



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

February 21, 2019

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 05000206/2018-004, 05000361/2018-004, AND 05000362/2018-004

Dear Mr. Bauder:

This letter refers to the U.S. Nuclear Regulatory Commission's (NRC's) inspection conducted on December 3-6, 2018, December 19, 2018, and January 15, 2019, at the San Onofre Nuclear Generating Station (SONGS), Units 1, 2, and 3. The NRC inspectors discussed the results of this inspection with you, and then with other members of your staff during a debrief meeting conducted on December 6, 2018. A final exit meeting was conducted telephonically on February 7, 2019, to inform members of your staff of the final significance of the violation identified during the inspection. 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, performing independent radiation measurements, and interviews with personnel. Specifically, the inspectors reviewed the decommissioning planning activities for SONGS Units 1, 2, and 3, controls for spent fuel safety, and adverse weather preparations.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The violation related to the licensee's failure to implement Regulatory Guide 1.33, written procedures for procedure adherence and temporary change method as required by Unit 1 Technical Specifications D6.8.1.a, regarding work activities involving the Unit 1 Reactor Pressure Vessel (RPV) canister engineering modifications. Since the licensee placed the deficiency into its corrective action program, the safety significance of the issue was determined to be low, and because the violation was non-repetitive and not willful, then this violation is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2.a of the NRC Enforcement Policy. The current NRC Enforcement Policy is included on the NRC's Web site at (<https://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>). This NCV is described in the subject inspect report.

Although the engineering modifications to the Unit 1 RPV canister was considered to be low safety significance, this issue highlights the need for the development of unambiguous procedures that are consistent with engineering analyses, the need to clearly define roles and responsibilities for licensee personnel, contractors, and subcontractors, and the need to provide appropriate oversight of contractor and subcontractor activities. The Commission's long-standing policy has been and continues to be to hold its licensees responsible for compliance with NRC requirements, even when licensees use contractors for products or services related to licensed activities.

You are not required to respond to this letter unless the description herein does not accurately reflect your corrective actions or your position. However, if you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to: (1) the Regional Administrator, Region IV, and (2) the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

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 Stephanie Anderson at 817-200-1213, or the undersigned at 817-200-1151.

Sincerely,

/RA/

Janine F. Katanic, PhD, CHP, Chief  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety

Docket Nos.: 050-00206; 050-00361; 050-00362

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

Enclosure:

Inspection Report 050-00206/2018-004;  
050-00361/2018-004; 050-00362/2018-004  
w/Attachment: Supplemental Information

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket Nos.: 050-00206; 050-00361; 050-00362

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

Report Nos.: 05000206/2018-004; 05000361/2018-004; 05000362/2018-004

Licensee: Southern California Edison Company

Facility: San Onofre Nuclear Generating Station, Units 1, 2, and 3

Location: 5000 South Pacific Coast Highway, San Clemente, California

Inspection Dates: December 3-6, 2018; December 19, 2018; January 15, 2019

Inspectors: Stephanie G. Anderson, Health Physicist  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety

Chris D. Steely, Health Physicist  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety

W. Chris Smith, Reactor Inspector  
Engineering Branch 1  
Division of Reactor Safety

Austin C. Roberts, Health Physicist  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety

Approved By: Janine F. Katanic, PhD, CHP, Chief  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety

Enclosure

## **EXECUTIVE SUMMARY**

San Onofre Nuclear Generating Station, Units 1, 2, and 3  
NRC Inspection Report 05000206/2018-004; 05000361/2018-004; 05000362/2018-004

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 (SONGS), Units 1, 2, and 3. In summary, with the exception noted below, 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 NRC determined that one Severity Level IV Non-Cited Violation (NCV) of Unit 1 Technical Specifications, Section D6.8.1.a, occurred based on the licensee's failure to strictly adhere to procedure use and adherence during implementation of the Unit 1 Reactor Pressure Vessel canister work activities. (Section 1.2)

### Spent Fuel Pool Safety at Permanently Shutdown Reactors

The San Onofre Nuclear Generating Station Units 2 and 3 spent fuel pools were being maintained in accordance with Technical Specifications and procedural requirements. The licensee was safely storing spent fuel in wet storage. (Section 2.2)

### Adverse Weather Protection

The licensee had initiated its adverse weather preparations in accordance with the applicable regulatory and license requirements. (Section 3.2)

## Report Details

### Summary of Plant Status

On June 12, 2013, the Southern California Edison Company (SCE), the licensee, formally notified the NRC by letter that it had permanently ceased power operations at the San Onofre Nuclear Generating Station (SONGS), Units 2 and 3, effective June 7, 2013. The document is available in the Agencywide Documents Access and Management System (ADAMS) under (ADAMS Accession 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 SONGS, Units 3 and 2, reactor vessels as of October 5, 2012, and July 18, 2013, respectively.

Upon docketing of these certifications, and pursuant to Title 10 of the *Code of Federal Regulations* (CFR) 50.82(a)(2), the SONGS, Units 2 and 3, facility operating licenses no longer authorized operation of the reactors or emplacement or retention of fuel into the reactor vessels. In response to the licensee's amendment request, the NRC 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), which is required to be submitted within 2 years following permanent cessation of operations under 10 CFR 50.82(a)(4). The PSDAR outlines the decommissioning activities for SONGS, Units 2 and 3. The PSDAR was reviewed by the NRC inspectors in a letter dated August 20, 2015 (ML15204A383). In the current plant configuration, the number of operable systems and credible accidents/transients is significantly less than for a plant authorized to operate the reactor or emplace or retain fuel in the reactor vessel.

On March 11, 2016, the NRC issued two revised facility operating licenses for SONGS, Units 2 and 3, (ML16055A522), in response to the licensee's amendment request dated August 20, 2015 (ML15236A018). The license amendment allowed for the licensee to revise its Updated Final Safety Analysis Report (UFSAR) to reflect the significant reduction of decay heat loads in the SONGS, Units 2 and 3, spent fuel pool (SFP) resulting from the elapsed time since the permanent shutdown of the units in 2012. The revisions support design basis changes made by the licensee associated with the implementation of "cold and dark" plant status as described in the PSDAR.

The NRC approved exemptions from certain emergency planning requirements in 10 CFR 50.47(b), 10 CFR 50.47(c)(2), and 10 CFR Part 50, Appendix E, Section IV, which became effective on June 5, 2015 (ML15105A349 and ML15126A461). These license amendments revised the SONGS emergency action level (EAL) scheme and emergency plan, respectively, to reflect the low likelihood of any credible accident at the plant in its permanently shut down and defueled condition that could result in radiological releases requiring offsite protective measures. The changes to the license were to provide conformance with the related exemptions granted to the licensee by NRC letter dated June 4, 2015 (ML15082A204). The changes were reviewed, and appropriate conforming changes were properly addressed in the applicable revision and sections of the SONGS UFSAR.

The licensee submitted a license amendment request dated December 15, 2016, (ML16355A015) to revise the Permanently Defueled Emergency Plan (PDEP) into an Independent Spent Fuel Storage Installation (ISFSI)-Only Emergency Plan (IOEP), and to revise the EAL scheme into an ISFSI-only EALs for SONGS Units 1, 2, and 3 ISFSI. The proposed changes would reflect the new status of the facility, as well as the reduced scope of potential radiological accidents, once all spent fuel has been moved to dry cask storage within the onsite ISFSI.

The NRC issued amendments to the SONGS operating licenses to allow transition to an IOEP and EAL scheme on November 30, 2017 (ML17310B482). The NRC inspectors determined that the SONGS IOEP and associated changes would provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the SONGS facility. The changes were reviewed, and appropriate conforming changes were properly addressed in the applicable revision and sections of the SONGS UFSAR.

License Amendment 169 (Unit 1), 237 (Unit 2), and 230 (Unit 3) were submitted on December 15, 2016 (ML16355A014), and approved by the NRC in a letter dated January 9, 2018 (ML17345A657). These license amendments changed the operating licenses and technical specifications to reflect the removal of all spent nuclear fuel from the SONGS, Units 2 and 3, SFPs and its transfer to dry cask storage within an onsite ISFSI. These changes will more fully reflect the permanently shutdown status of the decommissioning facility, as well as the reduced scope of structures, systems, and components necessary to ensure plant safety once all spent fuel has been permanently moved to the SONGS ISFSI.

The changes also made conforming revisions to the SONGS, Unit 1, technical specifications and combined them with the SONGS, Units 2 and 3, technical specifications. This license amendment will become effective as of the date the licensee submits a written notification to the NRC that all spent nuclear fuel assemblies have been transferred out of the SONGS SFPs and placed in storage within the onsite ISFSI. In addition, the changes were reviewed, and appropriate conforming changes were properly addressed in the applicable revision and section(s) of the SONGS UFSAR.

On December 20, 2016, the licensee announced the selection of AECOM and EnergySolutions as the decommissioning general contractor for SONGS. The joint venture between the two companies will be known as SONGS Decommissioning Solutions (SDS). The SDS organization will manage the decommissioning activities as the decommissioning general contractor, which is described in the licensee's PSDAR.

The California Environmental Quality Act is the state equivalent of the federal National Environmental Policy Act. For SONGS, the California State Lands Commission (CSLC) will perform the California Environmental Quality Act review, which is triggered by the need to establish the final disposition for the offshore conduits that are under a CSLC lease. The Draft Environmental Impact Report was published for public comment in June 2018, and the public review period closed for comments on August 30, 2018. On February 11, 2019, the Final Environmental Impact Report was released by the CSLC. The CSLC will hold a public meeting on March 21, 2019, to consider the Final Environmental Impact Report and a lease application to decommission the offshore infrastructure associated with SONGS Units 2 and 3.

After the August 3, 2018, canister misalignment incident at SONGS ISFSI, the licensee committed on August 7, 2018, to a NRC review before prior to resuming operations of the spent fuel loading operations at SONGS. At the time of this inspection, there were no loading

operations in effect. The SDS organization had initiated planning for the site's decommissioning activities, which are scheduled to commence once the spent fuel has been moved to the ISFSI and the licensee has received the required permit from the CSLC.

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

### **1.1 Inspection Scope**

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

- Status of ongoing decommissioning activities and planning for future activities;
- Operability and functionality of systems necessary for safe decommissioning were assessed through plant walkdowns, such as: radioactive effluent monitoring, SFP level and temperature control, and radiation protection monitors and alarms;
- 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 majority of activities described under Period 1, "Transition to Decommissioning," and Period 2, "Decommissioning Planning and Site Modifications," have been implemented, as described in previous inspection reports. The licensee, under its decommissioning general contractor, SDS, was planning and scheduling hazard mitigation activities in preparation for decommissioning, as described under Period 3, "Decommissioning Preparations and Reactor Internal Segmentation."

SDS was continuing to work on the Authorized Limited SAFSTOR Hazard Mitigating Activities (ALSHMA) related activities. On December 3, 2018, SCE representatives informed the NRC of an issue involving an engineering modifications to the Unit 1 Reactor Pressure Vessel (RPV) canister. That afternoon, NRC inspectors who were already scheduled to be onsite for the routine decommissioning inspection, were informed of the issue and modified their inspection plan to include a review of the engineering modifications to the Unit 1 RPV canister. The inspectors focused their inspection on the activities involving the SDS ALSHMA Task Plan #6, "Engineering Modification to Unit 1 RPV". The scope of ALSHMA #6, was to make engineering modifications to the Unit 1 RPV to allow the RPV package to meet the railroad clearance requirements during rail shipment. To ensure the requirements are met, a series of engineering modifications needed to be performed to alter the existing condition of the RPV canister. The overall width of the RPV canister shell had to be shaved down along both sides, by approximately 0.75 inches to meet the railroad clearances. The existing tie down cables had to be

removed and new turnbuckles had to be installed. Lastly, any trunnion parts that projected beyond the maximum clearance width, needed to be grinded smooth.

SDS uses an array of terms to define the tie down cables on the Unit 1 RPV. This inspection report will use the terms, tie down cables, tie down straps, or wire ropes to identify the same item based on which document the term was referenced in. The work activities that were planned to start on November 30, 2018, were first removing three tie down cables, then weld the new shear lugs to the RPV and the skid, and then connect the RPV to the skid with turnbuckles via the shear lugs. On November 30, 2018, the work was initiated in the field to remove the wire ropes in accordance with Design Work Package (DWP) SDS-1-S-PV-287, "ALSHMA 6 U1 RPV Machining". SDS hired a sub-contractor, Laron, to perform the modification activities for the RPV. There are 5 tie down cables attaching the RPV canister to the skid in which it resides on. While removing the wire ropes it was observed that the first three wire ropes 1, 2, and 3 were removed rather than what was specified in the DWP. DWP SDS-1-S-PV-287, "ALSHMA 6 U1 RPV Machining", states to remove the wire ropes 1, 3, and 5 or 2, 3, and 4. Upon identification that the sub-contractor removed the incorrect wire ropes, SDS immediately stopped work, initiated a condition report (CR) # SDS-000381, and communicated with the shift manager the condition of the work activity. On December 4, 2018, the NRC inspectors interviewed SDS and SCE personnel, regarding the incident that occurred on November 30, 2018 while removing the tie down cables. The inspectors were able to have a productive discussion on the timeline leading up to the incident and what occurred thereafter. The inspectors identified the DWP was not adequate to perform the work activities as intended. The inspectors also toured the as left condition of the RPV canister which had tie down cables 4 and 5 installed, as well as the lay down area where the milling equipment and the turnbuckles were stored.

The inspectors reviewed calculation SDS-EN1-CAL-0017, "Unit 1 RPV Strap Evaluation," Revision (Rev.) 1, to verify that the RPV enclosure package was evaluated for a seismic event, since the tie down straps were removed in the wrong sequence per DWP SDS-1-S-PV-287, "ALSHMA 6 U1 RPV Machining". Step 4.6 stated "Based on SDS-EN1-CAL-0017 Engineering calc., remove wire ropes 1, 3, and 5 or 2, 3, and 4" whereas tie down straps 1, 2, and 3 were removed. Because the tie down straps were removed out of sequence, the RPV enclosure package was not in an analyzed configuration per SDS-EN1-CAL-0017, "Unit 1 RPV Strap Evaluation," Rev. 0. The inspectors verified that SDS-EN1-CAL-0017, "Unit 1 RPV Strap Evaluation," Rev. 1, which was updated on December 1, 2018, adequately represented the physical configuration of the RPV with tie down straps 1, 2, and 3 removed. In addition, the inspectors discussed the calculation with the authors, and verified several assumptions in SDS-EN1-CAL-0017, "Unit 1 RPV Strap Evaluation," Rev. 1, including the seismic ground intensity, eccentricity effects, strength of materials, and overturning motions.

The inspectors reviewed calculation SDS-EN1-CAL-0015, "SONGS Unit 1 RPV Package Structural Evaluation," Rev. 0. The purpose of SDS-EN1-CAL-0015 was to evaluate the structural adequacy of the RPV enclosure package with up to 0.75 inches removed from the shell, and the replacement of 10 cable tie down wire straps with 10 tie down lugs and turnbuckles. The inspectors did not have any concerns related to the structural adequacy of the modified RPV package.

The NRC evaluated the licensee's implementation of procedures and determined that the licensee's failure to implement SDS-BS1-PCD-0001, "Procedure Controls for the



SONGS Project,” Rev. 5 procedure was a violation of Unit 1 Technical Specification, Section D6.8.1.a, which requires in part, that written procedures shall be established, implemented, and maintained covering the activities for the applicable procedures recommended in Regulatory Guide 1.33, “Quality Assurance Program Requirements,” Rev. 2, February 1978, Appendix A, Section 1.d, Procedure Adherence and Temporary Change Method. SDS Procedure SDS-BS1-PCD-0001, “Procedure Controls for the SONGS Project,” Rev. 5, Step 3.2.11, requires, in part, that all SDS employees are responsible for strict adherence to procedures and instructions as described in the guidelines of Attachment 5.7, “Procedure Use and Adherence,” of this procedure.

Contrary to the above, on November 30, 2018, the licensee failed to strictly adhere to Attachment 5.7, “Procedure Use and Adherence” during implementation of the Unit 1 RPV canister work activities. Specifically, the licensee failed to provide an adequate work instruction for the staff to perform the activities of removing the tie down cables from the RPV canister. The Laron task plan stated to remove existing cables connections at locations 1 thru 4. When the deficiency of the work instruction was identified by the licensee, it was not addressed in accordance with Attachment 5.7, “Procedure Use and Adherence” of SDS-BS1-PCD-0001, “Procedure Controls for the SONGS Project,” Rev. 5, and as a result the staff performed the work out of sequence contrary to the engineering basis. DWP SDS-1-S-PV-287, “ALSHMA 6 U1 RPV Machining”, Step 4.6, states, based on SDS-EN1-CAL-0017 Engineering calc., remove the wire ropes 1, 3, and 5, or 2, 3, and 4. The sub-contractor removed wire ropes 1, 2, and 3 on November 30, 2018.

This violation was evaluated to be a Severity Level IV violation using Section 6.3.d of the NRC Enforcement Policy, dated May 15, 2018, regarding the failure to implement procedures, which has a low safety significance.

Upon identification, the licensee entered the issue into its corrective action program (CAP) as CR # SDS-000381. The licensee took the following immediate actions: (1) evaluated the current configuration with straps 1, 2, and 3 removed to determine seismic adequacy; (2) specified oversight duties of activities being performed in the field on the RPV and obtained additional personnel and training; (3) reviewed and verified understanding of SDS expectations for Laron and Energy Solutions personnel on specifics including stop work authority, place keeping, procedure use and adherence, and pre-job brief performance; and (4) assessed the technical aspects contained in the DWP to determine other steps or precautions needed to be included in the Laron Task Plan. SDS completed all their immediate corrective actions as of December 13, 2018. SDS generated CR # SDS-000449, to capture the NRC violation and all the corrective actions involving the removal of the tie down cables not in accordance with the DWP.

Since the licensee placed the deficiency into its CAP, the safety significance of the issue was determined to be low, and because the violation was not willful or repetitive; therefore, this violation was treated as a non-cited violation (NCV), consistent with Section 2.3.2.a of the NRC Enforcement Policy (NCV 05000206/2018-004-01, Failure to follow procedure use and adherence during implementation of work activities on the Unit 1 Reactor Pressure Vessel canister).

On December 19, 2018, the inspectors observed the Unit 1 RPV canister preparations for the milling activities. Specifically, the inspectors observed the welding setup that secured a custom milling machine to the RPV enclosure package. The milling machine

was used to remove material from the outside diameter of the RPV enclosure package, to comply with the railroad tunnel clearances. Additionally, the inspectors observed the removal of old tie down strap lugs and the installation of new turnbuckle lugs which were used to anchor the RPV to its skid. The inspectors discussed the project plan with oversight representatives and the craft onsite.

On January 15, 2019, the inspectors observed the milling operations on the Unit 1 RPV canister package. Oversight personnel from both contractors and the licensee were present. The inspectors noted the 10 new turnbuckles were installed in accordance with the design specifications.

The inspectors performed tours of the facilities, including the Units 2 and 3 spent fuel pool handling building, command center, turbine building, Unit 1 RPV canister and laydown areas, and general areas along the west and east roads. Based on observations, the inspectors determined that the licensee was adequately maintaining the material condition of the facilities, as well as the systems, structures, and components that supported spent fuel safety. The inspectors assessed area radiological conditions and the associated posting and labeling, and determined that the licensee was appropriately implementing the regulatory requirements under 10 CFR Part 20.

### 1.3 Conclusion

The NRC determined that one Severity Level IV NCV of Unit 1 Technical Specifications, Section D6.8.1.a, occurred based on the licensee's failure to strictly adhere to procedure use and adherence during implementation of the Unit 1 Reactor Pressure Vessel canister work activities.

## **2 Spent Fuel Pool Safety at Permanently Shutdown Reactors (60801)**

### 2.1 Inspection Scope

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

- Design, operational, and administrative measures are in place to prevent a substantial reduction in SPF coolant inventory under normal and accident conditions;
- SFP instrumentation, alarms, and leakage detection systems are adequate to assure safe wet storage of spent fuel;
- SFP water chemistry and cleanliness control programs maintain water purity standards, limits on radionuclide concentration, and minimum boron concentration in accordance with the technical specification requirements;
- Criticality controls are consistent with the applicable nuclear criticality safety analyses;
- Procedures, drawings, and PSDAR descriptions and operations regarding the SFP operation and power supplies are adequate; and

- Problem identification issues related to SFP activities are entered into the CAP at an appropriate threshold.

## 2.2 Observations and Findings

The technical specifications specify the limiting conditions of operation (LCO) in the fuel storage pool in order to maintain the fuel in a subcritical condition. The LCOs include Technical Specifications 3.1.1 for the minimum level of 23 feet of water between the top of the fuel bundle and fuel pool surface, and Technical Specifications 3.1.2 for the boron concentration to be maintained greater than or equal to 2,000 parts per million (ppm) in order to preserve the assumptions of the fuel handling accident analysis. The inspectors observed the SFP water level was being maintained approximately 27 feet above of the top of the fuel bundle, in both pools, since the last inspection; and the boron concentration was maintained at 2661ppm in Unit 2 and 2676 ppm in Unit 3.

The inspectors reviewed the surveillance history since the last inspection and the surveillances were completed as required and no results were below the technical specifications identified above. In addition, SONGS UFSAR, Section 9.1.2.3, Safety Evaluation required the SFP coolant temperature be maintained between 50° Fahrenheit (°F) and 160°F. The inspectors observed SPF temperatures in Units 2 and 3 as 80°F and 73°F respectively. At the time of the inspection the SPF cooling island for Unit 2 was out of service for routine maintenance which accounts for the 7°F discrepancy between the two units.

The inspectors observed the SFP island equipment in Units 2 and 3, reviewed the corrective actions generated for the SFP systems, reviewed surveillances, held discussions with the shift manager regarding licensee's observations of the equipment, and determined that the SFP island cooling and makeup systems were functioning adequately. The inspectors concluded the systems were being properly maintained. At the time of the inspection, there was no evidence of liner leakage in either the Units 2 or 3 SFPs.

The inspectors observed the radiation monitoring system in the Units 2 and 3 SFP handling building, in addition to the display and alarm capability in the Command Center using the command center data acquisition system. The inspectors reviewed 5023-3-2.11.3, "Spent Fuel Pool Cooling Island Off-Normal Actions," Rev. 5 and determined that the licensee had appropriate compensatory measures and procedures in place for responding to an event involving spent fuel safety.

## 2.3 Conclusion

The SONGS, Units 2 and 3, SFPs were being maintained in accordance with technical specifications and procedural requirements. The licensee was safely storing spent fuel in wet storage.

### **3 Adverse Weather Protection (71111.01)**

#### **3.1 Inspection Scope**

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

- Weather-related equipment deficiencies identified during the previous year have been corrected prior to the onset of seasonal extremes;
- Licensee implementation of the seasonal extreme weather preparation procedures and compensatory measures for the seasonal extremes; and
- Risk significant systems that are required to be protected from the seasonal extreme weather conditions are evaluated.

#### **3.2 Observations and Findings**

The inspectors discussed the preparations for adverse weather and lessons learned with several licensee staff members specifically regarding the actions taken by the licensee and SDS to ensure those systems important to decommissioning safety would not be impacted during seasonal extreme weather conditions, which are primarily wind and rain. The inspectors also conducted a walk-down of the plant with licensee personnel to view preparations as required by procedure. The inspectors noted additional drain lines, sump pumps, and water diversion techniques in place to protect necessary equipment.

#### **3.3 Conclusions**

The licensee had initiated its adverse weather preparations in accordance with the applicable regulatory and license requirements.

### **4 Exit Meeting Summary**

On February 7, 2019, the NRC inspectors presented the final inspection results to Mr. Al Bates, Regulatory Affairs and Oversight Manager Engagement 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 all 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  
J.Peattie, SCE, Manager, Maintenance, Work Control, & CAP  
S.Mannon, SDS, Regulatory Affairs  
R.Papale, SDS, D&D Manager  
T.Girad, SDS, Project Manager  
J.Sofie, SDS, Work Control Manager  
B.Henris, SDS, Engineering Manager  
M.King, SCE, DA Oversight Manager  
M.Brisson, SCE, DA Engineering Oversight  
D.Evans, SCE, Regulatory Affairs

**INSPECTION PROCEDURES USED**

IP 71801 Decommissioning Performance and Status Review at Permanently Shutdown Reactors  
IP 60801 Spent Fuel Pool Safety at Permanently Shutdown Reactors  
IP 71111.01 Adverse Weather Protection

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened/Closed

05000206/2018004-01	NCV	Failure to follow procedure use and adherence during implementation of work activities on the Unit 1 Reactor Pressure Vessel canister
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Discussed

None

## LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ALSHMA	Authorized Limited SAFSTOR Hazard Mitigating Activities
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
CR	Condition Report
CSLC	California State Lands Commission
DWP	Design Work Package
EAL	Emergency Action Level
IOEP	ISFSI Only Emergency Plan
ISFSI	Independent Spent Fuel Storage Installation
LCO	Limiting Condition of Operation
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PDEP	Permanently Defueled Emergency Plan
PSDAR	Post-Shutdown Decommissioning Activities Report
PPM	Parts Per Million
REV	Revision
RPV	Reactor Pressure Vessel
SDS	SONGS Decommissioning Solutions
SCE	Southern California Edison Company
SFP	Spent Fuel Pool
SONGS	San Onofre Nuclear Generating Station
UFSAR	Updated Final Safety Analysis Report

SAN ONOFRE NUCLEAR GENERATING STATION – NRC INSPECTION REPORTS  
 05000206/2018-004; 05000361/2018-004; 05000362/2018-004 - DATED FEBRUARY 21, 2019

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