DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

Report on

Fact-Finding Meeting at DCPP
on August 12, 13, and 14, 2025

by
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1.0 SUMMARY

The results of the DCISC August 12, 13, and 14, 2025, Fact-Finding Meeting at the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA, are presented. The subjects addressed and summarized in Section 3 are as follows:

1. PG&E Board of Directors Safety and Nuclear Oversight (SNO) Committee
2. Meeting with Officers Paula Gerfen and Maureen Zawalick
3. Safety Conscious Work Environment
4. Beyond Design Basis Accident Mitigation Guidelines - FLEX
5. Meeting with NRC Resident Inspectors
6. Electronic Procedures
7. Artificial Intelligence Update
8. Observe Plant Health Committee Meeting
9. DCISC Recommendations to PG&E
10. Single Point Vulnerability Update
11. Emergency Diesel Generator Walkdown
12. Nuclear Instrumentation Update
13. Observe FLEX Diesel Pump Test
14. Simulator Alternate Shutdown Panel

2.0 INTRODUCTION

This Fact-Finding Meeting at the DCPP was held to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if 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 (FFT) 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 and/or to the DCISC proposed by the FFT. These recommendations will be considered by the entire DCISC. After review and approval by the DCISC, this 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 PG&E Board of Directors Safety and Nuclear Oversight (SNO) Committee

(Because the relationship between the DCISC and the Board of Director's Safety and Nuclear Oversight Committee is considered confidential information the disclosure of which could injure PG&E in its business activities, the discussion below is necessarily limited in scope and detail. This is akin to the relationship between the DCISC and the DCPP observations and evaluations by the Institute of Nuclear Power Operations and the DCPP Nuclear Safety Oversight Committee, NSOC.)

Dr. Meshkati met with two members of the PG&E Board of Directors' Safety and Nuclear Oversight (SNO) Committee on June 17, 2025, at the DCPP. The SNO Committee is a standing committee of both the PG&E Corporation and Pacific Gas and Electric Company (Utility) Boards of Directors that serves as the primary mechanism for board-level oversight of safety, enterprise risk, and other critical operational matters. The Committee also has oversight responsibility for numerous enterprise risks that have potential safety impacts, such as wildfire risks and workforce safety. More specifically, the SNO Committee, according to its official mandate, "oversees matters relating to safety, operational performance, and compliance issues related to the Utility's nuclear, generation, gas and electric transmission, and gas and electric distribution operations and facilities ("Operations and Facilities"), including:

- Principal risks arising out of the Operations and Facilities, the process used by management to analyze and identify these risks, and the effectiveness of programs to manage or mitigate these risks

- The Utility's goals, programs, policies, and practices with respect to promoting a strong safety culture

- Periodically visiting the Utility's nuclear and other operating facilities

The SNO Committee is comprised entirely of independent directors with significant experience in relevant safety areas. As of 2025, the Committee consists of six independent members; the Committee Chair and other members appointed by the respective Boards of Directors; and its charter requires the Committee to meet at least six times per year.

<u>Conclusions</u>: DCISC Member Meshkati's meeting with two members of the PG&E Board of Directors' Safety and Nuclear Oversight Committee was enlightening for the DCISC, demonstrating the Board's seriousness about corporate safety, both for the DCPP nuclear plant and the remaining areas of the corporation.

<u>Recommendation to the DCISC:</u> The following previous recommendation to the DCISC was reviewed in this Fact-Finding Meeting and remains open: *The DCISC should meet with members of the Safety and Nuclear Oversight Committee of the PG&E Board to review matters related to Nuclear Safety Culture at the corporate level.* (D1/25FF-3.8)

<u>Recommendation to PG&E</u>: PG&E should support the DCISC meeting (in-person or remotely) semi-annually with members of the PG&E Safety and Nuclear Oversight Committee to learn about the PG&E Board of Directors' safety-related goals, priorities, administrative oversight, and budgetary policies vis-à-vis DCPP, and to review and coordinate strategic issues affecting the plant's systems and occupational (personnel) safety. (P8/25FF-3.1)

3.2 <u>Meeting with DCPP Officers Paula Gerfen and Maureen Zawalick</u>

The DCISC Fact-finding Team (FFT) met with Paula Gerfen, Senior Vice-President and Chief Nuclear Officer, and Maureen Zawalick, Vice-President, Business and Technical Services, for a general update. The group discussed the DCISC meeting agenda, state of the plant, DCPP safety culture, the PG&E Board SNO Committee (see Section 3.1 above), and Dr. Meshkati's background, professional involvement, and interests about safety as a new Member on the DCISC.

<u>Conclusion</u>: The introductory meeting of DCISC Member Meshkati with Chief Nuclear Officer Paula Gerfen and Vice-President Maureen Zawalick was beneficial to both organizations for familiarization and professional interests

<u>Recommendations to the DCISC or PG&E</u>: None

3.3 <u>Safety Conscious Work Environment</u>

The DCISC FFT met with Craig Sutton, Nuclear Safety Culture Monitoring Panel Chair (and Radiation Protection Manager); Karen Karner, Organizational Effectiveness Principal; and Donna Wells, Employee Concerns Program Manager, for a review of DCPP's Nuclear Safety Culture Program and Employee Concerns Program. The DCISC last reviewed both topics during its January 2025 Fact-Finding Meeting (Reference 6.1), when it concluded the following:

> *DCPP's Nuclear Safety Culture and Employee Concerns Programs were performing well with no major safety concerns having been recently identified.*

The DCPP representatives described the plant's safety culture as strong and effective. The DCPP Safety Culture Leadership Team's (SCLT's) latest formal quarterly *Nuclear Safety Culture Review*

Report (August 11, 2025), which included the Nuclear Safety Culture Monitoring Panel report (NSCM) report to Chief Nuclear Officer Paula Gerfen, described DCPP safety culture as "believes that safety culture is healthy" and "Leadership and staff behaviors are in line with the expectations described per INPO 12-012, *Traits of a Healthy Nuclear Safety Culture* and INPO 15-005*, Leadership Team Effectiveness Attributes."* The SCLT Panel, made up of representatives of all functional areas of DCPP, provided the basis for its conclusion, reaching full consensus.

There have been no NRC concerns from its inspections and no Institute of Nuclear Power Operations (INPO) concerns. Proper safety culture is expected by leaders at the top of the plant leadership. There have been no nuclear safety concerns brought up recently in the Employee Concerns Program.

Conclusions: The DCPP Safety Conscious Work Environment appears to be healthy and effective.

Recommendations to the DCISC or PG&E: None

3.4 Beyond Design Basis Accident Mitigation Guidelines - FLEX

The DCISC FFT met with Bill Conklin, FLEX Supervisor; Mark Baker, Nuclear Engineering Manager; and Dallas Adams, Engineering Programs Manager, to review how beyond design basis accident guidelines are used. The DCISC last reviewed this in January 2025 (Reference 6.2), when it concluded the following:

> *DCPP's FLEX Response Procedures were appropriately integrated with other procedures for responding to emergency events and severe accidents.*

Following the terrorist attacks of September 11, 2001, there was significant concern in the United States about attacks on nuclear power plants using hijacked airplanes or other means. The NRC and national laboratories analyzed terrorist attack scenarios on nuclear plants and their spent fuel pools and concluded that additional security and mitigation measures were needed The NRC issued an Interim Compensatory Measure (ICM) Order in 2002 modifying the operating licenses of all plants. Section B.5.b of that order directed plant licensees to take certain actions. Section B.5.b of the ICM Order requires licensees to adopt mitigation strategies using readily available resources to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities to cope with the loss of large areas of the facility due to large fires and explosions from any cause, including beyond-design-basis aircraft impacts.

The utilities, working through the Nuclear Energy Institute, developed detailed guidance for B.5.b response procedures, termed Extensive Damage Mitigation Guidelines (EDMGs), and for additional equipment to be located at each site. The guidance assumed conditions far beyond design-basis accidents, including loss of all AC and DC power, denial of access to structures including the control room, and loss of plant control and monitoring capability.

Extensive Damage Mitigation Guidelines (EDMGs) refer to a set of procedures and strategies designed to maintain or restore critical functions like core cooling, containment integrity, and spent fuel pool cooling within a nuclear power plant, even in scenarios where large portions of the plant have been severely damaged by events like explosions or fires, exceeding the plant's normal design basis; essentially, it outlines how to manage a catastrophic situation beyond the expected design parameters of the facility.

The 18 EDMGs are divided into three areas as follows:

EDMG	Title
Large Events that may Result in Damage to the Plant Beyond the Design Basis	
EDMG-1	Extensive Damage Mitigation Guideline
EDCG-1	ERO Guidance for Extensive Plant Damage Mitigation
EDWM-1	Fire System Management Strategies
EDG-5	Refueling Water Storage Tank Makeup
EDG-6	Makeup to Condensate Storage Tank
EDG-7	Manually Depressurize SGs to Minimize RCS Inventory Loss
EDG-8	Manual Operations to Control Steam Generator Water Level
EDG-9	Use of Fire Engine to Supply Water to Steam Generators
EDG-10	Containment Flooding with Portable Pump
EDG-11	Vent Containment
EDG-12	Start Diesel Generator without DC Power
EDG-13	Portable Sprays
EDG-16	Pressurize Diesel Generator Starting Air Receivers with a
	Portable Compressor
Large Spent Fuel Pool Leaks	
EDG-1	Internal Spent Fuel Pool makeup
EDG-2	External Spent Fuel Pool makeup
EDG-3	Spent Fuel Pool Cooling via Spray
EDG-4	Spent Fuel Pool Leakage Control Strategies
Equipment Inventory	
EDG-14	EDMG Equipment Annual Inventory

Entry into EDMGs is initiated by the following:

1. Command and control cannot be established at the Control Room or Hot Shut Down Panel (HSDP)

Or

2. Spent Fuel Pool (SFP) damage has occurred that results in leakage greater than the capability of normal make-up to the SFP.

EDMGs play a different role than Emergency Operating Procedures. The EDMGs address using equipment likely to survive an extreme event, such as a fire, explosion, earthquake, or other severe event that causes extensive damage or a loss of large areas of the plant.

Because of the nature of the event, which available equipment will be available is unknown. The equipment described in the guidelines may not be available or accessible to complete the required actions. EDMGs are intended to provide operators with a “toolbox” of capabilities that can be used to respond to unpredictable damage from large fires, explosions, earthquakes or other severe events. EDMGs also serve as a bridge between the plant operational command and control and the command and control that is provided by the plant’s emergency response organization.

Following the Fukushima accident, the FLEX Program was initiated to procure additional (mostly portable) equipment to improve and consolidate plans and capabilities for the mitigation of

possible Beyond Design Basis (BDB) Events. DCPP's FLEX Program is based on the guidelines contained in Nuclear Energy Institute report 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide." The events considered in the design of the FLEX Program included a loss of all station power; a loss of the ultimate heat sink; natural events such as earthquakes, tsunamis, and local intense precipitation; and large-scale fires or explosions.

The FLEX Program is designed around three response phases as follows:

> Phase 1 – Initial response using installed plant equipment and on-shift operations personnel. Examples of responses that may be taken during this phase are the stripping of DC bus loads to prolong battery life and the alignment of the Feedwater Storage Tank to be a backup supply of water to the Condensate Storage Tank.
>
> Phase 2 – Short-term responses using FLEX equipment stored on-site and additional on-shift personnel. Examples of responses that may be taken during this phase include the clearing of debris from access routes using FLEX equipment (front-end loaders), moving and connecting backup pumps and/or generators, and establishing alternate incident management and communications centers.
>
> Phase 3 – Long-term responses to obtain additional resources using FLEX equipment stored at off-site response centers located in Arizona and Tennessee. DCPP is a part of and provides financial support to the nuclear industry's consortium, the Strategic Alliance for FLEX Emergency Response (SAFER) organization, which is an organization that was set up to provide supplemental emergency response personnel and equipment within 24 hours of receiving a request for assistance from a U.S. nuclear power plant. Examples of equipment that could be provided from offsite include very large (1 MW) portable generators, additional pumps with hoses, and electrical transformers with cables. All equipment is designed to be lifted by helicopter for transport to the site if needed.

Additionally, the nature and complexity of EDMGs drive a need for in-plant training sessions so operators would be familiar with both in-plant and portable equipment and their connection locations. For this reason, DCPP has a second session called the "FLEX Refresher," which is one hour in the classroom and then two hours in the field walking down the equipment with procedures. This satisfies both EDMG and FLEX training as both use the same equipment.

Accident mitigation and management strategies developed through those older initiatives have been converted into implementing actions and recommendations within four separate sets of procedures and guidelines for responding to BDB Events as follows:

- Emergency Operating Procedures (EOPs),
- Severe Accident Management Guidelines (SAMGs)
- Extensive Damage Mitigation Guidelines (EDMGs).
- FLEX Support Guidelines (FSGs)

These four sets of procedures and guidelines were related as shown in the following diagram:

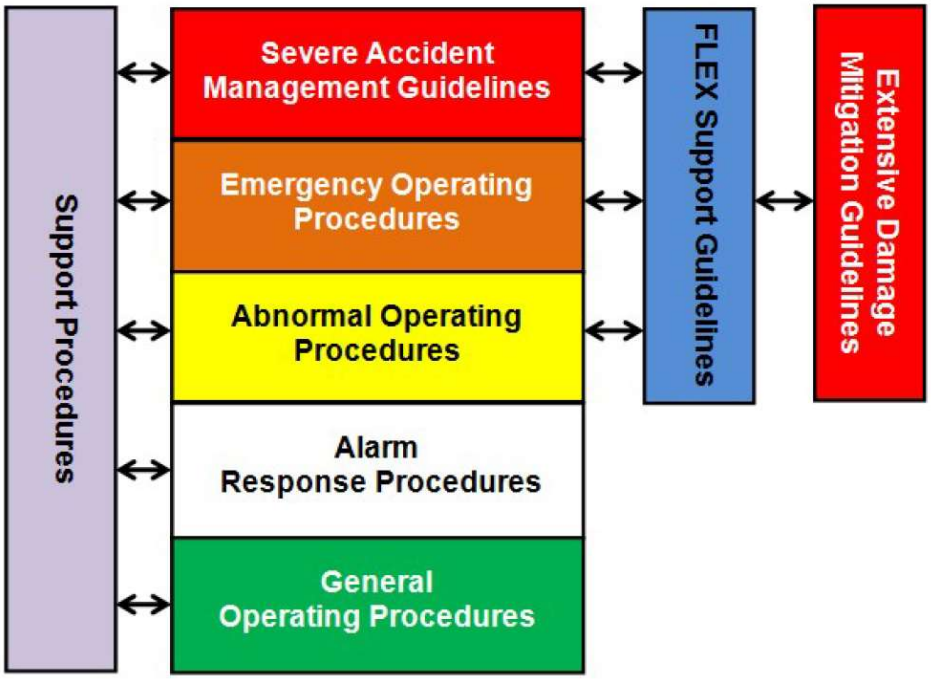


Diagram Showing the Hierarchy of Beyond Design Basis Event Response Procedures

The DCPP representatives explained how and when the various guidelines are implemented. The decision points are guided by an overall procedure. Operators receive extensive training in these guidelines, including simulator training.

Conclusions: DCPP has a variety of emergency guidelines and equipment to deal with beyond design basis accidents. Staff receive extensive training in the use of these guidelines, including simulator training. DCPP's equipment, guidelines, and training to handle beyond design basis accidents appeared satisfactory.

Recommendations to the DCISC or PG&E: None.

3.5 Meeting with NRC Resident Inspectors

The DCISC FFT met with Madhi Hayes, NRC Senior Resident Inspector, and Eli Garcia, NRC Resident Inspector, for an update. The DCISC last met with the NRC Resident Inspectors in July 2025 (Reference 6.3), when it concluded the following:

> *The meeting with the NRC Senior Resident Inspector was beneficial, and the DCISC should continue the meetings.*

The participants discussed the following items:

- This fact-finding agenda
- Recent and upcoming NRC inspections
- DCPP actions due to California wildfires

Regarding the wildfires, after discussion with Bill Lalone, Performance Improvement and Corrective Action Program (CAP) Manager, the FFT recommends inviting Mr. Lalone to make a presentation about their wildfire experience and the prudent, proactive, and safety-conscious decision-making process for powering down the plant.

Conclusions: The meeting with the NRC Resident Inspectors was beneficial, and the DCISC should continue the meetings.

Recommendations to the DCISC or PG&E: None.

3.6 Electronic Procedures

The DCISC FFT met with Bryan Galvan, Operations Manager, and Jordan Tyman, Director, Risk and Compliance for an update and plans for DCPP electronic procedures. The DCISC last reviewed electronic procedures in July 2025 (Reference 6.4), when it concluded the following:

> *The DCISC FFT endorses DCPP's decision to pursue electronic procedures. Electronic procedures provide many benefits in improving human reliability and documenting work, thereby creating substantial opportunities to improve the plant's operational safety.*

Mr. Galvan provided a dynamic video presentation of an electronic procedure example being used, which he characterized as "dynamic instruction." The example showed how an electronic procedure was able to prevent human errors by asking questions to steer the user in the correct direction to the proper piece of equipment to make the correct choice of various options. The scope of dynamic instruction is limited to standard operating procedures and maintenance procedures (and not plant control). Six procedures have been made electronic to date, and more are being processed. Mr. Galvan expressed support for the use of electronic procedures to reduce human error and provide ease of data collection and record keeping. According to Mr. Galvan, another company which operates several major nuclear plants in the southeastern US is ahead of DCPP vis-à-vis utilizing electronic procedures.

Conclusion: DCPP is proceeding with converting its operating and maintenance procedures to electronic versions with the expectation that they will provide positive results, especially in reducing human errors and ease of data and record keeping.

Recommendation to the DCISC: The following previous recommendation to PG&E was reviewed in this Fact-Finding Meeting and remains open: *Because expanded use of electronic procedures can enhance plant operational safety, subject to proper human systems integration, the DCISC should review this topic regularly. (D12/24FF-3.2)*

Recommendation to PG&E: The following previous recommendation to PG&E was reviewed in this Fact-Finding Meeting and remains open: *The DCISC recommends that*

PG&E further expand their use of electronic-procedure-type applications, subject to proper human systems integration, because the improved human performance and documentation of work can directly improve the safety of DCPP operation. (P12/24FF-3.2)

3.7 Artificial Intelligence Update

The FFT met with Jordan Tyman, Director, Risk and Compliance, Maureen Zawalick, Vice-President, Business and Technical Services, and Erin Bowe, Innovation Supervisor, for an update on DCPP's venture into Artificial Intelligence (AI) search systems. The DCISC last reviewed AI at DCPP in July 2025 (Reference 6.5), when it concluded the following:

> *The new DCPP artificial intelligence search system by Atomic Canyon to be used for high speed, very accurate data/document searches appears to have good potential for reducing human error and for more efficient searches.*

DCPP has put together a cross section of employees from various functions to implement their new AI System, Atomic Canyon's Neutron Enterprise AI tool.

Neutron Enterprise is a powerful, sophisticated document data search and retrieval engine, which is aimed at significant cost savings and improved operational efficiency. Regulatory agencies require reactor operators to manage huge amounts of technical documentation contained in multiple systems. Plant personnel spend large amounts of time and resources retrieving, sorting and organizing data accurately and reliably such that they are understandable and useful.

After describing Neutron Enterprise and its capabilities, Ms. Bowe provided a demonstration of its functionalities with an example search. The search demonstrated the speed and thoroughness of the new tool.

Conclusion: The new DCPP Neutron Enterprise artificial intelligence search system by Atomic Canyon to be used for high speed, very accurate data/document searches appears to have good potential for reducing human error and for more efficient searches.

Recommendation to the DCISC: The following previous recommendation to the DCISC was reviewed in this Fact-Finding Meeting and remains open: *Because the application of Artificial Intelligence tools has significant potential to change and to improve DCPP's operational safety, the DCISC should review this topic frequently. (D12/24FF-3.4)*

Recommendation to PG&E: None.

3.8 Observe Plant Health Committee Meeting

The DCISC FFT met with Brandy Lopez, DCPP Liaison to the DCISC, who facilitated the FFT's observation of the August 13, 2025, meeting of the DCPP Plant Health Committee (PHC).

The DCISC last reviewed a PHC Subcommittee meeting in December 2024 (Reference 6.6) when it concluded the following:

> *The December 11, 2024, Plant Health Committee meeting was carried out efficiently and effectively. All items on the agenda were covered, and there was good participation by attendees. The Plant Health Committee is an appropriate forum for assuring the health of DCPP systems and programs.*

The PHC is governed by DCPP Procedure TS5.ID9, "Plant Health Committee," Revision 6, a copy of which was provided to the FFT and found satisfactory. The PHC 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 station Top-Ten List of equipment issues
- Review and approval of action plans to address plant health issues that originated from system and component health reports, maintenance rule, operator workarounds, program health reports, and emergent issues
- 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 Preventive Maintenance Oversight Committee functions
- Quarterly review and monitoring of the Top Margin Issues list
- Approving and authorizing the PHC budget for solutions to plant health issues
- Approving system, component, and program long range plans

The meeting began with the Chair verifying that a quorum was present. The following attended:

- Station Director, PHC Chairman
- Maintenance Senior Director Delegate
- Operations Director Delegate
- Engineering Director Delegate
- Security Director Delegate
- Projects Director Delegate
- Outage Director

The agenda was as follows:

- Safety and Human Performance Message/Responsibilities
- Verify Quorum
- Introduce Visitors and Operations Personnel
- Meeting Purpose and Desired Outcomes
- Action Item Review
- Top Ten Equipment Issues

- Previous Meeting WELL (What Excellence Looks Like) Results

The Top Ten Equipment Issues the PHC is following are as follows:

1. Feedwater/Moisture Separator Reheater Steam Leaks
2. Emergency Diesel Generator Local Control Panel Alarm Obsolescent
3. Condensate Polisher Sump Pump Obsolescent
4. Main Annunciator System Obsolescent
5. Chlorination System Adverse Trend
6. Condenser Pressure Transmitter Adverse Trend
7. Service Air System Adverse Trend
8. 480 Volt Switchgear Warm Terminal
9. Turbine Control System Instrument Failures
10. Auxiliary Building Ventilation /system Damper Adverse Trend

The Plant Health Committee is paying particular attention to these ten items with specific action plans for resolution.

Conclusions: The DCPP Plant Health Committee is effectively fulfilling its function to assure plant systems and equipment remain healthy or have action plans to return to good health.

Recommendations to the DCISC or PG&E: None.

3.9 DCISC Recommendations to PG&E

The DCISC met with Blair Jones, Chief of Staff and Director of Strategy, Performance Improvement (PI), Organizational Effectiveness, and Engagement; Bill Lalone, Performance Improvement and Corrective Action Program (CAP) Manager; Colt Wells, PI Supervisor; and Dennis Hammond, PI and CAP Senior Advisor, to discuss the DCPP responses and actions made or proposed to the following six DCISC recommendations to PG&E during this reporting period.

1. **Recommendation to PG&E No. P11/24FF-3.11:** PG&E should continue to evaluate why a 2018 Root Cause Evaluation for a failed Auxiliary Saltwater Pump motor bearing did not result in sufficiently effective procedure changes.

   PG&E Response, Notification 51271826: "The cause determined was the 'lack of a review from those involved in the Root Cause Evaluation to ensure the procedure revision met the root cause team's intent and expectations. MP E-17.1 was revised to include a hold point in which the SME engineer would review the alignment and the recorded dimensions of endplay prior to proceeding with the rest of the alignment. OM7.ID3 Root Cause Evaluations and AD1.ID2 were revised to ensure a CDR is performed for any CAPR or CA from a Root Cause Evaluation, which will ensure that any procedure revision meets the intent from the RCE."

DCISC Response: This topic is planned for further review at the DCISC's September 2025 Fact-Finding Meeting.

2. **Recommendation to PG&E No. P1/25FF-3.3A:** PG&E should review its cause evaluation processes and initiate actions to ensure that deficiencies observed via the Organizational Learning Tool and Safety Culture Assessment are captured and tied to the initiation of appropriate corrective actions.

   PG&E Response, Notification 51271824: "There are no interim corrective actions needed. This request is already part of our process in that results of the OLT are reviewed, and any gaps or deficiencies are incorporated into either corrective or prudent actions."

   DCISC Response: This response is satisfactory, and the recommendation is closed.

3. **Recommendation to PG&E No. P1/25FF-3.3B:** PG&E should review its cause evaluation processes and initiate actions to ensure that periodic trending is performed across the multiple Organizational Learning Tools and Safety Culture Assessments that are performed as a part of Cause Evaluations and Root Cause Evaluations.

   PG&E Response, Notification 51271824: "There are no interim corrective actions needed. This request is already part of our process in that results of the OLT are reviewed and any gaps or deficiencies are incorporated into either corrective or prudent actions."

   DCISC Response: This response is satisfactory, and the recommendation is closed.

4. **Recommendation to PG&E No. P12/24FF-3.6:** PG&E should review why an extent of condition review for an unbraced cabinet found by the DCISC in July 2024 did not prevent the identification of a similar condition by the DCISC in December 2024.

   PG&E Response: This recommendation was completed and closed during the DCISC's May 2025 Fact-Finding Meeting.

5. **Recommendation to PG&E No. P4/25FF-3.6:** PG&E should review if DCPP should have considered developing FLEX guidelines for providing an alternative discharge path for the Auxiliary Saltwater (ASW) System following a Beyond Design Basis event that may cause a collapse of the Discharge Structure or otherwise obstruct the ASW System discharge. (Section 4.23)

   PG&E Response: A response is in progress and will be provided at a later date.

6. **Recommendation to PG&E No. P12/24FF-3.2:** PG&E should further expand their use of electronic procedures-type applications because the improved human performance and documentation of work can directly improve the safety of operations. (Section 4.27)

   PG&E Response: See Section 3.6 above.

<u>Conclusions</u>: The DCISC reviewed six recommendations and found that two were ready for closure.

<u>Recommendations to the DCISC</u>: None.

<u>Recommendations to PG&E</u>:

The following previous recommendation to PG&E was reviewed during this Fact-Finding Meeting and is recommended for closure: *PG&E should review its cause evaluation processes and initiate actions to ensure that deficiencies observed via the Organizational Learning Tool and Safety Culture Assessment are captured and tied to the initiation of appropriate corrective actions (P1/25FF-3.3A).*

The following previous recommendation to PG&E was reviewed during this Fact-Finding Meeting and is recommended for closure: *PG&E should review its cause evaluation processes and initiate actions to ensure that periodic trending is performed across the multiple Organizational Learning Tools and Safety Culture Assessments that are performed as a part of Cause Evaluations and Root Cause Evaluations (P1/25FF-3.3B).*

3.10 <u>Single Point Vulnerability Update</u>

The DCISC FFT met with Mark Baker, Nuclear Engineering Manager, and Dallas Adams, Program Engineering Manager, for an update on the Single Point Vulnerability (SPV) Program. The DCISC last reviewed this item in September 2019 (Reference 6.7), when it concluded the following:

> *DCPP has completed major changes to its program for managing Single Point Vulnerabilities in accordance with industry guidelines. These changes were implemented in a manner that maintained adequate controls to ensure high levels of reliability for critical components.*

DCPP first studied the issue of SPVs in 2002 to identify and eliminate or manage SPVs at a system and component level. At that time, a single component would be classified as an SPV component if its failure (alone) could result in a reactor trip or turbine trip, or a plant decrease in power of greater than 2% power. In 2006, DCPP began a more extensive SPV study on all systems (about 20) that had an impact on either generation or reliability and completed it in 2008. In the 20 plant systems reviewed, over 1,500 SPVs were identified and evaluated for the two units (over 750 for each individual unit). This was a collaborative effort with support from industry organizations such as the Electric Power Research Institute (EPRI) and the Nuclear Energy Institute (NEI). As a result of these studies, actions were initiated on some SPVs to eliminate them by modifications and/or to minimize or eliminate their failure rate by changes in Preventive Maintenance (PM) practices. By 2015, all of these actions had been completed and all SPVs were considered mitigated either through modifications or adequate maintenance practices.

In 2016, the Nuclear Energy Institute issued Efficiency Bulletin (EB) 16-25, "Critical Component Reduction," which modified guidance previously provided by industry guideline AP-913, "Equipment Reliability Process Description." Specifically, the EB reduced the scope of the definition for a "Critical Component," which included items classified as SPVs. The new definition for a Critical Component included components whose failure would result in any of the following consequences:

- Reactor trip (SPVs)
- Significant power transient (greater than 20%)
- Failure of a Mitigating Systems Performance Index monitored component
- Complete loss of a critical safety function
- Loss of a Maintenance-Rule risk-significant function

The changes outlined in the EB excluded some categories of components that had previously been considered as critical under AP-913. Components removed from classification as Critical Components included items such as components whose singular failure would result in a partial trip, Engineered Safety Features actuation, entry into a Technical Specifications Limited Condition of Operation allowing less than 72 hours, or functional failure of a high-safety-significant or risk-significant function.

In response to the EB, DCPP undertook an effort to reclassify components in its Preventative Maintenance program according to the guidance contained in the EB. This review was initiated and documented via a Notification (SAPN 50871534), a copy of which was provided to and reviewed by the Fact-Finding Team. In 2017, DCPP revised its program guidance contained in procedure ER1.DC1, "Component Classification," to conform to the guidelines of the EB. Then, it undertook a review of all components previously classified as critical in the plant's SAP database system to determine the needed classification code changes. The SAP database served to contain and manage all component classification codes as well as the applicable Preventative Maintenance tasks and schedules. The resulting recommended classification code changes were further reviewed and approved by the applicable System Engineers and the Plant Health Committee prior to implementation. The review resulted in a reduction in the number of components classified as SPVs, which is more "strategic", from over 1500 to 931, all of which, according to Mr. Baker, were of ERC1 (Equipment Reliability Category one).

Many of the items that were removed from the SPV classification were components that were a part of redundant trains which became SPVs only when one of the redundant trains was out of service for maintenance. The station believed that this situation was adequately addressed by current programs that were in place to protect redundant trains of equipment when the opposite train was out of service.

The FFT notes that Mr. Baker initiated a SAPN to benchmark other light water reactors' single point vulnerability programs. The FFT believes this is a proactive step and plans to follow up at a future date.

<u>Conclusion</u>: DCPP has completed major changes to its program for managing Single Point Vulnerabilities in accordance with industry guidelines. These changes were implemented in

a manner that maintained adequate controls to ensure high levels of reliability for critical components. DCPP initiated a new Notification requesting benchmarking single point vulnerability programs at other reactor plants. This is a positive, proactive move.

Recommendations to the DCISC or PG&E: None.

3.11 Emergency Diesel Generator Walkdown

The DCISC FFT, equipped with required personnel safety gear, met with Mike LaChance, EDG System Engineer, for a tour of the Emergency Diesel Generator (EDG) 2-3. As the group made its tour, Mr. Chance provided explanations of the various components of the EDG.

Dr. Meshkati and Mr. Wardell at EDG 2-3 Door.

Conclusions: A tour of Emergency Diesel Generator showed that the engine and its room were clean and orderly and the DCPP escort was knowledgeable about the machine and its systems.

Recommendations to the DCISC or PG&E: None.

3.12 Nuclear Instrumentation Update

The DCISC FFT met with Mr. Waleed Ahmed, Mike Sullivan, Rick Mainini, and Mark Frantz for an update on the DCPP Nuclear Instrument Systems. The DCISC last reviewed DCPP Nuclear Instrumentation in September 2020 (Reference 6.8), when it concluded the following:

> *The DCPP Nuclear Instrumentation System is in good health on both units. There have been several nuclear detectors needing replacements, which have been resolved satisfactorily.*

The DCPP Nuclear Instrumentation Systems consist of the following:

1. Excore Nuclear Instrumentation System (NIS)
2. Movable Incore Detector System (MIDS)

Excore Nuclear Instrumentation System

The NIS consists of an array of neutron detectors arranged around the outside (i.e., excore) of the Reactor Vessel whose purpose is to measure neutrons emanating from the core to

- Provide indication of reactor power level and rate of change
- Provide indication of power distribution within the core
- Provide reactor power level indication following a design basis accident
- Supply nuclear power control signals to the Full-Length Rod Control System
- Supply nuclear power protection signals to the Reactor Protection System

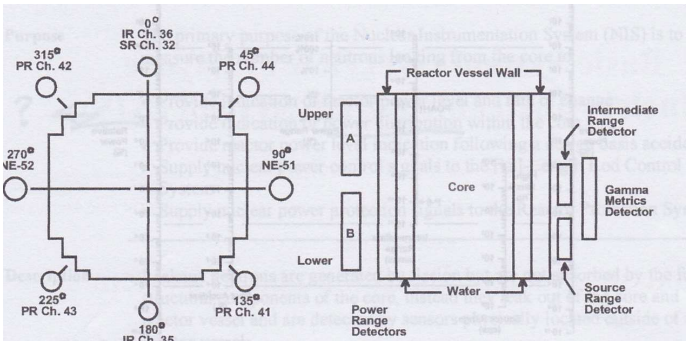
There are three ranges of instrumentation as follows:

1. Source Range instrumentation provides monitoring of neutron flux during shutdown, the initial phase of reactor startup, and final phase of reactor shutdown.

2. Intermediate Range detectors provide monitoring of neutron flux over a range of eight decades in between startup and the beginning of power operation.

3. Power Range detectors provide monitoring of neutron flux over a range of 0 to 200% of full power. There are four redundant channels that are physically separated and electrically isolated from each other.

Additionally, a two-channel Post Accident detector system is provided for monitoring of reactor power level of 10^{-8} to 100% power during accident conditions. This system indicates in both the Control Room and the Hot Shutdown Panel.



Nuclear Instrumentation Detector Arrangement

DCPP reported that the NIS is in good health. Two Unit 2 Intermediate Range Detectors required replacement in November 2019 and April 2020 due to abnormally high indications caused by faulty electrical connections. The NIS has been operating normally since then.

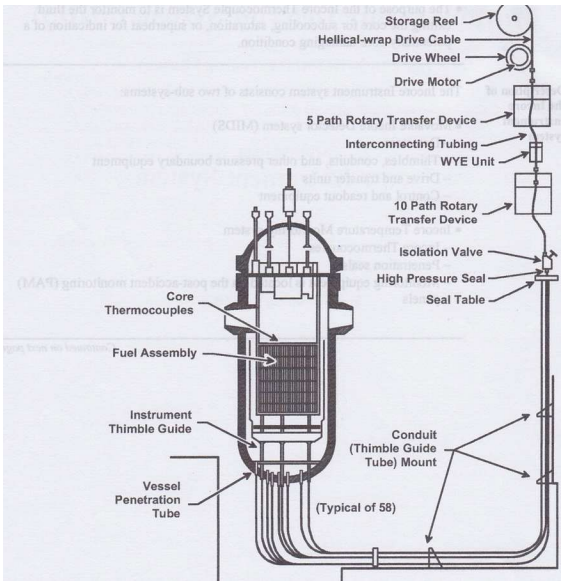
Movable Incore Detector System

The MIDS consists of two sub-systems.

1. MIDS purpose is to monitor nuclear power distribution within the reactor core. It employs
    1. Neutron detectors
    2. Thimbles, conduits and other pressure boundary equipment
    3. Drive and transfer units
    4. Control and readout equipment

MIDS is used to make monthly flux maps of the reactor core. Detectors are replaced periodically. MIDS thimble tubes have experienced mechanical wear and have been replaced with chrome tubes to prevent wear.

2. The Incore Thermocouple System is provided to monitor the fluid exiting the core for subcooling, saturation, or superheat for indication of a potentially core-damaging condition, and it includes:
    1. Incore thermocouples
    2. Penetration seals
    3. Monitoring equipment



Schematic drawing of Incore Instrument System

DCPP reported that these systems are in good health.

The current plan is to maintain the existing Nuclear Instrumentation Systems until the end of plant life.

<u>Conclusions</u>: The DCPP Nuclear Instrumentation System is in good health on both units. There have been several nuclear detectors needing replacements, which have been resolved satisfactorily.

<u>Recommendations to the DCISC or to PG&E</u>: None.

3.13 <u>Observe Quarterly FLEX Diesel-Driven Emergency Saltwater Pump Flow Test</u>

The DCISC FFT met with Bill Conklin, FLEX Manager, to observe the quarterly FLEX Raw Water Reservoir Pump flow test. The test was run at the upper raw water reservoir adjacent to the ISFSI. The diesel engine started immediately, and the pump ran flawlessly.




DCPP Diesel-driven FLEX Raw Water Reservoir Pump Test and Dr. Meshkati

<u>Conclusion</u>: The quarterly FLEX Diesel-driven Raw Reservoir Pump Test was performed successfully.

<u>Recommendations to the DCISC or to PG&E</u>: None.

3.14 <u>Simulator Hot Shutdown Panel</u>

The FFT visited the Simulator Building, where it was given a tour and briefing of the Simulator's Hot Shutdown Panel by Mr. Ben Overton, Operations Training Instructor. The actual panel is located for each unit on the floors directly below the main Control Rooms. It is located away from the Control Room to permit having an independent "control room" to be able to bring the plant down from power operation to hot shutdown in case the main Control Room is not available or must be evacuated.

Mr. Wardell and Dr. Meshkati at the Simulator Hot Shutdown Panel

Conclusion: The DCPP Hot Shutdown Panel located in the Simulator was identical to the two in the plant with the same controls, which are capable of bringing the operating plant down to Hot Shutdown, a stable, safe shutdown mode in case the Main Control Room is unavailable or must be evacuated. The panel was logically designed to permit ease of use. Training was held frequently using this simulated panel.

Recommendations to the DCISC or to P&&E: None

4.0 CONC LUSIONS

4.1 DCISC Member Meshkati's meeting with two members of the PG&E Board of Directors' Safety and Nuclear Oversight Committee was enlightening for the DCISC, demonstrating the Board's seriousness about corporate safety, both for the DCPP nuclear plant and the remaining areas of the corporation.

4.2 The introductory meeting of new DCISC Member Meshkati with Chief Nuclear Officer Paula Gerfen and Vice-President Maureen Zawalick was beneficial to both organizations for familiarization and professional interests.

4.3 The DCPP Safety Conscious Work Environment appears to be strong and effective.

4.4 DCPP has a variety of emergency guidelines and equipment to deal with beyond design basis accidents. Staff receive extensive training in the use of these guidelines,

including simulator training. DCPP's equipment, guidelines, and training to handle beyond design basis accidents appeared satisfactory.

4.5 The meeting with the NRC Senior Resident Inspector was beneficial, and the DCISC should continue the meetings.

4.6 DCPP is proceeding with converting its operating and maintenance procedures to electronic versions with the expectation that they will provide positive results, especially in reducing human errors and ease of data and record keeping.

4.7 The new DCPP Neutron Enterprise artificial intelligence search system by Atomic Canyon to be used for high speed, very accurate data/document searches appears to have good potential for reducing human error and for more efficient searches.

4.8 The DCPP Plant Health Committee is effectively fulfilling its function to assure plant systems and equipment remain healthy or have action plans to return to good health.

4.9 The DCISC reviewed six recommendations and found that two were ready for closure

4.10 DCPP has completed major changes to its program for managing Single Point Vulnerabilities in accordance with industry guidelines. These changes were implemented in a manner that maintained adequate controls to ensure high levels of reliability for critical components. DCPP initiated a new Notification requesting benchmarking single point vulnerability programs at other reactor plants. This is a positive, proactive move.

4.11 A tour of Emergency Diesel Generator showed that the engine and its room were clean and orderly and the DCPP escort was knowledgeable about the machine and its systems.

4.12 The DCPP Nuclear Instrumentation System is in good health on both units. There have been several nuclear detectors needing replacements, which have been resolved satisfactorily.

4.13 The quarterly FLEX Diesel-driven Raw Reservoir Pump Test was performed successfully.

4.14 The DCPP Hot Shutdown Panel located in the Simulator was identical to the two in the plant with the same controls, which are capable of bringing the operating plant down to Hot Shutdown, a stable, safe shutdown mode in case the Main Control Room is unavailable or must be evacuated. The panel was logically designed to permit ease of use. Training was held frequently using this simulated panel.

5.0 RECOMMENDATIONS

Recommendations to the DCISC:

5.1 The following previous recommendation to the DCISC was reviewed in this Fact-Finding Meeting (Section 3.1) and remains open: ***The DCISC should meet with members of the Safety and Nuclear Oversight Committee of the PG&E Board to review matters related to Nuclear Safety Culture at the corporate level.*** **(D1/25FF-3.8)**

5.2 The following previous recommendation to the DCISC was reviewed in this Fact-Finding Meeting (Section 3.6) and remains open: ***Because expanded use of electronic procedures can enhance plant operational safety, subject to proper human systems integration, the DCISC should review this topic regularly.*** **(D12/24FF-3.2*)***

5.3 The following previous recommendation to the DCISC was reviewed in this Fact-Finding Meeting (Section 3.7) and remains open: ***Because the application of Artificial Intelligence tools has significant potential to change and to improve DCPP's operational safety, the DCISC should review this topic frequently. (D12/24FF-3.4)***

Recommendations to PG&E:

5.4 PG&E should support the DCISC meeting (in-person or remotely) semi-annually with members of the PG&E Safety and Nuclear Oversight Committee to learn about the PG&E Board of Directors' safety-related goals, priorities, administrative oversight, and budgetary policies vis-à-vis DCPP, and to review and coordinate strategic issues affecting the plant's systems and occupational (personnel) safety. (Section 3.1; P8/25FF-3.1)

5.5 The following previous recommendation to PG&E was reviewed in this Fact-Finding Meeting (Section 3.6) and remains open: ***The DCISC recommends that PG&E further expand their use of electronic-procedure-type applications, subject to proper human systems integration, because the improved human performance and documentation of work can directly improve the safety of DCPP operation. (P12/24FF-3.2)***

5.6 The following previous recommendation to PG&E was reviewed during this Fact-Finding Meeting (Section 3.9) and is recommended for closure: ***PG&E should review its cause evaluation processes and initiate actions to ensure that deficiencies observed via the Organizational Learning Tool and Safety Culture Assessment are captured and tied to the initiation of appropriate corrective actions (P1/25FF-3.3A).***

5.7 The following previous recommendation to PG&E was reviewed during this Fact-Finding Meeting (Section 3.9) and is recommended for closure: ***PG&E should review its cause evaluation processes and initiate actions to ensure that periodic trending is performed across the multiple Organizational Learning Tools and Safety Culture Assessments that are performed as a part of Cause Evaluations and Root Cause Evaluations (P1/25FF-3.3B).***

6.0 REFERENCES

6.1 "Diablo Canyon Independent Safety Committee Thirty-Fifth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2024 – June 30, 2025," to be Approved October 22, 2025, Volume II, Exhibit D.6, Section 3.9, "Station Nuclear Safety Culture and Employee Concerns Programs."

6.2 Ibid., Exhibit D.6, Section 3.1, "FLEX Program."

6.3 "Diablo Canyon Independent Safety Committee Thirty-Sixth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2025 – June 30, 2026," to be Approved October 20, 2026, Volume II, Exhibit D.1, Section 3.4, "Meet with NRC Senior Resident Inspector."

6.4 Ibid., Section 3.6, "Electronic Procedures."

6.5 Ibid., Section 3.9, "Artificial Intelligence Program Update."

6.6 "Diablo Canyon Independent Safety Committee Thirty-Fifth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2024 – June 30, 2025," to be Approved October 22, 2025, Volume II, Exhibit D.5, Section 3.1, "Observe Plant Health Committee Meeting."

6.7 "Diablo Canyon Independent Safety Committee Thirty-Second Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2019 – June 30, 2020," Approved October 18, 2020, Volume II, Exhibit D.3, Section 3.11, "Single Point Vulnerabilities Program."

6.8 "Diablo Canyon Independent Safety Committee Thirty-Third Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2020 – June 30, 2021," Approved October 16, 2021, Volume II, Exhibit D.3, Section 3.9 "Nuclear Instrumentation Update."