DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

Report on

Fact-Finding Meeting at DCPP
on April 28 and 29, 2025

by
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1.0 SUMMARY

The results of the DCISC April 28 and 29, 2025, Fact-Finding Meeting at the Diablo Canyon Power Plant (DCPP) in Avila Beach, CA, are presented. The subjects addressed and summarized in Section 3 are as follows:

1. Outage Management Overview
2. High-Pressure Turbine Replacement Update and Plant Tour
3. Observe Outage Maintenance Activity
4. Cause Evaluation Process
5. Root Cause Evaluation for Auxiliary Saltwater Pump Motor Failure
6. Auxiliary Saltwater Discharge Arrangement, Area Tour, and FLEX Program
7. Observe 0730 Senior Leadership Team Outage Briefing
8. Meet with Nuclear Regulatory Commission (NRC) Resident Inspector
9. Containment Tour
10. Meet with DCPP Officer
11. Review of Anonymous Notification Trends
12. Station Update

2.0 INTRODUCTION

This Fact-Finding Meeting at the DCPP was held to evaluate specific safety matters for the DCISC. The objective of the evaluation was to determine if Pacific Gas and Electric's (PG&E's) performance is appropriate and whether any areas revealed observations which are important enough to warrant further review, follow-up, or presentation at a public meeting. These safety matters include follow-up and/or continuing review efforts by the Committee, as well as those identified as a result of reviews of various safety-related documents.

Section 4 – Conclusions, highlights the conclusions of the Fact-Finding Team (FFT) based on items reported in Section 3 – Discussion. These highlights also include the FFT's suggested follow-up items for the DCISC, such as scheduling future Fact-Finding Meetings on the topic, presentations at future public meetings, and requests for future updates or information from DCPP on specific areas of interest, etc.

Section 5 – Recommendations, presents specific recommendations to the DCISC and PG&E proposed by the FFT. These recommendations will be considered by the DCISC. After review and approval by the DCISC, this Fact-Finding Report, including its recommendations, will be provided to PG&E. The Fact-Finding Report will also appear in the DCISC Annual Report.

3.0 DISCUSSION

3.1 Outage Management Overview

The DCISC FFT met with Casey Weir, Outage Manager, for an overview regarding how DCPP manages refueling outages and the status of Refueling Outage 1R25 which was in progress at the time of the FFT's meetings. Dauphine Hou, Deb Luchsinger, and Jerry Bischof from the California Department of Water Resources (DWR) participated remotely in the meeting. The DCISC last reviewed outage management-related topics during its March 19, 2025, Fact-Finding Meeting (Reference 6.1), when it concluded the following:

> *DCPP's preparations for Refueling Outage 1R25 and the retrieval of Reactor Vessel neutron embrittlement sample Capsule B appeared to be progressing satisfactorily.*

Mr. Weir began by providing an overview of the Level 2 (high-level) schedule for Refueling Outage 1R25. He explained that the schedule was based on and organized around major windows as defined by the vendor owners' group as follows (durations approximate):

- Window 1 – Outage Start (generator breaker open) and Plant Cooldown to Cold Shutdown (Mode 5), one day
- Window 2 – Cold Shutdown (Mode 5) to Reactor Head Detensioned (Mode 6), two days
- Window 3 – Prepare for Core Unloading, three days
- Window 4 – Core Unloading, two days
- Window 5 – Core Unload to Core Reload; Vessel Empty (No Mode), nine days
- Window 6 – Core Reloading, two days
- Window 7 – Core Reloaded to Cold Shutdown, three days
- Window 8 – Cold Shutdown to Hot Shutdown (Mode 4), eleven days
- Window 9 – Hot Shutdown to Hot Standby (Mode 3), three days
- Window 10 – Reactor Startup and Power Escalation (Mode 2 and Mode 1), four days

At the time of the meeting, the outage was in its 16th day in Window 5 (Reactor Vessel empty). The FFT inquired regarding how unplanned (emergent) work items "discovered" during the outage were handled, Mr. Weir stated that the functional testing of major systems was performed early in the outage specifically so that any problems would be identified early and scheduled for repair without impacting the duration of the outage. Also, prior to the start of any outage, DCPP worked to identify all possible major issues that could occur and prepare contingency plans for addressing such issues with the least impact to the schedule. The work to replace the High-Pressure (HP)

Turbine had identified a need to increase the scope of the work, and that scope increase was addressed using one of the pre-prepared contingency plans (see also Section 3.2 below).

Mr. Weir also briefed the FFT on the overall status of the outage and answered questions including discussing:

- Status of the 10-year Inservice Inspection of the Reactor Vessel (nearly complete)
- The removal of Reactor Vessel embrittlement material samples contained in Capsule B
- Cumulative Radiation Exposure to date versus goal (under goal)
- Critical path work (primarily HP Turbine replacement)
- Contractor oversight for the approximately 1000 supplemental workers on site
- Inspections for Reactor Coolant System leaks and boric acid deposits

Regarding the vessel embrittlement samples contained in Capsule B, the capsule was successfully removed from the Reactor Vessel on April 21. The capsule and its contents were shipped off site to an independent laboratory in early May for testing and analysis to further confirm reactor vessel integrity for the extended period of operations. The testing and analysis were expected to take at least 12 months to complete, and the results would be made publicly available following its future submittal to the NRC.

The FFT found that the briefing on outage management was informative and that DCPP appeared to be managing well the schedule and scope of work for Refueling Outage 1R25.

Conclusions: DCPP appeared to be managing well the schedule and scope of work for Refueling Outage 1R25.

Recommendations to the DCISC or PG&E: None.

3.2 High-Pressure Turbine Replacement Update and Plant Tour

The DCISC FFT met with Mike Brass, Maintenance Services Director, for an update on the status of replacement of the Unit 1 High-Pressure (HP) Turbine and a tour of the turbine replacement work area. The DCISC last reviewed outage work areas during its May 2024 Fact-Finding Meeting (Reference 6.2), when it concluded the following:

> *The DCISC Fact-Finding Team toured the DCPP Unit 2 Containment and found that all observed areas and equipment were in good condition.*

Mr. Brass began by briefing the FFT on the history of HP Turbine health and plans to replace the HP Turbines on both units. Prior to 2022, DCPP had been performing thorough preventive maintenance inspections and making repairs to its HP Turbines (one per unit) every sixth refueling outage (about every nine years). The previous inspection data showed that the turbine was approaching the end of its useful life, and this was considered acceptable given the previous plan to cease operations in 2024 and 2025. With the decision in 2022 to extend operations, DCPP identified that prompt replacements of the HP Turbines on both units would be required to assure

unit reliability during a period of extended operations. (The Low-Pressure Turbines, three per unit, were previously replaced in the early 2000s.)

The project to replace the HP Turbines was put out for bid to several companies, and the original equipment vendor (Siemens) was selected. The scope of work consisted of replacing all of the turbine internal stationary and rotating elements while reusing the existing casings. The project had been in progress for about two years prior to this first replacement on Unit 1, with the second replacement planned for Unit 2 during Refueling Outage 2R25 in the fall of 2025. Equipment was manufactured primarily in Europe with final assembly occurring in North Carolina. The major components being replaced with new components included the one-piece rotor and eight semi-circular stationary blade assemblies (four upper and four lower) for each unit.

Mr. Brass then briefed the FFT on the status of the project. At the time of the FFT's meetings, the HP Turbine was fully disassembled and new components were being prepared for assembly. Inspections performed after disassembly discovered larger than expected areas of steam erosion on surfaces that served to seal the steam between the casing and the stationary blade assemblies. Small amounts of degradation had been previously recorded and were expected, but the extent of the erosion discovered during inspections was significantly higher than expected and was required to be repaired before the turbine could be reassembled to prevent further erosion or efficiency losses. To address this discovery, a large effort was underway to machine out the eroded areas, weld in new material, and machine finish surfaces of the newly welded material. This effort was a significant increase in the outage scope and duration (an additional four to five days estimated); however, the possibility of this problem had been anticipated and a contingency plan that had been prepared in advance of the outage was being implemented. The FFT considered that this type of proactive pre-planning was commendable and enhanced safety by providing a methodical approach to resolving a major issue with minimal disruption to other outage activities.

The Fact-finding Team then toured the Unit 1 Turbine Deck (140' Level) with Mr. Brass to observe the work in progress on the HP Turbine as shown below:

Mr. McWhorter and Dr. Meshkati at the New Unit 1 HP Turbine Stator Elements

DCPP Technician and Dr. Meshkati Looking at Weld Repairs Under the HP Turbine Upper Casing

The FFT found that the work area for the HP Turbine replacement was clean, well-organized, and provided a safe work environment. The FFT was able to directly observe the weld repairs that were being performed on the HP Turbine casing. The team asked where the necessary proficient welder resources were found to perform the work on short notice, and Mr. Brass reported that sufficient qualified welders were already on site performing other work, and those welders had been temporarily reassigned to the higher-priority HP Turbine work.

<u>Conclusions</u>: The planned replacement of DCPP Unit 1's High-Pressure Turbine was proceeding satisfactorily. Due to the discovery of higher-than-expected erosion on internal sealing surfaces, DCPP had implemented a contingency plan for increasing the scope and duration of the work. The FFT considered that this type of proactive pre-planning was commendable and enhanced safety by providing a methodical approach to resolving a major issue with minimal disruption to other outage activities. The DCISC Fact-Finding Team

toured the work area and found that it was clean, well-organized, and provided a safe work environment for employees.

Recommendations to the DCISC or PG&E: None.

3.3 Observe Outage Maintenance Activity

The DCISC FFT met with Chris Newport, Operations Planning Manager, to observe a maintenance work activity. The DCISC last reviewed work activities during its September 2024 Fact-Finding Meeting (Reference 6.3), when it concluded the following:

> *The maintenance work observed by the DCISC FFT was performed properly with correct human error prevention practices, correct procedures, and with proper personnel protective equipment.*

Mr. Newport briefed the FFT regarding a work activity that his team was planning to take the FFT to observe in the field. The work activity consisted of removing a snubber (a mechanical device that limits pipe movement during seismic events) temporarily from an area near Component Cooling Water (CCW) Heat Exchanger 1-1 so that it could be tested in accordance with the plant's surveillance program. The plant desired to perform the work near the in-service CCW Heat Exchanger that was operating to provide cooling to the Spent Fuel Pool and other minor loads. The redundant CCW Heat Exchanger 1-2 was out of service for other planned maintenance activities. The operating heat exchanger (1-1) was classified as "protected" because the redundant heat exchanger was out of service.

Due to the important and "protected" nature of the equipment near to the work area, Mr. Newport explained that a Risk Management Plan had been developed in accordance with established procedures. The risk that required special attention was the risk of a compromise to the operability of CCW Heat Exchanger 1-1 during the period when the snubber work was under way. Such a compromise would affect nuclear safety. He reviewed the process for development and approval of the Risk Management Plan under procedure AD7.ID14, "Assessment of Integrated Risk," Revision 37, May 30, 2024, and provided copies of both the procedure and the Risk Management Plan for the work activity to the FFT. Precautions to reduce risk for the work activity included the following:

- Requirements for pre-job and periodic shift briefings
- Rigging plans and inspections
- Communicating status of the activity with Operations personnel
- Installing robust physical barriers
- Verifying component identification
- Defining actions to be taken for unexpected conditions
- Requirements to stop work and seek further guidance for unexpected conditions

Mr. Newport also explained how the Risk Management Plans for this work activity and other similar activities were required by procedure AD7.ID14 to receive a review by a Risk Challenge

Board. The Risk Challenge Board consisted of representatives from Operations, Maintenance, Work Management, Engineering, and Generation Risk Management departments, and it was tasked with reviewing the work activity with regards to such aspects as:

- Can the risk be eliminated or reduced?
- How was the risk classification determined?
- What are the critical steps?
- Are the prevention, detection and correction actions appropriate?
- Would it be better to perform the activity under different plant conditions?
- What operating experience could be applicable?
- Is it prudent to proceed with the activity based on the identified risk?

The Fact-finding Team then toured the following areas with Mr. Newport to observe the work area and protections for operating equipment:

- Units 1 and 2 Turbine Building Condenser and Pump areas (85' Level)
- Unit 1 Component Cooling Heat Exchanger Room
- Operations Work Control Center (123' Level)

The FFT found that the maintenance work area was clean and well organized. Also, the protections described by Mr. Newport and specified in the Risk Management Plan (warning tape to warn technicians of nearby vital equipment and scaffolding boards erected solely to protect sensitive equipment near the work area) were found to be prudently present and in good condition. Unfortunately, the first portion of the work to remove the snubber had already been completed and the FFT was unable to directly observe the maintenance work. Due to restrictions on the use of mobile phones in areas containing sensitive instruments, no photographs were taken during this tour.

Conclusions: DCPP's planning for a work activity (Component Cooling Water pipe snubber replacement) that required a formal risk evaluation and the implementation of a Risk Management Plan were appropriate and performed in accordance with applicable risk management procedures to ensure that nuclear safety was adequately maintained.

Recommendations to the DCISC or PG&E: None.

3.4 Cause Evaluation Process

The DCISC FFT met with Blair Jones, Chief of Staff and Director of Strategy, Performance Improvement (PI), Organizational Effectiveness, and Engagement; Bill Lalone, PI and Corrective Action Program (CAP) Manager; Colt Wells, PI Supervisor; and Dennis Hammond, PI and CAP Senior Advisor, for an update on the status of recommendations from the DCISC to PG&E regarding DCPP's Cause Evaluation Process. The DCISC last reviewed the Cause Evaluation (CE) process during its January 2025 Fact-Finding Meeting (Reference 6.4), when it concluded the following:

DCPP's programs for performing Cause Evaluations and Root Cause Evaluations were appropriate in classifying the evaluations to be performed and conducting technical analyses to identify and correct the causes of equipment failures. However, possible weaknesses were identified in how insights gained in the use of Organizational Learning Tools and Safety Culture Assessments were captured and integrated with appropriate corrective actions initiated for organizational issues.

During its January 2025 meetings, the DCISC FFT also reviewed two recently completed evaluations in detail [Root Cause Evaluation (RCE), "1-RV-8010B Leak-By," and CE, "XS-2-797 Steam Leak"]. The DCISC's reviews resulted in two recommendations made to PG&E as follows:

PG&E should review its cause evaluation processes and initiate actions to ensure that deficiencies observed via the Organizational Learning Tool and Safety Culture Assessment are captured and tied to the initiation of appropriate corrective actions (P1/25FF-3.3A).

PG&E should review its cause evaluation processes and initiate actions to ensure that periodic trending is performed across the multiple Organizational Learning Tools and Safety Culture Assessments that are performed as a part of Cause Evaluations and Root Cause Evaluations (P1/25FF-3.3B).

Following the DCISC's January Fact-Finding Meeting and at the January FFT's request, PG&E provided copies of all its CEs completed in 2023 and 2024 (17 total) to the DCISC, and the FFT reviewed those CEs prior to this meeting. During this meeting, the FFT and the DCPP staff discussed in detail the FFT's questions regarding the format and use of the Organizational Learning Tools (OLTs) contained in the 2023 and 2024 CEs, including:

- How OLTs are created as a part of the CE process,
- How the outputs of the OLTs are used to ensure that the Corrective Actions identified in the CEs are appropriate,
- How Corrective Actions that directly result from the OLTs are created, documented, and tracked for closure, and
- The role of station leadership and the Corrective Action Review Board in ensuring that outputs of the OLTs are correctly incorporated into Corrective Actions and tracked for closure.

The FFT found that the discussion was very helpful in increasing its understanding of the process that PG&E uses to analyze and respond to organizational deficiencies identified during the performance of RCEs and CEs. In general, the process was effective in capturing and initiating appropriate corrective actions for organizational deficiencies. The PG&E staff were very forthright in discussing possible weaknesses in the process and open to the FFT's comments as to where the process was unclear or might be improved. At the end of the discussion, the PG&E staff reported that they accepted the DCISC's analysis and would initiate a Notification to capture the DCISC's comments and recommendation. A copy of the subsequent Notification, 51282724, was provided to the FFT following the meeting. (Another Notification, 51269205, was opened

previously to review a need for trending the results of OLTs that are performed as a part of RCEs and CEs.)

Conclusion: DCPP's program for the use of its Organizational Learning Tools and Safety Culture Assessments as a part of Cause Evaluations and Root Cause Evaluations was generally effective in capturing and initiating appropriate corrective actions for organizational deficiencies. Areas for improvement were discussed, and PG&E initiated two Notifications to prompt further action.

Recommendation to the DCISC: The following previous recommendation to the DCISC was completed during this Fact-Finding Meeting and is recommended for closure: *The DCISC should review the Organizational Learning Tool and Safety Culture sections in all Root Cause Evaluations and Cause Evaluations conducted in 2024 (D1/25FF-3.3)*.

Recommendations to PG&E:

The following previous recommendation to PG&E was reviewed in this Fact-Finding Meeting and remains open: *PG&E should review its cause evaluation processes and initiate actions to ensure that deficiencies observed via the Organizational Learning Tool and Safety Culture Assessment are captured and tied to the initiation of appropriate corrective actions (P1/25FF-3.3A)*. PG&E has accepted this recommendation and is working to address it under Notification 51282784.

The following previous recommendation to PG&E was reviewed in this Fact-Finding Meeting and remains open: *PG&E should review its cause evaluation processes and initiate actions to ensure that periodic trending is performed across the multiple Organizational Learning Tools and Safety Culture Assessments that are performed as a part of Cause Evaluations and Root Cause Evaluations (P1/25FF-3.3B)*. PG&E has accepted this recommendation and is working to address it under Notification 51269205.

3.5 Root Cause Evaluation for Auxiliary Saltwater Pump Motor Failure

The DCISC FFT met with Blair Jones, Chief of Staff and Director of Strategy, Performance Improvement (PI), Organizational Effectiveness, and Engagement; Bill Lalone, PI and Corrective Action Program (CAP) Manager; Colt Wells, PI Supervisor; Dennis Hammond, PI and CAP Senior Advisor; and Ken Pazdan, General Maintenance Manager, to review the status of the Cause Evaluation and corrective actions for a failure of the motor on Auxiliary Saltwater (ASW) Pump 2-2 in the fall of 2023. The DCISC last reviewed the Cause Evaluation processes during its November 2024 Fact-Finding Meeting (Reference 6.5), when it concluded the following:

> *A motor bearing degradation on Auxiliary Saltwater (ASW) Pump 2-2 discovered in the fall of 2023 and its similarity to a 2018 motor bearing failure on ASW Pump 2-1 was reviewed by DCPP and appropriate corrective actions were initiated. PG&E is continuing to evaluate why a 2018 Root Cause Evaluation for a similar motor bearing failure did not result in sufficiently effective procedure changes.*

As reviewed by the DCISC in March and May 2024, examinations following removal of the failed ASW Pump 2-2 motor in 2023 revealed that the motor bearing was degraded with wear patterns the same as a motor bearing degradation that occurred in November 2018 on the motor for ASW Pump 2-1. In 2018, a Root Cause Evaluation (RCE) was performed and the cause of the 2018 bearing degradation was determined to be excessive axial pre-loading (thrust) of the bearing when it was reassembled following motor overhaul in 2016. During its November 2024 review of the Cause Evaluation, the DCISC inquired about how DCPP dispositioned the 2018 RCE's ineffectiveness in preventing recurrence of the bearing failure. DCPP provided a copy of a Notification (SAPN 51225061, "Inadequate Root Cause CA Implementation") which addressed the question. The FFT reviewed the Notification and concluded that the information provided did not fully address the issue. Following the November 2024 Fact-Finding Meeting, PG&E explained that the Notification was still open and evaluations were still in progress to determine the final corrective actions. As a result, the DCISC made the following recommendation to PG&E:

> *PG&E should continue to evaluate why a 2018 Root Cause Evaluation for a failed Auxiliary Saltwater Pump motor bearing did not result in sufficiently effective procedure changes. (P11/24FF-3.11)*

The purpose of this meeting was to review details of the above recommendation and any actions taken by PG&E since the November 2024 review. Mr. Wells explained that the team working to respond to the above Notification (51225061) had concluded that the procedure changes made as a part of the 2018 RCE were not effective, but the team had not yet completed its work to determine the reasons why those procedure changes were not effective and what actions would be necessary to avoid similar problems in the future. The FFT found that the PG&E staff understood the issue and were continuing to work to identify appropriate corrective actions.

Conclusion: PG&E was continuing to evaluate why procedure changes made as a result of a 2018 Root Cause Evaluation for an Auxiliary Saltwater Pump motor bearing failure were not sufficiently effective to prevent the recurrence of a similar issue in 2023.

Recommendations to the DCISC: None.

Recommendation to PG&E: The following previous recommendation to PG&E was reviewed in this Fact-Finding Meeting and remains open: *PG&E should continue to evaluate why a 2018 Root Cause Evaluation for a failed Auxiliary Saltwater Pump motor bearing did not result in sufficiently effective procedure changes (P11/24FF-3.11)*. PG&E has accepted this recommendation and is working to address it under Notification 51225061.

3.6 Auxiliary Saltwater Discharge Arrangement, Area Tour, and FLEX Program

The DCISC FFT met with Bill Conklin, FLEX Program Manager, and Trevor Rebel, Environmental Permitting Manager, to review the arrangement of the Auxiliary Saltwater (ASW)

System discharge to the Pacific Ocean and its inclusion or exclusion in the FLEX* Program. The DCISC last reviewed the FLEX Program during its January 2025 Fact-Finding Meeting (Reference 6.6), when it concluded the following:

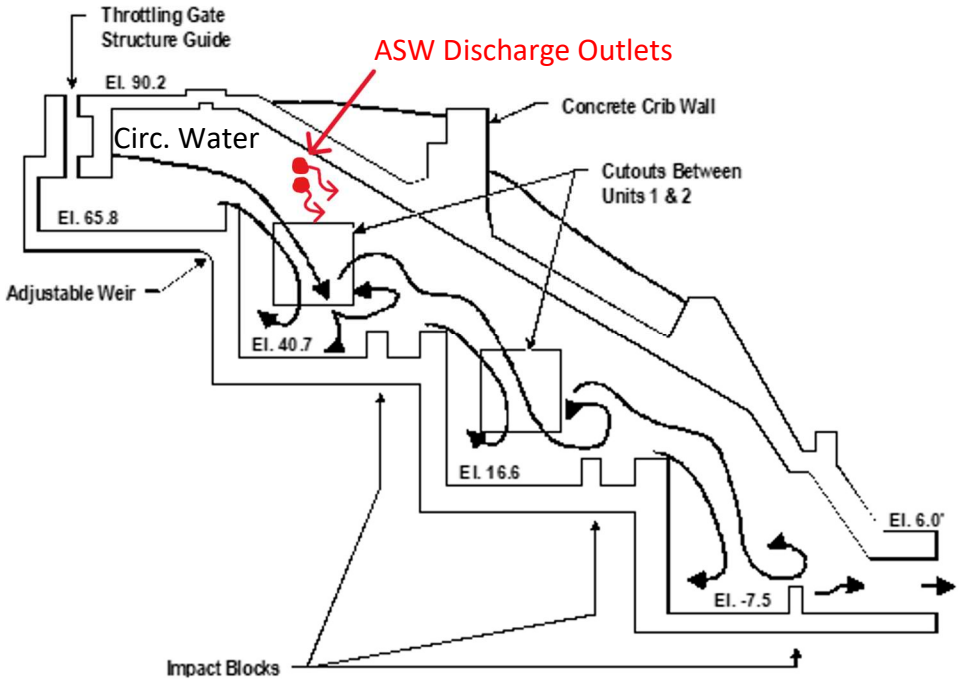
> *DCPP's FLEX Response Procedures were appropriately integrated with other procedures for responding to emergency events and severe accidents.*

Additionally, during its reviews of an updated tsunami hazard evaluation in January 2025 (Reference 6.7), the January FFT (consisting of the same two individuals as present in this April FFT) raised questions about how a tsunami could impact the Discharge Structure and the use of FLEX procedures if the Discharge Structure was unavailable for use. Following the January meetings, PG&E provided a copy of a structural drawing for the Discharge Structure to the January FFT which showed that the Auxiliary Saltwater (ASW) System piping discharged into the upper portion of the structure. The January 2025 FFT observed that at that location in the structure, the piping outlets appeared to be covered by a protective concrete structure with earthen fill. The January 2025 FFT also reviewed the DCPP Updated Final Safety Analysis Report (UFSAR, Reference 6.8, Section 9.2.7) and found that a possible collapse of the structure onto the ASW System discharge piping was discussed but appeared to be considered an event outside of the design basis. The January FFT concluded that the FLEX Program should possibly have considered developing FLEX procedures for providing an alternative discharge path for the ASW System following a Beyond Design Basis event that caused a collapse of the Discharge Structure. As a result, the January FFT made the following recommendation to the DCISC to initiate follow-up discussions with PG&E:

> *The DCISC should further review if DCPP should have considered developing FLEX procedures for providing an alternative discharge path for the Auxiliary Saltwater System following a Beyond Design Basis event that may cause a collapse of the Discharge Structure. (D1/25FF-3.12)*

During this April meeting, the FFT explained to the PG&E staff the results of its January reviews and the possible scenario where a collapse of the Discharge Structure could block the ASW System discharge outlets. The FFT identified that the safety-related ASW System included two discharge headers per unit (four total) that discharged into the north and south sides of the non-safety related Circulating Water flow path inside the Discharge Structure. From two drawings provided by PG&E (59455 and 438093), the FFT concluded that the location where the ASW System discharge outlets entered the Discharge Structure was approximately as shown in red on the following sketch:

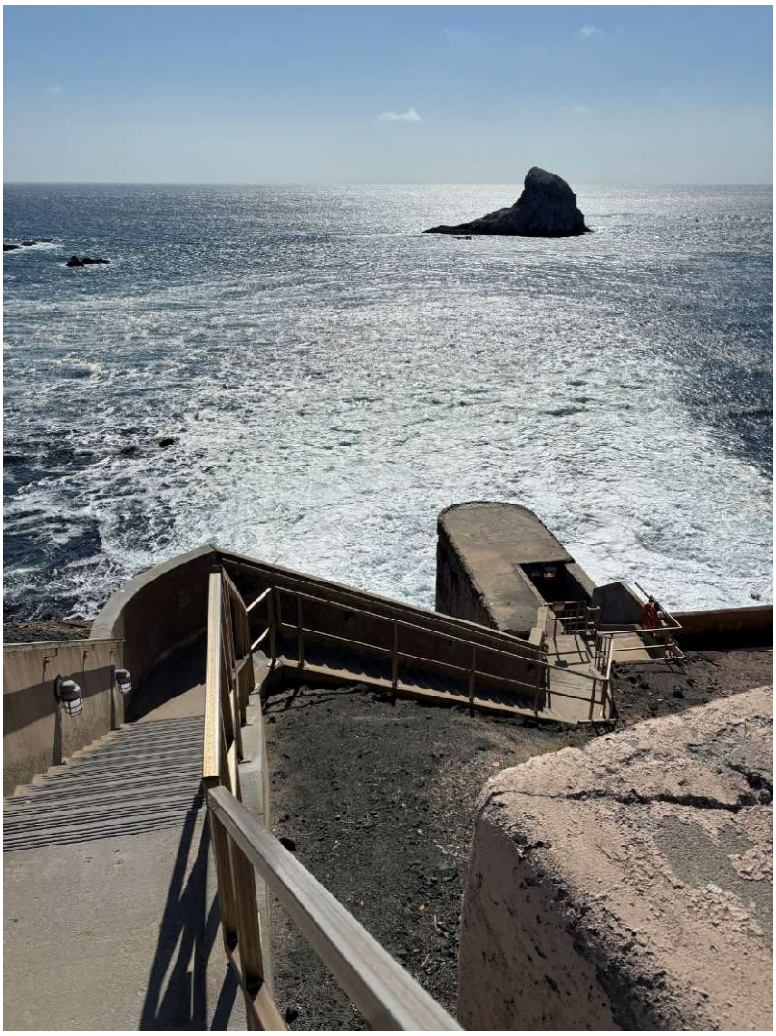
* FLEX is not an acronym but describes a strategy required by the NRC and developed by the nuclear industry in response to the accident at the Fukushima plant in Japan. The FLEX Program provides diverse and flexible coping strategies to address the loss of safety-related systems due to certain beyond design basis events. It is a group of supplemental components, many of them portable, which are seismically stored, and can be made available for timely attachment to permanent plant systems for accident mitigation.



Cross-Section of the DCPP Circulating Water Discharge Structure Showing the Approximate Locations of the ASW System Discharge Outlets in the Sides of the Structure (red dots; added by the FFT)

Mr. Conklin confirmed that the FFT's understanding of the configuration of the Discharge Structure and the location of the ASW System discharge outlets was correct. The FFT further explained that it believed that a collapse of the Discharge Structure in such a manner as to completely block flow was extremely unlikely, but it was possible. The possibility of this scenario (and its low probability) was also supported by similar statements made in the UFSAR. Given that the scenario was possible, the FFT inquired if such a scenario was included in the scope of the FLEX program analyses and FLEX guideline development. Mr. Conklin stated that there were no existing FLEX guidelines for this scenario and that further research would be required to understand if and how this scenario may have been addressed in the past analyses that formed the basis for the current FLEX Program. He agreed that this was a question worth researching and further review. The FFT concluded that a further review was warranted and recommended that PG&E review if and how the FLEX Program addressed the effects of a possible collapse of the Discharge Structure or other obstructions on the ASW System discharge flow path.

Following the discussions above, Mr. Rebel and Mr. Conklin led the FFT on a tour of the area around the Discharge Structure as shown below:



Access Stairway to Discharge Structure

Discharge Structure Viewed from Access Stairway

Mr. McWhorter and Dr. Meshkati at Discharge Structure Lower Walkway

The FFT found that the Discharge Structure was clean and in sound condition with small amounts of visible degradation from its exposure to the weather and saltwater.

<u>Conclusion</u>: The DCISC found that a possible collapse of the DCPP Discharge Structure onto the Auxiliary Saltwater discharge outlets was highly unlikely but possible. This scenario should be further reviewed to determine if it should be included as a part of the FLEX Program. A tour of the Discharge Structure found it to be in sound condition with small amounts visible degradation from its exposure to the weather and saltwater.

<u>Recommendation to the DCISC:</u> The following previous recommendation to the DCISC was completed during this Fact-Finding Meeting and is recommended for closure based on being folded into an associated recommendation to PG&E below (P4/25FF-3.6): *The DCISC should further review if DCPP should have considered developing FLEX procedures for providing an alternative discharge path for the Auxiliary Saltwater System following a Beyond Design Basis event that may cause a collapse of the Discharge Structure (D1/25FF-3.12)*.

<u>Recommendation to PG&E:</u> PG&E should review if DCPP should have considered developing FLEX guidelines for providing an alternative discharge path for the Auxiliary Saltwater (ASW) System following a Beyond Design Basis event that may cause a collapse of the Discharge Structure or otherwise obstruct the ASW System discharge (P4/25FF-3.6). PG&E has accepted this recommendation and is working to address it under Notification 51283374.

3.7 <u>Observe 0730 Senior Leadership Team Outage Briefing</u>

The DCISC FFT attended the 0730 Senior Leadership Team (SLT) Outage Briefing. The DCISC last observed a similar outage management-related meeting during its May 2024 Fact-Finding Meeting (Reference 6.9), when it concluded the following:

> *The May 8, 2024, meeting of the Outage Scope Review Team and Daily Notification Review Team was conducted efficiently and effectively. The team appropriately reviewed and dispositioned approximately 80 Notifications from the previous shift.*

The SLT Outage Briefing, held daily during Refueling Outage 1R25, was facilitated by Dan McBride, Operations Director and Shift Outage Director. The purpose of the meeting was to provide the SLT with a forum to review the status of outage activities and review or approve decisions as desired. The desired outcome was stated as, "The leadership team will have personal accountability for making effective decisions and appropriately managing the risk associated with executing the refueling outage and protecting the running unit."

The FFT was provided with a copy of the meeting agenda which included:

- Reviewing the Desired Outcome
- Previous Meeting Plus/Deltas and Action Items
- Safety, Human Performance, and Dose Updates
- Plant Status (both outage and operating units)
- Outage Status (schedule, key activities, critical path, high risk activities, discovery items, etc.)
- Emerging Issues Update
- Project Update
- Observation Insights
- Notification Review Team Package Review
- Roundtable and Leadership Message

The FFT observed that the meeting was conducted efficiently with an appropriate focus on managing risk for both the outage and operating units. Major issues and action items were concisely discussed and appropriate direction given by senior leaders.

<u>Conclusions</u>: The April 28, 2025, 0730 Senior Leadership Team Outage Briefing was conducted efficiently and effectively. Major issues and action items were concisely discussed and appropriate direction given by senior leaders.

Recommendation to the DCISC or PG&E: None.

3.8 Meet with NRC Resident Inspector

The DCISC FFT met with Mahdi Hayes, NRC Senior Resident Inspector, for an update. The DCISC meets regularly with the NRC Resident Inspectors and last met with them during its March 19, 2025, Fact-Finding Meeting (Reference 6.10), when it concluded the following:

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

The items discussed in this meeting included the following:

- DCPP's FLEX Program and the Associated Regulatory Requirements
- NRC Rules for Overtime Limits
- NRC Specialist Inspection Topics and Periodicities
- Recent NRC Inspection Findings, primarily one Non-Cited Violation with two examples of human performance errors as documented in the NRC's most recent Inspection Report (Reference 6.11)

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

Recommendations to the DCISC or PG&E: None.

3.9 Containment Tour

The DCISC FFT met with Philippe Soenen, Strategic Initiatives Director, and Josh Ernstrom, Communications Representative, for a tour of the DCPP Unit 1 Containment Building. The DCISC last conducted a Containment Building tour during its May 2024 Fact-Finding Meeting (Reference 6.12) when it concluded the following:

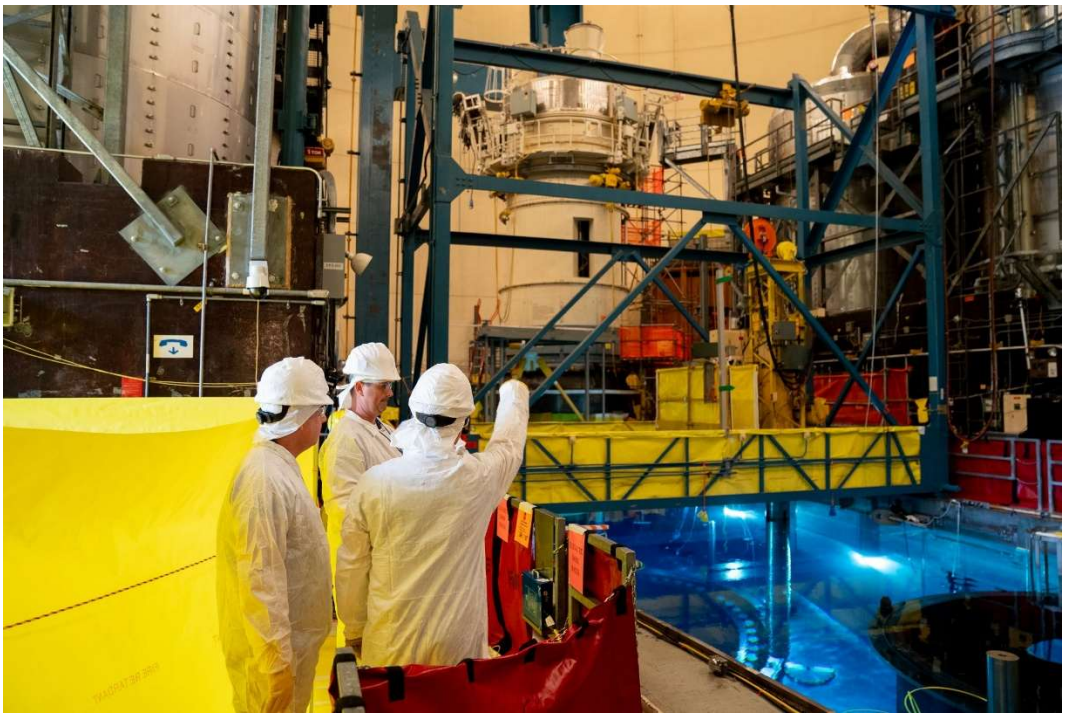
> *The DCISC Fact-Finding Team toured the DCPP Unit 2 Containment and found that all observed areas and equipment were in good condition.*

The FFT and Mr. Soenen began by discussing areas to be observed during the tour and precautions and limitations for the tour. Messrs. Soenen and Ernstrom then guided the team in entering the Radiation Control Area (RCA) and touring various areas inside of the Unit 1 Containment Building. At the time of the tour, Unit 1 was in the third week of Refueling Outage 1R25 with fuel removed from the Reactor Vessel. Areas toured included:

- 140' Level – Ventilation Equipment, Refueling Equipment, Steam Generator and Pressurizer Enclosures, and the Reactor Cavity (with Lower Internals Removed)

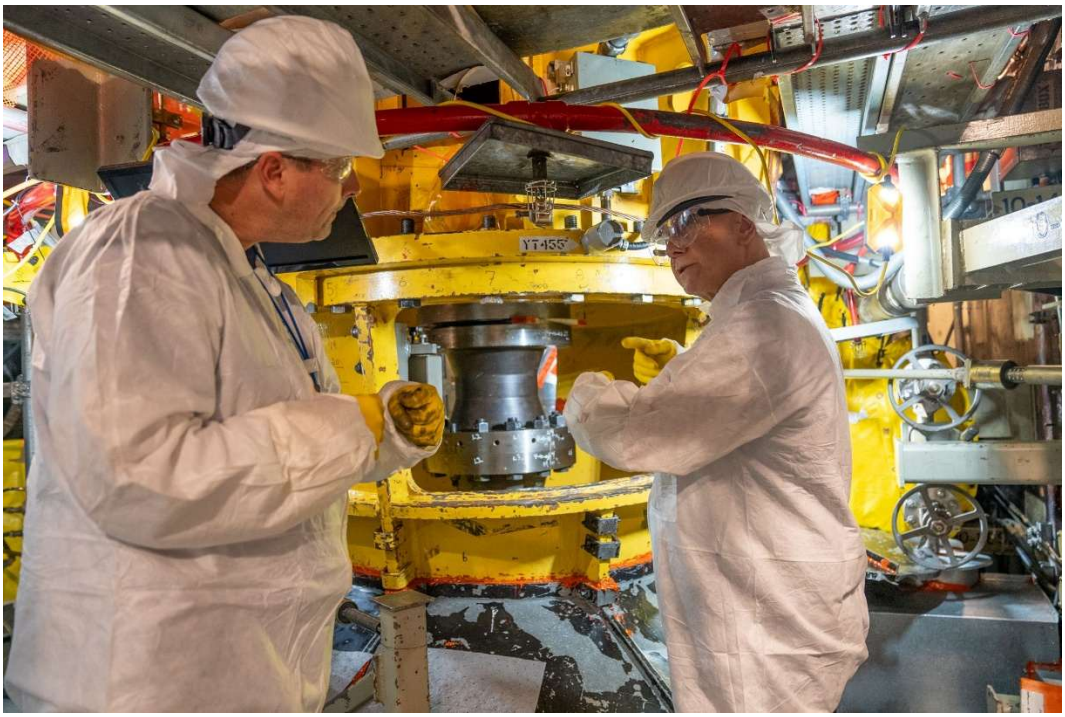
- 115' Level – Seal Table, Reactor Coolant Pump 1-3 and 1-4 Enclosures
- 91' Level – Safety Injection Accumulators and Bio-shield Entry Area

Overall, the FFT found that all observed areas were clean, orderly, well lit, with equipment in good condition, and radiation hazard warning signs appropriately posted. Selected pictures of areas toured by the FFT were as follows:



Mr. McWhorter, Mr. Soenen, and Dr. Meshkati at the Reactor Cavity

Mr. Soenen, Dr. Meshkati, and Mr. McWhorter at the Nuclear Instrument Seal Table



Mr. Soenen and Dr. Meshkati at Reactor Coolant Pump 1-3 Motor/Pump Coupling

<u>Conclusions</u>: The DCISC Fact-Finding Team toured the DCPP Unit 1 Containment and found that all observed areas and equipment were in good condition.

Recommendations to the DCISC or PG&E: None.

3.11 Meet with DCPP Officer

The DCISC FFT met remotely with Maureen Zawalick, Vice President, Business and Technical Services, and in-person with Blair Jones, Chief of Staff and Director of Strategy, Performance Improvement, Organizational Effectiveness, and Engagement, for an update. The DCISC last met with a DCPP officer during its Fact-Finding Meeting in March 19, 2025, (Reference 6.13) when it concluded the following:

> *The regular meetings with DCPP Officers and Directors continue to be beneficial for both organizations.*

The participants discussed planning for an upcoming meeting between a DCISC member and members of the Safety and Nuclear Oversight Committee of the PG&E Board of Directors.

Conclusions: The regular meetings with DCPP Officers and Directors continue to be beneficial for both organizations.

Recommendations to PG&E or DCISC: None.

3.11 Review of Anonymous Notification Trends

The DCISC FFT met with Donna Wells, Employee Concerns Program Manager, for an update on trends associated with anonymous Notifications at DCPP. The DCISC last reviewed this topic as a part of its review of the Nuclear Safety Culture and Employee Concerns Programs during its January 2025 Fact-Finding Meeting (Reference 6.14), when it concluded the following:

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

The DCPP Employee Concerns Program (ECP) provides an alternate venue for employees to report concerns; that is, a process independent of line management. The ECP may be used by individuals to report nuclear safety concerns dealing with harassment, intimidation, retaliation, or discrimination without fear of retribution. Employees may submit concerns into the ECP via a 24/7 hotline, drop box, email, mailbox, or by direct contact with ECP personnel. During its January reviews of the Employee Concerns Program, the DCISC asked about the number of anonymous Notifications submitted at DCPP in 2024. That number was provided to the DCISC following the meeting which did not allow adequate time for further inquiry and discussion on the topics and trends for recent anonymous Notifications. The purpose of this discussion was to receive more details on the anonymous Notifications submitted in 2024 and early 2025.

Ms. Wells provided the following numbers showing the history of anonymous Notifications submitted at DCPP in the last three years:

	2022	2023	2024
Anonymous Notifications	121	83	88

She reported that most of the anonymous notifications received in 2024 were submitted for matters unrelated to nuclear safety such as parking and driving, drinking water and toilets, personnel issues, etc. For 2025 to date, the most common theme was problems with the outage management internal website. The FFT requested and was provided with a list of the anonymous notifications submitted in 2024 with their general topics and verified that only a very small number of them had any relevance to nuclear safety. The FFT also discussed the conclusions contained in two recent reports from the Nuclear Safety Culture Monitoring Panel (NSCMP). Ms. Wells confirmed that the panel met three times per year and reported its results to the Nuclear Safety Leadership Team.

Conclusion: Most of the anonymous notifications submitted at DCPP in the last two years were for matters unrelated to nuclear safety. The DCISC's brief review of the list of ascribed titles of anonymous notifications by staff of the Employee Concerns Program did not find any visible pattern of significant safety concerns.

Recommendation to the DCISC: The following previous recommendation to the DCISC was completed during this Fact-Finding Meeting and is recommended for closure: *The DCISC should further review the numbers and nature of anonymous Notifications received in 2024 for any significant themes or concerns (D1/25FF-3.9B).*

Recommendation to PG&E: None.

3.12 Station Update

The DCISC FFT met with Justin Rogers, Station Senior Director, for a Station Update. The DCISC last received a Station Update during its March 19, 2025, Fact-Finding Meeting (Reference 6.15), when it concluded the following:

> *DCPP's update on recent station activities was informative, and no new major issues were identified.*

Mr. Rogers proved an update on the following recent activities at DCPP as follows:

- Power Production – Unit 1 began its 25th Refueling Outage on April 13. Unit 2 continued to operate at 100% power with no major issues.

- Refueling Outage 1R25 Discovery of Additional Work Scopes – It was determined that two Reactor Coolant Pump Seals needed to be replaced which was one more than planned but not unexpected. The scope of the High-Pressure Turbine replacement work was expanded (see Section 3.2 above), and clevis insert cap screws holding the Reactor Vessel Lower Internals keyways were found to have more degradation than expected. The FFT requested and received additional information on the nature of the clevis insert

cap screw problem and confirmed that there were no nuclear safety concerns. Lastly, there was one secondary system piping elbow that was discovered to have unacceptable wall thinning during Flow-Accelerated Corrosion Program inspections, and its replacement was being added to the outage work scope.

- Major Projects – Projects being completed as a part of Refueling Outage 1R25 were generally proceeding as planned, including repairs to the roof of the Condensate Storage Tank and the replacement of an expansion joint on the Main Condenser.

- Human Performance – One significant injury occurred shortly after the start of Refueling Outage 1R25 when a contract employee fell from a ladder in Containment and suffered a broken foot.

Conclusion: DCPP's update on recent station activities was informative, and no new major issues were identified.

Recommendations to the DCISC or PG&E: None.

4.0 CONCLUSIONS

4.1 DCPP appeared to be managing well the schedule and scope of work for Refueling Outage 1R25.

4.2 The planned replacement of DCPP Unit 1's High-Pressure Turbine was proceeding satisfactorily. Due to the discovery of higher-than-expected erosion on internal sealing surfaces, DCPP had implemented a contingency plan for increasing the scope and duration of the work. The FFT considered that this type of proactive pre-planning was commendable and enhanced safety by providing a methodical approach to resolving a major issue with minimal disruption to other outage activities. The DCISC Fact-Finding Team toured the work area and found that it was clean, well-organized, and provided a safe work environment for employees.

4.3 DCPP's planning for a work activity (Component Cooling Water pipe snubber replacement) that required a formal risk evaluation and the implementation of a Risk Management Plan were appropriate and performed in accordance with applicable risk management procedures to ensure that nuclear safety was adequately maintained.

4.4 DCPP's program for the use of its Organizational Learning Tools and Safety Culture Assessments as a part of Cause Evaluations and Root Cause Evaluations was generally effective in capturing and initiating appropriate corrective actions for organizational deficiencies. Areas for improvement were discussed, and PG&E initiated two Notifications to prompt further action.

4.5 PG&E was continuing to evaluate why procedure changes made as a result of a 2018 Root Cause Evaluation for an Auxiliary Saltwater Pump motor bearing failure were not sufficiently effective to prevent the recurrence of a similar issue in 2023.

4.6 The DCISC found that a possible collapse of the DCPP Discharge Structure onto the Auxiliary Saltwater discharge outlets was highly unlikely but possible. This scenario should be further reviewed to determine if it should be included as a part of the FLEX Program. A tour of the Discharge Structure found it to be in sound condition with small amounts of visible degradation from its exposure to the weather and saltwater.

4.7 The April 28, 2025, 0730 Senior Leadership Team Outage Briefing was conducted efficiently and effectively. Major issues and action items were concisely discussed and appropriate direction given by senior leaders.

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

4.9 The DCISC Fact-Finding Team toured the DCPP Unit 1 Containment and found that all observed areas and equipment were in good condition.

4.10 The regular meetings with DCPP Officers and Directors continue to be beneficial for both organizations.

4.11 Most of the anonymous notifications submitted at DCPP in the last two years were for matters unrelated to nuclear safety. The DCISC's brief review of the list of ascribed titles of anonymous notifications from the Employee Concerns Program staff did not find any visible pattern of significant safety concerns.

4.12 DCPP's update on recent station activities was informative, and no new major issues were identified.

5.0 RECOMMENDATIONS

<u>Recommendations to the DCISC:</u>

5.1 The following previous recommendation to the DCISC was completed during this Fact-Finding Meeting (Section 3.4) and is recommended for closure: *The DCISC should review the Organizational Learning Tool and Safety Culture sections in all Root Cause Evaluations and Cause Evaluations conducted in 2024 (D1/25FF-3.3)*.

5.2 The following previous recommendation to the DCISC was completed during this Fact-Finding Meeting (Section 3.6) and is recommended for closure based on being folded into an associated recommendation to PG&E below (P4/25FF-3.6): *The DCISC should further review if DCPP should have considered developing FLEX procedures for providing an alternative discharge path for the Auxiliary Saltwater System following a*

Beyond Design Basis event that may cause a collapse of the Discharge Structure (D1/25FF-3.12).

5.3 The following previous recommendation to the DCISC was completed during this Fact-Finding Meeting (Section 3.12) and is recommended for closure: *The DCISC should further review the numbers and nature of anonymous Notifications received in 2024 for any significant themes or concerns (D1/25FF-3.9B).*

Recommendations to PG&E:

5.4 The following previous recommendation to PG&E was reviewed in this Fact-Finding Meeting (Section 3.4) and remains open: *PG&E should review its cause evaluation processes and initiate actions to ensure that deficiencies observed via the Organizational Learning Tool and Safety Culture Assessment are captured and tied to the initiation of appropriate corrective actions (P1/25FF-3.3A)*. PG&E has accepted this recommendation and is working to address it under Notification 51282784.

5.5 The following previous recommendation to PG&E was reviewed in this Fact-Finding Meeting (Section 3.4) and remains open: *PG&E should review its cause evaluation processes and initiate actions to ensure that periodic trending is performed across the multiple Organizational Learning Tools and Safety Culture Assessments that are performed as a part of Cause Evaluations and Root Cause Evaluations (P1/25FF-3.3B).* PG&E has accepted this recommendation and is working to address it under Notification 51269205.

5.6 The following previous recommendation to PG&E was reviewed in this Fact-Finding Meeting (Section 3.5) and remains open: *PG&E should continue to evaluate why a 2018 Root Cause Evaluation for a failed Auxiliary Saltwater Pump motor bearing did not result in sufficiently effective procedure changes (P11/24FF-3.11)*. PG&E has accepted this recommendation and is working to address it under Notification 51225061.

5.7 PG&E should review if DCPP should have considered developing FLEX guidelines for providing an alternative discharge path for the Auxiliary Saltwater (ASW) System following a Beyond Design Basis event that may cause a collapse of the Discharge Structure or otherwise obstruct the ASW System discharge (P4/25FF-3.6, Section 3.6). PG&E has accepted this recommendation and is working to address it under Notification 51283374.

6.0 REFERENCES

6.1 "Diablo Canyon Independent Safety Committee Thirty-Fifth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2024 – June 30, 2025," Scheduled for approval at the October 2025 DCISC Public Meeting, Volume II, Exhibit D.7, Section 3.10, "Refueling Outage 1R25 Update and Safety Plan."

6.2 "Diablo Canyon Independent Safety Committee Thirty-Fourth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2023 – June 30, 2024," Approved October 10, 2024, Volume II, Exhibit D.9, Section 3.10, "Plant Tour."

6.3 "Diablo Canyon Independent Safety Committee Thirty-Fifth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2024 – June 30, 2025," Scheduled for approval at the October 2025 DCISC Public Meeting, Volume II, Exhibit D.3, Section 3.5, "Online Maintenance."

6.4 Ibid., Exhibit D.6, Section 3.3, "Review of Recent Root Cause Evaluation and Cause Evaluation."

6.5 Ibid., Exhibit D.4, Section 3.11, "Cause Evaluation for Auxiliary Saltwater Pump 2-2 Failure."

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

6.7 Ibid., Exhibit D.6, Section 3.12, "Tsunami Hazard Evaluation."

6.8 "Diablo Canyon Power Plant Units 1 and 2, Final Safety Analysis Report Update," Revision 28, November 2024, submitted to the Nuclear Regulatory Commission as an enclosure to PG&E letter DCL-24-105, "Submittal of Updated Final Safety Analysis Report, Revision 28," November 18, 2024, Part 3, Sections 9.2.7.2.5 and 9.2.7.3.1, NRC ADAMS Accession Number ML24323A242.

6.9 "Diablo Canyon Independent Safety Committee Thirty-Fourth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2023 – June 30, 2024," Approved October 10, 2024, Volume II, Exhibit D.9, Section 3.3, "Observe Outage Scope Review Team and Daily Notification Review Team Meeting."

6.10 "Diablo Canyon Independent Safety Committee Thirty-Fifth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2024 – June 30, 2025," Scheduled for approval at the October 2025 DCISC Public Meeting, Volume II, Exhibit D.7, Section 3.4, "Meet with NRC Resident Inspectors."

6.11 "Diablo Canyon Power Plant Units 1 and 2 – Integrated Inspection Report 05000275/2025001 and 05000323/2025001," Issued by the Nuclear Regulatory Commission, May 6, 2025, NRC ADAMS Accession Number ML25114A194.

6.12 "Diablo Canyon Independent Safety Committee Thirty-Fourth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2023 – June 30, 2024," Approved October 10, 2024, Volume II, Exhibit D.9, Section 3.10, "Plant Tour."

6.13 "Diablo Canyon Independent Safety Committee Thirty-Fifth Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2024 – June 30, 2025,"

Scheduled for approval at the October 2025 DCISC Public Meeting, Volume II, Exhibit D.7, Section 3.7, "Meet with DCPP Officer."

6.14 Ibid., Exhibit D.6, Section 3.9, "Station Nuclear Safety Culture and Employee Concerns Programs."

6.15 Ibid., Exhibit D.7, Section 3.3, "Station Update."