (RCEs) for accuracy, completeness and alignment of the problem, causes and corrective actions.
- Approving extensions to the due dates for Corrective Actions to Prevent Recurrence.
- Approving effectiveness evaluations for CAP documents.
- Periodically reviewing CAP metrics to ensure the CAP is meeting management expectations.
- Reviewing and dispositioning requests for Cause Evaluation downgrades.
- Reviewing notifications screened by the Notification Review Team

The membership of the CARB consisted of regular and alternate members designated in writing by the Station Director. CARB meetings were held as necessary, typically on a weekly basis.
Safety Assignments
Facilitative Leadership Minute
Review Desired Outcomes
Verify Quorum
Review and Approve Minutes from Previous Meeting
Review of Action Items
Review of Overdue Notifications
Review of CARB Products
Review Condition Reports
Additional Reviews as Needed
Actions and Meeting Evaluation

The CARB reviewed and discussed the following significant items:

- The total number of notifications created in 2017 had decreased to its lowest level since 2009. This indicated a trend down from total number of notifications initiated year by year in the last four years. This could have indicated a poor Safety Conscious Work Environment, in which personnel may be reluctant to submit issues via notification. The study concluded that, "...there is no evidence to indicate that station personnel may not be reporting issues. Other factors, such as improved plant performance and one outage in 2017, were the primary drivers."

- The Plant Data Network (PDN) core switch was replaced due to intermittent failures resulting in significant disturbance to PDN. The replacement was done by physically installing a pre-configured temporary switch in an available rack location, moving connections from the failing core switch to the temporary switch, removing and replacing the core switch, and returning connections from the temporary to the new core switch. A TMOD (temporary modification) order was not created for this work due to a belief that the work order process was satisfactory. Because of this, a number of important review and approval steps were not performed. Corrective action included training for all engineers and re-emphasis of procedure adherence.

- A question regarding if FLEX equipment was considered "Safety-related and subject to 10CFR 50 Appendix B quality requirements?" This issue arose from a Quality Verification (QV) assessment of the Geosciences Group analyzing the seismic functionality of FLEX equipment. Considerable discussion ensued, and an action item was generated for the Performance Improvement Group Head to work out the issue with QV and Geosciences and report back to CARB.

- There were 11 open anonymous notifications reviewed. None were considered significant or safety-related by the DCISC; however, the DCISC appreciated the fact that DCPP personnel have the opportunity to initiate
anonymous notifications.

- SAPN 51007200: Monthly status report for an evaluation of adverse motor bearing trends.
- SAPN 51007664: CARB ‘Bring Back' item for additional review of corrective actions for a loss of power to the security inverter.
- SAPN 51004632: Corrective Effectiveness Review for "DA-RMS Trend CCE Ineffective." This item concerned the results of a review of the effectiveness of corrective actions that had been taken in response to recurring problems in the filing of documents in the Records Management System within the timeframes prescribed by procedures. The CARB discussed the long-standing nature of this problem from numerous angles and was unable to achieve a consensus on providing clear directions on the matter within the timeframe allowed for the meeting. As a result, it was decided that the matter would be discussed separately in a later breakout session and the review would be returned to the CARB for additional discussion and direction at its next weekly meeting.

The DCPP Corrective Action Review Board (CARB) meetings on September 5, 2018, and January 23, 2019, appeared satisfactory in that the attendees met the intended objectives. Discussions of the significant items were focused and comprehensive, and actions were assigned for resolution as appropriate.

Benchmarking Programs (Volume II, Exhibit D.4, Section 3.10)

DCPP's Benchmarking Program was governed by Station Procedure OM15.ID4, "Self-Assessment and Benchmarking." The procedure defined Benchmarking as, "A study to identify industry best practices in an external organization. Compares findings to DCPP programs in order to identify gaps and develop recommendations to improve DCPP programs, processes, or performance." Benchmarking at DCPP is divided into two categories, Formal and Informal Benchmarking. Formal Benchmarking is a highly structured process that involves scheduling, planning, training, conducting a site visit by a DCPP team which resulted in formal reports submitted to the Corrective Action Review Board (CARB) for approval. (Previously, Formal Benchmarking reports were approved by the Self-assessment Review Board, but that board's functions were transferred in the CARB two years ago in order to reduce the number of meetings that senior managers were required to attend.) Informal Benchmarking may consist of telephone interviews, surveys, resource sharing, attendance at industry meetings, querying site visitors, or internal benchmarking. Informal Benchmarking may also include a site visit or a trip to a vendor or another plant, but without the structure of a formal program. Station departments have the latitude to conduct Informal Benchmarking without needing to schedule them through the CARB.

Both types of Benchmarking are documented via the Notification (SAPN) system,
and corrective actions from either type are tracked in the Corrective Action Program until complete. Corrective Actions typically took one of three forms, 1) Deficiencies, which must be corrected, 2) Gaps, which are good ideas that may be tracked for implementation at the discretion of the owner, and 3) Enhancements, which may also be tracked for implementation at the discretion of the owner but with less review for closure than Gaps.

As of the date of the DCISC's review, there were 6 Formal and 33 Informal Benchmarking activities completed in 2018, which compared to 2 and 37, respectively, for 2017. The quality of Formal Benchmarking reports (along with Formal Self-assessment Reports) was monitored in a status summary sheet that was reviewed weekly by the Station Leadership Team. The timeliness of completing Corrective Actions was monitored as a part of the Corrective Action Program indicators in the monthly Plant Performance Improvement Report.

As a part of DCPP's routine correspondence, DCISC was provided with copies or summaries of various station reports and other documents, some of which report the Benchmarking activities that are conducted by DCPP. Examples of the topics of some of these Benchmarking reports that have been reviewed by DCISC during the past year are as follows:

1. Owners' Group Procedures Sub-Committee Meeting
2. Cybersecurity
3. Security Target Sets
4. Station Rework
6. Protective Equipment Postings
7. Operations INPO Visit
8. INPO Senior Nuclear Plant Management Course
9. Low Level Waste Conference

Information in the reports reviewed by the DCISC Fact-finding Team appeared to be clear, focused, and expected to be useful to improve station performance.

The Benchmarking Program was an active and productive program for obtaining information useful to improve station performance.

Observe Readiness Review Board Meeting (Volume II, Exhibit D.3, Section 3.6)

DCPP's Readiness Review Board (RRB) meetings are designed to perform diverse and in-depth reviews of upcoming procedures and work processes to assure there is low risk and successful performance resulting in desired outcomes. In this case, the Board reviewed the upcoming Cold Wash of the Unit 1 230kV
insulators. The work was to be performed by the PG&E Transmission Department, which had responsibility for DCPP's switchyards. This particular process had been performed multiple times by the same personnel.

The responsible group presented the work scope and flow, including risks, compensatory actions if necessary, procedures, clearances, resources, work orders, crew tailboard meetings, lessons learned, job hazards, applicable Technical Specifications, etc. The RRB asked pertinent questions, which the work group answered satisfactorily. The RRB then approved the readiness request.

The DCPP Readiness Review Board Meeting for reviewing the 230kV Switchyard component Cold Wash was thorough with diverse points of view. All questions or concerns were resolved satisfactorily. The Board determined the work was ready for implementation.

Delivering the Nuclear Promise (Volume II, Exhibit D.5, Section 3.6)

Delivering the Nuclear Promise (DNP) was an industry initiative (sponsored by the Nuclear Energy Institute) in which companies that operate America's nuclear energy facilities partnered on in a multiyear strategy to transform the industry and sustain its viability for consumers while protecting the environment.

This plan, called Delivering the Nuclear Promise®, was intended to strengthen the industry's commitment to excellence in safety and reliability, assure future viability through efficiency improvements, and drive regulatory and market changes so that nuclear energy facilities would be fully recognized for their value. In 2018, the initiative focused on implementing the most significant savings opportunities in the most efficient manner possible. Subsequent bulletins addressed ways to increase efficiency at plant sites. Industry working groups identified improvement opportunities, and bulletins detailing each would be released as they become available.

There were 67 DNP bulleting issued as of the date of the DCISC's review. The bulletins were prioritized and fell into the following general categories:

- Reduced training requirements
- Reduced administrative burden in programs and procedures
- Simplifying work processes
- Eliminating selected programs
- Standardizing selected programs and processes
- Preventive maintenance reduction/elimination
- Protective strategy modifications
- System and program health reporting efficiencies
- Transforming the organization
DCPP completed their response to 39 bulletins, expected to complete 17 more by the end of 2018, complete four in 2019, decided five are not cost effective, and the remaining two were withdrawn.

The major reason for implementing DNP was cost savings, and this had been documented by both the industry and DCPP; however, the DCISC's interest was whether nuclear safety was affected by implementation of the efficiency bulletins. In reviewing the overall DCPP DNP implementation the DCISC did not note any significant safety concerns; however, it was recommended that the DCISC take an in-depth look at selected bulletins in future fact-finding meetings.

The DCISC Fact-finding Team did not have any safety concerns in reviewing DCPP's overall implementation of the industry Delivering the Nuclear Promise efficiency bulletins; however, the DCISC should look in-depth at selected bulletins at future fact-finding meetings.

Performance Improvement Program (Volume II, Exhibit D.8, Section 3.4, and Exhibit B.9)

Organization changes in the Performance Improvement (PI) Department at DCPP included reassignment of the Manager to an extended temporary assignment assisting PG&E's non-nuclear operations with a concurrent assignment of an acting Manager. Additionally, the Organizational Effectiveness Group had been moved to become a part of the PIP Group rather than reporting directly to the PI Manager.

The PIP was focusing on ascertaining if PG&E's declaration of bankruptcy had any effect upon employee performance at DCPP. To date, several PIP observations appeared to show that employee performance continued to remain high despite the bankruptcy. These observations included:

- Conversations with employees in the field found few immediate concerns.
- Reviews of anonymous notifications found no unusual trends.
- A Quick-hit Self-assessment performed during the recent Refueling Outage 1R21 did not find any increase in human error event rates (copy provided to and reviewed by the team; SAPN 51016310).
- There were no department level human error events during the recent Refueling Outage.

The PI Department continued to be concerned about future performance in light of workforce changes coming in 2020 and 2021, and one specific concern was that high turnover rates could challenge human performance, particularly in the Maintenance Department. The Operations Department appeared to be in a strong position in managing possible future turnover of personnel.

One specific item which the team inquired about was the status of an assessment of the submission rates of Corrective Action Program (CAP) Notifications. During its attendance at an October 2018 Corrective Action Review Board meeting, the
DCISC noted that a reduction in the number of Notifications had been noted and was being investigated. An assessment of the reduced rate of Notification initiations had been completed, and the conclusion was that there were no common causes or increased reluctance on the part of employees to initiate Notifications. Rather, the lower initiation rate was attributed to improvements in human performance, improvements in equipment reliability, the closeout of several major capital projects, a reduced number of preventative maintenance activities, and the fact that 2017 contained only one Refueling Outage. Additionally, the initiation rate for Notifications at DCPP continued to be high relative to the industry (approximately 22,500 in 2017), and indications were that the rate for 2019 would be higher given the two Refueling Outages to be performed during the year.

DCPP's Performance Improvement Program was actively monitoring human performance for reductions in performance due to the PG&E bankruptcy or upcoming workforce changes. To date, there appeared to be no effect and human performance error rates remain low. An assessment was completed of a recent reduction in the rate of Notification initiations, and the assessment concluded that there was no increased reluctance on the part of employees to initiate Notifications.

The following is a summary of DCPP's presentation on this topic at DCISC's June 2019 Public Meeting: The performance improvement model consists of monitoring performance monitoring and finding problems in the field, reviewing of condition reports which are documented as Notifications, and use of the Corrective Action Program to identify, plan and identify solutions followed by implementation of the solution and continuance of performance monitoring. The elements of the Performance Improvement Program consisted of:

- Corrective Action Program (CAP)
- Self-Assessment
- Benchmarking
- Use of Operating Experience -incoming and outgoing
- Performance Monitoring and Trending
- Use of Human Performance Tools
- Field Engagement and Coaching (Observations)

The CAP is directed at finding and fixing problems and to improving the plant's safety culture. DCPP is among the most prolific writers of Notifications in the industry with 22,000 to 25,000 Notifications written each year. Once in the CAP, issues are assessed for risk and evaluated, with the resulting corrective and preventive actions tracked to completion with a goal of having completion achieved within 180 days. Notification writers are notified when actions are complete, and the plant has implemented a satisfaction survey. Some issues for which a closure notice was issued have been subsequently reopened for additional
investigation based on the response of the person who initiated the Notification. After an issue is submitted to the CAP it is screened by a panel including representatives of Engineering, Operations, Maintenance and Performance Improvement organizations and a significance level and an analysis type, and an issue owner is assigned. Senior plant leadership independently review issues adverse to quality on a weekly basis to ensure the appropriate assignment of significance levels and cause evaluation. The Quality Verification organization and the NRC Resident Inspectors also review condition reports. The work control shift foreman also reviews Notifications shortly before they are entered into the CAP for operability, safety-related and extent of condition issues to determine whether the Notification may have application to the other DCPP unit.

The Cause Evaluation determination levels are assigned by the Performance Improvement Program in accordance with the significance level of each issue, with the most frequent cause evaluation for approximately 80% of problem resolution being by a Work Group Evaluation process. Approximately 20-30 issues each year are reviewed at the level of Cause Evaluation, and between one and three issues every year receive the highest level of evaluation through a Root Cause Evaluation.

The purpose of self-assessments was intended to provide a structured methodology for revealing the activities and performance of an organization and to identify performance gaps against internal and external standards. Self-assessments strategically target known or potential performance issues for further investigation. During 2018 DCPP performed 59 formal self-assessments and many other self-assessment activities take place each year on an informal basis.

Benchmarking is a tool to provide self-awareness of performance when measured against the performance and best practices of others in and outside of the nuclear industry. DCPP benchmarks against other nuclear facilities, PG&E's internal lines of business, and within comparable industries such as the petroleum and aviation industries. There were 54 formal benchmarking activities by DCPP during 2018. To date for 2019, there were 142 conditional reports written that were tracking self-assessments and benchmarking.

The Operating Experience Program is a system established by INPO to track events, issues and lessons learned from other stations. The Performance Improvement organization has one person working full-time on reviewing and evaluating operating experience reports and, when appropriate, documenting operating experience in the Corrective Action Program. For 2018 there were 882 operating experience events reviewed and determined to be potentially applicable to DCPP.

Performance monitoring and trending involves the review and use of CAP data, observations, safety and human performance events, self-assessments, benchmarking and use of safety culture data as well as feedback received from the DCISC, the Nuclear Safety Oversight Committee (NSOC) a safety review
committee internal to DCPP, INPO, and the NRC and the observations of the behaviors of workers by leadership. Performance Improvement Coordinators are assigned to review these data to identify trends. Recently, DCPP had begun performing rapid trend identification and issue response during refueling outages.

During 2018, DCPP conducted 59 formal self-assessments, 54 formal benchmarks, 882 operating experience reviews and shared 85 issues within the industry and with INPO through the Performance Improvement organization's efforts. Human performance events declined from approximately 90 in 2012, to six in 2017, three in 2018 and two to date in 2019. While the industry is also experiencing a decline in human performance events, DCPP continues to do better than the industry in this metric which was attributed to DCPP's early and consistent use of human performance tools. DCPP had recorded 1,754 days to date since its last Station-level human performance event.

Wireless Information Technology in the Power Block (Volume II, Exhibit D.9, Section 3.4)

Regarding the status of improving the availability and reliability of wireless networks in the power block area, such initiatives were on hold pending the Joint Proposal for DCPP to cease operations at the end of its current license. A project to expand wireless networks in the power block was scoped, and it was estimated that it would require approximately two years and require significant funding to make wireless networks available in all parts of the power block. The project was made complex and expensive by the requirements that must be met to analyze and install power and data cables in the power block areas, due to potential impacts to safety related systems. Additionally, 500 to 600 access points would be required to be installed due to the size of the power block area and the general impermeability of the areas to wireless signals due to the large amounts of concrete and steel. Thus, the wireless Information Technology project was cancelled. DCPP initiated a Records Management Excellence Plan for 2019, and the purpose of the plan was to convert all manual plant records into electronic ones during 2019.

DCPP had considered implementing a widespread wireless system in the power block, which would aid in data collection and communications; however, the project was cancelled due to its complexity, cost and the Joint Proposal.

Notification Review Team Meeting (Volume II, Exhibit D.9, Section 3.9)

Notifications were electronic documents used by plant personnel to identify and record plant problems, large or small for tracking to resolution in the Corrective Action Program (CAP). Notifications were either "DAs" or "DNs." DAs were for conditions adverse to quality. DNs were for work only situations in which known corrective actions were to take place. Each day, some 50-100 Notifications were initiated. Each one was reviewed by Work Control and the Control Room Shift Manager. Then, the multi-departmental Notification Review Team (NRT) met each
weekday to review the previous day's Notifications. Finally, the management-based Corrective Action Review Board (CARB) performed a high-level review of selected Notifications.

The NRT evaluated and classified each work-only (DN) Notification for appropriate disposition. DNs were assigned for all equipment/system problems for which corrective actions were necessary and for all other requested work not associated with problem resolution. A DA Notification was an electronic document created in SAP that denoted an issue as a condition report. Notifications were reviewed, classified, and assigned to the organization responsible for resolution by the NRT within five working days following supervisor approval and operations review.

The NRT was responsible for the following:

- Reviewing incoming notifications for determination of which notifications should be classified as "DA" condition report notifications.
- For DA condition report notifications, assigning notification significance level, problem response type, and response organization or individual.
- Evaluating for a POA (Prompt Operability Assessment) if one has not been initiated.

In the May 9, 2019, meeting the NRT reviewed 137 Notifications from the previous day. Each member had reviewed all Notifications prior to the meeting and had marked comments on OneNote, a computer program for free-form information gathering and multi-user collaboration. The program gathered users' notes, drawings, screen clippings and audio commentaries. Notes were then shared with the other NRT OneNote users over the plant network. During the meeting, the NRT facilitator used OneNote to review NRT members' comments. The NRT members were well prepared for the meeting and very knowledgeable about the notifications reviewed.

**The May 9, 2019 meeting of the DCPP Notification Review Team was conducted efficiently and effectively. The Team reviewed and dispositioned 137 Notifications from the previous day using a multi-user collaborative application, which enhanced their comments and discussion.**

4.6.3 Conclusions and Recommendations

**Conclusions:**

DCPP continued to maintain an active and effective Operating Experience Program. Two Corrective Action Review Board meetings were satisfactory in that the attendees met the intended objectives. Discussions of the significant items were focused and comprehensive, and actions were assigned for resolution as appropriate. The Benchmarking Program was an active and productive program for obtaining information useful to improve station performance. A
Readiness Review Board Meeting for reviewing the 230kV Switchyard component Cold Wash was thorough. A meeting of the Notification Review Team was conducted efficiently and effectively.

Recommendations:

None
4.7 Emergency Preparedness

4.7.1 Overview and Previous Activities

An Emergency Preparedness (EP) Program has been in-place since the beginning of the nuclear power industry; however, the accident at Three Mile Island brought substantial changes. Prior to Three Mile Island, Emergency Operating Procedures (EOPs) were primarily event-based, requiring the operator to know which event was taking place. Afterward, the EOPs became symptom-based, making it easier for the operator to decide what actions to take. The five major EP facilities include (1) the Control Room (simulator in practice) where operators respond to the accident, (2) the station Technical Support Center (TSC) where engineering, computer, radiological assessment, NRC, and operations, as well as documents and procedures, are located, (3) the offsite Emergency Operations Facility (EOF) where the Recovery Manager and administrative and technical staff are located, (4) a station Operations Support Center (OSC) that provides a location to stage and dispatch operations, maintenance, firefighting, and radiation protection personnel, and (5) the Joint Information Center (JIC) where DCPP and San Luis Obispo County interface with the media.

The DCISC reviews Emergency Preparedness at DCPP on a regular basis. Past Committee activities have included observations and reviews of drills and full, graded emergency exercises each year and related issues from the observations.

During the previous reporting period, the DCISC did not specifically review DCPP Emergency Preparedness; however, in prior periods the DCISC concluded that the DCPP Emergency Preparedness Program was satisfactory.

4.7.2 Current Period Activities

The DCISC reviewed the following aspects of DCPP Emergency Preparedness during the current reporting period:

- Meteorological Information and Dose Assessment System (MIDAS)
- Meeting with San Luis Obispo County Department of Emergency Services
- DCPP Response to Fire Alarm
- Emergency Response Organization Muster Meetings
Emergency Preparedness Update

Meteorological Information and Dose Assessment System (Volume II, Exhibit D.2, Section 3.7)

MIDAS is a computer software program that is used to predict the path and magnitude of radiation releases to the surrounding environment caused by an accidental radiation release from the plant. The output of the MIDAS software is used by DCPP to make protective action (sheltering, evacuation, etc.) recommendations for protection of the public to governmental authorities (i.e., the San Luis Obispo County Office of Emergency Services). Inputs to MIDAS include the concentration and height of radioactive releases at the plant along with wind and temperature data from up to seven meteorological towers and several SODAR (Sonic Detection and Ranging) units. The predictions are compared to data from roving field monitoring teams and by pressurized ionization chamber radiation detectors at fixed locations.

In general, it was believed that the output of MIDAS was accurate for most releases, but it had been observed that the MIDAS dose projections were sometimes higher than the outputs of the Radiological Assessment System for Consequence Analysis (RASCAL) dose projection software used by San Luis Obispo County. Both software programs used the same inputs but contained different meteorological models. Any possible overestimation would be acceptable for emergency response purposes, particularly given the fact that MIDAS outputs were used only by DCPP to make recommendations for protective actions to governmental officials. Additionally, dose projection software was primarily relied upon for dose projections only during the early phases of response to an accident. Later phases would rely heavily upon the use of additional direct dose measurements obtained by field monitoring teams in order to make protective recommendations.

DCPP believed that MIDAS was more appropriate for use than RASCAL with DCPP’s unique topography and its extensive network of installed meteorological instrumentation. In general, RASCAL is not configured to use local instrumentation but rather uses National Weather Service data as its input for meteorological conditions. Also, DCPP would have to submit a License Amendment Request to the NRC for approval to change software programs, and it did not believe that any gains to move to the RASCAL software would be worth the cost of obtaining NRC approval.

Regarding the extent to which personnel were trained and qualified to operate the MIDAS software, MIDAS hands-on training was held during Emergency Response Organization (ERO) muster meetings that occurred every two weeks for each of the four ERO teams on a rolling basis. That totaled to about 30 minutes of training every eight weeks for each qualified individual. On each ERO team, at least two people were qualified on the software, and all Shift Technical Advisors assigned to
the Operations shift crews were also qualified. The total number of individuals qualified to operate the software was maintained at around 20 people. Recently, all of the ERO teams and Operators had also received training in the implementation of Revision 6 to the EAL Guidelines. Revision 6 to the EAL Guidelines relied heavily on the dose projections provided by MIDAS as an input to event classification.

**DCPP continues to properly maintain and use the MIDAS software system for predicting the magnitude and path of radioactive plumes from the plant in the event of an emergency.**

**Meet with San Luis Obispo County Office of Emergency Services (Volume II, Exhibit D.3, Section 3.11)**

The SLO County Office of Emergency Services is very active working with DCPP on their Emergency Plan and participating in practice drills and exercises. They recently received good marks on a Federal Emergency Management Agency (FEMA) assessment of evacuation, monitoring and decontamination of public shelters and on a FEMA hospital personnel decontamination exercise. In October 2018 FEMA will perform a biennial plume phase exercise.

The Office is working on a background document for transitioning to DCPP decommissioning; however, in reviewing a draft of the NRC document on emergency preparedness following plant shutdown and decommissioning, they believe their funding will be cut back significantly such that they will not be able to provide adequate emergency services. This would begin when all spent fuel is transferred into the Spent Fuel Pool. Funding is provided by DCPP, and the County Office has not discussed this with them. The DCISC FFT is concerned about this reduction in funding and plans to bring it to the attention of the full Committee for discussion and evaluation for possible action.

**The San Luis Obispo County Office of Emergency Services has been performing well in recent DCPP exercises and government assessments. The Office is evaluating its transition to the DCPP decommissioning phase; however, it is concerned that funding will be reduced significantly based on a draft NRC document on emergency services in the plant decommissioning phase. The DCISC Fact-finding Team shares this concern and will take this issue to the full DCISC for discussion and possible action.**

**Observation of Response to Fire Alarm in Administration Building (Volume II, Exhibit D.4, Section 3.5)**

During a fact-finding meeting at DCPP, the DCISC Fact-finding Team responded to and observed DCPP personnel responding to a fire alarm in the Administration Building. The team and its escort, Mr. Hector Garcia, Chief Nuclear Officer Support Manager, proceeded to exit the Administration Building by walking
down six flights of stairs. The team then joined approximately 200 other individuals at the muster point to the southeast of the Administration Building and waited for further direction. After approximately 20 minutes, personnel were informed that there was no fire and were allowed to return to the Administration Building.

The team observed that the evacuation from and return to the Administration Building were conducted expeditiously and in an orderly fashion. In general, personnel were observed to be following plant safety guidelines for holding handrails during the long walks down and back up the stairwells. During its exit from its conference room, the team noted that the sound level of the fire alarm in the east end of the sixth floor was not as loud as other areas. Later, the team was provided with a copy of a Notification (SAPN 51003792) that was written by the Industrial Fire Officer (IFO) who, while checking the building clear, found that several people in the computer room on the sixth floor did not evacuate due to not having heard the alarm. The deficiency observed by the team and the IFO should be addressed for resolution by the Corrective Action Program.

Later, the team was provided with copies of two other Notifications (SAPNs 51003794 and 51003798), which documented the occurrence and cause of the fire alarm. The fire alarm was a false alarm caused by actuation of a smoke sensor in the general vicinity of building renovations that were occurring on the fifth floor.

In response to a fire alarm, evacuation from and return to the Administration Building was conducted expeditiously and in an orderly fashion. The fire alarm was determined to be false, and corrective actions were being properly initiated through the DCPP Corrective Action Program.

Observation of Emergency Response Organization (ERO) Muster Meeting (Volume II, Exhibit D.4, Section 3.5)

The ERO is the group of employees, which provides staff for emergency response facilities in the case of an emergency event. Although Emergency Planning overall is managed by a small group of full-time specialist staff members, the bulk of the ERO is comprised of DCPP employees who are trained and serve in assigned roles as a collateral duty to their regular duties.

The ERO is broken into four assigned teams, Alpha, Bravo, Charlie and Delta, of approximately 70 individuals per team who serve "on call" for two weeks out of every eight weeks. Maintaining the proficiency of the ERO teams is an ongoing activity and is given high visibility at the station, including having qualification and training metrics included in the monthly Plant Performance Indicator Report. At the start of the two-week assignment cycle, the team participates in a one-hour training session, called an "ERO Muster Meeting." The DCISC observed the November 8, 2018 and May 9, 2019 ERO Muster Meetings.
The bulk of the hour-long ERO Muster Meeting was dedicated to ongoing training. The first 30 minutes consisted of a presentation primarily given by the Emergency Planning Supervisor, whose brief to the Bravo Team included the following:

- Desired Outcome (of the meeting)
- ERO Standards
- Roll Call of Attendees
- Recent Operating Experience (External and Internal, including the initial results of the October Emergency Planning Exercise)
- Duty Impacts (equipment out of service, procedure changes, weather, holidays, etc.)
- Dynamic Learning Activity Setup
- Duty Impacts (equipment out of service, procedure changes, weather, holidays, etc.)
- Video of Re-enactment 1987 DCPP Loss of Residual Heat Removal Event

After the presentation, individuals assigned to specific facilities (Emergency Operations Facility, Technical Support Center, Operational Support Center, etc.) were broken out into smaller groups according to their assignments. A Dynamic Learning Activity was provided to each of the groups to review items such as activation procedures, event classification steps, and command and control processes. The Fact-finding Team observed that the training was effectively conducted and solicited productive interaction from the attendees.

**The November 9, 2018 and May 9, 2019 DCPP Emergency Response Organization Muster Meetings were performed in a professional, effective manner. The subject matter was current and interesting. Participation by personnel was good.**

**Emergency Planning (Volume II, Exhibit D.4, Section 3.13 and Exhibit B.6)**

On October 24, 2018, PG&E, along with state and local authorities, conducted an Emergency Planning Exercise, which was evaluated by the NRC. The DCISC observed portions of the exercise, beginning its observations in the Control Room Simulator, which served as the Unit 1 Control Room for the exercise. The team then traveled to the Emergency Operations Center (EOF). The EOF had already been activated within the prescribed time, as had the other emergency organizations. After observing activities in the EOF for more than an hour, the Team went to the nearby Joint Information Center (JIC), which had been activated along with the EOF, to observe activity there. Although the exercise lasted from about 8:00 a.m. to 2:00 p.m. with critiques following the exercise, the team’s observations ended at the JIC at about 11:30 a.m. so that the team could attend the DCISC’s Public Meeting later on the same day. The DCISC observed that the drill was being conducted in an orderly fashion and that the plant Emergency Plan
DCPP provided a copy of DCPP's Final Evaluated Exercise Report following the meeting, which the DCISC found that the above three weaknesses represented the only three objectives of the exercise that were evaluated as unsatisfactory. There were approximately 170 total objectives for the exercise, and the remainder of the exercise objectives were evaluated as having been satisfactorily achieved. There were approximately 40 areas for improvement noted during the exercise, and those items were entered as Notifications into the Corrective Action Program.

DCPP provided the DCISC with a brief overview of the future of DCPP's Emergency Planning efforts in light of the plan for DCPP to cease operations at the end of its current license in 2025. In general, Emergency Planning would remain unchanged until at least 18 months after the cessation of operations (2027). That timeframe was driven by the time needed for used fuel in the Spent Fuel Pool to decay radioactively to the point where a zirconium fire was no longer possible. After that point, it was anticipated that license amendments would be approved allowing the breadth of the Emergency Plan to be reduced and the required response times of the plan to be increased commensurate with the reduced risk of a large-scale release of radioactivity. Given that timetable, DCPP was expecting to continue to conduct biennial Emergency Exercises through 2026. Staffing of the ERO would need to continue to be closely managed to ensure that sufficient qualified personnel remained available and ready to respond through and beyond the cessation of operations. Separately, under the Joint Proposal and subsequent orders of the PUC, there were requirements for the maintenance and ultimate transfer of most of the current offsite emergency response facilities, including the siren warning system, to San Luis Obispo County. Discussions had not yet progressed to the point of determining exactly when or how that transfer would occur.

The October 24, 2018, Emergency Planning Exercise was successfully designed and implemented by DCPP, and it demonstrated that DCPP's staff could effectively implement the plant's Emergency Plan.

### 4.7.3 Conclusions and Recommendations

**Conclusions:**

The DCPP October 2018 emergency exercise was performed satisfactorily with several lessons-learned for improvements in the future. The November 9, 2018 and May 9, 2019 DCPP Emergency Response Organization Muster Meetings were performed in a professional, effective manner. DCPP continues to properly maintain and use the MIDAS (Meteorological Information and Dose Assessment System) software system for predicting the magnitude and path of radioactive plumes from the plant in the event of an emergency.
Recommendations:

None
4.8 Risk Assessment and Management

4.8.1 Overview and Previous Activities

PG&E has developed in-house capability to perform risk assessments and periodically updates its Probabilistic Risk Assessment (PRA) to incorporate changes in plant configuration and, if appropriate, operations. PG&E controls its risk from on-line maintenance procedurally. For On-Line Maintenance the PRA Group prepares a Risk Profile on a weekly, monthly and fuel cycle basis. The PRA Group works very closely with personnel performing the On-Line Maintenance risk assessment, and the program has been working well. The On-Line Maintenance (OLM) model has been used by Operations and Maintenance as an on-line planning tool for various operations and maintenance activities.

The DCISC reviewed the following item in DCPP's Probabilistic Risk Assessment Program during the prior reporting period:

1. Non-seismic PRA Programs
2. Seismic PRA Program
3. Human Performance Data in PRA Assessments

In its previous reporting period, the DCISC concluded that Probabilistic Risk Assessment is an effective tool in understanding and improving nuclear reactor safety. PG&E has established an effective PRA Program staffed by experienced personnel and utilizes PRA to the full extent in analyzing and operating DCPP safely.

4.8.2 Current Period Activities

The DCISC reviewed the following topics during the current reporting period:

1. Fire PRA and PRA Plant Response
2. Seismic PRA

Fire PRA Upgrade, and Status of the PRA Plant-Response Model (Volume II, Exhibit D.3, Section 3.8)
Status of the DCPP Fire PRA

The DCPP PRA team has been working on developing the fire-PRA model for several years, and it has been in regular use for the last couple of years. The model and analyses using it served as a major part of the plant's submittal to the NRC for switchover of its NRC fire-protection regulations from the older Appendix R-based approach to the new approach based on National Fire Protection Association (NFPA) Standard 805. That switchover was approved by the NRC in April 2016 and, one year later, in April 2017, the new NFPA-based requirements for DCPP took effect.

The plant has also begun to use the fire PRA in NRC Regulatory Guide (RG) 1.174 applications, in which the PRA is used to justify certain plant configuration changes that need NRC approval. A good example is using the fire PRA to support changes to both units during their most recent refueling outages (1R20 and 2R20) for which it can be demonstrated that the change in plant core-damage frequency is smaller than the RG 1.174 decision thresholds.

In the last year, the fire-PRA model has been brought up-to-date with the final post-NFPA-805 plant configuration, and now other model updates are being developed and installed. Among the changes being implemented are an updated approach to the human-reliability-analysis aspect of the fire PRA, partly driven by NUREG-2180 ("Determining the Effectiveness, Limitations, and Operator Response for Very Early Warning Fire Detection Systems in Nuclear Facilities,") and an update to the heat-release-rate aspect, partly driven by NUREG-2178 ("Refining and Characterizing Heat Release Rates from Electrical Enclosures During Fire."

Other updates and changes to the model cover including new Control Room and fire-fighting procedures that were implemented as part of compliance with NFPA-805; beginning to incorporate FLEX equipment into the fire model; and incorporating advances in how lost DC power is restored.


Status of the PRA's plant-response model

The DCPP reported on several new or updated changes to their model. One of them involved the thermal model that supports the success criteria during a LOCA (loss of coolant accident), and in particular the way the model deals with the volume of the Condensate Storage Tank (CST) in a more realistic fashion. In their earlier (more conservative) model, they had assumed that the CST's water supply is pessimistically smaller than actual, because they assumed that the water supply only met the minimum Technical Specification limits, whereas it always exceeds that. This forced their model to call upon the Fire Water Tank for backup water
during certain specified LOCA events. With a realistic assumption, there is now no need for that backup tank.

They have also installed a more realistic thermal model for the cooldown of the reactor after shutdown, based on recent industry-sponsored work. This changes the timing in the post-LOCA model.

They also modified the model to use better industry-wide data for the frequency of loss-of-offsite-power and for certain LOCA frequencies. They also changed their model of Emergency Diesel Generator response based on a new diesel governor, although they reported that this does not make a significant different to the results or insights.

Finally, they are installing updates for a number of failure frequencies based on the latest data; this type of update is done every few years.

All in all, the PRA team reported that their plant-response model is now mature and is being widely used in various applications, such as technical-specification changes and in support of generic-issue resolution.

**The DCPP Probabilistic Risk Assessment (PRA) Group's development work, for both the PRA plant-response model and the fire PRA, has gone well, and the models are more realistic because of this. The PRA work is emphasizing the support of various applications, such as resolving generic issues and modifying Technical Specifications, and the use of the PRA for these purposes continues effectively. The DCISC Fact-finding Team concludes that the PRA group is doing excellent work.**

**Seismic Probabilistic Risk Analysis Results.**

Dr. Budnitz made a presentation at the February 28, 2019 DCISC Public Meeting addressing how large nuclear plants such as DCPP are designed against earthquakes, how earthquake engineers analyze the plants to understand their strength, and what PG&E did in its recent Seismic PRA analysis, why they did it, what they learned, and what uncertainties remain.

The seismic characteristics of the plant site are assessed by seismologists and those in the earth sciences disciplines to develop information concerning what potential earthquakes may be generated in the nearby environment by sources, how big those earthquakes may be, their spectra, and what other characteristics they may have. Seismic faulting may produce earthquakes of differing sizes and characteristics and the seismic scientific community has methods to try to understand how earthquakes occurred in the past by studying the structure of faults. The amplitude of shaking, the duration of the event, and the frequency content of the earthquake are all relevant and he observed some equipment is very sensitive to high frequency motion and some structures are impacted more by low frequency motion. It is important therefore that seismologists develop an understanding of the frequency spectrum and the propagation of motion caused
for every earthquake that might occur in the vicinity. DCPP is fortunate in that a number of very small earthquakes have been monitored and have revealed a great deal about the nearby fault structure.

Seismologists have produced for every nuclear plant site a probabilistic seismic hazard analysis (PSHA) and this knowledge becomes the starting point for any design of a seismic structure. The duration, motion and frequency experienced at the site of any earthquake will be attenuated at the site of a plant and the facility must be designed with this consideration in mind. Seismic energy also changes from what is experienced at ground level when the energy goes into a building, structure, or a piece of equipment located within due to the building or structure's mass. Civil engineers have developed sophisticated analysis methods to assess how the seismic energy will propagate through a structure including what the seismic energy will be at the base of a structure and at any point within. Shaker tables are also used for large and small structures and equipment to better understand and calibrate the effect of seismic motion, and the spectrum of data acquired in this fashion is used in the design of plant structures and equipment.

This information also informs the various design codes issued by organizations such as the American Society of Mechanical Engineers (ASME), the Institute of Electrical and Electronics Engineers (IEEE), the American Concrete Institute, the American Institute of Steel Construction, etc., which are in use worldwide but nuclear design codes have much stronger requirements than those used for a non-nuclear-standard building construction. Design codes for nuclear related designs require that buildings and structures must remain elastic, that is, they must be in the same condition after an event as before and survive without anything but the most superficial non-structural damage. This is to ensure the structure and the equipment it contains can be as functional after an event as before. The end point for seismic design of nuclear structures, systems and components is this elastic response which requires more difficult and expensive engineering, not only to achieve but also to demonstrate that it is achieved. In addition to shaker table testing, there is a community of experts that conduct examinations after every significant seismic event anywhere in the world to assess the ground motion experienced and the resulting damage.

The seismic design basis and the double design earthquake basis for DCPP were reassessed in the 1970s and 1980s based upon the effects of an earthquake on the Hosgri Fault whose frequency of occurrence was at that time not fully understood by the NRC because the studies lacked a detailed explanation. However, in the intervening years a great deal of exploration and study has been done and there is a much better understanding of the spectrum and how motion produced by local earthquakes propagates from the source. The probability that the Hosgri Fault, to which parameters DCPP is designed, will produce the largest earthquake of which it is capable has been determined to be approximately 10^-4 per year (or one chance in ten thousand per year).

A key question for any nuclear structural engineer is how big an earthquake it might take to cause a building, structure or piece of equipment at the site to fail
and be incapable of performing its safety function. The basis for that understanding is the result of a large number of tests, data and experience from real earthquakes and a considerable amount of analysis. The community that is engaged in this process acknowledges that there is a considerable amount of uncertainty involved because the data are not extensive and can sometimes be difficult to interpret. Additionally, inquiries must go beyond just the failure of a structure or piece of equipment as they must also address accident sequences which take place when more than one item fails. There is not one component in a nuclear plant whose failure results in a large accident but rather large accidents are produced through a sequence of failures and it is therefore necessary to understand the probability of any potential accident sequence and the tool used to do this is probabilistic risk analysis (PRA).

Efforts began in the early 1970s to complete an analysis of all the accident sequences at the Peach Bottom Atomic Power Station in Pennsylvania and at Surry Power Station in Virginia. Several hundred accident sequences were identified, many of them because the plants had been designed against them, and in the first five or six years following these analyses several more accident sequences were identified. There are now approximately 50 seismic PRAs and the community of experts has a high degree of confidence, but not an absolute certainty, that no accident sequences have been overlooked. Seismic sequences are often different from other accident sequences because of the capability of an earthquake to damage several components simultaneously which causes complications to the manner in which an accident sequence may emerge and makes for a very complex analysis including, but not limited to, the fact that more intervention and action is required of the operators in the control rooms to address multiple failures.

The DCPP Seismic PRA completed circa 1986 was the most extensive study ever done up to that time and he characterized it as the "gold standard" which was studied by everyone in the world who was performing any analysis of this type. In the intervening years no one has identified an accident sequence, which was not addressed by the DCPP Seismic PRA. Following the NRC mandate after the accident to Fukushima Daiichi, additional probabilistic seismic hazard analysis, building upon that previously undertaken, was performed and this work has now been outside peer reviewed and reviewed by the NRC's staff. The DCPP seismic PRA analysis was extensive, thorough, and carefully done. The DCPP seismic PRA analysis remains the gold standard in the community of professionals who engage in seismic probabilistic hazard analysis.

The DCPP Seismic PRA makes certain assumptions including that offsite power will be unavailable from the grid. In that situation, DCPP is dependent upon its emergency diesel generators (EDGs) but the EDGs also have a certain failure factor in a very strong earthquake. The current analysis in this regard is likely slightly pessimistic but that is desirable in context of PRA. Without the EDGs every pressurized water reactor such as DCPP is reliant upon its turbine driven auxiliary feedwater pump which does not run on electricity but rather runs on steam and as long as the turbine driven auxiliary feedwater pump is operable, water can be kept
in the reactor vessel for cooling. However, the turbine driven auxiliary feedwater pump requires operators to properly align its direct current, battery powered, controls. Data concerning the likelihood of operator error is available and is an important part of PRA analysis but again the fact of an earthquake adds a level of complexity to any analysis and accordingly, with a relatively high degree of uncertainty, a higher probability of human error. The loss of water from the spent fuel pools is also a huge concern, but for DCPP a structural analysis of its two Spent Fuel Pools shows them to be very robust, actually stronger that the Fuel Handling Building itself in which they are located. A study was made concerning failure of certain panels in the Control Room and the seismic strength of those panels was analyzed and found them to be a weak point from which, in the event of failure, the plant might be unable to recover.

The DCPP Seismic PRA update computed that the annual probability of an accident leading to core damage was $3 \times 10^{-5}$ which means three parts in a hundred thousand per year or one in 30,000 per year, with an uncertainty factor of 10 either way meaning the probability could be larger or smaller, and this was well within the range that the NRC considers acceptable for plants such as DCPP. It is now understood that most core-damage accidents do not lead to a large release. In the DCPP seismic PRA, the fraction that do is estimated to be about one in five, which estimate has a large uncertainty but represents the best current state of the analysis.

4.8.3 Conclusions and Recommendations

Conclusions:

Probabilistic Risk Assessment (PRA) is an effective tool in understanding and improving nuclear reactor safety. PG&E has established an effective PRA Program staffed by experienced personnel and utilizes PRA to the full extent in analyzing and operating DCPP safely. DCPP's Seismic PRA update was completed satisfactorily and with acceptable results.

Recommendations:

None
4.9 Nuclear Safety Oversight and Review

4.9.1 Overview and Previous Activities

Note: because of the confidentiality agreement between the Institute of Nuclear Power Operations (INPO) and its member nuclear plants, and a similar policy governing DCPP's internal Nuclear Safety Oversight Committee (NSOC), only limited information can be presented in this public document.

Nuclear Safety Oversight and Review is an important function in the safe operation of nuclear power plants. This oversight represents an independent, higher and/or broader level of review of operations, events, occurrences, etc. than can be obtained from the organizations performing the day-to-day plant, technical and quality functions. The Nuclear Regulatory Commission (NRC) is charged by law to regulate the nuclear industry. In carrying out this responsibility the NRC issues regulations and guides for nuclear safety and performs inspections at facilities to assure regulations are met. NRC's role at DCPP is discussed in Chapter 3.0 NRC Assessments and Issues. NRC regulations require, and DCPP Technical Specifications (TS) provide for, a high level of oversight in the form of the Nuclear Safety Oversight Committee (NSOC).

Additionally, the nuclear industry monitors and enhances operational safety and excellence with the Institute of Nuclear Power Operations (INPO) which performs periodic performance evaluations of each operating nuclear plant; coordinates the collection, review and dissemination of operating event information; issues good practice guidelines; provides specific event, technical and functional reviews; and issues and monitors performance goals for the industry. PG&E is a member of INPO and participates in their programs.

The Diablo Canyon Independent Safety Committee (DCISC) provides an additional level of nuclear safety review and oversight. As stated in Chapter 1.0, DCISC is charged to "... review Diablo Canyon operations for the purpose of assessing the safety of operations and suggesting any recommendations for safe operations". In carrying out its responsibilities DCISC receives and reviews DCPP operating and technical and NRC documents; performs fact-findings at DCPP and holds several public meetings and public plant tours each year to hear PG&E reports on plant
operational safety and receive public input.

The DCISC observed the following oversight meetings/items during the previous reporting period (2017-2018):

- INPO Evaluation Preparation
- NSOC Evaluation Results

**The 2017 Institute of Nuclear Power Operations (INPO) evaluation of DCPP resulted in a positive assessment along with several Areas for Improvement. DCPP has made plans to address each Area for Improvement.**

**4.9.2 Current Period Activities**

*The DCISC has an agreement with DCPP to maintain Institute of Nuclear Power Operations (INPO) and Nuclear Safety Oversight Committee (NSOC) information confidential, thus only limited information is presented here.*

The DCISC reviewed the following oversight item during the period 2017 - 2018:

- INPO Areas for Improvement
- INPO Observations of Operations Activities

**Tracking and Resolution of INPO Areas for Improvement and DCPP Mid-Cycle Assessment (Volume II, Exhibit D.4, Section 3.3)**

*(Because of its privacy agreement with DCPP, the DCISC cannot share the details of the evaluation or subsequent corrective actions.)*

The Institute of Nuclear Power Operations biennial August 2017 evaluation of DCPP appeared to have been positive overall with some areas for improvement that seemed appropriate.

After reviewing and discussing the status of resolving INPO AFIIs, the DCISC Fact-finding Team concluded that the appropriate corrective actions had been initiated with the majority being complete as of the time of the meeting. Additionally, the Fact-finding Team observed that DCPP recently completed its INPO Mid-cycle Assessment with generally positive results.

**Corrective actions for Areas for Improvement (AFIs) identified during the Institute of Nuclear Power Operations (INPO) biennial August 2017 evaluation of DCPP appeared to have been appropriately initiated with the majority being complete as of the time of the meeting. (Because of its privacy agreement with DCPP, the DCISC cannot share the details of the evaluation or subsequent corrective actions.)*
Institute of Nuclear Power Operations (INPO) Observation of Operations (Volume II, Exhibit D.9, Section 3.2)

(Because of its privacy agreement with DCPP, the DCISC cannot share the details of the evaluation or subsequent corrective actions.)

INPO performs major evaluations of each operating nuclear power plant every two years. DCPP's next evaluation will be in August 2019. The operations observation reviewed in this fact-finding visit was performed in July 2018 by a small INPO team as partial input to the upcoming August 2019 evaluation. The INPO team observed the following:

- Control Room and field crew operations
- Clearance performance
- Infrequently performed evolutions
- The Containment Spray Pump event
- Reactor Coolant System draindown for Refueling Outage 1R21
- Mode changes and startup following shutdown for Refueling Outage 1R21

Observation results were positive overall. The DCISC Fact-finding Team learned of improvements in the DCPP Procedure Writing Group, which should be included in a future fact-finding visit.

The Institute of Nuclear Power Operations observation of DCPP Operations resulted in overall positive results.

4.9.3 Conclusions and Recommendations

Conclusions:

The 2017 Institute of Nuclear Power Operations (INPO) evaluation of DCPP resulted in a positive assessment along with several Areas for Improvement. DCPP has made plans to address each Area for Improvement.

Recommendations:

None
4.10 Radiation Protection

4.10.1 Overview and Previous Activities

DCPP Technical Specifications contain requirements on Radiation Protection, and DCPP has corresponding programs and procedures to specify the details of their radiation protection programs. Although numerical limits are specified, plant personnel are also required to use the philosophy of As Low As Reasonably Achievable (ALARA) to minimize radiation exposures and releases. DCPP has a formal ALARA program; the program applies to personnel exposure in the plant as well as releases to the environment. PG&E files reports semi-annually regarding personnel exposures; releases outside DCPP; and regular soil, vegetation, water and air samples taken around the plant.

The DCISC regularly monitors DCPP personnel exposure, and collective radiation exposure is one of DCPP's routine performance indicators. DCPP also reviews any radiation protection events or incidents in the industry that are reported in Licensee Event Reports (LERs) or NRC violations. The majority of personnel exposure occurs during refueling outages when most of the work in the Radiation Control Area is performed. DCPP sets outage and annual goals for exposure and reports these at DCISC public meetings. DCPP also submits a semi-annual report to NRC on any planned, normal radioactive releases from the plant; DCISC reviews this report. Any abnormal releases are reported in special reports, typically LERs, although there have been none related to releases since the DCISC began in 1990.

During the previous period, the DCISC reviewed Radiation Protection Programs at two Fact-finding Meetings. The following topics were reviewed:

- Annual Radiological Release Report
- Annual Radiological Environmental Monitoring Report
- Unit 1 Increased Radiation Levels

The DCISC concluded in the previous period that the DCPP Radiological Environmental Monitoring Program appeared satisfactory in monitoring and measuring radioactivity in the environment surrounding DCPP. There were no abnormal levels of radioactivity detected. DCPP identified the cause of increased radiation levels in Unit 1 containment and initiated appropriate corrective actions.
4.10.2 Current Period Activities

During the current period, the DCISC reviewed the following Radiation Protection items during one Fact-finding Meeting:

- Annual Radioactive Effluent Release Report
- Annual Radiological Environmental Monitoring Report

Annual Radioactive Effluent Release Report (Volume II, Exhibit D.1, Section 3.1)

DCPP submitted its 2017 Annual Radioactive Effluent Release Report (ARERR) to the NRC on April 24, 2018. This report described the measured/calculated quantities of radioactive gaseous and liquid effluents released from the plant in 2017. The report concluded the following:

*In all cases, the doses associated with plant effluent releases during the report period were much less than the respective TS [Technical Specification] limits.*

There were no changes to either Radwaste Management (Radwaste Treatment Systems or Radwaste Process Control) Programs or major changes to the Offsite Dose Calculational Manual. No abnormal releases occurred in 2017.

Based on records of 2017 radioactive liquid and gaseous releases, the following off-site radiation doses to the total body of a hypothetical individual at the closest point on the site boundary (approximately 800 yards from the plant) full-time and the corresponding percent of Technical Specifications limits for the year 2017 were reported in the ARERR as:

<table>
<thead>
<tr>
<th>Effluent Type</th>
<th>Calculated Radiation Dose</th>
<th>Percent of Tech. Spec. Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>0.0002 milliRem</td>
<td>0.0066</td>
</tr>
<tr>
<td>Gaseous</td>
<td>0.0002 milliRem</td>
<td>0.0005</td>
</tr>
</tbody>
</table>

A calculation was performed to determine the upper limit of possible radiation exposure for any member of the public on-site. The calculation found that direct radiation was 4.7 milliRem per year to an individual working 40 hours per week at the onsite makeup water facility up near the Independent Spent Fuel Storage Installation (ISFSI).

The DCPP Radioactive Effluent Release Program appeared satisfactory in calculating, monitoring and measuring radioactivity in the environment surrounding DCPP. There were no abnormal releases of radioactivity or abnormal levels of radioactivity detected.

Annual Radiological Environmental Operating Report (Volume II, Exhibit D.1, Section 3.1)
The 2017 Annual Radiological Environmental Operating Report (AREOR), submitted to NRC on April 24, 2018, described the results of the Radiological Environmental Monitoring Program (REMP), which measured and assessed the levels of radiation or radioactivity in the environment related to the operation of DCPP. The 2017 REMP included more than 2,400 samples (including Thermoluminescent Dosimeters [TLDs]) with approximately 1,700 radionuclide or exposure rate analyses being performed. Samples included surface water, drinking water, marine samples, vegetation, food crops, milk, and meat. The report concluded the following:

The results of the 2017 REMP showed no unusual environmental isotopic findings from DCPP site operations. There results were compared to DCPP preoperational isotopic data and showed no unusual trends. Diablo Canyon site operations had no significant environmental radiological impact on airborne, surface water, drinking water, marine life, aquatic vegetation, sediment, milk, or meat radioactivity.

Direct ambient radiation was continuously measured at 32 locations surrounding DCPP using TLDs. These 32 locations are made up of 29 indicator stations and 3 control stations. Three TLD badges are placed at each location, and each badge has three detectors to provide an average dose at each location. The dosimeters are collected and read every calendar quarter. The results are trended and compared with preoperational and historical operating values to look for adverse trends. The ambient direct radiation levels in the DCPP offsite environs did not change and were within preoperational ranges throughout 2017.

The Old Steam Generator Storage Facility (OSGSF) contains four old steam generators and two old reactor vessel heads. The OSGSF did not cause any changes to the ambient direct radiation levels in the DCPP environment during 2017. Also, the sumps to the OSGSF were inspected quarterly and remained empty and dry during 2017.

Tritium levels in three monitoring wells beneath the power block all had detectable tritium at very low concentrations, well below the Environmental Protection Agency (EPA) drinking water standard of 0.02 microcuries per liter. This tritium was attributed to rain-washout of gaseous tritium contained in water evaporated from the Spent Fuel Pools, exiting the plant through the plant ventilation exhaust system, which is an approved discharge path. All groundwater at the site flows into the Pacific Ocean and not to a source of drinking water.

In addition, annual cumulative radiation dose is evaluated at the closest site boundary for the combined effects of the OSGSF, the ISFSI, radioactive waste containers outside of plant buildings, and radioactive tools and equipment stored inside plant buildings. This cumulative annual radiation dose was reported in the AREOR to be less than 1.0 milliRem, compared to 310 milliRem average annual radiation exposure to people in the U.S. from natural sources (e.g., cosmic, terrestrial, radon, etc.).
The DCPP Radiological Environmental Monitoring Program appeared satisfactory in calculating, monitoring and measuring radioactivity in the environment surrounding DCPP.

4.10.3 Conclusions and Recommendations

Conclusions:

The DCPP Radiological Environmental Monitoring Program appeared satisfactory in monitoring and measuring radioactivity in the environment surrounding DCPP. There were no abnormal levels of radioactivity detected. DCPP identified the cause of increased radiation levels in Unit 1 containment and initiated appropriate corrective actions.

Recommendations:

None
4.11 Quality Programs

4.11.1 Overview and Previous Activities

The DCISC has followed DCPP's quality programs continuously since 1990. During the previous reporting period, the DCISC reviewed the following topics related to quality programs at three Fact-finding Meetings:

- Quality Verification 2017 Audits and 2018 Audit Plan
- Software Quality Assurance Programs
- Quality Verification Assessment of Outage 2R20 Activities

The DCISC concluded in the previous period that the DCPP Quality Verification Audit Program appeared to be effectively designed and implemented. DCPP's Software Quality Assurance Program appeared to be comprehensive and designed to assure computer software that could affect the safety of plant operations was developed, maintained, operated, and changed in an appropriately controlled fashion. DCPP Quality Verification's assessment of Refueling Outage 2R20 was thorough and comprehensive.

4.11.2 Current Period Activities

During the current period, the DCISC reviewed quality programs at three Fact-finding Meetings and one Public Meeting. The following topics were reviewed:

- Quality Verification 2R20 Outage Assessment
- Quality Assurance Assessment Action Items
- Quality Verification 2018 Audits and 2019 Audit Plan
- Quality Verification's Perspective on Plant Performance

Quality Verification 2R20 Outage Assessment (Volume II, Exhibit D.1, Section 3.4)

The Quality Verification (QV) assessment report included the following item, which was the subject of this fact-finding visit: Operators not taking appropriate actions to verify equipment configurations or plant conditions prior to completing activities or crediting equipment to support plant operations. This finding was
elevated to a new level, an Area Requiring Management Attention (ARMA), and entered as several Notifications into the Corrective Action Program (CAP) for resolution and tracking.

Additionally, QV completed a "2018 Operations and Technical Specification Audit" in June 2018 in which the audit team considered the deficiencies and concluded that the DCPP ISFSI and Operations and Technical Specifications programs were effectively implemented for the audit period. There were no Findings, but 17 deficiencies and 8 recommendations. Though not individually significant, the overall number of deficiencies was high enough to be a concern to the Fact-Finding Team. The more notable deficiencies were as follows:

- No plant status control self-assessment performed in the past three years
- Several operators were not qualified for watch station duty
- Operator round guidance was not adequate
- Some Operator rounds were not performed
- Instances of watchstander turnover checklist not used
- "At risk" independent verification practices were observed without the required discussion and permission
- Some Prompt Operability Assessments (POAs) did not discuss applicable Technical Specifications
- An emergency operating procedure contained an incorrect entry point
- A License Event Report did not contain the discovery date
- Some Technical Specification bases were not updated when corresponding Updated Final Safety Analysis change requests were made.

Due to the number of deficiencies, the Fact-Finding Team recommends to the full DCISC that a follow-up fact-finding visit be made in about six months to review the status of corrective actions.

**DCPP Quality Verification completed an audit of Operations and Technical Specifications in June 2018. The audit concluded that the audited programs were effectively implemented; however, it identified 17 deficiencies. The DCISC should follow up on the corrective actions for these deficiencies in early 2019.**

**Quality Verification Assessment Action Items (Volume II, Exhibit D.5, Section 3.2)**

The DCISC Fact-finding Team met to follow up on action items from QV's prior assessment of Outage 2R20 issues. For corrective actions, Operations performed procedure changes and focused observations and provided mentors to operators to improve the performance shortfalls identified by QV. This was documented in Notification 50976291, "QARMA: Ops Status Control." These actions were determined acceptable by QV and appeared reasonable to the DCISC Fact-finding
Team.

One item, responsibility for Confined Space procedure violations by contractors, was transferred from Safety to Radiation Protection. Actions were taken to resolve repeat problems, and QV will assess it again during Outages 1R21 and 2R21.

DCPP corrective actions of operations problems and confined space procedural violations during Outage 2R20 appeared satisfactory to the DCISC. The DCISC should review the QV follow-up assessments to be performed during Outages 1R21 and 2R21.

Quality Verification 2018 Audits and 2019 Audit Plan (Volume II, Exhibit D.6, Section 3.6)

The Fact-finding Team was provided with copies of DCPP's Nuclear Internal Audit Schedule and informed that the 2019 audits were being scheduled around the two Refueling Outages that would occur during the year. The audit schedule by function/department was as follows:

<table>
<thead>
<tr>
<th>Function/Department</th>
<th>Frequency</th>
<th>Audit Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Assurance Programs</td>
<td>24 months</td>
<td>September 2018</td>
</tr>
<tr>
<td>Maintenance</td>
<td>24 months</td>
<td>October 2018</td>
</tr>
<tr>
<td>Chemistry &amp; Environmental Protection</td>
<td>24 months</td>
<td>January 2019</td>
</tr>
<tr>
<td>Applied Technical Services</td>
<td>24 months</td>
<td>January 2019</td>
</tr>
<tr>
<td>Emergency Preparedness</td>
<td>24 months</td>
<td>January 2019</td>
</tr>
<tr>
<td>Fire Protection</td>
<td>24 months</td>
<td>March 2019</td>
</tr>
<tr>
<td>Refueling Outage 1R21</td>
<td>Periodic</td>
<td>February 2019</td>
</tr>
<tr>
<td>Fitness for Duty</td>
<td>24 months</td>
<td>March 2019</td>
</tr>
<tr>
<td>Inservice Inspection/Special Processes</td>
<td>24 months</td>
<td>April 2019</td>
</tr>
<tr>
<td>Pre-Nuclear Industry Evaluation Program (NIEP) Assessment</td>
<td>6 mos. before NIEP</td>
<td>April 2019</td>
</tr>
<tr>
<td>Corrective Action Program</td>
<td>24 months</td>
<td>May 2019</td>
</tr>
<tr>
<td>Security/Cybersecurity</td>
<td>24 months</td>
<td>June 2019</td>
</tr>
<tr>
<td>ISFSI &amp; Fuel Management</td>
<td>24 months</td>
<td>August 2019</td>
</tr>
<tr>
<td>Refueling Outage 2R21</td>
<td>Periodic</td>
<td>September 2019</td>
</tr>
<tr>
<td>Engineering &amp; Maintenance Rule</td>
<td>Periodic</td>
<td>October 2019</td>
</tr>
</tbody>
</table>
The Fact-finding Team reviewed the 2018 audit of DCPP Cyber Security Programs, which was performed in November and December 2018. The audit team concluded that all of the audited areas were effectively implemented with the exception of instructions, procedures and drawings, which were effective with concerns. The audit team identified two findings, thirteen deficiencies, and nine recommendations. The findings were as follows:

1. The Cyber Security Assessment Team had not been staffed and implemented as required by the Cyber Security Program Document.

2. Programmatic controls related to Critical Digital Asset keys had not been adequately implemented.

Approximately 24 Notifications were entered into the Corrective Action Program for these findings and other issues identified during the audit, and the actions were not yet complete at the time of the meeting. The DCISC should follow up on these items in a future fact-finding meeting.

The Fact-finding Team also reviewed the 2018 audit of DCPP Maintenance Programs, which was performed in October and November 2018. The audit team concluded that all of the audited areas were effectively implemented with four areas evaluated as effective with concerns: scaffolding, work management (records), measuring and test equipment, and the preventative maintenance program. The audit team identified one area requiring management attention, one finding, eighteen deficiencies, and two recommendations.

The area requiring management attention in the Maintenance Audit related to scaffold program adherence due to a failure of the organization to respond to previous findings with a sense of urgency. Specifically, for 10 of 19 deficient scaffolds, Licensing Basis Impact Evaluation screenings had not been completed for more than 55 days. The finding in the Maintenance Audit was the fact that some work packages in the Records Management System had documentation issues that should have been identified and corrected prior to being archived.

Approximately 24 Notifications were entered into the Corrective Action Program for these and other issues identified during the audit, and the actions were not yet complete at the time of the meeting.

<table>
<thead>
<tr>
<th>Service Area</th>
<th>Duration</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiological Protection &amp; Radioactive Waste Management</td>
<td>24 months</td>
<td>January 2019</td>
</tr>
<tr>
<td>Procurement</td>
<td>24 months</td>
<td>February 2020</td>
</tr>
<tr>
<td>NIEP Assessment (External)</td>
<td>24 months</td>
<td>February 2020</td>
</tr>
<tr>
<td>Operations &amp; Technical Specifications</td>
<td>24 months</td>
<td>March 2020</td>
</tr>
<tr>
<td>Geosciences</td>
<td>24 months</td>
<td>July 2020</td>
</tr>
<tr>
<td>Accredited Training</td>
<td>24 months</td>
<td>July 2020</td>
</tr>
</tbody>
</table>
The DCISC Fact-finding Team concluded that the DCPP Quality Verification Audit Program appears to be effectively designed and implemented. The DCISC should follow up on the resolution of audit findings in the area of Cyber Security in a future meeting.

Quality Verification's Perspective on Plant Performance (Volume II, Exhibit B.6)

The following is a summary of DCPP's presentation on this topic at DCISC's February 2019 Public Meeting: QV's role is to ensure DCPP complies with regulations, and it performs this function through the audit process and through quality control inspections to ensure the station identifies and closes gaps to excellence. The QV organization assesses compliance with the DCPP Quality Assurance Plan, Chapter 17 of the plant's Updated Final Safety Analysis Report in accordance with 10 CFR 50, Appendix B. The QV Director reports directly to Chief Nuclear Officer, and the QV organization consisted of 26 persons.

During the period from July to November 2018, QV concluded that DCPP exhibited traits reflecting a strong nuclear safety culture and effectively implemented the Quality Assurance Program consistent with regulatory requirements and its commitments to the NRC. A performance summary, based upon performance indicators, self-assessment results, results of audits and inspections and interviews, and observations in the field was provided as follows:

- Engineering: overall performance was considered excellent with continued strong equipment reliability and a strong Preventative Maintenance Optimization evaluation and support program. An area for improvement was identified within the Maintenance organization to support resolution of Scaffold program requirements.

- Radiation Protection: overall performance was considered excellent including organizational support in managing radiation dose both online and during outages. There were no violations or findings from two recent NRC audits.

- Chemistry: overall performance was considered excellent with an industry leading Chemistry Effectiveness Indicator of 0.0 for both Units. An area for improvement was found concerning degradation of resin performance for the Condensate Polisher on Unit 1 which resulted in a slight increase in sulphate in the Steam Generators.

- Emergency Planning: overall performance was consistently meeting expectations with improved drill and exercise performance and stability in the Emergency Response Organization. Minor change management issues associated with implementation of Emergency Planning procedure changes were identified.

- Operations/Operational Focus: overall performance was consistently meeting expectations and strong actions to stay ahead of proficiency issues and to address changing workforce demographics were being taken. Event free operation included 6000+ days without a reactor trip on Unit 1. Minor
procedure adherence issues were identified to place-keeping standards and verification practices.

- Maintenance: overall performance was consistently meeting expectations with focus on maintenance technical fundamentals and a strong focus on planning, preparation, and execution of maintenance tasks especially during refueling outages. An issue was identified with the slow resolution of the scaffold documentation issues as discussed previously.

- Fire Protection: overall performance was considered excellent, and staffing improved in engineering positions related to fire protection. The NRC's Triennial Fire Protection Inspection report reflected positive program performance with only two minor violations.

- Performance Improvement: overall performance was consistently meeting expectations with a stable and experienced team supporting cause determinations and managing the Corrective Action Program and continuous learning.

- Learning Services: overall performance was considered adequate with various improvement opportunities identified. Overall, station focus was on training to improve performance, but some training program requirements were not being effectively implemented. Issues were identified with a risk performance evaluation, where the proper tools were not in place prior to commencing the evaluation, and with implementation of a procedural requirement to conduct a program of instruction.

During the period November 2018 to February 2019, QV conducted 3 audits, 16 assessments, and 80 observations. Audits were performed of the Maintenance, Chemistry/Radiochemistry and Emergency Preparedness organizations, and the results included 1 finding, 25 deficiencies, and 9 recommendations. Assessments resulted in 1 finding and 1 Area Requiring Management Attention with 20 deficiencies identified. Each deficiency was entered into the Corrective Action Program.

Three improvement opportunities were identified by QV including Scaffold Program adherence, effective change management, and Operations use of human performance tools. Concerning Scaffolding Program adherence, QV identified a lack of urgency and the issue was elevated to the Maintenance Director's level and a procedure was developed to require a specific code be created in the SAP Program for each scaffold which triggered a License Basis Impact Evaluation by the Engineering organization. Regarding change management, it was determined that elements of change management concerning the scaffolding issue could have been improved and a cause analysis was performed with actions implemented to ensure the identified changes were aligned with its implementation. Concerning the use of human performance tools by Operations, issues identified were low level issues and an adverse trend notification was initiated which resulted in actions including a configuration control plan and a coaching session on use of human performance tools.
QV determined overall that plant performance remained strong and was on a stable trajectory. The QV organization was itself evaluated every two years by industry peers from other plants as to its ability to perform audits and assessments, and DCPP's QV organization was judged to be performing well during its last evaluation.

4.11.3 Conclusions and Recommendations

Conclusions:

DCPP's Quality Verification Department completed an audit of Operations and Technical Specifications that concluded the audited programs were effectively implemented; however, there were 17 deficiencies identified. DCPP's corrective actions for operations problems and confined space procedural violations appeared satisfactory. Overall, the DCPP Quality Verification Audit Program appeared to be effectively designed and implemented.

Recommendations:

None
4.12 Nuclear Fuel Performance

4.12.1 Overview and Previous Activities

The DCISC has been following performance of nuclear fuel and fuel-related matters at DCPP since its beginning in 1990. The Committee receives regular reports on nuclear fuel performance and any problems from PG&E both in fact-finding and public meetings and as input to the annual report. DCISC follows-up on problems and activities in its fact-finding meetings at DCPP and PG&E Headquarters.

DCPP fuel reliability is the most important fuel attribute monitored during operation. It is important to assure that the fuel integrity is preserved to avoid fission product leakage into the reactor coolant system (RCS) and ultimately into RCS cleanup and support systems resulting in increased personnel dose, radioactive waste and potential off-site releases.

Since the DCISC was formed in 1990, fuel reliability had been excellent until November 1994 when Unit 2 fuel began to show signs of leakage and experienced localized fuel damage. Unit 2 has had several additional fuel leaks since then. Leakage is measured by the amount of radioactivity in RCS samples, with a current goal of less than $5.0 \times 10^{-4}$ microcuries ($\mu$Ci) of Iodine-131 per gram of coolant. The following depicts the RCS radioactivity trend for a five-year period:

<table>
<thead>
<tr>
<th>Period</th>
<th>Goal (Ci/gm)</th>
<th>Unit 1 Actual (Ci/gm)</th>
<th>Unit 2 Actual (Ci/gm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13–14</td>
<td>$5.0 \times 10^{-4}$</td>
<td>$1.0 \times 10^{-6}$</td>
<td>$4.2 \times 10^{-4}$</td>
</tr>
<tr>
<td>14–15</td>
<td>$5.0 \times 10^{-4}$</td>
<td>$1.0 \times 10^{-6}$</td>
<td>$4.2 \times 10^{-4}$</td>
</tr>
<tr>
<td>15–16</td>
<td>$5.0 \times 10^{-4}$</td>
<td>$1.0 \times 10^{-6}$</td>
<td>$4.2 \times 10^{-4}$</td>
</tr>
<tr>
<td>16–17</td>
<td>$5.0 \times 10^{-4}$</td>
<td>$1.0 \times 10^{-6}$</td>
<td>$4.2 \times 10^{-4}$</td>
</tr>
<tr>
<td>17–18</td>
<td>$5.0 \times 10^{-4}$</td>
<td>$1.0 \times 10^{-6}$</td>
<td>$4.2 \times 10^{-4}$</td>
</tr>
</tbody>
</table>

*Thru June 2018

The DCISC did not review specific nuclear fuel performance during this reporting period; however, it noted that there were no fuel problems in its reviews of DCPP
refueling outage results.

- Nuclear Fuel Performance

The DCISC concluded the following in the previous reporting period:

DCPP nuclear fuel has performed well for many years with no leaks or failures. DCPP's programs for assuring nuclear fuel integrity appear effective.

4.12.2 Current Period Activities

The DCISC reviewed the following aspects of DCPP nuclear fuel during this 2017-2018 period:

- Nuclear Fuel Performance

Nuclear Fuel Performance (Volume II, Exhibit D.1, Section 3.9)

DCPP fuel cycles have typically been 21-month cycles between refueling outages. DCPP had looked at 24-month cycles but had rejected them due to their high cost. They will be using 18-month cycles through the end of plant operations in 2025, which should have little or no impact on nuclear safety.

4.12.3 Conclusions and Recommendations

Conclusions:

DCPP's plans to change from 21-month to 18-month nuclear fuel cycles appear satisfactory. This should not significantly impact nuclear safety.

Recommendations:

None
4.13 Equipment Reliability

4.13.1 Overview and Previous Activities

Aging-related degradation is the gradual degradation in the physical characteristics of a system, structure, or component (SSC) which occurs over time and use, and which could impair the ability to perform its design functions. The purpose of the Equipment Reliability Program is to ensure that the plant continues to operate safely and within its design and licensing bases throughout its life through the process of involving engineering, operation, and maintenance in activities to control age-related degradations or failures of SSCs to within acceptable limits. The scope of the SSCs to be covered by the program continues to evolve and expand, and DCPP has established an Equipment Reliability Program with a dedicated Program Director.

During the previous period, the DCISC did not review any equipment reliability-related topics, per se, at Fact-finding Meetings, although it did monitor equipment reliability via such measures as forced outage rate, maintenance department performance, etc.

4.13.2 Current Period Activities

During the current period, the DCISC had presentations on human performance at one Fact-finding Meeting. The following topic was reviewed:

- Equipment Reliability Process

Equipment Reliability Process (Volume II, Exhibit D.7, Section 3.6)

The DCISC received and reviewed Procedure ER1.ID1, dated June 6, 2017, "Equipment Reliability Process." This procedure included the scope, discussion, definitions, responsibilities, and instructions for DCPP's Equipment Reliability (ER) Program. The procedure contained the following topics:

- Process Implementation
- Component Classification
- Performance Monitoring
- Corrective Action
The procedure was comprehensive, thorough, and satisfactory.

DCPP utilized an Equipment Reliability Index (ERI) to measure its performance. The ERI was recently revised to align with practices for the entire nuclear power industry from the Industry Equipment Reliability Group, and the ERI was used to measure and rank each nuclear plant. The revised index also "raised the bar" on many measures to challenge plants to further improve ER and to further spread out individual plant's performance in the relative ranking. At the end of 2018, DCPP was down to one ER Clock Reset, which was due to high vibration in Auxiliary Salt Water Pump 2-1.

DCPP’s "Top Ten Equipment Issues List" included the following items:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Unit 1 ECD*</th>
<th>Unit 2 ECD*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Unit 1 Acid Storage Tank Repairs and Unit 2 Caustic Tank Repairs</td>
<td>11/8/19**</td>
<td>2R21 Outage</td>
</tr>
<tr>
<td>3. Unit 1 &amp; 2Main Generator Hydrogen Leakage</td>
<td>1R21**</td>
<td>2R21</td>
</tr>
<tr>
<td>4. IAS, PAC 05, 06 &amp; 07 Bridging Strategy</td>
<td>6/2/19</td>
<td>6/2/19</td>
</tr>
<tr>
<td>5. Intake Chemical Injection Leaks NaHSO4</td>
<td>TBD</td>
<td>2R21</td>
</tr>
<tr>
<td>6. RV-355 O-Ring EOC Replacement</td>
<td>1R21**</td>
<td>2R21</td>
</tr>
<tr>
<td>7. HVAC SSC Reliability Improvement</td>
<td>10/3/19</td>
<td>10/3/19</td>
</tr>
<tr>
<td>8. VCT/Zinc Injection Code Class Isolation</td>
<td>1R21**</td>
<td>2R21</td>
</tr>
<tr>
<td>9. Turbine Building HELB Impact on 4kV Switchgear and Cable Spreading Rooms</td>
<td>1R21**</td>
<td>2R21</td>
</tr>
<tr>
<td>10. Inverter LED Bulb Vulnerability</td>
<td>1R21**</td>
<td>2R21</td>
</tr>
</tbody>
</table>

* Estimated Completion Date
** Completed

The DCPP Equipment Reliability Process appears to be a successful, effective process to improve and maintain high Equipment Reliability, ranking high in industry measures. The process measures have been upgraded effective January 1, 2019 to provide more of a look ahead capability and to better reflect actual equipment reliability. DCPP's
4.13.3 Conclusions and Recommendations

Conclusions:

The DCPP Equipment Reliability Process appears to be a successful, effective process to improve and maintain high Equipment Reliability, ranking high in industry measures. DCPP's Equipment Reliability Index shows Green (good).

Recommendations:

None
4.14 Organizational Effectiveness and Development

4.14.1 Overview and Previous Activities

The focus of Organizational Effectiveness and Development is centered upon process transformation, process structure, and organizational effectiveness initiatives. DCPP's cultural change efforts, leadership initiatives and activities, strategic change efforts, etc., are intended to function as interrelated efforts. This focus also supports an industry initiative to review cultural change, leadership issues, and even human performance, under the area of "organizational effectiveness." PG&E uses an annual DCPP Operating Plan to be sure all departments' goals and plant goals have total alignment.

In previous reporting period the DCISC reviewed the following Organizational Effectiveness topics at three Fact-finding Meetings and one Public Meeting:

- Management Observation Program
- Employee Concerns Program
- Results of 2017 Operating Plan and Key Elements of 2018 Operating Plan
- 2018 Operating Plan

The DCISC concluded in the last period that the DCPP Time in the Field/Engagement and Coaching Program, a prescriptive observation program, appeared satisfactory for providing management expectations on human performance and worker safety practices to workers as well as collecting worker input. The DCPP Employee Concerns Program appeared appropriate for receiving and investigating employee concerns in a confidential manner. During 2017, as in past years, there were no significant employee concerns regarding nuclear safety. DCPP successfully accomplished most of the objectives contained in its 2017 Operating Plan. The 2018 Operating Plan contained appropriate focus areas with initiatives and key metrics.

4.14.2 Current Period Activities

During the current period, the DCISC reviewed Organizational Effectiveness at
three Fact-finding Meetings and one Public Meeting. The following topics were reviewed:

- Site Alignment Workshop
- Results of 2018 Operating Plan and Key Elements of the 2019 Operating Plan
- Management Observation Program
- Professional Development Opportunities for DCPP Employees

**Site Alignment Workshop (Volume II, Exhibit D.1, Section 3.6)**

The theme for this series of workshops was, "Generating Excellence: Our Line-of-Sight to Safe, Reliable & Affordable Operations to 2025." Each workshop was carried out at a large table with a dozen participants sitting around it. This small group learning session focused on employee involvement in meeting DCPP goals and expectations. The discussion items were as follows:

- Our personal state of mind
- A deep dive on PG&E's Mission, Vision and Culture
- How we each support the six focus areas of our Operating Plan
  - Safety
  - People
  - Reliability
  - Affordability
  - Risk, Compliance & Ethics
  - Regulatory & External Strategy
- Out station's priorities for 2019
- My circle of control

Each session lasted about 75 minutes, and discussion was abundant. The facilitator was professional, knowledgeable, and accomplished at facilitating. The participants appeared to have enjoyed the workshop and learned about their role in the organization's future.

**The DCPP Site Alignment Workshop observed by the DCISC Fact-finding Team appeared to have accomplished its purpose of informing and aligning PG&E personnel of the Company's goals and objectives.**

**Results of the 2018 Operating Plan and Key Elements of the 2019 Operating Plan (Volume II, Exhibit B.6)**

The following is a summary of DCPP's presentation on this topic at DCISC's June 2019 Public Meeting: There were six focus areas for the 2018 Operating Plan as consisting of: safety; people; reliability; affordability; risk, compliance and
ethics; and regulatory and external strategy. During 2018, DCPP experienced successes including the 2R20 refueling outage, which was the best in DCPP history for safety, human performance, and dose; and the chartering of the Nuclear People Committee to ensure a proficient, knowledgeable, engaged workforce is available to the end of the plant's operational lifetime. Several successful NRC inspections took place in 2018 including Problem Identification and Resolution, Component Design Basis, and the Triennial Fire Protection inspections. A Mid-Cycle Self-Assessment was conducted between INPO evaluations which determined all areas identified for improvement have discrete action plans in place. DCPP also submitted a License Amendment Request for a 90-minute response time for the Emergency Response Organization which would allow the plant to add personnel to that organization.

Plant performance relative to the metrics established for the 2018 Operating Plan was reviewed. The safety and reliability indicator goal was 95 and that goal was met at the highest possible score achievable for 2018. The goal for online reliability loss factor was 0.24% and performance was 0.42% due primarily to reduction in power on Unit 1 to address vibration with Main Feedwater Pump 1-1. The goal for collective radiation exposure was set at 43.46 Rem, and actual was 38.58 Rem. The goal for preventable motor vehicle accidents was ≤1, and there were three accidents during 2018. The goal to have no significant regulatory findings was met, and DCPP remained in Column 1 of the NRC's Reactor Oversight Process. There were three lost workday accidents in 2018.

The 2019 Operating Plan was focused on safe and reliable operation through 2025. Significant events scheduled during 2019 included two refueling outages, with 2R21 being a very extensive outage; a WANO evaluation; the third year of the Tier 1 (tranche one) Employee Retention Program and extension of Tier 2 (tranche two) of that Program; and an NRC Security Inspection with a force-on-force drill. The 2019 focus areas were: safety; people; reliability; affordability; risk, compliance, and ethics; and regulatory and external strategy. DCPP's focus was intended to integrate the culture with the action expected of all employees and ensure accountability in all the work done while encouraging an open culture which encourages dialogue and focuses on performance generating excellence.

Management Observation Program (Volume II, Exhibit D.8, Section 3.7)

The Management Observation Program underwent significant changes since the last review by the DCISC. Previously, DCPP management, from Directors down to the first line supervisor or foreman, performed observations of first line workers, or individual contributors, in the plant during work in progress. The results of those observations were entered into a database via an application running on smart phones. Although that approach was still used to track and document training observations, the Program was now focused on having first line supervisors get into the field and directly observe their employees performing tasks on a regular basis.
Supervisors were expected to observe employees in the field on a daily basis and discuss their observations with employees in a collaborative fashion. Observations were also documented and rolled up into a report to be discussed at a Department Operations Review Meeting (ORM). The ORMs were typically held quarterly to review the results of all observations, and Performance Improvement Coordinators (PICOs) participated in the ORMs. The team was provided copies of two recently completed (second quarter) ORM Reports, one listing observations within the Maintenance Support Department and one listing observations within the Instrumentation and Controls Department. Each ORM Report contained 12 to 15 significant observations categorized by topic as well as by whether they were strengths or opportunities for improvement. Items contained in the ORM Reports included safety observations, human performance observations, suggestions for technical improvements, and communications observations. The ORM Reports also contained columns tracking further actions, if required.

DCPP believed that the current program gave better context for the observations and was more effective in identifying barriers to good performance. Additionally, the PICOs were provided an opportunity via the ORMs to identify larger trends and initiate further actions such as focusing on Foreign Material Exclusion practices or self-checking techniques. Lastly, it facilitated more supervisor interaction with personnel in the field which in turn helped to maintain a high level of human performance at the plant. Managers were expected to get into the field occasionally with their employees, particularly if they were new to their positions. Also, it was the Manager's responsibility to define how many observations were to be performed by Supervisors and to attend the ORMs. Directors were expected to use the ORM results to identify specific focus areas for their Departments and to occasionally attend the ORMs.

**DCPP's Management Observation program has shifted to focusing on having first-line Supervisors observe employee activities in the field on a regular basis. The results of Supervisor's observations are summarized and reviewed during quarterly Operations Review Meetings.**

**Professional Development for DCPP Employees (Volume II, Exhibit D.9, Section 3.6)**

The DCISC was interested in this subject because of the concern that employees who are worried about their jobs ending earlier than expected at DCPP might not be fully focused on nuclear safety, and available professional development and/or job opportunities at PG&E could help resolve these worries. Because of the early shutdown's potential release of employees, DCPP had established an on-site Employee Resource Center (ERC) to assist employees with their next career moves. The ERC identified five paths for employee consideration. They were:

- Retirement
- PG&E Career Development
Most employees visiting the ERC had opted to look into PG&E Career Development, which consisted of a tuition allowance of up to $8,000 per year of education at local and regional colleges and vocational schools. The ERC also maintained a list of company-approved Frequently Asked Questions related to retirement, which appeared complete and comprehensive. Also, the ERC provided a comprehensive document, "Your Pension Guide." The DCISC concluded that DCPP management, via the ERC, was sensitive to and looking out for employees' best interests.

Because of the expected plant shutdown in 2025, employees would be released from service with various career options. DCPP, sensitive to employee post-shutdown careers, had established the Employee Resource Center, which provided options to employees on their next moves. The DCISC fact-finding Team concluded that the ERC appeared effective for guiding employees to the next phases of their careers and for helping to resolve their career worries which could distract their focus on nuclear safety.

4.14.3 Conclusions and Recommendations

Conclusions:

The DCPP Site Alignment Workshop appeared to have accomplished its purpose of informing and aligning PG&E personnel of the Company's goals and objectives. DCPP successfully accomplished most of the objectives contained in its 2018 Operating Plan, and the 2019 Operating Plan contained appropriate focus areas with initiatives and key metrics. DCPP's Management Observation program has shifted to focusing on having first-line Supervisors observe employee activities in the field on a regular basis. The results of Supervisor's observations are summarized and reviewed during quarterly Operations Review Meetings. DCPP, sensitive to employee post-shutdown careers, established the Employee Resource Center, which provided options to employees on their future career options.

Recommendations:

None
4.15 System and Equipment Performance/Problems

4.15.1 Overview and Previous Activities

During past periods, the DCISC had reviewed the performance and problems of DCPP equipment and systems as well as the actions taken by PG&E to resolve them.

During the previous period (July 1, 2018 - June 30, 2019), the DCISC reviewed the following system and equipment issues:

1. Control Room Ventilation System
2. Containment In-Service Inspection
3. NRC IN 2017-4 High Arcing in Aluminum
4. Nitrogen Leak in Containment

The DCISC performed the following system/component reviews and/or walk downs with DCPP System/Component Engineers in the previous period:

1. DC Power System (D.1, 3.6)
2. Plant Health Committee (D.1, 3.7)
3. Radwaste Process Systems (D.2, 3.3)
4. Plant Health Committee (D.3, 3.1)
5. Auxiliary Salt Water System Health (D.3, 3.11)
6. Plant Protection System Review (D.5, 3.6)
7. EDG Health (D.6, 3.4)
8. 230 & 500kV System Health (D.6, 3.7)
9. Radiation Monitoring System (D.7, 3.3)
10. 4kV System Review (D.9, 3.5)
12. Large Transformers (D.10, 3.10)
In the previous period (2016 - 2017), the DCISC concluded that DCPP has dealt effectively with most equipment and system problems and is focused on improving system health. DCPP's Plant Health Committee has been improved to focus more on system/component health and meets more frequently, and overall system health has improved.

4.15.2 Current Period Activities

4.15.2.1 DCISC Reviews Of System And Equipment Performance And Problems

The DCISC reviewed the following system and equipment issue during the current reporting period:

Spent Fuel Pool Bridge Crane (Volume II, Exhibit D.5, Section 3.7)

The Spent Fuel Pool Bridge Crane, original to the plant, has been the source of delays during fuel loading for the past several outages. DCPP decided to upgrade both units' cranes with up-to-date electrical and control systems. Unit 2 was completed prior to outage 2R20 and worked well during that outage. Unit 1 [was] upgraded prior to outage 1R21 (2/10/19 - 3/15/19). The DCISC FFT reviewed the bridge crane design with the system engineer and reviewed the electrical and control upgrade designs, which included new electric motors. At the same time improved seismic restraints were added due to wear noticed on the original ones. The new controls are digital-based for more flexibility and reliability.

The DCISC joined DCPP engineers on a tour of the Unit 1 bridge crane upgrades and general Spent Fuel Pool area. See the photos below. The Unit 1 crane upgrades had been completed in readiness for Outage 1R21, which [began] in February 2019. The DCISC also viewed the new Spent Fuel Pool level instrumentation, which had been added as part of the Post-Fukushima FLEX modifications. All appeared satisfactory, and the pool areas appeared clean and orderly.
Ferman Wardell and Per Peterson on Fueling Bridge Crane
Ferman Wardell inspecting seismic holdown devices

The DCPP Spent Fuel Pool Bridge Crane electrical and control upgrades had been installed and tested on Units 1 and 2. The Unit 2 crane performed satisfactorily during Refueling Outage 2R20, and DCPP expected the Unit 1 crane to do so in Refueling Outage 1R21 beginning in February 2019. The upgrades and system engineer knowledge appeared satisfactory to the DCISC Fact-finding Team.

4.15.2.2 DCISC Reviews of DCPP Systems/Components

The DCISC performed the following system/component reviews and walk downs with DCPP System Engineers:

1. Reactor Coolant system Health
2. Plant Health Committee
3. Control Room Simulator
4. Digital Control Systems Status
5. Reactor Coolant Pump Health and Seals
6. Safety Injection System Health
7. Health of Large Motors
8. Health of Emergency Diesel Generators
9. DC Power Systems

Reactor Coolant System (RCS) Health (Volume II, Exhibit D.2, Section 3.9)

The purpose of the RCS is to transfer heat generated by the fission process in the reactor core to the secondary plant steam system as well as provide a coolant pressure boundary, serve as the second barrier against release of fission products, and promote natural circulation. The system consists of:

- Reactor Vessel containing the nuclear core
- Pressurizer connected to the system to maintain pressure
- Four parallel heat transfer loops connected to the Reactor Vessel with each loop consisting of the following:
  - One Steam Generator which serves as a heat sink and heat exchanger to transfer heat to the secondary steam plant
  - One Reactor Coolant Pump (RCP) which circulates the loop water
  - Interconnecting loop piping
- Taps for parameter (temperature, pressure, flow) measuring instruments

A basic RCS piping flow diagram is shown below:
The physical arrangement of the RCS is as follows:
The DCISC was briefed on the status of several issues discussed during the DCISC's last review in 2014. Corrective actions had been completed for several RCP seal leakage issues, and RCP seal performance had recently been good with no major problems. The installation of low post-accident leakage seal packages was completed on all RCPs, and that modification did not change the functioning of the RCP seals during normal operations. Regarding Pressurizer Safety Valve (PSV) leakage during startups, a consulting firm completed its review of the problem and noted a strong correlation between PSV leakage and discharge outlet nozzle loads. As a result, DCPP chose to swap out the discharge piping struts for snubbers to better accommodate thermal expansion. That modification was completed on Unit 2 during Refueling Outage 2R20, and no leakage occurred during startup following that outage. A corresponding modification was planned to be completed on Unit 1 during its Refueling Outage 1R21 in the Spring of 2019.

Currently, the health of both units' RCSs was classified as "White" (Acceptable, unless chronically "White"). There were several issues preventing the health from being classified as "Green" (Healthy), including:

- Repeat failures of Reactor Cavity Level Transmitters were considered Maintenance Rule Functional Failures and resulted in the system being placed in Maintenance Rule category (a)(1). Corrective actions were ongoing for this issue.

- A weld flaw found on the Unit 2 Residual Heat Removal system connection to the RCS had been repaired (overlaid), but a similar flaw had also been found on a corresponding weld on Unit 1. The Unit 1 weld flaw would be repaired (overlaid) in Refueling Outage 1R21. The cause of the flaw was still being evaluated.

- The RCP Vibration Monitoring System has become obsolete and cannot fully retain or trend vibration data from the RCPs. Modifications were in progress to replace the systems on both units.

- During a recent NRC Component Design Basis Inspection, it was identified that four of the six (three per unit) Power-operated Relief Valve solenoid actuators had a configuration that did not meet the requirements for preventing intrusion of moisture following an accident. This issue will be corrected during the next Refueling Outage for each unit.

Two RCS-system related industry issues that had recently been addressed at DCPP. The first issue was the possible erosion of reactor core baffle former bolts. During Refueling Outage 1R20, all of the Unit 1 bolts had been inspected, and 61 were replaced. Unit 2 was not susceptible to the issue since it had received a core flow modification during construction. Also, DCPP had completed the replacement of Control Rod Guide Tube (CRGT) Guide Cards on both units to avoid exceeding wear criteria for those components.

A recently identified industry issue was the possibility of excessive wear on Control
Rod Thermal Sleeves. This issue was brought to DCPP's attention via a 10CFR50 Part 21 Notification from the vendor, Westinghouse, in the form of Nuclear Safety Advisory Letter 18-1, "Thermal Sleeve Flange Wear Leads to Stuck Control Rod." (A copy of the Advisory Letter was later obtained and reviewed by the Fact-finding Team.) The affected components had been replaced along with the Reactor Head at DCPP in 2009 and 2010, and the vendor recommended to re-inspect or replace the thermal sleeves 25 Effective Full Power Years following any such replacement. Using this criterion, it currently appears that no action will be required at DCPP prior to cessation of operations in 2025.

**DCPP's Reactor Coolant System health was acceptable with some emerging issues being pursued for correction. The DCISC will review the status of corrective actions in 12 - 18 months.**

**Observe Meeting of the September 5, 2018 DCPP Plant Health Committee (Volume II, Exhibit D.3, Section 3.1 and Exhibit D.8, Section 3.6)**

The PHC is governed by DCPP Procedure TS5.ID9, "Plant Health Committee" and is a management team responsible for:

- Continual review of system and program health issues
- Routinely monitoring the status of plant health issues on the plant health issues list for action status and completion
- Routinely monitoring the status of the system health tactical list
- Review and approval of action plans to address plant health issues that originated from system health reports, maintenance rule, operator workarounds, program health reports, emergent issues, and others deemed important to monitor
- Reviewing and approving action plans to resolve degraded, unanalyzed and non-conforming conditions
- Review and monitoring of plant health issue plans that are presented to the PHC
- Performing Preventative Maintenance Oversight Committee functions
- Annual approval of system, component, and program long range plans
- Quarterly review and monitoring of the Top Margin Issues list
- Approving and authorizing the PHC budget for solutions to plant health issues

The membership of the PHC Core Team, which is the Decision Making (i.e. voting) group of the PHC, is as follows: the Station Director (Chair), the Engineering Director (Alternative Chair), the Operations Manager, the Maintenance Director, and the Nuclear Work Management Director. The PHC is also supplemented by a group of Supporting (non-voting) Members from other various station departments.
The agenda for this meeting included the following:

- Safety/Human Performance Message
- Facilitative Leadership Minute
- Verify Quorum
- Introduce Operations Personnel
- Review Purpose and Desired Outcomes
- Review and Approve Minutes from Previous Meeting
- Review of Action Items
- FLEX/BDB Program Update
- Station Top Ten Equipment Reliability List
- Evaluation of the Conduct of the Meeting
- Action Item Review

The meeting was chaired by the Station Director Paula Gerfen and facilitated by Mark Baker, Reliability Engineering Supervisor. The meeting was conducted with efficiency, and the agenda was covered as scheduled. A strong emphasis was placed on plant safety and reliability throughout the discussion. Although not required by procedure, a representative from the Operations shift attended and participated in the meeting.

**DCPP FLEX/BDB (Beyond Design Basis) Program**

The FLEX Program Engineer, Dan Yoder, reviewed the history and current status of the FLEX/BDB Program. This Program has been owned by Technical Support Engineering since January 2018. Engineering is working on five minor equipment issues and 27 program and tracking items. Triennial Preventive Maintenance (PM) and Testing will be completed in December 2018. Operations Training is continuing. DCPP is finalizing Maintenance Plans for all 3-, 5-, and 10-year equipment testing and replacements; optimizing PMs; and developing Emergency Response Organization (ERO) FLEX guidance for BDB (Beyond Design Basis) response. The NRC is expected to issue its final BDB Rule by the end of 2018 with a two-year implementation clock. Severe Accident Management Guidelines (SAMGs) are to be integrated into the FLEX/BDB guidelines by February 2019. Operations noted that operator FLEX readiness should be reviewed for adequacy. An action item was initiated that stated, "Assess expectations for Operator proficiency operating FLEX equipment and training requirements. Reference SAPN 50995505" with a due date of September 19, 2018.

**Top Ten Equipment Reliability Issues**

Lou Fusco, Owner of the Top Ten Equipment Reliability List, presented the status of each item on the list and distributed completed actions on the previous 32 Top Ten items. The Top Ten Items are the following:
1. Main Lube Oil Vapor Extractor Reliability
2. HVAC Corrosion Impact on 480 Volt Bus 13D/23D
3. Develop Action Plan for Main Generator H2 Leakage
4. Turbine Building deluge station pilot lines high pressure
5. Intake chemical injection leaks of sodium bisulfate
6. Reactor Vessel-355 o-ring replacement
7. Security KPI Hour adverse trend
8. Volume Control Tank/Zinc Injection System Code Class Isolation
9. Turbine Building High Energy Line Break impact on 4kV switchgear and cable spreading rooms
10. Inverter LED bulb vulnerability

Action plans and completion dates were provided for each of the above. It was reported that there were currently no unhealthy DCPP systems.

Observe April 16, 2019 Plant Health Committee Meeting

The agenda for meeting included the following:

- Safety/Human Performance Message
- Facilitative Leadership Minute
- Verify Quorum
- Introduce Visitors and Operations Personnel
- Review Purpose and Desired Outcomes
- Review of Action Items
- Review and Approve Minutes from Previous Meeting
- Operations Issues Update
- Reliability Issue Walk-in Item(s)
- Evaluation of the Conduct of the Meeting

The meeting was facilitated by the Supervisor, Shift Operations, Brian Bridges. The meeting was conducted with efficiency, and the agenda was covered as scheduled. A strong emphasis was placed on plant safety and reliability throughout the discussion. It was noted that the model for PHC meetings was being modified to focus on different areas at different meetings. This meeting was considered a "tactical"-level meeting, focusing on Operations issues and workarounds.

During the discussion of Action Items from previous meetings, one item that solicited extended discussion regarded temperature limits for the Ultimate Heat
Sink (UHS) for the plant, which is the Pacific Ocean. Current Technical Specification limits UHS temperatures to 70°F, and an assessment had been completed which found that plant operations up to UHS temperatures of 75°F could be justified. The PHC expressed concern that there was no long-term strategy for supporting plant operations with high UHS temperatures. This issue was previously discussed with the DCISC in September 2017 when it was in the process of being evaluated.

With the meeting focusing on Operations issues, the following items were reviewed:

- Operator Work Arounds
- Operations Policy B-38 Repairs (Priority 4 equipment deficiencies tagged as important by Operators)
- Defeated Main Annunciators
- Operator Burdens
- Adverse Condition Monitoring Plans

Discussions on the status of the above Operations lists were detailed, focused on operational safety, and initiated additional follow-up actions where necessary. One item of interest to the Fact-finding Team was the reporting of issues with an upgraded Reactor Coolant Pump vibration monitoring system, which was recently installed. The DCISC will review the status of this system during a future fact-finding meeting.

**The September 5, 2018 and April 16, 2019 DCPP Plant Health Committee meetings were performed efficiently and effectively with clear and concise system and equipment reports, good participation and discussion by members, and clear actions and assignments.**

**Control Room Simulator Status (Volume II, Exhibit D.3, Section 3.2)**

All U.S. nuclear power plants have Control Room Simulators. The DCPP Control Room Simulator is a true copy of the actual DCPP Unit 1 Control Room with respect to control boards, charts, displays, and everything else right down to the lighting and carpet. Simulator controls and displays are wired to computers whose plant models provide the simulator with realistic behavior and responses like the actual plant. Simulator training for operators is required for new licensee training as well as for continuing training for licensed operators. The simulator is used for both operator training and practice of upcoming plant evolutions as well as operator testing for continuation of their license certifications. Changes made to the physical plant and procedures are also made to the simulator to keep it up-to-date.

DCPP has completed a Five-Year Simulator Computer Review, resulting in significant computer hardware and software updates. This included the following:
- Modernized the user interface to a more graphical one, replacing the original FORTRAN programming language
- Introduced more flexibility, higher fidelity, and state-of-the-art features
- Added scripts used most often, especially for exams
- Modeled some FLEX features, e.g., stripping DC loads from the station batteries
- Added cyber-security training for operations

These improvements are expected to support reliable simulator operation through plant shutdown in 2025.

The simulator supports the five-week operator training schedule and NRC license examination process. During refueling outages, the reactor core is modified by adding new fuel to approximately one-third of the core. This changes the core nuclear dynamics such that it behaves differently upon start-up. This is modeled into the Simulator, along with other significant plant changes, and Operators practice the unit start-up on the Simulator before actual plant start-up.

The simulator is kept current with plant changes and is used for training on Operating Experience events at other nuclear plants.

**DCPP's Control Room Simulator program and staff appear satisfactory for modeling plant events and operator training and examinations through the end of plant life in 2025.**

**Digital Control System Status (Volume II, Exhibit D.3, Section 3.3)**

The term 'digital' means that control functions have moved from electro-mechanical control to computer control, much like has been done with modern motor vehicles. This change from electro-mechanical to computers matters because the end result is that control systems have become more reliable and flexible, ultimately providing a safer operating plant. There are eight primary digital control systems at DCPP:

- Turbine Control System (in-service 2004)
- Feedwater Control System (in-service 2005)
- Process Control System (in-service 2012)
- Two Meteorological Towers (in-service 2016)
- Intake Travelling Screens (in-service 2017)
- Units One and Two Spent Fuel Pool Bridge Cranes (2017-2018)
- Unit 1 Control Room Main Annunciators (Outage 1R22) [spares to Unit 2]
- Transient Recording System (design completed 2018)
The purpose of the digital Turbine Control System is to regulate the governor valve position, which in turn controls steam flow during all modes of turbine operation. Essentially, the system controls the turbine generator during plant startup, normal operations, and plant shutdown.

The purpose of the Feedwater Control System is to automatically maintain Steam Generator water levels during steady-state operations. The system restores and maintains the water levels within safe levels during normal unit transients. Newer controls have reduced or eliminated operator interaction during system transients, preventing unnecessary plant trips, and simplifying operation.

The function of the Process Control System is to convert physical plant parameters such as temperature, pressure, level, and flow into electrical signals during normal operation. These signals are used for plant control (pumps, valves, heat exchangers, and tanks), operator indication, and computer monitoring and recording. The recorded signals are used by Operations to trend parameters and also to provide a historical record which assists in identifying any system degradation.

The Transient Recording System servers perform data storage and recording for the Emergency Response Facility Data System (ERFDS), whose primary function is to monitor and display plant parameters used for post-accident monitoring. The ERFDS assists the control room operators and emergency support personnel in making rapid assessments of plant safety status during accidents or abnormal operations.

DCPP initiated a comprehensive digital control system review to develop a long-term strategy to assure that its digital control assets would function reliably and maintain good digital infrastructure through 2025 without facing emergent issues needing corrective action. The review is expected to be completed by end-of-year 2018, and the DCISC should review it in the first quarter of 2019.

Additionally, cyber security has affected digital controls, and the DCISC will review it in early 2019.

**The DCISC Fact-finding Team believes that DCPP is supporting the reliability and functionality of its digital control systems satisfactorily.**

**Health of Reactor Coolant Pumps (RCPs) and Seals (Volume II, Exhibit D.4, Section 3.4)**

The purpose of the RCPs is to provide flow through the Reactor Coolant System (RCS) to support the design heat transfer rate from the Reactor fuel core to the Steam Generators (SGs). The RCPs are located at the 117-foot level in the Containment next to their respective SG. Each unit has four RCPs with identical characteristics. Each RCP takes suction from its respective SG cold leg and discharges to the Reactor and through the SG before returning to the suction of the RCP. The RCPs consist of the pump section, the seal assembly, the flywheel
and the motor, all located on a common shaft as shown in the following diagram.

![Simplified Cross-Section of a Reactor Coolant Pump](image)

The pump section is a vertical, single stage centrifugal pump with an axial diffuser and turning vanes with a radial discharge outlet. The pump is rated to deliver 88,500 gallons per minute (gpm) at a head of 277 feet at 1190 rpm. The electric motor is a nominal 6000 hp 12,000 volt, vertical, 6-pole squirrel cage induction motor. RCP motors have generally been trouble-free, and they are inspected regularly and rebuilt on-site over a ten-year schedule.

The seal assembly consists of three mechanical seals that provide a pressure drop from RCS pressure of 2200 psi nominally to ambient pressure, thus minimizing RCS leakage along the shaft. The seals are contained in pressure seal housings that are bolted to the top side of the pump main flange. Seal injection is provided by the Chemical and Volume Control System (CVCS), and the seal package is also cooled by Component Cooling Water (CCW). If normal CVCS seal injection flow and CCW are lost, the RCP must be shut down immediately to prevent seal damage.

Over the last few years, DCPP has had a number of RCP seal leakage problems requiring replacements either during normal refueling outages or special shutdowns. Most of the leaks were caused by debris getting into the seals, and corrective actions were initiated to reduce the number of seal leakage issues.
DCPP reported that these actions appear to have been effective as DCPP has not had any recent issues with debris getting into the RCP seals.

Additionally, DCPP has recently replaced all RCP seals with improved third generation Westinghouse "SHIELD" Passive Thermal Shut Down Seals. These improved seals contain, as a part of Seal #1, a special thermal actuator which at temperatures of approximately 260-320°F causes a piston to retract and release a metallic seal ring and polymer seal to constrict around the RCP shaft to limit seal leakage. This new capability was an important modification to support DCPP's move to NFPA-805 Probabilistic Risk Assessment (PRA)-based fire protection and for FLEX Program considerations. With the new passive barrier, the volume of possible seal leakage during a loss of all plant electric power (and thus CCW) events is significantly reduced.

DCPP reported that there were no issues with the improved seals, and no issues were expected because the active seal components normally in service in the improved seals remained the same as the previous design. (The new thermal actuator portion of the seal package only becomes active if the seal loses cooling and becomes overheated.) He also reported that seal replacements continued to be planned to occur once every three cycles, as was the case with the previous design. As such, it is anticipated that there will be one more changeout of RCP seal packages before DCPP ceases operation, likely during Refueling Outages 1R22 and 2R22 in 2022 and 2023, respectively.

**DCPP's Reactor Coolant Pumps (RCPs) continue to perform well and without significant problems. Recent replacements of RCP seals with seals designed to have lower leakage in abnormal situations are complete, and no new seal performance problems.**

**Safety Injection System Health (Volume II, Exhibit D.4, Section 3.6 and Exhibit D.9, Section 3.5)**

The SI System is part of the Emergency Core Cooling System that is designed to provide water initially from the Refueling Water Storage Tank (RWST) to cool the reactor core and provide negative reactivity in the event of an accident. Each Unit's SI System consists of two 100% capacity trains that are interconnected and redundant such that either train is capable of supplying 100% of the flow required. Each SI System train contains an SI Pump along with associated suction, discharge, throttle valves, controls, and instrumentation. Four accumulator tanks and one RWST are also part of each unit's SI System. The SI Pumps receive power from the 4160V Vital AC electrical systems and utilize control power from 125V Vital DC distribution panels. These power sources are supplied by the 230kV offsite power system and backed up by the Emergency Diesel Generators. The SI Pumps provide emergency cooling water flow to the RCS cold and hot legs, flow through test lines for check valve testing, and flow to fill the accumulators. The nominal shutoff pressure for the SI Pumps is 1,520 psig, and the maximum pump flow for the SI Pump is 675 gpm. SI Pumps are full-flow tested each refueling
outage and tested quarterly at partial/recirculation flow.

DCPP reported that the health of the SI System was Green (Healthy), and there were no significant issues affecting system health. Only one lower-tier window of the health reports was yellow, Degraded/Non-conforming Conditions (non-Prompt Operability Assessment). The Yellow window was driven by an issue, which affected only Unit 2 and was identified during a review of a 2009 Design Change that replaced air-operated valves in the SI System with pairs of manual globe valves. The change created sections of piping, which might be subject to overpressure and damage if temperatures rose when the pipe sections were isolated and full of water (hydro-locked). The issue was being addressed by implementing procedure changes that required throttling of manual valves or draining of piping sections under certain conditions.

An issue discussed during the DCISC's last review in 2015 concerned non-conforming welds on the vent and drain piping for each of Safety Injection Pumps 1-1, 1-2, and 2-1. More specifically, for each of those three pumps the welds in four small-bore pipe nipples have compositions that do not conform to the governing welding code. The welds of interest were performed during original installation prior to plant operation. In 2014, the station informed the NRC, and submitted a code relief request to the NRC for approval to leave the condition "as is" with an increased frequency of inspections for the welds. The NRC approved this request on July 15, 2015 (ADAMS Document Number ML15187A035). Mr. Worrell provided copies of quarterly Surveillance Test Procedure P-SIP-11 to the Fact-finding Team, and the team verified that the procedure included steps requiring operators to check the subject welds free from leaks when the SI Pumps were operated during the test (as required by the approved relief request).
The DCPP Safety Injection (SI) System was rated Green (Healthy) by the System Engineer. Based on a plant tour, the DCISC Fact-finding Team concluded the Unit 1 SI Pumps and Pump Rooms were clean and orderly. Two non-significant SI System issues had planned resolutions. This appeared satisfactory to the DCISC Fact-finding Team.

Health of Large Motors (Volume II, Exhibit D.6, Section 3.2)

Large Motors include those powered by 4kV, 12kV, and higher voltages, along with any motors 250 horsepower and larger. Mr. Waters reminded the Fact-finding Team that management of the health of Large Motors had been moved from the System Engineering Department into the category of a Component Program during 2018. As such, the program was now managed by the Component Engineering Department, and performance was tracked using performance indicators contained in a Component Health Report, which differed in format from the System Health Reports. The DCISC reviewed the Large Motors Component Health Report. Program health was rated as White (Healthy, but needing improvement), which was the same rating as was reported during the DCISC's previous review in 2016. However, most of the open items driving the previous White rating in 2016 had been completed, and the current White rating was due to newer, emergent issues.
During the DCISC's review in 2016, a Large Motor Long-range Plan had been prepared and was in the process of being implemented. The plan provided a ten-year schedule for replacement, overhaul, and preventative maintenance activities for most Large Motors and represented DCPP's overall strategy for all Large Motors at the station. DCPP reported that the plan had now been implemented and the resultant Large Motor refurbishments were coming to completion. One item remaining open was the rewinding of stators and rotors for all eight Reactor Coolant Pump (RCP) Motors. Six of the eight RCP Motor rewinds had been completed, and the remaining two were planned to be completed in the upcoming Refueling Outages 1R21 and 2R21, in the spring and fall of 2019, respectively. The RCP Motor work was evaluated as a maintenance activity that should be completed on a 12-year periodicity. As the first RCP Motor rewinding was completed in 2014, no additional RCP Motor rewinds would therefore be required before DCPP ceased operations in 2025 (11 years after the first rewind).

Another Long-range Plan item nearing closure was the rewinding of Component Cooling Water (CCW) Pump Motors, which was expected to be completed in 2019. Following completion of the current CCW Pump Motor rew windings, it had been decided that no further rewinds would be needed before DCPP ceases operations in 2025. Regarding the availability of spare CCW Pump Motors, DCPP had one spare that was previously considered not to be interchangeable between units. However, DCPP had obtained information and performed testing that found the existing spare CCW Pump Motor could be modified to rotate the opposite direction, which would make it usable on the other unit. Accordingly, it had been determined that the plant would not be purchasing another spare CCW Pump Motor. Similarly, regarding the rewinding of Containment Fan Cooler Unit (CFCU) Motors, the station had completed two motor rewinds before deciding to cancel future rewinds. Additional rewinds were considered no longer to be necessary given the decision to cease operations in 2025, the redundancy of installed CFCUs, and the availability of several spare CFCU Motors on site.

The Fact-finding Team inquired if the CCW and CFCU Motor rewind decisions had been made as a part of the recently completed Preventive Maintenance Optimization (PMO) Program. Those decisions had been made separately. However, there were some changes made to maintenance practices for Large Motors, such as changing the periodicity of major overhauls to align with templates and guidance from the Electric Power Research Institute and industry counterparts. An example was that the periodicity of most motor cleanings and inspections were moved from 2-3 years to 3-4 years, which was supported by both industry guidance and plant experience in motor performance over time. The DCISC considered the status of completing items on the Long-range Plan was appropriate.

There were two emergent issues that were driving the White health rating. First was the presence of a high bearing temperature on inboard bearing for the 2-1 Condensate Booster Pump Motor. That motor was available to run if needed, but
the inboard bearing had shown an elevated bearing temperature since the outboard bearing had failed and was replaced in 2018. Further investigations were planned to begin shortly after the Fact-finding Team's visit, but it had already been identified that third-party bearings that had been used on the motor contained slight variations when compared to bearings supplied by the Original Equipment Manufacturer (OEM). Depending on the results of the upcoming additional investigations, the bearing would likely be replaced with a new one supplied by the OEM.

The second emergent issue was a high vibration on the 2-1 Auxiliary Salt Water Pump Motor, which was identified by an Operator during rounds and prior to the occurrence of a motor failure. The motor was replaced with a spare motor, and the removed motor was currently undergoing refurbishment. An Apparent Cause Evaluation (ACE) was underway to determine the cause of the lower bearing degradation (SAPN 51004946). Tentatively, the cause appeared to be an incorrect setting of the axial preload for the bearing during installation. Changes to maintenance procedures would likely be required to ensure that the bearings were correctly installed in the future. The only safety-related pump motors that were of similar (vertically-installed) configuration were the Residual Heat Removal Pump Motors. As a part of the ACE, an extent of condition review would also be completed to identify whether or not this type of problem was present on other similar motors. The Fact-finding Team concluded that the actions taken to date for both emergent issues appeared appropriate.

**DCPP's Large Motor Program health was White (Healthy, but needing improvement). The implementation of Long-range Plans for motor rewinds were nearing satisfactory completion, and actions taken for emergent issues appeared appropriate.**

**Health of Emergency Diesel Generators (Volume II, Exhibit D.6, Section 3.7)**

The EDGs are safety-related pieces of equipment whose functions are as follows:

- To furnish sufficient electric power to mitigate a design basis accident in one unit and safely bring the other unit to cold shutdown when both the 230kV and 500kV offsite power sources are unavailable.
- To act as a backup source of power to enable the reactor to continue to produce power for 72 hours whenever there is no accident condition, but one of the two offsite power sources is inoperable.
- To furnish power sufficient for an emergency shutdown of the plant whenever the offsite power sources are not available.

The EDG fuel oil supply system has enough fuel capacity to provide seven days of onsite power generation in order to operate: (a) the minimum required Engineering Safety Features (ESF) equipment following a design basis loss-of-
coolant accident (LOCA) for one unit, and the equipment in the second unit is in either the hot or cold shutdown condition, or (b) when the equipment for both units in either the hot or cold shutdown condition. The system has no direct non-safety-related function.

Each nuclear operating unit is supported by three EDGs dedicated to the respective unit; however, the EDGs can be cross-connected to the other unit using temporary cables. Each diesel-generator set is provided with two 100% capacity starting air trains, with each train having two starting air motors. Their ratings are as follows:

- 2,600 kW, Continuous (8,000 hours per year)
- 2,750 kW, 2,000 hours per year
- 2,860 kW, 2 hours per 24 hours
- 3,056 kW, 30 minutes per 24 hours

Each EDG is designed to start automatically on any of the following signals:

- A Safety Injection signal from either Train A or Train B of the plant protection system.
- Undervoltage on the preferred offsite sources to each of the 4160V vital buses; any one of which starts its respective diesel.
- Undervoltage on any of the vital 4160V buses; any one of which starts its respective diesel.

These automatic starts are to ensure that the EDGs are available with minimal delay to mitigate any operational or accident condition that may exist at the time of a Safety Injection signal. The Safety Injection signal, by itself, is not an indication of an accident condition. The undervoltage signal from any vital bus is an indication of a possible loss of both onsite and offsite power sources.

The latest system health reports for the three Unit 1 and three Unit 2 EDGs were as follows:

**Unit 1**

Unit 1's EDGs were classified as Green (Healthy) with the following issue challenging system health:

- The EDG control system components are over 40 years old and obsolete. The affected components are primarily the speed control devices (Woodward motor-operated potentiometer governors), which are no longer available, and which will be replaced with a newer model. These modifications are in progress and expected to be completed by September of 2020.

Previously identified issues on Unit 1 that had been recently resolved included:

- The discovery that sustained high winds could impact the ability of the EGD
radiators to adequately cool the jacket water and engine compartment components (affected Unit 1 only). A Prompt Operability Assessment (POA) was written to permit continued operation with compensatory actions until this issue was resolved. The POA was closed in September of 2018 when a permanent modification was completed to install a corrugated metal wall behind a portion of the building air outlets to block high winds and prevent the possibility of affecting cooling of the Unit 1 EDGs. A picture of the modification is shown below:

![Corrugated Metal Wall Installed Behind Grating, Turbine Building North Wall](image)

- Oil leakage at the cylinder head pushrod grommets. A plan to resolve this issue by replacing the grommets was completed on EDG 1-3. Later, it was decided instead to make permanent hose clamps installed on the remaining units rather than replace the grommets, and that action has been completed.
- Reliability issues with EDG Fuel Oil Day Tank alarm level switches and Fuel Oil Transfer Pump start/stop level switches. Testing of all the affected switches had been completed, and various problems were identified and resolved.

**Unit 2**

Unit 2's EDGs were classified as White (Healthy, but improvement needed) with the following issues challenging system health:
The EDG control system components are over 40 years old and obsolete. The affected components are primarily the speed control devices (Woodward motor-operated potentiometer governors), which are no longer available, and which will be replaced with a newer model. These modifications are in progress and expected to be completed by December 2019.

- Reliability issues with EDG Fuel Oil Day Tank alarm level switches and Fuel Oil Transfer Pump start/stop level switches. Testing of all the affected Fuel Oil Day Tank alarm level switches had been completed, and various problems were identified and resolved. Testing of the Fuel Oil Transfer Pump start/stop level switches was expected to be completed by September 2019.

Previously identified issues on Unit 2 that had been recently resolved included:

- Oil leakage at the cylinder head pushrod grommets. A plan to resolve this issue by replacing the grommets was completed on EDG 1-3. Later, it was decided instead to make permanent hose clamps installed on the remaining units rather than replace the grommets, and that action has been completed.

- Reliability issues with EDG Fuel Oil Day Tank alarm level switches and Fuel Oil Transfer Pump start/stop level switches. Testing of all the affected switches had been completed, and various problems were identified and resolved.

- Reliability issues with EDG 2-3's Fuel Oil Booster Pump (unique to that EDG). A replacement was needed, and it was previously thought that a newer model would need to be procured because no existing pump replacements of the same model were available. However, a Replacement Part Evaluation later determined that the pump model used on the other EDGs could be used on EDG 2-3, and the pump was replaced that that model. The performance of the replacement pump was now being monitored.

- The EDG Start Timers had been unreliable for 18 months. Following repairs, the equipment performance was monitored and determined to be acceptable. The issue was then closed.

- The EDG dynamic loading profile identified that electrical loading margin is deficient, specifically less than 1% for EDG 2-3. The long-term corrective action was originally thought to be uprating the engines; however, it was later decided that the issue could be resolved analytically through a calculation revision. Such a calculation revision was estimated to be able to recover a minimum of 54 kW additional margin for EDG 2-3 and higher additional margin for the other EDGs. Recently, the decision had been made not to perform the calculation revision at this time, but rather to keep the calculation change request in the system for ready action should margin degradation be identified due to other issues.

The Fact-finding team noted that although the classification of the EDGs' health had not changed since its last review in 2017, the number of previous issues (listed above) that had been closed was evidence that significant progress had been made in resolving problems with the EDGs.
The Fact-finding Team received a copy of and reviewed the EDG Reliability Improvement Plan, which was initially issued in April 2016. The goals of this plan are to achieve "zero equipment failures," which would reflect significantly improved reliability. The following goals were set:

1. Reduce EDG unavailability time by greater than 20% within three refueling outage maintenance cycles.

2. Reduce the number of EDG component failures and associated corrective maintenance by greater than 25% within three refueling outages. This will be measured by the number of corrective work orders generated.

3. Reduce the number of EDG condition evaluations in the Corrective Action Plan by greater than 25% within one refueling outage.

The original 2016 Plan was last updated in October 2018 and contained eight actions that remain to be completed. There was a large number (greater than 30) of closed items in the Plan, the majority of which had been closed through completed work as well as a few items where decisions were made to not perform the specific item as originally proposed. The amount of completed items in the Plan was impressive to the Team and represented good performance by the station in its efforts to maintain the long-term health of the EDGs. Whether or not the above goals had been accomplished was planned to be evaluated after three cycles of data has been collected.

The Fact-finding Team also discussed EDG testing with the System Engineer. EDGs are typically tested monthly using a 'fast start' technique, which tests the EDG under the same start and loading conditions as would be present in an actual automatic start. (DCPP does not use a 'slow start' technique that is sometimes used at other nuclear power plants.) Mr. Wiggins also explained that during each monthly test, the Fuel Oil Transfer Pumps are monitored and switched around such that both pumps are also tested during the EDG test. Regarding start reliability statistics, he reported that DCPP is required by procedures to track start successes and failures rates per 20, 50 and 100 starts. The current start reliabilities were as follows:

<table>
<thead>
<tr>
<th>EDG</th>
<th>Failures in Last 20/50 Starts</th>
<th>Failures in Last 100 Starts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1-2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The last start failure occurred in September 2015, over three years ago on EDG 1-1. The Team considered that the above numbers represented excellent start
reliability.

Accompanied by the EDG System Engineer, the DCISC Consultant entered the plant Protected Area and walked through the Unit 1 EDG's silencer room and the 1-2 EDG Room to observe the conditions of the EDGs and supporting equipment. The areas and the machine appeared to be in good condition with no observed leaks or other problems. The system engineer pointed out a recent rainwater drainage issue in the silencer room that he identified during a recent walkdown and provided a copy of the associated notification (SAPN 51013210). Overall, the System Engineer appeared very knowledgeable of the systems and proactive in monitoring the health of the EDGs.

**DCPP has resolved nearly all of the significant issues with its Emergency Diesel Generators (EDGs) and the health of Unit 1 EDGs is rated as Green and Unit 2 EDGs as White. Most actions contained in the EDG Reliability Improvement Plan have been completed, and EDG start reliability has been excellent over the past three years.**

**Direct Current Power Systems (Volume II, Exhibit D.8, Section 3.9)**

The DC Power System (DCPS) is a 125 and 150 Volt Direct Current (VDC) system designed to provide power for operation and control of equipment during all modes of plant operation. The system is powered by batteries that are kept charged with dedicated battery chargers. The DCPS consists of two subsystems, which are isolated from each other:

- Vital 125 VDC (safety-related)
- Non-vital 125/150 VDC

The Vital DCPS is redundant with three separate trains, i.e., a single active or passive failure will not prevent the system from performing its safety functions. Though physically separate, the trains can be manually cross connected. The system is capable of providing emergency DC power from the vital batteries for a minimum of two hours during a design basis accident coincident with a loss of battery chargers. It can perform its function during the following events:

- Loss of main generator
- Loss of off-site power
- Degraded off-site power
- Loss of battery chargers
- Loss or start failure of Emergency Diesel Generators

Each unit has 180 DCPS batteries, which are designed for a 20-year life.

The systems on both units were rated as "Green" or "Healthy," with no major issues. Minor issues included:
Non-vital batteries on both units had some hairline cracks on the lids caused by expansion of the internal plates. The cracks were being monitored to ensure they did not move into the sides of the battery cases. (DCPP's vital batteries have more room for plate expansion and are not as susceptible to the phenomenon.)

On Unit 2, one vital battery (2-2, cell 37) was trending low in voltage. The battery cell was planned to be replaced during the upcoming Refueling Outage 2R21. Mr. Segich noted that such low voltage problems were usually associated with the breakdown of a plate separator due to a small fabrication defect.

Regarding the age of DCPP's batteries, DCPP reported that most vital batteries had been replaced within the last eight years. Non-vital batteries ranged from 4 to 11 years old. As it was unclear at this time how long the batteries would need to remain operational following cessation of operations, it was not known if the batteries would need to be replaced again in the future. Regarding battery testing, each battery receives a full discharge test during each Refueling Outage (every 18-24 months).

The vital battery chargers (five per unit) were replaced in 2004 and were considered to have a 40-year life. The chargers were typically lightly loaded as most vital loads were carried by the inverters during normal operation. The inverters (four per unit) were replaced in 1994 and were also considered to have a 40-year life. Both chargers and inverters did not typically have any operating issues.

The health of DCPP's Direct Current Power Systems was rated as Green, i.e., Healthy. The System Engineer appeared knowledgeable and proactive about his system.

4.15.3 Conclusions and Recommendations

Conclusions:

DCPP has dealt effectively with most equipment and system problems and is focused on improving system health. DCPP's Plant Health Committee has been improved to focus more on system/component health and meets more frequently, and overall system health has improved.

Recommendations:

None
4.16 Steam Generator Performance

4.16.1 Overview and Previous Activities

Steam Generator (SG) tube reliability is important to operational safety because the SG tubes are part of the Reactor Coolant System (RCS) boundary. The nuclear industry has experienced substantial problems with a variety of mechanisms that can cause the SG tubes to deteriorate. The most notable of these is stress corrosion cracking. To address these issues DCPP engaged in a major capital project of replacing all 8 DCPP steam generators: four in Unit 2 were replaced during refueling outage 2R14 (February - April 2008), and four in Unit 1 were replaced during refueling outage 1R15, (January - April 2009).

The DCISC reviewed the following Steam Generator topic in the previous reporting period:

- Steam Generator Health

The DCISC concluded the following during the previous reporting period:

The DCPP Steam Generators (SGs) have been performing as expected since their replacement in 2008 and 2009. The most important SG parameter, tube integrity, has been shown to meet all criteria as a result of visual inspection and Eddy Current testing.

4.16.2 Current Period Activities

Steam Generator performance was not reviewed specifically during the current period; however, the DCISC reviewed the results of two refueling outages in which there were no problems found with the Steam Generators.

4.16.3 Conclusions and Recommendations

Conclusions:

Although the DCISC did not specifically review Steam Generator performance, it concluded that the performance was satisfactory in its reviews of secondary water chemistry and refueling outage results.

Recommendations:
4.17 Outage Management

4.17.1 Overview and Previous Activities

The DCISC monitors DCPP’s outage plans, actions, and results in the following ways:

- Reviews of outage safety evaluations and plans
- Regular fact-finding meetings to discuss planned major modifications, inspections, maintenance and activities
- Regular reports from PG&E at DCISC Public Meetings on outage plans and outage performance, noting any special situations or problems affecting safety
- Visits to DCPP during outages to monitor the Outage Coordination Center, Control Room and activities of interest
- Reviews of documentation and reports of outage activities such as steam generator tube inspections, major equipment problems, and events affecting safety

Since the DCISC began its review of this subject in 1990, outage management performance has steadily improved. DCPP continues to actively manage and track Outage Duration, Collective Radiation Exposure, and Personnel Safety incurred during the conduct of Unit Refueling Outages, as shown below:

<table>
<thead>
<tr>
<th>Outage</th>
<th>Outage Duration (days)</th>
<th>Collective Radiation Exposure (person-Rem)</th>
<th>Personnel Safety (recordable injuries)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unit 1</td>
<td>Unit 2</td>
<td>Unit 1</td>
</tr>
<tr>
<td>R13</td>
<td>41</td>
<td>39</td>
<td>116</td>
</tr>
<tr>
<td>R14</td>
<td>30</td>
<td>69*</td>
<td>103</td>
</tr>
<tr>
<td>R15</td>
<td>58*</td>
<td>38</td>
<td>247*</td>
</tr>
<tr>
<td>R16</td>
<td>42</td>
<td>36</td>
<td>123</td>
</tr>
<tr>
<td>R17</td>
<td>55**</td>
<td>48**</td>
<td>41</td>
</tr>
<tr>
<td>R18</td>
<td>32</td>
<td>32</td>
<td>30</td>
</tr>
<tr>
<td>R19</td>
<td>35</td>
<td>32</td>
<td>56</td>
</tr>
</tbody>
</table>
During the previous reporting period, the DCISC reviewed the following topics related to outage management at three Fact-finding Meetings and two Public Meetings:

- Outage 1R20 Performance
- Quality Verification Assessment of Outage 1R20 Seismically Induced System Interactions
- Non-Containment Outage Tour
- Containment Outage Tour
- Outage 2R20 Performance

The DCISC concluded in the last period that DCPP Performance in Refueling Outages 1R20 and 2R20 was excellent as it met or exceeded most goals. DCPP Quality Verification issued a Finding on the Seismic Induced System Interaction Program and a recommendation for improvement in this area was implemented via procedure revisions. DCISC tours of 2R20 work areas found that the areas appeared to be well maintained and activities were proceeding in an organized manner.

4.17.2 Current Period Activities

During the current period, the DCISC reviewed Outage Management at two Fact-finding Meetings and one Public Meeting. The following topics were reviewed:

- Refueling Outage 1R21 Plans
- Refueling Outage 1R21 Performance

Refueling Outage 1R21 Plans (Volume II, Exhibit D.5, Section 3.10, and Exhibit D.6, Section 3.4)

Outage 1R21 was planned to begin on February 10, 2019 and conclude on March 15, 2019. Outage 1R21 was similar in scope and duration to Outage 2R20, which concluded on March 22, 2018. Major scope items for 1R21 were the following:

- Integrated Containment Leak Rate Test
- Residual Heat Removal weld overlay
Emergency Core Cooling System interlock modification
Reactor coolant pump 1-1 motor overhaul
Reactor coolant pump vibration monitoring upgrade
480V switchgear ventilation seismic gap modification
480V vital bus G breaker replacements
Plant recorder replacements
Low Pressure Turbine "C" rotor inspection
Feedwater pump 1-2 turbine overhaul
Feedwater pump 1-1 Pump Bearing replacement
Service Cooling Water inlet piping lining
Turbine Building deluge system upgrade
Three intake traveling screens
235 ERC 1 preventive maintenance activities
305 ERC 2A/B preventive maintenance activities

DCPP's Refueling Outage 1R21 was planned to be similar to the successful Unit 2 Outage 2R20. DCPP's planning and scope control appeared satisfactory.

The Refueling Outage 1R21 Safety Plan and Safety Schedule was reviewed by the DCISC. The purpose of the Outage Safety Plan was to provide information on outage safety requirements and highlight risk areas to plant staff. In order to assess outage safety impact, referral to the Outage Safety Plan and Outage Safety Schedule would made prior to making major schedule changes. The intent of the Outage Safety Plan was to provide a concise document for use in evaluating plant conditions during Modes 5 (Cold Shutdown) and 6 (Refueling) to ensure the key safety functions are satisfied.

The Outage Safety Plan provided background information for the logic contained in the Outage Safety Checklists. The Outage Safety Checklists are governed by Administrative Procedure AD8.DC55, "Outage Safety Schedule," a copy of which was also provided to and reviewed by the DCISC. The Plan, Schedule and Checklists together ensured that the equipment and plant conditions assumed in the abnormal procedures for use during shutdown are met. The abnormal procedures contained guidance for providing passive core cooling as well as guidance on key safety system restoration. Outage Safety planning was based upon being able to cope with a very severe event, which was assumed to be a loss of all AC power. Backup decay heat removal capability can be maintained during such events by assuring that the system remains capable of taking advantage of natural physical laws (natural circulation by gravity or boiling) to maintain passive cooling if Residual Heat Removal or Spent Fuel Pool cooling is lost. The Outage Safety Checklists are the primary means of verifying normal and backup decay
heat removal capabilities are maintained.

The Refueling Outage 1R21 Safety Plan contained the following topics:

- Infrequently Performed Tests or Evolutions
- Contingency Strategies
- Transition Periods and Testing
- Background Information for Outage Safety Checklists for the Following Modes:
  - Mode 5 (Cold Shutdown) Loops Filled
  - Mode 5 Loops Not Filled
  - Mode 6 (Refueling) RCS Level at Greater than 111'
  - Core Offloaded

The Outage Safety Checklists were provided for each of the four basic plant outage configurations listed and described above (along with the outage configuration of 'Mode 6 RCS Level Less than 111' which was not planned to be used during Refueling Outage 1R21). The Checklists were completed by Control Room Operators at least once during each shift, any time a piece of equipment was removed from service, and any time the plant entered or exited a transition period. Additionally, DCPP now uses "Phoenix," a computer-based tool that can be used on line to analyze changes in risk using the PRA model when equipment is removed from service for maintenance. As the PRA model does not extend to shutdown conditions, Phoenix was used during outages via the loading of deterministic fault trees for shutdown conditions based on the Outage Safety Checklists. An "N+1" Defense in Depth (DID) approach, where N generally represents the minimum equipment needed to maintain a key safety function, was then utilized by Phoenix to evaluate the maintenance of the key safety functions. This DID Status was represented by the following four color definitions:

- Green - represented DID greater than N+1, where N is the minimum equipment needed to maintain a key safety function with more than one backup means of support.
- Yellow - represented DID equals N+1, which is considered the normal DID. Key safety functions are fully supported with at least one backup means of support.
- Orange - represented a DID equals N condition, where key safety functions are supported, but minimum DID is not met, and compensatory measures must be in place.
- Red - represented a DID less than N condition in which key safety functions are not supported.

DCPP considered a status of Green or Yellow acceptable for planned outage activities because key safety functions are fully supported with at least N+1 DID.
No planned activities were planned to result in an Orange condition; however, in the rare case where an Orange condition would be necessary, a contingency plan with compensatory actions must be developed and implemented. The contingency plan then provided an additional approach to DID, because it provided a backup safety function if the minimum safety function became unavailable. Planned Red conditions were prohibited. The 1R21 Outage Safety Plan contained no Orange or Red conditions and six individual Yellow ones.

The sequence of activities would be atypical in one respect in that the Containment Integrated Leakage Rate Test (ILRT) would be performed early in the outage. When the ILRT has been performed in the past (most recently during Refueling Outage 2R20), it had been performed late in the outage. The reason for the change was that it had been determined that performing the test early in the outage would be a more efficient approach in achieving the necessary system isolations-alignments required for the test.

An outage safety schedule review by an independent industry peer from outside PG&E and a licensed Senior Reactor Operator not involved with schedule development was performed with satisfactory results, and the safety schedule will be approved by DCPP management before the outage work can proceed.

The DCPP Refueling Outage 1R21 Outage Safety Plan and Safety Schedule appeared comprehensive and effective to prevent the plant safety level from dropping below acceptable safety standards. The Plan and Schedule applied a Defense-in-Depth philosophy to prevent accidents and to mitigate the effects of accidents, if they were to occur during shutdown.

Refueling Outage 1R21 Performance (Volume II, Exhibit D.7, Section 3.5, and Exhibit B.9)

At the time of DCISC's review, the outage was nearing its end, and the unit was at 28% full power and increasing. Notable scheduled work completed in Outage 1R21 included the following:

- Integrated Containment Leak Rate Test
- Residual Heat Removal (RHR) Line Weld Overlay
- Reactor Coolant Pump 1-1 Rotor and Stator Replacement
- Reactor Coolant Pump 1-2 Seal Replacement
- Main Feedwater Pump 1-1 Overhaul
- Main Feedwater Pump 1-2 Turbine Overhaul
- Service Cooling Water Inlet Piping Liner Installation
- 480-Volt Ventilation Seismic Gap Modification
- Vital 480-Volt Bus G Breaker Replacement
Significant emergent work included the following:

- RHR Valve 1-8726 Reach Rod Broken
- Core Exit Thermocouple Nozzle Assembly Port 76 Stuck During Disassembly
- Main Feedwater Pump 1-1 Lube Oil Debris
- Containment Fuel Upender Excessive Movement
- Fuel Assembly Thimble Screw Found in Lower Cavity
- Relay 86G11 Failed to Reset the First Time
- 12 kV Breaker 52VE5 Would Not Rack Out

Things that DCPP believed went well included the following:

- Integrated Safeguards Testing (M-15) and Vital Bus Transfer Testing (M-13s)
- Integrated Containment Leak Rate Test
- Elimination of Steam Generator U-Tube Voiding and Vacuum Refill

Things that DCPP believed needed improving were the following:

- Fuel Handling Equipment Reliability Continues to Challenge the Organization
- The Site Continues to Struggle with Timely and Accurate Schedule Updates
- Procedure Details Critical to Schedule Accuracy Were Missed during Outage Planning

Outage performance versus goals was as follows:

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Goal</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Near Miss Events</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nuclear Safety Events</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Site Clock resets</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Outage duration (Days)</td>
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<td>36 Days, 11 Hours</td>
</tr>
<tr>
<td>ALARA (Person Rem)</td>
<td>27</td>
<td>30.2</td>
</tr>
<tr>
<td>Significant Foreign Material Events</td>
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<td>0</td>
</tr>
<tr>
<td>Power Ascension (Days)</td>
<td>5</td>
<td>4 Days, 18 Hours</td>
</tr>
</tbody>
</table>

By all measures except ALARA (personnel radiation goal), the outage was successful. Emergent work issues (described below) contributed to the excess radiation dose of 3.2 Person-Rem.

**The DCPP Refueling Outage 1R21 was successfully performed.** Importantly, there were no nuclear safety events. The personnel radiation goal was slightly exceeded due to several high radiation emergent items.

The following is a summary of DCPP's presentation on this topic at DCISC's June
2019 Public Meeting: Refueling outage 1R21 commenced on February 10, 2019 at midnight and concluded on March 18, 2019 at 10:50 a.m. The key activities during the outage included:

- Containment Integrated Leak Rate Test
- Residual Heat Removal line weld overlay
- Reactor Coolant Pump 1-1 rotor and stator replacement
- Reactor Coolant Pump 1-2 seal replacement
- Main Feedwater Pump 1-1 overhaul
- Main Feedwater Pump 1-2 turbine overhaul
- Service Cooling Water inlet piping liner installation
- 480V ventilation seismic gap modification
- Vital 480V bus G breaker replacement

Concerning outage safety and defense-in-depth strategies, defense-in-depth levels were maintained to ensure key safety functions were satisfied. High-risk and infrequently performed tests and evolutions included:

- Initial drain to lowered reactor coolant inventory for reactor disassembly and reassembly
- Refueling cavity drain to lowered reactor coolant inventory following core reload
- Vital bus transfer and integrated safeguards testing
- Initial criticality of the new reactor core
- Performance of heavy lifts over the reactor core
- Integrated Leak Rate Test

Vital bus transfer and integrated safeguards testing as well as the initial drain down were reviewed prior to the outage in of the Simulator Facility (a full-scale mock-up of the Unit 1 Control Room). Initial criticality was reviewed by the operating crew during normal training some weeks prior to an outage, and the differences were very small in the reactor core from one refueling outage to the next.

Performance metrics during 1R21 were as follows:

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Goal</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Near Miss Events</td>
<td>0</td>
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<tr>
<td>Site Clock resets</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Outage duration (Days)</td>
<td>40</td>
<td>36.5</td>
</tr>
</tbody>
</table>
Personnel Exposure (Person Rem) | 27 | 30.2  
Power Ascension (Days) | 5 | 4.75

Regarding DCPP not having met the ALARA goal, the 30.2 person rem dose was accumulated through thousands of very low doses spread amongst perhaps five hundred to one thousand individuals working on the site during the outage. Unit 1 has been reliably at full power following the end of 1R21. Power ascension following 1R21 was somewhat faster than expected due to time intentionally allowed in the schedule for emergent scope work for saltwater leakage in the condensers. During 1R21, there was no significant scope expansion or emergent work due to condenser leakage. DCPP brought in 959 temporary workers to assist in outage related work activities.

Fuel and steam generator inspection results as follows:

- No fuel defects
- No significant fuel findings
- No Steam Generator inspections were scheduled, nor were they required

Follow-up items from 1R21 included actions to improve:

- Fuel handling equipment reliability
- Timely and accurate schedule updates
- Translating procedures into schedule logic
- Injury prevention

Concerning the item on translating procedures into schedule logic, this item stems from a difference of opinion during 1R21 between the Outage and Operations Departments as to performing activities on the outage schedule in parallel or in sequence. Operators in the Control Room remain in command of the unit and have the absolute discretion concerning such matters. All of the above items were documented using SAP software to track corrective actions within the Corrective Action Program.

**4.17.3 Conclusions and Recommendations**

**Conclusions:**

DCPP's planning and scope control for Refueling Outage 1R21 appeared satisfactory. The Refueling Outage 1R21 Outage Safety Plan and Safety Schedule appeared comprehensive and effective to prevent the plant safety level from dropping below acceptable safety standards. The Plan and Schedule applied a Defense-in-Depth philosophy to prevent accidents and to mitigate the effects of accidents, if they were to occur during shutdown. Refueling Outage
1R21 was successfully performed with no nuclear safety events. The personnel radiation goal was slightly exceeded due to several high radiation emergent items.

Recommendations:

None
4.18 Plant Safety-Security Interface

(Note: because of the sensitive nature of nuclear plant security, only limited information can be presented in this public report.)

4.18.1 Overview and Previous Activities

The DCISC has previously reviewed plant security in fact-finding meetings by reviewing security performance measures and by reviewing plant audits and NRC inspections of the Security Program. Additionally, there have been overviews of the Security Program in DCISC public meetings.

The DCISC reviews and NRC inspects these measures. The DCISC monitors and assesses current security measures and expected modifications to determine whether there may be negative effects on plant safety during normal operation and maintenance and emergency response during off-normal conditions.

The DCISC's interest and scope of review was limited to the effects of Security-related barriers and procedures on nuclear and operational safety rather than Security itself. The DCISC reviewed the following DCPP safety-security interface during the current period:

- Cyber Security Update

The DCISC concluded in the previous reporting period that DCPP has completed implementation of its Cyber Security Program to meet all current NRC requirements. The program appears to be well designed and implemented, and the program is transitioning to become a permanent, ongoing station program. The DCISC will continue to review the Cyber Security Program every two to three years.

4.18.2 Current Period Activities

The DCISC reviewed the following the DCPP security-related item during the current period:

Cyber Security Protection for Digital Control Systems (Volume II, Exhibit D.8, Section 3.8 and Exhibit B.6)
DCPP completed its implementation of the full Cyber Security Program prior to the due date of December 31, 2017, as required by NRC regulations. An NRC pilot inspection was completed in May of 2017, with no significant issues, and a full NRC inspection for the Cyber Security Program is scheduled for March 2019; however, the results of this inspection were not available at the time of the FF meeting.

DCPP explained that the core element of the Cyber Security Program was identifying and implementing protection for all of the Critical Digital Assets (CDAs) at DCPP. CDAs were digital computer and communications systems associated with safety-related and important-to-safety functions, security functions, emergency preparedness functions, and support systems which if compromised could adversely impact any of those functions. DCPP identified approximately 4,000 CDAs across 66 critical systems, which reflects a higher number of digital systems than typical for commercial nuclear power plants. Slightly less than half of the 4,000 were in security-related systems, and the remainder were in plant-related systems. Some examples of CDAs were the Programmable Logic Controllers in the Digital Electrohydraulic Turbine Control System, Operator Human-machine Interface Computers, the Plant Process Control System, Security Cameras, and the Security Event and Monitoring System. Almost all of the CDAs were located inside protected or vital areas of the plant. All of the CDAs were evaluated, and 900 were found to require modifications to assure compliance with the regulations. Modifications included such work as locking USB ports, removing unnecessary programs, upgrading firmware, and reassigning or locking IP addresses.

The DCISC reviewed DCPP cyber security for digital control systems. DCPP has installed a number of digital control systems in the last ten years. The DCPP Cyber Security Program includes digital control systems as Critical Digital Assets as it does other CDAs, when it is one of the following:

- A component of a critical system, including assets that perform safety-related and important-to-Safety, Security, or Emergency Preparedness (SSEP) functions, or provide support to, protect, or provide a pathway to critical systems.
- A support system asset whose failure or compromise as the result of a cyber attack would result in an adverse impact to an SSEP function.

Thus, DCPP digital control systems, which meet either of the above criteria, are treated as Critical Digital Assets and come under the full requirements of the program. Because of cyber security requirements, specific digital control system CDAs were not identified during the FF meeting and are not further discussed in this report.

The DCISC has concluded in previous reports that DCPP's Cyber Security Program appears to meet NRC requirements and appears to be effective. The full DCPP Cyber Security Program applies to those selected digital control systems, which are included in the definition of a Critical Digital Asset.
The NRC's rules provide a process to assess and manage changes to prevent or mitigate adverse effects on plant safety. Additional measures are applied to protect the system if a safety-security interface is identified to ensure cyber security requirements don't impact plant safety. Throughout implementation, detailed lab testing was performed on critical digital assets prior to implementing cyber security controls in the plant to ensure no adverse impacts. Applying security controls to digital assets must ensure that design or safety function is not impacted by unintended adverse consequences. As the threat environment has evolved and changed, each change requires reevaluation of the cyber security-safety interface and this is an ongoing process and the challenge is to stay continually ahead of the threat.

Dr. Peterson remarked he believes that by making electronic systems more robust for cyber security their reliability is also improved and he opined that this is true in particular with respect to human error and, as one of the principal goals of cyber security is to prevent malicious human error, the cyber security protocol also makes those systems more robust against inadvertent human error. Mr. Garcia remarked that with physical security as well as cyber security, the principal goal is to maintain the context of the impact on plant operations and to ensure there are no safety implications. Dr. Budnitz remarked that in order to provide the necessary level of cyber security some compromise to plant configuration would have to be introduced and it is a challenge to ensure those compromises are minimized general, configuration and control is maintained such that if there are changes to the plant as part of the normal design change process, the Cyber Security organization is incorporated into those procedures and a cyber security review is conducted including to assess changes to a digital component to ensure cyber security controls are not compromised.

The DCPP Cyber Security Program has implemented a comprehensive program including more than 30 procedures and processes integrated into station procedures to ensure DCPP regulatory requirements are meet and maintained, and not undone by design change and detailed cyber security controls have been implemented to harden critical digital assets and control portable media. The Cyber Security Program has implemented new cyber security technologies to enhance security posture and provide ongoing monitoring and detection of instantaneous potential cyber threats.

DCPP shares information and works closely with its industry peers and participates in the NEI's Cyber Security Task Force. DCPP receives and responds to information from the intelligence community on specific threats or concerns. DCPP cyber security monitoring goes on continuously, seven days per week on a 24-hour per day basis and drills and tests are performed to test cyber security systems and DCPP employees. The Cyber Security Program, while it is implemented by an independent team of approximately five persons and is dedicated to DCPP, also works very closely with PG&E's corporate Information Technology group and the corporate cyber security team.
DCPP stated the supervisory control and data acquisition (SCADA) systems and the business-related systems about which articles have appeared in the media as having experienced outside intrusion are not protected by the DCPP Cyber Security Program but are within the NERC CIP and PG&E corporate and DCPP Information Technology protection schemes.

4.18.3 Conclusions and Recommendations

Conclusions:

DCPP has completed implementation of its Cybersecurity Program to meet all current NRC requirements. The program appears to be well designed and implemented, and the program is transitioning to become a permanent, ongoing station program. The DCISC will continue to review the Cybersecurity Program every two to three years.

Recommendations:

None
4.19 Independent Spent Fuel Storage Installation (ISFSI)

4.19.1 Overview and Previous Activities

This section of the report describes DCISC reviews of the DCPP Independent Spent Fuel Storage Installation (ISFSI). The history of spent fuel storage at DCPP has dictated a number of changes to its approach to this matter over the years. During plant construction, the expectation for the management of used nuclear fuel was that it would be stored for a short period on site, then sent off-site to be reprocessed and reused. Accordingly, the DCPP's expectation was that there would only be the need for storing a modest amount of used fuel on site at any time, and the Spent Fuel Pools were each arranged to accommodate 270 fuel assemblies.

As time passed, the reprocessing option did not materialize because of a change in national policy, and the impact of the accompanying uncertainty regarding the increasing used fuel inventory on site, in turn, led to the need to expand the used fuel storage capacities to 1,324 assemblies in each pool. However, national policy on this topic later became directed at the development of a national used fuel storage facility at Yucca Mountain, Nevada, which was mandated to begin receiving spent fuel in 1998. Recognizing that DCPP would indeed be able to have its used fuel shipped offsite, PG&E returned the Spent Fuel Pools again to their original capacities of 270 assemblies in each pool.

In the ensuing years, the recognition that the future of Yucca Mountain as a repository for used nuclear fuel was in jeopardy and that the future of off-site storage of used nuclear fuel was uncertain, DCPP again expanded its used nuclear fuel storage capacity to 1,324 assemblies for each pool, which are their current capacities. Also, a separate Independent Spent Fuel Storage Installation (ISFSI) was constructed on site for the dry storage of used fuel, and the ISFSI began receiving used fuel in 2009.

The DCISC reviewed the following ISFSI-related topics at three Fact-finding Meetings and two Public Meetings during the previous period:

- Independent Spent Fuel Storage Installation (ISFSI) and Loading Campaigns
- Spent Fuel Storage Technical Issues
- Spent Fuel Inspections after Transfer to the ISFSI
Handling and Disposal of Damaged Spent Fuel

The DCISC concluded in the last period that DCPP continued to manage its spent fuel satisfactorily in both the Spent Fuel Pool (SFP) and the Independent Spent Fuel Storage Installation (ISFSI). As part of its decommissioning activities, DCPP was investigating accelerated movement of spent fuel from the SFP to the ISFSI. DCPP was continuing to participate in industry initiatives to address the issue of possible corrosion of Multi-Purpose Canisters (MPCs) stored at the Independent Spent Fuel Storage Installation. As a part of ISFSI relicensing, DCPP will need to develop an aging management plan to include MPC inspections. The Cask Transfer Facility located at the ISFSI provides options for more detailed inspections or repairs to an MPC should such be necessary in the future after the SFPs are no longer available.

4.19.2 Current Period Activities

During the current period, the DCISC reviewed the ISFSI at three Fact-finding Meetings and one Public Meeting. The following topics were reviewed:

- Independent Spent Fuel Storage Installation Operations Update
- Transporting High Level Spent Fuel
- Future Movement of Spent Fuel
- Holtec Presentation on Spent Fuel Management and Storage

Independent Spent Fuel Storage Installation (ISFSI) Operations Update (Volume II, Exhibit D.1, Section 3.10)

The current ISFSI loading campaign consisting of Casks 50 through 58 was proceeding satisfactorily, with Cask 53 being loaded during the fact finding visit, and the campaign concluding in August 2018. The next two loading campaigns were scheduled for 2020 and likely 2022. DCPP was considering various loading options with regard to the Joint Proposal.

DCPP still planned for ISFSI relicensing in 2022. Stress Corrosion Cracking (SCC) would be part of the relicensing submittal, which would include consideration of SCC inspection techniques to identify any through-wall cracks as part of the safety analysis.

DCPP's loading of spent fuel into the Independent Spent Fuel Storage Installation (ISFSI) was proceeding satisfactorily for Casks 50-58 and was scheduled to be completed in August 2018. The next loading campaigns were scheduled for 2020 and likely 2022. ISFSI relicensing was underway for 2022, when the current license expires. DCPP will address cask Stress Corrosion Cracking in the relicensing submittal.
DCPP stored its spent fuel in NRC-licensed Holtec MPC-32, 32-assembly canisters, enclosed in Holtec HI-STORM overpacks at its ISFSI on the plant site. The HI-STORM overpacks are not licensed for transportation, only on-site storage. DCPP is currently moving spent fuel from its Spent Fuel Pools and will eventually move all of its spent fuel from the Spent Fuel Pool up to the ISFSI. This was planned to be completed within 7-to-10 years following plant shutdown in 2025.

Transfer of the MPC-32 canisters from the HI-STORM storage overpacks to the HI-STAR 100 transportation overpacks would take place in the DCPP ISFSI Cask Transfer Facility, which is currently the normal process for transferring the MPC-32 canister from the Spent Fuel Pool to the HI-STORM overpack. DCPP's MPC-32 canister hardware was included in the Holtec HI-STAR 100 transportation certificate.

If and when a licensed disposal repository or consolidated interim storage facility is available, the U.S. Department of Energy (DOE) would take ownership of the DCPP's spent fuel and become responsible to utilize NRC-licensed transportation overpacks, probably Holtec HI-STAR 100 containers, to send its spent fuel to an NRC-licensed DOE facility. DOE would likely transport the casks by either (1) highway heavy-haul to the nearest rail spur in Pismo Beach or (2) ocean-going barge to an intermodal port served by rail, where they would be put onto rail cars for the trip to the disposal facility. Each of these modes has been used to bring in large components to DCPP. High burnup fuel (>45 Megawatt Days per Metric Ton) will require additional analysis and testing to assure its acceptability for storage and transport. Early indications appeared favorable for acceptability.

**DCPP appears to be planning for storing its spent nuclear fuel in an acceptable and responsible manner in its Spent Fuel Pool and Independent Spent Fuel Storage Installation, while it awaits the Department of Energy opening of a disposal facility.**

**Future Movement of Spent Fuel (Volume II, Exhibit D.8, Section 3.2)**

The purpose of this inquiry into future spent fuel movement plans was to better understand DCPP's spent fuel licensing basis and its evolving plan to investigate options for accelerating the movement of spent fuel from the SFP to the ISFSI during both the period prior to and immediately following cessation of operations in 2025.

The first question the DCISC sought to have answered was as to the specific minimum time required by DCPP's Technical Specifications for the decay of a spent fuel assembly before spent fuel could be transferred from the SFP to the ISFSI. The absolute minimum time allowed by Technical Specifications was five years; however, additional specifications (primarily burnup and thermal loading) of the cask license made the practical minimum much longer than five years. These
specifications were contained in cask heat loading tables which were incorporated into the 10CFR50 Part 72 license for the ISFSI. As DCPP currently uses ‘high burnup’ fuel (fuel assemblies designed to generate heat for a longer time period before replacement), the tables governing the maximum heat loads that could be placed into each cask would not allow the completion of fuel transfer from the SFP to the ISFSI to be done in any time less than seven years. This was the information that formed the basis of the SFP offload plan proposed to the California Public Utilities Commission (CPUC) in December 2018. The tables contained in the ISFSI license could not be changed without submitting a license change request to the NRC for its approval.

Since the time that the original ISFSI license was obtained along with the approval for the use of the current style of Holtec MPC cask, knowledge and technology had advanced significantly regarding the use of different materials in the MPCs. The MPCs currently in use at the DCPP ISFSI were licensed to store fuel assemblies generating a maximum of 28 kW of heat. By using more advanced materials, such as aluminum alloys, it was believed that the currently available technology could support storing assemblies generating as much as 50 kW of heat. The primary limiting factor was the conduction of heat from the internal section of the fuel assembly basket to the outer shell. The more advanced materials conduct the heat more efficiently such that spent fuel cladding temperatures are maintained below the temperatures at which the formation of zirconium hydride could occur and subsequently result in fuel cladding cracking.

Advancements also continue to be made in the industry regarding the thermal analyses that were used to predict spent fuel cladding temperatures given cask materials and configurations. Industry documents were reviewed concerning the results of experiments using a dry cask simulator, the ongoing study of an instrumented high burnup demonstration cask at another nuclear power plant's ISFSI, and the ongoing efforts by the Electric Power Research Institute to improve the accuracy of thermal modeling for fuel storage casks. It was anticipated that the knowledge gained through these efforts would in the future allow the recapturing of some margin used in previous, less precise analysis and therefore allow increasing the overall heat limit for spent fuel stored in a cask.

As mandated by the CPUC and advocated by public interest, PG&E initiated a project to obtain proposals for the procurement of an alternative cask that would take advantage of advances in materials and thermal analysis and allow the storage of spent fuel with a higher heat load at the DCPP ISFSI. Under the current approved ISFSI license, as explained above, the minimum allowable time for offloading all of the spent fuel from the SFP to the ISFSI could not be reduced below seven years. The project was preparing a Request for Proposals (RFP) that would solicit proposals from suppliers that would utilize new cask technologies in order to both offload the SFP in a shorter time period and minimize the overall inventory of spent fuel in the SFP. No specific constraints were placed on potential suppliers regarding cask configuration; however, suppliers would have to meet the current regulations and DCPP-specific design criteria such as those for radiation
dose, aging management, handling, and seismic hazard spectrum. No contracts were currently in place for additional cask procurement and as such there would be no direct costs to abandon the current cask design. It was anticipated that a new cask design would be more expensive, but some of the additional costs would be recovered by the reduced operating costs (mostly in the area of security) associated with reducing the time that fuel was present in the SFP. It was desired to complete the RFP process, select a technology, and apply for the necessary license amendments by 2021. That timeframe was desired in order to allow sufficient time for licensing action to be approved and new casks to be manufactured by the time the cessation of operations occurred in 2025.

**DCPP’s current license for spent fuel storage contains conservative requirements for heat load of spent fuel assemblies in dry cask storage.** DCPP has initiated a project to obtain proposals from cask vendors to provide an alternative cask technology in order to increase the allowable heat load and reduce the cooldown time required before spent fuel assemblies can be placed into dry cask storage.

### Holtec Presentation on Spent Fuel Management and Storage (Volume II, Exhibit B.9)

The following is a summary of DCPP’s presentation on this topic at DCISC’s June 2019 Public Meeting: At the DCISC's request, a representative from Holtec Corporation provided a presentation regarding nuclear fuel and how it is stored, the Holtec HI-STORM 100 storage system (used at DCPP), transportation of spent nuclear fuel, licensing issues and cask availability for eventually transportation of spent fuel offsite, and the plans for Holtec's consolidated interim storage facility being developed in New Mexico. Holtec is a privately owned company that has been in business since 1986, and the firm is known for its innovation, self-financed research and development efforts, and for holding dozens of patents on product lines and materials. Holtec initially developed high density racking systems for spent fuel pools and subsequently developed dry storage systems and equipment. Holtec has also been involved in development of a 160MW small modular reactor for use overseas with work on that design taking place at Holtec's facility in Camden, New Jersey. Holtec also contracts with or purchases retired nuclear power plants to perform decommissioning. It was reported that 116 nuclear power plants around the world use Holtec systems and more than 1,280 dry spent fuel storage systems have been loaded by Holtec personnel to date.

The fuel assemblies used in a nuclear reactor to produce heat are typically used for that purpose for up to five years and then placed in a spent fuel pool for cooling for five to seven years before being moved to dry cask storage. Much work has gone into licensing efforts to shorten the duration fuel must remain in a spent fuel pool to as short as one to two years after final removal of the fuel from the reactor thereby enabling plants to move fuel from wet to dry storage sooner so as to proceed with fully decommissioning a power plant.

For DCPP, a site-specific license for the Holtec system was granted by the NRC
which, due to high seismic activity in the vicinity and unique to DCPP, requires the overpack to be anchored to the pad. The MPCs used at DCPP are standard cylinders and provide both physical and radiation shielding for the fuel inside. The only difference from the MPC used at other plants is that at DCPP the MPCs are somewhat shorter due to a constraint with height of the door from the Fuel Handling Building.

A completely loaded HI-STORM storage system weighs approximately 170 tons and therefore it cannot be transported by truck on a public highway. The HI-STORM system is based upon a passive heat removal technique and requires only minimal maintenance. The design basis requirements for DCPP require that the HI-STORM be designed to resist damage from missiles, tornadoes and seismic events and he described the various threats to the integrity of the HI-STORM system that were analyzed as a part of the NRC licensing process and included of the Final Safety Analysis Report (FSAR). Many of these same considerations were also analyzed and assessed in the NRC's licensing process for the DCPP Independent Spent Fuel Storage Installation (ISFSI). The Electric Power Research Institute (EPRI) has also done studies confirming the robust nature of the MPCs when stored within the HI-STORM overpack. At the ISFSI site boundary the dose is approximately 5 millirem per year while a person receives on average 620 millirem from natural background radiation alone each year and would receive a 5 millirem dose during a round trip airline flight across the U.S.

The reference to "multi-purpose" in the designation "Multi-Purpose Canister" is to recognize that the MPC is able to be transferred from the storage overpack to a transportation overpack and transported offsite to a federal repository or to a consolidated interim storage facility. Holtec has licensed the HI-STAR 190 and the HI-STAR 100 transportation casks for this purpose. Transportation of spent nuclear fuel is highly regulated by the NRC and the U.S. Department of Transportation (DOT), with the NRC overseeing design, manufacture and use of the MPCs and the transportation casks and the DOT coordinating with the NRC to establish rules for packaging and regulating various carriers and to set standards for routes. The HI-STAR 100 is licensed under 10 CFR Part 71 for use to transport MPC's from PG&E's Humboldt Bay Nuclear Power Plant and from DCPP.

Holtec is in the process of developing its planned consolidated interim storage facility to be located at a remote site in New Mexico, and the facility is intended to utilize the Holtec UMAX system to store fuel below grade and to accommodate fuel assemblies including those stored in Holtec MPCs as well as for spent fuel assemblies stored in the Orano and Trans-Nuclear firms' dry cask storage systems. The consolidated interim storage facility is based on the premise that it will provide safe, secure, retrievable and temporary storage to withstand both natural and man-made events without a release. These facilities are not intended as a replacement for a federal repository, such as was planned at Yucca Mountain, Nevada, but rather for interim storage for a period of at least 100 years until such a facility or facilities are available. Holtec is planning now for construction of its New Mexico facility starting in 2021 and for being able to accept shipments
starting in 2023 and Mr. Strickland briefly reviewed with the Committee the licensing process with the NRC involving both the design basis and environmental aspects of the facility. Holtec expects the NRC staff will complete its review and make its decision by July 2020. In order for the U.S. Department of Energy (DOE) to avail itself of consolidated interim storage opportunities, legislation will be required and he stated such legislation is presently under consideration.

Holtec intends to provide a number of options in its upcoming request for proposals process for PG&E including moving from a 32-assembly capacity MPC to a 37-assembly capacity MPC, which would require a new transfer cask but would remain in compliance with DCPP seismic restraint conditions. Licensing changes would also be required to shorten the duration of time the fuel is in the spent fuel pools from five to seven years to approximately two years. As long as the vendor met the licensing basis that includes the seismic design basis for DCPP, PG&E should have the option of either loading under a general license for the remainder of the fuel or being able to include the vendor's license revision into its site-specific license. Materials used for the MPC have continued to evolve and today consist of 316L steel as its predominant material. Holtec and the fuel storage industry are working on the issue of MPC inspections, and the General Electric company has developed a robotic camera system that is magnetic and can be placed on the MPC within the overpack to perform a detailed inspection. He commented as a part of the license renewal for its ISFSI, DCPP must develop a detailed inspection program.

4.19.3 Conclusions and Recommendations

Conclusions:

DCPP's loading of spent fuel into the Independent Spent Fuel Storage Installation (ISFSI) was proceeding satisfactorily and was scheduled to be completed in August 2018. ISFSI relicensing was underway for 2022, when the current license expires. DCPP will address cask Stress Corrosion Cracking in the relicensing submittal. DCPP's current license for spent fuel storage contains conservative requirements for heat load of spent fuel assemblies in dry cask storage. DCPP has initiated a project to obtain proposals from cask vendors to provide an alternative cask technology in order to increase the allowable heat load and reduce the cooldown time required before spent fuel assemblies can be placed into the ISFSI.

Recommendations:

None
4.20 Earthquakes and Tsunamis

4.20.1 Overview and Previous Activities

This section of the report provides updates on recent seismic events, tsunamis or related matters that could affect DCPP.

In previous reports the DCISC has reviewed with PG&E earthquakes occurring in California in the vicinity of DCPP as well as seismic designs, analyses, and activities related to DCPP. This has included updates to PG&E's Long Term Seismic Program which is an NRC license condition requiring PG&E to monitor and evaluate seismic events world-wide which could potentially affect DCPP design.

In the previous period the DCISC reviewed the following activities:

1. Local Intense Precipitation Analysis
2. Tsunami Hazard Analysis
3. NRC Evaluation of DCPP Tsunamis
4. Workplace Seismic Safety
5. Seismic PRA & Tsunami Hazard Results

In the previous reporting period the DCISC concluded that The Nuclear Regulatory Commission in its December 17, 2017 final "Staff Assessment (SA) of the FHRR (Flood Hazard Reevaluation Report) concluded that DCPP's analyses "...are an appropriate representation of the reevaluated tsunami hazard at the Diablo Canyon site." This concludes NRC's review of the DCPP flood hazard.

4.20.2 Current Period Activities

The DCISC reviewed the following items during the current reporting period:

1. Workplace Seismic Safety
2. Seismic Qualification of Switchgear Room Wall
3. Long Term Seismic Program
4. Seismic Risk Analysis

Workplace Seismic Safety

Seismic Workplace Safety (SWS) is the practice of securing objects throughout the plant such that, in an earthquake, they will not injure personnel or block important personnel pathways needed to access critical components in a timely manner. Both PG&E corporate offices and DCPP have SWS standards for furniture and other objects in the PG&E document entitled "Standards for Bracing Office Furniture, Cabinets, and Storage Racks, Revision 0." The document was intended to ensure that DCPP purchased furniture that would not be a hazard to personnel during an earthquake, but it did not require that furniture be designed specifically to withstand seismic events. A review of the document found that it contained standards that required:

- Bracing for storage cabinets over five feet high, can be easily tipped, contained unrestrained drawers, or with a high center of gravity.
- Restraints for any storage cabinets or racks over five feet high mounted on wheels.
- Restraints to prevent shelf contents from falling on open bookshelves greater than four feet high.
- Any bracing installed to be connected to wall studs or other structural elements.
- No storage of items on top of cabinets greater than five feet high.

The DCISC has been tracking DCPP progress on SWS since 2012 and periodically inspects areas of the plant with potential SWS concerns. In the May 2019 fact-finding meeting, out of a dozen examples inspected, the DCISC FFT found two examples of unsecured furniture: 1) four tall cabinets in the Radiation Control Area exit hallway into the plant, an important personnel pathway into the Auxiliary Building, and 2) tall cabinets in the new Employee Resource Center. In both cases Notifications were initiated by DCPP personnel to enter the problems into the Corrective Action Program for resolution.

The DCISC toured office areas on the fifth and sixth floors of the Administration Building. The DCISC Team found that most tall cabinets had been properly braced or were not a hazard due to their location. However, the Fact-finding Team also found a significant number of tall cabinets that were not properly braced and could fall over and injure employees nearby during a seismic event. Two specific deficiencies identified included unrestrained hutches recently installed in guest offices and a large open bookcase located in a copier room. Later during the May Fact-finding Meeting, the Fact-finding Team toured the Instrumentation and Controls (I&C) Shop located in an administrative area of the power block. The DCISC found additional examples of tall cabinets that were not restrained and could possibly fall over and injure personnel or block access pathways during a
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seismic event. DCPP agreed that the areas identified in the Administration Building did not appear to be properly braced in accordance with DCPP Standards.

Accordingly, a Notification titled, "Office Seismic Bracing Gaps," SAPN Number 50978378 was initiated and entered into the DCPP Corrective Action Program.

The DCISC visited DCPP to review corrective actions for the above Administrative Building discrepancies. All items had been corrected. DCPP reported that the discrepancies were caused by inadequate knowledge transfer during Building Services personnel turnover, although DCPP had a written standard for bracing of furniture. The appropriate personnel have been trained in the standard and are now in compliance.

**Discrepancies in workplace seismic standards (e.g., unbraced furniture) were caused by inadequate knowledge transfer during Building Services personnel turnovers, although the plant had a written standard. The DCISC should follow up on this item in early 2019.**

![DCISC Member Peterson and Consultant Wardell testing seismic bracing of RCA cabinet.](image)

DCPP has implemented its Seismic Workplace Safety Program with partial effectiveness over the past several years; however, DCISC Fact-finding Teams have found isolated instances of unsecured tall furniture, which constituted seismic personnel hazards. These examples were identified and corrected by DCPP.
Seismic Qualification of Switchgear Room Walls (Volume II, Exhibit D.4, Section 3.8)

One of the insights from the Seismic PRA presented at the June Public Meeting (Section 4.8.2) to the DCISC was the identification of structures and components with the highest relative contributions to risk from their seismic failure. In the Seismic PRA, component and structural importance was measured by comparing the relative contribution to risk from different component/structural seismic failure scenarios. Among several components listed as the most important to seismic risk, the non-load-bearing masonry walls in the EDG rooms, 4kV Switchgear rooms, and DC Bus rooms were found to have high contributions to risk because their failure in an earthquake could cause a loss of vital power.

The overall risk from earthquakes as analyzed in the recent Seismic PRA is as follows. The mean-value numerical result for seismic CDF (Core Damage Frequency) is $2.8 \times 10^{-5}$ per year. For seismic LERF (Large Early Release Frequency), the mean value is $5.4 \times 10^{-6}$ per year. These numbers are small, and the NRC has generally judged CDF and LERF numbers in this range to be acceptable. The statement that the non-load-bearing walls are relatively high contributors to the seismic risk needs to be understood in the context that these are significant fractional contributions to an overall small seismic risk.

The non-load-bearing walls referred to in the Seismic PRA are the same types of walls that were the subject of additional analysis during the late stages of DCPP’s initial licensing in the 1980s. When the Hosgri fault was identified at that time as a potential additional source of seismic activity, additional seismic analysis found that non-load-bearing masonry walls in various plant locations could fail during a design-basis Hosgri-fault seismic event. To address this finding and reduce the likelihood of the failure of the walls, additional bracing was engineered and installed on numerous non-load-bearing masonry walls throughout various areas of the plant.

The DCISC toured various safety-related Electrical Switchgear Rooms in the Turbine Building for Unit 1 and observed the configuration and condition of the non-load-bearing masonry walls. The walls and their bracing were found to be well maintained and in good condition as shown in the pictures below.
Bracing for Emergency Switchgear Room Walls (view from outside a room)
Bracing for Emergency Switchgear Room Walls (view from inside a room)

**Non-load-bearing masonry walls in the Turbine Building were found to be well maintained and in good condition.**

**Long Term Seismic Program Update (Volume II, Exhibit D.7, Section 3.4)**

The LTSP program covers four different technical areas, which were discussed individually during this FF meeting, and will be discussed separately here. For each area, the current status and the planned future work were discussed.

**Understanding the seismic hazard:** This program has been ongoing for decades, and consists of seismic instruments deployed in the vicinity of the site by PG&E; seismic instruments maintained by other entities (Federal and State) at larger distances from the site; and an intensive analytical effort to assemble the latest seismological information and improve the understanding of its implications for the site. Today the understanding of the seismic hazard is captured in a "Probabilistic Seismic Hazard Analysis" (PSHA) that was performed using methods endorsed by the NRC staff. The latest comprehensive report on this aspect of the LTSP was part of the PG&E submittal to the NRC in 2015 in response to the Fukushima accident. It was thoroughly reviewed by the NRC and by the DCISC, and the conclusions of these reviews were highly favorable in terms of the quality of the work.

The DCISC learned that PG&E has committed to continue this seismic-hazard program until the end of the NRC license, including both maintaining the instruments and continuing with the analytical effort to understand the seismic sources and the potential ground motions at the site.

The DCISC continues to find this very extensive program to be of excellent quality.

**Understanding ground motion propagation from each earthquake source to the site, and earthquake energy propagation into the structures:** In this area, PG&E's most recent analysis, submitted to the NRC in 2015 and reviewed favorably by them, is very advanced, and goes well beyond what is required by the NRC's license. DCPP reported that this advanced work, which also follows PSHA guidelines endorsed by the NRC, will continue over the next several years, using even more advanced techniques to understand and model ground motion propagation and in-structure propagation of seismic energy.

The DCISC continues to find this very extensive program to be of excellent quality.

**Understanding the capacity of DCPP's structures and equipment to withstand large earthquakes:** PG&E recently (2018) updated their analysis of the seismic fragility of every safety-important structure and equipment item, as part of their recent seismic PRA (Probabilistic Risk Assessment), which they submitted to the NRC and which the NRC recently reviewed and found technically adequate. R.J. Budnitz of the DCISC also reviewed it and came to the same conclusion.
DCPP reported that this aspect of the LTSP will, going forward, consist of being attentive to any changes in the configuration that might require a re-evaluation of a specific component or structure - for example, if a component were to be replaced with a different one. In such a case, they told the DCISC that PG&E will perform a new modern seismic-fragility evaluation for beyond-design-basis performance, to assure that there is no degradation in overall seismic risk. They reported that this new evaluation, if it were to occur, will analyze performance well beyond the NRC's licensing-basis requirements.

For some very robust components, the analysis going forward might consist of a conservative rather than a realistic assessment, if such a conservative analysis shows very substantial margins.

This overall approach seems to be fully satisfactory to the DCISC.

Understanding how the DCPP power plant as a whole -- the two units and everything else -- responds in large earthquakes, and understanding the potential accident sequences and overall seismic risk: This area was studied through the seismic PRA, which was submitted to the NRC in 2018 and reviewed favorably by them. Dr. Budnitz of the DCISC reviewed this analysis also. The FF Team believes that this analysis is of excellent quality. An outside peer review of it by acknowledged experts has come to the same conclusion. The PG&E staff has committed to keeping this analysis up-to-date over the duration of the plant's operating period, by assuring that configuration changes are captured through modifications to the analysis.

PG&E has carried out a "Long Term Seismic Program" for over 30 years to satisfy an NRC license condition. This program consists of several different aspects (understanding of the seismic hazard, of seismic ground motion and in-structure energy propagation, of the seismic fragility of components and structures, and of seismic plant-response), all aimed at assuring that the power plant can withstand very large earthquakes without a safety compromise. The DCISC concludes that this very extensive program is of excellent quality, and that the plans for further studies going forward are sensible and thorough.

Seismic Risk Analysis (Volume II, Exhibit B.6)

The write-up on Seismic Risk Analysis is presented in Section 4.8.2.

4.20.3 Conclusions and Recommendations

Conclusions:

PG&E's seismic programs and analyses are of the highest quality in the nuclear industry and are considered to be excellent by the DCISC.

Recommendations:
None
4.21 Fire Protection

4.21.1 Overview and Previous Activities

Fire protection requirements are contained in NRC's regulations in 10 CFR 50.48 and 10 CFR 50 Appendix R. These regulations specify the minimum requirements for safe shutdown systems and equipment, fire hazards analysis, prevention, detection and mitigation, fire brigades and training, emergency lighting, fire barrier and penetration qualifications, and fire doors. PG&E has committed to implementing these requirements, utilizing interpretations and deviations approved by NRC. NRC regulations were later modified to allow licensees to substitute a probabilistic-risk based program under National Fire Protection Association standard NFPA-805 for the requirements of Appendix R, and DCPP modified its program to align with NFPA-805. The NRC periodically performs inspections of the DCPP fire protection program implementation.

The DCISC reviewed the following aspects of DCPP fire protection at three Fact-finding Meetings and one Public Meeting in the previous reporting period:

- Fire Doors
- NFPA-805 Program

The DCISC concluded in the previous period that DCPP had satisfactorily completed its implementation of NFPA-805, with the NRC-approved exception of one remaining Unit 2 modification (incipient fire detection) to be completed in the next outage. DCPP was working to implement the self-approval process for Unit 1 and planned to complete that work by November 2017. The DCPP should next review this issue in late 2018 following implementation of the Unit 2 self-approval process, which was planned for June 2018.

4.21.2 Current Period Activities

During the current period, the DCISC reviewed Fire Protection at two Fact-finding Meetings. The following topics were reviewed:

- National Fire Protection Association 805 Program
- NRC Triennial Fire Protection Inspection Results
National Fire Protection Association 805 Program (Volume II, Exhibit D.2, Section 3.4)

DCPP completed transitioning Fire Protection Program management, implementing procedures, and training required to comply with the NFPA-805 based license amendment. DCPP successfully completed installing all of the required physical modifications for NFPA-805 for both units. The last modifications were completed during Refueling Outage 2R20 in the spring of 2018. The last major programmatic implementation, the completion of all remaining evaluations and the implementation of the self-approval process for Unit 2, was completed prior to the due date of June 2018.

From this point forward, DCPP may use the self-approval process to review fire protection changes or impairments and determine if they are acceptable without NRC approval. The self-approval process involves using the Fire Probabilistic Risk Assessment (PRA) model to calculate a change in Core Damage Frequency (CDF) caused by the change or impairment. If the change in CDF is minimal, the fire protection impairment or change would be acceptable. The use of this process would be documented in a Fire Protection Change Evaluation.

Several final program final closeout tasks were in progress. An "NFPA-805 Documents Matrix" was being prepared to provide a ready reference to all of the program implementation calculations and records, which number approximately 900 documents. Later in 2018, the Fire PRA, which had already been successfully peer reviewed, would be updated and submitted to the NRC for its review and approval. Lastly, the site was preparing for the NRC to perform its triennial Fire Protection Inspection in October, using an inspection procedure specifically modified for plants managing their Fire Protection Programs using the NFPA-805 approach. The engineers also noted that the station indicator for the overall health of the Fire Protection Program was Green (Healthy) and had been so for the last three months.

DCPP has satisfactorily completed its implementation of NFPA-805, having completed all required physical modifications and implemented all programmatic processes. The DCPP performance indicator for the Fire Protection Program was Green (Healthy).

NRC Triennial Fire Protection Inspection Results (Volume II, Exhibit D.6, Section 3.3)

The NRC Triennial Fire Protection was an extensive inspection at DCPP, performed by five inspectors over a period of three weeks (two on site and one off site). This was the first NRC inspection performed since DCPP completed its implementation of the NFPA-805 Program at DCPP. The Inspection Team requested and reviewed a large number of documents (approximately 100) in advance of the inspection and additional documents (approximately 100) while on site during the inspection. The Inspection Team focused its most detailed
inspection efforts on six Fire Areas selected by the Inspection Team with input from the NRC Resident Inspectors:

1. Unit 1 Cable Spreading Room (Fire Area 7-A)
2. Unit 2 Solid State Protection Room (Fire Area 8-H)
3. Unit 1 12kV Switchgear Room (Fire Area 10)
4. Unit 2 4kV Switchgear Room, F Bus (Fire Area TB-10)
5. Unit 2 4kV Switchgear Room, G Bus (Fire Area TB-11)
6. Unit 2 4kV Switchgear Room, H Bus (Fire Area TB-12)

In the above areas, the Inspection Team reviewed all surveillances, fire hazard analyses, and Fire Protection Engineering Evaluations applicable to the area, and also performed detailed walkdowns in the areas. The Inspection Team was generally satisfied with the documentation and the condition of the areas in the plant. There were two minor violations identified by the Inspection Team regarding its identification of minor errors performed in the preparation of two fire-protection related Design Change Packages.

Updating of the Fire PRA was completed, and the resultant risk numbers were confirmed to fall within the acceptance criteria provided by NRC Regulatory Guide 1.174 following the completion of all plant modifications. As such, the updated Fire PRA did not need to be resubmitted to the NRC for its review and approval.

*The NRC Triennial Fire Protection Inspection was extensive and found no significant issues. The updated Fire PRA confirmed that the risks from fire continue to fall within the NRC's acceptance criteria. This was further confirmation of an effective implementation of the NFPA-805 Program at DCPP.*

### 4.21.3 Conclusions and Recommendations

**Conclusions:**

DCPP satisfactorily completed its implementation of NFPA-805, having completed all required physical modifications and implemented all programmatic processes. The NRC Triennial Fire Protection Inspection was extensive and found no significant issues. The updated Fire PRA confirmed that the risks from fire continue to fall within the NRC's acceptance criteria. This was further confirmation of an effective implementation of the NFPA-805 Program at DCPP.

**Recommendations:**

None
4.22 Learning and Development Programs

4.22.1 Overview and Previous Activities

The focus of this section is training performed in formal environments created to transfer specific knowledge and skills to individuals within the organization for their individual development.

The DCISC reviewed the following Learning and Development Programs topic at one Fact-finding Meeting during the previous reporting period:

- Observe FLEX Training for Licensed Operators

The DCISC concluded in the previous reporting period that DCPP FLEX training, training materials, and instruction for Licensed Operators were satisfactory.

4.22.2 Current Period Activities

During the current period, the DCISC reviewed Learning and Development Programs at two Fact-finding Meetings. The following topics were reviewed:

- Observe Licensed Operator Training
- Learning Services Department Performance

Observe Licensed Operator Continuing Training (Volume II, Exhibit D.2, Section 3.2)

Licensed Operators at DCPP are assigned to five rotating shift crews, and those crews rotate through a work week dedicated solely to the Licensed Operator Continuing Training (LOCT) program every five to six weeks. This LOCT week consists of classroom instruction, simulator exercises, dynamic learning activities, self-study, and testing. Overall, each crew spends approximately 10-12 weeks per year (depending on outage schedules) in formal training. The LOCT program is designed to conform to requirements of the Institute for Nuclear Power Operations (INPO), and it receives and maintains plant training program accreditation through regular INPO reviews.
The DCISC observed Operations Shift E in the classroom for its lesson number R181C5 on the topic of, "New Emergency Action Level (EAL) Scheme." The purpose of the lesson was to instruct Operators about recent changes to the EAL Scheme, which provides formal guidelines for declaring one of four action levels (Unusual Event, Alert, Site Area Emergency, or General Emergency) during an emergency event at the site. The new EAL Guidelines were based on changes contained in Revision 6 to the applicable industry guidance document, Nuclear Energy Institute (NEI) 99-01. The changes to the EAL Guidelines were incorporated by DCPP into its Emergency Plan, submitted to the NRC for approval, and planned for implementation on August 27, 2018. Shift E was the last shift to receive training on the changes prior to implementation.

The lesson plan contained objectives to enable students to:

- Describe key attributes of the Technical Basis Manual (TBM)
- Describe the format and layout of the new EAL wall charts
- Describe the significant changes within the new EAL wall charts
- Given indications of an event, classify the event with 100% accuracy within 15 minutes

The instructor walked students through the new EAL wall chart, a summary document that presented all of the EAL Guidelines in a tabular flow chart format to allow quick and accurate classification of an event in an emergency. Where appropriate, the instructor pointed out links on the wall chart to the TBM and instructed students on how to use the TBM to obtain more detailed background information when necessary. Also, the instructor pointed out significant changes from previous versions and emphasized to Operators the need to read the chart very carefully and not rely on old knowledge gained from using the previous versions. The use of human performance tools and conservative decision making was emphasized as appropriate during the presentations. The instructor's presentation was professional, followed the lesson plan without becoming rote, provided numerous questions to stimulate student interaction, and delivered the needed information within the time allotted. It was clear that significant time and energy had been involved in preparing the lesson plan and its presentation in order to maximize the value of the information presented to the Operators.

Following the classroom presentation, the team attended an informal group lunch meeting with other members of Shift E to have discussions on selected items of mutual interest such as the impact on career planning and development from the evolving joint proposal; the current staffing needs; and suggestions to enhance reactor operation and safety. Shift members present included managers, Licensed Operators, and Non-licensed Operators. All personnel appeared generally satisfied with their work and stated that they had no significant safety concerns. The shift members did express concern regarding the possibility of difficulties that may be encountered in the future in retaining a sufficient number of Operations staff during the last few years leading up to the cessation of operations in 2025.
A Licensed Operator Continuing Training session on Emergency Action Level revisions was well prepared, contained appropriate information and objectives, and was professionally presented by the Training staff.

Learning Services Department Performance (Volume II, Exhibit D.2, Section 3.3)

The 2018 Learning Services Excellence Plan covered many areas of training performance with multiple action steps and estimated completion dates. A significant area that was currently focused upon by the plan was the continuance of Operations training excellence during a period of leadership changes, implementation of specific changes required by external organizations, and increased initial license class activity. In these areas, excellence was planned to be maintained through an increased level of training oversight by managers, increasing the frequency of training oversight committee meetings, monitoring closely the progress of training-related corrective action plan items, and leveraging self-assessment and other performance improvement tools. Another focus area was the continued development of Expert Instructors. While initial qualification and experience to become an instructor typically takes about one year, additional formal training and mentoring continues afterward in order to bring the instructors to a higher level of effectiveness. This process was referred to as the Expert Instructor program. This is a positive initiative.

One driver for the plan's focus on maintaining excellence was the rate of instructor turnover. Currently in the Department, approximately 40% of the instructors have less than two years of experience in training. Fortunately, this was offset by the fact that supervisors in the department had lower turnover rates and continued to be significantly more experienced. The turnover was due in part to losses from expected retirements, but also due to the decision to cease plant operations in 2025. Although turnover at this time was high, it was not unusual for some to occur as the Department has historically trained about 17 people per year to become full-time instructors. The Learning Services Department was working with the station Senior Leadership Team to plan and implement a strategy for workforce management and a reduction of staff as the date of cessation of operations grows closer.

One consideration for workforce management was the fact that the Department would need to maintain staff at a high number in the near term in order to conduct a large class for up to 24 new Licensed Operators in 2019. Efforts to fill that class were currently in progress, and it was anticipated that it may be difficult to fill all 24 planned slots in the class. At this point in time, it was not known if the 2019 class would be the last class for new Licensed Operators or if another class would be needed prior to cessation of operations.

Regarding assessments by outside organizations, Quality Assurance assessments were generally positive about content delivery in the Department but also found areas for improvement in completing administrative tasks. Corrective actions had
been completed in response to a significant issue that occurred in 2017 concerning a high rate of Licensed Operator audit exam (an internal examination conducted prior to the NRC examination) failures. The overall station indicator for the health of the Learning Services Department had recently moved from White (Needs Improvement) to Green (Healthy) due primarily to the clearing of long-standing simulator deficiencies that was achieved during recent software and hardware upgrades that significantly improved simulator fidelity.

The Learning Services Department overall performance was good. The Department was appropriately focused on maintaining excellence in its training services during a period of significant changes and challenges.

4.22.3 Conclusions and Recommendations

Conclusions:

A Licensed Operator Continuing Training session on Emergency Action Level revisions was well prepared, contained appropriate information and objectives, and was professionally presented by the Training staff. The Learning Services Department overall performance was good. The Department was appropriately focused on maintaining excellence in its training services during a period of significant changes and challenges.

Recommendations:

None
4.23 Beyond Design Basis Events

4.23.1 Overview and Previous Activities

The purpose of the section is to describe the DCISC's review of "Beyond design basis events," such as occurred at the Japanese Fukushima Daiichi nuclear plant in March 2011. The DCISC reviewed the following topics during the previous reporting period:

1. Use of FLEX Equipment to Reduce Plant Risk
2. Overview of FLEX Training

DCPP has successfully implemented its FLEX program of portable equipment and quick-connect connections to mitigate Fukushima-like events, which result in loss of AC power and cooling water. The plant is using FLEX in one application during refueling outages to reduce plant safety risk and is considering other similar applications. The DCISC will review new applications for FLEX equipment when they are identified. FLEX training appeared satisfactory.

4.23.2 Current Period Activities

During the current period, the DCISC reviewed the following:

1. FLEX Equipment Safety-Related Designation

FLEX Equipment Safety-Related Designation (Volume II, Exhibit D.7, Section 3.3)

During the September 2018 CARB meeting, the following question arose: Is FLEX equipment considered "Safety-related and subject to 10CFR50 Appendix B quality requirements?" This issue arose from a Quality Verification (QV) assessment of the Geosciences Group analyzing the seismic functionality of FLEX equipment. Considerable discussion ensued. An action item was generated for the Performance Improvement Group Head to work out the issue with QV and Geosciences and report back to CARB. One reason for this March 2019 Fact-finding Meeting was to follow up on this FLEX item.
FLEX equipment is comprised of those (mostly portable) components purchased following the Fukushima accident to mitigate various beyond design basis events such as occurred at Fukushima. These events include loss of all station power, loss of the ultimate heat sink, natural events such as earthquakes, tsunamis, and rainfall, and fires or explosions, which would render installed equipment ineffective. FLEX equipment includes portable diesel-driven pumps and electric generators and associated piping, controls and instrumentation.

DCPP reported that its FLEX equipment is not considered safety-related because it is designed not to the plant design basis, but to commercial grade quality requirements, which means the FLEX equipment is not subject to Federal Regulations contained in 10CFR50, the Nuclear Regulatory Commission's safety-related regulations. DCPP does not take credit FLEX equipment in its safety analyses.

4.23.3 Conclusions and Recommendations

Conclusions:

DCPP considers its FLEX equipment to not be safety-related because it is designed and used for Fukushima-type beyond-design-basis events rather than design basis events as described in 10CFR50, the Nuclear Regulatory Commission's safety-related regulations. This appeared acceptable to the DCISC.

Recommendations:

None
4.24 Joint Proposal and Decommissioning

4.24.1 Overview and Previous Activities

On June 21, 2016, PG&E announced a Joint Proposal with Friends of the Earth, the Natural Resources Defense Council, Environment California, the International Brotherhood of Electrical Works Local 1245, Coalition of California Utility Employees, and the Alliance for Nuclear Responsibility to retire DCPP at the expiration of the current operating licenses. On August 11, 2016, PG&E filed an Application with the California Public Utilities Commission (CPUC) for approval of the retirement of DCPP, implementation of the Joint Proposal, and for recovery of associated costs through proposed ratemaking. Under the Joint Proposal, PG&E would continue to operate DCPP at current levels through the current license periods. The application was approved by the CPUC on January 11, 2018, affirming the plan that PG&E would retire Unit 1 in 2024 and Unit 2 in 2025.

In the previous period, the DCISC reviewed the following topics related to the Joint Proposal and Decommissioning Program at four Fact-finding Meetings and three Public Meetings:

- Decommissioning Process and Initial Planning
- Joint Proposal and Employee Retention Programs
- Capital Project Planning

The DCISC concluded in the previous reporting period that DCPP's plan for decommissioning continued to be developed. Current activities included establishing the DCPP Decommissioning Engagement Panel, preparing a detailed cost estimate, and obtaining the necessary funds for decommissioning to a green field site. DCPP appeared to be appropriately managing Employee Retention Programs, taking into account the requirements of the Joint Proposal as modified by the CPUC. The review process and selection of capital projects to be cancelled with regard to the Joint Proposal 2025 plant shutdown were comprehensive and appeared to be satisfactory in maintaining plant safety and reliability.

4.24.2 Current Period Activities
During the current period, the DCISC reviewed the Joint Proposal and Decommissioning Program at two Fact-finding Meetings and two Public Meetings. The following topics were reviewed:

- Decommissioning Planning
- Proposed Changes to Decommissioning Regulations
- San Onofre Nuclear Generating Station Decommissioning Experience
- Decommissioning Waste Disposal
- Role for the DCISC After Expiration of Operating Licenses

**Decommissioning Planning (Volume II, Exhibit B.3; and Exhibit D.4, Section 3.9)**

The following is a summary of DCPP's presentation on this topic at DCISC's October 2018 Public Meeting: California Senate Bill 1090 was approved by Governor Brown on September 19, 2018 and this legislation directed the CPUC to revise its decision, which approved retirement of DCPP, to increase funding to the full amount proposed by PG&E for the Employee Retention Program and to reinstate the Community Impacts Mitigation Program. DCPP experienced a turnover rate of approximately 100 employees, out of 1,500 total DCPP employees, each year and 94% of the current eligible workforce were now enrolled in the first tranche of the Employee Retention Program. Employees over the age of 60, who are closest to retirement constitute some of the DCPP workforce who have opted not to participate in the Employee Retention Program. DCPP employees fall into two main groups, those younger than 40 and those older than 50 with a "gap" between the ages of 43 to 51. The 94% participation rate was higher than other employee retention programs benchmarked by DCPP which averaged participation rates around 85%. Following passage of SB 1090, which increased the retention incentive from 15% to 25% of employee compensation, employees were allowed to re-enroll in the program, and those previously enrolled were automatically continued at the higher rate. Tranche one would continue now with the enrolled population until 2021. Tranche two and enrollment therein will be made available to DCPP's workforce in July of 2019. CPUC funding for retraining would not be released until 2021, but PG&E will use existing programs to assist its employees in developing skills necessary to secure continued employment.

The Joint Proposal provided for emergency planning to continue at current levels until such time as the Plant's 10 CFR Part 50 License from the NRC was retired. California Assembly Bill 361 provided for PG&E and other agencies which support nuclear-related emergency planning activities for operating nuclear facilities to be reimbursed. The Joint Proposal, CPUC Decision 18-01-022, and SB 1090 provided for PG&E to seek continued funding in the Nuclear Decommission Cost Triennial Proceedings (NDCTP) filings with the CPUC for local governments' emergency planning purposes after the plant ceases generation activities. The NRC's regulatory framework for emergency planning is risk-informed and so will change
as the hazards change, including no longer having 'site area emergency' or 'general emergency' designations, but DCPP expects a higher level of funding support than usual will be available for the San Luis Obispo County emergency response capabilities.

The Nuclear Decommissioning Cost Triennial Proceeding (NDCTP) established estimates for funding requirements to undertake decommissioning of the facility, and PG&E believed that it was underfunded with funding at $2.7 billion. The San Onofre Nuclear Generating Station (SONGS) Decommissioning Trust was funded to approximately $4.4 billion. For its 2018 NDCTP filing, PG&E would will be providing a site-specific estimate as previous filings used a generic study. The generic study used by the industry which was only for radiological remediation and did not include all the activities required by the State of California and the County of San Luis Obispo. Decommissioning DCPP would in some ways be more challenging than decommissioning SONGS as site access is more limited and a significant portion of decommissioning costs were driven by the distance from the facility to a waste repository. The $2.7 billion on hand was adequate to cover the scope of radiological decommissioning, but it was the other, no-radiological costs which would need to be assessed in the 2018 and future NDCTPs.

PG&E’s preferred approach to decommissioning DCPP was for the plant to proceed directly into active decommissioning rather than enter the period known as 'SAFSTOR.' PG&E was using a "bottom up" approach to reach an estimate of the cost of decommissioning and had launched the Decommissioning Engagement Panel to provide a broad public outreach program to ensure input was received from the local community and was also seeking input from the regulator. The next NDCTP filing was due to be submitted to the CPUC in December 2018 with subsequent filings due in 2021, which would be an update, and in 2024, which would be a true-up estimate. The direction from the CPUC required a public stakeholder process before disposition may be made of the DCPP facilities or land and it was contemplated there will be some repurposing of assets and disposition of land, which includes at present 14 miles of coastline and 12,000 acres.

The acceleration of the removal of spent fuel from the spent fuel pools over a seven-year period was the direction provided by the CPUC. Some facilities have achieved accelerated movement of spent fuel in as short as three years but to change the timeline dictated in DCPP’s current technical specifications would require a license amendment. DCPP spent fuel casks are not the same as those used at SONGS and have a different heat capacity. Without the required license amendment from the NRC, the timeline for the movement of spent fuel would not change.

**DCPP's plan for decommissioning continued to be developed.** Activities were focused on preparing and filing an updated Nuclear Decommissioning Cost Triennial Proceeding by the end of 2018, with a detailed site-specific cost estimate, as well as on obtaining the necessary funds that are needed in part to cover the cost of the complex permitting...
activities that are required before decommissioning can begin.

Proposed Changes to Decommissioning Regulations (Volume II, Exhibit B.3)

The following is a summary of the NRC's presentation on this topic at DCISC's October 2018 Public Meeting: The NRC is an independent federal agency established to license and regulate the civilian use of radioactive materials in the U.S. and to ensure adequate protection of public health and safety. To carry out this responsibility the NRC has strict rules governing decommissioning of a nuclear power plant involving cleanup of radioactively contaminated plant systems and structures and the removal of spent fuel. The NRC regulates cleanup of radiological hazards and the cleanup of non-radiological hazardous materials is regulated by the Environmental Protection Agency (EPA). Site restoration and reutilization is the responsibility of the property owner and the state.

The decommissioning process for a nuclear power plant begins with formal written notification to the NRC by the licensee that nuclear operations have permanently ceased and that the fuel has been removed from the reactor vessel. Within two years after notification of permanent shutdown, the licensee is required to submit its Post Shutdown Decommissioning Activity Report (PSDAR) which must contain a description and schedule for the planned decommissioning, an estimate of the expected cost of decommissioning, and an evaluation of the potential environmental impacts of decommissioning. No significant decommissioning-related activities may take place until 90 days after the NRC receives and confirms the adequacy of this information. A public meeting is held in the vicinity of the power plant to receive public comment on the PSDAR.

There are two primary approaches to accomplishing decommissioning. The first method entails the immediate dismantlement and the second entails deferred dismantlement, or safe-store (SAFSTOR). The licensee is permitted to adopt either method at various periods, i.e., to go back and forth from dismantling facilities to SAFSTOR. The NRC requires decommissioning be completed within 60 years of the cessation of plant operations. NRC oversight continues throughout all phases of the decommissioning process to determine and ascertain that decommissioning activities are conducted safely, spent fuel is being stored safely and activities at the site are conducted in accordance with applicable regulations and commitments and the administrative controls put in place by the licensee are adequate and comply with regulatory requirements. Those controls include self-assessments, audits to identify any declining trends, corrective actions, design controls, safety reviews, maintenance, surveillance, radiation protection and effluent control. At least one NRC resident inspector remains onsite during initial decommissioning phases, until the complexity and risk are suitably reduced and then NRC oversight shifts to specialized inspectors assigned from the NRC regional offices or from NRC headquarters.

The public has several opportunities to participate in the decommissioning process including after submission of the PSDAR, following the NRC's receipt of the
termination plan and prior to the issuance of any license amendments, NRC meetings with its licensees are open to the public except when a discussion involves proprietary information, safeguards or classified materials.

Before commencing nuclear operations, the licensee must establish a financial mechanism such as a trust or guarantee to ensure sufficient funds will be available to pay for decommissioning, and when the plant is operating must report to the NRC every two years on the status of this funding for each reactor. This report must estimate the minimum amount required for decommissioning using formulas developed by the NRC. Many factors can affect the cost of decommissioning and those costs, that is, the cost for radiological decommissioning only, have ranged from $280 million to $612 million. The latest decommissioning funding status report to the NRC for DCPP submitted by PG&E in 2016 show that DCPP Unit-1 had $1.2 billion and Unit-2 $1.5 billion for decommissioning costs. Mr. Watson reported that it is the individual states’ public utilities commissions that regulate collection of decommissioning funds.

San Onofre Nuclear Generating Station Decommissioning Experience (Volume II, Exhibit B.3)

The following is a summary of a presentation by Dr. David Victor, from the SONGS Community Engagement Panel (CEP) on this topic at DCISC’s October 2018 Public Meeting: While DCPP and SONGS are on different time schedules with reference to decommissioning, the plant operators are communicating with each other as are the activist communities. Dr. Victor stated that in these remarks he was offering his personal views and observations and was not speaking on behalf of the SONGS CEP. SONGS is sited on land owned by the U.S. Navy which is a very different situation than at DCPP as far as issues relating to site restoration. He remarked SONGS is located in the midst of a densely populated and very high income area and there is a huge amount of political attention and community engagement focused on what is taking place with that plant, both when SONGS was operational and in its decommissioning. He remarked that the same level of intensity may or may not be present concerning decommissioning DCPP.

The SONGS CEP was formed in 2014 and consists of 18 all-volunteer members who are elected or appointed public officials, represented non-governmental organizations, business, environmental and the Native American communities. The members of SONGS CEP were selected by the Southern California Edison Company, the operator of SONGS, in consultation with a number of other stakeholders. SONGS CEP held quarterly meetings and conducted workshops on technical topics as they arise. Typically, each quarterly meeting includes one or two presentations by subject matter experts. The SONGS CEP was not a decision-making body and had no official governmental oversight function.

To date, the SONGS CEP had not hired technical consultants as most of its review is strategic in nature. The SONGS CEP was in the process of identifying beyond design basis events that could affect an ISFSI-only site, such as might result from
a terrorist attack, and was collecting scientific information and identifying potential remediation for such events. Previously, the panel organized a series of workshops when Edison was in the process of making a decision concerning spent fuel canisters. The SONGS CEP had written to and received visits from representatives of the California Energy Commission on the issue of consolidated storage of nuclear waste, including spent fuel, proposed to be located in New Mexico and Texas. By accelerating changes in federal law, the date by which fuel can be removed from nuclear facilities could be advanced and this was an issue shared by SONGS and DCPP.

Going directly to SAFSTOR was never an option for Edison, and to a significant extent the local communities were unaware of the fact that spent fuel will remain onsite after the other plant facilities are removed. This concern on behalf of the public was not one that was amenable to risk - benefit calculation because technically trained experts categorize the risk at that point from the ISFSI to be essentially at zero but the public at large does not necessarily share this assessment. One meeting of the SONGS CEP each year has been devoted to the issue of management and stewardship of the ISFSI and its defense-in-depth aging management programs.

Concerns about the preparedness of first responders has been a concern based on the fact that from a risk point of view the footprint of the site in decommissioning does not shrink as quickly as the risk. The SONGS CEP is reviewing what defense in depth concepts look like in context of an ISFSI-only site as far as monitoring and inspecting the spent fuel storage canisters, assessing the potential for stress corrosion cracking and dealing with potential worst-case scenarios. Concerning aging management of spent fuel canisters and the ISFSI, there was a high comfort level within the industry which the public does not share. He observed that many of the technologies needed, for instance, to do robotic inspections of the canisters do not exist now but persons inside the industry are confident they can be developed but for persons outside the nuclear industry, their impression was simply that the technologies and tools do not exist.

**Decommissioning Waste Disposal (Volume II, Exhibit D.5, Section 3.11)**

There would be a number of types of decommissioning wastes from DCPP, some radioactive. Clean general debris that is not suitable for reuse or recycling (e.g., drywall, ceiling tile, and wood) would be shipped to a landfill in Arizona via rail. DCPP estimated approximately 108,000 tons of clean, non-reusable waste would be shipped offsite versus approximately 500,000 tons of reusable/recyclable material. In addition, there were over 686,000 tons of breakwater material, which would likely stay in place for reuse.

Regarding radioactive waste, California Governor Executive Order D-62-02 effectively prohibited radioactive waste from being disposed in the State. Spent fuel will have to remain in the ISFSI until the U.S. Department of Energy (DOE) has a disposal repository or consolidated interim storage ready. Once that
happens, DCPP would transfer its Holtec MPC canisters into Holtec HI-STAR transport casks for DOE to likely transport by heavy haul trucks to rail lines near Pismo Beach and then to the repository.

Other radioactive wastes would be sent to other disposal facilities, depending on their levels of radioactivity. For example, high-level (Class C) radioactive waste such as the Reactor Vessels and Steam Generators would be segmented (cut into pieces), likely trucked to Pismo Beach to a rail line, and then shipped via a dedicated train to a repository in Clive, Utah. Less radioactive wastes (Class B) would be trucked to a repository in Texas. Additionally, Holtec planned to have a facility in Utah for various classes of wastes.

DCPP has identified disposal facilities for all anticipated decommissioning wastes. It is estimated that wastes will be transported away beginning in 2038 and concluding in 2068. By the end of 2018, DCPP will file with the California Public Utilities Commission a decommissioning plan outlining their plan, cost, and schedule.

**DCPP's plans to dispose of all decommissioning wastes, radioactive and otherwise, appeared satisfactory.**

**Role for the DCISC After Expiration of Operating Licenses (Volume II, Exhibit B.3, and Exhibit B.9)**

The following is a summary of DCISC discussions on this topic at its October 2018 and June 2019 Public Meetings: The DCISC Charter and its subsequent Restated Charter were granted by the CPUC. The restatement of the Charter did not change the mandate conferred upon the DCISC to review and report on operational safety of the plant. However, the Restated Charter was ambiguous as to whether the Committee was to continue to fulfill that mandate after the plant ceases generating electricity. The Committee reviewed resolution of that question which ultimately was decision for the CPUC and the officials and entities that appoint the DCISC's members, the Governor, the California Attorney General and the Chair of the California Energy Commission.

The risk to the public of a radiological release is greater when the plant is operating than it will be when it is shut down. But when the plant ceases to generate electricity, the risk is not zero during the period when (1) fuel remains in the reactor vessel, (2) spent fuel is moved from the vessel to the spent fuel pool, (3) the fuel in the pools cools radioactively and thermally, and (4) all fuel is transferred from the spent fuel pool to the ISFSI. During each of these periods, the radiological and security risks decrease compared to the risk during generation operations, until the risk becomes quite low when all fuel is in dry cask storage at the ISFSI. One possible approach for the DCISC would be to recommend to the CPUC to clarify the Restated Charter to provide that the DCISC should continue in existence, probably at a reduced role, until all of the fuel is in storage at the ISFSI when the radiological risks will have diminished substantially.
In summary, the DCISC agreed to proceed to do additional due diligence in support of drafting a letter to the CPUC concerning a post-shutdown role for the DCISC. The DCISC would identify discrete, informative options or phases concerning post-shutdown review by the DCISC including an initial view of the character of the risk, including the security risk, and the utility of a continuing role for the DCISC during each option or phase. It was also decided that this item should remain as a regular item on the Committee's public meeting agendas for the future.

On March 7, 2019, an Amended Scoping Memo was issued in the 2018 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP), which addressed issues raised by Mothers for Peace concerning reactor vessel embrittlement and issues raised by Mr. Karlin concerning the scope and propriety of the DCISC review of issues relating to decommissioning of DCPP. On March 15, 2019, the DCISC filed a Motion for party status in the NDCTP which, at the time of this public meeting remained pending before the assigned Administrative Law Judge (ALJ). If granted, the venue to determine the status and role of DCISC after the plant ceases to generate electricity was most likely to be in the NDCTP. It was noted that the Diablo Canyon Decommissioning Engagement Panel included a recommendation in its recent Vision Statement that the DCISC stay in operation after cessation of generation operations.

Three alternative versions of a possible Second Restatement of a Charter for the DCISC were developed for review during the June Public Meeting and copies of all three were available for public review in the meeting room. In summary the three alternate versions of a second restatement provided as follows:

- **Version 1** - provides for the DCISC to terminate its safety review upon the date of successful completion of the transfer of all nuclear fuel from both DCPP spent fuel pools to the ISFSI.
- **Version 2** - provides for the DCISC to terminate its safety review upon the date when permanent cessation of power operations has occurred.
- **Version 3** - provides for the DCISC to terminate its safety review upon the latter of eighteen months of the date of permanent cessation of power operations or the date an analysis has been completed that demonstrates that the decay heat produced by the nuclear fuel in both spent fuel pools has diminished such that there are no possible design-basis events that could result in a radiological release exceeding the limits established by the U.S. Environmental Protection Agency early-phase Protective Action Guidelines at the exclusion area boundary.

While DCPP continues to operate and to generate electricity the DCISC has previously considered and concluded that its present mandate under the 2007 Restated Charter from the CPUC provides for the DCISC to continue to review matters that are resulting from or are related to decommissioning activities. Should the DCISC's motion for party status in the NDCTP not be granted, another
avenue is open to the DCISC to seek clarification of the ambiguity in the Restated Charter through filing an Application in a separate proceeding seeking a second restatement of the Restated Charter from the CPUC.

Following extensive discussion of the options, the Committee approved presenting written testimony to the CPUC in the NDCTP, should party status be granted in that proceeding, regarding its recommendation of Version 1 as a proposed Second Restated Charter for the DCISC and directing and delegating to Legal Counsel and the Committee's Technical Consultants development of the necessary supporting materials to be submitted to explain the other alternatives considered by the Committee and the rationale for its recommendation that Version 1 be adopted by the CPUC. The Committee also approved designating Dr. Budnitz to work with the Committee's Legal Counsel and Technical Consultants to develop the Committee's testimony in the NDCTP. Finally, the Committee approved the supervision of the testimony in the NDCTP by Dr. Peterson in accordance with the Committee's procedures and for Dr. Peterson to be designated as the DCISC's witness for the CPUC hearings on the NDCTP during the week of September 23-27, 2019.

4.24.3 Conclusions and Recommendations

Conclusions:

DCPP's plan for decommissioning continued to be developed. Activities were focused on preparing and filing an updated Nuclear Decommissioning Cost Triennial Proceeding by the end of 2018, with a detailed site-specific cost estimate, as well as on obtaining the necessary funds that are needed in part to cover the cost of the complex permitting activities that are required before decommissioning can begin. DCPP's plans to dispose of all decommissioning wastes, radioactive and otherwise, appeared satisfactory. The DCISC agreed to do additional due diligence and continue discussions regarding providing input to the CPUC concerning a post-shutdown role for the DCISC including making a recommendation that its role continue through the successful transfer of all fuel from both Spent Fuel Pools to the Independent Spent Fuel Storage Facility.

Recommendations:

None
Telephone calls, e-mails and other correspondence have been received by the DCISC Legal Counsel's office with questions, concerns, information and requests for information. During this reporting period, 45 calls and 38 e-mails were received from individuals. The breakdown of these calls and e-mails is as follows:

<table>
<thead>
<tr>
<th>Number of Calls</th>
<th>Number of E-mails</th>
<th>Reason for Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>23</td>
<td>DCPP issues or nuclear information requests</td>
</tr>
<tr>
<td>44</td>
<td>15</td>
<td>Other (administrative, document requests, tour requests and miscellaneous)</td>
</tr>
</tbody>
</table>

When requested, answers, responses or documents were provided either during the call, a return call, or by a letter, email or documents from the Committee. The DCISC Telephone/Correspondence Log which provides a memorandum of contacts initiated by members of the public, citizen or public interest groups, the media or similar organizations is included as Exhibit G.1 and correspondence with the public is included with Exhibit G.2.

The Committee maintains a California toll-free telephone number (800-439-4688), an E-mail address (dcsafety@dcisc.org) and a site on the worldwide web at www.dcisc.org for receiving questions, concerns or information to and from the public. The DCISC has developed an information pamphlet and an informational video describing the Committee and its function (see Volume II, Exhibit I). The pamphlet is provided to attendees at DCISC public meetings and plant tours and the informational video is used in connection with the public tours and on the Committee’s website.
The DCISC maintains a frequently updated web page on the worldwide web. Since the DCISC established its web page and presence on the internet in 1999 the Committee’s goal has been to provide a convenient and accessible forum for interested members of the public to learn about the Committee, its history, background and role in safety oversight at DCPP; its current members and consultants; Volumes I and II of the Committee’s latest Annual Report; previous annual reports; the current schedule of future DCISC public meetings and public tours, along with an interactive map to the PG&E Energy Education Center; and the legal notice and agenda for the Committee’s next public meeting, which is posted on the website prior to the meeting. Changing the file names from “html” to “php” has made it possible to quickly make changes to both the site navigation and standard features such as the wording for the public tours and the interactive maps.

The web page also provides visitors with an opportunity to download or print pages from the DCISC web site and offers a convenient email link to permit interested persons to communicate directly with the Committee and to receive an expedited response to questions and concerns. When the Annual Report is finalized, the entire report is published on the website and is also published and distributed to local public libraries and interested persons on compact disk. The website also includes a link to the Committee’s Recommendations made in its Annual Reports to PG&E from the 2000/2001 to the 2013/2014 annual report periods.

The DCISC’s site on the worldwide web has been further developed with the addition of links to the State Water Resources Control Board’s Special Studies Final Report of the Independent Third Party (Bechtel Power Corporation) Final Technologies Assessment for the Alternative Cooling Technologies or Modifications to the Existing Once-Through Cooling System for the Diablo Canyon Power Plant (Bechtel Final Assessment) including the Addendum (Bechtel Addendum), the DCISC’s September 5, 2013 Evaluation of the Bechtel Final Assessment and the DCISC’s October 17, 2014 Preliminary Evaluation of the Bechtel Addendum. The website continues to provide access to videos concerning the replacement of Diablo Canyon’s steam generators and spent fuel storage project in a convenient and accessible forum for interested members of the public.
The Committee continues to post the agendas for all its public meetings on the website, as well as general information about the Committee, its members and consultants. A list of useful links is included to topics of interest to the general public, to PG&E’s website for information concerning Diablo Canyon Power Plant, to the NRC and to the International Atomic Energy Agency for agency and industry-related information and to an indexed webcast of streaming video of its past public meetings through electronic archives and to the public meetings in real time when they are in session.

The website also provides access to a convenient glossary of nuclear power terms and a list of acronyms in common use in the industry. Both Volumes of this Annual Report are available on the website in fully-linked php-text format, as is an animated depiction of the operation of a pressurized water nuclear reactor such as those in operation at Diablo Canyon.

During the DCISC’s October 19–20, 2016 public meeting, the live-streaming video of the meetings was accessed by visitors 36 times. The live streaming video feed of the DCISC’s February 8–9, 2017 public meeting was similarly accessed 26 times. During the DCISC’s public meeting on June 7–8, 2017, visitors accessed the live stream video 26 times. These data represent the total number of times “live visitors” entered the site including those visitors who may have come and gone from the site more than once (i.e. “total page views”).

The most meaningful statistics provided for July 1, 2016 through June 30, 2017 were the actual “visits,” the actual, unique visitor numbers, regardless of how many pages that visitor actually viewed on the DCISC’s website during the period of this report included the following:

<table>
<thead>
<tr>
<th>Month</th>
<th>Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2016</td>
<td>866</td>
</tr>
<tr>
<td>August 2016</td>
<td>874</td>
</tr>
<tr>
<td>September 2016</td>
<td>919</td>
</tr>
<tr>
<td>October 2016</td>
<td>918</td>
</tr>
<tr>
<td>November 2016</td>
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<tr>
<td>December 2016</td>
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<td>1,5439</td>
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<td>May 2017</td>
<td>1,469</td>
</tr>
<tr>
<td>June 2017</td>
<td>2,399</td>
</tr>
</tbody>
</table>

Top ten countries from which visitors accessed the site were: Russian Federation, United States, Great Britain, Germany, Poland, European Union, Ukraine, Romania,
France and Japan.

Among the most common "key phrases" typed into internet search engines, such as LG, MS Internet Explorer, Konqueror, Firefox, Mozilla, and Google Chrome and others were: “content”, “foreign material exclusion procedure”, “California fire prevention institute 24th annual workshop-fire safety exhibit 2014”, “tour report notice”, “diablo canyon vessel internals”, “annual report preface”.

The top ten downloads were:

22nd-pdf.pdf
25th-pdf.pdf
21st-pdf.pdf
24th-pdf.pdf
23rd-pdf.pdf
2014-10-17-final-assessment.pdf
annual-report-21-2010-2011/21st-g01-telephone-log.pdf
2014-10-17-final-assessment.pdf
sewell-presentation.pdf
annual-report-22-2011-2012/22nd-a01-documents-received-pdf.pdf

The most visited pages were:

index.php
annual-report-22-2011-2012/22nd-b09-minutes-2012-06.php
contact.php
public-tour.php
notice.php
agenda.php
about/history.php
about/general-information.php
glossary.php
During this period (July 1, 2016—June 30, 2017), the Diablo Canyon Independent Safety Committee (DCISC) held three public meetings in the vicinity of Diablo Canyon Nuclear Power Plant (DCPP). The two-day public meetings included numerous informational, programmatic and plant status presentations by PG&E and by Committee Consultants and questions and comments from the public. The Committee always holds an evening session on the first of the two days of a public meeting in the San Luis Obispo area for the convenience of the public. The two-day public meetings are webcast in real time and cable cast afterwards on the local public access television station and by indexed webcast and all meetings are videotaped.

The DCISC encourages members of the public to attend and speak at its public meetings. Times are set aside throughout the meetings for public questions and comments. During the reporting period July 1, 2016—June 30, 2017, thirteen different individuals spoke a total of seventy-three times. Eleven individuals appeared and spoke at the October 19–20, 2016 meeting; eight individuals appeared and spoke at the February 8–9, 2017 meeting; and five individuals appeared and spoke at the June 7–8, 2017 meeting. Six persons addressed the Committee during more than one of its public meetings.

The comments and questions, together with the Committee’s and PG&E’s responses, are contained in the public meeting minutes included in Volume II, Exhibits B.3, B.6, and B.9.
29th Annual Report, Volume I, Exhibit 8.4, DCISC Public Tours of DCPP

The DCISC usually holds public tours in conjunction with its three public meetings each year in the San Luis Obispo local area. As part of the DCISC outreach program, each tour now provides an opportunity for interested persons to see the plant as interact with DCISC Members and Consultants. The tours conducted in February and June 2017 are described below. No tour was conducted in conjunction with the October 2016 public meeting.

8.4.1 February 8, 2017 Public Tour

On the morning of Wednesday, February 8, 2017, the DCISC Members and Technical Consultants accompanied by 8 members of the public participated in a tour of Diablo Canyon Power Plant (DCPP). The group received security badges at the PG&E Energy Education Center and assembled in the auditorium for a brief introduction of the DCISC and its Members and Technical Consultants and a discussion of the role and responsibility of the Committee. Afterward DCPP Lead Manager, External Affairs & Public Policy, Ms. Suzanne Parker gave an informational presentation about the plant and PG&E’s current energy generation portfolio and plans for the future. An opportunity was provided for questions. The group then boarded a bus for the plant. During the drive information was presented on the history of the plant. The bus entered the plant site through the Avila Gate and the group received a briefing from PG&E on the various external features and buildings and was taken on a narrated drive-by of the Independent Spent Fuel Storage Installation (ISFSI), also known as the dry cask spent fuel storage facility.

The bus then arrived at the parking area. The members of the public and the DCISC Members and Technical Consultants visited in turn the Control Room Simulator Facility, a full scale mockup of the Unit-1 (U-1) control room and a viewing area for the Intake and Outfall Facilities where the plant pulls in and discharges cooling water from and to the Pacific Ocean. The group then departed DCPP for return to the Energy Education Center and had the opportunity to discuss the plant with individual DCISC members and consultants.

8.4.2 June 7, 2017 Public Tour

On the morning of Thursday, June 7, 2017, DCISC Members Drs. Budnitz and Lam, Budnitz together with Technical Consultants Mr. McWhorter and Mr. Wardell,
accompanied by 36 members of the public participated in a tour of Diablo Canyon Power Plant (DCPP). The group received security badges at the PG&E Energy Education Center and assembled in the auditorium for a brief introduction of the DCISC and its Members, Technical Consultants and Assistant Legal Counsel and a brief discussion of the role, responsibilities and operation of the Committee. Afterward DCPP Lead Manager, External Affairs & Public Policy, Ms. Suzanne Parker gave an informational presentation about PG&E’s current energy generation portfolio and PG&E’s challenges and plans for the future with reference to the mix and future of solar, wind and nuclear generation. The group received information on the operation of the plant and an opportunity was provided for questions. The group then boarded a bus for the plant. During the drive information was presented on the history of the plant. The bus entered the plant site through the Avila Gate and the group received a briefing from PG&E on the various external features and buildings and was taken on a narrated drive-by of the Independent Spent Fuel Storage Installation (ISFSI), also known as the dry cask spent fuel storage facility.

The bus then arrived at the parking area. The members of the public and the DCISC Members and Technical Consultants visited in turn the Control Room Simulator Facility, a full scale mockup of the Unit-1 (U-1) control room and a viewing area for the Intake and Outfall Facilities where the plant pulls in and discharges cooling water from and to the Pacific Ocean. The group then departed DCPP for return to the Energy Education Center and had the opportunity to discuss the plant with individual DCISC members and consultants.
The DCISC has been relatively successful to date in implementing its Public Outreach Program as demonstrated by the descriptions above. The public tours of DCPP have varied in popularity during this report period. The website and e-mail channels of communication are used frequently as indicated above. The public meetings during this period were attended by between five to eleven people attending and also addressing remarks or questions to the Committee. Representatives of Congressman Salud Carbajal’s office, State Senator William Monning’s office and of the California Energy Commission, the CPUC, and several representatives of Californians for Green Nuclear Power, a group promoting the use of nuclear power in California, as well as representatives of the San Luis Obispo Mothers for Peace and the Alliance for Nuclear Responsibility, non-profit organizations concerned with the local and nationwide dangers involving DCPP and with the dangers of nuclear power, weapons and radioactive waste on national and global levels also attended various meetings and sessions of the DCISC public meetings during this report period. During this report period the Committee has publicly reviewed its effectiveness including the conduct of fact findings and public meetings; the development and utility of the Annual Report; Committee outreach to government agencies and the officials appointing its members; the engagement of consultants for specific projects; and the Committee’s continuing interaction with PG&E. The Committee intends to continue this review during the next annual report period.
DOCUMENTS RECEIVED BY THE DCISC
July
List of Documents Transmitted Electronically

A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
<th>Date</th>
<th>LBIE No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>7/25/18</td>
<td>DCL-18-056, DIL-18-009</td>
<td>Emergency Plan Implementing Procedure Update</td>
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C. NRC Incoming Correspondence (including Inspection Reports)

<table>
<thead>
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<th>Date</th>
<th>Title</th>
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<tbody>
<tr>
<td>7/20/18</td>
<td>Town Hall Meeting and Public Outreach</td>
</tr>
<tr>
<td>7/24/18</td>
<td>Diablo Canyon Power Plant – NRC Inspection Report 05000275/2018002 and 05000323/2018002</td>
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D. NSOC/PSRC Documents (NSOC Minutes, NSOC Responses, PSRC Minutes)

<table>
<thead>
<tr>
<th>Date</th>
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<tbody>
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PSRC Minutes

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<th>Title</th>
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<tr>
<td>3/27/18</td>
<td>2018-008</td>
<td>FPEE 029, Fire Traps for Diesel Generator Rooms</td>
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<tr>
<td>6/19/18</td>
<td>2018-011</td>
<td>M-1177, Nuclear Safety Capability Assessment</td>
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<td></td>
<td></td>
<td>M-1179, Recovery Action Feasibility Assessment</td>
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<tr>
<td>7/17/18</td>
<td>2018-013</td>
<td>E-Plan Changes</td>
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E. CAP Documents (RCAs, ACEs, CAP Effectiveness Evaluations)

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<th>Title</th>
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<tr>
<td>ACE</td>
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<tr>
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<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/6/18</td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>7/13/18</td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>7/20/18</td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>7/27/18</td>
<td>Condition Report Backlog Curves</td>
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F. QV Documents (QPAR, Audit Reports, Audit Schedule, Assessments)

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<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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July
List of Documents Transmitted Electronically

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<tr>
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<th>Doc. No.</th>
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<td>181790022</td>
<td>Main Feedwater Pump 1-2 Oil Level Alarm Power Reduction</td>
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<tr>
<td></td>
<td></td>
<td>G. Nuclear Safety Culture Monitoring Panel Reports</td>
</tr>
<tr>
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<td>There is no report for this month.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H. Self-Assessment/Benchmarking (SA/BM Reports/Schedules)</td>
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<tr>
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<td>There is no updated Quick Hit Self-Assessment (QHSA) Schedule this month.</td>
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<td>There is no Formal Benchmarking and Self-Assessments Schedule this month.</td>
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<td>7/2/18</td>
<td>SAPN 50956997</td>
<td>Perform formal benchmark EB 17-01 &amp; NISP</td>
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<tr>
<td>7/12/18</td>
<td>SAPN 50958547</td>
<td>Adherence to Standards BM – Callaway</td>
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<td>8/1/18</td>
<td>SAPN 50986737</td>
<td>Station Rework – Informal Benchmarking</td>
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<tr>
<td>7/2/18</td>
<td>SAPN 50948142</td>
<td>EQ: Program: STARS Formal SA Pre Inspect</td>
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<td>7/12/18</td>
<td>SAPN 50956872</td>
<td>Perform SA of Rad Effluent Monitors</td>
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<tr>
<td>7/19/18</td>
<td>SAPN 50944099</td>
<td>Weld Process Self Assessment</td>
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<tr>
<td>8/1/18</td>
<td>SAPN 50882687</td>
<td>2017 M&amp;T Comprehensive Self-Assessment</td>
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<td>7/2/18</td>
<td>SAPN 50955339</td>
<td>QHSA – Training Committees</td>
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<td>7/12/18</td>
<td>SAPN 50958040</td>
<td>QHSA RP Insp Proc 71124 Attachment 01</td>
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<td>7/19/18</td>
<td>SAPN 50901263</td>
<td>Biennial Target Set SA 2018</td>
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<tr>
<td>8/1/18</td>
<td>SAPN 5096529</td>
<td>Sec Trng Procedures Self-Assessment</td>
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<tr>
<td>8/2/18</td>
<td>SAPN 50967230</td>
<td>Corporate QHSA for Diving Programs</td>
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July  
List of Documents Transmitted Electronically  

I. Performance Information (PPIR, Operating Plan, Station Initiatives, IPMs)

<table>
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<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>5/3/18</td>
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<td>Nuclear Generation Operating Plan 2018-2022, No New updates this month.</td>
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<tr>
<td>PPIR</td>
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<tr>
<td>7/18/18</td>
<td></td>
<td>Diablo Canyon Power Plant; Plant Performance Improvement Report Achieving Results; Data: June 2018, Report Date: July 18, 2018</td>
</tr>
<tr>
<td>Station Initiative</td>
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<tr>
<td>8/6/18</td>
<td></td>
<td>Organizational Effectiveness Excellence Plan</td>
</tr>
<tr>
<td>8/6/18</td>
<td></td>
<td>Leadership Engagement in PI Processes</td>
</tr>
<tr>
<td>8/9/18</td>
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<td>Learning Services Excellence Plan</td>
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<td>IPM</td>
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J. INPO

<table>
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<tbody>
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K. Operational Documents (ODM Minutes, POAs)

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<th>Doc. No.</th>
<th>Title</th>
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<tr>
<td>POA</td>
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L. Safety Limit Violation Report

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<tr>
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<th>Title</th>
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</thead>
<tbody>
<tr>
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M. Significance Determination Process Calculations

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</thead>
<tbody>
<tr>
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<td>There are no Significance Determination Process Calculations for this month.</td>
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N. Miscellaneous

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<th>Title</th>
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</thead>
<tbody>
<tr>
<td>7/9/18</td>
<td></td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>7/16/18</td>
<td></td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>7/23/18</td>
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<td>Jim Welsch's Weekly Alignment Update</td>
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<tr>
<td>7/30/18</td>
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<td>Jim Welsch's Weekly Alignment Update</td>
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July
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<table>
<thead>
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<th>Subcommittee</th>
<th>Date/Doc</th>
<th>Title</th>
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<tr>
<td>Maintenance</td>
<td>Week 201826</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201827</td>
<td>T+1 Performance Critique</td>
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<td>Week 201828</td>
<td>T+1 Performance Critique</td>
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<td>Week 201829</td>
<td>T+1 Performance Critique</td>
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<td>Week 201830</td>
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<td>Week 201831</td>
<td>T+1 Performance Critique</td>
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P. Documents Previously Transmitted during the Month

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</thead>
<tbody>
<tr>
<td></td>
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## August

### List of Documents Transmitted Electronically

#### A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
<th>Date</th>
<th>LBIE No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no licensing basis impact evaluations.</td>
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#### B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/1/18</td>
<td>DCL-18-057</td>
<td>Request for Alternative from Volumetric/Surface Examination Frequency Requirements of ASME Code Case N-729-4</td>
</tr>
<tr>
<td>8/23/18</td>
<td>DCL-18-063 DIL-18-010</td>
<td>Emergency Plan Implementing Procedure Update</td>
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#### C. NRC Incoming Correspondence (including Inspection Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/10/18</td>
<td>Summary of July 20, 2018, Pre-Submittal Meeting with Pacific Gas and Electric Company to Discuss the Proposed License Amendment Request to Implement WCAP-16996-A, Revision 1, &quot;Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (Full Spectrum LOCA Methodology).&quot; (EPID L-2018-LRM-0041)</td>
</tr>
<tr>
<td>8/10/18</td>
<td>Notice of Pre-submittal Meeting with Pacific Gas and Electric Company Regarding a License Amendment Request for Diablo Canyon Nuclear Power Plant, Units 1 and 2 (EPID L-2018-LRM-004)</td>
</tr>
<tr>
<td>8/22/18</td>
<td>Diablo Canyon Power Plant - NRC Component Design Bases Inspection Report 05000275/2018010 and 05000323/2018010</td>
</tr>
<tr>
<td>8/31/18</td>
<td>Updated Inspection Plan for Diablo Canyon Power Plant, Units 1 and 2 (Report 05000275/2018005 and 05000323/2018005)</td>
</tr>
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#### D. NSOC/PSRC Documents (NSOC Minutes, NSOC Responses, PSRC Minutes)

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<thead>
<tr>
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<th>Doc. No.</th>
<th>Title</th>
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<tbody>
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August
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<table>
<thead>
<tr>
<th>PSRC Minutes</th>
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<tbody>
<tr>
<td>8/14/18</td>
<td>2018-014 E-Plan Updates</td>
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<tr>
<td>8/20/18</td>
<td>2018-015 E-Plan Updates</td>
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E. CAP Documents (RCAs, ACEs, CAP Effectiveness Evaluations)

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<thead>
<tr>
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<tr>
<td>ACE</td>
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<tr>
<td>Eff. Eval</td>
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<td>Effectiveness Evaluation – 50886601</td>
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<tr>
<td></td>
<td>50941440</td>
<td>Effectiveness – 50907301 Mn. Bk C Fuse</td>
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<tr>
<td>8/3/18</td>
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<td>Condition Report Backlog Curves</td>
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<tr>
<td>8/10/18</td>
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<td>Condition Report Backlog Curves</td>
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<tr>
<td>8/17/18</td>
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<td>Condition Report Backlog Curves</td>
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<tr>
<td>8/24/18</td>
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<tr>
<td>8/31/18</td>
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F. QV Documents (QPAR, Audit Reports, Audit Schedule, Assessments)

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<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>8/13/18</td>
<td># 182060008</td>
<td>Quality Performance Assessment Report (QPAR); Second Period 2018; March 22, 2018 through July 1, 2018</td>
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<tr>
<td>8/14/18</td>
<td>FileNet #173460008</td>
<td>2018 Security Audit</td>
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<tr>
<td></td>
<td></td>
<td>There is no new Schedule for this month.</td>
</tr>
<tr>
<td>8/9/18</td>
<td></td>
<td>Quality Digest – Information You Can Use</td>
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G. Nuclear Safety Culture Monitoring Panel Reports

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<thead>
<tr>
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<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td></td>
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H. Self-Assessment/Benchmarking (SA/BM Reports/Schedules)

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<thead>
<tr>
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<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
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<td></td>
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# August

## List of Documents Transmitted Electronically

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<tr>
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<tbody>
<tr>
<td>9/6/18</td>
<td>SAPN 509811988</td>
<td>2018 Reactivity Management QHSA</td>
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<tr>
<td>9/10/18</td>
<td>SAPN 50830963</td>
<td>Perform QHSA on Operator Fundamentals</td>
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<td>9/6/18</td>
<td>SAPN 50870565</td>
<td>2017 System Engineering Program SA</td>
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<td>9/6/18</td>
<td>SAPN 50960152</td>
<td>Formal Self-Assessment FME Program</td>
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<tr>
<td>8/16/18</td>
<td>SAPN 50990866</td>
<td>Informal Benchmark - Records</td>
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<tr>
<td>9/6/18</td>
<td>SAPN 50875465</td>
<td>Protected Equip Benchmark</td>
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<td>9/6/18</td>
<td>SAPN 50949499</td>
<td>2017 NRC Reg Con Trip Report</td>
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<td>9/6/18</td>
<td>SAPN 50973289</td>
<td>STARS Objective Summit – Benchmark</td>
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<td>9/6/18</td>
<td>SAPN 50987143</td>
<td>IT Workshop 2018 Trip Report</td>
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## I. Performance Information (PPIR, Operating Plan, Station Initiatives, IPMs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>5/3/18</td>
<td></td>
<td>Nuclear Generation Operating Plan 2018-2022, No new updates this month.</td>
</tr>
<tr>
<td>PPIR</td>
<td>8/16/18</td>
<td>Diablo Canyon Power Plant; Plant Performance Improvement Report; Achieving Results; Data: July 2018</td>
</tr>
<tr>
<td>Station Initiative</td>
<td>SAPN 50980924</td>
<td>Record and Document Handling Action Plan</td>
</tr>
<tr>
<td>IPM</td>
<td>9/12/18</td>
<td>Learning Services Excellence Plan 2018</td>
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## J. INPO

<table>
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<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
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August
List of Documents Transmitted Electronically

K. Operational Documents (ODM Minutes, POAs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
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<td>There are no ODMs for this month.</td>
</tr>
<tr>
<td>POA</td>
<td></td>
<td>There are no new POAs for this month.</td>
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L. Safety Limit Violation Report

<table>
<thead>
<tr>
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<th>Doc. No.</th>
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<tbody>
<tr>
<td></td>
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M. Significance Determination Process Calculations

<table>
<thead>
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<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>There are no Significance Determination Process Calculations for this month.</td>
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</table>

N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>8/6/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>8/13/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>8/20/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>8/27/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td></td>
<td>Records Management System Internal Best Practices Planning</td>
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O. Functional Area Documents

<table>
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<th>Subcommittee</th>
<th>Date/Doc</th>
<th>Title</th>
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<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201832</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201833</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201834</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201835</td>
<td>T+1 Performance Critique</td>
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<td>Week 201836</td>
<td>T+1 Performance Critique</td>
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P. Documents Previously Transmitted during the Month

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### September

**List of Documents Transmitted Electronically**

#### A. Licensing Basis Impact Evaluations

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</thead>
<tbody>
<tr>
<td></td>
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#### B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/11/18</td>
<td>DCL-18-050</td>
<td>Evaluation Documents in Support of Structural Weld Overlay, REP-RHR-SWOL, Unit 2</td>
</tr>
<tr>
<td>9/11/18</td>
<td>DCL18-070</td>
<td>Technical Specifications Bases, Revision 11</td>
</tr>
<tr>
<td>9/12/18</td>
<td>DCL-18-064</td>
<td>License Amendment Request 18-01 Request to Revise Emergency Plan Response Organization Staffing and Augmentation</td>
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<tr>
<td>9/26/18</td>
<td>DCL-18-074</td>
<td>Emergency Plan and Implementing Procedures Update</td>
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#### C. NRC Incoming Correspondence (including Inspection Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/11/18</td>
<td>Annual Assessment Meeting Summary</td>
</tr>
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#### D. NSOC/PSRC Documents (NSOC Minutes, NSOC Responses, PSRC Minutes)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSOC</td>
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<tr>
<td>PSRC</td>
<td>Minutes</td>
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#### E. CAP Documents (RCAs, ACEs, CAP Effectiveness Evaluations)

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<th>Doc. No.</th>
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<tr>
<td>ACE</td>
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</tr>
<tr>
<td>Eff. Eval</td>
<td>SAPN 50945227</td>
<td>Effectiveness Eval for CE 50935071</td>
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<tr>
<td>9/7/18</td>
<td></td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>9/14/18</td>
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## September
### List of Documents Transmitted Electronically

<table>
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<tr>
<th>Date</th>
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<tbody>
<tr>
<td>9/21/18</td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>9/28/18</td>
<td>Condition Report Backlog Curves</td>
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</table>

### F. QV Documents (QPAR, Audit Reports, Audit Schedule, Assessments)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
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<tbody>
<tr>
<td>9/21/18</td>
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<td>There is no QPAR for this month.</td>
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<tr>
<td>4/23/18</td>
<td>FileNet #173460007</td>
<td>2018 Emergency Preparedness Audit</td>
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<tr>
<td>9/10/18</td>
<td>FileNet #181620025</td>
<td>2018 Geosciences Quality Assurance Program Audit</td>
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<tr>
<td>9/17/18</td>
<td>FileNet #181550006</td>
<td>2018 Training and Qualifications Audit</td>
</tr>
<tr>
<td>4/4/18</td>
<td>Quality Verification Assessment #180780013</td>
<td>U2 Stator Coil Cooling Water Pipe Leak Repair</td>
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<tr>
<td>6/13/18</td>
<td>Quality Verification Assessment #181280004</td>
<td>Humboldt Bay Power Plant Decommissioning Radiological Protection Activities</td>
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<tr>
<td>7/30/18</td>
<td>Quality Verification Assessment #172190021</td>
<td>Assessment of Design Change Package #1000025198 (Alternative Source Term Implementation)</td>
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<tr>
<td>9/11/18</td>
<td>Quality Verification Assessment #182540002</td>
<td>Review of Preventive Maintenance Change Requests</td>
</tr>
<tr>
<td>9/25/18</td>
<td>Quality Verification Assessment #182550011</td>
<td>Operator Aids</td>
</tr>
<tr>
<td>0/27/18</td>
<td>Quality Verification Assessment #182550010</td>
<td>Unit 2 Curtailment, September 2018</td>
</tr>
<tr>
<td>3/20/18</td>
<td>Quality Verification Technical Assessment #180790021</td>
<td>Technical Assessment of Calculation M-1129 (Clean Strainer Head Loss Calculation)</td>
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### September

#### List of Documents Transmitted Electronically

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Document Number</th>
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<tr>
<td>3/20/18</td>
<td>Quality Verification Technical Assessment #180790020</td>
<td>Technical Assessment of Calculation PGE-027-CALC-002 (Diablo Canyon In-Vessel Fiber Calculation)</td>
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<tr>
<td>3/20/18</td>
<td>Quality Verification Technical Assessment #180790022</td>
<td>Technical Assessment of Calculation PGE-027-CALC-003 (Diablo Canyon Evaluation of Recirculation Sump In-Vessel Debris Deposition)</td>
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<tr>
<td>6/7/18</td>
<td>Quality Verification Technical Assessment #181570004</td>
<td>Technical Assessment of Calculation PGE-027-CALC-001 (Diablo Canyon Debris Laden Strainer Head Loss Calculation)</td>
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<tr>
<td>7/10/18</td>
<td>Quality Digest; Information You Can Use</td>
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</tr>
<tr>
<td>9/6/18</td>
<td>Quality Digest; Information You Can Use</td>
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<tr>
<td>10/1/18</td>
<td>SAPN 50988087</td>
<td>3Q2018 QV Observation Tracking</td>
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#### G. Nuclear Safety Culture Monitoring Panel Reports (NSOC Only)

<table>
<thead>
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<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>8/4/18</td>
<td>50997344</td>
<td>Nuclear Safety Culture Review Report 2nd Period 2018; NSCMP Meeting: August 4, 2018</td>
</tr>
<tr>
<td>10/2/18</td>
<td>OM6.ID1</td>
<td>Nuclear Safety Culture and Safety Conscious Work Environment (SCWE)</td>
</tr>
<tr>
<td>10/2/18</td>
<td>OM6.ID2</td>
<td>Nuclear Safety Culture Health Monitoring</td>
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#### H. Self Assessment/Benchmarking (SA/BM Reports/Schedules)

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<thead>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There is no updated Quick Hit Self-Assessment (QHSA) Schedule for this month.</td>
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<tr>
<td></td>
<td></td>
<td>There are no Formal Benchmarking and Self-Assessments Schedules for this month.</td>
</tr>
<tr>
<td>9/17/18</td>
<td>SAPN 50959627</td>
<td>Informal Benchmark – WCNOC T-2 Assessment</td>
</tr>
<tr>
<td>9/17/18</td>
<td>SAPN 50985451</td>
<td>Informal Benchmark-INPO/NEI Trip Report</td>
</tr>
<tr>
<td>10/1/18</td>
<td>SAPN 50930183</td>
<td>RW Benchmarking ASME/EPRI</td>
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For more information, visit [this link](https://sps.utility.pge.com/sites/regulatortoolkits/DEV/NSOC.DOIC/Monthly Transmittals/2018/September Transmittal.doc)
### September

**List of Documents Transmitted Electronically**

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
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<td>SAPN 50978875</td>
<td>SNPM Operations Benchmark</td>
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<tr>
<td>10/1/18</td>
<td>SAPN 50985600</td>
<td>Rigging Benchmark EPRI Conf.</td>
</tr>
<tr>
<td>10/1/18</td>
<td>SAPN 50989760</td>
<td>Informal Benchmark: Operations INPO Visit</td>
</tr>
<tr>
<td>10/1/18</td>
<td>SAPN 50836966</td>
<td>Perform FLEX Self Assessment</td>
</tr>
<tr>
<td>10/1/18</td>
<td>SAPN 50948216</td>
<td>2017 INPO NP.1 AFI</td>
</tr>
<tr>
<td>10/1/18</td>
<td>SAPN 50970787</td>
<td>2018 AD3.ID5 Pri-1 Compliance Eval</td>
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<td>10/10/18</td>
<td>SAPN 50960312</td>
<td>Operations Training Programs Comprehensive Self-Assessment Report</td>
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### Performance Information (PPIR, Operating Plan, Station Initiatives, IPMs)

<table>
<thead>
<tr>
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<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>5/3/18</td>
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<td>Nuclear Generation Operating Plan 2018-2022, No new updates this month.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diablo Canyon Power Plant; Plant Performance Improvement Report Achieving Results; Data: August 2018; Report Data: September 18 2018</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There are no new station initiatives this month.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nuclear Work Management Integrated Performance Monitoring (IPM) Meeting Agenda</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintenance Integrated Performance Monitoring (IPM) Meeting Agenda</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Operations Integrated Performance Monitoring Meeting Agenda</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Risk &amp; Compliance Integrated Performance Monitoring Meeting Agenda</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Security, Access, PI &amp; Support Integrated Performance Monitoring Meeting Agenda</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radiation Protection Integrated Performance Monitoring (IPM) Meeting Agenda</td>
</tr>
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<td></td>
<td></td>
<td>Chemistry Integrated Performance Monitoring (IPM) Meeting Agenda</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engineering Integrated Performance Monitoring (IPM) Meeting Agenda</td>
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### September

List of Documents Transmitted Electronically

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<td>2Q2018 Maintenance IPM Report</td>
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<td>50990140</td>
<td>2Q2018 NWM IPM Report</td>
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<td>50990747</td>
<td>2Q2018 Station IPM Package</td>
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<td>50990747</td>
<td>2Q2018 Station IPM Report</td>
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<td>50991877</td>
<td>2Q2018 RP IPM Report</td>
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<tr>
<td>50991938</td>
<td>2Q2018 Security IPM Report</td>
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<td>50991951</td>
<td>2Q2018 Risk &amp; Compliance IPM Report</td>
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<tr>
<td>50992004</td>
<td>2Q2018 Operations IPM Report</td>
</tr>
<tr>
<td>50993142</td>
<td>2Q2018 Chemistry IPM Report</td>
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<td>50993143</td>
<td>2Q2018 Engineering IPM Report</td>
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<table>
<thead>
<tr>
<th>ORM</th>
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<tbody>
<tr>
<td></td>
<td>Observation Review Meeting; Mechanical Maintenance; Observation Date Range: 3Q2018</td>
</tr>
<tr>
<td></td>
<td>Observation Review Meeting; I&amp;C Maintenance; Observation Date Range: 3Q2018</td>
</tr>
<tr>
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<td>Observation Review Meeting; Maintenance Support</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/1/18 - 6/27/18</td>
<td>2018 Observation Review Meeting; Radiation Protection</td>
</tr>
<tr>
<td>6/28/18 - 7/11/18</td>
<td>2018 Observation Review Meeting; Radiation Protection</td>
</tr>
<tr>
<td>7/12/18 - 7/23/18</td>
<td>2018 Observation Review Meeting; Radiation Protection</td>
</tr>
<tr>
<td>7/26/18 - 8/7/18</td>
<td>2018 Observation Review Meeting; Radiation Protection</td>
</tr>
<tr>
<td>8/7/18 - 8/21/18</td>
<td>2018 Observation Review Meeting; Radiation Protection</td>
</tr>
<tr>
<td>8/22/18 - 9/12/18</td>
<td>2018 Observation Review Meeting; Radiation Protection</td>
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<tr>
<td>7/1/18 - 10/3/18</td>
<td>Trend Notifications</td>
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### J. INPO

<table>
<thead>
<tr>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

### K. Operational Documents (ODM Minutes, POAs)

<table>
<thead>
<tr>
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<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODMs</td>
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</tr>
<tr>
<td>POA</td>
<td>SAPN</td>
<td>LTCA: DA-Vital 480V SGR Tornado Impacts</td>
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<td>50656953</td>
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September
List of Documents Transmitted Electronically

L. Safety Limit Violation Report

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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M. Significance Determination Process Calculations

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no Significance Determination Process Calculations for this month.</td>
</tr>
</tbody>
</table>

N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/4/18</td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>9/10/18</td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>9/17/18</td>
<td>Jim Welsch's Weekly Alignment Update</td>
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<td>9/24/18</td>
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O. Functional Area Documents

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<thead>
<tr>
<th>Subcommittee</th>
<th>Date/Doc</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201837</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
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<td>Week 201838</td>
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October
List of Documents Transmitted Electronically

A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
<th>Date</th>
<th>LBIE No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td></td>
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B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/15/18</td>
<td>DCL-18-082</td>
<td>Emergency Plan Implementing Procedure Update</td>
</tr>
<tr>
<td></td>
<td>DIL-18-014</td>
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</tr>
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</table>

C. NRC Incoming Correspondence (including Inspection Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/26/18</td>
<td>Notice of Forthcoming Closed Meeting with Pacific Gas and Electric Company to Discuss Security-Related Information for Diablo Canyon Nuclear Power Plant, Units 1 and 2 (EPID L-2018-LRM-0069)</td>
</tr>
</tbody>
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D. NSOC/PSRC Documents (NSOC Minutes, NSOC Responses, PSRC Minutes)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>PSRC</td>
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<td>There are no PSRC minutes from this month.</td>
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E. CAP Documents (RCAs, ACEs, CAP Effectiveness Evaluations)

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<thead>
<tr>
<th>Type</th>
<th>Doc. No.</th>
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<tr>
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<tr>
<td>ACE SAPN 50995424</td>
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<td>DA-QAAF – Geosciences QA Prog ineffective</td>
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<tr>
<td>Eff. Eval</td>
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<td>There are no Effectiveness Evaluations for this month.</td>
</tr>
<tr>
<td>10/5/18</td>
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<td>Condition Report Backlog Curves</td>
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<tr>
<td>10/12/18</td>
<td></td>
<td>Condition Report Backlog Curves</td>
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<td>10/19/18</td>
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<tr>
<td>10/26/18</td>
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#### F. QV Documents (QPAR, Audit Reports, Audit Schedule, Assessments)

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<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There is no QPAR for this month.</td>
</tr>
<tr>
<td>9/17/18</td>
<td>FileNet #181550006</td>
<td>2018 Training and Qualifications Audit</td>
</tr>
<tr>
<td>10/18/18</td>
<td>FileNet #182390002</td>
<td>2018 Quality Assurance Program Audit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There is no new Schedule for this month.</td>
</tr>
<tr>
<td>9/27/18</td>
<td>Quality Verification Assessment # 182680010</td>
<td>Unit 2 Curtailment, September 2018</td>
</tr>
<tr>
<td>10/11/18</td>
<td>Quality Verification Assessment # 182820002</td>
<td>GSI-191 Closure Assessment</td>
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<tr>
<td>10/18/18</td>
<td>Quality Verification Assessment # 182820001</td>
<td>Tags-Plus Program Implementation</td>
</tr>
<tr>
<td>10/10/18</td>
<td></td>
<td>Quality Digest; Information You Can Use</td>
</tr>
<tr>
<td>10/29/18</td>
<td>File # 182970001</td>
<td>Scaffold Program Compliance</td>
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#### G. Nuclear Safety Culture Monitoring Panel Reports (NSOC Only)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/12/18</td>
<td></td>
<td>Nuclear Safety Culture Review Report for Period April 1 – July 15, 2018</td>
</tr>
</tbody>
</table>

#### H. Self Assessment/Benchmarking (SA/BM Reports/Schedules)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There is no updated Quick Hit Self-Assessment (QHSA) Schedule for this month.</td>
</tr>
<tr>
<td></td>
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<td>There are no Formal Benchmarking and Self-Assessments Schedules for this month.</td>
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<tr>
<td>10/30/18</td>
<td>SAPN 50996422</td>
<td>Informal BM: OE Evaluation Timeliness</td>
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### October

**List of Documents Transmitted Electronically**

<table>
<thead>
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<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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<tr>
<td>10/15/18</td>
<td>SAPN 50993729</td>
<td>QHSA of IER 17-9</td>
</tr>
<tr>
<td>10/22/18</td>
<td>SAPN 50996200</td>
<td>QHSA - Station Programs</td>
</tr>
<tr>
<td>10/25/18</td>
<td>SAPN 50983489</td>
<td>2018 Self-Assessment - SPM</td>
</tr>
<tr>
<td>11/1/18</td>
<td>SAPN 50926853</td>
<td>QHSA - WCSFM Review of New Plant Issues</td>
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**I. Performance Information** (PPIR, Operating Plan, Station Initiatives, IPMs)

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<thead>
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<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/3/18</td>
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<td>Nuclear Generation Operating Plan 2018-2022, No new updates this month.</td>
</tr>
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**Alternative Text:**

- PPIR
  - Diablo Canyon Power Plant; Plant Performance Improvement Report Achieving Results; Data: August 2018; Report Data: September 18, 2018

**Station Initiative**

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/13/18</td>
<td></td>
<td>Operations Services Department Excellence Plan/Goals 2017-2018; Our Path Forward</td>
</tr>
<tr>
<td>10/13/18</td>
<td></td>
<td>Our Path Forward 2017-2018; Leadership Engagement in PI Processes</td>
</tr>
<tr>
<td>10/13/18</td>
<td></td>
<td>Nuclear Work Management 2018 Excellence Plan</td>
</tr>
<tr>
<td>10/15/18</td>
<td></td>
<td>Learning Services Excellence Plan 2018; Generating Excellence</td>
</tr>
<tr>
<td>10/15/18</td>
<td></td>
<td>Our Path Forward 2017-2018; Organizational Effectiveness Excellence Plan</td>
</tr>
</tbody>
</table>

- IPM
  - There are no IPMs for this month.

**J. INPO**

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no INPO documents for this month.</td>
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</table>

**K. Operational Documents** (ODM Minutes, POAs)

<table>
<thead>
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<th>Doc. No.</th>
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<tr>
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<tr>
<td></td>
<td></td>
<td>There are no new POAs for this month.</td>
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</table>
### October

**List of Documents Transmitted Electronically**

#### L. Safety Limit Violation Report

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
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</table>

#### M. Significance Determination Process Calculations

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no Significance Determination Process Calculations for this month.</td>
</tr>
</tbody>
</table>

#### N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/1/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>10/8/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>10/15/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>10/22/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>10/29/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
</tbody>
</table>

#### O. Functional Area Documents

<table>
<thead>
<tr>
<th>Subcommittee</th>
<th>Date/Doc</th>
<th>Title</th>
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<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201839</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201840</td>
<td>T+1 Performance Critique</td>
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<tr>
<td></td>
<td>Week 201841</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201842</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201843</td>
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# November

## List of Documents Transmitted Electronically

### A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
<th>Date</th>
<th>LBIE No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>There are no LBIEs for this month.</td>
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### B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/7/18</td>
<td>DCL-18-090</td>
<td>ASME Section XI Inservice Inspection Program Relief Request NDE-SG-PZR-IRS Steam Generator and Pressurizer Nozzle Inside Radius Sections</td>
</tr>
<tr>
<td>11/13/18</td>
<td>DCL-18-094</td>
<td>Emergency Plan Implementing Procedure Update</td>
</tr>
<tr>
<td></td>
<td>DIL-18-015</td>
<td></td>
</tr>
<tr>
<td>11/14/18</td>
<td>DCL-18-095</td>
<td>Emergency Plan Implementing Procedure Update</td>
</tr>
<tr>
<td></td>
<td>DIL-18-016</td>
<td></td>
</tr>
<tr>
<td>11/27/18</td>
<td>DCL-18-096</td>
<td>Certification of Permanent Cessation of Power Operations</td>
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### C. NRC Incoming Correspondence (including Inspection Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/7/18</td>
<td>Pre-Submittal Meeting with Pacific Gas and Electric Company (PG&amp;E) to Discuss Exemption Request to Withdraw Funds from the Nuclear Decommissioning Trusts to Fund Decommissioning Planning Activities</td>
</tr>
<tr>
<td>11/19/18</td>
<td>Nuclear Regulatory Commission's Analysis of Pacific Gas and Electric Company's Initial Decommissioning Funding Plan and Updated Decommissioning Funding Plan for Diablo Canyon’s Independent Spent Fuel Storage Installation</td>
</tr>
<tr>
<td>11/21/18</td>
<td>Acceptance Review – Relief Request NDE-SG-PZR-IRS, Relief from Requirements of American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI Examination Requirements (EPID L-2018-LLR-0138)</td>
</tr>
<tr>
<td>11/26/18</td>
<td>Diablo Canyon Power Plant, Units 1 and 2 – NRC Triennial Fire Protection Inspection Report 05000275/2018007 and 05000323/2018007</td>
</tr>
<tr>
<td>11/26/18</td>
<td>Diablo Canyon Power Plant, Units 1 and 2 – NRC Security Baseline Inspection Report 05000275/2018403 and 05000323/2018403</td>
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</table>

### D. NSOC/PSRC Documents (NSOC Minutes, NSOC Responses, PSRC Minutes)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
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<tr>
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<tr>
<td></td>
<td></td>
<td>There are no PSRC minutes for this month.</td>
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### E. CAP Documents (RCAs, ACEs, CAP Effectiveness Evaluations)

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<thead>
<tr>
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</tr>
</thead>
<tbody>
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<td>RCAs</td>
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</tbody>
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### November

**List of Documents Transmitted Electronically**

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/19/18</td>
<td>DA-ME Resource Qualification Challenges</td>
</tr>
<tr>
<td>Eff. Eval</td>
<td>There are no Eff. Evals for this month.</td>
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<td>11/2/18</td>
<td>Condition Report Backlog Curves</td>
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<tr>
<td>11/9/18</td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>11/16/18</td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>11/23/18</td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>11/30/18</td>
<td>Condition Report Backlog Curves</td>
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</table>

**F. QV Documents** (QPAR, Audit Reports, Audit Schedule, Assessments)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/14/18</td>
<td></td>
<td>Quality Digest; Information You Can Use; November 2018</td>
</tr>
<tr>
<td>11/29/18</td>
<td>Quality Verification Assessment #183170050</td>
<td>Placekeeping</td>
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<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>11/29/18</td>
<td>Quality Verification Assessment</td>
<td>Placekeeping</td>
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**G. Nuclear Safety Culture Monitoring Panel Reports**

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>There is no report for this month.</td>
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**H. Self Assessment/Benchmarking** (SA/BM Reports/Schedules)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/10/18</td>
<td>SAPN 50997166</td>
<td>2018 DBAI SA: OE Program Enhancement</td>
</tr>
<tr>
<td>12/10/18</td>
<td>SAPN 51000146</td>
<td>Informal BM: OE/ICES Working Meeting</td>
</tr>
<tr>
<td>12/10/18</td>
<td>SAPN 51000709</td>
<td>Benchmark Chubu Sep 2018 – Informal</td>
</tr>
<tr>
<td>12/10/18</td>
<td>SAPN 50931893</td>
<td>2016 Planning Department QHSA</td>
</tr>
<tr>
<td>12/10/18</td>
<td>SAPN 50951345</td>
<td>2018 DBAI Formal Self-Assessment</td>
</tr>
<tr>
<td>12/10/18</td>
<td>SAPN 50960312</td>
<td>Operations Training 2018 Comp SA</td>
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</table>
## November

**List of Documents Transmitted Electronically**

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<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/10/18</td>
<td>SAPN 50967230</td>
<td>Corporate QHSA for Diving Programs</td>
</tr>
</tbody>
</table>

### I. Performance Information (PPIR, Operating Plan, Station Initiatives, IPMs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Generation Operating Plan 2018 – 2022, No new updates this month.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/20/18</td>
<td>PPIR</td>
<td>Diablo Canyon Power Plant; Plant Performance Improvement Report Achieving Results; Data: October 2018</td>
</tr>
<tr>
<td>11/13/18</td>
<td>Station Initiative</td>
<td>Operations Excellence Plan</td>
</tr>
<tr>
<td>11/26/18</td>
<td>IPM</td>
<td>There are no new IPMs this month.</td>
</tr>
</tbody>
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### J. INPO

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
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### K. Operational Documents (ODM Minutes, POAs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODMs</td>
<td>11/26/18</td>
<td>ODM for High Swell Warning</td>
</tr>
<tr>
<td>11/27/18</td>
<td></td>
<td>Main feed pump 1-1 Vibration ODM</td>
</tr>
<tr>
<td>POA</td>
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### L. Safety Limit Violation Report

<table>
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<tr>
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<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no Safety Limit Violation Reports for this month.</td>
<td></td>
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### M. Significance Determination Process Calculations

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDP 18-01, Rev 0</td>
<td></td>
<td>Failure of Unit 2 Interlock Valve SI-2-8974A</td>
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### N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/5/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>11/13/18</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
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November
List of Documents Transmitted Electronically

<table>
<thead>
<tr>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td>11/19/18</td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>11/26/18</td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>11/29/18</td>
<td>2019 Key Dates</td>
</tr>
<tr>
<td></td>
<td>Swim Lane Graphics Requested by DCISC</td>
</tr>
<tr>
<td></td>
<td>DCISC Fact Finding Schedule</td>
</tr>
<tr>
<td>11/29/18</td>
<td>Drill Critique Report; Bravo Team NRC Evaluated Exercise</td>
</tr>
<tr>
<td></td>
<td>GET – Rad Worker</td>
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</table>

O. Functional Area Documents

<table>
<thead>
<tr>
<th>Subcommittee</th>
<th>Date/Doc</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201844</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201845</td>
<td>T+1 Performance Critique</td>
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<td>Week 201846</td>
<td>T+1 Performance Critique</td>
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<td>Week 201847</td>
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<td>T+1 Performance Critique</td>
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P. Documents Previously Transmitted during the Month

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December
List of Documents Transmitted Electronically

A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
<th>Date</th>
<th>LBIE No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/5/18</td>
<td>DCL-18-105</td>
<td>Submittal of the Fourth Ten-Year Interval Inservice Testing (IST) Program Plan, Revision 1</td>
</tr>
<tr>
<td>12/13/18</td>
<td>DCL-18-108</td>
<td>Access to Nuclear Decommissioning Trust Fund</td>
</tr>
<tr>
<td>12/17/18</td>
<td>DIL-18-019</td>
<td>Decommissioning Funding Plan</td>
</tr>
<tr>
<td>12/20/18</td>
<td>DCL-18-112</td>
<td>Technical Specification 5.6.8 PAM Instrumentation Report</td>
</tr>
<tr>
<td>12/26/18</td>
<td>DCL-18-100</td>
<td>License Amendment Request 18-02 License Amendment Request to Revise Technical Specification 5.6.5b, &quot;Core Operating Limits Report (COLR)&quot; for Full Spectrum Loss of Coolant Accident Methodology (2.390)</td>
</tr>
</tbody>
</table>

C. NRC Incoming Correspondence (including Inspection Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/31/18</td>
<td>Summary of November 29, 2018, Public Meeting with Pacific Gas and Electric Company to Discuss the Proposed Exemption Request to Withdraw Funds from the Nuclear Decommissioning Trusts to Fund Decommissioning Planning Activities at Diablo Canyon Nuclear Power Plant, Units 1 and 2 (EPID L-2018-LRM-0074)</td>
</tr>
</tbody>
</table>

D. NSOC/PSRC Documents (NSOC Minutes, NSOC Responses, PSRC Minutes)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSOC</td>
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<td>There are no NSOC documents for this month.</td>
</tr>
<tr>
<td>PSRC</td>
<td></td>
<td>There are no PSRC documents for this month.</td>
</tr>
<tr>
<td>Minutes</td>
<td>12/19/18</td>
<td>2018-012 PG&amp;E Letter HIL-18-006, &quot;License Renewal Application for the Humboldt Bay Independent Spent Fuel Storage Installation&quot;</td>
</tr>
<tr>
<td></td>
<td>12/19/18</td>
<td>2018-016 License Amendment Request 18-01, &quot;Request to Revise Emergency Plan Response Organization Staffing and Augmentation&quot;</td>
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</tbody>
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E. CAP Documents (RCAs, ACEs, CAP Effectiveness Evaluations)

<table>
<thead>
<tr>
<th>Type</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCAs</td>
<td></td>
<td>There are no RCAs for this month.</td>
</tr>
<tr>
<td>ACE</td>
<td></td>
<td>There are no ACEs for this month.</td>
</tr>
<tr>
<td>Eff. Eval</td>
<td></td>
<td>There are no Effectiveness Evals for this month.</td>
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</table>

### December

**List of Documents Transmitted Electronically**

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>12/7/18</td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>12/14/18</td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>12/21/18</td>
<td>Condition Report Backlog Curves</td>
</tr>
</tbody>
</table>

**F. QV Documents (QPAR, Audit Reports, Audit Schedule, Assessments)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/6/18</td>
<td>183230009</td>
<td>Quality Performance Assessment Report (QPAR); Third Period 2018; July 1, 2018 through November 1, 2018</td>
</tr>
<tr>
<td>12/5/18</td>
<td>182550009</td>
<td>2018 Maintenance Audit</td>
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<td>12/19/18</td>
<td>182330011</td>
<td>2018 Cyber Security Audit</td>
</tr>
<tr>
<td>10/29/18</td>
<td>182970001</td>
<td>Scaffold Program Compliance (Escalation Letter)</td>
</tr>
<tr>
<td>1/2/19</td>
<td></td>
<td>Unit 2 Load Rejection and Trip</td>
</tr>
<tr>
<td>12/31/18</td>
<td></td>
<td>Quality Digest; Information You Can Use</td>
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</table>

**G. Nuclear Safety Culture Monitoring Panel Reports**

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There is no Nuclear Safety Culture Monitoring Panel Report for this month.</td>
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**H. Self Assessment/Benchmarking (SA/BM Reports/Schedules)**

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<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>12/11/18</td>
<td>SAPN 50992475</td>
<td>Prairie Island Informal Benchmarking</td>
</tr>
<tr>
<td>12/11/18</td>
<td>SAPN 50994900</td>
<td>Informal Benchmark – EPRI – mWM (eWP)</td>
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<tr>
<td>1/10/19</td>
<td>SAPN 50944205</td>
<td>Shearon Harris Benchmark Trip 2017</td>
</tr>
<tr>
<td>1/10/19</td>
<td>SAPN 50947669</td>
<td>IER 17-5 Formal Benchmarking</td>
</tr>
<tr>
<td>1/10/19</td>
<td>SAPN 50995645</td>
<td>Security Training Trip Report</td>
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### December List of Documents Transmitted Electronically

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<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>1/10/19</td>
<td>SAPN 51001870</td>
<td>Sequoyah E&amp;A Benchmark</td>
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<tr>
<td>1/10/19</td>
<td>SAPN 50863747</td>
<td>IER L2-16-9 Rec 7 Self-Assessment</td>
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<tr>
<td>12/11/18</td>
<td>SAPN 50997240</td>
<td>Quick Hit S.A. of DCPP Rigging Perf.</td>
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<tr>
<td>1/10/19</td>
<td>SAPN 50907925</td>
<td>QHSA: Engr Rigor and Tech Conscience</td>
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<td>1/10/19</td>
<td>SAPN 50952332</td>
<td>Self-Assessment for M&amp;TE Program</td>
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<tr>
<td>1/10/19</td>
<td>SAPN 51000308</td>
<td>Cyber Security Training Self-Assessment</td>
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<td>SAPN 51002948</td>
<td>IER 17-9 QHSA</td>
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#### I. Performance Information (PPIR, Operating Plan, Station Initiatives, IPMs)

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<thead>
<tr>
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<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>5/3/18</td>
<td></td>
<td>Nuclear Generation Operating Plan 2018 - 2022, No new updates this month.</td>
</tr>
<tr>
<td>PPIR</td>
<td>12/26/18</td>
<td>Diablo Canyon Power Plant; Plant Performance Improvement Report Achieving Results; Data: November 2018</td>
</tr>
<tr>
<td>Station Initiative</td>
<td>1/11/19</td>
<td>Learning Services Excellence Plan 2019; Generating Excellence</td>
</tr>
<tr>
<td></td>
<td>1/14/19</td>
<td>Organizational Effectiveness Excellence Plan</td>
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There are no IPMs this month.

#### J. INPO

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
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<td>There are no INPO documents for this month.</td>
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#### K. Operational Documents (ODM Minutes, POAs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODMs</td>
<td></td>
<td>FDOR for Moving both Units past the 1700MW SPS Arming Septpoint</td>
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<tr>
<td>POA</td>
<td></td>
<td>There are no new POAs this month.</td>
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L. Safety Limit Violation Report

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tr>
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</table>

M. Significance Determination Process Calculations

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no Significance Determination Process Calculations for this month.</td>
</tr>
</tbody>
</table>

N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/3/18</td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>12/10/18</td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>12/21/18</td>
<td>Total Safety Accident Rate (SP-39) (Larry Meyer)</td>
</tr>
<tr>
<td>12/21/18</td>
<td>Recordable Injuries – DCPP Total (SP-37) (Larry Meyer)</td>
</tr>
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O. Functional Area Documents

<table>
<thead>
<tr>
<th>Subcommittee</th>
<th>Date/Doc</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201849</td>
<td>T+1 Performance Critique</td>
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<tr>
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<td>Week 201850</td>
<td>T+1 Performance Critique</td>
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<td>T+1 Performance Critique</td>
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<td>Week 201852</td>
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## January

List of Documents Transmitted Electronically

### A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
<th>Date</th>
<th>LBIE No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>1/30/19</td>
<td>2019-001</td>
<td>Nuclear Safety Capability Assessment M-1177</td>
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<tr>
<td>1/30/19</td>
<td>2019-002</td>
<td>Nuclear Safety Capability Assessment M-1179</td>
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<tr>
<td>1/30/19</td>
<td>2019-003</td>
<td>SAPN 50873211 DA-FSAR Table ESF Non-LOOP Delays</td>
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### B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/15/19</td>
<td>DCL-19-002, DIL-19-001</td>
<td>Emergency Plan Implementing Procedure Update</td>
</tr>
<tr>
<td>1/30/19</td>
<td>DCL-19-007</td>
<td>Licensee Event Report 2-2018-001-00, Automatic Reactor Trip of Unit 2 Following a Load Rejection</td>
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### C. NRC Incoming Correspondence (including Inspection Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3/19</td>
<td>Diablo Canyon Power Plant, Units 1 and 2 – NRC Initial Operator Licensing Examination Approval 05000275/2019301; 05000323/2019301</td>
</tr>
<tr>
<td>1/7/19</td>
<td>Acceptance Review – Diablo Canyon Exemption Request for Access to Nuclear Decommissioning Trust (NDT) Funds for Decommissioning Planning Activities (EPID L-2018-LLLE-0023)</td>
</tr>
</tbody>
</table>

### D. NSOC/PSRC Documents (NSOC Minutes, NSOC Responses, PSRC Minutes)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
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<td>NSOC</td>
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<td>PSRC</td>
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<tr>
<td>11/16/18</td>
<td>2017-017</td>
<td>NOED for ASW 2-1 Inoperable Notice of Enforcement Discretion</td>
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<tr>
<td>12/2/18</td>
<td>2018-018</td>
<td>OP1.DC1, Attachment 5 Readiness for Restart</td>
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<tr>
<td></td>
<td></td>
<td>Nuclear Safety Capability Assessment – M-1179 LIE 2019-002</td>
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January
List of Documents Transmitted Electronically

<table>
<thead>
<tr>
<th>Type</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>SAPN</td>
<td>50873211</td>
<td>LBIE 2019-003, FSAR ESF Non-Loop Delays</td>
</tr>
<tr>
<td>E. CAP Documents</td>
<td></td>
<td><strong>(RCAs, ACEs, CAP Effectiveness Evaluations)</strong></td>
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<td>RCAs</td>
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<td>ACE</td>
<td>SAPN 51004632</td>
<td>DA-RMS Trend CCE Ineffective</td>
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<tr>
<td>Eff. Eval</td>
<td>SAPN 50973385</td>
<td>Effective Evaluation - 50947770</td>
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<tr>
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<td>SAPN 50984908</td>
<td>L162 Audit Exam Failures EE/QHSA</td>
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<td>1/11/19</td>
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<td>Condition Report Backlog Curves</td>
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<td>1/18/19</td>
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<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>1/25/19</td>
<td></td>
<td>Condition Report Backlog Curves</td>
</tr>
<tr>
<td>F. QV Documents</td>
<td></td>
<td><strong>(QPAR, Audit Reports, Audit Schedule, Assessments)</strong></td>
</tr>
<tr>
<td>Date</td>
<td>Doc. No.</td>
<td>Title</td>
</tr>
<tr>
<td>1/22/19</td>
<td>FileNet #183390024</td>
<td>2019 Applied Technology Services Audit</td>
</tr>
<tr>
<td>2/5/19</td>
<td></td>
<td>Quality Digest; Information You Can Use; November 2018</td>
</tr>
<tr>
<td>G. Nuclear Safety Culture Monitoring Panel Reports</td>
<td></td>
<td><strong>There is no report for this month.</strong></td>
</tr>
<tr>
<td>Date</td>
<td>Doc. No.</td>
<td>Title</td>
</tr>
<tr>
<td>H. Self Assessment/Benchmarking</td>
<td></td>
<td><strong>(SA/BM Reports/Schedules)</strong></td>
</tr>
<tr>
<td>Date</td>
<td>Doc. No.</td>
<td>Title</td>
</tr>
<tr>
<td>2/12/19</td>
<td>SAPN 50976383</td>
<td>Benchmark on Video Training</td>
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<tr>
<td>2/12/19</td>
<td>SAPN 50955392</td>
<td>2017 Winter EPRI ESCP Conf. Trip Report</td>
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<td>2/12/19</td>
<td>SAPN 50998518</td>
<td>Callaway Self-Assess/Infor. Benchmark</td>
</tr>
<tr>
<td>2/12/19</td>
<td>SAPN 51000277</td>
<td>Security Training Trip Report</td>
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January
List of Documents Transmitted Electronically

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>2/12/19</td>
<td>SAPN 51007195</td>
<td>FAC Program – November 2018 Trip Report</td>
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<tr>
<td>2/12/19</td>
<td>SAPN 51011004</td>
<td>Dec-18 SPI Working Meeting Trip Report</td>
</tr>
<tr>
<td>2/12/19</td>
<td>SAPN 50957978</td>
<td>2018 Mid-cycle assessment</td>
</tr>
<tr>
<td>2/12/19</td>
<td>SAPN 50976410</td>
<td>2018 NRC 71111.11 Self Assessment</td>
</tr>
<tr>
<td>2/12/19</td>
<td>SAPN 50933866</td>
<td>QH self-assessment – Security Efficiency</td>
</tr>
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<td>2/12/19</td>
<td>SAPN 50935784</td>
<td>QHSA – Causal Eval. W/Tmg Solutions</td>
</tr>
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<td>2/12/19</td>
<td>SAPN 50948315</td>
<td>2017 Training Manager Meeting Trip Report</td>
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<tr>
<td>2/12/19</td>
<td>SAPN 509744905</td>
<td>QHSA: Update Staffing Pipeline Doc</td>
</tr>
<tr>
<td>2/12/19</td>
<td>SAPN 50997110</td>
<td>Insulation/Coating Self-Assessment</td>
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</tbody>
</table>

There are no Quick Hit Self-Assessments this month.

I. Performance Information (PPIR, Operating Plan, Station Initiatives, IPMs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/3/18</td>
<td></td>
<td>Nuclear Generation Operating Plan 2018 – 2022, No new</td>
</tr>
<tr>
<td></td>
<td></td>
<td>updates this month.</td>
</tr>
<tr>
<td>PPIR</td>
<td></td>
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</tr>
<tr>
<td>Station Initiative</td>
<td>1/14/19</td>
<td>Maintenance Excellence Plan 2018; Our Path Forward</td>
</tr>
<tr>
<td>IPM</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Learning Services Excellence Plan 2019; Generating Excellence</td>
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J. INPO

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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K. Operational Documents (ODM Minutes, POAs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>ODMs</td>
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<td>There are no ODMs for this month.</td>
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| POA | There are no new POAs for this month. |

L. Safety Limit Violation Report

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

M. Significance Determination Process Calculations

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NOED 18-01</td>
<td>AFW LCV 133</td>
</tr>
<tr>
<td></td>
<td>NOED 18-03</td>
<td>PRA Evaluation for an extension of ASW Pump 1-1 MOW</td>
</tr>
<tr>
<td></td>
<td>SDP 18-01</td>
<td>Failure of Unit 2 Interlock Valve SI-2-8974A</td>
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N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
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O. Functional Area Documents

<table>
<thead>
<tr>
<th>Subcommittee</th>
<th>Date/Doc.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201901</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201902</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201903</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201904</td>
<td>T+1 Performance Critique</td>
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### February
List of Documents Transmitted Electronically

#### A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
<th>Date</th>
<th>LBIE No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

#### B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/14/19</td>
<td>DCL-19-014, DIL-19-003</td>
<td>Emergency Plan Implementing Procedure Update</td>
</tr>
<tr>
<td>2/14/19</td>
<td>DCL-19-008</td>
<td>Proposed Changes to the Intake Structure Physical Security Classification</td>
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#### C. NRC Incoming Correspondence (including Inspection Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/28/19</td>
<td>Diablo Canyon Power Plant – NRC Inspection Report 05000275/2018004 and 05000323/2018004</td>
</tr>
<tr>
<td>2/20/19</td>
<td>Diablo Canyon Power Plant – Notification of Inspection (NRC Inspection Report 05000275/2019002, 05000323/2019002 and Request for Information)</td>
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</table>

#### D. PSRC Documents (PSRC Minutes/Memos)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSRC Memos</td>
<td></td>
<td>Plant Staff Review Committee Members/Alternates</td>
</tr>
<tr>
<td>2/5/19</td>
<td></td>
<td>There are no PSRC Meeting Minutes for this month.</td>
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#### E. CAP Documents (RCAs, ACEs, CAP Effectiveness Evaluations)

<table>
<thead>
<tr>
<th>Type</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCAs</td>
<td>SAPN 51006788</td>
<td>Unit 2 Reactor Trip; DC-SPS</td>
</tr>
<tr>
<td>ACE</td>
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<td>There are no Apparent Cause Evaluations for this month.</td>
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<tr>
<td>Eff. Eval</td>
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<td>DA-RMS Trend CCE Ineffective</td>
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#### F. QV Documents (QPAR, Audit Reports, Audit Schedule, Assessments)

<table>
<thead>
<tr>
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<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
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<td>There is no QPAR for this month.</td>
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February
List of Documents Transmitted Electronically

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>2/28/19</td>
<td>FileNet #183300001</td>
<td>2019 Chemistry and Environmental Operations Programs Audit</td>
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<tr>
<td>1/2/19</td>
<td>Quality Verification Assessment # 18352003</td>
<td>Unit 2 Load Rejection and Trip</td>
</tr>
<tr>
<td>2/11/19</td>
<td>Quality Verification Assessment # 190380011</td>
<td>1-31-2019 Outage Management Team (OMT) Meeting (Elevated RCS Leakrate)</td>
</tr>
<tr>
<td>2/5/19</td>
<td></td>
<td>Quality Digest; Information You Can Use</td>
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G. Nuclear Safety Culture Monitoring Panel Reports

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/19/19</td>
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<td>Nuclear Safety Culture Review Report (NSOC Only)</td>
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H. Self Assessment/Benchmarking (SA/BM Reports)

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</tr>
</thead>
<tbody>
<tr>
<td>3/13/19</td>
<td>SAPN 50924173</td>
<td>Perform QHSA – Completed 2R20 orders</td>
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<tr>
<td>3/13/19</td>
<td>SAPN 50947700</td>
<td>IER 17-5 Quick Hit Self Assessment</td>
</tr>
<tr>
<td>3/13/19</td>
<td>SAPN 50959634</td>
<td>AFI OP.1-1 Self-Assessment (Quick Hit)</td>
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<tr>
<td>3/13/19</td>
<td>SAPN 51000310</td>
<td>QHSA NRC EP Exercise Inspection 71114.01</td>
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<td>SAPN 51000317</td>
<td>QHSA NRC EP Inspection EAL/EPlan 71114.04</td>
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<td>3/13/19</td>
<td>SAPN 51000380</td>
<td>QHSA NRC EP Performance Indicators 71151</td>
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<td>SAPN 51012085</td>
<td>Perform QHSA NRC Procedure 71124.03</td>
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<td>3/13/19</td>
<td>SAPN 51004532</td>
<td>Exam Security informal benchmark</td>
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I. Performance Information (PPIR, Operating Plan, Station Initiatives, IPMs)

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<th>Title</th>
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</thead>
<tbody>
<tr>
<td>5/3/18</td>
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<td>Nuclear Generation Operating Plan 2018 – 2022, No new updates this month.</td>
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February
List of Documents Transmitted Electronically

<table>
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<tr>
<td>2/6/19</td>
<td>Learning Services Excellence Plan 2019; Generating Excellence</td>
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J. INPO

<table>
<thead>
<tr>
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<th>Doc. No.</th>
<th>Title</th>
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K. Operational Documents (ODM Minutes, POAs)

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<th>Doc. No.</th>
<th>Title</th>
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<tbody>
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<td>ODMs</td>
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L. Safety Limit Violation Report

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M. Significance Determination Process Calculations

<table>
<thead>
<tr>
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<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
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N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>2/18/19</td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>2/19/19</td>
<td>Updated 2019 Key Dates</td>
</tr>
<tr>
<td>2/25/19</td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>2/28/19</td>
<td>2019 Updated Key Dates</td>
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O. Functional Area Documents

<table>
<thead>
<tr>
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<th>Date/Doc</th>
<th>Title</th>
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<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201905</td>
<td>T+1 Performance Critique</td>
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<tr>
<td></td>
<td>Week 201906</td>
<td>T+1 Performance Critique</td>
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<td>T+1 Performance Critique</td>
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<td>T+1 Performance Critique</td>
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### March

**List of Documents Transmitted Electronically**

#### A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
<th>Date</th>
<th>LBE No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>3/6/19</td>
<td>2019-004</td>
<td>E-Plan Appendix F, “ERO On-Shift Staffing”</td>
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#### B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
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<tr>
<td>3/7/19</td>
<td>DCL-19-018</td>
<td>Chief Nuclear Officer Contact Information</td>
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<tr>
<td></td>
<td>DIL-19-006</td>
<td>Decommissioning Funding Report for Diablo Canyon Power Plant, Units 1 and 2</td>
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<tr>
<td></td>
<td>HBL-19-006</td>
<td>2019 Annual Statement of Insurance for Pacific Gas and Electric Company’s Diablo Canyon Power Plant and Humboldt Bay Power Plant</td>
</tr>
<tr>
<td>3/26/19</td>
<td>DCL-19-020</td>
<td>Decommissioning Funding Report for Diablo Canyon Power Plant, Units 1 and 2</td>
</tr>
<tr>
<td>3/28/19</td>
<td>DCL-19-024</td>
<td>Decommissioning Funding Report for Diablo Canyon Power Plant, Units 1 and 2</td>
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<td>HBL-19-008</td>
<td>Decommissioning Funding Report for Diablo Canyon Power Plant, Units 1 and 2</td>
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#### C. NRC Incoming Correspondence (including Inspection Reports)

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<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4/19</td>
<td>Annual Assessment Letter for Diablo Canyon Power Plant, Units 1 and 2 (Report 05000275/2018006 and 05000323/2018006)</td>
</tr>
<tr>
<td>3/11/19</td>
<td>Diablo Canyon Power Plant – Notification of NRC Design Bases Assurance Inspection (Teams) (05000275/2019010 and 05000323/2019010) and Initial Request for Information</td>
</tr>
<tr>
<td>3/18/19</td>
<td>Diablo Canyon Power Plant, Units 1 and 2 – NRC Examination Report 05000275/2019301; 05000323/2019301</td>
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#### D. PSRC Documents (PSRC Minutes)

<table>
<thead>
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<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/13/19</td>
<td>2018-020</td>
<td>Vital 480 V SGR Tornado Impacts SAPN 50656953</td>
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### March

#### List of Documents Transmitted Electronically

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<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>3/14/19</td>
<td>2019-005</td>
<td>OP L-0, Attachment 9 Mode Change Authorization Form with Active Technical Specification; Inoperable Equipment: ASW Pump 1-1, CCW HX 1-1</td>
</tr>
<tr>
<td>3/14/19</td>
<td>2019-001</td>
<td>Outage Safety Plan</td>
</tr>
<tr>
<td>3/18/19</td>
<td>2019-007</td>
<td>OP L-0, Attachment 9 Mode change Authorization Form with Active Technical Specification: Unit 1 Containment Fan Cooler TS 3.6.6 Condition C</td>
</tr>
<tr>
<td>3/18/19</td>
<td>2019-008</td>
<td>OP L-0, Attachment 7 Mode 3 to 2 Transition Change</td>
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#### E. CAP Documents (RCAs, ACEs, CAP Effectiveness Evaluations)

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<thead>
<tr>
<th>Type</th>
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<th>Title</th>
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<td>No RCAs for this month.</td>
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<tr>
<td>ACE</td>
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<td>No ACEs for this month.</td>
</tr>
<tr>
<td>Eff. Eval</td>
<td></td>
<td>No Effectiveness Evals for this month.</td>
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#### F. QV Documents (QPAR, Audit Reports, Audit Schedule, Assessments)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>3/4/19</td>
<td>FileNet #183440003</td>
<td>2019 Emergency Preparedness and FLEX Audit</td>
</tr>
<tr>
<td>3/25/19</td>
<td></td>
<td>Quality Digest; Information You Can Use, April 2019</td>
</tr>
</tbody>
</table>

#### G. Nuclear Safety Culture Monitoring Panel Reports

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There is no report for this month.</td>
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March
List of Documents Transmitted Electronically

H. Self Assessment/Benchmarking (SA/BM Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
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<td>4/11/19</td>
<td>SAPN 50991996</td>
<td>Peach Bottom ATV Trip Report</td>
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<tr>
<td>4/11/19</td>
<td>SAPN 50994891</td>
<td>Informal Benchmark – EPRI – WPUG</td>
</tr>
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<td>4/11/19</td>
<td>SAPN 51022063</td>
<td>2019 Shot Show Trip Report</td>
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<td>4/11/19</td>
<td>SAPN 50978038</td>
<td>CRE Self Assessment-due Jan2019</td>
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<td>4/11/19</td>
<td>SAPN 50991783</td>
<td>Perform SA of Groundwater Prot Init -GPI</td>
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<td>4/11/19</td>
<td>SAPN 50889637</td>
<td>QHSA – TI-192 (Open Phase) Inspection</td>
</tr>
<tr>
<td>4/11/19</td>
<td>SAPN 50991862</td>
<td>TR AFI Effectiveness Eval - QHSA</td>
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I. Performance Information (PPIR, Operating Plan, Station Initiatives, IPMs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/25/19</td>
<td></td>
<td>Nuclear Generation Operating Plan 2019 – 2023..</td>
</tr>
<tr>
<td>PPIR</td>
<td>3/31/19</td>
<td>Diablo Canyon Power Plant; Plant Performance Improvement Report Achieving Results; Data: February 2019</td>
</tr>
<tr>
<td>Station Initiative</td>
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</tr>
<tr>
<td>IPM</td>
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J. INPO

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
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K. Operational Documents (ODM Minutes, POAs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ODMs</td>
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</tr>
<tr>
<td>POA</td>
<td>SAPN 51020534</td>
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March
List of Documents Transmitted Electronically

L. Safety Limit Violation Report

<table>
<thead>
<tr>
<th>Date</th>
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<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
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</table>

M. Significance Determination Process Calculations

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/26/19</td>
<td>SDP19-02, Revision 0</td>
<td>CSR Cardox Non-Functional Due to Missed Continuous Fire Watch</td>
</tr>
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N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4/19</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>3/11/19</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>3/18/19</td>
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<tr>
<td>3/25/19</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
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O. Functional Area Documents

<table>
<thead>
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<th>Date/Doc</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201909</td>
<td>T+1 Performance Critique</td>
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<tr>
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<td>Week 201910</td>
<td>T+1 Performance Critique</td>
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<td></td>
<td>Week 201911</td>
<td>T+1 Performance Critique</td>
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<td>Week 201912</td>
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April
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A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
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<th>LBIE No.</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
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B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/3/19</td>
<td>DCL-19-027</td>
<td>Supplement to Request for Exemption from Operator Written Examination and Operating Test</td>
</tr>
<tr>
<td>4/4/19</td>
<td>DCL-19-025</td>
<td>Emergency Plan Update</td>
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<td></td>
<td>DIL-19-007</td>
<td></td>
</tr>
<tr>
<td>4/15/19</td>
<td>DCL-19-031</td>
<td>Pacific Gas and Electric Company Offer to Host Meetings to Discuss Community Engagement Panels for Decommissioning</td>
</tr>
<tr>
<td></td>
<td>HBL-19-009</td>
<td></td>
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<tr>
<td>4/16/19</td>
<td>DCL-19-034</td>
<td>Annual Report of Occupational Radiation Exposure for 2018</td>
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<tr>
<td>4/22/19</td>
<td>DCL-19-037</td>
<td>Core Operating Limits Report for Unit 1 Cycle 22</td>
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<tr>
<td>4/25/19</td>
<td>DCL-19-035</td>
<td>2018 Annual Nonradiological Environmental Operating Report</td>
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C. NRC Incoming Correspondence (including Inspection Reports)

<table>
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<tr>
<th>Date</th>
<th>Title</th>
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D. PSRC Documents (PSRC Minutes)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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<td>PSRC</td>
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E. CAP Documents (RCEs, ACEs, CAP Effectiveness Evaluations)

<table>
<thead>
<tr>
<th>Type</th>
<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>RCE</td>
<td>SAPN 51017815</td>
<td>ASW Pump 2-1 Motor Bearing Degradation</td>
</tr>
<tr>
<td>ACE</td>
<td>SAPN 51020536</td>
<td>DA-Unit-2 Sodium Hydroxide Leak</td>
</tr>
<tr>
<td>Eff. Eval</td>
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<td>There are no Effectiveness Evals for this month.</td>
</tr>
</tbody>
</table>
April
List of Documents Transmitted Electronically

F. QV Documents (QPAR, Audit Reports, Audit Schedule, Assessments)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
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<td></td>
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</tr>
<tr>
<td>5/6/19</td>
<td></td>
<td>Quality Digest – Information You Can Use; May 2019</td>
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</tbody>
</table>

G. Nuclear Safety Culture Monitoring Panel Reports

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There is no report for this month.</td>
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</table>

H. Self Assessment/Benchmarking (SA/BM Reports/Schedules)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>5/9/19</td>
<td>SAPN 51006219</td>
<td>Informal Benchmark</td>
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<tr>
<td>5/9/19</td>
<td>SAPN 51018606</td>
<td>FAC Program – Jan 2019 CHUG Trip Report</td>
</tr>
<tr>
<td>5/9/19</td>
<td>SAPN 51022411</td>
<td>2019 Callaway Assess/Info. Benchmark</td>
</tr>
<tr>
<td>5/9/19</td>
<td>SAPN 51028390</td>
<td>Informal Benchmark – Climbing Guidance</td>
</tr>
<tr>
<td>5/9/19</td>
<td>SAPN 51002231</td>
<td>2019 Quick Hit DBAI Self Assessment</td>
</tr>
</tbody>
</table>

I. Performance Information (PPIR, Operating Plan, Station Initiatives, IPMs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/25/19</td>
<td></td>
<td>Nuclear Generation Operating Plan 2019 – 2023, No new updates this month.</td>
</tr>
<tr>
<td>PPIR</td>
<td>4/25/19</td>
<td>Diablo Canyon Power Plant; Plant Performance Improvement Report Achieving Results; Data: March 2019</td>
</tr>
<tr>
<td>Station Initiative</td>
<td></td>
<td>There are no new Station Initiatives this month.</td>
</tr>
</tbody>
</table>

J. INPO

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no INPO documents for this month.</td>
</tr>
</tbody>
</table>
April
List of Documents Transmitted Electronically

K. Operational Documents (ODM Minutes, POAs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODMs</td>
<td></td>
<td>There are no ODMs for this month.</td>
</tr>
<tr>
<td>POA</td>
<td></td>
<td>There are no new POAs for this month.</td>
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L. Safety Limit Violation Report

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no Safety Limit Violation Reports for this month.</td>
</tr>
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</table>

M. Significance Determination Process Calculations

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/1/19</td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>4/8/19</td>
<td>Jim Welsch's Weekly Alignment Update</td>
</tr>
<tr>
<td>4/15/19</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>4/22/19</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>4/29/19</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
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O. Functional Area Documents

<table>
<thead>
<tr>
<th>Subcommittee</th>
<th>Date/Doc</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201913</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201914</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201915</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201916</td>
<td>T+1 Performance Critique</td>
</tr>
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# May
## List of Documents Transmitted Electronically

### A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
<th>Date</th>
<th>LBIE No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no LBIEs for this month.</td>
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</tbody>
</table>

### B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/2/19</td>
<td>DCL-19-042, DIL-19-009</td>
<td>Emergency Plan Implementing Procedure Update</td>
</tr>
<tr>
<td>5/2/19</td>
<td>DCL-19-039</td>
<td>Response to NRC Request for Additional Information Regarding &quot;License Amendment Request 18-01, Request to Revise Emergency Plan Response Organization Staffing and Augmentation&quot;</td>
</tr>
<tr>
<td>5/28/19</td>
<td>DCL-19-046</td>
<td>Withdrawal of Request for Exemption from Operator Written Examination and Operating Test</td>
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</table>

### C. NRC Incoming Correspondence (including Inspection Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/2/19</td>
<td>Diablo Canyon Nuclear Power Plant – Request for Exemption from Operator Written Examination and Operating Test – Request for Additional Information (EPID L-2019-LLE-0004)</td>
</tr>
<tr>
<td>5/10/19</td>
<td>Diablo Canyon Power Plant, Units 1 and 2 – NRC Integrated Inspection Report 05000275/2019001 and 05000323/2019001</td>
</tr>
<tr>
<td>5/28/19</td>
<td>Request for Additional Information (Supplemental) – License Amendment Request (LAR) to Revise Emergency Plan Response Organization Staffing and Augmentation (EPID L-2018-LLA-0248)</td>
</tr>
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### D. PSRC Documents

<table>
<thead>
<tr>
<th>PSRC Minutes</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>There are no PSRC documents for this month.</td>
</tr>
</tbody>
</table>

### E. CAP Documents (RCAs, ACEs, CAP Effectiveness Evaluations)

<table>
<thead>
<tr>
<th>Type</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCAs</td>
<td></td>
<td>There are no RCAs for this month.</td>
</tr>
<tr>
<td>ACE</td>
<td>SAPN 51022282</td>
<td>DA-Employee Injury – Broken Ankle</td>
</tr>
<tr>
<td>Eff. Eval</td>
<td></td>
<td>There are no Effectiveness Evals for this month.</td>
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May
List of Documents Transmitted Electronically

F. QV Documents (QPAR, Audit Reports, Audit Schedule, Assessments)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>5/15/19</td>
<td>FileNet # 190650002</td>
<td>2019 Fire Protection Audit</td>
</tr>
<tr>
<td>5/23/19</td>
<td>Quality Verification Assessment # 191420002</td>
<td>OP AP-34 Series Procedures</td>
</tr>
<tr>
<td>5/30/19</td>
<td></td>
<td>Quality Digest; Information You Can Use</td>
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</tbody>
</table>

G. Nuclear Safety Culture Monitoring Panel Reports

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
</table>

H. Self Assessment/Benchmarking (SA/BM Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/23/19</td>
<td>SAPN 50920942</td>
<td>STARS benchmarking PMT process - informal</td>
</tr>
<tr>
<td>5/30/19</td>
<td>SAPN 50932500</td>
<td>Vermont Yankee Decom Bnchmrk July 2017</td>
</tr>
<tr>
<td>5/30/19</td>
<td>SAPN 51004535</td>
<td>Exam Sec Cause Eval Informal Benchmark</td>
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<tr>
<td>5/30/19</td>
<td>SAPN 51027768</td>
<td>Informal Benchmark Report – Hatch Nuclear Power Plant</td>
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<tr>
<td>5/30/19</td>
<td>SAPN 50866979</td>
<td>FAC Program 2017 Self Assessment</td>
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<tr>
<td>5/30/19</td>
<td>SAPN 50986740</td>
<td>Status Control Self-Assessment</td>
</tr>
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<td></td>
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<td>There are no Quick Hit Self-Assessments this month.</td>
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I. Performance Information (PPIR, Operating Plan, Station Initiatives)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/25/19</td>
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<td>Nuclear Generation Operating Plan 2019 – 2023, No new updates this month.</td>
</tr>
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</table>

https://spe.utility.pge.com/sites/regulatoryservices/NSOC_DCISC/Monthly Transmittals/2019/May Transmittal.doc
May
List of Documents Transmitted Electronically

<table>
<thead>
<tr>
<th>PPIR</th>
<th>5/23/19</th>
<th>Diablo Canyon Power Plant; Plant Performance Improvement Report Achieving Results; Data: April 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Initiative</td>
<td>5/16/19</td>
<td>Diablo Canyon Power Plant (DCPP) Standards for Bracing Office Furniture, Cabinets, and Storage Racks, Revision 1</td>
</tr>
</tbody>
</table>

J. INPO

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no INPO documents for this month.</td>
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</tbody>
</table>

K. Operational Documents (ODM Minutes, POAs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODMs</td>
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<td>There are no ODMs for this month.</td>
</tr>
<tr>
<td>POA</td>
<td></td>
<td>There are no new POAs for this month.</td>
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L. Safety Limit Violation Report

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

M. Significance Determination Process Calculations

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no Significance Determination Process Calculations for this month.</td>
</tr>
</tbody>
</table>

N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/6/19</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
<tr>
<td>5/13/19</td>
<td>Jim Welsch’s Weekly Alignment Update</td>
</tr>
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</table>

O. Functional Area Documents

<table>
<thead>
<tr>
<th>Subcommittee</th>
<th>Date/Doc</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201917</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201918</td>
<td>T+1 Performance Critique</td>
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<tr>
<td></td>
<td>Week 201919</td>
<td>T+1 Performance Critique</td>
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<tr>
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<td>Week 201920</td>
<td>T+1 Performance Critique</td>
</tr>
<tr>
<td></td>
<td>Week 201921</td>
<td>T+1 Performance Critique</td>
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June
List of Documents Transmitted Electronically

A. Licensing Basis Impact Evaluations

<table>
<thead>
<tr>
<th>Date</th>
<th>LIE No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>There are no LIEEs for this month.</td>
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</tbody>
</table>

B. NRC Outgoing Correspondence (incl. LERs, LARs, etc.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/13/19</td>
<td>DCL-19-049</td>
<td>Owner's Activity Report for Unit 1 Twenty-first Refueling Outage</td>
</tr>
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</table>

C. NRC Incoming Correspondence (including Inspection Reports)

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/3/19</td>
<td>(OUO) Diablo Canyon Power Plant, Units 1 &amp; 2, NRC Inspection Report 05000275/2019201 and 05000323/2019201 (OUO)</td>
</tr>
<tr>
<td>6/10/19</td>
<td>Diablo Canyon Nuclear Power Plant, Units 1 and 2 – Withdrawal of Request for Exemption from Operator Written Examination and Operating Test (EPID L-2019-LLE-0004)</td>
</tr>
<tr>
<td>6/28/19</td>
<td>Diablo Canyon Nuclear Power Plant, Units 1 and 2 – Request for Relief from the Inservice Inspection Program Requirements of ASME Section XI, for the Steam Generator and Pressurizer Nozzle Inside Radius Sections (EPID L-2018-LLR-0138)</td>
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</table>

D. PSRC Documents (PSRC Minutes)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSRC</td>
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</tr>
</tbody>
</table>

E. CAP Documents (RCAs, ACEs, CAP Effectiveness Evaluations)

<table>
<thead>
<tr>
<th>Type</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCAs</td>
<td>SAPN</td>
<td>Root Cause Evaluation Report – Degradation of MFP 1-1 Oil System</td>
</tr>
<tr>
<td></td>
<td>51026389</td>
<td></td>
</tr>
<tr>
<td>ACE</td>
<td></td>
<td>There are no ACEs for this month.</td>
</tr>
<tr>
<td>Eff. Eval</td>
<td></td>
<td>There are no Effectiveness Evals for this month.</td>
</tr>
</tbody>
</table>

F. QV Documents (QPAR, Audit Reports, Audit Schedule, Assessments)

<table>
<thead>
<tr>
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<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There is no QPAR for this month.</td>
</tr>
<tr>
<td>6/13/19</td>
<td>FileNet</td>
<td>2019 Special Processes &amp; Inservice Inspection/Inservice Testing Audit</td>
</tr>
<tr>
<td></td>
<td>#190840022</td>
<td></td>
</tr>
<tr>
<td>7/2/19</td>
<td></td>
<td>Quality Digest; Information You Can Use</td>
</tr>
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</table>

June
List of Documents Transmitted Electronically

G. Nuclear Safety Culture Monitoring Panel Reports

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
</table>

H. Self Assessment/Benchmarking (SA/BM Reports/Schedules)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/10/19</td>
<td>SAPN 50957675</td>
<td>Columbia Mock Board Trip Report</td>
</tr>
<tr>
<td>7/10/19</td>
<td>SAPN 50962312</td>
<td>INPO Ops Mgr WrkShp Insights</td>
</tr>
<tr>
<td>7/10/19</td>
<td>SAPN 51026657</td>
<td>Informal Benchmark Leadership Training</td>
</tr>
<tr>
<td>7/10/19</td>
<td>SAPN 51030302</td>
<td>Informal benchmark – ALARA Palo Verde</td>
</tr>
<tr>
<td>7/10/19</td>
<td>SAPN 50977558</td>
<td>QHSA SGI Program</td>
</tr>
<tr>
<td>7/10/19</td>
<td>SAPN 51012084</td>
<td>Perform QHSA NRC Procedure 71124.01</td>
</tr>
<tr>
<td>7/10/19</td>
<td>SAPN 51025561</td>
<td>Perform QHSA NRC Procedure 71124.02</td>
</tr>
<tr>
<td>7/10/19</td>
<td>SAPN 51025562</td>
<td>Perform QHSA NRC Procedure 71124.04</td>
</tr>
</tbody>
</table>

I. Performance Information (PPIR, Operating Plan, Station Initiatives, IPMs)

<table>
<thead>
<tr>
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<th>Doc. No.</th>
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</thead>
<tbody>
<tr>
<td>3/25/19</td>
<td></td>
<td>Nuclear Generation Operating Plan 2019 – 2023, No new updates this month.</td>
</tr>
<tr>
<td>PPIR</td>
<td>6/27/19</td>
<td>Diablo Canyon Power Plant; Plant Performance Improvement Report Achieving Results; Data: May 2019</td>
</tr>
<tr>
<td>Station Initiative</td>
<td></td>
<td>There are no new Station Initiatives this month.</td>
</tr>
<tr>
<td>IPM</td>
<td></td>
<td>There are no IPMs this month.</td>
</tr>
</tbody>
</table>

J. INPO

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no INPO documents for this month.</td>
</tr>
</tbody>
</table>

**June**

List of Documents Transmitted Electronically

### K. Operational Documents (ODM Minutes, POAs)

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODMs</td>
<td></td>
<td>There are no ODMs for this month.</td>
</tr>
<tr>
<td>POA</td>
<td></td>
<td>There are no new POAs for this month.</td>
</tr>
</tbody>
</table>

### L. Safety Limit Violation Report

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no Safety Limit Violation Reports for this month.</td>
</tr>
</tbody>
</table>

### M. Significance Determination Process Calculations

<table>
<thead>
<tr>
<th>Date</th>
<th>Doc. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There are no Significance Determination Process Calculations for this month.</td>
</tr>
</tbody>
</table>

### N. Miscellaneous

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>There are no miscellaneous documents for this month.</td>
</tr>
</tbody>
</table>

### O. Functional Area Documents

<table>
<thead>
<tr>
<th>Subcommittee</th>
<th>Date/Doc</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Week 201922 T+1 Performance Critique</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Week 201923 T+1 Performance Critique</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Week 201924 T+1 Performance Critique</td>
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<tr>
<td></td>
<td>Week 201925 T+1 Performance Critique</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Week 201926 T+1 Performance Critique</td>
<td></td>
</tr>
</tbody>
</table>
NOTICE IS HEREBY GIVEN that on October 24-25, 2018, at the Avila Lighthouse Suites, located at First & San Francisco Streets, Avila Beach, California, a public meeting will be held by the DCISC in the Point San Luis conference facility in three separate sessions, at the times indicated, to consider the following matters:

1. **Afternoon Session - (10/24/2018) - 1:15 P.M.** Opening comments and remarks; receive public comments and communications to the Committee; approve minutes of June 13-14, 2018 public meeting, review of documents, discussion of administrative matters including review and approval of the DCISC 28th Annual Report on the Safety of Diablo Canyon Nuclear Power Plant (DCPP) Operations for the period July 1, 2017 - June 30, 2018, an update on financial matters and activities during 2018-2019, review of the Open Items List, brief remarks on reactor decommissioning and proposed changes to decommissioning regulations by the Chief, NRC Reactor Decommissioning Branch, reports by Committee Members and scheduling of future public meetings and fact-finding visits, review of documents and receive reports by technical consultants and legal counsel, approve and authorize transmittal of fact-finding reports to PG&E.

2. **Morning Session - (10/25/2018) - 8:30 A.M.** Comments by Committee members; receive public comments and communications to the Committee; informational presentations requested by the Committee from PG&E on plant safety and operations, including an update on the status of decommissioning planning, the activities of the Diablo Canyon Community Engagement Panel and changes to NRC decommissioning regulations; receive an informational presentation by Dr. David Victor, Chair of the San Onofre Community Engagement panel; an information presentation by PG&E entitled "State of the Plant" concerning key events, station activities and employee retention/staffing trends since the last meeting of the DCISC in June 2018.

3. **Afternoon Session - (10/25/2018) - 1:00 P.M.** Comments by Committee members; receive public comments and communications to the Committee; consider further informational presentations from PG&E on topics relating to plant safety and operations, including a report on the status of NRC Performance Indicators, Licensee Event Reports, NRC Notices of Violation and
issues raised by NRC inspectors, and an update on nuclear safety culture, Safety Conscious Work Environment and the Employee Concerns program; receive reports by technical consultant, approve and authorize transmittal of fact-finding report to PG&E; Committee discussion of a possible post-shutdown role after expiration of the plant's operating licenses from the NRC and possible engagement, on an ad hoc basis, of a technical consultant to assist in identification of decommissioning issues; and wrap-up discussion by Committee Members and confirmation of future site visits, study sessions and public meetings.

The DCISC's policy is to schedule its public meetings in locations that are accessible to people with disabilities. The Avila Lighthouse Suites Point San Luis Conference Facility is an accessible facility and hearing assistance devices are available upon request. A person who needs a disability-related accommodation or modification in order to participate in the meeting may make a request by contacting the DCISC office at (800) 439-4688 or by sending a written request to the DCISC office at 857 Cass Street, Ste. D., Monterey, CA 93940. Providing your request at least five business days before the meeting will help ensure availability of the requested accommodation.

The meeting will be webcast in real time at: http://www.slo-span.org/local_webcast/DCISC/stream_index.htm and through http://www.dcisc.org

The specific meeting agenda and the staff reports and materials regarding the above meeting agenda items will be available for public review commencing Monday, October 22, 2018, at the Reference Department of the Cal Poly Library in San Luis Obispo and on the DCISC website. For further information regarding the public meeting, please contact Robert Wellington, Committee Legal Counsel, 857 Cass Street, Suite D, Monterey, California, 93940; telephone: 1-800-439-4688 or read the agenda on line by visiting the Committee's website at www.dcisc.org.

Dated: October 14, 2018.
Committee Members:

Robert J. Budnitz
Peter Lam
Per F. Peterson

Wednesday & Thursday, October 24-25, 2018
Point San Luis Conference Room
Avila Lighthouse Suites, First & San Francisco Streets, Avila Beach, California

Public Tour

Public Tour - 10/24/2018 - 8:00 A.M.

PUBLIC TOUR OF DIABLO CANYON NUCLEAR POWER PLANT ("DCPP")
TO ASSEMBLE AT THE PG&E ENERGY EDUCATION CENTER
(Prior registration and security clearance required of all public participants)

The Members of the Diablo Canyon Independent Safety Committee (DCISC), accompanied by members of the public, will conduct a tour of the Plant.

Following the tour, or in the alternative if the tour must be cancelled for any reason, the committee may convene an informal question and answer session at the PG&E Energy Education Center, 6588 Ontario Road, San Luis Obispo.

CONCLUDE PUBLIC TOUR

Public Meeting Agenda

This public meeting was webcast in real time at: http://www.slo-span.org/local_webcast/DCISC/stream_index.htm and through www.dcisc.org. Note. This link was only live during the meeting.

Afternoon Session: 10/24/2018 - 1:15 P.M
I Call To Order–Roll Call

II Introductions

III Public Comments and Communications

Anyone wishing to address the Committee on matters not appearing on the Agenda may do so only at this time. The public may comment on any matter listed on the Agenda immediately following the time the matter is considered by the Committee. There will be a time limit for each speaker as designated by the presiding officer. No action will be taken by the Committee on matters brought up under this item but they may be referred to staff for further study, response or action.

IV Consent Agenda

Routine items which the Committee can approve with a single motion and vote. A member may request that any item be placed on the regular agenda for separate consideration.

A. Minutes of June 13-14, 2018, Meeting:—Approve

V Action Items

A. DCISC 28th Annual Report on Safety of Diablo Canyon Operations; July 1, 2017 - June 30, 2018—Discussion/Approval

B. Update on Financial Matters and Committee Activities during 2018-2019—Discussion/Action

C. Discussion of Open Items List—Discussion/Action

VI Information Items Before the Committee

A. Informational Presentations Requested by the Committee

1. Brief Remarks on Reactor Decommissioning & Proposed Changes to Decommissioning Regulations
   Mr. Bruce Watson
   Chief, NRC Reactor Decommissioning Branch

VII Committee Member Reports and Discussion

A. Public Outreach, Site Visits and Other Committee Activities; Scheduling and Confirmation of Future Fact-findings and Public Meetings

B. Documents Provided to the Committee

VIII Technical Consultant & Legal Counsel Reports & Receive, Approve
and Authorize Transmittal of Fact-Finding Reports to PG&E

A. Ferman Wardell:
Fact-finding Topics; Reports on and Approval of
July 10-11, 2018 Fact Finding Report

B. Consultant Richard D. McWhorter Jr.:
Fact-finding Topics; Report on and Approval of
August 22-23, 2018 Fact Finding Report

C. Robert Wellington
Administrative, Regulatory and Legal Matters

IX Adjourn Afternoon Meeting

Morning Session: 10/25/2018 - 8:30 A.M

X Reconvene for Morning Meeting

XI Committee Member Comments

XII Public Comments and Communications

Anyone wishing to address the Committee on matters not appearing on the Agenda may do so only at this time. The public may comment on any matter listed on the Agenda immediately following the time the matter is considered by the Committee. There will be a time limit for each speaker as designated by the presiding officer. No action will be taken by the Committee on matters brought up under this item but they may be referred to staff for further study, response or action.

XIII Information Items Before the Committee (Cont’d)

A. Informational Presentations Requested by the Committee of PG&E Representatives

1. Update on the Status of DCPP Decommissioning Planning, the Community Engagement Panel, Funding and Proposed Changes to NRC Decommissioning Regulations

B. Informational Presentations Requested by the Committee (Cont'd.)

2. San Onofre Nuclear Generating Station Decommissioning Experience
Dr. David Victor, University of California, San Diego,
Chair of San Onofre Community Engagement Panel

B. Informational Presentations Requested by the Committee of PG&E Representatives
2. Presentation on the State of the Plant including Key Events, Highlights and Station Activities, and Employee Retention/Staffing Trends since DCISC's June 2018 Public Meeting

XIV Adjourn Afternoon Meeting

Afternoon Session - 10/25/2018 - 1:00 P.M.

XV Reconvene for Afternoon Meeting

XVI Committee Member Comments

XVII Public Comments and Communications

Anyone wishing to address the Committee on matters not appearing on the Agenda may do so only at this time. The public may comment on any matter listed on the Agenda immediately following the time the matter is considered by the Committee. *There will be a time limit for each speaker as designated by the presiding officer. No action will be taken by the Committee on matters brought up under this item but they may be referred to staff for further study, response or action.*

XVIII Information Items Before the Committee (Cont'd)

C. Informational Presentations Requested by the Committee of PG&E Representatives

3. Update on the Status of NRC Performance Indicators, Licensee Event Reports, NRC Notices of Violations and Issues Raised by NRC Inspectors

4. Update on Nuclear Safety Culture, Safety Conscious Work Environment and Employee Concerns Program


D. Ferman Wardell:
   Fact-finding Topics; Reports on and Approval of September 5-6, 2018 Fact Finding Report

Morning Session – 10/19/2017 – 9:00 A.M.

XX Concluding Remarks & Discussion by Committee Members of Future DCISC Activities
A. Future Actions by the Committee

B. Discussion and Possible Direction re a Future Role for DCISC After Expiration of Operating Licenses for DCPP Including Possible Engagement, on an *Ad Hoc* Basis, of a Consultant to Assist in Identification of Decommissioning-related Issues

C. Further Information to Obtain/Review

D. Scheduling of Future Site Visits, Study Sessions and Meetings

**XXI Adjourn of Ninety-First Public Morning Meeting**

The DCISC’s policy is to schedule its public meetings in locations that are accessible to people with disabilities. The Avila Lighthouse Suites Point San Luis Conference Facility is a wheelchair accessible facility. A person who needs a disability-related accommodation or modification in order to participate in the meeting may make a request by contacting the DCISC office at (800) 439-4688 or by sending a written request to the DCISC office at 857 Cass Street, Ste. D., Monterey, CA 93940. Providing your request at least five business days before the meeting will help ensure availability of the accommodation.
NOTICE IS HEREBY GIVEN that on February 27-28, 2019, at the Pismo Lighthouse Suites Crow's Nest Conference Room, located at 2411 Price Street (2nd Floor), Pismo Beach, California, a public meeting will be held by the Diablo Canyon Independent Safety Committee (DCISC) in five separate sessions, at the times indicated, to consider the following matters:

1. **Morning Session - (02/27/2019) - 9:00 A.M.** Opening comments and remarks; receive public comments and communications to the Committee; approve the Minutes of the DCISC's October 24-25, 2018 public meeting; discussion of administrative matters, including receipt of PG&E's response to the DCISC 28th Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations for the period July 1, 2017 - June 30, 2018; an update on financial matters and activities; review of the Open Items List; reports by Committee Members, DCISC Technical Consultant and Assistant Legal Counsel; approve fact finding report and authorize its transmittal to PG&E; and scheduling of future fact-finding visits and public meetings and review of documents received.

2. **Afternoon Session - (02/27/2019) - 1:30 P.M.** Committee member comments; receive public comments and communications to the Committee; DCISC Technical Consultant report and approve fact finding report and authorize its transmittal to PG&E; receive informational presentation related to plant safety and operations requested by the Committee from PG&E, including the "State of the Plant" regarding key events, organizational changes, bankruptcy announcement, station activities since October 2018 including the cause and corrective actions for the December 2018 trip of Unit-2, and work scheduled during the 21st refueling outage for Unit-1; informational presentation by DCISC Chair Dr. Robert J. Budnitz concerning the Seismic Risk Analysis results; and adjourn to a closed session to consider a personnel matter pursuant to California Government Code §11126.

3. **Evening Session - (02/27/2019) - 5:30 P.M.** Committee member comments; receive public comments and communications to the Committee; receive informational presentations related to plant safety and operations requested by the Committee from PG&E, including an update on Emergency Preparedness Programs including results of the October 24, 2018 Evaluated Emergency Exercise and emergency preparedness following cessation of operations; and a presentation on Cybersecurity Programs for the protection
of critical digital assets.

4. **Morning Session - (02/28/2019) - 9:00 A.M.** Comments by Committee members; receive public comments and communications to the Committee; receive further informational presentations requested by the Committee from PG&E relating to plant safety and operations, including an update on NRC Performance Indicators, recent Licensee Event Reports, NRC Notices of Violation, and issues raised by NRC Resident Inspectors; a presentation on the Quality Verification organization's perspective on plant performance, top issues, and the Quality Performance Assessment Report; and DCISC Technical Consultant report and approve fact-finding report and authorize its transmittal to PG&E.

5. **Afternoon Session - (02/28/2019) - 1:00 P.M.** Comments by Committee members; receive public comments and communications to the Committee; consider informational presentation from PG&E on a topic relating to plant safety and operations, including the results of the 2018 Operating Plan and key elements of the 2019 Operating Plan; discussion by the Committee of a potential role for the DCISC following expiration of the operating licenses, engagement of a consultant on an ad hoc basis to review decommissioning-related issues, consider correspondence to and from the DCISC on decommissioning-related matters, consider invitation extended to the DCISC by the Diablo Canyon Decommissioning Engagement Panel to make a presentation at the Panel's March 13, 2019 public meeting, and discuss future opportunities for cooperation between the DCISC and the Diablo Canyon Decommissioning Engagement Panel; wrap-up discussion by Committee members, and confirmation of future site visits, study sessions and public meetings.

The DCISC's policy is to schedule its public meetings in locations that are accessible to people with disabilities. The Avila Lighthouse Suites Point San Luis Conference Facility is an accessible facility and hearing assistance devices are available upon request. A person who needs a disability-related accommodation or modification in order to participate in the meeting may make a request by contacting the DCISC office at (800) 439-4688 or by sending a written request to the DCISC office at 857 Cass Street, Ste. D., Monterey, CA 93940. Providing your request at least five business days before the meeting will help ensure availability of the requested accommodation.

The specific meeting agenda and the staff reports and materials regarding the above meeting agenda items will be available for public review commencing Monday, October 22, 2018, at the Reference Department of the Cal Poly Library in San Luis Obispo and on the DCISC website. **For further information regarding the public meeting, please contact Robert Wellington, Committee Legal Counsel, 857 Cass Street, Suite D, Monterey, California, 93940; telephone: 1-800-439-4688 or read the agenda on line by visiting the Committee's website at www.dcisc.org.**
Dated: February 17, 2019.
Committee Members:

Robert J. Budnitz
Peter Lam
Per F. Peterson

Wednesday & Thursday, February 27-28, 2019
Point San Luis Conference Room
Avila Lighthouse Suites, First & San Francisco Streets, Avila Beach, California

Public Meeting Agenda

This public meeting will be webcast in real time at: http://www.slo-span.org/local_webcast/DCISC/stream_index.htm and through www.dcisc.org. Note. This link will only be live during the meeting.

Morning Session - 2/27/2019 - 9:00 A.M.

I Call To Order–Roll Call

II Introductions

Advisement

The Committee may consider at any time requests to change the order of a listed agenda item. Information distributed to the Committee at a public meeting becomes part of the public record of the DCISC. A copy of written material, pictures, etc. must be provided to the Committee’s Legal Counsel for this purpose. Correspondence received and sent by the Committee is on file with the Office of the DCISC Legal Counsel and copies are available upon request. Devices for attendees who may be hearing impaired are available upon request. This meeting will be webcast in real time.

III Public Comments and Communications
Anyone wishing to address the Committee on matters not appearing on the Agenda may do so only at this time. The public may comment on any matter listed on the Agenda immediately following the time the matter is considered by the Committee. There will be a time limit for each speaker as designated by the presiding officer. No action will be taken by the Committee on matters brought up under this item but they may be referred to staff for further study, response or action.

IV Approval of Minutes

A. Minutes of October 24-25, 2018, Meeting–Approve

V Action Items


B. Update on Financial Matters, Consultant Compensation & Committee Activities.–Discussion/Action

C. Discussion of the Open Items List–Discussion/Action

VI Committee Member Reports and Discussion

A. Public Outreach, Site Visits and Other Committee Activities; Agenda Items,
   Scheduling and Confirmation of Future Fact-findings and Public Meetings.

B. Documents Provided to the Committee

VII Technical Consultant & Legal Counsel Reports; Receive, Approve and Authorize Transmittal of Fact-finding Reports to PG&E

A. Richard D. McWhorter Jr.:
   Fact-finding Topics; Report on and Approval of November 7-8, 2018 Fact Finding Report.

B. Robert Rathie
   Administrative, Regulatory and Legal Matters

VIII Adjourn Morning Meeting

Afternoon Session - 2/27/2019 - 1:30 P.M.

IX Reconvene for Afternoon Meeting

X Committee Member Comments
XI Public Comments and Communications

Anyone wishing to address the Committee on matters not appearing on the Agenda may do so only at this time. The public may comment on any matter listed on the Agenda immediately following the time the matter is considered by the Committee. There will be a time limit for each speaker as designated by the presiding officer. No action will be taken by the Committee on matters brought up under this item but they may be referred to staff for further study, response or action.

XII Technical Consultant Reports & Receive, Approve and Authorize Transmittal of Fact-Finding Reports to PG&E (Con't)

C. Ferman Wardell:
Fact-finding Topics; Report on and Approval of the December 4-5, 2018 Fact Finding Report.

XIII Information Items Before the Committee

A. Informational Presentations Requested by the Committee of PG&E Representatives.

1. State of the Plant Update including Key Events, Highlights, Organizational Changes, Bankruptcy Announcement, and Station Activities since DCISC’s October 2018 Public Meeting Including the Cause and Corrective Actions for the December 2018 Trip of Unit 2; and Work Scheduled During the 21st Refueling Outage for Unit-1 (1R21).

XIV Informational Presentation by a Committee Member

1. Seismic Risk Analysis Results.
Presentation by Dr. Robert J. Budnitz, DCISC Chair.

XV Closed Session - Personnel Matter - (Govt. Code §11126).

XVI Adjourn Afternoon Meeting

   Evening Session - 2/27/2019 - 5:30 P.M.

XVII Reconvene for Evening Meeting

XVII Committee Member Comments

XIX Public Comments and Communications

XX Information Items Before the Committee (Cont’d.)
B. Informational Presentations Requested by the Committee of PG&E Representatives.


XXI Adjourn Afternoon Meeting

Morning Session - 2/28/2019 - 9:00 A.M.

XXII Reconvene for Morning Meeting

XXIII Committee Member Comments

XXIV Public Comments and Communications

XXV Information Items Before the Committee (Cont’d)

C. Informational Presentations Requested by the Committee of PG&E Representatives.

5. Update on the Status of NRC Performance Indicators, Licensee Event Reports, NRC Inspection Reports and Notices of Violation, and Issues Raised by NRC Resident Inspectors.


XXVI Technical Consultang Reports & Receive, Approve and Authorize Transmittal of Fact-Finding Reports to PG&E (Cont'd)

D. Richard D. McWhorter Jr.:

XXVII Adjourn Afternoon Meeting

Afternoon Session - 2/28/2019 - 1:00 P.M.

XXII Reconvene for Morning Meeting

XXIII Committee Member Comments

XXIV Public Comments and Communications
XXV Information Items Before the Committee (Cont'd)

D. Informational Presentations Requested by the Committee of PG&E Representatives.

7. Results of the 2018 Operating Plan and Key Elements of the 2019 Operating Plan.

XXXII Informational Discussion by Committee Members & Consultants

1. Committee Discussion of Options and a Potential Role for the DCISC After Expiration of the Operating Licenses for DCPP and the Possible Engagement, on an Ad Hoc Basis, of a Consultant to Assist in the Identification of Decommissioning-related Issues; Consider Correspondence to and from the DCISC on Decommissioning-related Matters; Consideration of an Invitation Extended to the DCISC by the Diablo Canyon Decommissioning Engagement Panel (DC DEP) for a DCISC Representative to Attend and to Make a Presentation at the DC DEP's March 13, 2019 Public Meeting in San Luis Obispo; and Discussion of Future Opportunities for Cooperation between the DC DEP and the DCISC. Discussion/Direction

XXXIII Concluding Remarks & Discussion by Committee Members of Future DCISC Activities

A. Future Actions by the Committee
B. Further Information to Obtain/Review
C. Scheduling of Future Site Visits, Study Sessions and Meetings

XXIV Adjournment of Ninety-Second Public Meeting

The DCISC's policy is to schedule its public meetings in locations that are accessible to people with disabilities. The Pismo Lighthouse Suites Crow's Nest Conference Facility is a wheelchair accessible facility. A person who needs a disability-related accommodation or modification in order to participate in the meeting may make a request by contacting the DCISC office at (800) 439-4688 or by sending a written request to the DCISC office at 857 Cass Street, Ste. D., Monterey, CA 93940. Providing your request at least five business days before the meeting will help ensure availability of the requested accommodation.
NOTICE IS HEREBY GIVEN that on June 4-5, 2019, at the Avila Lighthouse Suites Point San Luis Conference Facility located at First & San Francisco Streets, Avila Beach, California, a public meeting will be held by the Diablo Canyon Independent Safety Committee (DCISC) in four separate sessions, at the times indicated, to consider the following matters:

1. **Morning Session** - (06/04/2019) - 8:00 A.M.  
   Opening comments and remarks; receive public comments and communications to the Committee; discussion of administrative matters including an update on financial matters and activities during 2019, review of the Open Items List, nomination and election of Chair and Vice Chair to serve for the July 1, 2019 to June 30, 2020 term, and reports and scheduling of future activities by Committee Members; receive informational presentation related to plant safety and operations requested by the Committee from PG&E, including the "State of the Plant" regarding key events and station activities since February 2019, an update on the status of NRC Performance Indicators, Licensee Event Reports, NRC Notices of Violation, issues raised by NRC inspectors and major regulatory issues, and an update on the status of the Performance Improvement and Corrective Action Programs including results achieved; receive, approve and authorize transmittal of fact-finding report to PG&E for the March 2019 fact-finding visit to Diablo Canyon Power Plant (DCPP); and review of administrative, regulatory and legal matters.

2. **Afternoon Session** - (06/04/2019) - 1:30 P.M.  
   Committee member comments; receive public comments and communications to the Committee; receive informational presentations from PG&E on topics relating to plant safety and operations, including the Unit 2 reactor trip final root cause evaluation results and corrective actions, and plant performance during the 21st refueling outage for Unit 1 including key activities, performance indicators, fuel and steam generator inspections, unexpected equipment issues and open items; and an informational discussion by the Committee of options and a potential role for the DCISC after expiration of the operating licenses for both Units, review of a possible second restatement of the Committee's Charter, and discussion of DCISC participation in the California Public Utilities Commission's 2018 Nuclear Decommissioning Cost Triennial Proceeding.

3. **Evening Session** - (06/04/2019) - 5:30 P.M.  
   Committee member comments; receive public comments and communications to the Committee;
receive informational presentations related to plant safety and operations including a presentation by Holtec International on nuclear fuel management and storage at DCPP, and remarks by the NRC Senior Resident Inspector for DCPP.

**NOTICE IS HEREBY FURTHER GIVEN** that on June 5, 2019, at 8:00 A.M. the Members of the DCISC will conduct an inspection tour of certain accessible areas of the DCPP. This tour, which will take approximately four hours, was previously advertised to the public. Because the plant is an operating nuclear power plant the number of participants was limited and space has been assigned on the basis of prior reservation taken on a first-come, first-served basis. Prior clearance of all public attendees is required in compliance with rules of the U.S. Nuclear Regulatory Commission ("NRC"). In the alternative if security considerations preclude the public tour on June 5th, the DCISC may convene an informal presentation and question and answer session at the Pacific Gas & Electric Company ("PG&E") Energy Education Center, 6588 Ontario Road, San Luis Obispo.

4. **Reconvene Public Meeting for Afternoon Session - (06/05/2019) - 1:00 P.M.** Comments by Committee Members; receive public comments and communications to the Committee; approve the Minutes of the DCISC's February 27-28, 2019 public meeting, receive, approve and authorize transmittal of fact-finding reports to PG&E for the April and May 2019 fact-finding visits to Diablo Canyon; wrap-up discussion by Committee members, and confirmation of future site visits, study sessions and public meetings.

The DCISC's policy is to schedule its public meetings in locations that are accessible to people with disabilities. The Avila Lighthouse Suites and the Point San Luis Conference Facility are accessible facilities and hearing assistance devices are available upon request. A person who needs a disability-related accommodation or modification in order to participate in the meeting may make a request by contacting the DCISC office at (800) 439-4688 or by sending a written request to the DCISC office at 857 Cass Street, Ste. D., Monterey, CA 93940.

Providing your request at least five business days before the meeting will help ensure availability of the requested accommodation. The meeting will be webcast in real time at:


The specific meeting agenda and the staff reports and materials regarding the above meeting agenda items will be available for public review commencing Friday, May 31, 2019, at the Reference Department of the Cal Poly Library in San Luis Obispo and online at www.dcisc.org. **For further information regarding the public meeting, please contact Robert Wellington, Committee Legal Counsel, 857 Cass Street, Suite D, Monterey, California, 93940; telephone: 1-800-439-4688 or read the agenda on line by visiting the**
Committee's website at www.dcisc.org.

Committee Members:

Robert J. Budnitz
Peter Lam
Per F. Peterson

This public meeting was livestreamed in real time at: http://www.slo-span.org/local_webcast/DCISC/stream_index.htm.

Public Meeting Location
Point San Luis Conference Room
Avila Lighthouse Suites
First & San Francisco Streets
Avila Beach, California

I Call to Order - Roll Call

II Introductions

Advisement
The Committee may consider at any time requests to change the order of a listed agenda item. Information distributed to the Committee at a public meeting becomes part of the public record of the DCISC. A copy of written material, pictures, etc. must be provided to the Committee's Legal Counsel for this purpose. Correspondence received and sent by the Committee is on file with the Office of the DCISC Legal Counsel and copies are available upon request. Devices for attendees who may be hearing impaired are available upon request. The meeting will be webcast in real time.

III Public Comments and Communications

Anyone wishing to address the Committee on matters not appearing on the Agenda may do so only at this time. The public may comment on any matter listed on the Agenda immediately following the time the
matter is considered by the Committee. There will be a time limit for each speaker as designated by the presiding officer. No action will be taken by the Committee on matters brought up under this item but they may be referred to staff for further study, response or action.

IV Action Item

A. Update on Financial Matters and Committee Activities during 2019: Discussion/Action
B. Discussion of Open Items List: Discussion/Action
C. Nomination and Election of Chair and Vice-Chair for the July 1, 2019 - June 30, 2020 Term: Discussion/Action

V Committee Member Reports and Discussion

A. Public Outreach, Site Visits and Other Committee Activities; Scheduling and Confirmation of Future Fact-Finding Visits and Public Meetings
B. Documents Provided to the Committee

VI Information Items Before the Committee

1. Presentation on the State of the Plant including Key Events, Highlights and Station Activities since February 2019
2. Update on the Status of NRC Performance Indicators, Licensee Event Reports, NRC Notices of Violation and Issues Raised by NRC Resident Inspectors and Major Regulatory Issues (Open Compliance Issues and License Action Requests)
3. Update on the Status of the Performance Improvement Program, the Corrective Action Program and the Results Being Achieved

VII Staff & Consultant Reports & Receive, Approve and Authorize Transmittal of Fact-Finding Report to PG&E

B. Assistant Legal Counsel Robert W. Rathie: Administrative, Regulatory and Legal Matters

VII Adjourn Morning Meeting

Afternoon Session - 06/04/2019 - 1:30 P.M.

IX Reconvene for Afternoon Meeting
X Committee Member Comments

XI Public Comments and Communications

Anyone wishing to address the Committee on matters not appearing on the Agenda may do so only at this time. The public may comment on any matter listed on the Agenda immediately following the time the matter is considered by the Committee. There will be a time limit for each speaker as designated by the presiding officer. No action will be taken by the Committee on matters brought up under this item but they may be referred to staff for further study, response or action.

XII Information Items Before the Committee (Cont'd)

A. Informational Presentations Requested by the Committee of PG&E:

4. December 1, 2018, Unit 2 Reactor Trip - Results of the Final Root Cause Evaluation and Corrective Actions

5. Performance during the 21st Refueling Outage for Unit 1 (1R21) Including Key Activities Performance Indicators, Results Achieved, Fuel and Steam Generator Inspection Results, Unexpected Equipment Issues, and Open Items

XIII Informational Discussion by Committee Members, Consultants & Counsel

A. Committee Discussion of Options and a Potential Role for the DCISC After Expiration of the Operating Licenses for DCPP, review of Revised Charter(s) for the DCISC, and Discussion of Participation in the 2018 Nuclear Decommissioning Cost Triennial Proceedings: Discussion/Direction

XIV Adjourn Afternoon Meeting

Evening Session - 06/04/2019 - 5:30 P.M.

XV Reconvene for Evening Meeting

XVI Committee Member Comments

XVII Public Comments and Communications

Anyone wishing to address the Committee on matters not appearing on the Agenda may do so only at this time. The public may comment on any matter listed on the Agenda immediately following the time the matter is considered by the Committee. There will be a time limit for
each speaker as designated by the presiding officer. No action will be taken by the Committee on matters brought up under this item but they may be referred to staff for further study, response or action.

XII Information Items Before the Committee

A. Informational Presentations Requested by the Committee:

1. Presentation by Holtec International on Nuclear Fuel Management and Storage at DCPP
2. Remarks by the NRC Senior Resident Inspector for DCPP

XIV Adjourn Afternoon Meeting

Public Tour

Public Tour - 06/05/2019 - 8:00 A.M.

PUBLIC TOUR OF DIABLO CANYON POWER PLANT ("DCPP")
TO ASSEMBLE AT THE PG&E ENERGY EDUCATION CENTER
(Prior registration and security clearance required of all public participants)

The Members of the Independent Safety Committee, accompanied by members of the public, will conduct a tour of the power plant.

IN THE ALTERNATIVE, IF THE TOUR MUST BE CANCELLED FOR ANY REASON, THE COMMITTEE MAY CONVENE AN INFORMAL QUESTION AND ANSWER SESSION AT THE PG&E ENERGY EDUCATION CENTER, 6588 ONTARIO ROAD, SAN LUIS OBISPO

Reconvene Public Meeting

Afternoon Session - 06/05/2019 - 1:00 P.M.

XX Reconvene for Afternoon Meeting

XXI Committee Member Comments

XXIII Public Comments and Communications

XXIII Consent Agenda

Routine items which the Committee can approve with a single motion and vote. A member may request that any item be placed on the regular agenda for separate consideration.

A. Minutes of February 27-28, 2019, Public Meeting: Approve
XXIV Consultant Reports & Receive, Approve and Authorize Transmittal of Fact-Finding Reports to PG&E

C. Technical Consultant Richard D. McWhorter, Jr.  
Fact-finding Topics; Report on and Approval of April 16-17, 2019 Fact Finding Report

D. Technical Consultant R. Ferman Wardell:  
Fact-finding Topics; Report on and Approval of May 8-9, 2019 Fact Finding Report

XXV Concluding Remarks & Discussion by Committee Members of Future DCISC Activities

A. Future Actions by the Committee
B. Further Information to Obtain/Review
C. Confirmation of Future Site Visits, and Public Meetings

XXVI Adjournment of Ninety-Third Public Meeting

The DCISC's policy is to schedule its public meetings in locations that are accessible to people with disabilities. The Avila Lighthouse Suites Point San Luis Conference Facility is a wheelchair accessible facility. A person who needs a disability-related accommodation or modification in order to participate in the meeting may make a request by contacting the DCISC office at (800) 439-4688 or by sending a written request to the DCISC office at 857 Cass Street, Ste. D., Monterey, CA 93940. Providing your request at least five business days before the meeting will help ensure availability of the requested accommodation.
NOTICE IS HEREBY GIVEN that on June 13, 2018, at 8:00 A.M. the members of the Diablo Canyon Independent Safety Committee (“DCISC”) will conduct an inspection tour of certain areas of the Diablo Canyon Power Plant (“DCPP”). This tour, which will take approximately four hours, was previously advertised to the public. Because the plant is an operating nuclear power plant the number of participants is limited and space will be assigned on the basis of prior reservations. Prior clearance of all public attendees is required in compliance with rules of the U.S. Nuclear Regulatory Commission (“NRC”).

In the alternative, if security or other considerations preclude the public tour on February 7th, the DCISC may convene an informal presentation and question and answer session at the Pacific Gas & Electric Company (“PG&E”) Energy Education Center, 6588 Ontario Road, San Luis Obispo, California.

Notice Is Hereby Further Given that on June 13–14, 2018, at the Avila Lighthouse Suites Point San Luis Conference Facility, located at First and San Francisco Streets, Avila Beach, California, a public meeting will be held by the DCISC in four separate sessions, at the times indicated, to consider the following matters:

1. **Afternoon Session: (06/13/2018)–1:30 P.M.** Opening comments and remarks by Committee Members, receive public comments and communications to the Committee; review and approval of the Minutes of the February 7–8 and May 22, 2018, public meetings; discussion of administrative matters, including an update on financial matters and activities during 2018; review of the Open Items List; nomination and election of Chair and Vice Chair to serve for the July 1, 2018 to June 30, 2019 term; consider adopting a revision of DCISC Policy No. 2 “Accounting Procedures;” reports by Committee Members, technical consultants and legal counsel; scheduling of future public meetings and site visits; receive, approve and authorize transmittal of fact-finding reports to PG&E; and review of documents received.

2. **Evening Session: (06/13/2018)–5:30 P.M.** Comments by Committee members; receive public comments and communications to the Committee; consider informational presentations requested by the Committee from PG&E on topics relating to plant safety and operations, including a report on the
State of the Plant and key events, operational highlights and performance and station activities since the DCISC February 2018 public meeting, an update on long-term capital project planning under CPUC Decision D.18-01-022 including the Plant Investment Review process and an overview of the Project Review Working Group process and results of its analysis to date, and an update on the DCPP Employee Retention Plan under D.18-01-022 including ongoing efforts to retain sufficient numbers of qualified licensed Operations Department staff.

3. **Morning Session: (06/14/2018)–9:00 A.M.** Comments by Committee members; receive public comments and communications to the Committee; receive informational presentations on topics relating to plant safety and operations including, an update on the status of NRC Performance Indicators, Licensee Event Reports, NRC Notices of Violation and issues raised by NRC inspectors, the results of the Seismic Probabilistic Risk Assessment Project including an update on the status of PG&E’s review of the tsunami hazard and risk at DCPP and its environs; and a presentation on a fact-finding visit by Committee Technical Consultant and approval of report and authorize its transmittal to PG&E.

4. **Afternoon Session: (06/14/2018)–1:00 P.M.** Committee member comments; receive public comments and communications to the Committee; receive informational presentation from PG&E on performance during the 20th refueling outage for Unit-2 (2R20) including key activities, performance indicators, results achieved and fuel and steam generator inspection results and open items; Committee discussion of a post-shutdown roles matrix with reference to a potential post-shutdown role for the Committee and possible engagement, on an ad hoc basis, of a technical consultant to assist in identification of decommissioning issues; and wrap-up discussion by Committee Members.

The DCISC's policy is to schedule its public meetings in locations that are accessible to people with disabilities. The Avila Lighthouse Suites Point San Luis Conference Facility is an accessible facility and hearing assistance devices are available upon request. A person who needs a disability-related accommodation or modification in order to participate in the meeting may make a request by contacting the DCISC office at (800) 439-4688 or by sending a written request to the DCISC office at 857 Cass Street, Ste. D., Monterey, CA 93940. Providing your request at least five business days before the meeting will help ensure availability of the requested accommodation.

The specific meeting agenda and the staff reports and materials regarding the above meeting agenda items will be available for public review commencing Monday, June 11, 2018, at the Reference Department of the Cal Poly Library in San Luis Obispo and online at www.dcisc.org. For further information regarding the public meeting, please contact Robert Wellington, Committee Legal Counsel, 857 Cass Street, Suite D, Monterey, California,
93940; telephone: 1-800-439-4688 or read the agenda on line by visiting the Committee’s website at www.dcisc.org.

The specific meeting agenda and the staff reports and materials regarding the above meeting agenda items will be available for public review commencing Monday, October 22, 2018, at the Reference Department of the Cal Poly Library in San Luis Obispo and on the DCISC website. For further information regarding the public meeting, please contact Robert Wellington, Committee Legal Counsel, 857 Cass Street, Suite D, Monterey, California, 93940; telephone: 1-800-439-4688 or read the agenda on line by visiting the Committee's website at www.dcisc.org.

Dated: June 3, 2018.
Notice of Meeting

A legal notice of the public meeting and several display advertisements were published in local newspapers and mailed to the media and those persons on the Committee’s service list. Information on the public tour and a copy of the meeting agenda were also posted on the Committee’s website at www.dcisc.org.

Public Tour of Diablo Canyon Power Plant

On the morning of Wednesday, June 13, 2018, the Members of the Diablo Canyon Independent Safety Committee (DCISC), together with Committee Technical Consultant Mr. McWhorter, accompanied by 32 members of the public, participated in a tour of Diablo Canyon Power Plant (DCPP). The members of the public responded to the advertisement concerning the public tour placed in a local area newspaper and on the DCISC’s website. The group assembled in the PG&E Energy Center auditorium for a brief introduction of the DCISC and its Members and Technical Consultants and a discussion of the appointment of its members and the operations of the Committee and to view an informational video on the history, role and responsibilities of the Committee. Afterward, DCPP Lead Manager for Government Relations, Ms. Suzanne Hosn, and Communications Representative, Mr. John Lindsay, gave informational presentations about the plant and Pacific Gas & Electric Company’s (PG&E) current energy generation portfolio and its plans for its future. An opportunity was provided for questions. The group then boarded a bus for the ride to the plant. During the drive information was presented on the history of the plant. The bus entered the plant site through the Avila Gate and the group received security badges and a briefing from PG&E representatives on the various external features and buildings and was taken on a narrated drive-by of the Independent Spent Fuel Storage Installation (ISFSI), also known as the dry cask spent fuel storage facility.
The bus then arrived at the parking area. The members of the public and the DCISC Members and Mr. McWhorter visited, in turn, the DCPP Fire Department and the FLEX\(^1\) Storage Facility and had the opportunity to view the Intake and Outfall Facilities where the plant pulls in and discharges cooling water from and to the Pacific Ocean.

The group then departed DCPP for return to the Energy Education Center and had the opportunity to discuss the plant with individual DCISC Members and Mr. McWhorter.

\(^1\) FLEX is not an acronym but describes a strategy developed by the nuclear industry to provide diverse and flexible coping strategies to address the loss of safety-related systems due to beyond design basis events.

**Conclude Public Tour**

**Agenda**

**I Call to Order – Roll Call**

The June 13, 2017, public meeting of the Diablo Canyon Independent Safety Committee, the ninetieth meeting of the DCISC, was called to order by Committee Chair Dr. Peter Lam at 1:35 P.M. at the Point San Luis Conference Room at the Avila Lighthouse Suites in Avila Beach, California.

Present:

- Committee Member Robert J. Budnitz
- Committee Member Peter Lam
- Committee Member Per F. Peterson

Absent:

None

**II Introductions**

Dr. Lam welcomed those present in the room, introduced himself and reviewed briefly his tenure as Chair of the DCISC and briefly reviewed the appointment to the DCISC by officials of the State of California and the professional backgrounds of those of each of his fellow Members, Dr. Per F. Peterson, the appointee of the Governor, and Dr. Robert J. Budnitz, the appointee of the California Attorney General. Dr. Lam serves on the Committee as the appointee of the California Energy Commission (CEC). The Chair then introduced and briefly described the professional background of each the Committee’s Technical Consultants, Mr. R.
Ferman Wardell, P.E. and Mr. Richard D. McWhorter Jr. and introduced Assistant Legal Counsel Robert W. Rathie. Dr. Lam then introduced and recognized Mr. Hector Garcia, Support Manager in the office of PG&E Vice President and Chief Nuclear Officer Mr. James Welsch. Dr. Lam reported Mr. Garcia also ably serves as the principal liaison and point of contact for the Committee with PG&E and DCPP. Dr. Budnitz reviewed Dr. Lam’s professional background and Dr. Lam’s recent reappointment to a fourth three-year term on the DCISC. Dr. Lam thanked Dr. Budnitz and introduced and welcomed his spouse of 52 years, Mrs. Mabel Lam, who was present in the audience for this public meeting.

III Public Comments and Communications

The Chair reviewed the procedures and advice from the agenda for the meeting concerning receipt of comments from members of the public wishing to address remarks to the Committee and invited anyone who wished to address remarks to the Committee Members concerning matters not on the agenda for this public meeting to do so now.

Dr. Gene Nelson, government liaison and legal assistant for Californians for Green Nuclear Power was recognized. Dr. Nelson expressed his thanks to the Committee for the Committee having accepted Dr. Nelson request that mention be included in the Committee’s letter to the office of State Senator Monning regarding California Senate Bill 1090 (SB 1090) concerning the California Public Utilities Commission’s (CPUC) Decision18-01-022 which provides for and requires the retirement of DCPP by the end of the plant’s current operating licenses from the Nuclear Regulatory Commission (NRC), that is, by 2025. The Committee Members expressed their support for SB 1090 as to its effect on the DCPP Employee Retention Program in a letter approved at a public meeting held in Berkeley, California on May 22, 2018. In the letter the Committee Members agreed to include reference to the Application for Rehearing of D.18-01-022 filed by Californians for Green Nuclear Power and that therefore the Decision, although now in full force and effect, was not yet considered final.

Dr. Lam thanked Dr. Nelson for his comments.

IV Consent Agenda

The first item on the Consent Agenda was approval of the Minutes of the Committee’s February 7–8, 2018 public meeting held in Avila Beach, California. The Members and Technical Consultants reviewed the draft of the February 2018 Minutes provided with the agenda packet for this meeting. Items were discussed and reviewed for follow up or for future action and clarification was provided to the Assistant Legal Counsel concerning certain references in the draft Minutes and regarding typographical or editorial corrections, as well as concerning substantive changes to be made to the final version of the February 2018 Minutes. The Minutes as revised and corrected will be part of the final version of the Committee’s 28th

During review of the Minutes, Dr. Justin Cochran, Senior Nuclear Policy Advisor to the CEC was recognized. Dr. Cochran confirmed that in accordance with a commitment Dr. Cochran made at the February 2018 DCISC public meeting, in his capacity as California Energy Commission (CEC) Emergency Coordinator he provided information in the reports reviewed by the DCISC concerning tsunami hazard and mitigation and planning for a tsunami on the California coastline to representatives of the California Office of Emergency Services, Planning Division.

There were no public comments on February 2018 Minutes and on a motion by Dr. Budnitz, seconded by Dr. Peterson, the Minutes of the Committee’s February 2018 public meeting were accepted as amended subject to inclusion of the revisions discussed and changes provided to its Assistant Legal Counsel.

The second item on the Consent Agenda was approval of the Minutes of the Committee’s May 22, 2018 public meeting held in Berkeley, California. The Members and Consultants reviewed the draft of the May 2018 Minutes provided with the agenda packet for this meeting. Items were discussed and reviewed for follow up or future action and clarification was provided to the Committee’s Assistant Legal Counsel concerning certain references in the draft Minutes and regarding typographical or editorial corrections, as well as concerning substantive revision to be made to the final version of the May 2018 Minutes which will become part of the DCISC’s 28th Annual Report. Dr. Lam remarked the public meeting was held in Berkeley, California and not in the San Luis Obispo area as the issue reviewed during the meeting concerned a matter of importance to the Committee which required prompt and timely action.

Dr. Nelson was recognized and again thanked the Committee Members for their consideration of his comments at the May 2018 public meeting.

Ms. Sherry Lewis, representing San Luis Obispo Mothers for Peace (Mothers for Peace) was recognized. Dr. Lam explained in response to Ms. Lewis’ inquiry that the Committee’s letter to Senator Monning’s office concerning SB 1090 was in support of revising certain elements of Decision 18--01-022 which addressed the funding for the DCPP Employee Retention Program and the issue required that action be taken before this meeting, the next regularly scheduled meeting of the Committee in the San Luis Obispo area.

On a motion by Dr. Peterson, seconded by Dr. Budnitz the Minutes of the Committee’s May 2018 public meeting were accepted as amended, subject to inclusion of the revisions discussed and changes provided to its Assistant Legal Counsel.

V Action Items
A. Update on Financial Matters and Committee Activities.

The Chair requested Assistant Legal Counsel Rathie to provide this report. Mr. Rathie reported that the Committee sent its letter in support of the restoration of full funding for the Employee Retention Program to Senator Monning’s office and a copy of the letter was included in the public agenda packet for this meeting. He reported the Committee completed calendar year 2017 within the amount of funding provided by PG&E’s ratepayers for the Committee’s operation and, following its normal practice, any funds unspent at the end of 2017 should be returned by the Committee for credit to the ratepayers. On a motion made by Dr. Budnitz, seconded by Dr. Peterson, the Committee unanimously approved return of unspent grant funds from its calendar year 2017 operations to PG&E for credit to its ratepayers.

Mr. Rathie reported two payments have been received for calendar year 2018 operations from the funds provided as a grant for Committee operations and based on expenditures made to date, the Committee should also complete its calendar year 2018 operations within the amount provided under CPUC Decision 04-05-055. He observed a list of planned activities for the remainder of 2018 and for 2019 prepared by Mr. Wardell was included in the agenda packet for the meeting. Mr. Rathie reported that the Committee’s accountant has been directed to pay the retainers provided by the DCISC’s Restated Charter from the CPUC to all members as they are all currently serving within appointed terms.

B. Discussion of Issues on Open Items List:

Dr. Lam requested Consultant Wardell lead a review of items on the Open Items List, which Dr. Budnitz described as an important tool used by the Committee to establish priorities and to track and follow issues, concerns, and information identified as requested or to be provided on a periodic basis and for subsequent action during fact-finding or public meetings. Items captured on the Open Items List which represent changes from the prior version of the list were shown in bold red text on the version of the Open Items List provided with the agenda packet for this meeting. Items concerning which action was taken included the following:

<table>
<thead>
<tr>
<th>Item</th>
<th>Re:</th>
<th>Action Taken/Next Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM-14</td>
<td>Use &amp; plans for wireless technology within the Power Block</td>
<td>Move to Equipment Reliability (ER) add performance monitoring and data storage aspects</td>
</tr>
<tr>
<td>EP-2</td>
<td>Emergency drills/exercises</td>
<td>Add NRC-evaluated exercise on 10/24/18; RJB &amp; RDM to observe 10/24 AM; review re public</td>
</tr>
</tbody>
</table>
able to access Simulator observation room & DCPP re review videotaping the Simulator activity during exercise

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Next Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA-6</td>
<td>Seismic Fragility Analysis &amp; RA-7</td>
<td>Merge items</td>
</tr>
<tr>
<td>RP-12</td>
<td>Radiological Release Report</td>
<td>Make next action 7/18</td>
</tr>
<tr>
<td>SEC-3</td>
<td>Security-safety interaction</td>
<td>Create item SEC-4 for cybersecurity Make next action SEC-3 2Q20FF Make next action SEC-4 2Q19</td>
</tr>
<tr>
<td>SF-2</td>
<td>Cask &amp; pool fuel storage</td>
<td>Create item SF-3 re review seismic adequacy of ISFSI in context of ISFSI license renewal in 2021 Make next action 2018 FF/RJB</td>
</tr>
</tbody>
</table>

2 Key to abbreviations used: Dr. Robert J. Budnitz (RJB), Dr. Peter Lam (PL), Dr. Per F. Peterson (PFP), Mr. Rick D. McWhorter (RDM), and Mr. R. Ferman Wardell (RFW), Fact-finding Meeting (FF), Quarter (Q), Public Meeting (PM), Review (Rev).

During discussion of item EP-2 Ms. Lewis and Dr. Nelson were recognized and both expressed support for the public possibly being permitted to observe the October 24, 2018 NRC-evaluated emergency exercise. Dr. Nelson commended PG&E for its efforts to create defense-in-depth for the DCPP Independent Spent Fuel Storage Installation (ISFSI). During discussion on the Open Items List certain items identified by Mr. Wardell as suitable for closure and deletion from future open items lists were confirmed.
Following the discussion on the Open Items List the Chair called for public comments. There were no comments by members of the public at this time.

C. Nomination and Election of Chair and Vice Chair for the July 1, 2018—June 30, 2019 Term.

On a motion made by Dr. Peterson, seconded by Dr. Lam, the Committee elected Dr. Budnitz to the position of DCISC Chair and, on motion by Dr. Budnitz, seconded by Dr. Lam, Dr. Peterson was elected to the position of DCISC Vice-Chair for respective terms of office from July 1, 2018 through June 30, 2019.

D. Consider Adoption of a Revision to Committee Policy #2 “Accounting Procedures” Regarding Electronic Deposits & Payments.

Assistant Legal Counsel Rathie explained the proposed revision would enable the Committee’s accountant to process direct electronic deposit payments to those individuals who elected in advance to use that method. This procedure would augment and would not replace the present requirement for two-party signature checks and approval by (1) the DCISC Chair or Vice-Chair and (2) the Committee’s accountant would continue to be required for all payments and a system of encrypted data would be used for electronic approval of direct deposit payments.

Mr. Shane Werner, a principal of accounting firm of Martin Ketterling & Associates of Ventura, California, the Committee’s accountant, confirmed that electronic payment would retain the internal controls now in place and would include use of the automated clearing house to process payments.

On a motion made by Dr. Budnitz, seconded by Dr. Peterson, the Committee unanimously approved amending Committee Policy #2 to provide for electronic processing of deposits for payment and delegated implementation of the process to the DCISC Chair and Legal Counsel’s office.

A short break followed.

VI Committee Member Reports and Discussion

A. Public Outreach, Site Visits and Other Committee Activities:

The Members turned to the matter of confirming and scheduling public meetings of the DCISC. Public meetings are now scheduled for October 24–25, 2018, February 13–14 and June 5–6, 2019 (the original date for the June 2019 having been changed at this public meeting from June 19–20) and the Members then scheduled a future public meeting of the Committee for October 23–24, 2019. Based on information received by Consultant McWhorter, the Committee committed to conduct a tour with members of the public in conjunction with its October 2018 public meeting.
Fact-finding visits were confirmed and scheduled as follows:

[2018] July 10–11 PFP/RFW; August 22–23 PL/RDM; September 5–6 RJB/RFW; November 7–8 RJB/RDM; December 12–13 PFP/RFW; and

[2019] January 23–24 PL/RDM; March 18–19 RJB/RFW; April 17–18 PL/RDM; May 8–9 PFP/RFW; July 16–17 PFP/RDM; August 21–22 PL/RFW; September 10–11 RJB/RDM.

The Members and Consultants observed that the fact-finding schedule is subject to change based on emergent activities at DCPP.

3 Abbreviations used: Robert J. Budnitz (RJB); Peter Lam (PL); Richard D. McWhorter (RDM); Per F. Peterson (PFP); R. Ferman Wardell (RFW)

B. Documents provided to the Committee:

Dr. Lam remarked that the DCISC conducts its business in a transparent manner and most documents received by the Committee are matters of public record. Mr. Rathie directed the Committee's attention to the list of documents received since its last public meeting in February 2018. A copy of the list was included with the public agenda packet for this meeting.

Ms. Rochelle Becker, Executive Director of the Alliance for Nuclear Responsibility was recognized. Ms. Becker stated that she finds the letter from the Committee to State Senator Monning’s office, wherein the Committee expresses its support for full funding for the DCPP Employee Retention Program, to be unacceptable. Ms. Becker stated that the Joint Proposal entered into by PG&E, together with Friends of the Earth, the Natural Resources Defense Council, Environment California, the International Brotherhood of Electrical Works Local 1245, Coalition of California Utility Employees and the Alliance for Nuclear Responsibility (Joint Proposal) to retire DCPP at the expiration of the current operating licenses required support for all of the Joint Proposal’s components and those components were not fully implemented by CPUC in its Decision 18-01-022 which approved PG&E’s Application for adoption of the Joint Proposal. The components not adopted or fully implemented by the CPUC in Decision 18-01-022 include the Commission not approving full funding for the Employee Retention Program in the amount sought by PG&E in its Application, rejecting funding sought in the Application for the Community Impacts Mitigation Program, and the Decision declining to address the replacement of DCPP’s generation capacity including imposing a binding requirement that DCPP’s generation output be replaced by zero greenhouse gas emitting sources. Ms. Becker stated that all the components rejected by the CPUC in D.18-01-022 are integral to form the basis for the rationale behind the Joint Proposal and for the DCISC to express its support for one (full funding for the Employee Retention Program) but not the others could be detrimental to and
hinder the chances that SB 1090 will receive approval from the California legislature. Ms. Becker opined that all components must receive legislative approval or she fears that none of them will. Ms. Becker asked the Committee to rescind and to withdraw its letter.

Dr. Peterson responded the Committee judged retention of DCPP employees to be relevant to operational safety of the power plant and within the Committee’s mandate from the CPUC to review operational safety and make recommendation and the Committee also considered the impact of the Decision on San Luis Obispo County emergency services but it is the DCISC’s understanding that emergency services are required to be continued under other NRC regulations and will work to confirm that is the case. Accordingly, the Decision’s impact on operational safety was judged to be the need to provide adequate retention bonuses to DCPP’s workforce. Dr. Budnitz stated the other issues discussed by Ms. Becker were outside the DCISC’s scope of review and the position of the parties to the Joint Proposal is not relevant to the Committee’s assessment of the impact on operational safety. Dr. Peterson remarked he did not believe that the Committee’s letter in support of one element would logically hurt the chances of SB 1090 passing. Dr. Lam stated he was sympathetic to Ms. Becker’s argument but it was his belief the letter adequately explained why the Committee was not able to support all elements of SB 1090. Dr. Budnitz observed that withdrawing the letter would be illogical as the Committee considered and found that if the retention bonuses were not increased, significant attrition of key plant staff is likely to occur to a greater degree than would otherwise be the case, particularly during the second tranche of the retention incentive program. Dr. Peterson expressed his view that, given the Committee’s assessment of the importance of the retention bonuses on plant safety, it would be not be ethical for the Committee to withdraw its letter for reasons based upon political expediency. Dr. Lam observed he believed Ms. Becker to be stating that the DCISC’s letter would damage the chances of SB 1090 in the legislative arena. Dr. Peterson stated it would be dishonest for the Committee not to express its opinion on the sole issue within its purview as it is his understanding the legislature is the only body with the authority and capability to address the problem perceived by the DCISC. Dr. Budnitz agreed that the Committee not articulating its opinion on this matter would be irresponsible.

In response to Ms. Becker’s entreaties to rescind the letter, Dr. Budnitz thanked Ms. Becker for bringing her concerns to the Committee but he stated that in its letter the Committee was careful not to endorse the SB 1090 in full but to call attention to the restoration of full funding for the Employee Retention Program, while recognizing the DCISC is not in a position to design that program in detail, and in that regard the Committee recognizes certain employees have roles that are more vital to plant safety than others.

Dr. Lam suggested that the Committee take Ms. Becker’s comments under advisement and enter them in the public record. Dr. Budnitz replied that the
Committee should conduct its debate of the issue at this time. Assistant Legal Counsel Rathie pointed out that as this matter was not on the agenda for this public meeting, accordingly comments must be brief and substantive action is not permitted to be taken on any item not on the agenda. Dr. Budnitz requested that the Members consider calling a meeting to put the matter of rescinding the Committee’s letter in support of SB 1090 on a public agenda. Drs. Lam and Peterson both expressed their opposition to the Committee holding a public meeting for the purpose described by Dr. Budnitz.

Mr. David Weisman of the A4NR was recognized. Ms. Weisman stated, with reference to the discussion at the DCISC public meeting on May 22, 2018, that insufficient consideration was given to a possible nexus between other elements, aside from the Employee Retention Program, and safety such that a reduction in funding for the County due to Decision 18-01-022 having rejected the Community Impacts Mitigation Program and this will likely have an effect on local area infrastructure such that emergency response capabilities will be affected. Mr. Weisman stated a fuller understanding of these and other impacts might have led the DCISC to a different conclusion. Dr. Budnitz reported it is his understanding the NRC will continue to assess and ensure emergency capabilities do not fall below acceptable levels. Mr. Weisman agreed but responded that, to the extent of local roads, that responsibility falls to the Federal Emergency Management Agency (FEMA) and FEMA is then able to delegate the responsibility for road repair to the County and there is a finite pool of resources from which the County may draw to repair roads necessary to ensure the access to DCPP is unimpeded and this means that something else must await funding thereby creating a ripple effect which could ultimately have an impact on the attrition of the DCPP workforce.

Dr. Budnitz requested, with the concurrence of the Chair, that Agenda Item VI-A concerning scheduling of future meetings be reopened for the purpose of considering the scheduling of a public meeting two weeks hence to consider rescinding the Committee’s letter in support of SB 1090. After a brief discussion, the consensus of the Membership of the DCISC was that the next meeting of the Committee should be the regular and previously scheduled meeting now set for October 24–25, 2018.

**VII Staff-Consultant Reports and Receive, Approve and Authorize Transmittal of Fact Finding Reports to PG&E**

The Chair requested Consultant McWhorter to report on a fact-finding visit to DCPP. Mr. McWhorter reported on the March 7–8, 2018 fact-finding visit to DCPP with Dr. Budnitz. Mr. McWhorter stated activities conducted and topics reviewed with PG&E during that visit included the following:

- Meeting with NRC Senior Resident Inspector - the DCISC fact-finding team (FFT) met with the NRC Senior Resident Inspector to discuss activities during refueling outage 2R20 and the impact of the Joint Proposal on DCPP
performance. No evidence of performance degradation has been found to the date of the fact-finding.

- **Software Quality Assurance (QA) Programs** - these programs are managed by the DCPP Digital Systems Group, a part of the Engineering organization, to monitor and oversee software configuration management for individual plant equipment and control systems. Each system’s software is managed by a software QA plan and if a change is required it is governed by a design change package. Verification of changes is accomplished through the use of a development system which is similar to, but operates outside of, the plant’s system to ensure there is no adverse impact on plant systems prior to verification. Business-related software, such as Excel, is managed separately from plant process software and a QA plan is in place for business-related software that is used in a function important to safety or safety-related systems. Mr. McWhorter reported the FFT found the Software Quality Assurance Program was comprehensive and designed to ensure computer software used in the plant is developed and maintained in a controlled fashion.

- **Non-Containment Outage Work Tour** - as the March 2018 fact-finding visit occurred during the 2R20 refueling outage, the FFT toured the Outage Control Center, the Turbine Building, the Control Room, the Auxiliary Building and the Fuel Handling Building. Mr. McWhorter displayed a chart used in the Outage Control Center to assess the critical path and work flow for the outage. At the time of the visit the reactor head was in place on the vessel and the studs were being installed and prepared for tensioning. The FFT reviewed preparations for the 10-year Containment Integrated Leak Rate Test with Mr. Garcia who was the coordinator for that test which uses 16 air compressors to pressurize Containment to 45 pounds per square inch (psi). Mr. McWhorter reported the test was subsequently successfully completed. The FFT concluded the outage work was proceeding in a controlled, professional manner with careful preplanning and management.

- **Nitrogen Leak in Containment** - the DCISC representatives reviewed the nitrogen leak in Unit-2 Containment that, on July 17, 2017, resulted in an Alert being declared by DCPP due to a reduction in oxygen content in Containment resulting in Containment becoming a hazardous environment for personnel entry. The leak resulted from the backup nitrogen system which serves the three power operated relief valves in the pressurizer used to manage pressurizer level and prevent over pressurization or reestablish pressure if necessary. These valves are normally powered by air systems with the nitrogen system serving as a backup but which must be capable of 300 cycles during a potential accident scenario. A small leak on a relief valve on the nitrogen system was allowed to continue for approximately 18 months and over that time released enough nitrogen to cause the Alert. Procedures have been changed and standards put in place to improve the daily review and prioritization of repair work for abnormal plant conditions. Mr. McWhorter opined that this was not the type of event for which an Alert should be
desired to be called, and with regular and more frequent tracking of containment atmosphere this should preclude future activation of the Emergency Plan for this situation. The FFT concluded the corrective actions were appropriate.

- 2018 Operating Plan - at the time of the fact-finding visit, the Operating Plan was being vetted for specific initiatives and to detail key work plans, initiatives and metrics to measure success for the 2018 key focus areas. A station alignment workshop on the Operating Plan was to be scheduled. **The FFT concluded the Operating Plan contained the appropriate focus on initiatives and key metrics and the DCISC should continue to monitor the Operating Plan in the future.**

- Containment Outage Work Tour - The DCISC FFT toured work in Containment and Mr. McWhorter stated the group was able to move around without impediment and only very limited areas inside Containment were restricted due to radioactivity levels. The team visited all levels of Containment and found the work to be well planned, coordinated, controlled and executed. Dr. Budnitz remarked the team did not observe any interference between the various groups then conducting work in Containment and this included the area around the Containment equipment hatch where equipment was being moved into and out of Containment.

- Decommissioning Process - FFT met with Mr. Jon Franke, PG&E Vice President Power Generation, to review decommissioning planning. At the time of their visit the composition of the Diablo Canyon Decommissioning Engagement Panel was in the selection process. Mr. McWhorter reported the Decommissioning Engagement Panel subsequently held its first meeting in May 2018. Decommissioning funding options were reviewed and Mr. McWhorter reported the funds from the Nuclear Decommissioning Trust are primarily set aside for radiological decontamination but are not intended to provide full funding for returning the site to “green field” status. Accordingly, PG&E will need to seek additional funding from the CPUC. Mr. McWhorter reported the disposition of all waste from nuclear power plants is now required by a California Executive Order to take place outside of California and this could likely involve large volumes of fill and concrete and PG&E may seek to modify the Executive Order in some manner to allow some material to be reused on the site. **Dr. Peterson remarked the DCISC should follow up on this Executive Order as it may not necessarily be risk-informed.**

Dr. Budnitz reported that the plant will be required to classify all items and under the Executive Order the nonradioactive materials will need to be transported outside of California. Dr. Budnitz remarked this is an area outside the NRC’s concern. **Dr. Peterson observed it is pertinent to ensure there is a disposition pathway for all materials that is either readily available or for which a storage option exists until a disposition pathway is available.** Mr. McWhorter stated the FFT also discussed with Mr. Franke the transition from the plant’s current operation under a 10 CFR Part 50 License for power generation operation and a Part 72 license for storage of
spent fuel to only a Part 72 license. He reported this the transition will occur through a series of license amendments to the Part 50 License. The FFT observed that the decommissioning plans continue to be developed.

- Employee Retention Programs - the DCISC representatives met with Mr. Jim Welsch, PG&E Vice President and Chief Nuclear Officer to discuss the potential impact on the Employee Retention Program from the Proposed Decision on the Joint Proposal which recommended a reduction in funding for the Employee Retention Program. Employees will be offered the opportunity and, in order to participate in the reduced incentive program be required to sign new agreements and while the proposed change is not believed to have a great impact during the first tranche of the retention program, the second tranche which follows may be significantly impacted by a reduction in the retention incentive. **Mr. McWhorter reported the FFT concluded the DCISC should continue to monitor the effectiveness of the Employee Retention Program.**

- Meet with DCPP Officer - Dr. Budnitz met with Mr. Welsch.

- Human Performance Data Inclusion into Probabilistic Risk Assessments (PRA) - Mr. McWhorter reported the FFT found the plant’s PRA Program uses guidance developed from national standards to employ techniques for human error rate prediction methodology. Generally, there is insufficient DCPP-specific data on human performance to inform the PRA, although there are a few points where the PRA has been modified for plant-specific data. The DCISC team found the plant’s use of human reliability analyses in the PRA to be appropriate.

Following Mr. McWhorter’s report, Ms. Rochelle Becker of the Alliance for Nuclear Responsibility was recognized. Mr. Becker suggested that the Committee obtain a copy of the Executive Order governing disposal of materials from nuclear power plants and she remarked there are examples of the movement of nuclear fuel around California.

Upon a motion by Dr. Budnitz, seconded by Dr. Lam, the March 7–8, 2018 Fact Finding Report was approved and its transmittal to PG&E authorized. Once the Committee’s fact finding reports are approved at a public meeting they are no longer considered to be in draft form and are made available in a binder for inspection by members of the public, together with information concerning the professional backgrounds of the Committee’s technical consultants involved with preparation of its fact finding reports. Fact finding reports become part of DCISC’s Annual Reports.

The Chair requested Consultant Wardell to report on a fact-finding visit to DCPP. Mr. Wardell reported on the April 17-18, 2018 fact-finding visit to DCPP with Dr. Peterson. Mr. Wardell stated topics reviewed with PG&E during that visit included the following:
- **4kV System Review and Walkdown with System Engineer** - Mr. Wardell reported the 4kV System is a safety-related system that provides power for both vital and non-vital equipment. It is powered from multiple sources, normally from the main generator when the plant is operating but may also be powered by the 230kV and 500kV off site systems as well as by the emergency diesel generators. The 4kV System is presently rated in White status due to a potential energy line break which could introduce steam into one of the equipment rooms. When planned changes are made to the dampers leading into that room, the system will return to Green status. The FFT walked down the system with the system engineer and found it well designed, operating properly and to be in good condition. The system engineer was very knowledgeable and proactive concerning the 4kV System.

4 On a scale of Green indicating a healthy performance and White indicating that achievable action plans are in place to return performance to healthy status. A Yellow rating would indicate the indicator shows deficient performance and needs improvement and Red would indicate unsatisfactory performance.

- **Refueling Outage 2R20 Results** - as there is a presentation scheduled on the 2R20 refueling outage, Mr. Wardell stated he would not further discuss what he described as a very successful refueling outage.

- **Leadership Engagement in the Performance Improvement Process** - the Performance Improvement Process (which was formerly termed a “Program”) includes the Corrective Action Program, benchmarking, self-assessment, and the Operating Experience Program as component parts. The plant is developing expectations for recognition by the management team when performance is less than desired and has characterized this effort as augmented leadership engagement. Mr. Wardell reported the DCISC team found this to be appropriate as it will help improve station performance.

- **Online Maintenance** - Mr. Wardell reported on the FFT review of maintenance performed during generation operations when equipment is taken out of service for maintenance. A risk assessment is performed using the Phoenix Risk Model, an advanced, semi-quantitative, structured and controlled modeling procedure to minimize risk.

- **Reactivity Management** - Mr. Wardell described reactivity as the measure of the changes in the neutron levels to indicate when the reactor is increasing, decreasing or maintaining the same power level. Reactivity control is control of the reactor itself and at DCPP the prime responsibility lies with the Operations shift manager assisted by the Reactor Engineering organization and the Reactivity Management Leadership Team. Mr. Wardell reported the program is in Green status and well designed and implemented with appropriate controls.

- **Boric Acid Control** - Mr. Wardell reported boric acid is used for long-term
control of reactivity, as boron absorbs neutrons and by adjusting the amount of boric acid in the Reactor Coolant System reactivity in the nuclear core is affected. Occasionally, he reported, there are leaks of boric acid which can damage and corrode carbon steel. These leaks must be monitored and controlled and DCPP tracks each leak whether it is wet or dry. The DCISC representatives found the Boric Acid Control Program to be effective and in good health.

- Meeting with NRC Senior Resident Inspector - the DCISC representatives discussed matters of mutual interest with the NRC Senior Resident Inspector.
- Meeting with Senior Director of Nuclear Technical Services - Dr. Lam met with Mr. Jan Nimick, Senior Director of Nuclear Technical Services, to discuss items reviewed during the fact-finding and of mutual interest.
- Control Room Ventilation System - Mr. Wardell stated this system provides a comfortable environment and protects operators in the Control Room from contaminants such as gas or radioactivity. In 2013 the system was found to experience some in-leakage and short-term fixes were applied and a major reanalysis was undertaken and long-term fixes identified in that reanalysis have now been completed. **Mr. Wardell stated the DCISC can remove this topic as a special issue but should retain review of the system as a periodic item on the Open Items List.**
- Quality Verification (QV) Assessment of Refueling Outage 2R20 - the FFT reviewed QV’s assessment of activities during 2R20 and found QV’s review of the Operations and Maintenance organizations and all departments reviewed to be complete with **some items identified for improvement including:**
  - the Confined Space Program not having been rigorously followed;
  - challenges to ensure work instructions are adequate;
  - problems with Operations verifying equipment configurations and plant conditions.
  **Mr. Wardell recommended the DCISC follow-up on these three deficiencies identified for improvement.**

Following Mr. Wardell’s presentation, Ms. Sherry Lewis of Mothers for Peace was recognized. In response to Ms. Lewis’ inquiry concerning how many licensed operators have left employment at DCPP, Mr. Wardell responded that while he did not have a precise number the total was not enough to raise a concern on the part of the FFT. He reported DCPP has initiated operator training classes and has compiled a lengthy list of applicants for the training program from which to choose. In response to Ms. Lewis’ further inquiry, Mr. Wardell and Dr. Budnitz reported it takes approximately 30 months to train a new operator to qualify for a license from the NRC.

Upon a motion by Dr. Budnitz, seconded by Dr. Peterson, the April 17−18, 2018 Fact Finding Report was approved and its transmittal to PG&E authorized.

The Chair requested Assistant Legal Counsel Rathie to report on administrative,
regulatory and legal matters. Mr. Rathie reported that upon direction of the Committee Dr. David Victor, the Chair of the San Onofre Decommissioning Community Engagement Panel, was invited to attend this meeting but because of scheduling conflicts Dr. Victor’s appearance has been postponed until the October 2018 public meeting. Mr. Rathie then thanked Mr. David Weisman at whose suggestion the Committee extended its invitation to Dr. Victor. Mr. Rathie reported the Committee has now begun the process of developing its 28th Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations for the period July 1, 2017—June 30, 2018 and that report is expected to be ready for approval at the October 2018 public meeting. He remarked that the informational video produced as a part of the Committee’s public outreach effort has now been shown twice and will be further developed to be available for use with the DCISC public tours and on the Committee’s website. Concerning traffic on the DCISC website, he reported www.dcisc.org has averaged 996 unique visits each month for the first five months of 2018. The countries generating the most visits were the United States, Canada, Japan, Poland and the Russian Federation.

Mr. Rathie congratulated Dr. Lam on his recent reappointment to a three-year term on the DCISC by the California Energy Commission and observed that as all Members are now serving within their respective appointed terms, all Members will receive payment of the retainer provided for by the CPUC during this July.

Mr. Rathie reported the Committee held a public meeting on May 22, 2018 in Berkeley and approved a letter in support of SB 1090. He reported that the legislation has now passed out of the California Senate and is pending consideration in the California Assembly.

VII Adjourn Afternoon Meeting

The Chair adjourned the afternoon meeting of the DCISC at 5:20 P.M.

IX Reconvene for Evening Meeting

Dr. Lam reconvened the evening meeting of the DCISC at 5:35 P.M. and welcomed those present.

X Committee Member Comments

Dr. Peterson recognized and introduced his son, Lucas Peterson, who was present in the audience for this public meeting.

XI Public Comments and Communications

Mr. Ray Lutz was recognized to address the Committee. Mr. Lutz stated he was representing the group Citizens’ Oversight and in his remarks he would address that group’s HELMS Proposal. He commented Citizens’ Oversight has to date been principally involved with the San Onofre Nuclear Generating Station’s (SONGS)
decommissioning and the issue of nuclear waste. He reported that SONGS owner, Southern California Edison, recently agreed to a settlement to study moving the spent fuel from the SONGS to another location. Mr. Lutz reported he has an engineering background and it was the debate over thick versus thin walled spent fuel storage canisters which prompted his concern about how long the canisters might last and whether they are or will be subject to stress corrosion cracking. He remarked that his group did not want to see a transfer of problems with the canisters to another location.

In explaining the meaning of HELMS, an acronym, Mr. Lutz stated the “S” represents surface storage, as it is the Citizens’ Oversight group’s opinion that the canisters must be stored on the surface for approximately 100-200 years. The “H” stands for hardened facilities to make the canisters immune to terrorist actions. The “E” stands for extended life, meaning that the 40-year license term provided by the NRC is inadequate and the goal should be a life of 1,000 years with maintenance and 300 years of passive lifetime. The HELMS Proposal would enclose the existing canisters in an additional outer shell and introduced pressurized helium between the inner canister and outer shell which could then be monitored to detect leaks. “L” stands for local and Mr. Lutz stated the canisters need to be stored near where they were generated, but as some sites are near water this principle might not be appropriate for those plants. The “M” stands for monitoring, which should be undertaken on a 24-7 basis to detect any change in pressure within the outer shell.

M. Lutz stated he has an open mind as to other concepts but it was his belief the dual, outer and inner shell canister would be more acceptable to the nuclear industry than some other concepts as it would allow the industry to continue to use existing canisters. Mr. Lutz stated Citizens’ Oversight submitted an application to the NRC for what he stated were very specific changes in 10 CFR Part 72 regulations and is moving forward with an administrative process concerning its HELMS Proposal. He observed the NRC Waste Confidence Rule provides that spent fuel storage systems can remain in place indefinitely while the NRC only provides a 40-year license for such systems and this disconnect needs to be rectified with the technology now available. He stated he has sent information on the HELMS Proposal to the DCISC and Dr. Budnitz confirmed that the Committee has received the information.

Dr. Budnitz inquired how much the HELMS Proposal might cost to which Mr. Lutz replied he did not have an estimate other than that it would be less expensive that other proposals now under consideration. Mr. Lutz remarked the consolidated interim storage facility planned to be located in New Mexico and partially approved by Congress would only need to make its storage vaults somewhat larger. For independent spent fuel storage installations located outside, in the open, at sites such as DCPP there would only be the need to cover the site with a concrete structure once the outer shells were installed over the existing canisters. He observed there would be no need for repackaging spent fuel as was planned for
the Yucca Mountain repository in Nevada. Dr. Budnitz observed that had the Yucca Mountain repository opened as planned and on the schedule proposed by the U.S. Department of Energy, all waste stored on nuclear power plant sites in the U.S. would have been disposed of over a 50-year period from Yucca Mountain’s opening. Dr. Budnitz reported the cost of Yucca Mountain was estimated as slightly more than 1% of the value of all electricity generated to produce the waste and he stated costs for the HELMS Proposal were likely to be much less. Dr. Budnitz recommended to Mr. Lutz that, to make the HELMS Proposal more realizable, it would benefit the proposal to include an approximate cost estimate. He stated that a proposal such as the HELMS Proposal that could work to make storage safer is of interest to the DCISC. Dr. Peterson observed the capability to use an over pack as an additional barrier has been identified as important from the perspective of mitigation of risk, particularly if a spent fuel pool is to be decommissioned. Mr. Lutz remarked that PG&E’s Humboldt Bay Nuclear Power Plant (HBNPP) employs a pressurized, double layer design for its spent fuel storage system and Dr. Peterson stated this was an interesting approach as the casks used at HBNPP are also designed for transportation. Dr. Budnitz remarked that while it is important to think through the criteria, specific details may stifle innovation and there are many innovative approaches possible for meeting these criteria.

XII Information Items Before the Committee

The Chair requested Mr. Cary Harbor, Director of Nuclear Business Operations to introduce the first of the informational presentations requested by the Committee for this public meeting. Mr. Harbor has more than 30 years’ experience in the nuclear industry and holds a Bachelor of Science Degree in Nuclear Engineering from the University of California at Santa Barbara and has completed executive level courses at Stanford University. Mr. Harbor previously held leadership positions in Engineering, Regulatory Services, Operations, Maintenance and Generation Business organizations at DCPP.

Mr. Harbor introduced Ms. Paula Gerfen, DCPP’s Senior Station Director. Mr. Harbor reported Ms. Gerfen has more than 20 years’ experience in the nuclear industry, holds a Bachelor of Science degree in Computer Engineering, and has previously held leadership roles in Operations, Maintenance Engineering and Digital Engineering organizations at DCPP.

Presentation on the State of the Plant including Key Events, Highlights and Station Activities since the DCISC’s February 2018 Public Meeting.

Ms. Gerfen reported both units are operating at 100% power and there are no challenges at this time. She reported two weeks ago Unit-1 experienced a main feedpump low lube oil reservoir alarm and to proactively address the situation Unit-1 was ramped to 50% power to determine if the trip signal would lock in and trip one of the Unit-1 feedpumps. It was determined that a problem existed with one of the main annunciator circuits and Unit-1 immediately ramped back to 100%
power. In April 2017 a cooling water tunnel cleaning was performed for Unit-1 which occupied three to four days with the unit again ramped to 50% power. There were no challenges during the tunnel cleaning. In response to Dr. Peterson’s query, Ms. Gerfen stated that by ramping to 50% power for the feedpump event the plant experienced less stress as depending on the power level, auxiliary feedwater pumps would have otherwise been started which introduces colder water into the secondary system. Ramping to 50% also provides time for the Control Room personnel to review procedures.

Ms. Gerfen displayed and briefly reviewed generation graphs showing operational performance during 2018 for both units and a second graph showing performance since the last public meeting of the DCISC in February 2018.

Ms. Gerfen reviewed the DCPP 2018–2022 Operating Plan and the new mission and culture statements which focus on the concept of generating excellence in areas of safety, people, reliability, affordability, risk compliance and ethics and in regulatory and external strategy.

Ms. Gerfen reviewed upcoming station activities including:

- Station Assignment Workshops - June 26—August 1, 2018.
- NRC Radiation Safety Inspection - Week of July 9, 2018.

In response to Dr. Peterson’s request, Ms. Gerfen described the major goals of the station alignment workshops as creating alignment from the top to the bottom of the DCPP organization and to emphasize the focus for all employees on the Operating Plan and to identify how each employee contributes to the specific areas identified in the Operating Plan in their daily activities. The station alignment workshops are also intended to provide employees with a look ahead to 2019 when the station will have two refueling outages, the World Association of Nuclear Operators (WANO) evaluation, and a Security organization force-on-force drill. In response to Consultant Wardell’s inquiry, Ms. Gerfen confirmed the Triennial Fire Protection Inspection will include the National Fire Protection Association Regulation 805 (NFPA 805) program as well as the rest of the fire protection programs. In response to Dr. Lam’s inquiry on the plant’s focus on flexibility and whether that concept was synonymous with cutting corners, Ms. Gerfen replied that flexibility as used in the Operating Plan and otherwise was in no way intended or allowed to affect safety, reliability or affordable operations and those concepts are integral parts of the organizational culture of DCPP. In response to Dr. Budnitz
inquiry, Ms. Gerfen replied she had no concerns at this point on upcoming NRC Radiation Safety Inspection as the DCPP Radiation Protection organization and plant performance on the “As Low As Reasonably Achievable” (ALARA) concept is within the top decile within the nuclear industry.

Mr. Harbor introduced Senior Director for Nuclear Services Mr. Jan Nimick and reported that Mr. Nimick has more than 20 years’ experience in the nuclear industry and held a Senior Reactor Operator License and a Bachelor of Science Degree in Mechanical Engineering. Mr. Nimick has held leadership roles at DCPP in the Operations and Maintenance organizations.

**Update on Long-term Capital Project Planning under CPUC Decision D.18-01-022 including the Plant Investment Review Process and an Overview of the Project Review Working Group Process and the Results of its Analysis to Date.**

Mr. Nimick reviewed the history of the Joint Proposal under which PG&E agreed to forego pursuing relicensing for DCPP and for the plant to close by 2025. As a result Mr. Nimick reported the Project Review Working Group was assembled in 2016 to perform a technical review and to assist DCPP leadership on assessing each project planned or in progress. The Project Review Working Group consists of a multi-disciplined team made up of representatives from the Engineering, Maintenance, Operations and Work Management organizations. A number of projects were cancelled as a result of Project Review Working Group’s recommendations to the Excellence Plan Executive Oversight Board. Projects required by regulation were retained as well as projects recommended in order to maintain safety and reliability. **In response to Consultant McWhorter’s inquiry, Mr. Nimick stated he estimated about a third of the projects submitted for review were cancelled and he agreed to provide the final list of cancelled projects to date to the DCISC.** Mr. Nimick confirmed Dr. Budnitz’ observation that the Eagle 21 Plant Protection System replacement project was amongst the projects that were cancelled and Westinghouse has committed to support the Eagle 21 System through the end of the plant’s operational lifetime. Mr. Nimick observed that review and assessment by the Project Review Working Group is now a part of future project review and the group meets on a routine basis for that purpose and to advise the Plant Health Prioritization Committee which is involved in making final decisions on capital spending.

Mr. Nimick stated DCPP continues to implement projects and he cited the baffle-former bolt inspection and replacement for Unit-1, the cavity seal replacement for Unit-1, and the control rod guide card inspection and replacement for both units as examples of completed projects. Future projects to be undertaken include the stator re-stack for Unit-2 during 2R21, the main annunciator replacement for both units in 1R22 and 2R22, and replacement of air compressors and plant air dryers. Mr. Nimick confirmed Dr. Lam’s observation that the stator re-stack is the project which entails a greater amount of complex work than the other two projects he
Mr. Nimick reported DCPP is reviewing its preventive maintenance practices using a multi-disciplined, Preventive Maintenance Optimization Team involving the Operations, Maintenance and Engineering organizations performing a structured analysis of more than 12,000 planned maintenance items. The team is assessing maintenance frequencies in order to optimize the effectiveness of preventive maintenance activities. In response to Consultant Wardell’s inquiry, Mr. Nimick reported the team has reviewed approximately 60% of the 12,000 maintenance tasks and he offered to review the preventive maintenance optimization efforts with the DCISC during the scheduled July fact-finding visit. Mr. Nimick stated his opinion that this effort would be valuable no matter how long the plant was planning to operate as the effort frees up maintenance resources to work on corrective items.

Dr. Peterson noted that in many industrial contexts there is a movement away from preventive maintenance and toward condition-based maintenance and there are better techniques available now than in the past to monitor degradation and to predict equipment performance and this trend actually increases safety as it avoids creating a “bathtub curve” wherein equipment with newly performed maintenance may be more susceptible to failure during initial operation after maintenance was performed. Dr. Peterson observed any move away from preventive maintenance requires an assessment of the use of resources that are accordingly freed up to ensure they are employed in a manner that mitigates any incremental increase in risk. Mr. Nimick agreed and stated efforts are now underway by the Electric Power Research Institute (EPRI) to develop on line monitoring devices and guidance for particular equipment. In response to Dr. Budnitz’ inquiry as to whether any of the efforts to optimize preventive maintenance have come into conflict with the plant’s technical specifications or the NRC Maintenance Rule, or where the proposed change is in conflict with a probabilistic risk assessment, Mr. Nimick stated that to date he was unaware of any such conflicts.

Mr. Nimick, in response to Dr. Peterson’s request, reviewed some of the efforts now being undertaken at other nuclear power plants to install instrumentation on equipment and then to feed data to a central computer through a wireless network, as this is part of an initiative to move toward condition-based maintenance and he described the challenges these efforts may face in understanding causation with the increased use of artificial intelligence. He remarked that as the plant is only expected to run for a few more years DCPP is not engaged in these types of efforts and preventive maintenance frequencies have not changed based on data from installed monitors or monitors installed on large components as those components are replaced. Dr. Peterson encouraged Mr. Nimick to explore this issue as performing preventive maintenance and creation of the resulting bathtub curve may actually increase risk. In response to Dr. Budnitz’ query, Mr. Nimick confirmed that Operations provides a senior reactor operator/shift manager to serve on the Preventive Maintenance Optimization Team.
in order to bring a detailed knowledge of emergency procedures to the team. In response to Consultant McWhorter’s observation, Mr. Nimick confirmed the emergency diesel generators are being assessed as part of the preventive maintenance optimization efforts.

Following Mr. Nimick’s presentation, Ms. Rochelle Becker of the Alliance for Nuclear responsibility was recognized. Ms. Becker inquired whether work on the Unit-2 stator rewind would result in the stator being subject to the bathtub curve effect; whether the replacement of the main annunciator is expected to be completed for less than $20 million; and were the projects described by Mr. Nimick approved by the CPUC in the last rate case. Ms. Becker also inquired as to the cost of the cancelled projects and she requested a list in electronic format, as well as information concerning the savings realized by their cancellation. Mr. Nimick stated the Unit-1 stator was rewound in operating cycle 12 and it is expected to perform well through the end of operations. The stator for Unit-2 has never been rewound and is now at the end of its expected operational lifetime. He remarked equipment is never out of the bathtub curve effect which is governed by time and failure rate, and that results in a higher failure rate at the beginning of a component’s operational lifetime but the failure rate drops off rather quickly to a period of stable operation with a rising risk of failure toward the end of a component’s expected lifetime. Mr. Nimick stated he would need to check on the estimated cost of the replacement of the main annunciator and he agreed to provide that information to the DCISC. Mr. Harbor confirmed that the stator project will be included in the current rate case filing. Mr. Nimick stated he would provide the DCISC with a full listing of the cancelled projects and Mr. Harbor remarked that the plant would need to consult with PG&E’s Legal Department before providing information on the cost of the cancelled projects. Dr. Budnitz remarked that the DCISC is not necessarily concerned with the cost of the projects unless operational issues are identified in connection with cancelled projects.

Ms. Sherry Lewis of Mothers for Peace was recognized. In response to Ms. Lewis’ inquiry, Mr. Nimick confirmed that the Unit-2 stator rewind project will include replacing the coils on the armature and the current-carrying portion of the stator but will not involve replacement of the rotor or the frame but will include replacement of the hydrogen cooler and the seals and many other components of the stator.

Mr. David Weisman of the Alliance for Nuclear Responsibility was recognized. Mr. Weisman remarked that as part of the Alliance’s settlement in PG&E’s general rate case, information was to be made available to the Alliance by PG&E on projects that exceeded $20 million in cost. Mr. Weisman noted the presentation made to the DCISC by Mr. Nimick included aspects of affordability and he observed that topic should not be dismissed and be at least of some concern to the DCISC especially in the waning years of the plant’s operation. Mr. Weisman observed the Alliance and the DCISC should be looking for the same information from PG&E as
Mr. Ray Lutz of the Citizens’ Oversight group was recognized. Mr. Lutz stated he was surprised that PG&E would be considering a complete rewinding of the Unit-2 stator at this time and he suggested that consideration should be given to shutting down one of the units on an extended basis and only operating a single unit and then using the funds which would have gone to the stator rewind project to install renewable power sources. Mr. Lutz stated that from the perspective of reviewing preventive maintenance efforts in a context other than that of the plant’s technical specifications, Citizens’ Oversight would prefer to have a committee review those issues in public as NRC review may prove inadequate.

Dr. Lam thanked Mr. Nimick for his informative presentation.

Mr. Harbor introduced Director of Strategic Initiatives, Mr. Tom Jones, to make the next informational presentation to the DCISC. Mr. Harbor reported Mr. Jones has more than 20 years’ experience in governmental relations and holds a Bachelors of Arts degree in governmental and political science.

**Update on the DCPP Employee Retention Plan under CPUC Decision D.18-01-022 including Ongoing Efforts to Retain Sufficient Numbers of Qualified Licensed Operations Department Staff.**

Mr. Jones thanked the Committee Members for their recent letter in support of SB 1090. He reported that a legal challenge to the license granted to PG&E by the State Lands Commission to occupy the public right of way on the coastline in order to use ocean water for DCPP cooling was just that afternoon adjudicated in favor of PG&E by the California appellate court.

Mr. Jones reported the Employee Retention Program was a part of the Joint Proposal, however, in Decision 18-01-022 the CPUC reduced funding for the program by 40%, that is, by reducing the financial incentive to remain employed at DCPP from 25% of an employee’s salary to 15%. Mr. Jones remarked the 25% proposal was benchmarked, that is it was found to be comparable with those offered by DCPP’s peers in a decommissioning context within the nuclear industry and therefore judged by PG&E to be appropriate. State Senator Monning, whose district includes the San Luis Obispo area, has introduced SB 1090 which would provide legislative redress of CPUC reduction and SB 1090 has now passed out of the State Senate and is now pending before the Assembly for committee assignment.

Mr. Jones displayed metrics for the Employee Retention Program in light of the reduction imposed by the CPUC which required PG&E to again extend an offer to participate to DCPP employees. The new offer, extended in accordance with the CPUC Decision, resulted in a 1% difference in the number of employees accepting the incentive and Mr. Jones stated the incentive remains an effective tool in the
recruitment process. He reported 277 positions have been filled at DCPP both internally and externally since the Joint Proposal was announced with 94% of those employees in those positions electing to participate and to accept the incentive.

Mr. Jones displayed graphs showing quarterly progress in the percentage of retention agreements signed which showed a reduction of 1% when the program was recast by the CPUC Decision. Mr. Jones observed that the 133 persons who elected not to sign retention agreements represented a number aligned within the annual average of plant turnover in personnel and he reported 58% of the 133 persons who declined to participate are now fully eligible to retire. In response to Dr. Lam’s inquiry as to whether SB 1090 was necessary, as the differences in participation are not great, Mr. Jones responded that when SB 1090 was introduced in February 2018, the offer of 25% was contingent on passage of SB 1090 and was further conditioned upon an employee having agreed to participate at the 15% level. Dr. Peterson remarked the DCISC’s concern over the reduction in the retention incentive was principally focused upon tranche two. In response to Dr. Peterson’s observation, Mr. Jones reported that as payments were not made at the time the retention program was recast by the CPUC, there was no obligation for employees to have to pay back funds received. Mr. Jones reported as to tranche two, in order to be eligible for the severance program, which exceeds the aggregated benefits of tranches one and two, an employee must participate in tranche two. He reported invitations to participate in tranche two will be extended in one year.

In response to Dr. Lam’s observation, Mr. Jones stated that he did not believe the 15% retention incentive would have been sufficient to obtain the current results, although he stated he also did not believe that employees were relying upon the legislation as a principal factor in deciding whether to participate. Mr. Jones stated his belief that support for SB 1090, and its potential effect on tranche two, is an important and effective factor in DCPP’s ability to immediately recruit new hires. Dr. Budnitz expressed his opinion, and Mr. Jones agreed, the plant closure date does not appear to be affecting recruitment in the national labor market and this was a good sign of the Employee Retention Program’s effectiveness.

Mr. Jones stated he would keep the DCISC updated on the Employee Retention Program. In response to a request made earlier by the DCISC, Mr. Jones reported that there has been no challenge to the plant’s ability to retain five licensed, operational shifts fully staffed with licensed personnel. There are also 26 persons with reactor operator licenses who are at present employed at the plant in positions other than Control Room operations and this reserve provides DCPP with the ability to assemble two, and possibly three, additional shifts of licensed operators if necessary. Mr. Harbor, in response to Consultant McWhorter’s question, stated that some personnel with NRC licenses continue to maintain their license while employed in other areas of the plant and some licenses become inactive. There is a program in place that, so long as the license is reactivated
within two years, the employee can return to Operations and stand watch in the Control Room for 56 hours before his or her license is reactivated but the majority of those 26 persons who hold licenses could be available immediately. Mr. Jones reported there are 40 persons currently involved in two licensed operator classes while three non licensed operators have left DCPP’s employ for other opportunities. Mr. Harbor stated this does not represent, in DCPP’s view a negative trend as a number of operators leaving were within retirement age and two of non licensed operators took opportunities elsewhere within PG&E’s generation organization. Dr. Peterson remarked that offering employees opportunities for professional development might result in an operator strengthening his or her position for a subsequent career and it would be worthwhile for the Committee to investigate in a fact-finding setting the program for rotating personnel to obtain experience elsewhere in the organization with the expectation that they could return and contribute to DCPP through the end of its licensed operation. Mr. Jones reported the Joint Proposal provided for $11,300,000 to aid in retraining initiatives which will be implemented as the time for plant closure approaches. In response to Consultant McWhorter’s inquiry, Mr. Jones stated DCPP has not conducted any surveys to assess employee interest in tranche two.

XIII Adjourn Evening Meeting

The Chair adjourned the afternoon meeting of the Committee at 7:02 P.M.

XIV Reconvene for Morning Meeting

The June 14, 2018, morning session of this public meeting of the Diablo Canyon Independent Safety Committee was called to order by its Chair, Dr. Peter Lam, at 9:05 A.M. Dr. Lam welcomed those present and attending remotely by live-streaming video to the meeting. Dr. Lam introduced his colleagues.

XV Committee Member Comments

There were no comments by any Member at this time.

XVI Public Comments and Communications

Dr. Lam inquired whether any member of the public wished to comment or to address the Committee on matters not appearing on its agenda for this meeting. There was no response to his invitation.

XVII Information Items Before the Committee (Cont’d.)

Dr. Lam requested Mr. Harbor to continue with the informational presentations requested of PG&E by the Committee for the public meeting.
Mr. Harbor introduced DCPP Manager of Regulatory Mr. Hossein Hamzehee and reported Mr. Hamzehee has more than 30 years of experience in the nuclear industry and holds Master of Science Degrees in Nuclear and Mechanical Engineering and brings extensive experience with the NRC including at the level of an NRC Branch Chief.

**Update on the Status of NRC Performance Indicators, Licensee Event Reports, NRC Notices of Violation, and Issues Raised by NRC Resident Inspectors.**

Mr. Hamzehee reported DCPP is rigorously inspected by the NRC and is committed to the highest standard of safety. In response to Dr. Peterson’s remark that DCPP was also inspected by INPO, as well as by its internal Nuclear Safety Oversight Committee (NSOC), Mr. Hamzehee commented while the NRC principally focuses upon regulatory requirements, the NSOC reviews all aspects of DCPP operations three times each year and identifies strengths and weaknesses which are taken very seriously by senior leadership and the Corrective Action Program is used to address issues raised by the NSOC. He reported the INPO focuses upon operations and provides a rigorous, systematic approach to its audit visits and an independent, formal evaluation every two years of a licensee’s performance concerning operations, maintenance, and training, and as with the NSOC reviews, the Corrective Action Program is used to address issues raised by INPO. In response to Dr. Peterson’s query, Mr. Hamzehee stated all the reviewers provide rigorous oversight but INPO and the NSOC may review areas where there may be no regulatory requirements but which can impact reliability and safety and the respective roles of the NSOC and the INPO enable DCPP to be better prepared for the regulatory compliance reviews by the NRC.

Mr. Hamzehee said that he would provide an overview of DCPP performance based on NRC’s Performance Indicators since the last meeting of the DCISC in February 2018. He remarked his presentation would cover approximately four months of NRC inspections involving ~1,600 hours of inspection time.

During the period February–May 2018 DCPP met all Green performance expectations for all NRC performance indicators. Three violations of very low safety significance were issued by the NRC since the last DCISC meeting in February 2018. Mr. Hamzehee reviewed and briefly discussed some of the 16 performance indicators reviewed by the NRC, and concerning which data is collected daily, as currently being within Green status as follows.

- Unplanned Scrams per 7000 Critical Hrs
- Unplanned Power Changes per 7000 Critical Hrs
- Unplanned Scrams with Complications
- Safety System Functional Failures
- Mitigating Systems Performance Index, Emergency AC Power System
- Mitigating Systems Performance Index, High Pressure Injection System
- Mitigating Systems Performance Index, Heat Removal System
- Mitigating Systems Performance Index, Residual Heat Removal System
- Mitigating Systems Performance Index, Cooling Water Systems
- Reactor Coolant System Activity
- Reactor Coolant System Leakage
- Drill/Exercise Performance
- ERO Drill Participation
- Alert & Notification System
- Occupational Exposure Control Effectiveness
- Radiological Effluent Occurrence

In response to Consultant Wardell’s inquiry, Mr. Hamzehee stated that none of the indicators are close to entering White status. Concerning the indicator for Unplanned Scrams per 7000 Critical Hours, Dr. Budnitz reported that in 1978, prior to the accident at Three Mile Island Nuclear Generating Station in Pennsylvania, the average number of automatic, unplanned scrams was 11 per reactor per year which declined by 2012 to 0.2 per reactor per year, which equates to one unplanned scram at any one plant every five years. Mr. Hamzehee remarked Unit-1 last experienced an unplanned scram more than ten years ago while for Unit-2 the last unplanned scram was about seven or eight years ago. Dr. Peterson observed this is because safety-related reactor protection systems are designed to be highly reliable and most automatic unplanned scrams occurring today are associated with equipment failure and do not relate to factors associated with exceeding safety limits. Dr. Lam remarked that the number of licensee event reports (LERs) has also declined dramatically over the past 35 years from approximately 100 LERs per licensee per year to single digits. Mr. Hamzehee reported there were no LERs issued by DCPP during February through May 2018. However, Mr. Hamzehee remarked, and Dr. Peterson agreed, that issuing a LER is not considered a negative reflection on plant performance but rather an indication that issues are being reported appropriately and not being under reported. He reported the criterion for issuing a LER is found at 10 CFR 50.73 and includes a reactor trip, inadvertent actuation of a safety system, or failure of a component and he observed for a redundant system that failed but did not impact any train or system function that these types of events do not require that a LER be submitted. Mr. Hamzehee observed to require the NRC to review thousands of LERs without safety significance would unnecessarily tax the NRC’s resources but he noted within the guidelines of 10 CFR 50.73 there are a number of criteria without safety significance that require reporting. Mr. Hamzehee and Dr. Peterson discussed the need to assess and determine how to prevent low level safety-significant events by inputting them into the Correction Action Program as in doing so error rates can be driven even lower and additional significant events thereby avoided. Mr. Hamzehee
confirmed that as a part of this effort DCPP monitors events at a much lower level than required by the NRC.

Mr. Hamzehee described the safety significance characterizations used for the performance indicators as either Green (very low), White (low to moderate) Yellow (substantial) or Red (high). Green non cited violations indicate very low safety significance, with no impact to public health and safety. He confirmed Dr. Peterson’s observation that DCPP through its Operating Experience Program monitors the reports of other nuclear power plants to identify any events which may have similarities to DCPP.

Mr. Hamzehee report on NRC Violations February 2018—June 2018 and stated there were three violations, two were non cited violations (NCV) and one was a finding, issued as follows:

- Non Cited Violation (Green) - for failure to provide adequate procedural guidance for operating the Nitrogen Supply System. (No cross-cutting aspect.) In July of 2017 DCPP identified an increase in the nitrogen level in Unit-2 Containment and determined the cause was a leaking power operated relief valve (PORV) for the nitrogen supply system due to a damaged o-ring. It was determined maintenance procedures did not provide enough guidance to ensure the PORV was properly installed and as a result there was some pressure excursion in the system which required the PORV to open and close more than usual which resulted in wear on the o-ring. Mr. Hamzehee reported this self-revealing NCV did not represent a design deficiency or loss of a safety system and accordingly was found to be of very low safety significance.

Dr. Peterson observed that General Electric’s digital division has developed technology that is capable of assessing large volumes of data sets and allows use of various tools to identify issues or problems. He remarked at a Westinghouse fuel fabrication facility, for some period of years, uranium was deposited at very slow rates through the ventilation system and finally this accumulation of uranium caused a serious situation and it is this type of situation where one is losing inventory at very low rates that could now be detected with new technologies. Dr. Peterson remarked these technologies and methodologies can now be employed to detect anomalies at much lower levels than possible previously. Dr. Budnitz remarked there is always a tension between how much one can inspect, as performing frequent inspections affects operation and Dr. Peterson noted this is one of the principal reasons for moving toward online monitoring of equipment using wireless technology and ensuring sufficient memory capacity exists to retain data in order for it to be useful to prevent recurrence in the event failure does occur. Mr. Hamzehee agreed and he reported DCPP does have leakage monitoring programs in place for its risk-significant safety systems through the individual system engineers.

Dr. Budnitz used an analogy in the above context to describe the limited
improvement one would achieve for an automobile if cost were no object and tires were for some reason changed every 500 miles as therefore one would be required to accept the unavoidable risk associated with human error in installing a tire thereby creating a greater risk than had the tires been left on the vehicle for the full lifetime of their treads. He remarked there is a certain minimum amount of error that cannot be easily avoided without very difficult, intrusive work no matter how much one is willing to spend. Mr. Hamzehee remarked that in prior years the nuclear industry was engaged in a debate concerning how to optimize the ratio of preventive to corrective maintenance. Dr. Peterson remarked that over the next seven years, as the plant transitions to closure, these issues will become increasingly important.

- Non Cited Violation (Green) - for failure to follow maintenance procedure resulting in temporary loss of source range nuclear instrumentation. (Cross-cutting aspect H.5 Work Management.) This occurred in March 2018 during a Unit-2 refueling outage while the reactor was in Mode 3 (hot standby) and the Maintenance organization was performing informal troubleshooting and failed to follow all the steps in a procedure and thereby created a hot circuit resulting in a blown fuse and loss of power to one of the instrumentation cabinets.

- Finding (Green) for failure to follow procedural requirements regarding review of Operating Experience which had the review been adequate could have prevented a similar event from occurring at DCPP. (No cross-cutting aspect.) This occurred in November 2017 when Centrifugal Charging Pump 2-1 (CCP 2-1) was shut down due to an increase in the temperature of a motor bearing. The cause was found to be failure of an anti-rotation pin and the NRC found that a similar event had occurred previously at the South Texas Project Nuclear Station which if it had been taken cognizance of by DCPP could have prevented the failure of CCP 2-1. Mr. Hamzehee stated the South Texas Project’s report was included in DCPP Operating Experience data but was not identified in the system. Mr. Harbor remarked this event was an example of the value of Dr. Peterson’s observation that in-service wireless monitoring of equipment could play a vital role in avoiding events. Dr. Peterson remarked by employing the use of drone technology, infrared photography, and sophisticated software any change to an area in a power plant can be effectively assessed such that any change is immediately identified and the International Atomic Energy Agency has done considerable work in this area. Dr. Peterson encouraged DCPP to explore the technological options now available in its quest to reassess the need for preventive maintenance and Dr. Peterson remarked this effort may have application for PG&E outside the nuclear area.

Mr. Hamzehee stated DCPP’s overall performance is Green with respect to NRC Performance Indicators. He reviewed inspection activities since the last meeting of the DCISC in February as follows:
Following Mr. Hamzehee’s presentation, Ms. Rochelle Becker of the Alliance for Nuclear Responsibility was recognized. Ms. Becker inquired concerning the date for the next NRC end-of-cycle public meeting. Mr. Hamzehee stated it was his understanding the meeting is now tentatively scheduled by the NRC for August 28, 2018, although he stated this was an NRC meeting not a PG&E meeting.

Ms. Sherry Lewis of Mothers for Peace was recognized. Ms. Lewis commented during the period described by Dr. Budnitz when there were 1,100 unplanned automatic reactor scrams per year across the industry, the public was still being told by the industry that everything was going well. Ms. Lewis commented it is therefore hard to trust the nuclear industry. Dr. Budnitz remarked that any such comments made at that time must be seen in comparison with industry and performance of nuclear technology during earlier periods and this has generally been true for every technology, that is, as time passes the technology gets safer. Ms. Lewis remarked her comment may have been prompted by her own distrust of authority.

Dr. Lam thanked Mr. Hamzehee for his presentation and recognized the presence of Dr. Justin Cochran, Senior Nuclear Policy Advisor and Emergency Coordinator for the California Energy Commission. Dr. Cochran stated he was present representing California Energy Commission Chair Dr. Robert B. Weisenmiller who also serves as the Governor’s appointed liaison to the NRC. Dr. Cochran stated Dr. Weisenmiller expresses his thanks to the DCISC and to its support staff for the excellent and essential work they perform. Dr. Cochran also thanked Dr. Lam for his service on the Committee and stated Dr. Weisenmiller appreciates receiving Dr. Lam’s insights and perspective on issues pertaining to nuclear energy. Dr. Cochran closed his remarks by also thanking the members of the public and PG&E and its staff for their dedicated efforts and critical contributions.

Mr. Harbor introduced DCPP Manager of Seismic Engineering Mr. Nozar Jahangir and reported Mr. Jahangir has more than 30 years’ experience in the nuclear industry including in Engineering, piping and seismic type activities.

Seismic Probabilistic Risk Assessment Project Results including an Update on the Status of PG&E’s Review of the Tsunami Hazard and Risk at DCPP and its Environs.

Mr. Jahangir began his presentation with background on the hazard reevaluation performed following the catastrophic events of March 2011 at the Fukushima Dai-ichi Nuclear Power Plant in Japan (Fukushima). Following the accident to Fukushima, the NRC ordered all U.S. nuclear plants to perform a seismic hazard
update in accordance with the following directives and responses by DCPP:

- March 2012-NRC Request for Information on Seismic Hazard Update, Post Fukushima issued under the 10 CFR 50.54(f) process.
- November 2013: seismic “walkdowns” for both units submitted to NRC.
- March 2014: NRC staff accepts seismic “walkdowns” letter.
- March & December 2015: probabilistic seismic hazard assessment (PHSA) update including screening evaluation (initial & supplemental) submitted to NRC.
- December 2016: NRC staff PHSA letter issued, indicating “proceed with Seismic Probabilistic Risk Assessment (SPRA).” April 2018: updated/upgraded SPRA submitted to the NRC.

Objectives to be determined in this process included: (1) the likelihood of a seismically induced core damaging accident; (2) the likelihood of a seismically induced accident that results in a large, early release of radiation; and (3) the potential risk contribution from structures, systems and components. Mr. Jahangir described key elements in performing the SPRA as developing a seismic hazard, creation of seismic fragility and probabilistic analysis model, each with its own subset of elements that make up the activity, followed by an independent peer review technical adequacy assessment by external subject matter experts. Mr. Jahangir displayed and discussed a flow chart for the SPRA which included two graphic depictions representative of the site hazard showing the response for the probabilistic analysis using the site and the ground motion characterization parameters. Dr. Budnitz explained the use and utility of showing the peak ground motion acceleration at differing frequencies shown on the graph.

Mr. Jahangir then reviewed the fragility reevaluation which he described as bringing the seismic hazard reevaluation PRA model down to its component structural level. He reported the SPRA was subject to extensive external peer review and demonstrates key plant structures, systems and components have significant seismic capacity beyond their seismic design basis, that is, key plant structures, systems and components can withstand a greater level of seismic motion than the plant was designed to withstand. Additional FLEX equipment stored onsite to respond to a beyond design basis event and the procedures to respond should such an unlikely event occur enhance safety. Dr. Peterson commented on the plant tour the Committee conducted the previous day with members of the public during which the group had an opportunity to visit the FLEX Equipment Storage Facility and to observe that every piece of FLEX equipment was tied down in some manner so as not to be damaged in an earthquake, including a large truck. Dr. Peterson observed, however, on a recent fact-finding visit the DCISC representatives found some tall furniture had not been braced and represented a danger to persons in an earthquake. Although a notification was written for this to enter the condition into the Corrective Action Program, Dr.
Peterson stated he found the existence of this condition to be detrimental to safety and disappointing and he emphasized the need to protect both equipment and plant personnel in the event of an earthquake.

Mr. Jahangir reported Seismic Core Damage Frequency (SCDF), used to assess seismic risk is defined as the likelihood of a core damaging accident caused by an earthquake and reported the SCDF was calculated to be equal to 2.78 E-5/yr. The Seismic Large Early Release Frequency (SLERF), that is, the likelihood of an earthquake-induced accident that results in a large, early release of radiation, was calculated as to be equal to 5.37 E-6/yr. Mr. Jahangir stated these values are generally in accord with industry average values for the other 20 nuclear power plants currently performing a SPRA. Only five of the 20 plants have submitted their SPRA to the NRC with DCPP being one of those five plants. Mr. Jahangir identified and reviewed key scenario drivers for these results as including:

- Station Blackout (for SCDF).
- Instrumentation Failure (for SCDF).
- Building Failures, e.g., Auxiliary, Containment (for SCDF).
- Containment Exterior Shell Failure (for SLERF).
- Steam Generators Failure (for SLERF).
- Containment Isolation Failures (for SLERF).

Mr. Jahangir then requested Dr. Albert Kottke, a geotechnical earthquake engineer in the PG&E Geosciences Department, to continue the presentation to the DCISC.

Dr. Kottke stated he would be discussing the seismic hazard reevaluation including: the development of structure-specific foundation inputs, which are termed foundation input response spectra (FIRS); the development of input time series for structural analysis; and the non vibratory hazards including seismic slope stability, tsunamis, and secondary fault rupture.

Dr. Kottke explained FIRS defines ground motion at foundation level of each specific structure and was developed for:

- Containment structures.
- Auxiliary Building.
- Turbine Building.

The horizontal components of the FIRS were computed using a combination of empirical and analytical site amplification. He described this as consistent with the general approach used for calculation of the ground motion response spectra (GMRS). Once the horizontal FIRS are computed, vertical FIRS are developed using a computerized model developed by Drs. Gülerce and Abrahamson in 2011.
Dr. Kottke displayed a graph showing the horizontal and vertical FIRS parameters for the power block structures and he noted the differences are caused by different elevations for the respective structures.

Dr. Kottke reviewed what he described as insights gained from looking at the sources dominating the hazard, including:

- Close seismic sources control the total hazard. Hosgri, Shoreline, Los Osos, and San Luis Bay Faults contribute 90+% of total hazard above 0.3 g.
- Median ground motion models and total uncertainty models dominate the ground motion characterization.
- Significant reduction in the uncertainties associated with seismic source characterization:
  - Slip rates of faults are well constrained:
  - Close distance saturation of large magnitude events.
  - High seismicity rate.
  - Four close sources.

Dr. Kottke explained that as energy moves from a rupturing fault to a location, if that location is very distant from the site of the rupture then the distant location experiences the full energy and magnitude of the rupture, as magnitude is related to length of rupture. At nearer distances, there is not as much energy contribution to the event and the consequences of a rupture depend to a great degree on the location of the rupture.

Dr. Kottke then reviewed with the DCISC the evaluation of the tsunami hazard and explained that the SPRA effort requires consideration of that hazard. To undertake this task two tsunami wave heights were considered:

- 46 ft. (14 meters) – height of the snorkels (impacting the ASW pumps).
- 85 ft. (26 meters) – the elevation of DCPP.

The analysis considered the tsunami sources from nearby slope failure and fault rupture (near and distant). Fault ruptures, near or distant, are not considered as contributors for the large wave heights. Dr. Kottke observed that not all tsunamis are associated with strong shaking at DCPP and gave as examples distant earthquakes and static slope failures. The tsunami hazard evaluation efforts conservatively assumed all tsunamis are associated with strong shaking and considered the probability of both:

1. Ground motion
2. Tsunami wave height
Then the hazards were simplified into scenarios for vector hazard calculation. Vector hazard results include conditional probability computed for integration into SPRA (e.g., wave height given ground motion); very low conditional probabilities (0.001 between 2 and 5 g) which he remarked demonstrate the tsunami hazard to be relatively low. Input from tsunami vector analysis was used for risk assessments for waves < 14 meters and < 26 meters. For tsunami waves < 14 meters, loss of ASW system would occur. Dr. Kottke reported the change in SCDF is insignificant (conservatively estimated to be less than 1E-7/yr.). For tsunami waves < 26 meters, plant equipment inside Turbine Building could be impacted (and core damage was assumed). Change in SCDF is insignificant (conservatively estimated to be less than 5E-08/yr.).

Dr. Kottke reported that the conclusion of the tsunami evaluation determined the seismic risk is dominated by the vibratory ground motion and the potential tsunami hazard has insignificant impact on the SPRA overall.

Drs. Peterson, Budnitz and Lam observed that in its review of the tsunami hazard the DCISC is also concerned with the potential for a stranded plant event and the impact on plant egress and ingress and Dr. Peterson observed that while the tsunami risk may be determined as unlikely to exceed 46 feet (and thereby not to impact the ASW snorkels) there are broader issues as such an event could and very likely would have a devastating effect on the local area and its population and possibly the entire California coastline and this issue has been brought to the attention of the State of California through the efforts of Dr. Justin Cochran, the CEC’s Senior Nuclear Policy Advisor and Emergency Response Coordinator. Dr. Kottke remarked that to undertake an analysis of the issue raised by Dr. Peterson more and different information would be required than that used for the analysis relative to DCPP. Dr. Peterson observed that with the analyses to date, the DCISC is confident that the plant has the capability with its onsite assets to adequately address any hazard from a tsunami but such an event in the local area could very likely impact the families of plant personnel as occurred in Japan in March 2011.

Mr. Jahangir returned to the podium and displayed a fragilities flowchart and remarked the definition of fragility of a system, structure or component is the conditional probability of its failure at a given hazard input level. Mr. Jahangir confirmed, in response to Dr. Peterson’s observation, that both functional and structural fragilities were considered and assessed to determine which is more dominating in the failure analysis and, unlike for a PRA, credit is not given for operator action in fragility analysis. He used a depiction with ground acceleration as a variable and the probability of failure shown graphically and stated that a curve was provided for each component. The objective being to evaluate realistic seismic responses of structures for use in fragility evaluations.

Mr. Jahangir reported that developing ground motion response at each component location required development of key inputs including:
Foundation Input Response Spectra (FIRS).

Time Histories.

Soil profiles.

In response to Dr. Peterson’s query, Mr. Jahangir reported that three-dimensional models of DCPP buildings have been developed and used to assess structural response and he confirmed that the models used by DCPP are accepted by the NRC.

Mr. Jahangir reiterated a ground motion model response for the component has been developed and the evaluation of the model’s components produce the fragility of the system, structure or component. In response to Consultant McWhorter’s inquiry Mr. Jahangir replied the Spent Fuel Pools and the Fuel Handling Building were included within the analysis for the Auxiliary Building as those facilities are a functional part of the Auxiliary Building. Mr. Jahangir confirmed Dr. Peterson’s observation that the Containment structures are separated from the Auxiliary Building by gaps and have separate foundations. Probabilistic soil structure interaction analyses were completed for each of the Containment structures, the Auxiliary Building, and the Turbine Building. Variables affecting seismic response include:

- Ground motion.
- Soil stiffness and damping.
- Structure stiffness and damping.

Mr. Jahangir displayed a three-dimensional depiction of the Auxiliary Building and the Turbine Building produced by the model. He stated, in summary, fragilities were calculated, using site specific data (e.g., shake table testing results) primarily by the separation of variables methods approved by the NRC. The capacities are realistic and represent both units, the lowest capacity is in the model and 30 time-history analyses were run and the average used to evaluate a component so as to capture the variability, and fragility parameters (capacity and uncertainties) were computed and input into the PRA model.

Mr. Jahangir reported two observations were made as a result of the walkdowns, the first concerned fire water sprinkler piping in the Auxiliary Building (seismic risk contributor, operator actions credited to mitigate potential flooding) and the second concerned a 480V ventilation duct which crosses the area between Auxiliary Building and the Turbine Building without a seismic gap. He displayed a photo of the ventilation duct taken from the Turbine Building and reported that a notification for this condition has been entered into the Corrective Action Program. Dr. Peterson observed that prioritization of the list of these types of items as to their seismic risk is an important aspect, as some may fail in an unexpected way and in an actual event operators would need to first address those with the
Mr. Jahangir returned to the SPRA update and upgrade efforts and to important insights identified concerning components and structures. He stated component and structural importance is measured by comparing the relative contribution to risk from different component/structural failure scenarios. Components identified as the most important to seismic risk are:

- Condensate Storage Tank, Firewater Storage Tank, fire water piping – Failure will result in core damage due to a loss of AFW supply for seismically induced station blackout scenarios.
- Main control room vertical boards, Process Control and Protection System (PCPS) – Failure prevents mitigation of most scenarios due to a loss of control.
- Non load-bearing wall failures in EDG rooms, 4kV rooms and DC bus rooms impact important components and could cause a loss of vital power.
- RCP Shutdown Seals (SDS) reduced seismic risk by 50%

In response to Dr. Budnitz’ inquiry as to whether any of these items represent “easy fixes” Mr. Jahangir commented they are all on the order of 1% to 2% contributors to seismic risk and for some of these items there is little that can be physically done but perhaps models could be refined so as to remove some conservatism. **Dr. Budnitz remarked that he would request to inspect the non load-bearing walls in the 4 kV and DC bus rooms during a future fact finding visit.**

Mr. Jahangir identified structures most important to seismic risk as:

- Auxiliary Building – failure results in core damage.
- Turbine building – failure results in station blackout.
- Containment building – failure results in core damage and release.

Mr. Jahangir reported certain FLEX mitigation strategies are very important to maintaining a low seismic risk level, these include:

- DC load shedding actions taken in response to an extended loss of offsite power. In conjunction with use of fire water storage tank (FWST) for Auxiliary Feedwater (AFW) water supply, allows for continued operation of AFW in a station blackout scenario.
- Manual control of AFW in the event of a complete loss of AC and DC power. Other important actions include isolation of the FWST upon a seismically induced fire water piping failure.

Mr. Jahangir reported on the SCDF perspective, SPRA version and compared the data from the Long Term Seismic Program of 1988 as 3.8E-5 to the Long Term...
Seismic Program/Near Term Task Force (NTTF) 2.1 Response from 2018 which was 2.8E-5. He remarked it was difficult to identify the reasons for the difference as new components have been added to the plant since 1988.

Mr. Jahangir reported an independent peer review assessment was required by the NRC (per NEI 12-13 guidance document) to validate technical adequacy and compliance to the American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) SPRA standard’s requirements. He described the peer review’s component phases as:

- **Phase 1:** peer review assessment was initiated in May 2017. Provided all documents, one month off-site reviews, Q&A. Team of 10 independent subject matter experts, 4 US-NRC observers and 2 Japanese NRRC observers. One week onsite (at San Luis Obispo), face-to-face review in June 2017. Peer review report identified Facts and Observations (F&Os) and issued a report in September 2017.

- **Phase 2:** independent assessment to review and close resolutions to F&Os from the September 2017 peer review report. Onsite (at San Francisco) in November 2017. Final closure report in March 2018. Appropriate documents were revised to incorporate changes and recommendations by the Peer Review Team. All F&Os were addressed and successfully closed and a final closure report was issued in March 2018 concluding that all scenarios were addressed and there were no open issues remaining.

Mr. Jahangir described the next regulatory steps as including:

- NRC Staff technical assessment anticipated to take approximately one year (Based on comparison with Vogtle Nuclear Power Plant’s experience).

- Anticipating interactions with NRC Staff (e.g., requests for additional information) to provide additional clarifications and documents and a potential audit.

He reported the NRC will form an internal panel of experts according to NTTF 2.1 Phase 2 process, to decide if any additional actions are required.

Mr. Jahangir stated PG&E is committed to using insights from the updated hazard and SPRA and will continue to assess future plant additions and modifications and to assess the potential seismic risk impacts by revising affected procedures and documents. Modification to the 480V ventilation duct will be scheduled during 1R21 and 2R21.

Dr. Budnitz remarked that he serves as a consultant to the NRC staff for the purpose of reviewing the SPRAs prepared by other nuclear power plants and that he co-chairs the ASME/ANS SPRA standards committee. In response to Dr. Budnitz question as to whether Mr. Jahangir found anything in the separation of variables
methodology that Mr. Jahangir wished were stronger, Mr. Jahangir replied that in
his opinion the methodology cited by Dr. Budnitz worked well in PG&E’s SPRA
analyses and he observed the best tool available at this time and in the future to
reduce uncertainties may be the three-dimensional models. Dr. Budnitz remarked
that when detailed reports are made available he will look very carefully at how
the analysis handled the correlations amongst seismic failure of similar equipment
as this is an area requiring considerable judgment. Mr. Jahangir agreed that this
was an area which might be improved as there are some conservatisms in the
model for which any changes would need to go through standards committees. Dr.
Budnitz remarked that the committee he co-chairs has recently issued a new
methodology and is seeking feedback.

Dr. Peterson stated he was impressed by the work described by Mr. Jahangir and
Dr. Kottke and described it as world class and it represents one area where there
has been a systematic pushing out of the boundaries in terms of capabilities to
identify seismic hazards, quantify risk, and to improve design and to plan out
response capabilities and California in particular, and society in general, would
benefit from a broad application of these same methods to other infrastructure. In
response to Dr. Peterson’s inquiry as to the cost of these efforts, Mr. Jahangir
remarked that DCPP already had a base model SPRA from which to commence its
update and the work to complete the update was several million dollars. Mr.
Jahangir remarked the key to these efforts is in the first-time building of a model,
as once the model is built the updated hazard can be input to the existing model to
achieve a better insight into the largest risk contributors.

Following Mr. Jahangir’s presentation, Ms. Rochelle Becker of the Alliance for
Nuclear Responsibility was recognized. Mrs. Becker stated her belief that this
important information concerning seismic safety with the impact on the local
population should be communicated to the San Luis Obispo Board of Supervisors.

Dr. Justin Cochran, CEC Senior Nuclear Policy Advisor, was recognized. In
response to Dr. Cochran’s question Mr. Jahangir stated the model is not to scale in
a meaningful way, nor linear in any event, as to seismic event intensity.

Mr. David Weisman of the Alliance to Nuclear Responsibility was recognized. Mr.
Weisman remarked that while Mr. Jahangir’s information was detailed, when one
gets into those details it becomes opaque. Mr. Weisman stated the Alliance
fundamentally disagrees that the seismic source characterization has been
adequately identified for DCPP in that he stated there is no certainty as to the
mechanism for the uplift of the Irish Hills which rise up behind the plant site. Mr.
Weisman remarked this issues has also been raised by the CPUC’s Independent
Peer Review Panel (IPRP) in its Reports Nos. 6 and 10. Mr. Weisman remarked he
was disappointed when the IPRP could only muster one if its members to be
present in person for its most recent meeting where much of the information
presented by Mr. Jahangir was presented to the IPRP and the PowerPoint
presentation was only made available in the morning of the day on which the IPRP
Mr. Weisman stated the IPRP was not convinced that the limited number of actual recorded earthquake was sufficient to support PG&E’s evaluation of the ground model and that discrepancies exist between empirical bore hole information and calculated information. Mr. Weisman remarked that IPRP Member Dr. Gibson also has yet to receive an adequate explanation for the uplift of the Irish Hills with the latest theory hinging on a geotechnic plasticity aseismic theory which, Mr. Weisman stated, is at odds with the seismic plotting seen under the mountains to the north of DCPP where the San Simeon earthquake occurred in 2003. He stated his understanding that a paper on this topic is being prepared for presentation to the Geological Society of America. Mr. Weisman observed there were several findings and observations which were closed out but not met such as the supporting requirement to conduct systematic evaluation of other seismic hazards which may exist under DCPP or that could occur during an earthquake. He remarked that while selected evaluations have been carried out there has been no systematic assessment to support the SPRA and it was recommended that other seismic hazards be documented in a single report for ease of access and reference. Mr. Weisman closed his comment with an observation on the difficulty of accessing the references in the PG&E report.

Dr. Budnitz responded to Mr. Weisman’s comments and agreed that until the references are made available it is not possible to form a judgment. Dr. Budnitz stated there are significant large and irreducible, at least at this point in time with the data on hand, uncertainties in the final results of the hazard analysis used by PG&E. This means that while PG&E has a best estimate of the hazard in terms of its recurrence and the frequencies, those estimates are quite uncertain and the rest of the analysis has those uncertainties embedded in it in attempting to capture what might be the highest and what might be the lowest or what might be the broad spectrum of the state of knowledge of those uncertain issues. The NRC and the DCISC will review PG&E’s hazard analysis and if done right in accordance with the existing standards, we will be forced to accept the uncertainties at least until more work is done to improve methods of the analysis or until there are more earthquakes. Dr. Budnitz remarked the DCPP SPRA will receive more review than any other SPRA done in the last twenty years as DCPP is the highest seismic site for a nuclear power plant in the world.

Mr. Weisman thanked Dr. Budnitz for his comments and stated he looked forward to the DCISC and the IPRP review and stated he was surprised Dr. Budnitz also found the results to be, in some respects, opaque. Dr. Budnitz responded by observing that unless one is a civil or structural engineer or a practitioner in the area of seismic analysis the analyses that has led to the finite models discussed by Mr. Jahangir and Dr. Kottke are going to be opaque.

**XVIII Technical Consultant Report and Receive, Approve and Authorize Transmittal of Fact Finding Report to PG&E (Cont’d.)**

The Chair requested Consultant McWhorter to report on a fact-finding
visit to DCPP on May 2–3, 2018 with Dr. Peterson. Mr. McWhorter stated topics reviewed with PG&E during that visit included the following:

- Meeting with NRC Resident Inspector - Mr. McWhorter reported the DCISC Fact Finding Team (FFT) met with the NRC’s Resident Inspector and reported at the time of the fact-finding visit the Senior Resident Inspector was making an objectivity visit to another nuclear power plant during the fact finding.

- Workplace Seismic Safety - the FFT reviewed this initiative to secure furniture in most of the office areas that are not otherwise controlled by formal seismic programs. For this initiative DCPP has established guidelines entitled “Standards for Bracing Office Furniture, Cabinets and Storage Racks” which was provided to and reviewed by the DCISC representatives. While the standards were judged to be appropriate, the FFT was disappointed to find some existing deficiencies including several cabinets which were not properly braced both in the office areas and in the Instrument & Control Shop. Mr. McWhorter reported a notification for unbraced cabinets was prepared and entered into the Corrective Action Program and the DCISC will follow up on this issue at its July 2018 fact-finding. Dr. Peterson remarked during the public tour held in conjunction with this public meeting, the DCPP Fire Chief informed Dr. Peterson that the Fire Department had identified and secured some cabinets which were not previously braced. Mr. McWhorter stated the FFT found it disappointing that issues still remain with workplace seismic safety.

- Equipment Data Collection, Trending & Retention - Mr. McWhorter reported the FFT review was intended to assess how plant data is collected and stored. He stated most of the data collected from instrumentation are stored by the plant process computer and while these data are archived and available for analysis, most analysis is done on an as-needed basis and requires manual intervention. The FFT was informed that generally at this time there is no automated monitoring of plant computer data although the Nuclear Energy Institute is prompting review of opportunities for automatic data monitoring and there may be some opportunities to employ automatic data monitoring on operating non safety equipment. Mr. McWhorter reported the reactor coolant pump vibration system does not record large amounts of data for long term analysis as it is an older system with limited memory. DCPP plans to replace that system during summer 2018.

- System Engineering Program - of the four system engineering programs reviewed, three were in White health status while one was in Green status. The System Engineering Department experienced some turnover in personnel in 2017 and the mechanical engineering group lost approximately one-third of its engineers to retirement and transfers to other departments which Mr. McWhorter stated was more than usual. DCPP is recruiting for and hiring new engineers and Mr. McWhorter reported the FFT was informed that the Joint Proposal does not appear to have impacted recruiting at this time.

- Observe Corrective Action Review Board Meeting - the purpose of the
Corrective Action Review Board (CARB) is to provide senior plant management with an overview of the Corrective Action Program and its activities include performing root cause evaluations, extension of corrective actions and review of notifications and the results of reviews by the Notification Review Team which is tasked with reviewing notifications on a daily basis. The FFT team found the CARB meeting to be efficient and appropriately focused and it was apparent the members of the CARB were well prepared.

- Commercial Grade Dedication Program - Mr. McWhorter stated this program provides a dedication process whereby commercially purchased items are reviewed, tested and approved for use in safety related systems. The need to employ commercially available components usually arises when obsolescence may have caused a part to no longer be available from a supplier which maintains a safety-related quality assurance program. Mr. McWhorter remarked typically it costs more to obtain and test a commercial part than if the plant were able to purchase the item from a supplier with a quality assurance program. A program engineer is assigned to review the part and its intended safety-related function and to identify the tests that need to be performed to ensure the part can perform a safety-related function. DCPP laboratories perform the required tests including testing for hardness and the plant has the capability to test different types of materials to verify and confirm that the commercial part is accurately fabricated as described. Mr. McWhorter displayed photos of activities in the laboratories and the offsite warehouse facility on Santa Fe Road in San Luis Obispo which serves as the receiving facility for components intended for DCPP and thereby functions to minimize, organize and control the need to process deliveries through plant security.

- Cybersecurity Program - Mr. McWhorter stated the primary purpose of the FFT’s review was to confirm the station completed all NRC requirements by the end of 2017. He reported this effort cost approximately $50 million and employed up to 47 persons at the peak of its implementation. Following implementation, the Cybersecurity Program will be permanently staffed by five persons to maintain the program. Dr. Budnitz reported the nuclear industry is putting together a task force of cybersecurity experts and the DCPP Cybersecurity Department will have that resource available. The Cybersecurity Program provides security for plant equipment and is a separate program from that performed by the DCPP Information Technology Department which maintains the utility’s data network and business systems. Mr. McWhorter reported that of 4,000 digital assets employed by the plant, each was reviewed by the Cybersecurity Program and approximately 900 were identified as requiring modification. Dr. Peterson observed that DCPP employs good architecture for its data diodes which physically separate information from the business data systems and allows information to flow in only one direction, thereby preventing feeding anything back to a safety system. Mr. McWhorter reported DCPP was successful in meeting the NRC
requirements for cybersecurity by the end of 2017 and an inspection will be conducted in 2019. In response to Dr. Budnitz’ inquiry, Mr. McWhorter and Dr. Peterson confirmed they reviewed the Cybersecurity Program from a programmatic perspective and accordingly the FFT did not require access to information otherwise restricted by security concerns. Dr. Peterson commented that many of the efforts made to ensure cybersecurity also increase the reliability of software and hardware systems in general as by protecting from malicious behavior one is also protecting against the unintentional mistakes that all humans make.

- **Spent Fuel Pool Systems** - the DCISC FFT walked down the system with the system engineer and found the system in generally good condition. The DCISC representatives inspected instrumentation that has been added to the spent fuel pools as part of the post Fukushima NRC orders to allow precise reading of the pool levels from a display that can be accessed during an emergency. Mr. McWhorter stated in the future data on the water level of the pools will also be available in the Control Room. He reported that each spent fuel pool has two of the new level reporting systems installed. The spent fuel pools have also been modified in accordance with the FLEX initiative to provide a new connection, controlled by a valve, to enable the addition of make-up water from the Refueling Water Storage Tank, the Condensate Storage Tank serving the Fire Water System and from the Raw Water Reservoirs located behind and above the plant.

- **Meet with DCPP Director** - Dr. Peterson met with the Director of Nuclear Services.

- **Large Transformers** - the FFT reviewed the status of the large main auxiliary and start-up transformers located behind the power block area and found all those transformers to be in good health. Mr. McWhorter stated the initiatives to make repairs to the large transformers have been completed and the transformers are expected to remain healthy through the end of the current operating licenses. Insulators have been changed and regular cleaning of transformer insulators has been initiated and there have been no insulator flashover events since 2013.

Following Mr. McWhorter’s report, Ms. Sherry Lewis was recognized. In response to Ms. Lewis observation concerning the Fire Protection Program, information for which was included within the four systems described by Mr. McWhorter in his report on the System Engineering Program, Mr. McWhorter replied that the White health status for the Fire Protection Program relates to several metrics and while most of a program’s metrics may be in Green status, a few in White or Yellow can change the categorization of the entire program. For the Fire Protection Program, the White status was primarily driven by the back-up system engineer position being unfilled at present and multiple fire protection procedures and engineering evaluations still being revised to support implementation of NFPA 805 regulations. He replied to Ms. Lewis’ observation concerning the Fire Protection Program by stating that this was not a program deficiency and did not mean the NFPA 805
requirements were not met because a large number of engineering evaluations were planned to be made after the NFPA Program was commenced in order to assure its full and effective implementation. In response to Ms. Lewis inquiry about the high rate of turnover for employees discussed during Mr. McWhorter’s review of the System Engineering Program, Mr. McWhorter stated the turnover occurred amongst Operations and Engineering personnel as they have skill sets and training that permit them to move readily to other areas within the DCPP organization and, with reference to the System Engineering Department, personnel once assigned to System Engineering Department generally remain employed in some capacity at DCPP.

Upon a motion by Dr. Budnitz, seconded by Dr. Lam the March 2–3, 2018 Fact Finding Report was accepted and its transmittal to PG&E authorized.

XIX Adjourn Morning Meeting

   The Chair adjourned the afternoon meeting of the Committee at 11:58 A.M.

XX Reconvene for Afternoon Meeting

   Dr. Lam convened the afternoon meeting of the DCISC at 1:05 P.M. He introduced the other Members and welcomed members of the public present in the audience and those following the meeting by the streaming video available through a link on the Committee’s website at www.dcisc.org or at www.slospan.org.

XXI Committee Member Comments

   There were no comments by Members at this time.

XXII Public Comments and Communications

   The Chair invited any comments from members of the public.

Mr. Howard Green was recognized. Mr. Green stated he was a retired computer engineer who attended the DCISC’s public tour held the previous day. Mr. Green stated he watched the Committee’s discussion of the letter in support of SB 1090 and he read the letter online on the Committee’s website. Mr. Green stated he believes that the letter might have been more effective had the Committee’s letter better emphasized the fact that, while it remained interested in all aspects of the legislation the Committee believed it to be appropriate and within its scope to only take a position on the aspects of the legislation that relate to the Employee Retention Program.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson stated his group was the lone adverse party to Decision 18-01-022 which
provides for the retirement of DCPP by 2025 and he stated that Californians for Green Nuclear Power representatives testified against SB 1090 at several State Senate committee hearings. Dr. Nelson stated that while he found the DCISC’s letter in support of SB 1090 to be balanced, he continues to have concern regarding any form of advocacy for or against the closure of DCPP by the DCISC and he stated in any such context the DCISC should adopt a neutral tone.

Ms. Rochelle Becker of the Alliance for Nuclear responsibility was recognized. Ms. Becker stated she had just received information that the next hearing on SB 1090 is scheduled in the State Assembly on June 27, 2018.

XXIII Information Items Before the Committee (Cont’d.)

**Dr. Lam requested Mr. Harbor to continue with the informational presentations requested of PG&E by the Committee for the public meeting.**

Mr. Harbor introduced Director of Nuclear Work Management, Mr. Dennis Petersen, and reported Mr. Petersen has more than 30 years of experience in the nuclear industry and held a Senior Reactor Operator License and has held leadership roles in DCPP’s Operations and Quality organizations.

**Performance during the 20th Refueling Outage for Unit-2 (2R20) including Key Activities, Performance Indicators, Results Achieved, Fuel and Steam Generator Inspection Results and Open Items.**

Mr. Petersen stated in his presentation he would review key activities during the twentieth refueling outage for Unit-2 (2R20) including performance indicators, results of inspection and any open items. He reported 2R20 commended on February 11, 2018 and concluded March 22, 2018, which was an improvement on the goal set by the DCPP Business Plan. He reviewed performance measures during 2R201 as follows:

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<tr>
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<td>Power Ascension (days)</td>
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</table>

In response to Dr. Peterson’s inquiry, Mr. Petersen stated then when a goal is established for outage duration under the Business Plan, the schedule established includes contingency margins which typically include 10%–15% extra time for discovery of emergent work during an outage. For 2R20, all but one day of that margin was used.
Mr. Petersen reviewed key activities during 2R20 as follows:

- Reactor Coolant Pump 2-4 motor overhaul including stator replacement.
- Rod control cluster assembly guide tube swaps (7).
- Thimble tube replacements (13).
- Integrated Leak Rate Test.
- Residual Heat Removal (RHR) suction weld overlay.
- 500kV output breaker 632 replacement.
- 230kV switch 211-2 overhaul.
- 480V vital bus F breaker replacements.
- High pressure rotor blade replacements.
- Feedwater pump 2-2 turbine overhaul.

Mr. Petersen reported during 2R20, a defense-in-depth outage safety strategy was maintained to ensure key safety functions were satisfied and very few changes were required to the outage safety schedule which he described as the mark of a good plan. He described and briefly discussed the high-risk and infrequently performed tests and evolutions performed during 2R20 including:

- Vital bus transfer and engineered safeguards testing.
- Performance of heavy lifts over reactor core.
- Draining to lowered reactor coolant inventory for reactor disassembly and reassembly.
- Draining to reduced reactor coolant inventory for vacuum refill of the reactor coolant with 230kV power unavailable.
- Integrated Leak Rate Test of Containment.
- Initial criticality of the new reactor core

Mr. Petersen reviewed results achieved during 2R20 including:

- Integrated Leak Rate Test.
- Residual Heat Removal System suction structural weld overlay.
- HP turbine blade replacement.
- Line ownership of radiation dose which achieved a result of 24.11 person rem for the outage which was the best performance in DCPP’s history and for which the plant received an award for “As Low As Reasonably Achievable” (ALARA) performance from the North American Technical Center Board.
- Vendor performance.
  (Westinghouse/Siemens being key vendors with excellent performance.)
- Improved Outage Scope Review team to address issues and get better alignment between key managers and the plant leadership team before proceeding with work discovered during the outage.

- Excellent fuel handling equipment reliability.

- Use of Microsoft OneNote for Outage Control Center and maintenance turnovers which allowed a large numbers of persons to use OneNote software to enter information to the same document.

In response to Dr. Peterson’s question, Mr. Petersen stated DCPP’s use of software such as OneNote must confront significant challenges including revision control and development of work packages for use within the plant. During his presentation Mr. Petersen displayed photos of work on the reactor cavity, the high pressure turbine and in the transformer yard.

Mr. Petersen reported fuel inspection results and steam generator inspection review included no fuel defects identified and no significant fuel findings; the steam generators were not inspected nor were inspections required. Follow up items from the outage include electrical maintenance preparation of work packages and execution, Operations staffing strategy to ensure the necessary persons and crews are available for certain evolutions, and reactor cavity clarity. Mr. Petersen reported that upon refill of the reactor cavity, for reasons not yet understood, the clarity of the water was not sufficient to start moving fuel into the core. He reported there was nothing different from past outages in the source of the water and the issue, which was rectified using chemicals and filtration, is suspected to be chemical in nature and may be related to a localized pH difference which caused a crud burst of some kind. He reported DCPP encountered a similar issue some years ago and the issue has occurred at other plants.

In response to Dr. Lam’s inquiry, Mr. Petersen reported approximately 375 temporary maintenance workers were engaged for 2R20 and 1,000 contract personnel were on site for the outage. He reported the level of training required for these workers depends upon their experience within the nuclear industry and the industry shares a database of individual worker qualifications. In response to Dr. Budnitz’ inquiry, Mr. Petersen confirmed that during 2R20 there were no interactions with Unit-1 which continued in operation.

Following Mr. Petersen’s presentation, Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson stated 26 years ago he developed a prototype tablet-based computer system for use by the nuclear power industry which he stated had advantages but was apparently ahead of its time. He remarked that utilizing tablet-based technology has great advantages but also a huge implementation cost. Dr. Nelson contrasted the experience of DCPP with its replacement of its steam generators with that of the San Onofre Nuclear Generating Station.
Ms. Rochelle Becker of the Alliance for Nuclear Responsibility was recognized. Mr. Petersen and Mr. Harbor clarified, in response to Ms. Becker’s inquiry, that the replacement stator he referred to in his presentation was for a reactor coolant pump and not the main generator.

Dr. Peterson recognized the presence in the audience of Mr. Ron Alsop, Emergency Services Manager for the County of San Luis Obispo’s Office of Emergency Services.

XXIV Information Discussion by Committee Members and Consultants

Committee Discussion of Post-Shutdown Roles Matrix of Areas for Review with reference to a Potential Role for the DCISC After Expiration of the Operating Licenses for DCPP and the Possible Engagement, on an Ad Hoc Basis, of a Consultant to Assist in the Identification of Decommissioning-related Issues.

Consultant McWhorter called the Members’ attention to a Matrix which he prepared with the assistance of Consultant Wardell as a tool to identify the several areas for which DCISC continuation or initial review might be appropriate following the cessation of generation operations by DCPP, with indications of what systems are important to safety or which affect safety systems, based upon items on the DCISC’s Open Items List. The Matrix identified four periods of time after cessation of generation for possible review activities which Mr. McWhorter described and briefly discussed as follows:

- Column “A” - prior to fuel removal from reactor vessel (30–60 days anticipated duration).
- Column “B” - after fuel removal from reactor but prior to fuel removal from the spent fuel pool (7–10 years anticipated duration).
- Column “C” - after fuel removal from spent fuel pool with fuel stored at the ISFSI with decommissioning in progress (tbd).
- Column “D” - after fuel removal from the spent fuel pool with fuel stored at the ISFSI and decommissioning complete (indefinite).

Mr. McWhorter briefly with the Members reviewed the possible interpretation and application of the Committee’s Restated Charter from the CPUC to each of these proposed phases.

Dr. Lam stated that while he believes this discussion may have merit for the benefit of the public he is hesitant to enter into a discussion regarding the application of the Restated Charter to the continuance of the DCISC as to do so may appear to be self-serving and the Committee does not know the positions of the Governor or the California Attorney General on this matter and it is entirely up
to the CPUC and the entities that appoint its members as to whether the Committee should continue after DCPP ceases generating electricity. Dr. Peterson observed there may be uncertainty about the application of the Restated Charter following cessation of generation operations and Dr. Peterson observed he believes the Committee has an obligation to gather information to inform a decision on the matter. Mr. Rathie remarked that the genesis for this discussion came from comments by members of the public.

The Members discussed the level of risk present following removal of all fuel from the spent fuel pools but while fuel remains on site at the ISFSI. Dr. Peterson suggested that Column “D” be revised to indicate that if the Committee were to continue during that period there might be certain activities to review but the effort to do so would be greatly reduced. Mr. McWhorter observed that any decision about a role in the time frame of Column “D” might be deferred and he remarked that in his view the Restated Charter very likely would encompass review activities during the period identified in Column “A” but those activities in Column “B” might need to be addressed sooner than those for Columns “C” or “D”.

Dr. Budnitz remarked that for Line 18 of activities to be reviewed entitled “Interface Between Security and Safety” for Column “C” the response should be “Yes.”

Dr. Budnitz stated his opinion that the Committee has an obligation to make a recommendation about a potential role to review decommissioning of the plant following cessation of generation operations and the Committee should engage in that debate now and settle, if possible, upon a recommendation to the CPUC and the entities that appoint its members. He stated his opinion that an appropriate role exists for the DCISC through the period identified on the Matrix by Column “C” although the work of the Committee would be very different during that period than it performs now when the plant is operating. Dr. Budnitz stated that if the Committee continues during the period after generation ceases it would continue to perform a role independent of PG&E and the NRC and continue to provide an additional level of review and to make reports to the citizens of California. He stated the Committee would be serving the CPUC which created it and the entities which appoint its members as well as the citizens of California by immediately sending a letter to the CPUC describing the scope and rationale for a post generation role in reviewing activities during decommissioning.

Dr. Lam stated his opinion a letter such as that described by Dr. Budnitz would be premature as the issue is not yet ripe for consideration. Dr. Budnitz replied and stated there may be an ambiguity as to the meaning of the term “operational safety” as used in the Restated Charter and the Committee has the obligation to tell the CPUC and its appointing authorities what the Committee believes that term means and the implications of the Committee’s interpretation sooner rather than later and if new information emerges in the future it can be dealt with at that time.

Dr. Peterson remarked that the Committee has also identified the possibility of
engaging a consultant on an *ad hoc* basis to assist it in better understanding specific activities that will occur during decommissioning and he agreed there is an important need to clarify the role of the DCISC under the Restated Charter once the plant has shut down. **Dr. Peterson suggested this item be placed on the October 2018 agenda for further discussion.** Mr. Rathie reported that Dr. David Victor, the Chair of the San Onofre Community Engagement Panel, has accepted the Committee’s invitation to attend the October 2018 public meeting to discuss the experiences and insights of the panel.

**Dr. Budnitz stated that prior to the October 2018 public meeting, he would draft a letter setting forth his view of a proposed position based on the continuance of the Committee though the period identified in the Matrix by Column “C” for the consideration of the other Members of the Committee.** Dr. Lam stated his belief that more deliberation would be beneficial before the Committee takes a position on the matter. **Dr. Budnitz stated he would provide the letter to the office of the DCISC Legal Counsel for review and a determination whether it would be appropriate under California’s open meeting laws to distribute it to the other Members and if so, the distribution would be from the Office of Legal Counsel.**

Following the Members discussion, Ms. Rochelle Becker of the Alliance for Nuclear Responsibility was recognized. Ms. Becker stated she agreed with the position that the matter of continuing the DCISC during the period following cessation of operations might be deferred as PG&E will be submitting a filing to the CPUC concerning decommissioning DCPP during the spring of 2019 and that might be a more appropriate time to address the matter. She stated the San Onofre Community Engagement Panel may be able to offer suggestions and she stated she is in support of the Committee’s continuance after the cessation of generation activities to review issues related to decommissioning. Ms. Becker remarked, as someone who was involved and instrumental in forming the DCISC in the 1980's, she believes that the reasons the Committee was formed continue to support the reasons it should continue to exist following cessation of generation operations and she believes the continuance of the DCISC would have the full support of the Alliance for Nuclear Responsibility.

Mr. David Weisman of the Alliance for Nuclear Responsibility was recognized. He observed that the possibility that the plant could enter a prolonged period of “safe store” would have an effect on the duration of Column “C”. Mr. Weisman observed that the Committee has set the date for its October 24–25, 2018 public meeting and Dr. Victor’s appearance, and it will be important to attempt to coordinate the activities of the DCISC with those of the Diablo Canyon Community Engagement Panel, which usually schedules meetings for the last week of the month in order to attempt to get as many experts on decommissioning as close to the same place and at the same time. Mr. Weisman remarked that once what he described as “a spent fuel pool island” is established it may continue to exist for five or six years or longer and will continue to require personnel and equipment to maintain the
functionality of the pool. Mr. Weisman stated he agreed with those who have advised that the matter of the Committee taking a position on continuing activities after cessation of generation could be deferred to October 2018.

Dr. Gene Nelson of Californians for Green Nuclear Power was recognized. Dr. Nelson observed DCPP has routinely operated in the top quartile of the nuclear industry for 34 years and he remarked it was his belief it will continue to do so through 2025. He encouraged the DCISC to look at what is best for both the environment and the economy.

**Dr. Peterson stated he was willing to also defer consideration of a decision to engage a consultant to assist the Committee in identifying decommissioning-related issues until the public meeting in October 2018.**

Dr. Budnitz observed that he has provided the names of four persons for consideration for that role and he invited any member of the public to suggest other potential candidates. **Dr. Peterson suggested a notice concerning the engagement of a consultant to review decommissioning be placed on the DCISC’s website.**

Dr. Peterson left the meeting due to a previous commitment and the meeting continued with Drs. Lam and Budnitz making up a quorum.

**XXIV Concluding Remarks of Discussion by Committee Members of Future of DCISC Activities**

Dr. Lam expressed the thanks of the Committee to the DCPP senior managers, and particularly to Mr. Garcia and Mr. Harbor and to the DCPP directors and managers who made presentations to the DCISC during this public meeting and also to the technicians of AGP Video who are responsible for audio and visual recording of the DCISC’s meetings. The Chair also expressed the thanks and appreciation of the DCISC to the members of the public who attended and participated in this public meeting.

**V Adjournment of Ninetieth Public Meeting**

There being no further business, the ninetieth public meeting of the Diablo Canyon Independent Safety Committee was adjourned by its Chair, Dr. Peter Lam, at 2:25 P.M.
DCISC Service Mailing List

The DCISC sends legal notices of meetings and press releases with the informational items for discussion at its public meetings to those persons who have requested same and to governmental entities, interested groups and to the news media. This exhibit includes a list of the persons, governmental and public entities, interested groups and the news media outlets who regularly receive information regarding the DCISC’s public meetings. Address information for private citizens has been redacted and a copy of a notice sent to those persons and the entities on the mailing list offering them an opportunity to receive notice of DCISC public meetings by email is included.
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<td>595 Harbor</td>
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<td>University Park, FL 34201</td>
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<td>Chairman - Board of Supervisors</td>
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<td>William Ziegler</td>
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<td>NRC Senior Resident Inspector</td>
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<td>Diablo Canyon Power Plant</td>
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<td>Dr. Wm. E. Kastenberg</td>
<td>Ashland, OR 97520</td>
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<td>Dr. Justin Cochran</td>
<td>San Luis Obispo, CA 93406</td>
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<td>Senior Nuclear Policy Advisor</td>
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<td>City of San Luis Obispo</td>
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<td>Mayor and City Council</td>
<td>1000 Spring Street</td>
<td>Paso Robles, CA 93446</td>
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EMAIL LIST FOR DCISC LEGAL NOTICE

28th Annual Report Period

Gene A. Nelson, Ph.D.  redacted

Garry Gillette
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Linda Seeley
Los Osos, CA 93402
redacted
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE
OFFICE OF LEGAL COUNSEL 2017 MAILING LIST FORM

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B.13-7
1.0 Summary

The results of the July 10-11, 2018 fact-finding trip to the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA are presented. The subjects addressed and summarized in Section 3 are as follows:

1. Annual Radioactive Release and Environmental Monitoring Reports
2. NRC Generic Issue GSI-191, Containment Sump Debris
3. System Engineering Staff Turnover
4. Quality Verification 2R20 Outage Assessment
5. Workplace Seismic Safety
6. Observe Site Alignment Workshop
7. Meeting with Senior Director, Nuclear Services, Jan Nimick
8. Meeting with NRC Senior Resident Inspector
9. Preventive Maintenance Optimization Initiative
10. Independent Spent Fuel Storage Installation Operations Update
11. Fuel Procurement Process

2.0 Introduction

This fact-finding trip to the DCPP was made to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if Pacific Gas and Electric’s (PG&E’s) performance is appropriate and whether any areas revealed observations, which are important enough to warrant further review, follow-up, or presentation at a public meeting. These safety matters include follow-up and/or continuing review efforts by the Committee, as well as those identified as a result of reviews of various safety-related documents.

Section 4-Conclusions highlights the conclusions of the fact-finding team based on items reported in Section 3-Discussion. These highlights also include the team’s
suggested follow-up items for the DCISC, such as scheduling future fact-finding meetings on the topic, presentations at future public meetings, and requests for future updates or information from DCPP on specific areas of interest, etc.

Section 5-Recommendations presents specific recommendations to PG&E proposed by the fact-finding team. These recommendations will be considered by the DCISC. After review and approval by the DCISC, the fact-finding report, including its recommendations, will be provided to PG&E. The fact-finding report will also appear in the DCISC Annual Report.

3.0 Discussion

3.1 Annual Radiological Release and Radiological Environmental Monitoring Reports

The DCISC Fact-finding Team (FFT) met with Clint Gans, Senior Chemical Engineer, and Marty Wright, Radiation Protection Senior Advising Engineer, to review the 2017 Annual Radioactive Effluent Release Report (ARERR) and 2017 Radiological Environmental Monitoring Program (REMP) Report, which had been submitted to NRC. The DCISC last reviewed these reports in July 2017 (Reference 6.1), concluding the following:

DCPP’s Radiological Effluent Control Program was satisfactory in controlling and measuring the plant’s radiological effluents and keeping them within very small fractions of permissible limits. The DCPP Radiological Environmental Monitoring Program appeared satisfactory in monitoring and measuring radioactivity in the environment surrounding DCPP. There were no abnormal levels of radioactivity detected.

Annual Radioactive Effluent Release Report

DCPP submitted its 2017 Annual Radioactive Effluent Release Report (ARERR) to NRC on April 24, 2018. This report described the measured/calculated quantities of radioactive gaseous and liquid effluents released from the plant in 2017. The report concluded the following:

In all cases, the doses associated with plant effluent releases during the report period were much less than the respective TS [Technical Specification] limits.

The report contains the following:

- Changes to Radwaste Management
- Changes to the Offsite Dose Calculational Manual
- Land Use Census
- Gaseous and Liquid Effluent Release Report
Solid Radwaste Shipments
Radiation Doses from Radioactive Effluents
Meteorological Data

There were no changes to either Radwaste Management (Radwaste Treatment Systems or Radwaste Process Control) Programs or major changes to the Offsite Dose Calculational Manual. No abnormal releases occurred in 2017.

Based on records of 2017 radioactive liquid and gaseous releases, the following off-site radiation doses to the total body of a hypothetical individual at the closest point on the site boundary (approximately 800 yards from the plant) full-time and the corresponding percent of Technical Specifications limits for the year 2017 were reported in the ARERR as:

<table>
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<th>Effluent Type</th>
<th>Calculated Radiation Dose</th>
<th>Percent of Tech. Spec. Limit</th>
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<tbody>
<tr>
<td>Liquid</td>
<td>0.0002 milliRem</td>
<td>0.0066</td>
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<tr>
<td>Gaseous</td>
<td>0.0002 milliRem</td>
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A calculation was performed to determine the upper limit of possible radiation exposure for any member of the public on-site. The calculation found that direct radiation was 4.7 milliRem per year to an individual working 40 hours per week at the onsite makeup water facility up near the Independent Spent Fuel Storage Installation (ISFSI).

Annual Radiological Environmental Monitoring Report

The 2017 Annual Radiological Environmental Operating Report (AREOR), submitted to NRC on April 24, 2018, describes the results of the REMP, which measures and assesses the levels of radiation or radioactivity in the environment related to operation of DCPP. The 2017 REMP includes more than 2,400 samples (including Thermo-luminescent Dosimeters [TLDs]) with approximately 1,700 radionuclide or exposure rate analyses being performed. Samples included surface water, drinking water, marine samples, vegetation, food crops, milk, and meat. The report concluded the following:

The results of the 2017 REMP showed no unusual environmental isotopic findings from DCPP site operations. These results were compared to DCPP preoperational isotopic data and showed no unusual trends. Diablo Canyon site operations had no significant environmental radiological impact on airborne, surface water, drinking water, marine life, aquatic vegetation, sediment, milk, or meat radioactivity.

Direct ambient radiation was continuously measured at 32 locations surrounding DCPP using TLDs. These 32 locations are made up of 29 indicator stations and 3 control stations. Three TLD badges are placed at each location, and each badge
has three detectors to provide an average dose at each location. The dosimeters are collected and read every calendar quarter. The results are trended and compared with preoperational and historical operating values to look for adverse trends. The ambient direct radiation levels in the DCPP offsite environs did not change and were within preoperational ranges throughout 2017.

The Old Steam Generator Storage Facility (OSGSF) contains four old steam generators and two old reactor vessel heads. The OSGSF did not cause any changes to the ambient direct radiation levels in the DCPP environment during 2017. Also the sumps to the OSGSF were inspected quarterly and remained empty and dry during 2017.

Tritium levels in three monitoring wells beneath the power block all had detectable tritium at very low concentrations well below the Environmental Protection Agency (EPA) drinking water standard of 0.02 microcuries per liter. This tritium was attributed to rain-washout of gaseous tritium contained in water evaporated from the Spent Fuel Pools, exiting the plant through the plant ventilation exhaust system, which is an approved discharge path. All groundwater at the site flows into the Pacific Ocean and is not a source of drinking water.

An evaluation of direct radiation measurements and member-of-public occupancy times surrounding the ISFSI has indicated that all Federal criteria for member-of-public dose limits are being conservatively met. Also, because all of these TLDs are located well within the site boundary and are not in the unrestricted area, the ISFSI loading has not affected the TLD trending results with respect to the 32 locations surrounding DCPP, and the public is not affected significantly by the ISFSI.

In addition, annual cumulative radiation dose is evaluated at the closest site boundary for the combined effects of the OSGSF, the ISFSI, radioactive waste containers outside of plant buildings, and radioactive tools and equipment stored inside plant buildings. This cumulative annual radiation dose was reported in the ARERR to be less than 1.0 milliRem, compared to 310 milliRem average annual radiation exposure to people in the U.S. from natural sources (e.g., cosmic, terrestrial, radon, etc.).

Conclusions:

The DCPP Radioactive Effluent Release Program and the Radiological Environmental Monitoring Program appeared satisfactory in calculating, monitoring and measuring radioactivity in the environment surrounding DCPP. There were no abnormal releases of radioactivity or abnormal levels of radioactivity detected.

Recommendations:

None
3.2 NRC Generic Issue GSI-191, Containment Sump Debris

The DCISC Fact-finding Team met with Julio Barbosa, Senior Mechanical Engineer, and Candice Chou, Mechanical Design Supervisor, for an update on the NRC Generic Issue GSI-191, “Assessment of Debris Accumulation on PWR Sump Performance”. The DCISC last reviewed this topic in January 2018 (Reference 6.2), concluding the following:

*DCPP has removed/replaced substantial amounts of containment insulation and other materials which could have blocked/clogged sump screens and pumps. It is waiting for the completion and approval of a Westinghouse topical report documenting the final testing performed on the ability of containment sump screens and Residual Heat Removal pumps to handle expected containment sump mixtures. The topical uses a risk-informed approach to the debris problem. The final resolution will require Technical Specification changes.*

The issue of potential debris blockage of the containment sump during a potential loss of coolant accident (LOCA) has been the subject of extensive research by the industry and the NRC. The issue pertains to the accumulation of debris in the containment sump which could potentially block the screens to the suction lines to pumps that draw water from the sump and recirculate it back to the Reactor Coolant System (RCS) and ultimately to the Reactor Vessel (RV) to keep the fuel cooled during a LOCA. This debris could be generated in sufficient quantity by the jet impingement of coolant, escaping from the RCS at high temperature and pressure, on insulated and/or coated piping, structures, and equipment in the Containment Building. The generated debris could thus consist of fragmented, shredded, fibrous, and chemically decomposed insulation and/or coatings. It could also accumulate as sludge, a mixture of particulate debris and water. In 1985 the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 85-22, “Potential for Loss of Post-LOCA Recirculation Capability Due to Insulation Debris Blockage.” Although the NRC’s regulatory analysis did not support imposing new sump performance requirements upon the licensees at that time, the NRC analysis found that the existing Regulatory Guide regarding sumps for Emergency Core Cooling Systems (ECCS) should be replaced with a more comprehensive requirement to assess debris effects on a plant-specific basis.

However, during the 1990s, several plants in the United States and overseas experienced clogging of ECCS strainers. The plants were of the Boiling Water Reactor (BWR) design. During this period, the NRC issued several generic communications requesting that BWR licensees implement appropriate procedural measures, maintenance practices, and plant modifications to minimize the potential for the clogging of ECCS suction strainers by debris accumulation following a LOCA. However, findings from research to resolve the BWR strainer clogging issue also raised questions concerning the adequacy of Pressurized Water Reactor (PWR) sump designs.
During 2000 and 2001, prior to the NRC’s issuance of any directive to pressurized water reactors, DCPP proactively enlarged its approximately 30 sump screens to improve their design and increase debris removal capacity. At that time, PWRs like DCPP normally had on the order of 100 to 200 square feet of sump screens. DCPP’s proactive modifications increased the area of its screens to about 700 square feet for Unit 1 and 750 square feet for Unit 2.

In 2004, the NRC issued Generic Letter 2004-02: Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized Water Reactors. This Generic Letter established new requirements for PWR containment recirculation sump strainers. PWRs were requested to make a conservative evaluation of their current designs and to complete by the end of 2007 any necessary analyses and modifications, including upgrading the screens and increasing their size and testing. DCPP determined that its sump strainer capability should be improved using two possible strategies: 1) reducing the amount of material that could be damaged in an accident (and thus could contribute to clogging the strainer); and 2) providing a larger strainer. Debris material could be reduced by removing, encapsulating, or replacing fibrous insulation on piping and electrical cables, by installing interceptors to capture paint chips and reflective metal piping insulation and by opening flow paths to divert debris away from the strainer. These modifications, among other things, included enlarging the available surface area of the containment sump screens to 3,500-4,000 square feet and removing and replacing vulnerable debris and insulation material from containment. In its response to the NRC’s Generic Letter, DCPP determined that it would not be possible to complete the needed modifications in both units by the end of 2007. Thus, DCPP applied for and received NRC approval to complete the necessary modifications beyond 2007. In July 2008 DCPP submitted a response to NRC Generic Letter 2004-02, stating that DCPP had met the requirements of the Letter.

DCPP has completed major plant modifications in which the containment sump screen size is 40 times larger than the original configuration. There are two aspects of how loose material created by a LOCA can pose a risk to the reactor core: 1) materials may clog the sump screens and restrict containment sump recirculation cooling to the fuel in the reactor vessel and 2) some materials may pass through the screens, may be pumped into the reactor vessel, and may collect on portions of the nuclear fuel. This could lead to local heating, deterioration, and damage to fuel cladding resulting in release of fission products into the containment building. Some insulation materials inside containment can cause the first problem, and some others in containment can cause the second problem. Both have undergone analysis. These problems could be solved by analyzing the risks and identifying the potential effects in order to determine whether the risks are acceptable or by replacing the existing insulation or coatings with acceptable materials. Initially, the second approach was determined to be the preferred approach.
DCPP had developed Computer Assisted Design (CAD) models of the interior of the Containment Building (CB) that assist in identifying Zones of Influence (ZOI). These ZOIs are particular areas in which a LOCA could damage insulation and coatings. The CAD models further aid the analysis of the extent of damage that could be experienced and the potential impact the debris could have on the fuel in the RV. This can lead to the identification of a worst case scenario from the accident analysis.

DCPP is participating in a GSI-191 Owners Group in order to share resources and be able to more effectively evaluate the potential for and effects of this generic issue. On May 14, 2013 PG&E submitted a “Proposed Path to Closure of Generic Safety Issue 191, “Assessment of Debris Accumulation on Pressurized-Water-Reactor Sump Performance,” PG&E Letter DCL-13-052. The submittal stipulated that the station’s approach would involve performing a risk-informed evaluation of the potential for recirculation sump strainer blockage and in-vessel blockage. To support the use of this path and continued operation during the period required to complete the necessary analysis and testing, PG&E evaluated the design and procedural capabilities that exist to detect and mitigate sump strainer and in-vessel blockage, and included them in its submittal to the NRC.

In February 2017, DCPP elected not to perform a risk-informed evaluation and instead to pursue a deterministic resolution utilizing Westinghouse Topical Report WCAP-17788, "Comprehensive Analysis and Test Program for GSI-191 Closure (PA-SEE- 1090).” This deterministic approach would permit closing GSI-191 without submitting a license amendment request to the NRC, while meeting full compliance of GSI-191. The following actions remain:

- Complete GSI-191 supporting calculations
- Complete design changes to incorporate all GSI-191 design basis information
- WCAP-17788 approval by NRC
- Issue the GSI-191 design change package
- Issue the GSI-191 closure letter

DCPP expects to complete these actions by September 2019.

The Fact-finding Team notes that DCPP has both the technical capability and a specific emergency procedure that enables either of its units to clear a blocked sump by forcing a backflow of water in the opposite direction, so that debris would be pushed out of the flow path of any of the blocked screens. The Fact-finding Team also understands that DCPP is unique in having this capability, which is apparently not present at any other nuclear plant, and that NRC regulations do not allow the DCPP units to take credit for this unique capability in its safety analyses on this issue.
Conclusions:

DCPP is working toward closing NRC’s Generic Safety Issue GSI-191, “Assessment of Debris Accumulation on Pressurized-Water-Reactor Sump Performance,” by September 2019 using a Westinghouse topical report and completing DCPP-specific calculations and design changes, which are designed to comply with GSI-191. The DCISC Fact-finding Team recognizes that this is a complex issue and concludes that DCPP’s plans are satisfactory. The DCISC should review this issue again in late 2019.

Recommendations:

None

3.3 System Engineering Staff Turnover

The DCISC Fact-finding Team met with Pat Nugent, Director of Engineering Services, and Lou Fusco, Manager of Mechanical Systems Engineering, to discuss staffing turnover in the System Engineering Group. The DCISC last reviewed System Engineering in May 2018 (Reference 6.3), concluding the following:

DCPP’s equipment programs are being managed well by the System Engineering Department. The recent turnover of System Engineers has been high, and the DCISC should follow up on this issue at a future Fact-finding Meeting.

DCPP is tackling Systems Engineering staffing in two ways. First, they are increasing hiring efforts, including augmentation of the summer intern program from which new permanent hires are often made. Second, DCPP is making organizational adjustments in Engineering. This includes the following:

- Assigning new Systems Engineers to the Early Career Engineering Program to provide them opportunities to experience diverse areas of Engineering.
- Expanding the EFIN (Engineering Fix It Now) Group to reduce the short-term “fix it” responsibilities of System Engineers
- Reducing the administrative burden on System Engineers, following the guidelines of the Nuclear Energy Institute’s Delivering the Nuclear Promise Program, and focus their work more on longer-term, strategic concerns
- Expanding Component Engineering to take this aspect of component responsibilities off System Engineers
- Utilizing knowledge transfer more vigorously when key personnel leave than in the past
- Looking ahead more critically at future staffing needs
At the time of this fact-finding meeting DCPP was already experiencing success in its engineering hiring and organizational transformation and lessening the administrative burden of its engineers;

**Conclusions:**

The DCISC Fact-finding Team believed that DCPP had recognized its high turnover in System Engineering and was taking the appropriate actions to resolve it.

**Recommendations:**

None

### 3.4 Quality Verification 2R20 Outage Assessment

The DCISC FFT met with Ray Robins, Audit and Assessment Manager, and Brian Sizemore, Shift Foreman on Rotation for Outages, to review the Quality Verification (QV) Assessment of 2R20 Outage Activities. The DCISC last reviewed outage assessments in January 2018 (Reference 6.4), when it concluded the following:

*DCPP Quality Verification’s assessment of Refueling Outage 2R20 was thorough and comprehensive. Several issues were identified, including the escalation of the Confined Space Program implementation due to continuing problems from Outage 1R20.*

The assessment report included the following item, which was the subject of this fact-finding visit:

*Operators not taking appropriate actions to verify equipment configurations or plant conditions prior to completing activities or crediting equipment to support plant operations.*

This finding was elevated to a new level, Area Requiring Management Attention (ARMA), and entered as several Notifications into the Corrective Action Program (CAP) for resolution and tracking. QV reviews these notifications as they are closed out and has put them on a “CAP Restraint Order,” which keeps the overall issue open until they have all been completed.

Additionally, QV completed a “2018 Operations and Technical Specification Audit in June 2018 in which the audit team considered the deficiencies and concluded that the DCPP ISFSI and Operations and Technical Specifications programs were effectively implemented for the audit period. There were no Findings, but 17 deficiencies and 8 recommendations. Though not individually significant, the overall number of deficiencies was high enough to be a concern to the FFT. The more notable deficiencies were as follows:
No plant status control self-assessment performed in the past three years
Several operators were not qualified for watch station duty
Operator round guidance was not adequate
Some Operator rounds were not performed
Instances of watchstander turnover checklist not used
“At risk” independent verification practices were observed without the required discussion and permission
Some Prompt Operability Assessments (POAs) did not discuss applicable Technical Specifications
An emergency operating procedure contained an incorrect entry point
A License Event Report did not contain the discovery date
Some Technical Specification bases were not updated when corresponding Updated Final Safety Analysis change request was made.

Due to the number of deficiencies, the FFT recommends to the full DCISC that a follow-up fact-finding visit be made in about six months to review the status of corrective actions.

Conclusions:

DCPP Quality Verification completed an audit of Operations and Technical Specifications in June 2018. The audit concluded that the audited programs were effectively implemented; however, it identified 17 deficiencies. The DCISC should follow up on the corrective actions for these deficiencies in early 2019.

Recommendations:

None

3.5 Workplace Seismic Safety

The DCISC FFT met with Tom Baldwin, Nuclear Business Operations Chief, to follow up on seismic workplace safety discrepancies identified by the DCISC at its May 2018 fact-finding Meeting (Reference 6.5), when it concluded the following:

DCPP has failed to be fully effective in maintaining its seismic workplace safety improvements in that the DCISC Fact-finding Team identified several examples where new furniture had not been restrained properly. Corrective actions have been initiated by DCPP, and the DCISC should review the effectiveness of those corrective actions at a future Fact-finding Meeting.

The May 2018 Fact-finding Team toured office areas on the fifth and sixth floors of
the Administration Building with Mr. Baldwin. The Team found that most tall cabinets had been properly braced or were not a hazard due to their location. However, the Fact-finding Team also found a significant number of tall cabinets that were not properly braced and could fall over and injure employees nearby during a seismic event. Two specific deficiencies identified included unrestrained hutches recently installed in guest offices and a large open bookcase located in a copier room. Later during the May Fact-finding Meeting, the Fact-finding Team toured the Instrumentation and Controls (I&C) Shop located in an administrative area of the power block. The FFT found additional examples of tall cabinets that were not restrained and could possibly fall over and injure personnel or block access pathways during a seismic event. Mr. Baldwin agreed that the areas identified in the Administration Building did not appear to be properly braced in accordance with DCPP Standards. Accordingly, he prepared and submitted a Notification titled, “Office Seismic Bracing Gaps,” SAPN Number 50978378.

The purpose of this July 2018 Fact-finding Meeting was to review corrective actions for the above Administrative Building discrepancies. All items had been corrected. Mr. Baldwin reported that the discrepancies were caused by inadequate knowledge transfer during Building Services personnel turnover, although DCPP had a written standard for bracing of furniture. The appropriate personnel have been trained in the standard and are now in compliance.

Conclusions:

Discrepancies in workplace seismic standards (e.g., unbraced furniture) were caused by inadequate knowledge transfer during Building Services personnel turnovers, although the plant had a written standard. The DCISC should follow up on this item in early 2019.

Recommendations:

None

3.6 Site Alignment Workshop

The DCISC FFT met with Hector Garcia, DCPP Liaison to the DCISC, to attend and observe a Site Alignment Workshop. This was the first DCISC review of this item.

Mr. Garcia was facilitating one of four concurrent workshops, which the FFT observed. The theme for the workshops was “Generating Excellence: Our Line-of-Sight to Safe, Reliable & Affordable Operations to 2025.” Each workshop was carried out at a large table with a dozen participants sitting around it. This small group learning session focused on employee involvement in meeting DCPP goals and expectations. The discussion items were as follows:

- Our personal state of mind
- A deep dive on PG&E’s Mission, Vision and Culture
- How we each support the six focus areas of our Operating Plan
  - Safety
  - People
  - Reliability
  - Affordability
  - Risk, Compliance & Ethics
  - Regulatory & External Strategy
- Out station’s priorities for 2019
- My circle of control

Each session lasted about 75 minutes. Discussion was abundant. The facilitator was professional, knowledgeable, and accomplished at facilitating. The participants appeared to have enjoyed the workshop and learned about their role in the organization’s future.

Conclusions:

The DCPP Site Alignment Workshop observed by the DCISC Fact-finding Team appeared to have accomplished its purpose of informing and aligning PG&E personnel of the Company’s goals and objectives.

3.7 Meeting with Senior Director, Nuclear Services, Jan Nimick

The DCISC FFT met with Jan Nimick, Senior Director, Nuclear Services, to discuss agenda items from this fact-finding meeting and other items of mutual interest. The DCISC last met with DCPP management in May 2018 (Reference 6.6), concluding the following:

*The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.*

The group discussed the following items:

- System engineering staffing
- Employee Retention Plan
- Workplace Seismic Safety
- Role of the DCISC follow DCPP shutdown in 2025
- Site Alignment Workshops

Conclusions:

*The regular meetings between DCPP management and the DCISC*
Fact-finding Teams appear to be beneficial for all.

3.8 Meeting with the NRC Senior Resident Inspector

The DCISC Fact-finding team met with Chris Newport, NRC Senior Resident Inspector, to discuss items of mutual interest. The DCISC last met with Mr. Newport in May 2018 (Reference 6.7), concluding the following:

> The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

In this meeting the participants discussed the following:

- GSI-191 - “Assessment of Debris Accumulation on PWR Sump Performance”
- Long-term role of DCISC after 2025
- NRC Office of Decommissioning
- NRC to hold public meeting on August 28
- NRC interested in DCPP employee engagement

Conclusions:

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

3.9 Preventive Maintenance Optimization Initiative

The DCISC Fact-finding Team met with Pat Nugent, Director of Engineering, to discuss DCPP’s Preventive Maintenance Optimization (PMO) Initiative. The DCISC last reviewed maintenance in September 2017 (Reference 6.8), when it concluded the following:

> DCPP has identified several low-level concerns with Maintenance Department Performance, and Maintenance Department leadership is taking action to address the issues. DCISC should review the performance of the Maintenance Department in late 2018 to evaluate the effectiveness of the actions to improve performance.

DCPP has 12,639 Preventive Maintenance (PM) activities. They have initiated a project to optimize these PM activities by reviewing all of them “...by a cross discipline team to validate whether the PM is still needed, the frequency is appropriately established, and the scope is providing the value to the station in Safety and Reliability.” The reviews take place during outage and online to tactically implement value based maintenance for cost effectiveness. The Project is
to be completed in early October 2018.

*Except for approximately 2000 which are not due to be performed until after 2025.

An organization was established including an Executive Oversight Board, Project Manager, and Team Members from Operations, Outage Coordination, Maintenance, Engineering, System/Component Engineers, and Project Tracking personnel. Two primary bases for the Project are:

2. Industry Efficiency Bulletin 17-3a, “Value-Based Maintenance.”

To date (July 10, 2018) the following results have been achieved:

<table>
<thead>
<tr>
<th>Total applicable MPs</th>
<th>10436</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total MPs Reviewed</td>
<td>8474</td>
</tr>
<tr>
<td>Frequency Change</td>
<td>2151</td>
</tr>
<tr>
<td>Eliminate</td>
<td>1148</td>
</tr>
<tr>
<td>Scope Change</td>
<td>219</td>
</tr>
</tbody>
</table>

(MPs = Maintenance Procedures)

During 2018, 211 MPs have been eliminated.

The FFT noticed that Industry Efficiency Bulletin 17-3a has a provision to “ensure changes protect the reliability of critical components;” however, this aspect was not identified or reviewed in this fact-finding meeting. Because of its importance to safe, reliable operation, the DCISC should hold a fact-finding meeting in the fourth quarter of 2018 to review the protection of critical components and to review examples of specific PMO changes of elimination, frequency, and scope.

Conclusions:

The DCPP Preventive Maintenance Optimization Project appears to have been developed properly, and significant results have been achieved to date. The DCISC should hold a fact-finding meeting in the fourth quarter of 2018 to review the protection of critical components and to review examples of specific PMO changes of elimination, frequency, and scope.

3.10 Independent Spent Fuel Storage Installation Operations Update

The DCISC FFT met with Rich Haigler, Used Fuel Storage Supervisor, and Mark Mayer, Nuclear Fuels Procurement and Storage Manager, for an update on DCPP Independent Spent Fuel Storage Installation (ISFSI) operations. The DCISC last
reviewed this topic in August 2017 (Reference 6.9), when it concluded the following:

DCPP continues to manage its spent fuel satisfactorily in both the Spent Fuel Pool (SFP) and Independent Spent Fuel Storage Installation (ISFSI). As part of its decommissioning activities required by the Joint Proposal, DCPP is investigating accelerated movement of spent fuel from the SFP to the ISFSI.

The current ISFSI loading campaign consisting of Casks 50 through 58 was proceeding satisfactorily, with Cask 53 being loaded during the fact finding visit, and the campaign concluding in August 2018. The next two loading campaigns are scheduled for 2020 and likely 2022. DCPP is considering various loading options with regard to the Joint Proposal.

DCPP still plans for ISFSI relicensing in 2022. Stress Corrosion Cracking (SCC) will be part of the relicensing submittal, which will include consideration of SCC inspection techniques and through-wall cracks as part of the safety analysis.

Conclusions:

DCPP loading of spent fuel into the Independent Spent Fuel Storage Installation (ISFSI) is currently proceeding satisfactorily for Casks 50-58 and is scheduled to be completed in August 2018. The next loading campaigns are scheduled for 2020 and likely 2022. ISFSI relicensing is underway for 2022, when the current license expires. DCPP will address cask Stress Corrosion Cracking in the relicensing submittal.

3.11 Fuel Procurement Process

The DCISC FFT met with Mark Mayer, Nuclear Fuels Procurement and Storage Manager, and Rich Haigler, Used Fuel Storage Supervisor, to review nuclear fuel cycle planning in preparation for plant shutdown in 2024 (Unit 1) and 2025 (Unit 2). The DCISC last reviewed fuel procurement in July 2017 (Reference 6.10), concluding the following:

DCPP nuclear fuel has been performing as designed based on results of fuel inspections and chemistry sampling through Refueling Outage 1R20. DCPP plans to stay with its same Westinghouse fuel design throughout its remaining operating license in 2024 for Unit 1 and 2025 for Unit 2.

DCPP fuel cycles have typically been 21-month cycles between refueling outages. DCPP had looked at 24-month cycles but had rejected them due to their high cost. They will be using 18-month cycles through the end of plant operations in 2025, which should have little or no impact on nuclear safety.
Conclusions:

DCPP’s plans to change from 21-month to 18-month nuclear fuel cycles appear satisfactory. This should not significantly impact nuclear safety.

Recommendations:

None

4.0 Conclusions

4.1

The DCPP Radioactive Effluent Release Program and the Radiological Environmental Monitoring Program appeared satisfactory in calculating, monitoring and measuring radioactivity in the environment surrounding DCPP. There were no abnormal releases of radioactivity or abnormal levels of radioactivity detected.

4.2

DCPP is working toward closing NRC’s Generic Safety Issue GSI-191, “Assessment of Debris Accumulation on Pressurized-Water-Reactor Sump Performance,” by September 2019 using a Westinghouse topical report and completing DCPP-specific calculations and design changes, which are designed to comply with GSI-191. The DCISC Fact-finding Team recognizes that this is a complex issue and concludes that DCPP’s plans are satisfactory. The DCISC should review this issue again in late 2019.

4.3

The DCISC Fact-finding Team believed that DCPP had recognized its high turnover in System Engineering and was taking the appropriate actions to resolve it.

4.4

DCPP Quality Verification completed an audit of Operations and Technical Specifications in June 2018. The audit concluded that the audited programs were effectively implemented; however, it identified 17 deficiencies. The DCISC should follow up on the corrective actions for these deficiencies in early 2019.

4.5

Discrepancies in workplace seismic standards (e.g., unbraced furniture) were caused by inadequate knowledge transfer during Building Services personnel turnovers, although the plant had a written standard. The DCISC should follow up on this item in early 2019.
4.6

The DCPP Site Alignment Workshop observed by the DCISC Fact-finding Team appeared to have accomplished its purpose of informing and aligning PG&E personnel of the Company’s goals and objectives.

4.7

The regular meetings between DCPP management and the DCISC Fact-finding Teams appear to be beneficial for all.

4.8

The DCPP Time in the Field/Engagement and Coaching Program, a prescriptive observation program, appears satisfactory for providing management expectations on human performance and worker safety practices to workers as well as collecting worker input.

4.9

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

4.10

DCPP loading of spent fuel into the Independent Spent Fuel Storage Installation (ISFSI) is currently proceeding satisfactorily for Casks 50-58 and is scheduled to be completed in August 2018. The next loading campaigns are scheduled for 2020 and likely 2022. ISFSI relicensing is underway for 2022, when the current license expires. DCPP will address cask Stress Corrosion Cracking in the relicensing submittal.

4.11

DCPP’s plans to change from 21-month to 18-month nuclear fuel cycles appear satisfactory. This should not significantly impact nuclear safety.

5.0 Recommendations:

None

6.0 References

6.1

6.2
Ibid., Exhibit D.7, Section 3.7, “NRC Regulatory Issues Status.”

6.3
Ibid., Exhibit D.10, Section 3.4, “System Engineering Program.”

6.4
Ibid., Exhibit D.7, Section 3.4, “Quality Verification Assessment of Outage 1R20.”

6.5
Ibid., Exhibit D.10, Section 3.2, “Workplace Seismic Safety.”

6.6
Ibid., Exhibit D.10, Section 3.9, “Meet with DCPP Director.”

6.7
Ibid., Exhibit D.10, Section 3.1, “Meeting with the NRC Senior Resident Inspector.”

6.8

6.9
Ibid., Exhibit D.2, Section 3.10 “Independent Spent Fuel Storage Installation (ISFSI) Operations.”

6.10
Ibid., Exhibit D.1, Section 3.9, “Nuclear Fuel Performance.”
1.0 Summary

The results of the August 22–23, 2018, fact-finding trip to the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA are presented. The subjects addressed and summarized in Section 3 are as follows:

1. Meet with NRC Senior Resident Inspector
2. Observe Licensed Operator Continuing Training
3. Learning Services Department Performance
4. National Fire Protection Association 805 Program
5. DCISC Member Meet with DCPP Officer
6. Operating Experience Programs
7. Meteorological Information and Dose Assessment System
8. Chemistry Department Performance
9. Reactor Coolant System Health

2.0 Introduction

This Fact-finding Trip to the DCPP was made to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if Pacific Gas and Electric’s (PG&E’s) performance is appropriate and whether any areas revealed observations, which are important enough to warrant further review, follow-up, or presentation at a public meeting. These safety matters include follow-up and/or continuing review efforts by the Committee, as well as those identified as a result of reviews of various safety-related documents.

Section 4-Conclusions highlights the conclusions of the Fact-finding Team based on items reported in Section 3-Discussion. These highlights also include the team’s suggested follow-up items for the DCISC, such as scheduling future Fact-finding Meetings on the topic, presentations at future public meetings, and requests for future updates or information from DCPP on specific areas of interest, etc.
Section 5-Recommendations presents specific recommendations to PG&E proposed by the Fact-finding Team. These recommendations will be considered by the DCISC. After review and approval by the DCISC, the Fact-finding Report, including its recommendations, will be provided to PG&E. The Fact-finding Report will also appear in the DCISC Annual Report.

3.0 Discussion

3.1 Meet with NRC Senior Resident Inspector

The DCISC Fact-finding Team met with Chris Newport, NRC Senior Resident Inspector, for an update. The DCISC last met with the NRC in July 2018 (Reference 6.1), when it concluded the following:

> The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and the DCISC should continue the meetings.

The participants discussed the following topics:

1. Results of the Recent NRC Problem Identification and Resolution Inspection – No Issues
2. NRC Unresolved Item on Mission Times Used in Operability Evaluations
3. Preventive Maintenance Optimization Program
4. Upcoming NRC Public Outreach Meeting

Conclusions:

> The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

3.2 Observe Licensed Operator Continuing Training

The DCISC Fact-finding Team observed a Licensed Operator Continuing Training (LOCT) session conducted with a group of Operations staff members in a classroom setting. The DCISC last observed a training session during its December 2016 Fact-finding Meeting (Reference 6.2), when it concluded the following:

> The Continuing Training session referred to as a Human Performance Dynamic Learning Activity was useful for improving the use of Human Performance tools by Operators. The activity was well conducted by the station Human Performance Lead and other members of the Training staff.
Licensed Operators at DCPP are assigned to five rotating shift crews, and those crews rotate through a work week dedicated solely to the LOCT program every five to six weeks. This LOCT week consists of classroom instruction, simulator exercises, dynamic learning activities, self-study, and testing. Overall, each crew spends approximately 10-12 weeks per year (depending on outage schedules) in formal training. The LOCT program is designed to conform to requirements of the Institute for Nuclear Power Operations (INPO), and it receives and maintains plant training program accreditation through regular INPO reviews.

The Fact-finding Team joined Operations Shift E in the classroom for its lesson number R181C5 on the topic of, “New Emergency Action Level (EAL) Scheme.” The session was led by instructors Alex Brown and Dan DeGroot. The purpose of the lesson was to instruct Operators about recent changes to the EAL Scheme, which provides formal guidelines for declaring one of four action levels (Unusual Event, Alert, Site Area Emergency, or General Emergency) during an emergency event at the site. The new EAL Guidelines were based on changes contained in Revision 6 to the applicable industry guidance document, Nuclear Energy Institute (NEI) 99-01. The changes to the EAL Guidelines were incorporated by DCPP into its Emergency Plan, submitted to the NRC for approval, and planned for implementation on August 27, 2018. Shift E was the last shift to receive training on the changes prior to implementation.

The lesson plan contained objectives to enable students to:

- Describe key attributes of the Technical Basis Manual (TBM)
- Describe the format and layout of the new EAL wall charts
- Describe the significant changes within the new EAL wall charts
- Given indications of an event, classify the event with 100% accuracy within 15 minutes

The instructor walked students through the new EAL wall chart, a summary document that presented all of the EAL Guidelines in a tabular flow chart format to allow quick and accurate classification of an event in an emergency. Where appropriate, the instructor pointed out links on the wall chart to the TBM and instructed students on how to use the TBM to obtain more detailed background information when necessary. Also, the instructor pointed out significant changes from previous versions and emphasized to Operators the need to read the chart very carefully and not rely on old knowledge gained from using the previous versions. The use of human performance tools and conservative decision making was emphasized as appropriate during the presentations.
Licensed Operator Continuing Training Class.

The instructor’s presentation was professional, followed the lesson plan without becoming rote, provided numerous questions to stimulate student interaction, and delivered the needed information within the time allotted. It was clear that significant time and energy had been involved in preparing the lesson plan and its presentation in order to maximize the value of the information presented to the Operators.

Following the classroom presentation, the Fact-finding Team attended an informal group lunch meeting with other members of Shift E to have discussions on selected items of mutual interest such as the impact on career planning and development from the evolving joint proposal; the current staffing needs; and suggestions to enhance reactor operation and safety. Shift members present included managers, Licensed Operators, and Non-licensed Operators. All personnel appeared generally satisfied with their work and stated that they had no significant safety concerns. The shift members did express concern regarding the possibility of difficulties that may be encountered in the future in retaining a sufficient number of Operations staff during the last few years leading up to the cessation of operations in 2025.

Conclusions:

A Licensed Operator Continuing Training session on Emergency Action Level revisions was well prepared, contained appropriate information and objectives, and was professionally presented by the
Training staff.

3.3 Learning Services Department Performance

The DCISC Fact-finding Team met with Sarah Risley, Interim Accreditation Manager, to discuss Learning Services (Training) Department Programs and Performance. The DCISC last reviewed Learning Services Programs during its December 2014 Fact-finding Meeting (Reference 6.3), when the DCISC concluded the following:

*DCISC’s Maintenance Training Program is extensive and rigorous. The number and variety of inputs to training, both in-house and external to DCPP, contribute to the rigor of this program. DCISC’s next review of this topic from a programmatic overview should occur about two years hence. DCISC’s future focus should be on individual, or related, issues that arise at DCPP and may have ties to training.*

Ms. Risley briefed the team on the 2018 Learning Services Excellence Plan and provided a copy to the Fact-finding Team. The Excellence Plan covered many areas of training performance with multiple action steps and estimated completion dates. A significant area that was currently focused upon by the plan was the continuance of Operations training excellence during a period of leadership changes, implementation of specific changes required by external organizations, and increased initial license class activity. In these areas, excellence was planned to be maintained through an increased level of training oversight by managers, increasing the frequency of training oversight committee meetings, monitoring closely the progress of training-related corrective action plan items, and leveraging self-assessment and other performance improvement tools. Ms. Risley also noted that DCPP had volunteered to work with INPO to pilot a new format for the Operations training pre-assessment to be performed in October 2018 in preparation for the biennial NRC Licensed Operator Requalification Program 7111.11B inspection planned for April 2019. Another focus area was the continued development of Expert Instructors. While initial qualification and experience to become an instructor typically takes about one year, additional formal training and mentoring continues afterward in order to bring the instructors to a higher level of effectiveness. This process was referred to as the Expert Instructor program. This is a positive initiative.

One driver for the plan’s focus on maintaining excellence was the rate of instructor turnover. Currently in the Department, approximately 40% of the instructors have less than two years of experience in training. Fortunately, this was offset by the fact that supervisors in the department had lower turnover rates and continued to be significantly more experienced. The turnover was due in part to losses from expected retirements, but also due to the decision to cease plant operations in 2025. Ms. Risley estimated that approximately 4 of 60 instructors had resigned or retired sooner than had been expected following the decision to cease operations.
Most of the resignations or retirements had been absorbed (not replaced) by the organization except for two Senior Reactor Operator instructor positions which remained open and have been difficult to fill. Although turnover at this time was high, it was not unusual for some to occur as the Department has historically trained about 17 people per year to become full-time instructors. The Learning Services Department was working with the station Senior Leadership Team to plan and implement a strategy for workforce management and a reduction of staff as the date of cessation of operations grows closer. Ms. Risley also noted that it had recently become more difficult to hire contract instructors due to the growth of competing needs for training overseas in the nuclear industry.

One consideration for workforce management was the fact that the Department would need to maintain staff at a high number in the near term in order to conduct a large class for up to 24 new Licensed Operators in 2019. Efforts to fill that class were currently in progress, and it was anticipated that it may be difficult to fill all 24 planned slots in the class. At this point in time, it was not known if the 2019 class would be the last class for new Licensed Operators or if another class would be needed prior to cessation of operations.

Regarding assessments by outside organizations, Ms. Risley reported that Quality Assurance assessments were generally positive about content delivery in the Department but also found areas for improvement in completing administrative tasks. She noted that corrective actions had been completed in response to a significant issue that occurred in 2017 concerning a high rate of Licensed Operator audit exam (an internal examination conducted prior to the NRC examination) failures. The effectiveness of these corrective actions would soon be evident as the next audit examination would be held in late 2018. The overall station indicator for the health of the Learning Services Department had recently moved from White (Needs Improvement) to Green (Healthy) due primarily to the clearing of long-standing simulator deficiencies that was achieved during recent software and hardware upgrades that significantly improved simulator fidelity.

**Conclusions:**

*The Learning Services Department overall performance was good. The Department was appropriately focused on maintaining excellence in its training services during a period of significant changes and challenges.*

### 3.4 National Fire Protection Association 805 Program

The DCISC Fact-finding Team met with Katie Bartlett, Senior Project Manager; Carlos Lopez, Fire Protection Engineering Supervisor; and John Cote, Senior Engineer, Fire Protection, for an update on DCPP’s National Fire Protection Association (NFPA) 805 Program implementation status. The DCISC last reviewed NFPA-805 Program Implementation at its September 2017 Fact-finding Meeting (Reference 6.4), when the DCISC concluded the following:
DCPP has satisfactorily completed its implementation of NFPA-805, with the NRC-approved exception of one remaining Unit 2 modification (incipient fire detection) to be completed in the next outage. DCPP is currently working to implement the self-approval process for Unit 1 and plans to complete that work by November 2017. The DCPP should next review this issue in late 2018 following implementation of the Unit 2 self-approval process, which is planned for June 2018.

The NFPA-805 Program is an alternative approach to the NRC Fire Protection Program regulations for nuclear plants that is endorsed by the NRC and incorporated into Federal Regulations as 10 CFR 50.48(c). The NRC offered each operating nuclear power plant a choice as to whether to make the transition to the new regulations or to remain regulated according to existing NRC fire regulations, 10 CFR 50, Appendix R. About half of the U.S. nuclear plants, including DCPP, chose to make the transition, which has been a multi-year process. DCPP received a License Amendment and the NRC’s Final Safety Evaluation in April 2016, which approved DCPP’s programmatic move to NFPA-805. DCPP had until 365 days from that date (until April 15, 2017) in which to update all training, procedures, etc., and until the 1R20 and 2R20 Refueling Outages to implement the required physical modifications.

The Fact-finding Team confirmed that DCPP has completed transitioning Fire Protection Program management, implementing procedures, and training required to comply with the NFPA-805 based license amendment. DCPP had successfully completed installing all of the required physical modifications for NFPA-805 for both units. The last modifications were completed during Refueling Outage 2R20 in the spring of 2018. The last major programmatic implementation, the completion of all remaining evaluations and the implementation of the self-approval process for Unit 2, was completed prior to the due date of June 2018.

From this point forward, DCPP may use the self-approval process to review fire protection changes or impairments and determine if they are acceptable without NRC approval. The self-approval process involves using the Fire Probabilistic Risk Assessment (PRA) model to calculate a change in Core Damage Frequency (CDF) caused by the change or impairment. If the change in CDF is minimal, the fire protection impairment or change would be acceptable. The use of this process would be documented in a Fire Protection Change Evaluation.

The engineers reported that several final program closeout tasks were in progress. An “NFPA-805 Documents Matrix” was being prepared to provide a ready reference to all of the program implementation calculations and records, which number approximately 900 documents. Later in 2018, the Fire PRA, which has already been successfully peer reviewed, will be updated and submitted to the NRC for its review and approval. Lastly, the site was preparing for the NRC to perform its triennial Fire Protection Inspection in October, using an inspection procedure.
specifically modified for plants managing their Fire Protection Programs using the NFPA-805 approach. The engineers also noted that the station indicator for the overall health of the Fire Protection Program is Green (Healthy) and has been so for the last three months.

Conclusions:

DCPP has satisfactorily completed its implementation of NFPA-805, having completed all required physical modifications and implemented all programmatic processes. The DCPP performance indicator for the Fire Protection Program was Green (Healthy).

3.5 DCISC Member Meeting with DCPP Officer

DCISC Member Dr. Lam met with Jim Welsch, Vice President Nuclear Generation and Chief Nuclear Officer, to discuss the items in this Fact-finding Meeting and other items of mutual interest.

Conclusions:

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

3.6 Operating Experience Programs

DCISC Fact-finding Team met with Anne Shatara, Performance Improvement Supervisor, and Dustin Yancy, Operating Experience Coordinator, for an update on Operating Experience Programs. The DCISC last reviewed Operating Experience Programs during its May 2015 Fact-finding Meeting (Reference 6.5), when it concluded the following:

DCPP continues to maintain an active and effective Operating Experience Program. DCISC should continue to examine this topic on a frequency no greater than biennially.

Ms. Shatara reported that DCPP’s Operating Experience (OE) Program is governed by procedure OM4.ID3, “Operating Experience Program,” a copy of which was provided to the Fact-finding Team. The program is managed by a single person, the station OE Coordinator, and sponsored by the Performance Improvement Coordinator. Industry OE information comes from two primary paths: 1) an (INPO) Industry Consolidated Event System (ICES), and 2) other sources, including NRC, industry vendors, peer committees, engineering news, etc. From these sources, the Plant receives 25 to 50 OE event reports per week. These OE Reports are entered into an OE Database for tracking, and the information considered to be relevant to DCPP is transmitted to department Subject Matter Experts (SMEs; typically from Operations, Maintenance, or Engineering) who review the material for specific applicability to their areas and determine if action is required. Their
reviews are formally documented and retained in the OE Database. In addition to receiving industry OE Reports, DCPP also transmits its own OE Reports to both the NRC and to others in the industry via its own entries into the ICES system. Typically, DCPP reports three to five OE events per month to the industry.

If the OE event is determined to be applicable to DCPP, the SME creates a Notification (SAPN) in DCPP’s SAP information management system in order to initiate and track further actions. Some higher categories of OE events, such as Level 1 and Level 2 Industry Event Reports from ICES, bypass the screening process and go automatically into SAP. Once entered into the SAP system as a Notification, the OE event must be fully reviewed for applicability and any corrective actions for DCPP must be developed and assigned within 60 days. The 60-day standard is closely tracked and no exceptions are allowed. Within the last year, only one OE Notification failed to be fully processed within the 60-day standard, and that occurred when closure for an item was rejected late in the 60-day period during its review by the Corrective Action Review Board. Notification closure quality and timeliness are also monitored through the OE Program Health indicator in the monthly Plant Performance Improvement Report. The indicator has remained “Green” (Healthy) for the last year except for the month when the late OE Notification closure occurred.

The Fact-finding Team inquired if there had been any problems or issues identified recently with the OE Program either by internal or external organizations. Ms. Shatara responded that earlier this year, the NRC Resident Inspector while reviewing a recent Cause Evaluation identified that an OE event was not properly reviewed in 2011. The station investigated further and determined that 226 OE reports from 2011 and 2012 were not properly screened during a period when the OE Coordinator position was vacant. As corrective action, DCPP had initiated additional reviews for all of the affected OE Reports and was approximately 95% complete with the additional reviews as of the date of the meeting. In its subsequent Inspection Report (2018001), the NRC considered the missed OE Report evaluation to be a finding of very low safety significance.

Conclusions:

**DCPP continues to maintain an active and effective Operating Experience Program.**

3.7 Meteorological Information and Dose Assessment System

The DCISC Fact-finding Team met with Andy Warwick, Emergency Planning Supervisor, and Cameron Christensen, Emergency Planning Coordinator, to discuss the status of the Meteorological Information and Dose Assessment System (MIDAS) Program. The DCISC last reviewed the MIDAS Program during its April 2015 Fact-finding Meeting (Reference 6.6), when it concluded the following:

*DCPP has successfully implemented the third version of MIDAS*
(Meteorological Information and Dose Assessment System) for predicting the magnitude and path of radioactive plumes from the plant in the event of an emergency. This version will provide more accuracy and versatility than the previous version.

MIDAS is a computer software program that is used to predict the path and magnitude of radiation releases to the surrounding environment caused by an accidental radiation release from the plant. The output of the MIDAS software is used by DCPP to make protective action (sheltering, evacuation, etc.) recommendations for protection of the public to governmental authorities (i.e., the San Luis Obispo County Office of Emergency Services). Inputs to MIDAS include the concentration and height of radioactive releases at the plant along with wind and temperature data from up to seven meteorological towers and several SODAR (Sonic Detection and Ranging) units. The predictions are compared to data from roving field monitoring teams and by pressurized ionization chamber radiation detectors at fixed locations.

Mr. Christensen reported on changes that have been made to the MIDAS software since the DCISC last reviewed this topic in 2015. The third version of MIDAS continued to be used, and this version included the ability to assess multi-unit accidents using multiple source inputs. No significant physical changes had recently been made to the meteorological instruments used as inputs for the software. The fixed radiation detectors (3 on site, 10 off site) that provide inputs to MIDAS had been recently upgraded. A problem that occurred when MIDAS was used with wind speeds above 45 miles per hour had been corrected. Additionally, several minor programming issues regarding the expected nuclide mixes and instrumentation configuration assumptions had been fixed. Lastly, the MIDAS software had recently been moved to laptops which are portable and more reliable should power be interrupted to emergency response facilities.

In general, it was believed that the output of MIDAS was accurate for most releases, but it had been observed that the MIDAS dose projections were sometimes higher than the outputs of the Radiological Assessment System for Consequence Analysis (RASCAL) dose projection software used by San Luis Obispo County. Both software programs used the same inputs but contained different meteorological models. Any possible overestimation would be acceptable for emergency response purposes, particularly given the fact that MIDAS outputs were used only by DCPP to make recommendations for protective actions to governmental officials. Additionally, dose projection software was primarily relied upon for dose projections only during the early phases of response to an accident. Later phases would rely heavily upon the use of additional direct dose measurements obtained by field monitoring teams in order to make protective recommendations.

The Fact-finding Team inquired if DCPP had considered switching to the RASCAL software, which is used by the NRC, most local governments, and many nuclear
power plants. Mr. Christensen responded that DCPP believed that MIDAS was more appropriate for use with DCPP’s unique topography and its extensive network of installed meteorological instrumentation. In general, RASCAL is not configured to use local instrumentation but rather uses National Weather Service data as its input for meteorological conditions. Also, DCPP would have to submit a License Amendment Request to the NRC for approval to change software programs, and it did not believe that any gains to move to the RASCAL software would be worth the cost of obtaining NRC approval.

Regarding the extent to which personnel were trained and qualified to operate the MIDAS software, Mr. Christensen reported that MIDAS hands-on training was held during Emergency Response Organization (ERO) muster meetings that occurred every two weeks for each of the four ERO teams on a rolling basis. That totaled to about 30 minutes of training every eight weeks for each qualified individual. On each ERO team, a minimum of two people were qualified on the software, and all Shift Technical Advisors assigned to the Operations shift crews were also qualified. The total number of individuals qualified to operate the software was maintained at around 20 people. Recently, all of the ERO teams and Operators had also received training in the implementation of Revision 6 to the EAL Guidelines (see also Section 3.2 of this report). Revision 6 to the EAL Guidelines relied heavily on the dose projections provided by MIDAS as an input to event classification.

Conclusions:

**DCPP continues to properly maintain and use the MIDAS software system for predicting the magnitude and path of radioactive plumes from the plant in the event of an emergency.**

3.8 Chemistry Department Performance

The DCISC Fact-finding Team met with Dave Cortina, Chemistry and Environmental Operations Manager, for an update on the DCPP Chemistry Program. The DCISC last reviewed the Chemistry Program during its April 2016 Fact-finding Meeting (Reference 6.7), when it concluded the following:

> The Condensate Systems of both Units 1 and 2 are Healthy, and their health reflects careful attention devoted to those systems during both Unit operation and refueling outages. DDPP maintains an effective focus on Condensate/Feedwater Chemistry, and appears to be taking appropriate actions to improve the Chemistry Health of those systems when warranted. The DCISC may consider examining Reactor Coolant Chemistry during the next calendar quarter, after the conclusion of Refueling Outage 2R19.

Mr. Cortina reported to the Fact-finding Team that overall Chemistry Program health at the station was “Green” (Healthy) as measured by numerous performance indicators. The primary performance indicator was the Chemistry
Effectiveness Indicator (CEI) which summarized performance from the following contributing indicators:

- Water Chemistry
- Metal Transport
- Reactor Material Integrity
- Contamination Control

The CEI for Unit 1 showed “Green” (Healthy) performance for all contributing indicators for the last seven straight quarters. Unit 2’s CEI showed “Green” (Healthy) performance for all contributing indicators for the last five straight quarters. With the combined CEI effectively at zero, DCPP was in the top quartile of Chemistry performance for the U.S. nuclear industry.

One of the major drivers for the good performance was DCPP’s successful management of secondary plant water chemistry, which in turn reduced the potential for condenser tube leaks. When DCPP decided in 2008 to not replace the condenser tubes, it was also decided that the plant would rely heavily on the use of condensate polishers during startup to ensure that secondary water quality was maintained at a high level. Although it was expensive to operate the polishers, that strategy had resulted in the low number of condenser tube leaks. Also as a result, impurities were kept from entering the Steam Generators, in which outage inspections routinely found that secondary side sludge levels were extremely low. Currently, the condenser in-leakage rates were less than 0.6 gallons per day on both units. One challenge that remained for the station was the occurrence of high levels of iron (corrosion products) in the system during startups. To address this issue, DCPP was focusing on the use of Carbohydrazide to scavenge oxygen in the system at low temperatures.

Regarding water chemistry in the primary (reactor) section of the plants, Mr. Cortina reported that performance had been good with no major chemistry issues. DCPP primarily used hydrogen and lithium to scavenge oxygen and control water pH, respectively, and there had been no problems maintaining primary water chemistry parameters within the guidelines provided by INPO. One area of concern with primary water chemistry was the level of long-lived radioactive nuclides, which lead to high dose rates in containment during outages. In general, the presence of such nuclides (such as cobalt-60) was driven by maintenance activities and not by water chemistry. Such was the case when radiation levels were unexpectedly high during refueling outage 1R19, an issue previously reviewed by the DCISC (Reference 6.8).

Current issues that the Chemistry Department was monitoring included the identification of a problem classified by the station as an “Emerging Issue,” requiring detailed and focused activities for resolution, where the sea water side of the Unit 2 Main Condenser displayed a high differential pressure (d/p) immediately
following startup from Refueling Outage 2R20. This high d/p was not decreasing following startup as would be normally expected if the problem were biofouling and the biofouling decomposed over time. Numerous activities have been completed in an effort to identify the exact cause of the problem and correct it, but none had been significantly effective to date. Currently, the high d/p continues to be monitored, and plans are in place to curtail operations and clean the condensers should the d/p become a more significant issue. Additionally, the Department was working to correct recent issues identified with discharge chlorine monitors and diving safety procedures.

The Fact-finding Team inquired as to the status of current staffing levels in the Department. Mr. Cortina responded that the Department was currently fully staffed, having just filled one open supervisory position in June. Some attrition was expected to come, and some of those positions would likely be eliminated when vacated over the next two years. Additionally, given some recent turnover of personnel, the overall experience level in the Department had been steadily declining. He noted that the staff expected the Department to be completely eliminated when the plant ceased operations in 2025.

Conclusions:

The Chemistry Department overall performance at DCPP was good, and the Department was appropriately managing emerging issues. Primary and secondary Chemistry indicators place DCPP in the top quartile in the U.S. industry in maintaining Chemistry parameters.

3.9 Reactor Coolant System Health

DCISC Fact-finding Team met with Sergio Santiago, Systems Engineering Supervisor, and Walid Ahmed, Reactor Coolant System (RCS) System Engineer, for an update on the health of the RCS. The DCISC last reviewed this topic during its September 2014 Fact-finding Meeting (Reference 6.9), when it concluded the following:

*There are several aspects of DCPP’s Reactor Coolant Systems that need to be addressed in both Units in order to return the systems of both Units to Green Health status, including:*

- The conversion from water seated to steam seated Pressurizer Safety Valves for both Units 1 and Unit 2 has resulted in leakage during startups and the accompanying need for multiple hold points at various increasing pressures during plant startups in order to thermally soak the Pressurizer Safety Valves.
- A design deficiency in the number 2 seal leakoff lines of the Reactor Coolant Pumps in both Units can inhibit the lateral movement of the number 2 seal of the 3-stage pump shaft seals, which can lead to
higher than desired leakage of Reactor Coolant.

- A regulatory commitment to the NRC, in follow-up to the accident at Fukushima, needs to be fulfilled to install what are referred to as SHIELD passive thermal shutdown seals. These seals need to be installed in all of DCPP’s Reactor Coolant Pumps no later than in the two R19 Refueling Outages in order to significantly reduce reactor coolant leakage in post-accident situations.

The DCISC should consider conducting a follow-up Fact-finding review of the Reactor Coolant System in the next twelve months, and the review should be allocated more than the usual time because of the complexities.

The purpose of the RCS is to transfer heat generated by the fission process in the reactor core to the secondary plant steam system as well as provide a coolant pressure boundary, serve as the second barrier against release of fission products, and promote natural circulation. The system consists of:

- Reactor Vessel containing the nuclear core
- Pressurizer connected to the system to maintain pressure
- Four parallel heat transfer loops connected to the Reactor Vessel with each loop consisting of the following:
  - One Steam Generator which serves as a heat sink and heat exchanger to transfer heat to the secondary steam plant
  - One Reactor Coolant Pump (RCP) which circulates the loop water
  - Interconnecting loop piping
  - Taps for parameter (temperature, pressure, flow) measuring instruments

A basic RCS piping flow diagram is shown below:
The physical arrangement of the RCS is as follows:

The Fact-finding Team was briefed on the status of several issues discussed.
during the DCISC’s last review in 2014. Corrective actions had been completed for several RCP seal leakage issues, and RCP seal performance had recently been good with no major problems. Mr. Ahmed noted the installation of low post-accident leakage seal packages was completed on all RCPs, and that modification did not change the functioning of the RCP seals during normal operations. Regarding Pressurizer Safety Valve (PSV) leakage during startups, a consulting firm completed its review of the problem and noted a strong correlation between PSV leakage and discharge outlet nozzle loads. As a result, DCPP chose to swap out the discharge piping struts for snubbers to better accommodate thermal expansion. That modification was completed on Unit 2 during Refueling Outage 2R20, and no leakage occurred during startup following that outage. A corresponding modification was planned to be completed on Unit 1 during its Refueling Outage 1R21 in the Spring of 2019.

Currently, the health of both units' RCSs was classified as “White” (Acceptable, unless chronically “White”). There were several issues preventing the health from being classified as “Green” (Healthy), including:

- Repeat failures of Reactor Cavity Level Transmitters were considered Maintenance Rule Functional Failures and resulted in the system being placed in Maintenance Rule category (a)(1). Corrective actions were ongoing for this issue.
- A weld flaw found on the Unit 2 Residual Heat Removal system connection to the RCS had been repaired (overlaid), but a similar flaw had also been found on a corresponding weld on Unit 1. The Unit 1 weld flaw would be repaired (overlaid) in Refueling Outage 1R21. The cause of the flaw was still being evaluated.
- The RCP Vibration Monitoring System has become obsolete and cannot fully retain or trend vibration data from the RCPs. Modifications were in progress to replace the systems on both units.
- During a recent NRC Component Design Basis Inspection, it was identified that four of the six (three per unit) Power-operated Relief Valve solenoid actuators had a configuration that did not meet the requirements for preventing intrusion of moisture following an accident. This issue will be corrected during the next Refueling Outage for each unit.

Mr. Ahmed also discussed with the Fact-finding Team two RCS-system related industry issues that had recently been addressed at DCPP. The first issue was the possible erosion of reactor core baffle former bolts. During Refueling Outage 1R20, all of the Unit 1 bolts had been inspected, and 61 were replaced. Unit 2 was not susceptible to the issue since it had received a core flow modification during construction. Also, DCPP had completed the replacement of Control Rod Guide Tube (CRGT) Guide Cards on both units to avoid exceeding wear criteria for those components.
Lastly, Mr. Ahmed discussed a recently identified industry issue, which was the possibility of excessive wear on CRGT Thermal Sleeves. This issue was brought to DCPP’s attention via a 10CFR50 Part 21 Notification from the vendor, Westinghouse, in the form of Nuclear Safety Advisory Letter 18-1, “Thermal Sleeve Flange Wear Leads to Stuck Control Rod.” (A copy of the Advisory Letter was later obtained and reviewed by the Fact-finding Team.) The affected components had been replaced along with the Reactor Head at DCPP in 2009 and 2010, and the vendor recommended to re-inspect or replace the thermal sleeves 25 Effective Full Power Years following any such replacement. Using this criterion, it currently appears that no action will be required at DCPP prior to cessation of operations in 2025.

Conclusions:

DCPP’s Reactor Coolant System health was acceptable with some emerging issues being pursued for correction. The DCISC should review the status of corrective actions in 12 – 18 months.

4.0 Conclusions

4.1

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

4.2

A Licensed Operator Continuing Training session on Emergency Action Level revisions was well prepared, contained appropriate information and objectives, and was professionally presented by the Training staff.

4.3

The Learning Services Department overall performance was good. The Department was appropriately focused on maintaining excellence in its training services during a period of significant changes and challenges.

4.4

DCPP has satisfactorily completed its implementation of NFPA-805, having completed all required physical modifications and implemented all programmatic processes. The DCPP performance indicator for the Fire Protection Program was Green (Healthy).

4.5

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.
4.6  
DCPP continues to maintain an active and effective Operating Experience Program.

4.7  
DCPP continues to properly maintain and use the MIDAS software system for predicting the magnitude and path of radioactive plumes from the plant in the event of an emergency.

4.8  
The Chemistry Department overall performance at DCPP was good, and the Department was appropriately managing emerging issues. Primary and secondary Chemistry indicators place DCPP in the top quartile in the U.S. industry in maintaining Chemistry parameters.

4.9  
DCPP’s Reactor Coolant System health was acceptable with some emerging issues being pursued for correction. The DCISC should review the status of corrective actions in 12 – 18 months.

6.0 References

6.1  

6.2  

6.3  

6.4  

6.5

6.6

Ibid., Exhibit D.8, Section 3.3, “MIDAS (Meteorological Information and Dose Assessment System).”

6.7


6.8


6.9

29th Annual Report by the Diablo Canyon Independent Safety Committee, July 1, 2018—June 30, 2019

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29th Annual Report, Volume II, Exhibit D.3, Diablo Canyon Independent Safety Committee Report on Fact Finding Meeting at DCPP on September 5–6, 2018 by Robert J. Budnitz, Member, and R. Ferman Wardell, Consultant

1.0 Summary

The results of the September 5-6, 2018 fact-finding trip to the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA are presented. The subjects addressed and summarized in Section 3 are as follows:

1. Observe Plant Health Committee Meeting
2. Control Room Simulator Status
3. Digital Control Systems Status
4. Vibration Monitoring Program
5. Observe Corrective Action Review Board Meeting
6. Observe Readiness Review Board Meeting
7. Meet with NRC Senior Resident Inspector
8. Fire PRA Upgrade and Status of the PRA Plant-Response Model
9. Meet with Jan Nimick, Station Services Director
10. Human Performance Update
11. Meet with San Luis Obispo County Office of Emergency Services

2.0 Introduction

This fact-finding trip to the DCPP was made to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if Pacific Gas and Electric’s (PG&E’s) performance is appropriate and whether any areas revealed observations, which are important enough to warrant further review, follow-up, or presentation at a public meeting. These safety matters include follow-up and/or continuing review efforts by the Committee, as well as those identified as a result of reviews of various safety-related documents.

Section 4-Conclusions highlights the conclusions of the fact-finding team based on items reported in Section 3-Discussion. These highlights also include the team’s
suggested follow-up items for the DCISC, such as scheduling future fact-finding meetings on the topic, presentations at future public meetings, and requests for future updates or information from DCPP on specific areas of interest, etc.

Section 5-Recommendations presents specific recommendations to PG&E proposed by the fact-finding team. These recommendations will be considered by the DCISC. After review and approval by the DCISC, the fact-finding report, including its recommendations, will be provided to PG&E. The fact-finding report will also appear in the DCISC Annual Report.

3.0 Discussion

3.1 Observe Meeting of the DCPP Plant Health Committee

The DCISC Fact-finding Team met with Hector Garcia, DCPP Liaison to the DCISC, to attend and observe the bi-weekly Plant Health Committee (PHC) meeting. The DCISC last observed a PHC meeting in July 2017 (Reference 6.1), when it concluded the following:

_The July 26, 2017 DCPP Plant Health Committee meeting was performed efficiently and effectively with clear and concise system and equipment reports, good participation and discussion by members, and clear actions and assignments._

The PHC is governed by DCPP Procedure TS5.ID9, “Plant Health Committee” and is a management team responsible for:

- Continual review of system and program health issues
- Routinely monitoring the status of plant health issues on the plant health issues list for action status and completion
- Routinely monitoring the status of the system health tactical list
- Review and approval of action plans to address plant health issues that originated from system health reports, maintenance rule, operator workarounds, program health reports, emergent issues, and others deemed important to monitor
- Reviewing and approving action plans to resolve degraded, unanalyzed and non-conforming conditions
- Review and monitoring of plant health issue plans that are presented to the PHC
- Performing Preventative Maintenance Oversight Committee functions
- Annual approval of system, component, and program long range plans
- Quarterly review and monitoring of the Top Margin Issues list
- Approving and authorizing the PHC budget for solutions to plant health issues
The membership of the PHC Core Team, which is the Decision Making (i.e. voting) group of the PHC, is as follows: the Station Director (Chair), the Engineering Director (Alternative Chair), the Operations Manager, the Maintenance Director, and the Nuclear Work Management Director. The PHC is also supplemented by a group of Supporting (non-voting) Members from other various station departments.

The agenda for this meeting included the following:

- Safety/Human Performance Message
- Facilitative Leadership Minute
- Verify Quorum
- Introduce Operations Personnel
- Review Purpose and Desired Outcomes
- Review and Approve Minutes from Previous Meeting
- Review of Action Items
- FLEX/BDB Program Update
- Station Top Ten Equipment Reliability List
- Evaluation of the Conduct of the Meeting
- Action Item Review

The meeting was chaired by the Station Director Paula Gerfen and facilitated by Mark Baker, Reliability Engineering Supervisor. The meeting was conducted with efficiency, and the agenda was covered as scheduled. A strong emphasis was placed on plant safety and reliability throughout the discussion. Although not required by procedure, a representative from the Operations shift attended and participated in the meeting.

**DCPP FLEX/BDB (Beyond Design Basis) Program**

The FLEX Program Engineer, Dan Yoder, reviewed the history and current status of the FLEX/BDB Program. This Program has been owned by Technical Support Engineering since January 2018. Engineering is working on five minor equipment issues and 27 program and tracking items. Triennial Preventive Maintenance (PM) and Testing will be completed in December 2018. Operations Training is continuing. DCPP is finalizing Maintenance Plans for all 3-, 5-, and 10-year equipment testing and replacements; optimizing PMs; and developing Emergency Response Organization (ERO) FLEX guidance for BDB (Beyond Design Basis) response. The NRC is expected to issue its final BDB Rule by the end of 2018 with a two-year implementation clock. Severe Accident Management Guidelines (SAMGs) are to be integrated into the FLEX/BDB guidelines by February 2019.
Operations noted that operator FLEX readiness should be reviewed for adequacy. An action item was initiated that stated, “Assess expectations for Operator proficiency operating FLEX equipment and training requirements. Reference SAPN 50995505” with a due date of September 19, 2018.

**Top Ten Equipment Reliability Issues**

Lou Fusco, Owner of the Top Ten Equipment Reliability List, presented the status of each item on the list and distributed completed actions on the previous 32 Top Ten items. The Top Ten Items are the following:

1. Main Lube Oil Vapor Extractor Reliability
2. HVAC Corrosion Impact on 480 Volt Bus 13D/23D
3. Develop Action Plan for Main Generator H2 Leakage
4. Turbine Building deluge station pilot lines high pressure
5. Intake chemical injection leaks of sodium bisulfate
6. Reactor Vessel-355 o-ring replacement
7. Security KPI Hour adverse trend
8. Volume Control Tank/Zinc Injection System Code Class Isolation
9. Turbine Building High Energy Line Break impact on 4kV switchgear and cable spreading rooms
10. Inverter LED bulb vulnerability

Action plans and completion dates were provided for each of the above. It was reported that there were currently no unhealthy DCPP systems.

**Conclusions:**

The September 5, 2018, DCPP Plant Health Committee meeting was performed efficiently and effectively with clear and concise system and equipment reports, good participation and discussion by members, and clear actions and assignments.

**3.2 Control Room Simulator Status**

The DCISC Fact-finding Team met with Abdul Kadir, Operator Examination Developer and Simulator Supervisor; and Tom Lunianski and Brian Sawyer, Simulator Specialists, for an update on the status of the DCPP Control Room Simulators. The DCISC last reviewed the simulator in June 2015 (Reference 6.2), concluding the following:

*The DCPP Control Room Simulator is a valuable tool used for operator training and testing and as the “Control Room” during emergency drills*
All U.S. nuclear power plants have Control Room Simulators. The DCPP Control Room Simulator is a true copy of the actual DCPP Unit 1 Control Room with respect to control boards, charts, displays, and everything else right down to the lighting and carpet. Simulator controls and displays are wired to computers whose plant models provide the simulator with realistic behavior and responses like the actual plant. Simulator training for operators is required for new licensee training as well as for continuing training for licensed operators. The simulator is used for both operator training and practice of upcoming plant evolutions as well as operator testing for continuation of their license certifications. Changes made to the physical plant and procedures are also made to the simulator to keep it up-to-date.

DCPP has completed a Five-Year Simulator Computer Review, resulting in significant computer hardware and software updates. This included the following:

These improvements are expected to support reliable simulator operation through plant shutdown in 2025.

The simulator supports the five-week operator training schedule and NRC license examination process. During refueling outages, the reactor core is modified by adding new fuel to approximately one-third of the core. This changes the core nuclear dynamics such that it behaves differently upon start-up. This is modeled into the Simulator, along with other significant plant changes, and Operators practice the unit start-up on the Simulator before actual plant start-up.

The simulator is kept current with plant changes and is used for training on Operating Experience events at other nuclear plants.

Conclusions:

DCPP’s Control Room Simulator program and staff appear satisfactory for modeling plant events and operator training and examinations through the end of plant life in 2025.

The CARB reviewed the following notifications, which had been screened by the Notification Review Team:

No actions were identified as needed in addition to those in the individual Notifications.

The CARB reviewed and discussed the following significant items:

The CARB distributed the list of the 20 oldest Notifications. Origination dates ranged from May 2010 to August 2014. Each Notification had a projected completion date ranging from December 2018 to October 2021. No actions were
taken by CARB at this meeting. Some of these Notifications were about safety-related components, such as the Emergency Diesel Generators and 4kV Switchgear. The oldest (May 2010) was about a drawing update, which appeared to be a relatively simple action. The DCISC should review the safety-related Notifications in a future fact-finding meeting.

Conclusions:

The DCPP Corrective Action Review Board (CARB) meeting on September 5, 2018 appeared satisfactory in that the attendees met the intended objectives. Discussion of the significant items was focused and comprehensive. Actions were assigned for resolution as appropriate.

3.6 Observe Readiness Review Board Meeting

The DCISC FFT met with Hector Garcia, DCPP Liaison to the DCISC, to attend and observe the September 5, 2018 Readiness Review Board (RRB) Meeting. The DCISC last observed a RRB meeting in July 2013 (Reference 6.6), when it concluded the following:

*The DCPP Readiness for Restart (from outage) Program appeared appropriate. The implementation of the program for Outage 2R17 was effectively carried out.*

DCPP’s RRB meetings are designed to perform diverse and in-depth reviews of upcoming procedures and work processes to assure there is low risk and successful performance resulting in desired outcomes. In this case the Board reviewed the upcoming Cold Wash of the Unit 1 230kV insulators. The work is to be performed by the PG&E Transmission Department, which has responsibility for DCPP’s switchyards. This particular process has been performed multiple times by the same personnel.

The responsible group presented the work scope and flow, including risks, compensatory actions if necessary, procedures, clearances, resources, work orders, crew tailboard meetings, lessons learned, job hazards, applicable Technical Specifications, etc. The RRB asked pertinent questions, which the work group answered satisfactorily. The RRB then approved the readiness request.

Conclusions:

The DCPP Readiness Review Board Meeting for reviewing the 230kV Switchyard component Cold Wash was thorough with diverse points of view. All questions or concerns were resolved satisfactorily. The Board determined the work was ready for implementation.

3.7 Meeting with the NRC Senior Resident Inspector
The DCISC Fact-finding team met with Chris Newport, NRC Senior Resident Inspector, to discuss items of mutual interest. The DCISC last met with Mr. Newport in August 2018 (Reference 6.7), concluding the following:

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

In this meeting the participants discussed the following:

Conclusions:

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

3.8 Fire PRA Upgrade, and Status of the PRA Plant-Response Model

The DCISC Fact-finding Team met with Rasool Baradaran, Probabilistic Risk Assessment (PRA) Supervisor; John Pyo, Senior Consulting Engineer; David Imbaratto, PRA Engineer; and Nathan Barber, Seismic PRA Engineer, to discuss two different PRA topics: (i) the current status of the recent upgrade to the fire PRA model, and (ii) the current status of the PRA’s internal-events plant response model. Both of these topics are important aspects of the broader work of the PRA Group under Baradaran’s supervision. That Group is responsible for maintaining the station’s PRA, upgrading the PRA as needed, and applying it to address safety and reliability issues affecting the plant.

The DCISC last reviewed the overall PRA Program during its September 2017 Fact-finding Meeting (Reference 6.8), when it concluded the following:

The DCPP Probabilistic Risk Assessment (PRA) group’s development work today is emphasizing the support of various applications, such as resolving generic issues and modifying technical specifications, and the use of the PRA for these purposes continues effectively. The DCISC Fact-finding Team concludes that the PRA group is doing excellent work. The DCISC should continue to follow developments in this area closely.

Status of the fire PRA: John Pyo led the discussion of this part of the Fact Finding meeting, assisted by helpful contributions by each of the others.

The PRA team has been working on developing the fire-PRA model for several years, and it has been in regular use for the last couple of years. The model and analyses using it served as a major part of the plant’s submittal to the NRC for switchover of its NRC fire-protection regulations from the older Appendix R-based approach to the new approach based on National Fire Protection Association
(NFPA) Standard 805. That switchover was approved by the NRC in April 2016 and, one year later, in April 2017, the new NFPA-based requirements for DCPP took effect.

The plant has also begun to use the fire PRA in NRC Regulatory Guide (RG) 1.174 applications, in which the PRA is used to justify certain plant configuration changes that need NRC approval. A good example is using the fire PRA to support changes to both units during their most recent refueling outages (1R20 and 2R20) for which it can be demonstrated that the change in plant core-damage frequency is smaller than the RG 1.174 decision thresholds.

In the last year, the fire-PRA model has been brought up-to-date with the final post-NFPA-805 plant configuration, and now other model updates are being developed and installed. Among the changes being implemented are an updated approach to the human-reliability-analysis aspect of the fire PRA, partly driven by NUREG-2180 ("Determining the Effectiveness, Limitations, and Operator Response for Very Early Warning Fire Detection Systems in Nuclear Facilities,") and an update to the heat-release-rate aspect, partly driven by NUREG-2178 ("Refining and Characterizing Heat Release Rates from Electrical Enclosures During Fire.")

Other updates and changes to the model cover including new Control Room and fire-fighting procedures that were implemented as part of compliance with NFPA-805; beginning to incorporate FLEX equipment into the fire model; and incorporating advances in how lost DC power is restored. Pyo described these changes and noted that the team expects the new model to be fully implemented by the end of 2018. Pyo also noted that the fire PRA model meets the ASME-ANS PRA Standard ("Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications," American Society of Mechanical Engineers/American Nuclear Society, Standard ASME/ANS RA-Sb-2013 (2013) including a peer review.

**Status of the PRA’s plant-response model:** Nathan Barber and David Imbaratto led the discussion of this part of the Fact Finding meeting, assisted by helpful contributions by Baradaran and Pyo. The DCISC’s request to review this aspect of the PRA was part of its periodic review activities, and was not motivated by any particular safety concern.

The DCPP team reported on several new or updated changes to their model. One of them involved the thermal model that supports the success criteria during a LOCA (loss of coolant accident), and in particular the way the model deals with the volume of the Condensate Storage Tank (CST) in a more realistic fashion. In their earlier (more conservative) model, they had assumed that the CST’s water supply is pessimistically smaller than actual, because they assumed that the water supply only met the minimum Technical Specification limits, whereas it always exceeds that. This forced their model to call upon the Fire Water Tank for backup water during certain specified LOCA events. With a realistic assumption, there is now no
need for that backup tank.

They have also installed a more realistic thermal model for the cooldown of the reactor after shutdown, based on recent industry-sponsored work. This changes the timing in the post-LOCA model.

They also modified the model to use better industry-wide data for the frequency of loss-of-offsite-power and for certain LOCA frequencies. They also changed their model of Emergency Diesel Generator response based on a new diesel governor, although they reported that this does not make a significant different to the results or insights.

Finally, they are installing updates for a number of failure frequencies based on the latest data; this type of update is done every few years.

All in all, the PRA team reported that their plant-response model is now mature and is being widely used in various applications, such as technical-specification changes and in support of generic-issue resolution.

Conclusions:

The DCPP Probabilistic Risk Assessment (PRA) Group’s development work, for both the PRA plant-response model and the fire PRA, has gone well, and the models are more realistic because of this. The PRA work is emphasizing the support of various applications, such as resolving generic issues and modifying Technical Specifications, and the use of the PRA for these purposes continues effectively. The DCISC Fact-finding Team concludes that the PRA group is doing excellent work. The DCISC should continue to follow developments in this area closely.

3.9 Meeting with Jan Nimick

The DCISC FFT met with Jan Nimick, Senior Director, Nuclear Services, to discuss agenda items from this fact-finding meeting and other items of mutual interest. The DCISC last met with DCPP management in August 2018 (Reference 6.9), concluding the following:

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

The group discussed the following items:

Conclusions:

The regular meetings between DCPP management and the DCISC Fact-finding Teams appear to be beneficial for all.
3.10 Human Performance Update

The DCISC FFT met with Shawn LaForce, Nuclear Corrective Action Program Supervisor, and David Owen, Performance Improvement Coordinator, for an update on DCPP Human Performance. The DCISC last reviewed Human Performance in August 2016 (Reference 6.10), concluding the following:

External organizations have noted a recent increase in the occurrence of low level human errors in Operations Department status control and tagging. The Department has also recognized this trend and is moving to implement appropriate corrective actions, including those contained in the Department Excellence Plan. The DCISC should reexamine performance in these areas no later than the second quarter of 2017.

DCPP continuously tracks human error events to detect trends and to serve as a basis for making changes for human performance improvement. Events are categorized as to their severity as follows (most severe to least severe):

Because refueling outages are times with significantly higher levels and significance of work, SLEs and DLEs are recorded during outages. DCPP shared with the DCISC FFT the trends of SLEs and DLEs from Outage 2R13 through Outage 2R20, a period of about 11 years. SLEs dropped from levels of about 25 per outage to two per outage. DLEs dropped from levels of about two-to-three to zero during this time. This is significant and excellent performance improvement.

The Performance Improvement Group performed a quick hit self-assessment of Outage 2R20 human performance tool use and effectiveness. The assessors used the Human Factors Analysis and Classification System (HFACS) to evaluate 2R20 events. There were 20 SCRs and one DLE evaluated versus 42 events (2 DLE and 40 SCRs) during Outage 1R20. (There were no SLEs during 2R20.) The assessment concluded that Omitted Actions (i.e., leaving out necessary task steps) was the most prevalent unsafe act during work execution. This agrees with human performance expert views. The assessment report recommends, among other things, that a strategy involving pre-outage training be developed for the reduction of omission errors for Outage 1R21. DCPP will complete this action during the 1R21 pre-outage training as recommended (and will complete all assessment recommendations.)

Conclusions:

DCPP’s outage site and department level human performance event trends have improved significantly over the last three sets of outages. This is noteworthy performance. DCPP is continuing to improve its performance by tackling lower level events.

3.11 Meet with San Luis Obispo County Office of Emergency Services
The DCISC Fact-finding Team met with Ron Alsop, Director of San Luis Obispo (SLO) County Office of Emergency Services, and Kelly Van Buren, SLO Emergency Services Coordinator, for an update. The DCISC last met with SLO County Emergency Services in January 2016 (Reference 6.11), when it concluded the following:

*The San Luis Obispo County Office of Emergency Services uses of Precautionary Actions and social media appear appropriate.*

The SLO County Office of Emergency Services is still very active working with DCPP on their Emergency Plan and participating in practice drills and exercises. They recently received good marks on a Federal Emergency Management Agency (FEMA) assessment of evacuation, monitoring and decontamination of public shelters and on a FEMA hospital personnel decontamination exercise. In October 2018 FEMA will perform a biennial plume phase exercise.

The Office is working on a background document for transitioning to DCPP decommissioning; however, in reviewing a draft of the NRC document on emergency preparedness following plant shutdown and decommissioning, they believe their funding will be cut back significantly such that they will not be able to provide adequate emergency services. This would begin when all spent fuel is transferred into the Spent Fuel Pool. Funding is provided by DCPP, and the County Office has not discussed this with them. The DCISC FFT is concerned about this reduction in funding and plans to bring it to the attention of the full Committee for discussion and evaluation for possible action.

**Conclusions:**

The San Luis Obispo County Office of Emergency Services has been performing well in recent DCPP exercises and government assessments. The Office is evaluating its transition to the DCPP decommissioning phase; however, it is concerned that funding will be reduced significantly based on a draft NRC document on emergency services in the plant decommissioning phase. The DCISC Fact-finding Team shares this concern and will take this issue to the full DCISC for discussion and possible action.

**4.0 Conclusions**

**4.1**

The September 5, 2018, DCPP Plant Health Committee meeting was performed efficiently and effectively with clear and concise system and equipment reports, good participation and discussion by members, and clear actions and assignments.
DCPP’s Control Room Simulator program and staff appear satisfactory for modeling plant events and operator training and examinations through the end of plant life in 2025.

4.3

The DCISC Fact-finding Team believes that DCPP is supporting the reliability and functionality of its digital control systems satisfactorily.

4.4

The DCPP Predictive Maintenance Group, which includes vibration monitoring, lubrication control, and infrared thermography inspection, has been doing an effective job and seems capable of carrying out its responsibilities; however, it has been reduced in staff, causing substantial concern by the Group of being able to perform effectively. The DCISC has passed this information on to DCPP management.

4.5

The DCPP Corrective Action Review Board (CARB) meeting on September 5, 2018 appeared satisfactory in that the attendees met the intended objectives. Discussion of the significant items was focused and comprehensive. Actions were assigned for resolution as appropriate.

4.6

The DCPP Readiness Review Board Meeting for reviewing the 230kV Switchyard component Cold Wash was thorough with diverse points of view. All questions or concerns were resolved satisfactorily. The Board determined the work was ready for implementation.

4.7

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

4.8

The DCPP Probabilistic Risk Assessment (PRA) Group’s development work, for both the PRA plant-response model and the fire PRA, has gone well and the models are more realistic because of this. The PRA work is emphasizing the support of various applications, such as resolving generic issues and modifying Technical Specifications, and the use of the PRA for these purposes continues effectively. The DCISC Fact-finding Team concludes that the PRA group is doing excellent work. The DCISC should continue to follow developments in this area closely.
4.9

The regular meetings between DCPP management and the DCISC Fact-finding Teams appear to be beneficial for all.

4.10

DCPP’s outage site and department level human performance event trends have improved significantly over the last three sets of outages. This is noteworthy performance. DCPP is continuing to improve its performance by tackling lower level events.

4.11

The San Luis Obispo County Office of Emergency Services has been performing well in recent DCPP exercises and government assessments. The Office is evaluating its transition to the DCPP decommissioning phase; however, it is concerned that funding will be reduced significantly based on a draft NRC document on emergency services in the plant decommissioning phase. The DCISC Fact-finding Team shares this concern and will take this issue to the full DCISC for discussion and possible action.

6.0 References

6.1


6.2


6.3


6.4

Ibid., Exhibit D.4, Section 3.2, “Vibration Monitoring Program.”

6.5


6.6


6.7


6.8


6.9


6.10


- Modernized the user interface to a more graphical one, replacing the original FORTRAN programming language
- Introduced more flexibility, higher fidelity, and state-of-the-art features
- Added scripts used most often, especially for exams
- Modeled some FLEX features, e.g., stripping DC loads from the station batteries
- Added cyber-security training for operations

3.3 Digital Control System Status

The DCISC Fact-finding Team met with Ryan West, Instrumentation, Controls and Electrical Engineering Manager, for a status update on DCPP’s Digital Control
systems. The DCISC last reviewed digital controls at its October 2014 Public Meeting (Reference 6.3).

The term ‘digital’ means that control functions have moved from electro-mechanical control to computer control, much like has been done with modern motor vehicles. This change from electro-mechanical to computers matters because the end result is that control systems have become more reliable and flexible, ultimately providing a safer operating plant. There are eight primary digital control systems at DCPP:

- Turbine Control System (in-service 2004)
- Feedwater Control System (in-service 2005)
- Process Control System (in-service 2012)
- Two Meteorological Towers (in-service 2016)
- Intake Travelling Screens (in-service 2017)
- Units One and Two Spent Fuel Pool Bridge Cranes (2017-2018)
- Unit 1 Control Room Main Annunciators (Outage 1R22) [spares to Unit 2]
- Transient Recording System (design completed 2018)

The purpose of the digital Turbine Control System is to regulate the governor valve position which in turn controls steam flow during all modes of turbine operation. Essentially, the system controls the turbine generator during plant startup, normal operations, and plant shutdown.

The purpose of the Feedwater Control System is to automatically maintain Steam Generator water levels during steady-state operations. The system restores and maintains the water levels within safe levels during normal unit transients. Newer controls have reduced or eliminated operator interaction during system transients, preventing unnecessary plant trips, and simplifying operation.

The function of the Process Control System as to convert physical plant parameters such as temperature, pressure, level, and flow into electrical signals during normal operation. These signals are used for plant control (pumps, valves, heat exchangers, and tanks), operator indication, and computer monitoring and recording. The recorded signals are used by Operations to trend parameters and also to provide a historical record which assists in identifying any system degradation.

The Transient Recording System servers perform data storage and recording for the Emergency Response Facility Data System (ERFDS), whose primary function is to monitor and display plant parameters used for post-accident monitoring. The ERFDS assists the control room operators and emergency support personnel in making rapid assessments of plant safety status during accidents or abnormal
DCPP initiated a comprehensive digital control system review to develop a long-term strategy to assure that its digital control assets would function reliably and maintain good digital infrastructure through 2025 without facing emergent issues needing corrective action. The review is expected to be completed by end-of-year 2018, and the DCISC should review it in the first quarter of 2019.

Additionally, cyber security has affected digital controls, and the DCISC should review it in early 2019.

Conclusions:

The DCISC Fact-finding Team believes that DCPP is supporting the reliability and functionality of its digital control systems satisfactorily.

3.4 Vibration Monitoring Program

The DCISC FFT met with George D’Entremont, Senior Advising Engineer; Clay Beard, Senior Advising Engineer, Vibration Engineering and Predictive Maintenance; and Jack Cheek, Supervisor, Predictive Maintenance and Computer Group, for an update on the DCPP Vibration Monitoring Program. The DCISC last reviewed Vibration Monitoring in September 2015 (Reference 6.4) and concluded the following:

The DCPP Vibration Monitoring Program, part of the DCPP Predictive Maintenance Program, is satisfactorily controlled by procedure and appears to be effectively staffed and implemented. There were no components in the highest priority “Critical Condition” level in the Predictive Maintenance Watch List. The DCISC should continue to monitor vibration monitoring as well as its Predictive Maintenance oil analysis and thermography inspection programs.

As part of its Reliability Centered Maintenance program DCPP has a Predictive Maintenance Program (PMP) controlled by Procedure TS5.ID8, “Predictive Maintenance.” The stated purpose is to enhance plant safety and reliability through early detection and diagnosis of equipment degradation prior to equipment failure. This procedure appeared satisfactory.

The Predictive Maintenance Organization does this through use of installed and portable diagnostic tools, which monitor selected equipment parameters. The organization maintains a database of identified equipment and parameters for which they establish base lines, set alert points and coordinate predictive maintenance activities. The Engineering Director has overall responsibility for the PMP. The PMP utilizes the following techniques:

- Vibration Monitoring
Lubrication Control

Infrared Thermography Inspection

DCPP has permanent vibration sensors with remote Control Room readouts on its Reactor Coolant Pumps, Turbine Generators, and Main Feedwater Pumps. Another approximately 300 components are monitored typically monthly with portable vibration detecting equipment. The latest acquired data are compared with previous data for trends, and if significant degradation exists, a Notification is initiated, and components considered “degraded” are placed on a “Watch List.” Not only does the Vibration Analyst identify the fault, but is also expected to provide a corrective action Recommendation. Following corrective action by Maintenance, a confirmatory vibration survey is performed to assure the correction was effective.

DCPP has experienced high vibration on some Containment Fan Cooler Units (CFCUs) and Main Feedwater Pump (MFP) 1-1. The CFCU vibrations have been resolved with damper and louver setting changes. MFP 1-1 vibration has been accepted analytically, and the vibration alarm setpoint was increased. MFP 1-1 vibration monitoring continues.

The DCISC FFT learned that, as a result of an Engineering reorganization in July 2018, Predictive Maintenance Group staffing, which includes Vibration Monitoring, has been reduced, which causes concern regarding effective vibration monitoring on DCPP components. The FFT passed this information on to Jan Nimick, Senior Director, Nuclear Services, in its meeting with him (see Section 3.10).

Conclusions:

The DCPP Predictive Maintenance Group, which includes vibration monitoring, lubrication control, and infrared thermography inspection, has been doing an effective job and seems capable of carrying out its responsibilities; however, it has been reduced in staff, causing substantial concern by the Group of being able to perform effectively. The DCISC has passed this information on to DCPP management.

3.5 Observe Corrective Action Review Board Meeting

The DCISC FFT met with Hector Garcia, DCPP Liaison to the DCISC, to observe the September 5, 2018 meeting of the DCPP Corrective Action Review Board (CARB). The DCISC last observed CARB in December 2017 (Reference 6.5), concluding the following:

The Fact-finding Team’s observation of a Corrective Action Review Board (CARB) meeting was hindered by the fact that a quorum was not present for the meeting. A Corrective Action Program Notification was submitted for the lack of a quorum, and those present at the meeting made a
productive use of the time. The DCISC should attempt again to observe a CARB meeting during a future visit.

The CARB is governed by DCPP Procedure OM4.ID15, “Corrective Action Review Boards” and its purpose is to provide a significant venue for station personnel to demonstrate commitment to Corrective Action Program (CAP) excellence. The CARB fulfills a need for senior management oversight of the CAP and this oversight function includes:

- Reviewing Root Cause Evaluations (RCEs) for accuracy, completeness and alignment of the problem, causes and corrective actions.
- Approving extensions to the due dates for Corrective Actions to Prevent Recurrence.
- Approving effectiveness evaluations for CAP documents.
- Periodically reviewing CAP metrics to ensure the CAP is meeting management expectations.
- Reviewing and dispositioning requests for Cause Evaluation downgrades.
- Reviewing notifications screened by the Notification Review Team.

The membership of the CARB consists of regular and alternate members designated in writing by the Station Director. CARB meetings are held as necessary, typically on a weekly basis.

The agenda for this meeting included the following:

- Safety Assignments
- Facilitative Leadership Minute
- Review Desired Outcomes
- Verify Quorum
- Review and Approve Minutes from Previous Meeting
- Review of Action Items
- Review of Overdue Notifications
- Review of CARB Products
- Review Condition Reports
- Additional Reviews as Needed
- Actions and Meeting Evaluation

The CARB reviewed the following notifications, which had been screened by the Notification Review Team:

1. Maintenance Rule criteria exceeded
2. Technician signed Emergency Plan (EP) watch bill without qualifications
3. An Emergency Control Guidelines fire barrier was inadvertently left open during work in progress
4. A discrepancy between two spent fuel pool seal requirements
5. A discrepancy between an electrical heater manufacturer’s specification and a plant procedure
6. Quality Assurance audits did not have documented objective evidence to support their conclusions
7. Unit 1 Condenser air in-leakage exceeded the limit
8. An isolation valve in fire protection deluge station was not installed in accordance with the manufacturer’s manual
9. Non-fire retardant wood was found in the polisher buttress room
10. A procedure in use did not have the required prerequisites and precautions and limitations
11. Some cyber security raw data was not processed as required
12. Training procedure requirements are not being fully met
13. Geosciences Group implementation of quality assurance program is ineffective (see the third bulleted item below)
15. Twelve scaffolds were found in-place without required full qualifications
16. Some personnel in the Technical Support Center were not verified as having their TLDs (thermoluminescent dosimeters)
17. During operator continued training, the "issue bin" was not used to capture questions the instructor could not immediately answer
18. Compensatory actions for a high energy line break analysis need clarification

No actions were identified as needed in addition to those in the individual Notifications.

The CARB reviewed and discussed the following significant items:

- Problem Statement: The total number of notifications created in 2017 has decreased to its lowest level since 2009. This indicates a trend down from total number of notifications initiated year by year in the last 4 years. This could indicate a poor Safety Conscious Work Environment, in which personnel may be reluctant to submit issues via notification. The study concluded that “. . . there is no evidence to indicate that station personnel may not be reporting issues. Other factors, such as improved plant performance and one outage in 2017, are the primary drivers.” DCPP will continue to monitor this issue.
Problem Statement: The Plant Data Network (PDN) core switch was replaced due to intermittent failures resulting in significant disturbance to PDN. The replacement was done by physically installing a pre-configured temporary switch in an available rack location, moving connections from the failing core switch to the temporary switch, removing and replacing the core switch, and returning connections from the temporary to the new core switch. A TMOD (temporary modification) order was not created for this work due to a belief that the work order process was satisfactory. Because of this a number of important review and approval steps were not performed. Corrective action included training for all engineers and re-emphasis of procedure adherence.

Problem Statement: Is FLEX equipment considered “Safety-related and subject to 10CFR 50 Appendix B quality requirements?” This issue arose from a Quality Verification assessment of the Geosciences Group analyzing the seismic functionality of FLEX equipment. Considerable discussion ensued. An action item was generated for the Performance Improvement Group Head to work out the issue with QV and Geosciences and report back to CARB. The DCISC should follow up on this item.

There were 11 open anonymous notifications reviewed. None were considered significant or safety-related by the DCISC FFT; however, the FFT appreciates the fact that DCPP personnel have the opportunity to initiate anonymous notifications.

No actions were identified as needed in addition to those in the individual Notifications.

The CARB reviewed and discussed the following significant items:

Problem Statement: The total number of notifications created in 2017 has decreased to its lowest level since 2009. This indicates a trend down from total number of notifications initiated year by year in the last 4 years. This could indicate a poor Safety Conscious Work Environment, in which personnel may be reluctant to submit issues via notification. The study concluded that “... there is no evidence to indicate that station personnel may not be reporting issues. Other factors, such as improved plant performance and one outage in 2017, are the primary drivers.” DCPP will continue to monitor this issue.

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- Problem Statement: Is FLEX equipment considered “Safety-related and subject to 10CFR 50 Appendix B quality requirements?” This issue arose from a Quality Verification assessment of the Geosciences Group analyzing the seismic functionality of FLEX equipment. Considerable discussion ensued. An action item was generated for the Performance Improvement Group Head to work out the issue with QV and Geosciences and report back to CARB. The DCISC should follow up on this item.

- There were 11 open anonymous notifications reviewed. None were considered significant or safety-related by the DCISC FFT; however, the FFT appreciates the fact that DCPP personnel have the opportunity to initiate anonymous notifications.

The CARB distributed the list of the 20 oldest Notifications. Origination dates ranged from May 2010 to August 2014. Each Notification had a projected completion date ranging from December 2018 to October 2021. No actions were taken by CARB at this meeting. Some of these Notifications were about safety-related components, such as the Emergency Diesel Generators and 4kV Switchgear. The oldest (May 2010) was about a drawing update, which appeared to be a relatively simple action. The DCISC should review the safety-related Notifications in a future fact-finding meeting.

Conclusions:

The DCPP Corrective Action Review Board (CARB) meeting on September 5, 2018 appeared satisfactory in that the attendees met the intended objectives. Discussion of the significant items was focused and comprehensive. Actions were assigned for resolution as appropriate.

3.6 Observe Readiness Review Board Meeting

The DCISC FFT met with Hector Garcia, DCPP Liaison to the DCISC, to observe the September 5, 2018 meeting of the DCPP Corrective Action Review Board (CARB). The DCISC last observed CARB in December 2017 (Reference 6.5), concluding the following:

The DCPP Readiness for Restart (from outage) Program appeared appropriate. The implementation of the program for Outage 2R17 was effectively carried out.

DCPP’s RRB meetings are designed to perform diverse and in-depth reviews of upcoming procedures and work processes to assure there is low risk and successful performance resulting in desired outcomes. In this case the Board reviewed the upcoming Cold Wash of the Unit 1 230kV insulators. The work is to be performed by the PG&E Transmission Department, which has responsibility for DCPP’s switchyards. This particular process has been performed multiple times by
the same personnel.

The responsible group presented the work scope and flow, including risks, compensatory actions if necessary, procedures, clearances, resources, work orders, crew tailboard meetings, lessons learned, job hazards, applicable Technical Specifications, etc. The RRB asked pertinent questions, which the work group answered satisfactorily. The RRB then approved the readiness request.

Conclusions:

The DCPP Readiness Review Board Meeting for reviewing the 230kV Switchyard component Cold Wash was thorough with diverse points of view. All questions or concerns were resolved satisfactorily. The Board determined the work was ready for implementation.

3.7 Meeting with the NRC Senior Resident Inspector

The DCISC Fact-finding team met with Chris Newport, NRC Senior Resident Inspector, to discuss items of mutual interest. The DCISC last met with Mr. Newport in August 2018 (Reference 6.7), concluding the following:

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

In this meeting the participants discussed the following:

- 230kV Switchyard Cold Wash Readiness Review Board meeting
- Corrective Action Review Board meeting
- The recent NRC Public Meeting held in San Luis Obispo
- DCPP Vibration Monitoring personnel shortage
- Digital Control System strategic review
- Control Room Simulator update
- Whether Operations is ready for FLEX events
- Use of FLEX in PRA

Conclusions:

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

3.8 Fire PRA Upgrade, and Status of the PRA Plant-Response Model

The DCISC Fact-finding Team met with Rasool Baradaran, Probabilistic Risk Assessment (PRA) Supervisor; John Pyo, Senior Consulting Engineer; David Imbaratto, PRA Engineer; and Nathan Barber, Seismic PRA Engineer, to discuss
two different PRA topics: (i) the current status of the recent upgrade to the fire PRA model, and (ii) the current status of the PRA's internal-events plant response model. Both of these topics are important aspects of the broader work of the PRA Group under Baradaran's supervision. That Group is responsible for maintaining the station's PRA, upgrading the PRA as needed, and applying it to address safety and reliability issues affecting the plant.

The DCISC last reviewed the overall PRA Program during its September 2017 Fact-finding Meeting (Reference 6.8), when it concluded the following:

The DCPP Probabilistic Risk Assessment (PRA) group's development work today is emphasizing the support of various applications, such as resolving generic issues and modifying technical specifications, and the use of the PRA for these purposes continues effectively. The DCISC Fact-finding Team concludes that the PRA group is doing excellent work. The DCISC should continue to follow developments in this area closely.

**Status of the fire PRA:** John Pyo led the discussion of this part of the Fact Finding meeting, assisted by helpful contributions by each of the others.

The PRA team has been working on developing the fire-PRA model for several years, and it has been in regular use for the last couple of years. The model and analyses using it served as a major part of the plant's submittal to the NRC for switchover of its NRC fire-protection regulations from the older Appendix R-based approach to the new approach based on National Fire Protection Association (NFPA) Standard 805. That switchover was approved by the NRC in April 2016 and, one year later, in April 2017, the new NFPA-based requirements for DCPP took effect.

The plant has also begun to use the fire PRA in NRC Regulatory Guide (RG) 1.174 applications, in which the PRA is used to justify certain plant configuration changes that need NRC approval. A good example is using the fire PRA to support changes to both units during their most recent refueling outages (1R20 and 2R20) for which it can be demonstrated that the change in plant core-damage frequency is smaller than the RG 1.174 decision thresholds.

In the last year, the fire-PRA model has been brought up-to-date with the final post-NFPA-805 plant configuration, and now other model updates are being developed and installed. Among the changes being implemented are an updated approach to the human-reliability-analysis aspect of the fire PRA, partly driven by NUREG-2180 ("Determining the Effectiveness, Limitations, and Operator Response for Very Early Warning Fire Detection Systems in Nuclear Facilities,") and an update to the heat-release-rate aspect, partly driven by NUREG-2178 ("Refining and Characterizing Heat Release Rates from Electrical Enclosures During Fire.")

Other updates and changes to the model cover including new Control Room and fire-fighting procedures that were implemented as part of compliance with NFPA-
Pyo described these changes and noted that the team expects the new model to be fully implemented by the end of 2018. Pyo also noted that the fire PRA model meets the ASME-ANS PRA Standard ("Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications," American Society of Mechanical Engineers/American Nuclear Society, Standard ASME/ANS RA-Sb-2013 (2013) including a peer review.

**Status of the PRA’s plant-response model:** Nathan Barber and David Imbaratto led the discussion of this part of the Fact Finding meeting, assisted by helpful contributions by Baradaran and Pyo. The DCISC's request to review this aspect of the PRA was part of its periodic review activities, and was not motivated by any particular safety concern.

The DCPP team reported on several new or updated changes to their model. One of them involved the thermal model that supports the success criteria during a LOCA (loss of coolant accident), and in particular the way the model deals with the volume of the Condensate Storage Tank (CST) in a more realistic fashion. In their earlier (more conservative) model, they had assumed that the CST's water supply is pessimistically smaller than actual, because they assumed that the water supply only met the minimum Technical Specification limits, whereas it always exceeds that. This forced their model to call upon the Fire Water Tank for backup water during certain specified LOCA events. With a realistic assumption, there is now no need for that backup tank.

They have also installed a more realistic thermal model for the cooldown of the reactor after shutdown, based on recent industry-sponsored work. This changes the timing in the post-LOCA model.

They also modified the model to use better industry-wide data for the frequency of loss-of-offsite-power and for certain LOCA frequencies. They also changed their model of Emergency Diesel Generator response based on a new diesel governor, although they reported that this does not make a significant different to the results or insights.

All in all, the PRA team reported that their plant-response model is now mature and is being widely used in various applications, such as technical-specification changes and in support of generic-issue resolution.

**Conclusion:** The DCPP Probabilistic Risk Assessment (PRA) Group's development work, for both the PRA plant-response model and the fire PRA, has gone well, and the models are more realistic because of this. The PRA work is emphasizing the support of various applications, such as resolving generic issues and modifying Technical Specifications, and the use of the PRA for these purposes continues effectively. The DCISC Fact-finding Team concludes that the PRA group is doing excellent work. The DCISC should continue to follow developments in this area.
Recommendations: None

3.9 Meeting with Jan Nimick

The DCISC FFT met with Jan Nimick, Senior Director, Nuclear Services, to discuss agenda items from this fact-finding meeting and other items of mutual interest. The DCISC last met with DCPP management in August 2018 (Reference 6.9), concluding the following:

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

The group discussed the following items:

- Items from this fact-finding meeting
- Possible experienced personnel shortage in Vibration Monitoring
- Recent NRC Public Meeting held in San Luis Obispo

Conclusions:

The regular meetings between DCPP management and the DCISC Fact-finding Teams appear to be beneficial for all.

3.10 Human Performance Update

The DCISC FFT met with Shawn LaForce, Nuclear Corrective Action Program Supervisor, and David Owen, Performance Improvement Coordinator, for an update on DCPP Human Performance. The DCISC last reviewed Human Performance in August 2016 (Reference 6.10), concluding the following:

External organizations have noted a recent increase in the occurrence of low level human errors in Operations Department status control and tagging. The Department has also recognized this trend and is moving to implement appropriate corrective actions, including those contained in the Department Excellence Plan. The DCISC should reexamine performance in these areas no later than the second quarter of 2017.

DCPP continuously tracks human error events to detect trends and to serve as a basis for making changes for human performance improvement. Events are categorized as to their severity as follows (most severe to least severe):

- Site Level Events (SLE)
- Department Level Events (DLE)
- Section Clock Resets (SCRs)
Because refueling outages are times with significantly higher levels and significance of work, SLEs and DLEs are recorded during outages. DCPP shared with the DCISC FFT the trends of SLEs and DLEs from Outage 2R13 through Outage 2R20, a period of about 11 years. SLEs dropped from levels of about 25 per outage to two per outage. DLEs dropped from levels of about two-to-three to zero during this time. This is significant and excellent performance improvement.

The Performance Improvement Group performed a quick hit self-assessment of Outage 2R20 human performance tool use and effectiveness. The assessors used the Human Factors Analysis and Classification System (HFACS) to evaluate 2R20 events. There were 20 SCRs and one DLE evaluated versus 42 events (2 DLE and 40 SCRs) during Outage 1R20. (There were no SLEs during 2R20.) The assessment concluded that Omitted Actions (i.e., leaving out necessary task steps) was the most prevalent unsafe act during work execution. This agrees with human performance expert views. The assessment report recommends, among other things, that a strategy involving pre-outage training be developed for the reduction of omission errors for Outage 1R21. DCPP will complete this action during the 1R21 pre-outage training as recommended (and will complete all assessment recommendations.)

Conclusions:

DCPP's outage site and department level human performance event trends have improved significantly over the last three sets of outages. This is noteworthy performance. DCPP is continuing to improve its performance by tackling lower level events.

3.11 Meet with San Luis Obispo County Office of Emergency Services

The DCISC Fact-finding Team met with Ron Alsop, Director of San Luis Obispo (SLO) County Office of Emergency Services, and Kelly Van Buren, SLO Emergency Services Coordinator, for an update. The DCISC last met with SLO County Emergency Services in January 2016 (Reference 6.11), when it concluded the following:

The San Luis Obispo County Office of Emergency Services uses of Precautionary Actions and social media appear appropriate.

The SLO County Office of Emergency Services is still very active working with DCPP on their Emergency Plan and participating in practice drills and exercises. They recently received good marks on a Federal Emergency Management Agency (FEMA) assessment of evacuation, monitoring and decontamination of public shelters and on a FEMA hospital personnel decontamination exercise. In October 2018 FEMA will perform a biennial plume phase exercise.

The Office is working on a background document for transitioning to DCPP decommissioning; however, in reviewing a draft of the NRC document on emergency preparedness following plant shutdown and decommissioning, they
believe their funding will be cut back significantly such that they will not be able to provide adequate emergency services. This would begin when all spent fuel is transferred into the Spent Fuel Pool. Funding is provided by DCPP, and the County Office has not discussed this with them. The DCISC FFT is concerned about this reduction in funding and plans to bring it to the attention of the full Committee for discussion and evaluation for possible action.

Conclusions:

The San Luis Obispo County Office of Emergency Services has been performing well in recent DCPP exercises and government assessments. The Office is evaluating its transition to the DCPP decommissioning phase; however, it is concerned that funding will be reduced significantly based on a draft NRC document on emergency services in the plant decommissioning phase. The DCISC Fact-finding Team shares this concern and will take this issue to the full DCISC for discussion and possible action.

4.0 Conclusions

4.1

The September 5, 2018, DCPP Plant Health Committee meeting was performed efficiently and effectively with clear and concise system and equipment reports, good participation and discussion by members, and clear actions and assignments.

4.2

DCPP's Control Room Simulator program and staff appear satisfactory for modeling plant events and operator training and examinations through the end of plant life in 2025.

4.3

The DCISC Fact-finding Team believes that DCPP is supporting the reliability and functionality of its digital control systems satisfactorily.

4.4

The DCPP Predictive Maintenance Group, which includes vibration monitoring, lubrication control, and infrared thermography inspection, has been doing an effective job and seems capable of carrying out its responsibilities; however, it has been reduced in staff, causing substantial concern by the Group of being able to perform effectively. The DCISC has passed this information on to DCPP management.

4.5

The DCPP Corrective Action Review Board (CARB) meeting on September 5, 2018 appeared satisfactory in that the attendees met the
intended objectives. Discussion of the significant items was focused and comprehensive. Actions were assigned for resolution as appropriate.

4.6

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

4.7

DCPP continues to properly maintain and use the MIDAS software system for predicting the magnitude and path of radioactive plumes from the plant in the event of an emergency.

4.8

The DCPP Probabilistic Risk Assessment (PRA) Group's development work, for both the PRA plant-response model and the fire PRA, has gone well and the models are more realistic because of this. The PRA work is emphasizing the support of various applications, such as resolving generic issues and modifying Technical Specifications, and the use of the PRA for these purposes continues effectively. The DCISC Fact-finding Team concludes that the PRA group is doing excellent work. The DCISC should continue to follow developments in this area closely.

4.9

The regular meetings between DCPP management and the DCISC Fact-finding Teams appear to be beneficial for all.

4.10

DCPP's outage site and department level human performance event trends have improved significantly over the last three sets of outages. This is noteworthy performance. DCPP is continuing to improve its performance by tackling lower level events.

4.11

The San Luis Obispo County Office of Emergency Services has been performing well in recent DCPP exercises and government assessments. The Office is evaluating its transition to the DCPP decommissioning phase; however, it is concerned that funding will be reduced significantly based on a draft NRC document on emergency services in the plant decommissioning phase. The DCISC Fact-finding Team shares this concern and will take this issue to the full DCISC for discussion and possible action.

5.0 Recommendations:
6.0 References

6.1

6.2

6.3

6.4
Ibid., Exhibit D.4, Section 3.2, "Vibration Monitoring Program."

6.5

1.0 Summary

The results of the November 7-8, 2018, Fact-finding trip to the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA are presented. The subjects addressed and summarized in Section 3 are as follows:

1. Meet with Nuclear Regulatory Commission (NRC) Senior Resident Inspector
2. Meet with DCPP Directors
3. Tracking and Resolution of Institute of Nuclear Power Operations (INPO) Areas for Improvement and DCPP Mid-Cycle Assessment
4. Health of Reactor Coolant Pumps and Seals
5. Observation of Response to Fire Alarm in Administration Building
6. Safety Injection System Health
7. Maintenance Department Performance
8. Seismic Qualification of Switchgear Room Walls
9. Decommissioning Planning
10. Benchmarking Programs
11. Preventive Maintenance Optimization Project
12. Observation of Emergency Response Organization Muster Meeting
13. Emergency Planning

2.0 Introduction

This Fact-finding Trip to the DCPP was made to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if Pacific Gas and Electric’s (PG&E’s) performance is appropriate and whether any areas revealed observations, which are important enough to warrant further review, follow-up, or presentation at a public meeting. These safety matters include follow-up and/or continuing review efforts by the Committee, as well as those identified as a result
of reviews of various safety-related documents.

Section 4-Conclusions highlights the conclusions of the Fact-finding Team based on items reported in Section 3-Discussion. These highlights also include the team’s suggested follow-up items for the DCISC, such as scheduling future Fact-finding Meetings on the topic, presentations at future public meetings, and requests for future updates or information from DCPP on specific areas of interest, etc.

Section 5-Recommendations presents specific recommendations to PG&E proposed by the Fact-finding Team. These recommendations will be considered by the DCISC. After review and approval by the DCISC, the Fact-finding Report, including its recommendations, will be provided to PG&E. The Fact-finding Report will also appear in the DCISC Annual Report.

3.0 Discussion

3.1 Meet with NRC Senior Resident Inspector

The DCISC Fact-finding Team met with Chris Newport, NRC Senior Resident Inspector, for an update. The DCISC meets regularly with the Senior Resident Inspector and last met with him in September 2018 (Reference 6.1), when it concluded the following:

*The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and the DCISC should continue the meetings.*

The participants discussed the following topics:

1. October Emergency Planning Exercise Observations
2. Decommissioning Planning
3. Recent Inspection Findings Regarding the Scaffolding Program and the Timeliness for the Resolution of Operability Assessments Requiring Compensatory Measures
4. Preventive Maintenance Optimization Project

Conclusions:

*The meeting with NRC Resident Inspector was beneficial, and the DCISC should continue the meetings.*

Recommendations:

None

3.2 Meet with DCPP Directors
The DCISC Fact-finding Team met with Cary Harbor, Nuclear Business Operations Director, and Jan Nimick, Senior Director, Nuclear Services, to discuss the items in this Fact-finding Meeting and other items of mutual interest.

Conclusions:

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

Recommendations:

None

3.3 Tracking and Resolution of INPO Areas for Improvement and DCPP Mid-Cycle Assessment

(Because of its privacy agreement with DCPP, the DCISC cannot share the details of the evaluation or subsequent corrective actions.)

The DCISC Fact-finding Team met with Matt Hayes, Director of Organizational Effectiveness, Performance Improvement, and Learning Services, to discuss the status of tracking and resolving Areas for Improvement (AFIs) identified during the August 2017 evaluation of DCPP by the Institute of Nuclear Power Operations (INPO). The DCISC last reviewed INPO Evaluations during its November 2017 Fact-finding Meeting (Reference 6.2), when the DCISC concluded the following:

The Institute of Nuclear Power Operations biennial August 2017 evaluation of DCPP appeared to have been positive overall with some areas for improvement that seemed appropriate. (Because of its privacy agreement with DCPP, the DCISC cannot share the details of the evaluation.)

After reviewing and discussing the status of resolving INPO AFIs, the DCISC Fact-finding Team concluded that the appropriate corrective actions had been initiated with the majority being complete as of the time of the meeting. Additionally, the Fact-finding Team observed that DCPP recently completed its INPO Mid-cycle Assessment with generally positive results.

Conclusions:

Corrective actions for Areas for Improvement (AFIs) identified during the Institute of Nuclear Power Operations (INPO) biennial August 2017 evaluation of DCPP appeared to have been appropriately initiated with the majority being complete as of the time of the meeting. (Because of its privacy agreement with DCPP, the DCISC cannot share the details of the evaluation or subsequent corrective actions.)
Recommendations:
None

3.4 Health of Reactor Coolant Pumps and Seals

DCISC Fact-finding Team met with Jack Cheek, Component Engineering Supervisor, and Chris Asquich, Rotating Equipment Engineer, for an update on the health of the Reactor Coolant Pumps (RCPs) and its seals. The DCISC last reviewed this topic during its January 2015 Fact-finding Meeting (Reference 6.3), when it concluded the following:

DCPP Reactor Coolant Pumps (RCPs) have performed well without significant problems, except for occasional seal leakage problems. The RCP seals, which are sensitive to debris and thermal transients, are receiving proper attention in the form of periodic inspections, flushing of upstream seal water injection lines, and regular replacements. DCPP is replacing the current seals with improved models.

The purpose of the RCPs is to provide flow through the Reactor Coolant System (RCS) to support the design heat transfer rate from the Reactor fuel core to the Steam Generators (SGs). The RCPs are located at the 117-foot level in the Containment next to their respective SG. Each unit has four RCPs with identical characteristics. Each RCP takes suction from its respective SG cold leg and discharges to the Reactor and through the SG before returning to the suction of the RCP. The RCPs consist of the pump section, the seal assembly, the flywheel and the motor, all located on a common shaft as shown in the following diagram.
The pump section is a vertical, single stage centrifugal pump with an axial diffuser and turning vanes with a radial discharge outlet. The pump is rated to deliver 88,500 gallons per minute (gpm) at a head of 277 feet at 1190 rpm. The electric motor is a nominal 6000 hp 12,000 volt, vertical, 6-pole squirrel cage induction motor. RCP motors have generally been trouble-free, and they are inspected regularly and rebuilt on-site over a ten-year schedule.

The seal assembly consists of three mechanical seals that provide a pressure drop from RCS pressure of 2200 psi nominally to ambient pressure, thus minimizing RCS leakage along the shaft. The seals are contained in pressure seal housings that are bolted to the top side of the pump main flange. Seal injection is provided by the Chemical and Volume Control System (CVCS), and the seal package is also cooled by Component Cooling Water (CCW). If normal CVCS seal injection flow and CCW are lost, the RCP must be shut down immediately to prevent seal damage.

Over the last few years, DCPP has had a number of RCP seal leakage problems requiring replacements either during normal refueling outages or special shutdowns. Most of the leaks were caused by debris getting into the seals, and corrective actions were initiated to reduce the number of seal leakage issues. Mr. Cheek reported that these actions appear to have been effective as DCPP has not had any recent issues with debris getting into the RCP seals.
Additionally, DCPP has recently replaced all RCP seals with improved third generation Westinghouse “SHIELD” Passive Thermal Shut Down Seals. These improved seals contain, as a part of Seal #1, a special thermal actuator which at temperatures of approximately 260-320°F causes a piston to retract and release a metallic seal ring and polymer seal to constrict around the RCP shaft to limit seal leakage. This new capability was an important modification to support DCPP’s move to NFPA-805 Probabilistic Risk Assessment (PRA)-based fire protection and for FLEX Program considerations. With the new passive barrier, the volume of possible seal leakage during a loss of all plant electric power (and thus CCW) events is significantly reduced.

Mr. Cheek reported that there were no issues with the improved seals. He also pointed out that no issues were expected because the active seal components normally in service in the improved seals remained the same as the previous design. (The new thermal actuator portion of the seal package only becomes active if the seal loses cooling and becomes overheated.) He also reported that seal replacements continued to be planned to occur once every three cycles, as was the case with the previous design. As such, it is anticipated that there will be one more changeout of RCP seal packages before DCPP ceases operation, likely during Refueling Outages 1R22 and 2R22 in 2022 and 2023, respectively.

Regarding the identification of any new issues affecting RCP operation, Mr. Cheek reported that one nuclear plant elsewhere in the U.S. had discovered cracking of turning vane mounting bolts inside the pump diffuser. Plants in the industry were currently reviewing the details of the event to determine if inspections of similar bolts at other plants were warranted. He noted that the DCPP’s configuration was known to be different in that its RCPs contained 1.5-inch diameter bolts whereas the problem occurred at a plant with 1.0-inch diameter bolts.

Conclusions:

DCPP’s Reactor Coolant Pumps (RCPs) continue to perform well and without significant problems. Recent replacements of RCP seals with seals designed to have lower leakage in abnormal situations are complete, and no new seal performance problems have been identified.

Recommendations:

None

3.5 Observation of Response to Fire Alarm in Administration Building

During the meeting discussed in Section 3.4, the DCISC Fact-finding Team responded to and observed DCPP personnel responding to a fire alarm in the Administration Building. The team and its escort, Mr. Hector Garcia, Chief Nuclear Officer Support Manager, proceeded to exit the Administration Building by walking
down six flights of stairs. The team then joined approximately 200 other individuals at the muster point to the southeast of the Administration Building and waited for further direction. After approximately 20 minutes, personnel were informed that there was no fire and were allowed to return to the Administration Building.

The team observed that the evacuation from and return to the Administration Building were conducted expeditiously and in an orderly fashion. In general, personnel were observed to be following plant safety guidelines for holding handrails during the long walks down and back up the stairwells. During its exit from its conference room, the team noted that the sound level of the fire alarm in the east end of the sixth floor was not as loud as other areas. Later, the team was provided with a copy of a Notification (SAPN 51003792) that was written by the Industrial Fire Officer (IFO) who, while checking the building clear, found that several people in the computer room on the sixth floor did not evacuate due to not having heard the alarm. The deficiency observed by the team and the IFO should be addressed for resolution by the Corrective Action Program.

Later, the team was provided with copies of two other Notifications (SAPNs 51003794 and 51003798) which documented the occurrence and cause of the fire alarm. The fire alarm was a false alarm caused by actuation of a smoke sensor in the general vicinity of building renovations that were occurring on the fifth floor. The subject sensor had been replaced two days prior and did not initially appear to have been actuated by construction activities in the area. Further investigations and corrective actions would be addressed by the Corrective Action Program.

Conclusions:

In response to a fire alarm, evacuation from and return to the Administration Building was conducted expeditiously and in an orderly fashion. The fire alarm was determined to be false, and corrective actions were being properly initiated through the Corrective Action Program.

Recommendations:

None

3.6 Safety Injection System Health

DCISC Fact-finding Team met with Sergio Santiago, Systems Engineering Supervisor, and Garrick Worrell, Safety Injection System Engineer, for an update on the health of the Safety Injection (SI) System. The DCISC last reviewed this topic during its March 2015 Fact-finding Meeting (Reference 6.4), when it concluded the following:

The Health of the Safety Injection Pumps is currently rated as “Green,”
Deviations from welding specifications on the part of some small bore pipe nipples in the vent and drain piping for three of the four Safety Injection Pumps do not appear to create a safety concern. Neither external flooding nor internal flooding appears to be an event that could prevent the Safety Injection Pumps from being able to perform their design function. The System Engineer demonstrated in-depth knowledge of the Safety Injection Pumps.

The SI System is part of the Emergency Core Cooling System that is designed to provide water initially from the Refueling Water Storage Tank (RWST) to cool the reactor core and provide negative reactivity in the event of an accident. Each Unit’s SI System consists of two 100% capacity trains that are interconnected and redundant such that either train is capable of supplying 100% of the flow required. Each SI System train contains an SI Pump along with associated suction, discharge, throttle valves, controls, and instrumentation. Four accumulator tanks and one RWST are also part of each unit’s SI System. The SI Pumps receive power from the 4160V Vital AC electrical systems and utilize control power from 125V Vital DC distribution panels. These power sources are supplied by the 230kV offsite power system and backed up by the Emergency Diesel Generators. The SI Pumps provide emergency cooling water flow to the RCS cold and hot legs, flow through test lines for check valve testing, and flow to fill the accumulators. The nominal shutoff pressure for the SI Pumps is 1,520 psig, and the maximum pump flow for the SI Pump is 675 gpm. SI Pumps are full-flow tested each refueling outage and tested quarterly at partial/recirculation flow.

Mr. Worrell reported that the health of the SI System was Green (Healthy), and there were no significant issues affecting system health. Only one lower-tier window of the health reports was yellow, Degraded/Non-conforming Conditions (non-Prompt Operability Assessment). The Yellow window was driven by an issue which affected only Unit 2 and was identified during a review of a 2009 Design Change that replaced air-operated valves in the SI System with pairs of manual globe valves. The change created sections of piping which might be subject to overpressure and damage if temperatures rose when the pipe sections were isolated and full of water (hydro-locked). The issue was being addressed by implementing procedure changes that required throttling of manual valves or draining of piping sections under certain conditions.

An issue discussed during the DCISC’s last review in 2015 concerned non-conforming welds on the vent and drain piping for each of Safety Injection Pumps 1-1, 1-2, and 2-1. More specifically, for each of those three pumps the welds in four small-bore pipe nipples have compositions that do not conform to the governing welding code. The welds of interest were performed during original installation prior to plant operation. In 2014, the station informed the NRC, and submitted a code relief request to the NRC for approval to leave the condition “as is” with an increased frequency of inspections for the welds. The NRC approved this request on July 15, 2015 (ADAMS Document Number ML15187A035). Mr.
Worrell provided copies of quarterly Surveillance Test Procedure P-SIP-11 to the Fact-finding Team, and the team verified that the procedure included steps requiring operators to check the subject welds free from leaks when the SI Pumps were operated during the test (as required by the approved relief request).

Conclusions:

DCPP’s Safety Injection System health was good with no major issues affecting system operation.

Recommendations:

None

3.7 Maintenance Department Performance

The DCISC Fact-finding Team met with Craig Murry, Director, Maintenance Services Department, and Jeff Bryant, Assistant Maintenance Director, to review the overall performance of the Maintenance Department. The DCISC last reviewed Maintenance Department Performance during its September 2017 Fact-finding Meeting (Reference 6.5), when the DCISC concluded the following:

DCPP has identified several low-level concerns with Maintenance Department Performance, and Maintenance Department leadership is taking action to address the issues. DCISC should review the performance of the Maintenance Department in late 2018 to evaluate the effectiveness of the actions to improve performance.

Mr. Bryant updated the Fact-finding Team on recent changes to the organization of the Maintenance Department. Earlier in 2018, oversight of the Maintenance Support Contractor was moved from the Strategic Projects Group and placed under the Maintenance Director. The organizational change was driven in part by the anticipated reduction in the number of major capital projects that would be expected as DCPP approached the end of its operating license. Additionally, the services of a new Maintenance Support Contractor were obtained, and the previous contractor was terminated. The transition to the new contractor appeared to be going well with many of the workers experienced at DCPP moving from the old contractor to the new contractor. Additionally, the Department was working to provide training for new, less experienced contractor personnel and to pair more experienced contractor personnel with them on work assignments.

The Fact-finding Team inquired regarding what were the current management focus areas for the Department. Mr. Bryant responded that there were several, including:

- Reducing the backlog of corrective maintenance items,
- Preparing for Refueling Outage 1R21 (planned to begin in February 2019),
Mr. Bryant explained that the effects of the reductions in the number of preventive maintenance activities under the Preventive Maintenance Optimization (PMO) Project were beginning to be seen in the Department in that resources were being freed up to focus on reducing the backlog of corrective maintenance work. DCPP’s goal was to move into the top quartile for the industry as measured by having a low number of Deferred Non-critical (DN) corrective maintenance items. Regarding outage preparations, the Department was using the Maintenance Support Contractor as much as possible to complete work that could be done before the start of the outage. Mr. Bryant also noted that a Priority Worklist was maintained by Operations and given high visibility via being published daily in the plant Plan of the Day. The Department had established a goal to reduce the number of Priority Worklist items to less than 40. He provided a copy of the current Priority Worklist tracking graph, and the team observed that the value for the current month was 53 and on a downward (good) trend, albeit slowly. Other current priorities for the Department included repairing roofs and doors, elevators, and exterior fire system panels. The Department was also working to prepare for the Unit 2 Generator Stator restacking during Refueling Outage 2R21 in autumn 2019. Mr. Bryant also informed the team that the stator restacking project was currently undergoing a risk-benefit analysis by an outside consultant.

Regarding issues raised by the Quality Assurance organization, Mr. Bryant stated that the Department was working to support the identification and removal of scaffolding that had been in place for longer than 90 days without a Licensing Basis Impact Evaluation, an issue first identified by NRC inspectors. Also, the Department continued to monitor the effectiveness of corrective actions taken in response to concerns with electrical safety practices identified in 2017. Currently, the actions appear to have been effective, but the Department planned to wait until the next Refueling Outage was completed before considering the issue closed. Lastly, the Department was working to improve overall human performance through initiatives to improve maintenance fundamentals and by using the “Plan, Prepare, Execute” model. It was believed that these efforts were being effective as there had been no Department-level human performance events since March 2018, which represented a significant improvement in the rate of event occurrences. The team was also provided a copy of the Maintenance Department Key Performance Indicators, and it was observed that the majority of the indicators (approximately 30 total) were green with no red indicators and only one yellow indicator.

The Fact-finding Team inquired regarding what was the current status with staffing and workforce planning in the Department. Mr. Murry reported that the current staffing was 306, which was down slightly from 318. The small difference represented the absorption of several retirements, departures for long-term disabilities, and unfilled vacancies. He stated that there were no plans to reduce
the workforce in 2019. However, it was currently forecasted that there would be a reduction of about 77 positions in 2020. The reduction would be representative of the reduced workload as the number of Preventive Maintenance tasks and capital projects naturally declined as DCPP approached the end of its operating license. He also noted that DCPP has not recently encountered any difficulties in recruiting and hiring new personnel when needed.

The team toured areas of the plant containing areas of active maintenance activity with Mr. Bryant. One of the areas reviewed was the Turbine Deck where a small, two-story office structure was undergoing renovations. The work area included scaffolding, safety rails and temporary stairs, along with temporary air conditioning units provided in support of a replacement of the HVAC unit on top of the office structure. The area was very neat and appeared to have all of the expected work controls in place. The team also toured the 1-2 Emergency Diesel Generator (EDG) area where a scheduled major maintenance outage was in progress. The EDG work area was very clean and well organized, and the team verified that written maintenance procedures were present and being used in the work area. Pictures of the two active work areas are shown below.

Turbine Deck Maintenance Work Area.
EDG Maintenance Work Area
Conclusions:

DCPP’s Maintenance Department appeared to be performing its responsibilities well with no major issues. Areas of management focus were appropriate, and corrective actions to improve human performance appear to be effective. Tours of active work areas found them to be well organized and having all of the expected work controls in place.

Recommendations:

None

3.8 Seismic Qualification of Switchgear Room Walls

During the plant tour (discussed in Section 3.7, above) with Jeff Bryant, Assistant Maintenance Director, the DCISC Fact-finding Team observed the configuration and condition of several seismically-qualified non-load-bearing masonry walls between various Electrical Switchgear Rooms in the Turbine Building for Unit 1. This review was prompted by discussions among the DCISC members during a presentation by PG&E at the DCISC’s June 2018 Public Meeting (Reference 6.6) on DCPP’s recently updated Seismic Probabilistic Risk Assessment (PRA).

One of the insights from the Seismic PRA presented at the June Public Meeting to the DCISC was the identification of structures and components with the highest relative contributions to risk from their seismic failure. In the Seismic PRA, component and structural importance was measured by comparing the relative contribution to risk from different component/structural seismic failure scenarios. Among several components listed as the most important to seismic risk, the non-load-bearing masonry walls in the EDG rooms, 4kV Switchgear rooms, and DC Bus rooms were found to have high contributions to risk because their failure in an earthquake could cause a loss of vital power.

The overall risk from earthquakes as analyzed in the recent Seismic PRA is as follows. The mean-value numerical result for seismic CDF (Core Damage Frequency) is 2.8 x 10^-5 per year. For seismic LERF (Large Early Release Frequency), the mean value is 5.4 x 10^-6 per year. These numbers are small, and the NRC has generally judged CDF and LERF numbers in this range to be acceptable. The statement that the non-load-bearing walls are relatively high contributors to the seismic risk needs to be understood in the context that these are significant fractional contributions to an overall small seismic risk.

The non-load-bearing walls referred to in the Seismic PRA are the same types of walls that were the subject of additional analysis during the late stages of DCPP’s
initial licensing in the 1980s. When the Hosgri fault was identified at that time as a potential additional source of seismic activity, additional seismic analysis found that non-load-bearing masonry walls in various plant locations could fail during a design-basis Hosgri-fault seismic event. To address this finding and reduce the likelihood of the failure of the walls, additional bracing was engineered and installed on numerous non-load-bearing masonry walls throughout various areas of the plant.

The Fact-finding Team toured various safety-related Electrical Switchgear Rooms in the Turbine Building for Unit 1 and observed the configuration and condition of the non-load-bearing masonry walls. The walls and their bracing were found to be well maintained and in good condition as shown in the pictures below.

Bracing for Emergency Switchgear Room Walls (view from outside a room)
Bracing for Emergency Switchgear Room Walls (view from inside a room)

Conclusions:
Non-load-bearing masonry walls in the Turbine Building were found to be well maintained and in good condition.

Recommendations:
None

3.9 Decommissioning Planning

The DCISC Fact-finding Team met with Eric Nelson, Director, Nuclear Decommissioning, for an update on Decommissioning Planning. Mr. Nelson updated the Fact-finding Team on current activities underway within the Decommissioning group. The DCISC last reviewed Decommissioning Planning during its March 2018 Fact-finding Meeting (Reference 6.7), when it concluded the following:

DCPP’s plan for decommissioning continues to be developed. Current activities include establishing the DCPP Decommissioning Engagement Panel, preparing a detailed cost estimate, and obtaining the necessary funds for decommissioning to a green field site.
The Fact-finding Team and Mr. Nelson discussed the status of funding for decommissioning activities. Mr. Nelson reported that detailed decommissioning cost estimating work was underway and planned to be completed by mid-December. The cost of preparing the estimate would be covered by the current Decommissioning Fund, and the estimate would be a part of an updated Nuclear Decommissioning Cost Triennial Proceeding (NDCTP) filing to the California Public Utilities Commission (PUC), which is due by the end of 2018. This would be the first “bottom up” or site-specific estimate for the decommissioning of DCPP as previous NDCTP filings used generic estimating techniques. This site-specific estimate would take into consideration items unique to DCPP such as moving security monitoring to the Independent Spent Fuel Storage Installation (ISFSI), building a facility for the onsite separation of radioactive and non-radioactive waste, dispositioning the intake breakwater, and processing siding containing asbestos on the Turbine Building. It was expected that the cost estimate would continue to be refined when NDCTP updates are filed in 2021 and 2024, when decommissioning-related contracts are refined and finalized.

One purpose of the upcoming filing would be to obtain PUC approval for the expenditures of additional funding than currently allowed prior to the cessation of operations in 2024. The additional funding was expected to be needed in part to cover the cost of the complex permitting activities that are required to be completed and approved prior to the start of decommissioning. Mr. Nelson believed that applying for and receiving the required approvals from the Coastal Commission and the State Lands Commission would be a challenging process. He provided a copy of an updated schedule which showed that planning for those permitting activities was scheduled to begin in 2020 and be completed by the end of 2023. In parallel activities, the submission of License Amendment Requests to the NRC was planned to begin in early 2019 with NRC approvals expected for DCPP by 2021 and for the ISFSI by 2024.

Regarding the possible use of piers and barges to transport waste, Mr. Nelson reported that such would be very challenging due in part to the requirement that there be workable plans in place to recover any and all material that might be lost in the water. The team also inquired regarding the current planned duration for removal of spent fuel from the pool and transferring it to dry storage at the ISFSI. Mr. Nelson reported that DCPP was planning to accelerate the period from ten to seven years and could do so under the current licenses for DCPP and the ISFSI. Shortening the period to less than seven years appeared to be infeasible as it would require large re-permitting efforts for both facilities, and any such re-permitting would be unlikely to be completed and approvals received in time for successful implementation.

Conclusions:

DCPP’s plan for decommissioning continues to be developed. Current activities are focused on preparing and filing an updated Nuclear
Decommissioning Cost Triennial Proceeding by the end of 2018, with a detailed site-specific cost estimate, as well as on obtaining the necessary funds that are needed in part to cover the cost of the complex permitting activities that are required before decommissioning can begin.

Recommendations:

None

3.10 Benchmarking Programs

The DCISC Fact-finding Team met with Mark Frauenheim, Performance Improvement Manager, to discuss Benchmarking Programs and Performance. The DCISC last reviewed Benchmarking Programs during its May 2015 Fact-finding Meeting (Reference 6.8), when the DCISC concluded the following:

*The Benchmarking Program appears to continue being an active and productive method for obtaining information supporting the achievement and maintenance of safe and reliable nuclear plant operation. It continues to provide for formal and informal examinations of a broad range of nuclear plant performance areas. The program again appears to warrant DCISC’s review no more frequently than biennially.*

Mr. Frauenheim provided the Fact-finding Team with a copy of Station Procedure OM15.ID4, “Self-Assessment and Benchmarking.” The procedure defined Benchmarking as, "A study to identify industry best practices in an external organization. Compares findings to DCPP programs in order to identify gaps and develop recommendations to improve DCPP programs, processes, or performance.” Benchmarking at DCPP is divided into two categories, Formal and Informal Benchmarking. Formal Benchmarking is a highly structured process that involves scheduling, planning, training, conducting a site visit by a DCPP team which results in formal reports submitted to the Corrective Action Review Board (CARB) for approval. (Previously, Formal Benchmarking reports were approved by the Self-assessment Review Board, but that board’s functions were transferred in the CARB two years ago in order to reduce the number of meetings that senior managers were required to attend.) Informal Benchmarking may consist of telephone interviews, surveys, resource sharing, attendance at industry meetings, querying site visitors, or internal benchmarking. Informal Benchmarking may also include a site visit or a trip to a vendor or another plant, but without the structure of a formal program. Station departments have the latitude to conduct Informal Benchmarking without needing to schedule them through the CARB.

Both types of Benchmarking are documented via the Notification (SAPN) system and corrective actions from either type are tracked in the Corrective Action Program until complete. Corrective Actions typically took one of three forms, 1) Deficiencies, which must be corrected, 2) Gaps, which are good ideas that may be
tracked for implementation at the discretion of the owner, and 3) Enhancements, which also may be tracked for implementation at the discretion of the owner but with less review for closure than Gaps.

Mr. Frauenheim reported that as of the date of the meeting, there were 6 Formal and 33 Informal Benchmarking activities completed in 2018, which compared to 2 and 37, respectively, for 2017. The quality of Formal Benchmarking reports (along with Formal Self-assessment Reports) was monitored in a status summary sheet that was reviewed weekly by the Station Leadership Team. The timeliness of completing Corrective Actions was monitored as a part of the Corrective Action Program indicators in the monthly Plant Performance Improvement Report.

As a part of DCPP’s routine correspondence, DCISC is provided with copies or summaries of various station reports and other documents, some of which report the Benchmarking activities that are conducted by DCPP. Examples of the topics of some of these Benchmarking reports that have been reviewed by DCISC during the past year are as follows:

1. Owners’ Group Procedures Sub-Committee Meeting
2. Cybersecurity
3. Security Target Sets
4. Station Rework
6. Protective Equipment Postings
7. Operations INPO Visit
8. NPO Senior Nuclear Plant Management Course
9. Low Level Waste Conference

Information in the reports reviewed by the DCISC Fact-finding Team appeared to be clear, focused, and expected to be useful to improve station performance.

Conclusions:

The Benchmarking Program continues to be an active and productive program for obtaining information useful to improve station performance.

Recommendations:

None

3.11 Preventive Maintenance Optimization Project
The DCISC Fact-finding Team met with Mike Brass, Construction Manager, to discuss DCPP’s Preventive Maintenance Optimization (PMO) Project. The DCISC last reviewed implementation of the PMO Project at its July 2018 Fact-finding Meeting (Reference 6.9), when the DCISC concluded the following:

\[
\text{The DCPP Preventive Maintenance Optimization Project appears to have been developed properly, and significant results have been achieved to date. The DCISC should hold a fact-finding meeting in the fourth quarter of 2018 to review the protection of critical components and to review examples of specific PMO changes of elimination, frequency, and scope.}
\]

The Fact-finding Team’s discussions in this meeting were focused on the item discussed above in the July 2018 meeting’s conclusion, specifically to review the process in more detail along with specific examples of PMO Project changes. Mr. Bass first provided an overview of the process stating that Round 1 of the PMO Project comprising reviews of all Maintenance Plans (MPs) for Preventive Maintenance (PM) was completed in August. The PMO Project team went line-by-line through the MPs and reviewed the history, basis, current frequency, and impact to maintenance for each MP. Approximately 4000 total changes to MPs were initiated through approximately 1000 Preventive Maintenance Change Requests (PMCRs). Recommended changes were divided into three categories:

- Category 1 – Change frequency
- Category 2 – Deactivate, or
- Category 3 – Change scope

MPs that were directly tied to the NRC’s Maintenance Rule or regulatory commitments were typically not reviewed, as it was generally considered that any possible efficiency gains would not be worth the sizeable effort that would be required to make any changes in those cases.

Mr. Brass provided a summary of the final results that were achieved by the PMO Project:

<table>
<thead>
<tr>
<th>Total applicable MPs</th>
<th>10,436</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total MPs Reviewed</td>
<td>10,436</td>
</tr>
<tr>
<td>Frequency Changed</td>
<td>2,853</td>
</tr>
<tr>
<td>Eliminated</td>
<td>1,454</td>
</tr>
<tr>
<td>Scope Changed</td>
<td>274</td>
</tr>
</tbody>
</table>

Mr. Bass provided a copy of the governing procedure, MA1.ID27, “Preventive Maintenance Program,” and explained that all of the changes coming from the PMO Project were being done in accordance with Section 5.12 of that procedure, titled, “PM Change Process”. When PMCRs were initiated by the Project, they were
documented as a Deferred, Non-critical (DN) class of task Notification in the SAP system. Once initiated, the review and approval of the PMCR Notification depended primarily on the classification of the original MP. In accordance with the administrative procedure, all original MPs were classified according to the following priorities:

- Priority 1 – Regulatory/Critical (such as equipment related to regulatory requirements, classified as safety-related, bounded by design calculations, or associated with outside agencies, such as the National Fire Protection Association),
- Priority 2 – Programmatic (such as non-critical equipment that supports operation of critical equipment), or
- Priority 3 – Economic (equipment not Priority 1 or 2 but providing cost benefit to the plant).

When the PMO Project team initiated a PMCR on a Priority 1 MP, the PMCR was referred to the Engineering Department for a detailed review. If the team initiated a PMCR on a Priority 2 or 3 MP, the PMCR was referred to the Maintenance organization for a less detailed review. The applicable reviewers would complete their review and either approve or disapprove the PMCR. At the time of the Fact-finding Meeting, all of the first reviews were complete and all but 149 of the PMCRs (15%) were approved during the first review. Those PMCRs that could not be approved on the first review were the subject of Round 2 of the PMCR Project. Round 2 consisted of a meeting of the full project review team, about 40 individuals, wherein they would together provide a further review for each of the PMCRs not approved in Round 1. The additional review would either provide new information/direction for processing the PMCR or would approve cancellation of the PMCR.

The Fact-finding Team reviewed this process against the governing procedure and found that it was consistent the procedural requirements. Meaning, the implementation of the PMO Project was being conducted in accordance with existing procedures for making changes to MPs. The Fact-finding Team also reviewed the procedure to ascertain that it contained appropriate guidance to ensure that adequate maintenance would continue to be performed on critical components. The team found that the procedure required that the PMCR consider and document why the change was technically acceptable, describe and consider the possible failure of the subject equipment, and check that no applicable regulatory requirements or design basis calculations would prohibit making the change. Additionally, for PM changes to critical equipment, a PM Change Risk Assessment was required in which the reviewer was required to consider and document both the probability and the consequence of failure for the subject equipment.

Lastly, Mr. Brass provided the Fact-finding Team
with copies of four completed PMCRs representing several of the categories. The PMCRs provided to the team were:

<table>
<thead>
<tr>
<th>Number</th>
<th>Category</th>
<th>Priority</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>50978307</td>
<td>1</td>
<td>1</td>
<td>Safety Injection Pump 1-1, Change Motor Inspection Frequency From Two to Four Years</td>
</tr>
<tr>
<td>50984632</td>
<td>1</td>
<td>2</td>
<td>Turbine Lube Oil Reservoir Level Switches (4), Change Calibration Frequency from Every Two Refueling Outages to Every Three Refueling Outages</td>
</tr>
<tr>
<td>50980731</td>
<td>2</td>
<td>2</td>
<td>Pressure Control Valves for 35% Steam Dumps (18), Deactivate MPs for Calibration</td>
</tr>
<tr>
<td>50980563</td>
<td>3</td>
<td>1</td>
<td>Safety Injection Valves 8821A/B (4), Change Scope of Lubrication MPs</td>
</tr>
</tbody>
</table>

The Fact-finding Team reviewed the above PMCRs and found them to be appropriately prepared. In particular, it was noted that the two Priority 1 PMCRs contained very detailed technical evaluations that included the equipment’s function, the MP’s full scope and history, applicable regulatory requirements, test data history, DCPP and industry operating experience, and the consequences of equipment failure.

Conclusions:

The DCPP Preventive Maintenance Optimization Project was being performed in accordance with appropriate administrative procedures that controlled changes to Preventive Maintenance Activities. Preventive Maintenance changes affecting critical components were being properly evaluated to ensure that the risk of failure of those components was not being adversely affected.

Recommendations:

None

3.12 Observation of Emergency Response Organization Muster Meeting

The DCISC Fact-finding Team met with Mike Ginn, Emergency Preparedness Manager, and observed an Emergency Response Organization (ERO) muster meeting. This was the first observation of this type of meeting by the DCISC.

The ERO is the group of employees which provides staff for emergency response facilities in the case of an emergency event. Although Emergency Planning overall is managed by a small group of full-time specialist staff members, the bulk of the ERO is comprised of DCPP employees who are trained and serve in assigned roles as a collateral duty to their regular duties. The ERO is broken into four assigned...
teams, Alpha, Bravo, Charlie and Delta, of approximately 70 individuals per team who serve “on call” for two weeks out of every eight weeks. Maintaining the proficiency of the ERO teams is an ongoing activity and is given high visibility at the station, including having qualification and training metrics included in the monthly Plant Performance Indicator Report. At the start of the two-week assignment cycle, the team participates in a one-hour training session, called an “ERO Muster Meeting.” The DCISC Fact-finding Team observed the ERO Muster Meeting for the Bravo Team as they were beginning their two-week assignment cycle on the date of the Fact-finding Team’s visit to DCPP.

The bulk of the hour-long ERO Muster Meeting was dedicated to ongoing training. The first 30 minutes consisted of a presentation primarily given by Andy Warwick, Emergency Planning Supervisor, whose brief to the Bravo Team included the following:

- Desired Outcome (of the meeting)
- ERO Standards
- Roll Call of Attendees
- Recent Operating Experience (External and Internal, including the initial results of the October Emergency Planning Exercise)
- Duty Impacts (equipment out of service, procedure changes, weather, holidays, etc.)
- Dynamic Learning Activity Setup

After the presentation, individuals assigned to specific facilities (Emergency Operations Facility, Technical Support Center, Operational Support Center, etc.) were broken out into smaller groups according to their assignments. A Dynamic Learning Activity was provided to each of the groups to review items such as activation procedures, event classification steps, and command and control processes. The Fact-finding Team observed that the training was effectively conducted and solicited productive interaction from the attendees.

Conclusions:

Training provided in an Emergency Response Organization Muster Meeting was effectively conducted and solicited productive interaction from the attendees.

Recommendations:

None

3.13 Emergency Planning

The DCISC Fact-finding Team met with Mike Ginn, Emergency Preparedness Manager, and Philippe Soenen, Decommissioning Manager of Environmental
Licensing, to discuss the team’s observations of DCPP’s October 24, 2018 Emergency Planning Exercise and review the results of the exercise. The DCISC last reviewed Emergency Planning at its January 2017 Fact-finding Meeting (Reference 6.10), when the DCISC concluded the following:

The November 2, 2016 Ingestion Pathway Emergency Exercise was successfully designed and implemented by DCPP, and all governmental participants such that public health and safety would be protected in the event of an actual event by DCPP, and according to the NRC and FEMA.

The prior to this Fact-finding Meeting on October 24, 2018, PG&E along with state and local authorities conducted an Emergency Planning Exercise which was evaluated by the NRC. The DCISC Fact-finding Team observed portions of the exercise, beginning its observations at 7:30 a.m. in the Control Room Simulator, which served as the Unit 1 Control Room for the exercise. The team then traveled to the Emergency Operations Center (EOF), arriving about 9:30 a.m. The EOF had already been activated within the prescribed time, as had the other emergency organizations. After observing activities in the EOF for more than an hour, the Team went to the nearby Joint Information Center (JIC), which had been activated along with the EOF, to observe activity there. Although the exercise lasted from about 8:00 a.m. to 2:00 p.m. with critiques following the exercise, the team’s observations ended at the JIC at about 11:30 a.m. so that the team could attend the DCISC’s Public Meeting later on the same day. The Fact-finding Team observed that the drill was being conducted in an orderly fashion and that the plant Emergency Plan was being properly implemented.

On November 8, Mr. Ginn presented DCPP’s evaluation of the results of the exercise to the Fact-finding Team. The overall objective of the exercise was met in that PG&E’s ERO personnel effectively coordinated and communicated with state and local agencies to support offsite response efforts. Additionally, ERO personnel were judged to have effectively implemented the DCPP Emergency Plan demonstrating key knowledge and skills along all major elements of the plan. Key overall indicators of exercise performance were as follows:

- Classification – 3 of 3 were timely and accurate,
- Notifications – 3 of 3 were timely and accurate, and
- Protective Actions Recommendations/Notifications: 2 of 2 were timely and accurate.

There were three significant weaknesses noted during the exercise:

- The Control Room and EOF failed to immediately notify the NRC regarding the event (personnel incorrectly understood the required timetable to be within one hour).
- Numerous issues associated with drill control, preparation and execution
Management of Operators in the field was inconsistent between the Control Room and the Operations Support Center. The differences in briefs, dispatch forms, Potassium Iodide use, and team tracking were judged to have the potential to impact worker protection.

Mr. Ginn also provided a copy of DCPP’s Final Evaluated Exercise Report following the meeting. The Fact-finding Team reviewed the report and found that the above three weaknesses represented the only three objectives of the exercise that were evaluated as unsatisfactory. There were approximately 170 total objectives for the exercise, and the remainder of the exercise objectives were evaluated as having been satisfactorily achieved. There were approximately 40 areas for improvement noted during the exercise, and those items were entered as Notifications into the Corrective Action Program.

Mr. Soenen provided the Fact-finding Team with a brief overview of the future of DCPP’s Emergency Planning efforts in light of the plan for DCPP to cease operations at the end of its current license in 2025. In general, Emergency Planning would remain unchanged until at least 18 months after the cessation of operations (2027). That timeframe was driven by the time needed for used fuel in the Spent Fuel Pool to decay radioactively to the point where a zirconium fire was no longer possible. After that point, it was anticipated that license amendments would be approved allowing the breadth of the Emergency Plan to be reduced and the required response times of the plan to be increased commensurate with the reduced risk of a large-scale release of radioactivity. Given that timetable, DCPP was expecting to continue to conduct biennial Emergency Exercises through 2026. Staffing of the ERO would need to continue to be closely managed to ensure that sufficient qualified personnel remained available and ready to respond through and beyond the cessation of operations. Separately, under the Joint Proposal and subsequent orders of the PUC, there were requirements for the maintenance and ultimate transfer of most of the current offsite emergency response facilities, including the siren warning system, to San Luis Obispo County. Discussions had not yet progressed to the point of determining exactly when or how that transfer would occur.

Conclusions:

The October 24, 2018, Emergency Planning Exercise was successfully designed and implemented by DCPP, and it demonstrated that DCPP’s staff could effectively implement the plant’s Emergency Plan.

Recommendations:

None

4.0 Conclusions
4.1
The meeting with NRC Resident Inspector was beneficial, and the DCISC should continue the meetings.

4.2
The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

4.3
Corrective actions for Areas for Improvement (AFIs) identified during the Institute of Nuclear Power Operations (INPO) biennial August 2017 evaluation of DCPP appeared to have been appropriately initiated with the majority being complete as of the time of the meeting. (Because of its privacy agreement with DCPP, the DCISC cannot share the details of the evaluation or subsequent corrective actions.)

4.4
DCPP’s Reactor Coolant Pumps (RCPs) continue to perform well and without significant problems. Recent replacements of RCP seals with seals designed to have lower leakage in abnormal situations are complete, and no new seal performance problems have been identified.

4.5
In response to a fire alarm, evacuation from and return to the Administration Building was conducted expeditiously and in an orderly fashion. The fire alarm was determined to be false, and corrective actions were being properly initiated through the Corrective Action Program.

4.6
DCPP’s Safety Injection System health was good with no major issues affecting system operation.

4.7
DCPP’s Maintenance Department appeared to be performing its responsibilities well with no major issues. Areas of management focus were appropriate, and corrective actions to improve human performance appear to be effective. Tours of active work areas found them to be well organized and having all of the expected work controls in place.

4.8
Non-load-bearing masonry walls in the Turbine Building were found to be well maintained and in good condition.
4.9
DCPP’s plan for decommissioning continues to be developed. Current activities are focused on preparing and filing an updated Nuclear Decommissioning Cost Triennial Proceeding by the end of calendar 2018, with a detailed site-specific cost estimate, as well as on obtaining the necessary funds that are needed in part to cover the cost of the complex permitting activities that are required before decommissioning can begin.

4.10
The Benchmarking Program continues to be an active and productive program for obtaining information useful to improve station performance.

4.11
The DCPP Preventive Maintenance Optimization Project was being performed in accordance with appropriate administrative procedures that controlled changes to Preventive Maintenance Activities. Preventive Maintenance changes affecting critical components were being properly evaluated to ensure that the risk of failure of those components was not being adversely affected.

4.12
Training provided in an Emergency Response Organization Muster Meeting was effectively conducted and solicited productive interaction from the attendees.

4.13
The October 24, 2018, Emergency Planning Exercise was successfully designed and implemented by DCPP, and it demonstrated that DCPP’s staff could effectively implement the plant’s Emergency Plan.

5.0 Recommendations:
None

6.0 References

6.1

6.2
“Diablo Canyon Independent Safety Committee Twenty-Ninth Annual Report

6.3


6.4

Ibid., Exhibit D.7, Section 3.6, “Safety Injection Pumps.”

6.5


6.6

Ibid., Exhibit B.12, Section XVII, “Seismic Probabilistic Risk Assessment Project Results including an Update on the Status of PG&E’s Review of the Tsunami Hazard and Risk at DCPP and its Environs.”

6.7

Ibid., Exhibit D.8, Section 3.7, “Decommissioning Planning.”

6.8


6.9


6.10

1.0 Summary

The results of the December 4-5, 2018 fact-finding trip to the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA are presented. The subjects addressed and summarized in Section 3 are as follows:

1. Transporting High-Level Spent Fuel
2. QA Corrective Actions
3. Operations Performance Indicators
4. Engineering Excellence Plan
5. Delivering the Nuclear Promise
6. Spent Fuel Pool Bridge Crane
7. Meet with NRC Senior Resident Inspector
8. Meet with Senior Director Jan Nimick
9. Component Health Monitoring for Preventive Maintenance Optimization
10. Refueling Outage 1R21 Plans
11. Decommissioning Waste Disposal

2.0 Introduction

This fact-finding trip to the DCPP was made to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if Pacific Gas and Electric’s (PG&E’s) performance is appropriate and whether any areas revealed observations, which are important enough to warrant further review, follow-up, or presentation at a public meeting. These safety matters include follow-up and/or continuing review efforts by the Committee, as well as those identified as a result of reviews of various safety-related documents.

Section 4-Conclusions highlights the conclusions of the fact-finding team based on
items reported in Section 3-Discussion. These highlights also include the team’s suggested follow-up items for the DCISC, such as scheduling future fact-finding meetings on the topic, presentations at future public meetings, and requests for future updates or information from DCPP on specific areas of interest, etc.

Section 5-Recommendations presents specific recommendations to PG&E proposed by the fact-finding team. These recommendations will be considered by the DCISC. After review and approval by the DCISC, the fact-finding report, including its recommendations, will be provided to PG&E. The fact-finding report will also appear in the DCISC Annual Report.

3.0 Discussion

3.1 Transporting High Level Spent Fuel

The DCISC Fact-finding Team met with Mark Mayer, Nuclear Fuels Procurement and Storage Manager, and Rich Hagler, Used Fuel Storage Supervisor, to discuss DCPP’s plans and expectation for the eventual transportation of its spent nuclear fuel. This is the first DCISC review of this subject.

DCPP currently stores its spent fuel in NRC-licensed Holtec MPC-32, 32-assembly canisters, enclosed in Holtec HI-STORM overpacks at its Independent Spent Fuel Storage Installation (ISFSI) on the plant site. The HI-STORM overpacks are not licensed for transportation, just on-site storage. DCPP is currently moving spent fuel from its Spent Fuel Pools and will eventually move all of its spent fuel from the Spent Fuel Pool up to the ISFSI. This will be completed within 7-to-10 years following plant shutdown in 2025.

Transfer of the MPC-32 canisters from the HI-STORM storage overpacks to the HI-STAR 100 transportation overpacks would take place in the DCPP ISFSI Cask Transfer Facility, which is currently the normal process for transferring the MPC-32 canister from the Spent Fuel Pool to the HI-STORM overpack. DCPP’s MPC-32 canister hardware is now included in the Holtec HI-STAR 100 transportation certificate.

If and when a licensed disposal repository or consolidated interim storage facility is available, the U.S. Department of Energy (DOE) will take ownership of the DCPP spent fuel and be responsible to utilize NRC-licensed transportation overpacks, probably Holtec HI-STAR 100 containers, to send its spent fuel to the NRC-licensed DOE facility. DOE would likely transport the casks by either (1) highway heavy-haul to the nearest rail spur in Pismo Beach or (2) ocean-going barge to an intermodal port served by rail, where they would be put onto rail cars for the trip to the disposal facility. Each of these modes has been used to bring in large components to DCPP.

High burnup fuel (>45 Megawatt Days per Metric Ton) will require additional
analysis and testing to assure its acceptability for storage and transport. Early indications appear favorable for acceptability.

Conclusions:

DCPP appears to be planning for storing its spent nuclear fuel in an acceptable and responsible manner in its Spent Fuel Pool and Independent Spent Fuel Storage Installation, while it awaits the Department of Energy opening of a disposal facility.

Recommendations:

None

3.2 Quality Assurance Assessment Action Items

The DCISC Fact-finding Team met with Ray Robins, Quality Assurance (QA) Audit and Assessment Manager; Colt Wells, QA Auditor; and Brian Sizemore, QA Auditor, to follow up on action items from QA's prior assessment of Outage 2R20 issues. The DCISC last reviewed this subject in July 2018 (Reference 6.1), when it concluded the following:

DCPP Quality Verification completed an audit of Operations and Technical Specifications in June 2018. The audit concluded that the audited programs were effectively implemented; however, it identified 17 deficiencies. The DCISC should follow up on the corrective actions for these deficiencies in early 2019.

For corrective actions Operations performed procedure changes and focused observations and provided mentors to operators to improve the performance shortfalls identified by QA. This was documented in Notification 50976291, “QARMA: Ops Status Control.” These actions were determined acceptable by QA and appeared reasonable to the DCISC Fact-finding Team (FFT).

One item, responsibility for Confined Space procedure violations by contractors, was transferred from Safety to Radiation Protection. Actions were taken to resolve repeat problems, and QA will assess it again during Outages 1R21 and 2R21.

Conclusions:

DCPP corrective actions of operations problems and confined space procedural violations during Outage 2R20 appeared satisfactory to the DCISC. The DCISC should review the QA follow-up assessments to be performed during Outages 1R21 and 2R21.

Recommendations:

None
3.3 Operations Performance Indicators

The DCISC Fact-finding Team met with Dan Stermer, Operations Performance Shift Manager and Corrective Action Program Supervisor, to review Operations Performance Indicators. The DCISC last reviewed this subject in December 2017 (Reference 6.2), concluding the following:

External organizations have noted areas for improvement in the Operations Department, and DCPP has moved to implement appropriate corrective actions and include those actions in the Department Excellence Plan. The DCISC should reexamine performance in these areas in approximately one year. DCPP had not been requested by the California Independent System Operator to implement any procedures for load following.

The DCISC FFT reviewed the following Operational Focus Area Performance Indicators:

- Operational Focus
- Operational Transient Events
- Scram with Complications
- Power Change 7000 hours
- Operational Decision-Making Events
- Reactivity and Fuel Handling Events
- Operations Personnel-Related Events
- Safety System Unplanned Unavailability Index
- Limited Condition of Operation Entries
- Clearance and Tagging Events
- Hours Critical Breaker Open
- Component Mispositioning Events
- Operator Workarounds
- Control Room Deficiencies
- Unplanned Shutdown Limited Conditions of Operations
- Outage Risk Level Changes
- Senior Reactor Operator and Reactor Operator Class Completions
- Reactor Operator Program Completion
- Percent Total Reactor Coolant System Leakage
- Percent Technical Specification Unidentified Leakage
Each of the above indicators was Green, except two following Yellow ones:

1. High Pressure Injection System Availability - this is Yellow due to a valve interlock problem and to a pump anti-rotation pin failure. Modifications to resolve these issues are to be completed in 2019 with Outage 1R21 completion. This 36-month indicator should return to Green in 36 months, assuming no further issues.

2. Hours Critical Breaker Open – this is Yellow due to units being critical more hours than planned before generator breakers were closed. The delays were caused by the need to repair selected components before generator breakers were closed. DCPP expected to return to Green by the end of 2018.

One major individual Operations performance indicator is that for Reactivity Management. Reactivity is a measure of how the nuclear fission process is behaving as being controlled by Operations. This monthly indicator is a measure of the significance of events affecting reactivity. Unit 1 score is 99.3/100, and Unit 2 score is 98.0/100, both well into the Green range (>95.0/100). This performance is good.

Another major individual Operations performance indicator is that for Protective Tagging. This is a measure of how well Operations controls equipment clearance tags, which provide protection for personnel working on plant systems and components which are normally electrically live or those containing hot, high pressure water or steam. The current measure was 100/100, excellent performance.

The overall performance of the above indicators was Green – good, which puts DCPP in the top quartile of the nuclear industry. This is good performance.

Conclusions:

DCPP Operations Performance Indicators overall were Green indicating good performance. Two indicators were Yellow (needing improvement) for High Pressure Injection System Availability and for Hours Critical Breaker Open. Both of these were being resolved with a return to Green expected for the former in 2019 and the latter in 2018.

Recommendations:

None

3.4 Engineering Excellence PlanM

The DCISC FFT met with Pat Nugent, Director of Engineering Services, for an
update on the Engineering Excellence Plan. The DCISC last reviewed this subject in August 2017 (Reference 6.3), concluding the following:

*The DCPP Engineering Excellence Plan appears appropriate for achieving and maintaining excellence in engineering support to the plant.*

The purpose and vision of this Plan are to: “Provide outstanding operational focus to DCPP to ensure safe, reliable, and affordable operation by acting as the organization’s technical conscience for the design and licensing basis compliance and excellence in equipment reliability for the long term.”

The 2018 attributes of the Engineering Excellence Plan are as follows:

- Ensure nuclear safety by continuing to advocate as the DCPP Technical Conscience (defined below):
  - Implement revisions of industry technical conscience guidelines
  - Perform technical conscience self-assessment (see below)
  - Develop communication plan and implement in advance of Outage 1R21 to reinforce technical conscience
- Support successful execution of the Preventive Maintenance Optimization (PMO) Project
  - Develop project charter
  - Review PMO process with engineering staff
  - Perform PMO reviews (see Section 3.9, Health Monitoring)
- Improve Security Equipment Reliability
  - Integrate Security equipment into existing equipment reliability processes
- Improve behaviors and adherence to written standards by leaders and engineers through effective leadership observations and review meetings.
  - Share observations regarding procedure use and adherence at Observation Review Meetings
  - Review procedure use and adherence trends at Integrated Performance Meetings
  - Include procedure use and adherence components in pre-1R21 dynamic learning activities
- Execute a plan for expansion of qualifications among engineers including rotations
  - Develop a qualification matrix to determine current qualifications in Engineering and number of qualified individuals
  - Target engineers to complete qualifications and schedule for completion
Improve monthly forecasting process to provide more accurate and predictable results that are representative of current situation and that can be used for quarterly and year end projections

- Institute joint project status review with all Project Managers
- Review project forecast for upcoming months for all projects jointly with key support organizations to obtain realistic picture of resource support
- Determine 2020 organizational structure and transition plan and implement first step by August 2018.
  - Develop transitional organization for 2018 and expected organization for 2020 based on guidance from EB (Efficiency Bulletin) 17-28. This will mean a larger Fix It Now (FIN) Team and movement of engineers from system engineering to component engineering.
  - Implement new organization by August 2018

Engineering had made good progress on these items and had initiated a formal assessment of its “technical conscience,” which is described below.

The nuclear industry, via the Nuclear Energy Institute, implemented a “technical conscience” philosophy in response to recent engineering and technical errors which were contributing to consequential events throughout the industry. Some caused early shutdowns of three nuclear units. **Technical conscience is the personal obligation leaders and individuals internalize and exercise to ensure plant operation, maintenance, and engineering activities are conducted in a manner that upholds plant design requirements and preserves operating, design and safety margins.**

The overall objective of the self-assessment was to determine to what degree DCPP has a healthy technical conscience. The assessment was conducted in August 2018, and the report submitted in December 2018. The assessment was conducted in accordance with DCPP’s procedures and industry guidance. The team members were selected based on experience in the specific areas to be assessed, also including skills in interviewing, observing, and writing observations. The team spent time prior to the actual assessment developing its plan, reviewing pertinent documents, and compiling related data. The team consisted of seven DCPP personnel and two peer evaluators from other plants. The team conducted a Technical Conscience Survey prior to the assessment targeting engineers, engineering supervisors and managers, and station senior leaders.

Overall, the Team concluded that DCPP exhibited a healthy technical conscience demonstrated by the assessment not identifying any deficiencies, and that the identified gaps did not represent significant deviations from the industry Technical Conscience principles. There were five gaps and four enhancements identified, resulting in eight recommendations. These eight recommendations were as
follows:

1. Provide training to plant personnel outside engineering and recently hired engineers on the expectations and importance of technical conscience principles.

2. Develop a process or method to ensure the implementation of recommended actions credited in technical evaluations.

3. Revise the Engineering Programs Procedure to align procedural guidance on the roles and responsibilities for engineering program owners with the implementation of related industry efficiency bulletins.

4. Revise the Outage and Planning Procedure to add a requirement to document the technical conscience basis for outage scope decisions.

5. Reinforce the expectation on the level of rigor that should be applied to the management of plant issues and emerging issues.

6. Establish a standard for documenting the level of augmented review and approval being applied in technical evaluations.

7. Provide training to personnel in Operations on the role of engineering in the technical evaluation process in procedures, on Technical Evaluations, and on Technical Task Error Prevention.

8. Revise the procedure on Operational Decision Making (ODM) to remove the low level ODM process, which is no longer used.

In the September 5-6, 2018 Fact-finding Meeting (Reference 6.4) the DCISC heard from the DCPP Vibration Monitoring group about a shortage of experienced personnel to carry on the Vibration Monitoring Program. This was due to a July 2018 Engineering Department organizational change. Upon further review with Mr. Nugent it was learned that adequate personnel resources were in place for vibration monitoring.

Conclusions:

The DCISC Fact-finding Team concluded that the DCPP Engineering Excellence Plan was satisfactory. It included “technical conscience,” for which a formal self-assessment was comprehensive and appropriately intrusive based on the discussion with Mr. Nugent and on review of the self-assessment report. The report concluded overall that DCPP exhibited a healthy technical conscience with no deficiencies and some identified gaps and suggested enhancements. The assessment report recommendations appeared appropriate to the DCISC Fact-finding Team.

Recommendations:

None
3.5 Meet with the NRC Senior Resident Inspector

The DCISC Fact-finding team met with Chris Newport, NRC Senior Resident Inspector, to discuss items of mutual interest. The DCISC last met with Mr. Newport in November 2018 (Reference 6.4), concluding the following:

_The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings._

In this meeting the participants discussed the Unit 2 reactor trip, which had occurred December 1. The trip was caused by a transmission line disturbance, which triggered a plant protective device in the 500 kV switchyard to automatically shut down the reactor. Unit 1 was operating at 50% power due to intake tunnel cleaning. The plant systems and operators responded appropriately to the Unit 2 trip, and there were no complications. DCPP will perform a full root cause evaluation of the trip and the plant’s response. Mr. Newport came in to the Unit 2 Control Room during the night to review the trip and responses and reported that he had no significant concerns.

Conclusions:

_The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings. Unit 2 had tripped just prior to this fact-finding meeting from full power due to a transmission line disturbance. The plant systems and personnel responded appropriately. The DCISC should follow up on the cause and corrective actions for this plant trip._

Recommendations:

None

3.6 Delivering the Nuclear Promise

The DCISC FFT met with Ken Johnston, Chief, Nuclear Relations, for an update on DCPP’s progress in implementing the industry initiative, Delivering the Nuclear Promise. This is the first DCISC review of this subject.

Delivering the Nuclear Promise (DNP) is an industry initiative (sponsored by the Nuclear Energy Institute) in which companies that operate America’s nuclear energy facilities have partnered on in a multiyear strategy to transform the industry and sustain its viability for consumers while protecting the environment.

This strategic plan, called Delivering the Nuclear Promise®, strengthens the industry’s commitment to excellence in safety and reliability, assures future viability through efficiency improvements, and drives regulatory and market
changes so that nuclear energy facilities are fully recognized for their value. In 2018 the initiative focused on implementing the most significant savings opportunities in the most efficient manner possible. Subsequent bulletins addressed ways to increase efficiency at plant sites. Industry working groups have identified improvement opportunities, and bulletins detailing each will be released as they become available.

There have been 67 DNP bulletins issued to date. The bulletins are prioritized and fall into the following general categories:

- Reduced training requirements
- Reduced administrative burden in programs and procedures
- Simplifying work processes
- Eliminating selected programs
- Standardizing selected programs and processes
- Preventive maintenance reduction/elimination
- Protective strategy modifications
- System and program health reporting efficiencies
- Transforming the organization

DCPP has completed their response to 39 bulletins, expects to complete 17 more by the end of 2018, four in 2019, decided five are not cost effective, and the remaining two have been withdrawn.

The major reason for implementing DNP is cost savings, and this has been documented by both the industry and DCPP; however, the DCISC’s interest is whether nuclear safety is affected by implementation of the efficiency bulletins. In reviewing the overall DCPP DNP implementation the DCISC did not see any significant safety concerns; however, it is recommended that the DCISC take an in-depth look at selected bulletins in future fact-finding meetings.

Conclusions:
The DCISC Fact-finding Team did not have any safety concerns in reviewing DCPP’s overall implementation of the industry Delivering the Nuclear Promise efficiency bulletins; however, the DCISC should look in-depth at selected bulletins at future fact-finding meetings.

Recommendations:
None

3.7 Spent Fuel Pool Bridge Crane
The DCISC Fact-finding team met with Garrick Worrell, Spent Fuel Pool System Engineer, and Mike Brink, Electrical Maintenance Supervisor, for an update on the DCPP Spent Fuel Pool Bridge Crane. The DCISC last reviewed this item at the October 2017 DCISC Public Meeting (Reference 6.5).

The Spent Fuel Pool Bridge Crane, original to the plant, has been the source of delays during fuel loading for the past several outages. DCPP decided to upgrade both units’ cranes with up-to-date electrical and control systems. Unit 2 was completed prior to outage 2R20 and worked well during that outage. Unit 1 will be upgraded prior to outage 1R21 (2/10/19 – 3/15/19). The DCISC FFT reviewed the bridge crane design with the system engineer and reviewed the electrical and control upgrade designs, which included new electric motors. At the same time improved seismic restraints were added due to wear noticed on the original ones. The new controls are digital-based for more flexibility and reliability.

The DCISC FFT joined Messrs. Worrell and Brink on a tour of the Unit 1 bridge crane upgrades and general Spent Fuel Pool area. See the photos below. The Unit 1 crane upgrades had been completed in readiness for Outage 1R21, which would begin in February 2019. The FFT also viewed the new Spent Fuel Pool level instrumentation, which had been added as part of the Post-Fukushima FLEX modifications. All appeared satisfactory, and the pool areas appeared clean and orderly.
Conclusions:

The DCPP Spent Fuel Pool Bridge Crane electrical and control upgrades had been installed and tested on Units 1 and 2. The Unit 2 crane performed satisfactorily during Refueling Outage 2R20, and DCPP expected the Unit 1 crane to do so in Refueling Outage 1R21 beginning in February 2019. The upgrades and system engineer knowledge appeared satisfactory to the DCISC Fact-finding Team.

Recommendations:

None

3.8 Meet with DCPP Senior Director, Nuclear Services

The DCISC Fact-finding Team met with Jan Nimick, Senior Director Nuclear Services to discuss items from this fact-finding meeting and other items of mutual interest. The DCISC last met with DCPP management in November 2018 (Reference 6.6), concluding the following:

The regular meetings between DCISC Members and DCPP Officers and
Directors continue to be beneficial for both organizations.

The group discussed the following items:

- DCPP Cyber Security status
- Unit 2 reactor trip on December 1, 2018 – a root cause evaluation is being initiated. DCPP is performing a risk assessment of transmission line events for impact on Unit 1 operation for the remaining 73 days until Outage 1R21.
- Vibration Monitoring group resources are considered adequate now
- Operations readiness for FLEX
- Items from the fact-finding agenda

Conclusions:

The regular meetings between DCPP management and the DCISC Fact-finding Teams appear to be beneficial for all.

Recommendations:

None

3.9 Post Preventive Maintenance Optimization Health Monitoring

The DCISC FFT met with Sergio Santiago, Mechanical Systems Supervisor, and Jeremy Cobbs, Mechanical Systems Manager, to discuss DCPP systems health monitoring following changes being made to preventive maintenance as part of the Preventive Maintenance Optimization (PMO) Program. The DCISC last reviewed PMO in November 2018 (Reference 6.7), concluding the following:

The DCPP Preventive Maintenance Optimization Project was being performed in accordance with appropriate administrative procedures that controlled changes to Preventive Maintenance Activities. Preventive Maintenance changes affecting critical components were being properly evaluated to ensure that the risk of failure of those components was not being adversely affected.

The purpose of this December 2018 Fact-finding meeting was to review DCPP’s system/component health monitoring following changes in PM in the PMO Program.

The [November 2018] Fact-finding Team reviewed this process against the governing procedure and found that it was consistent the procedural requirements. Meaning, the implementation of the PMO Project was being conducted in accordance with existing procedures for making changes to [Maintenance Plan]s (MPs). The Fact-finding Team also reviewed the procedure to ascertain that it contained appropriate guidance to ensure that adequate maintenance would continue to be
performed on critical components. The team found that the procedure required that the PMCR consider and document why the change was technically acceptable, describe and consider the possible failure of the subject equipment, and check that no applicable regulatory requirements or design basis calculations would prohibit making the change. Additionally, for PM changes to critical equipment, a PM Change Risk Assessment was required in which the reviewer was required to consider and document both the probability and the consequence of failure for the subject equipment.

<table>
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<td>Safety Injection Pump 1-1, Change Motor Inspection Frequency From Two to Four Years</td>
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<td>3</td>
<td>1</td>
<td>Safety Injection Valves 8821A/B 4), Change Scope of Lubrication MPs</td>
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The Fact-finding Team reviewed the above PMCRs and found them to be appropriately prepared. In particular, it was noted that the two Priority 1 PMCRs contained very detailed technical evaluations that included the equipment’s function, the MP’s full scope and history, applicable regulatory requirements, test data history, DCPP and industry operating experience, and the consequences of equipment failure.

The November 2018 DCISC FFT concluded that the PMO reviews satisfactorily evaluated the consequences of equipment failure, a potential result of changes to equipment PMs. Additionally, this December 2018 FFT looked further into post-PMO performance monitoring, which tracks and trends equipment performance to assure for the long term any possible negative effects of the PM change.

System Engineers (SEs), as per their governing procedure TS5.ID1, “System Engineering Program,” are responsible for performance monitoring and trending. This utilizes a graded approach based on system significance to safety and reliability. The SEs develop a performance monitoring strategy and agreement to include the following:

- The scope and frequency for monitoring
- Normal operating bands for critical system parameters
- Trend frequency
- Alarm and alert limits for identification and notification before the normal band is exceeded
- How trending will be performed
- Responsible group for trending and monitoring

The SE uses the following sources to monitor performance:

- Plant computer systems
- Operator logs and rounds information
- Periodic engineering walkdowns
- Predictive maintenance activity results
- Surveillance and other performance test results
- Equipment failure records and orders
- Plant diagnostic systems (computer-based trending analysis with auto-analysis and alarms)
- Unplanned LOC entries and accrued time
- Unplanned safety system unavailability
- System walkdown results and material condition
- Non-outage corrective maintenance work requests for critical components
- Overdue and late critical preventive maintenance tasks
- Operator workarounds and burdens
- System functional failures
- Repetitive equipment or system performance issues
- Predictive maintenance
- Open operability evaluations
- Open operational decision making
- Existing degraded or nonconforming conditions
- Open temporary configuration changes
- Open Part 21 issues
- Availability of critical spares
- Ability of budget to support strategies
- Equipment reliability clock resets
- Maintenance Rule status and margin
Vendor/OEM recommendations/guidance

The DCISC FFT received and reviewed performance monitoring agreements for the following two safety-related systems: Steam-driven Auxiliary Feedwater System and Residual Heat Removal System. These agreements identified the following degradation mechanisms for which there were degradation indicators, parameters to trend, expected value or range, action value, tool or method, and trend frequency.

For the Auxiliary Feedwater System the following examples of degradation indicators were specified for the pump and various valves:

- Abnormal bearing wear, damaged or misaligned components, control system failure
- Pump impeller erosion and bearing usage wear
- Thermal degradation of motor
- Pump impeller erosion and bearing wear
- Thermal degradation of valve motor, stem binding
- Abnormal wear, binding, aging, corrosion, inadequate lubrication, faulty electrical connections
- Packing failure, loss of bolt preload, gasket failure, corrosion, and fracture
- Setpoint drift
- Abnormal chemistry sample results

These indicators and their sources appeared satisfactory to the DCISC FFT.

Conclusions:

It appeared to the DCISC Fact-finding Team that DCPP’s preventive maintenance change review process and periodic monitoring process were satisfactory methods to prevent and/or identify negative safety effects of its Preventive Maintenance Optimization Program.

Recommendations:

None

3.10 Outage 1R21

The DCISC FFT met with Matt Coward, DCPP Outage Manager, to review the upcoming 1R21 Refueling Outage. The DCISC last reviewed refueling outages in April 2018 (Reference 6.8), when it concluded the following:

The DCISC Fact-finding Team concluded that DCPP performance in
Refueling Outage 2R20 was excellent as it met or exceeded all goals.

Outage 1R21 will begin on February 10, 2019 and conclude on March 15, 2019. Outage 1R21 is similar in scope and duration to Outage 2R20, which concluded March 22, 2018. All outage goals were met in 2R20. Major scope items for 1R21 are the following:

- Integrated Containment Leak Rate Test – at the beginning of the outage, which saves a day
- Residual Heat Removal weld overlay
- Emergency Core Cooling System interlock modification
- Reactor coolant pump 1-1 motor overhaul
- Reactor coolant pump vibration monitoring upgrade
- 480V switchgear ventilation seismic gap modification
- 480V vital bus G breaker replacements
- Plant recorder replacements
- Low Pressure Turbine “C” rotor inspection
- Feedwater pump 1-2 turbine overhaul
- Feedwater pump 1-1 Pump Bearing replacement
- Service Cooling Water inlet piping lining
- Turbine Building deluge system upgrade
- Three intake traveling screens
- 235 ERC 1 preventive maintenance activities
- 305 ERC 2A/B preventive maintenance activities

Conclusions:

DCPP’s Refueling Outage 1R21 will be similar to the successful Unit 2 Outage 2R20. DCPP’s planning and scope control appear satisfactory.

3.11 Decommissioning Waste Disposal

The DCISC Fact-finding Team met with Tom Jones and Rich Harvey of the Strategic Planning Group and Sean Plickinger, DCPP Lead for Waste and Transport Activities, for a look into the plans for eventual disposal of DCPP decommissioning wastes. This is the first DCISC review of DCPP decommissioning waste.

The DCPP personnel participating in this fact-finding discussion item are responsible for the disposition of decommissioning waste. There will be a number of types of decommissioning wastes from DCPP, some radioactive. Clean general debris that is not suitable for reuse or recycling (e.g., drywall, ceiling tile, and
wood) will be shipped to a landfill in Arizona via rail. DCPP estimates approximately 108,000 tons of clean, non-reusable waste to be shipped offsite versus approximately 500,000 tons of reusable/recyclable material. In addition, there are over 686,000 tons of breakwater material, which will likely stay in place for reuse.

Regarding radioactive waste, California Governor Executive Order D-62-02 effectively prohibits radioactive waste from being disposed in the State. Spent fuel will have to remain in the Independent Spent Fuel Storage Installation (ISFSI) until the U.S. Department of Energy (DOE) has a disposal repository or consolidated interim storage ready. Once that happens, DCPP will transfer its Holtec MPC canisters into Holtec HI-STAR transport casks for DOE to likely transport by heavy haul trucks to rail lines near Pismo Beach and then to the repository.

Other radioactive wastes will be sent to other disposal facilities, depending on their levels of radioactivity. For example, high-level (Class C) radioactive waste such as the Reactor Vessels and Steam Generators will be segmented (cut into pieces), likely trucked to Pismo Beach to a rail line, and then shipped via a dedicated train to a repository in Clive, Utah. Less radioactive wastes (Class B) will be trucked to a repository in Texas. Additionally, Holtec plans to have a facility in Utah for various class wastes.

DCPP has identified disposal facilities for all anticipated decommissioning wastes. It is estimated that wastes will be transported away beginning in 2038 and concluding in 2068. By the end of 2018 DCPP will file with the California Public Utilities Commission a decommissioning plan outlining their plan, cost, and schedule.

Conclusions:

DCPP’s plans to dispose of all decommissioning wastes, radioactive and otherwise, appear satisfactory.

Recommendations:

None

4.0 Conclusions

4.1

DCPP appears to be planning for storing its spent nuclear fuel in an acceptable and responsible manner in its Spent Fuel Pool and Independent Spent Fuel Storage Installation, while it awaits the Department of Energy opening of a disposal facility.

4.2
DCPP corrective actions of operations problems and confined space procedural violations during Outage 2R20 appeared satisfactory to the DCISC. The DCISC should review the QA follow-up assessments to be performed during Outages 1R21 and 2R21.

4.3

DCPP Operations Performance Indicators overall were Green indicating a good performance. Two indicators were Yellow (needing improvement) for High Pressure Injection System Availability and for Hours Critical Breaker Open. Both of these were being resolved with a return to Green expected for the former in 2019 and the latter in 2018.

4.4

The DCISC Fact-finding Team concluded that the DCPP Engineering Excellence Plan was satisfactory. It included “technical conscience,” for which a formal self-assessment was comprehensive and appropriately intrusive based on the discussion with Mr. Nugent and on review of the self-assessment report. The report concluded overall that DCPP exhibited a healthy technical conscience with no deficiencies and some identified gaps and suggested enhancements. The assessment report recommendations appeared appropriate to the DCISC Fact-finding Team.

4.5

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings. Unit 2 had tripped just prior to this fact-finding meeting from full power due to a transmission line disturbance. The plant systems and personnel responded appropriately. The DCISC should follow up on the cause and corrective actions for this plant trip.

4.6

The DCISC Fact-finding Team did not have any safety concerns in reviewing DCPP’s overall implementation of the industry Delivering the Nuclear Promise efficiency bulletins; however, the DCISC should look in-depth at selected bulletins at future fact-finding meetings.

4.7

The regular meetings between DCPP management and the DCISC Fact-finding Teams appear to be beneficial for all.

4.6

The DCPP Probabilistic Risk Assessment (PRA) Group’s development work, for both the PRA plant-response model and the fire PRA, has gone well and the models are more realistic because of
this. The PRA work is emphasizing the support of various applications, such as resolving generic issues and modifying Technical Specifications, and the use of the PRA for these purposes continues effectively. The DCISC Fact-finding Team concludes that the PRA group is doing excellent work. The DCISC should continue to follow developments in this area closely.

4.9

It appeared to the DCISC Fact-finding Team that DCPP’s preventive maintenance change review process and periodic monitoring process were satisfactory methods to prevent and/or identify negative safety effects of its Preventive Maintenance Optimization Program.

4.10

DCPP’s Refueling Outage 1R21 will be similar to the successful Unit 2 Outage 2R20. DCPP’s planning and scope control appear satisfactory.

4.11

DCPP’s plans to dispose of all decommissioning wastes, radioactive and otherwise, appear satisfactory.

Recommendations:

None

6.0 References

6.1


6.2


6.3

Ibid., Exhibit D.2, Section 3.7, “Engineering Excellence Plan.”

6.4

6.5


6.6


6.7

Ibid., Exhibit D.4, Section 3.11, “Preventive Maintenance Optimization Project.”

6.8

1.0 Summary

The results of the January 23-24, 2019, Fact-finding trip to the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA are presented. The subjects addressed and summarized in Section 3 are as follows:

1. Meet with Nuclear Regulatory Commission (NRC) Senior Resident Inspector
2. Health of Large Motors
3. NRC Triennial Fire Protection Inspection Results
4. Refueling Outage 1R21 Safety Plan and Safety Schedule
5. Observe Corrective Action Review Board
6. Quality Verification 2018 Audits and 2019 Audit Plan
7. Health of Emergency Diesel Generators
8. Licensed Operator Staffing Update
9. Cause and Corrective Actions for Unit 2 Trip
10. Meet with DCPP Officer

2.0 Introduction

This Fact-finding Trip to the DCPP was made to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if Pacific Gas and Electric’s (PG&E’s) performance is appropriate and whether any areas revealed observations, which are important enough to warrant further review, follow-up, or presentation at a public meeting. These safety matters include follow-up and/or continuing review efforts by the Committee, as well as those identified as a result of reviews of various safety-related documents.

Section 4-Conclusions highlights the conclusions of the Fact-finding Team based on items reported in Section 3-Discussion. These highlights also include the team’s suggested follow-up items for the DCISC, such as scheduling future Fact-finding
Meetings on the topic, presentations at future public meetings, and requests for future updates or information from DCPP on specific areas of interest, etc.

Section 5-Recommendations presents specific recommendations to PG&E proposed by the Fact-finding Team. These recommendations will be considered by the DCISC. After review and approval by the DCISC, the Fact-finding Report, including its recommendations, will be provided to PG&E. The Fact-finding Report will also appear in the DCISC Annual Report.

3.0 Discussion

3.1 Meet with NRC Senior Resident Inspector

The DCISC Fact-finding Team met with Chris Newport, NRC Senior Resident Inspector, for an update. The DCISC meets regularly with the Senior Resident Inspector and last met with him in December 2018 (Reference 6.1), when it concluded the following:

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings. Unit 2 had tripped just prior to this fact-finding meeting from full power due to a transmission line disturbance. The plant systems and personnel responded appropriately, and the DCISC should follow up on the cause and corrective actions for the trip.

The participants discussed the following topics:

1. Recent release of the NRC Staff’s review of DCPP’s Seismic Probabilistic Risk Assessment (PRA)
2. PG&E’s announcement of its intent to file bankruptcy
3. Recent inspection results by Resident Inspectors and the NRC Triennial Fire Protection Inspection
4. DCPP’s License Amendment Requests regarding Emergency Planning response times and changes to the Security Protected Area
5. Frequency of meetings between NRC Resident Inspectors and DCPP Managers and Officers

Conclusions:

The meeting with NRC Resident Inspector was beneficial, and the DCISC should continue the meetings.

Recommendations:

None
3.2 Health of Large Motors

The DCISC Fact-finding Team met with Dallas Adams, Component Engineering Supervisor, and Sam Waters, Large Motors Component Engineer, for an update on the DCPP Large Motors Program. The DCISC last reviewed the Large Motor Program its March 2016 Fact-finding Meeting (Reference 6.2), when the DCISC concluded the following:

There has been an improvement in DCPP’s management of the Large Motors Program as evidenced by movement of the program’s Performance Indicator from Yellow to White. The DCISC should review the program status again in about two years. Additionally, the DCISC should review DCPP’s assessments and actions concerning the impacts of offsite power system open phase failures at a future visit in 2016.

Large Motors include those powered by 4kV, 12kV, and higher voltages, along with any motors 250 horsepower and larger. Mr. Waters reminded the Fact-finding Team that management of the health of Large Motors had been moved from the System Engineering Department into the category of a Component Program during 2018. As such, the program was now managed by the Component Engineering Department, and performance was tracked using performance indicators contained in a Component Health Report, which differed in format from the System Health Reports. The Fact-finding Team reviewed the Large Motors Component Health Report. Program health was rated as White (Healthy, but needing improvement), which was the same rating as was reported during the DCISC’s previous review in 2016. However, most of the open items driving the previous White rating in 2016 had been completed, and the current White rating was due to newer, emergent issues.

During the DCISC’s review in 2016, a Large Motor Long-range Plan had been prepared and was in the process of being implemented. The plan provided a ten-year schedule for replacement, overhaul, and preventative maintenance activities for most Large Motors and represented DCPP’s overall strategy for all Large Motors at the station. Mr. Waters reported that the plan had now been implemented and the resultant Large Motor refurbishments were coming to completion. One item remaining open was the rewinding of stators and rotors for all eight Reactor Coolant Pump (RCP) Motors. Six of the eight RCP Motor rewinds had been completed, and the remaining two were planned to be completed in the upcoming Refueling Outages 1R21 and 2R21, in the spring and fall of 2019, respectively. The RCP Motor work was evaluated as a maintenance activity that should be completed on a 12-year periodicity. As the first RCP Motor rewinding was completed in 2014, no additional RCP Motor rewinds would therefore be required before DCPP ceased operations in 2025 (11 years after the first rewind).

Another Long-range Plan item nearing closure was the rewinding of Component Cooling Water (CCW) Pump Motors, which was expected to be completed in 2019.
Following completion of the current CCW Pump Motor rewinding, it had been decided that no further rewinds would be needed before DCPP ceases operations in 2025. Regarding the availability of spare CCW Pump Motors, DCPP had one spare that was previously considered not to be interchangeable between units. However, DCPP had obtained information and performed testing that found the existing spare CCW Pump Motor could be modified to rotate the opposite direction, which would make it usable on the other unit. Accordingly, it had been determined that the plant would not be purchasing another spare CCW Pump Motor. Similarly, regarding the rewinding of Containment Fan Cooler Unit (CFCU) Motors, the station had completed two motor rewinds before deciding to cancel future rewinds. Additional rewinds were considered no longer to be necessary given the decision to cease operations in 2025, the redundancy of installed CFCUs, and the availability of several spare CFCU Motors on site.

The Fact-finding Team inquired if the CCW and CFCU Motor rewind decisions had been made as a part of the recently-completed Preventative Maintenance Optimization (PMO) Program. Mr. Waters responded that those decisions had been made separately. However, there were some changes made to maintenance practices for Large Motors, such as changing the periodicity of major overhauls to align with templates and guidance from the Electric Power Research Institute and industry counterparts. An example was that the periodicity of most motor cleanings and inspections were moved from 2-3 years to 3-4 years, which was supported by both industry guidance and plant experience in motor performance over time. The Fact-finding Team considered the status of completing items on the Long-range Plan was appropriate.

There were two emergent issues that were driving the White health rating. First was the presence of a high bearing temperature on inboard bearing for the 2-1 Condensate Booster Pump Motor. That motor was available to run if needed, but the inboard bearing had shown an elevated bearing temperature since the outboard bearing had failed and was replaced in 2018. Further investigations were planned to begin shortly after the Fact-finding Team’s visit, but it had already been identified that third-party bearings that had been used on the motor contained slight variations when compared to bearings supplied by the Original Equipment Manufacturer (OEM). Depending on the results of the upcoming additional investigations, the bearing would likely be replaced with a new one supplied by the OEM.

The second emergent issue was a high vibration on the 2-1 Auxiliary Salt Water Pump Motor, which was identified by an Operator during rounds and prior to the occurrence of a motor failure. The motor was replaced with a spare motor, and the removed motor was currently undergoing refurbishment. An Apparent Cause Evaluation (ACE) was underway to determine the cause of the lower bearing degradation (SAPN 51004946). Tentatively, the cause appeared to be an incorrect setting of the axial preload for the bearing during installation. Changes to maintenance procedures would likely be required to ensure that the bearings were
correctly installed in the future. The only safety-related pump motors that were of similar (vertically-installed) configuration were the Residual Heat Removal Pump Motors. As a part of the ACE, an extent of condition review would also be completed to identify whether or not this type of problem was present on other similar motors. The Fact-finding Team concluded that the actions taken to date for both emergent issues appeared appropriate.

Conclusions:

DCPP’s Large Motor Program health was White (Healthy, but needing improvement). The implementation of Long-range Plans for motor rewinds were nearing satisfactory completion, and actions taken for emergent issues appeared appropriate..

Recommendations:

None

3.3 NRC Triennial Fire Protection Inspection Results

The DCISC Fact-finding Team met with Carlos Lopez, Fire Protection Engineering Supervisor; John Cote, Senior Engineer, Fire Protection; and Amanda Sorensen, DCPP NRC Interface; for an update on the results of the NRC Triennial Fire Protection Inspection performed at DCPP during October 2018. The DCISC last reviewed the Fire Protection Program during its August 2018 Fact-finding Meeting (Reference 6.3), when the DCISC concluded the following:

DCPP has satisfactorily completed its implementation of NFPA-805, having completed all required physical modifications and implemented all programmatic processes. The DCPP performance indicator for the Fire Protection Program was Green (Healthy).

Mr. Lopez reported that the NRC Triennial Fire Protection was an extensive inspection at DCPP, performed by five inspectors over a period of three weeks (two on site and one off site). This was the first NRC inspection performed since DCPP completed its implementation of the National Fire Protection Association Standard 805 (NFPA-805) Program at DCPP. The Inspection Team requested and reviewed a large number of documents (approximately 100) in advance of the inspection and additional documents (approximately 100) while on site during the inspection. The Inspection Team focused its most detailed inspection efforts on six Fire Areas selected by the Inspection Team with input from the NRC Resident Inspectors:

In the above areas, the Inspection Team reviewed all surveillances, fire hazard analyses, and Fire Protection Engineering Evaluations applicable to the area and also performed detailed walkdowns in the areas. The Inspection Team was generally satisfied with the documentation and the condition of the areas in the plant. There were two minor violations identified by the Inspection Team regarding
its identification of minor errors performed in the preparation of two fire-protection related Design Change Packages.

The Fact-finding Team obtained a copy and reviewed the NRC Inspection Report (ADAMS accession number ML18331A095). The report body was short and confirmed that the NRC did not identify any findings or violations of more than minor significance. The report also listed the extensive number of documents obtained and reviewed by the inspection team.

Lastly, the Fact-finding Team inquired regarding the status of updating the Fire PRA following completion of implementing the NFPA-805 Program. Mr. Cote stated that updating of the Fire PRA had been completed, and the resultant risk numbers were confirmed to fall within the acceptance criteria provided by NRC Regulatory Guide 1.174 following the completion of all plant modifications. As such, the updated Fire PRA did not need to be resubmitted to the NRC for its review and approval.

Conclusions:

The NRC Triennial Fire Protection Inspection was extensive and found no significant issues. The updated Fire PRA confirmed that the risks from fire continue to fall within the NRC’s acceptance criteria. This was further confirmation of an effective implementation of the NFPA-805 Program at DCPP.

The Outage Safety Checklists were provided for each of the four basic plant outage configurations listed and described above (along with the outage configuration of ‘Mode 6 RCS Level Less than 111’ which was not planned to be used during Refueling Outage 1R21). Mr. Quitter explained that the Checklists were completed by Control Room Operators at least once during each shift, any time a piece of equipment was removed from service, and any time the plant entered or exited a transition period. Mr. Quitter also provided copies of Operations Shift Logs from two days during the previous Refueling Outage and pointed out the various log entries related to completion of the Checklists and transition periods.

DCPP now uses “Phoenix,” a computer-based tool that can be used on line to analyze changes in risk using the PRA model when equipment is removed from service for maintenance. As the PRA model does not extend to shutdown conditions, Phoenix is used during outages via the loading deterministic fault trees for shutdown conditions based on the Outage Safety Checklists. An “N+1” Defense in Depth (DID) approach, where N generally represents the minimum equipment needed to maintain a key safety function, is then utilized by Phoenix to evaluate the maintenance of the key safety functions. This DID Status is represented by the following four color definitions:

DCPP considers a status of Green or Yellow acceptable for planned outage activities because key safety functions are fully supported with at least N+1 DID.
No planned activities should result in an Orange condition; however, in the rare case where an Orange condition is necessary, a contingency plan with compensatory actions must be developed and implemented. The contingency plan then provides an additional approach to DID, because it provides a backup safety function if the minimum safety function becomes unavailable. Planned Red conditions are prohibited. The 1R21 Outage Safety Plan contained no Orange or Red conditions and six individual Yellow ones.

There will be three times during Refueling Outage 1R21 when the overall color will be Yellow based on the six individual Yellow conditions, which were fully detailed and explained in the safety plan as follows:

Mr. Quitter noted that during Refueling Outage 1R21, the sequence of activities would be atypical in one respect in that the Containment Integrated Leakage Rate Test (ILRT) would be performed early in the outage. When the ILRT has been performed in the past (most recently during Refueling Outage 2R20), it has been performed late in the outage. The reason for the change was that it had been determined that performing the test early in the outage would be a more efficient approach in achieving the necessary system isolations/alignments required for the test.

An outage safety schedule review by an independent industry peer from outside PG&E and a licensed Senior Reactor Operator not involved with schedule development was performed with satisfactory results, and the safety schedule will be approved by DCPP management before the outage work can proceed.

Conclusions:

The DCPP Refueling Outage 1R21 Outage Safety Plan and Safety Schedule appeared comprehensive and effective to prevent the plant safety level from dropping below acceptable safety standards. The Plan and Schedule applied a Defense-in-Depth philosophy to prevent accidents and to mitigate the effects of accidents, if they were to occur during shutdown.

- Unit 1 Cable Spreading Room (Fire Area 7-A)
- Unit 2 Solid State Protection Room (Fire Area 8-H)
- Unit 1 12kV Switchgear Room (Fire Area 10)
- Unit 2 4kV Switchgear Room, F Bus (Fire Area TB-10)
- Unit 2 4kV Switchgear Room, G Bus (Fire Area TB-11)
- Unit 2 4kV Switchgear Room, H Bus (Fire Area TB-12)

Recommendations:

None
3.4 Refueling Outage 1R21 Safety Plan and Safety Schedule

DCISC Fact-finding Team met with Mike Quitter, Outage Services Manager, and Matt Coward, Outage Manager, to review the Refueling Outage 1R21 Safety Plan and Safety Schedule. The DCISC last reviewed this topic during its March 2017 Fact-finding Meeting (Reference 6.4), when it concluded the following:

The DCPP 1R20 Outage Safety Plan and Safety Schedule appeared comprehensive and effective to prevent the plant safety level from dropping below acceptable safety standards. Use of the safety plan and schedule in prior outages has been successful.

Mr. Quitter provided the Fact-finding Team with copies of the Refueling Outage 1R21 Safety Plan and Safety Schedule and reviewed the purpose of each document. The outage is scheduled to run from February 10 to March 15, 2019. The purpose of the Outage Safety Plan is to provide information on outage safety requirements and highlight risk areas to plant staff. In order to assess outage safety impact, referral to the Outage Safety Plan and Outage Safety Schedule is made prior to making major schedule changes. The intent of the Outage Safety Plan is to provide a concise document for use in evaluating plant conditions during Modes 5 (Cold Shutdown) and 6 (Refueling) to ensure the key safety functions are satisfied.

The Outage Safety Plan provided background information for the logic contained in the Outage Safety Checklists. The Outage Safety Checklists are governed by Administrative Procedure AD8.DC55, “Outage Safety Schedule,” a copy of which was also provided to and reviewed by the Fact-finding Team. The Plan, Schedule and Checklists together ensure that the equipment and plant conditions assumed in the abnormal procedures for use during shutdown are met. The abnormal procedures contain guidance for providing passive core cooling as well as guidance on key safety system restoration. Outage Safety planning is based upon being able to cope with a very severe event, which is assumed to be a loss of all AC power. Backup decay heat removal capability can be maintained during such events by assuring that the system remains capable of taking advantage of natural physical laws (natural circulation by gravity or boiling) to maintain passive cooling if Residual Heat Removal (RHR) or Spent Fuel Pool (SFP) cooling is lost. The Outage Safety Checklists are the primary means of verifying normal and backup decay heat removal capabilities are maintained.

The Refueling Outage 1R21 Safety Plan contained the following topics:

- Infrequently Performed Tests or Evolutions
- Contingency Strategies
- Transition Periods and Testing
- Background Information for Outage Safety Checklists for the Following
Modes:
- Mode 5 (Cold Shutdown) Loops Filled
- Mode 5 Loops Not Filled
- Mode 6 (Refueling) RCS Level at Greater than 111’
- Core Offloaded

The Outage Safety Checklists were provided for each of the four basic plant outage configurations listed and described above (along with the outage configuration of ‘Mode 6 RCS Level Less than 111' which was not planned to be used during Refueling Outage 1R21). Mr. Quitter explained that the Checklists were completed by Control Room Operators at least once during each shift, any time a piece of equipment was removed from service, and any time the plant entered or exited a transition period. Mr. Quitter also provided copies of Operations Shift Logs from two days during the previous Refueling Outage and pointed out the various log entries related to completion of the Checklists and transition periods.

DCPP now uses "Phoenix," a computer-based tool that can be used on line to analyze changes in risk using the PRA model when equipment is removed from service for maintenance. As the PRA model does not extend to shutdown conditions, Phoenix is used during outages via the loading deterministic fault trees for shutdown conditions based on the Outage Safety Checklists. An "N+1" Defense in Depth (DID) approach, where N generally represents the minimum equipment needed to maintain a key safety function, is then utilized by Phoenix to evaluate the maintenance of the key safety functions. This DID Status is represented by the following four color definitions:

- Green - represents DID greater than N+1, where N is the minimum equipment needed to maintain a key safety function with more than one backup means of support.
- Yellow - represents DID equals N+1, which is considered the normal DID. Key safety functions are fully supported with at least one backup means of support.
- Orange - represents a DID equals N condition, where key safety functions are supported, but minimum DID is not met, and compensatory measures must be in place.
- Red - represents a DID less than N condition in which key safety functions are not supported.

DCPP considers a status of Green or Yellow acceptable for planned outage activities because key safety functions are fully supported with at least N+1 DID. No planned activities should result in an Orange condition; however, in the rare case where an Orange condition is necessary, a contingency plan with compensatory actions must be developed and implemented. The contingency plan then provides an additional approach to DID, because it provides a backup safety
function if the minimum safety function becomes unavailable. Planned Red conditions are prohibited. The 1R21 Outage Safety Plan contained no Orange or Red conditions and six individual Yellow ones.

There will be three times during Refueling Outage 1R21 when the overall color will be Yellow based on the six individual Yellow conditions, which were fully detailed and explained in the safety plan as follows:

- **Shutdown Cooling** – Remains Green.
- **Inventory Control** – Remains Green.
- **Reactivity Control** – A Yellow condition will occur when Component Cooling Water (CCW) Train 1-2 is taken out of service during the CCW Header B Valves Leakage Test.
- **Support Systems (Heat Sink)** – Three Yellow conditions will occur when the Auxiliary Saltwater System (ASW)/CCW 1-1 train is out of service at lowered inventory, when ASW/CCW 1-2 train is out of service at lowered inventory, and when CCW Train 1-2 is taken out of service during the CCW Header B Valves Leakage Test.
- **Containment Closure** – Remains Green.
- **Vital AC Power** – Two Yellow conditions will occur due to a single offsite power source available when the plant is at lowered inventory due to the Main Bank power supply being removed from service at the start of the outage and later when the Start-up Bank power supply is removed from service late in the outage.
- **Spent Fuel Cooling** – Remains Green.

Mr. Quitter noted that during Refueling Outage 1R21, the sequence of activities would be atypical in one respect in that the Containment Integrated Leakage Rate Test (ILRT) would be performed early in the outage. When the ILRT has been performed in the past (most recently during Refueling Outage 2R20), it has been performed late in the outage. The reason for the change was that it had been determined that performing the test early in the outage would be a more efficient approach in achieving the necessary system isolations/alignments required for the test.

An outage safety schedule review by an independent industry peer from outside PG&E and a licensed Senior Reactor Operator not involved with schedule development was performed with satisfactory results, and the safety schedule will be approved by DCPP management before the outage work can proceed.

Conclusions: The DCPP Refueling Outage 1R21 Outage Safety Plan and Safety Schedule appeared comprehensive and effective to prevent the plant safety level from dropping below acceptable safety standards. The Plan and Schedule applied a Defense-in-Depth philosophy to prevent accidents and to mitigate the effects of accidents, if they were to occur during shutdown.
Recommendations: None

3.5 Observe Corrective Action Review Board Meeting

The DCISC FFT met with Hector Garcia, DCPP Liaison to the DCISC, to observe the January 23, 2019, meeting of the DCPP Corrective Action Review Board (CARB). The DCISC last observed a CARB meeting during its September 2018 Fact-finding Meeting (Reference 6.5), when the DCISC concluded the following:

*The DCPP Corrective Action Review Board (CARB) meeting on September 5, 2018 appeared satisfactory in that the attendees met the intended objectives. Discussion of the significant items was focused and comprehensive. Actions were assigned for resolution as appropriate.*

The CARB is governed by DCPP Procedure OM4.ID15, “Corrective Action Review Boards” and its purpose is to provide a significant venue for station personnel to demonstrate commitment to Corrective Action Program (CAP) excellence. The CARB fulfills a need for senior management oversight of the CAP, and this oversight function includes:

- Reviewing Root Cause Evaluations (RCEs) for accuracy, completeness and alignment of the problem, causes and corrective actions.
- Approving extensions to the due dates for Corrective Actions to Prevent Recurrence.
- Approving effectiveness evaluations for CAP documents.
- Periodically reviewing CAP metrics to ensure the CAP is meeting management expectations.
- Reviewing and dispositioning requests for Cause Evaluation downgrades.
- Reviewing notifications screened by the Notification Review Team

The membership of the CARB consists of regular and alternate members designated in writing by the Station Director. CARB meetings are held as necessary, typically on a weekly basis. This meeting was chaired by Paula Gerfen, the Station Director.

The agenda for this meeting included the following:

- Safety Assignments
- Facilitative Leadership Minute
- Review Desired Outcomes
- Verify Quorum
The CARB reviewed and discussed the following significant items during this meeting:

- **SAPN 51007200**: Monthly status report for an evaluation of adverse motor bearing trends.
- **SAPN 51007664**: CARB ‘Bring Back’ item for additional review of corrective actions for a loss of power to the security inverter.
- **SAPN 51004632**: Corrective Effectiveness (CE) Review for “DA-RMS Trend CCE Ineffective.” This item concerned the results of a review of the effectiveness of corrective actions that had been taken in response to recurring problems in the filing of documents in the Records Management System within the timeframes prescribed by procedures. The CARB discussed the long-standing nature of this problem from numerous angles and was unable to achieve a consensus on providing clear directions on the matter within the timeframe allowed for the meeting. As a result, it was decided that the matter would be discussed separately in a later breakout session and the CE Review should be returned to the CARB for additional discussion and direction at its next weekly meeting.

The remaining items on the CARB agenda were deferred until the next meeting due to the lengthy discussion on the above CE Review.

**Conclusions:**

The DCPP Corrective Action Review Board (CARB) meeting on January 23, 2019, appeared satisfactory in that the attendees met the intended objectives. Discussion of the significant items was comprehensive.

**Recommendations:**

None
3.6 Quality Verification 2018 Audits and 2019 Audit Plan

The DCISC Fact-finding Team met with Ray Robins, Audit and Assessment Manager, to review the Quality Verification (QV) Department 2018 audits and the 2019 audit plan. The DCISC last reviewed this topic during its January 2018 Fact-finding Meeting (Reference 6.6), when it concluded the following:

*The DCISC Fact-finding Team concludes that the DCPP Quality Verification Audit Program appears to be effectively designed and implemented.*

Mr. Robins provided the Fact-finding Team with copies of DCPP’s Nuclear Internal Audit Schedule and explained that the 2019 audits were being scheduled around the two Refueling Outages that would occur during the year. The audit schedule by function/department was as follows:

<table>
<thead>
<tr>
<th>Function/Department</th>
<th>Frequency</th>
<th>Audit Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 months</td>
<td>September 2018</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>24 months</td>
<td>October 2018</td>
</tr>
<tr>
<td>Chemistry &amp; Environmental Protection</td>
<td>24 months</td>
<td>January 2019</td>
</tr>
<tr>
<td>Applied Technical Services</td>
<td>24 months</td>
<td>January 2019</td>
</tr>
<tr>
<td>Emergency Preparedness</td>
<td>24 months</td>
<td>January 2019</td>
</tr>
<tr>
<td>Fire Protection</td>
<td>24 months</td>
<td>March 2019</td>
</tr>
<tr>
<td>Refueling Outage 1R21</td>
<td>Periodic</td>
<td>February 2019</td>
</tr>
<tr>
<td>Fitness for Duty</td>
<td>24 months</td>
<td>March 2019</td>
</tr>
<tr>
<td>Inservice Inspection/Special Processes</td>
<td>24 months</td>
<td>April 2019</td>
</tr>
<tr>
<td>Pre-Nuclear Industry Evaluation Program (NIEP) Assessment</td>
<td>6 mos. before NIEP</td>
<td>April 2019</td>
</tr>
<tr>
<td>Corrective Action Program</td>
<td>24 months</td>
<td>May 2019</td>
</tr>
<tr>
<td>Security/Cybersecurity</td>
<td>24 months</td>
<td>June 2019</td>
</tr>
<tr>
<td>ISFSI &amp; Fuel Management</td>
<td>24 months</td>
<td>August 2019</td>
</tr>
<tr>
<td>Refueling Outage 2R21</td>
<td>Periodic</td>
<td>September 2019</td>
</tr>
<tr>
<td>Engineering &amp; Maintenance Rule</td>
<td>Periodic</td>
<td>October 2019</td>
</tr>
<tr>
<td>Radiological Protection &amp; Radioactive Waste Management</td>
<td>24 months</td>
<td>January 2019</td>
</tr>
<tr>
<td>Procurement</td>
<td>24 months</td>
<td>February 2020</td>
</tr>
<tr>
<td>NIEP Assessment (External)</td>
<td>24 months</td>
<td>February 2020</td>
</tr>
<tr>
<td>Operations &amp; Technical Specifications</td>
<td>24 months</td>
<td>March 2020</td>
</tr>
<tr>
<td>Geosciences</td>
<td>24 months</td>
<td>July 2020</td>
</tr>
<tr>
<td>Accredited Training</td>
<td>24 months</td>
<td>July 2020</td>
</tr>
</tbody>
</table>
The Fact-finding Team reviewed the 2018 audit of DCPP Cyber Security Programs, which was performed in November and December 2018. The audit team concluded that all of the audited areas were effectively implemented with the exception of instructions, procedures and drawings, which were effective with concerns. The audit team identified two findings, thirteen deficiencies, and nine recommendations. The findings were as follows:

1. The Cyber Security Assessment Team had not been staffed and implemented as required by the Cyber Security Program Document.

2. Programmatic controls related to Critical Digital Asset keys had not been adequately implemented.

Approximately 24 Notifications were entered into the Corrective Action Program for these findings and other issues identified during the audit, and the actions were not yet complete at the time of the meeting. The DCISC should follow up on these items in a future fact-finding meeting.

The Fact-finding Team also reviewed the 2018 audit of DCPP Maintenance Programs, which was performed in October and November 2018. The audit team concluded that all of the audited areas were effectively implemented with four areas evaluated as effective with concerns: scaffolding, work management (records), measuring and test equipment, and the preventative maintenance program. The audit team identified one area requiring management attention, one finding, eighteen deficiencies, and two recommendations.

The area requiring management attention in the Maintenance Audit related to scaffold program adherence due to a failure of the organization to respond to previous findings with a sense of urgency. Specifically, for 10 of 19 deficient scaffolds, Licensing Basis Impact Evaluation screenings had not been completed for more than 55 days. The finding in the Maintenance Audit was the fact that some work packages in the Records Management System had documentation issues that should have been identified and corrected prior to being archived. Approximately 24 Notifications were entered into the Corrective Action Program for these and other issues identified during the audit, and the actions were not yet complete at the time of the meeting.

The Fact-finding Team inquired what feedback the Department may have received from station management or outside organizations. Mr. Robins stated that station management was very supportive and responsive to the QV organization. He noted that there were two significant findings during 2018 that he felt management believed had contributed significantly to maintaining high performance at the station – QV’s identification of significant issues with leadership behaviors and complacency in the Learning Services Department and QV’s identification of leadership challenges in the Security Department. Mr. Robins also reported that the Nuclear Safety Oversight Committee (NSOC) reviewed and commented on
each QV report and often provided detailed feedback to the Department. Recent feedback from the NSOC had been generally positive.

Conclusions:

The DCISC Fact-finding Team concluded that the DCPP Quality Verification Audit Program appears to be effectively designed and implemented. The DCISC should follow up on the resolution of audit findings in the area of Cyber Security in a future meeting.

Recommendations:

None

3.7 Health of Emergency Diesel Generators

The DCISC Fact-finding Team met with Jim Wiggins, Emergency Diesel Generator (EDG) System Mechanical Engineer, for an update on DCPP’s EDGs. The DCISC last reviewed the health of the EDGs during its January 2017 Fact-finding Meeting (Reference 6.7), when the DCISC concluded the following:

\[DCPP \text{ has resolved most significant issues with its Emergency Diesel Generators (EDGs) and reports the health of Unit 1 as Green and Unit 2 as White (and almost Green.) This is good progress. Additionally, DCPP has implemented an impressive EDG Reliability Improvement Plan, which the DCISC should follow closely.}\]

The EDGs are safety-related pieces of equipment whose functions are as follows:

- To furnish sufficient electric power to mitigate a design basis accident in one unit and safely bring the other unit to cold shutdown when both the 230kV and 500kV offsite power sources are unavailable.
- To act as a backup source of power to enable the reactor to continue to produce power for 72 hours whenever there is no accident condition, but one of the two offsite power sources is inoperable.
- To furnish power sufficient for an emergency shutdown of the plant whenever the offsite power sources are not available.

The EDG fuel oil supply system has enough fuel capacity to provide seven days of onsite power generation in order to operate: (a) the minimum required Engineering Safety Features (ESF) equipment following a design basis loss-of-coolant accident (LOCA) for one unit, and the equipment in the second unit is in either the hot or cold shutdown condition, or (b) when the equipment for both units in either the hot or cold shutdown condition. The system has no direct non-safety-related function.
Each nuclear operating unit is supported by three EDGs dedicated to the respective unit; however, the EDGs can be cross-connected to the other unit using temporary cables. Each diesel-generator set is provided with two 100% capacity starting air trains, with each train having two starting air motors. Their ratings are as follows:

- 2,600 kW, Continuous (8,000 hours per year)
- 2,750 kW, 2,000 hours per year
- 2,860 kW, 2 hours per 24 hours
- 3,056 kW, 30 minutes per 24 hours

Each EDG is designed to start automatically on any of the following signals:

- A Safety Injection signal from either Train A or Train B of the plant protection system.
- Undervoltage on the preferred offsite sources to each of the 4160V vital buses; any one of which starts its respective diesel.
- Undervoltage on any of the vital 4160V buses; any one of which starts its respective diesel.

These automatic starts are to ensure that the EDGs are available with minimal delay to mitigate any operational or accident condition that may exist at the time of a Safety Injection signal. The Safety Injection signal, by itself, is not an indication of an accident condition. The undervoltage signal from any vital bus is an indication of a possible loss of both onsite and offsite power sources.

Mr. Wiggins reviewed the latest system health reports for the three Unit 1 and three Unit 2 EDGs with the Fact-finding Team.

**Unit 1**

Unit 1’s EDGs were classified as Green (Healthy) with the following issue challenging system health:

- The EDG control system components are over 40 years old and obsolete. The affected components are primarily the speed control devices (Woodward motor-operated potentiometer governors), which are no longer available, and which will be replaced with a newer model. These modifications are in progress and expected to be completed by September of 2020.

Previously identified issues on Unit 1 that had been recently resolved included:

- The discovery that sustained high winds could impact the ability of the EGD radiators to adequately cool the jacket water and engine compartment components (affected Unit 1 only). A Prompt Operability Assessment (POA)
was written to permit continued operation with compensatory actions until this issue was resolved. The POA was closed in September of 2018 when a permanent modification was completed to install a corrugated metal wall behind a portion of the building air outlets to block high winds and prevent the possibility of affecting cooling of the Unit 1 EDGs. A picture of the modification is shown below:

![Corrugated Metal Wall Installed Behind Grating, Turbine Building North Wall](image_url)

- Oil leakage at the cylinder head pushrod grommets. A plan to resolve this issue by replacing the grommets was completed on EDG 1-3. Later, it was decided instead to make permanent hose clamps installed on the remaining units rather than replace the grommets, and that action has been completed.
- Reliability issues with EDG Fuel Oil Day Tank alarm level switches and Fuel Oil Transfer Pump start/stop level switches. Testing of all the affected switches had been completed, and various problems were identified and resolved.

**Unit 2**

Unit 2’s EDGs were classified as White (Healthy, but improvement needed) with the following issues challenging system health:

- The EDG control system components are over 40 years old and obsolete. The
affected components are primarily the speed control devices (Woodward motor-operated potentiometer governors), which are no longer available, and which will be replaced with a newer model. These modifications are in progress and expected to be completed by December 2019.

- Reliability issues with EDG Fuel Oil Day Tank alarm level switches and Fuel Oil Transfer Pump start/stop level switches. Testing of all the affected Fuel Oil Day Tank alarm level switches had been completed, and various problems were identified and resolved. Testing of the Fuel Oil Transfer Pump start/stop level switches was expected to be completed by September 2019.

Previously identified issues on Unit 2 that had been recently resolved included:

- Oil leakage at the cylinder head pushrod grommets. A plan to resolve this issue by replacing the grommets was completed on EDG 1-3. Later, it was decided instead to make permanent hose clamps installed on the remaining units rather than replace the grommets, and that action has been completed.

- Reliability issues with EDG Fuel Oil Day Tank alarm level switches and Fuel Oil Transfer Pump start/stop level switches. Testing of all the affected switches had been completed, and various problems were identified and resolved.

- Reliability issues with EDG 2-3’s Fuel Oil Booster Pump (unique to that EDG). A replacement was needed, and it was previously thought that a newer model would need to be procured because no existing pump replacements of the same model were available. However, a Replacement Part Evaluation later determined that the pump model used on the other EDGs could be used on EDG 2-3, and the pump was replaced that model. The performance of the replacement pump was now being monitored.

- The EDG Start Timers had been unreliable for 18 months. Following repairs, the equipment performance was monitored and determined to be acceptable. The issue was then closed.

- The EDG dynamic loading profile identified that electrical loading margin is deficient, specifically less than 1% for EDG 2-3. The long-term corrective action was originally thought to be uprating the engines; however, it was later decided that the issue could be resolved analytically through a calculation revision. Such a calculation revision was estimated to be able to recover a minimum of 54 kW additional margin for EDG 2-3 and higher additional margin for the other EDGs. Recently, the decision had been made not to perform the calculation revision at this time, but rather to keep the calculation change request in the system for ready action should margin degradation be identified due to other issues.

The Fact-finding team noted that although the classification of the EDG’s health had not changed since its last review in 2017, the number of previous issues (listed above) that had been closed was evidence that significant progress had been made in resolving problems with the EDGs.
The Fact-finding Team received a copy of and reviewed the EDG Reliability Improvement Plan, which was initially issued in April 2016. The goals of this plan are to achieve “zero equipment failures,” which would reflect significantly improved reliability. The following goals were set:

1. Reduce EDG unavailability time by greater than 20% within three refueling outage maintenance cycles.
2. Reduce the number of EDG component failures and associated corrective maintenance by greater than 25% within three refueling outages. This will be measured by the number of corrective work orders generated.
3. Reduce the number of EDG condition evaluations in the Corrective Action Plan by greater than 25% within one refueling outage.

The original 2016 Plan was last updated in October 2018 and contained eight actions that remain to be completed. There was a large number (greater than 30) of closed items in the Plan, the majority of which had been closed through completed work as well as a few items where decisions were made to not perform the specific item as originally proposed. The amount of completed items in the Plan was impressive to the Team and represented good performance by the station in its efforts to maintain the long-term health of the EDGs. Whether or not the above goals had been accomplished was planned to be evaluated after three cycles of data has been collected.

The Fact-finding Team also discussed EDG testing with the System Engineer. EDGs are typically tested monthly using a ‘fast start’ technique, which tests the EDG under the same start and loading conditions as would be present in an actual automatic start. (DCPP does not use a ‘slow start’ technique that is sometimes used at other nuclear power plants.) Mr. Wiggins also explained that during each monthly test, the Fuel Oil Transfer Pumps are monitored and switched around such that both pumps are also tested during the EDG test. Regarding start reliability statistics, he reported that DCPP is required by procedures to track start successes and failures rates per 20, 50 and 100 starts. The current start reliabilities were as follows:

<table>
<thead>
<tr>
<th>EDG</th>
<th>Failures in Last 20/50 Starts</th>
<th>Failures in Last 100 Starts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1-2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The last start failure occurred in September 2015, over three years ago on EDG 1-1. The Team considered that the above numbers represented excellent start
reliability. Additionally, Mr. Wiggins provided a copy of an evaluation performed following the completion of a Maintenance Outage Window for EDG 1-3 in December 2018 and pointed out that the maintenance activities had been completed in five days. This was approximately two days shorter than the planned duration and reflected significant improvements in scheduling and executing the maintenance window activities. The shorter duration resulted in improved availability for the EDG and was considered a positive accomplishment for the station.

Accompanied by the EDG System Engineer, the DCISC Consultant entered the plant Protected Area and walked through the Unit 1 EDG’s silencer room and the 1-2 EDG Room to observe the conditions of the EDGs and supporting equipment. The areas and the machine appeared to be in good condition with no observed leaks or other problems. Mr. Wiggins pointed out a recent rainwater drainage issue in the silencer room that he identified during a recent walkdown and provided a copy of the associated notification (SAPN 51013210). Overall, the System Engineer appeared very knowledgeable of the systems and proactive in monitoring the health of the EDGs.

Conclusions:

DCPP has resolved nearly all of the significant issues with its Emergency Diesel Generators (EDGs) and the health of Unit 1 EDGs is rated as Green and Unit 2 EDGs as White. Most actions contained in the EDG Reliability Improvement Plan have been completed, and EDG start reliability has been excellent over the past three years.

Recommendations:

None

3.8 Licensed Operator Staffing Update

The DCISC Fact-finding Team met with Andy Peck, Operations Services Director, and Brian Engleton, Operations Electrical Foreman, for an update on the staffing of Licensed Operators. The DCISC last reviewed a related topic, Employee Retention Programs, during its March 2018 Fact-finding Meeting (Reference 6.8), when it concluded the following:

*DCPP appears to be appropriately managing Employee Retention Programs, taking into account the requirements of the Joint Proposal as modified by the CPUC. The DCISC should continue to monitor the effectiveness of the Employee Retention Programs and staffing plans to ensure that possible losses of personnel do not impact plant safety.*

The purpose of this meeting was to obtain and review the minimum staffing numbers for operators as defined by the NRC and PG&E and to review DCPP’s
Mr. Peck began the discussion by reviewing the DCPP staffing requirements contained in procedure OP1.DC35, “Plant Logs,” a copy of which was provided to the Fact-finding Team. The minimum staffing requirements for licensed operators required by the plant Technical Specifications and 10 CFR 50.54 are shown in the table below:

<table>
<thead>
<tr>
<th>NRC-required Minimum Staffing Requirements (total for two units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Reactor Operators (SROs)</td>
</tr>
<tr>
<td>Reactor Operators (ROs)</td>
</tr>
</tbody>
</table>

The minimum staffing requirements required by DCPP’s procedure were over and above those required by the NRC license and were primarily based on commitments made to the NRC regarding providing adequate staff on shift at the plant in order to fulfill the duties required of the plant’s Emergency Plan. The minimum staffing procedural requirements to meet the Emergency Plan commitments are shown in the table below:

<table>
<thead>
<tr>
<th>DCPP-required Minimum Staffing Requirements (total for two units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift Manager (SRO)</td>
</tr>
<tr>
<td>Shift Foreman (SROs)</td>
</tr>
<tr>
<td>Licensed Operators (ROs)</td>
</tr>
<tr>
<td>Other Non-licensed Personnel</td>
</tr>
</tbody>
</table>

Mr. Peck also reported that the typical staffing for a shift included at least one additional licensed SRO and one additional licensed RO. He provided a copy of the current Operations Roster listing all personnel assigned to each shift along with their qualifications and typical duties on shift. On average, five SROs and six ROs were assigned to each of the five rotating shifts. Mr. Peck also noted that there was currently a license amendment request pending before the NRC that would reduce the minimum number of ROs from five to four, but DCPP currently planned to maintain an average of six ROs on each shift. He stated that DCPP’s main intent in submitting the amendment was to provide some additional margin or flexibility for staffing should that be needed in the future.

The Fact-finding Team then inquired regarding DCPP’s plans for ensuring that the staffing requirements would continue to be met through the cessation of plant operations in 2025. Mr. Peck reported that there were two major elements to licensed operator staffing management that were used to ensure the requirements would be met in the future. First was to provide adequate training for new licensed operators. He provided a copy of the current Operations Roster listing all personnel assigned to each shift along with their qualifications and typical duties on shift. On average, five SROs and six ROs were assigned to each of the five rotating shifts. Mr. Peck also noted that there was currently a license amendment request pending before the NRC that would reduce the minimum number of ROs from five to four, but DCPP currently planned to maintain an average of six ROs on each shift. He stated that DCPP’s main intent in submitting the amendment was to provide some additional margin or flexibility for staffing should that be needed in the future.

The Fact-finding Team then inquired regarding DCPP’s plans for ensuring that the staffing requirements would continue to be met through the cessation of plant operations in 2025. Mr. Peck reported that there were two major elements to licensed operator staffing management that were used to ensure the requirements would be met in the future. First was to provide adequate training for new licensed operators. He reported that there were currently three licensed operator classes in progress as shown in the table below:

<table>
<thead>
<tr>
<th>Class Number</th>
<th>Number of Operators</th>
<th>Planned Completion Date</th>
</tr>
</thead>
</table>
He noted that class L191 was planned to begin in June 2019 and was only partially filled at the time of the meeting. Currently, it was anticipated that it would be the last class of licensed operators at DCPP. Another class could be manned, if needed; but it was not forecasted that it would be required at this time. From the start of a class to the taking of the NRC examination typically required 18-24 months.

The other planning element that was considered in meeting the future needs for licensed operators was the number of off shift personnel that currently held active licenses. These personnel could be moved back on shift to meet the staffing requirements, if needed. There were a number of licenses held by individuals outside of operations (typically 10 to 12) as well as a number of licenses held by individuals off shift but still in the Operations Department (typically 10). All of these licenses were maintained as active NRC Licenses, although some of the individuals might not maintain proficiency. Those individuals maintaining proficiency were required to participate in an Operations training week once every five weeks (20% of their work time). If an active license holder was not proficient, approximately 40 hours of training and watch standing would be required to reestablish proficiency.

Mr. Peck concluded by stating that future licensed operator staffing plans had been carefully considered, and he believed that the plans provided that the number of available licensed operators would always exceed the need through 2025. The planned exceedance was significant and appropriate given possible unknown factors and the long lead time required to train replacement personnel. Lastly, Mr. Peck noted that similar attention had been given to reviewing staffing for non-licensed operators and significant numbers of such had been hired in the last four years as a result of the projected future needs. Overall, the Fact-finding Team concluded that DCPP appears to have adequate plans in place to ensure that the future staffing needs for licensed operators would continue to be met through the cessation of operations in 2025.

**Conclusions:**

DCPP appears to have adequate plans in place to ensure that the future staffing needs for licensed operators would continue to be met through the cessation of operations in 2025.

**Recommendations:**

None

3.9 Cause and Corrective Actions for Unit 2 Trip
The DCISC Consultant met with Brian Engleton, Operations Electrical Foreman, for an update on the cause and corrective actions for a Unit 2 automatic reactor trip that occurred on December 1, 2018. The DCISC last reviewed reactor trip causes during its December 2018 Fact-finding Meeting (Reference 6.9), when it concluded the following:

The DCISC Fact-finding Team concluded that the meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings. Unit 2 had tripped just prior to this fact-finding meeting from full power due to a transmission line disturbance. The plant systems and personnel responded appropriately. The DCISC should follow up on the cause and corrective actions for this plant trip.

Mr. Engleton began by stating that the Root Cause Evaluation (RCE) for the event was almost complete but had not yet been approved. As such, he could not at that time inform the Fact-finding Team of all of the corrective actions that would be taken. However, he believed that what occurred was well understood and proceeded to brief the Team on the details. At the time of the trip, Unit 1 was operating at reduced power, approximately 50%, for condenser waterbox cleaning. Unit 2 was tripped by the Special Protection System (SPS), which is a sensing and relay system contained in the DCPP 500 kV Switchyard. All plant equipment responded as designed, and operators appropriately responded to the trip by placing the plant in a stable, hot shutdown (Mode 3) condition. Following reviews of the trip, the Unit 2 reactor was restarted on December 2, 2018, and was returned to generation service on December 3, 2018.

The SPS was installed in 2006 following studies in the early 2000s by the Western Electricity Coordinating Council which concluded that grid instabilities could occur if a two-unit DCPP trip occurred when two of three 500 kV lines connecting DCPP to the grid were out of service. Accordingly, the SPS was designed to send a trip signal to the unit output breakers of one unit if it sensed a loss of two of the three power lines tying DCPP to the grid. Specifically, the SPS is armed when total net output from DCPP exceeds 1700 Megawatts (MW) and actuates if it detects that two lines are lost by sensing if a line’s current drops below 220 amps. On the day of the Unit 2 trip, none of the three 500 kV lines connecting DCPP was actually out of service. However, the current on the two lines from DCPP’s 500 kV switchyard to the Midway switchyard fell below the 220-amp setpoint. With total DCPP generation greater than 1700 MW and a low current on the two lines, the SPS performed its function as designed and sent a signal to open the generator output breakers on one of the DCPP units (Unit 2 in this case). When the output breakers opened, Unit 2 Reactor subsequently tripped as designed due to the magnitude of the load rejection. The low-line-current situation had not previously occurred in the previous 13 years of SPS operation, and it was thought that changes in the flow of electricity were possibly driven by changing electricity market conditions throughout the area.
Prior to this event, Control Room Operators were not provided with any way to monitor the SPS due primarily to generator and transmission company information segregation requirements. As an immediate corrective action and prior to unit restart, an alarm was created to estimate DCPP output and transmission line loading and alert Operators if a condition approaching SPS actuation were to occur. It was anticipated that the RCE would recommend additional corrective actions including changes to the SPS to ensure that another Reactor trip would not unnecessarily be initiated in the future. The Fact-finding Team concluded that equipment and personnel performed as expected during the trip, and the unit return to service was appropriately managed. However, the DCISC should review the final RCE once it is approved and available.

Conclusions:

DCPP equipment and personnel performed as expected during a trip on December 1, 2018, and the unit return to service was appropriately managed. However, the DCISC should review the final Root Cause Evaluation once it is approved and available.

Recommendations:

None

3.10 DCISC Member Meeting with DCPP Officer

DCISC Member Dr. Lam met with Jim Welsch, Vice President Nuclear Generation and Chief Nuclear Officer, to discuss the items in this Fact-finding Meeting and other items of mutual interest.

Conclusions:

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

4.0 Conclusions

4.1

The meeting with NRC Resident Inspector was beneficial, and the DCISC should continue the meetings.

4.2

DCPP’s Large Motor Program health was White (Healthy, but needing improvement). The implementation of Long-range Plans for motor rewinds were nearing satisfactory completion, and actions taken for emergent issues appeared appropriate.

4.3
The NRC Triennial Fire Protection Inspection was extensive and found no significant issues. The updated Fire PRA confirmed that the risks from fire continue to fall within the NRC’s acceptance criteria. This was further confirmation of an effective implementation of the NFPA-805 Program at DCPP.

4.4

The DCPP Refueling Outage 1R21 Outage Safety Plan and Safety Schedule appeared comprehensive and effective to prevent the plant safety level from dropping below acceptable safety standards. The Plan and Schedule applied a Defense-in-Depth philosophy to prevent accidents and to mitigate the effects of accidents, if they were to occur during shutdown.

4.5

The DCPP Corrective Action Review Board (CARB) meeting on January 23, 2019, appeared satisfactory in that the attendees met the intended objectives. Discussion of the significant items was comprehensive.

4.6

The DCISC Fact-finding Team concluded that the DCPP Quality Verification Audit Program appears to be effectively designed and implemented. The DCISC should follow up on the resolution of audit findings in the area of Cyber Security in a future meeting.

4.7

DCPP has resolved nearly all of the significant issues with its Emergency Diesel Generators (EDGs) and the health of Unit 1 EDGs is rated as Green and Unit 2 EDGs as White. Most actions contained in the EDG Reliability Improvement Plan have been completed, and EDG start reliability has been excellent over the past three years.

4.8

DCPP appears to have adequate plans in place to ensure that the future staffing needs for licensed operators would continue to be met through the cessation of operations in 2025.

4.9

DCPP equipment and personnel performed as expected during a trip on December 1, 2018, and the unit return to service was appropriately managed. However, the DCISC should review the final Root Cause Evaluation once it is approved and available.

4.10

The regular meetings between DCISC Members and DCPP Officers
and Directors continue to be beneficial for both organizations.

Recommendations:

None

6.0 References

6.1


6.2


6.3


6.4


6.5


6.6


6.7

D.6, Section 3.2, “Emergency Diesel Generator Health and Status.”

6.8


6.9


1.0 Summary

The results of the March 18-19, 2019 fact-finding trip to the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA are presented. The subjects addressed and summarized in Section 3 are as follows:

1. Meet with NRC Senior Resident Inspector
2. Meet with DCPP Officer
3. FLEX Equipment Safety Related Designation
4. Long Term Seismic Program Update
5. Review Outage 1R21 Performance
6. Equipment Reliability Process Update
7. Door Life Management Program Update
8. Cyber Security for Digital Control Systems

2.0 Introduction

This fact-finding trip to the DCPP was made to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if Pacific Gas and Electric’s (PG&E’s) performance is appropriate and whether any areas revealed observations, which are important enough to warrant further review, follow-up, or presentation at a public meeting. These safety matters include follow-up and/or continuing review efforts by the Committee, as well as those identified as a result of reviews of various safety-related documents.

Section 4-Conclusions highlights the conclusions of the fact-finding team based on items reported in Section 3-Discussion. These highlights also include the team’s suggested follow-up items for the DCISC, such as scheduling future fact-finding meetings on the topic, presentations at future public meetings, and requests for future updates or information from DCPP on specific areas of interest, etc.
Section 5—Recommendations presents specific recommendations to PG&E proposed by the fact-finding team. These recommendations will be considered by the DCISC. After review and approval by the DCISC, the fact-finding report, including its recommendations, will be provided to PG&E. The fact-finding report will also appear in the DCISC Annual Report.

3.0 Discussion

3.1 Meet with NRC Senior Resident Inspector

The DCISC Fact-finding Team met with Chris Newport, Nuclear Regulatory Commission (NRC) Senior Resident Inspector at DCPP, to share information and concerns. The DCISC last met with Mr. Newport in January 2019 (Reference 6.1), when it concluded the following:

The meeting with NRC Resident Inspector was beneficial, and the DCISC should continue the meetings.

The DCISC Fact-finding Team (FFT) and the Senior Resident Inspector discussed the following topics:

- Seismic PRA (Probabilistic Risk Assessment)
- Spent Fuel Pool Seismic Capability
- DCPP Long-Term Seismic Program
- PG&E’s Requests for Proposals for New ISFSI Casks
- Unit 2 Containment Spray Inadvertent Operation
- Unit 1 Reactor Head Suspended for Six Hours Event
- Effects of PG&E Bankruptcy on Safety (None to date)
- December 1, 2018 Unit 1 Reactor Trip Root Cause Evaluation
- Reactor Vessel Embrittlement

Conclusions:

The meeting with the NRC Resident Inspector was beneficial, and the DCISC should continue the meetings.

Recommendations:

None

3.2 Meet with DCPP Officer, Jim Welsch

The DCISC Fact-finding Team met with Jim Welsch, Vice President and Chief Nuclear Officer, for an update and to share information from the fact-finding meeting. The DCISC last met with DCPP management in January 2019 (Reference
6.2), when it concluded the following:

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

The following items were discussed:

- The recent March 13, 2019 Decommissioning Engagement Panel (DEP) meeting, which Mr. Welsch, a new member of the DEP, attended and which R. Budnitz also attended, representing the DCISC.
- Mr. Welsch told the Panel that DCPP would perform a risk analysis by mid-June 2019 of trucking vs. barging spent fuel in transport casks offsite to its disposal destination.
- Mr. Welsch told the DEP that DCPP would be sending requests by mid-June 2019 for proposals to the three domestic spent fuel cask providers and to a German provider. The requests would ask for information regarding personnel radiation involved with operating the casks.
- Mr. Welsch reported on the root cause analysis of the December 1, 2018 Unit 2 reactor trip. Two primary causes were identified: 1) changing grid conditions and 2) cultural issues in the PG&E Electric Operations Group. (This was discussed in more detail in Item 3.6 below.)

Mr. Welsch discussed various issues related to a possible DCISC role after plant electricity generation ceases.

Conclusions:

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

Recommendations:

None

3.3 FLEX Equipment Safety-Related Designation

The DCISC Fact-finding Team met with Bill Conklin, FLEX Program Manager, and Nozar Jahangir, Seismic Engineering Manager, to discuss the safety-related designation of FLEX equipment. The DCISC last reviewed FLEX during the Corrective Action Review Board (CARB) meeting in September 2018 (Reference 6.3), concluding the following:

The DCPP Corrective Action Review Board (CARB) meeting on September 5, 2018 appeared satisfactory in that the attendees met the intended
objectives. Discussion of the significant items was focused and comprehensive. Actions were assigned for resolution as appropriate.

During the September 2018 CARB meeting, the following question arose: Is FLEX equipment considered “Safety-related and subject to 10CFR50 Appendix B quality requirements?” This issue arose from a Quality Verification (QV) assessment of the Geosciences Group analyzing the seismic functionality of FLEX equipment. Considerable discussion ensued. An action item was generated for the Performance Improvement Group Head to work out the issue with QV and Geosciences and report back to CARB. One reason for this March 2019 Fact-finding Meeting was to follow up on this FLEX item.

FLEX equipment is comprised of those (mostly portable) components purchased following the Fukushima accident to mitigate various beyond design basis events such as occurred at Fukushima. These events include loss of all station power, loss of the ultimate heat sink, natural events such as earthquakes, tsunamis, and rainfall, and fires or explosions, which would render installed equipment ineffective. FLEX equipment includes portable diesel-driven pumps and electric generators and associated piping, controls and instrumentation.

DCPP reported that its FLEX equipment is not considered safety-related because it is designed not to the plant design basis, but to commercial grade quality requirements, which means the FLEX equipment is not subject to Federal Regulations contained in 10CFR50, the Nuclear Regulatory Commission’s safety-related regulations. DCPP does not take credit FLEX equipment in its safety analyses.

Conclusions:

DCPP considers its FLEX equipment to not be safety-related because it is designed and used for Fukushima-type beyond-design-basis events rather than design basis events as described in 10CFR50, the Nuclear Regulatory Commission’s safety-related regulations. This appeared acceptable to the DCISC Fact-finding Team.

Recommendations:

None

3.4 Long Term Seismic Program Update

The DCISC FF Team met with Nozar Jahangir (Manager of Seismic Engineering) and Nathan Barber (PRA Engineer), for an update on the PG&E Long Term Seismic Program (LTSP), which is the program under which PG&E has since 1987 carried out several projects to assure that the Diablo Canyon Power Plant is adequately designed and operated to assure safety against potential very large earthquakes. The LTSP is required by the NRC as a license condition for operating DCPP.
The LTSP was last reviewed by the DCISC in its entirety in late 2004 (Reference 6.4), although each of the several parts of the LTSP program has been reviewed by the DCISC individually on numerous occasions in the intervening years. However, this is the first comprehensive review in almost 15 years.

The LTSP program covers four different technical areas, which were discussed individually during this FF meeting, and will be discussed separately here. For each area, the current status and the planned future work were discussed.

**Understanding the seismic hazard:** This program has been ongoing for decades, and consists of seismic instruments deployed in the vicinity of the site by PG&E; seismic instruments maintained by other entities (Federal and State) at larger distances from the site; and an intensive analytical effort to assemble the latest seismological information and improve the understanding of its implications for the site. Today the understanding of the seismic hazard is captured in a “Probabilistic Seismic Hazard Analysis” (PSHA) that was performed using methods endorsed by the NRC staff. The latest comprehensive report on this aspect of the LTSP was part of the PG&E submittal to the NRC in 2015 in response to the Fukushima accident (Reference 6.5). It was thoroughly reviewed by the NRC and by the DCISC, and the conclusions of these reviews were highly favorable in terms of the quality of the work.

The FF Team learned that PG&E has committed to continue this seismic-hazard program until the end of the NRC license, including both maintaining the instruments and continuing with the analytical effort to understand the seismic sources and the potential ground motions at the site.

The DCISC continues to find this very extensive program to be of excellent quality.

**Understanding ground motion propagation from each earthquake source to the site, and earthquake energy propagation into the structures:** In this area, PG&E’s most recent analysis, submitted to the NRC in 2015 (Reference 6.6) and reviewed favorably by them, is very advanced, and goes well beyond what is required by the NRC’s license. Mssrs. Barber and Jahangir reported that this advanced work, which also follows PSHA guidelines endorsed by the NRC, will continue over the next several years, using even more advanced techniques to understand and model ground motion propagation and in-structure propagation of seismic energy.

The DCISC continues to find this very extensive program to be of excellent quality.

**Understanding the capacity of DCPP’s structures and equipment to withstand large earthquakes:** PG&E recently (2018) updated their analysis of the seismic fragility of every safety-important structure and equipment item, as part of their recent seismic PRA (Probabilistic Risk Assessment) (Reference 6.7), which they submitted to the NRC and which the NRC recently reviewed and found
technically adequate (Reference 6.8). R.J. Budnitz of the DCISC also reviewed it and came to the same conclusion.

Mssrs. Barber and Jahangir reported that this aspect of the LTSP will, going forward, consist of being attentive to any changes in the configuration that might require a re-evaluation of a specific component or structure – for example, if a component were to be replaced with a different one. In such a case, they told the FF Team that PG&E will perform a new modern seismic-fraility evaluation for beyond-design-basis performance, to assure that there is no degradation in overall seismic risk. They reported that this new evaluation, if it were to occur, will analyze performance well beyond the NRC’s licensing-basis requirements.

For some very robust components, the analysis going forward might consist of a conservative rather than a realistic assessment, if such a conservative analysis shows very substantial margins.

This overall approach seems to be fully satisfactory to the DCISC FF Team.

**Understanding how the DCPP power plant as a whole -- the two units and everything else -- responds in large earthquakes, and understanding the potential accident sequences and overall seismic risk:** This area was studied through the seismic PRA, which was submitted to the NRC in 2018 (Reference 6.7) and reviewed favorably by them (Reference 6.8). Dr. Budnitz of the DCISC reviewed this analysis also. The FF Team believes that this analysis is of excellent quality. An outside peer review of it by acknowledged experts has come to the same conclusion. The PG&E staff has committed to keeping this analysis up-to-date over the duration of the plant’s operating period, by assuring that configuration changes are captured through modifications to the analysis.

**Conclusions:**

PG&E has carried out a “Long Term Seismic Program” for over 30 years to satisfy an NRC license condition. This program consists of several different aspects (understanding of the seismic hazard, of seismic ground motion and in-structure energy propagation, of the seismic fragility of components and structures, and of seismic plant-response), all aimed at assuring that the power plant can withstand very large earthquakes without a safety compromise. The DCISC concludes that this very extensive program is of excellent quality, and that the plans for further studies going forward are sensible and thorough.

**Recommendations:**

None

3.5 Review Outage 1R21 Performance
The DCISC Fact-finding team met with Matt Coward, DCPP Outage Manager, for a review of Refueling Outage 1R21 performance. The DCISC last reviewed Outage 1R21 in December 2018 (Reference 6.9), concluding the following:

*DCPP’s Refueling Outage 1R21 will be similar to the successful Unit 2 Outage 2R20. DCPP’s planning and scope control appear satisfactory.*

DCPP also presented its plans for Outage 1R21 (scheduled to run from February 10 – March 18, 2019) to the DCISC at its February 2019 Public Meeting (Reference. 6.10).

At the time of this FF meeting the outage was nearing its end, and the unit was at 28% full power and increasing. Notable scheduled work completed in Outage 1R21 included the following:

- Integrated Containment Leak Rate Test
- Residual Heat Removal (RHR) Line Weld Overlay
- Reactor Coolant Pump 1-1 Rotor and Stator Replacement
- Reactor Coolant Pump 1-2 Seal Replacement
- Main Feedwater Pump 1-1 Overhaul
- Main Feedwater Pump 1-2 Turbine Overhaul
- Service Cooling Water Inlet Piping Liner Installation
- 480-Volt Ventilation Seismic Gap Modification
- Vital 480-Volt Bus G Breaker Replacement

Significant emergent work included the following:

- RHR Valve 1-8726 Reach Rod Broken
- Core Exit Thermocouple Nozzle Assembly Port 76 Stuck During Disassembly
- Main Feedwater Pump 1-1 Lube Oil Debris
- Containment Fuel Upender Excessive Movement
- Fuel Assembly Thimble Screw Found in Lower Cavity
- Relay 86G11 Failed to Reset the First Time
- 12 kV Breaker 52VE5 Would Not Rack Out

Things that DCPP believed went well included the following:

- Integrated Safeguards Testing (M-15) and Vital Bus Transfer Testing (M-13s)
- Integrated Containment Leak Rate Test
- Elimination of Steam Generator U-Tube Voiding and Vacuum Refill
Thing that DCPP believed needed improving were the following:

- Fuel Handling Equipment Reliability Continues to Challenge the Organization
- The Site Continues to Struggle with Timely and Accurate Schedule Updates
- Procedure Details Critical to Schedule Accuracy Were Missed during Outage Planning

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Goal</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Injury or Fatality Events</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nuclear Safety Events</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Site Clock Resets</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Outage Duration (Days)</td>
<td>40</td>
<td>36 Days, 11 Hours</td>
</tr>
<tr>
<td>ALARA (Person-Rem)</td>
<td>27</td>
<td>30.2</td>
</tr>
<tr>
<td>Significant Foreign Material Events</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Power Ascension (Days)</td>
<td>5</td>
<td>4 Days, 18 Hours</td>
</tr>
</tbody>
</table>

By all measures except ALARA (personnel radiation goal), the outage was successful. Emergent work issues (described below) contributed to the excess radiation dose of 3.2 Person-Rem.

Conclusions:

The DCPP Refueling Outage 1R21 was successfully performed. Importantly, there were no nuclear safety events. The personnel radiation goal was slightly exceeded due to several high radiation emergent items.

Recommendations:

None

3.6 Equipment Reliability Process Update

The DCISC FFT met with Ryan West, Manager of Electrical and Instrumentation & Control Engineering, for an update of DCPP’s Equipment Reliability (ER). The DCISC last reviewed ER in January 2018 (Reference 6.11), when it concluded the following:

*DCPP Equipment Reliability performance is adequate in all but two categories, Unit 1 and Unit 2 Preventive Maintenance Change Request Backlog. DCPP expects to achieve full recovery by the end of the first quarter 2018. This is good performance.*
The DCISC FF Team received and reviewed Procedure ER1.ID1, dated June 6, 2017, “Equipment Reliability Process.” This procedure included the scope, discussion, definitions, responsibilities, and instructions for DCPP ER. The procedure contained the following topics:

- Process Implementation
- Component Classification
- Performance Monitoring
- Corrective Action
- Critical Spares Management Process
- Reliability Improvement
- Long Term Planning
- Preventive Maintenance Implementation
- Executive Equipment Reliability Oversight Board
- Records

The DCISC FF Team found the procedure to be comprehensive, thorough, and satisfactory.

DCPP utilizes an Equipment Reliability Index (ERI) to measure its performance. The first ERI chart below is the former one, which shows performance through 3rd quarter 2018. The second chart below is the new ERI, which is used beginning in 2019, which has been adopted for the entire nuclear power industry by the Industry Equipment Reliability Group, and is used to measure and rank each nuclear plant. The new index also “raises the bar” on many measures to challenge plants to further improve ER and to further spread out individual plant’s performance in the relative ranking.

At the end of 2018 DCPP was down to one ER Clock Reset, which was due to high vibration in Auxiliary Salt Water Pump 2-1. In this case DCPP initiated an Apparent Cause Evaluation and is having the bearing manufacturer investigate.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Unit 1 ECD*</th>
<th>Unit 2ECD*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Unit 1 Acid Storage Tank Repairs and Unit 2 Caustic Tank Repairs</td>
<td>11/8/19**</td>
<td>2R21 Outage</td>
</tr>
<tr>
<td>3. Unit 1 &amp; 2 Main Generator Hydrogen Leakage</td>
<td>1R21**</td>
<td>2R21</td>
</tr>
<tr>
<td>4. IAS, PAC 05, 06 &amp; 07 Bridging Strategy</td>
<td>6/2/19</td>
<td>6/2/19</td>
</tr>
<tr>
<td>5. Intake Chemical Injection Leaks NaHSO₄</td>
<td>TBD</td>
<td>2R21</td>
</tr>
<tr>
<td>6. RV-355 O-Ring EOC Replacement</td>
<td>1R21**</td>
<td>2R21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>7. HVAC SSC Reliability Improvement</td>
<td>10/3/19</td>
<td>10/3/19</td>
</tr>
<tr>
<td>8. VCT/Zinc Injection Code Class Isolation</td>
<td>1R21**</td>
<td>2R21</td>
</tr>
<tr>
<td>9. Turbine Building HELB Impact on 4kV Switchgear and Cable Spreading Rooms</td>
<td>1R21**</td>
<td>2R21</td>
</tr>
<tr>
<td>10. Inverter LED Bulb Vulnerability</td>
<td>1R21**</td>
<td>2R21</td>
</tr>
</tbody>
</table>

* Estimated Completion Date

** Completed

DCPP’s Recently Completed Items List includes the following:

1. Units 1 & 2 Spent Fuel Bridge Crane Reliability Improvements
2. Emergency Diesel Generator (EDG) Inlet Fuel Header Capscrews
3. Containment Fan Cooler Unit Coupling Time Modification
4. Eagle 21 – Replace Fans to Avoid Trip Risk
5. Resolve 12 Fire Door Impairments
6. Eliminate Specific LK3 and LKd Boric Acid Leakers
7. Increase EDG Load Margin for Watt Recorder
8. Increase EDG Load Margin for Day Tank Level Switch
9. Create Instrument and Service Air Reliability Action Plans
10. Improve RCS WR RTD Reliability
11. 230kV Insulator Replacements at DCPP and Morro Bay Switchyards
12. Address On-Line Breaker Cycling Issues
The former DCPP Equipment Reliability Index – 3rd Quarter 2018
The new DCPP Equipment Reliability Index – January 2019

Regarding ERI inputs, the following table shows the relative contributions of each of the significant ER measures:

<table>
<thead>
<tr>
<th>Manual/Auto SCRAMS (Equipment Related only)</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Component Failures</td>
<td>30%</td>
</tr>
<tr>
<td>Safety System Unplanned Unavailability &amp; Fault Exposure</td>
<td>20%</td>
</tr>
<tr>
<td>Online Reliability Loss Factor</td>
<td>10%</td>
</tr>
<tr>
<td>Forced Unit Shutdowns</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Conclusions:**

The DCPP Equipment Reliability Process appears to be a successful, effective process to improve and maintain high Equipment Reliability, ranking high in industry measures. The process measures have been upgraded effective January 1, 2019 to provide more of a look ahead capability and to better reflect actual equipment reliability. DCPP’s Equipment Reliability Index shows Green (good).

**Recommendations:**

None

**3.7 Door Life Management Program Updatez**

The DCISC Fact-finding team met with Al Hartley, DCPP Door Program Manager (and Senior Consulting Engineer and Architect), and Jeremy Clark, Project Manager, Door Program, for an update on DCPP’s Door Life Management Program. The DCISC last reviewed this item in November 2017 (Reference 6.12), when it concluded the following:

Door impairments include problematic hinges, handles, skin failures, locks, closers, etc. Such impairments typically result from normal use as plant doors typically experience tens of thousands of openings and closings per year. There are 27 impaired doors being worked in 2019. Six are fire doors, which are getting highest priority. The last of the impaired fire doors is scheduled to be replaced or repaired by early May 2019.

The DCPP Door Life Management Program is still intact and going strong. Personnel appear to be on top of any door impairments, especially fire doors and others, which are needed for safety-related purposes, such as High Energy Line Break protection of vital equipment. The Fix It Now (FIN) Team has been assigned the job of identifying and repairing/replacing any impaired doors. This brings an adequate level of resources to assure repairs/replacements are performed quickly and efficiently.
Conclusions:

The DCPP Door Life Management Program appears healthy and effective at identifying and resolving impaired doors, especially fire doors.

3.8 Cyber Security Protection for Digital Control Systems

The DCISC Fact-finding Team met with Chance Siri, Supervisor of DCPP Cyber Security, and Jordan Tyman, Manager of DCPP Risk Management and Cyber Security for a review of DCPP Cyber Security applied to DCPP digital control systems. The DCISC last reviewed DCPP Cyber Security at its February 28, 2019 Public Meeting (Reference 6.13).

Mr. Tyman reported that DCPP completed its implementation of the full Cyber Security Program prior to the due date of December 31, 2017, as required by NRC regulations. An NRC pilot inspection was completed in May of 2017, with no significant issues, and a full NRC inspection for the Cyber Security Program is scheduled for March 2019; however, the results of this inspection were not available at the time of the FF meeting.

Mr. Tyman explained that the core element of the Cyber Security Program was identifying and implementing protection for all of the Critical Digital Assets (CDAs) at DCPP. CDAs were digital computer and communications systems associated with safety-related and important-to-safety functions, security functions, emergency preparedness functions, and support systems which if compromised could adversely impact any of those functions. DCPP identified approximately 4,000 CDAs across 66 critical systems, which reflects a higher number of digital systems than typical for commercial nuclear power plants. Slightly less than half of the 4,000 were in security-related systems, and the remainder were in plant-related systems. Some examples of CDAs were the Programmable Logic Controllers in the Digital Electrohydraulic Turbine Control System, Operator Human-machine Interface Computers, the Plant Process Control System, Security Cameras, and the Security Event and Monitoring System. Almost all of the CDAs were located inside protected or vital areas of the plant. All of the CDAs were evaluated, and 900 were found to require modifications to assure compliance with the regulations. Modifications included such work as locking USB ports, removing unnecessary programs, upgrading firmware, and reassigning or locking IP addresses.

This purpose of this March 2019 FF meeting was to review DCPP cyber security for digital control systems. DCPP has installed a number of digital control systems in the last ten years. The DCPP Cyber Security Program includes digital control systems as Critical Digital Assets as it does other CDAs, when it is one of the following:

- A component of a critical system, including assets that perform safety-related
and important-to-Safety, Security, or Emergency Preparedness (SSEP) functions, or provide support to, protect, or provide a pathway to critical systems.

- A support system asset whose failure or compromise as the result of a cyber attack would result in an adverse impact to an SSEP function.

Thus, DCPP digital control systems, which meet either of the above criteria, are treated as Critical Digital Assets and come under the full requirements of the program. Because of cyber security requirements, specific digital control system CDAs were not identified during the FF meeting and are not further discussed in this report.

Conclusions:

The DCISC has concluded in previous reports that DCPP’s Cyber Security Program appears to meet NRC requirements and appears to be effective. The full DCPP Cyber Security Program applies to those selected digital control systems, which are included in the definition of a Critical Digital Asset.

4.0 Conclusions

4.1

The meeting with the NRC Resident Inspector was beneficial, and the DCISC should continue the meetings.

4.2

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

4.3

DCPP considers its FLEX equipment to not be safety-related because it is designed and used for Fukushima-type beyond-design-basis events rather than design basis events as described in 10CFR, Part 50, the Nuclear Regulatory Commission safety-related regulations. This appeared acceptable to the DCISC Fact-finding Team.

4.4

PG&E has carried out a “Long Term Seismic Program” for over 30 years to satisfy an NRC license condition. This program consists of several different aspects (understanding of the seismic hazard, of seismic ground motion and in-structure energy propagation, of the seismic fragility of components and structures, and of seismic plant-response), all aimed at assuring that the power plant can withstand very large earthquakes without a safety compromise. The DCISC concludes that this very extensive program is of excellent quality, and
that the plans for further studies going forward are sensible and thorough.

4.5

The DCPP Refueling Outage 1R21 was successfully performed. Importantly, there were no nuclear safety events. The personnel radiation goal was slightly exceeded due to several high radiation emergent items.

4.6

The DCPP Equipment Reliability Process appears to be a successful, effective process to improve and maintain high Equipment Reliability, ranking high in industry measures. The process measures have been upgraded effective January 1, 2019 to provide more of a look ahead capability and to better reflect actual equipment reliability. DCPP’s Equipment Reliability Index shows Green (good).

4.7

The DCPP Door Life Management Program appears healthy and effective at identifying and resolving impaired doors, especially fire doors.

4.8

The DCISC has concluded in previous reports that DCPP’s Cyber Security Program appears to meet NRC requirements and appears to be effective. The full DCPP Cyber Security Program applies to those selected digital control systems, which are included in the definition of a Critical Digital Asset.

Recommendations:

None

6.0 References

6.1


6.2

Ibid., Section 3.10, “Meet with DCPP Officer.”

6.3

Ibid., Exhibit D.6, Section 3.5, “Observe Corrective Action Review Board.”
6.4


6.5


6.6


6.7


6.8


6.9


6.10

Ibid., Exhibit B.6, Plans for DCPP Refueling Outage 1R21.”

6.11


6.12

Ibid., Exhibit D.5, Section 3.8, “Fire Doors Status.”

6.13

"Diablo Canyon Independent Safety Committee Twenty-Ninth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2018

1.0 Summary

The results of the April 16-17, 2019, Fact-finding trip to the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA are presented. The subjects addressed and summarized in Section 3 are as follows:

1. Meet with Nuclear Regulatory Commission (NRC) Senior Resident Inspector
2. Future Movement of Spent Fuel
3. Reactor Vessel Inservice Inspection and Relief Requests
4. Performance Improvement Program
5. Foreign Material Exclusion Program
6. Observe Plant Health Committee Meeting
7. Management Observation Program
8. Flow Accelerated Corrosion Program
10. Meet with DCPP Officer
11. Control Room Observation

2.0 Introduction

This Fact-finding Trip to the DCPP was made to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if Pacific Gas and Electric’s (PG&E’s) performance is appropriate and whether any areas revealed observations, which are important enough to warrant further review, follow-up, or presentation at a public meeting. These safety matters include follow-up and/or continuing review efforts by the Committee, as well as those identified as a result of reviews of various safety-related documents.

Section 4-Conclusions highlights the conclusions of the Fact-finding Team based on items reported in Section 3-Discussion. These highlights also include the team’s
suggested follow-up items for the DCISC, such as scheduling future Fact-finding Meetings on the topic, presentations at future public meetings, and requests for future updates or information from DCPP on specific areas of interest, etc.

Section 5-Recommendations presents specific recommendations to PG&E proposed by the Fact-finding Team. These recommendations will be considered by the DCISC. After review and approval by the DCISC, the Fact-finding Report, including its recommendations, will be provided to PG&E. The Fact-finding Report will also appear in the DCISC Annual Report.

3.0 Discussion

3.1 Meet with NRC Resident Inspector

The DCISC Fact-finding Team met with John Reynoso, NRC Resident Inspector, for an update. The DCISC meets regularly with the Resident Inspectors and last met with them in March 2019 (Reference 6.1), when it concluded the following:

The meeting with NRC Resident Inspector was beneficial and that the DCISC should continue the meetings.

The participants discussed the following topics:

1. An NRC initiative to hold public meetings to discuss best practices for community engagement panels near decommissioning nuclear power plants.
2. Preliminary inspection results from first quarter Resident Inspector activities during which there were several violations of low safety significance identified, the details of which would be available when the report was issued.
3. Refueling Outage 1R21 Results, which were generally considered to have been good performance.

Conclusions:

The meeting with NRC Resident Inspector was beneficial, and the DCISC should continue the meetings.

Recommendations:

None

3.2 Future Movement of Spent Fuel

The DCISC Fact-finding Team met with Rich Hagler, Supervisor, Spent Fuel Management; Mark Mayer, Manager, Nuclear Fuels; and Philippe Soenen, Decommissioning Environmental and Licensing Manager, for an update on DCPP’s plans for the future movement of spent fuel. The DCISC last reviewed Independent Spent Fuel Storage Installation Operations its July 2018 Fact-finding Meeting
DCPP loading of spent fuel into the Independent Spent Fuel Storage Installation (ISFSI) is currently proceeding satisfactorily for Casks 50-58 and is scheduled to be completed in August 2018. The next loading campaigns are scheduled for 2020 and likely 2022. ISFSI relicensing is underway for 2022, when the current license expires. DCPP will address cask Stress Corrosion Cracking in the relicensing submittal.

The purpose of this Fact-finding Team’s inquiry into future spent fuel movement plans was to better understand DCPP’s spent fuel licensing basis and its evolving plan to investigate options for accelerating the movement of spent fuel from the Spent Fuel Pool (SFP) to the Independent Spent Fuel Storage Installation (ISFSI) during both the period prior to and immediately following cessation of operations in 2025.

The first question the team sought to have answered was as to the specific minimum time required by DCPP’s Technical Specifications for the decay of a spent fuel assembly before spent fuel could be transferred from the SFP to the ISFSI. Mr. Hagler reported that the absolute minimum time by Technical Specifications was five years; however, additional specifications (primarily burnup and thermal loading) of the cask license made the practical minimum much longer than five years. These specifications were contained in cask heat loading tables which were incorporated into the 10CFR50 Part 72 license for the ISFSI. As DCPP currently uses ‘high burnup’ fuel (fuel assemblies designed to generate heat for a longer time period before replacement), the tables governing the maximum heat loads that could be placed into each cask would not allow the completion of fuel transfer from the SFP to the ISFSI to be done in any time less than seven years. This was the information that formed the basis of the SFP offload plan proposed to the California Public Utilities Commission (CPUC) in December 2018. The tables contained in the ISFSI license could not be changed without submitting a license change request to the NRC for its approval. Following the Fact-finding Meeting, the team reviewed the ISFSI Updated Final Safety Analysis Report (UFSAR) and confirmed that Mr. Hagler’s explanation matched the information contained in Section 10.2 of ISFSI UFSAR. An extract of a typical UFSAR table is shown below:
Mr. Hagler continued to explain that since the time that the original ISFSI license was obtained along with the approval for the use of the current style of Holtec Multi-purpose Canister (MPC) cask, knowledge and technology had advanced significantly regarding the use of different materials in the MPCs. The MPCs currently in use at the DCPP ISFSI were licensed to store fuel assemblies generating a maximum of 28 kW of heat. By using more advanced materials, such as aluminum alloys, it was believed that the currently available technology could support storing assemblies generating as much as 50 kW of heat. The primary limiting factor was the conduction of heat from the internal section of the fuel assembly basket to the outer shell. The more advanced materials conduct the heat more efficiently such that spent fuel cladding temperatures are maintained below the temperatures at which the formation of zirconium hydride could occur and subsequently result in fuel cladding cracking.

The Fact-finding Team was also briefed on advancements in the industry regarding the thermal analyses that were used to predict spent fuel cladding temperatures given cask materials and configurations. Industry documents were provided to the team concerning the results of experiments using a dry cask simulator, the ongoing study of an instrumented high burnup demonstration cask at another nuclear power plant ISFSI, and the ongoing efforts by the Electric Power Research Institute to improve the accuracy of thermal modeling for fuel storage casks. It
was anticipated that the knowledge gained through these efforts would in the future allow the recapturing of some margin used in previous, less precise analysis and therefore allow increasing the overall heat limit for spent fuel stored in a cask.

As mandated by the CPUC and advocated by public interest, PG&E had initiated a project to obtain proposals for the procurement of an alternative cask that would take advantage of advances in materials and thermal analysis and allow the storage of spent fuel with a higher heat load at the DCPP ISFSI. Under the current approved ISFSI license, as explained above, the minimum allowable time for offloading all of the spent fuel from the SFP to the ISFSI could not be reduced below seven years. The project was preparing a Request for Proposals (RFP) that would solicit proposals from suppliers that would utilize new cask technologies in order to both offload the SFP in a shorter time period and minimize the overall inventory of spent fuel in the SFP. No specific constraints were placed on potential suppliers regarding cask configuration; however, suppliers would have to meet the current regulations and DCPP-specific design criteria such as those for radiation dose, aging management, handling, and seismic hazard spectrum. No contracts were currently in place for additional cask procurement and as such there would be no direct costs to abandon the current cask design. It was anticipated that a new cask design would be more expensive, but some of the additional costs would be recovered by the reduced operating costs (mostly in the area of security) associated with reducing the time that fuel was present in the SFP. It was desired to complete the RFP process, select a technology, and apply for the necessary license amendments by 2021. That timeframe was desired in order to allow sufficient time for licensing action to be approved and new casks to be manufactured by the time the cessation of operations occurred in 2025.

Conclusions:

DCPP’s current license for spent fuel storage contains conservative requirements for heat load of spent fuel assemblies in dry cask storage. DCPP has initiated a project to obtain proposals from cask vendors to provide an alternative cask technology in order to increase the allowable heat load and reduce the cooldown time required before spent fuel assemblies can be placed into dry cask storage.

Recommendations:

None

3.3 Reactor Vessel Inservice Inspection Program and Relief Requests

The DCISC Fact-finding Team met with Dave Gonzalez, Inservice Inspection (ISI) Coordinator, and Greg Porter, Primary Systems Engineer for an update on Reactor Vessel ISI activities and recent code relief requests submitted to the NRC. The DCISC last reviewed the Reactor Vessel Material Surveillance Program during its March 2017 Fact-finding Meeting (Reference 6.3), when the DCISC concluded the
The DCPP Reactor Vessel Material Surveillance Program appears satisfactory for assuring compliance with NRC regulations to prevent Pressurized Thermal Shock.

The primary question that was discussed in this meeting was a recent proposal by DCPP to submit an American Society of Mechanical Engineers (ASME) ISI Code relief request to the NRC. Mr. Gonzalez began by seeking to clarify the purpose of the proposed relief request in light of some confusion over the matter during recent DCISC public meeting discussions. At this time, the relief request was only a proposed relief request, and a formal relief request had not yet been submitted to the NRC. The topic that was being considered for the request was to reduce the visual inspection requirements for the internal surfaces of the reactor vessel hot leg nozzles. The visual inspections were currently required to meet the ASME Examination Category visual VT-3 examination requirements. The proposed relief request would provide an alternative method that did not fully meet the VT-3 examination requirements but would be sufficient to meet the intent of the regulations. The alternative method would be to use typical foreign material and debris inspection cameras to inspect the inside surfaces of the hot leg nozzles in lieu of higher resolution cameras that were required to meet the current VT-3 examination requirements. The alternative method would be considered not to be a reduction in safety as it would meet the stated basis of the current examination requirement which was to detect any presence of foreign objects and not to inspect weld quality. These requirements originated from Electric Power Research Institute (EPRI) documents that were used as the bases for the current code requirements. EPRI was currently leading a project to reduce these examination requirements and DCPP was a lead plant for submittal of these proposed changes to the NRC for approval.

At the request of the Fact-finding Team, Mr. Gonzalez provided an update on the current requirements and status of DCPP’s Reactor Vessel weld examinations. The Unit 1 Reactor Vessel last received an internal inspection in 2013 during Refueling Outage 1R18 (picture below). During that inspection, 84% of the Reactor Vessel belt line welds were successfully inspected via robotic inspection equipment. The remaining welds were not inspected during that outage due to multiple problems with the robotic inspection equipment. In lieu of inspecting the remaining welds during the next outage, DCPP submitted an exemption request to extend the inspection interval to 20 years, and the NRC approved the request in 2015 (ML15168A024). Under the approved exemption, the Unit 1 welds were not required to be examined again until May 2025 and as such would not need to be examined again prior to the Unit 1 cessation of operations in 2024. The team reviewed a copy of the NRC approval and verified that information was correct.
2015 Unit 1 Reactor Vessel Weld Inspections

The Unit 2 Reactor Vessel last received an internal inspection in 2016 during Refueling Outage 2R19. During that inspection, 100% of the weld inspections were satisfactorily completed, and no exemption requests were needed. The Unit 2 welds would also not need to be examined again prior to the cessation of operations for Unit 2 in 2025.

The team inquired regarding what were the typical results of the reactor vessel weld inspections for both units. Mr. Gonzalez reported that the inspections usually found some weld indications that were below the thresholds that would require further action for additional monitoring or repairs. Most of the indications identified were small, related to the original fabrication of the vessel, and had been verified not to be growing over time.

**Conclusions:**

*DCPP’s Reactor Vessel Inservice Inspection Program is continuing to ensure the acceptable integrity of the reactor vessel welds and is being performed in compliance with the applicable requirements.*

**Recommendations:**

None
3.4 Performance Improvement Program

DCISC Fact-finding Team met with Shawn LaForce, Nuclear Corrective Action Program Supervisor, and John Hart, Station Human Performance Coordinator, to review the current status of the Performance Improvement Program (PIP) at DCPP. The DCISC last reviewed this topic during its November 2017 Fact-finding Meeting (Reference 6.4), when it concluded the following:

DCPP's Performance Improvement Department, along with its Performance Improvement Coordinators (PICOs) appears to be an effective asset for plant problem solving and continuous improvement.

Mr. LaForce briefed the Fact-finding Team regarding recent organization changes in the Performance Improvement (PI) Department at DCPP. Anne Shatara had been assigned as acting PI Manager during an extended temporary assignment of the permanent manager (Mark Frauenheim) to a position assisting PG&E's non-nuclear operations. Additionally, the Organizational Effectiveness Group had been moved to become a part of the PIP Group rather than reporting directly to the PI Manager.

Recently, the PIP had been focusing on ascertaining if PG&E’s declaration of bankruptcy had any effect upon employee performance at DCPP. To date, several PIP observations appeared to show that employee performance continued to remain high despite the bankruptcy. These observations included:

- Conversations with employees in the field found few immediate concerns.
- Reviews of anonymous notifications found no unusual trends.
- A Quick-hit Self-assessment performed during the recent Refueling Outage 1R21 did not find any increase in human error event rates (copy provided to and reviewed by the team; SAPN 51016310).
- There were no department level human error events during the recent Refueling Outage.

Mr. LaForce noted that the PI Department continued to be concerned about future performance in light of workforce changes coming in 2020 and 2021. He stated that high turnover rates could challenge human performance, particularly in the Maintenance Department. The plant would need to work hard to ensure that knowledge is retained and that workers remained proficient in tasks as experience levels fell. The Operations Department appeared to be in a strong position in managing possible future turnover of personnel.

One specific item which the team inquired about was the status of an assessment of the submission rates of Corrective Action Program (CAP) Notifications. During its attendance at an October 2018 Corrective Action Review Board meeting, the DCISC noted that a reduction in the number of Notifications had been noted and
was being investigated. The reduction in the rate of Notification submissions noted in late 2017 and early 2018 was as shown in the graph below:

![Annual Notification Submission Numbers](image)

Messrs. LaForce and Hart reported that an assessment of the reduced rate of Notification initiations had been completed and the conclusion was that there were no common causes or increased reluctance on the part of employees to initiate Notifications. Rather, the lower initiation rate was attributed to improvements in human performance, improvements in equipment reliability, the closeout of several major capital projects, a reduced number of preventative maintenance activities, and the fact that 2017 contained only one Refueling Outage. Additionally, the initiation rate for Notifications at DCPP continued to be high relative to the industry (approximately 22,500 in 2017), and indications were that the rate for 2019 would be higher given the two Refueling Outages to be performed during the year. The team was provided and reviewed a copy of the assessment (SAPN 50953040).

Conclusions:

DCPP’s Performance Improvement Program is actively monitoring human performance for reductions in performance due to the PG&E bankruptcy or upcoming workforce changes. To date, there appears to be no effect and human performance error rates remain low. An assessment was completed of a recent reduction in the rate of Notification initiations, and the assessment concluded that there was no increased reluctance on the part of employees to initiate Notifications.

Recommendations:

None

3.5 Foreign Material Exclusion Program
The DCISC Fact-finding Team met with Craig Stoltz, Work Management Week and Foreign Material Exclusion (FME) Program Coordinator, to review the current status of the FME Program at DCPP. The DCISC last reviewed this topic during its September 2017 Fact-finding Meeting (Reference 6.5), when the DCISC concluded the following:

*DCPP’s recent FME Program performance has been generally good, except for several FME events which occurred during the 1R20 Refueling Outage. Actions taken with respect to those events were appropriate.*

DCPP’s FME Program is governed by procedure AD4.ID6, “Foreign Material Exclusion Program,” a copy of which was provided and reviewed by the Fact-finding Team. The purpose of the FME Program is to prevent the undesired and potentially harmful intrusion of foreign materials into plant systems or components. Situations in which this intrusion can most likely occur are during maintenance when normally closed systems and environments are open or during inspections or tests under those same types of conditions. In such situations, it is important to maintain control of tools, fasteners, repair parts, replaced parts, safety items, and residue resulting from the work, items attached to clothing, and anything else that could become loose and enter a system or environment. The vast majority of FME problems typically occur during plant outages when many system repairs, modifications, inspections, and tests are performed.

Mr. Stolz reported that the FME Program was generally healthy, although there was an identification of a negative trend (documented in SAPN 51017975) during the recent 1R21 Refueling Outage. During this outage, there were three events classified as “Threats,” which were defined by the procedure as, “an error in FME implementation that if not detected would result in personnel injury, significant plant equipment damage, fuel failure, or loss of generation.” The three FME Threats identified during Refueling Outage 1R21 were:

- FME found in the Reactor Cavity prior to Reactor Head lift. A “D-ring” was found in the cavity that was postulated to have been dropped prior to the area being cleared for the head lift. No record of a possible source of the FME was identified.

- Material not logged into FME area. A tethered box wrench was dropped onto the Reactor Head. During the initial attempted retrieval of the wrench, a magnet became stuck and broke into scattered pieces which then required additional retrieval efforts.

- Dropped object in condenser waterbox. A vendor dropped a lanyard into the waterbox plenum which then required a diver to retrieve the item.

The above three Threats during Refueling Outage 1R21 were a significant increase over the single Threat that was identified during the previous Refueling Outage. As
corrective action for the negative trend, the Performance Improvement Coordinators performed an analysis and found that programs and procedures were adequate but that the awareness of station expectations for adherence to the procedures needed improvement. As a result, three awareness bulletins were generated and distributed to station staff, copies of which were provided to the Fact-finding Team. FME Program expectations were also communicated via the Plan of the Day for review with all crews at the start of a workday during the outage. Mr. Stoltz also noted that post-outage meetings had identified future enhancements to outage worker training that could be useful to ensure that leadership’s expectations for FME Program compliance were fully communicated. The DCISC should review the current program for temporary outage worker training and recent changes to the program during a future meeting.

The Fact-finding Team also inquired regarding how FME activities would be managed during the refurbishment of the Main Generator planned to occur during the upcoming 2R21 Refueling Outage. Mt. Stoltz reported that the FME Program would be managed by the contractor performing the generator refurbishment. That contractor had a history of successfully managing FME Programs for Main Turbine work during previous outages at DCPP.

Conclusions:

DCPP’s Foreign Material Exclusion (FME) Program performance during the 1R21 Refueling Outage was not as good as past outages as shown by the identification of three FME events classified as “FME Threats.” Actions taken with respect to those events appear to be appropriate. The DCISC should review the current program for temporary outage worker training and recent changes to that program during a future meeting.

Recommendations:

None

3.6 Observe Plant Health Committee Meeting

The DCISC Fact-finding Team met with Hector Garcia, DCPP Liaison to the DCISC, to attend and observe a bi-weekly Plant Health Committee (PHC) meeting. The DCISC last observed a PHC meeting in September 2018 (Reference 6.6), when it concluded the following:

The September 5, 2018, DCPP Plant Health Committee meeting was performed efficiently and effectively with clear and concise system and equipment reports, good participation and discussion by members, and clear action items and assignments.

The PHC is governed by DCPP Procedure TS5.ID9, “Plant Health Committee” and is
a management team responsible for:

- Continual review of system and program health issues
- Routinely monitoring the status of plant health issues on the plant health issues list for action status and completion
- Routinely monitoring the status of the system health tactical list
- Review and approval of action plans to address plant health issues that originated from system health reports, maintenance rule, operator workarounds, program health reports, emergent issues, and others deemed important to monitor
- Reviewing and approving action plans to resolve degraded, unanalyzed and non-conforming conditions
- Review and monitoring of plant health issue plans that are presented to the PHC
- Performing Preventative Maintenance Oversight Committee functions
- Annual approval of system, component, and program long range plans
- Quarterly review and monitoring of the Top Margin Issues list
- Approving and authorizing the PHC budget for solutions to plant health issues

The membership of the PHC Core Team, which is the decision-making (i.e. voting) group of the PHC, is as follows: the Station Director (Chair), the Engineering Director (Alternative Chair), the Operations Manager, the Maintenance Director, and the Nuclear Work Management Director. The PHC is also supplemented by a group of Supporting (non-voting) Members from various other station departments.

The agenda for this meeting included the following:

- Safety/Human Performance Message
- Facilitative Leadership Minute
- Verify Quorum
- Introduce Visitors and Operations Personnel
- Review Purpose and Desired Outcomes
- Review of Action Items
- Review and Approve Minutes from Previous Meeting
- Operations Issues Update
- Reliability Issue Walk-in Item(s)
- Evaluation of the Conduct of the Meeting
The meeting was facilitated by the Supervisor, Shift Operations, Brian Bridges. The meeting was conducted with efficiency, and the agenda was covered as scheduled. A strong emphasis was placed on plant safety and reliability throughout the discussion. It was noted that the model for PHC meetings was being modified to focus on different areas at different meetings. This meeting was considered a “tactical”-level meeting, focusing on Operations issues and work arounds.

During the discussion of Action Items from previous meetings, one item that solicited extended discussion regarded temperature limits for the Ultimate Heat Sink (UHS) for the plant which is the Pacific Ocean. Current Technical Specification limits UHS temperatures to 70°F, and an assessment had been completed which found that plant operations up to UHS temperatures of 75°F could be justified. The PHC expressed concern that there was no long-term strategy for supporting plant operations with high UHS temperatures. This issue was previously discussed with the DCISC in September 2017 (Reference 6.7) when it was in the process of being evaluated.

With the meeting focusing on Operations issues, the following items were reviewed:

- Operator Work Arounds
- Operations Policy B-38 Repairs (Priority 4 equipment deficiencies tagged as important by Operators)
- Defeated Main Annunciators
- Operator Burdens
- Adverse Condition Monitoring Plans

Discussions on the status of the above Operations lists were detailed, focused on operational safety, and initiated additional follow-up actions where necessary. One item of interest to the Fact-finding Team was the reporting of issues with an upgraded Reactor Coolant Pump vibration monitoring system which was recently installed. The DCISC should review the status of this system during a future fact-finding meeting.

**Conclusions:**

The April 17, 2019, DCPP Plant Health Committee meeting was performed efficiently and effectively with clear and concise system and equipment reports, good participation and discussion by members, and clear actions and assignments. The DCISC should review the status of a recently upgraded Reactor Coolant Pump vibration monitoring system during a future fact-finding meeting.

**Recommendations:**

None
3.7 Management Observation Program

The DCISC Fact-finding Team met with Anne Shatara, Acting Performance Improvement Manager, and John Hart, Station Human Performance Coordinator to review the current status of the Management Observation Program at DCPP. The DCISC last reviewed this topic during its July 2017 Fact-finding Meeting (Reference 6.8), when the DCISC concluded the following:

*The DCPP Time in the Field/Engagement and Coaching Program, a prescriptive observation program, appears satisfactory for providing management expectations on human performance and worker safety practices to workers as well as collecting worker input.*

Ms. Shatara reported that the Management Observation Program had undergone significant changes since the last review by the DCISC. Previously, DCPP management, from Directors down to the first line supervisor or foreman, performed observations of first line workers, or individual contributors, in the plant during work in progress. The results of those observations were entered into a database via an application running on smart phones. Although that approach was still used to track and document training observations, the Program was now focused on having first line supervisors get into the field and directly observe their employees performing tasks on a regular basis.

Supervisors were expected to observe employees in the field on a daily basis and discuss their observations with employees in a collaborative fashion. Observations were also documented and rolled up into a report to be discussed at a Department Operations Review Meeting (ORM). The ORMs were typically held quarterly to review the results of all observations, and Performance Improvement Coordinators (PICOs) participated in the ORMs. The team was provided copies of two recently completed (second quarter) ORM Reports, one listing observations within the Maintenance Support Department and one listing observations within the Instrumentation and Controls Department. Each ORM Report contained 12 to 15 significant observations categorized by topic as well as by whether they were strengths or opportunities for improvement. Items contained in the ORM Reports included safety observations, human performance observations, suggestions for technical improvements, and communications observations. The ORM Reports also contained columns tracking further actions, if required.

Ms. Shatara stated that DCPP believed that the current program gave better context for the observations and was more effective in identifying barriers to good performance. Additionally, the PICOs were provided an opportunity via the ORMs to identify larger trends and initiate further actions such as focusing on FME practices or self-checking techniques. Lastly, it facilitated more supervisor interaction with personnel in the field which in turn help to maintain a high level of human performance at the plant.
The Fact-finding Team inquired about the expectations for Managers and Directors under the new program. Ms. Shatara stated that Managers were expected to get into the field occasionally with their employees, particularly if they were new to their positions. Also, it was the Manager’s responsibility to define how many observations were to be performed by Supervisors and to attend the ORMs. Directors were expected to use the ORM results to identify specific focus areas for their Departments and to occasionally attend the ORMs.

Lastly, the Fact-finding Team inquired as to what the PI Department had observed regarding the effect of the cessation of operations and PG&E bankruptcy upon human performance. Mr. Hart stated that people were very disappointed by the events in general and the bankruptcy’s effect on incentive programs for last year’s performance in particular. However, DCPP operations at this time had generally been unaffected and sheltered from other activities at the company. He believed that could change within the next one to two years as the second tier of the retention program came into effect and more significant actions of the bankruptcy court possibly began to be put into place. Ms. Shatara also noted that personnel from the Institute for Nuclear Power Operations recently made a visit to review station performance in light of the bankruptcy and did not identify any significant issues.

### Conclusions:

DCPP’s Management Observation program has shifted to focusing on having first-line Supervisors observe employee activities in the field on a regular basis. The results of Supervisor’s observations are summarized and reviewed during quarterly Operations Review Meetings.

### Recommendations:

None

### 3.8 Flow Accelerated Corrosion Program

The DCISC Fact-finding Team met with Chris Beard, Flow Accelerated Corrosion (FAC) Program Owner; Shawna Griffin, FAC Program Backup Owner; and David Gonzalez, Inservice Inspection Program Supervisor, to review the current status of the FAC Program at DCPP. The DCISC last reviewed this topic during its April 2016 Fact-finding Meeting (Reference 6.9), when it concluded the following:

*DCPP remains actively and effectively engaged in its Flow Accelerated Corrosion (FAC) Program. Program Health was rated White (e.g. some improvement needed) due to a leaking expansion joint on a High Pressure Turbine exhaust line to the Moisture Separator Reheaters and to an issue pertaining to allowable shell thickness on several feedwater heaters. Both issues have since been resolved.*
Flow-Accelerated Corrosion (FAC) is a phenomenon in which the oxide layer and actual metal normally present on carbon steel piping materials dissolves into the water or steam/water flows and becomes eroded away by the impingement of high flow water or steam. This dissolution gradually reduces the piping wall thickness; left unchecked, it can lead to piping failure. The objective of the DCPP FAC Program is to provide a high degree of confidence against the rupture of FAC-susceptible piping systems, primarily for personnel safety because most FAC-susceptible piping was contained in non-safety related systems. DCPP’s program is governed by plant procedure TS1.NE1, “Flow Accelerated Corrosion Monitoring Program,” a copy of which was provided to the DCISC Fact-finding Team. This procedure discussed, among other things, the identification of FAC susceptible systems, predictive modeling, plant and industry operating experience, ultrasonic inspection techniques, component acceptance standards, program performance criteria, piping repair and replacement, and FAC Engineer Qualifications.

The program included the identification of elbows, tees, and other components and configurations, which were most susceptible to FAC because of the moisture, content and flow velocity, the piping geometry, and the piping material (primarily carbon steel). Mr. Beard reported that in general, DCPP has, over the history of the plant, been aggressive at replacing sections of piping susceptible to FAC with alloy materials that are not as susceptible. These efforts include replacing high pressure #1 and #2 extraction steam piping and final feedwater piping. Currently, DCPP was focused on replacing portions of the Condensate Polisher system that were susceptible to FAC due primarily to the low pH value of water contained in that system. Seven sections of piping in the polisher system were recently replaced during Refueling Outage 1R21.

The FAC Program establishes inspections of piping wall thicknesses to be performed during each outage. After the inspections are completed, data is entered into a software program that tracks degradation and predicts areas requiring future inspections or possible replacements. As a result of DCPP’s aggressive replacements, the number of piping replacements typically is now low compared to the rest of the nuclear industry. Additionally, the number of inspections required during each outage is being reduced as the cessation of operations approaches. For example, 47 inspections were performed during Refueling Outage 1R20 and 27 inspections were performed during Refueling Outage 1R21. It was expected that most components inspected during the recent Refueling Outage 1R21 would not need to be inspected again prior to the cessation of operations. The team inquired if there were any emergent replacements required during the recent outage, and Mr. Beard reported that emergent replacements were not common at DCPP.

Conclusions:

DCPP continues to manage its Flow Accelerated Corrosion Program effectively. The numbers of inspections and replacements performed...
as a part of the Program are trending down and will continue to do so as DCPP approaches the date for the cessation of operations.

Recommendations:

None

3.9 Direct Current Power Systems

The DCISC FFT met with Gary Segich, Direct Current (DC) Power System Engineer, for an update on the health of DC Power Systems at DCPP. The DCISC last reviewed this system during its July 2017 Fact-finding Meeting (Reference 6.10), when it concluded the following:

The DCPP Direct Current Power Systems are rated Green, i.e., Healthy with several issues that are being worked. The System Engineer appeared knowledgeable and proactive about his system. The system was in good working order, and the areas of the plant visited were clean and orderly.

The DC Power System (DCPS) is a 125 and 150 Volt Direct Current (VDC) system designed to provide power for operation and control of equipment during all modes of plant operation. The system is powered by batteries that are kept charged with dedicated battery chargers. The DCPS consists of two subsystems, which are isolated from each other:

- Vital 125 VDC (safety-related)
- Non-vital 125/150 VDC

The Vital DCPS is redundant with three separate trains, i.e., a single active or passive failure will not prevent the system from performing its safety functions. Though physically separate, the trains can be manually cross connected. The system is capable of providing emergency DC power from the vital batteries for a minimum of two hours during a design basis accident coincident with a loss of battery chargers. It can perform its function during the following events:

- Loss of main generator
- Loss of off-site power
- Degraded off-site power
- Loss of battery chargers
- Loss or start failure of Emergency Diesel Generators

Each unit has 180 DCPS batteries, which are designed for a 20-year life.

Mr. Segich provided the Fact-finding Team with copies of the DCPS Health Reports.
The DCPSs on both units were rated as “Green” or “Healthy,” with no major issues. Minor issues included:

- Non-vital batteries on both units had some hairline cracks on the lids caused by expansion of the internal plates. The cracks were being monitored to ensure they did not move into the sides of the battery cases. (DCPP’s vital batteries have more room for plate expansion and are not as susceptible to the phenomenon.)

- On Unit 2, one vital battery (2-2, cell 37) was trending low in voltage. The battery cell was planned to be replaced during the upcoming Refueling Outage 2R21. Mr. Segich noted that such low voltage problems were usually associated with the breakdown of a plate separator due to a small fabrication defect.

Regarding the age of DCPP’s batteries, Mr. Segich reported that most vital batteries had been replaced within the last eight years. Non-vital batteries ranged from 4 to 11 years old. As it was unclear at this time how long the batteries would need to remain operational following cessation of operations, it was not known if the batteries would need to be replaced again in the future. The Fact-finding Team inquired regarding how the batteries are tested, and Mr. Segich stated that each battery receives a full discharge test during each Refueling Outage (every 18-24 months).

The team also discussed the health of battery chargers and DC to AC inverters. The vital battery chargers (five per unit) were replaced in 2004 and were considered to have a 40-year life. The chargers were typically lightly loaded as most vital loads were carried by the inverters during normal operation. The inverters (four per unit) were replaced in 1994 and were also considered to have a 40-year life. Both chargers and inverters did not typically have any operating issues.

Conclusions:

The health of DCPP’s Direct Current Power Systems was rated as Green, i.e., Healthy. The System Engineer appeared knowledgeable and proactive about his system.

Recommendations:

None

3.10 DCISC Member Meeting with DCPP Officer

DCISC Member Dr. Lam met with Jim Welsch, Vice President Nuclear Generation and Chief Nuclear Officer, to discuss the items in this Fact-finding Meeting and other items of mutual interest.
Conclusions:
The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

Recommendations:
None

3.11 Control Room Observation

The DCISC Consultant met with Hector Garcia, DCPP Liaison to the DCISC, to tour the DCPP Control Room and observe ongoing activities. The DCISC last observed Control Room activities in December 2016 (Reference 6.11), when it concluded the following:

*The Operations Focus Daily Briefing regarding plant status and planned activities was well structured and informative.*

The DCISC Consultant observed that the Control Room was neat and orderly with a professional atmosphere being maintained at all times during the observation. Communications between Operations personnel were clear, concise, and performed using ‘three-way’ methodology. The Consultant reviewed the Operations Plan of the Day and briefly discussed the status of activities with the Unit 1 Senior Reactor Operator.

Conclusions:
The DCISC Control Room was neat and orderly with a professional atmosphere being maintained.

Recommendations:
None

4.0 Conclusions

4.1

The meeting with NRC Resident Inspector was beneficial, and the DCISC should continue the meetings.

4.2

DCPP’s current license for spent fuel storage contains conservative requirements for heat load of spent fuel assemblies in dry cask storage. DCPP has initiated a project to obtain proposals from cask vendors to provide an alternative cask technology in order to increase the allowable heat load and reduce the cooldown time required before
spent fuel assemblies can be placed into dry cask storage.

4.3

DCPP’s Reactor Vessel Inservice Inspection Program is continuing to ensure the acceptable integrity of the reactor vessel welds and is being performed in compliance with the applicable requirements.

4.4

DCPP’s Performance Improvement Program is actively monitoring human performance for reductions in performance due to the PG&E bankruptcy or upcoming workforce changes. To date, there appears to be no effect and human performance error rates remain low. An assessment was completed of a recent reduction in the rate of Notification initiations, and the assessment concluded that there was no increased reluctance on the part of employees to initiate Notifications.

4.5

DCPP’s Foreign Material Exclusion (FME) Program performance during the 1R21 Refueling Outage was not as good as past outages as shown by the identification of three FME events classified as “FME Threats.” Actions taken with respect to those events appear to be appropriate. The DCISC should review the current program for temporary outage worker training and recent changes to that program during a future meeting.

4.6

The April 17, 2019, DCPP Plant Health Committee meeting was performed efficiently and effectively with clear and concise system and equipment reports, good participation and discussion by members, and clear actions and assignments. The DCISC should review the status of a recently upgraded Reactor Coolant Pump vibration monitoring system during a future fact-finding meeting.

4.7

DCPP’s Management Observation program has shifted to focusing on having first-line Supervisors observe employee activities in the field on a regular basis. The results of Supervisor’s observations are summarized and reviewed during quarterly Operations Review
Meetings.

4.8
DCPP continues to manage its Flow Accelerated Corrosion Program effectively. The numbers of inspections and replacements performed as a part of the Program are trending down and will continue to do so as DCPP approaches the date for the cessation of operations.

4.9
The health of DCPP’s Direct Current Power Systems was rated as Green, i.e., Healthy. The System Engineer appeared knowledgeable and proactive about his system.

4.10
The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

4.11
The DCISC Control Room was neat and orderly with a professional atmosphere being maintained.

5.0 Recommendations:
None

6.0 References

6.1

6.2
Ibid., Exhibit D.1, Section 3.10, “Independent Spent Fuel Storage Installation Operations Update.”

6.3
6.4


6.5

Ibid., Exhibit D.3, Section 3.5, “Foreign Material Exclusion Program.”

6.6


6.7


6.8

Ibid., Exhibit D.1, Section 3.8, “Management Observation Program.”

6.9


6.10


6.11

1.0 Summary

The results of the May 8-9, 2019 fact-finding trip to the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA are presented. The subjects addressed and summarized in Section 3 are as follows:

1. Meet with DCPP Officer, Jim Welsch, Chief Nuclear Officer
2. Institute of Nuclear Power Operations (INPO) Observation of Operations
3. Configuration Management Program
4. Wireless Information Technology (IT) in the Powerblock
5. High Pressure Injection (Safety Injection) System
6. Professional Development for DCPP Employees
7. Meet with NRC Senior Resident Inspector
9. Notification Review Team Meeting
10. Emergency Response Organization Muster Meeting
11. Workplace Seismic Safety

2.0 Introduction

This fact-finding trip to the DCPP was made to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if Pacific Gas and Electric’s (PG&E’s) performance is appropriate and whether any areas revealed observations, which are important enough to warrant further review, follow-up, or presentation at a public meeting. These safety matters include follow-up and/or continuing review efforts by the Committee, as well as those identified as a result of reviews of various safety-related documents.

Section 4-Conclusions highlights the conclusions of the fact-finding team based on items reported in Section 3-Discussion. These highlights also include the team’s
suggested follow-up items for the DCISC, such as scheduling future fact-finding meetings on the topic, presentations at future public meetings, and requests for future updates or information from DCPP on specific areas of interest, etc.

Section 5-Recommendations presents specific recommendations to PG&E proposed by the fact-finding team. These recommendations will be considered by the DCISC. After review and approval by the DCISC, the fact-finding report, including its recommendations, will be provided to PG&E. The fact-finding report will also appear in the DCISC Annual Report.

3.0 Discussion

3.1 Meet with DCPP Officer, Jim Welsch, Chief Nuclear Officer

The DCISC Fact-finding Team met Jim Welsch, DCPP Chief Nuclear Officer, to discuss items from this fact-finding meeting and other items of interest. The DCISC last met with a DCPP Officer or Director in April 2019 (Reference 6.1), concluding the following:

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

The participants discussed the following items:

- Elimination of the outer Vehicle Inspection Station has been completed
- NRC is reviewing DCPP’s License Amendment Request for de-vitalization of the Intake Structure and for extending the reporting requirements for selected Emergency Response Organization members from 60 to 90 minutes. Approvals are expected this year.
- The NRC Force-on-Force exercise went well
- The corporate bankruptcy, initiated primarily to protect the company from wildfire costs, has not affected DCPP cash flow.

Conclusions:

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

Recommendations:

None

3.2 Institute of Nuclear Power Operations (INPO) Observation of Operations

Because information regarding INPO activities is considered confidential and privileged, the information in this report is limited.
The DCISC Fact-finding Team met with Adam Peck, Operations Director, and Brian Galvan, Operations Manager, to review the results of the Institute of Nuclear Power Operations (INPO) visit to DCPP to observe DCPP operations. The DCISC last reviewed DCPP Operations items in December 2018 (Reference 6.2), when it concluded the following:

*DCPP Operations Performance Indicators overall were Green indicating good performance. Two indicators were Yellow (needing improvement) for High Pressure Injection System Availability and for Hours Critical Breaker Open. Both of these were being resolved with a return to Green expected for the former in 2019 and the latter in 2018.*

The DCISC last reviewed DCPP INPO items in November 2018 (Reference 6.3), concluding the following:

*Corrective actions for Areas for Improvement (AFIs) identified during the Institute of Nuclear Power Operations (INPO) biennial August 2017 evaluation of DCPP appeared to have been appropriately initiated with the majority being complete as of the time of the meeting.*

INPO performs major evaluations of each operating nuclear power plant every two years. DCPP’s next evaluation will be in August 2019. The operations observation reviewed in this fact-finding visit was performed in July 2018 by a small INPO team as partial input to the upcoming August 2019 evaluation. The INPO team observed the following:

- Control Room and field crew operations
- Clearance performance
- Infrequently performed evolutions
- The Containment Spray Pump event
- Reactor Coolant System draindown for Refueling Outage 1R21
- Mode changes and startup following shutdown for Refueling Outage 1R21

Observation results were positive overall. The DCISC Fact-finding Team learned of improvements in the DCPP Procedure Writing Group, which should be included in a future fact-finding visit.

**Conclusions:**

The Institute of Nuclear Power Operations observation of DCPP Operations resulted in overall positive results.

**Recommendations:**

None
3.3 Configuration Management Program

The DCISC Fact-finding Team (FFT) met with Steve Hamilton, Supervising Design Engineer, Configuration Management, for an update on the DCPP Configuration Management Program. The DCISC last reviewed Configuration Management in September 2015 (Reference 6.4), when it concluded the following:

*DCPP has been placing greater focus on, and taking action to close out, temporary modifications as well as to implement and close out non-outage modifications that have been in the preparation phase. Efforts prior to and during Refueling Outages 1R19 and 2R19 are expected to further address these issues. Design quality has been a strength during recent months as has been the timeliness of issuing updated drawings.*

The DCISC FFT received and reviewed DCPP Program Directive CF-1, Configuration Management, Dated 10/17/12, which it concluded was satisfactory. Configuration Management (CM) is defined as: “a systematic approach for identifying, documenting, and changing the characteristics of a facility’s Structure, System, or Component (SSC) and ensuring that conformance is maintained between the design requirements, physical plant configuration, and facility configuration information. DCPP programs, processes, and procedures assure that CM elements conform at all times, all changes are authorized and conformance can be verified.”

In Program Directive CF-1 above, Configuration Management is said to be in "equilibrium" when the three elements of Configuration Management (i.e. design requirements, physical plant configuration, and facility configuration information) conform to one another. Accomplishing this requires the effective implementation of other station programs that are closely related to configuration management and include: Document Control, Inspections, Design Control, Work Control, Procurement Control, Test Control, Modification Control, Materials Control, Setpoint Control, Maintenance, Licensing Basis Documents, Tagging Program, and Control and Use of Supplier Information.

Effective Configuration Management therefore involves what is referred to as a “graded approach” by which the level of analysis, documentation, and actions necessary to define a configuration management requirement are made commensurate with a number of considerations, including:

- The relative importance to safety, safeguards, and security
- The magnitude of any hazard involved
- The life cycle stage of a facility
- The mission of the facility
- The particular characteristics of a facility
The effectiveness of a Configuration Management Program can be impacted by the number of activities in which a station is engaged that can alter the physical configuration of plant systems or their supporting document. Accordingly, station-wide performance in Configuration Management is reported monthly in the station’s Plant Performance Improvement Report (PPIR). The one page listing for Configuration Management displays a rating for each of nine specific Performance Indicators (PIs) that are reflective of performance in Configuration Management.

The DCISC received and reviewed the DCPP Configuration Management PIs for April 2019. The overall rating of the 12 indicators was Green (good). Ten individual indicators were Green, and one (Number of Open Design Change Memoranda) was Red (Unacceptable) and another (Percent Drawing Changes ***** > 180 Days) was Yellow (Deficient). These two indicators were rated as such because of the large amount of outage work and Security work and are expected to return to green in the second quarter of 2019.

Conclusions:

The DCPP Configuration Management Program appeared satisfactory to the DCISC Fact-finding Team. Its overall performance indicator has consistently been Green.

Recommendations:

None

3.4 Wireless Information Technology (IT) in the Power Block

The DCISC FF Team met with Doug Park, Manager, DCPP Information Technology (IT), and Jim Brosseau, Supervisor, DCPP IT, for an update on DCPP’s use and plans for wireless IT in the power block (primarily the Turbine and Auxiliary Buildings). The DCISC last reviewed this item in December 2017 (Reference 6.5), concluding the following:

Projects for implementing Smart Procedures and for expanding wireless network access in the power block have been placed on hold due to IT funding constraints and in light of the pending Joint Proposal for DCPP to cease operations at the end of its current license. Existing uses of electronic information such as Electronic Work Management and operator electronic log keeping continue to be fully supported. The implementation of Smart Procedures can bring significant benefits, so continuing some level of investment could be worthwhile.

Regarding the status of improving the availability and reliability of wireless networks in the power block area, such initiatives were on hold pending the Joint Proposal for DCPP to cease operations at the end of its current license. A project to expand wireless networks in the power block was scoped, and it was estimated
that it would require approximately two years and require significant funding to make wireless networks available in all parts of the power block. The project was made complex and expensive by the requirements that must be met to analyze and install power and data cables in the power block areas, due to potential impacts to safety related systems. Additionally, 500 to 600 access points would be required to be installed due to the size of the power block area and the general impermeability of the areas to wireless signals due to the large amounts of concrete and steel. Thus, the wireless IT project was cancelled.

DCPP initiated a Records Management Excellence Plan for 2019. The purpose of the plan is to convert all manual plant records into electronic ones during 2019. This initiative should be reviewed by DCISC in a future fact-finding visit in 2019.

Conclusions:

DCPP had considered implementing a widespread wireless system in the power block, which would aid in data collection and communications; however, the project was cancelled due to its complexity, cost and the Joint Proposal.

Recommendations:
None

3.5 High Pressure Injection (Safety Injection) System

The DCISC Fact-finding team met with Jaime Salazar, High Pressure Injection (HPI) [or Safety Injection (SI)] System Engineer and Interim Supervisor, Primary Systems, for an update on the HPI/SI System. The DCISC last reviewed HPI/SI in November 2018 (Reference 6.6), when it concluded the following:

DCPP’s Safety Injection System health was good with no major issues affecting system operation.

The DCPP Emergency Core Cooling System (ECCS) is designed to provide water from the Refueling Water Storage Tank (RWST) to cool the reactor core and provide negative reactivity in the event of a loss of coolant accident in either the Reactor Coolant System (RCS) or the Steam System, spurious lifting of a RCS relief valve, a Rod Cluster Control Assembly ejection, or a Steam Generator tube rupture. The ECCS includes three separate subsystems:

- Centrifugal Charging (high pressure)
- Safety Injection (intermediate pressure)
- Residual Heat Removal (low pressure)

These subsystems are shown in the diagram below.
This fact-finding report is about the SI System. The SI System consists of two 100% capacity trains that are interconnected and redundant such that either train is capable of supplying 100% of the flow required. The SI System contains two safety injection pumps along with associated suction, discharge, and throttle valves and instrumentation for each Unit. The four accumulator tanks and one RWST are also part of the SI System.

The ECCS pumps receive power from the 4160V Vital AC electrical systems Bus F, G, and H and utilize control power from 125V Vital DC distribution panels 11, 12, 21 and 23. Various SI motor operated valves receive power from buses F, G, and H of the 480V Vital AC electrical system. These power sources are backed up by the Emergency Diesel Generators.

The SI Pump discharge lines are cross-connected via two normally open Motor-Operated Valves (MOVs). Downstream of these valves, the discharge crosstie supplies the RCS cold legs via a header containing a normally open MOV (containment isolation valve) and 4 branch lines each containing a pressure reducing orifice assembly, flow orifice (used for flow measurement), and a throttle valve. This arrangement allows proper flow balancing between loops and limiting the pump flow to prevent pump runout. The injection lines are sized and the throttle valves are set so that a single broken injection line will not starve the other injection lines.

The SI Pumps provide ECCS flow to the RCS cold and hot legs, and flow through test lines for check valve testing and to fill all the accumulators. The nominal
shutoff backpressure for the SI Pumps is 1,520 psig. The maximum allowable pump flow for the SI Pump is 675 gallons per minute (gpm). The required Net Positive Suction Head at 675 gpm is approximately 29 feet. The maximum pump flow is controlled by design features, e.g., throttle valves, flow orifices, and piping resistances. SI Pumps are full-flow tested each refueling outage and tested quarterly at partial/recirculation flow. All tests have been successful.

The SI Pumps are seismically qualified for Design Earthquake, Double Design Earthquake and HOSGRI Earthquake. They are qualified based on current nozzle loads and current installation configuration.

The accumulator tanks are designed to passively inject their contents into the RCS cold legs in the case of an intermediate or larger size LOCA when the RCS is depressurized below the nitrogen cover gas pressure in the tanks. There are four tanks, one for each loop. The required nitrogen cover-pressure is maintained between 579 and 664 psig.

The electrical supply to the SI loads is required to provide power to the loads assuming loss of the offsite grid and/or the main generator. Thus, the SI loads are designed to be powered from the Emergency Diesel Generators through the vital buses and station batteries. The ECCS pumps are required to be at maximum rated flow within 25 seconds of reaching the SI setpoint. The electrical system supplying power to redundant SI loads is required to be physically separated and electrically isolated from each other in order to preclude a single failure or event causing failure of both SI trains. The electrical supply to the SIS is required to perform its function during a postulated fire in the plant. The original Class IE components are environmentally qualified when located in a harsh environment. The Class 1E components are also seismically qualified.

The ECCS is protected from missiles postulated to be generated inside and outside Containment and has been reviewed to ensure that the ECCS is capable of withstanding those missile effects or is protected by barriers from the effects of those missiles. The accumulators are located within the Containment but outside the shield wall which protects them from missiles generated within the reactor coolant loop components. The SI Pumps, located outside Containment, are housed in compartments separated from other potentially missile-generating components. To protect against the unlikely event of the flexible coupling becoming a missile, a shroud has been installed around the coupling. No other SI Pump component can become a missile. The RWST has been designed to withstand postulated site proximity missiles and tornado-generated missiles. Redundant ECCS components are housed in separate compartments to ensure that missiles and flooding will not impair both ECCS trains.

The ECCS is required to withstand the effects of any potential flooding due to natural phenomena and due to postulated tank spills or piping ruptures. It has been determined that Diablo Creek is capable of handling any postulated site
flooding, and the yard and roof drainage designs are such that it is not possible to develop sufficient ponding to flood safety-related buildings. As a result, the depth of the probable maximum flood is effectively zero. Thus the ECCS is not subjected to external flooding.

The ECCS has been reviewed for its ability to withstand environmental effects of internal flooding. Equipment required to operate post-accident subject to the effects of flooding or water spray have been qualified as part of the Environmental Qualification Program. Flood height in the containment is calculated to be elevation 96.5 ft. The only SI System equipment below this elevation are the accumulator isolation valves; however, they are not required to close following a LOCA and thus will perform their safety function (allowing flow) prior to the water rising to that level. Flood levels for the RHR, SI and Centrifugal Charging pump rooms have been evaluated, and it has been determined that the levels will not exceed the height of the pump motors and associated instrumentation. Flooding design considerations ensure that flooding effects are limited to a single location or compartment. Components are housed in separate compartments to ensure that redundant components are not impaired by flooding. The ECCS is protected from tsunami effects and is well above maximum levels resulting from the design basis tsunami.

The Unit 1 & 2 SI Systems’ health is Green (Healthy), and there are no significant issues affecting system health on Unit 1. There were two open items on the Unit 2 SI System. The first was that the Boric Acid Transfer Pumps and base plates were wearing out, requiring replacement. Pump 2-1 was replaced in April 2019, and Pump 2-2 will be replaced in June 2019. The second was an improper valve installed on both units, which posed a potential threat to loss of Reactor Coolant System surge volume in the Volume Control Tank. The existing valves will be replaced with check valves in Refueling Outage 2R21.

The DCISC Fact-finding Team toured the Unit 1 SI Pumps. The pumps appeared to be in good order, and the plant appeared clean and orderly.
DCISC Member Peterson and Consultant Wardell Observing DCPP Safety Injection Pumps
Conclusions:

The DCPP Safety Injection (SI) System was rated Green (Healthy) by the System Engineer. Based on a plant tour, the DCISC Fact-finding Team concluded the Unit 1 SI Pumps and Pump Rooms were clean and orderly. Two non-significant SI System issues had planned resolutions. This appeared satisfactory to the DCISC Fact-finding Team.

Recommendations:

None

3.6 Professional Development for DCPP Employees

The DCISC FFT met with Adrion Van Beurdon, Chief Nuclear Officer Support Manager, to discuss professional development opportunities for employees as a result of the expected plant shutdown in 2025. This was the DCISC’s first review of this topic.

The DCISC was interested in this subject because of the concern that employees who are worried about their jobs ending earlier than expected at DCPP might not be fully focused on nuclear safety, and available professional development and/or job opportunities at PG&E could help resolve these worries.

Because of the early shutdown’s potential release of employees, DCPP had established an on-site Employee Resource Center (ERC) to assist employees with their next career moves. The ERC identified five paths for employee consideration. They were:

1. Retirement
2. PG&E Career Development
3. San Luis Obispo County Workforce
4. Nuclear Industry Specialized Jobs
5. Decommissioning

Most employees visiting the ERC had opted to look into PG&E Career Development, which consisted of a tuition allowance of up to $8,000 per year of education at local and regional colleges and vocational schools. The ERC also maintained a list of company-approved Frequently Asked Questions (FAQs) related to retirement, which appeared complete and comprehensive. Also, the ERC provided a comprehensive document, “Your Pension Guide.” The DCISC FFT concluded that DCPP management, via the ERC, was sensitive to and looking out for employees’ best interests.
The DCISC FFT discussed with Mr. Van Beurdon the possibility that PG&E at the corporate level could hold or slow down hiring in other parts of the company in the 2022 – 2025 time frame to give some assurance of job opportunities to DCPP employees affected by the 2025 plant shutdown. Although no conclusion was reached, the DCISC FFT believes this is worthy of further consideration.

**Conclusions:**

Because of the expected plant shutdown in 2025, employees would be released from service with various career options. DCPP, sensitive to employee post-shutdown careers, had established the Employee Resource Center (ERC), which provided options to employees on their next moves. The DCISC fact-finding Team concluded that the ERC appeared effective for guiding employees to the next phases of their careers and for helping to resolve their career worries which could distract their focus on nuclear safety.

**Recommendations:**

None

3.7 Meeting with the NRC Senior Resident Inspector

The DCISC Fact-finding team met with Chris Newport, NRC’s Senior Resident Inspector for an update. Joining the discussion was Tony Vegel, Director for the Division of Reactor Projects at the NRC. The DCISC last met with the Senior Resident Inspector in April 2019 (Reference 6.7), concluding the following:

*The meeting with the NRC Resident Inspector was beneficial, and the DCISC should continue the meetings.*

The participants discussed the following items:

- DCISC History and Organization
- NRC Branch Organization
- DCPP Emergency Preparedness

**Conclusions:**

The meeting with the NRC Senior Resident Inspector and Director for NRC Division of Reactor Projects appeared beneficial for all participants. The DCISC should continue these meetings.

**Recommendations:**

None

3.8 California Independent System Operator (CAISO) Load Reductions
The DCISC Fact-finding Team met with Tim Gilbride, On-Line Work Control Manager, for an update on potential load following or power reductions requested by the California Independent System Operator (CAISO). This item was initiated in the June 2016 DCISC Public Meeting (Reference 6.8) as follows:

**Open Item CO-13:** Review any implementations of the CAISO load following policy that result in DCPP transients. Review any initiatives to operate DCPP in different modes, such as load following due to renewable energy fluctuations, during its final years of operation. Include 230kV voltage stability issues. Dr. Peterson observed there is potential that an increase in the risk of transmission problems or outages might affect the availability of alternate off site power sources for DCPP due to increasing incentives to curtail power output because of production or grid-related reasons. Mr. Peck and Dr. Peterson agreed this might be a suitable topic for a future DCISC fact-finding, which should include representatives from the PG&E transmission organization.

The DCISC last reviewed this subject in December 2017 Reference 6.9), when it concluded the following:

*The Offsite Power System connecting DCPP to the Transmission System has remained stable following the addition of recent renewable energy projects in the area. The DCISC should continue to review the stability of the Transmission System annually. DCPP’s 230kV and 500kV Switchyards are in good health, and multiple projects to replace aging equipment have been successfully completed. Some projects for switchyard and system upgrades have been placed on hold in light of the pending Joint Proposal for DCPP to cease operations at the end of its current license.*

The DCISC FFT received and reviewed the following document, which is an agreement between the plant and CAISO: “Communications with Generator and Transmission Organizations,” Revision 27, Dated July 2, 2018.

The purpose of this document is to establish communications and agreements regarding DCPP power reductions requested by CAISO to protect the California transmission grid. This is not a load following agreement per se. That is, DCPP does not load follow, which would be power reductions and returns on a daily or other regular basis. Rather, this agreement covers infrequent power reduction requests from CAISO when the transmission grid needs it for stability. The agreement covers, for example, non-emergency power reductions of 35-200 MW with a two-hour warning or ***** >200 MW reduction with a 12-hour warning. When received, DCPP selects which unit in which to reduce power. DCPP has not been asked by CAISO to reduce power.

There are other limits as well. Regarding load reduction effects on the plant, there
are two primary ones: 1) the buildup of neutron poisons in the reactor core, and 2) the processing of additional liquid neutron poisons, i.e., boric acid. In this latter case, there is a cost to processing additional radioactive liquids and there are increased radioactive discharges to the Pacific Ocean, albeit miniscule ones.

DCPP is not designed for regular load following; however, it can modulate power to accommodate expected CAISO requests. DCPP has historically temporarily reduced power to one or more units up to 50% power in the case of winter storms when increased kelp in the intake bay adversely affects the flow of plant cooling water in the plant intake. These transients have gone smoothly.

PG&E recently announced that it would cease electricity supply to selected regions to prevent fires in regions susceptible to fires, which could be caused by its transmission or other lines. This could involve DCPP.

**Conclusions:**

The DCISC concludes that DCPP has an effective communication and load reduction agreement with the California Transmission organization.

**Recommendations:**

None

**3.9 Notification Review Team Meeting**

The DCISC FFT met with the DCPP Notification Review Team (NRT) to observe their daily weekday meeting on May 9, 2019. The DCISC last observed a NRT meeting in September 2009 (Reference 6.10), concluding the following:

The Notification Review Team (NRT) evaluates and classifies each DN notification for appropriate disposition. Work only notifications (DNs) are assigned for all equipment/system problems for which corrective actions are necessary and for all other requested work not associated with problem resolution. A Notification (DA) is an electronic document created in SAP that denotes an issue as a condition report. The notifications had been reviewed and screened by the NRT members before the meeting. Some of the members had also contacted the individual who wrote the notification to obtain additional information needed to classify the notification. The NRT members were well prepared for the meeting and very knowledgeable about the notifications reviewed. The minutes of the meeting indicated that there were three notifications re-evaluated by the NRT, four notifications determined to be significance level 2, and one Apparent Cause Evaluation (ACE) requested.

Notifications are electronic documents used by plant personnel to identify and
record plant problems, large or small for tracking to resolution in the Corrective Action Program (CAP). Notifications are either “DAs” or “DNs.” DAs are for conditions adverse to quality. DNs are for work only situations in which known corrective actions are to take place. Each day, some 50-100 Notifications are initiated. Each one is reviewed by Work Control and the Control Room Shift Manager. Then, the multi-departmental NRT meets each weekday to review the previous day’s Notifications. Finally, the management-based Corrective Action Review Board (CARB) performs a high-level review of selected Notifications. The DCISC regularly observes CARB meetings.

The NRT evaluates and classifies each work-only (DN) notification for appropriate disposition. DNs are assigned for all equipment/system problems for which corrective actions are necessary and for all other requested work not associated with problem resolution. A DA notification is an electronic document created in SAP that denotes an issue as a condition report. Notifications are reviewed, classified, and assigned to the organization responsible for resolution by the NRT within five working days following supervisor approval and operations review.

The NRT is responsible for the following:

- Reviewing incoming notifications for determination of which notifications should be classified as “DA” condition report notifications.
- For DA condition report notifications, assigning notification significance level, problem response type, and response organization or individual.
- Evaluating for a POA (Prompt Operability Assessment) if one has not been initiated.

Significance Level refers to the significance of a DA or DN. There are four significance levels:

**Level 1** – Level 1 indicates significant conditions adverse to quality, issues of significant regulatory concern or public interest, issues with significant safety impact (nuclear, radiological, or industrial/personnel), significant adverse trends, or issues with significant economic impact.

**Level 2** – Level 2 conditions typically result in moderate impact to the plant or organization. Level 2 conditions include such things as regulatory compliance issues, issues identified by external agencies, significant near miss issues, unplanned technical specification action entries, and adverse trends.

**Level 3** – Level 3 conditions typically result in minor impact to the plant or organization, such as trend identification. Examples are Minor (nonconsequential) reactivity management related issue (malfuction of fuel handling equipment which causes a suspension of fuel handling activities for greater than one hour), and Minor injuries or accidents (minor potential safety concerns, first aid or minor
injury case, near miss case, improper or non-use of required safety equipment, and employee observations related to industrial safety).

**Level 4** – Level 4 condition is a non-CAP (Corrective Action Program) related issue identified on a notification. This level is also intended for non-CAP related work, improvements, suggestions, or enhancements.

In the May 9, 2019 meeting the NRT reviewed 137 Notifications from the previous day. Each member had reviewed all Notifications prior to the meeting and had marked comments on OneNote, a computer program for free-form information gathering and multi-user collaboration. It gathers users' notes, drawings, screen clippings and audio commentaries. Notes are shared with the other NRT OneNote users over the plant network. During the meeting, the NRT facilitator used OneNote to review NRT members’ comments. The NRT members were well prepared for the meeting and very knowledgeable about the notifications reviewed.

**Conclusions:**

The May 9, 2019 meeting of the DCPP Notification Review Team was conducted efficiently and effectively. The Team reviewed and dispositioned 137 Notifications from the previous day using a multi-user collaborative application, which enhanced their comments and discussion.

**3.10 Emergency Response Organization Muster Meeting**

The DCISC FFT observed the May 9, 2019 DCPP Emergency Response Organization (ERO) Muster meeting. This meeting was required for all ERO personnel to maintain their emergency preparedness qualifications, which was for a part of their job responsibilities. The DCISC last observed an ERO muster meeting in November 2018 (Reference 6.10), concluding the following:

*Training provided in an Emergency Response Organization Muster Meeting was effectively conducted and solicited productive interaction from the attendees.*

The ERO consists of DCPP employees who provide staffing for emergency response facilities in the case of an emergency event. Although Emergency Planning overall is managed by a small group of full-time specialist staff members, the bulk of the ERO is comprised of DCPP employees who are trained and serve in assigned roles as a collateral duty to their regular duties. The ERO is subdivided into four assigned teams, Alpha, Bravo, Charlie and Delta, of approximately 70 individuals per team who serve “on call” for two weeks out of every eight weeks. Maintaining the proficiency of the ERO teams is an ongoing activity and is given high visibility at the station, including having qualification and training metrics included in the monthly Plant Performance Indicator Report. At the start of the two-week
assignment cycle, the team participates in a one-hour training session, called an “ERO Muster Meeting.”

The bulk of the hour-long ERO Muster Meeting was dedicated to ongoing training. The first 30 minutes consisted of a presentation primarily given by Andy Warwick, Emergency Planning Supervisor, whose brief to the Delta Team included the following:

- Desired Outcome (of the meeting)
- ERO Standards, Procedures, Facilities, Equipment, and Schedule
- Roll Call of Attendees
- Recent Operating Experience (External and Internal, including the initial results of the October Emergency Planning Exercise)
- Duty Impacts (equipment out of service, procedure changes, weather, holidays, etc.)
- Video of Re-enactment 1987 DCPP Loss of Residual Heat Removal Event

After the presentation, individuals assigned to specific facilities (Emergency Operations Facility, Technical Support Center, Operational Support Center, etc.) were subdivided into smaller groups according to their assignments. A Dynamic Learning Activity was provided to each of the groups to review items such as activation procedures, event classification steps, and command and control processes. The Fact-finding Team observed that the training was effectively conducted and solicited productive interaction from the attendees.

Conclusions:

The May 9, 2019 DCPP Emergency Response Organization Muster Meeting was performed in a professional, effective manner. The subject matter was current and interesting. Participation by personnel was good.

3.11 Seismic Workplace Safety

The DCISC FFT met with Tom Baldwin, Nuclear Operations Business Chief, for an update on DCPP’s Seismic Workplace Safety. The DCISC last reviewed this subject in July 2018 (Reference 6.11), when it concluded the following:

Discrepancies in workplace seismic standards (e.g., unbraced furniture) were caused by inadequate knowledge transfer during Building Services personnel turnovers, although the plant had a written standard. The DCISC should follow up on this item in early 2019.

Seismic Workplace Safety (SWS) is the practice of securing objects throughout the plant such that, in an earthquake, they will not injure personnel or block important
personnel pathways needed to access critical components in a timely manner. Both PG&E corporate offices and DCPP have SWS standards for furniture and other objects in the PG&E document entitled “Standards for Bracing Office Furniture, Cabinets, and Storage Racks, Revision 0.” The document was intended to ensure that DCPP purchased furniture that would not be a hazard to personnel during an earthquake, but it did not require that furniture be designed specifically to withstand seismic events. A review of the document found that it contained standards that required:

- Bracing for storage cabinets over five feet high, can be easily tipped, contained unrestrained drawers, or with a high center of gravity.
- Restraints for any storage cabinets or racks over five feet high mounted on wheels.
- Restraints to prevent shelf contents from falling on open bookshelves greater than four feet high. Any bracing installed to be connected to wall studs or other structural elements.
- No storage of items on top of cabinets greater than five feet high.

The DCISC has been tracking DCPP progress on SWS since 2012 and periodically inspects areas of the plant with potential SWS concerns. In this May 2019 fact-finding meeting, out of a dozen examples inspected, the DCISC FFT found two examples of unsecured furniture: 1)**** four tall cabinets in the Radiation Control Area exit hallway into the plant, an important personnel pathway into the Auxiliary Building, and 2)***** tall cabinets in the new Employee Resource Center. In both cases Notifications were initiated by DCPP personnel to enter the problems into the Corrective Action Program for resolution.
DCISC Member Peterson and Consultant Wardell testing seismic bracing of RCA cabinet.

Conclusions:

DCPP has implemented its Seismic Workplace Safety Program with partial effectiveness over the past several years; however, DCISC Fact-finding Teams have found isolated instances of unsecured tall furniture, which constituted seismic personnel hazards. These examples were identified and corrected by DCPP.

Recommendations:

None

4.0 Conclusions

4.1

The regular meetings between DCISC Members and DCPP Officers and Directors continue to be beneficial for both organizations.

4.2

The Institute of Nuclear Power Operations observation of DCPP
Operations resulted in overall positive results.

4.3

The DCPP Configuration Management Program appeared satisfactory to the DCISC Fact-finding Team. Its overall performance indicator has consistently been Green.

4.4

DCPP had considered implementing a widespread wireless system in the power block, which would aid in data collection and communications; however, the project was cancelled due to its complexity, cost and the Joint Proposal.

4.5

The DCPP Safety Injection (SI) System was rated Green (Healthy) by the System Engineer. Based on a plant tour, the DCISC Fact-finding Team concluded the Unit 1 SI Pumps and Pump Rooms were clean and orderly. Two non-significant SI System issues had planned resolutions. This appeared satisfactory to the DCISC Fact-finding Team.

4.6

Because of the Joint Proposal, which mandated plant shutdown in 2025, employees would be released from service with various career options. DCPP, sensitive to employee post-shutdown careers, had established the Employee Resource Center (ERC), which provided options to employees on their next moves. The DCISC fact-finding Team concluded that the ERC appeared effective for guiding employees to the next phases of their careers and for helping to resolve their career worries which could distract their focus on nuclear safety.

4.7

The meeting with the NRC Senior Resident Inspector and Director for NRC Division of Reactor Projects appeared beneficial for all participants The DCISC should continue these meetings.

4.8
The DCISC concludes that DCPP has an effective communication and load reduction agreement with the California Transmission organization.

4.9

The May 9, 2019 DCPP Emergency Response Organization Muster Meeting was performed in a professional, effective manner. The subject matter was current and interesting. Participation by personnel was good.

4.10

The May 9, 2019 meeting of the DCPP Notification Review Team was conducted efficiently and effectively. The Team reviewed and dispositioned 137 Notifications from the previous day using a multi-user collaborative application, which enhanced their comments and discussion.

4._

4.11 DCPP has implemented its Seismic Workplace Safety Program with partial effectiveness over the past several years; however, DCISC Fact-finding Teams have found isolated instances of unsecured tall furniture, which constituted seismic personnel hazards. These examples were identified and corrected by DCPP.

6.0 References

6.1


6.2


6.3

Ibid., Exhibit D.4, Section 3.3, “Tracking and Resolution of INPO Areas for Improvement.”

6.4

Section 3.7, “Configuration Management Program.”

6.5


6.6


6.7

Ibid., Exhibit D.8, Section 3.1, “Meet with the NRC Senior Resident Inspector.”

6.8


6.9


6.10


6.11

Ibid., Exhibit D.1, Section D.5, “Workplace Seismic Safety.”
The log is intended to provide a memorandum of contacts initiated by individual members of the public, citizen, or public interest groups, or similar organizations with the Committee members, consultants or staff.

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<td>Dr. David Victor – SONGS Community Engagement Panel</td>
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<td>Mr. Alexander Karlin (Diablo Canyon Decommissioning Engagement Panel)</td>
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Canyon Decommissioning Engagement Panel

Dr. Lauren Brown – Diablo Canyon Decommissioning Engagement Panel

rationale for formation of DCISC; 12/6/2018 email response sent; 12/6/2018 email acknowledgement received; 12/7/2018 email sent; 12/7/2018 email to Members & Consultants received re request; 12/8/2018 email with request for telephone call; 12/10/2018 (to Dr. Brown, 12/10/2018 email follow-up to telephone call sent; 12/12/2018 email sent in response to Dr. Brown’s inquiry of DCISC Chair re spent fuel storage; 12/18/2018 email acknowledgement received; 12/18/2018 email acknowledging Dr. Brown as DCDEP liaison to DCISC; 1/8/2019 email received with DCDEP Strategic Vision Report and request for DCISC input during 2019 DCDEP meetings; 1/10/2019 email acknowledgement and response sent re DCDEP March 13 DCDEP meeting; 1/10/2019 email sent re failure of delivery to google groups; 1/10/2019 email acknowledgement received; 1/16/2019 request for DCISC representation at DCDEP spent fuel workshop on Feb. 23-24, 2019; 1/17/2019 email response sent; 1/17/2019 email sent with request for information; 1/25/2019 email sent declining attendance at DCDEP spent fuel workshop but with information on...
consideration of DCISC representative attending March 13, 2019 DCDEP public meeting; 1/28/2019 email received re DCDEP response to A. Karlin “Viewpoint” article; 1/29/2019, email acknowledgement sent; 1/29/2019 email request for confirmation of receipt of 1/25 email sent; 1/29/2019 email received confirming receipt of DCISC 1/25 email; 1/30/2019 email confirmation sent; 3/1/2019 email sent with A. Karlin letters requested by Dr. Brown at the February 27-28 DCISC public meeting; 3/1/2019 Dr. Brown’s 3/1 email provided to Members & Consultants; 3/1/2019 email from DCISC Chair confirming attendance at DCDEP meeting on March 13, 2019; 3/1/2019 email acknowledgement received re DCISC Chair’s communication received; 6/7/2018 email sent re DCISC declining invitation of DCDEP to attend DCDEP June 12, 2019 public meeting; 6/7/2019 email received with information on June 12 meeting and acknowledgement of DCISC declination received and; 6/7/2019 email acknowledgement and response sent; 6/10/2019 email with further information on DCISC agreement to serve as a technical resource to
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</table>
DCISC CORRESPONDENCE
Thank you for taking my call this past Monday during which we discussed setting up a conference call for Friday, July 12, to discuss the DCISC’s effort to stay on the same page with the Energy Division after the denial of the Committee’s motion in the NOCTP and the tentative plans for the DCISC to have a representative participate in the CPUC informational hearings set for August 7-8, to provide a 5-minute description of the DCISC’s present mandate and role in operational safety.

Participants for the DCISC in a call on Friday, July 12, would be Dr. Robert J. Budnitz, attorney Martin Mattes and me (same group with whom you and Jason Reiger met with on April 10 in S.F.)

I have confirmed that as of this writing a call at 1:00 p.m. (PDT) on Friday, July 12, will work for all the DCISC representatives (Dr. Budnitz will be on the East Coast). I would not expect the call to take more than 45 minutes-1 hour. If that time is also convenient for you, I can arrange to send out a conference call invitation.

Please let me know when you can.

I also received today the email with the Economic Impact Assessment of the prospective closure of DCPP and have provided it to our Members and the Technical Consultants for their information and review. I look forward to reviewing the report.

Thank you for your courtesy.

Best regards,

Bob Rathie
DCISC Asst. Legal Counsel
(800) 439-4668
info@DCISC.org

David —

Thank you for taking my call this past Monday during which we discussed setting up a conference call for Friday, July 12, to discuss the DCISC’s effort to stay on the same page with the Energy Division after the denial of the Committee’s motion in the NOCTP and the tentative plans for the DCISC to have a representative participate in the CPUC informational hearings set for August 7-8, to provide a 5-minute description of the DCISC’s present mandate and role in operational safety.

Participants for the DCISC in a call on Friday, July 12, would be Dr. Robert J. Budnitz, attorney Martin Mattes and me (same group with whom you and Jason Reiger met with on April 10 in S.F.)

I have confirmed that as of this writing a call at 1:00 p.m. (PDT) on Friday, July 12, will work for all the DCISC representatives (Dr. Budnitz will be on the East Coast). I would not expect the call to take more than 45 minutes-1 hour. If that time is also convenient for you, I can arrange to send out a conference call invitation.

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Thank you for your courtesy.

Best regards,

Bob Rathie
DCISC Asst. Legal Counsel
(800) 439-4668
info@DCISC.org

Members & Consultants:

Received this afternoon from David Zimor with a link to the report on the economic impact of the closure of DCPP per Sen. Madigan’s SB 968.

I have excerpted the Executive Summary and attach it here as a pdf.

Best,

Bob R

Prospective Closure of the Diablo Canyon Nuclear Power Plant

Economic Impact Assessment

Prepared for:
The Energy Division
California Public Utilities Commission

David Yellin, Roland Host, Drew Shabow, Samuel Evans, Liam Felland, Annie Yee-Chen
Department of Agricultural and Resource Economics
UC Berkeley

www.capecom.com

June 28, 2019
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Executive Summary

On September 28, 2016, Governor Jerry Brown signed Senate Bill (SB) 969 which adds Section 712.6 to the Public Utilities Code, requiring the California Public Utilities Commission (CPUC) to facilitate an economic impact assessment of the adverse and beneficial economic impacts, and the net economic effects, for the County of San Luis Obispo and the surrounding region, that could occur if the Diablo Canyon Nuclear Power Plant were to be permanently or permanently shut down. As ordered in SB 969, the CPUC searched for an “independent third party” to conduct the economic impact assessment, and ultimately hired researchers at UC Berkeley for that role. This study is that economic impact assessment.

On January 18, 2018, the CPUC issued Decision (D.18-01-022) approving Pacific Gas and Electric Company’s (PG&E) proposal to retire Units 1 and 2 of the Diablo Canyon Power Plant (DCPP) by 2024 and 2025 respectively, and authorizing up to $211.3 million for DCPP employee retention programs. On September 19, 2018, Governor Brown signed SB 1090 which approved an additional $85 million to pay for community impact mitigation programs in the San Luis Obispo region, and another $146.5 million for DCPP employee retention. The CPUC enacted the rate changes ordered in SB 1090 when it issued D.18-11-024 on December 7, 2018, Collectively, D.18-01-022, SB 1090, and D.18-11-024, authorized up to $252.1 million for DCPP employee retention programs, and $85 million for community impact mitigation programs.

Currently, DCPP, which employs about 1,500 PG&E workers, is the second largest employer in SLO and provides a large economic base to the area that could be lost with the closure of DCPP. This study is intended to help identify potential ways for state and local jurisdictions to mitigate any adverse economic impacts and plan accordingly. Economic impacts were evaluated for DCPP closure, including shutdown of operations, actions necessary to safely retire the plant and make the site eligible for alternative use, and the implementation of SB 1090 which is a special assistance measure to offset adjustment costs for the SLO community. This document presents the five main parts of this assessment: 1) general economic impact assessment; 2) local stakeholder consultation; 3) local stakeholder survey; 4) real estate market assessment; and 5) bond market assessment. The following section summarizes the approach and findings of each component.

G.2 – 5

ES 1 - Economic and Fiscal Impact Assessments

ES 1.1 Approach

The overall impact of DCPP closure on the SLO economy was the primary concern for those interested in this assessment, and most of our effort was devoted to this component. To estimate the local economic and fiscal effects of DCPP closure, as well as associated spending from decommissioning, D.18-01-022 and SB 1090, we utilized a regional input-output model called IMPLAN that estimates impacts through industry-specific changes in economic activity. The IMPLAN system offers the most detailed data available on the structure of the local, regional, and state economy. It effectively supported our efforts to identify and evaluate the appropriate scenarios to reflect closure and decommissioning of DCPP. In this context three component effects had to be considered:

- Positive effects to the regional economy from the associated spending of SB 1090.
- Negative effects from the loss of local income (or associated expenditures), jobs, and tax revenues when DCPP closes.
- Positive effects from the variety expenditures associated with decommissioning to ensure safe closure of the facility.

Additionally, two timing considerations had to be taken into account: 1) when the expected positive and negative impacts will occur and 2) how long they can be expected to persist. Spending associated with SB 1090 will occur before the closure of DCPP and thus these economic impacts should be assessed separately from the impacts upon DCPP closure.

In summary, the relevant economic scenario inputs into our model were the following:

- Impact 1: SB1090 and D.18-01-022 – Positive Shock (Pre-Closure)
  - $853.4 million for employee retention and retraining.
  - $32.1 million for retention.
  - Payments vary across 7 years.
  - $85 million for decommissioning settlement.
  - $75 million for "Essential Services Mitigation Fund" (ESMF).
  - $10 million for "Economic Development Fund" (EDF).
  - One-time payment.

- Impact 2: DCPP Closure – Negative Shock (Post-Closure)
  - $226 million for payroll.
  - 1,196 local employees.
  - $374 million for expenditures and services.
  - $25.5 million for property tax.

- Impact 3: DCPP Decommissioning Expenditures – Positive Shock (Post-Closure)
  - $8.8 billion, allocated over 10 years.
  - $1.6 billion for waste management and remediation.
  - $1.07 billion for utilities.
  - $659 million for construction of other nonresidential structures.
  - $568 million for architectural, engineering, and related services.
  - $441 million for investigation and security services.
  - $227 million in other categories.

ES 1.2 Results

Our research recognizes that plant closure, decommissioning, and SB 1090 assistance will present the SLO economy with both positive and negative economic impacts. Taken together, we find that the net effect of these factors will be much smaller than previous estimates for DCPP closure. Plant closure will induce short-term reductions in local employment and expenditures associated with the cessation of electricity production. This negative outcome is expected to decrease local economic activity by some $601 million annually in San Luis Obispo County. On the other hand, DCP will not cause a vacuum; the plant will not immediately shut down, nor will all employees immediately leave the region. Although we are not able to estimate the total number of employees expected to stay beyond the shutdown, we can assume our estimate sets a conservative lower bound on the expected overall negative economic impact. Furthermore, there are positive economic impacts to consider both before and after the plant closes. Before the plant closes, funding from SB 1090 will offer significant stimulus to the SLO economy, which will see aggregate economic output increase by at least $40 million annually for the seven years preceding closure. With output rising to $85 million when the Economic Development Fund (EDF) is capitalized. After the plant closes and the bulk of decommissioning expenditures begins, we estimate that local output can be expected to increase by nearly $72.4 million. The salient macroeconomic impacts we estimate for San Luis Obispo County are summarized below:

- Impact 1: SB1090 and D.18-01-022 – Positive Shock (Pre-Closure)
  - Increase in economic output of $40.7 million per year for seven years, with a supplemental $13 million increase for one year when EDF funds are capitalized.

G.2 – 7

G.2 – 8
G.2 - 9

Much like the rest of California, the SLO area is a housing crisis, with housing prices unaffordable to many local residents. There has been an influx of capital from greater Los Angeles and the Bay Area, either as investments or retirees. With restricted zoning, high property taxes, and expensive land costs, there is limited new home construction. The city of SLO has several new developments of single-family homes, but there are in the $700k-$800k range and targeted at out-of-region capital. Those who work in the service sector or government are unable to afford homes, and the closure of DCPIC will not affect this. SLO county in a middle-income county with upper-middle-income home prices. Therefore, although the SLO unified school district is an important source of tax when DCPIC closes, the district is more concerned about declining student enrollment and recruiting staff than the loss of tax revenue. Given the expensive housing market and lack of high-income jobs, they have seen families leave the city, and new families hesitant (or unable to move in). Furthermore, hiring and retaining staff remains a challenge.

The impact to community not reflected in economic numbers: There was significant concern about who DCPIC employees are and what they mean for the local community. DCPIC employees hold head of household jobs that cannot be easily replaced with service sector or government jobs. DCPIC employees are those who live in local schools, volunteer, or serve in other leadership roles. Will the fabric of the community, especially in isolated communities, start to disappear as the DCPIC jobs leave?

G.2 - 10

Because of time and resource constraints, our anonymous sample, assembled by Dunn and Bradstreet, did not include households.

A number of salient findings emerged from the exercise, focused on overall economic and expected impacts of DCPIC closure. Of that, all of the present survey offers relatively clear indications of general optimism regarding recent experience and expectations about SLO's local economy. There is also significant agreement about specific sources of risk and uncertainty, especially as these relate to the cost of living. While these need to be taken seriously, they reflect broader concerns in California's more prosperous coastal communities.

For example, twice the number of SLO enterprises reported business expansion in the last 5-10 years as those who reported contraction. Majorities of all three stakeholder groups (Table ES 1) agreed with the statement that "San Luis Obispo County has a robust, vibrant economy." This optimism was tempered, however, with expressions of concern regarding growth challenges. Among the sentiment questions, all three stakeholders strongly agreed that "San Luis Obispo County suffers from a consistent affordability gap between wages and housing costs." Similarly, the stakeholders all believed that housing prices were a primary culprit in this category, and probably also contributed to concerns about local recruitment ("Marketing to and attraction of job candidates is a persistent challenge in the county."). One of the most interesting sentiment questions saw answers diverge noticeably between Enterprise/NGOs on one side and public institutions on the other, while all three groups returned majorities who accepted the assertion that "economic anchors like DCPIC or Cal Poly benefit the economy, but also allow county residents to be exposed to large-scale challenges to promote economic growth and diversification."[7] NGOs were most prone to agree with this notion of status and dependence. Enterprises less so, and the public sector less so all. Conversely, it might be realistic to expect initiatives for economic renewal to arise from the groups with comparable degrees of enthusiasm.

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1 We strongly believe, however, that if a separate households survey were to be undertaken, it might give a more accurate sense of current sentiments and to support development of a more inclusive survey (SDPIC)

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Table ES 1: Percent of the Sample in Agreement with Each Statement, by Stakeholder Group

<table>
<thead>
<tr>
<th>Business</th>
<th>NGO</th>
<th>Public Adm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>99%</td>
<td>93%</td>
<td>69%</td>
</tr>
<tr>
<td>78%</td>
<td>87%</td>
<td>40%</td>
</tr>
<tr>
<td>62%</td>
<td>85%</td>
<td>72%</td>
</tr>
<tr>
<td>72%</td>
<td>80%</td>
<td>63%</td>
</tr>
<tr>
<td>94%</td>
<td>93%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Not only the most relevant, but perhaps the most important findings for our assessment relate to DCPP closure and the sentiments it arouses. In particular, we saw clear and significant disparities between public and private sector expectations regarding closure impacts, but remarkable agreement about what challenges are most important to overall progress for the local economy. Enterprises, NGOs, and Public Agencies generally agree on the most important SLO risks that are subject to economic uncertainty. These results, discordant expectations over shared values, make a compelling case for determined and expanded commitments to ongoing policy dialog. We already know that SLO public and private institutions are pursuing this with dedicated (SB 1990) and other funds, including the new Hourglass Project. We can only hope the evidence presented here will support more robust and constructive engagement to mobilize local institutions.

An unintended but essential benefit of DCPP closure could be a new generation of multi-stakeholder commitment to sustainable and inclusive growth across the SLO economy. Shared values will provide welcome cohesion, while discordant expectations can stimulate constructive discourse, develop more evidence, and motivate the community to improve mutual awareness. To facilitate this, our survey also sought to identify leading concerns and opinions about DCPP. These hallmark issues could be used to jump start and sustain a forward-looking dialog for community strategic planning.

ES 4 - Real Estate Market Assessment

ES 4.1 Approach

The impact of the DCPP closure on real estate values has been a frequently expressed concern across the spectrum of both SLO public and private stakeholders. To elucidate the significance of this risk, we made use of a newly available database of historical housing data from 2002. Using this highly disaggregated and timely data, we constructed a profile of the housing market in San Luis Obispo County over recent decades, using it to quantitatively assess the impact of the DCPP closure announcement on local housing prices. For comparison, we also looked at the closure of San Onofre Nuclear Generating Station (SONGS) and a few other cases.

ES 4.2 Results

SLO County’s housing market has largely recovered from the adverse macro cycle of 2008, with local housing prices maintaining steady upward trends over the last decade. Our event study of the DCPP closure announcement effect found no statistically significant impact associated with local housing prices. Similarly, in the area around SONGS, San Diego and Orange Counties, we found no statistically significant impacts associated with real estate prices with the announcement or implementation of plant closure.

ES 5 - Bond Market Assessment

ES 5.1 Approach

Like real estate values, fiscal sufficiency has been a frequently expressed concern in the DCPP closure policy debate, especially by public sector stakeholders. In our detailed economic impact assessment (component I above), we estimated the direct, indirect, and induced revenue implications of the main DCPP closure effects and found these to be modest relative to many expectations. While all revenue categories are not equally affected, these are significantly offset by economic stimulus from decommissioning, and SB 1990 provisions.

Of perhaps even greater significance for SLO public finance, however, is the cost of capital for local public entities. In times when economic sentiments about a regional economy turn negative, bond markets usually send a clear signal by pricing such risks into higher bond rates. The effects of this on overall budgets can often be much greater than the loss of individual revenue sources. To ascertain the significance of this for SLO and DCCSC.

DCPP, we used high frequency financial sector data to statistically assess DCPP announcement effects on local bond prices.

ES 5.2 Results

Despite applying advanced econometric tools to high quality public financial data, we were unable to identify any statistically significant "announcement effect" attributable to DCPP closure. We take this result as indicating that financial markets do not anticipate lasting adverse impacts on the overall SLO economy.

G.2 – 13

Info@DCCSC.org

From: Info@DCCSC.org
Sent: Wednesday, June 26, 2019 2:17 PM
To: 'Cochran, Justin@Energy
Cc: 'Peter Lam!1@info@DCCSC.org
Re: Meeting between the CEC Chair and the CEC Appointee to the DCCSC - July 15, 2019

Justin

Nice to speak with you this morning. The last thing I was doing was looking forward to seeing you again and meeting CEC Chair Hochschild in San Francisco on Monday, July 15 at 2:30 p.m. for our one-hour meeting.

During our conversation, we briefly touched upon the following suggested items for discussion under an agenda to be developed in accordance with the CEC’s preference:

- Overview of the history, role and composition of the DCCSC
- PG&E’s Bankruptcy
  - Latest bankruptcy status report by PG&E for DCPP and HBPP
  - New roles and responsibilities for CNO Jim Welch and Station Director Paula Gerfen
- Spent Fuel Storage
  - Current configurations of the SPFs and forecast for loading campaign(s)
  - DCPP proposal in the NDCTP
  - DCPP license of NPP for new cases with higher heat load capacity
- Decommissioning
  - Decommissioning planning/activities and potential for any effect on safety
  - DCPP cancelled projects due to decommissioning
  - Status of DCPP Employee Retention Program and importance of the roll-out and response to Tranche 2 (DCPP cooperation with PG&E's Diablo Canyon Decommissioning Engagement Panel)
- Operational Events
  - December 1, 2018 Unit-2 trip due to grid condition
  - Unit-1 deferral of inspection of welds for embrittlement
- Consideration of a Possible post-shutdown role for DCCSC
  - Post-shutdown risk assessment matrix
  - Draft version of a possible revision of the Committee’s Charter

Bob Rathle

From: Cochran, Justin@Energy [mailto:Justin.Cochran@energy.ca.gov]
Sent: Tuesday, June 25, 2019 9:58 AM
To: info@DCCSC.org

G.2 – 14

G.2 – 15

G.2 – 16
Co: Peter Lam | peterlam@californiaenergy.org
Subject: RE: Meeting between the CEC Chair and the CEC Appointee to the DCISC - July 15, 2019

Good day Bob,

That works for me. I have that time and date blocked off. I also missed the date error but I did have the right day and time marked off.

Talk to you tomorrow.

Best,

Justin

From: info@dcisc.org | info@dcisc.org
Sent: Monday, June 24, 2019 3:45 PM
To: Cochran, Justin | justin.cochran@energy.ca.gov
Cc: Peter Lam | peterlam@californiaenergy.org
Subject: RE: Meeting between the CEC Chair and the CEC Appointee to the DCISC - July 15, 2019

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Justin - I believe I may have gotten my dates mixed up in my message below (I must have looked at the calendar for July 2019) - how about I call you on (916) 657-4339 on Wednesday 6/26 at 10:00 A.M.?

Sorry for any confusion my mistake may have caused.

Hope your weekend was a good one!

Bob

From: Cochran, Justin | justin.cochran@energy.ca.gov
Sent: Friday, June 21, 2019 1:13 PM
To: info@dcisc.org
Subject: RE: Meeting between the CEC Chair and the CEC Appointee to the DCISC - July 15, 2019

Good day Bob,

Wednesday (6/26) in the morning at 10:00 a.m. works for me. I will block off the time. Enjoy the weekend.

Best Regards,

Justin Cochran
California Energy Commission

From: info@dcisc.org | info@dcisc.org
Sent: Friday, June 21, 2019 8:02 AM
To: Cochran, Justin | justin.cochran@energy.ca.gov
Cc: Peter Lam | peterlam@californiaenergy.org
Rider, Ken | kfrider@energy.ca.gov
Weeks, Terri | teweeks@energy.ca.gov

Subject: RE: Request for a Meeting between the CEC Chair and the CEC Appointee to the DCISC

Good day Bob,

We have identified a couple times in the July 15 through July 19, 2019, window but are waiting on some meeting clarifications. Carol and I will follow-up with you early next week with a day and time.

I hope all is well. I watched part of the last meeting but due to workload I was not able to attend in person.

Thank you and enjoy the weekend.

Best Regards,

Justin Cochran
California Energy Commission

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G.2 – 17

California Energy Commission

From: Cochran, Justin | justin.cochran@energy.ca.gov
Sent: Friday, June 14, 2019 3:34 PM
To: info@dcisc.org
Cc: Rider, Carol | kfrider@energy.ca.gov
Linderfelt, Carol | cmlinderfelt@energy.ca.gov
Peter Lam | peterlam@californiaenergy.org

Subject: RE: Request for a Meeting between the CEC Chair and the CEC Appointee to the DCISC

Good day Bob,

I am available to coordinate with you to try to schedule a mutually convenient date and time for the meeting and I have copied Dr. Lam and Ms. Linderfelt, Chair Hochschuld’s Administrative Assistant, on this email for their information.

The Committee missed the opportunity to visit with you at the DCISC’s public meeting last week.

As always, thank you for your attention to this request and hope to hear from you soon.

Best regards,

Bob Rathie
Ass't Legal Counsel
DCISC
1-800-439-4688
info@dcisc.org

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G.2 – 18

WILLIAMSON LAW OFFICES | 657 CARSON STREET | MOUNT B | MONTCLAIR | CA | 91763 | 855-572-8737 | FAX 855-572-7036

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Please consider the environment before printing this email.

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Dear Justin:

I am contacting you with a request for assistance in scheduling a meeting with CEC Chair David Hochschuld and Dr. Peter Lam, the DCISC Chair-elect for 2019-2020 and the CEC’s appointee to the DCISC.

Regarding possible dates for a meeting, Dr. Lam has indicated the best dates for him are presently anytime during the week between the dates of Monday, July 15 through and including Friday, July 19, 2019.

Topics for discussion at the meeting may be expected to include the DCISC’s current activities, its 28th Annual Report for last fiscal year, the plans to decommission Diablo Canyon Power Plant by 2024-2025, plans and proposals for siting of spent nuclear fuel, regulatory performance issues, the DCISC’s recent discussion of a possible post-shutdown role after generation operations cease at DCP, other topics currently reviewed in fact-finding or during the public meetings of the DCISC and, of course, any topics concerning DCP or nuclear power issues in general which Chair Hochschuld or you might wish to suggest and discuss with Dr. Lam. Our office would prepare a briefing brief in advance of the meeting.

I look forward to hearing from you on this.

Sincerely,

Bob Rathie
Thank you,

Best Regards,
Justin Cochran
California Energy Commission

From: Cochran, Justin@Energy
Sent: Thursday, June 19, 2019 8:02 AM
To: Cochran, Justin@Energy
Cc: [redacted]
Subject: RE: Meeting between the CEC Chair and the CEC Appointee to the DCISC

Good day Bob,

We have identified a couple times in the July 15 through July 19, 2019, window but are waiting on some meeting clarifications. Card and I will follow-up with you early next week with a day and time.

I hope all is well. I watched part of the last meeting but due to workload I was not able to attend in person.

Thank you and enjoy the weekend.

Best Regards,
Justin Cochran
California Energy Commission

---

From: info@DCISC.org
To: info@DCISC.org
CC: [redacted]

Subject: Request for a Meeting between the CEC Chair and the CEC Appointee to the DCISC

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the context.

Dear Justin,

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Regarding possible dates for a meeting, Dr. Lam has indicated the best dates for him are presently anytime during the week between the dates of Monday, July 15 and including Friday, July 19, 2019.

Topics for discussion at the meeting may be expected to include the DCISC's current activities, its 2018/2019 Annual Report for last fiscal year, the plans to decommission Diablo Canyon Power Plant by 2024-2025, plans and proposals for storage of spent nuclear fuel, regulatory performance issues, the DCISC’s recent discussion of a possible post-shutdown role after generation operations cease at DCCPP, other topics currently reviewed in fact-finding or during the public meetings of the DCISC and, of course, any topics concerning DCCPP or nuclear power issues in general which Chair Hochschild or you might wish to suggest and discuss with Dr. Lam. Our office would prepare a brief book in advance of the meeting.

I am available to coordinate with you to try to schedule a mutually convenient date and time for the meeting and I have copied Dr. Lam and Ms. Linderfelt, Chair Hochschild's Administrative Assistant, on this email for their information.

The Committee missed the opportunity to visit with you at the DCISC's public meeting last week.

As always, thank you for your attention to this request and hope to hear from you soon.

Best regards,
Bob Ratnie
Asst. Legal Counsel
DCISC
660-639-4688
info@dcisc.org

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G.2 – 21

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G.2 – 22

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G.2 – 23
structure of the Panel or a successor entity as, after due consideration, the DCSC believes that the principal issues to be discussed by the Panel on June 12 are outside the DCSC’s remit from the CRPC. I regret that the DCSC was unable to accept your invitation on behalf of the Panel on this occasion but I trust that in the future we will continue to assist the Panel in its important work.

Best regards,
Bob Rathie
DCSC Asst. Legal Counsel
(800) 439-6488
info@dcsc.org

From: Lauren Brown <labrown@ibcglobal.com>
Sent: Friday, March 1, 2019 10:44 AM
To: Bob Rudnitz <brudnitz@ibcglobal.com>
Cc: info@dcsc.org
Subject: RE: DCIP meeting on March 13

March 1, 2019

To: Bob Rudnitz, DCSC
From: Lauren Brown, DCIP
Copy to: Bob Rathie

Dear Bob,

Our Panel is really looking forward to having you participate in our March 13 meeting and making a presentation. The agenda for that meeting is still in draft form and won’t be finalized until early next week. At that point, I’ll forward you a copy. Your presentation is scheduled for 6:45-7:00 PM and I don’t expect that to change. I’m also working to confirm that FDEP will once again be providing a meal at 5:00 PM for the Panel and supporting staff and I’ll let you know when I get that confirmation. It would be an excellent opportunity for you to spend more time with our Panel members.

I am attaching my two documents for your use and for your official files. In my communication I did try to capture every item that raised questions as a result of the two days of workshops. As you can imagine, there were some strong opinions and concerns expressed. I don’t expect it is possible or even appropriate for you to deal with every one of those questions. Please use this at a starting point for framing your presentation and help us with a better understanding of the biggest issues, as makes sense to you.

I was able to attend much of your two days of meetings and I must say I am impressed with the extent of the efforts by you three Committee members, your consultants and Bob Rathie’s role in handling administrative and legal planning. That this work has been going on for 20-some years means that there has been a deep accumulation of detailed knowledge about DCIP operations. I understand this is the only nuclear power plant in the U.S. which has such an independent safety committee helping to ensure continuous safety. That makes it unique and opens the possibility of our Engagement Panel benefitting from your input on such technical and safety issues that our Panel endeavors to tackle. I see that the FDEP ones fit to extend your charter will be into the period when spent fuel remains in the wet pools. Until that time I believe your Committee and our Panel could serve complimentary purposes and be in a position to help each other better address the concerns of our community.

Thanks again to the Committee for agreeing your attendance at our March 13 meeting.
The Diablo Canyon Decommissioning Engagement Panel sees an opportunity to tap into the technical expertise represented by the DGSC in order to strengthen the ability of our community engagement panel to more knowledgeably and effectively address certain issues that come before us. We are aware that the DGSC is primarily focused on safety of the DCC operations, that you are independent of PG&E and funded directly from CFC and that your members are appointed by the Governor and other state government entities. In contrast, the DGCC was organized by PG&E, which also funds and supports our Panel. The mission of the DCCG is much broader than the DGCC and includes such matters as the eventual disposition of over 12,000 acres of mostly pristine coastal areas, possible re-purposing of some of the non-nuclear affected infrastructure, such as the marine, office buildings, warehouse and desalination plant. In general, we are charged with representing the concerns of the community with regard to the entire decommissioning of DCCG. Many of the topics we address are not highly technical and safety-related. Nevertheless, it is also within our mission to address such issues as spent nuclear fuel. Lack of high-quality members of our panel with the technical expertise needed to satisfactorily deal with such issues, we see as a misstep in asking the DGSC to supplement our knowledge in such areas. In fact, there is the possibility that eventually the forums, missions and roles of the DGSC and DCCG could end up being complementary and helpful to one another. Or perhaps, merged in some way, should the DGCC as such.

We hope today that you will consider and approve our first specific request to you to attend and present at the March 13, 2019 meeting of our Panel, to be held at the County Government Building in San Luis Obispo. This meeting will begin with some panel and multi-media presentations and opportunities to discuss with representatives of PG&E and members of the DCCG at 6:00 PM. The formal public meeting begins at 6:15 PM. The general topic for this public meeting is consideration of Spent Nuclear Fuel (SNF) Storage and Handling.

On February 8 our Engagement Panel toured the Independent Spent Fuel Storage Installation (GSFI) at the DCCG. On February 22 we conducted two days of workshops featuring presentations and discussion on SNF. The following presentations were made:

- PG&E - Overview of SNF handling and storage at Diablo Canyon Power Plant (DCCG)
- Nuclear Regulatory Commission - IFS Requirements and Oversight
- California Energy Commission
- Orano (Card Vendor)
- CNS (Card Vendor)
- Holtec (Card Vendor)

G.2 - 29

On February 18, 2019

To: Diablo Canyon Independent Safety Committee (DGSC)

From: Diablo Canyon Decommissioning Engagement Panel (DGCCP) (Lauren R. Brown, liaison to the DGCCG from DCCG)

Re: Request for technical support

The Diablo Canyon Decommissioning Engagement Panel sees an opportunity to tap into the technical expertise represented by the DGSC in order to strengthen the ability of our community engagement panel to more knowledgeably and effectively address certain issues that come before us. We are aware that the DGSC is primarily focused on safety of the DCC operations, that you are independent of PG&E and funded directly from CFC and that your members are appointed by the Governor and other state government entities. In contrast, the DGCC was organized by PG&E, which also funds and supports our Panel. The mission of the DCCG is much broader than the DGCC and includes such matters as the eventual disposition of over 12,000 acres of mostly pristine coastal areas, possible re-purposing of some of the non-nuclear affected infrastructure, such as the marine, office buildings, warehouse and desalination plant. In general, we are charged with representing the concerns of the community with regard to the entire decommissioning of DCCG. Many of the topics we address are not highly technical and safety-related. Nevertheless, it is also within our mission to address such issues as spent nuclear fuel. Lack of high-quality members of our panel with the technical expertise needed to satisfactorily deal with such issues, we see as a misstep in asking the DGSC to supplement our knowledge in such areas. In fact, there is the possibility that eventually the forums, missions and roles of the DGSC and DCCG could end up being complementary and helpful to one another. Or perhaps, merged in some way, should the DGCC as such.

We hope today that you will consider and approve our first specific request to you to attend and present at the March 13, 2019 meeting of our Panel, to be held at the County Government Building in San Luis Obispo. This meeting will begin with some panel and multi-media presentations and opportunities to discuss with representatives of PG&E and members of the DCCG at 6:00 PM. The formal public meeting begins at 6:15 PM. The general topic for this public meeting is consideration of Spent Nuclear Fuel (SNF) Storage and Handling.

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- CNS (Card Vendor)
- Holtec (Card Vendor)

G.2 - 29

1. PG&E is planning a cessation of transferring SNF from wet pool to dry cask storage, pending completion of evaluation of proposals from interested card manufacturers in response to RFPs planned for summer of 2019. Since PG&E has no inventories of empty Holtec casks at the present time, all remaining SNF through end of 2019 will eventually be stored in casks from whichever card vendor is selected. In the meantime, PG&E plans to hold all SNF in the wet pools until the end of an extended period of burn-off so that the right mix of older and newer fuel assemblies are available for transfer to the dry casks. This strategy results in a planned build-up of fuel assemblies in the wet pools during the interim to much higher density packing but will permit an earlier eventual transfer of all assemblies to dry casks. This strategy also has the consequent advantage of starting demolition earlier and opening the possibility of more timely eventual repurposing of some of the site infrastructure. We ask the DGSC to provide your guidance on these particular concerns:
   a. Does the accumulation of so many fuel assemblies in the wet pools present an increase in the risk of a pool fire caused by accidental loss of pool water from earthquake or other cause?
   b. If so, is that level of increased risk so high that PG&E should be advised to reconsider that plan and resume offloading SNF to dry casks as an alternative?
   c. Should at least one of the wet pools be preserved for some years in case any repackaging of casks should be required because of cask cracking and failure?

2. The proper selection of casks was raised by some presenters at the workshops as a major concern. Could you provide your guidance on these issues:
   a. Is the life of long-term storage of SNF in the thick-walled wrought iron CASTOR casks manufactured in Europe by GNS significantly greater than the thin-walled (1/2") stainless-steel casks manufactured by Holtec and Orano?
   b. Are the 1/2 stainless-steel casks manufactured by Holtec and Orano subject to significant risk of chloride corrosion in the marine environment of DCCG, triggering possible formation of cracks?
   c. Is there a mechanism for early detection of cracks in the stainless-steel container in the Holtec and Orano casks after loading with fuel and final sealing? Or, are such cracks only detectable through an unscheduled release of radioactivity? Is this a critical concern that should be taken into account in the selection of a replacement vendor of casks?

3. As a follow-up to the discussion at the Holtec and Orano casks is there a satisfactory plan for repackaging them. Should at least one of the wet pools be preserved for any possible repackaging that becomes necessary, is such repackaging even feasible or would special facilities be needed?

4. Is there a way to securely determine the complete removal of water from the Holtec casks? Is there a risk of hydrogen explosion if some water inadvertently remains?

5. Is it not likely to be appropriate for the DGSC to recommend a particular cask vendor. Rather, we should focus on desired attributes that should be engineered into any design that should be acceptable to PG&E and interested parties. Therefore, we would support your comments on the above issues be covered in general terms. What features a new cask selection include and why, from a technical and safety standpoint.

3. Because of the failure of the federal government to provide a long-term repository for SNF, should PG&E actively consider either of these two alternative options? If so, what are the technical and safety aspects that should be taken into account?

a. Use of a Consolidated Interim Storage Installation planned in Texas and New Mexico?

b. Hardening of the current on site RIS to protect against terrorist attack?

c. Providing an on-site climate controlled enclosure to protect existing dry casks?

4. The thoughts of the DGSC on ways in which we might assist each other in our mutual roles with regard to representing the communities in the vicinity of Diablo Canyon Power Plant.

In addition matter we would like to bring your attention the following recommendation to the DGSC regarding the DGSC that was included in our Strategic Vision Document, as released on January 8, 2019:

Recommended that the DGSC consider extending the existence of the Diablo Canyon Independent Safety Committee beyond conclusion of power generation at the DCC in that their independent and valuable technical and safety expertise would continue to be available to the DCCG and to the communities in San Luis Obispo County during the decades of decommissioning.

To conclude, it important to disclose to the DGSC that one person from our panel distanced from the idea of inviting the DGSC to provide input on our March 13 meeting. He also distanced from including the paragraph highlighted into our Strategic Vision Document. In fact, another member that believes that the Chair of the DGSC should preclude it from accepting our invitation to present at the March 13 meeting, as requested. Given that this member regularly attends meetings of the DGSC it may be that you will receive input directly from that Panel member expressing his concerns. We will leave it to the DGSC to make a determination whether or not you will be able to participate in our March 13 meeting.

With that one exception, our entire Panel looks forward to a presentation by one or more of your members at our March 13 meeting.

G.2 - 31
Sherry – it was a pleasure to see you at the DISC's public meeting this past Tuesday and Wednesday – thank you for your attendance, questions, and comments and for your interest in and expression of support for the Committee.

Ferman Wardell asked me to let you know in response to your inquiry that, at present, DISC has no empty Hierock casings on the site awaiting loading.

I hope and expect to see you at our next meeting in October,

Sincerely,

Bob Rathie

DOCCS

From: Tom, Joyce [mailto:joyce.tom@ocpc.gov]
Sent: Tuesday, June 4, 2019 6:06 PM
To: Lucy; Swenston@ocpc.gov
Cc: info@DISC.org
Subject: FW: Official E mail Service of Applications 18-07-013 and 18-12-008. Ali Houck's Ruling

Jane – following email has the link to the ALJ's grant of MPR's motion for party status in A. 18-07-013 and 18-12-008 to establish the Diablo Canyon Decommissioning Planning Cost Memorandum Account.

Congratulations!

Bob Rathie

DOCCS

From: Tom, Joyce [mailto:joyce.tom@ocpc.gov]
Sent: Tuesday, June 4, 2019 9:21 PM
To: Ali Houck
Cc: info@DISC.org

This email provides service of Applications 18-07-013 and 18-12-008. Ali Houck's Ruling Re: Granting of Motion for Party Status of San Luis Obispo County on the ALJ's Grant of MPR's Motion for party status in A. 18-07-013 and 18-12-008 to establish the Diablo Canyon Decommissioning Planning Cost Memorandum Account. The full text of the ruling is attached through the link provided below on June 4, 2019. A hard copy has been sent to all persons on the service list without an e-mail address.

http://ocpc.gov/SanLuisObispo/SanLuisObispoCounty[1].pdf

In the event of problems with the e-mail as internet, please contact Joyce Tom at ali.tom@ocpc.gov, telephone # (454) 783-2623.

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Diablo Canyon Decommissioning Engagement Panel
Saturday, February 23rd 2019.

Presentation by Klaus Schumann

I have been living in Paso Robles since 1981. I have been active on Nuclear Waste Issues since 1995.

From 1996 to 2002, I served as a member of the SLO County Nuclear Waste Management Committee. This Committee was formed by the SLO County Council of Governments in 1996 to address transportation issues and storage options for spent nuclear fuel (SNF) from the Diablo Canyon Nuclear Power Plant (Disables). The Committee was chaired by former County Supervisor Delaney and Sanchis. In 1998, I wrote the draft on-site storage options for the Committee’s final report.

...in my opinion, the safest method of storing SNF is to return the spent fuel pools to their original low density as a.s.a.p., i.e., no more than 270 spent fuel assemblies (SFA) in each pool. In addition, Diablo’s Independent Spent Fuel Storage Installation (ISFSI) should be hardened.

“Spent fuel” is a euphemism for highly radioactive waste, which has been accumulating at Diablo with each day of operation. It is about 1.5 million more radioactive than “fresh fuel,” and is in fact one of the most radioactive substances on Earth. By law, SNF must be isolated from humans for 1 million years.

At Diablo, there are four potential sources of catastrophic radiation release: meltdown in the two reactors and fires in the two SNF waste pools. All four are vulnerable to a severe loss-of-cooling event which could be caused by earthquake, sabotage or terrorism, accidents or human error. Of course, the probability for such events is very low, but the consequences would be catastrophic for the region and beyond.

If PG&E were to reduce the capacity in the pools by transferring enough spent fuel from the pools to its dry cask storage facility, the risk of fires in the pools could be substantially lowered. The risk of fires can be eliminated altogether if the density in the pools would be reduced to the initial low-density design. According to nuclear experts, a spent fuel pool fire, once started, cannot be extinguished.

In 2008, Nuclear Regulatory Commissioner Jacobs said: “The most dire-cut example of an area where additional safety margins can be gained involves additional efforts to move SNF from pools to dry casks storage.” This concept is also known as “accelerated transfer,” is supported by the CEC, CEC, the DISC as well as Mothers for Peace and many other concerned residents of SLO County.

[Show Yoo Tube clip]

"Accelerated transfer" was also identified as the “environmentally superior alternative” in the 2004 Environmental Impact Report (EIR) for Diablo’s dry cask facility (Diablo Canyon Site; SLO; 2012, page 6-9). At that time, it was anticipated that Yucca Mtn., NV, would become the permanent geologic repository for Diablo’s spent fuel by 2017. Since then, the Yucca Mtn. project has been cancelled, leaving the waste on-site for an indefinite length of time. According to the latest U.S. Department of Energy estimate, shipping of SNF fuel from Diablo could not start until 2038, at the earliest. But we have heard these federal proposals, timelines and concepts over the last 50 years time and again. Yet the SNF has continued to accumulate.

Meanwhile, the 2008 discovery of the shoreline earthquake fault close to the plant has added to the seismic risks and the ongoing Fukushima disaster is raising further concerns. Moreover, PG&E’s switch to high burn-up fuel in the early 2000s increased heat and radionuclide release in spent fuel. When Diablo was built, their plan was to ship spent fuel offsite after five years of cooling in the storage pools. Now, the decades later, none of it has been shipped anywhere. By 2050, both pools were at capacity, more thus five times more densely packed than planned for in the original design. As a result, the probability of spent fast pool fires could no longer be ruled out. According to studies by the Nuclear Regulatory Commission (NRC), such a pool fire can have off-site consequences comparable to a reactor meltdown. This is mostly due to the radioisotope Caesium 137, which accounts for nearly 60% of all radioactivity in “spent fuel.” It has the tendency of moving powder and is easily carried offsite in fine or in dry air. Much of the off-site contaminations at Fukushima in Japan was due to Caesium 137.

Contamination by Caesium 137 requires evacuation of the population for up to 25 years and/or clean-up costs in the $5 billion dollars. In California, it contaminated acres four times the size of SLO County. It has been estimated, that at full capacity, each pool at Diablo contains more than 20 times the amount of Caesium 137 than was released at Chernobyl.

While dry casks present their own set of problems, they are generally considered a safer method of storing “spent fuel” because they don’t require active cooling components and they spread the radioactivity over many containers [at Diablo 138 casks by 2025]. Much of the extremely dangerous spent fuel wastes are still stored in Diablo’s two storage pools. Each pool contains far more radioactivity than Diablo’s reactors. Moreover, both pools are located outside of the containment domes in weaker structures.

To PG&E’s credit, it did start a “Spent Fuel Program” to accelerate transfer of SNF from the pools to dry cask storage facility at the plant. As of December 2018, the pools contain about 730 spent fuel assemblies (SFA) each. This is a decrease of 45% below the highest capacity load of about 1,150 fuel each before the 1993 was opened. PG&E latest proposal represents a 35% degree thermal in this Program. PG&E now wants to ship any transfer of SFA’s from the pools to the dry casks until 2022. This would bring the density in the pools back to an unexpectedly high and risky level. Even more concerning is that at shutdown of the reactors (2024 and 2025), each pool would more than 135 extremely “hot” fuel’s SFA’s on top of an already densely packed pool and would remain at this dangerous level for another seven years.

[Refer to PGE chart]

In conclusion: our community continues to live with enormous seismic hazards. The “big one” is already overdue. Any proposal to deal with SNF at Diablo must start with the removal of any possibility of fire in Diablo’s spent fuel pools. The safety of our community demands nothing less. Yet PGE’s latest proposal does precisely the opposite. # #
Dr. Nelson -

This will acknowledge, confirm receipt and thank you for your email with four attachments with information for the DCISC's Members and Technical Consultants. Your email together with the attachments will be provided to the Members and Consultants.

I hope you will be able to attend the DCISC's public meeting this week on Tuesday and Wednesday (afternoon). A copy of the agenda is attached.

Best regards,

Bob Rathie
DCISC Asst. Legal Counsel
(805) 439-4688
info@dcisc.org

---Original Message---
From: Gene A. Nelson, Ph.D. (mailto:govmnent@cgnp.org)
Sent: Sunday, June 2, 2019 9:13 PM
To: info@DCISC.org
Subject: CGNP's Comments for the 06 04 19 DCISC Meeting - Part 1

Attorney Robert Rathie
Diablo Canyon Independent Safety Committee Office of the Legal Counsel
857 Casa Street, Suite D
Monterey, California 93940
info@DCISC.org

06 02 19

Dear Robert:

Attached find part 1 of 2 of Californians For Green Nuclear Power, Inc.'s (CGNP) information for the DCISC Committee and Staff members.

CGNP believes the facts supporting DCCP’s enhancement (while operating) of the public safety and health of Californians are relevant to DCISC’s safety mission.

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Part 2 has a much larger file size as it includes the text of the relevant NTSB Pipeline Accident Report PAR 11/01 - PGE & PG&E’s San Bruno Pipeline Explosion September 9, 2010. This report includes a scathing review of the lack of a proper PG&E safety culture outside of Diablo Canyon Power Plant - and the CPU's tolerance of PG&E's lackluster focus on safety.

In the event part 2 is too large, please obtain PAR 11/01 at:
for dissemination to the DCISC Committee and Staff.

The other files in Part 2 are also included.

Please confirm receipt of this email.

Sincerely,

Gene Nelson, Ph.D. CGNP Legal Assistant Californians for Green Nuclear Power, Inc. [CGNP]
1375 East Grand Ave Ste 103 #523
Arcata, CA 93024-2424
(805) 363 - 4697 cell
Government@CGNP.org email
http://CGNP.org website
PUBLIC MEETING OF THE
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE
("DCISC")

When:

Tuesday Morning, June 4th
8:00 A.M.

Introductions and public comments and communications to the Committee Members; Committee business session and discussion of administrative matters including review of the DCISC Open Items List; informational presentations by PG&E on the "State of the Plant," an update on regulatory performance, and a report on the status of the Performance Improvement and Corrective Action Programs; a report on a DCISC site-finding visit by a Member and Technical Consultant to Diablo Canyon, and discussion of administrative, regulatory, and legal matters.

Tuesday Afternoon, June 4th
1:30 P.M.

Committee Member comments, public comments and communications to the Committee; reports by PG&E on the December 1, 2018 Unit 2 reactor trip, and performance during the 21st refueling outage for Unit 1; discussion by the Committee of a potential post-shutdown rule after expiry of the plant's operating license from the NRC; review of proposals for a revised Charter for the DCISC and the 2018 Nuclear Decommissioning Cost Determination Proceedings pending before the California Public Utilities Commission.

Tuesday Evening, June 4th
5:30 P.M.

Committee Member comments and public comments and communications to the Committee; informational presentations by a representative of the Holtec International on spent nuclear fuel management and storage at Diablo Canyon; and remarks by the Senior NRC Resident Inspector for Diablo Canyon.

Wednesday Afternoon, June 5th
1:00 P.M.

Introductions, public comments and communications to the Committee Members and Members' concerns; Committee business session including approval of Minutes of the Committee's February 27-28, 2019 public meeting, and reports on a site-finding visit to Diablo Canyon by Members and Technical Consultants; and wrap-up discussion by Committee Members.

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DCISC

DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

COMMITEE MEMBERS

ROBERT W. RAHRI
PETER K. LAM
PETER F. PETTIGREW

WEBSITE: WWW.DCISC.ORG

VIA FEDERAL EXPRESS

May 30, 2019

California Polytechnic State University
San Luis Obispo
R. G. Kennedy Library

Documents & Maps Dept.
San Luis Obispo, California 93407

Attention: Mr. Tim Straw, Intern Associate Dean
Re: Diablo Canyon Independent Safety Committee Agenda Packet

Dear Mr. Straw:

Enclosed please find a copy of the Agenda Packet for the next meeting of the Diablo Canyon Independent Safety Committee which will be held in Avila Beach on June 4-5, 2019. Would you please file this packet in the Reference Department and make it available to the public.

Thank you for your cooperation and assistance in this matter.

Very truly yours,

Robert W. Rahri
DCISC Asst. Legal Counsel

G.2 – 42

info@DCISC.org

From: info@DCISC.org
To: "Ezra, David"
Cc: "Mattie, Martin" info@DCISC.org
Subject: DCISC June 4-5 Public Meeting Agenda
Attachments: DCISC Agenda June 4-5 2019 Public Agenda.pdf

Dear David:

I am writing now to let you know the next public meeting of the Diablo Canyon Independent Safety Committee (DCISC) will be held on Tuesday and Wednesday, June 4-5, 2019, at the Avila Lighthouse Suites Point San Luis Conference Facility in Avila Beach, California, and a draft agenda for the meeting is attached.

The Committee will again take up the topic of a possible post-shutdown rule during the afternoon session on Tuesday, June 4, likely at around 4 PM. The meeting will be livestreamed and the livestream feed can be accessed through a link on www.dcsisc.org or through www.speaking.by. To date, we have not had any response from ALF Horik concerning the DCISC notice for party status in the NDECT (Rued on March 15).

In the past, I have sent copies of our public meeting agendas to Ezra Grimes who was facilitating the meetings of the IPRF and was kind enough to provide timely information to the Committee on the IPRF's public meetings. I believe that Ezra has now retired. Do you know if there another person at the IPRF with whom I should be corresponding regarding meetings for our respective committees?

Thanks again, and please let me know if you have any questions or require further information.

Best regards,

Bob Rahri
DCISC Asst. Legal Counsel
(805)439-6688
info@DCISC.org

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G.2 – 44
PRESS RELEASE:
PUBLIC MEETING OF THE
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE ("DCISC")

WITH:
The Members of the Independent Safety Committee:
Dr. Robert J. Budlitz
Dr. Peter Lam
Dr. Per F. Peterson

WHAT:
An opportunity for the public to observe and receive information concerning the activities of the Independent Safety Committee including recent fact-finding visits and informational presentations concerning safety-related issues at Diablo CANYON Nuclear Power Plant:

- Committee Business Session - Tuesday morning,
  Review of the Open Items List, Election of DCISC Chair & Vice-Chair, and
  review of Fast-Finding Report and Administrative Matters,
- Presentation on the State of the Plant including station performance, key events, and operational highlights since February 2019,
- Update on NRC Performance Indicators, License Event Reports, Notices of Violation, and issues raised by NRC Resident Inspectors,
- Update on the Status of the Performance Improvement Program and
  the Corrective Action Program and the results being achieved,
- Report on Unit 2 December 1, 2018 Trip, results of the final root cause analysis and corrective actions,
- Performance during the 21st Refueling Outage for Unit 1 including key activities and results of inspection of fuel and Steam Generators,
- Committee discussion of a potential role for the DCISC following expiration of Diablo Canyon's Operating Licenses; review of drafts for a revised Charter for the DCISC and DCISC regulatory issues,
- Presentation by Holtec International on Nuclear Fuel Management and Storage at Diablo Canyon,
- Remarks by the NRC Senior Resident Inspector for Diablo Canyon.

WHERE:
Avila Lighthouse Suites - Point San Luis Conference Facility
First & San Francisco Streets, Avila Beach, CA

WHEN:
Tuesday and Wednesday - June 4-5, 2019

TIMES:
8:00 A.M. to approx. Noon (Tuesday, June 4th)
1:30 P.M. to approx. 5:00 P.M. (Tuesday, June 4th)
5:30 P.M. to approx. 7:30 P.M. (Tuesday, June 4th)
1:00 P.M. to approx. 3:00 P.M. (Wednesday, June 5th)

FOR FURTHER INFORMATION:
Including details of the meeting agenda, contact 1-800-439-4688 or review the meeting agenda online at www.dcisc.org

The Committee's policy is to schedule its public meetings in locations that are accessible to people with disabilities. The Point San Luis Conference Facility is an accessible facility and hearing assistance devices are available. The meeting will be live streamed in real time at:
http://www.livestream.com/channel/DCISC/live stream. Index into the meeting agenda at http://www.dcisc.org

Where:
Avila Lighthouse Suites - Point San Luis Conference Facility
First & San Francisco Streets
Avila Beach, California

Please plan to attend!

PUBLIC MEETING OF THE
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE ("DCISC")

When:
Tuesday Morning, June 4th
8:00 A.M.

Introductions and public comments and communications to the Committee Members; committee business session and discussion of administrative matters including review of the DCISC Open Items List, informational presentations by PG&E on the "State of the Plant," an update on regulatory performance, and a report on the status of the Performance Improvement and Corrective Action Programs; a report on a DCISC fact-finding visit by a Member and Technical Consultant to Diablo Canyon, and discussion of administrative, regulatory and legal matters.

Tuesday Afternoon, June 4th
1:30 P.M.

Committee Members comments, public comments and communications to the Committee; reports by PG&E on the December 1, 2018 Unit 2 reactor trip, and performance during the 21st refueling outage for Unit 1; discussion by the Committee of a potential postshutdown role after expiry of the plant's operating licenses from the NRC, review of proposals for a revised Charter for the DCISC and the 2018 Nuclear Decommissioning Cost Technical Proceedings pending before the California Public Utilities Commission.

Tuesday Evening, June 4th
5:30 P.M.

Committee Member comments and public comments and communications to the Committee; informational presentations by a representative of the Holtec International on spent Nuclear fuel management and storage at Diablo Canyon; and remarks by the Senior NRC Resident Inspector for Diablo Canyon.

Wednesday Afternoon, June 5th
1:00 P.M.

Introductions, public comments and communications to the Committee Members and Members' comments; committee business session including approval of Minutes of the Committee’s February 28, 2019 public meeting, and reports on a fact-finding visit to Diablo Canyon by Members and Technical Consultants; and wrap-up discussion by Committee Members.

DIABLO CANYON POWER PLANT
Independent Safety Committee Tour

Wednesday, June 5, 2019
7:30 AM
Energy Education Center
6588 Ontario Road, San Luis Obispo CA (805) 546-5280
8:00 AM
Introduction of Committee Members, - DCISC Members Technical Consultants & Assistant Legal Counsel; Video Presentation on the History & Role of the DCISC
8:30 AM
Welcome, Safety Message and Diablo Canyon Overview
- Ms. Diana Turk
8:50 AM
Board bus for DCPP
9:10 AM
Avila Gate - DCPP History & Receive Security Badges
9:15 AM
Environmental and Land Stewardship
9:30 AM
View the Independent Spent Fuel Storage Installation
9:45 AM
Park in Lot 7
10:00 AM
Visit Simulator Observation Room
Emergency Response Exercise in Progress
10:30 AM
View the Plant Intake and Outfall Facilities
11:00 AM
Depart DCPP; Question & Answer Session with DCISC Members & Technical Consultants and PG&E representatives
11:30 AM
Arrive at the Energy Education Center
DIABLO CANYON POWER PLANT PUBLIC TOUR WITH MEMBERS OF THE DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

At 8:00 A.M. on the morning of Wednesday, June 5, 2019, the Diablo Canyon Independent Safety Committee will conduct an inspection tour of certain accessible areas at the Diablo Canyon Nuclear Power Plant. This tour will take approximately three and a half hours and will be open to a limited number of members of the public. The tour will not re-enter the processed area of the plant.

Because the plant is an operating nuclear facility, the number of participants must be limited and space will be reserved on a first-come, first-served basis. Reservations, which have usually been in high demand, will be accepted for no more than four immediate family members per person, each of whom must be at least eighteen years of age. Personal identification including, but not limited to, dates of birth, social security numbers, gender and address are required when making a reservation. You will be required to present a NRC approved form of identification which must include a photo to enter the plant. The Committee makes every effort to make public tours accessible and to accommodate special equipment and other needs useful to persons with disabilities. If you plan to attend and need specialized accommodations, please do so indicate when making your reservation. Prior security clearance is required of all attendees in compliance with the rules of the U.S. Nuclear Regulatory Commission (NRC) and Pacific Gas & Electric Company. Hand-held metal detector sensors or physical pat-down searches may be performed. No photographs are permitted.

Appropriate attire is required of all participants. Long pants and hard, closed-toe, flat shoes must be worn. Hard hats, safety glasses and hearing protection may be required and if so required they will be provided. No sandals, skis or other attire which exposes legs or ankles, no tank tops or sleeveless shirts, no sandals, clogs, or any other slip on shoes are permitted.

Reservations may only be made by telephoning the Committee’s toll-free number: 1-800-639-0688.

Commencing on Monday, May 20, 2019
BETWEEN THE HOURS OF 8:00 A.M. - Noon and 2:00 P.M. - 5:00 P.M.

Please place your call no earlier than 8:00 AM & prior to 5:00 P.M. Please be patient as call volume is expected to be very heavy.

Email reservations cannot be accepted nor will requests for reservations be accepted over the telephone at the number provided above.

In the event that weather considerations preclude a public tour of Diablo Canyon on June 5th, in the alternative the DCISC may convene an informal meeting and open session at the PG&E Energy Education Center, 6698 Ontario Road, San Luis Obispo at 8:30 A.M. Information concerning the agenda for DCISC public meetings on June 5, 2019, at the Avila Lighthouse Suites Conference Facility in Avila Beach, California, will be available on the Committee’s homepage at www.dcsisc.org or by contacting the office of the Committee's Legal Counsel at the Committee's toll-free telephone number.

G.2 – 49

G.2 – 50

Thank you Bob, Wednesday at 3 p.m. would be great.

Greg

Greg Haas
District Representative
Congressman Salud Carbajal (CA-24)
541 Marsh St., Ste 205
San Luis Obispo, CA 93401
(805) 546-8364
(805) 699-1446
(805) 493-3574F
Greg.Haas@mail.house.gov

https://carbajal.house.gov/

From: [email]
To: [email]
Subject: DCISC Agenda June 5 2019 Public Agenda.pdf

Attachment: DCISC Agenda June 5 2019 Public Agenda.pdf

From: Bob Budzitz <budzitz@packtel.net>
Sent: Monday, May 13, 2019 12:42 PM
From: [email]
To: [email]
CC: [email]
Subject: Congressman Carbajal request for information

TO: Greg Haas
FROM: Bob Budzitz

On Wednesday, I am busy in the morning (until around 1:00pm), then free. On Thursday, I am also busy until early afternoon. If you name a time, I will call you on the number you indicate in your note.

Bob

Robert J. Budzitz
Staff Scientist (retired)
Lawrence Berkeley National Laboratory
University of California
Energy Sciences Division, Mail Stop 74-3180
Berkeley, CA 94720
(Phone) 510-486-9269
Email: R.Budzitz@lbl.gov

Home in Berkeley:
Robert J. Budzitz
734 The Alameda
Berkeley CA 94707
(Land phone) 510-527-6775
(Mobile phone) 510-757-7030
Email budzitz@berkeley.edu

G.2 – 51

G.2 – 52
the results achieved during the recent refueling outage and can provide a referral to person or persons at the plant who should be in a better position to address specific questions about labor usage.

The Committee has requested a public presentation from PG&E on this outage, the twenty-first refueling outage for Unit-1, for the upcoming OCSC public meeting scheduled for June 4-5, 2019 at the Avila Lighthouse Suites in Avila Beach. An agenda for the meeting will be sent to you as soon as it is finalized.

If, by reply email, you could provide me with the date(s) and time(s) when it would be convenient for you to speak with Dr. Budzitz, I will provide him with that information (as he is copied, along with the other members on this email). Please also let me know if you would like Dr. Budzitz to call you on your office line or on your cell phone.

I hope this message is responsive to your inquiry and that you can attend the June public meeting.

Best regards,
Bob Rathie

OCSC Asst.legal Counsel
(800) 439-8688
info@ocsc.org

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From: Greg Haas [mailto:Greg_Haas@state.ca.us]
Sent: Thursday, May 9, 2019 4:07 PM
To: info@ocsc.org
Cc: Bob Budzitz [budzitz@state.ca.us]; Peter Law [peterlaw@state.ca.us]; Pete Peterson [pete@petepeterson.com]; Herman Warren [hwarren@state.ca.us]; Rick St. Hilaire [rsh@state.ca.us]; Greg Haas [greg@state.ca.us]
Subject: RE: Congressman Carabajo request for information

Dear Committee Members,

I'm looking into an issue that I thought you might be able to assist me with in understanding.

The Congresswoman was made aware that the normal supplemental workforce that accompanies a Diablo Canyon outage has been dramatically reduced by more than 50 percent. This also applies to trade organization labor who routinely work at the power plant.

I was wondering if you could explain the difference in the maintenance schedule from past outages to the present.

Ideally I would like to talk to the committee or a committee member about this issue if that can be arranged.

My contact information is below.

Thank you.

G.2 – 53

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From: info@ocsc.org [mailto:info@ocsc.org]
Sent: Tuesday, May 7, 2019 9:15 AM
To: Alex Karlin
Cc: info@ocsc.org
Subject: RE: HOLTEC CSIF VICTORY - NRC DECISION DENIES ALL ENVIR. CHALLENGES

Alex –

Thank you for providing your email with its attachment, concerning the New Mexico CSIF which I have provided to our Members and Technical Consultants. Very much appreciated and certainly, in my humble view, good news.

Hope all is going well for you and we have the chance to visit at the upcoming OCSC public meeting on June 4-5, once again we’re returning to the Avila Lighthouse Suites.

Best regards,

Bob Rathie

From: Alex Karlin [mailto:alexkarlin@gmail.com]
Sent: Tuesday, May 7, 2019 7:26 AM
To: Alex Karlin
Subject: HOLTEC CSIF VICTORY - NRC DECISION DENIES ALL ENVIR. CHALLENGES

Colleagues,

Three of my former colleagues/judges at NRC issued their decision today denying all of the challenges filed by 6 or 7 environmental groups against the licensing and construction of a Consolidated Interim Spent Fuel Storage (CISF) facility in the desert in eastern New Mexico. Attached is a copy of the decision. There were a lot of challengers and a lot of "contentions" so the ruling is 139 pages.

This decision provides Holtec with a major victory. Also, because PG&E already uses Holtec casks, and has said that it plans to send these casks to the Holtec CISF (if duly permitted to do so), this decision may help accelerate the SLO Community’s efforts to stop shipping Diablo’s Spent Nuclear Fuel to the New Mexico CSIF as soon as 2038. We may no longer need to wait for Yucca Mountain to get this deadly stuff out of SLO!

But Holtec does not have the legal "go-ahead" yet to start construction of the CISF. First, the NRC Staff is still processing the application (which will take about 2 more years). Second, the environmental petitioners in this Holtec proceeding (including Mothers for Peace) will undoubtedly appeal this decision. Third, the environmental groups have also filed a parallel lawsuit in the U.S. Court of Appeals for the District of Columbia. That case has not been decided.

Both sides will begin “spinning” today’s ruling immediately. Much litigation and controversy remains.

G.2 – 55

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From: info@ocsc.org
Sent: Friday, May 10, 2019 2:43 PM
To: Greg Haas [mailto:Greg_Haas@state.ca.us]
Cc: Bob Budzitz [budzitz@state.ca.us]; Peter Law [peterlaw@state.ca.us]; Pete Peterson [pete@petepeterson.com]; Herman Warren [hwarren@state.ca.us]; Rick St. Hilaire [rsh@state.ca.us]; Greg Haas [greg@state.ca.us]
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G.2 – 54

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G.2 – 55

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Subject: RE: Congressman Carabajo request for information

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Ideally I would like to talk to the committee or a committee member about this issue if that can be arranged.

My contact information is below.

Thank you.
MEMBERS OF THE PUBLIC INVITED

Wednesday Evening, April 17th
5:30 - 7:30 P.M.

An opportunity to meet informally with DCISC Member Dr. Peter Lam and Technical Consultant Rick McWhorter to discuss matters, exchange views and ask questions concerning the Safety Committee's review of safety of operations at Diablo Canyon Nuclear Power Plant and to express your opinions and ideas concerning the possibility of the DCISC continuing to play a role in reviewing activities in connection with decommissioning Diablo Canyon.

Please plan to attend!

For further information call 1-800-439-4688 or visit the Committee's website at www.dcisc.org.

The Committee's policy is to schedule its public meetings in locations that are accessible to people with disabilities. The Avila Beach Community Center conference room is an accessible facility.

Avila Beach Community Center
Conference Room
191 San Miguel Street
Avila Beach, California
VIA USPS

April 16, 2019

Dr. Gene Nelson
CGNP Legal Assistant and Government Liaison
Californians for Green Nuclear Power, Inc. (CGNP)
1375 East Grand Ave Ste. 103 #523
Arroyo Grande, CA 93420

Re: Diablo Canyon Independent Safety Committee Annual Reports,

Dear Dr. Nelson,

Enclosed in accordance with your request to me at the conclusion of the Committee’s February 2019 public meeting, please find a compact disk version of the DCISC’s 20th through 28th Annual Reports.

Thank you for your patience in this matter;

Sincerely,

Robert W. Rathie
DCISC Asst. Legal Counsel

Enclosure

G.2 – 65

--- Original Message ---
From: info@DCISC.org [mailto:info@dcisc.org]
Sent: Monday, April 1, 2019 9:40 PM
To: "government@CGNP.org" <government@CGNP.org>
Cc: info@DCISC.org
Subject: RE: DCISC Annual Reports

Dr. Nelson -

I have not forgotten your request to me at the DCISC’s February public meeting for CDs of past Annual Reports.

I have CDs boxed and ready to mail to you for the 20th through the 28th (latest) Annual Reports but wanted to confirm with you the mailing address below is correct:

Gene Nelson, Ph.D.
CGNP Legal Assistant and Government Liaison Californians for Green Nuclear Power, Inc. (CGNP)
1375 East Grand Ave #103 #523
Arroyo Grande, CA 93420

Please let me know if the above address is correct.

Thanks for your patience.

Best regards,

Bob Rathie
DCISC Asst., Legal Counsel

G.2 – 66

--- Original Message ---
From: info@DCISC.org [mailto:info@dcisc.org]
Sent: Tuesday, April 2, 2019 2:42 PM
To: Ziman, David
Cc: "Robert Budulis", Ziman, David; "Mattes, Martin"; info@DCISC.org
Subject: RE: Request to Meet with DCISC Chair and Counsel during the week of April 8-12, 2019

David – thanks for trying to fit a meeting with the DCISC into your and Jason’s schedule for next week.

Looks like the availability windows are: Monday or Tuesday afternoon, and any time on Wednesday or Friday. (I don’t believe that the meeting will take more than about an hour.)

Thanks again for your assistance with this request,

Bob

From: Mattes, Martin [mailto:mmattes@nossaman.com]
Sent: Tuesday, April 2, 2019 3:47 PM
To: info@DCISC.org
Cc: Robert Budulis; David.Ziman@nossaman.com; Mattes, Martin; info@DCISC.org
Subject: RE: Request to Meet with DCISC Chair and Counsel during the week of April 8-12, 2019

Bob – For me it is Tuesday until 1:30 pm that I’m not available, but that afternoon would be good. I can also do any of the other times suggested.

Marty

From: Ziman, David [mailto:David.Ziman@nossaman.com]
Sent: Tuesday, April 2, 2019 12:33 PM
To: info@DCISC.org
Cc: Robert Budulis; Mattes, Martin
Subject: RE: Request to Meet with DCISC Chair and Counsel during the week of April 8-12, 2019

Bob,

I’ll confer with Jason to figure out our availability. I’m not available on April 11, but the rest of my week is mostly open.

David Ziman, Esq.
Public Utilities Regulatory Analyst
California Public Utilities Commission – Energy Division
505 Van Ness Avenue
San Francisco, CA 94102
(415) 703-1544 — David.Ziman@cop.ca.gov

From: info@DCISC.org [mailto:info@dcisc.org]
Sent: Sunday, March 31, 2019 12:09 PM
To: Ziman, David [mailto:David.Ziman@nossaman.com]

G.2 – 67

G.2 – 68
I'm writing to inquire if it would be possible to schedule a meeting with you sometime during the week of April 8-12 (perhaps, as you suggested in the past, with Jason Reiger of the Legal Division in attendance) and DCSC Chairman Dr. Budnitz together with me and attorney Marty Mattes of the Nossaman law firm (who has for many years advised the Committee concerning regulatory matters). Both Dr. Budnitz and Ms. Mattes are copied on this mail.

The purpose of the meeting is to exchange views and discuss matters in connection with the process and schedule for the DCSC to submit in the NDOCTP (or in a separate application) a proposed second restatement of its Charter from the Commission and, in that context, to discuss the nature and scope of a possible post-shutdown continuing role for the DCSC to review decommissioning-related matters at DCPP.

All DCSC attendees presently have very good availability during the week of April 8-12, with the only time during which we could not meet being Monday morning, April 8, but all of us could attend a meeting on Monday after, say, 1:30 pm. For the dates of April 9-12 (Tuesday-Friday) we could meet at any time (with a personal preference from me for an afternoon meeting - as I will likely be traveling to San Francisco from Salinas that day).

Thank you for your courtesy and attention to this request, and to these matters, and I hope to hear from you soon.

Sincerely,
Bob Rathie
(805) 439-4688
info@dcisc.org

---

Jennifer – much appreciated,

I believe the Committee is in complete concurrence with PG&E’s position on the Karlin comments (and you already have their 2011 review of the P73/embrittlement issue which the Members and Consultants have addressed with MIP on multiple occasions during public meetings.)

Thanks and best regards,

Bob

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Jennifer –

*****CAUTION: This email was sent from an EXTERNAL source. Think before clicking links or opening attachments.*****

Jennifer –

Thank you for the Chapter 6 Supplemental Testimony on the spent fuel management issues which I will provide to our Members and the Consultants but I was also interested in any response or additional information PG&E provided in response to the Amended Scoping Memo concerning the issues raised by Mothers for Peace (U-P embrittlement testing) and to the comments from Alex Karlin on the DCSC’s activities.

Any information you can provide on these issues would be much appreciated,

Thanks again,

---

Dr. Nelson –

I have not forgotten your request to me at the DCSC’s February public meeting for CDs of past Annual Reports.

I have CDs boxed and ready to mail to you for the 20th through the 28th (latest) Annual Reports but wanted to confirm with you the mailing address below is correct.

Gene Nelson, Ph.D.
CGNP Legal Assistant and Government Liaison California for Green Nuclear Power, Inc. (CGNP) 1377 East Grand Ave Ste 103 #523 Arroyo Grande, CA 93420

Please let me know if the above address is correct.

Thanks for your patience.

Best regards,

Bob Rathie
DCSC Asst. Legal Counsel
(805) 439-4688
info@dcisc.org
Thanks for taking the time to speak with me yesterday. We are planning on filing by this coming Friday a motion for party status for the DCISC in the NDEPT.

I have attached the two documents I referred to in our conversation yesterday morning, that is, a letter from then CEO Chuck Wetternimller in support of the DCISC developing a fully informed recommendation as to any post-shutdown role, and the report by the DCISC in 2011 on pressurized thermal shock.

Sorry I didn’t get these to you yesterday and thanks as always for your courtesy.

Bob Rathke
DCISC
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

COMMITTEE MEMBERS
ROBERT L. KLOEZE
PETER LAY
FRED PETERSON

March 29, 2019

The Horanske David Horanske
Commissioner & Chair
California Energy Commission
1516 Ninth Street, MS-34
Sacramento, California 95814

Re: Diablo Canyon Independent Safety Committee;

Dear Commissioner Horanske:

At its October 24, 2018 public meeting in Avila Beach the Diablo Canyon Independent Safety Committee acted to approve and adopt its Twenty-Eighth Annual Report on Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. We enclose a compact disk containing the completed report, with PG&E’s response incorporated therein, for your information and files. A compact disk is also being sent to Dr. Justin Cokne, The two bound volumes which comprise the Annual Report were sent previously to you.

The Members of the Committee welcome and invite any thoughts and comments which you or your staff might have concerning the value and usefulness of this and the previous DCISC annual reports. If you have any questions or comments concerning the above, please feel free to contact me.

Robert W. Rathe
DCISC Assistant Legal Counsel

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DCISC
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

COMMITTEE MEMBERS
ROBERT L. KLOEZE
PETER LAY
FRED PETERSON

March 29, 2019

Mr. Mark Knauss
Director, Government Relations
Pacific Gas & Electric Company
145 L Street, Suite 280
Sacramento, California 95814

Re: Diablo Canyon Independent Safety Committee;

Dear Mr. Knauss:

At its October 24, 2018 public meeting in Avila Beach the Diablo Canyon Independent Safety Committee acted to approve and adopt its Twenty-Eighth Annual Report on Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. We enclose a compact disk containing the completed report, with PG&E’s response incorporated therein, for your information and files. A compact disk is also being sent to Mr. Jon Franke, Vice President, Power Generation, Mr. Mark Knauss, Director, External Communications, Mr. John Lindsey, Communications Representative, Mr. Suzanne Hone, Principal, PG&E Marketing and Communications, Mr. Hector Garcia, Chief Nuclear Officer Support Manager, and to Jennifer Post, Esq., of PG&E’s Law Department. The two bound volumes which comprise the Annual Report were sent previously to Mr. Welch.

The Members of the Committee welcome and invite any thoughts and comments which you might have concerning the value and usefulness of this and the previous DCISC annual reports. If you have any questions or comments concerning the above, please feel free to contact me.

Very truly yours,

Robert W. Rathe
DCISC Assistant Legal Counsel

G.2 – 79

DCISC
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

COMMITTEE MEMBERS
ROBERT L. KLOEZE
PETER LAY
FRED PETERSON

March 29, 2019

Mr. Hector Garcia
Chief Nuclear Officer Support Manager
Pacific Gas & Electric Company
Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, California 93424

Re: Diablo Canyon Independent Safety Committee;

Dear Mr. Garcia:

At its October 24, 2018 public meeting in Avila Beach the Diablo Canyon Independent Safety Committee acted to approve and adopt its Twenty-Eighth Annual Report on Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. We enclose a compact disk containing the completed report, with PG&E’s response incorporated therein, for your information and files. A compact disk is also being sent to Mr. Jon Franke, Vice President, Power Generation, Mr. Mark Knauss, Director, External Communications, Mr. John Lindsey, Communications Representative, Mr. Suzanne Hone, Principal, PG&E Marketing and Communications, and to Jennifer Post, Esq., of PG&E’s Law Department. The two bound volumes which comprise the Annual Report were sent previously to Mr. Welch.

The Members of the Committee welcome and invite any thoughts and comments which you might have concerning the value and usefulness of this and the previous DCISC annual reports. If you have any questions or comments concerning the above, please feel free to contact me.

Very truly yours,

Robert W. Rathe
DCISC Assistant Legal Counsel

G.2 – 80
March 29, 2019

City Library
City of San Luis Obispo
992 Palm Avenue
San Luis Obispo, California 93401


Dear Librarian:

At its October 24, 2018 public meeting in Avila Beach the Diablo Canyon Independent Safety Committee voted to approve and adopt its Twenty-Ninth Annual Report on Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. We enclose a compact disk containing the completed report, with PG&E's response incorporated therein. Please make it available to the public. Compact disks are also being sent to the County Public Library Branches at Arroyo Grande and Shell Beach and to the R.E. Kennedy Library at Cal Poly. The two bound volumes which comprise the Annual Report were sent previously to the Reference Department Desk at the Cal Poly Library.

The Members of the Committee welcome and invite any thoughts and comments which you or your staff might have concerning the value and usefulness of this annual report. If you have any questions or comments concerning the above, please feel free to contact me.

Very truly yours,

Robert W. Ratliff
DCSC Assistant Legal Counsel

RWRs
Enclosure
Cc w/o end.: DCSC Members

March 29, 2019

County Library
County of San Luis Obispo
Arroyo Grande Branch
806 W. Branch
Arroyo Grande, California 93420


Dear Librarian:

At its October 24, 2018 public meeting in Avila Beach the Diablo Canyon Independent Safety Committee voted to approve and adopt its Twenty-Ninth Annual Report on Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. We enclose a compact disk containing the completed report, with PG&E's response incorporated therein. Please make it available to the public. Compact disks are also being sent to the County Public Library Branches at Arroyo Grande and Shell Beach and to the R.E. Kennedy Library at Cal Poly. The two bound volumes which comprise the Annual Report were sent previously to the Reference Department Desk at the Cal Poly Library.

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DCSC Assistant Legal Counsel

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Enclosure
Cc w/o end.: DCSC Members
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The Members of the Committee welcome and invite any thoughts and comments which you or your staff might have concerning the value and usefulness of this and the previous DCISC annual reports. If you have any questions or comments concerning the above, please feel free to contact me.

Very truly yours,
Robert W. Rathe
DCISC Assistant Legal Counsel

Mr. John Lindsey
Communications Representative
Diablo Canyon Nuclear Power Plant
Energy Education Center
6500 Ontario Road
San Luis Obispo, CA 93405-8000

March 29, 2018

Mr. Joseph Gazzardi
Emergency Services Manager
Office of Emergency Services
County of San Luis Obispo
County Government Center
San Luis Obispo, California 93408


Dear Mr. Gazzardi:

As in October 24, 2018 public meeting in Avila Beach the Diablo Canyon Independent Safety Committee acted to approve and adopt its Twenty-Eighth Annual Report on Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. We enclosed a compact disk containing the completed report, with PG&E's response incorporated therein, for your information and files.

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Very truly yours,

Robert W. Rathie
DCISC Assistant Legal Counsel

RWRms
Enclosure
Cc: w/enc. DCISC Members

OFFICE OF LEGAL COUNSEL - ROBERT R. WELLINGTON - 406 CANYON ST - MONTEREY, CA 93940
TELEPHONE (831) 426-0900 - FAX (831) 426-0838 - EMAIL: WELLC@MONTEREY.CA.GOV

G.2 – 93

March 29, 2019

Ms. Rachel Bickert
Manager
California State Seneca Hill Meeting
California Senior's Daughters
Santa Cruz District Office
701 Ocean Street, Suite 318A
Santa Cruz, California 95060


Dear Mr. Bickert:

As in October 24, 2018 public meeting in Avila Beach the Diablo Canyon Independent Safety Committee acted to approve and adopt its Twenty-Eighth Annual Report on Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. We enclosed a compact disk containing the completed report, with PG&E's response incorporated therein, for your information and files. Copies of the DCISC's reports were previously being sent to Ms. Anne Agayoff at Senator Hsing's San Luis Obispo office.

The Members of the Committee welcome and invite any thoughts and comments which you or your staff might have concerning the value and usefulness of this and the previous DCISC annual reports. If you have any questions or comments concerning the above, please feel free to contact me.

Very truly yours,

Robert W. Rathie
DCISC Assistant Legal Counsel

RWRms
Enclosure
Cc: w/enc. DCISC Members

OFFICE OF LEGAL COUNSEL - ROBERT R. WELLINGTON - 406 CANYON ST - MONTEREY, CA 93940
TELEPHONE (831) 426-0900 - FAX (831) 426-0838 - EMAIL: WELLC@MONTEREY.CA.GOV

G.2 – 95

March 29, 2019

Mr. Gregory L. Haus
District Representative
U.S. Representative Hon. Salud Carbajal
24th Congressional District - California
1411 Main Street, Suite 205
San Luis Obispo, California 93401


Dear Mr. Haus:

As in October 24, 2018 public meeting in Avila Beach the Diablo Canyon Independent Safety Committee acted to approve and adopt its Twenty-Eighth Annual Report on Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. We enclosed a compact disk containing the completed report, with PG&E's response incorporated therein, for your information and files.

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Very truly yours,

Robert W. Rathie
DCISC Assistant Legal Counsel

RWRms
Enclosure
Cc: w/enc. DCISC Members

OFFICE OF LEGAL COUNSEL - ROBERT R. WELLINGTON - 406 CANYON ST - MONTEREY, CA 93940
TELEPHONE (831) 426-0900 - FAX (831) 426-0838 - EMAIL: WELLC@MONTEREY.CA.GOV

G.2 – 96
March 29, 2018


Dear Mr. Franke,

At our October 24, 2018 public meeting in Avila Beach the Diablo Canyon Independent Safety Committee voted to approve and adopt its Twenty-Fourth Annual Report on Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. We omit a compact disk containing the completed report, with PDFs of selected portions therein and the cover letter.

The Members of the Committee welcome and invite any thoughts and comments which you or your staff might have concerning the value and usefulness of this and the previous DCISC annual reports. If you have any questions or comments concerning the above, please feel free to contact me.

Robert W. Rakita
DCISC Assistant Legal Counsel

March 29, 2019


Dear Mr. Newport and Mr. Reyesos,

At our October 24, 2018 public meeting in Avila Beach the Diablo Canyon Independent Safety Committee voted to approve and adopt its Twenty-Fourth Annual Report on Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. We enclose a compact disk containing the completed report, with PDFs of selected portions therein and the cover letter.

The Members of the Committee welcome and invite any thoughts and comments which you or your staff might have concerning the value and usefulness of this and the previous DCISC annual reports. If you have any questions or comments concerning the above, please feel free to contact me.

Robert W. Rakita
DCISC Assistant Legal Counsel

From: info@DCISC.org
To: info@DCISC.org
Cc: info@DCISC.org

Subject: DCISC.org

Listener: Jennifer

Thanks for taking the time to speak with me yesterday. We are planning on filing by this coming Friday a motion for party status for the DCISC in the NCTR.

I have attached the two documents I referred to in our conversation yesterday morning, that is, a letter from then CEC Chair Weisbrod in support of the DCISC developing a fully informed recommendation as to any post-shutdown role, and the report by the DCISC in 2013 on pressurized thermal shock.

Sorry I didn’t get these to you yesterday and thanks as always for your courtesy,

Bob Rakita

G.2 – 97

G.2 – 98
operation for the purpose of assessing the safety of operations and suggesting any recommended actions for safe operations."

California's geocentric active core and the close proximity of nuclear facilities to populated regions dictate a greater level of safety and degree of protective action by technical experts. Access to the independent, technical expertise and direct, specific experience of the DCCIC committee has provided significant benefit to state, local, and public officials since its formation. The presence of an independent, expert, technical perspective has provided critical feedback to the public, state agencies, and local government who can engage with DCCIC staff on pertinent topics through critical stages of Diablo Canyon's operations and decommissioning.

The state, host communities, and other stakeholders have a vested interest in a public, open, safe, and timely decommissioning process. Community trust is maintained in the form of state-appointed recognized experts that review and report on reactor safety issues and topics related to Diablo Canyon. The DCCIC provides a public, open approach that is explicitly inclusive, adaptive, arranged, and informed. Each year, the public meetings are held in the local community, providing a venue that allows the public and local government to directly engage the committee and the plant operator. This inclusive process helps to achieve the essential public trust required for an extended decommissioning process.

I hope that these comments, in combination with other stakeholders' recommendations, continue to place public health and the environment before economic interest, while respecting the authority of state and local government. I wish to express my support and gratitude to the Diablo Canyon Independent Safety Committee and their staff for the excellent work they accomplish each year in support of their charter.

Please send any correspondence related to this letter to Justin Cuchair, Ph. D., Senior Nuclear Policy Advisor, California Energy Commission, MS-39, 1516 Ninth Street, Sacramento, CA 95814-3501, via email at Justin.Comments@energy.ca.gov.

Sincerely,

Robert W. Weisenmiller
Chief and State Liaison Officer to NRC

cc: Dr. Robert J. Budzik, Diablo Canyon Independent Safety Committee Member
    Dr. Per F. Peterson, Diablo Canyon Independent Safety Committee Member
    Bob Ratke, Diablo Canyon Independent Safety Committee Staff, Legal Counsel
    Chow Sohian, California Energy Commission
    Kevin Baker, California Energy Commission
    Justin Cochran, California Energy Commission

2 Diablo Canyon Independent Safety Committee information available at http://www.docic.org/index.php

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Apologies and concerns expressed. I don’t want it to be possible or even appropriate for me to express any of these opinions. Please use this as a starting point (or perhaps your rebuttal and help it with a better understanding of the biggest issues, as makes sense to you).

I was able to attend much of your two days of meetings and I must say I am impressed with the extent of the efforts of you three Committee members, your consultants and Bob Rathke’s role in handling administrative and legal planning. That this work has been going on for 20-30 years means that there has been a deep accumulation of detailed knowledge about DCCP operations. I understand this is the only nuclear power plant in the U.S. which has such an independent safety committee helping ensure continuous safety. That makes it unique and maybe the possibility of our engagement Panel benefiting from your input on such technical and safety issues that our panel endeavors to tackle. I do hope that the CPUC can extend your charter well into the period when spent fuel remains in the wet pool, and that I have the chance to communicate with you Panel could serve complementary purposes and be in a position to help each other better address the concerns of our community.

Thanks again to the Committee for approving your attendance at our March 13 meeting.

Best regards,

Lauren

From: Bob Budzik <budzik@bechtel.net>
Sent: Friday, March 1, 2019 3:58 AM
To: Lauren Brown <brown@bechtel.net>
Cc: info@docic.org
Subject: CD DEP meeting on March 13

To: Lauren Brown (DC DEP)
FRO: Bob Budzik
COPY TO: Bob Rathke

Thank you for taking the time to attend our DOCIC meeting yesterday. I am pleased that my calendar allows me to honor the DC DEP's request by attending the DEP meeting on Wednesday, March 13.

I flew home to Berkeley late yesterday afternoon. I am writing to you now because during our meeting you left paper copies of two documents with us. (One is a request with extensive specific details about telecon regarding the 13 March meeting.) The other is a request for DOCIC participation in a meeting on 12 June, in which you are requesting that the DOCIC discuss the pros and cons of the DCCP being organized and chartered by the CPUC, if we had both been organized and chartered by FGEC.

Unfortunately, I left yesterday’s DOCIC meeting without either of those documents in my possession. They were left on the table. Perhaps one of your panel members kindly has them. I am not sure. Therefore, I am writing to ask you to send these both to me separately in reply to this small note. I will need the one dealing with 13 March to help me prepare for that meeting, which of course is less than 2 weeks away now.

On a separate note, I mentioned to you that I will be flying from here to San Luis Obispo on Wednesday a 12th (13 March), and on the airport bus to meet 2:30 p.m., and for this reason I will not be able to attend the KC meeting tonight. You mentioned that I might meet you and the other DEP panel members at, say, 5:30 p.m. for a dinner, with the opportunity for an informal discussion prior to the formal evening DC DEP session. If you could please coordinate with me to discuss details before then, I would be grateful.

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And, finally, do you have an agenda for the 13 March meeting, and if so, can you please send it to me? How long is the time allocation for me – how long for what you expect in terms of my own remarks? Would it be 20 minutes or 30? If the two are quite different, I may need to do some work and have that copied over.

Thanks, see you soon,
Bob Budzik (chair, DOCIC)

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Lawrence Brown (retired)
Lawrence Brown (retired)
Lawrence Brown (retired)
Lawrence Brown (retired)
Lawrence Brown (retired)
Lawrence Brown (retired)
Lawrence Brown (retired)

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G.2 – 104
Feb. 28, 2019

To: Diablo Canyon Independent Safety Committee (DCISC)

Robert J. Baxtler, Ph. D., Chair
Peter Lam, Ph.D.
Per F. Petersen, Ph. D.

From: Diablo Canyon Decommissioning Engagement Panel (DCDEP)

Lauren R. Brown, liaison to the DCISC from DCDEP

Re: Request for DCISC to attend a June 12 meeting of the DCDEP

In a separate request to the DCISC, the DCDEP invites the DCISC to attend the June 12 meeting of our Panel. The topics for that meeting are the future structure and function of the DCISC. This topic was introduced in our Strategic Vision document (see www.doeinfo.org/DCISC/DCISC strategic vision 2.4.1) on p. 38. There you will find that in order to achieve our strategic goal, we should have an independent DCISC to replace the current DCDEP with an independent community advisory board.

"DCIS should create an Independent Decommissioning Advisory Panel (IDP) in lieu of the DCISC." by Alex Karlin.

Another document filed in support of retaining and building on the current structure of the DCDEP under the auspices of PG&E:

"Proposal to Continue and Strengthen DCOP," by Lauren Brown

The discussions at our June meeting will be critical for arriving at a recommendation to PG&E and to the CPUC as to which of these two directions, or any other variation, that should be considered for the future.

In consideration of the DCISC as an entity independent of PG&E, we would consider helpful if you could give this presentation:

"Diablo Canyon Independent Safety Committee -- Pros and Cons to being organized as an independent entity outside the auspices of the CPUC."

Or some such related title.

Again, I would point out that one of the members of the DCDEP disagrees with inviting the DCISC to this meeting on the ground that your charter does not permit such activity in support of a Panel focused on decommissioning activities.

Furthermore, the remaining members of the DCDEP participate in extending this invitation to the DCISC.

We hope you will be able to provide us with the benefit of your experiences.

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From: info@DCISC.org

Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Lauren

I need to check back with you to confirm your receipt of my e-mail last Friday regarding the unavailability of a DCISC representative to attend DC DEP’s workshop on February 23-24.

Your confirmation will be appreciated.

Thanks,

Bob

From: info@DCISC.org [mailto:info@DCISC.org]

Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Lauren

I need to let you know that, unfortunately, after checking with our Members and the Technical Consultants, due to previous commitments the DCISC will be unable to provide a representative to attend and address remarks at either session of the DC DEP workshop on spent fuel issues which is scheduled to be held on Saturday, February 23 and Sunday, February 24.

I regret that the DCISC was unable to accept your invitation on behalf of the DC DEP on this occasion but I trust that in the future we will be able to assist the DC DEP in its important work. The matter of a presentation by a DCISC representative at the DC DEP’s public meeting on March 13, 2019 will be on the agenda for the DCDEP’s next public meeting on February 27-28 in Prumo Beach.

Best regards,

Bob

From: Lauren Brown [mailto:lauren.brown@baxtlerlab.net]

Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Bob,

I think it is live-streamed on the local government and public affairs channel but I am not sure if that all of our public meetings and workshops are available on archived videotape at http://www. doce.org/press/mediacentre.

The workshops are intended to be for the full Panel and generally nearly all members do attend the full workshop, with a few exceptions for work or personal scheduling conflicts.

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From: info@DCISC.org

Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Lauren -- Will the workshop on February 23-24 be live-streamed on the internet or available afterward on archived video? Also, I wanted to confirm with you that the workshop is to be conducted with the entire eleven members of the DC DEP present and not by a subcommittee.

Best,

Bob

P.S. For some reason, http://www.doeinfo.org is still not accepting our email exchanges.

From: info@DCISC.org

Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Lauren -- Thank you for the information on the schedule for the DC DEP’s upcoming workshop to be held during the weekend of February 23-24.

However, at this time, I cannot provide you with information about the availability of a representative of the DCISC to attend and make a presentation on either date but I will provide this information to our Members and Technical Consultants and will need to get back to you with a response to this request. (As you know, the DCISC’s February public meeting is scheduled for later that week (February 27-28).

I can confirm, as of this date in your email, the DCISC will consider participating at your March 13, 2019 public meeting during the DCDEP public meeting in February. When finalized, the agenda for the February 27-28 public meeting will be available on our website at www.doeinfo.org.

Best regards,
Dear Bob,

Yesterday a sub-committee of the DCESP met to plan the agenda for the 2 days of workshops (Feb. 23 & 24) on the topic of spent fuel storage. It is possible for a representative from the DCSC to make a presentation, our preference would be for that to occur on the first day, Feb. 23, when most of the presentations would help frame the topic for all members and for the public in attendance. We are shooting 75 minutes for each presentation, including a discussion period and a 10-minute break; so there is some latitude between the length of the presentations and the discussion time. We would probably schedule DCSC in the morning or early afternoon, at your convenience. The second day of the workshops on Feb. 24 is also a possibility and if that is preferred we would probably prefer the DCSC contribution would come in the morning. Each day will start at 8:00 and probably run close to 6:00 PM and you would be welcome to attend any or all of the presentations but certainly that wouldn't be needed. So, let us know if someone might be able to provide such a 'filling' presentation that shares your accumulated knowledge on this important topic.

Some of us will be attending your public meeting on Feb. 27-28 and we look forward to endorsement of the plan for DCSC to present at our public meeting on March 13. We can work out details of that presentation after that plan has been approved.

Many thanks,

Lauren

Lauren Brown
Member, Diablo Canyon Decommissioning Engagement Panel

Sent: Wednesday, January 16, 2019 12:12 PM
To: Lauren Brown <Lauren.Brown@alpsglobal.com>
Cc: Chuck Anderson <chuck.anderson@alpsglobal.com>, info@dcsc.org

Subject: Release of Strategic Vision Document by the Diablo Canyon Decommissioning Engagement Panel

Dear Dr. Brown —

This will acknowledge receipt and convey our thanks on behalf of the DCSC for your email with the press release and the link to the full version of the DCESP Strategic Vision Document. I have provided your email with its attachments and the link to the Vision Document to the DCSC Members and Technical Consultants for their information and review.

With reference to the DCESP’s two-day workshops concerning spent fuel storage I will need to substantially advise you as to the availability of a representative of the DCSC to attend. I need to advise you that at its public meeting in October 2018 the DCSC changed the date for its February 2019 public meeting from February 13-14 to February 27-28. Our website at www.dcsc.org now includes the correct dates and the new location. The location for the February meeting will be Plaza Lighthouse Suites and Conference facility in Plana Beach.

The DCSC’s agenda for its February 2019 public meeting will include discussion of a presentation containing the DCSC’s view of the safety of spent storage and the 2019-2024 re-submitted plan of the DCSC for the DCESP public meeting on spent fuel to be held on March 12, 2019, in San Luis Obispo.

Once again, on behalf of the DCSC, our thanks for your email and for providing the strategic Vision Document. At your request, I will include Lauren.Brown@alpsglobal.com as a “cc” in all our communications and I also look forward to working and interacting with you in the coming year.

I apologize for any delay in responding to your email (the post-New Year period has proven to be very busy).

Best wishes for a successful year for you and the DCESP in 2019.

Lauren Brown
DCSC, Legal Counsel
1-800-439-4468
info@dcsc.org

Sent: Tuesday, January 8, 2019 12:28 PM
To: info@dcsc.org
Cc: Chuck Anderson <chuck.anderson@alpsglobal.com>, info@dcsc.org

Subject: Release of Strategic Vision Document by the Diablo Canyon Decommissioning Engagement Panel

Dear Robert,

As promised, we are forwarding to you the strategic Vision report prepared by the Diablo Canyon Decommissioning Engagement Panel (DCESP). Today our Panel issued a press release announcing the availability of our report that reflects the work done by our Panel during 2018 and the work that is planned for 2019. I am attaching that press release. For your convenience, I will also embed in my message to you the link that takes you directly to our report. (https://www.dcsc.org/sites/default/files/112018 днямоtDCESP_Strategic Vision.pdf)

You will note that we have planned for 2019 several meetings for which we would request input from the DCSC:

1. Two-day workshop on Spent Fuel Storage, February 27-28

Robert Rathie
DCSC, Legal Counsel
1-800-439-4468
info@dcsc.org

Sent: Wednesday, February 27, 2019 6:01 PM
To: Jane Swanson
Cc: info@dcsc.org

Subject: Re: PG&E request for exemption

Jane - I have provided your message with the attached notice to our Members and Technical Consultant.

Thanks for providing the message to the DCSC,

Best,

Bob

Sent from my Phone

On Feb 27, 2019, at 3:13 PM, Jane Swanson <jenswan@knoll.com> wrote:

Feb 27, 2019

Thank you.

TD: Bob Rathie and DCSC
FROM: Jane Swanson, S𪑭 SCE
RE: PG&E request for exemption

Here is the document I referred to in public comment at about 2 pm.

The meeting with NRC to process this is scheduled for tomorrow, Feb. 28.

So I am confused that PG&E does not plan to test the reactor vessel even though the NRC has not yet made a ruling.

Thank you for sharing this with the Commissioners and anyone else you think will be interested or knowledgeable about this topic.

Jane Swanson
jenswan@knoll.com
DCISC
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

G.2 – 113

Ronald R. W. Baker, Chair

The CCIC will provide the agenda to the Committee members in advance of the meeting. The agenda will include the following items: updates on safety and environmental issues, review of the Diablo Canyon Decommissioning Plan, and discussion of any other matters that may come up for consideration.During the meeting, members of the public will be allowed to speak for up to five minutes to express their views on any issue relevant to the Diablo Canyon site. The meeting is open to the public, and members of the public who wish to attend should contact the Diablo Canyon Decommissioning Plan at least two days in advance to receive an agenda packet and additional information.
PUBLICATION OF THE DIABLO CANYON INDEPENDENT SAFETY COMMITTEE ("DCISC")

PUBLIC MEETING OF THE DIABLO CANYON INDEPENDENT SAFETY COMMITTEE ("DCISC")

Wednesday Morning, February 27th
9:00 A.M.

Introductions, public comments and communications to the Committee Members; Committee business session and discussion of administrative matters; the DCISC's 28th Annual Report, review of the Open Items List, report on a fact-finding visit to DPFP and site activities of the Committee.

Wednesday Afternoon, February 27th
1:30 P.M.

Committee Members comments, public comments and communications to the Committee; report on a fact-finding visit, informational presentation by PG&E on the "State of the Plant," and a Presentation by the DCISC Chairman on the results of the recent Seismic Risk Analyses.

Wednesday Evening, February 27th
5:30 P.M.

Committee Members comments, public comments and communications to the Committee; informational presentations by PG&E officials on plant operations; and a presentation by the DCISC Chairman on the results of the recent Seismic Risk Analyses.

Thursday Morning, February 28th
9:00 A.M.

Introductions; public comments and communications to the Committee Members; discussion of the DCISC's role in the role of the DCISC after expiration of the plant's operating license, the role of the California Public Utilities Commission, and the plant's future operations.

Thursday Afternoon, February 28th
1:00 P.M.

Public comments and communications to Committee Members; comments and presentations by PG&E officials on plant operations; and a presentation by the DCISC Chairman on the results of the recent Seismic Risk Analyses.

WHERE:
Pismo Lighthouse Suites - Crow's Nest Conference Room (2nd Floor)
2411 Price Street, Pismo Beach, CA

INFO:
info@DCISC.org


g2 - 117

G2 - 118

G2 - 119

G2 - 120
David—

I certainly enjoyed our conversation today and want to thank you for the information concerning the CPUC perspective on the DCSIC's consideration of a potential role for this Committee – or a committee with a similar independent mandate – to review decommissioning matters at Diablo Canyon after the plant ceases electricity-generating operations on or before 2025.

I have attached (1) an excerpt from the October 25 public meeting wherein this matter was last discussed by the Commission and (2) the agenda for the public meeting next week on Wednesday and Thursday, February 27-28, to be held in Pismo Beach. You should receive on Monday a FedEx with the agenda packet for the February public meeting. For your perusal, the future schedule for DCSIC public meetings: June 5-6, 2019, October 23-24, 2019 and February 12-13, 2020 with all meetings now scheduled to be held at the Avila Lighthouse Suites in Avila Beach.

Regarding the topic of reactor vessel embrittlement, attached please find the DCSIC's Final Report on its evaluation of pressurized thermal shock performed in 2011 in context of PG&E's now cancelled application for a 20-year license extension for both units.

When you have spoken with Mr. Karlin concerning the matter of an application to the Commission from the DCSIC concerning a potential post-shutdown role, I'd appreciate any information you might be able to provide concerning Mr. Karlin's thoughts and reaction, as this would assist me in guiding the discussion scheduled for the afternoon of Thursday, February 28, at the conclusion of the DCSIC public meeting, when the topic of a post-shutdown role is on the agenda. This session, as are all sessions of the public meetings, will be recorded and can be accessed during the meeting (or after the meeting) at:

http://www.dgs.ca.gov/finance/DCSIC/2012/cmems_movie.htm

and

http://www.doe.ca.gov

Best regards,
Bob Rathie
(609) 438-4688

February 20, 2019

Cc: info@dcisc.org

Subject: Comments Concerning "Potential Continuing Role for the Committee to Review Decommissioning Related Matters"

Dear Committee Members Budzitz, Peterson and Lam:

The Diablo Canyon Independent Safety Committee's website states that the DCSIC is seeking to receive comments from members of the public concerning a potential continuing role for the Committee to review decommissioning-related matters following the cessation of electricity generating operations by the CPUC. Given that the DCSIC is a taxpayer-funded entity, I am submitting my comments as a taxpayer; a resident of San Luis Obispo, and a former administrative judge with the U.S. Nuclear Regulatory Commission.

COMMENTS

My main concern is that the DCSC should have no role regarding decommissioning. The DCSIC charter limits its mission to reviewing the operation of the DCPP and therefore the DCSIC has no legal authority or role to deal with decommissioning, which, by definition will occur after the cessation of operations of the DCPP. See 10 CFR Section 10.206.

The DCSC charter limits its mission to operational issues, not decommissioning:

The DCSIC shall review Diablo Canyon Operations for the purposes of assessing the safety of operations and suggesting recommendations for safe operations.

Operations cease at decommissioning. Thus, the DCSIC automatically suessees when Diablo Canyon stops operating (2025). The DCSC is not authorized to address decommissioning.

I submitted the DCSIC at these hearings in its capacity as a taxpayer. Unfortunately, the DCSIC is now attempting to have a new commission to start covering decommissioning and is trying to delve into decommissioning. This is both in its legal authority and is ultra vires.

1 10 CFR 0.88-0.083, App. C, All, A, Section 11. (Emphasis added).
2 The DCSIC website states that it was to be a "truly independent consultant" who would be paid by the ratepayer to assess the Committee in the identification of decommissioning related activities.
3 The DCSIC website states for public comment on its draft "DCSC Post-Shutdown Summary" which Acknowledgments it includes "Thank you for your suggestions of Comment of Continuing (submitted added)."

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February 20, 2019

Committee Members Budzitz, Peterson & Lam

Diablo Canyon Independent Safety Committee

157 Casa Real, Suite D

Monterey, CA 93940

cc: info@dcisc.org

Subject: Comments on "Potential Continuing Role for the Committee to Review Decommissioning Related Matters"

Dear Committee Members Budzitz, Peterson and Lam:

The Diablo Canyon Independent Safety Committee's website states that the DCSIC is seeking to receive comments from members of the public concerning a potential continuing role for the Committee to review decommissioning-related matters following the cessation of electricity generating operations by the CPUC. Given that the DCSIC is a taxpayer-funded entity, I am submitting my comments as a taxpayer; a resident of San Luis Obispo, and a former administrative judge with the U.S. Nuclear Regulatory Commission.

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1 10 CFR 0.88-0.083, App. C, All, A, Section 11. (Emphasis added).
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3 The DCSIC website states for public comment on its draft "DCSC Post-Shutdown Summary" which Acknowledgments it includes "Thank you for your suggestions of Comment of Continuing (submitted added)."

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To Alex Karlin:

This will acknowledge receipt of your message which has been provided to our Members and technical Consultants for their information.

Thanks for contacting the DCSIC and for your interest in its activities.

Best regards,
Bob Rathie

To Alex Karlin:

This will acknowledge receipt of your message which has been provided to our Members and technical Consultants for their information.

Thanks for contacting the DCSIC and for your interest in its activities.

Best regards,
Bob Rathie

The DCSIC website is soliciting comments as to whether the DCSIC has any role with regard to the decommissioning of Diablo Canyon.

As I stated in my February 11, 2019 letter to the California Public Utilities Commission, the DCSIC charter for the DCSIC limits its mission to the operation of DCPP. When DCPP shuts down in 2025, it will cease operations. See 10 CFR 50.82(ix)(3).

Accordingly, under its charter, the DCSIC has no role with regard to decommissioning.

The attached letter provides the DCSIC with my comments on this issue.

I request that the DCSIC desist in attempting to expand its mission and not attempt to pre-empt the CPUC extending proceedings - A-18-12-008 and A-18-12-009 - that will be dealing with these issues.

Thank you
Alex Karlin

G.2 – 124
President Michael Picker
Commissioner Actors, Randolph, Redcuff, and Shiroma
California Public Utilities Commission,
525 Van Ness Avenue
San Francisco, CA 94102

Subject: Request that Commission Not Ultra Vires Expenditures and Actions by Diablo Canyon Independent Safety Committee Relating to Decommissioning

Dear President Picker and Commissioners,

I respectfully request that the California Public Utilities Commission take prompt action to prevent the Diablo Canyon Independent Safety Committee (DCISC) from spending time, effort, and taxpayer money on activities that exceed its legal authority, i.e., on decommissioning. I submit this request as a retired Administrative Judge with the U.S. Nuclear Regulatory Commission, an individual who is a member of the Diablo Canyon Decommissioning Engagement Panel (but who is not speaking for the Panel), a resident of San Luis Obispo, and a ratepayer.

The DCISC charter limits its mission to operational issues, not decommissioning:

- The DCISC shall review Diablo Canyon operations for the purpose of assessing the safety of operations and suggesting and recommending policies for safe conditions. 1
- The DCISC website states that it is seeking to hire a technical consultant (who would be paid by the ratepayer) to audit the Commission in the identification of decommissioning related activities. 2
- A federal law specifies that decommissioning constitutes the “cessation of operation” of a nuclear power plant. 3 Operations cease at decommissioning. Thus, the DCISC actually ceases when Diablo Canyon stops operating (2023). The DCISC is not authorized to address decommissioning. I reminded the DCISC of its charter during its meeting on October 25, 2018.

Despite this fact, the DCISC is now attempting to hire a new director to start covering decommissioning 4 and is seeking to delve into decommissioning. This is not within its legal authority and is futile. Vexatiously, DCISC is attempting to provoke its Wessex plan 2025. Neither its charter, composition, knowledge, skills, nor experience, enable the DCISC to minister and oversee decommissioning in a way that best promotes the public interest. 5

2 10 C.F.R. Section 50.85(a)(3).
3 The DCISC website states that it is seeking to hire a technical consultant (who would be paid by the ratepayer) to audit the Commission in the identification of decommissioning related activities.
4 The current DCISC website asks for public comment on its draft “Decommissioning Roadmap” which it misleads “Public Review: Cessation of Operations” (Emphasis added).
5 According to the Commission’s charter for the DCISC, and to the Commission’s express announcements, when it hired new members, the DCISC members are selected for their “knowledge, skills, and understanding of the safe operation of a nuclear power plant.” Operating a nuclear power plant is very different from decommissioning one. The members of the DCISC were not hired for, nor does the record show that they possess “knowledge, skills or background” in decommissioning.

If the unilateral expansion of DCISC’s mission occurs, it will likely cost PG&E ratepayers at least an additional 18 million dollars. 6

I urge the Commission to act promptly to prevent the DCISC from hiring decommissioning technical consultants and from attempting to handle activities related to decommissioning.

Instead, the Commission should require the DCISC to detail from decommissioning activities until the Commission can conduct a fairness proceeding and decide whether, and how, to create an independent advisory entity to monitor the decommissioning of Diablo Canyon.

Perhaps the two current Diablo Canyon relicensing cases can serve as the vehicle for intelligently rationalizing the decommissioning situation. PG&E’s general relicensing case A-18-12-009, which deals with decommissioning, could be used to control the DCISC. PG&E’s Nuclear Decommissioning Cost Transmittal Proceeding, A-15-12-006, which deals with decommissioning, could be used to create a new independent decommissioning advisory panel.

Instead of inadvertently blessing DCISC’s expansion, and thus asking ratepayers to pay for a multiplicity of issues related to relicensing, the Commission should take the opportunity to review the entire situation thoughtfully and to charter an oversight entity with a mission and composition appropriate to the long and difficult task of decommissioning Diablo Canyon that lies ahead.

I would appreciate if you could ask your staff to keep me informed of any Commission discussions or decisions concerning this matter.

Thank you,

Sincerely,

Alex B. Karlin
alexkarlin@gmail.com
cc: PG&E
DCISC

[Signature]

[Note: The coordinator for the DCISC, and to the Commission’s express announcements, when it hired new members, the DCISC members are selected for their “knowledge, skills, and understanding of the safe operation of a nuclear power plant.” Operating a nuclear power plant is very different from decommissioning one. The members of the DCISC were not hired for, nor does the record show that they possess “knowledge, skills or background” in decommissioning.]

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G.2 – 125

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G.2 – 126

[Signature]

[Signature]
Drew & Justin —

Attached is a copy of the Draft Post-Shutdowns Summ ary and list of the letter recently sent to the CPUC by Mr. Alex Karlin, a member of the Diablo Canyon Decommissioning Panel that was co-sponsored by PG&E and the DCSC.

Both of these items are on the Committee's agenda for discussion at the next public meeting on February 27-28 (scheduled to be considered as the final agenda item on Thursday, February 28). The legal notice for the February 27-28 public meeting is now posted on our website (www.dcsic.org) and the agenda and agenda packet will be posted soon.

I sent the 2011 DCSC Repeal pressurized thermal shock/reactor embrittlement to Justin in a separate email during our call this afternoon.

Next to have a chance to speak with you both and with the Chair this afternoon, please let me know if I can be of any further assistance.

Best regards,

Bob Rathie

(800) 435-4688

Members & Consultants:

We received the following communication this afternoon from Alex Karlin to the CPUC President with Judge Karlin's attached letter requesting that the CPUC 'HALT' Ultra Vires Expenditures & Actions by the DCSC Relating to Decommissioning.'

Bob R

From: Alex Karlin (alexkarlinlaw@gmail.com)

Sent: Monday, February 11, 2019 6:36 PM

To: Alex Karlin <alexkarlinlaw@gmail.com>; Michael Pickar <mip@cpuc.ca.gov>; info@DCSC.org; jennifer.pot@pgc.com

Subject: Ultra Vires Expenditures - DCSC

Dear President Pickar and Commissioners:

The purpose of this email is to request California Public Utilities Commission take prompt action to prevent the Diablo Canyon Independent Safety Committee (DCSC) from spending time, effort, and taxpayer money on activities that exceed the DCSC's legal charter and are ultra vires. DCSC's charter specifically limits it to operational issues, but it is now attempting to expand its role (and extend its lifespan by 20+ years) into decommissioning.

The attached letter demonstrates that this is clearly outside of the DCSC charter and that the DCSC members do not have the knowledge, skills, or background to decommissioning. Indeed, they are currently attempting to hire a new consultant (with ratepayer funds) to cover this deficiency in their staffing.

Thank you for your attention to this matter.

Alex Karlin

alexkarlinlaw@gmail.com

G.2 – 129

February 11, 2019

President Michael Pickar

Commissioner Ana P. Randolph, Rochelle F. Schapira, and Shirena California Public Utilities Commission, 555 Van Ness Avenue

San Francisco, CA 94102

Subject: Request that Commission Abolish Ultra Vires Expenditures and Activities by Diablo Canyon Independent Safety Committee Relating to Decommissioning

Dear President Pickar and Commissioners:

I respectfully request that the California Public Utilities Commission take prompt action to prevent the Diablo Canyon Independent Safety Committee (DCSC) from spending time, effort, and taxpayer money on activities that exceed its legal authority, i.e., on decommissioning.

I submit this request as a retired Administrative Judge with the U.S. Nuclear Regulatory Commission, an individual who is a member of the Diablo Canyon Decommissioning Engagement Panel (but who is not speaking for the Panel), a resident of San Luis Obispo, and a taxpayer.

The DCSC charter limits its mission to operational issues, not decommissioning.

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Thank you for your attention to this matter.

Alex Karlin

alexkarlinlaw@gmail.com

G.2 – 130

February 11, 2019

President Michael Pickar

Commissioner Ana P. Randolph, Rochelle F. Schapira, and Shirena California Public Utilities Commission, 555 Van Ness Avenue

San Francisco, CA 94102

Subject: Request that Commission Abolish Ultra Vires Expenditures and Activities by Diablo Canyon Independent Safety Committee Relating to Decommissioning

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I respectfully request that the California Public Utilities Commission take prompt action to prevent the Diablo Canyon Independent Safety Committee (DCSC) from spending time, effort, and taxpayer money on activities that exceed its legal authority, i.e., on decommissioning.

I submit this request as a retired Administrative Judge with the U.S. Nuclear Regulatory Commission, an individual who is a member of the Diablo Canyon Decommissioning Engagement Panel (but who is not speaking for the Panel), a resident of San Luis Obispo, and a taxpayer.

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The purpose of this email is to ask the California Public Utilities Commission take prompt action to prevent the Diablo Canyon Independent Safety Committee (DCSC) from spending time, effort, and taxpayer money on activities that exceed the DCSC's legal charter and are ultra vires. DCSC's charter specifically limits it to operational issues, but it is now attempting to expand its role (and extend its lifespan by 20+ years) into decommissioning.

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Thank you for your attention to this matter.

Alex Karlin

alexkarlinlaw@gmail.com

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If this unilateral expansion of DCISC’s mission occurs, it will likely cost PG&E ratepayers at least an additional 18 million dollars.7

I urge the Commission to act promptly to prevent the DCISC from inheriting decommissioning technical consultants and from attempting to handle activities related to decommissioning.

Instead, the Commission should require the DCISC to divest from decommissioning activities until the Commission can conduct a rulemaking proceeding and decide whether, and how, to charter an independent advisory entity to monitor the decommissioning of Diablo Canyon.

Perhaps the two current Diablo Canyon operating cases can serve as the vehicle for intelligently reorganizing the decommissioning situation. PG&E’s general decommissioning case A-19-12-009, which deals with decommissioning, could be used to restart the DCISC. PG&E’s Nuclear Decommissioning Cost Trial Proceeding A-19-12-008, which deals with decommissioning could be used to create a new independent decommissioning advisory panel.

Instead of inadvertently blessing DCISC’s expansion, and thus asking ratepayers to pay for a multiplicity of panels related to the decommissioning, the Commission should take the opportunity to review the entire situation thoughtfully and to charter an oversight entity with a mission and composition appropriate to the long and difficult task of decommissioning Diablo Canyon that lies ahead.

I would appreciate if you could ask your staff to keep me informed of any Commission discussions or decisions concerning this matter.

Thank you.

Sincerely,

Alex S. Karlin
alexkarlin66@gmail.com
cc: PG&E
DCISC

decommissioning one. The members of the DCISC were not hired, for, nor does the record to show that they possess knowledge, skills or background in decommissioning.

7 The DCISC is composed of 3 ‘outsiders’ who do not represent State or local stakeholders and who lack expertise in decommissioning. The DCISC is not a suitable entity to serve as community advisory board on the topic of decommissioning. See my January 10, 2019, letter to President Fisher and the Commissioners regarding the need for an independent decommissioning advisory board.

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if you have any questions or wish to further discuss please let me know.

Best regards,

Justin Cochran, Ph.D.
Nuclear Policy Advisor &
Emergency Coordinator
California Energy Commission
1216 Nineth Street
Sacramento, CA 95814
Call: 916-698-2549
Fax: 916-654-4475
justinc@energy.ca.gov

Info@DCISC.org

From: Info@DCISC.org
Sent: Thursday, February 7, 2019 9:10 PM
To: Cochran, Justin@Energy.gov; ‘Dr. Peter Lam’
Cc: Info@DCISC.org
Subject: RE: DCISC Update/Briefing Request

Justin – Thank you for this information and I’m very glad we will have the opportunity to confer once again with Dr. Weisenmiller before he planned retirement from the Commission and convey to him our appreciation and respect for the wonderful service he provided to California during challenging and evolving periods for the state’s energy future. And also to also express thanks to him for his willingness to meet with our DCISC representatives over the years and for his unwavering support for the DCISC.

His will be very big shoes to fill for the new Governor.

I will share this information with the other Members of the DCISC.

Respectfully,

Bob

From: Cochran, Justin@Energy.gov; ‘Dr. Peter Lam’
gcochran1@aol.com
Sent: Wednesday, February 6, 2019 9:45 AM
To: Info@DCISC.org
Subject: RE: DCISC Update/Briefing Request

Thank you Bob,

I have attached a document that may be of interest to you and Dr. Lam,

I will forward relevant additional public announcements,

Thank you and hopefully I will see both of you later this month.

Best Regards,
Justin Cochran
California Energy Commission

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Dear Ms. Zambelli,

This will acknowledge and thank you for the message below which I provided to the DCISC Members and Technical Consultants. The Committee is aware of the issues you raise in your email and has reviewed the PG&E Testimony. Before this matter could be considered for placement as an agenda item for a future public meeting the DCISC must have an opportunity to conduct fact-finding and for substantive discussion of these issues with Diablo Canyon plant staff. It is, however, possible there may be some general discussion of this topic by the Members when the Committee will again take up the topic of a possible post-shutdown role for the DCISC at its next scheduled public meeting to be held on February 27-28, 2019 in Pismo Beach. When it is final, the agenda for that meeting will be available on the DCISC’s website at www.dcisc.org.

Thank you for contacting the Diablo Canyon Independent Safety Committee.

Best regards,

Bob Ratcliffe
DCISC Aud. Legal Counsel (800) 439-6688
info@dcisc.org

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From: [mailto:S.J@charter.net]
Sent: Tuesday, February 5, 2019 8:44 PM
To: info@dcisc.org
Subject: safety concern

Hello, San Luis Obispo Mothers for Peace is concerned about PG&E’s recent decision to delay the transfer of fuel from the pools to dry casks until 2032. We believe that this will create a much more dangerous storage situation.


Chapter 6:

PG&E has concluded that pre-shutdown acceleration of the SNF offload schedule would result in SNF being in the SFPs longer than if SNF is maintained in the SFPs until a single offloading campaign after DCPF is shutdown. This is driven by the fact that during decommissioning the hottest fuel assemblies in the SFP will be...
Mothers for Peace asks that you place this item on your agenda for study and discussion.

Thank you,

Jill ZumElk

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- Appendix A2: Information pulled from the PACIFIC GAS AND ELECTRIC COMPANY 2018 NUCLEAR COMMISSIONING COST TRIENNIAL PROCEEDING PREPARED TESTIMONY Volume 1 Chapter 6 Spent Nuclear Fuel
- Appendix A3: Information pulled from the Volume 3 Attachment 4, INDEPENDENT REVIEW OF DUBLINO CANYON POWER PLANT (DCPP) DECOMMISSIONING COST ESTIMATE: IRISH BRIDGE BRIDGE, NOVEMBER 2018

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G.2 – 138

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For Immediate Release
February 8, 2019

After eight years of leadership, Chair Robert B. Weisenmiller released the following statement today about his farewell:

"It has been my distinct privilege to serve as Chair of the California Energy Commission for the past eight years. This period has allowed me to provide overwhelming support during some of California's most challenging times, including the threat of climate change. I am particularly proud of the Commission's efforts to advance energy resilience, innovation, and deployment of cost-effective energy supply projects, as well as energy efficiency programs, climate change, and related to the development of California's distributed energy infrastructure. I am also committed to the development of clean energy efforts to address the need to accurately forecast renewable energy integration and the need for a comprehensive plan to address the state's energy needs, including the development of a comprehensive plan for climate change."
Lauren – thank you for the confirmation and for forwarding the DCISC response to the Panel,

I will be in attendance at the DCISC public meeting on February 27-28 and look forward to meeting you in person.

Best regards,

Bob

From: Lauren Brown <lauren.brown@steglobal.net>
Sent: Tuesday, January 29, 2019 3:37 PM
To: info@dcisc.org
Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Bob,

Sorry, I slipped up in confirming receipt. Yes, and have already forwarded that update to the Panel.

Will you be attending the Feb 27-28 meeting in Avila. Would enjoy connecting with you.

Lauren

From: info@dcisc.org <info@dcisc.org>
Sent: Tuesday, January 29, 2019 6:14 PM
To: Lauren Brown <lauren.brown@steglobal.net>
Cc: info@dcisc.org
Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Lauren –

I need to check back with you to confirm your receipt of my email last Friday regarding the unavailability of a DCISC representative to attend DC DEP’s workshop on February 23-24, your confirmation will be appreciated,

Thanks,

Bob

P.S. For some reason, ddec@americaneurope.com is still not accepting our email exchanges.

From: info@dcisc.org <info@dcisc.org>
Sent: Thursday, January 31, 2019 11:47 AM
To: Lauren Brown <lauren.brown@steglobal.net>
Cc: info@dcisc.org
Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Dear Lauren:

Thank you for the information on the schedule for the DC DEP’s upcoming workshop to be held during the weekend of February 23-24.

However, at this time, I cannot provide you with information about the availability of a representative of the DCISC to attend and make a presentation on either date but I will provide this information to our Members and Technical Consultants and I will need to get back to you with a response to this request. (As you know, the DCISC’s February public meeting is scheduled for later that week on February 27-28.)

I can confirm, as you state in your email, the DCISC will consider participating at your March 13, 2019 public meeting during the DCISC public meeting in February. When finalized, the agenda for the February 27-28 public meeting will be available on our website at www.dcisc.org.

Best regards,

Bob Ratliff
DCISC Asst. Legal Counsel
1-800-439-4688 (In CA)
info@dcisc.org

From: Lauren Brown <lauren.brown@steglobal.net>
Sent: Wednesday, January 16, 2019 4:31 PM
To: info@dcisc.org
Cc: info@dcisc.org
Subject: RE: Release of Strategic Vision Document by the Diablo Canyon Decommissioning Engagement Panel

Dear Bob,

Will the workshop on February 23-24 be livestreamed on the internet or available afterward on archived video?

Also, I wanted to confirm with you that the workshop is to be conducted with the entire eleven-members of the DC DEP present and not by a subcommittee,

Thank you,

Lauren

From: info@dcisc.org <info@dcisc.org>
Sent: Thursday, January 17, 2019 6:39 AM
To: Lauren Brown <lauren.brown@steglobal.net>
Cc: info@dcisc.org
Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Lauren –

Yesterday a sub-committee of the DC DEP met to plan the agenda for the 2 days of workshops (Feb. 23 & 24) on the topic of spent fuel storage. It is possible for a representative from the DCISC to provide a presentation, our preference would be for that to occur on the first day, Feb. 23, when most of the presentations would help frame the topic for panel members and the public in attendance. We are allotting 75 minutes for each presentation, including a discussion period and a 10 minute break so there is some latitude between the lengths of the presentation vs. discussion time. We would probably schedule DCISC in late morning or early afternoon, at your convenience. The second day of the workshop on Feb. 24 is also a possibility and if that is preferred we would probably prefer the DCISC contribution would come in the morning. Each day will start at 9:00 and probably run close to 6:30 PM and you would be welcome to attend any or all of the presentations but certainly that wouldn’t be needed. So, let us know if someone might be able to provide such a ‘factual’ presentation that shares your accumulated knowledge on this important topic.

Some of us will be attending your public meetings on Feb. 27-28 and we look forward to an update of the plan for DCISC to present at our public meeting on March 13. We can work out details of that presentation after that plan has been approved.

Many thanks,

Lauren

Lauren Brown
Member, Diablo Canyon Decommissioning Engagement Panel
805-550-5686

From: info@dcisc.org <info@dcisc.org>
Sent: Thursday, January 17, 2019 6:39 AM
To: Lauren Brown <lauren.brown@steglobal.net>
Cc: Chuck Andres <chuck.andres@info.com>; ddec@americaneurope.com; info@dcisc.org
Subject: RE: Release of Strategic Vision Document by the Diablo Canyon Decommissioning Engagement Panel

Dear Mr. Brown –

This will acknowledge your receipt of the August 2018 DCISC draft document entitled “Strategic Vision Document for the Diablo Canyon Decommissioning Engagement Panel.” I have provided your email with its attachments, and the link to the Vision Document to the DCISC Members and Technical Consultants for input and review.

With reference to the DC DEP’s two day workshop concerning spent fuel storage, it will be necessary to update you as to the availability of a representative of the DCISC to attend. I also need to advise you that at its public meeting in October 2018 the DCDEP changed the date for its February 2019 public meeting from February 13-14 to February 27-28. Our website at www.dcp.org now includes the correct dates and the new location. The location for the February meeting will be Fleming LightHouse Suites conference facility in Fleming Beach.

The DCISC’s agenda for its February 2019 public meeting will include a discussion of a presentation concerning the DCISC’s review of the safety of spent fuel storage and the Draft Final Draft of the DCISC public meeting spent fuel to be held on March 17, 2019, in San Luis Obispo.

Once again, on behalf of the DCISC, our thanks for your email and for providing the Strategic Vision Document. At your request, I will distribute the Strategic Vision Document to you via email. If you have any other questions or comments, or if you would like to participate in this project, please contact me directly at chuck.andres@info.com.

I apologize for any delay in responding to your email (the post-Christmas period has proven to be very busy).
Best wishes for a successful year for you and the DC DEP in 2019.

Bob Rathsle
DCSC Atty. Legal Counsel
(1-800) 439-4688 – in CA
brathsle@dcsc.org

Lauren Brown [mailto:lauren.brown@dcglobal.net]
Sent: Tuesday, January 8, 2019 12:28 PM
To: gc@dcsc.org
Cc: "Chuck Andrews" <chuckandrews2010@gmail.com>, p.dexter@environmentalgroup.com
Subject: Release of Strategic Vision Document by the Diablo Canyon Decommissioning Engagement Panel

Tuesday, January 8, 2019

To: Diablo Canyon Independent Safety Committee
Robert Rathsle
Robert J. Buellst, Ph.D.
Per F. Peterson, Ph.D.
Peter Lam, Ph.D.

Dear Bob,

As promised, we are forwarding to you links to the Strategic Vision Report prepared by the Diablo Canyon Decommissioning Engagement Panel (DCDEP). Today our Panel issued a press release announcing the availability of our Report that reflects the work done by our Panel during 2018 and the work that is scheduled for 2019. I am attaching that press release. For your convenience, I will also embed in my message to you the link that takes you directly to the Report:

http://www.esr.com/10ab/comm.html/1/24/10 how s the vision work Diablo canyon govern public
planning Diablo cal the year plan DCDEP re Nakal strategy.pdf

You will note that we have planned for 2019 several meetings for which we would request input from the DCSC:
1. Two-day workshop on spent fuel storage, February 22-23
2. Public meeting of the DCDEP on spent fuel storage which will review content of the workshops and provide for additional public input, leading to recommendations from our Panel on this topic
This is an opportunity for our panel to review strengths, weaknesses and opportunities to improve the Panel structure and function for the years ahead. We have already in 2018 started the process by receiving two proposals. One, submitted by Alex Karlin, recommends transforming to a CPUC-funded and directed independent panel. The second, submitted by myself, recommends retaining the current structure associated with PG&E, while also examining ways to maximize our effectiveness. (There are links embedded in the Report to both of these proposals.) Given your experience as a CPUC-associated independent safety committee, we would invite you to share with us any recommendations you might have regarding the future structure and function of a Panel.

I am now set up so that my communications to the DCSC will appear also on our Panel’s website. So, in your replies, please include our group email address: dcdepgroup@dcglobal.com

Bob Rathsle
DCSC Atty. Legal Counsel
lbrathsle@dcsc.org

This will acknowledge and confirm receipt of the email below on behalf of members of the DC DEP to the

Members of the DCSC.

I have provided your message with its attachment to our Members and the Technical Consultants for their information and review.

Thank you for contacting the Diablo Canyon Independent Safety Committee.

Bob Rathsle
DCSC Atty. Legal Counsel
lbrathsle@dcsc.org

Dr. Buellst

This will acknowledge and confirm receipt of the email below on behalf of members of the DC DEP to the

Members of the DCSC.

I have provided your message with its attachment to our Members and the Technical Consultants for their information and review.

Thank you for contacting the Diablo Canyon Independent Safety Committee.

Bob Rathsle
DCSC Atty. Legal Counsel
lbrathsle@dcsc.org

From: Lauren Brown [mailto:lauren.brown@dcglobal.net]
Sent: Monday, January 7, 2019 9:18 PM

To: info@dcsc.org

Subject: Communication from Members of the Diablo Canyon Decommissioning Engagement Panel

January 28, 2019

To: Diablo Canyon Independent Safety Committee (Dr. R. Buellst, Dr. P. Peterson, Dr. P. Lam)

From: Underrepresented Members of the Diablo Canyon Decommissioning Engagement Panel (DCDEP)

RE: Proposal from Mr. Alex Karlin regarding an independent community advisory panel for Diablo Canyon Decommissioning

Attachment Alex Karlin Local Viewpoint published in San Luis Obispo Tribune, January 24, 2019

You may have seen a communication from one of the members of the DCDEP, Alex Karlin, urging the CPUC to take immediate action to replace the current DCPF with an independent community advisory panel for purposes of monitoring and providing oversight in addition to communicating community concerns regarding the projected decommissioning of the Diablo Canyon Nuclear Power Plant, beginning in 2024-2025 and ending a number of decades. (See attached PDF copy.) This communication is concerning because neither the Panel nor the community has had the opportunity to conduct an in-depth evaluation of Mr. Karlin’s recommendation or several other possible alternatives. Therefore, the underrepresented members of the Panel wish to communicate the following points for your consideration before any action is taken:

- Relevant to Mr. Karlin’s proposal, consider the work that has been accomplished during 2018 by the current DCPF, as evidenced by the inter- and Strategic Vision Document released in January 8 (now withdrawn). Since its formation in May 2018, the Panel has conducted 7 public meetings and hosted four full day workshops resulting in recommendations on the decommissioning process, funding, use of $12,000 acres of surrounding lands and reuse of Diablo Canyon facilities after decommissioning. Upcoming topics for 2019 include spent fuel management, economic impacts of decommissioning, transportation related impacts and the future structure and role of the Panel.

- The DCPF is well aware of Mr. Karlin’s recommendations and already had scheduled a Panel meeting on June 12 to consider his proposal. We are in the process of a larger discussion about the strengths, weaknesses and opportunities for improvement in the chartered mission of the DCPF to serve as a communication link between the local communities of San Luis Obispo County and PG&E with regard to the anticipated decommissioning. We thought that it was an appropriate time to stop and reflect on the community in a conversation on our effectiveness following one full year of operation.

- As part of the evaluation process, the Panel has accommodated holding public workshops during the month of May (dates and location tba) to receive input from experts on appropriate community panel structures and functions, as well as from interested members of the EOC Community groups. The purpose of the workshops will be to help the Panel members and the community understand the issues and make well thought out recommendations to PG&E and to the CPUC regarding the ongoing structure and function of the DCPF or its successor entity that best serves our unique situation.

- The Panel will use this information as input to the CPUC, to the County Board of Supervisors, Cities, and interested members of the local community to participate actively in these workshops and in the June 12 public meeting.

Most importantly, we ask that no actions be taken with regard to Mr. Karlin’s recommendations until our community has had the opportunity to openly discuss these issues at the May workshops and June public meeting and the subsequent issuance of the Panel’s recommendations on this important topic.

Finally, the Panel wishes to communicate that its primary focus for Q3 2019 is consideration of the issue of spent fuel storage at the Diablo Canyon Power Plant. This is a very important issue, highly deserving of community attention. We invite your participation at the scheduled events:

- February 22 and 23 - Workshops (to be invited) that includes presentations from PG&E, the NRC, DOE, California Energy Commission and at least 5 panel workshops.
- March 13 - Public DCPF meeting, reflecting findings from the workshops, additional public testimony and developing Panel recommendations regarding spent fuel storage issues to PG&E and the CPUC.

The Panel wishes to extend its thanks to the community for their active participation in the work of the DCDEP this past year. The community’s interest has been demonstrated by the nearly 3,000 discrete communications from the public received thus far. We hope that your participation will continue in 2019 as we address more issues critically important to the anticipated decommissioning of the Diablo Canyon Nuclear Power Plant.

We are including the DCSC in the distribution list of this communication because we have asked you to consider offering input on this topic at our June 12 meeting that is scheduled to discuss the issue of future structure and function of the DCPF or any successor entity. You will note that a PDF copy of Mr. Karlin’s Local Viewpoint was published in the San Luis Obispo Tribune. We hope your experience as a CPUC-authorized entity may provide relevant input to our discussions.

This communication has been endorsed by the following public members of the Diablo Canyon Decommissioning Engagement Panel:

Chuck Andrews, Chair
Lauren Brown, Ph.D.
Member, DCDEP

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G.2 – 146

G.2 – 147

G.2 – 148
Alex —

This will acknowledge your email with the link to the article, along with that received here yesterday, and confirm that your Viewpoint column has been shared with the DCISC Members and Consultants.

Thanks for your kind inquiry and yes, everything is going very well in her recovery—she’s now doing physical therapy and very much enjoying the opportunity to be more active again!

Hope all is well with you and I look forward to seeing you at the meeting on February 17-28 in Pismo Beach.

Best regards,

Bob

From: Alex Karlin [mailto:akarlin@dsliaw.com]
Sent: Thursday, January 24, 2019 9:21 AM
To: Info@DCISC.org
Subject: RE: Independent Decommissioning Panel is Needed

Bob:

For what it is worth, attached is a "Viewpoint" column that I wrote and that was published in the SLO Tribune today. I would appreciate it if you would share it with the rest of the DCISC.

https://www.slotribune.com/opinion/readers-opinion/article22896921.html

I hope that your wife is recovering well from her recent procedure.

Best regards,

Alex
Unlimited Digital Access: Only $0.99 For Your First Month

Get unlimited access to our entire archive for just $0.99 for your first month. Regular price is $2.99 per month. Offer limited to new subscribers only. Offer expires February 28, 2023.
DCISC
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

January 21, 2019

Dear Sir or Madam:

Enclosed please find a copy of the two volumes which comprise the "Twenty-Eighth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2017 - June 30, 2018," which was adopted at the ninety-first public meeting of the Diablo Canyon Independent Safety Committee ("DCISC") held in Avila Beach on October 24, 2018.

As required, the DCISC first submits a copy of its report to PG&E, and then includes PG&E's written response as part of the report. We then file the report with your office as well as with the California Public Utilities Commission, the Office of the Attorney General and the California Energy Commission. This Report is also made available to the public on the DCISC website, at the R.E. Kennedy Library on the campus of California Polytechnic University at San Luis Obispo and at local public libraries.

The Members of the Committee welcome and invite any thoughts and comments which you or your staff might have concerning the value and usefulness of this and the previous DCISC annual reports. Thank you for your attention to this matter.

Very truly yours,

Robert R. Wellington
DCISC Legal Counsel

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DCISC
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

January 21, 2019

Mr. James Welsch

Vice President Nuclear Generation
Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, California 93424

Re: DCISC Twenty-Eighth Annual Report on Safety of Diablo Canyon Operations
July 1, 2017 - June 30, 2018.

Dear Mr. Welsch:

At its October 24, 2018, meeting in Avila Beach the Diablo Canyon Independent Safety Committee acted to approve and adopt in "Twenty-Eighth Annual Report on Safety of Diablo Canyon Operations for the period July 1, 2017 through June 30, 2018." We enclose a completed report with PG&E's response incorporated therein for your information and files. We also file the report with the CPUC, the Governor, the California Attorney General and the California Energy Commission. This Report is also made available to the public on the DCISC's website, at the R.E. Kennedy Library on the campus of California Polytechnic University at San Luis Obispo and at local public libraries.

If you have any questions or comments concerning the above, please feel free to contact me.

Very truly yours,

Robert R. Wellington
DCISC Legal Counsel

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G.2 – 160
DCISC
DIABLO CANYON INDEPENDENT SAFETY COMMITTEE
COMMITTEE MEMBERS
ROBERT J. RHONE
ROBERT L. JUROZ
PETER LAM
FRED PETTITON

January 21, 2019
Via Federal Express

Hon. Robert B. Weisenmiller, Ph.D.,
Chief,
California Energy Commission
1516 Ninth Street, MS-13
Sacramento, California 95814

Attention: Commissioner Supervising Libraries

Re: Diablo Canyon Independent Safety Committee

Dear Chair Weisenmiller:

Enclosed please find a copy of the two volumes which comprise for "Twenty-Eighth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2017 - June 30, 2018" which was adopted at the sixty-first public meeting of the Diablo Canyon Independent Safety Committee ("DCISC") held in Avila Beach on October 24, 2018.

As required, the DCISC first submits a copy of its report to FGE. and then includes FGE's written response as part of the report. We then file the report with your offices as well as with the CPUC, the Governor, and the Attorney General. This Report is also made available to the public on the DCISC website, at the A.E. Kennedy Library on the campus of California Polytechnic University at San Luis Obispo and at local public libraries.

The members of the Committee welcome and invite any thoughts and comments which you or your staff might have concerning the value and usefulness of this and the previous DCISC annual reports. If you have any questions or comments concerning the above, please feel free to contact me.

Very truly yours,

Robert R. Wellinghan
DCISC Legal Counsel

R&W:rr
Enclosure

cc: Kevin Barter, Advisor to the Chairman
Dr. Joan Cuzio, Sr. Nuclear Safety Advisor
DCISC Members
Ms. Hector Garcia - PG&E

G.2 - 161

From: info@DCISC.org
Sent: Thursday, January 17, 2019 4:59 PM
To: Lauren Brown
Cc: info@pgandg.com; info@DCISC.org
Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Lauren -

Will the workshop on February 23-24 be livestreamed on the internet or available afterward on archived video?

Also, I wanted to confirm with you that the workshop is to be conducted with the entire eleven members of the DC DEP present and not by a subcommittee.

Thank you,

Bob

P.S. For some reason 0dfx3iao1453@foguliv.com is not accepting our email exchanges.

From: info@DCISC.org [mailto: info@DCISC.org]
Sent: Thursday, January 17, 2019 13:47 AM
To: Lauren Brown
Cc: info@pgandg.com; info@DCISC.org
Subject: RE: DCISC Attendance at DC DEP Workshop on February 23-24, 2019

Dear Lauren:

Thank you for the information on the schedule for the DC DEP's upcoming workshop to be held during the week of February 20-24.

However, at this time, I cannot provide you with information about the availability of a representative of the DCISC to attend and make a presentation on either date but will provide this information to our Members and Technical Consultants and I will need to get back to you with a response to this request. (As you know, the DCISC's February public meeting is scheduled for later that week (February 27-28)).

I can confirm, as you state in your email, the DCISC will consider participating at your March 13, 2019 public meeting during the DCISC public meeting in February. When finalized, the agenda for the February 27-28 public meeting will be available on our website www.dcis.org.

Best regards,

Bob Raffie
DCISC Asst. Legal Counsel

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From: info@DCISC.org [mailto: info@DCISC.org]
Sent: Thursday, January 10, 2019 3:12 PM
To: Lauren Brown
Cc: info@pgandg.com; info@DCISC.org
Subject: RE: Release of Strategic Vision Document by the Diablo Canyon Decommissioning Engagement Panel

Dear Bob,

Yesterday, a subcommittee of the DCSP met to plan the agenda for the 2 days of workshops Feb 23 & 24 on the topic of spent fuel storage. If it is possible for a representative from the DCSC to present a presentation, our preferred time would be Feb 24 and not the day before.

Thank you.

Lauren

From:info@DCISC.org [mailto: info@DCISC.org]
Sent: Thursday, January 10, 2019 1:55 PM
To: Lauren Brown
Cc: info@pgandg.com; info@DCISC.org
Subject: RE: Release of Strategic Vision Document by the Diablo Canyon Decommissioning Engagement Panel

Dear Lauren,

Many thanks for your time and assistance in preparing the final draft of the DCSP's Strategic Vision Document. I know this document is still in its early stages and we are very much looking forward to your feedback. I believe you have a more robust process in place to ensure that it is finalized in time for the February meeting.

Thank you again for your help.

Bob Raffie
DCISC Asst. Legal Counsel
28. Our website at [www.DCISC.org](http://www.DCISC.org) now includes the correct data and the new location. The location for the February meeting will be Pismo Lighthouse Suites conference facility in Pismo Beach.

The DCISC’s agenda for its February 2019 public meeting will include a discussion of a presentation concerning the DCISC's review of the safety of spent fuel storage and the IFS previously requested of the DCISC for the DC DEP's public meeting on spent fuel to be held on March 12, 2019, in San Luis Obispo.

Once again, on behalf of the DCISC, thank you for your email and for providing the Strategic Vision Document. At your request, I will include [gopher://dcisc@dcisc.org](gopher://dcisc@dcisc.org) as a “cc” in all our communications and I also look forward to working and interacting with you in the coming year.

I apologize for any delay in responding to your email (the past few year period has proven to be very busy).

Best wishes for a successful year for you and the DC DEP in 2019.

Bob Ruttle
DCISC Sec. Legal Counsel
(1-800) 439-4688 - in CA
info@dcisc.org

Lauren Brown, Interm. Chief Executive Officer
3. Engagement Panel Structure and Function Review, June 12. This is an opportunity for our panel to review the strategic, workflow and opportunities to improve the panel structure and function for the year ahead. We have already in 2018 started the process by retaining two proposals. One, written by Alex Karlin, recommends transitioning to a CUFIC-funded and directed independent panel. The second, written by myself, recommends retaining the current structure associated with PG&E, while also examining ways to maximize the efficiency. (There are links embedded in the report to both of these two proposals.) Given your experience as a CUFIC-assisted independent safety committee, we would like to share with you any recommendations you might have regarding the future structure and function of a Panel.

I am now set up to respond to any questions you may have about our Panel’s website. So, if you reply, please include your email address. [diked@kendinger.com](mailto:diked@kendinger.com)

Check, could you be sure that communications from the DCISC email address [info@dcisc.org](info@dcisc.org) are not sent to everyone on the Panel and will use the concept of communications I have with the DCISC as our liaison with them.

Let me know if a representative from the DCISC can participate in these events. I know if that is possible we will be in touch on more details as we go forward. I will also be publishing your next public meeting on Feb. 13,14 and encouraging our members to attend.

Many thanks,

Lauren

Lauren R. Brown, Ph.D.
Member, DCISC

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The DCISC is an independent safety committee for the San Onofre Nuclear Generating Station (SONGS) in San Diego County, California. The DCISC is composed of three members and a Chair and is intended to provide an independent, safety-focused perspective on the operation of the SONGS.

The DCISC’s primary function is to conduct reviews of the SONGS’s safety measures and to provide recommendations for improving safety. The DCISC is funded by the PgE Corporation, which is the operator of the SONGS.

The DCISC is composed of three members who are experts in various fields, including nuclear engineering, safety, and finance. The DCISC’s reviews are conducted in a confidential manner, and the DCISC members are not bound by any confidentiality agreements.

The DCISC’s reviews are conducted in a confidential manner, and the DCISC members are not bound by any confidentiality agreements. The DCISC’s recommendations are typically made in writing and are provided to the PgE Corporation, which is the operator of the SONGS.

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Info@DCISC.org

From: info@DCISC.org
Sent: Monday, January 14, 2019 6:07 PM
To: "Bob Ruttle"; "PER PETITSON"; "Peter Lam"; "Ferman Warden"; "Rick McHuron"
Cc: info@DCISC.org
Subject: FW: Today’s Important Announcement

You will note that we have planned for 2019 several meetings for which we would request input from the DCISC:

1. Two day workshop on Scent Fuel Storage, February 22,23
2. Public meeting of the DCDEP on Scent Fuel Storage which will review content of the workshops and provide for additional public input, leading to recommendations from our Panel on this topic

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PG&E Team,

The last few days have seen several changes for our company. Today, I want to provide an overview of the important announcement we made this morning.

The devastating and unprecedented Northern California wildfires of 2017 and 2018 have had a profound impact on our customers, employees and the communities we serve. At the same time, as we have discussed in our town hall meetings, PG&E faces extensive litigation and significant potential liabilities associated with these wildfires.

Resolving our legal liabilities and financial challenges will be enormously complex and will require us to address multiple stakeholder interests, including thousands of victims who already have made claims and likely thousands of whom we expect to make claims. We know the stakes are high. For that reason, and to make sure we are getting the broadest view of the situation, we hired expert advisors on operations, finance, corporate restructuring and claims resolution. We’ve brought to bear the best minds from inside and outside our company to help us.

Following a comprehensive review of the situation and with help from our advisors, the PG&E Board of Directors and management team have determined that initiating a Chapter 11 reorganization for both the Utility and PG&E Corporation is the only viable option. PG&E expects that the Chapter 11 process will support an orderly, fair and expedient resolution of the company’s potential liabilities, and enable PG&E to access the financial resources it needs to continue to provide safe service to customers.

We currently expect to commence the Chapter 11 process on or about January 29, 2019, but we made this announcement today because a new California state law requires us to provide a 15-day advance notice to employees before filing for Chapter 11.

During this process, we expect that our day-to-day operations will continue without disruption, our workforce will remain strong and our employees will continue to be paid and receive their healthcare benefits.

As always, the safety of the public and our workforce will remain our most important responsibility, whether that means further reducing risks presented by extreme weather or further strengthening our “Speak Up” culture.

I know that we’ve shared a lot of news over the last 24 hours and that you will have questions. Today’s announcement is just the first step in a long process. We will do our best to keep you informed as we move forward.

At a starting point, we will be webcasting a town hall meeting later today to listen to your questions and try to address concerns you may have. For those who cannot join due to work or a scheduling conflict, we will be holding a field employee call tomorrow morning. Invites for those meetings will be sent separately. For more details about this process, there is a short FAQ section below. We also have a section on our PG&E@Work intranet with a full set of FAQs and other key information.

In closing, I want to tell you that I understand and appreciate how challenging all of this has been for each of you. As I noted above, we have a dedicated team of internal and external resources to help the Board and senior team manage this Chapter 11 process, so the rest of our team across the organization can focus on normal day-to-day responsibilities.

I am confident that our collective resilience and our focus on and dedication to our customers will help us emerge as a stronger company that can serve our communities safely and responsibly for many years to come.

Thank you for your dedication to the important work we do every day.

John

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What does this mean for PG&E employees? You should continue to come to work on the same schedule and remain focused on your job responsibilities while putting safety first. In addition, we expect that you will continue to be paid and receive your healthcare benefits as usual throughout this process.
Our previously announced initiatives to address spending, conserve cash and operate more efficiently are as important today as when we announced them. We will continue to execute on these initiatives as we move forward. To be clear, we did not announce any layoffs in connection with this announcement, but we will continue to regularly evaluate our staffing levels to make sure they are aligned with the needs of our business and our commitment to safety, and we will make adjustments accordingly. These actions are key to better positioning the company operationally.

Across our organization, we have a responsibility to make the appropriate changes that will drive safety and operational excellence. Our announcement today underscores the urgency with which we collectively must focus on implementing these changes and being more efficient with our resources.

Why did we announce our plan to file Chapter 11 in advance? We currently expect to commence the Chapter 11 process on or about January 29, but we made this announcement today because a new California state law requires us to provide 15 days’ advance notice to our employees before filing for Chapter 11.

Why are we planning to file for Chapter 11? Why now? The fact is that PG&E faces substantial potential liabilities and a deteriorating financial situation, which was further impacted by the recent audit agency downgrade. The tens of claims that have been filed—by wildlife victims, insurance companies and government entities—and we expect many more will be filed in the future. As noted, Chapter 11 provides a court-supervised process for fairly and efficiently assessing and settling our liabilities. We expect the Chapter 11 process will also enable PG&E to access the financial resources we need to continue providing our customers with safe service and invest in our infrastructure and critical safety efforts, including our Community Wildfire Safety Program, an additional precautionary safety measure implemented following the 2017 Northern California wildfires to further reduce wildfire risk.

What do we hope to achieve? As you know, extreme weather and changing environmental conditions have significantly increased the frequency and magnitude of wildfires across the state. Our single most important responsibility is safety, and we recognize that we must work even harder every day to demonstrate that the safety of our customers, communities, employees and contractors comes first. We have a lot of work ahead to further improve our safety performance and build credibility and trust with our stakeholders and we are absolutely committed to doing that.

We are committed to continuing to make investments in system safety as we work with regulators, policy makers and other key stakeholders to consider a range of alternatives to provide for the safe delivery of natural gas and electric service for the long-term in an environment that continues to be challenged by climate change.

Our goal will be to work collaboratively to fairly balance the many interests of our stakeholders—including wildlife victims, customers, employees, creditors, shareholders, the financial community and business partners—while creating a sustainable foundation for the delivery of safe and affordable service to our customers in the years ahead.

It is possible that the PG&E that emerges from Chapter 11 will be different than the one that exists today. Over the course of this process many options will be considered, but rest assured we will be working hard to achieve an outcome that is in the best interests of our customers, employees and all of our stakeholders.

What does this mean for PG&E customers? We do not expect any impact to electric or natural gas service for our customers as a result of this process. Likewise, we remain committed to helping those impacted by the wildfires through the recovery and rebuilding process, and these efforts will continue.

We are communicating directly with our customers and other stakeholders so they hear from us about what we are doing, why we are taking this action and what this will mean for them. We are counting on you to remain focused on putting safety first. We have established a dedicated webpage, available here www.pge.com/reorganization.

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DCSafety@DCISC.org

From: DCSafety@DCISC.org
Sent: Monday, January 14, 2019 12:46 PM
To: "Rochelle Becker"
Cc: Info@DCISC.org
Subject: RE: ADR files Protest to PG&E’s decommissioning and General Rate Case applications

Rochelle—your message with ADR Requests as attachments was received here and will be provided to the DCISC Members and Consultants as requested.

Just wanted to remind you that our next public meeting is to be held on February 27-28, 2019 and due to the meeting data changes from the original dates of February 13-14 we will be at the Plumas Lighthouse Suites this time instead of Avila Beach. The meeting room is on the second floor, above the Lebby, and the elevator as well as a staircase.

Hope your New Year is starting off happy and healthy! It is certainly starting off with a bang for PG&E with the declaration today of its intent to file Chapter 11 Bankruptcy and Mr. Williams leaving the corporation yesterday?

Take care and all the best,
Bob

On behalf of the DCISC, I want to confirm receipt of the email below together with its attachments which has been provided to the DCISC Members and Technical Consultants for their information and review.

Hope all is going well for you in this New Year. I missed seeing you at the DCISC’s October meeting as I had some family medical issues which kept me from attending. I look forward to seeing you at the next DCISC public meeting which will be held on February 27-28 at the Plumas Lighthouse Suites in Plumas Beach.

Best regards and wishes for a good weekend,
Bob

From: Rochelle Becker (mailto:rochellebecker@gmail.com)
Sent: Monday, January 21, 2019 5:02 PM
To: DCSafety Distric@dcisc.org
Subject: ADR files Protest to PG&E’s decommissioning and General Rate Case applications

Happy New Year Bob,

Can you please share ADR’s Petition filed at the CPCU on 1/11/19?

Thank you.
Rochelle

On behalf of the DCISC, I want to confirm receipt of the email below together with its attachments which has been provided to the DCISC Members and Technical Consultants for their information and review.

Dear President Picker and Commissions Access, Randolph and Rechnauffen

I am a member of PG&E’s Dislodge Company Decommissioning Engagement Panel (DCDEP) and a retired Federal ALJ with the US Nuclear Regulatory Commission.

As a member of the DCDEP, I take the California Public Utilities Commission to eliminate the DCDEP. The Commission should, instead, charter an independent advisory panel (like the one at other major nuclear power plants like Vermont Yankee, Indian Point and Pilgrim) that will better serve the real needs of California, the San Luis Obispo community, and the taxpayers.

My reasons are set forth in the attached letter to you, which includes my report entitled “California Public Utilities Commission should Create an Independent Decommissioning Advisory Panel in Lieu of the DCDEP.” This report is included in the DCDEP 20.8 Strategic Vision statement that PG&E will be filing with the Commission.

I hope you will consider these issues during the Nuclear Decommissioning Cost Triennial Proceeding (Petition A-18-12-003) that PG&E initiated on December 13, 2018.

Sincerely,
Alex S. Karlin
alexkarlin11@gmail.com

From: Alex Karlin (mailto:alexkarlin11@gmail.com)
Sent: Thursday, January 10, 2019 7:29 PM
To: Alex Karlin (mailto:alexkarlin11@gmail.com)
Subject: Dislodge Company Decommissioning A. 18-12-008

On behalf of the DCISC, I want to confirm receipt of the email below together with its attachments which has been provided to the DCISC Members and Technical Consultants for their information and review.

Dear President Picker and Commissions Access, Randolph and Rechnauffen

I am a member of PG&E’s Dislodge Company Decommissioning Engagement Panel (DCDEP) and a retired Federal ALJ with the US Nuclear Regulatory Commission.

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alexkarlin11@gmail.com

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Sincerely,
Alex S. Karlin
alexkarlin11@gmail.com

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Sent: Thursday, January 10, 2019 7:29 PM
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I hope you will consider these issues during the Nuclear Decommissioning Cost Triennial Proceeding (Petition A-18-12-003) that PG&E initiated on December 13, 2018.

Sincerely,
Alex S. Karlin
alexkarlin11@gmail.com
followed. I am thinking that may mean that the DCISC could not participate in our February workshops, as well, is that correct? We would certainly appreciate your participation in both. Let me know what is possible.

Thanks,
Lauren

--- Original Message ---
From: info@dcisc.org
Sent: Thursday, January 2, 2019 6:06 PM
To: Lauren Brown
Cc: info@dcisc.org
Subject: RE: Delivery Status Notification (Failure)

Lauren – DCISC is aware of the March 13 date for the DC DEP public meeting (it’s referenced in my earlier email to you).

Have a great evening,
Bob

From: Lauren Brown [mailto:lauren.brown@dcglobal.net]
Sent: Thursday, January 10, 2019 5:06 PM
To: info@dcisc.org
Cc: dcisc@alicegrouposa.com, Chuck Andrus <chuckandrus201@gmail.com>
Subject: RE: Delivery Status Notification (Failure)

Hi Bob,

Okay, I’ll forward your message to the group myself and will work with Chuck Andrus on getting info@dcisc.org accepted for incoming messages.

By the way, I just noticed that in my message to you I gave the dates for the Feb. workshops but failed to note the date of the public meeting. That is March 13. Here is a copy of the chart of the meetings that I mentioned to you:

Activity / Date / Time / Subject Location

Spent Fuel Workshops February 22 & 23, 2019 (8:00 AM - 5:00 PM) Spent Fuel Storage TBD Quarterly Panel Meeting
March 13, 2019
(6:30 PM - 9:30 PM) Spent Fuel Storage SLO Govt, Center Quarterly Panel Meeting
June 12, 2019
(6:30 PM - 9:30 PM) Engagement Panel – Role, Function and Structure SLO Govt, Center

And I take note of the fact that your next meeting has been shifted to Feb. 27-28 which is after the dates of our two workshops. Dr. Rudley explained to me that the DCISC needed to have on their agenda consideration of our request to make a presentation on our March 13 meeting to cover all the protocols that must be

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--- Original Message ---
From: info@dcisc.org
Sent: Thursday, January 10, 2019 3:12 PM
To: [Lauren Brown]
Cc: [Chuck Andrus; dcisc@alicegrouposa.com; info@dcisc.org]
Subject: RE: Release of Strategic Vision Document by the Diablo Canyon Decommissioning Engagement Panel

Dear Dr. Brown,

This will acknowledge receipt and convey my thanks on behalf of the DCISC for your email with the press release and the url to the full version of the DC DEP’s Strategic Vision Document. I have provided your email with its attachments, the link to the vision document to the DCISC Members and Technical Consultants for their information and review.

With reference to the DC DEP’s two-day workshop concerning spent fuel storage I will need to subsequently advise you as to the availability by a representative of the DCISC to attend. I also need to advise you that at its public meeting in October 2018 the DC DEP changed the date for its February 2019 public meeting from February 23-24 to February 27-28. Our website at www.dcisc.org now includes the current dates and the new location. The business for the February meeting will be Pismo Lighthouse Suites conference facility in Pismo Beach.

The DC DEP’s agenda for its February 2019 public meeting will include a discussion of a presentation concerning the DCISC preview of the safety of spent fuel storage and the SFPS previously requested of the DCISC for the DC DEP’s public meeting on spent fuel to be held on March 13, 2019 in San Luis Obispo.

Once again, on behalf of the DCISC, our thanks for your email and for providing the Strategic Vision Document. At your request, I will include the DCISC strategic vision document as a link in all our communications and also look forward to working and interacting with you in the coming year.

I apologize for any delay in responding to your email (the post-New Year period has proven to be very busy).

Best wishes for a successful year and the DC DEP in 2019.

Bob Ruthe
DCISC Ass. Legal Counsel
(805) 459-4688 – In CA
info@dcisc.org

--- Original Message ---
From: info@dcisc.org
Sent: Thursday, January 10, 2019 1:30 PM
To: Lauren Brown
Cc: [Chuck Andrus; dcisc@alicegrouposa.com; info@dcisc.org]
Subject: RE: Release of Strategic Vision Document by the Diablo Canyon Decommissioning Engagement Panel

Dear Mr. Brown,

An×enom, we are writing to you to discuss the Strategic Vision Report prepared by the Diablo Canyon Decommissioning Engagement Panel (DCISC). Today our Panel issued a press release announcing the availability of our Report that reflects the work done by our Panel during 2018 and the work that is planned for 2019. We are attaching that press release. For your convenience, we will also send to your email to you the link that takes you directly to our Report: https://www.dep.ca.gov/~/media/DEP/Support/Reports/StrategicVisionReport.pdf

You will note that we have planned for 2019 several meetings for which we would request input from the DCISC:

1. Two day workshops on Spent Fuel Storage, February 22-23
2. Public meeting of the DC DEP on spent fuel storage which will review content of the workshops and provide for additional public input, leading to recommendations from our Panel on this topic.
3. Engagement Panel Structure and Function Review, June 12. This is an opportunity for our panel to review strengths, weaknesses and opportunities to improve the Panel structure and function for the years ahead. We have already in 2018 started the process by reviewing two proposals. One, written by Arne Karlin, recommends transitioning to a DCFC-funded and directed independent panel. The second, written by myself, recommends retaining the current structure associated with PG&E, while also examining ways to maximize our effectiveness. These are two embedded in the Report to both of these proposals. Given my experience as a FCLC-associated independent safety committee, we would invite you to share with us any recommendations you might have regarding the future structure and function of a Panel.

I am new set up so that my communications with the DCISC will appear also on our Panel’s website. So, in your replies, please include our group email address: dcisc@alicegrouposa.com

Chuck, could you be sure that communications from the DCISC email address (info@dcisc.org) are enabled so that everyone on the Panel will see the content of communications I send with the DCISC as our discussion.

Let me know if a representative from the DCISC can participate in the three events I mention above. If that is possible then we will collaborate on more details as we go forward. I will also be preparing our next public meeting on Feb. 19,24 and encouraging our members to attend.

Many thanks,
Lauren

Lauren R. Brown, Ph.D.
Member, DCDEP

--- Original Message ---
From: info@dcisc.org
Sent: Thursday, January 10, 2019 12:28 PM
To: info@dcisc.org
Cc: [Chuck Andrus; dcisc@alicegrouposa.com; info@dcisc.org]
Subject: Release of Strategic Vision Document by the Diablo Canyon Decommissioning Engagement Panel

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Lauren -

Thank you for your message and I hope the information proves useful.

I will ensure you are added to our email service list to receive the agendas for the DCISC's future public meetings. The complete agenda packet for each meeting is posted on our website at least three days before a meeting. If you would like to receive a 'hard copy' of the agenda packet, I can add you to our list for federal express delivery if I have a physical address and telephone number.

I look forward to receiving a link to the Vision Document and I have provided a copy you're your email and my response to our Members and technical Consultants.

Best regards,

Bob

From: Lauren Brown [mailto:lauren.brown@dgglobal.net]
Sent: Tuesday, December 18, 2018 10:06 AM
To: Info@dcisc.org
Subject: RE: Your Inquiry re DCISC Evaluation of DCPF Spent Fuel Storage

Hi Bob,

Thanks very much for your reply and attachments. I have posted all items on the internal website for our DCPF.

We are still working on completing our final draft of our Vision Document but I expect it will certainly be done before the end of the year.

Our Panel accepted my offer to serve as liaison with the DCISC so I will be in touch with you soon, not only to forward a link to our Vision document, but also to initiate concrete steps toward securing the assistance of the DCISC in the spent fuel topic.

Best regards,

Lauren

From: Info@DCISC.org [mailto:Info@DCISC.org]
Sent: Wednesday, December 13, 2018 5:36 PM
To: Lauren Brown
Cc: Info@DCISC.org
Subject: Your Inquiry re DCISC Evaluation of DCPF Spent Fuel Storage

Dear Lauren,

Please find attached a response to your inquiry of Dr. Budzitz concerning the DCISC’s review of spent fuel storage at DCPF.

I wish you a very good evening.

Best regards,

Bob Rathie
DCISC
(606) 439-4688
info@dcisc.org

DIABLO CANYON INDEPENDENT SAFETY COMMITTEE
REPORT EXCERPTS AND PRESENTATIONS ON SPENT FUEL, 2016-2018
Prepared for
Diablo Canyon Decommissioning Engagement Panel
Prepared December 2018

July 10-11, 2018 Task-11 Meeting Report:

3.10 Independent Spent Fuel Storage Installation Operations Update

The DCISC’s T11 met with Rich Hogeier, Used Fuel Storage Supervisor, and MK Meyer, Nuclear Fuel Procurement and Storage Manager, for an update on DCPF Independent Spent Fuel Storage Installation (ISFI) operations. The DCISC last reviewed this topic in August 2017 (Reference 6.9), when it concluded the following:

DCPF continues to manage its spent fuel satisfactorily in both the Spent Fuel Pool (SFP) and Independent Spent Fuel Storage Installation (ISFI). As part of its decommissioning activities required by the Joint Proposal, DCPF is investigating accelerated movement of spent fuel from the SFP to the ISFI.

The current ISFI loading campaign consisting of Casks 50 through 58 was proceeding satisfactorily, with Casks 53 being loaded during the task finding visit, and the campaign concluding in August 2018. The next two loading campaigns are scheduled for 2019 and likely 2022. DCPF is considering various loading options with regard to the Joint Proposal.

DCPF will plan for ISFI in-service testing in 2023. Stress Corrosion Cracking (SCC) will be part of the in-service testing, which will include transitioning of ISFI inspection techniques and through-wall cracks as part of the safety analysis.

Conclusions: DCPF loading of spent fuel into the Independent Spent Fuel Storage Installation (ISFI) is currently proceeding satisfactorily for Casks 50-58 and is scheduled to be completed in August 2018. The next loading campaigns are scheduled for 2019 and likely 2022. ISFI is in service testing for 2023, when the current license expires. DCPF will address stress corrosion cracking in the in-service testing.

Recommendations: None
that all of the modifications necessary for compliance had been completed. Two independent and wide-range level instruments using guided-wave technology had been installed in each unit's SFP along with a separate digital display for each instrument located in two diverse areas that would be accessible at ground level following a severe accident. A final phase of the project, which was not required for compliance, remained to be completed. That remaining project phase would provide remote displays for the new wide range SFP level instruments inside the DCPFP Control Room.

Regarding the health of SFP systems, Mr. Worell reported that SFP systems were now considered a lower tier system. As such, formal system health reports were no longer prepared on a regular basis. However, the overall system health was very good with no major issues. Mr. Worell stated that he walked down SFP areas along with other areas under his responsibility at least once per week. Upcoming major activities related to the SFP included the need to perform routine inspections and maintenance for the SFP Heat Exchangers. As such unit had only one Heat Exchanger in its SFP Cooling System, a complete system outage is required to perform Heat Exchanger maintenance. For Unit 2, it was currently planned to remove the SFP Cooling System from service to perform Heat Exchanger maintenance near the end of the Unit 2 operating cycle, when decay heat levels in the SFP would be at their lowest levels.

The SFP was originally designed with multiple possible sources of makeup water, including the Refueling Water Storage Tanks (normal supply), the Condensate Storage Tanks, and the Fire Water System. As a part of the Flexible Response (FLEX) modifications performed after the Fukushima accidents, a point of connection for FLEX equipment was selected in the SFP Cooling System and designated in FLEX implementing procedures. The FLEX connection would allow FLEX equipment to pump water from any source (typically the Raw Water Storage Ponds) to the SFP. The selected connection point for FLEX equipment was valve number 877/8, and the connection can be accomplished by removing the bonnet from the valve and installing a hose connection flange.

The Fast-Finding Team then toured the Unit 1 SFP areas and observed the general condition of the SFP and Cooling Systems. Additionally, the Fast-Finding Team saw the recently installed wide-range level instrumentation along with the FLEX equipment connection point. Overall, the SFP and Cooling Systems appeared in excellent condition, and the level instruments and FLEX connection point were confirmed to be installed as expected.

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G.2 – 181

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G.2 – 182

Conclusions: DCPFP's Spent Fuel Pool (SFP) Cooling Systems are in good health with no major outstanding issues. Modifications have been completed to comply with NRC orders regarding SFP Level Instrumentation.

Recommendations: None

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G.2 – 183

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G.2 – 184
reported the susceptible components are now fabricated using 304L stainless steel which due to a lower carbon content is less susceptible to SCC.

- Other modifications include fabricating sections inside by a bad weld or involving the presence of hydrogen in the fuel handling issues due to poor engineering or otherwise.

Mr. Mayor reviewed the history of fuel in DCCP with both units currently operating with no indication of fuel damage and Unit-1 currently operating in Cycle 23 with no indication of fuel damage since Cycle 20. Mr. Mayor described the first which which can result in a radon indicator to the RCS as a dry hole where in many cases will not be detected until power levels are changed with resulting temperature changes and chemistry changes which may be caused by changes in load or changes in the RCS. Mr. Mayor reported vacuum or air injection in additional assemblies with identical leaks. Presently for Unit-1 there are three assemblies for which has not been performed to address these defects and Mr. Mayor estimated, in response to Dr. Peterson’s question, that these assemblies can be removed and placed in multiple purpose canisters and go for drier storage lack was reported. In response to Dr. Peterson’s question, Mr. Mayor estimated that the fuel pins have been removed from any Unit-2 assemblies while Unit-2 has had approximately fourteen assemblies that identified radon levels were found due to fuel handling damage and was assembly from Cycle 1, with all but four of the fuel pins being damaged and one from Cycle 1 being reconditioned by replacement of the damaged pins with steel rods. Mr. Mayor confirmed that DCCP presently has a fuel rod storage container for the reconditioned fuel rods in the storage fuel pool.

Mr. Mayor reviewed the location of damaged fuel on fuel assembly that may include reconditioned fuel assemblies with the leaking pins removed and placed in a special container for damaged fuel and the container assembled to be able to handle the same in an undamaged fuel container. The damaged rods can be identified using ultrasonic testing. Once placed into a fuel container the fuel can be handled using normal methods and procedures for disposal of damaged fuel. Fuel damage can be mitigated with the use of special containment and once in a special container the damaged fuel can be located in dry storage. Mr. Mayor continued in response to Dr. Peterson’s question that if the fuel were determined to have only a possible leak and no gross damage to the fuel rod it could be placed into normal storage as it would meet the requirements for use of the multipurpose canisters. He confirmed that to date no such assemblies have been located for dry storage and all remain within the spent fuel pools. Mr. Mayor reported that once repaired or reconditioned the fuel assemblies in considered intact and can be treated in normal fuel assembly and moved with normal tools and procedures and stored in a standard multipurpose 24 assembly capacity container and he confirmed that the expectation that DCCP would be applying to the NRC for permission to use multipurpose canisters with a capacity for 22 assemblies for damaged fuel. In response to Dr. Peterson’s question Mr. Mayor confirmed that loading the damaged fuel assemblies for dry storage will likely occur in the next months where a rod by rod determination would be made if it was possible there could be some change in the design of the canisters and it is possible that all damaged assemblies could be stored in a single or even one multipurpose canisters. Dr. Linn observed that over the expected lifetime of the plant there will be approximately one million fuel rods used for generation and the number of these which have been found to have had leaks is therefore a very small percentage.

Figure 1 - Dry Cask Movement and Storage Components

| Figure 2 - Cask Transporter and HI-TRACK (Gerenic) | G.2 – 185 |
| Figure 1 - Dry Cask Movement and Storage Components | G.2 – 186 |

December 16-16, 2017 Fuel-handling Meeting Report:

3.1 Spent Fuel Inspections after Transfer to IFSS

The DCSC’s Fuel-handling Team has, with Rich Hagler, Superintend Engineer, for an update on efforts for Spent Fuel Inspections prior to repackaging after transfer to the Independent Spent Fuel Storage Installations (IFSS).

A brief summary of the Spent Fuel storage and transfer approach is as follows. After a period of storage in the Spent Fuel Pools (SFPs) to allow for decay, the process for handling Spent Fuel (Figure 1) starts with a transfer of assemblies into a stainless steel Multipurpose Carrier (MPC), which has been lowered into the SFP. A lift is used on the MPC, the MPC is removed from the SFP, and the lift is realigned with the MPC. The transfer of the MPC, containing the fuel assemblies, is then completely sequenced and pumped with dry helium until all assemblies are removed. The MPC is placed in a Transfer Cask, the Transfer Cask lid is installed, and the loaded Transfer Cask is lifted and placed onto the Cask Transporter (Figure 2) for transport to the Cask Transfer Facility (CTF). The CTF transports the Transfer Cask approximately one mile over the road to the CTF, which is located adjacent to the IFSS. At the CTF, the Cask Transporter positions the Transfer Cask above an empty concrete and steel H-STAR International Storage Module (HI-SPORT) that has been previously placed in a horizontal vane at the CTF (Figure 3). The MPC is lowered from the transfer cask into the HI-SPORT and the Transfer Cask is lifted above the HI-SPORT (Figure 4) so the HI-SPORT lid can be installed. The Cask Transporter is then used to the HI-SPORT out of the CTF and transport it to its designated storage location on the IFSS storage pad, where it is anchored in place.

The HI-SPORT has access vents in its bottom and tail to allow for natural convection air flow upward around the outside of the stainless steel MPC to carry away the heat produced by the nuclear fuel. In general, the MPCs and HI-SPORTs are intended not to require any maintenance until such time as the Spent Fuel is transferred to the IFSS to an off-site storage facility at a future date. Recently, concerns have arisen that the MPCs could undergo Chloride-Induced Stress Corrosion Cracking (CSCC) to such an extent that a crack could develop. The potential for CSCC being followed closely by DCCP and the DCSC. Efforts are under way to develop inspection and monitoring techniques to confirm that the MPCs remain fully intact, and to understand if and how radiactive material in the casing may be released if a through-wall crack occurs. These efforts have been reviewed by the DCSC prior to Fuel-handling Meetings when it concluded that the issue is of concern, but there were no immediate concerns with casker common and that DCCP was addressing the longer-term issue. (Reference 6.)
The Fact-finding Team was tasked with identifying options available for inspection of spent fuel after transfer to the ISFSI. This task was based on concerns from both the DOE and members of the public that inspections and repackaging of the spent fuel or MPCs would no longer be feasible following decommissioning of the ISFSI. Mr. Hager began his response by first updating the Fact-finding Team on recent industry efforts regarding spent fuel handling inspections. In mid-2017, the Electric Power Research Institute (EPRI) issued several new guidelines, one of which was "Aging Management Guidance to Address Potential Chloride-Induced Stress Corrosion Cracking of Welded Stainless Steel Components." (Reference 6.2.) The document provides detailed guidance for developing a formal aging management program for spent fuel components, such as the MPCs at DCPP. Additionally, EPRI was continuing its efforts to develop inspection technologies and equipment and issued a new guideline titled "Inspection and Delivery System (Inspection and Delivery System Evaluation and Field Trials for Dry Containment System Evaluation)." (Reference 6.2.) Mr. Hager noted that as a part of its efforts to address NRC license requirements for the ISFSI, the DOE was working to provide a plan for SFP inspections for review and approval by the NRC. Mr. Hager expressed confidence that during the intervening five-year period, technology should be developed to facilitate comprehensive inspection of the well-affected zones of an MPC (the zones most susceptible to SCC), while the MPC remains at its normal storage location in the ISFSI and inside of a Hi-STORM unit.

Regarding the specific question of options for additional inspections and repackaging, Mr. Hager stated that there were several options available for such inspections or repackaging after SFP decommissioning. As discussed above, DCPP/ISFSI has an existing option for transferring the MPC from the Cask to the Hi-STORM cask for storage in the ISFSI. This arrangement includes a cell within which the MPC could be inspected or repaired. Additionally, the MPC vendor is currently reviewing the possibility of testing available for installation of an intermediate interpack for the MPC for review and approval by the NRC. Such an interpack would consist of a modified metal cell for allowing the MPC to be stored at a Hi-STORM facility. An overlap would occur in this arrangement with the Hi-STORM. Although an overlap would occur in this arrangement, the Hi-STORM could still be used to store the MPC and the Hi-STORM that is currently being used for storing the MPC for access, the lower density of stored that would be present at such a time in the future would not need to be stored and cooled as it was expected by the original design. Such an interpack could serve as a number of functions such as allowing leak testing of an MPC at the Normal Basis or providing another barrier to contain leakage or a few exclusions. None of these options have yet been analyzed in detail, but they represent the facts that options do exist that could be considered for detailed inspections or repairs to an MPC should they be necessary in the future even if the SFPs are no longer available.

Additionally, Mr. Hager briefed the Fact-finding Team on several aspects of the design of the Hi-Star Integrated Storage, Transport and Repository (HiSTAR) Transportation Cask (Figures 1 and 3) that would be used to transport the MPCs from the ISFSI to an offsite storage or disposal facility in the future. The HiSTAR Transportation Cask is engineered to store spent nuclear fuel in a vertical orientation and to transport it horizontally, and it contains an internal shell that acts as a pressurized containment boundary in its own right. Mr. Hager stated that the Transportation Cask does not rely on the leaks of the MPC to contain the corrosion products of the nuclear material during transportation. A review of the publicly-available Safety Analysis Report for the HiSTAR Cask (Reference 6.4) confirmed this statement. The Transportation Cask itself is required to be leak tested both prior to and after transport. As a result, any defects that might affect MPC integrity would not prevent the MPC and its spent fuel from being transported off site for future storage. Providing the Transportation Cask and its interpacker from the site to an offsite storage or disposal facility is the responsibility of the U.S. Department of Energy.

Mr. Hager also updated the Fact-finding Team regarding ongoing industry efforts to further characterize the possible radiological consequences of a release of radioactivity from a cask should a through-wall crack actually occur. In general, such cracks would have small apertures. However, it is conceivable that the isotope distribution of the released material is such that release of radioactivity from a cask would not be detectable due to the expected small apertures would be essentially zero.

"Dry Cask Storage Welded Stainless Steel Cask Leak Consequence Analysis Scoping Study," (Reference 6.5), which provided recommendations for additional research needed and described potential approaches for developing a consequence analysis for an isolated in which CSSC grows through the wall of a dry cask storage system cask. It is anticipated that CPCR will continue to work forward with developing such a detailed study of the release of radioactivity from a cask should a through-wall crack actually occur. In general, such cracks would have small apertures. However, it is conceivable that the isotope distribution of the released material is such that release of radioactivity from a cask would not be detectable due to the expected small apertures would be essentially zero.

Recommendation: None.

Figure 3 – Cask Transporter at Cask Transfer Facility (Generic)

Figure 4 – MPC Transfer at Cask Transfer Facility (Generic)

Figure 5 – HiSTAR Transportation Cask (Generic: Without Impact Limiters)

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Recommendation: None.

October 18-19, 2017 Public Meeting Minutes:

XXIII INFORMATION ITEMS BEFORE THE COMMITTEE (Cont'd)

The Chair requested Mr. Hach to introduce the next presenter. Mr. Hach introduced the presenters. Mr. Hach introduced various experts on Nuclear Energy in various fields, including engineering and project management organizations.

Update on Spent Fuel Storage Technical Issues, Including Japanese Industry Activities Related to Safety of Potential Cure of Multiple-Purpose Container (MPCs): Lessons Learned from Spent Fuel Activities at Decommissioned Facilities (Including Furingen) and the Potential Implications for Accelerating Spent Fuel Transfer to the ISFSI and Decreasing Spent Fuel Inventory.

Mr. Strickland stated in his presentation he would be providing a program status update of activities related to the evaluation of external corrosion of multiple-purpose containers (MPCs), storage systems used in the United States and in Europe and of decommissioning considerations including accelerating the use of the independent spent fuel storage installation (ISFSI). Mr. Strickland described the development of the solar power plant that powers the Fuel Handling Building containing the plant’s two spent fuel pools (SFPs) and the ISFSI, which is located approximately one-half mile from the coast at an elevation of 110 feet above sea level. He also described the use of one of the SFPs that reported that when fuel is discharged from the reactor, it is temporarily stored in one of these open-end cylindrical vessels, or "pools," where it is stored in the respective SFP and isolated for approximately seven years. It is then moved to the ISFSI pool, where it is stored in a large concrete tank that is one of the largest in the United States.

Mr. Strickland described the type of the Hi-Star dry cask storage system in use at DCPP that is manufactured for the Hanford Site. He described the dry cask storage system that is housed in a steel and concrete overpack for radiation shielding and protection. It is designed for a range of radioactive waste compositions and is suitable for long-term storage. The DCPP storage system is designed to accommodate the full range of radioactive waste compositions and is suitable for long-term storage. The SFPs are designed to allow for the storage of spent fuel and the ISFSI is designed to allow for the storage of spent fuel and the ISFSI is designed to allow for the storage of spent fuel.

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DCPP-related concerns are the primary factor in the decision-making process. The Electric Power Research Institute (EPRI) publication of the DCPP-3/06IP Storage System Mitigation Study Report in 2016 was a key reference document. EPRI's proposal to incorporate a system that would eliminate the presence of chlorine in the container vessel storage tank was considered. Mr. Strickland noted that while some initial concerns were expressed, the overall benefit of eliminating chlorine in the container vessel storage tank outweighed these concerns.

Mr. Strickland also mentioned that extensive testing has been conducted to ensure the safety and reliability of the proposed system. He noted that the systems have undergone rigorous testing and have met all safety and performance standards. The implementation of the system will be a significant step forward in improving the safety and reliability of the DCPP-related systems.

In conclusion, Mr. Strickland emphasized the importance of balancing safety and reliability with the need for cost-effective solutions. He concluded that the proposed system represents a significant step forward in improving the safety and reliability of the DCPP-related systems.
confirmed that it is not practical to repair the Holtec MCs and he further confirmed that if cracked the MWC would need to be replaced and she observed that the available spacer that is not possible. Ms. Gillmore stated NRC Report (NUREG) 2974 Revision 1 contains the current MWC aging management plan and it is provided to the public for reasons of greater nuclear facility must be taken out of service and she questioned how PGE or any licensee might comply with that regulation without a stop work order. Ms. Gillmore observed there were 49 MWCs currently stored at site at the DCCP ISFSI and of these 2 were checked out for autoclave and temperature with reservations found in those of chloride induced stress corrosion cracking although it is not known if any cracking has actually occurred as there is no way to inspect for same and the document that does not exist there will ever be the ability to inspect for cracks with the MWCs designed for use at DCCP. Ms. Gillmore stated that a crack start it could propagate through the MWC wall within about 16 days. She questioned the wisdom of PGE’s plan to purchase more of the Holtec MCs. She stated that the San Onofre Nuclear Generating Station (SONGS), like DCCP, does not have a plan to handle cracking or leaking MWCs. She sensed that other than use of a stop order, a “test cell” represents the only other replacement option and this is very expensive to implement and does not presently exist at either facility nor are there plans for same. Ms. Gillmore stated the plan for transporting the Holtec Hi-Storm MWCs includes use of a transportation cask which would not be required. She noted that the agency under the use of a large number of MWCs that are known aging issues by assuming that nothing would be changed in the first 20 years but did not look at the issues beyond 20 years. She reported that this high turnup fuel was used at SONGS and is used at DCCP and this high turnup fuel when placed in dry storage can experience damage with the fuel’s cladding and the NRC issued requests for information when it was considering licensing the Holtec casks in obtaining assurance that high turnup fuel not be shipped without verification that its cladding was undamaged. She stated her understanding that there was a total of 13 damaged fuel assemblies at DCCPs as of 1993. Ms. Gillmore reported that plants are not required to conduct radiation conditions monitoring of the dry direct loaded fuel and there is no warning mechanism present in a loss of flow occurring. She commented that the SFAs are exempted, as are the Rancho Seco Nuclear Generating Station (Rancho Seco) and at HBPP their radiation monitors were removed and emergency planning was eliminated. She reported SONGS, DCCP, HBPP and Rancho Seco use thin-wall canister systems with Hi-PWR’s MWCs placed with thick-walled transport casks and stored below the ground. Ms. Gillmore reported that German and French nuclear power plants use thick-walled casks made of steel and in 1993 two stores to some NRC licensed casks which are 14% thick. She reported Gemany does not reprocess spent fuel and stores the casks in concrete buildings for environmental protection and the facilities have not experienced cracking issues. She recommended that the DCSC takes look thoroughly into the casks used in both Gemany and France and make a recommendation for the use of the best available technology. She reported that the Nuclear Power Plant in Japan survived the earthquake and the tsunami but when they were opened it was found that the aluminum fuel baskets that hold the fuel assemblies would not last their expected operation lifetimes of 60 years and she commented that aluminum baskets are in use in the U.S. without any idea of how they are performing. Ms. Gillmore reported that the MWCs in use in the U.S. are not designed to be opened and in the best of her knowledge, not one loaded thick-wall MWC has ever been opened in a SFP. Dr. Peterson commented that some older thick-wall MWCs in Idaho have been opened and inspected using a SFP. Ms. Gillmore observed that at DCCP’s license from the NRC for the ISFSI expires in 2023 and there is no opportunity to do something before that date. She commented that the weight of the transport casks for the Holtec Hi-Storm system is 122 long tons or 122 long tons as reported by Mr. Strickland and the Hi-Storm transport casks weigh 190 long tons. She commented that the California Coastal Commission requires that the casks to transport SFPs and that radiation is an issue to be addressed. She remarked that having an approved transport cask does not mean that you can move an MWC in there are additional requirements from the NRC. The Chair inquired of Mr. Harbor whether PGE would wish to make a response to Ms. Gillmore’s comments. Mr. Harbor stated that no response would be offered at this time. Ms. Gerry Lewis of Motors for Peace was recognized. Ms. Lewis stated she heard two sides of the issue and questioned what would happen next. Dr. Badrath replied that the topic presented by Mr. Strickland and the comments made by Ms. Gillmore describe the issues the DCSC has and will be actively pursuing. Dr. Lewis reported that Mr. Gillmore’s concerns were some of the earliest efforts to make the public aware of this important issue. Ms. Lewis likened it to Mr. Strickland’s statement that the casks were one-inch thick and that what we are an accurate statement based on the data available and that was one-skein thick to freigntage, thick. Mr. Strickland stated that the thickness was one-inch was in reference to the outer cask over wrap, which for the ISFSI is single-layered system is comprised of two walls of thick which is one-inch thick carbon steel with a separately 25-millimeters of high density concrete between the two walls for shielding. The Holtec casks are one-skein thick but driven by consensus made by Ms. Gillmore SONGS has asked Holtec to increase the MWC thickness for its casks to 50-millimeters. Ms. Gillmore stated that SONGS made that decision due to awareness of the soft issue and her recommendation was to increase the thickness to between 19 and 19% inches. Ms. Linda Strickland of Motors for Peace was recognized. She inquired whether the MWC identified in 2014 the EPRI Report as having conditions for chloride induced stress corrosion cracking has been inspected. Mr. Strickland also inquired about whether casks with which radii at the ISFSI is measured at she has been told it is constantly being measured. Mr. Strickland responded that no additional inspections have been done since the EPRI Report was released and the conclusion of that document that was minimal number of potential issues were present. He reported the industry is continuing to develop additional inspection techniques including the use of neutrals and other instruments to more directly look for any radii and radii which will be part of the overall aging management program for the ISFSI. He reported the determination of the instrument which allow DCCP to validate that the ISFSI remains in compliance with its license and the NRC before the end of the lifetime of the facility. He reported the Operations Department conducts daily inspections to ensure that none of the items on the ear bars have become bent or damaged and that radii each of the 16-inch overbars receives a detailed radiography emission assessment. Dr. Peterson stated there is a large difference in the design of the transport and transportation casks used in Europe and Japan and in the U.S. and this is due to the fact that August 9-10, 2017 Fast Breeder Meeting Report. 3.10 Independent Spent Fuel Storage Installation (ISFSI) The DCSC Fast Breeder Team met with Rich Hochgase, Used Fuel Storage Supervisor, Mark Meyer, Nuclear Fuel Processing and Storage Manager, and John Harmon, Reactor Engineering Manager. Dr. Miller provided an update on the DCCP ISFSI project during its July 2017 Fast Breeder Meeting (Reference 8), when it concluded the following. The DCCP ISFSI fuel loading campaign was successfully completed. An issue with cast overlap through weld engagement was appropriately resolved by CDCP 9349 by substituting a request for the ISFSI in 2012, two years before its scheduled replacement in 2024. Restoration of the fuel loading campaign progressed and fuel was dry storage at the ISFSI will be considered as required by the Joint Proposers and as a part of the documentation and planning process. Stabilization could require changes to the current DCCP or ISFSI occurs. During the 2016 ISFSI fuel loading campaign, a total of 12 casks were successfully treated with 32 spent fuel assemblies and all in the ISFSI. This brought the total loaded casks at the ISFSI to 49. Plutons for loading and moving nine casks in 2016, and eight casks each in 2017 and 2018. The campaign was scheduled such as to fall into years where the striped planned only one refueling outage during the year. It takes about one week to feed, transport, and secure each cask. The current license for the DCCP ISFSI was obtained at a site-specific license under 10 CFR Part 72 and issued by the NRC in 2004. The 20-year license expires in 2024. Licenses are required to submit any extensions within 24 months of expiration. DCCP plans to submit a request for license renewal for the ISFSI in 2022. One factor that may affect license renewal is the need for additional inspection requirements to further constrain core cooling concern. These core cooling concerns were most recently reviewed by the DCSC at its December 2016 Fast Breeder Meeting (Reference 6). The Fast Breeder Research Institute and the American Society of Mechanical Engineers are continuing to work on preparing acceptable core surface inspection methods and acceptance criteria. The Joint Proposers include a requirement that DCCP prepare a plan for expedited post-shutdown transfer of spent fuel to the ISFSI as soon as possible. The ISFSI is designed to accommodate as much as 65 casks per year. San Onofre Nuclear Generating Station is a benchmark. This activity would be a part of the DCCP document development planning. DCCP is just beginning to assemble the staff to begin developing the planning. The current ISFSI core cooling normal operating conditions of all the spent fuel that would be present at the end of the license term in terms of physical space and total heat generation as allowed by the ISFSI license. The current facility licensing requirements for the Spent Fuel Pool include Technical Specification requirements for maximum quantities that spent fuel must be stored in the pool before moving to dry cask storage as well as requirements for the mixing of older and newer spent fuel assemblies. The current licensing requirements for NRC are being met and analyzed to meet the NRC requirements for events involving large fires or explosions (the G.2 - 199

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for minimum durations that spent fuel be stored in the pool before moving to dry cask storage. Additionally, there are requirements for the mixing of older and newer spent fuel assemblies in the pool to accommodate thermal capacity requirements that are assumed in analyses used to meet the NRC requirements for responding to security events involving large fires or explosions like the "B.S.S. program." In addition, the ISFSI license contains requirements for the mixing of older and newer spent fuel assemblies in individual storage casks to minimize the radiation dose to individuals handling the casks. With these requirements, it is possible to store spent fuel for up to 12 years after the end of operations without the need for external interventions that could further slow the process.

The loading and storage of older or more minor cassettes of Class C mixed nuclear waste at the ISFSI would likely be considered as part of the decommissioning plan. Class C waste is mixed nuclear waste that contains high levels of radioactivity that have a disposal time of 10,000 years. These waste containers would be subject to a high degree of security.

Conclusions: DCPP continues to manage its spent fuel assemblies in both the Spent Fuel Pool (SFP) and the Independent Spent Fuel Storage Installation (ISFSI). DCPP has stored no damaged fuel in the SFP in the last 24 months and is in the process of decommissioning the ISFSI.

Recommendation: None
storage pond (SPAM 58073770). While attempting to tunnel into a storage vessel to obtain a sample, it was identified that the steel measurement head did not have at least three inches of test engagement as required by the governing procedure. Once the problem was discovered, all work was stopped and the vessel was capped in a safe condition (remained attached to the transporter) while engineering evaluated the issue.

It was found that the governing procedure, PEP-D-4, Multi-purpose Container Transport, had been revised to incorporate previous test data and enhancements. One enhancement was to add a specification (where none previously existed) for a minimum of three inches of engagement for the steel to the anchor block. The three-inch minimum value added to the procedure was taken from the micrometer thread engagement as an assumption in the majority of calculations for seismic analyses. PG&E contacted the vendor, Holtec, and requested that they provide a minimum thread engagement required to meet calculation strength requirements based on the certified mill test report values of the actual coupling used. Holtec determined that the actual minimum value required to meet standards was 1.25 inches. PG&E then undertook a field evaluation to measure actual engagement that was a combination of measurements of above-grade stud lengths and ultrasonic examinations of actual overall stud lengths. The measurements and ultrasonic examinations found that the engagement lengths for all studs previously installed at the SISSF met the minimum requirement of 1.25 inches.

PG&E then evaluated longer (18 inch versus 15 inch) studs and used the longer studs to resume the 2016 cask loading campaign. The use of longer studs ensured that the minimum 1.25 inch value needed for adequate strength and the minimum three inch value used in the seismic analyses could be met at all times. Following completion of the cask loading campaign in December 2016, PG&E replaced all remaining studs on all previously loaded casks at the SISSF with the longer studs. The Fast-finding Team concluded that PG&E’s actions in identifying the problem, analyzing its significance, and implementing corrective measures were appropriate.

The Fast-finding Team then inquired about plans for future spent fuel management in light of the Joint Proposal for DCPFP to cease operations at the end of its current operating license. Mr. Hagner noted that the Joint Proposal included a requirement that PG&E prepare a plan for expedited post-shutdown transfer of spent fuel to dry cask storage as promptly as is technically feasible using the plans of San Onofre Nuclear Generating Station in California as a benchmark for comparison. This activity would be a part of overall decommissioning planning process, for which PG&E was just beginning to assemble the staff to begin work. Mr. Hagner confirmed that the current SISSF pool contained enough space for storage of all the spent fuel that would be present at the end of the license both in terms of physical space and total fuel burnup concentration as allowed by the SISSF license.

The current facility licensing requirements for the Spent Fuel Pool contain significant constraints for maintaining assemblies in the Spent Fuel Pool. The specific technical licensing requirements for minimum durations that spent fuel could be stored in the pool before moving to dry cask storage as well as requirements for the mixing of younger and newer spent fuel assemblies in the pool to maintain thermal inertia requirements that are assumed in analyses used to meet the NRC requirements for responding to security events involving large fires or explosions (the "9-1-2" program). Additionally, the SISSF license contains additional requirements for the mixing of older and new spent fuel assemblies in individual storage casks to minimize the radiation dose surrounding the casks. When all of the current requirements are considered, it could use approximately 12 years after the cessation of operations for all spent fuel assemblies to be offloaded from the pool to dry cask storage. As a part of the evaluation required under the Joint Proposal, PG&E will review what actions and associated licensing changes could be made to accelerate the spent fuel offload from the pool to dry storage casks. It was noted that any necessary changes to the licenses could require several years to obtain approval and that the needed licensing changes could be subject to external interventions that could further slow the process.

Lastly, Mr. Hagner reported that the loading and storage of one or more canisters of Class C radioactive waste at the SISSF would likely be considered as a part of the decommissioning plan. Class C is described in the new waste regulations that contain very high levels of radioactivity such that their disposal would have to meet all applicable radiological properties for the proposed fuel spent. A similar approach was taken at PG&E’s Humboldt Bay facility where a cask was filled with Class C waste and added to the SISSF as a part of the decommissioning process.

Conclusions: The 2016 SISSF fuel pool loading campaign was successfully completed. An aunt with cask overpack thread engagement was appropriately resolved. DCPFP will be submitting a request for license renewal for the SISSF in 2018, two years before its scheduled expiration in 2044. Acceleration of the retirement of spent fuel to dry storage at the SISSF will be considered as required by the Joint Proposal and as a part of the decommissioning planning process. Such acceleration could require changes to the current DCPFP or SISSF licenses.

Recommendations: None.
above the temperature where CSCC is expected to occur, some of the coolest areas near the bottom of the canisters may already be below the 140°F threshold, and it is expected that more areas are likely to drop below that threshold as time goes on because of the natural reduction in heat source due to radioactive decay.

Regarding future actions, Mr. Braico reported that PG&E plans to continue its work to inspect and evaluate the sustainability of the MCPS to CSCC. Inspection techniques and tools are being developed primarily by EPRI and the canister vendors to allow for better and more complete surface inspections to be performed. Additionally, PG&E is planning to pursue an amendment to allow for the partial blocking of the venting openings in the MCPS. An amendment allowing partial blocking of the openings would allow for more complete inspections using longer and more intensive inspection tools. Additionally, an amendment allowing partial blocking of the openings could be used to reduce exceedance air flow and subsequently maintain canister temperatures to increase the margin for CSCC. Several industry topics on this topic are expected to be issued in 2017 and 2018.

The Fast-Finding Team also reviewed with PG&E the possible consequences of a through-wall crack in an MCPS. First, it was noted that substantial time is required for the conditions to be established and maintained that would allow a through-wall penetration to develop. Should a small, tight crack then develop, any release of radioactivity would initially be limited to gaseous fission products that might be present if the MCPS contained any fuel rods with cladding breaches. In much less likely event of the development of a larger crack where fuel and cladding degradation were also present, some amounts of radioactive particles could also potentially escape the canister. Recent analyses show that there is a range of canister leak rates for which the canister still fulfills its function of maintaining external dose rates below the regulatory thresholds. However, the DCPP ISFSI licensing basis currently presumes fully intact canisters. Meaning, the current non-accident radiation dose assessments contained in the ISFSI Final Safety Analysis Report do not include any contributions from effluents released from the MCPSs.

In light of the above information, the Fast-Finding Team reviewed several concerns related to its attention via several e-mails in 2016 from a member of the public, Ms. Donna Gillmore. The team found that one of Ms. Gillmore’s points was correct in that the EPR inspections did identify surface temperatures below 140°F. However, the team noted that inspections also found that such low-temperature areas were generally clean and free from deposits also required to facilitate CSCC. Additionally, the team found that another of Ms. Gillmore’s points was correct in that there currently is no licensing basis allowing for the partial blocking of MCPS vents at DCPP in order to rise temperatures. Concerning another of Ms. Gillmore’s points that even a microscopic through-wall crack will release large amounts of radionuclides to the environment, the team concluded that was incorrect. However, the team does note that any leakage from a DCPP tank would be outside of the licensing basis and the industry is currently working on performing more detailed analyses regarding the possible specific impacts of through-wall cracks in spent fuel dry storage canisters.

Conclusions: DCPP is continuing to participate in an industry initiative to determine the impact of atmospheric chlorides on the corrosion rate of ISFSI MCPS. Recent inspections revealed that there are no immediate concerns with canister corrosion; however, low temperatures and other conditions that could cause such corrosion have been foreseen to be present on the lower surface of the MCPS. DCPP is addressing this issue. The DCSC should continue to follow DCPP’s efforts in analyzing and responding to this potential problem, particularly potential efforts to modify the ISFSI license to allow partial blocking of case vent holes as well as to analyze and allow limited leakage from through-wall canister cracks.

Recommendation: None.
August 2016 fuel loading campaign of additional 364 assemblies will be started this fall. Mr. Strickland reviewed the level of inventory in the SFP since operations began in 1996, which shows the number of assemblies in the SFPs generally declining since 2009 when the SFSF was licensed by the NRC.

Mr. Strickland reported relative to external corrosion of the PCPs that this is an issue raised during the past two years and involves external corrosion due to chloride induced stress cracking which results notably from 24 percent stress corrosion environments but also from the exterior to interior cracking on the MCps. He confirmed that the temperature effect measured by the temperature of the NPS being low enough where delamination of metal parts is produced which maintains a more corrosive environment. Mr. Strickland confirmed that the pressure at the time all MCps in DCCP produce a sufficiently high temperature to remain the level that would be acceptable to occur but the data heat the stored fuels will decline over time in one project are that that will take 30-60 years for the best surface metal that delamination may occur. Mr. Peterson observed and Mr. Strickland agreed that the one project may be created by adjusted the amount of air flow between the MCps and the inner center is the bar that more is here is required over time. Mr. Strickland stated the industry is reviewing this issue to better quantify the types of techniques that might be used as well as the types of monitoring measures, including the use of robotic inspection equipment and tools which could be used to look for potential signs of corrosion. Mr. Strickland reported DCCP previously used PCPs fabricated from 316L, stainless steel which will provide an additional level of protection against corrosion.

Dr. Peterson commented on the issues with decontamination or nuclear power plant involves the SFPs which are costly to maintain but which when they are decontaminated lose the ability to be used for purposes of safety or fueling conditions. There is also an issue of sites and transportation costs. They are required to move the fuel to a consolidated fuel storage facility where it is available to whether this applies the ability to see the SFP. Dr. Peterson recommended the Review these issues with PG&E during a future fact-finding. Mr. Strickland confirmed the initial concept of designing the fuel transfer facility was to include the ability to store for easy to transport the fuel to the disposal point with the transport fuel. He noted that due to their weight it is unlikely the fuel could be shipped separately on the railroad. In response to Mr. Strickland’s comment, Mr. Strickland confirmed that PG&E decommissioned Humboldt Bay Nuclear Power Plant fuel is stored at High Sierra transmission yards. Members discussed with Mr. Strickland proposals by Waste Control Specialists in Texas which is not able to accept the fuel, and the Energy Information Agency in New Mexico are considered interim storage facilities. Mr. Strickland refers to the gulf project with licensing requirements with the DCCS during future fact-finding.

In conclusion his presentation, Mr. Strickland provided and discussed a summary and time line of the various activities which have taken place relative to spent fuel storage in the near term and stated that PG&E expects that the NRC, EPRI, and NES will remain actively involved in this issue. He stated key elements of the time line relate to development of new inspection equipment and testing and DCCP has evolved in place as an initial inspection program due to its current environment. In response to Mr. Lam’s question, Mr. Strickland replied that the process for assessing resources previously designated for retuning to other areas and tasks will

November 13, 2018
PG&E TSGC 18-001
Dr. Peter Lam
The Diablo Canyon Independent Safety Committee 857 Cass Street, Suite D
Monterey, CA 93940


Dear Mr. Lam,


We are pleased that the DCISC has once again concluded that PG&E’s Diablo Canyon Power Plant (DCPP) safely and has no recommendation during this report period.

As you are aware, operating the plant conservatively to protect public health and safety is our highest priority, and we will continue to ensure that we fulfill this commitment.

We welcome the DCISC independent review and oversight, which contributes to the continued safe operation of DCPP.

Sincerely,

James M. Welsch
Vice President, Nuclear Generation and Chief Nuclear Officer
Hi Bob,

Sorry I missed your call back to me this morning – I was unexpectedly tied up with some Engagement Panel issues regarding final revisions to our Vision Document. I called back this afternoon but found you also had some unexpected matters to attend to.

Here’s something for you and your colleagues to consider. The DCOP has scheduled our next public meeting on March 13 at 6:30 PM at the San Luis Obispo County Government Center. The topic for the meeting is spent fuel storage. What I would like to talk with you about is how we can go about accepting the offer to be a resource for us. Is there a formal process we should go through to make a request? What is the scope of help you might be able to render on this topic? Would it be possible for one of your members to actually attend and make a presentation?

Perhaps we could connect again tomorrow morning. I’ll be busy elsewhere from noon on. At this point, there is no big hurry though we have a final meeting on Wednesday morning of our Engagement Panel to put the final touches on our annual Vision document. If we had some info from you by tomorrow, I would like to share with our Panel on Wednesday.

Looking forward to hearing from you,

Lauren

From: Lauren Brown [mailto:lauernbrown@calstateglobal.net]
Sent: Saturday, December 8, 2018 9:45 AM
To: info@dsisc.org; dcsafety@dsisc.org; dsisc-safety@dsisc.org
Subject: RE: History of the DCISC

Hi Bob,

Would it be possible for you to give me a call this weekend? I would like to chat informally about ideas for taking advantage of the offer from the DCISC to serve as a resource to our Panel. We are in the process of finalizing our end-of-year Vision document and I'm responsible for drafting a short section that might reference how the DCISC could assist us. Just broad ideas at this point. I would also like to understand how your panel might go about submitting a formal request.

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Dr. Brown: thank you for your email communication to the DCISC which has been provided to our Members and Technical Consultants.

With reference to the history of the DCISC, please refer to the attached and Section 1.1 "Formation of the Independent Safety Committee" of the introduction to the DCISC's 28th Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations. Further to that information, in summary, the concept of an independent safety committee for Diablo Canyon Power Plant arose in context of the opposition by the CPUC's Division of Ratepayer Advocates (now known as the Office of Ratepayer Advocates) and the then CA Attorney General (John Van de Kamp) to PG&E's request for recovery from its ratepayers for the cost of building both DCP units. Those parties argued that billions of dollars of those costs were unreasonable and to resolve the matter in June 1988 the parties entered into a Settlement Agreement with PG&E providing for "performance based pricing." Opponents of the Settlement Agreement, such as the Utility Reform Network (TURN) argued that performance based pricing gave PG&E an incentive to maximize energy production and profits which could threaten plant safety. The CPUC recognized the safety implications of performance based pricing in its approval of Decision 88.12.083 in December 1988 which established the DCISC to monitor safety at the plant.

The DCISC was formed in late 1989, began its review activities on January 1, 1990, conducted its first site visit on April 20, 1990 and first public meeting in San Luis Obispo on May 22, 1990. The Committee issued an interim report for the period January 1 – June 30, 1990 and has issued an annual report every year since then. The 21st through the 27th Annual Reports are now available on our website at www.dsisc.org and the 28th Annual Report for the period July 1, 2017 – June 30, 2018 will be posted later. These Annual Reports, together with the CPUC Decisions cited therein, serve as source documents for the Committee's formation, continuing role and activities.

Thank you again for contacting the DCISC and we would be appreciative of receiving a copy of the Decommissioning Panel’s Vision Document when it is available. I know each of our Members and Technical Consultants looks forward to continuing to work with you and the other members of the Diablo Canyon Decommissioning Engagement Panel.

Please feel free to contact me if I can be of further assistance or should you need more information.

Best regards,

Robert Rathe
DCISC Asst. Legal Counsel
(805) 659-4638
info@dsisc.org

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DCISafety@DCISC.org

From: DCISafety@DCISC.org
Sent: Monday, December 10, 2018 4:12 PM
To: robertrathe@me.com
Subject: FC: History of the DCISC

Hi Lauren,

Sunny – thank you for your acknowledgement – I’m glad the response was helpful.

On behalf of the Committee, I will look forward to receiving a copy of the Vision Document when it is available.

Please do not hesitate to contact me if I can be of any further assistance or serve as a conduit to our members and the technical consultants for questions on technical and/or safety issues.

Best for a pleasant weekend,

Bob Rathe

From: Lauren Brown [mailto:lauernbrown@calstateglobal.net]
Sent: Thursday, December 6, 2018 8:55 AM
To: dcsafety@dsisc.org
Cc: info@dsisc.org
Subject: RE: History of the DCISC

Dear Mr. Rathe,

You have provided me with the very background I was hoping to learn. Very helpful.

I am posting to our Panel’s internal shared website a copy of our email exchange as well as a copy of the introduction you attached.

A copy of the final draft of our Vision Document for 2018 should be available in the next two weeks and I will make sure you receive a copy.

I’m looking forward to more contact during 2019 as we take advantage of the offer to be a resource on safety and technical issues.

Many thanks,

Lauren

From: dcsafety@dsisc.org [mailto:dcsafety@dsisc.org]
Sent: Thursday, December 6, 2018 6:35 PM
To: Lauren Brown [mailto:lauernbrown@calstateglobal.net]
Subject: F: History of the DCISC

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DCI Safety

From: Lauren Brown [mailto:lauernbrown@calstateglobal.net]
Sent: Wednesday, December 5, 2018 9:06 PM
To: info@dsisc.org
Subject: History of the DCISC

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From:info@dsisc.org[mailto:info@dsisc.org]
Sent: Friday, December 7, 2018 9:26 AM
To: Lauren Brown [mailto:lauernbrown@calstateglobal.net]; dcsafety@dsisc.org
Cc: info@dsisc.org
Subject: RE: History of the DCISC

Lauren – thank you for your acknowledgement – I’m glad the response was helpful.
Dr. Brown: thank you for your email communication to the DCISC which has been provided to our Members and Technical Consultants.

With reference to the history of the DCISC, please refer to the attached and Section 1.1 "Formation of the Independent Safety Committee" of the Introduction to the DCISC’s 28th Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations. Further to that information, in summary, the concept of an independent safety committee for Diablo Canyon Power Plant originated in context of the opposition by the CPUC’s Division of Ratepayer Advocates (now known as the Office of Ratepayer Advocates) and the then CA Attorney General (John Van de Kamp) to PG&E’s request for recovery of its ratepayer shares for the cost of building both DCPUs. Those parties argued that billions of dollars of these costs were unreasonable and to resolve the matter in June 1988 the parties entered into a Settlement Agreement with PG&E providing for “performance based pricing.” Opponents of the Settlement Agreement, such as the Utility Reform Network (TURN) argued that performance based pricing gave PG&E an incentive to maximize energy production and profits which could threaten plant safety. The CPUC recognized the safety implications of performance based pricing in its approval of Decision 88.12.083 in December 1988 which established the DCISC to monitor safety at the plant.

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Please feel free to contact me if I can be of further assistance or should you need more information.

Best regards,

Robert Rathie
DCISC Asst. Legal Counsel
(805) 499-6688
info@dcisc.org

From: Lauren Brown [mailto:lauren.brown@bigglobal.net]
Sent: Thursday, December 6, 2018 8:56 PM
To: drkathy@hls.org
Cc: info@dcisc.org
Subject: RE: History of the DCISC

Dear Mr. Rathie,

You have provided me with the very background I was hoping to learn. Very helpful.

I am posting to our Panel’s internal shared website a copy of our email exchange as well as a copy of the Introduction you attached.

A copy of the final draft of our Vision Document for 2018 should be available in the next two weeks and I will make sure you receive a copy,

I’m looking forward to more contact during 2019 as we take advantage of the offer to be a resource on safety and technical issues.

Many thanks,

Lauren

From: info@dcisc.org
Sent: Thursday, December 6, 2018 5:38 PM
To: Lauren Brown [mailto:lauren.brown@bigglobal.net]
Cc: info@dcisc.org
Subject: RE: History of the DCISC

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Cc: info@dcisc.org
Subject: RE: History of the DCISC

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Attorney General (John Van de Kamp) to PG&E's request for recovery from its ratepayers for the cost of building both DCP units. Those parties argued that billions of dollars of these costs were unreasonable and to resolve the matter in June 1988 the parties entered into a Settlement Agreement with PG&E providing for "performance based pricing." Opponents of the Settlement Agreement, such as The Utility Reform Network (TURN) argued that performance based pricing gave PG&E an incentive to maximize energy production and profits which could threaten plant safety. The CPUC recognized the safety implications of performance based pricing in its approval of Decision 88.12.09B in December 1988 which established the DCISC to monitor safety at the plant.

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Please feel free to contact me if I can be of further assistance or should you need more information.

Best regards,

Robert Rathie
DCSC Asst. Legal Counsel
(800) 439-6488
info@dicsc.org

From: Lauren Brown (lauren.brown@edisglobal.net)
Sent: Wednesday, December 5, 2018 9:06 PM
To: dicsc@dicsc.org
Cc: info@dicsc.org
Subject: History of the DCISC

December 5, 2018

Diablo Canyon Independent Safety Committee

Hello,

I am a member of the Diablo Canyon Decommissioning Engagement Panel. We are currently preparing a Final Vision Document from our work in 2018 which contains vision statements, goals and recommendations to PG&E and the CPUC regarding a safe and effective decommissioning of Diablo Canyon Power Plant.

One of our members, Mr. Alex Karlin, is recommending we consider reconstituting the DCISC as a CPUC-funded Community Engagement Panel in the same way that the DCISC is set up. I’m wondering about the history of your panel.

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and what lessons we might draw from that. Specifically, could you tell me when the idea of an independent safety committee first arose? Who advocated for its creation? What was the process of getting it initiated and how long did that take from first proposal to actually operation? Based on that history, I'm wondering if the time required for approvals and implementation are too long for this proposal to be practical, given the anticipated plant closures in 2024 and 2025. Do you have a source document available that outlines this background?

If you have any other information relevant to our consideration of Mr. Karlin's proposal that you would like to provide, I would also be very appreciative.

We have taken notice of the DCISC offer during your visit to our Panel meeting in October to be a source of technical and safety information for us. Included in the draft Vision document is a statement to do so and also to recommend to the CPUC that your committee continue to function beyond the end of power generation at the DCP. One of our tests in 2019 is to discuss the topic of spent fuel storage. I expect we will be contacting you at an appropriate time during 2019 to request your input on the technical and safety aspects of this.

With appreciation,

Mr. Lauren R. Brown, Ph.D, Member, DCEP
lauren.brown@edisglobal.net
805-550-5688
Pacific Gas and Electric
Diablo Canyon Decommissioning Engagement Panel Charter

Adopted May 24, 2018

I. Introduction
The Diablo Canyon Decommissioning Engagement Panel (the Panel) adopts this charter and operating procedures to clearly define the roles of engagement, the responsibilities of panel members and the mechanisms to manage meeting's efficiency. These guidelines help ensure that the panel is working towards common goals and that members' voluntary time is well spent. This charter and operating procedures shall define the scope of work for the panel, membership eligibility and responsibilities, organizational structure, time management strategies and the process for adding or removing panel members.

II. Mission Statement
The Diablo Canyon Decommissioning Engagement Panel will review information and provide direct input on behalf of the local community to Pacific Gas and Electric Company on Diablo Canyon Power Plant decommissioning plans and activities.

III. Purpose
A. Pacific Gas and Electric Company (PG&E) has announced that it will not seek license renewal for Diablo Canyon Power Plant (DCPP) and will cease operating DCPP in 2024-2025, under its two operating licenses. In the meantime, PG&E will keep a continued focus on safe and reliable operations of the plant while preparing draft decommissioning plans. PG&E recognizes the importance of open communications with the local community with respect to its decommissioning plans and activities.

B. The panel is convened by PG&E as a volunteer, non-regulatory body to enhance and foster open communication, public involvement, and education on DCPP decommissioning plans and activities. It is intended to serve as a forum for local community members to provide direct input to PG&E on matters related to DCPP decommissioning.

C. To foster and encourage an open dialogue of issues of interest to the community, PG&E will provide regular decommissioning updates to the panel. Panel members will serve the interests of area communities and act as a sounding board for community feedback to PG&E on decommissioning issues and activities. The panel will provide input into the effectiveness and appropriateness of communications between PG&E and area residents.

IV. Authority
A. The panel will function solely in an informational capacity and will provide public input to inform and strengthen PG&E’s plans. PG&E will retain discretion to accept, modify or decline recommendations made by the Panel, as PG&E is responsible for ensuring the health and safety of the public and is the financial and land steward of these assets. Final decisions regarding DCPP decommissioning will be made by PG&E and the appropriate regulatory agencies and will balance PG&E’s responsibility to customers to include only just and reasonable costs in rates.

V. Organization and Membership
A. Membership
i. The panel is comprised of representatives of the community to broadly reflect the diverse stakeholder viewpoints in proximity to DCPP.

ii. Members should be highly engaged and well-informed leaders in the community who have the network and credibility to serve as resources to their constituent groups regarding DCPP decommissioning.

iii. Elected officials, current PG&E employees and their immediate family members will not be considered eligible for membership on the panel.

iv. PG&E will contract a local community member with expertise in facilitation to serve as facilitator for the group.

v. The panel will initially consist of 11 members (selected by a Formation Committee comprised of representatives from the local community and PG&E) and a senior representative of PG&E’s decommissioning team.

vi. The inaugural panel will serve a term no shorter than one year. The inaugural panel shall have staggered terms as assigned by the membership through a facilitated process. Thereafter, member terms shall be three years (following the initial staggering), membership on the panel shall be renewable at the discretion of PG&E.

vii. To ensure quality input from a variety of community leaders, panel members will make an effort to be present at all regular meetings. The goal is for panel members to participate in all meetings.

viii. Panel members commit to sharing information on DCPP decommissioning with their constituent groups and their own networks of contacts, and likewise bring comments and information requests back to PG&E.

ix. Termination of a member will automatically occur if three (3) unexcused absences occur during their term. If there are more than three absences, the panel member and PG&E will conduct about their future participation.

x. Membership may be assigned in writing to the panel facilitator and PG&E.

xi. A member may be removed from the panel due to chronic absenteeism, abusive behavior to other panelists, or conduct detrimental to the panel process.

xii. Any vacancy will be filled by PG&E (in consultation with the facilitator and panel members) to maintain representation of a diverse group of stakeholders.

xiii. The facilitator shall perform the following duties:

1. Work with PG&E to convene, create agendas and facilitate all meetings of the panel and schedule additional meetings, educational workshops, as appropriate.

2. Ensure the smooth flow of information between the panel, the public and PG&E.

3. Submit to PG&E all recommendations adopted by the panel.

4. Develop a brief synopsis of the items discussed and decisions taken, record members present, and gather electronic logs to all reserves and pertinent reference materials. Provide these items to PG&E and the panelists for retention and posting on the panel website.

B. Committees
i. Committees or similar working groups may be created by the facilitator in consultation with the panel as needed to carry out the work of the panel.

ii. PG&E will staff those groups or committees in a similar fashion to the panel.
VI. Meetings
A. Regularly scheduled meetings of the panel will be held at least once a quarter and will be open to the public. Additional meetings may be held to further discussions between PG&E and the panel.

B. To maximize educational opportunities about DCP on the public, the panel may also request that PG&E periodically convene workshops or have other meetings where detailed information on specific matters may be discussed.

C. PG&E will arrange for a regular meeting venue and will provide necessary logistical and material support for the meetings.

D. As volunteers, members shall not be compensated for their time or travel expenses related to regular meetings.

E. Open house meetings and public educational workshops will be publicly notified at least one week prior to the scheduled meeting. Public notice shall be provided via the publication of a meeting notice to the panel website.

F. Information shared with panel members will be considered public information that is appropriate for dissemination to all external audiences.

G. Public Comment
   I. Members of the public are welcome to attend regularly scheduled panel meetings as observers.
   II. Regularly scheduled meetings may include a public comment period and inclusion of comments should not exceed allotted meeting time. While workshops and special meetings may be open to the public, they will not necessarily include public comment.
   III. Selected officials and representatives of government agencies will be given priority at the beginning of public comment periods at regularly scheduled panel meetings as courtesy for their representation of public constituencies.

H. PG&E and the facilitator shall be responsible for preparing agendas for regular meetings in consultation with the panel. Discussion of items not on the agenda shall be reserved for the public comment period. Routine panel meetings will be limited to three hours, unless the panel agrees to grant an extension for special topics or circumstances.

As adopted May 24, 2018

G.2 – 233

Attachment 1: Diablo Canyon Power Plant Decommissioning Engagement Panel
Panel Members and Terms

One year term (May 2018 - 2019)—Nancy O'Malley, Frank Mecham, Sherri Davoff
Two year terms (May 2018-2020)– Kara Woodruff, Lauren Mead, Scott Lathrop, Linda Seeley
Three year term (May 2018 – 2021)– David Baldwin, Dena Belkin, Alex Karfis, Tanner Keith

VII. Panel Terms
A. The initial phase of the panel will conclude with the filing of a site-specific cost estimate called for in the Joint Proposal that will be submitted as part of the 2018-2019 Nuclear Decommissioning Cost Tiered Proceedings. The continuation of the panel beyond that initial term shall be determined by PG&E in accordance with regulatory requirements.

VIII. Charter Amendments
A. Panel members may suggest amendments to this Charter at any time for consideration by PG&E. PG&E will endeavor to implement reasonable amendments to the Charter.

As adopted May 24, 2018

G.2 – 234

Info@DGSC.org

From:  Info@DGSC.org
Sent:  Friday, December 7, 2018 5:22 PM
To: Robert Budich; PER PETERSON; Peter Lani; Terrence Wardoff; McWhorter Rick
Cc: Info@DGSC.org
Subject: FW: AANR Comments on DCPF recommendations
Attachments: 120316_AANR_final DCPF comments01.pdf

Members & Consultants:
FYI – received and acknowledged today from Rochelle Becker.

The attachment provides an early peek at the content of the DC DEP Vision Document referred to by Dr. Brown in his email yesterday.

Wishing everyone a good weekend,

Bob R

From: Rochelle Becker [mailto:rochellebecker@gmail.com]
Sent: Friday, December 7, 2018 4:44 PM
To: Info@DGSC.org
Subject: AANR Comments on DCPF recommendations

Hi Bob,
Please send the attached comments to the full Committee.

Thank you,

Merry Peacemonts
Rochelle

In Peace
Rochelle Becker, Executive Director
Alliance for Nuclear Responsibility
PO 1128
San Luis Obispo, CA 93406
www.2bnr.org

G.2 – 235

G.2 – 236
December 7, 2018

ATTN: Chuck Anders, Facilitator
Diablo Canyon Decommissioning Engagement Panel

RE: Comments of the Alliance For Nuclear Responsibility

Dear Mr. Anders and Members of the Panel,

As requested by the DCDEP, the Alliance For Nuclear Responsibility (AANR) is taking the opportunity to comment on the Public Review Draft of the A Strategic Vision by the Diablo Canyon Decommissioning Engagement Panel, dated November 2018.

Our comments are divided into two sections. Part I requests clarification of certain terms and statements made in the Draft; Part II, more broadly, consists of three recommendations regarding the future of the DCDEP going forward.

Part I
All the issues of our interest or concern are referenced by page number from the Draft paper.

Page 3
Vision Statements
The CPUC should continue the DCDEP at a minimum until cessation of operations of the DCPP

Recommendaions
Diablo Canyon Decommissioning Engagement Panel
- Recommend that the CPUC formally expand the charters of the Diablo Canyon Independent Safety Committee (DCISC) to include any technical support that may be requested of them by the DCDEP

Page 5
AANR COMMENT: See similar comment for Page 5. Issue of haring needs clarification.

Page 9
The disposal of Diablo Canyon Lands should recognize PG&E's fiduciary responsibility to its taxpayers and shareholders.

AANR COMMENT: Has PG&E explained to the DCDEP the specifics regarding how disposal of Diablo Canyon Lands will serve PG&E's fiduciary responsibility to its taxpayers?

Page 11
- The breakwaters and associated harbor should remain in place consistent with the environmental quality and safety of the area and region.

AANR COMMENT: Has PG&E studied what the effects of climate change on sea level will be 50 years from now, and how any changes will impact the design, engineering and longevity of the breakwaters and intake structures? PG&E has brought these concerns to the attention of Southern California Edison in filing its Protest in the SONGS NDCTP (http://bit.ly/2UoBoMs). The timing and budgeting of work to be done involving subsurface and underwater removals of breakwaters, sewers and conduits will be challenged in the SONGS NDCTP, and likely in PG&E's if inadequate research is devoted to anticipating the challenges of erosion and the coastal effects of climate change.

Page 13
- Recommend that PG&E maintain the existing desalination plant without compromising environmental quality.

AANR COMMENT: For how long and for what specific purpose should the desalination plant remain operational? Is it needed after the establishment of the "spent fuel island"? Will it be needed to supply water during the actual demolition phase (i.e., using water to suppress dust) and in it useful in the, expressly stated, future use for those purposes? In the operation of the plant in perpetuity—regress(fit) of its utility to the decommissioning process—can it be, at whose expense?

PART II
Recommendaions of the Alliance For Nuclear Responsibility
As noted at the outset, one of the DCDEP Draft recommendations was:

The CPUC should continue the DCDEP at a minimum until cessation of operations of the DCPP

AANR COMMENT: With regard to the Vision Statement requesting the CPUC continuing the DCDEP "until cessation of operations at DCPP" AANR disagrees. We will present a more detailed rationale in Part II of our comments.

With regard to the request that the CPUC formally expand the charter of the DCISC to include technical support, we do not believe this is necessary. At the combined DCISC and DCDEP meetings of October 24-25, 2018, members of the DCISC publicly offered their support and assistance to the DCDEP. Any work being undertaken at or about DCNP during the remaining years of "operation" of the plant (including spent fuel management at the current time) already falls under the remit of the DCISC. AANR has first-hand experience of the DCISC engaging with external stakeholders and conducting their own inquiries, as evidenced by the case of the tsunami study of Dr. Robert Swell, which AANR brought to the DCISC's attention, and to which the DCISC followed up by commissioning their own evaluation including bringing the author Dr. Swell to San Luis Obispo. There is no reason the DCISC could not continue to perform the same service for the DCDEP, should it be continued.

Page 51
- Recommend to PG&E that the potential for both ship and truck transport of dismantled facilities from the site be investigated and the data communicated to the DCDEP and CPUC

AANR COMMENT: It was AANR's understanding, based on a conversation with a PG&E document as a DCDEP public use conducted in August that PG&E was not supporting charging for a variety of technical and maritime reasons. PG&E should clarify this issue to the DCDEP at this time or AANR will file as a data request in the upcoming NDCCT.

Page 61
- The sale of assets acquired through ratepayer assessments could be used to offset decommissioning costs

AANR COMMENT: What assets are being considered? Is this a reference to a "used equipment yard sale" such as was held at SONGS? Or is it a reference to actual buildings and pieces of physical infrastructure? Or, could this involve the disposition of the northern lands, which are under CRJC jurisdiction, and include the range and grazing lands between the plant and the border of Montana de Oro State Park?

Page 71
- Recommend that the CPUC ascertain if PG&E has adequately researched and considered costs and community impacts of both land and sea transport of facility components from the site.

Page 73
The Alliance does not believe that the DCDEP, chartered as it is, is the appropriate body to oversee the entire Diablo decommissioning process. In general, it is premature to convene a decommissioning panel when the masts have still more than half a decade to operate. In previous comments, AANR has noted that the SONGS Decommissioning Engagement Panel features a different structure, leadership, membership and more technical orientation to the specific tasks of decommissioning. The SONGS panel was convened the year following the reactor's unexpected shutdown. And yet, even in that short time their panel has worked diligently and kept abreast with the pace of SONGS decommissioning issues. Their hard formation seems to have had an effect on their performance.

More appropriately, and given the preponderance of time spent discussing issues regarding land disposition, it appears as if the DCDEP was chartered and tasked to achieve a single requirement of the CPUC Decision 1801-022, item 13 of the ordering statement:

13. Pacific Gas and Electric Company will take no action with respect to any of the lands and facilities, whether owned by the utility or a subsidiary, before completion of a future process including a public stakeholder process, which will be local input and further Commission review prior to the disposition of Diablo Canyon facilities and surrounding lands.

Furthermore, from page 10 of the DCDEP Draft Vision Statement:

Recommendaions
Diablo Canyon Decommissioning Engagement Panel
- Recommend that a letter to CPUC be prepared seeking the lifting of the CPUC order prohibiting PG&E from taking action regarding the Diablo Canyon lands, for the specific purpose of enabling conservation discussions for Wild Cherry Canyon and other Diablo Canyon lands with conservation entities to proceed before decommissioning

AANR concur, it is appropriate to consider the work to date of the DCDEP an appropriate execution of Order 13 from the CPUC Decision. The DCDEP's Vision Statement outlines a number of recommendations and proposals for dealing with the disposition of the Diablo lands, if conservation groups are prepared to move forward with easements and other tools, they should do so with (the CPUC's support and approval).

However, further decommissioning issues such as spent fuel storage and transport—both locally and on the national level—are not yet ripe for discussion. In the years of operation that remain for Diablo Canyon significant developments in the national plan for waste storage may come to fruition; perhaps interim storage at one or more out-of-state location. Such developments might change the time frame, and thus the schedules and budgets for the fate of the radioactive waste at Diablo Canyon.

Further, issues such as expediting spent fuel transfer from wet to dry storage—as both the California Energy Commission and the CPUC have urged—need to be addressed. As mentioned in our earlier comments, geologic coastal studies have yet to be completed, which may affect the
I'm contacting you today with a request to try to schedule a meeting with you and Attorney General Becerra or his representative and DCSC Chair Dr. Robert J. Rudnitz. The Attorney General's appointee to the DCSC. Dr. Rudnitz previously met twice with Governor Brown when the Governor served as Attorney General and last met with representatives of the Attorney General's office, Mr. Mark Bracker and Ms. Susan Butch, on March 16, 2012 in Sacramento. Dr. Rudnitz would very much welcome an opportunity to meet again with the Attorney General or his representatives.

If this request can be accommodated and if you could identify some possible dates, I've copied Dr. Rudnitz on this email and he can coordinate his calendar to determine a mutually convenient date and time. Dr. Rudnitz indicated he could accommodate a meeting in Los Angeles if that is preferred.

Topics for discussion at the meeting may include the DCSC's current activities, its 2018 Annual Report for last fiscal year, the CPUC Decision to close DCPD by 2024-2025 and the utility's and potential for a post-shutdown role for the DCSC once the plant stops generating electricity, assessment of the seismic hazard at the plant site, recent regulatory performance issues, the DCSC's recent public outreach efforts and recent topics reviewed in fact findings or during the public meetings of the DCSC, and, of course, any topics concerning DCPD or nuclear power issues in general which you or Attorney General Becerra and his representatives might wish to suggest to and discuss with Dr. Rudnitz. Our office would prepare a briefing book in advance of the meeting and, of course, I am available to coordinate arrangements with you.

I would also like to extend to you an invitation to attend the DCSC's next public meeting which is scheduled to be held on Wednesday and Thursday, February 27-28, 2018 at the Avila Lighthouse Suites in Avila Beach, California. If you are able to attend, we can touch base on arrangements prior to the meeting.

As always, thank you for your courtesy and attention to this request and I hope to hear from you soon.

Best regards,

Bob Rathie
Assist, Legal Counsel
DCSC
1-800-439-4688
info@dcsc.org

WELLINGTON LAW OFFICES • 821 CAMPBELL STREET • SUITE 1010 • MONTEREY • CA • 93940 • 831-373-8710 • FAX 831-373-7106

CONFIDENTIALITY NOTICE: THIS COMMUNICATION AND ANY ACCOMPANYING DOCUMENTS MAY BE CONFIDENTIAL AND NOT TO BE DISCLOSED WITHOUT PRIOR CONSENT.
Dear Mr. Watkins:

At its October 24, 2018 meeting in Avila Beach, the Diablo Canyon Independent Safety Committee voted to approve and adopt its Twenty-Eighth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations for the period of July 1, 2017 through June 30, 2018. The two volumes which make up the Annual Report are enclosed. The DCISC made no recommendations during this report period. An electronic copy of the complete report is also being sent to Mr. Garcia, the Committee’s principal liaison with Diablo Canyon. Pursuant to the Restricted Charter for the Committee approved by the California Public Utilities Commission in Decision R.7-05-028, the report is being submitted to PG&E for its review and a written response within forty-five days.

Upon receipt of the PG&E response, the response shall become a part of the DCISC report and we then submit the complete report to the State Public Utilities Commission, the Governor, the Attorney General and the California Energy Commission, as provided by the Restricted Charter.

If you have any questions or comments concerning the above, please feel free to contact me.

Sincerely yours,

Robert R. Willington
DCISC Legal Counsel

Office of Legal Counsel, 1855 N. Laskin Rd., Suite 110
Avila Beach, CA 93424

To: Sherry Lewis
Cc: info@DCISC.org
Subject: Copy of PowerPoint used by Dr. Victor at DCISC PM on 10/25

Dr. Victor DCISC Presentation October 25, 2018.pdf

Sherry — per your request to Deb Mall, attached are the PowerPoint slides used this morning by Dr. David Victor during his presentation.

Sorry to have missed seeing you at this public meeting, hopefully I will see you at the meeting in February ’19.

Hope all is well with you,

Best regards,

Bo Rathie
Public Concerns

- Safety
- Removal of the spent fuel
- Integrity of Canisters (Corrosion, seismic, sea level rise, possible terrorist attack)
- Radiation Monitoring
- Environmental (e.g., Disposition of the Offshore Conduits)
- Preparedness for first responders
- Jobs
- Cost

Public CEP Meetings

- Update From Edison With Timeline
- Expert Presentation
- Questions and Dialogue with CEP Members
- Public Comment and Question Period
- Questions Directed to Expert or SCE
- Currently trying to revamp public comment

Preparing for ISFSI-only status: Defense In Depth

- Regular monitoring (and what is learned from monitoring)
- Inspection of canisters
- Test canister
- Dealing with potential worst case scenarios

Planned Future State
A Surprise For Many!
Community Struggles With: Who To Trust?

- Utility – SCE?
- Government – NRC?
- NGO's – Union of Concerned Scientists?
- Outside Experts?
- Trust but verify!

Trust Moves At the Speed of Collaboration

- You believe in the party's competency
- You believe their decisions have your best interests at heart
- They listen and hear: Intense, widespread, and continuing dialogue with citizens, affected parties and decision makers - This does not necessarily mean agreement
- Tackle challenges head on
- Process is important
- Commitment to transparency

Expect the Unexpected

- At the August 9th CEP Meeting, a safety worker described an loading incident that took.
- A spent fuel canister got caught on an inner guide ring during lowering.
- The incident has led to a NRC investigation.
- Transfer of spent fuel was halted.

Current Status At SONGS

- Transfer of spent fuel has been temporarily halted.
- NRC investigation underway. Awaiting NRC’s findings and recommendations.
- NRC will hold a public meeting to disclose their findings.
- It is anticipated that upon implementation of NRC’s and SCE’s recommendations, transfer of spent fuel will resume.
Alex - thank you for your email with the attachment, which is requested I have provided to the DCSC Members, Technical Consultants and Counsel for their consideration.

Best regards, 

Bob Rathsie

From: Alex Karlin | akarlin29@gmail.com
Sent: Wednesday, October 24, 2018 8:06 AM

To: info@DCISC.org; Peter Lern | petertlern@red.com

Subject: Diablo Canyon Decommissioning

Mr. Rathsie

I am a member of the Diablo Canyon Decommissioning Engagement Panel created by PG&E in May of 2018. While the DCDEP is composed of good people who have worked hard to assist PG&E to prepare its upcoming Demolition Decommissioning Cost Estimate to the CPUC, I am concerned that the DCDEP does not have the legal status or horsepower to maintain advisory oversight of the decommission process for the long haul.

Not in the DCSC the right entity because its members are outside experts who do not and cannot represent the State and local community concerns.

I agree with almost all of the points raised in AANR’s 10/24/18 letter to the DCDEP (which I believe that Bobbike Breake sent to you).

Attached is a chart that I would like you to review, if possible.

Also, could you please reemail the chart to the DCSC members so that they might review it (and make use of the embedded links)?

Perhaps we can talk sometime. I will be attending the DCSC meeting today and tomorrow, and hope to see you then.

Respectfully

Alex Karlin
805-305-1405
Steve—thank you for the kind words and for your courtesy and cooperation in arranging Dr. Victor’s attendance at the DCISC’s October 25 public meeting. I regret I cannot be present to meet him but assure you I will be following his remarks on streaming video.

Just wanted to check on the slides for his presentation. If they are in PowerPoint format (P) I can provide them to our liaison at the plant for inclusion in the slide deck for the meeting as late as tomorrow afternoon. If not, if Dr. Victor brings them on a thumb drive, that should be sufficient. I’ve copied the Support Manager to the DCPP CNO, Mr. Hector Garcia, on this email for his information. Mr. Garcia makes the arrangements for the public presentations to the Committee by PG&E and also assists us with the presentations by the Committee’s Technical Consultants or others.

Again, my thanks,

Bob Rathie
DCISC Asst, Legal Counsel
1-800-459-6488
info@dcisc.org

From: info@dcisc.org
Sent: Monday, October 25, 2010 8:28 AM
To: “Steve Carlson” <dcisc.dcnr.ucsc.edu>; Steve Carlson <dcisc.dcnr.ucsc.edu>
Cc: Robert Busnitz <robertbusnitz@gmail.com>; Peter Lam <peterlam@gmail.com>; “PER PETERSON” <peter.lastname@pgandeg.com>; “Per Peterson” <peter.lastname@pgandeg.com>; “Per Peterson (F)”; “Mckinley Rick” <rick.mckinley@gmail.com>;
Subject: RE: Invitation from the Diablo Canyon Independent Safety Committee

Dear Bob,

Everything looks good. If you could please send the supporting materials to the address in my signature it would be appreciated. As far as slides, David will bring these with him, if they are ready earlier I will of course forward them your way.

Thanks much for your guidance and support in helping to facilitate David’s visit. It has been a pleasure for us to work with you. (If you need anything from our office the future, please do reach out.

All the best,

Steve Carlson
Laboratory on International Law and Regulation
School of Global Policy and Strategy
University of California, San Diego
9500 Gilman Drive 0513
La Jolla, CA 92037-0513
Tel: 858-534-2668

From: "info@dcisc.org" <info@dcisc.org>
Date: Monday, October 25, 2010 12:07 PM
To: "David G. Victor" <david.victor@ucc.edu>, Steve Carlson <dcisc.dcnr.ucsc.edu>
Cc: Robert Busnitz <robertbusnitz@gmail.com>; Peter Lam <peterlam@gmail.com>; "PER PETERSON" <peter.lastname@pgandeg.com>; "Per Peterson" <peter.lastname@pgandeg.com>; "Per Peterson (F)"; "Mckinley Rick" <rick.mckinley@gmail.com>;
Subject: RE: Invitation from the Diablo Canyon Independent Safety Committee

I want to let you know that we prepare an agenda packet for each public meeting and this is sent by Federal Express to the Members, the Consultants, government agencies and representative, etc. The packet for the October 24-25 public meeting is scheduled to go out from our office next Friday, October 15 for delivery. If you would like me to send a “hard copy” by Federal Express for delivery on Saturday October 20 or Monday, October 22, please provide me with the Fed Ex delivery address and a phone number and your preference for delivery date. The agenda packet will also be published in its entirety on the Committee’s website at www.dcbisc.org on Friday, October 15 and may be reviewed there.

I also want to follow up with you concerning any PowerPoint slides for your presentation to the DCISC on the meeting of October 25. For your ready reference I have attached a copy of the final “working agenda” for the meeting which gives estimated times for presentations. If you have no objection, I propose to also include the attached biographical information with the public agenda packet for the meeting or, if you wish, alternate biographical information you may provide to me by email. Of course, please let me know if you would prefer not to have that information included in the agenda packet.

For your information, the Committee will be issuing an invitation to the Members of the Diablo Canyon Decommissioning Engagement Panel to attend the DCISC meeting on October 25 and the DCISC Members, Technical Consultants and Council are planning an attending the meeting of the Decommissioning Engagement Panel on the evening of October 24.

I regret that I cannot be present in person to meet you and to hear your presentation on October 25. My wife recently had heart surgery and if it will be too early in her recovery for me to make the trip to Avila Beach, which I very much regret. However, I will be following the meeting and your remarks to the Committee through the streaming video service provided for every public meeting. Two attorneys from our office, Deborah kost and Robert Wellington will be present on October 24. Mr. Wellington has served as Legal Counsel to the DCISC since its inception in 1989.
Thank you again for your courtesy and willingness to fit the DCSC meeting into what I know must be a busy schedule with many demands on your time. Of course, please do not hesitate to contact me if you have any questions or require anything further.

Best regards,
Bob Rathie
DCSC Asst. Legal Counsel
info@dcsc.org

From: info@dcsc.org [mailto:info@dcsc.org]
Sent: Monday, August 27, 2018 8:54 AM
To: TWebster/Rick via dcsc.org, Steve Carlson via dcsc.org, Peter Lam via dcsc.org
Cc: Robert Budnitz via dcsc.org, Peter Lam via dcsc.org, Peter Lam via dcsc.org
Subject: RE: Invitation from the Diablo Canyon Independent Safety Committee

Dear Steve,

The schedule for attending the DCSC's next meeting on the morning of Thursday, October 25, looks good and I am reviewing the members and Technical Consultants very much appreciate and look forward to hearing from you on the SONGS experience and any insights on the community engagement process and documentation for general.

Powerpoint slides one week in advance will also help and we can certainly plan for at least 45 minutes past 4 PM to finish promptly on Thursday morning.

The DCSC only recently became aware of the Diablo Canyon Engagement Panel's plan to meet on Wednesday evening and the members are now trying to coordinate their meeting schedule so it can be to attend the Engagement Panel's meeting on emergency proceedings that night. Unfortunately, your flight will arrive too late for your unavailable to join them. However, this should add much to the dialogue on Thursday morning and allow us to extend personal invitations to the members of the Diablo Canyon Engagement Panel and to the PBEA facilitators to attend the DCSC meeting the next morning, to meet you and hear your thoughts on the process. We anticipate there will be significant interest in the local community on your presentation.

As mentioned, we have a reservation at the hotel for you for Wednesday evening, and I will coordinate with you and Steve at the time approaches as to pick up and drop off at the airport.

Thanks again, and I look forward to meeting you,

Best regards,
Bob Rathie

G.2 - 265
As long as it works for the meeting, our plan would be below:

Arrive 11:45am on 24 October, stay near SBP
Attend morning sessions
Depart SBP at 1:10pm on the 25th

Do you have any concerns on this? If not, I will plan on implementing.

All best,

Steve Carlson
Laboratory on International Law and Regulation
School of Global Policy and Strategy
University of California, San Diego
5950 Gilman Drive #535
La Jolla, CA 92038-0519
Tel: 858-822-7678

From: info@DCISC.org <info@dcisc.org>
Organisation: DCISC

Date: Monday, March 26, 2018 at 10:41 AM
To: Steve Carlson <sfc@ucsd.edu>
Cc: info@dcisc.org <info@dcisc.org>
Subject: RE: Invitation from the Diablo Canyon Independent Safety Committee

Steve—just following up regarding the October 25 schedules for Dr. Victor and the DCISC.

If his schedule permits, the invitation from the DCISC is certainly extended to him to attend the October public meeting if this schedule permits.

Please let me know whether this works on your end,

Thanks,

Bob

From: info@DCISC.org <info@dcisc.org>
Sent: Monday, March 19, 2018 12:03 PM
To: "Steve Carlson" <sfc@ucsd.edu>
Cc: info@dcisc.org <info@dcisc.org>
Subject: RE: Invitation from the Diablo Canyon Independent Safety Committee

Steve—As October 25 is the second day of a two-day DCISC public meeting, the latest time feasible for David to arrive would likely be by Noon.

The Committee generally schedules a session from 8:30/9:00 AM — Noon and reconvene from 1 PM to adjournment at 3 PM on the second day of its public meetings in order that Members and Consultants can make travel commitments.

G.2 – 269

Cc: Steve Carlson <sfc@ucsd.edu> <info@DCISC.org> <info@dcisc.org>
Subject: RE: Invitation from the Diablo Canyon Independent Safety Committee

Dr. Victor—

I know the DCISC Members and Technical Consultants (we have two very experienced consultants with nuclear power backgrounds assisting the Committee) will be disappointed, as am I, that your schedule will not allow you to accept the invitation to attend the Committee’s next public meeting this coming June.

Following the June meeting, the next public meeting of the Committee is scheduled to be held on October 24-25, 2018, and we would welcome your attendance at the October 2018 meeting if that works for your schedule. The DCISC also has future meetings scheduled in 2019 for February 13-14 and June 19-20.

I’d like to take this opportunity to provide you with information and a bit more background on the issues the Committee is considering, that is with a copy of the PowerPoint slides I prepared with the assistance of our Technical Consultants on the "press and cont" of the Committee having a post-shutdown role to review decommissioning. I need to point out that the "Preliminary Conclusion and Recommendation" (PowerPoint Slide 1) was not formally adopted by the Committee and no direction was given at the February public meeting as to revising the CPUC or the three entities (the Governor, the AG and the CEC) appointing its members about a post-shutdown role for the Committee.

However, the recognition that additional time will necessarily better inform any eventual recommendation by the Committee was expressed and affirmed by the Membership on several occasions and it was recognized that any post-shutdown role for the DCISC would necessarily involve a reduced scope. The Open Items List will now be reviewed in the effort to identify items that might be expected to remain and/or evolve in context of post-shutdown decommissioning. The Technical Consultants will be working on a matrix of decommissioning activities (identified on the revised/reduced post-shutdown Open Items List) and set these activities against a timeline which will be reviewed at the June public meeting.

To give you an idea of the scope of the current activities of the Committee as they relate to the DCISP operations, I’ve attached a copy of the Open Items List prepared for the February public meeting.

The entire discussion on this topic from the February public meeting is available on streaming video (accessed through our website — www.dcisc.org — "Meeting Videos") under the video for February 8, Agenda item XX.


Thank you for your prompt response to the Committee’s invitation and I hope we can meet in person one of these days in Avila Beach, please accept my apologies for having taken this time to respond and acknowledge your email. I was out of the office for most of yesterday afternoon.

With best regards,

Bob Ralfe

From: David G. Victor <david.victor@ucsd.edu>
Sent: Friday, March 16, 2018 1:55 PM
Tel: info@DCISC.org
CC: Steve Carlson <sfc@ucsd.edu>
Subject: RE: Invitation from the Diablo Canyon Independent Safety Committee

Bob,

What is the latest time that is feasible for David to arrive at your location on the 25th? I am trying to map out a plan where at all possible.

All best

Steve Carlson
Laboratory on International Law and Regulation
School of Global Policy and Strategy
University of California, San Diego
5950 Gilman Drive #535
La Jolla, CA 92038-0519
Tel: 858-822-7678

From: "David G. Victor" <david.victor@ucsd.edu>
Date: Tuesday, March 13, 2018 at 5:25 AM
To: info@DCISC.org <info@dcisc.org>
Cc: Steve Carlson <sfc@ucsd.edu> <info@DCISC.org> <info@dcisc.org>
Subject: RE: Invitation from the Diablo Canyon Independent Safety Committee

Bob,

Thanks much for your note. In October I have an advisory board meeting in Boston these same days. By copy I talk to Steve in my office to see if I could fly back from Boston the morning of the 25th (Flying San Diego, I assume, and then I would fly myself into San Luis Obispo) for something early afternoon on the 25th. But that may not align with when you would need me at your meeting.

Another option, which may be usable in June, is to ask Dan Stoner or Jerry Genn from the CEP to join you. They are part of the CEP's staff, so with me. All best, David

From: "info@DCISC.org" <info@dcisc.org>
Organisation: DCISC
Date: Saturday, March 10, 2018 at 12:24 PM
To: "David G. Victor" <david.victor@ucsd.edu>

G.2 – 270

Dear Bob,

Many thanks to you and your colleagues for the invitation, I’m very keen to join you and talk about what we’ve learned, and to help with your process where I can be useful. One wrinkle is that I must be in Atlanta and 14 June I must be at Stanford University. So I don’t see how I can get to join you at this meeting. Are there other dates for future meetings that we might investigate?

All best,

David Victor

Sent from limited typing device

On Mar 6, 2018, at 7:21 PM, info@DCISC.org <info@dcisc.org> wrote:

Dear Dr. Victor,

On behalf of the Members of the Diablo Canyon Independent Safety Committee (DCISC) and Dr. Peter Lam, Robert J. Budris and Peter Peterson, I am contacting you for the purpose of extending an invitation, in your capacity as Chairman of the SONGS Community Engagement Panel, to attend the next public meeting of the DCISC to be held in Avila Beach, California, on Wednesday and Thursday, June 13-14, 2018.

The DCISC was established by the California Public Utilities Commission (CPUC) as part of a Settlement Agreement entered into in June 1998 between the Office of Ratepayer Advocates, the California Attorney General and PG&E. Its three members are appointed by the Governor, the California Attorney General and the Chairperson of the California Energy Commission, respectively. The Committee’s charge is to review Diablo Canyon Power Plant (DCPP) operations for the purpose of assessing the safety of operations and suggesting any recommendations for safe operations in its annual reports. More information on the DCISC is available on its website at www.dcisc.org.

As you are likely aware, in January the CPUC approved the retirement of PG&E’s Diablo Canyon Nuclear Power Plant (DCPP) and ordered PG&E to cease electric generation operations and to retire Unit 1 no later than by 2024 and Unit 2 no later than 2025. In connection with decommissioning DCPP, PG&E is now accepting applications to serve on the DCPP Decommissioning Engagement Panel which will review information and provide input on behalf of the San Luis Obispo local community on DCPP decommissioning plans and activities.

At their October 2017 and February 2018 public meetings the Members discussed with interested members of the public whether the DCISC might continue to review activities related to post-shutdown decommissioning, including but not limited to the cooling, transport and storage of highly radioactive spent fuel. During those discussions Ms. Michelle Bickler and Mr. David Weisman suggested that you might be able and willing to share important insights concerning the experience of the SONGS Community Engagement Panel and Mr. Weisman shared with the DCISC for their July 15, 2014, event with your testimony to the NRC entitled "Decommissioning at San Onofre and the Community Engagement Experience."

This invitation is cordially extended to you to attend the June 2018 meeting and to share any concerns, recommendations or suggestions regarding the formation, function or operation of the DCPP Decommissioning Engagement Panel in context of experience of the SONGS Community Engagement Panel, any insights or thoughts you may have concerning the matter and review of the DCISC having a continuing role during the decommissioning period, or any other issues related to the experience of the SONGS Panel.

In connection with its invitation, the DCISC will agree to reimburse you for all expenses incurred to attend the June 2018 meeting. The DCISC generally covers a round of the power place in

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connection with each public meeting and expect to do so on the morning of June 12, 2018, starting at 8:00 AM. You would be most welcome on the tour and if you would like to participate I would suggest you plan your arrival in Avila Beach for Tuesday, June 12th. It was suggested that an optimal time for you to make a presentation to the DCISC, which would be included in the public agenda for the meeting, might be during the Committee’s evening session, which usually convenes at 5:30 or 6:00 PM. I have attached a copy of the agenda from the last public meeting in February 2018 so you may get a sense of how the DCISC structures its public meetings.

I hope this email is getting too lengthy and want to close by letting you know that in the event your schedule will allow you to attend the June 13-14 public meeting of the DCISC I will be available and will be in contact with you to assist with any and all arrangements.

I thank you for your consideration of this invitation and please let me know at your earliest convenience whether your schedule will allow you to accept.

Cordially yours,
Bob Ratliff
DCISC Asst. Legal Counsel
(1-800-539-6688)
info@dcisc.org

<DCISC Public Meeting Agenda - February 7-8 2018.pdf>
DCISC

DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

VICE CHAIR: SANDY HUTCHINSON
BEVERLY PETERSON
PRESIDENT

April 4, 2018

Dear Justin Cohen,

I am the Chair of the Diablo Canyon Independent Safety Committee and the State Liaison Officer to the United States Nuclear Regulatory Commission (NRC). As a point of information, the NRC has released a draft of its safety analysis for Diablo Canyon. I am concerned that the NRC has not considered this document in its decision-making process.

I am writing to express my concerns about the NRC's decision to approve the Diablo Canyon Unit 2 and Unit 3 license extension. I believe that the NRC should not have approved the license extension without first considering the safety analysis presented by Dr. Peter Lenn.

The safety analysis presented by Dr. Peter Lenn provides important information that the NRC should consider. I urge the NRC to review the safety analysis and take into account the concerns presented by Dr. Peter Lenn before making a decision on the license extension.

Sincerely,

ROBERT B. WIESENMULLER
Chair and State Liaison Officer to NRC
The Diablo Canyon Independent Safety Committee (DCISC) hereby submits its comments concerning Senate Bill No. 1028, introduced by Sen. Bill Monning on February 13, 2018, which, if approved, would require as part of the California Public Utilities Commission (CPUC) approval of line funding for PG&E projects for the Diablo Canyon Nuclear Power Plant (Diablo Canyon) emergency aid program as originally proposed by PG&E’s September 18, 1995, letter dated August 15, 2018, to enable Diablo Canyon by 2024.

Background about the DCISC

The DCISC was established as one of the terms of a settlement agreement entered into by the Department of Energy Advisory Committee (DEAC) (now known as the Office ofk the Office of Environmental Advocates of the California Public Utilities Commission (CPUC)), the Attorney General (AG) and the State of California, and Pacific Gas and Electric Company ("PG&E") in 2015. The settlement agreement, dated June 24, 1998, was intended to cover the issues and concerns articulated with Diablo Canyon’s two 1,000-megawatt pressurized water reactors, located in the San Luis Obispo County for the 30-year period following the commercial operation date of each unit. The agreement covers all of the proceedings that have occurred before the CPUC for 20 years, and which included numerous testimony and public proceedings. In particular, the agreement covers all of the issues that have been before the CPUC for 20 years, and which included numerous testimony and public proceedings.

The DCISC believes that its well-designed and appropriately funded and staffed aid program is essential to the plant’s safe operation until retirement. While the CPUC does not know what precise funding level is appropriate, the 1.9% proposed funding level is too inadequate, based on our recent interactions with the plant staff.

The DCISC strongly believes that continued operation of the power plants through the proposed retirement dates of Diablo Canyon Units 1 and 2 in 2024 and 2025, respectively, is a safe venture requires adequate staffing and training of the personnel involved in operating the plant safely. For this reason, the employee retirement program as originally negotiated, if adopted, will have significant impacts on future employees and public safety in nuclear power plants and will affect public safety in nuclear power plants and will affect the public safety at Diablo Canyon.

The DCISC believes that a well-designed and appropriately funded employee retirement aid program is essential to the plant’s safe operation until retirement. While the CPUC does not know what precise funding level is appropriate, the 1.9% proposed funding level is too inadequate, based on our recent interactions with the plant staff.

The DCISC strongly believes that continued operation of the power plants through the proposed retirement dates of Diablo Canyon Units 1 and 2 in 2024 and 2025, respectively, is a safe venture requires adequate staffing and training of the personnel involved in operating the plant safely. For this reason, the employee retirement program as originally negotiated, if adopted, will have significant impacts on future employees and public safety in nuclear power plants and will affect public safety in nuclear power plants and will affect the public safety at Diablo Canyon.

The DCISC believes that the procedures described in the letter on aspects of Senate Bill No. 1028 that deal with issues beyond those related to the safe operation of the nuclear power plants, even if these other aspects are outside the DCISC's charter. Although the DCISC has jurisdiction over these other aspects, it is not yet decided due to the pending suit for the DCISC's charter. Although the DCISC has jurisdiction over these other aspects, it is not yet decided due to the pending suit for the DCISC's charter. Although the DCISC has jurisdiction over these other aspects, it is not yet decided due to the pending suit for the DCISC's charter. Although the DCISC has jurisdiction over these other aspects, it is not yet decided due to the pending suit for the DCISC's charter.

The DCISC is available to answer questions and provide additional information as needed. We anticipate the opportunity to provide input into the legislative process on this important topic concerning the future of California's power supply in the rapidly changing energy landscape.
David Baldwin
David is a lifelong resident of San Luis Obispo County. Joining the Plasters and Cement Masons union local # 775 in 1983, he was a Cement Mason until 1995 when he became a Cement Masons local 600 representative, a position he held for 20 years. As a labor leader, he served in various roles, including Pension Trustee and Chairman of the Board for Taft Hartley Trust Funds and President of the Southern California District Council of Plasterers, Cementmasons & Drywallers. David was an elected delegate and labor representative at the San Luis Obispo County Democratic Party where he was recognized as Labor Leader of the Year in 2013. In 2014, David was appointed by Gov. Brown to the 16th District Agricultural Association California Mid-State Fair Board of Directors, where he currently serves as Chairman of the Finance and Operations Committee. David now works in Public Works Labor Compliance for the Southern California Pipe Trades District Council 16 and is a member of Plumbers and Steamfitters local 403.

Dena Bellman
Dena comes to the panel with extensive planning and civic involvement experience. She has lived in San Luis Obispo County most of her life and works as a Park Planner with the Ocean Dunes District of California State Parks. Dena brings to the panel a strong knowledge of government and community to this effort. She is active in many community-building efforts, currently serving as Vice Chair of United Way of SLO County, Board Treasurer for Sisters Homeless Coalition, Director for Arroyo Grande Grover Beach Chamber of Commerce Board and volunteers with ICAIRE international, having completed several humanitarian missions to Central and South America.

Lauren Brown
Lauren served in the American Peace Corps in India, and obtained a Ph.D. in Organic Chemistry from the University of California, Riverside, when he returned. He co-founded JBL Scientific, a specialty biochemical company and moved to San Luis Obispo in 1973. In 1999 JBL Scientific was acquired by biotech company Promega, and Lauren served as President of renamed Promega Biosciences until 2006, and subsequently served as President of another Promega subsidiary until 2008. In the community, Lauren has served on the YMCA Board, Chamber of Commerce Board, Chamber Economic Vision Task Force in 1992, the City of San Luis Obispo Economic Stability Task Force in 1993, as well as the Targeted Industries Task Force in 1997. Brown was honored by the San Luis Obispo Chamber of Commerce as the 2014 Citizen of the Year.

Trevor Keith
Trevor is a 21-year resident of the Central Coast and brings to the panel interests in public health and safety, the effects of large land use and economic impacts of the project. Currently, Trevor works in the administrative office as a Division Manager at the County of San Luis Obispo. Prior to that, he worked in the County's Planning and Building department as an environmental consultant. Trevor's project experience has included large residential and commercial development, renewable energy generation, and Habitat Conservation Plans. He has coordinated all levels of California Environmental Act and National Environmental Policy Act reviews and long-range planning efforts. He teaches at Cal Poly, San Luis Obispo, and holds a BS in Ecology and System Ecology and a MA in City and Regional Planning.

Scott Lathrop
As a 63-year native resident of San Luis Obispo, Scott comes to the Panel with ancestry roots in and around Diablo Canyon. As a Chumash Native American, Scott's interest in the decommissioning project is twofold: to communicate the value of protecting cultural resources that are important to indigenous people from the region and to represent taxpayer and community interests regarding financial impacts. Scott has worked in county government, the private sector, and public schools, and he currently serves as Assistant Superintendent, Business Services for a public school district. He is a graduate of Cal Poly, San Luis Obispo, and holds BA degrees in Industrial Technology and History. He is California’s public schools certified Chief Business Officer and a former California class B general contractor.

Frank Mecham
Frank is a fifth generation San Luis Obispo County resident and a ninth generation Californian. He was the first 4th election elected Mayor of Paso Robles, serving four terms. Elected First District Supervisor in 2008, Frank served on the board for eight years. He is an S. U.S. Army Veteran, worked as an electrical contractor for 20 years and as a financial advisor for seven. Frank is married to Debi, with a combined family of six kids and nine grandchildren. He has served on numerous boards and has nearly thirty years in public service.

Sheri Danoff
As an 18-year Avila Beach-area resident, Sheri is a land use planner with over 30 years of experience in California Jurisdictions, largely with the public sector. She has a MA in Regional and Urban Planning from San Jose State University. Sheri's interest in decommissioning focuses on visitor and resident safety related to use of Avila Beach Drive, the narrow winding road providing one way in and out of the beach town and harbor. Because Avila has very high fire hazard, plus other hazards, she considers prevention of access congestion of particular importance, both during decommissioning and future uses of Diablo Canyon lands. Sheri has several and varied involvements in the local community.

Jon Frankie
Jon is Vice President, Power Generation, for Pacific Gas and Electric Company (PG&E). In this capacity, Frankie is responsible for the continued safe and reliable operation of the company's 5400 MW natural gas, hydroelectric and renewable power plant fleet. In addition, he leads utility functions related to power plant decommissioning. Jon joined PG&E as Vice President, Generation Technical Services, in January 2017. Prior to PG&E, he amassed more than 30 years of nuclear and energy industry experience while working in positions of increasing responsibility in the U.S., Navy, and at Carolina Power and Light, Progress Energy, Duke Energy, NIPSCO, and Trojan Energy.

Alex Karlin
Alex has been an environmental lawyer for more than 40 years. He served as an Administrative Judge on the US Nuclear Regulatory Commission Atomic Licensing & Safety Board for 11 years, presiding over the Diablo Canyon license renewal and a portion of the Yucca Mountain adjudication. Alex was an Environmental Protection Agency headquarters enforcement attorney and also spent seven years with a nuclear remediation and decommissioning company. A native of the City of San Luis Obispo for two years, he has owned property in Los Gatos since 2003. Alex is active in the local community, teaches environmental classes, and is a hiker, birder, and docent at Montana de Oro.

Nancy O'Malley
Nancy is an internal medicine physician with over 30 years of experience in a wide range of health-care settings working with patients, their families and health care teams from many diverse backgrounds and cultures. She has a special interest in ensuring the health and safety of the decommissioning process. Nancy is a resident of Avila Beach where the environmental, social and economic impacts of decommissioning are of particular importance. She is a graduate of Cal Poly, San Luis Obispo, and has been a part of the Coast for all her life until she was able to permanently relocate to the community in 2015.

Linda Slevy
As a mother, grandmother, and resident of San Luis Obispo County since 1982, Linda is a retired nurse and volunteer women's health nurse practitioner. She is an advanced certified for the Work That Reconnects developed by Joanna Macy, PhD. A resident of Los Osos, she serves as a co-speaker for San Luis Obispo Mothers for Peace, is a member of the Sierra Club Nuclear Free Core Team and a founding member and officer for non-profit Biodiversity First! On the San Luis Board hopes to be a community voice for the transparent and timely decommissioning of the plant, including the safe storage of irradiated waste.

Kara Woodruff
Kara is a 26-year resident of San Luis Obispo and VP/Chief Compliance Officer of Blaisaw & Blaisaw. As former project director for The Nature Conservancy and Board President of American Land Conservancy, Kara has been directly involved in the conservation of over 100,000 acres and brings to the panel an impassioned interest in the conservation of the Diablo Canyon Lands, including Wild Cherry Canyon, Kara earned a BA in Business from Cal Poly, San Luis Obispo, and MA and JD degrees from Duke University. She is a licensed financial principal, active member of the Staite Bar, and proud mother of two daughters.

Chuck Anders, Facilitator
Chuck has over thirty years of experience facilitating complex issues in public and private sectors and founded Strategic Initiatives in 1996 to assist organizations in achieving their goals. He has designed and facilitated the successful outcomes of numerous high-profile public engagement processes throughout California and the Southwest, including landmark strategies that protect public health and ecological resources in San Luis Obispo. He is a 20-year resident of the Central Coast and lives in Arroyo Grande. Chuck is a professional engineer, and as an active member of the community, a past president of the San Luis Obispo County YMCA Board of Directors.
Pacific Gas and Electric

Diablo Canyon Decommissioning Engagement Panel Charter

Adopted May 24, 2018

I. Introduction

The Diablo Canyon Decommissioning Engagement Panel (the panel) adopts this Charter and operating procedures to clearly define the rules of engagement, the responsibilities of panel members, and the basis upon which the panel meets regularly. These guidelines can help to ensure that the panel is working towards common goals and that members' voluntary time is well spent. This charter and operating procedures shall define the scope of work for the panel, membership eligibility and responsibilities, the organizational structure, time management strategies, and the process for adding or removing panel members.

II. Mission Statement

The Diablo Canyon Decommissioning Engagement Panel will review information and provide direct input on behalf of the local community to Pacific Gas and Electric Company on Diablo Canyon Power Plant decommissioning plans and activities.

III. Purpose

A. Pacific Gas and Electric Company (PG&E) has announced that it will not seek license renewal for Diablo Canyon Power Plant (DCPP) and will cease operating DCPP in 2024-2025, under its two operating licenses. In the meantime, PG&E will keep a continued focus on safe and reliable operations of the plant while preparing draft decommissioning plans. PG&E recognizes the importance of open communications with the local community with respect to its decommissioning plans and activities.

B. The panel is convened by PG&E as a volunteer, non-regulatory body to enhance and foster open communications, public involvement, and education on DCPP decommissioning plans and activities. It is intended to serve as a forum for local community members to provide direct input to PG&E on matters related to DCPP decommissioning.

C. To foster and encourage an open dialogue of issues of interest to the community, PG&E will provide regular decommissioning updates to the panel. Panel members will serve the interests
of area communities and act as a sounding board for community feedback to PG&E on decommissioning issues and activities. The panel will provide input into the effectiveness and appropriateness of communications between PG&E and area residents.

D. The panel will focus on understanding and communicating the areas of interest to local communities related to the shutdown and decommissioning of DCCP.

IV. Authority

A. The panel shall function solely in an informational capacity and will provide public input to inform and strengthen PG&E’s plans. PG&E will retain discretion to accept, modify or decline recommendations made by the Panel, as PG&E is responsible for ensuring the health and safety of the public and to the financial and land steward of these assets. Final decisions regarding DCCP decommissioning will be made by PG&E and the appropriate regulatory agencies and will balance PG&E’s responsibility to customers to include only just and reasonable costs in rates.

V. Organization and Membership

A. Membership

1. The panel is comprised of representatives of the community to broadly reflect the diverse stakeholder viewpoints in proximity to DCCP.

2. Members should be highly engaged and well-informed leaders in the community who have the network and credibility to serve as resources to their constituent groups regarding DCCP decommissioning.

3. Elected officials, current PG&E employees and their immediate family members will not be considered eligible for membership on the panel.

4. PG&E will contract a local community member with expertise in facilitation to serve as facilitator for the group.

5. The panel will initially consist of 11 members (selected by a Formation Committee comprised of representatives from the local community and PG&E) and a senior representative of PG&E’s decommissioning team.

6. The inaugural panel will serve a term no shorter than one year. The inaugural panel shall have staggered terms as assigned by the membership through a facilitated process. Thereafter, member terms shall be three years (following the initial staggering). Membership on the panel shall be renewable at the discretion of PG&E.

As adopted May 24, 2018

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VI. Meetings

A. Regularly scheduled meetings of the panel will be held at least once a quarter and will be open to the public. Additional meetings may be held to further discussions between PG&E and the panel.

B. To maximize educational opportunities about DCCP for the public, the panel may also request that PG&E periodically convene workshops or have other meetings where detailed information on specific matters may be discussed.

C. PG&E will arrange a regular meeting venue and will provide necessary logistical and material support for the meetings.

D. As volunteers, members shall not be compensated for their time or travel expenses related to regular meetings.

E. Open house meetings and public educational workshops will be publicly noticed at least one week prior to the scheduled meeting. Public notice shall be provided via the publication of a meeting notice on the panel website.

F. Information shared with panel members will be considered public information that is appropriate for dissemination to all external audiences.

G. Public Comment

1. Members of the public are welcome to attend regularly scheduled panel meetings as observers.

2. Regularly scheduled meetings may include a public comment period and inclusion of comments should not exceed allotted meeting time. While workshops and special meetings may be open to the public, they will not necessarily include public comment.

3. Elected officials and representatives of government agencies will be given priority at the beginning of public comment periods at regularly scheduled panel meetings as courtesy for their representation of public constituencies.

H. PG&E and the facilitator shall be responsible for preparing agendas for regular meetings in consultation with the panel. Discussion of items not on the agenda shall be reserved for the public comment period. Routine panel meetings will be limited to three hours, unless the panel agrees to grant an extension for special topics or circumstances.

vii. To ensure quality input from a variety of community leaders, panel members will make an effort to be present at all regular meetings. The goal is for panel members to participate in all meetings.

viii. Panel members commit to sharing information on DCCP decommissioning with their constituent groups and their own networks of contacts, and likewise bring comments and information requests back to PG&E.

ix. Termination of a member will automatically occur if they are found uncommunicative. This will occur during their term. If there are more than three absences, the panel member and PG&E will consult about their future participation.

x. Membership may be resigned in writing to the panel facilitator and PG&E.

xi. A member may be removed from the panel due to chronic absenteeism, abusive behavior or other panelists, or conduct detrimental to the panel process.

xii. Any vacancy will be named by PG&E (in consultation with the facilitator and panel members) to maintain representation of a diverse group of stakeholders.

xiii. The facilitator will perform the following duties: 1. Work with PG&E to convene, create agendas and facilitate all meetings of the panel and schedule additional meetings, educational workshops, as appropriate. 2. Ensure the smooth flow of information between the panel, the public and PG&E. 3. Submit to PG&E all recommendations adopted by the panel.

xiv. Develop a brief summary of the items discussed and actions taken, recent member activity, and gather electronic links to all reports and pertinent reference materials. Provide these items to PG&E and the panelists for retention and posting on the panel website.

As adopted May 24, 2018

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B. Committees

i. Committee or similar working groups may be created by the facilitator in consultation with the panel as needed to carry out the work of the panel.

ii. PG&E will staff these groups or committees in a similar fashion to the panel.

As adopted May 24, 2018

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I. PG&E and the facilitator will endeavor in good faith to provide the meeting agenda, the previous meeting’s summary, and any pertinent information requiring review to members at least five days before a scheduled meeting.

J. PG&E management will attend every meeting, special presentations will be made by technical or subject matter experts to help the panel members better understand pertinent issues.

K. Administrative support

i. Administrative and logistical—PG&E and the facilitator will handle meeting logistics such as venue and audiovisual requirements. Administrative support for the panel will include but not be limited to typing, photocopying, compiling, mailing and/or emailing documents and managing panel content on the website.

ii. Document Retention—Documents shall be maintained in a manner consistent with PG&E’s record retention policies and will be available to panel members in digital format.

As adopted May 24, 2018

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VII. Panel Terms

A. The initial phase of the panel will conclude with the filing of a site-specific cost estimate called for in the JPES Report that will be submitted as part of the 2018-2019 Nuclear Decommissioning Cost Trial Annex proceeding. The continuation of the panel beyond that initial term shall be determined by PG&E in accordance with regulatory timelines.

VIII. Charter Amendments

A. Panel members may suggest amendments to this Charter at any time for consideration by PG&E. PG&E will endeavor to implement reasonable amendments to the Charter.

As adopted May 24, 2018
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DCISC

DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

COMMITTEE MEMBERS

ROBERT J. BUDELTZ
PETER LAM
PATTY PETTISON

WEBSITE: WWW.DCISC.ORG

VIA FEDERAL EXPRESS

October 19, 2018

California Polytechnic State University
San Luis Obispo
as San Luis Obispo, California 93407

Attention: Mr. Tim Straw, Interim Associate Dean
Re: Diablo Canyon Independent Safety Committee Agenda Packet

Dear Mr. Straw:

Enclosed please find a copy of the Agenda Packet for the upcoming meeting of the Diablo Canyon Independent Safety Committee, which will be held in Avila Beach on October 24-25, 2018. Would you please file this packet in the Reference Department and make it available to the public.

Thank you for your cooperation and assistance in this matter.

Very truly yours,

Robert W. Rathie
DCISC Act. Legal Counsel

RWR

Enclosure

c/0: f/0:

G.2 – 298

From:
info@DCISC.org

Sent: Sunday, October 31, 2018 3:54 PM
To: martin.btnovich@cpc.ca.gov Bob Budultz; PATTY PETTISON; 'Peter Lam'; Yanne WANDEL; 'Yvonne McWhorter'; info@DCISC.org
Cc: DCISC Public Meeting Next Week

Subject: DCISC Public Meeting Agenda

Attachments: October 31-32 2018 DCISC Public Meeting Agenda.pdf

Dear Mr. Kurtovich,

Please find attached the Diablo Canyon Independent Safety Committee’s agenda for the public meeting next week in Avila Beach, CA.

I know you have spoken with DCISC Chair Dr. Robert J. Budultz about issues concerning the CPUC’s role in ensuring transparency and accountability concerning safety and environmental issues in connection with the decommissioning of the power plant including the current and future role of the DCISC. I would therefore like to call your attention to three items in particular on the DCISC’s agenda for October 24 and 25: (1) brief remarks concerning recent decommissioning on Wednesday afternoon, October 24, by Mr. Bruce Watson, Chief of the NRC Reactor Decommissioning Branch (who will also be addressing the Diablo Canyon Decommissioning Engagement Panel later that same evening at the DC DEP meeting in San Luis Obispo); (2) a presentation on the status of Diablo Canyon Power Plant decommissioning-related issues on Thursday morning, October 25, by Mr. Tom Jones of PG&E; and (3) a presentation on issues related to the decommissioning of the San Onofre Nuclear Generating Station also on Thursday morning, October 25, by Dr. David Vself, the Chief of the San Onofre Community Engagement Panel.

If you are unable to attend the DCISC meeting, the meeting will be livestreamed through a link on the Committee’s website at www.dcisc.org and at www.dco.ca.gov. Following the meeting, the video of the sessions will be available for later viewing at your convenience in archived video linked to the meeting agenda.

The DCISC Members and Technical Consultant are planning to attend the meeting of the DC DEP to be held starting at 6:30 PM on Wednesday evening, October 24 at the County Government Center in San Luis Obispo to hear the DC DEP discussion of emergency planning and Mr. Watson’s remarks.

Best regards,

Robert Rathie
DCISC Act. Legal Counsel
1-800-439-4688
info@dcisc.org

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From:
info@DCISC.org

Sent: Wednesday, October 17, 2018 1:51 PM
To: 'eric.green@ag.ca.gov'; 'zemski.david'; info@DCISC.org
Cc: info@DCISC.org

Subject: DCISC Public Meeting - October 24-25, 2018

Attachments: October 24-25 2018 DCISC Public Meeting Agenda.pdf

Dear Eric & David,

I want to thank you both for your efforts to keep the Committee informed as to the activities of the IPRP and other CPUC-related matters. I am writing now to let you know that the next public meeting of the Diablo Canyon Independent Safety Committee (DCISC) will be held on Wednesday and Thursday, October 24-25, 2018, at the Avila Lighthouse Suites Point San Luis Conference Facility in Avila Beach, California.

A draft agenda for the meeting is attached.

Thanks again,

Bob Rathie
DCISC Act. Legal Counsel
(800)439-4688
info@dcisc.org

OFFICE OF LEGAL COUNSEL - ROBERT K. WELLINGTON
150 CAB STREET – SUITE D – MONTROSE, CA 91020
(800)439-4688 / PENNSYLVANIA-CONNECTICUT-NEW JERSEY/ (805)408-1111
Attended is the “working” agenda for the DCSC’s public meeting next week at the Avila Lighthouse Suites – on Wednesday and Thursday.

This version includes the estimated times for the presentations and identifies the DEP personnel who will be presenting the informational items. You will see there is a presentation on Wednesday afternoon by Reactor Decommissioning Branch Chief Bruce Watson and a presentation on Thursday morning by Dr. David Victor, Chair of the San Onofre Community Engagement Panel.

I’ve also attached a list of DCSC fact-finding and public meeting dates and what we identify as Key Dates for plant activities (NGD meetings, releasing status updates and plant activities). My wife recently had surgery here in Salinas and it’s too soon for me to travel to Avila Beach next week so I won’t get the chance to see you at the meeting, however, two attorneys from our office, Deborah Mall and Robert Wellington will be present on October 24-25. Mr. Wellington has served as Legal Counsel to the DCSC since its inception in 1989.

Best regards,
Bob Ratliffe
DCSC Asst. Legal Counsel
(800) 639-8888
info@dcsc.org

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Of course, please let me know if you have any question. We will be sending the usual meeting agenda packet out to you and Kevin as usual on Friday, October 19 for delivery on Monday, October 22.

Bob Ratliffe

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This will acknowledge and thank you for your email yesterday and for the attachments with your remarks to the DCSC, the slides you will be using later on in the evening on October 24 with your presentation to the Diablo Canyon Decommissioning Engagement Panel along with biographical information. I have shared your email and the attachments with our Members and the Committee’s Technical Consultants and intend to share, if you have no objection, the one attachment with your remarks to be addressed to the DCSC with the Committee’s PG&E liaison at the plant. If you have no objections, I propose to also include the biographical information you provided with the public agenda packet for the meeting. Of course, please let me know if you would prefer not to have that information in the public domain.

The Committee will be issuing an invitation to the Members of the Diablo Canyon Decommissioning Engagement Panel to attend the DCSC meeting on October 24-25 and the DCSC Members, Technical Consultants and Counsel are planning on attending the meeting of the Decommissioning Engagement Panel on the evening of October 24. In response to your questions on the DCSC public meeting on the afternoon of October 24, and depending on the response to the Committee’s invitation by the members of the Engagement Panel, I estimate that for this Wednesday afternoon session there would be between 8 and 15 members of the public in attendance, along with up to 6 PG&E representatives and possibly one of the NRC resident inspectors (who sometimes attend when their respective schedules allow)

The DCSC Members, the Technical Consultants, Counsel and the PG&E representatives adopt business suits or sport coats with ties as the attire of the day.

We prepare an agenda packet for each public meeting and this is sent by Federal Express to the Members, the Consultants, governmental agencies and representatives, etc. The packet for the October 24-25 public meeting is scheduled to go out from our office next Friday, October 19 for delivery. If you would like me to send a “hard copy” by Federal Express for delivery on Sunday October 20 or Monday, October 21, please provide me with the Fed Ex delivery address and a phone number and your preference for delivery date. The agenda packet will also be published in its entirety on the Committee’s website at www.dcsc.org on Friday, October 19 and may be reviewed there. For your ready reference I have attached a copy of the final “working agenda” for the meeting which gives estimated times for presentations.

I regret that I cannot be present in person to meet you and to hear your presentation on October 24. My wife very recently had heart surgery and it will be too early in her recovery for me to make the trip to Avila Beach, which I very much regret. However, I will be following the meeting and your remarks to the Committee through the streaming video service provided for every public meeting. Two attorneys from our office,
Deborah Mall and Robert Wellington will be present on October 24. Mr. Wellington has served as Legal Counsel to the DCSCC since its inception in 1999.

Thank you again for your courtesy and willingness to fit the DCSCC meeting into what I know must be a busy schedule with many demands on your time. Of course, please do not hesitate to contact me should you have any questions or require anything further.

Best regards,

Bob Rathie
DCSCC Asst. Legal Counsel
info@dcsc.org

From: Watson, Bruce (mailto:bruce.watson@nrc.gov)  
Sent: Saturday, October 19, 2013 8:42 AM  
To: info@DCSCC.org  
Subject: RE: October 24, 2013 Meeting of the Diablo Canyon Independent Safety Committee

Mr. Rathie,

Enclosed please find my Statement for the DCSCC meeting, the presentation for the DC DEP in the evening and my bio by the Committee as info on introduction.

Any idea how many attendees there will be at the meeting? What is the meeting attire?

I fly in the day before, so I am not foreseeing any travel issues.

Look forward to meeting you and the Committee. Thanks,

From: info@DCSCC.org (mailto:info@dcsc.org)  
Sent: Friday, October 18, 2013 5:35 PM  
To: Watson, Bruce (mailto:bruce.watson@nrc.gov)  
Cc: Newport, Christopher (mailto:Christopher.Newport@nrc.gov); Reyano, John (mailto:Reyno1@nrc.gov); Harbor, Candy (mailto:Candy.Harbor@nrc.gov); Tappert, John (mailto:John.Tappert@nrc.gov); Meyer, Matthew (mailto:Matthew.Meyer@nrc.gov); [mailto:External_Sender]@nrc.gov; [mailto:External_Sender]@nrc.gov

Subject: RE: Invitation to Attend October 24, 2013 Meeting of the Diablo Canyon Independent Safety Committee

Mr. Watson –

If you are planning to use any PowerPoint slides or other media in your presentation, if you could provide a copy to me by say next Wednesday, October 17 (or whenever it might be more convenient), in advance of the meeting on October 24, I will ensure that they are included in the slide deck for the meeting.

If you are interested or would like to get a sense of how the DCSCC conducts its public meetings, I commend to your attention the link on the DCSCC website (www.drcr.org) to an online page entitled "Meeting Videos" which highlights access to videos of the DCSCC's past public meetings.

Please let me know if you require anything in connection with your remarks to the DCSCC and I will do my best to provide. I know the Members and Technical Consultants are looking forward to meeting and hearing from you on October 24th.

I wish you a pleasant weekend,

Best regards,

Bob Rathie
DCSCC Asst. Legal Counsel
info@dcsc.org

Bruce Watson is the Chief of the Reactor Decommissioning Branch in the Division of Decommissioning. Uranium Recovery and Waste Programs in the Office of Nuclear Material Safety and Safeguards at the U.S. Nuclear Regulatory Commission (NRC).

Mr. Watson has been with the NRC since March 2004. He has extensive experience in decommissioning of reactors and materials sites and was the technical lead for the license terminations at Trojan, Maine Yankee, Rancho Seco and Big Rock Point. In May 2010, Bruce was appointed as the Chief, Reactor Decommissioning Branch, and is responsible for power and research reactor, and complex materials, licensing and inspection programs.

Bruce has extensive international decommissioning experience. Bruce has been principal contributor on the development of decommissioning safety standards and US implementation and speaker at IAEA Technical Meetings. He has served as the AAEA decommissioning expert for the Republic of Georgia and Switzerland missions and is NRCs reactor decommissioning expert for the bilateral cooperation agreements with France, Korea and Taiwan.

Prior to joining the NRC, his experience included management of complex defense decommissioning projects at Rocky Flats, Mound and Oak Ridge and international projects in Spain, Italy and the United Kingdom. Bruce has 20 years of reactor operating experience and served as the radiation protection manager at Calvert Cliffs and radiation safety director at DGEis Rocky Flats Environmental Technical Site.

Bruce has a B.S. from Virginia Tech and is certified by the American Board of Health Physics. He has 40 years of experience in health physics, including over 30 years of management experience.
These requirements protect workers and the public during the entire decommissioning process and the public after the license is terminated. Under the Atomic Energy Act of 1954, as amended, the NRC is authorized to regulate the radiological decommissioning. The cleanup of non-radiological hazardous materials is regulated by the Environmental Protection Agency or by a State Agency. Site restoration and reutilization is the responsibility of the property owner and State to determine.

DECOMMISSIONING PROCESS

The decommissioning process for nuclear power plants begins with the formal, written notifications to the NRC by the licensee that nuclear operations have permanently ceased and that the fuel has been removed from the reactor. These notifications are publicly available, so any individual can remain informed as decommissioning proceeds.

Within two years of permanent shutdown, the NRC requires licensees to submit a report called the Post Shutdown Decommissioning Activities Report, or PDSAR for short. No major decommissioning activities described in the PDSAR can begin until 90 days after the agency receives this report and confirms that the licensee has provided the following three elements:

1. A description and schedule for the planned decommissioning;
2. An estimate of the expected costs of decommissioning; and
3. An evaluation of the potential environmental impacts of decommissioning.

The NRC reviews the report and may request that the licensee provide supplemental information to ensure that it meets our requirements. During our review, the NRC holds a public meeting in the vicinity of the shutdown nuclear power plant to receive public comments on the report.

There are two primary approaches that licensees can use to accomplish decommissioning in accordance with NRC regulations: immediate dismantlement, or DECON; and deferred dismantlement, or SAFSTOR. Licensees make decisions on which of these approaches to pursue by taking a variety of factors into consideration, including: ensuring plant safety, potential dose to workers, availability of decommissioning funds, access to low-level waste disposal facilities, potential future uses of the site, and stakeholder input.

DECOMMISSIONING OVERSIGHT

Throughout the decommissioning process, the NRC continues to oversee the safety, security, and compliance of activities conducted by the licensee. The goals of the oversight program at nuclear plants undergoing decommissioning are to:

- determine, through direct observation and verification, if decommissioning activities are being conducted safely, if the spent nuclear fuel is being stored safely, and if activities at the site are being conducted in accordance with all applicable regulations and commitments;
- determine if the administrative controls that the licensee has in place are adequate and comply with regulatory requirements, (the controls include self-assessment, audits and corrective actions, design control, safety review, maintenance and surveillance, radiation protection, and efficient controls); and
- identify any significant declining performance trends and verify that the licensee has taken actions to reverse any trend.

The principal method for oversight is onsite inspections. These inspections are supplemented by observations of site characterization and, before license termination, a radiological survey to confirm that radiation levels have been suitably reduced. At least one NRC resident inspector remains onsite during the initial phases of the decommissioning process until the complexity and risk associated with site operations are reduced. Eventually, resident inspectors are no longer necessary onsite on a daily basis, and the NRC's oversight shifts to special inspectors from the regional office or headquarters. The NRC will continue to adjust the level of oversight to ensure the site remains safe and secure, and in response to the licensee's performance, as warranted, NRC oversight continues until the spent fuel is removed from the site and the license is terminated.

PUBLIC INVOLVEMENT

The public has several opportunities to participate in the decommissioning process. As stated previously, a public meeting is held in the vicinity of the facility after submittal of a PDSAR to the NRC. Another public meeting is held when the NRC receives the license termination plan. An opportunity for a public hearing is provided prior to issuance of a license amendment approving the plan or any other license amendment request. In addition, when the NRC holds a meeting with the licensee, members of the public may observe the meeting (except when the discussion involves proprietary, sensitive, safeguards, or classified information).

DECOMMISSIONING FUNDS

Before a nuclear power plant begins operations, the licensee must establish or obtain a financial mechanism - such as a trust fund or a guarantee from its parent company - to ensure there will be sufficient money to pay for the ultimate decommissioning of the facility.

Each nuclear power plant licensee must report to the NRC every two years the status of its decommissioning funding for each reactor or share of a reactor that it owns. The report must estimate the minimum amount needed for decommissioning by using the formulas found in NRC regulations. Although there are many factors that affect reactor decommissioning costs, generally they range from $280 million to $612 million. The NRC staff performs an independent analysis of each of these reports to determine whether licensees are providing reasonable "decommissioning funding assurance" for radiological decommissioning of the reactor at the permanent termination of operation.

The latest decommissioning funding status report to the NRC for Diablo Canyon Generating Stations 1 and 2 was submitted by Pacific Gas and Electric in March 2017 and is

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publicly available on the NRC's website (ML171028069). At the end of 2016, the Diablo Canyon Unit 1 decommissioning fund was $1.20 billion and the Diablo Canyon Unit 2 decommissioning fund was $1.57 billion.

CLOSING

In closing, I welcome the Committee's interest in the NRC’s performance of our important regulatory mission as it pertains to the decommissioning of nuclear power plants. For your information, I have included the slides I will be presenting to the Diablo Canyon Decommissioning Engagement Panel this evening. The presentation describes our extensive decommissioning experience, proven regulations and inspection program, and the rulemaking in progress to make the transitioning of power plants from operation to decommissioning more efficient.

Chairman and distinguished Members of the Committee, this concludes my formal discussion. I thank you for the opportunity to appear before you and would be pleased to respond to your questions.

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For more information, please visit David Victor’s personnel site (http://pages.ucsd.edu/~davictor/).

Education
Ph.D., Political Science, Massachusetts Institute of Technology, 1997
A.B., History and Science, Harvard University, 1987

GPS Spotlight
Battery storage at the center of energy policy (http://news-events/news/battery-storage-at-the-center-of-energy-policy.html)


Connecting the Course on Climate Change Negotiations: The Road from Paris COP-21 with David Victor (http://www.ucsd.edu/news-details.aspx?ShowID=30487)

Professor David Victor on climate change (http://news-events/news/professor-david-victor-on-climate-change.html)

UC San Diego 9500 Gilman Dr. La Jolla, CA 92093 (858) 534-2221
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Safe Decommissioning Leads to License Terminations

- Protection of plant & workers
- Protection of the public
- Communications & outreach with external stakeholders

The process of removing a reactor facility safely from the operating mode to a permanent shutdown condition and reducing the residual radioactivity to a level that permits the release of the property for unrestricted use and termination of the license.

Submittal of the Post-Shutdown Decommissioning Activities Report (PSDAR)

Certification of permanent cessation of operations

Certification of permanent removal of fuel from reactor
DECON – Licensee immediately begins removal of equipment, structures, etc., and decontamination to a level that permits unrestricted release.

SAFSTOR – Plant is placed in a safe, stable condition and maintained in this state until it is subsequently decontaminated to levels that permit unrestricted release.

It contains:
- Description of planned decommissioning activities
- High-level schedule of planned decommissioning activities
- Site-specific cost estimate for the decommissioning
- Environmental impacts of decommissioning

Under NRC regulations, the process must be completed within 60 years.

Site Restoration is determined by the owner and State Decommissioning typically takes 7-10 years.

NRC notices receipt of the PSDAR in the Federal Register and requests public comments.
NRC schedules a public meeting to discuss PSDAR & solicit public comments.
NRC considers public comments.
Plant owner may begin decommissioning work 90 days after NRC receives the PSDAR.
Decommissioning inspection program includes both core and discretionary inspections.

Implementation depends on activities being planned or performed.
- Post-Operation Transition Phase
- Actively Decommissioning – Fuel in Spent Fuel Pool
- Actively Decommissioning – No Fuel in Spent Fuel Pool
- SAFSTOR – Fuel in Spent Fuel Pool
- SAFSTOR – No Fuel in Spent Fuel Pool
- Final Surveys Under way

6 units in active decommissioning
15 units in SAFSTOR
12 plants have announced they will be permanently ceasing operations by 2025

New Business Models

Removed from spent fuel pool
Stored on-site in dry cask storage systems
Safety and security programs remain until fuel removed from site

Oversight and monitoring conducted over the entire period of decommissioning process

Oversight program is described in Inspection Manual Chapter (IMC) 2561 & 2690
Emergency Plan Graded Approach

Level 1 — Permanent cessation of operations and all fuel in spent fuel pool

Level 2 — Spent fuel has sufficiently decayed (10 hour adiabatic heat up time)

Level 3 — All fuel is in dry cask storage

Level 4 — All fuel removed from site

Emergency Plan

Post-Shutdown Emergency Plan (PSEP)

PSEP may start after NRC dockets licensee’s certifications of permanent cessation of operations and permanent removal of all fuel from the reactor vessel. PSEP is a transition period.

No changes to regulations for offsite emergency plans.
Permanently Defueled Emergency Plan (PDEP)

Proposed Rule provides for:
Revisions to Emergency Action Levels (EALs)
Emergency response facilities (Technical Support Center, Operations Support Center, Emergency Operations Facility) may be combined
Biennial exercise within 2 years of entering into decommissioning (drill cycle maintained)
No hostile action requirements (security EALs maintained)

10 CFR 50.47(f) — Planning standards do not apply to offsite EP if Emergency Planning Zone does not extend beyond the site boundary.
10 CFR 50.54(s)(3) — Clarifies how NRC will make findings and determinations of reasonable assurance when planning standards do not apply to offsite.
(s)(3)“If the planning standards for radiological emergency preparedness apply to offsite radiological emergency response plans, the NRC will make its finding on a review of the FEMA findings and determinations as to whether State and local emergency plans are adequate and capable of being implemented, and on the NRC assessment as to whether the licensee’s emergency plans are adequate and capable of being implemented.”
10 CFR 50.54(t) — EP program element review at 2 year intervals until all fuel in dry cask storage.

Post-Shutdown Emergency Plan (PSEP)

10 CFR 50.200(a)
Proposed Rule provides for:
Reduced ERO staffing
Revisions to EALs
ETE updates no longer required
Annual dissemination of information to the public
Future plant status
Revised exercise schedule (drill cycle maintained)

10 CFR 50.200(b) and (c)
Proposed Rule provides for:
Reduced Emergency Response Organization staffing
Classification and Notification timeliness commensurate to risk and accident timing
Events classified as Notification of an Unusual Event or Alert
No offsite (Radiological Emergency Plan) planning requirements
No defined Emergency Planning Zones beyond the site boundary
No demonstration of capability for prompt public alerting
No pre-determined Protective Actions
### Decommissioning EP Levels

<table>
<thead>
<tr>
<th>Power Operations</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Shutdown Emergency Plan (PSEP)</td>
<td>Permanently Defueled Emergency Plan (PDEP)</td>
<td>ISFSI Only Emergency Plan (IOEP)</td>
<td>No Spent Fuel Onsite</td>
<td></td>
</tr>
</tbody>
</table>

| Ceasation of Power Operations and Defueled | 10 months (BWR) | 16 months (PWR) | >5 years |

### Independent Spent Fuel Storage Installation (ISFSI) Only Emergency Plan (IOEP)

IOEP may start after all spent fuel is in dry cask storage.

IOEP utilizes established EP planning standards for ISFSIs contained in 10 CFR 72.32(a).

Part 50 and Part 52 licensees are granted a general Part 72 license.

Application for a specific Part 72 license would require NRC approval of emergency plan.

### Decommissioning Rulemaking by 2019

- **Emergency Plan Change Process**
  - Transition to Levels
  - Changes within Levels
  - Changes in Final Safety Analysis Report (FSAR)
  - Changes in Emergency Action Levels (EALs) Classifications and Scheme(s)

10 CFR 50.54(q)(7) — Licensee may elect to follow and maintain a Level standard when conditions are met.

10 CFR 50.54(q)(8) — Clarifies need for Reduction in Effectiveness (RIE)

Transition between levels is not an RIE if changes comply with standards.

Changes to e-plan are not RIEs if supported by Final Safety Analysis Report (FSAR) for Safety Systems and Components (SSCs) out of service.

Changes to EAL not RIE if physically unattainable.


Public meeting to discuss the decommissioning process and the plant's PSDAR

NRC staff typically provide briefings at meetings of state/citizen decommissioning advisory panels

An opportunity for a hearing

Public meeting on License Termination Plan
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PUBLIC MEETING OF THE DIABLO CANYON INDEPENDENT SAFETY COMMITTEE ("DCISC")

When:

Wednesday, October 26th, 2011

11:30 A.M.

Introduction, public comments and communications to the Committee Members, Committee receives reports and a review of the staff's assessment of the Nuclear Performance indicators, presentation by the Chair of the Diablo Canyon Independent Safety Committee, and presentation by the DG. Chairman and the DG.

Thursday, October 27th, 2011

11:00 A.M.

Public comments and communications to the Committee Members, presentation by the Chair of the Diablo Canyon Independent Safety Committee, and presentation by the DG. Chairman and the DG.

WHERE:

Avila Lighthouse Suites
Point San Luis Conference Center
First & San Francisquito Avenues
Avila Beach, California

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DIABLO CANYON POWER PLANT
Independent Safety Committee Tour

Wednesday, October 24, 2018

7:30 A.M. Energy Education Center
6588 Ontario Road, San Luis Obispo CA (805) 546-5280

8:30 A.M. Introduction of Committee Members, DG, Chairman & Legal Counsel, Video Presentation on the History & Role of the DCISC

8:50 A.M. Board bus for DCPF

9:10 A.M. Avila Gate – DCPP History & Receive Security Badges

9:45 A.M. Environmental and Land Stewardship

9:30 A.M. Viewing Independent Spent Fuel Storage Installation

10:00 A.M. Parking Lot 7

10:30 A.M. View the Plant Intake and Outfall Facilities

11:00 A.M. Depart DCPP, Question & Answer Session with DCISC Members & Technical Consultants and PG&E representatives

11:30 A.M. Arrive at the Energy Education Center
DIABLO CANYON POWER PLANT PUBLIC TOUR
WITH MEMBERS OF THE
DIABLO CANYON INDEPENDENT
SAFETY COMMITTEE.

At 9:00 A.M. on the morning of Wednesday, October 24, 2018, the Diablo Canyon Independent Safety Committee will conduct an inspection tour of select accessible areas at the Diablo Canyon Nuclear Power Plant. This tour will take approximately three and a half hours and will be open to a limited number of members of the public. The tour will not enter the protected area of the plant.

Because the plant is an operating nuclear facility, the number of participants must be limited and space will be reserved on a first-come, first-served basis. Reservations, which have usually been in high demand, will be accepted for no more than four immediate Family members per each, each of whom must be at least eighteen years of age. Personal information (including, but not limited to, date(s) of birth, social security number(s), gender and citizenship) is required when making a reservation. You will be required to present an NRC-approved form of identification which must include a photo to take the tour. The Committee makes every effort to make its public tours accessible and to accommodate specialized equipment and other services useful to persons with disabilities. If you plan to attend and need specialized accommodations, please so indicate when making your reservations. Prior security clearance is required of all attendees in compliance with the rules of the U.S. Nuclear Regulatory Commission (NRC) and Pacific Gas & Electric Company. Hand-held metal detector searches or physical pat-downs or both may be performed. No photographs are permitted. A proper attire is required of all participants. Long pants and shoes, closed toe, flat shoes must be worn. Hard hats, safety glasses and hearing protection may be required and if so required they will be provided. No shorts, skirts or other attire which exposes legs or ankles, or wet suits or snowsuits or any wet suit slip on shoes are permitted.

Reservations may only be telephoned the Committee's toll-free number: 1-800-439-6088

Commenting on Tuesday, October 9, 2018
Between the hours of 9:00 A.M. - Noon and 2:00 P.M. - 5:00 P.M.
Please place your call no earlier than 9:00 A.M. & prior to 5:00 P.M.
Please be patient as call volume is expected to be heavy.

Email reservations cannot be accepted nor will requests for reservations left with anyone other than Committee staff answering the telephone at the number provided above.

In the event that security considerations preclude a public tour of Diablo Canyon on October 24th, in the alternative the DCISC may convene an information question and answer session at the PG&E Energy Education Center, 6088 Ontario Road, San Luis Obispo at 8:30 A.M. Information concerning the agenda for DCISC public meetings on October 24-25, 2018 will be available on the Committee's homepage at www.dicsc.org by contacting the office of the Committee's Legal Counsel at the Committee's toll-free telephone number:

October 7 and 8, 2018

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Info@DCISC.org

From: info@DCISC.org
Sent: Monday, October 15, 2018 12:18 PM
To: Watson, Bruce
Cc: info@DCISC.org

Subject: RE: RE: October 24, 2018 Meeting of the Diablo Canyon Independent Safety Committee

Mr. Watson:

The Committee understands and is agreeable to keeping the discussion of the proposed regulatory changes to a high-level and defer in-depth inquiry to its DC ISC presentation later in the evening and I confirm that this is the understanding of our Members and Technical Consultants.

Best regards,

Bob Rathie
DCISC

From: Watson, Bruce [mailto:Bruce.Watson@erci.gov]
Sent: Monday, October 15, 2018 5:58 AM
To: info@DCISC.org

Subject: RE: RE: October 24, 2018 Meeting of the Diablo Canyon Independent Safety Committee

Mr. Rathie,

In my written comments, I did not address any details on the Decommissioning Reauthorization in progress and that I would be discussing this at the DC ISC meeting in the evening. See this is specifically on the agenda. I will be answering high level questions only, was this the intent?

Brief Remarks on Reactor Decommissioning & 2:00 PM
Proposed Changes to Decommissioning Regulations

Bruce Watson
Chief, NRC Reactor Decommissioning Branch

From: info@DCISC.org (mailto:info@DCISC.org)
Sent: Sunday, October 14, 2018 6:35 PM
To: Watson, Bruce (mailto:Bruce.Watson@erci.gov)

Subject: RE: RE: October 24, 2018 Meeting of the Diablo Canyon Independent Safety Committee

Mr. Watnson –

This will acknowledge and thank you for your email yesterday and for the attachments with your remarks to the DCISC, the slides you will be using later on in the evening on October 24 with your presentation to the Diablo Canyon Decommissioning Engagement Panel along with biographical information. I have shared your email and the attachments with our Members and the Committee’s Technical Consultants and intend to share,

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Info@DCISC.org

From: info@DCISC.org
Sent: Tuesday, October 16, 2018 4:42 PM
To: engagementpanel@pgke.com; lenevents@strategicincom.com
Cc: [Alex Karin] Garcia, Hector MI info@DCISC.org

Subject: Invitation from Diablo Canyon Independent Safety Committee

To: the Members of the Diablo Canyon Decommissioning Engagement Panel (DC DEP) and to the PG&E representatives who facilitate the important work of the DC DEP.

A special invitation is extended to each of you on behalf of the Members of the Diablo Canyon Independent Safety Committee (DCISC) to attend the DCISC’s next public meeting to be held on Wednesday, October 24 and on Thursday, October 25, 2018 at the Avila Lighthouse Suites, Port San Luis Conference Room, located at First & San Luis Streets in Avila Beach. I have attached a copy of the agenda for the DCISC meeting and information is available about the DCISC and its public meetings on the DCISC website at www.dicsc.org.

I would like to call your attention to three items in particular on this DCISC’s agenda for October 24 and 25th: (1) Brief Remarks concerning Reactor Decommissioning on Wednesday afternoon, October 24, by Mr. Bruce Watson, Chief of the NRC Reactor Decommissioning Branch (who we understand will also be addressing you later that same evening at the DC ISC meeting in San Luis Obispo); (2) A presentation on the status of Diablo Canyon Power Plant decommissioning-related issues on Thursday morning, October 25, by Mr. Tom Jenne of PG&E; and (3) A presentation on issues related to the decommissioning of the San Onofre Nuclear Generating Station also on Thursday morning, October 25, by Dr. David Vittert, the Chair of the San Onofre Community Engagement Panel.

If you are unable to attend the DCISC meeting in person, the meeting will be livestreamed through a link on the Committee’s website and on www.erci.org. Following the meeting, the video of the sessions will be available for later viewing at your convenience in archived video linked to the meeting agenda.

Finally, I want to remind you that the Members, Technical Consultants and Counsel for the DC ISC are planning to attend the meeting of the DC DEP to be held Thursday, October 25 at 6:30 PM on Wednesday evening, October 24 at the County Government Center in San Luis Obispo to hear the DC DEP discussion of emergency planning and Mr. Watson’s remarks.

Thank you for your attention to this email and I hope you are able to accept the DCISC’s invitation.

Best regards,

Robert Rathie
DCISC Asst. Legal Counsel
(1-800) 439-4888

info@dcisc.org

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If you have no objection, the one attachment with your remarks to be addressed to the DCISC with the Committee’s PG&E Liaison at the plant. If you have no objection, I propose to also include the biographical information you provided with the public agenda packet for the meeting. Of course, please let me know if you would prefer not to have that information in the public domain.

The Committee will be issuing an invitation to the Members of the Diablo Canyon Decommissioning Engagement Panel to attend the DC ISC meeting on October 24-25 and the DC ISC Members, Technical Consultants and Counsel are planning on attending the meeting of the Decommissioning Engagement Panel on the evening of October 24. In response to your question on the DCISC public meeting in the afternoon of October 24 and depending on the response to the Committee’s invitation by the members of the Engagement Panel, I estimate that for this Wednesday afternoon session there would be between 15 and 15 members of the public in attendance, along with up to 8 PG&E representatives and possibly one of the NRC resident inspectors (who sometimes attend when their respective schedules allow).

The DCISC Members, the Technical Consultants, Counsel and the PG&E representatives adopt business suits or sport coats with ties as attire of the day.

We prepare an agenda packet for each public meeting and this is sent by Federal Express to the Members, the Consultants, governmental agencies and representatives, etc. This packet for the October 24-25 public meeting is scheduled to go out from our office next Friday, October 19 for delivery. If you would like me to send a "hard copy" by Federal Express delivery on Tuesday, October 16 or Monday, October 15, please provide me with the FED Ex delivery address and a phone number and your preference for delivery date. The agenda packet will also be published on our website by the Committee’s website at www.dicsc.org on Friday, October 19 and may be reviewed there.

For your ready reference I have attached a copy of the next week’s agenda for the meeting which gives estimated times for presentations.

I regret that I cannot be present in person to meet you and to hear your presentation on October 24. My wife very recently had heart surgery and it will be too early in her recovery for me to make the trip to Avila Beach, which I very much regret. However, I will be following the meeting and your remarks to the Committee through the streaming video service provided for every public meeting. Two attorneys from our office, Deborah Muhl and Robert Wellington will be present on October 24. Mr. Wellington has served as Legal Counsel to the DCISC since its inception in 1989.

Thank you again for your courtesy and willingness to fit the DCISC meeting into what I know must be a busy schedule with many demands on your time. Of course, please do not hesitate to contact me should you have any questions or require anything further.

Best regards,

Bob Rathie
DCISC Asst. Legal Counsel

info@dcisc.org

G.2 – 360

From: Watson, Bruce [mailto:Bruce.Watson@erci.gov]
Sent: Saturday, October 13, 2018 6:42 AM
To: info@dcisc.org
Cc: info@dcisc.org

Subject: RE: RE: October 24, 2018 Meeting of the Diablo Canyon Independent Safety Committee

Mr. Rathie,

I have attached the guest list for the 2018-2019 Department of Energy firm at the DCI-

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Mr. Watson,

If you are planning to use any PowerPoint slides or other media in your presentation, you could provide a copy to me by say next Wednesday, October 17 (or whenever it might be more convenient), in advance of the meeting on October 24, I will ensure that they are included in the slide deck for the meeting.

If you are interested or would like to get a sense of how the DCISC conducts its public meetings, I command your attention the link on the DCISC website [www.dcisoc.org] homepage entitled "Meeting Videos" which provides access to videos of the DCISC’s past public meetings.

Please let me know if you require anything in connection with your remarks to the DCISC and I will do my best to provide. I know the Members and Technical Consultants are looking forward to meeting and hearing from you on October 24.

I wish you a pleasant weekend,

Best regards,

Bob Rathie
DCISC Asst. Legal Counsel
info@dcisc.org

From: Watson, Bruce [mailto:Bruce.Watson@mrrc.gov]
Sent: Wednesday, October 3, 2018 9:59 AM
To: info@dcisc.org
Cc: Newport, Christopher <Christopher.Newport@mrrc.gov>; Reyneke, John <john.reyneke@mrrc.gov>;
Garcia, Hector M. < Hector.Garcia@mrrc.gov>; Bob Rathie <Bob.Rathie@mrrc.gov>
Subject: RE: Invitation to Attend October 24, 2018 Meeting of the Diablo Canyon Independent Safety Committee

Dear Mr. Rathie,

Thank you for the invitation to participate in your meeting and I look forward to seeing you on October 24.

From: info@dcisc.org [mailto:info@dcisc.org]
Sent: Tuesday, October 2, 2018 6:38 PM
To: Watson, Bruce [mailto:Bruce.Watson@mrrc.gov]
Cc: Newport, Christopher <Christopher.Newport@mrrc.gov>; Reyneke, John <john.reyneke@mrrc.gov>;
Garcia, Hector M. < Hector.Garcia@mrrc.gov>; Bob Rathie <Bob.Rathie@mrrc.org>
Subject: RE: Meeting of the Diablo Canyon Independent Safety Committee

Dear Mr. Rathie,

If you are planning to use any PowerPoint slides or other media in your presentation, you could provide a copy to me by say next Wednesday, October 17 (or whenever it might be more convenient), in advance of the meeting on October 24, I will ensure that they are included in the slide deck for the meeting.

If you are interested or would like to get a sense of how the DCISC conducts its public meetings, I command your attention the link on the DCISC website [www.dcisoc.org] homepage entitled "Meeting Videos" which provides access to videos of the DCISC’s past public meetings.

Please let me know if you require anything in connection with your remarks to the DCISC and I will do my best to provide. I know the Members and Technical Consultants are looking forward to meeting and hearing from you on October 24.

I wish you a pleasant weekend,

Best regards,

Bob Rathie
DCISC Asst. Legal Counsel
info@dcisc.org

From: Watson, Bruce [mailto:Bruce.Watson@mrrc.gov]
Sent: Wednesday, October 3, 2018 10:45 AM
To: info@dcisc.org
Cc: Newport, Christopher <Christopher.Newport@mrrc.gov>; Reyneke, John <john.reyneke@mrrc.gov>;
Garcia, Hector M. < Hector.Garcia@mrrc.gov>; Bob Rathie <Bob.Rathie@mrrc.gov>
Subject: RE: Meeting of the Diablo Canyon Independent Safety Committee

Mr. Watson –

If you are planning to use any PowerPoint slides or other media in your presentation, you could provide a copy to me by say next Wednesday, October 17 (or whenever it might be more convenient), in advance of the meeting on October 24, I will ensure that they are included in the slide deck for the meeting.

If you are interested or would like to get a sense of how the DCISC conducts its public meetings, I command your attention the link on the DCISC website [www.dcisoc.org] homepage entitled "Meeting Videos" which provides access to videos of the DCISC’s past public meetings.

Please let me know if you require anything in connection with your remarks to the DCISC and I will do my best to provide. I know the Members and Technical Consultants are looking forward to meeting and hearing from you on October 24.

I wish you a pleasant weekend,

Best regards,

Bob Rathie
DCISC Asst. Legal Counsel
info@dcisc.org
DIABLO CANYON POWER PLANT PUBLIC TOUR WITH MEMBERS OF THE DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

At 8:00 A.M. on the morning of Wednesday, October 24, 2018, the Diablo Canyon Independent Safety Committee will conduct an inspection tour of certain accessible areas at the Diablo Canyon Nuclear Power Plant. This tour will take approximately three and a half hours and will be open to a limited number of members of the public. The tour will not enter the protected area of the plant.

Because the plant is an operating nuclear facility, the number of participants must be limited and space will be reserved on a first-come, first-served basis. Reservations, which have usually been in high demand, will be accepted for no more than four immediate family members per call, each of whom must be at least eighteen years of age. Personal information including, but not limited to, date(s) of birth, social security number(s), gender and citizenship are required when making a reservation. You will be required to present an NRC-approved form of identification which must include a photo to take the tour. The Committee makes every effort to make its public tour accessible and to accommodate specialized equipment and other services useful to persons with disabilities. If you plan to attend and need special accommodations, please so indicate when making your reservation. Prior security clearance is required of all attendees in compliance with the rules of the U.S. Nuclear Regulatory Commission (NRC) and Pacific Gas & Electric Company. Hand-held metal detector searchers or physical pat-down searches may be performed. No photographs are permitted.

Appropriate attire is required of all participants. Long pants and hard, closed toe, flat shoes must be worn. Hard hats, safety glasses and hearing protection may be required and if so requested they will be provided. No shorts, sneakers or other shoes which expose legs or ankles, no tank tops or sleeveless shirts, no sandals, clogs/straps or cut slip on shoes are permitted.

Reservations may only be made by telephoning the Committee’s toll-free number: 1-800-439-4088

Commenting on Tuesday, October 9, 2018

Between the hours of 9:00 A.M. - Noon and 2:00 P.M. - 5:00 P.M.

Please place your call no earlier than 9:00 A.M. & prior to 5:00 P.M.

Please be patient as call volume is expected to be heavy.

Email reservations cannot be accepted

nor will requests for reservations left with anyone other than Committee staff answering the telephone at the number provided above.

In the event that security considerations preclude a public tour of Diablo Canyon on October 24th, in the alternative the DCISC may convene an informal question and answer session at the PG&E Energy Education Center, 6598 Oroorda Road, San Luis Obispo at 8:30 A.M. Information concerning the agenda for DCISC public meetings on October 24-25, 2018, at the Avila Lighthouse Suites Conference Facility in Avila Beach, California, will be available on the Committee’s homepage at dcisc.org or by contacting the office of the Committee’s Legal Counsel at the Committee’s toll-free telephone number.

October 7 and 8, 2018

G.2 – 365

DCISC

DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

COMMITTEE MEMBERS

ROBERT J. BUDNITZ
PETER J. LAM
ROBERT P. PETERSON

Copy via email to: bruce.watson@bun.gov

Original will follow

October 1, 2018

Mr. Bruce Watson,
Chief, Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery and Waste Programs
Office of Nuclear Material, Safety and Safeguards
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: Invitation to Make a Brief Informational Presentation to the Diablo Canyon Independent Safety Committee

Dear Mr. Watson:

I am writing to extend an invitation on behalf of the Diablo Canyon Independent Safety Committee (to attend and provide brief public remarks concerning reactor decontaminating and proposed changes to decommissioning regulations during the Committee’s next public meeting. That meeting will be held on October 24, 2018, from 1:00 P.M. in the afternoon at the Avila Lighthouse Suites, Point San Luis Conference Facility, in Avila Beach California.

The Committee was established by the California Public Utilities Commission and its three members are appointed by the Chairman, the Attorney General, and the Chairperson of the California Energy Commission, respectively. The Committee’s charge is to review Diablo Canyon operations for the purpose of assessing the safety of operations and suggesting any recommendations for safe operations in its annual report. The DCISC conducts three public meetings each year in the vicinity of Diablo Canyon. All meetings include informational presentations to the Committee on topics requested by our members and provide an opportunity for the public to address comments and provide information to the Committee. Additional information about the DCISC may be found on the Committee’s website at www.dcisc.org.

G.2 – 366

Letter to Chief, Reactor Decommissioning Branch
United States Nuclear Regulatory Commission
October 1, 2018

Page 2

On January 16, 2018, the Public Utilities Commission issued a Decision which approved the retirement of Diablo Canyon by the end of its current operating licenses and the Committee is presently considering issues in connection with a possible post-shutdown role to review decommissioning-related activities.

Thank you for your consideration of this invitation and I hope to receive your response soon. For your reference I have enclosed an agenda for the DCISC’s October 2018 public meeting. Should you need additional information or wish to discuss this invitation, please do not hesitate to contact our office of the DCISC Legal Counsel at (831) 467-1044 or by email to dcisc@dcisc.org.

Sincerely,

Robert J. Budnitz
DCISC Chair

cc: Mr. Christopher Newport, Senior Resident Inspector, Diablo Canyon
Mr. John Reynolds, Resident Inspector, Diablo Canyon
Mr. Cary Harbor, Director of Nuclear Business Operations, Diablo Canyon
Mr. Hector Garcia, CNS Support Manager, Diablo Canyon
DCISC Members & Technical Consultant

OFFICE OF THE DCISC LEGAL COUNSEL: ROBERT J. BUDNITZ, 10990 WILSHIRE BLVD., 14TH FLOOR, LOS ANGELES, CA 90024
TELEPHONE (310) 892-6985 FACSIMILE (310) 892-1044 EMAIL: DCISC@dcisc.org

G.2 – 368
Bob Rathie  
DCISC Asst. Legal Counsel  

From: Alex Karlin  
Sent: Wednesday, September 26, 2018 4:23 PM  
To: Watson, Bruce  
Cc: Alex Karlin  
Subject: Diablo Canyon Independent Safety Committee  

Bruce  

Per our conversation today, I suggest that you talk with Bob Rathie concerning the possibility of your talking with the DCISC on 10/24. Bob is a good guy and is one of the attorneys who works regularly for and with the DCISC. I spoke with him today (sometimes he works from home). I know that he should be able to help sort this out.

Bob Rathie’s contact info:  
Office: 800-439-4688  
Home: 831-424-1672  
Cell: 831-578-5033  
email: avr@avrlegal.com

I look forward to getting together with you when you are in SLO.

Alex  

---  

Bob Rathie  
DCISC Asst. Legal Counsel  

From: Alex Karlin  
Sent: Wednesday, September 26, 2018 4:23 PM  
To: Watson, Bruce  
Cc: Alex Karlin  
Subject: Diablo Canyon Independent Safety Committee  

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Home: 831-424-1672  
Cell: 831-578-5033  
email: avr@avrlegal.com

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Alex  

---  

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DCISC Asst. Legal Counsel  

From: Alex Karlin  
Sent: Wednesday, September 26, 2018 4:23 PM  
To: Watson, Bruce  
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Office: 800-439-4688  
Home: 831-424-1672  
Cell: 831-578-5033  
email: avr@avrlegal.com

I look forward to getting together with you when you are in SLO.

Alex

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G.2 – 369  

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G.2 – 370  

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G.2 – 371  

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G.2 – 372
From: Alex Karfin [mailto:akarfin@gmail.com]

Re: Diablo Canyon Independent Safety Committee

Per our conversation today, I suggest that you talk with Bob Rathie concerning the possibility of your walking with the DCISC on 10/24. Bob is a good guy and is one of the attorneys who works regularly for and with the DCISC. I spoke with him today (sometimes he works from home), I know that he should be able to help sort this out.

Bob Rathie’s contact info:
Office: 800-439-4668
Home: 831-424-3672
Cell: 831-373-5003
Email: atrathie@wellingtonlaw.com

I look forward to getting together with you when you are in SLO.

Alex
Jane—no problem. Just wanted to check. Sometimes emails seem to go astray.
Have a good day.

Bob

From: lucy.swanson@kellswizard.com
Sent: Wednesday, September 19, 2018 10:35 AM
To: lucy.swanson@kellswizard.com
Cc: Swanson Jane <janex@cloud.com>, info@DCISC.org
Subject: RE: DCPC Canceled Projects

Apologies for not acknowledging your earlier reply. Thank you.

Jane Swanson
Sent from my iPhone

On Sep 19, 2018, at 9:15 AM, info@DCISC.org <info@DCISC.org> wrote:

Jane—I’m just following up with you to confirm that you received my message and the information with the email below.

Thanks,

Bob Rathie

From: info@DCISC.org <info@DCISC.org>
Sent: Friday, September 8, 2018 5:21 PM
to: lucy.swanson@kellswizard.com
Cc: Swanson Jane <janex@cloud.com>
Bcc: info@DCISC.org
Subject: RE: DCPC Canceled Projects

Jane—
I’ve now had the chance to review your request in your email of August 27 for information as to the DCISC’s review as to maintenance projects at DCPC that may be cancelled or otherwise addressed due to the expected closure of the plant by 2025. Since the February 2017 public meeting you mention in your email, on January 17-18, 2018 the DCISC conducted a fact-finding on Capital Projects Review Status and the portion of the Fact-Finding Report on the results of that inquiry is attached (the entire report is available to you on request). A report on the January 2018 fact-finding visit was presented during the February 8, 2018 public meeting in Avalon Beach and a copy of the Minutes summarizing that presentation is attached. The URL for video presentation of Item KX on the February public meeting agenda by Consultant Wardwell is:

https://cal-otp.org/uri/https://live-spray&copy=DCSCP%26date=2018-02-08

Following the January 17-18 review, the topic of "Long Term Capital Planning" was presented to the DCISC by DCPC’s Senior Director of Nuclear Services during the June 13, 2018 public meeting. I have attached a copy of the power the PowerPoint used during his presentation. The URL for the video presentation of Item XII.2 by Mr. Nimick is:


The Minutes for the June 2018 public meeting are not yet available (they will be with the agenda for the upcoming October 24-25 public meeting). If you like, I can send you a draft of the Minutes of Mr. Nimick’s presentation when the Minutes are finished.

I hope you find this to be responsive to your request and I thank you for your patience.

I look forward to seeing you at the next DCISC public meeting in October.

Best regards,

Bob Rathie

From: lucy.swanson@kellswizard.com
Sent: Monday, August 27, 2018 6:44 PM
to: info@DCISC.org
Cc: Swanson Jane <janex@cloud.com>
Bcc: info@DCISC.org
Subject: RE: DCPC Canceled Projects

Thank you for this helpful reply.

Jane Swanson
Sent from my iPhone

On Aug 27, 2018, at 6:33 PM, info@DCISC.org <info@DCISC.org> wrote:

G.2 – 377

Jane—I received your email with a request and inquiry, with the attached Excel file with a list of deferred projects, and I will provide the email and the list to our Members and Consultants to determine whether there may be something more current on this topic from recent fact-finding or public meeting presentations.

I will also keep you advised as topics are developed and confirmed for the next DCISC public meeting in Avalon Beach on October 24-25, 2018.

Hope all is well with you and your summer has been enjoyable.

Best regards,

Bob Rathie

From: info@DCISC.org <info@DCISC.org>
Sent: Monday, August 27, 2018 6:25 PM
to: info@DCISC.org
Subject: FW: DCPC Canceled Projects

Dear Jane,

I am writing to follow up on the topic of PG&E’s decisions related to which maintenance projects at Diablo Canyon will be cancelled or handled by less-expensive workarounds due to the short number of years of operations remaining.

From the minutes of the February, 2017 Meetings of the DCISC:

Ms. Sherry Lewis, a representative of the group San Luis Obispo Mothers for Peace, was recognized. Ms. Lewis commented that during the October 2016 public meeting of the Committee Dr. Budnitz stated in order to assess which items might be cancelled due to the expectation that the plant might only operate for 8-9 more years he would be requesting a list of all the projects, repairs and replacements that the plant would likely require were it to run for another 20 years. Dr. Budnitz replied that the matter is of concern not only to the DCISC but also to the Nuclear Regulatory Commission (NRC) and to plant management and has been reviewed during fact-finding and the plant is still in the process of developing

G.2 – 379
info@DCISC.org

From: info@DCISC.org
Sent: Friday, September 7, 2018 3:26 PM
To: "Jordan, Maureen"
Cc: "Garcia, Hector M"; "Zawalski, Maureen"
Subject: RE: DCPP 90 Minute LAR Public Meeting Presentation

Jordan – thank you for the PowerPoint on the ERO Augmentation LAR – I appreciate receiving it, will share with our Members and Technical Consultants, and please convey my thanks to Maureen.

Best regards,
Bob Rathie
DCISC Asst, Legal Counsel
(800)441-4646
info@dcisc.org

From: Tyman, Jordan [mailto:JTH@pge.com]
Sent: Thursday, September 6, 2018 3:28 PM
To: info@DCISC.org
Cc: Garcia, Hector M <HMSMD@pge.com>; Zawalski, Maureen <MRZ21@pge.com>
Subject: DCPP 90 Minute LAR Public Meeting Presentation

Bob

Attached is the DCPP presentation to the NRC during our August 23rd presidential meeting for the 90 Minute ERO Augmentation LAR, Maureen asked me to send it to you as it is out of office this week on a Benchmarking Trip. This presentation was shared with the public, If you have any questions please let me know.

Thanks
Jordan

G.2 – 381

public meeting of the Committee Dr. Budnitz stated in order to assess which items might be cancelled due to the expectation that the plant might only operate for 8-9 more years he would be requesting a list of all the projects, repairs and replacements that the plant would likely require were it to run for another 20 years. Dr. Budnitz replied that the matter is of concern not only to the DCISC but also to the Nuclear Regulatory Commission (NRC) and to plant management and has been reviewed during fact-finding and the plant is still in the process of developing information and technical details concerning these matters.

I do have an interesting document from PG&E but I am sure it is very outdated, I attach it here in case it sheds light on the kind of information I am looking for.

My hope is that you might be able to direct me to later reports or minutes of DCISC that reflect follow-up on this topic in the 18 months since the Feb, 2017 meeting. I am attempting to find such information, but find the process of searching later documents quite daunting.

I thank you in advance for any relevant links or documents you might be able to send to me.

Sincerely,
Jane Swanson
jswan112@cloud.com

G.2 – 382
I received your email with a request and inquiry, with the attached Excel file with a list of deferral projects, and I will provide the email and the list to our Members and Consultants to determine whether there may be something we can do to support this topic from recent fact-finding or public meeting presentations.

I will also keep you advised as topics are developed and confirmed for the next DCISC public meeting in Avila Beach on October 24-25, 2018.

Hope all is well with you and your summer has been enjoyable.

Best regards,

Bob Rathie

From: info@DCISC.org
Sent: Monday, August 27, 2018 8:25 PM
To: info@DCISC.org
Cc: info@DCISC.org
Subject: RE: DCSCP Cancelled Projects

Jane - I received your email with a request and inquiry, with the attached Excel file with a list of deferred projects, and I will provide the email and the list to our Members and Consultants to determine whether there may be something we can do to support this topic from recent fact-finding or public meeting presentations.

I will also keep you advised as topics are developed and confirmed for the next DCISC public meeting in Avila Beach on October 24-25, 2018.

Hope all is well with you and your summer has been enjoyable.

Best regards,

Bob Rathie

From: info@DCISC.org
Sent: Friday, August 24, 2018 3:34 PM
To: Ron Alasp
Cc: Robert Budnitz; Peter Lane; PER PETERSON; Perman Warden; Richard Mitchorst
Subject: RE: Invitation from the Diablo Canyon Independent Safety Committee

Mr. Alasp -

Thank you for your reply and for offering to support the committee's efforts related to the evaluated exercise and the Engagement Panel's meeting. I accept the committee's invitation for the October 25 public meeting. Perhaps we can set something up later for a future meeting.

The committee is aware that the Engagement Panel has been formed and that meetings. In fact, we previously invited Dr. David Victor, Chair of the SONGS Community Engagement Panel, to attend our public meeting in June but due to scheduling commitments, Dr. Victor was not able to accept that invitation. We are currently awaiting confirmation that he will attend the October 25 public meeting's morning session and make a presentation on SONGS Engagement Panel experience and offer suggestions he may have relative to Diablo Canyon. When I have Dr. Victor's confirmation, I will let you know, as you or someone on your staff may have interest in attending to hear Dr. Victor. We will also extend an invitation to the members of the Diablo Canyon Engagement Panel and the public staff who wrote the Panel in its work.

It's unfortunate that the Engagement Panel and the DCISC Public Meeting will likely overlap on Wednesday evening. The DCISC generally sets its public meeting dates at least one year in advance and we'll likely need to be cognizant of the Engagement Panel's schedule and try to set at best we can to coordinate dates so that those interested can conveniently attend both.

Again, my thanks for your courtesy and message,

Best regards,

Bob

From: Ron Alasp [mailto:ralasp@csix.ca.us]
Sent: Thursday, August 23, 2018 8:34 AM
To: info@DCISC.org
Cc: Robert Budnitz; Peter Lane; PER PETERSON; Perman Warden; Richard Mitchorst
Subject: Re: Invitation from the Diablo Canyon Independent Safety Committee

Dear Mr. Rathie,

As the committee members are aware, I - we, actually, in County OES - are always happy to and in fact enjoy working with DCISC. However, as you may know related to Diablo Canyon...
decommissioning PG&E has established a "Diablo Canyon Decommissioning Engagement Panel"—more about the panel can be found on the below link (another option is to search the internet for Diablo Canyon Community Engagement Panel).

As you also might know or can see on the linked site, each month’s meeting there is a different subject discussed. I am afraid for the Engagement Panel’s October 24 meeting the key topic is emergency planning and the event runs from 6:00 pm – 9:30 pm, so can also be seen on the link.

Thus, I will not be available for your meeting on that date and those times. In addition, on October 24 there is a full-scale HRC and FEMA plume phase evaluated exercise for both PG&E and we offshore organizations. While it is not anticipated to go until 6:00 pm, when the exercise ends, our County OES staff have a lot of immediate close-out work to do, including collecting all documentation and organizing it for, in our case, FEMA for their use in developing their initial exercise write-ups that evening or the following day. As such, I am hesitant to commit anyone in my place for the DCSC meeting and in addition since the Engagement Panel relates to our emergency management future I would prefer my staff attend for their awareness.

My apologies for the conflicts. Please let me know if there might be an alternative or if you otherwise need more information.

Thank you,
Ron Aloup

https://www.pge.com/en-US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant-engagement-panel.page?utm_id=DCSC_Workshop_network_20180813_searchGoogleAndFacebookCwCAwvzvBAkRsOgTcN67kQhmpC4y7vS2qOGQ0FAJpSLvJH8vsoXCCnQzA44iE

From: info@DCSC.org [mailto:info@DCSC.org]
Sent: Thursday, August 23, 2018 8:58 PM
To: Ron Aloup
Cc: Robert Budnik; Peter Lam; PER Peterson; Terman Wardell; Richard McHorther; info@DCSC.org
Subject: Invitation from the Diablo Canyon Independent Safety Committee

Dear Mr. Aloup:

On behalf of the Members of the Diablo Canyon Independent Safety Committee (DCISC), I am inviting you to a special meeting to be held on Wednesday evening, October 24, 2018, to provide an update on recent major issues arising from the exercise. The Committee is also planning to request a presentation that evening from a Diablo Canyon's representative (usually it’s Mike Glenn) about the activities of DCSC’s Emergency Response Organization and on the results of the latest ERO exercises. The DCSC anticipates there will be considerable interest in the local community concerning these topics.

As you are well aware, the Committee’s charge is to review Diablo Canyon Power Plant (DCPP) operations for the purpose of ensuring the safety of operations and suggesting any recommendations for safe operations in its annual reports. If you are able to accept this invitation, we hope to receive your response as soon as possible.

Bob Budnik

From: Garcia, Hector M [mailto:Hector.M.Garcia@pge.com]
Sent: Tuesday, July 3, 2018 6:48 PM
To: Bob Budnik; Bob Budnik; Hector M.Garcia@pge.com; Michael Hargis
Cc: Peter Lam; Peter Peterson; Peter Peterson; Peter Peterson; Peter Peterson;

Subject: GCSC Request for 15 References for the Seismic PRA Report

Mr. Budnik,

Please see the attached signed letter from our legal team. Please let me know if you are ready for the references to be sent on seismic.

Regards,
Hector

From: Garcia, Hector M [mailto:Hector.M.Garcia@pge.com]
Sent: Monday, July 2, 2018 2:21 PM
To: Garcia, Hector M; Hector M.Garcia@pge.com; Bob Budnik; Bob Budnik; Hector M.Garcia@pge.com; Michael Hargis; Michael Hargis; Michael Hargis; Hector M.Garcia@pge.com; Michael Hargis
Cc: Peter Lam; Peter Peterson; Peter Peterson; Peter Peterson; Peter Peterson; Peter Peterson; Peter Peterson; Peter Peterson; Peter Peterson; Peter Peterson;

Subject: GCSC Request for 15 References for the Seismic PRA Report

Mr. Garcia,

Thank you for advising us on the Declaration Supporting Confidential Designation of 16 references requested by the DCSC from the Seismic PRA summary report. It is our understanding that Paragraph 2 of the Declaration is intended to refer to the DCSC and on that basis we are going to receive copies of the 16 requested reports and to honor the representations PG&E has made in the Declaration.

I understand from the Declaration that each of the references will be marked "Confidential” and, if possible, it would be appreciated if they could be provided in electronic format.

Thank you and your colleagues for your efforts and cooperation with this request.

Best regards,
Bob Baseball
Diablo Canyon Independent Safety Committee (DCISc)
ASSL, Legal Counsel
800498-4688
From: info@DCISC.org 
Subject: Reply re: request for several sections PIA back-up documents and reports
Date: Monday, May 20, 2018 11:56 PM

To: Garcia, Hector M
Cc: Harbor, Cary; Llamas, Hannelie; Peterson, Peter; Wardell, Yeriman

I understand they are not the latest reports, but they contain the information you need.

Regards,
Hector

From: Garcia, Hector M
Subject: RE: Request for several sections PIA back-up documents and reports
Date: Tuesday, May 22, 2018 12:03 PM

To: info@DCISC.org
Cc: Harbor, Cary; Llamas, Hannelie; Peterson, Peter; Wardell, Yeriman

We appreciate your effort, please provide us with the latest available documents.

Best regards,
Hector

From: info@DCISC.org
Subject: RE: Request for several sections PIA back-up documents and reports
Date: Thursday, May 24, 2018 3:35 PM

To: Garcia, Hector M
Cc: Harbor, Cary; Llamas, Hannelie; Peterson, Peter; Wardell, Yeriman

The latest documents are attached.

Regards,
Hector

From: Garcia, Hector M
Subject: RE: Request for several sections PIA back-up documents and reports
Date: Thursday, May 24, 2018 4:39 PM

To: info@DCISC.org
Cc: Harbor, Cary; Llamas, Hannelie; Peterson, Peter; Wardell, Yeriman

Thank you.

Best regards,
Hector

---

Dear Hector,

I reviewed your offer of an alternative option for review of all 16 references requested by Dr. Budzitz with the Committee Members. While the Committee appreciates the offer made in your email on May 18, the members are very concerned about having to review each of the 16 references from the documents provided. The task is very important in the Committee’s review of the DoC public records. The DoC’s comprehensive review of the DoC materials is necessary to determine whether the DoC was willing to release the documents in a timely manner.

I am considering this offer through the Committee and would like to know if you consider this as the final offer.

Best regards,

Bob Barth
As you know, I fancy myself somewhat of an expert on seismic-PRA analysis methods — a science-PRA work is a lot of what I do day-in and day-out. In my capacity as a member of the DCSC, I have been studying the PacifiCorp’s seismic-PRA summary report that PG&E submitted on 24 April 2018 to the NRC (DOE-18-027). In my preliminary review so far, I find the report to be an excellent overview summary of the analysis work, the results, and the safety insights. However, to perform the detailed technical review that I would like to do on behalf of the DCSC, I believe that I will need to get access to several of the back-up technical reports. I hope that PG&E can make them available to me. I also need to know, for each of these reports, whether this report is in the public domain or if it not is not released publicly. If so, we need to know how the status, and the DCSC can then work together with PG&E to make such reports available to the DCSC but on the privileged basis that PG&E may require.

The 16 reports that I seek are designated below by the Citation number in the Reference List in Section 7 of DOE-18-027.

Thanks, and best regards, Bob Budnitz

Robert J. Budnitz (member, DCSC)
73 The Alameda
Berkeley CA 94707
(Phone) 510-827-8776
Email: budnitz @ pacbell.net

LIST OF 16 REQUESTED REPORTS:

Citation # 9 PWROG-17022-P (the peer review report)
Citation # 16 PG&E Calculation F.6.5 (seismic PRA quantification)
Citation # 33 PG&E Report 12B027-R.02 (seismic response analysis)
Citation # 34 PG&E Report 12B027-R.03 (seismic fragility evaluation)
Citation # 35 PG&E Report 12B027-R.01 (seismic walkdown)
Citation # 36 PG&E Calculation F.6.1 (seismic equipment list)
Citation # 39 PWROG-17078-P, (independent assessment of F&O closure and focused scope peer review)
Citation # 41 PG&E Report GEO.DCPP.TR.16.01 (summary of ground motions)
Citation # 50 PG&E Calculation F.6.6 (seismic induced flooding and fire impacts)
Citation # 52 PG&E Calculation F.6.3 (seismic PRA human reliability analysis)
Citation # 53 PG&E Calculation F.6.2 (seismic PRA plant logic model)
Citation # 59 PG&E Calculation MAAAP 17-05, (very small LOCA success criteria)
Citation # 61 PG&E Report GEO.DCPP.TR.17.02 (non-vibratory hazard)
Citation # 62 PG&E Report GEO.DCPP.CAL.17.01 (screening of seismic hazards other than vibratory ground motion)
Citation # 63 PG&E Report GEO.DCPP.CAL.17.03 (tsunami and ground motion vector hazard)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA
DECLARATION SUPPORTING CONFIDENTIAL DESIGNATION ON BEHALF OF PACIFIC GAS AND ELECTRIC COMPANY (U-29 E)

1. | Full name of officer representing the Pacific Gas and Electric Company (preg E), a California corporation. | John Smith |
   | [name of officer designating authority to sign declaration] | [signature] |
   | Title of PG&E, designated authority to sign this declaration. My business office is located at: | Pacific Gas and Electric Company P.O. Box 55, Mail Code 1046/602 Avita Lake, CA 9324 |

2. PG&E will provide the information identified in paragraph 3 of this Declaration to the California Public Utilities Commission (“CPUC”) or departments within or commissioners retained by the CPUC in response to a CPUC audit, data requests, proceeding, or other CPUC request.
   | Name or Docket No. of CPUC proceeding (Applicable): | N/A |

3. Title and description of document(s). Calculations and reports referenced in Section 7 by Citation number in the seismic-PRA summary report that PG&E submitted on 24 April 2018 to the NRC (DCL-18-027).
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<tr>
<td>64</td>
<td>PG&amp;E Report GEO.DCPP.CAL.17.05 (vector hazard for Shoreline fault secondary rupture and ground motion)</td>
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4. These documents contain confidential information that, based on my information and belief, has not been publicly disclosed. These documents have been marked as confidential, and the basis for confidential treatment is that the confidential information is located on the

PG&E Confidentiality Declaration (Rev 01/02/2018)
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PG&E: Confidentiality Declaration (Rev 9) (02/2019)

PG&E Confidentiality Declaration (Rev 9) (02/2019)

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Document Control Desk
April 24, 2018

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PG&E Letter DCL-18-027

U.S. Nuclear Regulatory Commission

APL: Document Control Desk

Washingto, D.C. 20555-0001

Docket No. 50-775, OPR-80

Docket No. 50-323, OPR-82

Diablo Canyon Power Plant Units 1 and 2

Seismic Probabilistic Risk Assessment of the Diablo Canyon Power Plant Units 1 and 2: Response to NRC Request for Information Pursuant to 10 CFR 50.540

Enclosure 1: Summary Report for DCP, Units 1 and 2, as required in Reference 2.

PG&E is also submitting the DCP Probabilistic Risk Assessment, but under a separate cover letter.

PG&E is making new and revised regulatory commitments (as defined by NEI 99-04) in this letter. The new and revised commitments are identified in Enclosure 2.

If you have any questions or require additional information, please contact Mr. Hossen at 805-545-4720.

I state under penalty of perjury that the foregoing is true and correct.

Executed on April 24, 2018.

Sincerely,

James M. Welsh
Vice President, Nuclear Generation and Chief Nuclear Officer

mg/0702923

Enclosures:

DCL-18-027

Seismic Distribution

Bryan B. Holik, NRCCR Director (Acting)

Kris M. Kennedy, NRC Region IV Administrator

Christopher W. Newport, NRC Senior Resident Inspector

Edward K. Singal, NRC Senior Plant Manager

Brett A. Titus, NRP Senior Project Manager

PG&E Letter DCL-18-027

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Pacific Gas and Electric Company
Diablo Canyon Power Plant
Units 1 and 2
License Nos. OL-DPR-80 and OL-DPR-82

Seismic Probabilistic Risk Assessment in Response to 50.54(f)
Letter with Regard to NTTF 2.1: Seismic
Summary Report

April 2018

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Appendix A) Summary of SPRA Peer Review and Assessment of PRA Technical Adequacy for Response to NTTF 2.1 Seismic 50.54(f) Letter .... A-1
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Rachelle — message received and acknowledged. I will provide your email with the link to the NY Times article to our Members & Consultants.

Have a great weekend and a great 4th of July holiday,

Best regards,

Bob Ratliff

From: Rachelle Becker [mailto:rochellebecker40@gmail.com]
Sent: Thursday, June 28, 2018 10:39 AM
To: DCCSC-info@dccsc.org
Subject: New seismic info

The technical issue here relates to long-period motions, and whether magnitude saturation actually occurs at those frequencies. Several large earthquakes around the world in recent years have produced surprising measurements which have tended to strongly reinforce Dr. Hector’s apprehensions. While long period motions are not generally the frequencies of greatest concern for components of nuclear power plants, DCNP’s magnitude saturation issues (where PSME has asserted that an 8.0M is of no greater concern than a 6.5M) combined with the absence of local data about near-field earthquakes make the quoted statement from PSME’s top guy extremely problematic.

http://www.energy.ca.gov/2014/05/12/what-does-it-mean-if-the-proposed-nuclear-plant-has-a-seismic-magnitude-of-8.0/

In Peace

Rachelle

—

In Peace

Rachelle Becker, Executive Director
Alliance for Nuclear Responsibility
PO 1328
San Luis Obispo, CA 93406
www.anr.org

Bob Ratliff

For the DCCSC

From: Rachelle Becker [mailto:rochellebecker40@gmail.com]
Sent: Friday, June 15, 2018 12:05 PM
To: DCCSC-info@dccsc.org; Cochrane, Justin@Energy (<Justin.Cochrane@energy.ca.gov>); Barker, David@Energy
Cc: Status@NuclearDecommissioning.info
Subject: New decommissioning draft regulations

Dear DCCSC and CEC:

The Alliance received this information on Wednesday and thought it might be helpful as we move towards closure at Diablo.

Attached are four draft Regulatory Guides that the NRC placed in ADAMS recently.

Regulatory Guides are intended to flesh out/clarify NRC’s expectations regarding regulations.

These draft Reg Guides accompany the NRC’s draft decommissioning rolemaking effort.

The NRC is soliciting public comment on these draft Reg Guides. It looks like they issued the drafts at this time to help people develop comments on the draft decommissioning role (when and if) it is published in the Federal Register for public comment.

In Peace

Rachelle Becker, Executive Director
Alliance for Nuclear Responsibility
PO 1328
San Luis Obispo, CA 93406
www.anr.org

NOTE: The U.S. Nuclear Regulatory Commission (NRC) is making this document publicly available concurrent with the Commission’s review of SEGY-19-0055, “Proposed Rule: Regulatory improvements for Prudential and Utilization Facilities Transferring to Decommissioning” (ADAMS Accession No. Mi. 1801204519).

The NRC is not seeking public comment on this document.

If the Commission approves the publication of the proposed rule, then the Federal Register notice of proposed rulemaking will provide an opportunity for the public to submit formal comments on the proposed rule and draft guidance.

Docket: https://www.regulations.gov/document/DO-NUREG-0070

Any questions may be directed to Edward O’Donnell, Senior Project Manager, Regulatory Guidance and Generic Issues Branch, NRC, at edward.odonnell@nrc.gov or 301-415-3317.
Emergency Planning for Decommissioning Nuclear Power Reactors

A. INTRODUCTION

Purpose

This document provides guidance for implementing emergency planning and response measures for decommissioning nuclear power reactors. The guidance is intended to assist owners and operators in planning and developing emergency plans and procedures for decommissioning activities. The guidance is based on the experience of NRC staff and other relevant sources, including NRC regulations, industry practices, and technical literature.

Applicability

This guidance is intended for use by owners and operators of Nuclear Power Reactors (NPR) in developing emergency plans and procedures for decommissioning activities. It is applicable to all NPRs, regardless of their size or complexity.

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A. INTRODUCTION

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**U.S. NUCLEAR REGULATORY COMMISSION**

**DRAFT REGULATORY GUIDE DG-1349**

**Proposed Revision 2 to Regulatory Guide RG 1.155**

**Issue Date:** March 2009

**Technical Lead:** Theodore Smith

**STANDARD FORMAT AND CONTENT FOR POST-SHUTDOWN DECOMMISSIONING ACTIVITIES REPORT**

**A. INTRODUCTION**

**Purpose**

This regulatory guide (RG) identifies the type of information that is post-shutdown decommissioning activities report (PSDAR) most common and contains a standard format for the PSDAR that the U.S. Nuclear Regulatory Commission (NRC) finds acceptable.

**Applicability**

This guide applies to holders of operating licenses for nuclear power reactors subject to Title 10 of the Code of Federal Regulations (10 CFR) Parts 50 and 52, "Licensing of Production and Utilization Facilities" (Ref. 1), and 10 CFR Part 55, "Environmental Protection and Approvals for Nuclear Power Plants" (Ref. 2).

**Applicable Regulations**

- 10 CFR Part 50, "Standards for Protection Against Radiation" (Ref. 3), provides the radiological release criteria and applicable evacuation requirements applicable during decommissioning, specifically in Subpart E, "Emitters/Criteria for License Termination."

- 10 CFR Part 52, "Regulations for Electric Power Production Facilities," provides the regulations for licensing production and utilization facilities.

- 10 CFR 10.2, "Definitions," provides definitions.

- 10 CFR 50.1, "Written communications," provides the requirements for written communications.

- 10 CFR 10.17, "Emergency plans," provides emergency planning requirements.

**Related Guidance**

- RG 1.155, "Decontamination and Decommissioning of Nuclear Reactor Facilities" (Ref. 3), contains guidance for the decontamination and decommissioning of nuclear reactor facilities.

- 10 CFR 2.110, "Environmental Protection. Protection of the Environment during the Decommissioning of Nuclear Reactor Facilities," provides guidance for the protection of the environment during the decommissioning of nuclear reactor facilities.

- 10 CFR 50.54, "Conditions of license," provides the conditions for a license.

- 10 CFR 50.55, "Changes, tests, and experiments," provides the requirements for making changes to a facility without prior NRC approval under certain circumstances.

- 10 CFR 50.77, "Maintenance of records, making of reports," provides the requirements for the maintenance of records and for making reports.

- 10 CFR 83.27, "Reporting and recordkeeping for decommissioning planning," provides the requirements for reporting and recordkeeping for decommissioning planning.

- 10 CFR 50.82, "Termination of license," provides the requirements for termination of a license.

- 10 CFR 50.82(b) requires submission of a PSDAR.

- 10 CFR 50.209, "Power reactor decommissioning emergency plans," provides the applicable emergency planning requirements for a facility that is transitioning between operations and decommissioning.

- 10 CFR Part 52, "Environmental Protection. Protection of the Environment during the Decommissioning of Nuclear Reactor Facilities" (Ref. 3), provides the requirements for decommissioning of nuclear reactor facilities for the NRC's domestic licensing and decommissioning functions.

- 10 CFR Part 52 provides the issuance of construction permits, standard design certifications, combined licenses, standard design agreements, and manufacturing licenses for nuclear reactor facilities.

- 10 CFR 53.109, "Termination of license," provides the requirements for termination of a license.

- 10 CFR 50.77, "Maintenance of records, making of reports," provides the requirements for decommissioning planning.

- 10 CFR 83.27, "Reporting and recordkeeping for decommissioning planning," provides the requirements for decommissioning planning.

- 10 CFR 50.82, "Termination of license," provides the requirements for termination of a license.

- 10 CFR 50.82(b) requires submission of a PSDAR.


- 10 CFR Part 114, "Financial Protection Requirements and Indemnity Agreements," provides financial protection requirements for decommissioning facilities.

- RG 1.183, "Decontamination of Nuclear Power Reactor Facilities" (Ref. 4), provides general guidance on the process involved with the decommissioning of nuclear power reactor facilities.

NOTE: The U.S. Nuclear Regulatory Commission (NRC) is making this document publicly available consistent with the Commission's review of SECY-18-0099, "Proposed Rule: Regulatory Improvements for Production and Utilization Facilities Transferring to Decommissioning" (ADAMS Accession No. ML18102A019).

The NRC is not seeking public comment on this document.

If the Commission approves the publication of the proposed rule, then the Federal Register notice of proposed rulemaking will provide an opportunity for the public to submit formal comments on the proposed rule and draft guidance.


Any questions may be directed to Edward O’Connell, Senior Project Manager, Regulatory Substances and Generic Issues Branch, NRC, at edward.oconnell@nrc.gov or 301-415-3317.

ASSURING THE AVAILABILITY OF FUNDS FOR DECOMMISSIONING PRODUCTION OR UTILIZATION FACILITIES

A. INTRODUCTION

This document provides guidance to applicants for production or utilization facilities concerning methods acceptable to the staff of the U.S. Nuclear Regulatory Commission (NRC) for complying with the requirements in Title 10 of the Code of Federal Regulations (10 CFR) regarding funds for decommissioning. It also provides guidance on the form and format of the financial assurance mechanisms in those rules. For the purposes of this guideline, decommissioning is the process of removing a production or utilization facility from service in which the primary purpose is not to produce electricity for commercial sale.

Applicability

This Regulatory Guide (Draft) applies to applicants and licensee subjects to 10 CFR Part 50, "Domestic Licensing of Production or Utilization Facilities," (Ref. 1) and 10 CFR Part 57, "Licensing, Certifications, and Approvals for Nuclear Power Plants." (Ref. 2)

Applicable Regulations

10 CFR 50.53: "Contents of applications; general information," contains general requirements for production and utilization facility license applications. Under the requirements, applicants must describe how reasonable assurance will be provided that funds will be available to decommission the facility.

10 CFR 52.77: "Contents of applications; general information," contains similar requirements for utilization facility license applications under 10 CFR Part 52.
NOTE:
The U.S. Nuclear Regulatory Commission (NRC) is making this document publicly available concurrent with the Commission's review of DECY-18-0055, "Proposed Rule: Regulatory Improvements for Production and Utilization Facilities Transferring to Decommissioning" (ADAMS Accession No. ML18021A012). The NRC is not seeking public comment on this document.

If the Commission approves the publication of the proposed rule, then the Federal Register notice of proposed rulemaking will provide an opportunity for the public to submit formal comments on the proposed rule and draft guidance.


Any questions may be directed to Edward O'Toole, Senior Project Manager, Regulatory Guidance and Current Issues Branch, NRC, at otoole.edward@nrc.gov or 301-415-3317.

U.S. NUCLEAR REGULATORY COMMISSION
DRAFT REGULATORY GUIDE DG-1347
Proposed Revision 2 to Regulatory Guide RG 1.184

DECOMMISSIONING OF NUCLEAR POWER REACTORS

A. INTRODUCTION

Purpose

This regulatory guide (RG) provides guidance on the actions required by U.S. Nuclear Regulatory Commission (NRC) licensees to decommission nuclear power reactors.

Applicability

This RG applies to power reactor applicants and licensees subject to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing, Production and Utilization Facilities" (Ref. 1) and 10 CFR Part 52, "License, Certification, and Approvals for Nuclear Power Plants" (Ref. 2).

The fact that a licensee has permanently ceased operations and removed the fuel from the reactor vessel, or that a final legally effective decommissioning or decommissioning-related operations has come into effect, or that the facility has been removed to the extent that it is no longer capable of special nuclear material without significant facility alterations necessary, does not necessarily mean that a reactor can be closed. A reactor can be closed with the applicable regulations, in NRC license, and in material license, with the applicable regulations no longer apply when the license is no longer authorized to operate, and regulations for the facility apply when the facility no longer a utilization facility if a license was reduced to regulatory limits for those requirements that still apply, it must do so by requesting an exemption in accordance with 10 CFR 50.12, "Specific exemptions", or 10 CFR 52.7, "Specific exemptions", file a request, amendment to, or early site permit, or by making changes in accordance with 10 CFR 50.59, "Changes, non-nuclear experiments", as appropriate.
Purpose of Regulatory Guides

The NRC issues regulatory guides to describe to the public methods that the staff considers acceptable for use in implementing specific parts of the agency's regulations, to explain criteria that the staff uses in evaluating specific problems or potential events, and to provide guidance to applicants. Regulatory guides are not guidelines for regulation and compliance with them is not required. Methods and solutions that differ from those set forth in regulatory guides will be deemed acceptable if they provide a basis for the findings required for the issuance or continuance of a permit or license by the Commission.

Paperwork Reduction Act

This RG provides guidance for implementing mandatory information collections covered by 10 CFR 20, 50, 51, 52, 70, and 140 that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). These information collections were approved by the Office of Management and Budget (OMB), under control numbers 3160-0004, 3150-0011, 3150-0023, 3150-0051, and 3100-0097 respectively. Persons seeking assistance or clarification regarding this information collection should contact the Office Services Branch, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Or by E-mail to Infostore.accessioninfo@gov. and/or the Desk Officer, Office of Information and Regulatory Affairs, NOAA-10232 (3150-0004), 3150-0023, 3150-0051, and 3100-0097, Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct or sponsor, and you are not required to respond to, a collection of information unless the document requesting a response displays a currently valid OMB control number.

NOTICE

Due to its length, the remainder pages of this document have not been included in the Correspondence for the 29th Annual Report.

A copy of the complete document is available by contacting the Office of the DSCSC Legal Counsel at OFSafetystaff@nrc.gov.
Comments from members of the public made during the DCISC’s public meetings are included in the Minutes for each meeting.

See Exhibit B.3, B.6 and B.9.