



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

May 20, 2024

Frederic Bailly, Vice President
and Chief Nuclear Officer
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

**SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION – NRC INSPECTION
REPORT 050-00361/2024-003 AND 050-00362/2024-003**

Dear Frederic Bailly:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) inspection conducted on April 29–May 2, 2024, at the San Onofre Nuclear Generating Station, Units 2 and 3. The inspectors discussed the results of the inspection with you and members of your staff during the exit meeting on May 2, 2024. The inspection results are documented in the enclosure to this letter.

This inspection examined activities conducted under your license as they relate to public health and safety, the common defense and security, and to confirm compliance with the Commission's rules and regulations, and with the conditions of your licenses. Within these areas, the inspection consisted of selected examination of procedures and representative records, observation of activities, independent measurement of radiation levels, and interviews with personnel. Specifically, the inspectors reviewed your implementation of decommissioning performance and solid radioactive waste management and transportation of radioactive material. Within the scope of the inspection, no violations were identified, and no response to this letter is required.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC's Website at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

If you have any questions regarding this inspection report, please contact Dr. Robert Evans at 817-200-1234 or the undersigned at 817-200-1249.

Sincerely,



Signed by Warnick, Gregory
on 05/20/24

Gregory G. Warnick, Chief
Decommissioning, ISFSI, and Operating
Reactor Branch
Division of Radiological Safety and Security

Docket Nos. 50-361; 50-362
License Nos. NPF-10; NPF-15

Enclosure:
Inspection Report 050-00361/2024-003; 050-00362/2024-003
w/Attachment: Supplemental Inspection Information

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**U.S. NUCLEAR REGULATORY COMMISSION
REGION IV**

Docket Nos.	050-00361; 050-00362
License Nos.	NPF-10; NPF-15
Report Nos.	050-00361/2024-003; 050-00362/2024-003
Licensee:	Southern California Edison Company
Facility:	San Onofre Nuclear Generating Station, Units 2 and 3
Location:	5000 South Pacific Coast Highway San Clemente, California
Dates:	April 29 to May 2, 2024
Inspectors:	Robert J. Evans, PE, CHP, PhD, Senior Health Physicist Decommissioning, ISFSI, and Operating Reactor Branch Division of Radiological Safety and Security Eric S. McManus, Health Physicist Decommissioning, ISFSI, and Operating Reactor Branch Division of Radiological Safety and Security
Approved By:	Gregory G. Warnick, Chief Decommissioning, ISFSI, and Operating Reactor Branch Division of Radiological Safety and Security
Attachment:	Supplemental Inspection Information

Enclosure

EXECUTIVE SUMMARY

San Onofre Nuclear Generating Station, Units 2 and 3
NRC Inspection Report 05000361/2024-003; 05000362/2024-003

This U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of decommissioning activities being conducted at San Onofre Nuclear Generating Station, Units 2 and 3. In summary, the licensee and its decommissioning contractor were found to be conducting activities in accordance with site procedures, license requirements, and applicable NRC regulations.

Decommissioning Performance and Status Reviews at Permanently Shutdown Reactors

- The licensee and its decommissioning general contractor were conducting activities in accordance with the instructions provided in site procedures and commitments provided in the Post-Shutdown Decommissioning Activities Report. Radiological controls and related postings were being maintained. The licensee submitted decommissioning cost estimates that met the intent of the Post-Shutdown Decommissioning Activities Report and regulatory requirements. Staff qualifications for transportation activities were commensurate with current decommissioning activities. The licensee was appropriately identifying and correcting problems involving decommissioning and RP. No findings of significance were identified. (Section 1.2)

Solid Radioactive Waste Management and Transportation of Radioactive Materials

- The licensee and its decommissioning contractor conducted waste management and transportation activities in accordance with procedural instructions, Post-Shutdown Decommissioning Activities Report commitments, and regulatory requirements. No findings of significance were identified. (Section 2.2)

Report Details

Summary of Plant Status

Southern California Edison Company (SCE), the licensee, formally notified the NRC in June 2013 that it had permanently ceased power operations at San Onofre Nuclear Generating Station (SONGS), Units 2 and 3 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML131640201). The NRC subsequently issued the permanently defueled technical specifications in July 2015 (ML15139A390), along with revised facility operating licenses to reflect the permanent cessation of operations at Units 2 and 3.

As required by Title 10 the Code of Federal Regulations (10 CFR) 50.82(a)(4), the licensee submitted its Post-Shutdown Decommissioning Activities Report (PSDAR) to the NRC on September 23, 2014 (ML14269A033). The PSDAR outlined the licensee's planned decommissioning activities. The current version of the PSDAR is dated May 7, 2020 (ML20136A339). As discussed in the revised PSDAR, the licensee chose the decommissioning alternative DECON. DECON is the removal or decontamination of equipment, structures, or portions of the facility and site that contain radioactive contaminants to levels that permit termination of the license.

On December 20, 2016, the licensee announced the selection of AECOM and Energy Solutions as the decommissioning general contractor. The joint venture between the two companies was named SONGS Decommissioning Solutions (SDS). The SDS organization manages most of the decommissioning activities as described in the PSDAR.

Prior to this inspection, the licensee and its decommissioning contractor completed the cutting of the reactor vessel internals in both units. The licensee removed and shipped for disposal the seventh out of eight reactor coolant pump motors. The fuel transfer tubes in both units were filled with a flowable fill to support future demolition activities. The licensee also removed the final canister of greater-than-class-C wastes from Unit 3.

During the inspection, the licensee's contractor was cleaning the reactor cavities in both units to support future drain down of the cavities. The steam generators in both units were being cut into segments using either hot torch or diamond-wire cutting. The two pressurizers were being prepared for future removal from the containment structures. The two spent fuel pool rooms were locked down, ready for future demolition work. Asbestos abatement was in progress in the control building. The control room was no longer occupied to allow for removal of hazardous wastes including asbestos from the building. In Unit 2, the final canister of greater-than-class-C material was being vacuum dried for eventual removal from the building. Radioactive wastes were being removed from both containments for disposal.

1 Decommissioning Performance and Status Review at Permanently Shutdown Reactors (Inspection Procedure [IP] 71801)

1.1 Inspection Scope

The inspectors observed site activities, reviewed documents, and interviewed site personnel:

- To evaluate the status of decommissioning and verify whether the licensee was conducting decommissioning and maintenance activities in accordance with regulatory and license requirements.

- To maintain awareness of work activities to assess licensee control and conduct of decommissioning.
- To evaluate the licensee's decommissioning staffing, personnel qualifications, and training requirements, including that of the contracted workforce, to ensure that license requirements are met, as applicable to the current decommissioning status.
- To identify and document in an inspection report the status, progress, and changes that potentially impact decommissioning financial assurance.

1.2 Observations and Findings

a. Status of Decommissioning

Section II.A of the PSDAR describes the decommissioning periods. The site is currently in Period 4. This period started upon conclusion of fuel transfer operations in August 2020 and extends through the completion of the decommissioning and decontamination work. At the time of the inspection, the licensee and its decommissioning general contractor SDS were conducting major decommissioning activities in accordance with the general guidance provided in Section II.B.1 of the PSDAR. The inspectors discussed the current decommissioning schedule with management staff, observed daily planning meetings, and conducted site tours to observe work in progress.

The inspectors reviewed the current decommissioning schedule with contractor management. The decommissioning project was generally on schedule. Selected work activities, such as cleanup of the reactor cavities, were slightly behind the original baseline schedule. The status of the decommissioning activities was noted to be commensurate with the challenges encountered.

The inspectors attended the daily planning meetings hosted by the contractor. The topics included an As Low As Is Reasonably Achievable (ALARA) briefing, safety briefing, current work projects, and near-term work projects. The meeting provided the participants with current information of the work in progress including radiological and industrial safety updates as needed.

The inspectors conducted site tours, in part, to observe the contractor's preparation for future decommissioning activities. The inspectors toured the recently constructed material handling facility. The facility will be used to provide an enclosure for loading of radioactive wastes into railcars during open air demolition of site structures. The inspectors noted that the facility's ventilation system had been constructed and appeared ready for operations. The Radiation Protection (RP) equipment, such as air monitors, will be moved into place prior to commencement of open air demolition activities.

b. Decommissioning Operations

The inspectors toured the Units 2 and 3 containments to observe work in progress and to assess the radiological conditions. The inspectors observed the cleanup of reactor cavities in both units. The debris originated, in part, from previous cutting of the reactor vessel internals (RVI). The work was being conducted in accordance with approved work

packages. In Unit 2, the applicable work package was SDS-2-M-CO-373, "U2-Demob, Uninstall, and Disassemble RVI equipment." The work included continued underwater vacuuming of the upper and lower cavities. A mechanical agitation tool and hydrolasing were conducted as needed to loosen the debris for removal via vacuuming.

In Unit 3, the cleanup work was being conducted per work package SDS-3-M-CO-421, "U3-Demob, Uninstall, and Disassemble RVI Equipment." The work included final cleanup of the cavities following completion of the RVI segmentation work. Similar to Unit 2, hydrolasing and vacuuming activities were conducted in Unit 3 to remove all remaining debris from the upper and lower cavities. This work was being conducted, in part, to allow for drain down of the cavities to support future reactor vessel shell cutting operations.

The inspectors noted that signs, postings, and boundaries were generally well maintained. Housekeeping was good for the work in progress. A few minor issues were identified during the tours, such as minor radioactive material labeling discrepancies, and reported to the RP staff for resolution.

The inspectors conducted independent radiological surveys during site tours using a Thermo Scientific Radeye G survey meter (serial number 30932, calibration due date of 1/19/25, calibrated to cesium-137). Surveys were conducted inside the two containments and the radioactive materials areas located around the exterior of the containments. As discussed in Section 2 below, the inspectors also conducted an independent survey of a transportation shipment of radioactive wastes that was about to exit the site. Overall, the measured exposure rates were consistent with existing signs, postings, and area survey maps.

c. Decommissioning Staffing and Training

The inspectors conducted a limited review of the training qualifications for selected individuals who conducted transportation activities, including verification of function specific training as required by U.S. Department of Transportation regulations. No discrepancies were noted during this review.

d. Decommissioning Planning, Scheduling, and Cost Assessment

The inspectors reviewed the licensee's decommissioning strategy, schedule, and estimated costs with support from the NRC's program office. The PSDAR discusses the estimated expected decommissioning costs in Section III. In addition, Section IV.A.11 states that annual decommissioning funding status reports are to be submitted to the NRC to demonstrate that sufficient funds are available to cover the remaining decommissioning costs. The inspectors reviewed the licensee's annual submittal for 2023 dated March 27, 2024 (ML24094A064), and discussed the information presented in the report with licensee representatives.

10 CFR 50.82(a)(8)(v) provides a list of the information required to be included in the annual financial report. The inspectors confirmed that the required information was included in the report. Further, the inspectors confirmed that the licensee continued to be in the DECON decommissioning alternative and had not changed alternatives since the last annual submittal. The annual report documented the: (1) amount spent on decommissioning; (2) estimated costs needed to complete decommissioning; (3)

modifications, if any, to current method of providing financial assurance (none was reported); and (4) material changes, if any, to trust agreements and financial assurance contracts (none was reported). The top two reported costs of the decommissioning project were demolition, shipment and disposal costs followed by labor and staffing costs.

e. Problem Identification and Resolution

The inspectors reviewed recently issued corrective action reports and the licensee's and its contractor's response to selected reports. During the March 2024 inspection (ML24085A271), the inspectors noted algae growth in both reactor cavities. The algae growth negatively impacted reactor cavity water clarity. The contractor issued condition reports, in part, to identify corrective actions. The corrective actions included the addition of hydrogen peroxide to the reactor cavity water to manage the algae growth. During this inspection, the inspectors noted that water clarity had improved, and the contractor continued to add hydrogen peroxide as needed to control algae growth.

Also, the inspectors discussed RP program changes in response to recent events that were identified and documented in the licensee's and contractor's corrective action programs. The corrective actions included emphasis on an attention to detail, improved radioactive material labeling, and improved worker flow control points. For example, the inspectors noted that the contractor had revised its entry and exit points into and out of the radiologically restricted areas. The areas were being managed with controls to prevent workers from accidentally circumventing the requirements for entry into, and exit from, these restricted areas. In addition, the contractor implemented an enhanced program for focused observations by management staff.

1.3 Conclusions

The licensee and its decommissioning general contractor were conducting activities in accordance with the instructions provided in site procedures and commitments provided in the PSDAR. Radiological controls and related postings were being maintained. The licensee submitted decommissioning cost estimates that met the intent of the PSDAR and regulatory requirements. Staff qualifications for transportation activities were commensurate with current decommissioning activities. The licensee was appropriately identifying and correcting problems involving decommissioning and RP. No findings of significance were identified.

2 Solid Radioactive Waste Management and Transportation of Radioactive Materials (IP 86750)

2.1 Inspection Scope

The inspectors observed site activities, reviewed documents, and interviewed site personnel to verify the effectiveness of the licensee's programs for processing, handling, storage, and transportation of radioactive material.

2.2 Observations and Findings

a. Radioactive Material Storage and Control

The inspectors conducted walkdowns of radioactive waste storage areas located both inside and externally adjacent to both containment buildings. Storage of radioactive material is controlled by SDS procedure SDS-RP1-PGM-3000, "Control of Radioactive Material," revision 5. Radioactive material was controlled, labelled, posted, and secured against unauthorized removal in accordance with the SDS procedure and 10 CFR 20 regulations. The inspectors noted improvement from the last inspection in the areas of labels, barrier ropes, and postings. The minor labeling problems identified by inspectors during this inspection were immediately corrected by RP personnel.

A sampling of accessible radioactive material containers was inspected and verified to be adequately labeled, marked, and free of physical damage or leaks. Review of inventory records and interviews of waste management personnel validated the licensee was performing inventories and inspections of containers stored onsite. During this inspection, there was no Category 1 or 2 material stored outside the containment.

The inspectors observed the sealed source containers located inside the RP instrument issue conex. These sealed sources were used by RP personnel to perform daily source checks of instruments utilized for RP oversight. All sealed sources were securely locked in shielded containers. The measured exposure rates outside the containers were consistent with existing signs and postings. The sealed source containers were marked clearly with isotope and activity. The sealed source locations and activities were aligned with licensee inventory records.

The inspectors reviewed inventory records for radioactive material containers. Records for containers awaiting shipment were maintained separate from records for containers being loaded. Both record systems were in accordance with licensee procedures. The inspectors reviewed records of completed shipments. The inspectors also discussed storage, control, and transport of mixed waste and asbestos contaminated radioactive waste. The inspectors' discussions and record reviews with the waste program manager validated mixed and asbestos wastes were managed in accordance with SDS procedure SDS-WM1-PGM-0001, "Waste Management Program," revision 9.

b. Radioactive Waste Processing

The licensee's contractor was not processing wastes at the time of the inspection; therefore, this program area was not inspected.

c. Transportation of Radioactive Materials

The inspectors observed the preparation and departure of a shipping trailer carrying one Low Specific Activity waste cask. This shipment was conducted per work package ESS-BR-PR-002, "Operating Procedure for Brokering of Hazardous Materials," revision 16.

The inspectors observed the surveys, inspection, placarding, and reviewed the shipping paperwork provided to the driver. Surveys were performed and documented in accordance with licensee procedures. The inspectors' independent survey measurements validated the results of the licensee surveys. The trailer and container were placarded in accordance with licensee procedures and 10 CFR 173. The shipping paperwork provided to the driver included documents and information required in accordance with licensee procedures and 10 CFR 172, subpart C. The inspectors

confirmed the training of two qualified shippers: the worker placing placards and markings on the shipping container and the supervisor providing oversight.

d. Problem Identification and Resolution

The inspectors reviewed the status of the licensee's and contractor's corrective action programs for entries involving waste management and transportation activities. No significant problems were identified since the end of the last inspection of this program and the beginning of this inspection.

2.3 Conclusions

The licensee and its decommissioning contractor conducted waste management and shipping activities in accordance with procedural instructions, PSDAR commitments, and regulatory requirements. No findings of significance were identified.

3 Exit Meeting Summary

The inspectors presented the final inspection results to Frederic Bailly, Vice President and Chief Nuclear Officer, and other members of the licensee's staff on May 2, 2024. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified except for certain SDS procedures and documents which were marked as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION

KEY POINTS OF CONTACT

Licensee and Contractor Personnel

C. Ahola, SCE, Radiological Controls Specialist
N. Alchaar, Business Services, Senior Project Manager
R. Besich, Chief Financial Officer
V. Bilovsky, SCE, Decommissioning Project Director
R. Bledsoe, Regional Affairs Senior Advisor, SCE
C. Cates, Prudency Manager, SCE
G. Ferrigno, SDS, Radiation Protection Manager
R. Kalman, SDS, Executive Sponsor
D. Knudson, SDS, Programs Manager
T. Laursen, SDS, Corrective Action Program Manager
J. Madigan, SCE, Nuclear Oversight and Safety Culture Manager
S. Mannon, SDS, Programs Project Director/Regulatory Manager
M. Morgan, SCE, Manager, Regulatory Affairs
C. Nelson, Senior Cost Engineer, SCE
J. Perez, Regional Affairs & Compliance Principal Manager, SCE
R. Pontes, SCE, General Manager, Site Closure and Environmental Oversight
L. Rafner, SCE, Regulatory Affairs
S. Sewell, SCE, Manager, Radiation Protection and Waste
J. Stephenson, SCE, Manager, Engineering

INSPECTION PROCEDURES USED

IP 71801	Decommissioning Performance and Status Review at Permanently Shutdown Reactors
IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As Is Reasonably Achievable
CFR	<i>Code of Federal Regulations</i>
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
PSDAR	Post-Shutdown Decommissioning Activities Report
RP	Radiation Protection
RVI	Reactor Vessel Internals
SCE	Southern California Edison Company
SDS	SONGS Decommissioning Solutions
SONGS	San Onofre Nuclear Generating Station