



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

May 7, 2021

Mr. James M. Welsch,
Senior Vice President and Generation Chief Nuclear Officer
Pacific Gas and Electric Company
P.O. Box 56, Mail Code 104/6
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON POWER PLANT, UNITS 1 AND 2 – INTEGRATED
INSPECTION REPORT 05000275/2021001 AND 05000323/2021001 AND
INDEPENDENT SPENT FUEL STORAGE INSTALLATION INSPECTION
REPORT 07200026/2021001

Dear Mr. Welsch:

On March 31, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Diablo Canyon Power Plant, Units 1 and 2. On April 8, 2021, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Jeffrey E. Josey, Chief
Reactor Projects Branch A
Division of Reactor Projects

Docket Nos. 05000275, 05000323,
and 07200026
License Nos. DPR-80, DPR-82, SNM-2511

Enclosure:
As stated

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DIABLO CANYON POWER PLANT, UNITS 1 AND 2 – INTEGRATED INSPECTION REPORT
05000275/2021001 AND 05000323/2021001 AND INDEPENDENT SPENT FUEL STORAGE
INSTALLATION INSPECTION REPORT 07200026/2021001 – DATED MAY 7, 2021

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Numbers: 05000275, 05000323, and 07200026

License Numbers: DPR-80, DPR-82, and SNM-2511

Report Numbers: 05000275/2021001, 05000323/2021001, and 07200026/2021001

Enterprise Identifier: I-2021-001-0003 and I-2021-001-0116

Licensee: Pacific Gas and Electric Company (PG&E)

Facility: Diablo Canyon Power Plant, Units 1 and 2, and associated Independent Spent Fuel Storage Installation (ISFSI)

Location: Avila Beach, CA

Inspection Dates: January 1, 2021 to March 31, 2021

Inspectors: D. Antonangeli, Health Physicist
A. Athar, Resident Inspector
L. Brookhart, Senior Spent Fuel Storage Inspector
J. Drake, Senior Reactor Inspector
N. Greene, Senior Health Physicist
D. Krause, Senior Resident Inspector
J. O'Donnell, Senior Health Physicist

Approved By: Jeffrey E. Josey, Chief
Reactor Projects Branch A
Division of Reactor Projects

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Diablo Canyon Power Plant, Units 1 and 2, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

List of Findings and Violations

No findings or violations of more than minor significance were identified.

Additional Tracking Items

None.

PLANT STATUS

Unit 1 operated at or near rated thermal power for the entire inspection period.

Unit 2 entered the inspection period shut down due to a hydrogen leak in the main turbine generator. Unit 2 returned to full power on January 16, 2021, and operated at full power until January 26, 2021, when the unit reduced power to approximately 80 percent due to high vibrations in the main generator stator. The unit operated at or near 80 percent rated thermal power until February 3, 2021, when the unit was shut down to effect repairs on the main generator stator. The unit entered a refueling outage on February 21, 2021, and remained shut down for the remainder of the inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the Coronavirus Disease 2019 (COVID-19), resident inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week; conducted plant status activities as described in IMC 2515, Appendix D, "Plant Status"; observed risk-significant activities; and completed onsite portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or portions of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and onsite. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Impending Severe Weather Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the adequacy of the overall preparations to protect risk-significant systems from impending severe weather due to heavy swells and high winds on January 8, 2021.

External Flooding Sample (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated that flood protection barriers, mitigation plans, procedures, and equipment are consistent with the licensee's design requirements and risk analysis assumptions for coping with external flooding due to a torrential rain event on January 29, 2021.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Unit 2, service cooling water pump 2-2 on January 28, 2021
- (2) Unit 2, safety injection pump 2-2 on February 1, 2021
- (3) Unit 2, emergency diesel generator 2-1 on March 8, 2021
- (4) Unit 2, residual heat removal shutdown cooling pump 2-1 on March 9, 2021

Complete Walkdown Sample (IP Section 03.02) (1 Partial)

The inspectors evaluated system configurations during complete walkdowns of the following systems/trains:

- (1) (Partial)
The inspectors started evaluating system configurations during a complete walkdown of the Unit 2, Component Cooling Water system on March 23, 2021, and continued the sample walkdown into the second quarter.

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Unit 1, turbine building, 119-foot elevation on January 4, 2021
- (2) Unit 2, turbine building, 140-foot elevation on January 11, 2021
- (3) Unit 2, radiological control area, 100-foot elevation on February 2, 2021
- (4) Unit 1, radiological control area, 73-foot elevation on February 5, 2021
- (5) Unit 1, radiological control area 8-B-1, 140-foot elevation on February 19, 2021

Fire Brigade Drill Performance Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the onsite fire brigade training and performance during an unannounced fire drill on January 24, 2021.

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated internal flooding mitigation protections in the Unit 2, component cooling water, RV-46 freeze-seal maintenance on March 19, 2021.

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated readiness and performance of Unit 2, component cooling water heat exchangers 2-1 and 2-2 thermal performance on March 3, 2021.

71111.08P - Inservice Inspection Activities (PWR)

PWR Inservice Inspection Activities Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors verified that the reactor coolant system boundary, steam generator tubes, reactor vessel internals, risk-significant piping system boundaries, and containment boundary are appropriately monitored for degradation and that repairs and replacements were appropriately fabricated, examined and accepted by reviewing the following activities from March 15-29, 2021:

03.01.a - Nondestructive Examination and Welding Activities

- Ultrasonic Examination
 - Reactor Coolant System DM Weld No. WIB-RC-3-1-SE
 - Reactor Coolant System SE Weld No. WIB-RC-3-2
 - Reactor Coolant System DM Weld No. WIB-RC-2-1-SE
 - Reactor Coolant System SE Weld No. WIB-RC-2-2
 - Reactor Coolant System DM Weld No. WIB-RC-1-1-SE
 - Reactor Coolant System SE Weld No. WIB-RC-1-2
 - Reactor Coolant System DM Weld No. WIB-RC-4-1-SE
 - Reactor Coolant System SE Weld No. WIB-RC-4-2
- Penetrant Examination
 - Safety Injection System Accumulator 2-1, FW 1 Nozzle D
 - Safety Injection System Accumulator 2-1, FW 2 Nozzle D
 - Safety Injection System Accumulator 2-1, FW 1 Nozzle B
 - Safety Injection System Accumulator 2-1, FW 2 Nozzle B
 - Safety Injection System Accumulator 2-4, FW 1 Nozzle C1B
 - Safety Injection System Accumulator 2-4, FW 2 Nozzle C1B
- Notification 51083610, Auxiliary Feedwater Piping relevant indications accepted for continued service
- Welding
- Gas Tungsten Arc Welding
 - Safety Injection System Accumulator 2-1, FW 1 Nozzle D

- Safety Injection System Accumulator 2-1, FW 2 Nozzle D
- Safety Injection System Accumulator 2-1, FW 1 Nozzle B
- Safety Injection System Accumulator 2-1, FW 2 Nozzle B
- Safety Injection System Accumulator 2-4, FW 1 Nozzle C1B
- Safety Injection System Accumulator 2-4, FW 2 Nozzle C1B

03.01.c – Pressurized-Water Reactor Boric Acid Corrosion Control Activities

1. Reviewed the following Notifications for boric acid leaks: 51064523, 51082169, 51065620, 51067236, 51067238, 51078028, 51082231, 51064129, 51066443, 51067132, 51067133, 51067136, 51067137, 51067237, 51067270, 51067337, 51069685, 51082238, 51084352, 51084353, 51085607, 51087075, 51087166, 51087186, 51102822, 51102823, 51102824, 51102833, 51102834, 51102885, 51103084, 51103186, 51103846, 51059714, 51059716, 51065241, 51065242, 51067250, 51067253, 51067259

The inspector evaluated a sample of 71 condition reports associated with inservice inspection activities. No findings or violations of more than minor significance were identified.

71111.11Q - Licensed Operator Regualification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the Control Room during Unit 2 startup on January 10, 2021.

Licensed Operator Regualification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated a crew of licensed operators during simulator training on February 11, 2021.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components remain capable of performing their intended function:

- (1) Unit 1, component cooling pump 1-3 end bell leak on January 12, 2021
- (2) incipient fire detector EFID01, EFID01 Zone 4 airflow out-of-tolerance on March 25, 2021

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Unit 2, high vibrations in main generator end windings on February 1, 2021
- (2) Unit 2, pressurizer relief valve PCV-456, slow stroke time rendering valve inoperable on February 22, 2021
- (3) Unit 2, emergent risk associated with beginning refueling outage 2R22 on February 23, 2021
- (4) Unit 2, steam generator 2-2 inlet stop valve FW-2-80 on March 1, 2021
- (5) Unit 2, yellow outage risk due to being at lowered inventory with single source of offsite power on March 15, 2021

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (6 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) Unit 2, emergency diesel generator 3 lost surveillance on January 12, 2021
- (2) Unit 2, DA-U2 LCV-110 hand controller failure on February 25, 2021
- (3) Unit 2, 27XHHT load shed relay failed to trip on March 8, 2021
- (4) Unit 2, containment spray flow sensor P-CSP-A21-FI-930 giving unexpected indications on March 16, 2021
- (5) Unit 2, safety injection (SI) inlet from refueling water storage tank valve SI-8976 failed to close during STP on March 23, 2021
- (6) Unit 2, accumulator 2-1 nozzle leak on March 24, 2021

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Unit 2, 480 VAC bus H outage temporary power modifications on January 21, 2021
- (2) Unit 2, main turbine bearing No.10 CARDOX sensor TS-46 temporary modification on January 28, 2021

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (6 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

- (1) Unit 2, residual heat removal pump 2-2 on February 16, 2021
- (2) Unit 2, control room ventilation system filter 2/2A on March 3, 2021
- (3) Unit 2, load shed relay 27XHHT on March 8, 2021
- (4) Unit 2, emergency diesel generator 2-2 after major maintenance activities on March 11, 2021
- (5) Unit 2, SI-2-8802A stroke test on March 22, 2021
- (6) Unit 2, RHR-2-8702 stroke test on March 22, 2021

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (1 Partial)

The inspectors evaluated refueling outage 2R22 activities in accordance with Section 03.01.

- (1) (Partial)
The inspectors started evaluation of the Unit 2, refueling outage 2R22 activities that commenced on February 21, 2021, and continued into the second quarter.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (Other) (IP Section 03.01) (4 Samples)

- (1) Unit 1, emergency diesel generator 1-3 routine surveillance, per STP M-9A3, on January 5, 2021
- (2) Unit 2, safety injection pump 2-2 on January 20, 2021
- (3) 4 kV bus H auto transfer test on February 25, 2021
- (4) Unit 1, component cooling water pump 1-1 on March 4, 2021

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) Unit 1, auxiliary saltwater pump 1-1 on January 7, 2021

Containment Isolation Valve Testing (IP Section 03.01) (1 Sample)

- (1) Unit 2, penetration 31 containment isolation valve leak testing on March 17, 2021

71114.06 - Drill Evaluation

Drill/Training Evolution Observation (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated a tabletop emergency preparedness drill in the Technical Support Center on February 10, 2021.

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated how the licensee identifies the magnitude and extent of radiation levels and the concentrations and quantities of radioactive materials and how the licensee assesses radiological hazards.

Instructions to Workers (IP Section 03.02) (1 Sample)

The inspectors evaluated instructions to workers including radiation work permits (RWPs) used to access high radiation areas.

- (1) The inspectors reviewed the following radiation work packages, electronic alarming dosimeters, and labeling of radioactive containers:
 - RWP 2021-2066, "2R22 Emergent Work," Revision 1
 - RWP 2021-2050, "2R22 Reactor Coolant Pump Work," Revision 0
 - RWP 2021-0042, "Radioactive Waste Activities," Revision 0
 - DN 51109334 - Two workers' electronic dosimeters alarmed indicative of electromagnetic interference in a satellite radiologically controlled area (RCA) in Building 111 while working on the spare reactor coolant pump (RCP) motor
 - DN 51110284 - Worker's electronic dosimeter alarmed due to a hardware reset, not actual dose rates
 - DN 51110679 - Worker exited containment when electronic dosimeter alarmed; recorded dose rate insufficient to trip alarm; dosimeter removed from service with hardware malfunction
 - Yellow Radioactive trash bags near RCP 2-3
 - Westinghouse equipment storage box 30016120 in the East Yard
 - Tri Nuke filtration system stored in the Hot Machine Shop on the 140-foot elevation of the Fuel Handling Building

Contamination and Radioactive Material Control (IP Section 03.03) (2 Samples)

The inspectors evaluated licensee processes for monitoring and controlling contamination and radioactive material.

- (1) Observed licensee surveys of potentially contaminated material leaving the RCA
- (2) Observed workers exiting the Unit 2 containment building during a refueling outage

Radiological Hazards Control and Work Coverage (IP Section 03.04) (3 Samples)

The inspectors evaluated in-plant radiological conditions during facility walkdowns and observation of radiological work activities. No work packages were available for review for airborne radioactivity. The inspector reviewed the following work packages:

- (1) RWP 2021-2066, "2R22 Emergent Work," Revision 1, specifically for accumulator work in Alpha Level 2 areas (Task 66)

- (2) RWP 2021-2050, "2R22 Reactor Coolant Pump Work," Revision 0, specifically changing reactor coolant pump seals for RCP 2-3
- (3) RWP 2021-0042, "Radioactive Waste Activities," Revision 0, specifically the transfer of spent resin to an outside shielded storage container and the changing of Refueling Water Purification Filter 1-1

High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (5 Samples)

The inspectors evaluated licensee controls of the following High Radiation Areas and Very High Radiation Areas:

- (1) Under Reactor Vessel Plug was controlled as a Very High Radiation Area on the Unit 2 Containment Building, 91-foot elevation
- (2) Regenerative Heat Exchanger room was controlled as a Locked High Radiation Area (LHRA) on the Unit 2, Containment Building, 91-foot elevation
- (3) Liquid Hold-Up Tank room was controlled as an LHRA on the Unit 2, Auxiliary Building, 100-foot elevation
- (4) Bay No. 2 was controlled as an LHRA for the common Radwaste Storage Building, 115-foot elevation
- (5) Refueling Water Purification Filter 1-1 was controlled as an LHRA in the Unit 1, Fuel Handling Building, 100-foot elevation

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 03.06) (1 Sample)

- (1) The inspectors evaluated radiation worker and radiation protection technician performance as it pertains to radiation protection requirements.

71124.02 - Occupational ALARA Planning and Controls

Radiological Work Planning (IP Section 03.01) (5 Samples)

The inspectors evaluated the licensee's radiological work planning. The inspectors reviewed the following activities:

- (1) RWP 19-2020, "2R21 Reactor Disassembly and Reassembly"
- (2) RWP 19-2040, "2R21 Steam Generator Work (Primary Side)"
- (3) RWP 20-1020, "1R22 Reactor Disassembly and Reassembly"
- (4) RWP 20-1040, "1R22 Steam Generator Work (Primary Side)"
- (5) RWP 20-1076, "1R22 Transfer Cart and Upender Repair"

Verification of Dose Estimates and Exposure Tracking Systems (IP Section 03.02) (4 Samples)

The inspectors evaluated dose estimates and exposure tracking. The inspectors reviewed the following as low as reasonably achievable planning documents:

- (1) Diablo Canyon Power Plant 1R21 Post Outage ALARA Report, March 18, 2019
- (2) Diablo Canyon Power Plant 2R21 Post Outage ALARA Report, December 18, 2019
- (3) Diablo Canyon Power Plant 1R22 Post Outage ALARA Report, January 27, 2021
- (4) Diablo Canyon Power Plant 2R20 Post Outage ALARA Report, August 15, 2018

Implementation of ALARA and Radiological Work Controls (IP Section 03.03) (2 Samples)

The inspectors reviewed as low as reasonably achievable practices and radiological work controls. The inspectors reviewed the following activities during Unit 2, Refueling Outage 22:

- (1) Welding within Accumulators under RWP 21-2066, "2R22 Emergent Work," Revision 1
- (2) Reactor Coolant Pump 2-3 Seal Work under RWP 21-2050, "2R22 RCP Work," Revision 0

Radiation Worker Performance (IP Section 02.04) (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance during:

- (1) The inspectors evaluated the implementation of as low as is reasonably achievable techniques for work activities during outage 2R22.

71124.04 - Occupational Dose Assessment

Source Term Characterization (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated licensee performance as it pertains to radioactive source term characterization.

External Dosimetry (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated licensee performance as it pertains to external dosimetry that is used to assign occupational dose, including issuance, use, and storage of dosimetry.

Internal Dosimetry (IP Section 03.03) (1 Sample)

The inspectors evaluated the internal dosimetry program implementation.

- (1) The inspectors reviewed the following:

Whole Body Counts

- None were available during this inspection.

In-Vitro Internal Monitoring

- None were available during this inspection.

Dose Assessments Performed Using Air Sampling and Derived Air Concentration-Hour Monitoring

- None were available during this inspection.

Although there were no specific occurrences of whole body counts, in-vitro internal monitoring, or dose assessments using air sampling, the inspectors did review associated procedures and discussed relative processes with the licensee to determine the adequacy of their program.

Special Dosimetric Situations (IP Section 03.04) (2 Samples)

The inspectors evaluated the following special dosimetric situation:

- (1) Licensee's implementation of requirements to manage radiation protection of five declared pregnant workers
- (2) EDEX dose assessment and redacted NRC Form 5 for five individuals using multipack dosimetry

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicator submittals listed below:

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 03.01) (2 Samples)

- (1) Unit 1 (January 1, 2020, through December 31, 2020)
- (2) Unit 2 (January 1, 2020, through December 31, 2020)

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 03.02) (2 Samples)

- (1) Unit 1 (January 1, 2020, through December 31, 2020)
- (2) Unit 2 (January 1, 2020, through December 31, 2020)

IE04: Unplanned Scrams with Complications Sample (IP Section 03.03) (2 Samples)

- (1) Unit 1 (January 1, 2020, through December 31, 2020)
- (2) Unit 2 (January 1, 2020, through December 31, 2020)

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 03.15) (1 Sample)

- (1) Unit 1 (October 1, 2020, through December 31, 2020)
Unit 2 (October 1, 2020, through December 31, 2020)

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual
Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample
(IP Section 03.16) (1 Sample)

- (1) Unit 1 (October 1, 2020, through December 31, 2020)
Unit 2 (October 1, 2020, through December 31, 2020)

71152 - Problem Identification and Resolution

Semiannual Trend Review (IP Section 02.02) (1 Sample)

- (1) The inspectors reviewed the licensee's corrective action program for potential adverse trends in safety injection accumulator leakage that might be indicative of a more significant safety issue on January 20, 2021.

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

- (1) The inspectors reviewed the licensee's implementation of its corrective action program related to unexpected cycling of the main steam safety valve on January 20, 2021.

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

60855 - Operation of an Independent Spent Fuel Storage Installation (ISFSI)

The inspectors performed a review of the licensee's ISFSI activities to verify compliance with requirements of the site-specific License SNM-2511, License Amendment 5, and the Independent Spent Fuel Storage Installation Final Safety Analysis Report (FSAR), Revision 8. The inspectors reviewed selected procedures, corrective action reports, and records to verify ISFSI operations were compliant with the site-specific license's technical specifications, requirements in the FSAR, and NRC regulations.

Operation of An ISFSI (1 Sample)

- (1) The inspectors evaluated the licensee's operation of the ISFSI, January 19-21, 2021, during an onsite inspection. The Diablo Canyon Power Plant ISFSI consisted of seven concrete pads for a total area of 49,980 square feet. Each pad was designed to hold 20 Holtec International HI-STORM 100SA storage casks which are securely anchored to steel embedment plates in the concrete. At the time of the inspection, the ISFSI contained 58 storage casks (out of 140 total possible) loaded with Multi-Purpose Canisters, each with 32 spent fuel assemblies (MPC-32).

The inspectors evaluated the following:

- The inspectors performed a walkdown of the ISFSI pad and completed an independent radiation survey
- Fuel contents for the canisters loaded since the last NRC ISFSI inspection, the inspectors reviewed the contents of casks 55-58 against the license's technical specifications for approved contents
- Radiation surveys for dose at the owner-controlled boundary to verify compliance with the requirements of 10 CFR 72.104 for calendar years 2019 and 2020
- Selected ISFSI-related condition reports (Notifications) issued since the last NRC ISFSI inspection (July 2018)
- Quality assurance (QA) program implementation, including recent QA audits, surveillances, receipt inspection, and quality control activities related to ISFSI operations
- Compliance to technical specifications for operational surveillance activities and FSAR required annual maintenance activities

- Documentation of annual maintenance activities for the site’s cask handling crane
- Selected licensee design changes and program changes to the ISFSI performed under the site's 10 CFR 72.48 program
- Changes made by the licensee in the ISFSI, FSAR from Revision 7 to Revision 8

INSPECTION RESULTS

Observation: Main Steam Safety Valve (MSSV) Operational Vulnerabilities	71152
<p>Several instances of MSSV actuations were noted during normal operational plant maneuvers over the last 12 months that had the potential to impact reactor coolant system (RCS) cooldown and main steam system overpressure functions. The primary purpose of MSSVs is to provide overpressure protection for the secondary system. The MSSVs also provide protection against over pressurizing the reactor coolant pressure boundary by providing a heat sink for the removal of energy from the (RCS) if the preferred heat sink is not available as well as impacting RCS cooldown rates should an MSSV remain open. While the MSSVs maintained operability and compliance with technical specifications, the actuations were observed as operational burdens during plant start-ups and shutdowns.</p> <p>The inspectors reviewed licensee corrective actions associated with Notification 51098721 “U2 SG 2-2 Safety Lifted Early,” 51093299 “DA-RV-7 lifted at below setpoint,” 51092867 “R211; HC-405 Operation,” and 51073275 “DA-RV-58 Safety Lift While Rolling Turbine.” The inspectors assessed the following performance attributes in their review:</p> <ul style="list-style-type: none"> • complete and accurate identification of the problem in a timely manner commensurate with its safety significance and ease of discovery; • consideration of the extent of condition, generic implications, common cause, and previous occurrences; • evaluation and disposition of operability/functionality/reportability issues; • classification and prioritization of the resolution of the problem commensurate with safety significance; • identification of corrective actions, which were appropriately focused to correct the problem; and • completion of corrective actions in a timely manner commensurate with the safety significance of the issue. <p>The inspectors selected these samples due to the operability impact associated MSSVs; a safety significant system. Inspectors focused review of the above attributes on the licensee’s corrective actions associated with the above notifications and several others. Inspectors did not identify a performance deficiency with this issue.</p>	

Observation: Potential adverse trends involving changes in Safety Injection Accumulator level.	71152
<p>The inspectors performed a semiannual review, of the licensee's corrective action and adverse condition monitoring programs, from July 1-December 31, 2020, for potential adverse trends. The inspectors noted instances of safety injection accumulator leakage. Accumulators provide a passive supply of boric acid to the reactor coolant system during a large break loss of coolant accident. Changes in level caused by leakage into or out of the accumulator could change boric acid concentration or accumulator volume to a non-</p>	

conforming condition. Based on these events, the inspectors reviewed the licensee's corrective action program (Notifications 51095887, "LTCA-DA – Accumulator 1-2 in-leakage," and 51082247, "Accumulator 2-1 low level") trend reports, equipment problem lists, and additional documents, to identify trends that might indicate the existence of a more significant safety issue. Programmatic requirements and processes were also reviewed to determine whether adverse conditions related to SI accumulators were being appropriately tracked, managed, and resolved. The inspectors also reviewed the licensee's selection of criteria or set points for which further evaluation or action was designated to assess the health of the adverse condition monitoring program.

The inspectors did not identify any significant trends that might indicate the existence of more significant safety concerns that had not been previously addressed by the licensee, nor did the inspectors identify any performance deficiency with this issue.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On January 21, 2021, the inspectors presented the routine ISFSI Inspection results to Ms. P. Gerfen, Site Vice President, and other members of the licensee staff.
- On March 4, 2021, the inspectors presented the radiation safety inspection results to Ms. P. Gerfen and other members of the licensee staff.
- On March 25, 2021, the inspectors presented the occupational radiation safety inspection results to Ms. P. Gerfen and other members of the licensee staff.
- On March 29, 2021, the inspectors presented the Unit 2 inservice inspection results to Ms. P Gerfen and other members of the licensee staff.
- On April 8, 2021, the inspectors presented the integrated inspection results to Mr. J. Welsch, Senior Vice President and Chief Nuclear Officer, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
60855	Corrective Action Documents	Notifications	50443110, 50981033, 50238622, 5574154	
	Engineering Changes	LBIE-S-2010-133	Nozzle Bulge Tolerance and Configuration Change	0
		MMD M000084	Unit 2 Cycle 22 Core Reload Design	5
	Engineering Evaluations	PEP R-70	MPC-32 Loading Plan Design Casks 07-06 through 07-09	5
		PEP R-MPC-32	Determination of Fuel Assemblies for Qualified Storage in the MPC for UFO7	06/21/2018
	Miscellaneous	FineNet#191550001	2019 ISFSI and Fuel Management Audit	08/06/2019
		NCR 0517-74	Oversized Baseplate Holes Supplier Disposition Request	01/31/2018
		NCR 0517-75	HI-STORM Drawing Dimensional Discrepancy	01/19/2018
		NCR 05320-50	MPC Vent and Drain Tubes Supplier Disposition Request	01/15/2018
	Shipping Records	CoC 0523-047	Certificate of Conformance MPC-32 S/N 503	02/20/2018
		CoC 0523-048	Certificate of Conformance MPC-32 S/N 504	02/22/2018
		CoC 0523-049	Certificate of Conformance MPC-32 S/N 505	02/22/2018
	Work Order		64222689	
71111.01	Corrective Action Documents	Notifications	51105390, 51105415	
	Procedures	CP M-16	Severe Weather	17
		OP O-28	Intake Management	36
71111.04	Drawings	107715	Unit 2 Service Cooling Water System	50
		108010	Unit 2 Residual Heat Removal System	31
		108015	Unit 2 Service Water Cooling System	26
	Miscellaneous	107710	U-2 Residual Heat Removal System Valve Designation	05/18/2016
	Procedures	OM8.ID4	Control of Flammable and Combustible Materials	32
		OP B-2:V	U2 RHR - Place in Service	39
		OP B-3A:II	Safety Injection System Alignment Verification for Plant Startup	23B
		OP F-1:II	U2 Service Cooling Water - Place in Service	21A
		OP J-6B:I-A	Diesel Generator 2-1 - Alignment Checklist	0
OP K-10A13		Sealed Component Checklist for Safety Injection Pump 2-2	3	

71111.05	Corrective Action Documents	Notifications	51105964, 51109215, 51109216, 51109827	
	Drawings	11805	Sheet 72	2
		RA-12	Radiological Control Area (RCA) Elev. 140' Unit 1	3
		RA-15	Radiological Control Area (RCA) Elev. 100' Unit 2	3
		RA-3	Radiological Control Area (RCA) Elev. 73' Unit 1	3
		TB-21	Fire Drawing: Turbine Building Elev. 140'	
	Procedures	TB-8	Fire Drawing: Turbine Building Elev. 119'	
CP M-6		Site Fire Response	40	
	TQ1.DC12	Fire Brigade and Emergency Response Training	16	
71111.06	Drawings	107714	Component Cooling Water System	66
71111.07A	Corrective Action Documents	Notifications	51109263, 51109480	
	Procedures	OM11.ID9	Visitor Escorts	4
		PEP M-234	CCW Heat Exchanger Performance Test	20
		SP 106	Security Reporting	34
	Work Orders		64172011	
71111.08P	Corrective Action Documents	Notifications	51103887, 51103527, 51102884, 51101542, 51101516, 51100379, 51099726, 51098161, 51097842, 51097781, 51095864, 51086232, 51086202, 51084933, 51084912, 51083540, 51082880, 51082881, 51082882, 51082883, 51082884, 51082910, 51082911, 51082912, 51082913, 51082914, 51082918, 51082919, 51083110, 51083111, 51083112, 51083113, 51083114, 51083115, 51083116, 51083121, 51083138, 51083139, 51083181, 51083182, 51079406, 51073835, 51069760, 51065847, 51065849, 51064523, 51063831, 51063857, 51059819, 51059054, 51058792, 51056284, 51054430, 51052551, 51049947, 51047201, 51047202, 51046786, 51064523, 51082169, 51103084, 51065242, 51093152, 51082880, 51060220, 51069761, 51065242, 51064523, 51046786, 51057867, 51083610	
	Miscellaneous		Quick HIT Self-Assessment for Reactor Coolant System Materials Degradation Management Program (RCS MDMP) and Steam Generator Management Program (SGMP)	11/06/2013
			2020 ISI SA Final	2020 ISI SELF-ASSESSMENT REPORT

		Report		
		TS1.ID10	Reactor Coolant System Materials Degradation Management Program	5/6/7/8
		TS5.DC1	Engineering Programs	10
	Procedures	NDE VT 2-1	Visual Examination During Section XI System Pressure Test	5
71111.11Q	Procedures	OP L-1	Plant Heatup from Hot Shutdown to Hot Standby	88
		OP L-2	Hot Standby to Startup Mode	45
		STP R-17	Estimated Critical Conditions	21
		STP R-19	Shutdown Margin Determination	33
71111.12	Corrective Action Documents	Notifications	51104396, 51088988, 51111442	
	Procedures	STP I-18-IFD.A	Incipient Fire Detection System Operability and Channel Functional Test, Unit 2	2
	Work Orders		64205001, 64219801, 64139131, 60134380, 64130702, 64231654, 64235481	
71111.13	Corrective Action Documents	Notifications	51108219, 51109191, 51109210, 51109086, 51109166, 51108586, 51106514, 51099522, 51105816, 51109565	
	Miscellaneous		2R21 Outage Safety Plan	0a
		2R22 (AD8.DC55 Att 7)	2R22 Outage Safety Plan	0
		FW-2-80 51108586	Fault Tree	A
	Procedures	OP O-36	Protected Equipment Postings	24
		STP I-7-PCV456	U2 Pressurizer PORV PCV-456 Calibration	10
		STP V-3J2	Exercising Pressurizer Power Operated Relief Valves	19
Work Orders		64145255		
71111.15	Corrective Action Documents	Notifications	51103677, 51109572, 51108525, 51108448, 50967066, 51109572, 51110830, 51109847, 51111446	
	Procedures	STP P-CSP-A21	Comprehensive Testing of Containment Spray Pump 2-1	16
	Work Orders		60135410, 60135682, 64168637	
71111.18	Corrective Action Documents	Notification	51104084	
	Drawings	441233	MCC Bus Section 22M	32
		441239	480VAC Bus H	48
	Miscellaneous	4000002059	Temporary Modification - Provide Power to TPRM22 during 480VAC Bus H Maintenance in 2R22	0

	Work Order		60133461	
71111.19	Corrective Action Documents	Notifications	51107345, 51107346	
	Procedures	MP E-53.10A	Preventative Maintenance of Limitorque Motor Operators	45
		MP E-60.2HHXFER	Circuit Functional Test - 4KV Bus "H" Auto Transfer Scheme	3
		MP M-23-DMP.1	Control Room Envelope Boundary Damper Maintenance	7
		STP M-9L	Diesel Generator Shutdown Lockout Relay Test	30
		STP P-RHR-22	Routine Surveillance Test of RHR Pump 2-2	28
		STP V-3M5	Exercising Valves RHR-8701 and RHR-8702, Reactor Coolant Loop 4 to RHR Suction	0A
Work Orders		60118610, 60118681, 64163830, 60122970, 64215001, 64135086		
71111.22	Corrective Action Documents	Notifications	51102290, 51102805	
	Procedures	STP M-13F	4KV Bus F Non-SI Auto-Transfer Test	68
		STP M-9A3	Diesel Engine Generator 1-3 Routine Surveillance Test	13
		STP P-ASW-A-11	Comprehensive Test of Auxiliary Saltwater Pump 1-1	13A
		STP P-CCW-A11	U1 Comprehensive Pump Test of Component Cooling Water Pump 1-1	7
		STP P-SIP-22	Routine Surveillance Test of Safety Injection Pump 2-2	37
		STP V-631	Penetration 31 Containment Isolation Valve Leak Testing	23
Work Order		64245136		
71114.06	Procedures	OM10.DC1	Emergency Preparedness Drills and Exercises	11
71124.01	Corrective Action Documents	Notifications	51093746, 51093748, 51095076, 51099489, 51099789, 51100621, 51102727, 51102887, 51107375, 51107521, 51107653, 51109334, 51109481, 51110284, 51110679	
	Procedures	RCP D-310	RCA Access Control	27
		RCP NISP-RP.02	Radiation and Contamination Surveys	4
		RCP NISP-RP.04	Radiological Posting and Labeling	3
		RCP NISP-RP.05	Access Controls for High Radiation Areas	5
		RCP NISP-RP.11	Radiological Protection Fundamentals	0
		RP1	Radiation Protection	10
		RP1.DC6	Radiation Protection Code of Conduct	6
		RP1.ID16	Radiation Worker Expectations	15
		RP1.ID17	Control and Storage of Non Special Nuclear Material	0A

	Radiation Surveys	07.02.057	Lapel Air Sample for RCP 2-3	03/22/2021
		07.02.084	Lapel Air Sample for RCP 2-3	03/22/2021
		Survey #	74936, 76821, 76959, 76971, 76974, 77099, 77290, 77317, 77382, 77419, 77430, 77491, 77492	
	Radiation Work Permits (RWPs)	2021-0042	Radioactive Waste Activities	0
		2021-2050	2R22 Reactor Coolant Pump Work	0
		2021-2066	2R22 Emergent Work	1
	Self-Assessments		Radiation Protection Section Annual Review	02/04/2021
		51108445	Pre-Inspection on Radiological Hazard Assessment and Exposure Controls	02/17/2021
	71124.02	Corrective Action Documents	Notifications	51030302, 51039000, 51045380, 51046675, 51049431, 51057182, 51065397, 51064499, 51080620, 51090235, 51090908, 51090239, 51090908, 51092294, 51092527, 51101683, 51103147, 51108141
Miscellaneous			Unit 1 Average SRMP Dose Rates	01/14/2021
			2018 Radiation Protection Section Annual Review	10/24/2019
			2019 Radiation Protection Section Annual Review	08/03/2020
			DCPP 1R22 Post Outage ALARA Report	01/27/2021
			DCPP 2R21 Post Outage ALARA Report	12/18/2019
			DCPP 2R20 Post Outage ALARA Report	08/15/2018
			1R22 Alpha Sample Analysis	01/27/2021
			2R21 Alpha Sample Analysis	05/28/2020
			DCPP 1R21 Post Outage ALARA Report	03/18/2019
			Unit 2 Average SRMP Dose Rates	01/14/2021
		0238	Unit 2 Scupper Drain Line	06/03/2019
		0249	Unit 2 Scupper Drain Line (Spot Shielding)	09/23/2019
		51039268	2R21 Lessons Learned - RP	
		Procedures	RCP D-200	Writing RWPs and ALARA Procedures
RCP D-202			RWP Work Instructions	17
RCP-200			Writing RWPs and ALARA Processes	59
RP1			Radiation Protection	10
RP1.ID1			ALARA Program	11
RP1.ID16			Radiation Worker Expectations	15
RP1.ID2			Use and Control of Temporary Radiation Shielding	18
RP1.ID9			Radiation Work Permits	13A

	Radiation Surveys	68893	140' Auxiliary Building - West	09/18/2019
		74330	140' U1 Containment	10/04/2020
		74782	115' Rad Waste Yard	10/13/2020
		74848	140' U1 Containment	10/14/2020
	Radiation Work Permits (RWPs)	19-2001	2R21 General Access to CTMT	0
		19-2020	2R21 Reactor Disassembly and Reassembly	0
		19-2040	2R21 Steam Generator Work (Primary Side)	0
		20-1020	1R22 Reactor Disassembly and Reassembly	0
		20-1023	1R22 Fuel Movement and Under Water Work	1
		20-1040	1R22 Steam Generator Work (Primary Side)	0
		20-1076	1R22 Transfer Cart and Upender Repair	0
		2021-0042	Radioactive Waste Activities	0
		2021-2050	2R22 Reactor Coolant Pump Work	0
		2021-2066	2R22 Emergent Work	1
Self-Assessments		Radiation Protection Section Annual Review - 2019		
	2020-1A-1	2020 Radiation Protection Programs Audit	01/29/2020	
	51103147	NRC Attachment 71124.02 Occupational ALARA Planning and Controls	01/15/2021	
71124.04	Corrective Action Documents	Notifications	51050144, 51072589, 51084612, 51085004, 51085354, 51091115, 51093749	
	Miscellaneous		EDEX Multipack Dosimetry - Compartmental Dose Values for a Monitoring Period (for five individuals)	2019-2020
			DCPP ISFSI Neutron TLD Factor Characterization	12/16/2015
			2016 ISFSI Neutron Follow-up Survey	09/22/2016
			Fastscan WBC - MDA Sensitivity Test	05/27/2020
			2020 Dosimetry Fastscan MDA Sensitivity Test	05/26/2020
			2R21 Alpha Sample Analysis	05/28/2020
			1R22 Alpha Sample Analysis	01/27/2021
			DC HPGe Bed MDA Sensitivity Test	05/27/2020
		100555-0	NVLAP Certificate of Accreditation to ISO/IEC 17025:2017 - Mirion Technologies (GDS), Inc - Ionizing Radiation Dosimetry	
		NRC Form 5	Occupational Dose Record for a Monitoring Period (for five individuals)	2019-2020
TSD 16-090	Neutron Dosimetry Evaluation at Diablo Canyon Nuclear	1		

			Power Plant	
	Procedures	RCP D-320	DLR Issue and Control	28
		RCP D-328	Implementation of Personnel Dosimetry Effective Dose Equivalent	4
		RCP D-330	Personnel Dosimetry Evaluations	15
		RCP D-370	Evaluation of Internal Deposition of Radioactive Material	14
		RCP D-954	Thermo Electronic Dosimeter Operation	28
		RCP D-957	DMC 2000 Dosimeter	6
		RCP D-958	MGP 3000 Dosimeter	5
		RCP NISP-RP.03	Radiological Air Sampling	5
		RP1.ID10	Embryo/Fetus Protection program	9
		RP1.ID6	Personnel Dose Limits and Monitoring Requirements	16
	Self-Assessments		Radiation Protection Section Annual Review - 2020	02/04/2021
			Radiation Protection Section Annual Review - 2019	08/03/2020
71151	Miscellaneous	Report	DCPP Summary Generation Performance Report: 2020	
		Report	DCPP Unit 1 Summary - 2020 Performance Indicators - Initiating Events	
		Report	DCPP Unit 2 Summary - 2020 Performance Indicators - Initiating Events	
71152	Corrective Action Documents	Notifications	51093299, 51095887, 51099523, 51098721, 51092587, 51095570, 51092428, 51082247, 51092779, 51097211, 51092867, 51073275, 51059901	
	Work Order		60086182	