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

July 26, 2022

Mr. Doug Bauder
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 05000361/2022-003 AND 05000362/2022-003

Dear Mr. Bauder:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) inspection conducted on June 27-29, 2022, at the San Onofre Nuclear Generating Station (SONGS), Units 2 and 3. The inspectors discussed the results of this inspection with you and members of your staff during a final exit meeting conducted on June 29, 2022. 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, observations of activities, performance of independent radiation measurements, and interviews with personnel. Specifically, the inspectors reviewed decommissioning activities for SONGS Units 2 and 3, and the occupational radiation exposure program. 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, Enclosure 1, 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.

Enclosure 2 transmitted herewith
contains SUNSI. When separated from
Enclosure 2, this transmittal document
and Enclosure 1 are decontrolled.

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However, Enclosure 2 of the inspection report contains Security-Related Information, so the enclosure will not be made publicly available in accordance with 10 CFR 2.390(d)(1). If you choose to provide a response that contains Security-Related Information, please mark your entire response “Security-Related Information – Withhold from Public Disclosure under 10 CFR 2.390” in accordance with 10 CFR 2.390(d)(1) and follow the instructions for withholding in 10 CFR 2.390(b)(1). The NRC is waiving the affidavit requirements for your response in accordance with 10 CFR 2.390(b)(1)(ii).

If you have any questions regarding this inspection report, please contact Stephanie Anderson at 817-200-1213, or the undersigned at 817-200-1249.

Sincerely,



Signed by Warnick, Gregory
on 07/26/22

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

Public Enclosure:
Inspection Report 050-00361/2022-003;
050-00362/2022-003
w/Attachment: Supplemental Inspection Information

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REPORT 05000361/2022-003; 05000362/2022-003 - DATED JULY 26, 2022

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

Docket Nos. 05000361; 05000362

License Nos. NPF-10; NPF-15

Report Nos. 05000361/2022-003; 05000362/2022-003

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: June 27-29, 2022

Inspectors: Stephanie G. Anderson, Senior Health Physicist
Decommissioning, ISFSI, and Operating Reactor Branch
Division of Radiological Safety and Security

Robert J. Evans, PhD, CHP, PE, Senior Health Physicist
Decommissioning, ISFSI, and Operating Reactor Branch
Division of Radiological Safety and Security

Accompanied By: Tony D. Gonzalez, Health Physicist
Materials Licensing Branch
Division of Radiological Safety and Security

Geoffrey B. Miller, Deputy Director
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 05000361/2022-003; 05000362/2022-003

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

Decommissioning Performance and Status Review at Permanently Shutdown Reactors

- The licensee was implementing the decommissioning activities in accordance with the regulations and license requirements. The inspectors determined that the licensee was adequately controlling decommissioning activities and radiological work areas at the facility. (Section 1.2)

Occupational Radiation Exposure at Permanently Shutdown Reactors

- The licensee's contractor implemented an occupational exposure program that monitored for both internal and external exposures to radiation and radioactive material. For 2021-2022, occupational exposures were less than regulatory limits. Both the licensee and its contractor conducted assessments to ensure that the occupational radiation exposure program was being effectively implemented. (Section 2.2)

Report Details

Summary of Plant Status

On June 12, 2013, the Southern California Edison Company (SCE), the licensee, formally notified the NRC that it had permanently ceased power operations at the San Onofre Nuclear Generating Station (SONGS), Units 2 and 3, effective June 7, 2013 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML131640201). By letters dated June 28, 2013 (ML13183A391), and July 22, 2013 (ML13204A304), the licensee informed the NRC that the reactor fuel had been permanently removed from the Units 3 and 2 reactor vessels as of October 5, 2012, and July 18, 2013, respectively. The NRC subsequently issued the permanently defueled technical specifications on July 17, 2015 (ML15139A390), along with revised facility operating licenses to reflect the permanent cessation of operations at SONGS, Units 2 and 3.

The licensee submitted its Post-Shutdown Decommissioning Activities Report (PSDAR) on September 23, 2014 (ML14269A033). The PSDAR outlines the planned decommissioning activities for SONGS, Units 2 and 3. The current version of the PSDAR is dated May 7, 2020 (ML20136A339). The chosen decommissioning alternative was 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 EnergySolutions as the decommissioning general contractor. The joint venture between the two companies was called SONGS Decommissioning Solutions (SDS). The SDS organization manages decommissioning activities as described in the PSDAR.

By letter dated August 7, 2020 (ML20227A044), the licensee certified that all spent fuel has been removed from both Units 2 and 3. Accordingly, SONGS entered their Independent Spent Fuel Storage Installation (ISFSI) Only Technical Specifications, Emergency Plan, and Security Plan on August 10, 2020.

During the inspection week, the ongoing activities included segmentation of the reactor vessel internals inside the two containments. The contractor was preparing the containments for future large component removals. The contractor was also conducting equipment removal and decontamination activities in the safety, penetration, fuel handling, control, turbine, and containment buildings. Further, the contractor was preparing to seal the intake structure to isolate it from the ocean. Following installation of the seals, the contractor planned to clean and radiologically survey the intake structure. Finally, the contractor was installing additional trailers on the reservoir to move staff from the old plant security building to the trailers, to prepare the old security building for future demolition.

1 Decommissioning Performance and Status Review at Permanently Shutdown Reactors (71801)

1.2 Inspection Scope

The inspectors reviewed documents, interviewed plant personnel, and conducted site tours to assess the licensee's performance in the following areas:

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- Status of decommissioning and verify whether the licensee was conducting decommissioning and maintenance activities in accordance with regulatory and license requirements;
- Licensee awareness of work activities to assess their control and conduct of decommissioning;
- Status of the licensee’s decommissioning staffing, personnel qualifications, and training requirements, including that of the contracted workforce, to ensure that license requirements were met, as applicable to the current decommissioning status;
- Whether the licensee was identifying problems related to decommissioning and maintenance activities at an appropriate threshold and entering them into the corrective action program;
- Performed plant tours to assess field conditions and decommissioning activities; and
- Observed and assessed the status of facility housekeeping.

1.2 Observations and Findings

The licensee submitted its PSDAR on September 23, 2014, as required under 10 CFR 50.82(a)(4). The PSDAR provides the general dates for each decommissioning phase implementation period and associated activities for that period. The licensee stated that the implementation of the activities described under each period may overlap and not necessarily be implemented consecutively. The site is in Period 4, “D&D (Decontamination and Dismantlement) Dry Storage,” which began with the completion of fuel transfer and extends through the completion of D&D work.

The inspectors attended meetings that included discussion of decommissioning activities as well as the current plant status for each day. The meetings provided participants with useful information about the daily status of plant activities. The inspectors performed tours of the facilities, radiation waste and safety equipment buildings, Unit 2 and Unit 3 containment buildings, and along the east and west road of the plant. Plant staff appeared to be knowledgeable of site conditions and based on observations, the inspectors determined that the licensee was adequately maintaining the material condition of the facilities, as well as the structures, systems, and components that are necessary for safe decommissioning. General observations by the inspectors identified good housekeeping practices, and appropriate radiological postings and labeling. The observations by the inspectors identified good housekeeping practices, and appropriate radiological postings and labeling. The inspectors did not identify any radiation area that was not adequately identified and posted by the licensee.

The licensee’s decommissioning contractor, SDS, is performing, in the Unit 2 and Unit 3 containment buildings with reactor vessel internals segmentation. They are also making modifications inside the containment buildings, including removal interferences to prepare for large component removal. The inspectors toured the Unit 2 and Unit 3 containment buildings and evaluated the site personnel were focusing on safety,

adherence to procedures, and radiological precautions as directed by regulatory and procedural requirements.

The inspectors evaluated the licensee's decommissioning cost planning and assessment, being an important part of the decommissioning process. The inspectors determined that the licensee's cost planning and assessment were inclusive of current and planned major decommissioning activities as identified in the PSDAR. The inspectors also determined that licensee funding and expenditures were tracking as planned by the licensee with no significant deviations to expenditures up to current date nor major deviations from the decommissioning schedule.

1.3 Conclusion

The licensee was implementing the decommissioning activities in accordance with the regulations and license requirements. The inspectors determined that the licensee was adequately controlling decommissioning activities and radiological work areas at the facility.

2 Occupational Radiation Exposure at Permanently Shutdown Reactors (83750)

2.1 Inspection Scope

The purposes of this portion of the inspection were to independently gather sufficient information to: (1) ensure adequate protection of worker health and safety from exposure to radiation or radioactive material; and (2) evaluate whether the licensee adequately identifies problems and implements appropriate and timely corrective actions related to occupational radiation safety.

2.2 Observations and Findings

The occupational dose limits are provided in 10 CFR Part 20, Subpart C. The inspectors reviewed the licensee's records for occupational exposures and interviewed responsible site staff to ensure that no individual received an exposure to radiation or radioactive material greater than the regulatory limits. At the time of the inspection, implementation of the radiation protection program was the responsibility of the decommissioning general contractor. The inspectors reviewed the contractor's occupational exposure records for 2021 and 2022 and discussed these records with licensee and contractor representatives.

During 2021, 794 individuals were monitored for exposures to radiation and radioactive material. The highest doses were assigned to workers conducting or supporting reactor vessel segmentation work. The highest assigned total effective dose equivalent exposure was 1.207 rem. This dose was below the regulatory limit of 5 rem and the contractor's action level of 1.5 rem. With rare exceptions, the assigned doses in 2021 were from external sources.

The inspectors also reviewed the contractor's records for internal exposures. During July 2021, one occupational worker experienced an intake that resulted in an assigned internal dose of 0.007 rem, a small fraction of the regulatory limits. Additional details about this intake are provided in Section 2.1 of NRC Inspection Report 05000361/2021-

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003; 050-00362/2021-003 dated September 22, 2021 (ML21251A584). A representative for the contractor stated that internal exposures are minimized, in part, by use of supplied air respirators. The July 2021 intake occurred during work activities being conducted without a respirator. No other event was identified by the contractor in 2021-2022 that required an assignment of internal dose.

The inspectors reviewed the contractor's records for 2022 up to the time of the inspection. During 2022, 773 individuals were monitored for exposures to radiation and radioactive material. The work activity with the highest potential for dose continued to be the reactor vessel internals segmentation project. Other potentially high dose projects included management of radioactive wastes being removed from the reactor vessel as well as routine radiation protection support. The highest dose to any individual in the first six months of 2022 was 0.272 rem, an assigned dose that was well below the regulatory and action level limits.

As required by 10 CFR 20.1101(b), the licensee shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA). The inspectors reviewed the licensee's implementation of its ALARA program to ensure it was effectively managing its occupational doses in a manner that was consistent with the concepts of ALARA.

The contractor implemented an ALARA committee, in part, to establish dose goals. Procedure SDS-RP2-PGM-1000, Revision 4, "Station ALARA Committee," provided details for implementing the committee. The inspectors interviewed the project manager who manages the ALARA committee and reviewed recent committee minutes. The inspectors discussed the ALARA goals for 2021-2022 with contractor representatives.

During 2021, the ALARA committee established a combined dose goal of about 62 rem. The committee increased the combined dose estimate to 103 rem in April 2021 based on the information available at that time. However, actual doses for 2021 totaled approximately 32 rem. The committee concluded that the drop in collective dose was due to a reduction in the number of hours worked because of work stoppages and equipment problems.

In December 2021, the ALARA committee developed and approved a combined dose goal of approximately 97 rem for 2022. In April 2022, the estimated dose goal was subsequently decreased to approximately 49 rem based on a revised work schedule. During the April 2022 meeting, the committee indicated that it would continue to monitor doses closely and review the ALARA goals and actual doses on a quarterly basis. At the time of the inspection, combined doses totaled approximately 16 rem, about a third of the revised goal.

The inspectors reviewed how the licensee and its contractor conducted self-assessments to ensure that the occupational monitoring and ALARA programs were being effectively implemented. The licensee provided oversight of contractor activities, in part, by documenting task reviews and assessments. A task was an observation, record or document review, or area inspection. An assessment could be a combination of tasks or activities. The goal of the reviews was to help ensure that the contractor conducted work in accordance with the licensee's expectations. A 2021 assessment of the

contractor's ALARA and work reviews concluded that the contractor's overall performance was found to be satisfactory. At the time of the inspection, the licensee had five individuals who were qualified to perform task and assessment observations of the contractor's radiation protection program.

The licensee also conducted oversight of the contractor's programs through the implementation of the quality assurance audit program. The licensee audited the contractor's radiation protection program under Audit SCES-002-21 that ended in September 2021. The auditors concluded that the contractor's implementation of the radiation protection program was found to be satisfactory.

The contractor conducted self-assessments and audits of its radiation protection program. The contractor conducted an annual program review as required by 10 CFR 20.1101(c). The results of the assessment were documented in correspondence dated March 2022. The contractor's radiation protection program was deemed to be satisfactory at that time. Finally, the contractor conducted an independent quality assurance audit of its radiation protection program in an audit that was completed in May 2021. The audit concluded that the program was effectively implemented.

2.3 Conclusion

The licensee's contractor implemented an occupational exposure program that monitored for both internal and external exposures to radiation and radioactive material. For 2021-2022, occupational exposures were less than regulatory limits. Both the licensee and its contractor conducted assessments to ensure that the occupational radiation exposure program was being effectively implemented.

3 **Exit Meeting Summary**

On June 29, 2022, the NRC inspectors presented the final inspection results to Mr. Doug Bauder, Chief Nuclear Officer and Vice President Decommissioning, and other members of the licensee's staff. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified with the exception of certain SDS procedures and documents reviewed during the inspection, which were marked as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

A. Bates, SCE, Regulatory Affairs and Oversight Manager
S. Mannon, SDS, Program Director and Regulatory Affairs
R. Kalman, SDS, Executive Sponsor
L. Rafner, SCE, Regulatory Affairs
C. Cates, SCE, Prudency Manager and Employee Concerns
R. Besich, SCE, SONGS Chief Financial Officer
S. Sewell, SDS, Radiation Protection and Waste Contract Management
S. Enright, SDS, ALARA & Special Projects Manager
C. Ahola, SDS, Radiation Protection and Waste Contract Management

INSPECTION PROCEDURES USED

IP 71801 Decommissioning Performance and Status Review at Permanently Shutdown Reactors
IP 83750 Occupational Radiation Exposure at Permanently Shutdown Reactors

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed

None

Discussed

None

LIST OF ACRONYMS

ADAMS Agencywide Documents Access and Management System
ALARA as low as is reasonably achievable
CFR *Code of Federal Regulations*
D&D Decontamination and Dismantlement
ISFSI Independent Spent Fuel Storage Installation
NRC Nuclear Regulatory Commission
PDEP Permanently Defueled Emergency Plan
PSDAR Post-Shutdown Decommissioning Activities Report
SDS SONGS Decommissioning Solutions
SCE Southern California Edison Company
SONGS San Onofre Nuclear Generating Station
UFSAR Updated Final Safety Analysis Report

Attachment