Diablo Canyon

Independent

Safety Committee

Public Meeting
February 15 and 16, 2023

Avila Lighthouse Suites

Robert J. Budnitz, Member and Richard D. McWhorter,
Andrew C. Kadak, and R. Ferman Wardell, Consultants

- Decommissioning Planning and Funding
- Planning for Spent Fuel Storage
- Independent Spent Fuel Storage Installation Tour

Decommissioning Planning and Funding

- DCPP Has Sufficient Funding to Continue Decommissioning Planning
- DCPP Deciding on Project Organization – Self-Managed or Contractor
- Current Decommissioning Cost Was $3.9 Billion with Trust Fund Balance of $4.0 Billion
- If License Extension Is Approved, Many Decommissioning Planning Activities Put on Hold
- Conclusion: DCPP Decommissioning Planning Is Appropriate

Planning for Spent Fuel Storage

- DCPP Has Sufficient Storage Capacity for Operations Through 2025
- New Orano System Will Be Needed Prior to Eventual Decomissioning
- Orano to Submit License Amendment 4 in 2022 for Higher Burnup and Higher Heat Load for 37 Spent Fuel Assemblies per Cask
- Current Orano License Covers DCPP Seismic Loads
- DCISC Plans to Review Orano Seismic Loading and Heat Load
- Greater Than Class C Waster Storage Plans Incomplete
- Conclusion: DCPP Spent Fuel Storage Plans Appear Satisfactory

Independent Spent Fuel Storage Installation (ISFSI) Tour

- ISFSI Tour Included the Following:
  - ISFSI Pad and Vertical Holtec Casks
  - Cask Transfer Facility
  - Spent Fuel Cask Transporter
  - Proposed Site of Greater Than Class C Waste Storage Facility
  - Old Steam Generator Storage Facility
  - FLEX Equipment Upper Outdoor Storage Area

ISFSI Tour

Robert J. Budnitz, Member and Richard D. McWhorter, Andrew C. Kadak, and R. Ferman Wardell, Consultants

- Decommissioning Planning and Funding
- Planning for Spent Fuel Storage
- ISFSI Tour

November 8, 9 and 10, 2022 Fact-Finding Report

Robert Budnitz, Member, and Richard McWhorter, Consultant

1. Independent Peer Review Panel Meeting on October 26, 2022
2. Meet with San Luis Obispo County Emergency Services Director
3. License Renewal
4. Comprehensive Review of the Seismic Safety Program
5. Emergency Diesel Generators
6. Meet with Nuclear Regulatory Commission (NRC) Senior Resident Inspector
7. Plant Tour
8. Operations Department
9. Meetings with DCPP Officers
10. Technical Review of New Spent Fuel Storage System
11. Tour of Orano TN Fabrication Facility in Kernersville, NC, on November 9, 2022
12. Tour of Orano TN Training Facility in Aiken, SC, on November 10, 2022

Independent Peer Review Panel Meeting on October 26, 2022 (Remote)

- Senate Bill 846
  - IPRP stated its scope in the near term would be limited to the seismic hazard and ground motion aspects.
  - IPRP affirmed that there was no new mandate for writing a new report concerning their evaluation, even of the topics within their scope.
  - IPRP planned to limit its near-term work to a review of any DCISC evaluation and of any new information provided by PG&E.

(continued)

Independent Peer Review Panel Meeting on October 26, 2022 (Continued)

- PG&E Update
  - Summary of Recent Studies
  - Review of Selected Long-Term Seismic Program (LTSP) Activities
- Conclusion – The Independent Peer Review Panel meeting was successful in clarifying its future role in light of Senate Bill 846. The DCISC should continue to attend future IPRP meetings and follow the IPRP's deliberations, findings, and recommendations.

Meeting with SLO County Emergency Services Manager

- Scott Jalbert, Former Fire Chief succeeded Joe Guzzardi in April 2021
- Reviewed Office Functions and Staffing
- Discussed Relationship with DCPP – Good. Concerned about continuance of funding.
- Discussed Future Activities including IPAWs.
- Conclusion – The DCISC Fact-finding Team's visit with Scott Jalbert, the San Luis Obispo County Emergency Services Director, was beneficial. The DCISC should follow the issue of adequate future funding.

License Renewal (remote)

- DCPP's original application for License Renewal (submitted in November 2009) was withdrawn on March 7, 2018, following the June 2016 execution of the Joint Proposal.
- Currently pursuing two parallel paths: either 1) restart previous application, or 2) obtain timeliness exemption for submittal of new application.
- Either path would focus on building upon previously submitted and approved information. Targeted for submittal in late 2023.
- Staffing up a License Renewal Group to complete application.
- Conclusion – The DCISC Fact-Finding Team concluded that both approaches were reasonable and would ensure that an adequate and timely evaluation of safety can be performed.

Comprehensive Review of the Seismic Safety Program

- SB846 directed the DCISC to review and evaluate seismic safety in the context of whether important seismic-safety upgrades would be needed.
- Previous DCPP Seismic Safety Analyses included:
  - 2015 Probabilistic Seismic Hazard Analysis (PSHA)
  - 2018 Seismic Probabilistic Rick Assessment (SPRA)
  - Long-Term Seismic Program (LTSP, ongoing)
  - DCPP followed international recognized analysis methodologies – Senior Seismic Hazard Analysis Committee (SSHAC) and ASME/ANS standard for PRA methodology

(continued)

Comprehensive Review of the Seismic Safety Program (continued)

- Topics reviewed during this meeting:
  - General update on the status of hazard evaluations, fragility evaluations, and the SPRA.
  - Understanding any new information or developments in the seismic area that could affect plant safety during the proposed extension of operations beyond 2025.

(continued)

Comprehensive Review of the Seismic Safety Program (continued)

- DCISC Findings:
  - Seismic Hazard and Site Ground Motion
    - DCPP continues to develop new information relative to refining the understanding of the seismic hazard and site ground motion.
    - Nothing in any of the new information changes the broader understandings of previous seismic studies or provides any new safety insights.

(continued)

Comprehensive Review of the Seismic Safety Program (continued)

- DCISC Findings (continued):
  - In-structure Energy Propagation and Seismic Fragility of Components
    - DCPP considers that models for in-structure energy propagation and the seismic fragility of components and structures remain valid.
    - The methodology that DCPP used for analyzing seismic fragilities is well defined, widely used, very mature, and follows the ASME/ANS PRA standard.
    - There is nothing new that would modify the previous insights of the most recent SPRA with regards to in-structure energy propagation or the fragilities of structures and components.

(continued)

Comprehensive Review of the Seismic Safety Program (continued)

- DCISC Findings (continued):
  - SPRA Model:
    - DCPP considers that its SPRA model remains valid.
    - Methodology for the overall SPRA analysis is widely used worldwide, quite mature, and embedded in both international and domestic standards.
    - There is nothing new with regards to system modeling that would modify the insights of the most recent SPRA.

(continued)

Comprehensive Review of the Seismic Safety Program (continued)

- DCISC Findings (continued):
  - Uncertainties:
    - DCPP continues to use new information to refine uncertainties.
    - The uncertainty analyses are well understood and competently performed.
  - Other
    - Spent Fuel Pool (SFP) seismic analyses remain valid.
    - UCLA risk study concluded SFP seismic risk very low.
    - 2018 'Mitigating Strategies Assessment' found that no upgrades were needed.

(continued)

Comprehensive Review of the Seismic Safety Program (continued)

- DCISC Conclusions
  - The 2015 PSHA and the 2018 SPRA were previously reviewed by the DCISC which concluded that the seismic safety achieved by DCPP was acceptable.
  - After reviewing the new and updated information available from DCPP and the industry, the DCISC concludes that the seismic safety of DCPP is fully adequate now and requires no additional upgrades or other changes to update or improve it.
  - The DCISC concludes that no upgrades or improvements to seismic safety would be necessary to assure adequate safety for extended operations beyond 2025.

(continued)

Comprehensive Review of the Seismic Safety Program (continued)

- DCISC Recommendations:
  - The DCISC should continue to monitor and review any future updates to the seismic safety analyses for DCPP, including information to be provided in the upcoming License Renewal Application.
  - The DCISC should review important changes affecting seismic safety that have been made to the plant configuration and its operating procedures since the earlier 2015 PSHA and 2018 SPRA, including such changes as the use of FLEX equipment to help maintain and restore safety functions after an earthquake.

Emergency Diesel Generators

- Unit 1 – Healthy (Green) with minor issues being addressed.
- Unit 2 – Needing improvement (White) with minor issues being addressed.
- Unit 2 not considered Healthy due to open follow-up actions for a fuel oil leak that occurred in June 2021 on EDG 2-3 during a maintenance activity.
- EDG reliability and availability have been good over the past two years.
- Conclusion – The health of DCPP's Emergency Diesel Generators (EDGs) was rated as Green (Healthy) on Unit 1 and White (Needing Improvement) on Unit 2.

Meet with NRC Senior Resident Inspector

- Items Discussed Included:
  - DCPP performance during Refueling Outage 2R23
  - Recent NRC inspection findings
  - The NRC's classification of the Unit 2 trip on October 15, 2021, as a "Unplanned Scram with Complications" under the NRC Performance Indicator program (closing of MSIVs rendered MFW unavailable)
  - DCPP performance during the September 14, 2022, Emergency Preparedness exercise

Plant Tour

- Fact-Finding Team Toured:
  - 140’ Turbine Building (Main Operating Deck)
  - 85’ Auxiliary Building (RCA Entry and Exit)
  - 140’ Unit 2 Containment (Reactor Head, Cavity, Containment Air Recirculation Fans, and Pressurizer)
  - 128’ Unit 2 Containment (In-core Instrument Drives)
  - 115’ Unit 2 Containment (2-1 and 2-4 Reactor Coolant Pump Cubicles and In-core Instrument Seal Table)
  - 100’ Unit 1 and Unit 2 Auxiliary Building (Mechanical Penetration Areas and Hot Shutdown Panel)

Fact-Finding Team in Front of Unit 2 Reactor Head

Operations Department

- Excellent Performance During Refueling Outage 2R23.
- Departmental Performance Indicators mostly green.
- Morale good due to possibility of extended operations.
- Moving quickly to restart training programs and staff classes for new operators.
  - January 2023 – RO to SRO Upgrades (4-6)
  - April 2023 – New ROs and SROs (about 24)
  - Early/Late 2023 – Non-licensed Operators (about 12/class)
- Conclusion – DCPP's Operations Department was performing well with no significant issues or concerns.

Meetings with DCPP Officers

- Adam Peck, Site Vice President
- Maureen Zawalick, Vice President, Decommissioning and Technical Services (remote)

Technical Review of New Spent Fuel Storage System (remote; assisted by Consultant Kadak)

- Discussed in detail fourteen questions on various technical topics sent in advance to Orano.
- Questions included:
  - Seismic design and analyses
  - Long-term storage concerns
  - Vacuum drying
  - Handling of damaged fuel assemblies
  - Thermal evaluations
  - Loading operations

(continued)

Technical Review of New Spent Fuel Storage System (continued)

- Questions (continued):
  - Extreme environmental conditions
  - Neutron shielding
  - Helium loss
  - Inspection methods
- Conclusion – Based on the information provided, a number of the DCISC's questions were satisfactorily addressed, and the system appeared to be adequately designed to assure safety in those areas. The DCISC had additional follow-up questions on other portions of the system and will continue to review those issues in future Fact-Finding Meetings.

Tour of Orano TN Fabrication Facility in Kernersville, NC, on November 9 (Consultant Wardell)

- Orano fabricates all parts of the Dry Shielded Canisters (DSCs) there.
- Metal arrives as flat metal plates and other basic shapes.
- Metal is cut, rolled, formed, and welded into a DSC.
- Shop completes about one DSC per week.
- Shop has an NRC-approved Quality Assurance Program.
- DSC includes the cylinder, end caps and shields, internal fuel basket matrix.
- Conclusion: The Orano Fabrication Facility appeared clean, orderly and efficiently organized. Their DSC was high quality and precisely made. Processes and programs met nuclear industry standards.

Tour of Orano TN Training Facility in Aiken, SC, on November 10 (Consultant Wardell)

- The NUHOMS University trains Orano Teams of (typically) 22 personnel sent to nuclear plants to carry out the wet-to-dry storage campaigns:
  - Unpacking & inspecting the DSCs on-site
  - Rigging & lifting the DSCs into the Spent Fuel Pools (SFPs)
  - Moving spent fuel assemblies into the DSCs in the SFPs
  - Welding & inspecting the top cover welds
  - Vacuum drying & helium filling of the DCSs
  - Transporting the DSCs to the ISFSI Horizontal Storage Modules (HSMs)
  - Securing the HSMs
- Conclusion: NUHOMS University appeared well-staffed and equipped with actual components. Personnel appeared knowledgeable and professional. Training program met the nuclear industry standard, Systematic Approach to Training.

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

1. Meet with NRC Resident Inspector and NRC Problem Identification and Resolution Inspection Team
2. Outage 2R23 Results
3. Troubleshooting Program Update
4. Revised Capital Plan
5. Nuclear Fuel Performance and Plans
6. Plant Staffing Planning
7. Safety-Security Interface Update
8. License Extension Update
9. Observe Plant Health Committee Meeting
10. Meet with Site VP and Industry Benchmark Evaluation Results
11. Equipment Qualification Program Update
12. Transmission System Health Update
13. Sea Water Reverse Osmosis (Desalination) Plant Tour

Meet with NRC Resident Inspector and NRC Problem Identification and Resolution Inspection Team

- NRC Problem Identification and Resolution (PI&R) Inspection Process
- Biennial NRC Inspection
- Too Early in the Inspection for Results
- DCPP's PI&R Process Is the "Corrective Action Program" (CAP)
- NRC & DCISC Have Concluded the DCPP CAP Is Satisfactory
- Conclusion: Meetings with NRC Are Beneficial & Should Continue

Outage 2R23 Results

- **Outage Was a Success Based on Nuclear and Personnel Safety**
- **Outage Duration Missed Due to Valve Stem Leak Repair on Residual Heat Removal System (*Later in PM*)**

Performance measure	Goal	Actual
(SIF) events	0	0
Nuclear Safety Events	0	0
Site Clock Resets	0	0
Outage duration	≤ 35 days	39 Days, 21 Hours, 28 Minutes (Includes DST)
ALARA (Rem)	≤ 14.80 * revised to _____ Rem *	14.210_ Rem
Significant FME events	0	0
Power Ascension	≤ 5 days	3 Days, 4 Hours, 32 Minutes
Reliability	≥ 90 days	

Troubleshooting Program Update

- Troubleshooting: "Formal process that establishes a systemic approach to data collection and failure analysis to determine the immediate cause of a system failure."
- Maintenance Department Responsible with Support from Engineering and Operations
- DCPP Troubleshooting Procedure Satisfactory
- Discussed Troubleshooting Examples, But No Recent Documented Plans Available
- Conclusion: DCPP Troubleshooting Program Appeared Satisfactory

Revised Capital Plan

- Earlier (May 2022) DCPP Capital Plan Reviewed by DCISC Focused on Early Shutdown with Reduced or Eliminated Projects
- DCPP Has Embarked on a New Review for Extended Operation
- New Review Not Yet Complete – Not Approved/Available
- Another Initiative: PMO++, "Equipment Long Range Plan Reviews"
- PMO++ Follows 2016 PMO (Preventive Maintenance Optimization)

Continued

Revised Capital Plan, cont'd.

- PMO++ Scope:
  - Corrective Maintenance
  - Preventive Maintenance
  - Surveillances
  - License Renewal/Aging Management Programs
  - Modifications and Designs
  - Parts and Spares
  - Cognitive Trending
- Completion of Reviews – End of January 2023 (*PG&E Report Later*)
- DCISC Fact-finding Meetings Spring 2023, Decisions June Public Meeting to Support SB-846 Schedule.

Nuclear Fuel Performance and Plans

- Unit 1: No Fuel Defects Since 1991
- Unit 2: No Fuel Defects Since 2012
- Fuel Design Previously Optimized for Early Shutdown
- Fuel Design Now Optimized for Extended Operation
- Fuel Design and Loading Can Be Adapted to Either Schedule
- Conclusion: DCPP Fuel Plans Satisfactory

Plant Staffing Planning

- Previous Staffing Geared Toward Early Shutdown
- Current Staffing Adequate
- Future Staffing Needs Identified: 264 New Positions for All Areas
- Active Recruitment and Hiring Has Begun
- Conclusion: DCPP Staffing Plans Satisfactory

(DCPP Staffing Presentation Later in This Public Meeting)

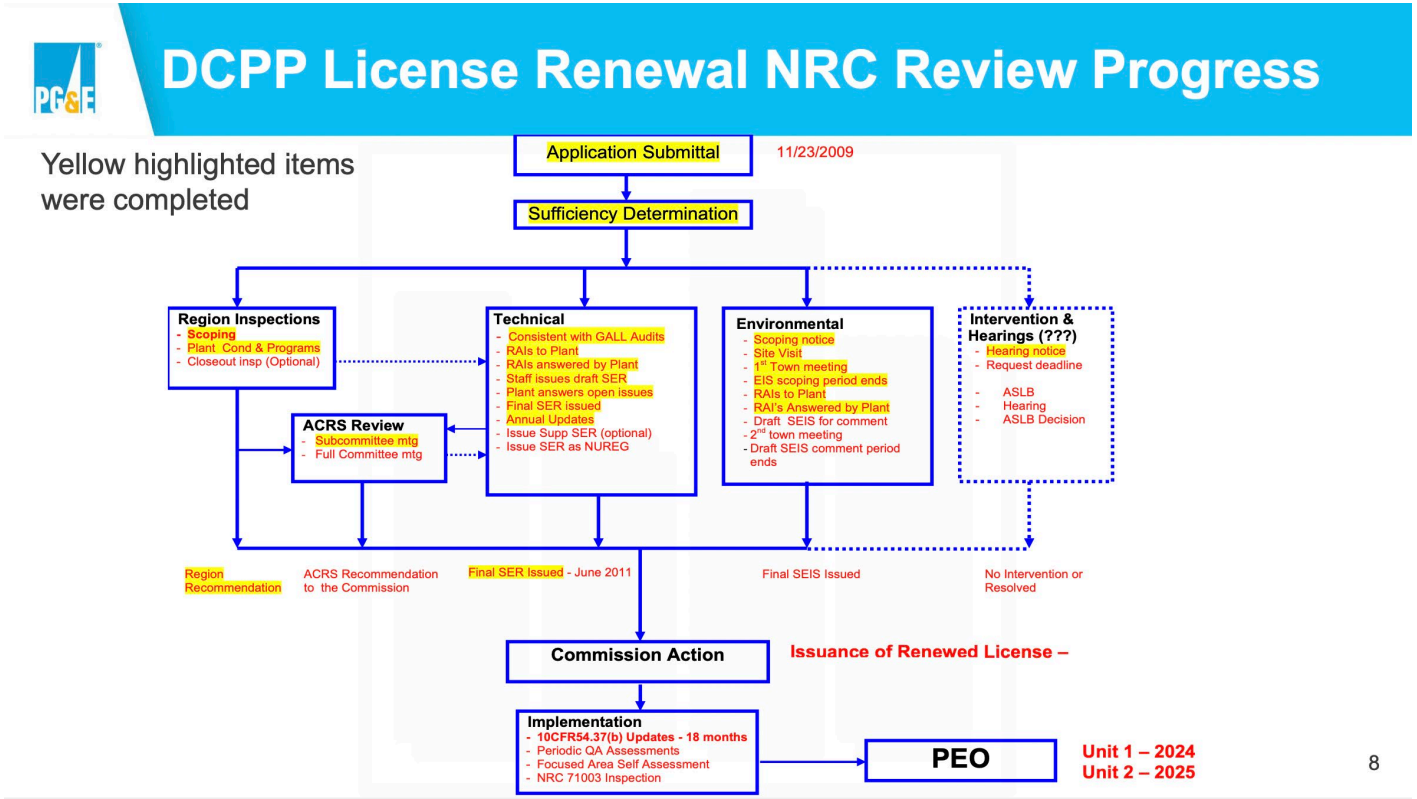
Safety-Security Interface Update

- Assess and Manage Changes to Safety and Security Activities to Avoid Potential Adverse Effects on Either Plant Safety or Security
- DCPP Procedure Appeared Satisfactory
- Discussed Examples of Changes & Impacts – No Adverse Impacts
- Conclusion: DCPP Program Designed and Implemented Satisfactorily

License Extension Update

- **DCPP License Extension Progress – December 2022**

(PG&E to Provide Update Later in This Public Meeting)



Observe Plant Health Committee (PHC) Meeting

- DCPP Procedure: "Plant Health Committee" – Satisfactory
  - Continual Review of System and Program Health Issues
  - Maintains Plant Health Issues List
  - Maintains Plant Top Ten Equipment Issues List
  - Reviews and Approves Action Plans for Resolving Issues
  - Approving System, Component and Program Long Range Issues
- December 7, 2022 PHC Meeting:
  - Emergency Diesel Generator Fuel Oil and Governor Issues
  - Chemical and Volume Control System Hand Controller Failures in Hot Shutdown Panel
- Conclusion: PHC Meeting Effective & Efficient

Meet with Site VP, Adam Peck, and Industry Benchmark Results

- **Discussed Items of Interest to Both Organizations**
- **DCPP Received High Marks in 2022 Industry Benchmark Evaluation**

(Because of its privacy agreement with DCPP, DCISC cannot share the details of the industry benchmark evaluation or subsequent corrective actions.)

- **Conclusions: 1) Meetings with DCPP Officers Are Beneficial**

  2) DCPP Scored High in Industry Benchmark Evaluation

Equipment Qualification Program Update

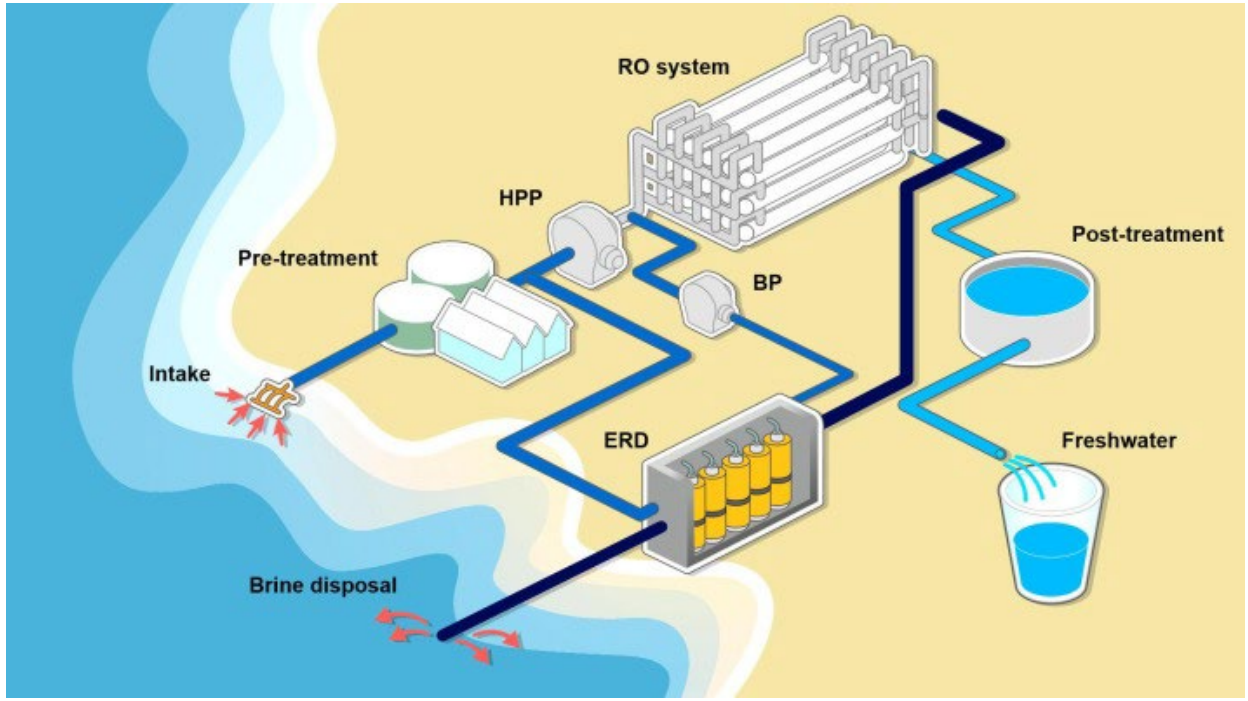
- DCPP Procedure: "Environmental Qualification (EQ) Program"
- Procedure Satisfactory
- Program Assures Electrical (Mostly) Equipment Will Perform Required Functions in Accident Environment Conditions
- DCPP Quick Hit Self-Assessment: No Deficiencies Identified
- NRC Design Basis Assurance Inspection: One Minor Non-Cited Violation Corrected By DCPP During Inspection
- Conclusion: DCPP EQ Program Implemented Effectively

Transmission System Health Update

- 230kV System Is Primary Offsite Emergency Power Supply
- 500kV System Is DCPP Power Output Path and Backup Offsite Emergency Power Supply
- Units 1 and 2 500kV Systems Health: Green with Minor Issues
- Units 1 and 2 230Kv Systems Health: Green with Minor Issues
- Conclusion: DCPP Transmission Systems in Good Health

Sea Water Reverse Osmosis (SWRO) (Desalination) Plant Tour

- SWRO Provides Almost All DCPP Water
- Water from a Pressurized Saline Solution is Separated from the Dissolved Salts by Flowing Through a Water-Permeable Membrane.



Continued

Sea Water Reverse Osmosis (SWRO) Plant Tour, cont'd.

SWRO Average Monthly Production (Gallons)	Power Production Supply (Gallons)	Other Uses (Gallons)	Brine Returned To Pacific Ocean (Gallons)
13,503,350	9,217,867	4,285,483	23,637,954

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Diablo Canyon Power Plant

Decommissioning Planning and Potential Continued Operations

Presented by

February 15, 2023

TOM JONES, Sr. Director, Regulatory, Environmental and Repurposing

Background

- **Operating licenses DPR-80 and DPR-82**

- **Two units: generate 3,411 MWt each**
  - 9% of CA's energy
  - Approx. 20% of CA GHG free

- **Current operating licenses expire:**
  - Unit 1: November 2024
  - Unit 2: August 2025

Background: Concurrent Paths Due to California Energy Policy Changes

1. DCPP Retirement 2024/2025

- Continue key decommissioning planning to secure items already in progress
  - **Diablo Canyon Decommissioning Engagement Panel (DCDEP)**
  - **San Luis Obispo County: Decommissioning development planning**
  - **Nuclear Regulatory Commission (NRC): Decommissioning license actions**
  - **CA Public Utilities Commission: Nuclear Decommissioning Cost Triennial Proceedings**
  - **Diablo Canyon land activities**

SB 846 Enacted (Sep2022)

2. DCPP Continued Operations

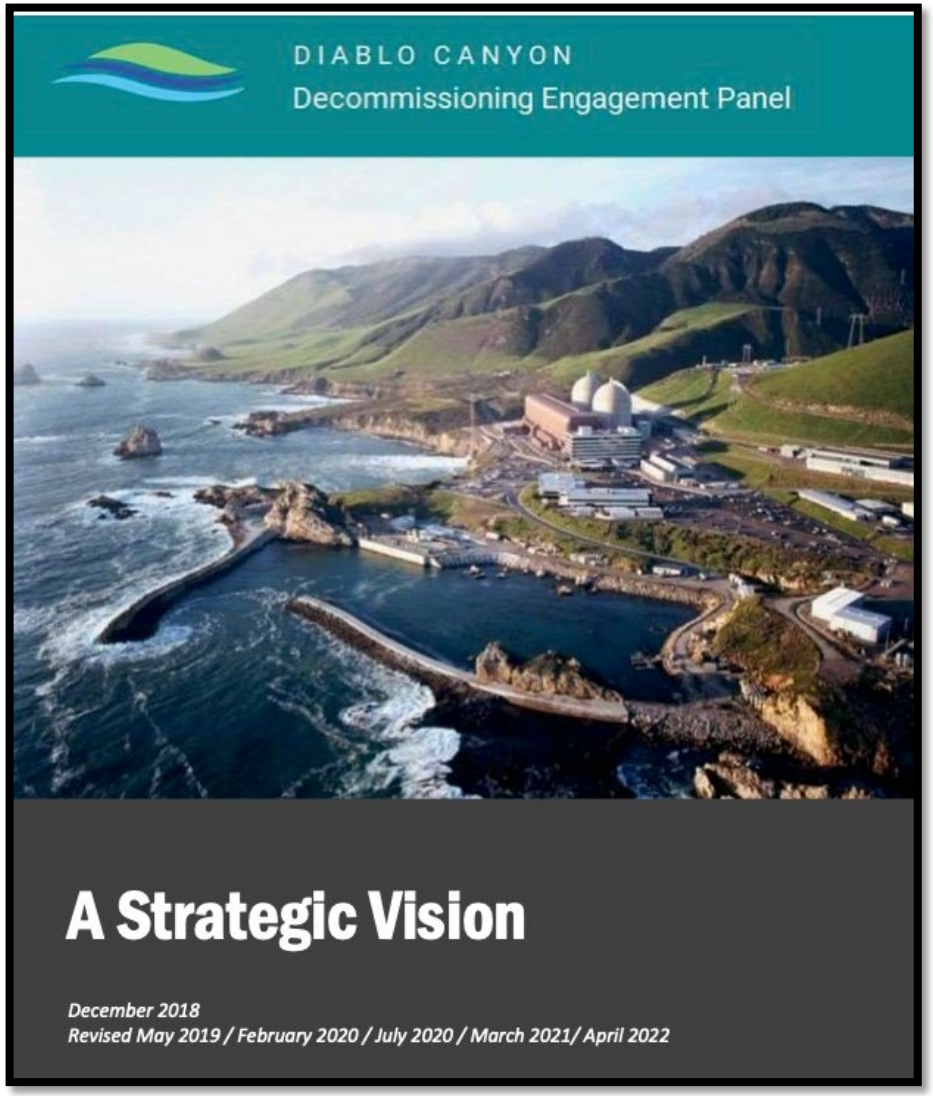
- DCPP license renewal efforts with Federal and State agencies
- Dept. of Energy conditionally granted PG&E Civil Nuclear Credit funds (up to $1.1B)
- Coordinate with State's Secretary of Natural Resources
- Develop employee retention

Decommissioning Planning Continues

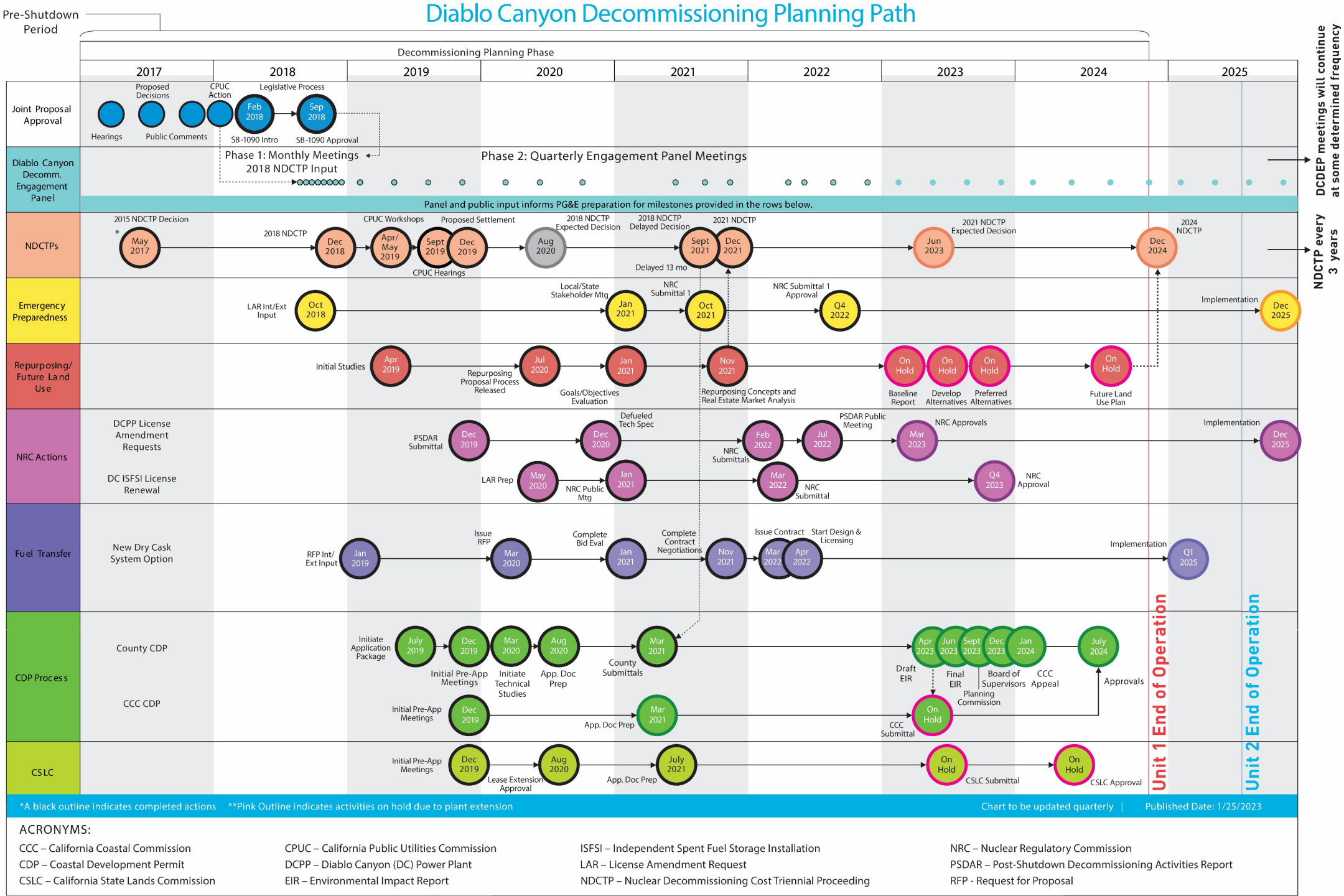
Decommissioning Planning Continues

Focusing on pre-2024 activities needed to ensure smooth transition into decommissioning

- DCDEP
- Repurposing and future land use process
- Decommissioning program development
  - Procedure revisions
- Licensing approvals (addressed in later slides)
- Permitting approvals (addressed in later slides)



Diablo Canyon Decommissioning Planning Path

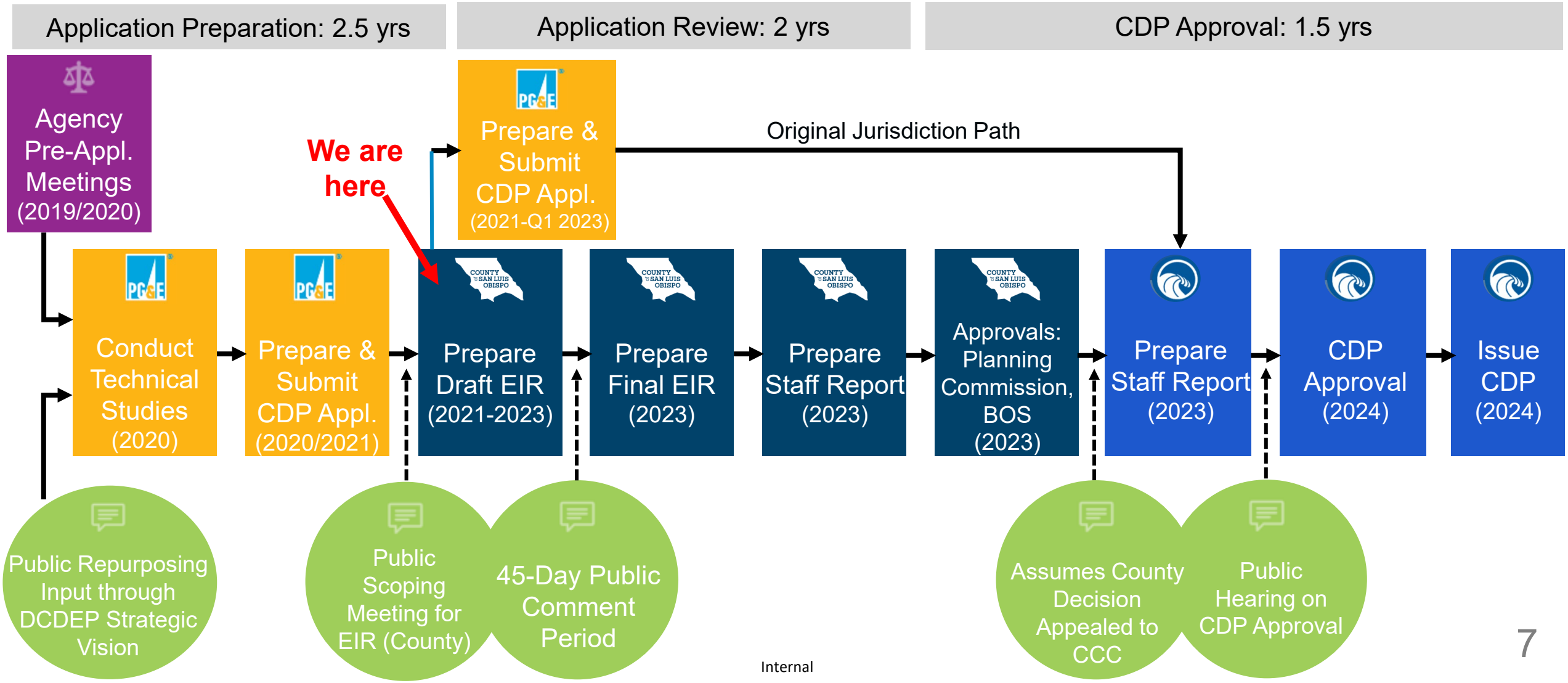


ACRONYMS:

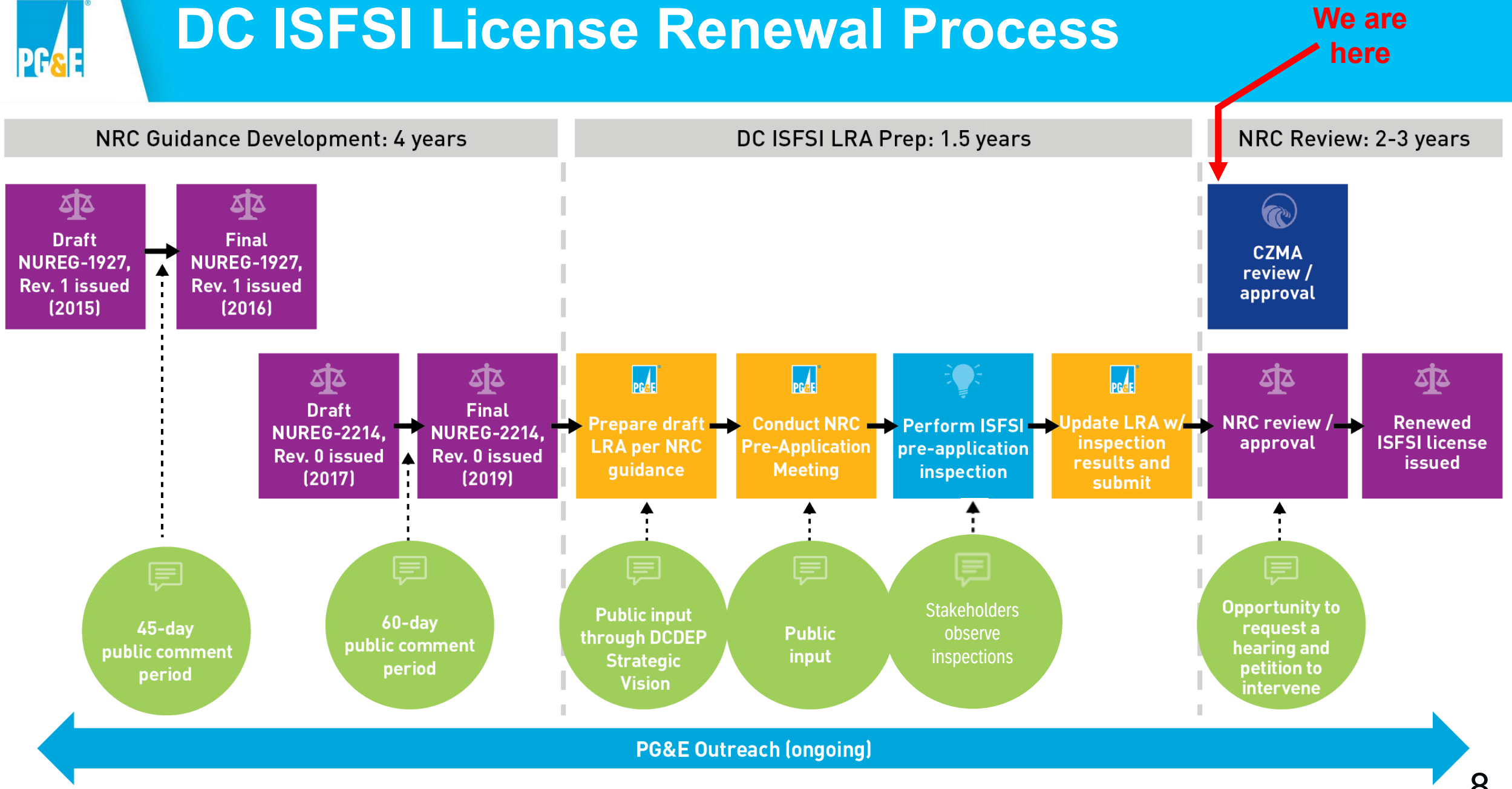
CCC – California Coastal Commission
CDP – Coastal Development Permit
CSLC – California State Lands Commission
CPUC – California Public Utilities Commission
DCPP – Diablo Canyon (DC) Power Plant
EIR – Environmental Impact Report
ISFSI – Independent Spent Fuel Storage Installation
LAR – License Amendment Request
NDCTP – Nuclear Decommissioning Cost Triennial Proceeding
NRC – Nuclear Regulatory Commission
PSDAR – Post-Shutdown Decommissioning Activities Report
RFP - Request for Proposal

Coastal Development Permit Review

BOS: Board of Supervisors
CCC: California Coastal Commission
CDP: Coastal Development Permit
DCDEP: Diablo Canyon Decommissioning Engagement Panel
EIR: Environmental Impact Report



DC ISFSI License Renewal Process



DCDEP: Diablo Canyon Decommissioning Engagement Panel

Nuclear Regulatory Commission Review

- **DC ISFSI License Renewal Application (LRA) submitted to NRC on March 9, 2022 – publicly available at ML22068A189**
  - **NRC approval would result in DC ISFSI licensed through March 2064**
- **NRC's Sufficiency Review**
  - **Completed; documented in NRC letter dated Sep 13, 2022**
- **NRC's Detailed Review**
  - **Safety and environmental reviews ensure structures and components can safely perform as intended for an additional 40 years**
  - **Estimated to continue through Nov 2023**

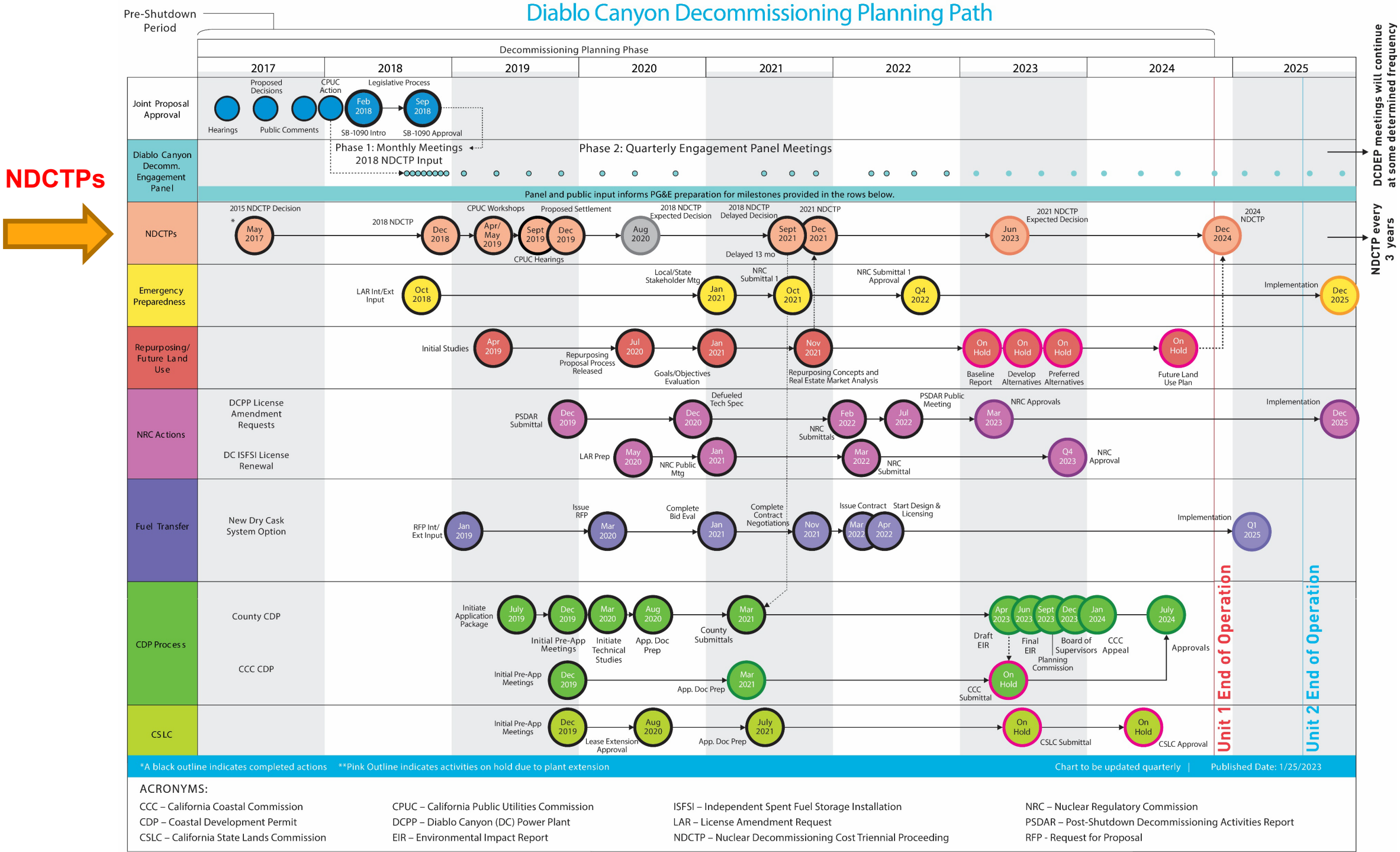
Decommissioning Licensing Actions

- **NRC licensing approvals received in Q4 2022**
  - Permanently Defueled Technical Specifications
  - Post Shutdown Emergency Plan

- **NRC licensing approvals expected in next 6 months**
  - Certified Fuel Handler Training and Retraining Program

Diablo Canyon Decommissioning Planning Path

NDCTPs



*A black outline indicates completed actions **Pink Outline indicates activities on hold due to plant extension

Chart to be updated quarterly | Published Date: 1/25/2023

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LAR – License Amendment Request
NDCTP – Nuclear Decommissioning Cost Triennial Proceeding
NRC – Nuclear Regulatory Commission
PSDAR – Post-Shutdown Decommissioning Activities Report
RFP - Request for Proposal

2021 NDCTP

- **Submitted the 2021 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP) to CPUC in Dec 2021**

- **Proceeding schedule is set by the assigned CPUC Administrative Law Judge**
  - ✓Intervenor and Rebuttal Testimony completed in Q2 2022
  - ✓Settlement negotiations were completed in December 2022
  - ✓Evidentiary hearings completed in November 2022
  - CPUC decision anticipated by June 2023

SB-846 Decommissioning Requirements

- **Continue the triennial NDCTP proceedings as the venue in which the CPUC reviews and approves:**
  - DCPP decommissioning cost estimate
  - After the fact reasonableness review of amounts already spent on decommissioning planning and/or decommissioning
- **CPUC opened Order Instituting Ratemaking (R.23-01-007)**
  - Addresses additional decommissioning planning costs resulting from the license renewal applications or license renewals
  - To be recovered on a non-bypassable basis from customers of all load serving entities subject to the CPUC's jurisdiction

Key Take-aways: Decommissioning Planning Path

- **Regulatory approvals are being sought early to support transition into decommissioning**
  - Based on lessons learned from the industry (including San Onofre)
  - Schedule also informed by PG&E's previous permits and licensing activities
- **Early planning results in cost savings (i.e., preservation of the decommissioning trusts)**
- **Key permitting and licensing actions are on track for completion prior to permanent shutdown**
- **California Public Utilities Commission (CPUC) funding of $3.9 billion (2017$) greatly reduces project and schedule risk**

Potential Continued Operations

Key Take-aways: Continued Operations Path

- SB 846 directs PG&E to take all necessary actions to preserve the option to extend operations for five additional years
- US DOE conditionally granted PG&E Civil Nuclear Credit funds (up to $1.1B)
- PG&E plans to submit a new LRA by Dec 31, 2023
- PG&E is taking proactive steps to ensure safe continued operations

Diablo Canyon Power Plant

Continued Operations Milestones

February 2023 Forecasted Schedule

REQUIRED
FORECAST
PLANNED
IN PROGRESS
COMPLETE

	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4
SB-846	**COMPLETE: Nov 17, 2022** Dept of Energy (DOE) determined DCPP Civil Nuclear Credit grant eligibility and conditionally granted up to $1.1B	**IN PROGRESS : Q4 2022 / Q1 2023** PG&E and DOE execute contract for Civil Nuclear Credit grant funds	**REQUIRED : Q1 2023** California Energy Comm issues a determination on need for DCPP 2025-2030	**REQUIRED : Q3 2023** California Energy Commission (CEC) issues cost comparison of whether extended DCPP operations is consistent with GHG- reduction goals	**REQUIRED : Q4 2023** CPUC authorization of DCPP continued operations
STATE PERMITTING		**COMPLETE: Jan 5, 2023 PG&E coordinates with State Agencies on new process described in SB-846** *[State Agencies to take action 180 days after application is deemed complete]*			
FEDERAL LICENSING	**COMPLETE: Q4 2022** PG&E submitted a request to Nuclear Regulatory Commission (NRC) on Oct.31, 2022 regarding licensing path forward. Public meeting conducted on Dec 8, 2022.	**FORECAST: Q1 2023** NRC provided clarification on the license renewal submittal and review process on Jan 24, 2023. NRC intends to respond to PG&E's exemption request in Mar 2023			**PLANNED : Dec 2023** Submit new DCPP license renewal application.
PG&E PROJECTS	**COMPLETE : Nov 1, 2022** Update training and Licensed Operators pipeline	**COMPLETE : Q4 2022** Create comprehensive, prioritized list of optimized maintenance items, projects, surveillances, and systems	**COMPLETE : Q4 2022** Identify long-term (3 to 5-yr) resource needs from plant organizations –including Projects and Outage Organizations	**PLANNED : Q1 2023** Perform equipment long-range plan reviews	

ONGOING: Continue with industry benchmarking and engagement with the industry (INPO, NEI, EPRI, etc.) and update existing procedures to incorporate best practices and streamline project flow path

NRC License Renewal Process

- **October 2022 PG&E Submittal to NRC (ML22304A691)**
  - PG&E requested the NRC Staff resume review of the license renewal application (LRA) as it existed in 2016
  - If the request to resume review of the DCPP LRA was not granted, PG&E requested an exemption from 10 CFR 2.109(b) to ensure DCPP can continue to operate while the LRA is under review
- **January 24, 2023 NRC Response (ML22343A179)**
  - Clarifies the regulatory path regarding the DCPP LRA by requiring PG&E submit a new LRA, while allowing PG&E to leverage previously reviewed work
- **Path Ahead**
  - NRC is evaluating the exemption request; expects to provide a response in March 2023
  - PG&E plans to submit a new LRA by December 31, 2023

Proactive Steps

- **PG&E is proactively taking actions to ensure ongoing safety during continued operations**
  - Reviewing and updating the LRA to address operating experience and updated guidance
    - Including updated programs that manage the aging of components and structures
  - Reviewing optimized plant maintenance
  - Developing process for license renewal implementation before new LRA submittal
    - Administrative controls
    - Work tracking, planning, and execution
  - Conducting early inspections for license renewal programs, e.g.:
    - Planning license renewal inspections for upcoming 1R24 (Fall 2023)
    - Conducting targeted inspections while online
    - Coordination of inspections through LR participation in daily work process

Key Take-aways: Continued Operations Path

- SB 846 directs PG&E to take all necessary actions to preserve the option to extend operations for five additional years
- US DOE conditionally granted PG&E Civil Nuclear Credit funds (up to $1.1B)
- PG&E plans to submit a new LRA by Dec 31, 2023
- PG&E is taking proactive steps to ensure safe continued operations

Questions?

Projects & Maintenance Changes (PMO++)

Diablo Canyon Power Plant

Allen Wilson
Director, Nuclear Projects

February 15, 2023

Diablo Canyon Power Plant Maintenance

- At Diablo Canyon Power Plant (DCPP) all necessary investments and maintenance to ensure the safe and reliable operations has and continues to be performed, including continued operations.

- The Nuclear Regulatory Commission (NRC) continues to assess and reaffirm that Diablo Canyon is operating safely and is among the highest-performing plants in the nation.

- Additionally, the Diablo Canyon Independent Safety Committee (DCISC) thoroughly evaluates maintenance activities at DCPP on a routine basis.

Equipment Health Reviews (PMO++)

- Life cycle management plans at DCPP correlated with the end-of-license dates of 2024/2025.

- A holistic review is being thoroughly evaluated for equipment with the potential for continued operations. The work identified by these reviews support license renewal and ensures equipment reliability for our customers and the state of California.

Equipment Health Reviews (PMO++)

- The review teams include a diverse composition of Subject Matter Experts (SME) which include plant staff, industry experts, and various vendors including Original Equipment Manufactures (OEMs).

- This approach will continue to maintain the plant to the highest standards and will ensure we meet all additional regulations and requirements to support extended operations.

Thank you

Allen Wilson
Director, Nuclear Projects

Workforce Retention and Continued Operations

Diablo Canyon Power Plant

Adam Peck
Site Vice President

February 15, 2022

DCPP's Current Retention Program

- Under the current retention program, 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 exceeded 95% participation
- The Tier 2 retention period concludes on August 31, 2023
- The current program does not cover September 2023 through 2025; a severance program funded through the DCPP Decommissioning Trust was intended to support retention of employees

Retention through Continued Operations

- In 2022, California Senate Bill (SB) 846 was signed into law providing a path to extend operations to 2030, conditioned upon the approvals of applicable state agencies and NRC approval
- SB 846 ordered the continuation of a coworker retention program
- PG&E will submit an application on the future program to the CPUC for consideration

Hiring and Staffing

- The DCPP Leadership Team conducted an in-depth staffing review shortly following SB 846 approval to prioritize hiring needs in support of continued operations
- DCPP is onboarding and training new employees in maintenance, engineering, projects, and security
- New class of non-licensed operators hired in January 2023; one new upgrade license class is currently in progress and a new initial license class will begin in March 2023

Hiring and Staffing

- DCPP leadership reviews staffing on a weekly basis, and performs monthly “deep dives” of specific departments
- The new retention proposal will seek to mitigate expected attrition

Thank you

Adam Peck

Site Vice President

Diablo Canyon Power Plant

Diablo Canyon Power Plant: State of the Plant Update

Dennis Petersen
Station Director
February 16, 2023

Station Update

Station Update

Key Upcoming Activities

Station Update

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

Station Update

Completed 2R23 Refueling Outage

- October – November 2022

Goals vs Actual

- Serious Injury or Fatality (SIF) events 0/0
- Nuclear Safety Events 0/0
- Site Clock Resets 0/0
- Outage duration < 35 days / 39 days 21.5 hours
- ALARA (Rem) < 14.8 /14.210
- Significant FME events 0/0
- Power Ascension < 5 days / 3 days 4.5 hours

Station Update

Jan. Curtailment to 24% - high energy swell

- Following peak, restored to 50%
- Completed Pick-and-dredge

March 2023 U1 Tunnel Cleaning

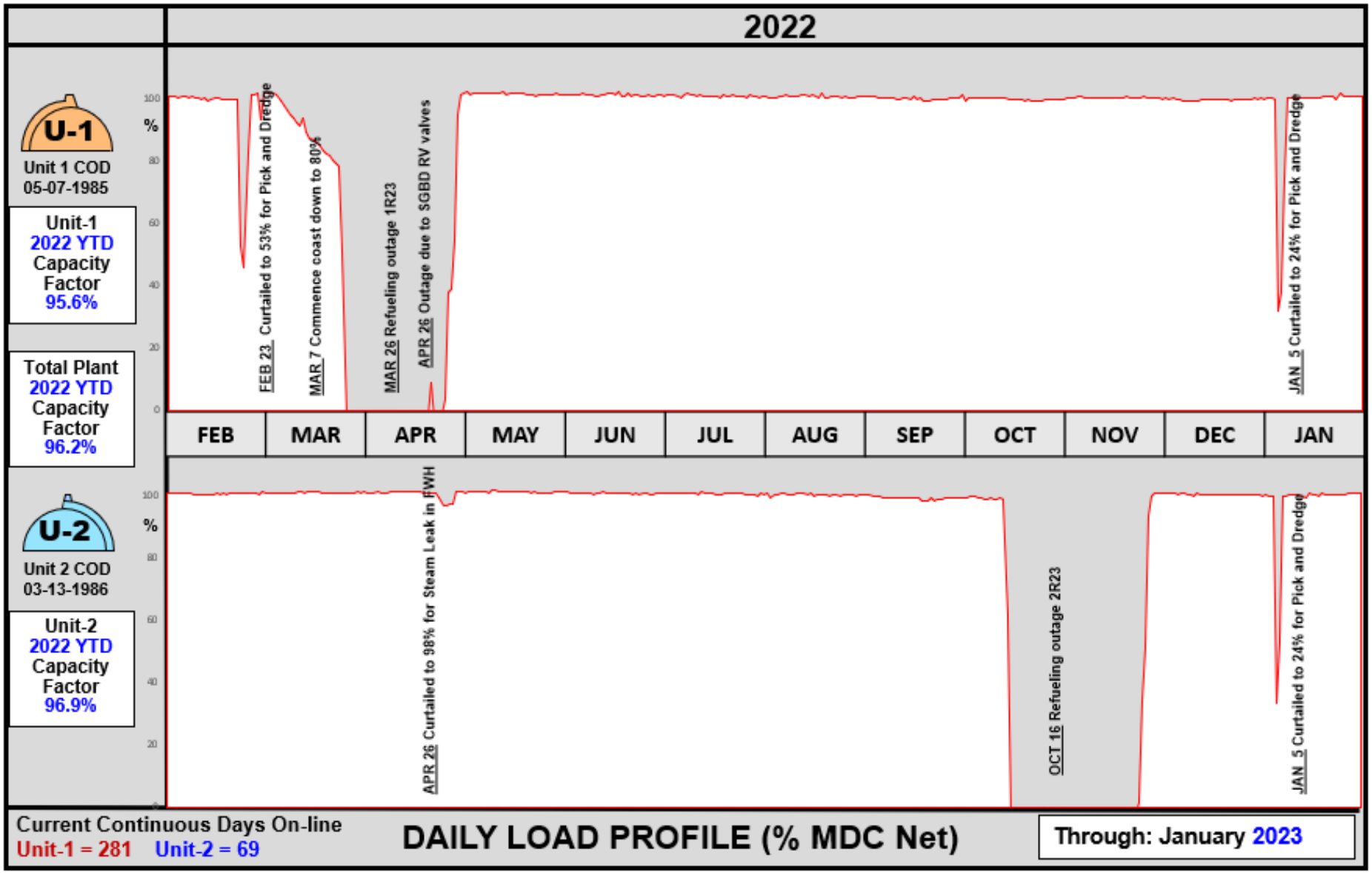
Diesel Generator (DG) Maintenance

- May DG 1-3
- June DG 1-1
- Aug DG 1-2

Organizational Update

- Outage Management
- Nuclear Projects
- License Renewal

Diablo Canyon Power Plant
Daily Load Profile: Past 12 Months
Daily Capacity Factor Power History Curves



Station Update

Upcoming Station Activities

- Nuclear Safety Oversight Committee (NSOC) Site Visit: Feb 20-24
- NRC Security Access Authorization & Controls Visit: Feb 27- Mar 3
- NRC Commercial Grade Dedication Insp: Mar 27- Apr 14
- NRC Licensed Operations Requalification and Performance Inspection: May 15-18

Thank You

Dennis Petersen

DCPP Regulatory Performance Update

Jordan Tyman
Director, Risk and Compliance

February 16, 2023

DCPP Performance Summary

October 2022 – January 2023

- DCPP continues to provide safe, clean, and reliable electricity to Californians
- Since the last update to the DCISC, the NRC oversight of DCPP included approximately ~2000 hours of inspection time
- No violations of more than very low safety significance have been received since the last DCISC update
- DCPP remains in the highest performance category for all NRC Performance Indicators

NRC Performance Indicators

DCPP remains in the highest performance category

- In addition to performing inspections, the NRC also evaluates every nuclear plant using performance indicators
- The NRC gauges licensee performance using 16 separate indicators related to various aspects of plant operation
- DCPP Units 1 and 2 continue to be Green for each of these areas, demonstrating that DCPP remains in the highest NRC performance category

NRC Violations

October 2022 – January 2023

- **There have been two violations of very low safety significance since the last DCISC update:**
  - DCPP's Corrective Action Program has a very low threshold for the identification of issues and requires that items are documented in a prompt manner. During a recent inspection, the NRC identified a very small number of examples in which items were not documented by end of shift as required by station procedures.
  - The requirements for reporting of non-conformances are addressed in two separate sets of regulations - 10 CFR Part 21 and 10 CFR Part 50. During a recent inspection, the NRC identified that station procedures do not provide clear guidance with respect to ensuring that the reporting requirements of both regulations have been met when reporting a non-conformance.

Licensee Event Reports

October 2022 – January 2023

- **One Licensee Event Report (LER) has been submitted since the last DCISC meeting**
  - **Unit 2 LER 2022-001-00, "Unit 2 Reactor Coolant System Pressure Boundary Degradation," dated 12/21/2022**

    As part of our routine planned outage inspections on Unit 2, a pipe was identified in the cooling system where a minute amount of dry boric acid crystals accumulated. There were no impacts to employee or public safety.

DCPP Regulatory Performance Update

October 2022 – January 2023

- DCPP remains in the highest NRC regulatory performance category
- No violations of more than very low safety significance have been received since the last DCISC update
- DCPP continues to provide safe, clean, and reliable electricity to Californians

Thank you

Jordan Tyman

Nuclear Generation: Our 2023 Roadmap to Generating Excellence

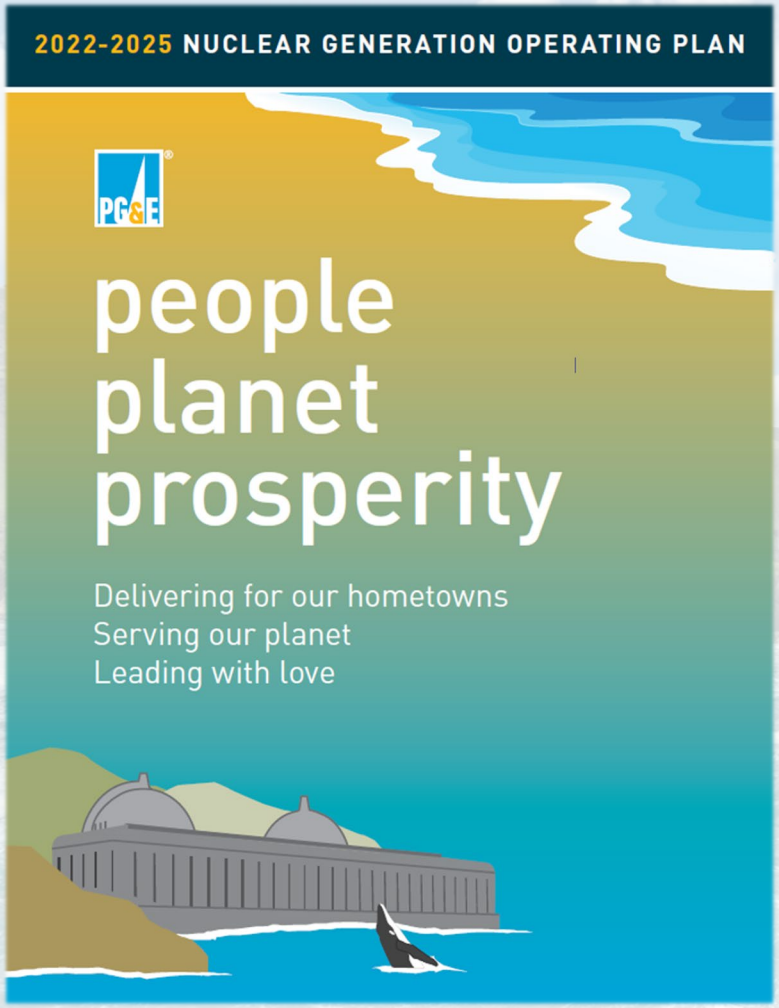
Diablo Canyon Power Plant

Adam Peck
Site Vice President

February 16, 2023

2022 Operating Plan Results

Nuclear Generation: Looking Back at 2022



- California Senate Bill 846 authorized extension of Diablo Canyon Power Plant (DCPP) operations until 2030, subject to state and federal regulatory approvals, along with funding
- Diablo Canyon remains in the highest performance category for all Nuclear Regulatory Commission (NRC) Performance Indicators
- Completed the 1R23 and 2R23 refueling outages safely with no nuclear safety or human performance challenges

2022 Operating Plan Results

Measurable Results

Metric	Goal	Actual
DCPP Reliability & Safety Indicator	≥ 94.0	96.0
1R23 Outage Radiation Exposure	≤ 18.35 REM	18.33 REM
2R23 Outage Radiation Exposure	≤ 14.80 REM	14.21 REM
Days Away, Restricted, or Transferred Cases	1st quartile	1st quartile
Lost Work-Day Cases	1st quartile	1st quartile
Regulatory Findings	No significant	No significant
NRC Reactor Oversight Process	Column 1 and no cross-cutting issues	Column 1 and no cross-cutting issues

Our 2023 Roadmap

Our 2023 Roadmap to Generating Excellence aligns PG&E's Virtues, Purpose, and Stands to our work

Why We Exist (Purpose)

- Delivering for our hometowns
- Serving our planet
- Leading with love

Who We Are (Virtues)

- Trustworthy
- Empathetic
- Curious
- Tenacious
- Nimble
- Owners

What We Will Deliver (Stands)

- People
- Planet
- Prosperity

Our 2023 Roadmap

Our Mission is to safely generate clean, reliable, and affordable energy for California's hometowns

WE EARN THE RIGHT TO CONTINUE OPERATING EACH DAY

We hold ourselves and each other accountable to our standards

We plan, prepare, and execute our work correctly the first time

We pursue continuous improvement with rigor

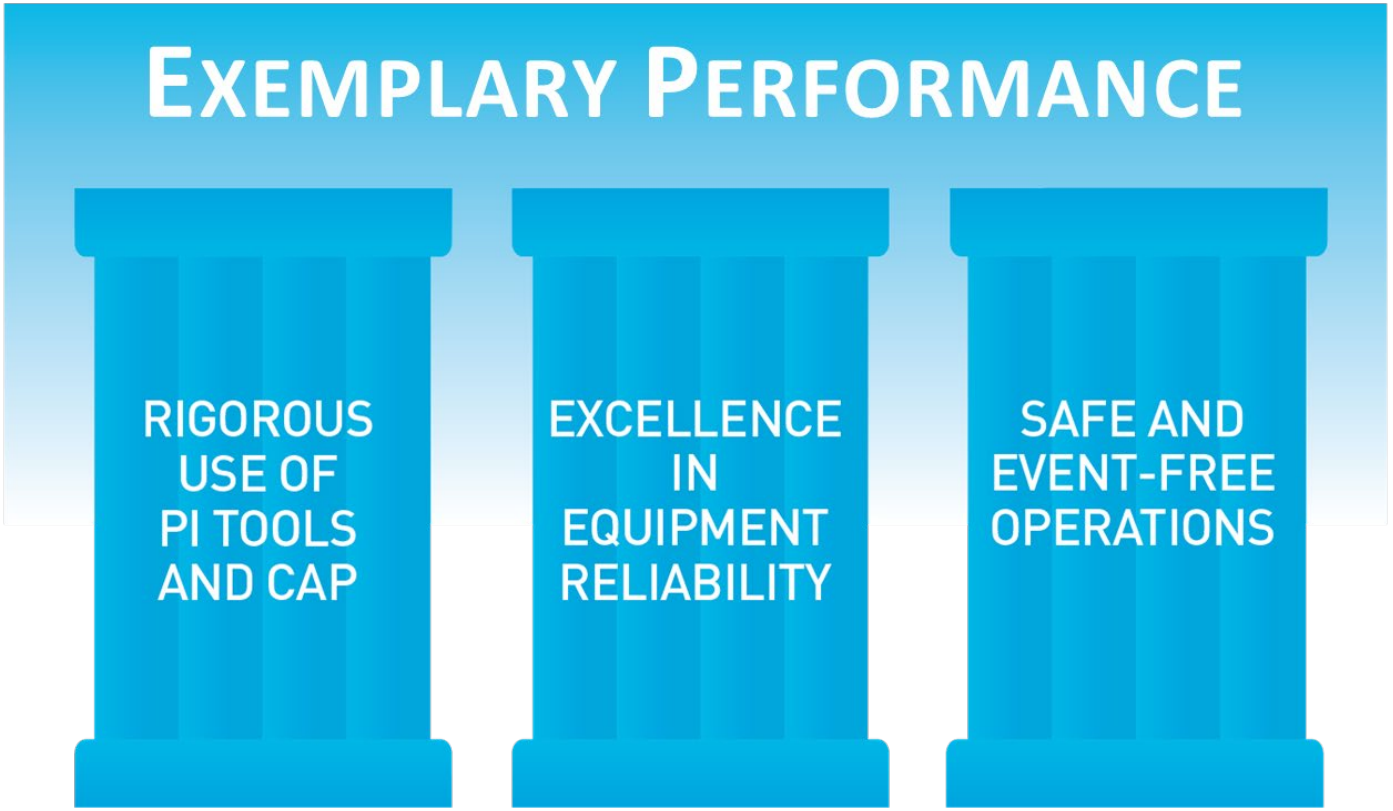
We work together to achieve excellence

We look out and care for one another

Our 2023 Roadmap

Our Pillars

Our Pillars ensure sustained exemplary performance in Generating Excellence



Our 2023 Roadmap

Lean Operating System


Visual Management


Problem Solving


Standard Work


Operating Reviews

Our 2023 Roadmap

2023 Key Work Projects and Initiatives

- Maintain 1st quartile safety performance
- Achieve state approvals supporting potential continued operations through 2030
- Submit license renewal application to the NRC and meet all license renewal milestones
- Safe execution of Unit 1 refueling outage (1R24)
- Continued operations project work (PMO++)
- Retention of key personnel following the end of the Tier 2 retention period

Thank you

Adam Peck

Site Vice President

Peter Lam, Member, and Richard McWhorter, Consultant

1. Senate Bill 846 Requirements Regarding Deferred Maintenance
2. Plans for Reviewing and Restarting Capital Projects
3. Meet with Nuclear Regulatory Commission (NRC) Senior Resident Inspector
4. Engineering Department Update
5. Technical Review of New Spent Fuel Storage System
6. Auxiliary Saltwater System
7. Turbine and Generator Systems
8. Cyber Security Update
9. FLEX Program Capabilities During a Seismic Event
10. Plant Tour
11. Plant Health Committee Meeting
12. Meetings with DCPP Officers
13. Licensee Event Report Review
14. Senate Bill 846 Requirements Regarding an Updated Seismic Assessment
15. Self-Assessment Program
16. Motor-Operated Valve Program

Senate Bill 846 Requirements Regarding Deferred Maintenance

- Senate Bill 846
  - … (14) A covenant that the operator shall commission a study by independent consultants to catalog and evaluate any deferred maintenance at the Diablo Canyon powerplant….
- Review in progress of PM Change Requests – "PMO++" process (reviewed at December FF Meeting).
- DCPP plans to obtain the services of an independent entity to review the results of the process. Timetable – 2nd Quarter 2023.
- Seeking a university or company with creditable expertise.
- Conclusion – This approach was appropriate. DCISC should review the results of the independent study when complete.

Plans for Reviewing and Restarting Capital Projects

- Major projects to be reviewed near the end of the PMO++ process.
- Consider spare parts availability or reliability improvements.
- Major projects would need to be able to implement during outages in 2026-2027 timeframe.
- Example – Feedwater Heaters. May replace as many as can be procured and installed ruing 2026-2027 outages (2 to 4 trains).
- Conclusion – DCPP will review major projects that will be needed to improve the reliability of extended operations through 2030. The DCISC should review the results of this review following its completion.

Meet with NRC Senior Resident Inspector

- Items Discussed Included:
  - Recent Resident Inspector Concerns
  - Problem Identification and Resolution Inspection Results
  - Ongoing Reviews of Corrective and Preventative Maintenance
- Conclusion – Meetings continue to be beneficial.

Engineering Department Update

- Reorganizing to add fourth major group – Design and Projects Engineering.
  (In addition to existing Plant/Strategic, Tactical, and Program Groups.)
- Working to reverse previous trend to reduce staff and hire additional staff.
- Planned staffing at end of 2022 was 103; Now plan >140 at end of 2023.
- Retirements at end of Tier 2 (October 2022) could impact staffing numbers.
- Department performance in 2022 was good; all metrics "Green" and stable.
- Good performance also noted by external evaluations.
- Conclusion – The performance of DCPP's Engineering Department has recently been strong, and the department is moving to expand staffing. The DCISC should review department staffing and performance again in about one year.

Technical Review of New Spent Fuel Storage System (remote; assisted by Consultant Kadak)

- Discussed in detail questions and responses on various technical topics sent in advance to Orano.
- Questions included:
  - Seismic Design and Analyses
  - Vacuum Drying
  - Handling of Damaged Fuel Assemblies
  - Thermal Evaluations
  - Loading Operations
  - Fixed Neutron Absorber Plates

(continued)

Technical Review of New Spent Fuel Storage System (continued)

- Questions (continued):
  - Helium Loss
  - Licensing Update
  - Lessons Learned from Previous Loading Campaigns
  - Axial Retainer Design
- Conclusion – Based on the information provided, the DCISC's questions were satisfactorily addressed, and the system appeared to be adequately designed to assure safety. The DCISC should review the site-specific seismic evaluation when final and other future technical issues on an as needed basis.

Auxiliary Saltwater System

- Used to Provide Ultimate Heat Sink to the Pacific Ocean for Safe Shutdown and During an Accident.
- Both Systems on Both Units Good Health ("Green").
- Corrective Actions in Progress for Motor Ground Issue (2021).
- Some Degradation of Gate Covers at Intake Structure.
- Long-Standing Issue Remains Open Regarding Potential for High Ocean Water Temperatures; Prompt Operability Assessment Available for Use.
- Conclusion – Auxiliary Saltwater Systems continue to be given close attention by the DCPP staff, and the systems in both Units continue to be rated as "Healthy" with no major issues. Using available funds to have a vendor update calculations on allowable ocean inlet temperatures would be appropriate.

Turbine and Generator Systems

- LP Turbines – Good Health; 10-year Inspections Complete.
- HP Turbines – Beyond Original Design Life; Candidates for Reblading or Replacement to Support Extended Operations.
- Generators – Good Health; Unit 2 Corrective Actions Appear Effective.
- Voltage Regulators – Candidates for Replacement to Support Extended Operations.
- Conclusion – DCPP's Turbine and Generator Systems were in good overall health. Replacements of both units' High Pressure Turbines and/or Voltage Regulators could be needed to support improved reliability for extended operations.

Cyber Security Update

- Meeting Initiated by DCPP
- Briefing on Defense Against Malware from External Sources
- Multiple Physical and Procedural Lines of Defense
- Conclusion – DCPP's Cyber Security System and Program appear effective in preventing external malware attacks on plant safety and power-producing systems.

FLEX Capabilities During a Seismic Event

- Question – How are FLEX capabilities modeled in the plant's Probabilistic Risk Assessment (PRA)?
  - Answer – One FLEX strategy (cross-tying of DC batteries) is included.
  - Other FLEX strategies are not included due to the uncertainties associated with response times and physical access.
- Question – What is the seismic qualification requirement for FLEX equipment?
  - Answer – Design Basis Earthquake (Hosgri) accelerations plus 25%.
- Conclusion – The FFT found that one FLEX Strategy was currently incorporated into DCPP's Probabilistic Risk Assessment, and this appeared appropriate.

Plant Tour

- Fact-Finding Team toured the FLEX Equipment storage areas in the Fire Department Building

FLEX Equipment with Tie-downs

Observe Plant Health Committee (PHC) Meeting

- Meeting Cancelled at Last Minute.

- Conclusion: DCPP's plan to conduct a Plant Health Committee meeting on February 1, 2023, was cancelled for an appropriate reason.

Member Meetings with DCPP Officers

- Adam Peck, Site Vice President
- Maureen Zawalick, Vice President, Decommissioning and Technical Services

Licensee Event Report Review

- Unit 2 LER 2022-001 Submitted on December 21, 2022, for Reactor Coolant System (RCS) Pressure Boundary Degradation.
- White Boric Acid deposit found in October 2022 during routine outage walkdowns performed by engineers as a part of the Boric Acid Corrosion Control Program.
- Deposit was around a socket weld on a 2" line branching off the Loop 1 RCS Cold Leg piping (between Reactor Coolant Pump discharge and Reactor).
- Investigations revealed small 'arc strike' indication on weld.
- No water leakage when shutdown.
- Leak while operating was evaluated as minute based on failures to detect during routine leakage calculations (less than about 0.01 gpm.).

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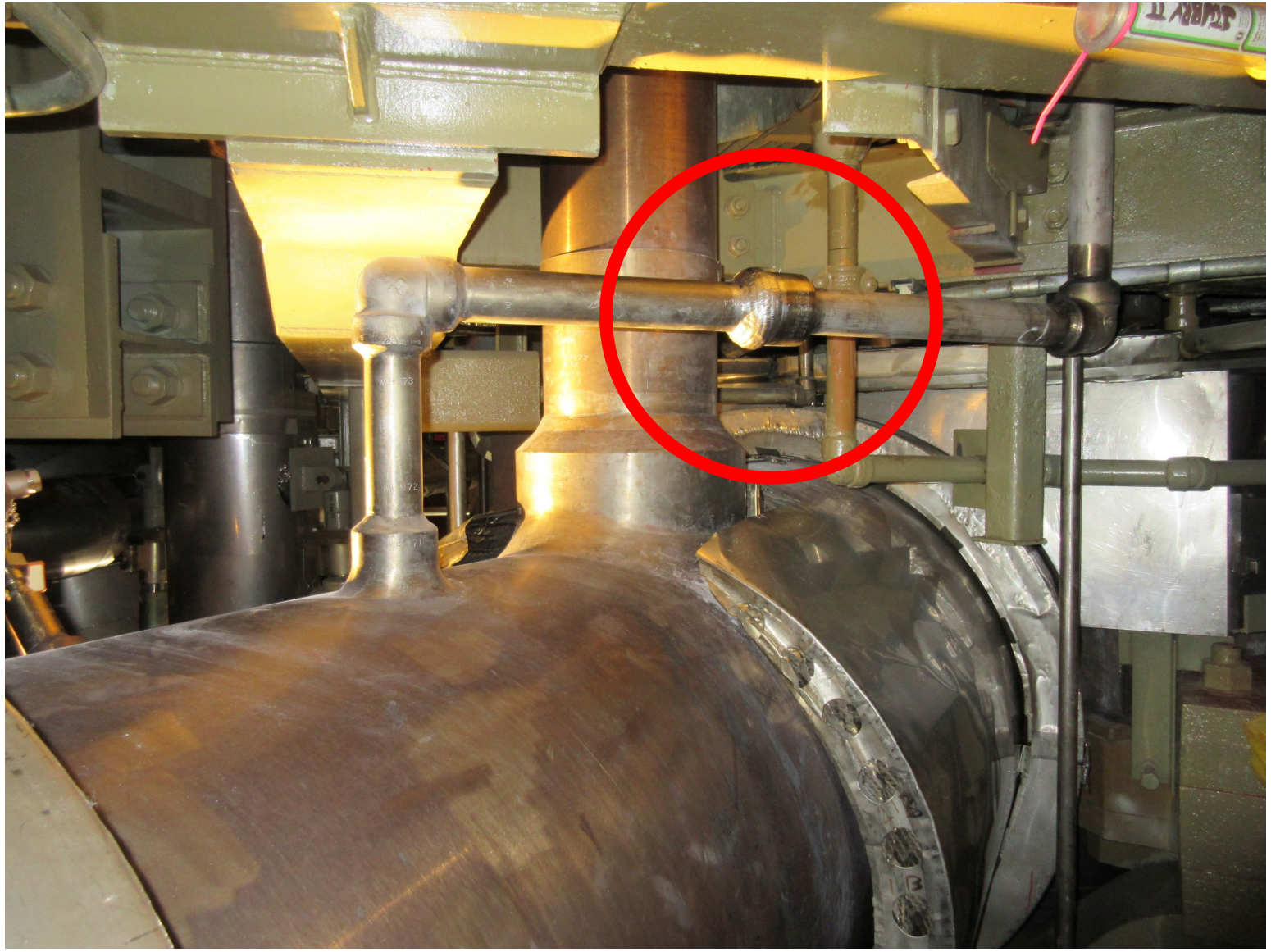

RCS Weld Defect Location

Licensee Event Report Review (continued)

- External Consultant Company assisted with flaw evaluation.
- Weld overlay repair allowed by piping codes.
- Overlay completed and returned to service.
- Likely to replace at next outage.
- Temporary instruments installed to measure vibrations during operations.
- Root Cause Evaluation started.
- Conclusion – DCPP properly evaluated and responded to evidence of a minute Reactor Coolant System leak discovered while shutdown. The DCISC should review the results of the associated Root Cause Evaluation after its completion.

Senate Bill 846 Requirements Regarding Updated Seismic Assessment

- Senate Bill 846
  - … (13) A covenant that the operator shall conduct an updated seismic assessment.
- DCPP working with Department of Water Resources to confirm plan.
- Tentative plan is to:
  - Compile existing data and newer information.
  - Evaluate using "SSHAC" Level 1 process.
  - Evaluate results; perform updated calculations, if needed.
  - Prepare a seismic update report.

(continued)

Senate Bill 846 Requirements Regarding Updated Seismic Assessment (continued)

- Conclusion – DCPP's plan to perform an updated seismic assessment appeared appropriate. The DICSC should review the updated seismic assessment when completed.

Self-Assessment Program

- Types of Self-Assessments With Numbers Performed in Last 12 Months:
  - Formal Self-Assessments – 7
  - Quick Hit Self-Assessments – 29
- Results Entered into Corrective Action Program.
- Copies Regularly Provided to and Reviewed by DCISC.
- Conclusion – Active and effective program for evaluating and improving station performance.

Motor-Operated Valve (MOV) Program

- Program to test and maintain MOVs that are safety-related or important to accident mitigation.
- 155 valves included in the program at DCPP.
- Baseline, periodic, pre-overhaul, and post-maintenance testing are performed on each MOV.
- Periodic tests typically performed every three cycles (4-5 years).
- Program health – "White" (Needs Improvement) due to staffing and recent issues with valve RHR-2-8702.
- Conclusion – Active and effective program to ensure that Motor-Operated Valves important to safety would function properly if needed during an accident.

Peter Lam, Member, and Richard McWhorter, Consultant

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Diablo Canyon Power Plant

Spent Fuel Management

Presented by

Philippe Soenen, Director, Strategic Initiatives

February 16, 2023

Background

- **PG&E safely stores spent fuel at the Diablo Canyon Independent Spent Fuel Storage Installation (DC ISFSI)**
  - Currently employ 58 Holtec HI-STORM 100SA systems

- **In 2022, PG&E entered into contract with Orano to employ their NUHOMS® Extended Optimized Storage (EOS) system during decommissioning**

Conceptual Layout

Current Holtec Dry Cask Storage Systems

Conceptual Orano Dry Cask Storage Systems for Decommissioning

Near Term Activities

- **In response to enactment of Senate Bill (SB) 846:**
  - A spent fuel offload campaign is required prior to the period of extended operations
  - Supports ability to offload full reactor cores
  - PG&E is evaluating the offload campaign needs while concurrently continuing Orano implementation efforts

Orano System Implementation Status Update

- **Updates since September 2022 DCISC meeting:**
  - Continuing site-specific engineering analyses (2022 – 2024)
  - On September 29, 2022, Orano submitted a license amendment request to NRC in Q4 2022 Requests increase in heat loads/assembly

Key Take-aways

- Spent fuel management plans were affected by SB 846 that was enacted to preserve the option for extend operations of Diablo Canyon Power Plant
- A spent fuel offload campaign will be safely completed prior to the period of extended operations
- PG&E continues planning and implementation activities to successfully support safe spent fuel management regardless of when Diablo Canyon Power Plant permanently shuts down

Questions?

Philippe Soenen
Philippe.Soenen@pge.com