

December 26, 2018

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

**SUBJECT: Docket Nos. 50-206, 50-361, 50-362 and 72-41  
Reply to a Notice of Violation, EA-18-155, San Onofre Nuclear  
Generating Station (SONGS), Units 1, 2, 3, and ISFSI**

- REFERENCES:**
1. Letter from Mr. Troy Pruett (NRC) to Doug Bauder (SCE) dated November 28, 2018, Subject: NRC Special Inspection Report 050-00206/2018-005, 050-00361/2018-005, 050-00362/2018-005, and 072-00041/2018-001 and Notice of Violation, (ADAMS Accession No. ML18332A357)
  2. Letter from Mr. Troy Pruett (NRC) to Doug Bauder (SCE) dated December 19, 2018; Subject: Errata: San Onofre Generating Station – NRC Special Inspection Report 050-00206/2018-005, 050-00361/2018-005, 050-00362/2018-005, 072-00041/2018-001 and Notice of Violation

Dear Sir or Madam

Reference 1 transmitted the results of NRC Special Inspection Report Numbers 050-00206/2018-005, 050-00361/2018-005, 050-00362/2018-005, and 072-00041/2018-001 to Southern California Edison (SCE). The inspection was conducted on-site from September 10, 2018 to September 14, 2018 for the San Onofre Nuclear Generating Station (SONGS). The inspection was in response to the misalignment of a loaded spent fuel storage canister as it was being downloaded into the storage vault at SONGS. Reference 1 contained a Notice of Violation for three Severity Level IV violations of NRC requirements. Pursuant to 10 CFR 2.201, the Notice of Violation required SCE to provide a written reply within 30 days of the referenced letter.

Reference 2 stated that Reference 1 incorrectly identified a cited violation against 10 CFR 72.192, regarding the "Operator training and certification program," in lieu of citing the violation against 10 CFR 72.190, "Operator requirements."

The Enclosure to this letter provides SCE's acceptance of and reply to the Notice of Violation provided in Reference 1 as updated by Reference 2.

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There are no new regulatory commitments in this letter or the Enclosure.

If you have any questions or require additional information, please contact me or Mr. Albert Bates, at (949) 368-6945.

Executed on \_\_\_\_\_

Sincerely,

Jon Busch For Doug Bauder

Enclosure: Reply to Notice of Violation EA-18-155

cc: K. Kennedy, Regional Administrator, NRC Region IV  
M. Vaaler, NRC Project Manager, SONGS Units 1, 2 and 3  
W. C. Allen, NRC Project Manager, SONGS ISFSI

**ENCLOSURE**

Reply to Notice of Violation

EA-18-155

## Reply to Notice of Violation

EA-18-155

### BACKGROUND AND EVENT SUMMARY

On January 22<sup>nd</sup>, 2018, the San Onofre Nuclear Generating Station (SONGS) began a fuel transfer campaign from the Units 2 and 3 spent fuel pools to a Holtec UMAX Independent Spent Fuel Storage Installation (ISFSI). The campaign will ultimately result in the transfer of 73 canisters to the ISFSI.

On Friday, August 3, 2018, at approximately 12:45 PDT, workers at SONGS were lowering Multi-Purpose Canister (MPC) number 29 into a Cavity Enclosure Container (CEC) within the Independent Spent Fuel Storage Installation (ISFSI). Workers used a Vertical Cask Transporter (VCT) to perform the download operation. As the MPC was lowered, it came to rest on top of the shield ring and against the inner wall of the transfer cask. The VCT slings went slack indicating the MPC was hung up.

The VCT operator cannot see the MPC as it is being lowered within the transfer cask. The spotter assigned to observe the MPC did not recognize the slack sling condition. The Cask Loading Supervisor (CLS), Rigger-in-Charge (RIC) and the Southern California Edison (SCE) ISFSI Project Oversight Specialist were located 150 feet away in a low radiation dose area and did not have a visible way to monitor the lowering of the MPC into the CEC.

With the MPC supported by the shield ring, the VCT and rigging no longer supported it. Dose rate measurements taken near the VCT indicated that the MPC had not been lowered to its fully downloaded condition. Actions were taken immediately to raise the VCT, regaining support of the MPC by the VCT. The MPC was then safely lowered past the shield ring and into storage at 14:14 PDT.

At that time, MPC number 30 was being prepared for transfer to dry storage in the SONGS Unit 3 Fuel Handling Building. The MPC was seismically restrained in the Unit 3 Fuel Handling Building and then closure welding was completed. Since that time, SONGS has suspended all fuel movement pending completion of cause evaluations and required corrective actions. SCE will not re-start fuel transfer operations until the NRC has reviewed SCE's corrective actions and SCE management is satisfied full readiness has been achieved to ensure safe and effective fuel transfer operations.

This event was informally communicated to NRC Region IV on Monday, August 6, 2018. A late report was made to the NRC Headquarters Operations Center on Friday, September 14, 2018 in accordance with 10 CFR 72.75(d)(1).

Following the event, Holtec completed a root cause evaluation in accordance with its corrective action program to determine causes and appropriate corrective actions to prevent recurrence. SCE reviewed and accepted Holtec's root cause evaluation. In addition, SCE completed an Apparent Cause Evaluation to examine how SCE's oversight failed to prevent the event and a Common Cause Evaluation to examine issues related to fuel transfer in the

areas of administration, and problem identification and resolution. SCE's Apparent Cause Evaluation and Common Cause Evaluation also resulted in corrective actions to prevent or minimize the likelihood of recurrence of these problems.

### **DESCRIPTION OF VIOLATION 18-155-A**

10 CFR 72.172 requires, in part, that, licensees establish measures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, and deviations, are promptly identified and corrected.

Contrary to the above, from January 30 to August 3, 2018, the licensee failed to establish measures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, and deviations, were promptly identified and corrected. Specifically:

1. On July 22, 2018, the loading crew experienced difficulty in aligning canister number 26 for downloading into the independent spent fuel installation vault. However, the licensee failed to enter this deviation in downloading conditions into its corrective action program to determine the cause of the misalignment problem and develop corrective actions to preclude reoccurrence.
2. From January 30 to August 3, 2018, during canister downloading, contact between the canister and vault components frequently occurred. However, the licensee failed to enter instances of contact into its corrective action program and perform an assessment to disposition the exterior conditions of the downloaded canisters and vault components.

### **SCE REPLY TO VIOLATION 18-155-A**

#### 1. Reason for the Violation

On July 22, 2018, workers experienced difficulties aligning a Multi-Purpose Canister for download. The canister contacted the shield ring, similar to the event of August 3, 2018, causing the process to take much longer than expected. In this instance the underload condition was recognized by the crew and the canister was never unsupported by the rigging.

Occasional interferences were not considered to be an unexpected condition. Because of this, and because the potential significance of problems aligning a canister was not recognized, the event of July 22 were not considered to be a problem that needed to be entered into the Corrective Action Program. As a result, this precursor event was not shared with other crews as Operating Experience (OE) to discuss lessons learned.

Similarly, prior to the August 3<sup>rd</sup> download event, incidental contact between canisters and the divider shell was not considered to be a problem that needed to be entered into the Corrective Action Program.

In addition, SCE Project Management and Oversight had not consistently reinforced initiation of entries into the SCE Corrective Action Program for deviations from normal conditions.

## 2. Corrective Actions Taken and Results Achieved

SCE has implemented several corrective actions to improve the project corrective action program, use of OE, and oversight of these programs. A lessons learned training session was conducted to reinforce a low threshold for initiation of entries into the Corrective Action Program. A review of the Holtec and SCE training programs and materials was performed using external and internal OE, and SCE Oversight Specialists were trained on the revised materials. Lastly, Holtec has agreed to adopt the SCE Corrective Action Program to identify and mitigate problems. This also allows craft personnel to initiate entries into the Corrective Action Program (previously only Holtec supervisors had access to initiate an FCR).

Holtec has provided additional requirements in their procedure HSP-35 for Field Condition Reports (FCRs) on the threshold for initiating an FCR, which is the entry process into the Holtec Corrective Action Program.

The Holtec Project Manager's Desk Top Guide for Site Services Pool-to-Pad Projects (HSP-42) was updated to include a section on OE. OE will be obtained through various sources and shared with the crews.

## 3. Corrective Actions That Will Be Taken

None.

## 4. Date When Full Compliance Will Be Achieved

On September 10, 2018, the event of July 22, 2018 were entered into the Corrective Action Program. On September 20, 2018, the potential effects of scratching of MPCs and divider shells due to the downloading process were entered into the Corrective Action Program. On November 28, 2018, the effects of scratching of MPCs and divider shells due to the downloading process were incorporated into the licensing basis.

Full compliance was then achieved on December 20, 2018, when the described corrective actions for problem identification and resolution were completed.

## **DESCRIPTION OF VIOLATION 18-155-B**

10 CFR 72.190 requires, in part, that the operation of equipment and controls that have been identified as important to safety in the Safety Analysis Report and in the license must be limited to trained and certified personnel or be under the direct supervision of an individual with training and certification in the operation. The HI-STORM UMAX SYSTEM Final Safety Analysis Report (FSAR), Revision 4, dated August 14, 2017, specifies, in part, that the operations at the independent spent fuel storage installation are governed by the HI-STORM FW SYSTEM FSAR, Revision 5, dated June 20, 2017, which specifies that the multipurpose canister lifting slings and multipurpose canister lift attachments are designated as important to safety equipment.

Contrary to the above, from January 30 to August 3, 2018, the licensee failed to assure that operations of equipment and controls that had been identified as important to safety in the Safety Analysis Report were limited to trained and certified personnel or were under the direct supervision of an individual with training and certification in the operation. Specifically:

1. The training program failed to adequately train and certify the rigger/spotter position involved in the important to safety downloading operation.
2. The training program for the vertical cask transporter operator position failed to have adequate proficiency testing, on the controls related to the load indicating device and downloading operations.

## **SCE REPLY TO VIOLATION 18-155-B**

### **1. Reason for the Violation**

The Holtec training program did not consider uniqueness of the UMAX system relative to the HI-STORM (a separate dry-storage design in use by Holtec) nor the uniqueness of challenges raised by performing a long-term project where workers are routinely taking on new assignments, which led to not fully establishing qualification or proficiency requirements for the task performers when transferring an MPC into a UMAX system.

### **2. Corrective Actions Taken and Results Achieved**

SCE has implemented corrective actions to improve project training, and oversight of project training. These include reviews of Holtec training programs to ensure regulatory and licensing requirements are met, and to ensure weaknesses are identified and corrected. SCE has also assigned an SCE resource as an ISFSI Project Training Manager

In addition, Holtec developed a site-specific training Program (HPP-2464-1134, "Training of site services personnel") that augments the existing Holtec corporate training program. The site-specific training program ensures that all positions are described and minimum training and qualifications for each position are listed. The site-specific training program minimum qualification requirements ensure that personnel must be appropriately trained prior to performing fuel transfer activities. The Site-Specific Training Program includes the appropriate elements of a Systems Approach to Training (SAT). A Site-Specific Training Procedure was developed to implement the Site-Specific Training Program.

Holtec also revised the UMAX FSAR in order to increase the rigor of heavy load handling activities, including addressing training issues.

### **3. Corrective Actions That Will Be Taken**

Training is currently underway for fuel loading personnel, in accordance with the site-specific training program described above. The required personnel, and required training will be obtained from the current, approved qualification/training matrix.

Additional corrective actions are also underway that are not tied to restoration of full compliance. These include, but are not limited to, actions that address extent of condition.

#### 4. Date When Full Compliance Will Be Achieved

Following the event of August 3, 2018, SCE took action to place all spent fuel in a safe condition. On August 3, 2018, MPC 29 was safely lowered into the CEC. A second MPC (MPC-30) was at that time being prepared for transfer. MPC-30 was seismically restrained in the Unit 3 Fuel Handling Building and closure welding was completed on August 3, 2018. At that time, SONGS suspended fuel movement on-site until completion of required corrective actions. This terminated the relevant "operation of important-to-safety equipment" that was required to have been controlled by trained and qualified personnel.

Full compliance was achieved on December 19, 2018, when the site-specific training program and associated qualification requirements were issued.

#### **DESCRIPTION OF VIOLATION 18-155-C**

10 CFR 72.150, requires, in part, that the licensee prescribe activities affecting quality by documented instructions or procedures of a type appropriate to the circumstances and must include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Contrary to the above, from January 30 to August 3, 2018, the licensee failed to prescribe activities affecting quality by documented instructions or procedures of a type appropriate to the circumstances and include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Specifically:

1. Procedure HPP-2464-400, "Multi-Purpose Canister Transfer at SONGS," Revision 15, step 7.6.23, failed to provide qualitative and quantitative directions for the vertical cask transporter operator to monitor control panel indications that would identify a canister had become misaligned during downloading operation.
2. Procedure HPP-2464-400, "Multi-Purpose Canister Transfer at SONGS," Revision 15, step 7.6.23, failed to include adequate instructions for the rigger/spotter to monitor the downloading slings for a slack condition.

#### **SCE REPLY TO VIOLATION 18-155-C**

##### 1. Reason for the Violation:

The Holtec Root Cause Evaluation identified a Root Cause that Holtec Management failed to recognize the complexity and risks associated with fuel transfer operation while using a relatively new system design (UMAX) when performing a long duration campaign where workers are routinely taking on new assignments and thus did not provide adequate procedural content to recognize special conditions related to a relatively new equipment system (UMAX).



## 2. Corrective Actions Taken and Results Achieved

SCE corrective actions to improve the project procedures, and oversight of procedure development, include:

- a. driving inclusion of downloading safety limits (acceptance criteria) and continuous load monitoring methods, and
- b. procedure reviews to ensure that regulatory and licensing requirements are met, and to ensure weaknesses are identified and corrected.

Holtec loading procedures were revised to provide detailed guidance for critical steps. The VCT operator is provided guidance to stop lowering the VCT if there is any indication of wedging or hang-up of a canister on the divider shell. In addition, the VCT operator is provided with a specific VCT Tower Load Stop value and alarm value. The rigger is to monitor MPC top motion and a tag line was added to confirm MPC continuous motion.

In addition, loading procedures were revised to define the following:

- c. Roles and responsibilities
- d. Qualification requirements
- e. Critical step detail
- f. Download alignment and cask preparation criteria
- g. CLS Command and Control Responsibility
- h. Applicability of scripted Pre-Job Briefs

Additional Loading procedure improvements include:

- a. Capturing escalated management oversight based on the developed lift risk matrix
- b. Defining MPC download with the VCT as a blind lift
- c. Incorporating use of engineered features to verify MPC movements
- d. Revised task-specific pre-job briefs for all required critical lifts to add detail in the following areas:
  - Roles/Responsibilities
  - Qualifications requirements
  - Critical step discussion
  - Reverse brief discussion points
- e. Revised Job Hazard Analyses (JHAs) to Job Safety Analyses (JSAs) to include:
  - Hazards not initially addressed
  - Mitigation strategy for hazards
  - Adequate specificity

## 3. Corrective Actions That Will Be Taken

Additional procedure changes are being processed to incorporate lessons learned from practice runs and will be completed prior to resuming fuel transfer operations.

Additional corrective actions are also underway that are not tied to restoration of full compliance. These include, but are not limited to, actions that address extent of condition.

#### 4. Date When Full Compliance Will Be Achieved

Following the event of August 3, 2018, SCE took action to place all spent fuel in a safe condition. On August 3, 2018, MPC 29 was safely lowered into the CEC. A second MPC (MPC-30) was at that time being prepared for transfer. MPC-30 was seismically restrained in the Unit 3 Fuel Handling Building and closure welding was completed on August 3, 2018. At that time, SONGS suspended fuel movement on-site until completion of required corrective actions. This terminated the relevant "important activities" that could have been controlled by inadequate procedures.

Full compliance will be achieved upon completion of procedure changes and prior to the resumption of fuel transfer operations.