

An aerial photograph of the Diablo Canyon nuclear power plant. The plant's containment domes and various buildings are visible on a coastal plain. To the left, the ocean features rocky shorelines and waves crashing against a breakwater. In the background, rolling green hills and mountains rise under a clear sky. The text "Diablo Canyon", "Independent", and "Safety Committee" is overlaid in a large, bold, dark blue font.

Diablo Canyon
Independent
Safety Committee

Public Meeting
June 23 and 24, 2021

Avila Lighthouse Suites



March 4, 17, 18 & 24, 2021 Fact-finding Report

Robert J. Budnitz, Member, and R. Ferman Wardell, Consultant

- 1. Station Excellence Plan**
- 2. Meet with Quality Verification Director**
- 3. Plant (Reactor) Protection System**
- 4. Vibration Monitoring Program**
- 5. Tornado Missile Licensing Update**
- 6. Winter Storm Response**
- 7. Fire Protection: NFPA-805**
- 8. Maintenance Department Update**
- 9. Nuclear Fuel Performance**
- 10. Meet with NRC Resident Inspector**
- 11. Observe Nuclear Safety Oversight Committee Meeting**



Station Excellence Plan

- Comprehensive, highest-level DCPD plan aligning departmental and other DCPD plans
- Result of INPO corporate evaluation
- Monitored by the new Station Oversight Committee comprised of seven of the plant's highest-level leaders
- The DCISC Fact-finding Team concluded that the Station Excellence Plan was appropriate for DCPD and had the potential to provide improved focus for the leaders' efforts in achieving and maintaining excellence
- DCPD is presenting the Plan this Public Meeting.



Meeting with DCPD Quality Verification (QV) Director, Ken Johnston (presenting in this Public Meeting)

- QV publishes two significant documents addressing DCPD quality performance:
 - Quality Performance Assessment Report (QPAR) – 2/year
 - Quality Digest - monthly
- December 2020 Results:

Overall	OP	MA	ENG	NWM	RP	CEO	SEC	EP	LS	PI	OR
W	W	G	W	G	G	G	W	G	G	Y	W
↔	↑	↔	↔	↔	↔	↓	↑	↔	↔	↔	↓



Plant (Reactor) Protection System (PPS)

- **Monitors Reactor Coolant System parameters:**
 - **Temperature**
 - **Pressure**
 - **Level**
 - **Neutron Flux**
 - **Flow**
- **Provides signals to:**
 - **Solid State Protection System**
 - **Reactor Trip System**
 - **Engineered Safety Features Actuation System**
- **Four separate, independent protection sets**

(Continued)



Plant (Reactor) Protection System (PPS), cont'd.

- PPS Was Updated in 1990
- PPS Health Is Acceptable – No Significant Issues
- PPS Operates Reliably & Spare Parts Are Available
- DCPD Is A Member of the Westinghouse Owners Group
- DCPD PPS Is Subject to Full Cyber Security Program Requirements – No Connections Outside the Plant
- DCPD PPS is healthy and should be reliable through 2025



Vibration Monitoring System

- **DCPP Reliability Centered Maintenance Program**
 - **Vibration Monitoring**
 - **Lubrication Control**
 - **Infrared Thermography**
- **“No Unanticipated Equipment Failures”**
- **Permanent Vibration Sensors Reading in Control Room for**
 - **Reactor Coolant Pumps (RCPs)**
 - **Turbine Generators**
 - **Main Feedwater Pumps**
- **300 Components monitored Typically Monthly**
- **RCP Vibration Monitoring System Upgrade Has Problems**
- **Vibration Monitoring System is implemented satisfactorily**



Tornado Missile Licensing Update

- **Nuclear Plants Designed with Tornado Missile Protection**
- **DCPP in Low Risk Tornado Zone But Still Protected**
- **License Basis Verification Program Identified Problem:**
 - **Emergency Diesel Generator Cooling Fans**
Partially Exposed
- **Prompt Operability Assessment Justified Continued Operation with Compensatory Measures**
- **New Tornado Missile Risk Model Resolved Problem**



Winter Storm Response

- **DCPP Subject to Pacific Ocean Winter Storms**
- **Strong Waves Bring Kelp Into Plant Blocking Cooling Systems**
- **Plant Has Procedures to Handle Kelp:**
 - **Initiate Swell Event Ratings Model**
 - **Reduce Power**
 - **Employ Kelp Cutter and Traveling Screens**
 - **Add Operators At Intake**
- **DCPP Well Prepared, Although No Big Winter Storms During Winter of 2020-2021**



Fire Protection Program – NFPA-805 Update

- Fire Protection (FP) Program is Green
 - Program Personnel is Green (healthy)
 - Program Implementation is White (healthy):
 - NRC inspection found paint on sprinkler heads
 - Issue resolved
 - Program/Equipment is White (healthy)
- Maintenance Rule issues have been resolved
- No fire watches in last several years
- Fire door issues are resolved
- NRC Triennial FP inspection: acceptable performance
- Fire Dept: 6 firefighters and one supervisor per 3 shifts
- Conclusion: Fire Protection Program is healthy



Maintenance Department Update

- **Key Performance Indicator is Green**
- **QPAR indicator is Green**
- **DCPP Maintenance Index is Yellow (needs improvement)**
- **Maintenance Current Events is White (good)**
- **Limiting Conditions of Operation is White (good)**
- **QPAR: Maintenance continues Green and Stable**
- **Conclusion: Maintenance shows strong performance**



Nuclear Fuel Performance

- Unit 1 in Cycle 23 since 1991 has had no defects
- Unit 2 in Cycle 22 since 2011 has had no defects
- This is excellent performance
- Fuel is being designed for shorter cycles:
 - 17-18 vs. 19-21 months
 - 480 vs. 590 Effective Full Power Days
 - 4.0-4.4 vs. 4.6-4.95 percent fuel enrichment
- Nuclear fuel has performed flawlessly for many years
- DCCP is designing its fuel for the remaining operating life



Meeting with the NRC Senior Resident Inspector

- **Discussion Items:**
 - **Security escorting not implemented properly**
 - **Procedure problem with Operations equipment postings**
 - **Some sump debris found in Containment after outage**
 - **Two Resident Inspectors each two days in plant**
 - **DCISC fact-finding agenda items**



Observe Nuclear Safety Oversight Committee (NSOC)

- Six executive-level external nuclear industry peers
 - Operations, Chemistry, Environmental, Fire Protection
 - Maintenance, Work Management, Industrial Safety, Cyber Security
 - Engineering, Risk Management, Equipment Reliability, Regulatory Services
 - Performance Improvement, Radiation Protection, Emergency Planning, Security
 - Outages, Projects, Decommissioning
- Visits three times per year for four days each
- First three days in plant observing, reviewing, interviewing
- Fourth day is reporting to management (DCISC invited)
- NSOC appears helpful in maintaining plant safety



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DCPP Performance Based on NRC Performance Indicators

Russ Prentice
Director, Risk and Compliance
June 23, 2021



Together, Building
a Better California

DCPP Performance Summary

March 2021– June 2021

- This presentation covers approximately 4 months of NRC inspections involving ~2000 hours of inspection time
- DCPP remains in the highest performance category for all NRC Performance Indicators
- There has been one violation of more than minor significance since the last DCISC update

NRC Performance Indicators

Unit 1	Unit 2	
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

March 2021 – June 2021

- There has been one violation of more than minor significance since the last DCISC update
 - **Green Non-Cited Violation** associated with sequence of testing associated with the carbon dioxide fire suppression system
(No Cross-cutting aspects were assigned to this violation)

NRC Violations – Cross-Cutting Aspects

Rolling 4-Quarter Cross-Cutting Aspect Performance

NRC Cross-Cutting Issue Summary [DCPP]																																	
(Rolling 4 Quarters)																																	
Prior Assessment Theme: Green			Current Assessment Theme: Green				Quarter Ending: 21Q2																										
Upcoming Assessment																																	
Areas	2 HU Findings						0 Problem Identification & Resolution Findings																										
Traits	Leadership Safety Values & Actions	Personal Accountability	Work Processes	Continuous Learning	Effective Safety Communication	Questioning Attitude	Decision Making	PI&R	Continuous Learning																								
Aspects	Resources H.1	Teamwork H.4	Work Management H.5	Training H.9	Bases for Decisions H.10	Challenge the Unknown H.11	Consistent Process H.13	Identification P.1	Operating Experience P.5																								
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	Field Presence H.2	Design Margins H.6	Summary of Findings **			Avoid Complacency H.12	Conservative Bias H.14	Evaluation P.2	Self Assessment P.6																								
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	Procedure Adherence H.8	NRC/SR Traditional Violations				Trending P.4																											
	0 0 0 0 0	<table><tr><th>Aspect A.N</th><th>Cross-Cutting Aspect</th><th>Green</th><th>All SL=0</th></tr><tr><td>n-3</td><td>n-2</td><td>n-1</td><td>n</td></tr><tr><td>n</td><td></td><td></td><td></td></tr></table>				Aspect A.N	Cross-Cutting Aspect	Green	All SL=0	n-3	n-2	n-1	n	n				0 0 0 0 0															
Aspect A.N	Cross-Cutting Aspect	Green	All SL=0																														
n-3	n-2	n-1	n																														
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** Based on Published NRC Inspection Reports																																	

** Based on Published NRC Inspection Reports



Licensee Event Reports

March 2021 – June 2021

- No Licensee Event Reports (LERs) were submitted during this time period



DCPP Performance Summary

March 2021 - June 2021

- DCPD remains in the highest performance category for all NRC Performance Indicators
- The following Inspection Reports were issued since the last DCISC meeting:
 - 2021 Triennial Fire Protection Inspection (2021-010, 03/11/2021)
 - 2021 Cyber Security Inspection (2021-403, 03/31/2021)
 - 1st Quarter 2021 Integrated Inspection Report (2021-001, 05/07/2021)

Status of License Amendment Requests

License Amendment Requests approved since the last DCISC update:

- There have been no License Amendment Requests approved since the last DCISC update

Thank you

Russ Prentice

Diablo Canyon Power Plant Decommissioning

Emergency Plan During Decommissioning

Presented by

June 23, 2021

Philippe Soenen, Decommissioning Environmental and Licensing Manager



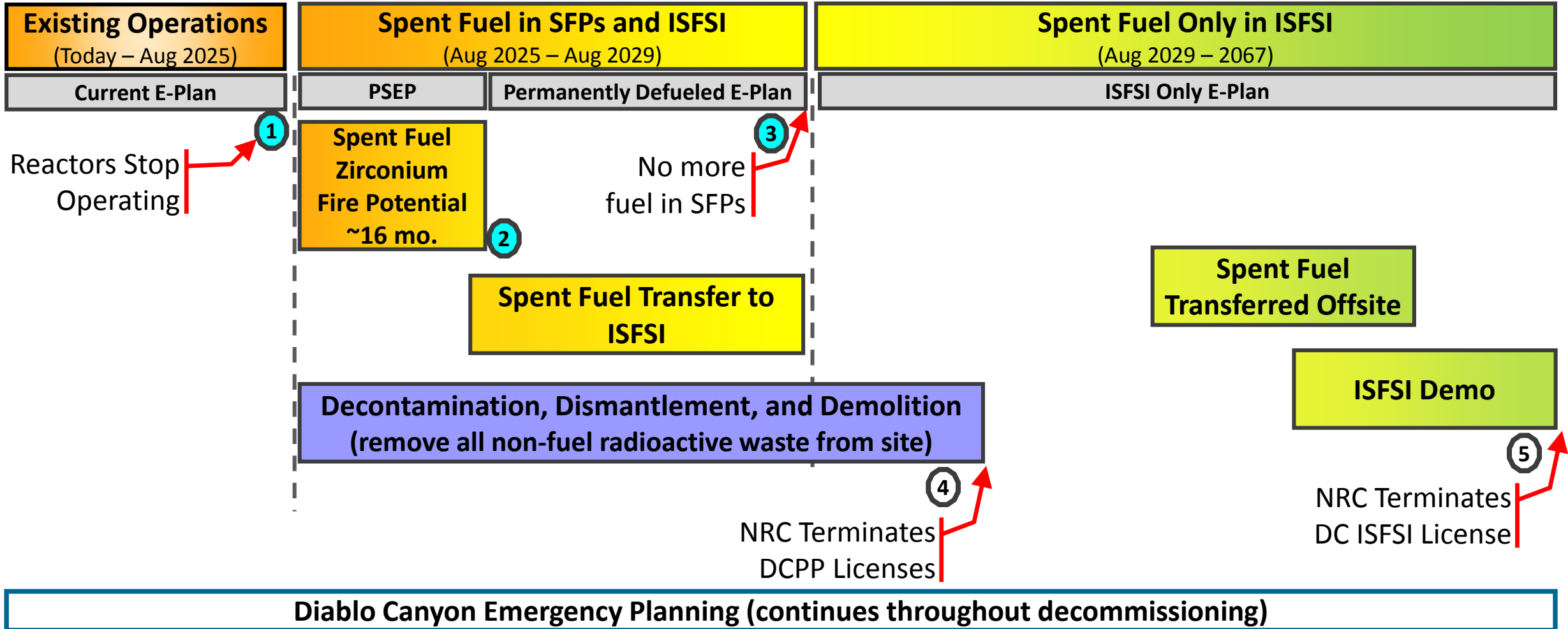
- Background
- Overview of Emergency Plan Transitions in Decommissioning
- Overview of Proposed Post-Shutdown Emergency Plan (PSEP)



Background

What changes during decommissioning?

Point in time where radiological risk is reduced



Overview of Emergency Plan Transitions

Major E-Plan transitions are standardized in the nuclear industry due to the reduction in radiological risk

- **Evaluated in detail in Nuclear Regulatory Commission (NRC) documents, such as:**
 - NSIR/DPR-ISG-01, “Interim Staff Guidance on Emergency Planning for Nuclear Power Plants”
 - NSIR/DPR-ISG-02, “Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants “
 - Proposed Rulemaking, “Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning”
 - NUREG-1738, “ Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants”
 - NUREG-2161, “Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor”
- **“Standard” changes are adjusted to address site-specific considerations through consultation with State and local agencies**
- **NRC reviews and approves the major decommissioning E-Plan transitions for every site via license amendment requests (LARs)**



Examples of DCCPP-Specific E-Plan Considerations

Consistent with the 2016 Joint Proposal Settlement Agreement Commitments



“PG&E will continue to support the funding of warning sirens and local emergency planning during the decommissioning period until all spent fuel is in dry cask storage and the two nuclear reactors are fully decommissioned... Additionally, the settlement ensures that PG&E’s spending on its own emergency response personnel throughout the entire decommissioning period will be appropriately based upon the risks at each phase of the process and retains the Commission’s discretion to review the specific levels of funding for PG&E staff and equipment as part of the Commission’s future review of Diablo Canyon’s site-specific decommissioning plan.”

- Joint Proposal Settlement Agreement Testimony



Examples of DCCP-Specific E-Plan Considerations

Consistent with the 2018 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP)

- Includes request for funding Joint Proposal EP commitments (Senate Bill 1090) implementation
- Describes the EP transitions per decommissioning phase
- 2018 NDCTP decision is pending

Overview of Proposed PSEP

Items that are not proposed for change in the Post Shutdown Emergency Plan (PSEP):

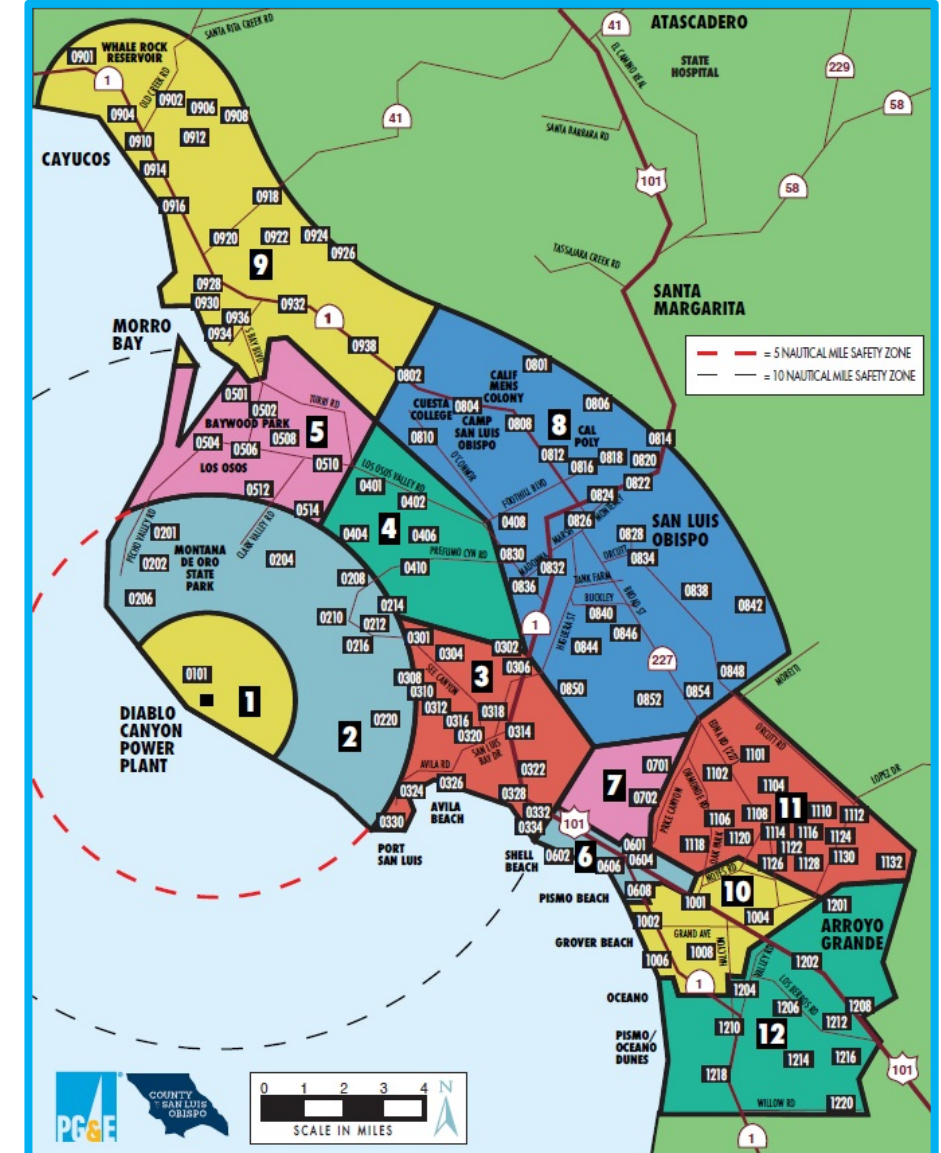
- Emergency Response Facilities (ERFs): will use existing ERFs
 - Technical Support Center (TSC)
 - Operations Support Center (OSC)
 - Emergency Operations Facility (EOF)
 - Joint Information Center (JIC)
- Emergency Classification Levels (ECLs): no changes from unusual event, alert, site area emergency, and general emergency
- Emergency Action Levels (EALs): no changes



Overview of Proposed PSEP

Items that are not proposed for change (continued):

- Emergency Response Organization (ERO) response times: no changes for remaining positions
- Offsite equipment
- Emergency Planning Zones



Overview of Proposed PSEP

Items that are proposed for change:

- Minimum PG&E on-shift staffing and emergency response organization (ERO)
 - Both on-shift and ERO staff are reduced
 - On-shift: 22 (existing) → 12 (proposed)
 - ERO: Reduced staff at all ERFs
 - Reduced staffing maintains the ability for:
 - PG&E to interface with the State or County
 - State and County response organizations to implement the Radiological Emergency Plans
 - Supported by On-Shift Staffing Assessment and ERO Task Analysis
 - Reflect the reduced spectrum of potential accidents



Overview of Proposed PSEP

Items that are proposed for change (continued):

- Emergency Response Data System (ERDS)
 - No longer required to provide hardware to interface with the NRC receiving system
 - Maintain capability for continuous NRC communications
- Drills / Exercises
 - New standard industry commitment to conduct a drill prior to implementation of the PSEP to confirm ability:

DCPP will perform a drill to confirm the ability of the post-shutdown Emergency Response Organization (ERO) to perform the necessary functions of each emergency response facility and to utilize the post-shutdown procedures being developed depicting the revised assignment of duties. State and local response organizations will be offered the opportunity to participate, and the NRC and FEMA will be provided advance notice and the opportunity to observe drill activities. In addition, other training drills will be conducted to train post-shutdown station ERO members.

Agency Consultations on Post-Shutdown E-Plan

Consulted with

- California Governor's Office of Emergency Services
- County of San Luis Obispo Administrative Office – Office of Emergency Services
- Federal Emergency Management Agency

Actions taken

- Conducted meetings with agencies
- Responded to all questions and comments
- Revised PSEP to retain the following ERO positions:
 - Advisor to the County in the EOF
 - Dose Assessor in the EOF

Questions?

Philippe Soenen





April 27 and 28, 2021 Fact-finding Report

Peter Lam, Member, and Richard McWhorter, Consultant

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- 12. Observe Corrective Action Review Board Meeting**



Radiation Monitoring Systems

- **101 Channels of Process and General Area Radiation Monitors from Four Manufacturers**
- **Plan for Complete Replacement Cancelled; Working to Maintain and Replace Selected Equipment As Needed**
- **System in Maintenance Rule (a)(1) Status Due to Reliability Concerns; Corrective Actions in Place and Being Monitored for Effectiveness**
- **Overall Trend of Failures Trending Down Over Last Three Years**
- **Conclusion – System in Acceptable Health and DCCP Working to Address Reliability Issues.**



Dr. Lam Meeting with Site Vice President Paula Gerfen

- **Discussed Items from the Fact-Finding Meeting and Other Subjects of Interest**



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**
- **Two Position Indicator Failures in 2020 Delayed Return to (a)(2) Status**
- **Actions Complete and System Reliability Being Monitored**
- **Both Charcoal Filter Banks Received Complete Media Replacements in 2020**
- **Conclusion – ABVS in Acceptable Health**



Meet with NRC Senior Resident Inspector

- **Refueling Outage 2R22 Performance**
- **Recent NRC Inspection Results and Concerns**
- **COVID-19 Continuing Pandemic Response**



Human Performance Update

- **Station Level Events (SLEs)**
 - **Three SLEs in 2019, Zero in 2020**
 - **One SLE Event in April 2021**
 - **Corrective Actions Appear Effective (Mostly Within Operations Department)**
- **Department Level Events (DLEs)**
 - **Significant Increase in DLEs During Refueling Outage 1R22 in October 2021**
 - **Improvement Observed During Refueling Outage 2R22 in Spring 2021**
- **Conclusions – Actions Appear Appropriate; DCISC Should Review Effectiveness in Future**



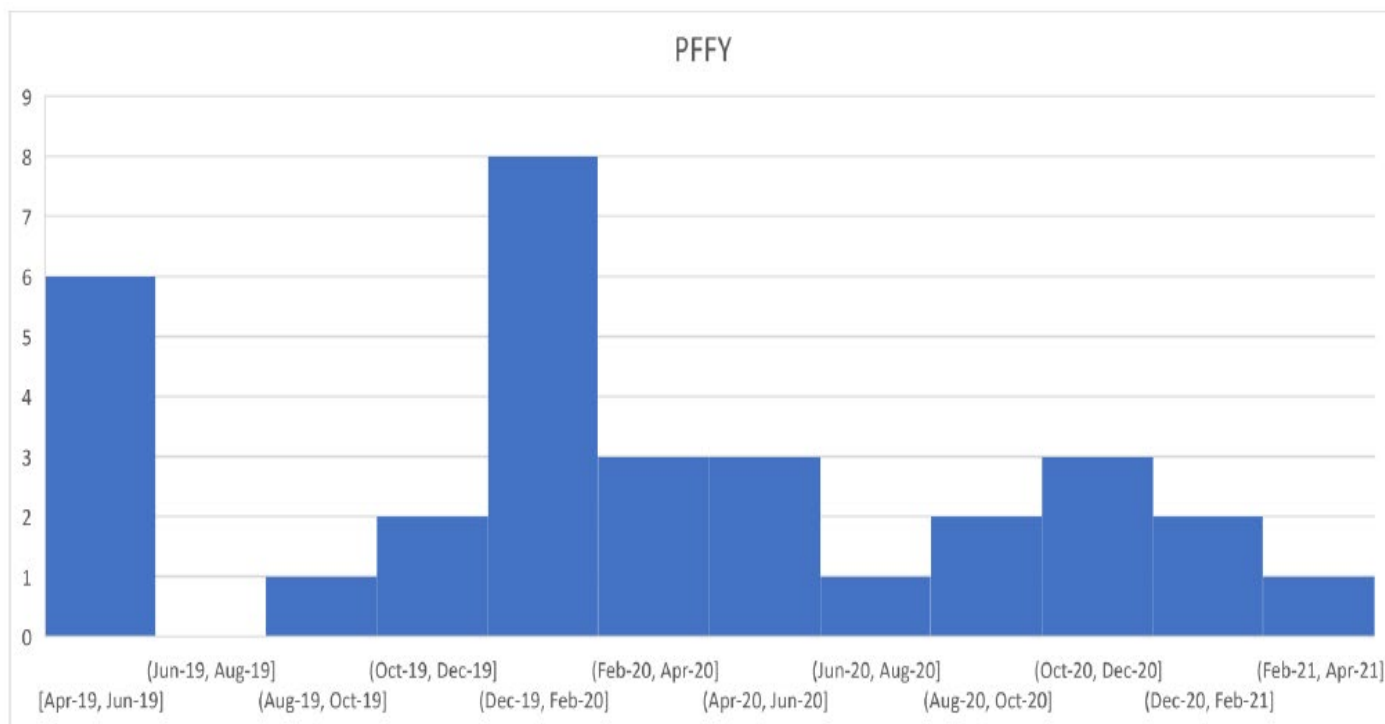
Maintenance Rule Program

- Program Implemented to Comply with 10CFR50.65 Per NUMARC 93-01 Guidelines
- Risk-Based Screening and Monitoring of Systems, Structures and Components
- “(a)(2)” Status = Performance Goals Met; Normal Monitoring
- “(a)(1)” Status = Performance Goals not Met; Actions Taken and Effectiveness Monitored
- Maintenance Rule Functional Failure (MRFF) – A failure that could have been prevented by the performance of appropriate maintenance.



Maintenance Rule Program (continued)

- **MPFFs Are Tracked and Trended**



- **Conclusion – Maintenance Rule Program Effectively Implemented**



Boric Acid Corrosion Control Program

- **Program to Inspect for and Monitor Leaks of Water Containing Boric Acid that Could Cause Corrosion of Carbon Steel**
- **Locations for Leaks Monitored and Tracked for Repairs**
- **Recent Increase In Number; Maintenance Focus to Reduce**
- **Number of Leaks Currently Categorized as “Green”**
- **Conclusion – Program Effectively Implemented**



Unit 2 Main Generator Update

- **History**
 - Fall 2019 – Unit 2 Main Generator Stator Refurbished
 - July 16, 2020 – Hydrogen Leak to Stator Closed Cooling Water System Inside Main Generator, Unit Shutdown (Forced Outage 2Y22)
 - October 15, 2020 – Hydrogen Leak, Unit Shutdown (Forced Outage 2Z22)
 - December 2, 2020 – Hydrogen Leak, Unit Shutdown (Forced Outage 2G22)
 - February 3, 2021 – Vibrations Increasing Unit Shutdown (Forced Outage 2H22, Extended into Refueling Outage 2R22)
 - April 19, 2021 – Stator High Temperature; Internal Cooling Water Lines Reversed, Unit Shutdown (Forced Outage 2X23)

Continued



Unit 2 Main Generator Update (Continued)

- **Spring 2021:**
 - **(Last DCISC Public Meeting February 2021)**
 - **Extensive Testing Following January Restart**
 - **Vibrations Increasing at Higher Power Levels, Very Slight Increase in Hydrogen Consumption**
 - **Unit Shutdown and Internal Inspections Performed**
 - **Inspections Revealed Need to Pull Rotor And Perform Major Modifications**
 - **Forced Outage Extended to Early Start of Refueling Outage**

Continued

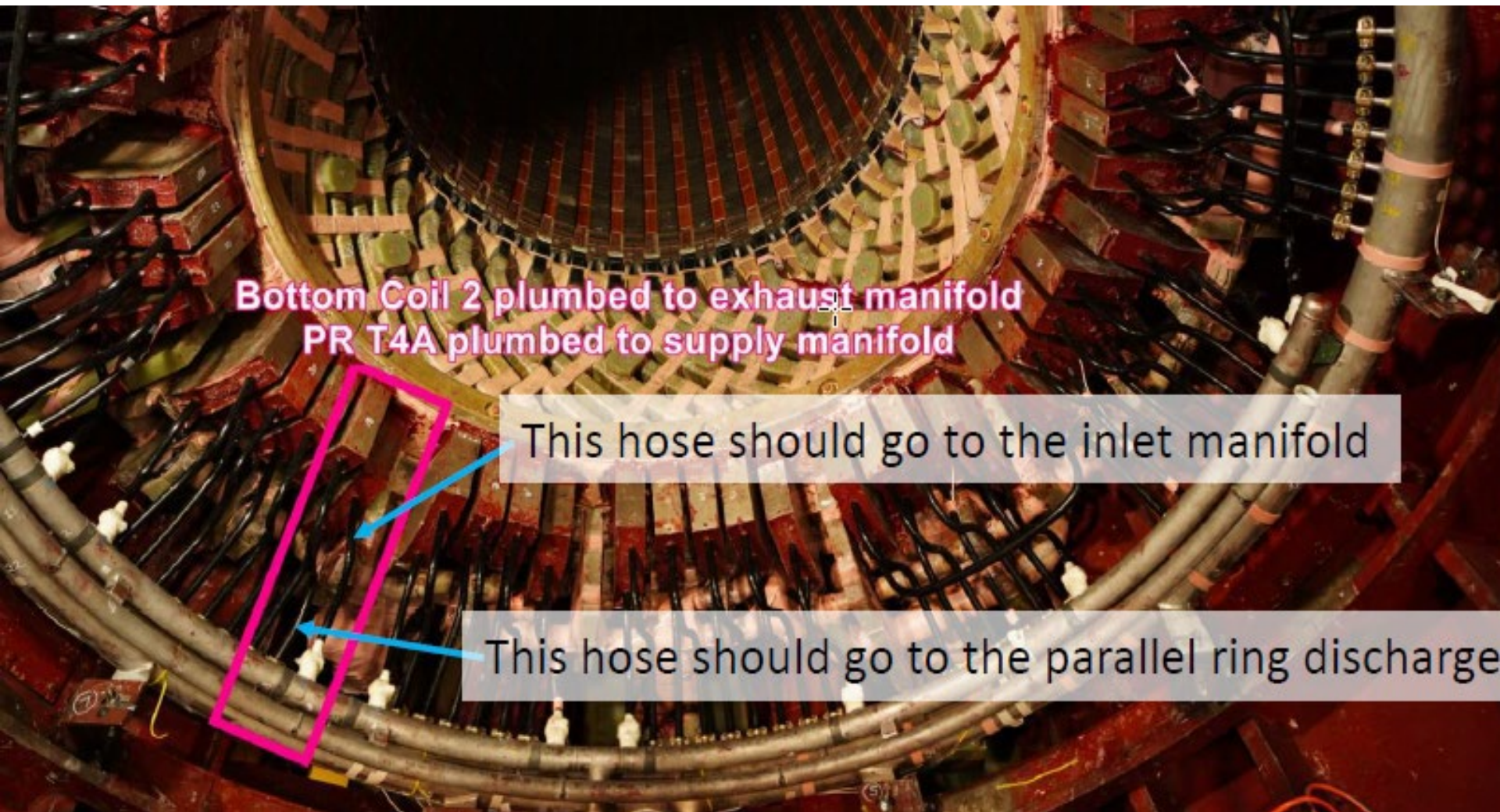


Unit 2 Main Generator Update (Continued)

- **Outage 2H22/2R22 Repairs:**
 - **New SCCW End Manifolds Built and Installed**
 - **Internal Vibration Tests Performed**
 - **Additional Structural Supports and Epoxy Fill Installed**
 - **Major Internal Fasteners Retightened**
 - **Internal Vibration Monitors Installed**
 - **Following Restart on April 17, Operators Noted Uneven Stator Temperature Indications**
 - **Vendor Analysis Determined Internal Cooling Hoses Swapped**
 - **Six-day Unit Shutdown for Repairs**

Continued

Unit 2 Main Generator Update (Continued)



SCCW Hoses Inside Unit 2 Main Generator

Continued



Unit 2 Main Generator Update (Continued)

- **Hose Installation Error Considered a Human Performance Error Made by Vendor Personnel (SLE)**
- **Restarted and Vibrations Continue to be Monitored**
- **Root Cause Evaluation Continuing (Forecast Completion Mid-2021)**
- **Conclusions:**
 - **Forced Outage Was Properly Managed and the Ongoing Response Was Appropriate**
 - **The DCISC Should Continue to Follow the Issue and Review the Final RCE During a Future Fact-Finding Meeting and a Future Public Meeting**



Post-Shutdown Technical Specification License Amendment Request

- **PG&E Submitted LAR on December 3, 2020, Would be Effective Following:**
 - 1) Certification of Final Fuel Offload
 - 2) Both Units Shutdown > 45 Days (*modified by letter April 1, 2021*)
 - 3) Fuel-Handler Certification Program Complete
- **Key Points of LAR:**
 - Reduce Number of Applicable Design Basis Accidents
 - Remove Tech Specs Except Spent Fuel Pool Level, Boron, Arrangement
 - Reduce Staffing to One Shift Manager (FH Cert) and One Operator/Unit
 - Reduce Applicable NRC General Design Criteria
 - Reduce Requirements for Quality Assurance and Fire Protection Programs

Continued



Post-Shutdown Technical Specification License Amendment Request (Continued)

- **Other Future LARs:**
 - **Defueled Safety Analysis Report (based on previous LAR)**
 - **Changes to Facility Emergency Plan in Three Stages**
 - **First 16 Months Following Shutdown Period**
 - **Fuel Remaining in Wet Storage Period**
 - **Dry Storage-Only Period**
- **Conclusions – DCCP's Approach in Submitting the Licensing Amendment Request Appeared Appropriate. DCISC Should Continue to Follow Regulatory Activities Related to Reducing Requirements Following Shutdown.**



Low Temperature Overpressurization Protection System Event

- **Follow-Up to January Review**
- **LTOP Unexpectedly Actuated During Solid-Water Reactor Coolant Pump Start on October 29**
- **Vendor Analysis of Event Completed; Cause Evaluation Concluded Water Expanded When Pump Started Due to Mass of Higher-Temperature Metal in Steam Generators**
- **Corrective Actions to Limit Differential Temperatures and Other Conditions for Solid-Water Pump Starts**
- **Conclusions – Cause Evaluation and Corrective Actions Were Appropriate**



Spent Fuel Cask Procurement

- **Proposals Received Mid-2020**
- **Proposals Reviewed – All Qualified and Responsive to Requirements**
- **Next Step – Leadership Review and Approval for Further Commercial Discussions**
- **Expect Execution Early 2022; Still Awaiting NDCTP Ruling**
- **Vendors Expected to Provide Casks to Support Spent Fuel Movement to Dry Storage Within Four Years of Shutdown**
- **Conclusion – Procurement of New Spent Fuel Casks is Making Steady Progress to Contract Execution**



Observe Corrective Action Review Board (CARB) Meeting

- **Regular Reviews of Corrective Action Program Documents**
- **Conclusion – Meeting Met Intended Objectives**



April 27 and 28, 2021 Fact-finding Report

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May 18-19, 2021 Fact-finding Report

Per F. Peterson, Member, and R. Ferman Wardell, Consultant

- 1. Reactivity Management Update**
- 2. Meet with the NRC Senior Resident Inspector**
- 3. Wildfire Risk**
- 4. Independent Spent Fuel Storage Installation (ISFSI) Update**
- 5. DCPD COVID Update**
- 6. Reactor Vessel Specimen Testing Program**
- 7. Emergency Preparedness Virtual Capabilities**
- 8. Meet with Paula Gerfen, DCPD Site Vice-President**
- 9. Quality Verification (QV) Audits**
- 10. Operator Concerns/Issues**



Reactivity Management (RM) Update

- The potential of a nuclear core to increase or decrease its chain reaction rate or power level
- Control Rods, Reactor makeup, Main Turbine control, Core unload & reload affect reactivity
- Management of reactivity is critical to nuclear safety
- DCPD RM procedure: satisfactory
- Operations Manager primarily responsible for RM
- Oversight by RM Leadership Team
- Units 1 & 2 RM are Green
- DCPD RM Program is effective



Meet with NRC Senior Resident Inspector

- Discussion items:
 - This DCISC FF agenda
 - Unit 2 generator hydrogen leak
 - Unit 2 condenser leak
 - Biennial NRC operator requalification inspection
 - NRC post-COVID activity
 - Spent fuel storage
 - DCPD staff adequacy
 - Event: chains under fire doors



DCPP Wildfire Risk

- **Subject: offsite fires with high winds**
- **Low risk of adversely affecting plant because:**
 - **Most vegetative matter has been cleared**
 - **Plant facilities sufficiently fire-resistant, except electrical**
 - **Electrical loss not threat to plant safety due to multiple electrical power sources**
 - **ISFSI designed to withstand severe external fire**
- **Low risk to plant due to fire prevention and mitigation**



Independent Spent Fuel Storage Installation (ISFSI)

- **No active or planned spent fuel loading campaigns**
- **DCPP reviewing proposals from manufacturers for new casks**
- **DCPP expects to issue purchase order for new casks 1Q22**
- **DCPP believes all spent fuel will be in ISFSI in 2029**
- **ISFSI license renewal application to be submitted Nov. 2021**
- **DCPP expects 40-year ISFSI license extension in March 2022**
- **DCPP to inspect sides of eight casks and inside walls of overpacks beginning June 2021 – DCISC to observe**



DCPP COVID Update

- **DCPP has taken active role in COVID vaccinations**
 - **900 plant employees vaccinated**
 - **400 other PG&E employees vaccinated**
- **Employees working from home have been effective, and more are coming into the plant**
- **Training works best in person, especially simulator training**
- **NRC resident inspectors have PG&E computers and access**
- **System engineers will resume walkdowns**
- **CDC, Cal OSHA & Governor have loosened COVID req'ts.**
- **There have been few positives of COVID-19 at DCPP**
- **DCPP managing COVID appropriately**



Reactor Vessel Specimen Testing Program

- Reactor vessel subject to heavy neutron fluence, which embrittles the steel causing loss of fracture toughness
- This makes the vessel more susceptible to low temperature pressurized thermal shock (PTS)
- Each vessel contains metal coupons subject to the neutron fluence
- Coupons are removed periodically and physically tested
- DCCP's test results support the full 40-year operation



Emergency Preparedness (EP) Virtual Capabilities

- DCPD EP has been using remote technology (MSTeams) to train and qualify Emergency Response personnel and meeting with NRC and Nuclear Energy Institute personnel
- DCPD drills have been held virtually
- DCPD's next drill is a five-day virtual one with corporate
- DCPD's next evaluated exercise will be September 15, 2021 using virtual technology but also in-person activities
- Use of virtual technology in some areas will continue as needed to maintain or improve EP effectiveness
- DCPD EP implemented appropriately during COVID



Meeting with Paula Gergen, DCPD Site Vice-President

- **Discussed fact-finding agenda items and other items of mutual interest**



Quality Verification (QV) Audits

- DCPP QV audits are performed in accordance with procedure, which appeared satisfactory
- 2021 audits found the findings:
 - Fire Protection errors in drawings
 - Problems with calibrations of measuring & test equipment
 - Fire Protection procurement outside standard DCPP processes
 - Chemistry records problems
 - San Ramon Technical Services activities
- QV audits are effective



Operator Concerns/Issues

- No current significant union issues
- Operations appropriately staffed for safe operation through 2025 and beyond
- Retention Plan is working for Operations
- DCPD no longer hiring new operators
- Last initial licensing class had 100% pass rate
- Simulator continues to perform effectively
- Clearance and tagging performance returned to Green
- DCPD has active placement process for personnel leaving
- Operations is appropriately staffed and without issues



May 18-19, 2021 Fact-finding Report

Per F. Peterson, Member, and R. Ferman Wardell, Consultant

- 1. Reactivity Management Update**
- 2. Meet with the NRC Senior Resident Inspector**
- 3. Wildfire Risk**
- 4. Independent Spent Fuel Storage Installation (ISFSI) Update**
- 5. DCPD After COVID Pandemic**
- 6. Reactor Vessel Specimen Testing Program**
- 7. Emergency Preparedness Virtual Capabilities**
- 8. Meet with Paula Gerfen, DCPD Site Vice-President**
- 9. Quality Verification (QV) Audits**
- 10. Operator Concerns/Issues**

Diablo Canyon Power Plant

Unit 2: 22nd Refueling Outage

Mike Quitter

Diablo Canyon Outage Manager

June 24, 2021



Together, Building
a Better California

Key Activities

Performance Indicators

Results Achieved

Fuel Inspection Results

Questions

Summary

- February 23rd – April 17th

Key Activities

- Refuel the reactor
- Reactor Coolant Pump seal replacement (4)
- Reactor Vessel Hot Leg ISI
- Inspected Main Turbines LP A & LP B
- Repaired Main Generator

Outage Safety / Defense-in-depth

- Safety is our primary responsibility
 - Maintained defense-in-depth to ensure operability of key safety functions
- High-risk and infrequently performed tests and evolutions
 - Initial reactor coolant system 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

Outage Update

Duration

- February 23rd at 20:24 hours to April 17th at 10:14

Performance Metrics:

Performance Measure	Goal	Actual
Serious Near Hit events	0	0
Nuclear Safety Events	0	0
Site Clock resets	0	1
Outage duration (Days)	< 57 days	52 days 3 hours
ALARA – As Low As Reasonably Achievable (Rem)	< 13.276	10.758

Results Achieved

- Industry best radiation protection performance for Unit 2
- Reactor Coolant System Hot leg inspection
- Reactor Coolant Pumps Seal Replacements (4)
- Main Turbine Low Pressure B and C Removal and Inspections
- Main Generator Vibration Investigation, Analysis, and Repair
- Line ownership of ALARA continues to be a strength
- Main Generator operating well within operational vibration limits

Fuel Inspection Results

- Core was removed to the Spent Fuel Pool and inspected. No Fuel defects or concerns were identified.

Diablo Canyon Outage Management

2R22 Outage In-Processing

Temporary Outage Workers

- DCPD brought in 780 temporary workers to assist in outage related work activities.
- Mitigated COVID-19 impacts by:
 - COVID-19 prevention expectations communicated prior to arrival, which adhere to company, local, state and CDC (Center for Disease Control) recommendations
 - Tested all incoming badged workers and tied negative results to badge issuance
 - Limited daily in-processing capacity to adhere to six foot social distancing requirement
 - Enhanced disinfection plan
 - Thermal temperature check monitors strategically located for in-processing activities and entry into the protected area

Thank you

Mike Quitter

Diablo Canyon Power Plant Unit 2 Main Generator Update

Cary Harbor

Diablo Canyon Station Director

June 23, 2021



Together, Building
a Better California

Unit 2 Main Generator Summary

- **Unit 2 is safely operating and producing electricity for our customers**
- **The main generator is located on the non-nuclear side of the plant; outages were focused on restoring reliable electricity generation**
- **Not a nuclear safety issue; no impact to the health and safety of employees and the public**

Unit 2 Main Generator Summary

- Unit 2 main generator has been online for approximately two months
- Significant additional instrumentation with enhanced monitoring has been installed – results are very positive
- Root cause evaluation is in process, all immediate corrective actions are complete
- PG&E leveraged industry experts and extensive vendor support to resolve unique technical challenges
- DCPD staff executed safe and error free shutdown and restart of the Unit 2 during multiple outages

Timeline

2R21 - Generator Rewind and Rebuild. 9/19 - 12/19

2Y22 - Weld Failure at SCCW Inlet Water box - H₂ Leak. 7/20

2Z22 - Weld Failure at SCCW Parallel Ring. H₂ Leak.
10/20 - 11/20

2G22 - Weld Failure at SCCW Inlet Water Box. H₂ Leak.
12/20 - 1/21

2H22/2R22 - High Vibration on End-Windings and
Electrical Parallel Ring Conductor Break (H₂ Leak). 2/21 - 4/21

July Outage: Hydrogen Leak



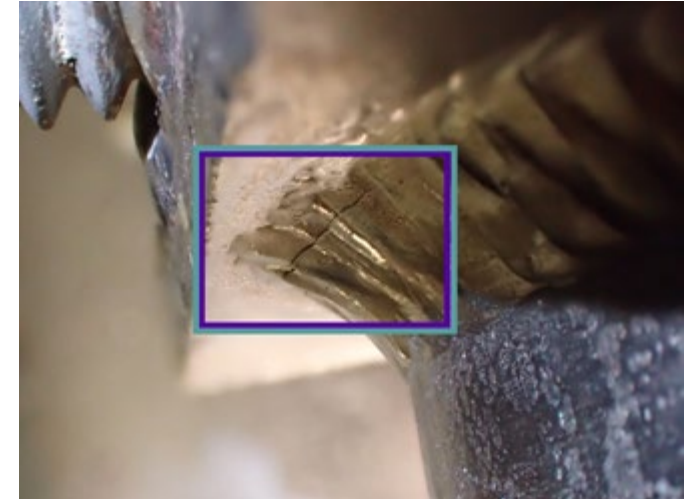
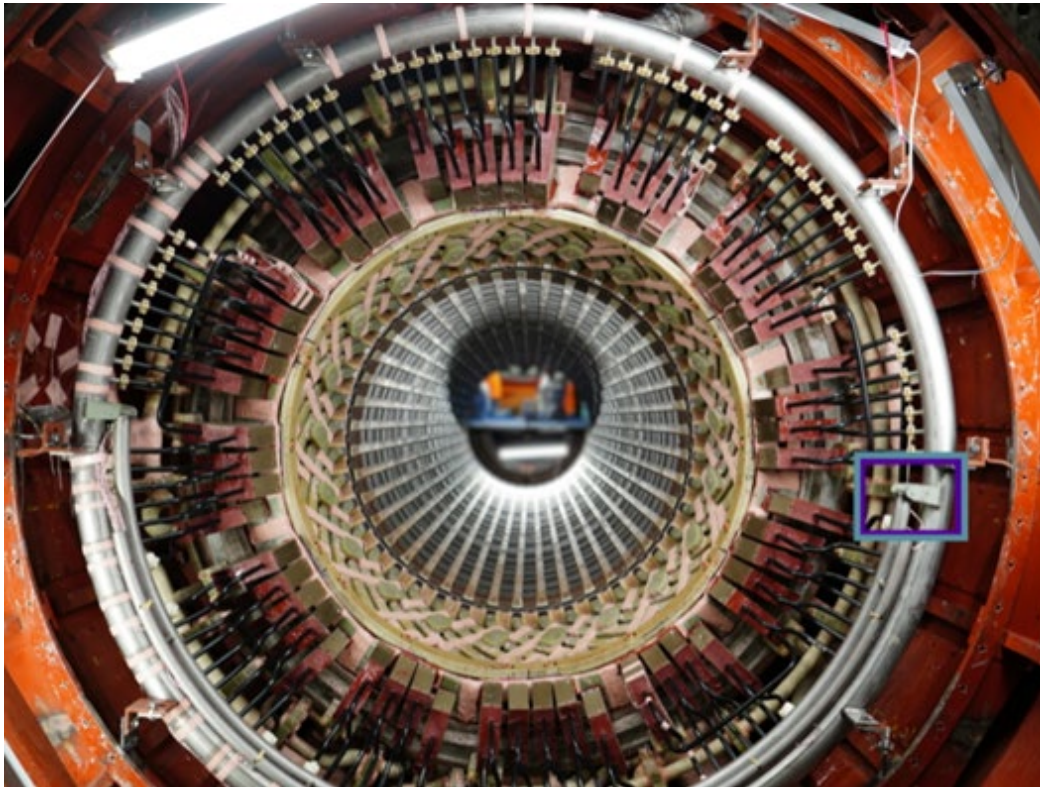
- Crack in fillet weld of transition box to SCCW ring manifold



Corrective Action:

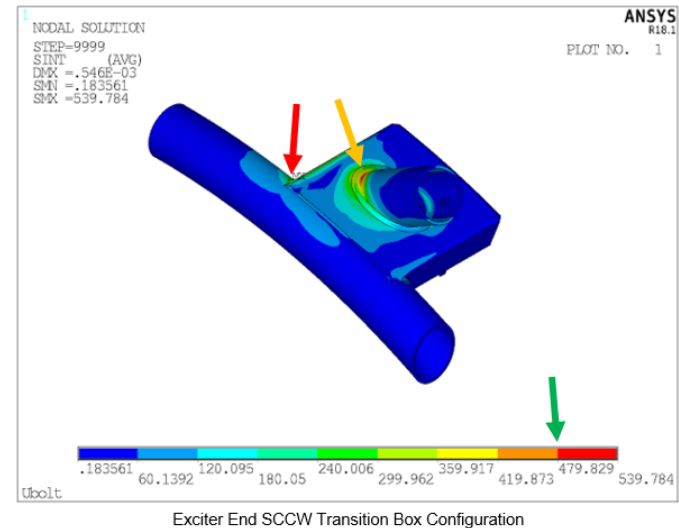
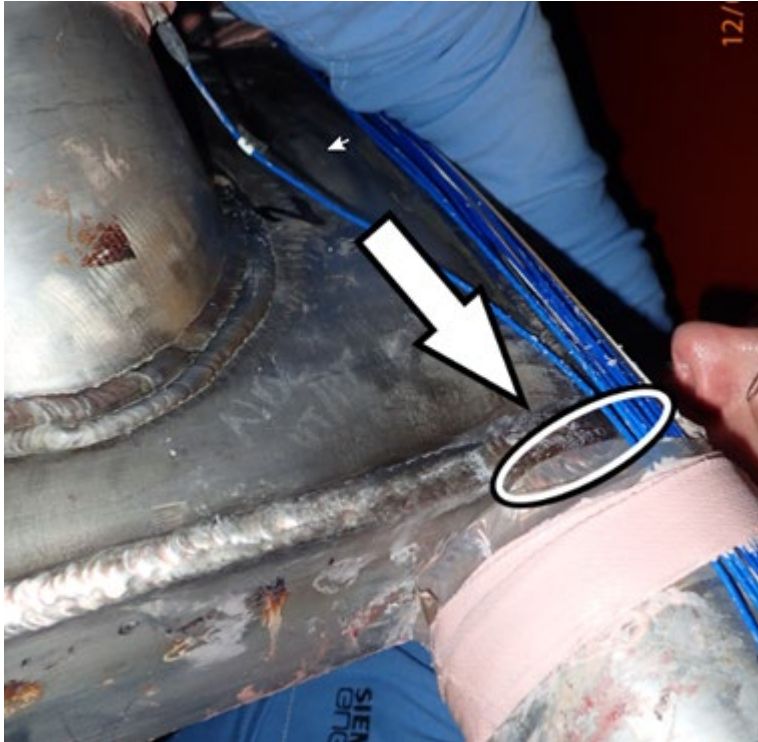
- Repaired in place
- Bump test and finite element analysis

October Outage: Hydrogen Leak



- Crack in SCCW parallel ring fillet weld
- Corrective Actions: Capped/redesigned supports, frame foot loading, frame vibration analysis

December Outage: Hydrogen Leak

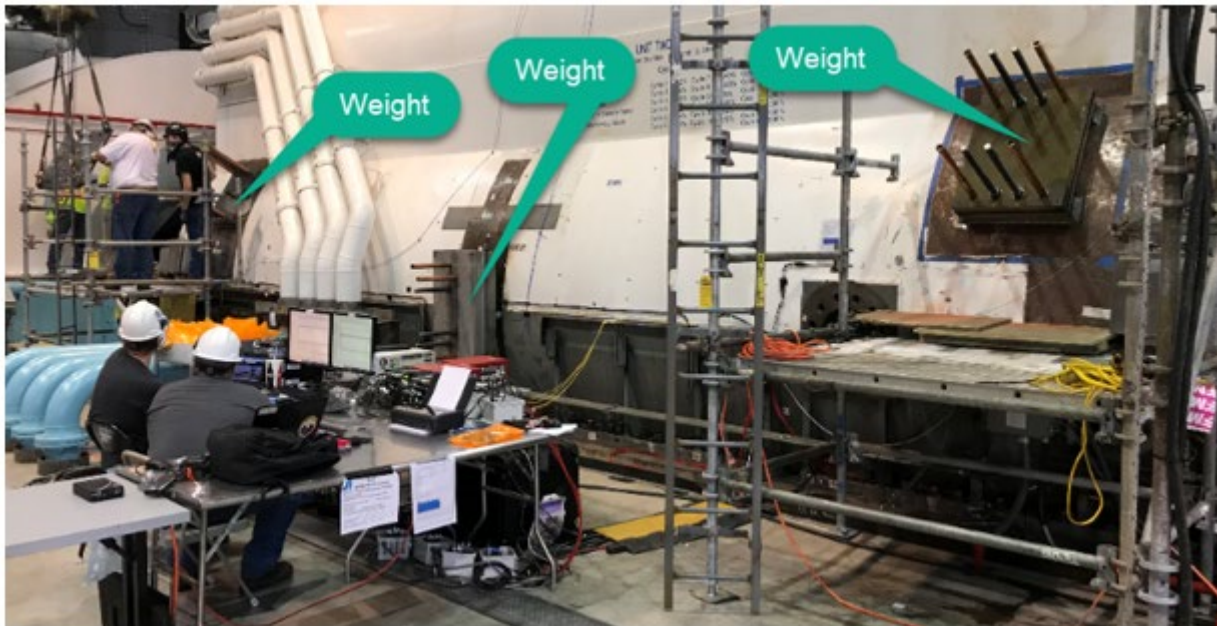


Crack in fillet weld at same location as first repaired crack

December Outage: Corrective Actions

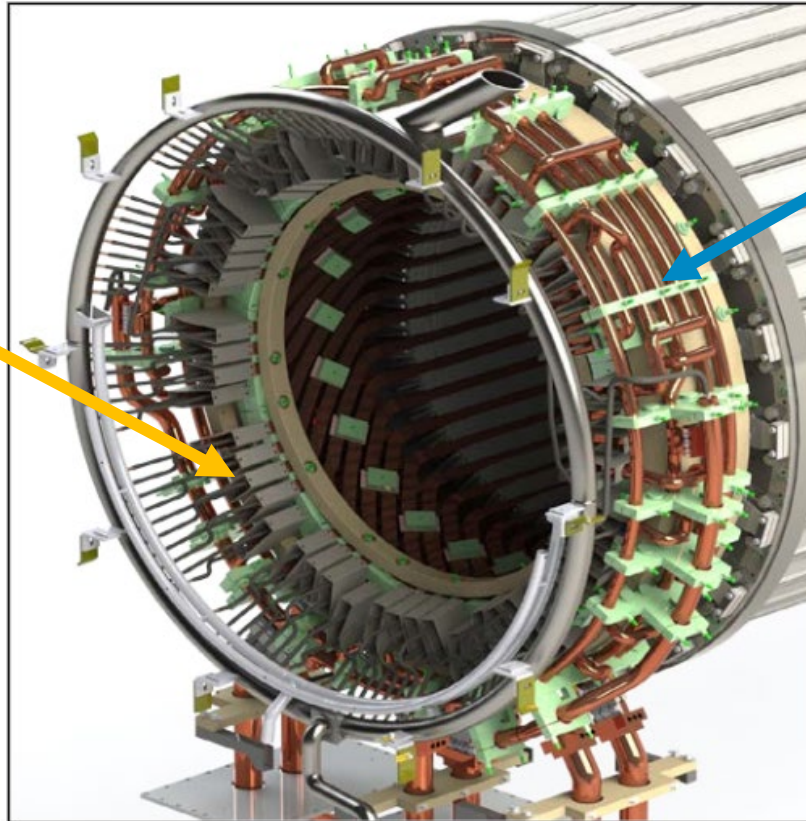


Replaced exciter end
SCCW transition box with
pipe tee section



Installed tuning
weights to shift
frame resonance
away from 120 Hz

February Outage: End Winding Vibration



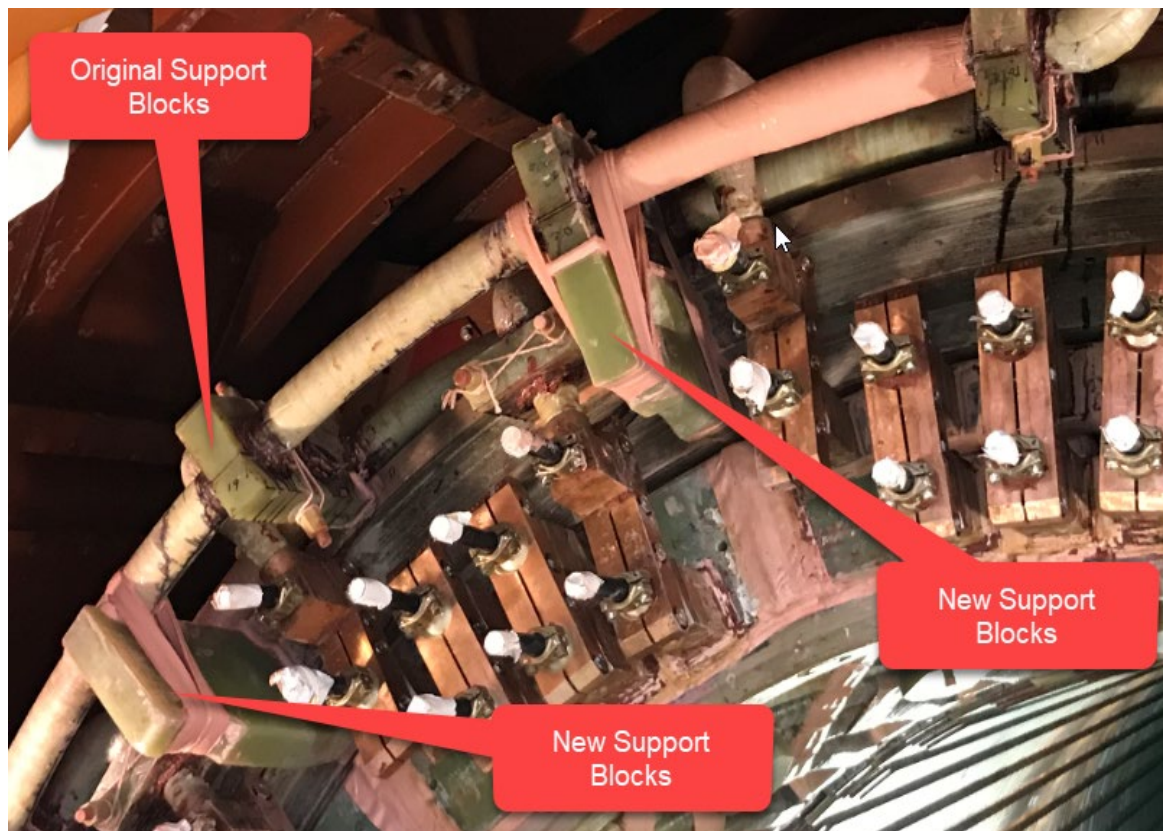
End Windings

Parallel Rings

End winding vibration sensors exceeded vibration threshold

- Ramped unit to 80% power to reduce below threshold
- Took unit off-line to disassemble and Inspect

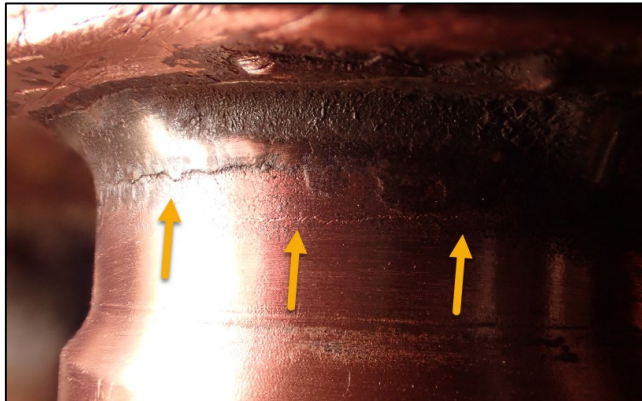
End Winding Vibration: Corrective Actions



Corrective Actions:

- Installed 37 new braces and blocks on parallel rings
- Resolved conditions with the parallel rings and end windings

February Outage: End Winding Vibrations – small hydrogen leak corrective actions



Crack in double current conductor brazed connection

- Confirmed by air test
- Found with Helium detection
- Corrective Action: Replace section, radiograph EOC

End Result: Frame Vibration Reduction

- **Vibration on the generator prior to repairs was the baseline**
- **Vibration levels that started in November were higher than baseline**
- **Vibration was close to baseline with addition of counter weights**
- **Vibration was below baseline and stable with addition of supports and bracing**

- **The modifications made are effective and we continue to monitor to make sure both units are available for summer months**

Thank you

Cary Harbor



Diablo Canyon Power Plant: State of the Plant Update

Cary Harbor
Station Director
6/23/2021



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Station Update

Key Upcoming Activities



Plant Operation

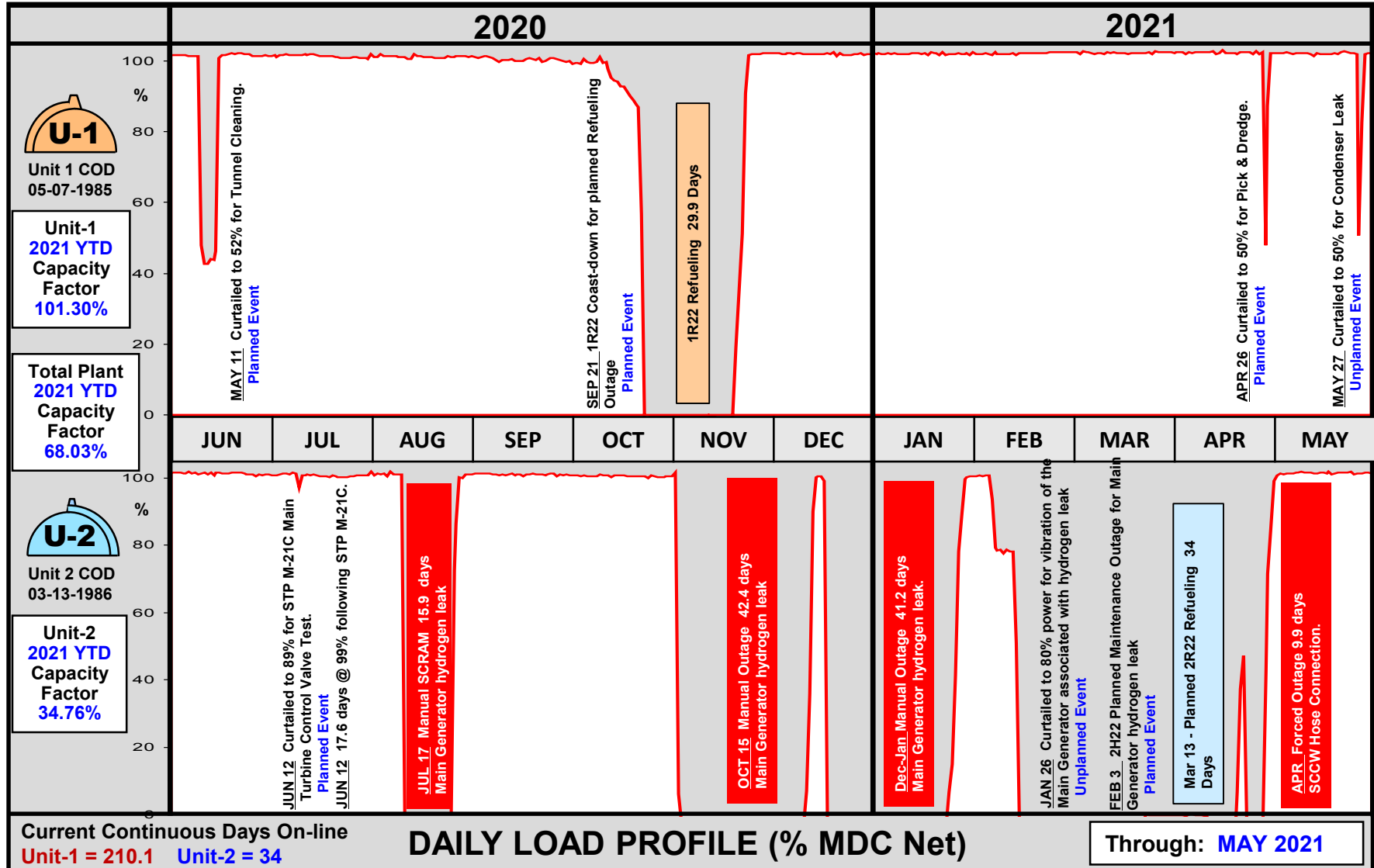
- Units 1 & 2 are safely operating at 100% power with a Probabilistic Risk Assessment (PRA) of “Green”
- All NRC Performance Indicators (PIs) are “Green”



Diablo Canyon Power Plant

Daily Load Profile: Past 12 Months

Daily Capacity Factor Power History Curves



Station Update

- Safe and successful completion of the 22nd refueling outage on Unit 2 with industry leading radiological safety performance
- The Unit 2 main generator is operating safely and reliably
- Commenced Tier 2 retention agreement
- Operator license class complete with a 100% pass rate on final exams





Station Update

COVID-19 Update

- No impact on Diablo Canyon Power Plant safe operations
- Robust monitoring is in place

Upcoming Station Activities

- Unit 1 refueling outage scheduled for March 2022
- NRC evaluated emergency planning exercise & inspection scheduled for 9/15/2021



Thank you

Cary Harbor



Diablo Canyon Power Plant

Update on Retention Efforts for Staff with Critical Skills

Justin Rogers, Generation Training Director

Diablo Canyon Independent Safety Committee

June 23, 2021



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DCPP's Retention Program

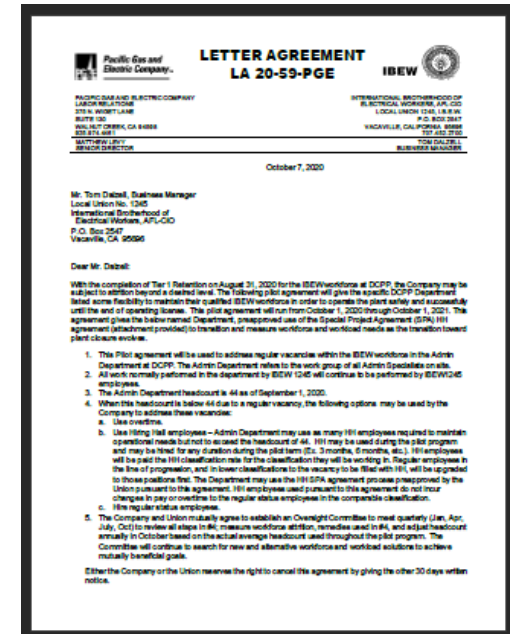
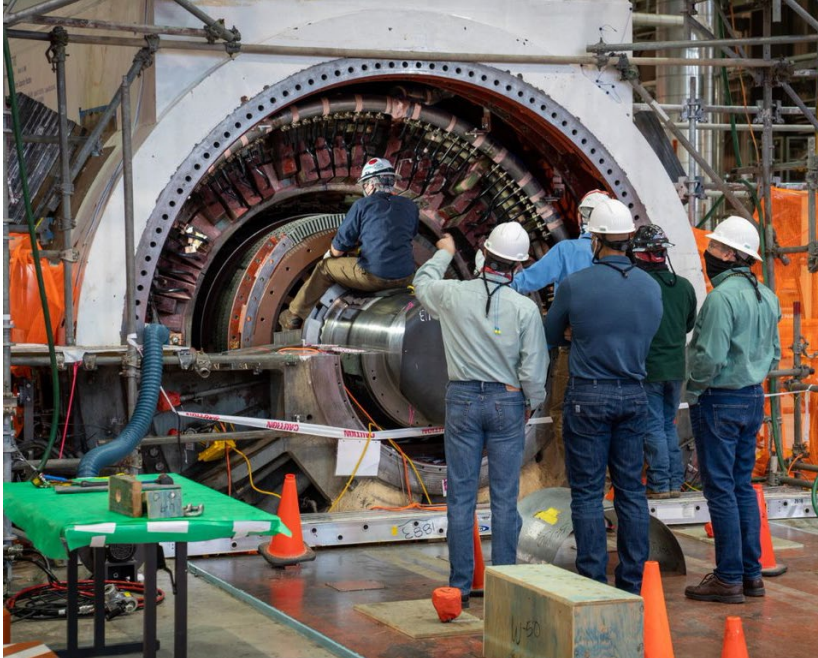
- Through the Joint Proposal Agreement, Diablo Canyon Power Plant (DCPP) employees were offered a 25% retention payment each year for seven years, through a two-tier program:
 - Tier 1 period (4 years, 2016-2020)
 - Tier 2 period (3 years, 2021-2023)
- Tier 1 finished with a 98% participation rate and Tier 2 is currently at approximately 93% participation
- DCPP is currently between the two retention periods, with the next retention payment expected in November 2021

Hiring and Staffing

- DCP Operations hired its largest license class in 2019 to prepare for expected attrition and ensure sufficient staffing levels through the end of the facility's operating licenses
- DCP maintains a pool of off-shift Senior Reactor Operators that can staff the required Operations positions required by the operating license
- Radiation Protection is hiring a new class of Chemistry and Radiation Protection technicians
- Generation leadership reviews hiring requests and staffing adequacy on a weekly basis

Workforce Flexibility

- Pilot Hiring Hall Letters of Agreement (LOA) were signed by PG&E and IBEW leaders for the following groups:
 - Decontamination Specialists
 - Electrical Maintenance Technicians
 - Instrumentation & Controls Technicians
 - Administrative Specialists



DCPP's Retraining Program

\$11.3M Funding Available from 2021 to 2025

Enhanced Education

Employee Retraining & Certificate Programs

International Brotherhood of Electrical Workers (IBEW) Union Apprenticeships

Employee Support Programs



**Pathways to
your Future**

Thank you

Justin Rogers, Generation Training Director

Diablo Canyon Status of Performance Improvement Program

Matt Hayes

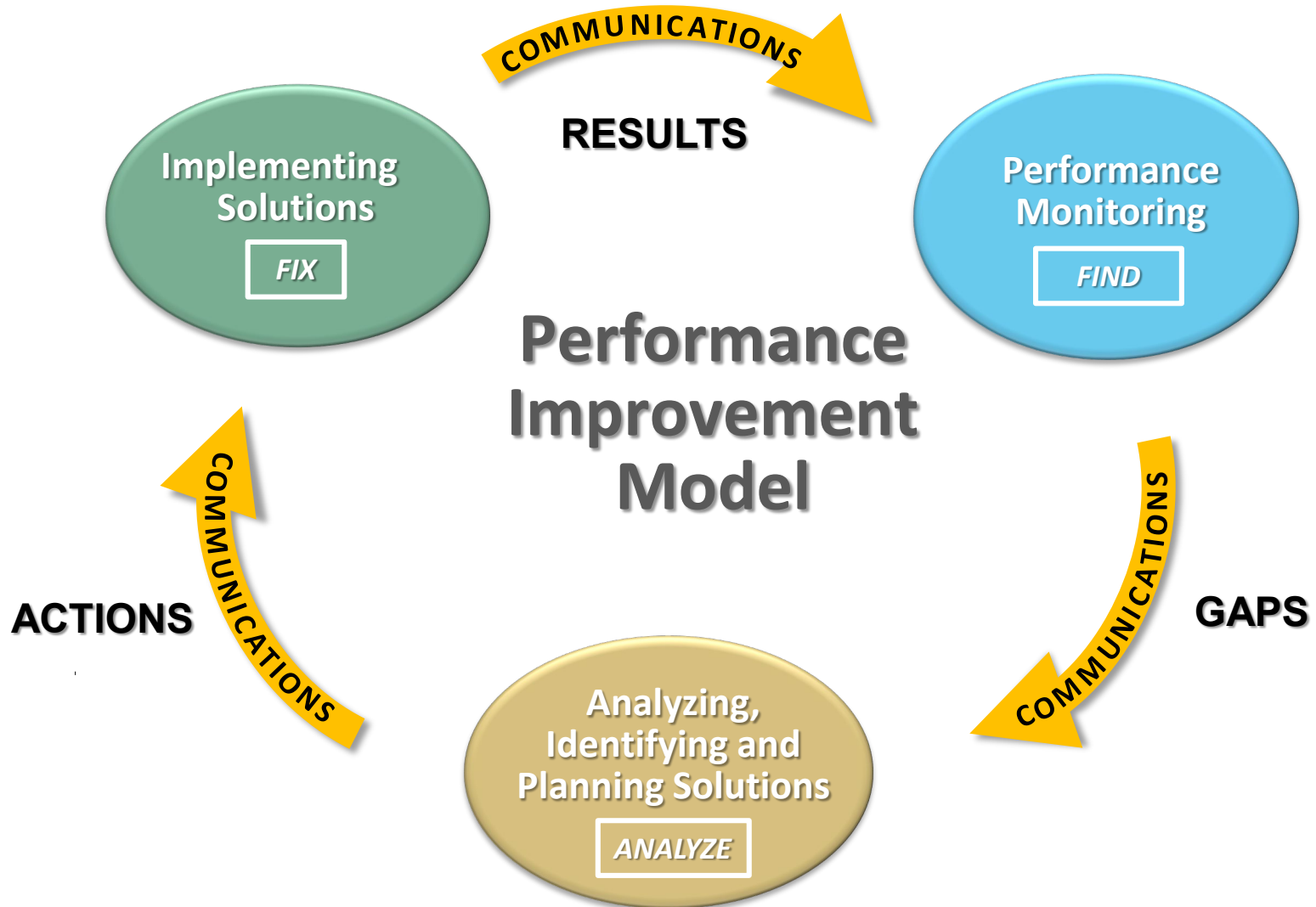
Senior Director, Generation Organizational Excellence

June 2021



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Performance Improvement (PI) Model



Performance Improvement Elements

Elements

- 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)

Corrective Action Program (CAP)

CAP improves the safety culture

- Employees identify and document issues via the web, CAP mobile application, paper form, or directly into SAP
- Issues are assessed for risk and evaluated
- Resulting corrective and preventive actions are tracked to completion
- Issue writer is notified when actions are complete
- Industry effort at simplification has been implemented

Corrective Action Program (CAP)

After Issue is Submitted



- Issue is Screened by Expert Panel

- Significance Level and Analysis Type is Assigned

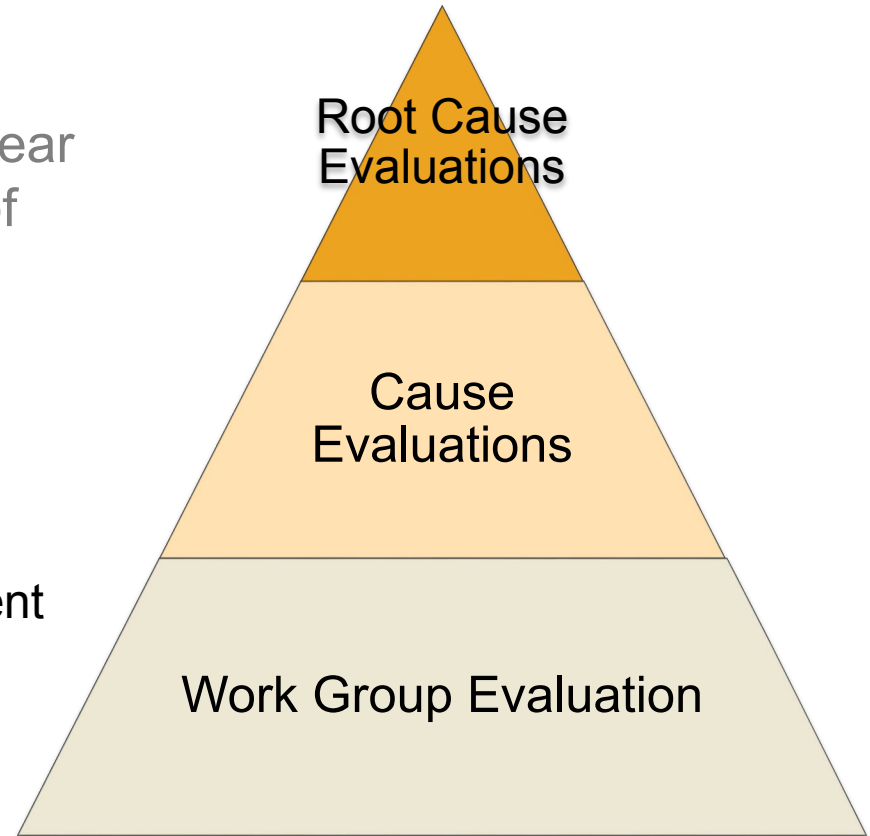
- Issue Owner is Assigned

- Senior Leadership Board Reviews Issues Independently

- Owner Investigates and Corrects

Corrective Action Program - CAP

- Issue Significance Levels
 - The level of significance is based on the risk of the nuclear safety or regulatory aspect of the issue
 - 1: High
 - 2: Medium
 - 3: Low
- Cause Determination Levels
 - The type of analysis is dependent on issue significance, risk, and consequence
 - Root Cause Evaluation
 - Cause Evaluation
 - Work Group Evaluation



Self-Assessments Provide:

- Structured method for reviewing the activities and performance of an organization
- A way to identify performance gaps when compared to internal and external standards
- Strategically targets some known or potential performance issues for further investigation

Number of Self-Assessments in 2020:

47

Benchmarking

Benchmarking Provides:

- Self-Awareness of our performance and best practices of others
- Who we benchmark:
 - Other DCPD departments
 - Other nuclear facilities
 - Internal PG&E lines of business
 - Comparable industries

Number of Benchmarking Activities in 2020:

31

Use of Operating Experience - OE

What is OE?

- Events, issues, and lessons learned from other stations that enhance each plant's safety and reliability

How do we use OE?

- Reviewed by appropriate departments
- Incorporated into work orders, work practices, engineering designs, & training
- Safety and human performance items are shared with all station personnel

Number of external OE items reviewed in 2020:

Sources of OE

- Independent external agencies
- Other nuclear and non-nuclear stations
- Other industries
- Industry vendors
- Nuclear steam supply system owners groups
- Other PG&E lines of business (non-nuclear)

Diablo Canyon OE

- Shared externally to nuclear industry
- Safety and HU events are shared internally with Power Generation

697

Performance Monitoring and Trending

What we monitor:

- CAP data
- Observations
- Safety events
- Human Performance events
- Metrics / Performance Indicators
- Self-Assessments results
- Benchmark recommendations
- Quality Verification findings
- Feedback from Independent external agencies
- Worker and leader behaviors
- Safety culture

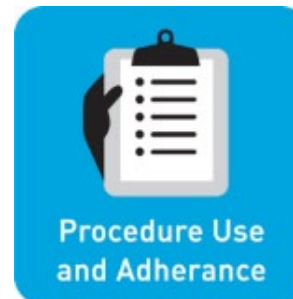
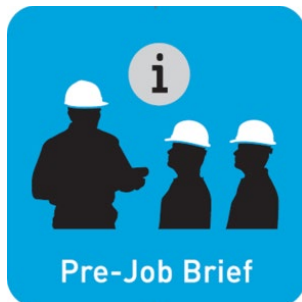
What we do with it:

- Daily cognitive analysis by a dedicated team of analysts
- Binning and grouping to ID trends
- Analysis of trends to find cause
- Identify faint signals and act before bigger issues arise
- Communication of issues and concerns
- Recommend actions
- Use CAP to track
- Perform rapid trending and issue response during outages

Human Performance - HU

Human Performance Tools reduce errors

- Humans are fallible. Even the best people make mistakes.
- The average person does not intend to make errors
- Situations where errors can occur are predictable, manageable, and preventable
- Workers use simple yet very effective error prevention tools regularly, such as...



- Our workers have HU checklists used at the start of every job
- Site Standards Handbook is carried and used by every employee

Human Performance

Self-Checking and Procedure Use and Adherence



Self-Checking
(STAR)



TOUCH
Correct Component
Verification (CCV)



Procedure Use
and Adherence



Field Engagement and Coaching

Why is it Performed?

- Gets leaders into the workspace
- Provides an opportunity to observe how the worker conducts their work
- Allows for immediate feedback concerning performance and behaviors
- Used when trends or patterns indicate a need to check in
- Used to provide positive feedback and reinforcement

How is it Performed?

- Leaders check in on work during the workday
- Focused observations are planned when trends indicate
- Observation Review Meetings are used to gather data and allow leaders to share experiences
- Software is available to record observations
- Data is reviewed and analyzed by PI team and HU expert

PI Results Achieved - 2020

47

- Self-Assessments Performed

31

- Benchmarks Performed

697

- Operating Experience Reviewed

47

- DCPD issues shared with industry

The Performance Improvement program at Diablo Canyon is effective

- Corrective Action Program inventory is decreasing
- Process simplification aligns with industry efforts
- Self-Assessments ensure alignment with established guidance
- Benchmarking ensures we see our performance 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

Thank you

Name: Matt Hayes

Diablo Canyon Station Oversight Committee & Excellence Plan

Matt Hayes

Senior Director, Generation Organizational Excellence

June 2021



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Station Oversight Committee

Identifying gaps to excellence

- A 2020 self-assessment of station performance against INPO 17-004: *Principles for Excellence in Corporate Performance* found an area for enhancement in Generation Committee Oversight
- The assessment found that there was room for improvement and cross-functional review in corporate leadership oversight
- The Station Oversight Committee (SOC) was created to address this enhancement

Station Oversight Committee

Goal

The goal of the SOC is to sustain exemplary performance by applying intrusive oversight that aligns behaviors, reinforcing high standards, driving accountability, and ensuring organizational alignment.

Belief in Continuous Improvement

The journey towards sustained exemplary performance is built upon a belief in Continuous Improvement. The focus on this belief allows corporate and senior leadership to align behaviors and move to action with urgency in support of exemplary performance.

Station Oversight Committee

Scope

The Station Oversight Committee (SOC) provides oversight of station and department excellence plans in addition to other inputs:

- Monthly review of station and department excellence plans
- Station safety performance
- Internal and external audit findings
- Corporate and station initiative status

The SOC allows corporate and station leaders share accountability for building trust and gaining alignment.

Station Excellence Plans

Living documents

- The Station Excellence Plan (SEP) is one input to the SOC meeting, it is intended to be a living document with SMART actions that drive improved performance.
- The SEP focuses on initiatives and issues important to the station with a cross-functional aspect
- Department Excellence Plans are more focused on improvements to specific lines of business
- Department level plans provided greater visibility in new meeting forum
- The improved oversight meeting process allows for increased visibility and cross-functional problem solving of department level issues

Thank you

Name: Matt Hayes

Quality Verification's Perspective on Plant Performance

Ken Johnston
Quality Verification Director
June 24, 2021

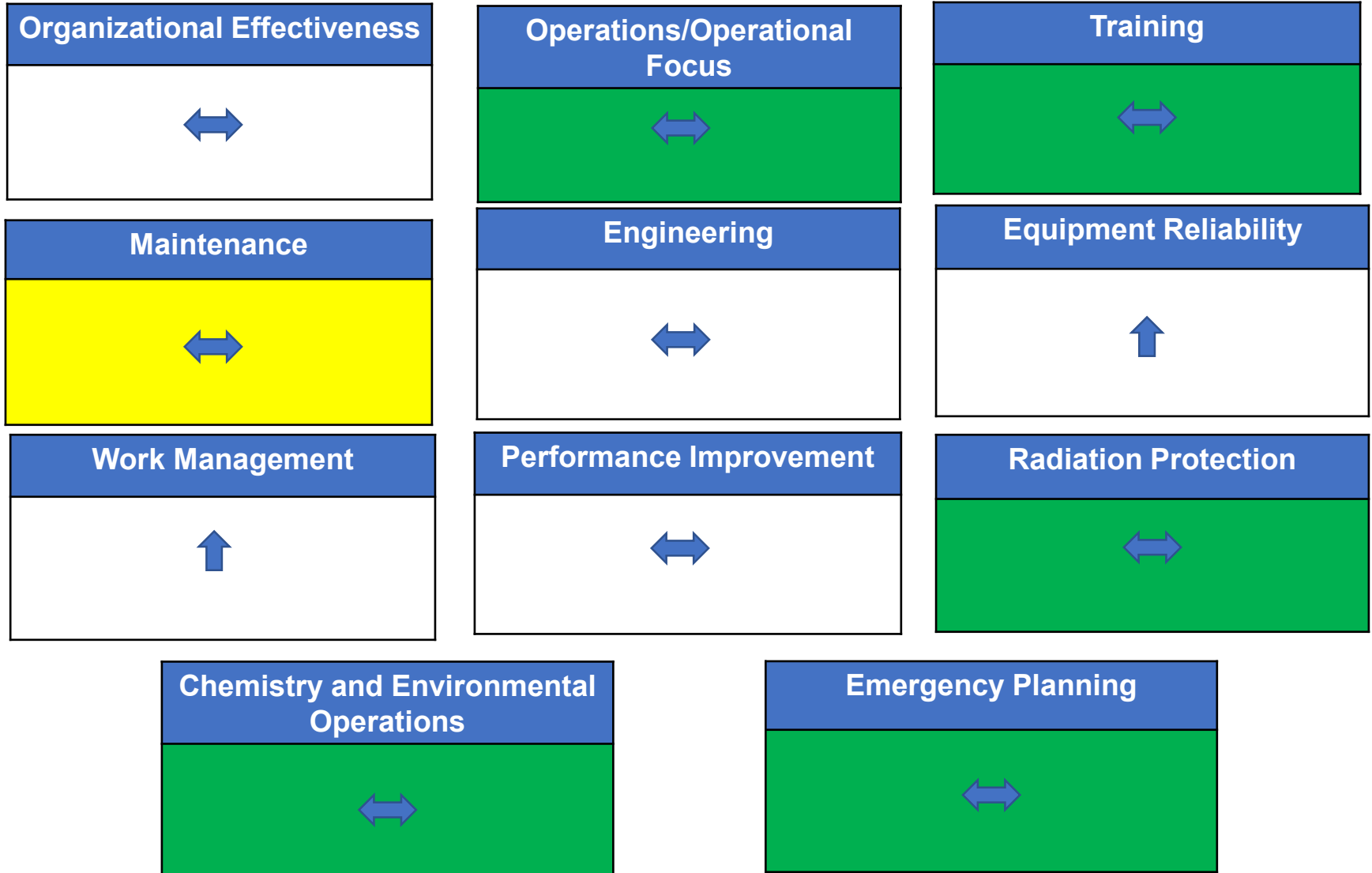


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During the December 1, 2020 to May 1, 2021 period, DCPD exhibited traits reflecting a strong nuclear safety culture and effectively implemented the quality assurance program consistent with regulatory requirements and commitments to the Nuclear Regulatory Commission (NRC).

Quality Performance Assessment Report

December 2020 to May 2021



Quality Performance Assessment Report

December 2020 to May 2021

Operations/Operational Focus

Overall performance is considered excellent

- + Prompt and appropriate responses by the operating crews to emergent equipment challenges
- + Strong leadership engagement, good alignment between crews, and improving low-level event reviews
- Procedure use improvement opportunities
- Protected equipment posting issues

Maintenance

Overall performance is adequate with improvement opportunities

- Supplemental worker performance resulting in an emergent shutdown
- Some maintenance worker shortfalls in human performance tools use throughout the period contributed to events
- Missed opportunity to review maintenance rework for lessons learned

Quality Performance Assessment Report

December 2020 to May 2021

Engineering/ Equipment Reliability

Overall performance is consistently meeting expectations

- + Engineering leadership has improved station focus on improving Equipment reliability
- + Engineering support of the resolution of U2 Generator issues
- The Engineering Work Product Review Team was not being effectively used

Radiation Protection

Overall performance is considered excellent

- + Excellence organizational support managing radiation dose with industry lowest ever outage dose in 2R22
- + Improvements in responsiveness to Confined Space program challenges

Quality Performance Assessment Report

December 2020 to May 2021

Chemistry

Overall performance is considered excellent

- + Continued excellent focus on asset protection with Chemistry Effectiveness Indicator of 0.0 and 0.2 for the units respectively
- + Addressed a trend in low-level human performance issue

Emergency Planning (EP)

Overall performance is considered excellent

- + Drill and exercise performance is improving, however with limited opportunities and remains below industry top quartile
- Continued focus on Emergency Response Organization staffing and proficiency is necessary

Quality Performance Assessment Report

December 2020 to May 2021

Work Management

Overall performance is consistently meeting expectations

- + Adjusted to a significant challenge of moving the Unit 2 outage up by 10 weeks
- Missed an opportunity to learn from a component cooling water maintenance window that significantly exceeded its target completion

Training

Overall performance is considered excellent

- + Completed the largest initial license class in history with 100% pass rate on the NRC exam
- + Strong Partnership between the line and training

Quality Performance Assessment Report

December 2020 to May 2021

Performance Improvement

Overall performance is consistently meeting expectations

- + Station has improved the thoroughness of station corrective action program products and has developed processes to improve the review of human performance errors
- Room to improve in identifying the behaviors that lead to errors

Organizational Effectiveness

Overall performance is consistently meeting expectations

- + Response to several significant challenges
 - COVID-19
 - Unit 2 Refueling outage
 - Unit 2 Main Generator

Recent Quality Verification Activities

December 2020 - May 2021 :

Conducted 5 audits, 5 assessments, 28 observations

Internal Audits

Chemistry, Emergency Preparedness, Fire Protection, Special Processes, Applied Technology Services, Access Authorization and Fitness for Duty

8 findings, 21 deficiencies, 14 recommendations

Assessments

Assessments resulting in 1 finding, 3 areas requiring management attention, 1 deficiency, and 3 recommendations

Overall plant performance remains strong and on a stable trajectory. The quality verification organization will continue to monitor and challenge the organization.

Thank you

Ken Johnston