Diablo Canyon Power Plant: State of the Plant Update

Cary Harbor
Station Director
July 1, 2020
Overview

Station Update

Key Upcoming Activities
Station Update

Plant Operation

• Unit 1 and Unit 2 are safely operating at 100 percent power with a Probabilistic Risk Assessment (PRA) of “Green.”

• All NRC Performance Indicators (PIs) are “Green.”
Plant Operation

- Shutdown of Unit 2 due to rod control equipment problem on February 13, 2020.

- INPO (Institute of Nuclear Power Operations) Accreditation of all training programs has been completed.

- Unit 1 refueling outage 1R22 preparations are in progress.

- Unit 1 curtailment to support condenser and tunnel cleaning completed in May.
Daily Load Profile: 2020
Daily Capacity Factor Power History Curves

Unit 1 COD 05-07-1985
2020 YTD Capacity Factor 99.05%

Unit 2 COD 03-13-1986
2020 YTD Capacity Factor 98.94%

Current Continuous Days On-line
Unit-1 = 440.6  Unit-2 = 105.7

DAILY LOAD PROFILE (% MDC Net) Through: MAY 2020
Daily Load Profile: Past 12 Months

Daily Capacity Factor Power History Curves

Unit 1 COD 05-07-1985
Unit-1 2020 YTD Capacity Factor 99.05%

Unit 2 COD 03-13-1986
Unit-2 2020 YTD Capacity Factor 98.94%

Total Plant 2020 YTD Capacity Factor 98.99%

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<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
<th>Notes</th>
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<tbody>
<tr>
<td>06/24</td>
<td>Curtailed to 80% for STP M-2C Main Turbine Control Valve Test. INPO Planned Event</td>
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<td>12/18</td>
<td>Curtailed to 59% for Main Condenser Pick &amp; Dredge. INPO OMC</td>
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<td>12/20</td>
<td>Curtailed to 89% for Grid SPS problem. INPO OMC</td>
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<td>12/22</td>
<td>Full power.</td>
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<td>02/13</td>
<td>Manual Outage 2.5 days Missigned control rods during STP R-RA. INPO UPEL and ORLF</td>
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<tr>
<td>05/11</td>
<td>Curtailed to 52% for Tunnel Cleaning. INPO Planned Event</td>
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<tr>
<td>08/24</td>
<td>Curtailed to 88% for STP M-2C Main Turbine Control Valve Test. INPO Planned Event</td>
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Current Continuous Days On-line
Unit-1 = 440.6  Unit-2 = 105.7

DAILY LOAD PROFILE (% MDC Net)

Through: MAY 2020
Station Organizational Changes

PG&E Bankruptcy

- No Impact on Diablo Canyon Power Plant safe operations
Key Upcoming Activities

Upcoming Station Activities

• NRC Problem Identification and Resolution Inspection in August 2020

• Unit 1 Refueling Outage 1R22 commences in October 2020
Thank you

Cary Harbor
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Diablo Canyon Coronavirus (COVID-19) Response & Prevention Measures

Michael A. Ginn
Emergency Planning Manager
July 1, 2020
Station update on COVID-19 response actions and prevention measures taken were provided to DCISC during Fact-Finding interviews

These DCISC Fact-finding updates were conducted on:

- March 18, 2020
- April 16, 2020
- May 13, 2020
Current COVID-19 Status

Diablo Canyon Power Plant (DCPP) remains in monitoring stage with essential personnel for continued safe and reliable operations of the station.

- Emergent Issue (EI) Team established 2/27/2020 for managing business continuity challenges of the public health emergency
- Over 100 site specific actions implemented
Key Actions Taken

Operations Control Room

• Limited access to only critically required personnel
• Shift briefs and turnovers performed remotely
• Control Room work areas are sanitized each shift and during turnovers
• Employing additional sanitation crews with sole purpose of cleaning high exposure areas
• Additional hand sanitizers added at entry points for required use
Key Actions Taken

Employee Protection Measures

• Implemented rigorous health screening including, temperature and symptom checks before arriving at work, and following necessary quarantine guidelines
• Face coverings and physical distancing requirements established for all departments onsite
• Suspended all non-essential site access, business travel and offsite meetings
• Closed fitness facilities and cafeteria dining with no communal food
• Implemented additional sanitizing routines, with staged supplies including for use of company vehicles
Critical Qualification Monitoring

- Implemented critical qualification monitoring for all license required personnel
- Established department specific monitoring and action plans for Operations, Security, Maintenance, Engineering, Chemistry & Radiation Protection, and DCPP Fire Officers
- Established plans to deepen pool of available critical qualifications if needed with action triggers for absenteeism
Supplied Chain & Critical Supplies

• Implemented daily review of critical supplies and built margins to support 8-weeks of isolated operations
• Established 4-weeks of onsite food supply and procured additional contingency supplies for station isolation planning
• Engaged vendors and contractors on potential for sequestered onsite support
• Donated ~1 million N95 and surgical masks to California Healthcare professionals (March 22, 2020)
Remote Work Strategy

• Implemented remote work strategy for all non-essential personnel
• Approximately 500 employees working remotely
• Information Technology (IT) key part of EI team
• Established self-service depot for IT equipment and employee resources
• Home office ergonomic assessments being tracked and implemented to support all remote workers
Key Actions Taken

Industry Interface & Outreach

• Conducting weekly NRC Senior Resident Inspector briefings on station COVID-19 response
• Participating in weekly Nuclear Energy Institute (NEI) COVID-19 industry coordination calls and benchmarking
• Maintaining daily communications and interface with San Luis Obispo County Public Health and Emergency Services
• Conducting bi-weekly coordination calls with FEMA Region IX, NRC Region IV, and State of California Emergency Services
Key Actions Taken

Fall Outage Preparation & Planning

- Outage COVID-19 Planning Team established
- Industry benchmarking and lessons learned reviewed from stations with Spring outages
- In-processing contingency plans established
- Employee communications and updates being developed on outage specific protective measures for site access, employee screening, social distancing, and other logistics
Key Actions Taken

Lessons Learned - Critiques

- Emergent Issue Team critiques are currently in progress
- Critiques are focused on COVID-19 policies, standards and response areas including alignment with PG&E corporate guidance and industry best practices
- Goal is to ensure lessons learned are captured in the corrective action program and the DCPP pandemic response policy and guidance are updated in a timely manner
Thank you

Michael A. Ginn
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DCPP Performance
Based on NRC Performance Indicators

Russ Prentice
Director, Risk and Compliance
July 1, 2020
DCPP Performance Summary

February 2020– June 2020

- This presentation covers approximately 4 months of NRC inspections involving ~1800 hours of inspection time.
- DCPP met “Green” performance expectations for all NRC performance indicators.
- The NRC identified one very low-safety significant violation since the last DCISC meeting in February.
## NRC Performance Indicators

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| G | G | Unplanned Scrams per 7000 Critical Hrs
| G | G | Unplanned Power Changes per 7000 Critical Hrs
| G | G | Unplanned Scrams with Complications
| G | G | Safety System Functional Failures
| G | G | Mitigating Systems Performance Index, Emergency AC Power System
| G | G | Mitigating Systems Performance Index, High Pressure Injection System
| G | G | Mitigating Systems Performance Index, Heat Removal System
| G | G | Mitigating Systems Performance Index, Residual Heat Removal System
| G | G | Mitigating Systems Performance Index, Cooling Water Systems
| G | G | Reactor Coolant System Activity
| G | G | Reactor Coolant System Leakage
| G | G | Drill/Exercise Performance
| G | G | ERO Drill Participation
| G | G | Alert & Notification System
| G | G | Occupational Exposure Control Effectiveness
| G | G | RETS/ODCM Radiological Effluent
NRC Violations

February 2020 – June 2020

- **Non-Cited Violation (Green)** – Both Unit 2 Containment Spray Pumps inoperable in Mode 4.
  (Cross-cutting Aspect H.5 – Work Management)
  - *Very low safety significance with no impact on public health & safety.*
Licensee Event Reports

February 2020 – June 2020

No Licensee Event Reports (LERs) have been issued since the last DCISC Meeting.
February 2020 - June 2020

- DCPP performance was Green based on NRC performance indicators.
- The following Inspection Reports were issued since the last DCISC meeting:
  - 1st Quarter 2020 Integrated Inspection Report (2020-001, 4/16/2020)
Intake Reclassification:

- DCPP License Amendment Request (LAR) was approved by the NRC in March and was fully implemented on June 5th.
Thank you

Russ Prentice
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PG&E Use of Risk Assessment Findings

Philippe Soenen
Decommissioning Environmental and Licensing Manager
July 1, 2020
The dry cask storage request-for-proposal (RFP) requests that vendor proposals include the following:

- **Lowest SFP Inventory**: Results to commence the earliest implementation of a Storage System prior to permanent cessation of Unit 1 operations in November 2024 resulting in complete offload of the SFPs after Unit 1 and Unit 2 shutdowns

- **Earliest SFP-Empty Date**: Complete offload of the SFPs as soon as possible not to exceed four years after Unit 1 and Unit 2 shutdowns (i.e., before November 2028 and August 2029, respectively)

**California Energy Commission (CEC) input**

- Have reviewed the risk assessment, RFP, and proposed PG&E proposal technical evaluation criteria
- CEC comments will be resolved prior to PG&E scoring proposals

**Proposal technical evaluations will include:**

- Implementation of one of the above vendor proposal options
- Consideration of safety margin shown by the risk assessment
PG&E will use a request-for-proposal process to develop a holistic GTCC waste and SNF storage strategy.

CEC: California Energy Commission
CPUC: California Public Utilities Commission
NDCTP: Nuclear Decommissioning Cost Triennial Proceeding
RFP: Request for Proposal
UCLA: University of California, Los Angeles
Diablo Canyon
Operations Department
Performance

Dennis Petersen
Operations Services Director
July 2, 2020
Current Perspective

Operations Leaders are Effectively Leveraging Performance Monitoring Tools

• Crew Management Review Meetings
• Plant power level changes safe and error free
• Strong partnership with training is improving performance
• COVID mitigations have minimized personnel unavailability

Leadership Changes

• Operations Manager filling rotation as Assistant to the Station Director
• Performance Shift Manager backfilling role as Interim Operations Manager
Excellence Plan

Improving Behaviors to Deliver Results

- Transition from previous plan focused on status control
- Strengthened leader engagement in driving improved performance
- Only remaining action is to complete effectiveness review
- Excellence is a journey, not a destination!
Workforce Planning

License Class Status
- 2018 Class completed with 100% pass rate in March. Presently assigned to crews
- 2019 Class is largest ever at 24 candidates; half are training on shift with balance of students in classroom and simulator
- Scheduled NRC exam is Feb 2021

Nuclear Operator Class Status
- Commenced March 16th - Eleven candidates
- Some delays incurred due to COVID
- Schedule completion is November 2020

Attrition
- Attrition lower than forecast
- We have hired in advance of the forecast attrition to ensure we maintain a healthy staffing margin
Current Focus
Operator Fundamentals

**Definition**
Fundamental operator behaviors that represent the essential knowledge, skills, and practices that individuals and crews must exhibit to operate the plant effectively. The use of these fundamentals, along with the appropriate level of proficiency, assures success.

**Proficiency**
- Individual or team mastery of specific task or skill
- Consistently acceptable performance
- In accordance with establish standards of excellence
- Balance of the use of both fundamentals and human performance

**Engagement**
- Engaged operators are professionals that are self-motivated, self-disciplined, and voluntarily adhere to standards of excellence
- They sustain a drive to achieve higher levels of excellence and continuously pursue mastery of their craft
Operator Fundamentals Tool

Operator Fundamentals

Proficiency
Individual or team mastery of a specific task or job skill demonstrated by consistently acceptable performance, in accordance with established standards. It is a balance of the use of fundamentals and human performance tools.

Control Precisely
Requires proficient and attentive operators with knowledge of equipment limits to demonstrate proper behaviors and use procedures correctly.

Conservative Bias
A bias for action in the direction of plant safety, and maintain a sufficient margin to safety parameters to avoid challenging the plant.

Effective Teamwork
Clearly define individual roles and responsibilities, demonstrate effective leadership, and establish a culture that encourages peer-to-peer challenging.

Plant Knowledge
Thoroughly understand the bases for procedure steps and expected system response; know what is happening and why; recognize the risk of reduced operating or safety margins.

Engagement
Engaged operators are professionals that are self-motivated, self-disciplined, and voluntarily adhere to standards. They sustain a drive to achieve higher levels of excellence and continuously pursue mastery of their craft.

Monitor Closely
Operators monitor plant equipment and conditions effectively, and question when a parameter does not appear normal.

Operator fundamentals are fundamental operator behaviors that represent the essential knowledge, skills and practices that individuals and operating crews must apply to operate the plant effectively. The use of operator fundamentals, along with the appropriate level of proficiency, improves the likelihood of success. Two overarching characteristics are necessary to achieve excellence in operator fundamentals: operational proficiency and operator engagement.
Generating Excellence

Safe, Reliable, Affordable
Thank you

Dennis Petersen
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Update on 1R22 Refueling Outage preparations

Matt Coward
Outage Manager
July 2, 2020
1R22 Preparations

Major Scope

- Steam Generator Eddy Current testing
- Reactor Hot Leg nozzle ultrasonic inspection
- Reactor Coolant Pump seal replacements
- Refueling Manipulator Crane Variable Frequency Drive (VFD) Replacement
- Polar Crane Overspeed Trip modification
- Refueling Cavity Upender bushing replacement
- Low Pressure Turbine “C” removal and inspection
- Circulating Water Pump (CWP) 1-1 Motor overhaul
- Intake Cooling Water Heat Exchanger 1-1 tube bundle replacement
- 4 kV and 480 V vital bus H maintenance
- 230 kV tower replacement
- 500 kV tower insulator replacements
Schedule – critical path

- Outage starts October 4, 2020
- Cooldown and depressurize
- Reactor disassembly – upper internals removal
- Vital bus H outage
- ECCS valve interlock testing
- Reload the reactor
- Reactor reassembly
- Plant heat up and testing
- Reactor startup and physics testing
- Roll main turbine and parallel to the grid
First time evolutions

- 230 kV tower replacement
  - Requires a site 230 kV outage
1R22 Preparations

COVID contingency planning

• Plan is to complete full scope of work
  • Technical evaluations and contingency planning being performed in case of vendor support impacts
• Social distancing protocols developed
  • Includes in-processing as well as outage implementation
• Positive case protocols being developed
• Outage COVID team of senior leaders has been implemented to make strategic decisions concerning pandemic impacts.
  • Focus on protecting our workers and ensure reliable plant operation for the next fuel cycle
1R22 Preparations

Major partners

• Westinghouse
  • Hot leg nozzle inspections
  • Fuel handling
  • Reactor Coolant Pump seal replacements
• Siemens
  • Low Pressure “C” inspection
  • Main turbine valve overhauls
Thank you

Matt Coward
mgc2@pge.com
Integrated Risk Assessment Process

Tim Gilbride
Daily Work Control Manager
July 2, 2020
Process provides for a systematic approach to identifying and addressing each risk exposure to ensure all areas are addressed in a timely and appropriate manner.

**Why is it needed**

Maintenance and testing, results in changes to the base line risk of nuclear power plant operation.
Integrated Risk Assessment Process

Risk Management Process

- Identify
  - Identify the Potential Risks

- Assess
  - Assess the Risk

- Prevent
  - Prevent and Mitigate the Risk

- Implement
  - Implement Risk Management Strategies

- Learn
  - Learn and Adapt
Various Areas of Risk

- Industrial Safety
- Nuclear Safety
- Radiological Safety
- Chemistry and Environmental Safety
- Regulatory Compliance and Plant Operation
- Security
Integrated Risk Review Team

- Operations (Senior Reactor Operator)
- Maintenance (I&C, Mech, Elect)
- Radiation Protection
- Chemistry & Environmental
- Safety
- Security
- Engineering
- Emergency Planning
- Planning
- Work Control
Identify the Potential Risks

- New scheduled work at T-7
- Any work added to the plant schedule between T-7 and T-0
- Clearance tagout risk at T-3
Assess the Risk (4 Risk Levels)

- Low Risk
- Medium Risk
- High Risk
- Very High Risk
Prevent and Mitigate the Risk (by Risk Level)

- **Low Risk**
  - No Additional mitigations required
  - Brief workers on risk

- **Medium Risk**
  - Review work documents for any required pre-planning and mitigating actions
  - Brief workers on risk
Prevent and Mitigate the Risk (by Risk Level)

• **High Risk**
  - Review work documents for any required pre-planning and mitigating actions
  - Complete risk management plan
  - Include risk management plan in all work documents
  - Brief workers on risk
  - Hold post job critique after work is complete for lessons learned

• **Very High Risk**
  - Review work documents for any required pre-planning and mitigating actions
  - Complete risk management plan
  - Perform contingency planning
  - Include risk management plan in all work documents
  - Brief workers on risk
  - Hold post job critique after work is complete for lessons learned
Implement Risk Management Strategies

- Supervisors and workers review the risk level and mitigation actions during the pre-job brief
  - Ensure all work documentation has the risk level documented
- Include a summary list of all high and very high-risk activities scheduled in the next 24 hours in the published daily schedule
- Report out on the risk management plan for any high or very high-risk activity scheduled for the day at the routine daily plant meeting
  - Convene a risk challenge board
- Before starting work, verify that conditions have not changed sufficiently that the risk assessment is now inadequate
Learn and Adapt

• For low and medium risk activities, document any risk challenges or learnings in the work order completions remarks
• Conduct a post-job critique at the completion of high or very-high risk evolution
• Review high and very-high risk evolutions in the T+1 meeting
Thank you

Tim Gilbride
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March 17-18, 2020 Fact-finding Report
Robert J. Budnitz, Member, and Richard McWhorter, Consultant

1. Meet with NRC Senior Resident Inspector
2. Operations Department Human Performance
3. Attend Notification Review Team Meeting
4. Auxiliary Saltwater System
5. Environmental Qualification Program
6. Auxiliary Feedwater System
7. Unit 2 Forced Outage
8. Special Protection System
9. Steam Generator System
11. Future Spent Fuel Management
12. Mode Change Sequence Following Refueling Outage 2R21
13. Meet with DCPP Officer
Meet with NRC Senior Resident Inspector

- Pandemic response by the NRC and DCPP
- Recent human performance at DCPP
- NRC budgets and inspection guidance
- Recent NRC inspection findings and perspectives on plant performance
Operations Department Human Performance

- Increase in Station Level Events
  - Inadvertent Unit 2 ‘F’ Bus Transfer, Jumper Left Installed During Relay Testing, 07/27/19
  - Inadvertent Technical Specification 3.0.3 Entry, Untimely Lock Out of Both Containment Spray Pumps, 11/30/19
  - Reactor Coolant Pump 2-3 Seal Return Momentarily Isolated, Erroneous In-plant Operator Actions, 12/11/19
- Multiple Notifications Created to Address Adverse Trends
- Numerous Corrective Actions Initiated Within Operations Department in Mid-2019 and Early 2020
- Actions Appear Appropriate; DCISC Should Review Effectiveness in Future
- Also Discussed at April Meeting and Later in This Meeting
Attend Notification Review Team (NRT) Meeting

- Notifications Are a Part of the Corrective Action Program and Are Electronic Documents Used to Identify and Record Problems and Tracking to Resolution
- 50-100 Notifications Initiated Daily
- Each Notification is Promptly Reviewed by Work Control and the Control Room Shift Manager
- Multi-departmental NRT Meets Each Weekday to Review Previous Day’s Notifications for Classification, Disposition, Assignment, and Significance
- Review Performed via Multi-user Collaborative Application
- The March 17, 2020 NRT Meeting Was Conducted Efficiently and Effectively
Auxiliary Saltwater (ASW) Systems

- Used to Provide Heat Sink to the Pacific Ocean for Safe Shutdown and During an Accident
- Both Systems on Both Units Good Health ("Green")
- Corrective Actions in Progress for November 2018 Pump Motor Failure and September 2019 Breaker Failure
- Long-Standing Issue Remains Open Regarding Potential for High Ocean Water Temperatures; Prompt Operability Assessment Developed for Use If Needed
- Use of System After 2025 for Spent Fuel Cooling Under Review
Environmental Qualification (EQ) Program

- Program Ensures that Safety Equipment Will Operate When Subjected to Abnormal Environmental Conditions.
- Identifies and Tracks Qualifications of Components Designated as “EQ Equipment”
- Required Periodic Self-Assessment Concluded Program was Satisfactorily Implemented
- NRC Inspection in Mid-2018, One Issue Identified with Cable Routing to Pressurizer PORV Solenoids; Resolution in Progress
- Recent Industry Issue with Qualifications of Transmitters Reviewed and Found Not a Significant Issue at DCPP
- Program Healthy with No Major Outstanding Issues
Auxiliary Feedwater (AFW) Systems

- Systems Used to Provide Feedwater to Steam Generators During Shutdown, Startup, Low Power, and Accident Conditions
- Both Systems on Both Units Good Health ("Green")
- Modifications in Progress to Replace Chemical Addition Skids
- Minor Issues with Check Valve Backleakage Handled Appropriately
Unit 2 Forced Outage

- February 13 to 16, 2020
- Initiated Due to Problem with Shutdown Bank B Rods Deviating from Demand Position (Trip Function Not Affected)
- Failed Circuit Card; Root Cause Evaluation (RCE) Initiated
- Other Issues During Shutdown
  - SG 2-1 Feedwater Regulating Valve Oscillations
  - Main Generator Stator Cooling Water Alarm
- Outage Was Appropriately Managed. DCISC Should Review RCE When Completed
Special Protection System

- System Installed in 2006 to Prevent Grid Instabilities If a Two-unit DCPP Trip Occurred When Two of Three 500 kV Lines Were Out of Service.
- Reviewed Issue in Which Unit 1 Reduced in Power on 12/21/19 Due to SPS Issue – Found to be Miswiring of Alarm Circuit During Modification
- Reviewed How SPS Selects Which Unit to Trip
- Actions and Logic Were Appropriate
Steam Generator (SG) Systems

- Systems Used to Transfer Reactor Heat and Generate Steam for Power Production
- Periodic Primary and Secondary Side Inspections
- FF Team Reviewed Inspections Performed in 1R19, 2R19 and 2R21
  - 1R19 – Eight Tubes Plugged Due to Anti-Vibration Bar Wear; 23 Pounds of Sludge Removed
  - 2R19 (Secondary Only) – 12.5 Pounds of Sludge Removed
  - 2R21 – No New Tubes Plugged; 35 Pounds of Sludge Removed

(Continued)
Steam Generator (SG) Systems (Continued)

• Excellent Performance Since Replacement in 2008 and 2009

• Future Inspections – 1R22 Will Be Last Primary Side Inspection for Unit 1 (Three Cycles Carries to Cessation of Operations in 2024)

• Future Inspections – 1R22 Secondary Side Inspections Under Review to Change Interval from Three to Six Cycles; DCISC Should Review When Complete

• Future Inspections – 2R21 Likely to be Last Unit 2 Inspection, Need NRC Approval for Four Cycle Interval (Industry Initiative)
Pandemic Response Planning for COVID-19 Coronavirus

- Began Planning on February 27, Emerging Issue Initiated
- Specific Actions Included:
  - Directing Employees to Work from Home
  - Sequestering Shift Employees on Site
  - Split Maintenance and Engineering Teams
  - Deferral of Non-Critical Work
  - Contingency Planning
  - Direction to Emergency Planning Teams
  - Coordination with SLO County Emergency Services
- Response Was Well Developed and Thorough, Actions Taken to Ensure Safe Operations, Emergency Response Capabilities Remained Available
Future Spent Fuel Management

- Spent Fuel Risk Study Draft Complete
- Study Finalization Delayed to March
- Reviewed Basis for NRC B.5.b Requirements
- DCISC Should Follow Up After Study Completion
- Also to Discussed at April Meeting and Later in this Meeting
Mode Change Sequence Following 2R21

- Reviewed Background on Planning and Execution for Mode Changes Following 2R21. [Mode 5 (Shutdown) to Mode 3 (Hot Standby) back down to Mode 5.]
- Changes to Plan Driven by Unexpected Steam Isolation Valve Leakage and RCP Shaft Cracking Potential Concerns
- Reviewed Need for PRA Calculation to Support Mode 4 Entry
- Actions Taken Were Appropriate; However, Making Two Major Plan Changes Within A Short Time Frame was Undesirable

Meeting with Site Vice President, Paula Gerfen
Meeting with Site Vice President, Paula Gerfen

• Discussed items from the fact-finding meeting and other subjects of interest.
March 17-18, 2020 Fact-finding Report
Robert J. Budnitz, Member, and Richard McWhorter, Consultant

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April 15-16, 2020 Fact-finding Report
Peter Lam, Member, and Ferman Wardell, Consultant

1. Meet with NRC Senior Resident Inspector
2. Unit 2 Forced Outage
3. Quality Performance Assessment Report
4. Quality Verification Audits & Nuclear Industry Evaluation Pgm
5. Spent Fuel Risk Analysis
6. Component Cooling Water System
7. DCISC Member meet DCPP Chief Nuclear Officer Jim Welsch
8. Online Maintenance Update
9. Integrated Risk Assessment Update
10. Operations Department Update
11. Observe Licensed Operator Training
12. DCPP Coronavirus Update
Meet with NRC Resident Inspector

1. Mr. Newport leaving September or October 2020.
3. COVID-19: NRC has reduced its resident inspector time on-site: each inspector goes to the plant one day per week and works from home the other days. Some NRC inspections have been postponed.
4. DCPP has deferred non-critical maintenance work.
6. Unit 2 forced outage in February 2020
7. The UCLA spent fuel risk study was discussed.
8. The reduced security level at the DCPP intake
Unit 2 February 2020 Forced Outage

1. During Unit 2 control rod surveillance testing, 4 shutdown rods became misaligned, requiring entry into Mode 3, Hot Shutdown.

2. Troubleshooting: a circuit card was functioning incorrectly.

3. Corrective actions:
   a. Replace the card
   b. Test cards with the DCPP card tester
   c. Send the replaced card to the supplier for inspection
   d. Acquire test data during the surveillance testing
   e. Perform visual inspections of cards in next refueling outage

4. Unit 2 back to full power. The rod control and indicator system were performing normally.

5. The DCISC FFT believed DCPP responded appropriately.
Quality Performance Assessment Report (QPAR)

1. The QPAR provides an assessment of DCPP nuclear safety culture health and implementation of the Quality Assurance Program.
2. "DCPP exhibited traits of a strong Nuclear Safety Culture."
3. “Overall, DCPP demonstrated WHITE and STABLE performance.”
   a. Operations – Yellow and Stable [More on this later.]
   b. Maintenance – White and Improving
   c. Engineering – White and Stable
   d. Work Management – Green and Stable
   e. Radiation Protection – Green and Stable
   f. Chemistry/Environmental – Green and Declining
   g. Security – White and Stable
   h. Emergency Preparedness – Green and Stable
   i. Learning Services – Green and Stable
   j. Performance Improvement – White and Stable
   k. Fire Protection – White and Stable
   l. Organizational Effectiveness – White and Stable
4. The DCISC FFT concluded that the QPAR was comprehensive and factual.
Quality Assurance Audits

1. DCPP 2020 QA audits:
   a. Radiation Protection
   b. Emergency Preparedness
   c. Procurement
   d. Operations and Technical specifications
   e. Security
   f. Training
   g. Geosciences
   h. Maintenance
   i. Quality Assurance Program/AMSAC/SFP/FLEX
   j. Refueling Outage 1R22

2. 2019 Cyber Security Audit reported two Findings satisfactorily closed.
3. The DCISC FFT concluded that audits were satisfactorily performed.
Biennial (outside) NIEP Evaluations provide an independent audit of oversight functions of the DCPP Quality Assurance Program.

“Overall, the development, documentation, and implementation of the selected DCPP independent oversight functions were found to be Effective.”

The evaluated functions:

- Nuclear Oversight Safety/QA Organization & QA Program
- Internal Audits
- Off-Site Review Committee (Nuclear Safety Oversight Committee - NSOC)
- Supplier Oversight
- Receipt Inspection
- Quality Control Inspection
- Quality Assurance Program Maintenance

Three Deficiencies from the 2018 NIEP Evaluation were satisfactorily resolved. Seven new Deficiencies were identified in the 2020 Evaluation.

One strength was identified as follows:

“The QV Director position has been effectively used as a rotational development opportunity by the Diablo Canyon senior management team.”
Spent Fuel Risk Analysis

1. Evaluate and compare the risks of four Spent Fuel storage options. The risk of each of the four spent fuel transfer options was found to be very small; considerably less than the USNRC’s risk criteria for safe operation.

2. The smallest risk was for the option of early movement of spent fuel from the Spent Fuel Pool to the Independent Spent Fuel Storage Installation beginning following the Unit 1 shutdown and prior to the Unit 2 shutdown.

3. No further discussion here as this item is being presented in this Public Meeting.
Component Cooling Water (CCW) System

1. Closed-cycle, safety-related cooling system
2. Removes heat from the following systems during normal or accident operation and transfers it to the Ultimate Heat Sink (UHS), i.e. the Pacific Ocean, via the Auxiliary Salt Water (ASW) System:
   a. Residual Heat Removal System
   b. Containment Fan Cooler Units
   c. Safety Injection Pump Coolers
   d. Reactor Coolant Pumps
   e. Reactor Vessel Supports
   f. Spent Fuel Pool Heat Exchanger
   g. Excess Letdown Heat Exchanger
   h. Seal Water System Heat Exchanger
3. Green (excellent) health and was operating as designed.
DCISC Member Lam Meet with Chief Nuclear Officer Jim Welsch

- Dr. Lam met with Mr. Welsch to discuss items from the Fact-finding Meeting and other items of common interest.
Online Maintenance Update

1. DCPP’s Online Maintenance is performed while operating rather during outages. Procedures are based on risk assessment:
   a. On-Line Maintenance Risk Management
   b. Conduct of Maintenance
   c. Assessment of Integrated Risk
2. DCPP performs only those on-line items to maintain reliability.
3. DCPP minimizes number of components out-of-service together.
4. Conclusions:
   a. DCPP procedures appeared satisfactory.
   b. Risk-based decision-making for online maintenance is a good practice.
Integrated Risk Assessment

1. Systematic approach to identifying and addressing risk
2. Used for for all modes of operation, including outages
3. Procedures:
   a. On-Line Maintenance Risk Management
   b. Outage Safety Scheduling
   c. Conduct of Infrequently Performed Tests or Evolutions
4. Prevention, Detection and Correction approach to integrated risk for Maintenance and Operations activities
5. DCPP has a satisfactory process for developing Integrated Risk Assessments for its work activities
Operations Update

1. DCPP Operations overall performance continues to be Yellow (performance is not meeting expectations).
2. Due primarily to status control (component mispositioning) events.
3. This issue was escalated to management in mid-2019.
5. Future DCISC Fact-finding teams should include this issue until the issue returns to GREEN Status and to the DCISC’s satisfaction.
6. More in later presentation in this Public Meeting
Observe Licensed Operator Training

1. Topic: Natural Circulation of the Reactor Coolant System (RCS) with Reactor Coolant Pumps (RCPs) off.
2. During normal shutdown and in some off-normal conditions, the RCPs are off, but flow is needed for cooling.
3. With geometry of the RCS & elevation differences between the Reactor Vessel and Steam Generators, coolant circulates naturally.
4. Class materials included the technical background and DCPP procedure for achieving and maintaining natural circulation.
5. Good instructor preparation/performance & student participation
6. The DCISC Fact-finding Team found the Licensed Operator training class satisfactory, (except observed via audio only)
**DCPP Coronavirus Update**

1. DCPP’s response to and actions for dealing with COVID-19 are based on maintaining safe, reliable operations & a healthy staff.
2. DCPP initiatives appeared appropriate for handling normal operations as well as potential responses to emergencies.
3. DCPP’s independent reviews by Quality Verification concluded DCPP was implementing directives and practices appropriately.
4. DCPP’s COVID-19 actions appeared appropriate and did not appear to adversely affect operational safety.
5. DCPP COVID-19 discussed further in this Public Meeting
April 15-16, 2020 Fact-finding Report
Peter Lam, Member, and Ferman Wardell, Consultant

1. Meet with NRC Senior Resident Inspector
2. Unit 2 Forced Outage
3. Quality Performance Assessment Report
4. Quality Verification Audits & Nuclear Industry Evaluation Pgm
5. Final Spent Fuel Risk Analysis
6. Component Cooling Water System
7. DCISC Member meet DCPP Chief Nuclear Officer Jim Welsch
8. Online Maintenance Update
9. Integrated Risk Assessment Update
10. Operations Department Update
11. Observe Licensed Operator Training
12. DCPP Coronavirus Update
May 12-13, 2020 Fact-finding Report
Per F. Peterson, Member, and Richard McWhorter, Consultant

1. Meet with Nuclear Regulatory Commission (NRC) Senior Resident Inspector
2. History of Variable Frequency Drive Modifications to Containment Polar Cranes
3. Training Programs During the COVID-19 Pandemic
4. Emergency Diesel Generators
5. Process Control System
6. Meet with DCPP Director
7. Attend Plant Health Committee Meeting
8. Margin Management Program
9. Auxiliary Building Ventilation Systems
10. Status of Responding to the COVID-19 Pandemic
Meet with NRC Senior Resident Inspector

- Future Resident Inspector Assignments
- Pandemic Response by the NRC and DCPP
- Recent NRC Inspection Findings and Perspectives on Plant Performance
History of Variable Frequency Drive Modifications to Containment Polar Cranes

- Follow-up Item from June 2019 Public Meeting
- Cranes Originally Used Motor-Generator Sets; Numerous Reliability Issues Occurred in Early 2000s
- DCPs Implemented in 2012 and 2013 to Replace with VFDs
- Modifications Were Generally Successful in Improving Reliability and Maintainability
- VFDs Used Elsewhere Include Refueling Equipment, Intake Traveling Screens, Chemical Treatment Skids, and Other Cranes
- Modifications Appeared Properly Implemented and Controlled
Training Programs During the COVID-19 Pandemic

- Licensed Operator Continuing Training Successfully Continued without Significant Interruption
- Simulator Schedule Restructured to Minimize Risk
- Initial Licensed Operator Training Class Initially Shifted to WebEx Only, Simulator and In-Plant Later Restarted
- New Non-Licensed Operator Class Initially Shifted to Online Generic Training and Later Moved to In-Person at PG&E Education Center Auditorium
- Engineering Training Continued via WebEx
- Maintenance Training Delayed; Restart Planned
- Training Appeared to be Successfully Continuing during the COVID-19 Pandemic
Emergency Diesel Generators

• Used to Provide Electric Power During a Shutdown or an Accident Situation with a Loss of Offsite Power
• Systems on Both Units in Good Health (“Green”)
• Governor Replacements Continuing in Order to Address Obsolescence; Final Two Unit 2 Replacements Cancelled; Parts from Other Units to be Made Available if Needed
• EDG Reliability Plan Completed/Closed; Goals Achieved
• AC Power Reliability Index at 100%; Unavailability < 1%
• Significant Progress Made in Resolving Long-Standing Issues with EDGs
Process Control System

- Measures and Controls RCS Process Parameters
- Both Safety-Related and Non-Safety Related Functions
- Systems Replaced in 2012 and 2013
- Both Units Systems in Good Health ("Green")
- System Healthy with No Major Outstanding Issues
Meeting with Station Director, Cary Harbor

- Discussed items from the fact-finding meeting and other subjects of interest.
Attend Plant Health Committee (PHC) Meeting

- Responsible for Reviewing System and Program Health Issues and Approving Action Plans to Address Issues
- Conference Call Format Worked Well
- Fire Protection Program Reviewed; Program Healthy with Problem Areas Being Addressed
- 4kV Electrical Distribution System Reviewed; Unit 1 Systems Healthy. Unit 2 Rated as Needing Improvement Due to Bus Transfer Incident and ASW Pump Failure to Start Due to Breaker Issue. Problem Areas Being Addressed
- The May 13, 2020 PHC Meeting Was Conducted Efficiently and Effectively
Margin Management Program

• Program Recently Eliminated and Replaced with a Margin Management Process
• Scope Narrowed to Eliminate Redundancy with Other Programs (Design Control, System Health Monitoring, CAP)
• Process Owner Still Reviews Issues for Significance and Maintains Top Margin Management Issues List
• Several Long-Standing Issues Recently Resolved
• Two Remaining Open Issues – Possibility of Ocean Temperatures > 64°F and Low ABVS Charcoal Filter Test Margin
• Process Effective
Auxiliary Building Ventilation System (ABVS)

- Systems Used to Heat, Cool, and Filter Air Supplied for Personnel and Equipment in the Auxiliary Building
- Tier 2 System; No Formal Health Report
- Both Units in Maintenance Rule (a)(1) Status Due to a Significant Numbers of Functional Failures in ~2018
- Majority of Failures Involved Dampers Which Failed Due to an Inadequate Periodicity of Maintenance; Corrective Actions Complete and System Being Monitored
- Unit 2 Charcoal Filter Batch Failed Surveillance Test for Absorption in September 2019; Replaced within 24 Hours
- ABVS in Fair Health; DCISC Should Review Again in Mid-2021
Status of Responding to the COVID-19 Pandemic

• Early Action, Social Distancing, Hygiene, and Remote Work Actions Appeared Effective; No Active Cases
• Maintenance Returned to Full Force On Site in May; Working to Reduce Backlog
• Current Mix of Remote Work and Operations/Maintenance Personnel on Site Appeared Sustainable for Months
• Emergency Response Team Training and Rotations Continue; No Reduction in Emergency Response Capabilities
• Most Employees Believed They Continued to be Effective in Their Jobs
• Actions Appeared Proper; DCISC Should Continue to Monitor
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