



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 EAST LAMAR BOULEVARD
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September 14, 2020

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 INDEPENDENT SPENT
FUEL STORAGE INSTALLATION (ISFSI) - NRC INSPECTION REPORT
05000206/2020007; 05000361/2020007; 05000362/2020007; AND
07200041/2020003

Dear Mr. Bauder:

This letter refers to the U.S. Nuclear Regulatory Commission's (NRC's) unannounced inspections conducted from July through August 7, 2020, of the dry cask storage activities associated with your Independent Spent Fuel Storage Installation (ISFSI). The NRC inspectors discussed the results of this inspection with you and other members of your staff during a final telephonic exit meeting conducted on August 24, 2020. The inspection results are documented in the enclosure to this letter.

The inspectors examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspections consisted of selected examination of procedures and representative records, observations of dry cask storage operations, observations of site meetings, and interviews with personnel. Specifically, the inspection reviewed compliance with the requirements specified in the Holtec International HI-STORM UMAX Certificate of Compliance (CoC) No. 1040 and the associated Technical Specifications, the HI-STORM UMAX Final Safety Analysis Report (FSAR), and Title 10 of the *Code of Federal Regulations* (CFR) Part 72, Part 50, and Part 20. Within the scope of the inspection no violations were identified, and a response to this letter is not 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 Lee Brookhart at 817-200-1549, or the undersigned at 817-200-1249.

Sincerely,

Gregory G. Warnick, Chief
Reactor Inspection Branch
Division of Nuclear Materials Safety

Docket Nos.: 50-206; 50-361; 50-362; 72-041
License Nos.: DPR-13; NPF-10; NPF-15

Enclosure:
Inspection Report 05000206/2020007;
05000361/2020007; 05000362/2020007;
and 07200041/2020003

D. Bauder

SAN ONOFRE NUCLEAR GENERATING STATION INDEPENDENT SPENT FUEL
STORAGE INSTALLATION (ISFSI) - NRC INSPECTION REPORT 05000206/2020007;
05000361/2020007; 05000362/2020007; AND 07200041/2020003 DATED – SEPTEMBER 14,
2020

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ADAMS ACCESSION NUMBER: ML20258A141

SUNSI Review By: LEB	ADAMS: ☒ Yes ☐ No	☐ Sensitive ☒ Non-Sensitive	☐ Non-Publicly Available ☒ Publicly Available	Keyword NRC-002
OFFICE	DNMS:RxIB	DNMS:RxIB	DNMS:RxIB	
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U.S. NUCLEAR REGULATORY COMMISSION REGION IV

Docket Nos.: 50-206; 50-361; 50-362; 72-041

License Nos.: DPR-13; NPF-10; NPF-15

Report No.: 05000206/2020007; 05000361/2020007; 05000362/2020007; and
07200041/2020003

Enterprise Identifier: I-2020-007-003; I-2020-003-0068

Licensee: Southern California Edison Company

Facility: San Onofre Nuclear Generating Station

Location: San Clemente, CA 92674-02

Inspection Dates: On-site: August 6-7, 2020

Exit Meeting Date: August 24, 2020

Inspectors: L. Brookhart, Senior ISFSI Inspector
Reactor Inspection Branch
Division of Nuclear Materials Safety, Region IV

C. Smith, Reactor/ISFSI Inspector
Reactor Inspection Branch
Division of Nuclear Materials Safety, Region IV

Approved By: G. Warnick, Chief
Reactor Inspection Branch
Division of Nuclear Materials Safety, Region IV

Enclosure

EXECUTIVE SUMMARY

NRC Inspection Report 050000206/2020007; 05000361/2020007; 05000362/2020007; and 07200041/2020003

On August 6-7, 2020, the U.S. Nuclear Regulatory Commission (NRC) performed one unannounced on-site inspection of dry fuel storage activities of the Independent Spent Fuel Storage Installation (ISFSI) at the decommissioning San Onofre Nuclear Generating Station (SONGS) in San Clemente, California. Additionally, the inspectors performed remote inspections during the month of July 2020. The remote inspections included live camera monitoring of spent fuel loading activities by NRC inspectors. The on-site inspections were augmented through in-office review of the licensee's condition reports, records, procedures, design change evaluation reports, and other materials gathered and provided prior to and after the on-site portion of the inspections through August 24, 2020. The scope of the inspections was to evaluate and review the licensee's actions and performance of dry cask loading operations after the resumption of fuel transfer operations following the extended stoppage in loading due to the August 3, 2018, canister misalignment incident.

For additional discussions and evaluations of the August 3, 2018, incident, see the NRC Special Inspection Report 072-00041/2018-001 and NRC Supplemental Inspection Report 072-00041/2018-002 (NRC's Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML18341A172 and ML19190A217, respectively). For information related to the previous quarters' resumption of fuel loading inspection activities, see NRC Inspection Report 07200041/2019-001; NRC Inspection Report 07200041/2019-002; NRC Inspection Report 07200041/2020-001; and NRC Inspection Report 07200041/2020-002 (ADAMS Accession Nos. ML19316A762, ML20049G943, ML20119A876, and ML20217L386, respectively).

Operation of an Independent Spent Fuel Storage Installation, Inspection Procedure (IP) 60855

- The inspectors completed one unannounced on-site inspection of the licensee's continued fuel loading operations as well as remote inspection via the licensee's camera surveillance system. The inspections were timed such that risk-significant activities were observed. Specifically, the inspectors evaluated and observed selected critical tasks associated with the licensee's spent fuel loading, processing, and downloading operations associated with multiple canisters during the inspection period. The inspectors noted that the corrective actions taken in response to the August 2018 incident remained effective. The licensee continued to implement successful programs related to training, procedures, equipment maintenance, and oversight to ensure safe and compliant downloading operations. The inspectors observed that the status of the canisters during downloading operations were constantly monitored and properly handled to avoid possible misalignment issues. The licensee has certified to the NRC that all spent fuel has been removed from the site's spent fuel pools and placed within the site's ISFSI. No findings were identified during the inspection period. (Section 1.2)

Review of 10 CFR 72.48 Evaluations, IP 60857

- The inspectors reviewed a sample of 10 CFR 72.48 screenings that had been performed within the inspection period. No findings were identified through the selected sample review. (Section 2.2)

REPORT DETAILS

Summary of Facility Status

The San Onofre Nuclear Generating Station (SONGS) Independent Spent Fuel Storage Installation (ISFSI) consists of two ISFSI designs located adjacent to each other: the Orano Transnuclear (TN) Nutech Horizontal Modular Storage (NUHOMS) system and the Holtec International Storage Module Underground Maximum Capacity (HI-STORM UMAX) system. The TN ISFSI contains a total of 63 advanced horizontal storage modules (AHSMs) on the NUHOMS ISFSI pad. Fifty-one of the AHSMs are loaded with the stainless steel dry shielded canisters (DSCs). Spent fuel from all three reactors are stored in 50 of the AHSMs. Greater-than-Class-C (GTCC) waste from the Unit 1 reactor decommissioning project was stored in the 51st module. The twelve empty AHSMs will be available for storage of additional GTCC waste from decommissioning the Units 2 and 3 reactors and spent fuel pools. The 24PT1-DSCs (Unit 1 fuel) are loaded and maintained under Amendment 0 of Certificate of Compliance (CoC) No. 72-1029 and the 24PT4-DSCs (Units 2 and 3 fuel) are loaded and maintained under Amendment 1 of CoC No. 72-1029. Both CoC amendments were being maintained under NUHOMS Final Safety Analysis Report (FSAR), Revision 5.

The HI-STORM UMAX ISFSI portion was designed to hold 75 Holtec multi-purpose canisters (MPCs). The Holtec MPC-37 canister design can hold 37 pressurized water reactor fuel assemblies in accordance with UMAX CoC No. 72-1040, Amendment 2; HI-STORM UMAX FSAR, Revision 4; and the HI-STORM Flood and Wind (FW) FSAR, Revision 5. Dry cask storage operations had resumed in July 2019, after an 11-month safety stand-down in operations following an August 3, 2018, canister misalignment incident at the UMAX ISFSI. At the end of the inspection period, the licensee completed loading all 73 canisters into the UMAX ISFSI (the 73th canister was placed at the ISFSI on August 7, 2020). As of August 7, 2020, the licensee had removed all spent fuel from both Unit 2 and Unit 3 spent fuel pools. One Cavity Enclosure Container (CEC) will be left empty and one CEC contains a test canister with heating elements that will be used for aging management studies.

1. Operation of an Independent Spent Fuel Storage Installation (IP 60855)

1.1 Inspection Scope

The inspectors performed a review of the licensee's ISFSI activities to verify compliance with requirements of the Holtec UMAX CoC No. 72-1040, Amendment 2; HI-STORM UMAX FSAR, Revision 4; and the HI-STORM Flood and Wind (FW) FSAR, Revision 5. The inspectors reviewed selected procedures, corrective action reports, and records to verify ISFSI operations were compliant with the license Technical Specifications and the Holtec UMAX FSAR.

1.2 Observations and Findings

Loading Operations

The inspection included one unannounced on-site visit. The inspectors evaluated and observed the critical tasks associated with the licensee's training, spent fuel loading, processing, and downloading operations. Additionally, the inspection included remote monitoring of the licensee's operations through SCE's surveillance camera system.

In the month of July, the inspectors periodically reviewed SCE's surveillance cameras that the licensee uses to observe the spent fuel loading campaign. The camera system included eight cameras in the Unit 3 spent fuel building and two additional cameras overlooking the UMAX ISFSI pad. The inspectors were able to, on an unannounced basis, observe critical activities in a remote capability. The inspectors maintained access to the camera system throughout the inspection period, allowing the inspectors to remotely observe loading activities in the spent fuel building. During the remote inspections, inspectors would request information of activities they observed, follow the procedures while observing, and conduct routine discussions with the licensee's staff.

The unannounced remote and on-site inspection dates were as follows:

Remote/On-site inspections	MPC Canister No.
Remote: July 1st – August 7, 2020	MPC #69 - #73
On-site: August 6-7, 2020	MPC #73

On August 6-7, 2020, an inspector was on site to observe the downloading activities associated with canister #73, the last canister loaded into the UMAX ISFSI. The licensee completed the download at 5:00 am on August 7, 2020. The inspector observed the licensee's continued implementation of previous improvement changes related to the downloading process that were in effect during the last NRC inspection. The inspector noted the licensee's use of cameras mounted on the mating device and a video display to assist centering the MPC, ensured that the canisters were traveling in a downward motion. The additional cameras allowed the ability to inspect for foreign material within the interference areas and verification that the MPCs were lowered below the mating device drawer.

On June 11, 2020, the licensee removed all fuel from the Unit 2 pool and placed the final canister containing fuel from Unit 2 into the UMAX ISFSI. On August 7, 2020 the inspector walked down the Unit 3 spent fuel building pool area to inspect the Unit 3 pool's contents to independently verify the spent fuel had been removed from the unit's pool. On August 7, 2020, SCE sent the NRC a letter, titled in-part "Certification of Permanent Removal of All Spent Fuel Assemblies from Spent Fuel Pools," (ADAMS Accession No. ML20227A044) that certified all spent nuclear fuel had been permanently transferred out of the SONGS spent fuel pools and placed in storage within the site's ISFSI. The licensee's letter continued to state that the certification fulfilled implementation requirements for license changes approved by the NRC to utilize the site's Permanently Defueled Part 50 Technical Specifications, Permanently Defueled Emergency Plan, ISFSI-Only Security Plan, and Decommissioning Quality Assurance Plan.

No findings were identified during the remote or on-site inspections of the licensee's loading activities.

Corrective Action Program

NRC inspectors performed a review of SCE's Corrective Action Program (CAP) associated with ISFSI operations, including the cask handling cranes. The inspectors reviewed a sample set of Action Requests (ARs) generated since the last inspection period which ended June 31, 2020. Several ARs were selected by the inspectors for

further review. The inspectors noted that the ARs covered a broad range of issues that were identified during ISFSI operations, and that the licensee's corrective actions related to downloading alignment issues continued to be effective and complied with Procedure HPP-2464-400, "MPC Transfer at SONGS."

1.3 Conclusions

The inspectors completed one unannounced on-site inspection of the licensee's continued fuel loading operations as well as remote inspections via the licensee's camera surveillance system. The inspections were timed such that risk-significant activities were observed. Specifically, the inspectors evaluated and observed selected critical tasks associated with the licensee's spent fuel loading, processing, and downloading operations associated with multiple canisters during the inspection period. The inspectors noted that the corrective actions taken in response to the August 2018 incident remained effective. The licensee continued to implement successful programs related to training, procedures, equipment maintenance, and oversight to ensure safe and compliant downloading operations. The inspectors observed that the status of the canisters during downloading operations were constantly monitored and properly handled to avoid possible misalignment issues. The licensee has certified to the NRC that all spent fuel has been removed from the site's spent fuel pools and placed within the site's ISFSI. No findings were identified during the inspection period.

2 **Review of 10 CFR 72.48 Evaluations (IP 60857)**

2.1 Inspection Scope

The licensee's 10 CFR 72.48 screenings and evaluations performed since the NRC's last ISFSI inspection were reviewed to determine compliance with regulatory requirements.

2.2 Observations and Findings

The licensee performed several procedure revisions and some equipment or process changes under the 10 CFR 72.48 process since the last inspection. The inspectors reviewed the 10 CFR 72.48 screenings for those procedure changes and design change packages made within the ISFSI program. None of the screenings led to a full 10 CFR 72.48 safety evaluation. All screenings were determined to be adequately evaluated.

2.3 Conclusions

The inspectors reviewed a sample of the licensee's required safety screenings and evaluations that had been performed within the inspection period. No findings were identified during the selected sample review.

3 **Exit Meeting Summary**

On August 24, 2020, the inspectors presented the final inspection results to Mr. Doug Bauder, Vice President and Chief Nuclear Officer, Southern California Edison, and other members of the licensee's staff.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel

A. Bates, Regulatory and Oversight Manager
M. Morgan, Regulatory and Oversight
M. Orewyler, Senior ISFSI Manager
K. Wilson, Engineer

INSPECTION PROCEDURES USED

IP 60855 Operation of an Independent Spent Fuel Storage Installation
IP 60857 Review of 10 CFR 72.48 Evaluations

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

None

Closed

None

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
AHSM	Advanced Horizontal Storage Modules
AR	SCE Action Request
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
CoC	Certificate of Compliance
DSC	Dry Shielded Canisters
GTCC	Greater-than-Class-C
FSAR	Final Safety Analysis Report
HI-STORM FW	Holtec International Storage Module Underground Flood and Wind
HI-STORM UMAX	Holtec International Storage Module Underground Maximum Capacity
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
NRC	U.S. Nuclear Regulatory Commission
NUHOMS	Nuclear Horizontal Modular Storage
MPC	Multi-purpose canister
SCE	Southern California Edison
SONGS	San Onofre Nuclear Generating Station
TN	Orano Transnuclear
VCT	Vertical Cask Transporter