

# Diablo Canyon Power Plant (DCPP) License Renewal

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# Introduction

- Pacific Gas and Electric Company (PG&E) owns and operates Diablo Canyon Power Plant (DCPP).
- DCPP was slated to close at the end of the original license term under a program called the Joint Proposal – a 9-year transition plan to phase out DCPP and build out other carbon-free resources statewide.
- In 2022, the State of California (State) asked PG&E to preserve the option of extending operations and take the necessary steps to relicense the plant for an additional 5 years.
- PG&E will apply for a renewed license from the NRC by December 2023 to help ensure electrical reliability statewide.

*“We understand we earn the right to operate each day and we have no greater responsibility than operating, maintaining, and protecting Diablo Canyon with excellence on behalf of our customers and hometowns.” – Paula Gerfen, Senior Vice President and Chief Nuclear Officer*

# Purpose and Desired Outcomes

## Purpose

- Discuss the 5 of 71 commitments PG&E currently plans to fully implement by December 1, 2028

## Desired Outcomes

- Provide details regarding the implementation and schedule for these commitments



# Response to NRC's Request for Information

## Overview



- NRC requested PG&E provide information regarding ongoing license renewal (LR) efforts discussed in the public meeting on Dec. 8, 2022
- PG&E responded on March 17<sup>th</sup> (refer to QR code or ML23076A210) with the following:
  - List of aging management program (AMP) inspections planned for upcoming Unit 1 refueling outage 24 (1R24) starting in October 2023
  - Updated commitment implementation schedule, being used for planning purposes, for the commitments included in the withdrawn License Renewal Application (LRA)
    - PG&E is proactively implementing AMPs and commitments included in the DCPD LRA at the time of withdrawal
    - Differences will be reconciled as the new LRA is developed and submitted to the NRC
    - PG&E currently has no formal commitments on the docket with the NRC for LR



# Response to NRC's Request for Information

## PG&E proposed implementation details for 5 of the 71 commitments (*commitments PG&E had made at the time of withdrawal*)

- Require extensive planning around outages, training, procurement, and development of work packages
- Existing operating programs or other aging management activities will provide reasonable assurance the systems are adequately managed during the implementation period
  - Issues identified by these existing programs or other surveillance activities will be entered into and addressed by the DCPD corrective action program (CAP)
- PG&E is planning to implement the commitments at the earliest opportunity at which they can be performed consistent with industry standards and NRC expectations for management of shutdown risk through outage planning, personnel training, and procurement of necessary materials
- PG&E's proposed implementation plan presents no significant risk to public health and safety or the environment



# Commitment # 6 (from withdrawn LRA)



#	Commitment	Implementation Schedule in Withdrawn LRA	Current Proposed Implementation Schedule
6	Implement the Selective Leaching of Materials program as described in LRA Section B2.1.17 [Reference ML103480113 or QR Code]	During the 5 years prior to the period of extended operation	Complete initial sample size inspections by U1: 11/02/2024 U2: 8/26/2025 Complete follow-up or expansion inspections by 12/01/2028

## Selective Leaching of Materials AMP

- Manages loss of material due to selective leaching for gray cast iron and copper alloys (except for inhibited brass) containing greater than 15 percent zinc or greater than 8 percent aluminum components within the scope of license renewal that are exposed to raw water, including condensation, treated water, closed cooling water, ground water, water-contaminated fuel oil, or water-contaminated lube oil

# Commitment # 6 (from withdrawn LRA)

## Proposed Implementation Schedule

- Additional time for follow-up inspections allows for adequate time to plan, prepare, and execute the inspections on various plant systems

## Basis

- Initial inspection results will be entered into CAP and used to prioritize follow-up inspections
- Minimal increase in service time for structures, systems, and components (SSCs) potentially susceptible to selective leaching
- Some SSCs within the scope of this program are managed by other AMPs that will be implemented prior to the license expiration date and provide reasonable assurance for continued functionality
  - Water Chemistry
  - Open Cycle Cooling Water
  - Closed Cycle Cooling Water



# Commitments # 52 & 53 (from withdrawn LRA)



#	Commitment	Implementation Schedule in Withdrawn LRA	Current Proposed Implementation Schedule
52	<p>The Buried Piping and Tanks Inspection Program will be implemented as described in LRA Section B2.1.18 and will conform to the specific additional guidance provided in LR ISG 2011 03 as discussed in PG&amp;E Letter DCL-14-103, Enclosure 1, Attachment 3; the specific changes provided in draft LR-ISG-2015-01 as discussed in PG&amp;E Letters DCL-15-121, Enclosures 1 and 2, and DCL-16-023; and the specific changes provided in LR ISG 2015 01 as discussed in PG&amp;E Letter DCL-16-032, Enclosure 3.</p> <p>Fire mains will be subject to a periodic flow test in accordance with NFPA 25 section 7.3 at a frequency of at least one test in each one-year period. These flow tests will be performed in lieu of excavating buried portions of Fire Water pipe for visual inspections.</p>	Within 10 years prior to the period of extended operation	Program implemented by 11/02/2024; Initial inspections completed by 12/01/2028
53	PG&E will install impressed current cathodic protection for the buried ASW discharge and supply piping in contact with soil as described in PG&E Letter DCL-16-032 and will submit a final report to the NRC to confirm the completed scope.	During the 10 years prior to the period of extended operation	12/01/2028

[Reference ML16141A837 or QR Code]



# Commitments # 52 & 53 (from withdrawn LRA)

## Buried Piping and Tanks Inspection Program AMP

- Manages cracking, loss of material, and change in surface conditions of buried and underground piping, piping components and tanks in the Auxiliary Saltwater (ASW) system, diesel generator fuel transfer system, fire protection system, and the makeup water system

## Cathodic Protection for Buried ASW Piping

- As part of implementation of the Buried Piping and Tanks Inspection Program, PG&E will install cathodic protection on portions of the ASW system supply and discharge piping



# Commitments # 52 & 53 (from withdrawn LRA)

## Proposed Implementation Schedule

- Allows for at least three outages for each unit in which to perform the specified inspections, some of which may require an outage, significant excavation work, and design and installation of cathodic protection
  - Outage scope is normally established over a year in advance to allow for adequate planning and coordination with system and train outages
  - Adequate planning and scheduling around and within outage windows ensures effective and safe implementation

## Basis

- Existing Buried Piping and Tanks Program designed to provide reasonable assurance of structural and leakage integrity for systems within the scope of the program
  - Aligns with Nuclear Energy Institute (NEI) 09-14, "Guideline for the Management of Underground Piping and Tank Integrity"
  - Portions of systems such as the ASW system are within the scope of this existing program, which will continue past the expiration date of the operating licenses.
  - Issues identified as part of this program will be entered into CAP, prioritized, and resolved in accordance with plant procedures

# Commitments # 52 & 53 (from withdrawn LRA)

## Basis (continued)

- Timing of baseline inspections identified in LR-ISG-2015-01 is tied to the 10-year period before a particular unit will enter the period of extended operation
- For both DCCP units, completing baseline inspections and cathodic protection installation prior to the expiration date of the licenses is not a prudent date for implementing changes from the Interim Staff Guidance

## Industry Precedent

- Indian Point was approved to extend the implementation schedule for a LR commitment with a similar rationale (ML18200A333)

# Commitment # 74 (from withdrawn LRA)



#	Commitment	Implementation Schedule in Withdrawn LRA	Current Proposed Implementation Schedule
74	Implement the Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks program in conformance with LR-ISG-2013-01 as discussed in PG&E Letters DCL-15-027, Enclosure 1, DCL-15-121, and DCL-16-023. <i>[Reference ML16056A636 or QR Code]</i>	No later than six months before the period of extended operation and inspections begin no later than the last refueling outage before the period of extended operation	Program implemented by 11/02/2024; Initial inspections completed by 12/01/2028

## Internal Coatings/Linings Program

- Consists of periodic visual inspections of all coatings/linings applied to the internal surfaces of in-scope components exposed to closed-cycle cooling water, raw water, demineralized water, treated borated water, lubricating oil, or fuel oil where loss of coating or lining integrity could impact the components and downstream components current licensing basis intended function(s).



# Commitment # 74 (from withdrawn LRA)

## Proposed Implementation Schedule

- Additional time allows for three outages for each unit in which to perform the specified inspections, some of which may require an outage.
  - The scope of an outage is normally established over a year in advance to allow for adequate planning and coordination with system and train outages
  - Adequate planning and scheduling around and within outage windows ensures effective and safe implementation

## Basis

- PG&E plans to complete a majority of the inspections prior to the expiration date of the operating licenses, including inspections of components within risk significant systems.
- Some SSCs within the scope of this program are managed by other AMPs that will be implemented prior to the license expiration date and provide reasonable assurance for continued functionality
  - Water Chemistry
  - Open Cycle Cooling Water
  - Closed Cycle Cooling Water

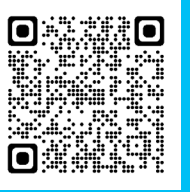
# Commitment # 74 (from withdrawn LRA)

## Industry Precedent

- The proposed approximate 5-year period (December 2023 through December 2028) to perform the initial inspections aligns with industry experience
- Indian Point was approved for a greater than 5-year timeframe during the Period of Extended Operation to implement the changes associated with LR-ISG-2013-01 (ML18200A333)



# Commitment # 75 (from withdrawn LRA)



#	Commitment	Implementation Schedule in Withdrawn LRA	Current Proposed Implementation Schedule
75	For copper alloy piping portions of the domestic water system that are in the scope of license renewal, PG&E will replace the piping with a material that is more corrosion-resistant, or install pipe shielding to ensure that no adverse a(2) spatial interactions could occur. <i>[Reference ML15294A437 or QR Code]</i>	Prior to the period of extended operation	12/01/2028

## Domestic Water System Piping Replacement

- Commitment made as part of implementing the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components AMP. This program manages cracking, loss of material, change in material properties, hardening, shrinkage, loss of sealing, crazing, dimensional change, and loss of strength of the internal surfaces of metallic piping, piping components, piping elements, ducting, heat exchanger components, and tanks; polymeric and elastomeric components; and other components that are not within the scope of other AMPs.

# Commitment # 75 (from withdrawn LRA)

## Proposed Implementation Schedule

- Allows for adequate planning and preparations, including design change packages for safely conducting replacement piping design and installation

## Basis

- Small portion of the initial licensed operating period and a minimal increase in service time for the SSCs
- Some SSCs are managed by other AMPs that will be implemented prior to the license expiration date and provide reasonable assurance for continued functionality
  - One-Time Inspection Program
- Routine plant walkdowns will identify domestic water leakage



# DCPP License Renewal Commitment Implementation

**Nov 2024:** Period of Timely Renewal Begins for Unit 1

2023

2024

2025

2026

2027

2028

2029

2030

**82%** LR commitments implemented

**Recurring inspections continue**

Additional **11%** Unit 2-specific commitments implemented

**Recurring inspections continue**

Remaining **7%** of commitments have program implemented

Remaining **7%** of commitments have associated initial inspections/modifications completed

**Recurring inspections continue**

**NRC oversight and on-site presence; existing inspection/maintenance activities continue**

**Unit 1**  
PTR Begins  
**82%**  
**Cmplt**

**Unit 2**  
PTR Begins  
**93%**  
**Cmplt**

PTR: period of timely renewal  
LR: License Renewal

# Oversight of LR and Continued Operations

## Oversight

- Independent entities have been engaged to provide oversight and assessments in key areas supporting continued operations, including License Renewal, Seismic Assessment, and Maintenance Strategies and Projects, including the following:
  - Nuclear Safety Oversight Committee, Diablo Canyon Independent Safety Committee, Internal Audit, Diablo Canyon Quality Verification, UCLA Garrick Institute for Risk Sciences, INPO, STARS Alliance, and Industry Experts

# Summary

- PG&E is planning to implement the commitments at the earliest opportunity
  - Extensive planning is necessary to ensure safe and effective implementation, including training, procurement and development of work packages.
- Existing operating programs or other aging management activities will continue which provide reasonable assurance the systems are adequately managed prior to full implementation of the programs.
  - Aging management issues identified by these existing programs or other existing surveillance activities will be entered into and addressed by the DCCP corrective action program.
- NRC will continue to have an onsite presence during the LRA review period and will retain its authority to conduct all regulatory activities associated with licensing, inspection and oversight. This includes taking whatever actions may be necessary to ensure continued protection of public health and safety.

## PG&E Planned Approach:

- Five commitments will be implemented post Unit 1 and Unit 2 license expiration dates
- Formal implementation date will be determined upon review of the DCPD LRA and associated correspondence



# Questions?

