



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION IV  
1600 E LAMAR BLVD  
ARLINGTON, TX 76011-4511

October 8, 2015

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

**SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION – NRC INSPECTION  
REPORT 050-00361/15-009; 050-00362/15-009**

Dear Mr. Palmisano:

This refers to the team inspection conducted from May 18-21, June 25, and July 27-30, 2015, at your permanently shut down San Onofre Nuclear Generating Station facility, Units 2 and 3. The purpose of the inspection was to determine whether decommissioning activities were being conducted safely and in accordance with the U.S. Nuclear Regulatory Commission (NRC) requirements. The preliminary inspection results were discussed with members of your staff at the conclusion of the onsite inspection. The final inspection results were discussed with your staff by telephone on August 17, 2015.

During this inspection, the NRC staff examined activities conducted under your license as they relate to public health and safety to confirm compliance with the Commission's rules and regulations, and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The enclosed report presents the results of this inspection.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of the NRC requirements occurred. In particular, you failed to obtain a license amendment prior to implementing a change to the facility that resulted in a more than minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the Final Safety Analysis Report (as updated). The violation is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2.a of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or the 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 Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region IV; and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with Title 10 *Code of Federal Regulations* 2.390 (10 CFR 2.390) of the NRC's "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 document system (ADAMS), accessible from the NRC Web site 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 concerning this inspection, please contact Dr. Robert Evans, Senior Health Physicist, at 817-200-1234, or the undersigned at 817-200-1911.

Sincerely,

**/RA/**

Ray L. Kellar, P.E., Chief  
Repository and Spent Fuel Safety Branch  
Division of Nuclear Materials Safety

Docket No. 50-361, 50-362  
License No. NPF-10, NPF-15

Enclosure:  
NRC Inspection Report 050-00361/15-009; 050-00362/15-009

cc: Director, California Radiation Control Program  
L. Bosch, Southern California Edison Company  
W. Mathews III, Esquire, Southern California Edison Company  
J. Madigan, Southern California Edison Company  
J. Kay, Southern California Edison Company  
K. Gallion, Southern California Edison Company

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DATE	09/03/15	09/03/15	09/03/15	10/08/15

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Dockets: 50-361, 50-362

Licenses: NPF-10, NPF-15

Reports: 050-00361/15-009; 050-00362/15-009

Licensee: Southern California Edison

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

Location: 5000 S. Pacific Coast Highway  
San Clemente, California 92674

Dates: May 18-21, 2015  
June 25, 2015  
July 27-30, 2015

Inspectors: Robert J. Evans, Ph.D., C.H.P., P.E., Senior Health Physicist  
Repository and Spent Fuel Safety Branch  
Division of Nuclear Materials Safety

Gerond A. George, Senior Reactor Inspector  
Engineering Branch 1  
Division of Reactor Safety

Eric A. Ruesch, Acting Team Leader  
Technical Support Services Team  
Division of Reactor Safety

Approved By: Ray L. Kellar, P. E., Chief  
Repository and Spent Fuel Safety Branch  
Division of Nuclear Materials Safety

Attachment: Supplemental Inspection Information

Enclosure

## EXECUTIVE SUMMARY

Southern California Edison  
NRC Inspection Report 050-00361/15-009; 050-00362/15-009

This U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced team inspection of decommissioning activities being conducted at the San Onofre Nuclear Generating Station. In summary, the licensee was conducting site activities in accordance with procedures, license requirements, and regulations, with one exception as described below.

### Organization, Management, and Cost Controls

- The licensee's operations, fire brigade, and emergency response staffing was being maintained in accordance with recently updated license and procedural requirements. The licensee continued to implement an organizational structure as stipulated in the Updated Final Safety Analysis Report. (Section 1.2)

### Safety Reviews, Design Changes, and Modifications

- The licensee's safety evaluation program procedure and processes were adequate for complying with the provisions of 10 CFR 50.59 and 10 CFR 72.48. (Section 2.2)
- The Onsite Review Committee members were properly trained and the committee was properly staffed to conduct the meeting. The committee members fulfilled the charter of the committee as specified in the applicable procedure. (Section 2.2)
- The licensee's 10 CFR 50.59 safety evaluation program provided effective periodic training for personnel preparing, reviewing, and approving safety evaluations. Additionally, the licensee's program established an adequate process to assess training effectiveness. (Section 2.2)
- Procedures provided adequate instructions to assure proper implementation, review, and approval of design changes. However, the inspectors identified that the licensee's implementation of the program needed to ensure that any changes to the commitments of RG 1.26 should be submitted to the NRC for review and approval. (Section 2.2)
- The inspectors identified a Non-Cited Violation of the requirements of 10 CFR 50.59, because the licensee failed to obtain a license amendment prior to implementing a change to the facility that resulted in a more than minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report (as updated). Specifically, the licensee changed the spent fuel pool makeup system to include components designed to Seismic Category II seismic design classification, which is a lower seismic design classification than described in the Updated Final Safety Analysis Report. (Section 2.2)
- The licensee's work activities, which included removal of systems from service that were no longer required to maintain the integrity of the reactor coolant pressure boundary, shutdown the reactor, and maintain the reactor in a shutdown condition, were completed in accordance with the licensee's safety review processes. (Section 2.2)

### Self-Assessment, Auditing, and Corrective Action

- Based on the inspection sample, the inspectors concluded that the licensee's corrective action program was adequate to support nuclear safety during decommissioning. However, additional management attention may be warranted in some areas. (Section 3.2)

### Spent Fuel Pool Safety

- The licensee was maintaining the Unit 3 spent fuel pool and was operating the spent fuel pool cooling system in accordance with technical specifications and procedural requirements. The licensee had installed alternate spent fuel pool level indicators in the Unit 3 control room in accordance with commitments previously made to the NRC. (Section 4.2)

### Decommissioning Performance and Status Review

- The licensee continued to implement the cold & dark modifications in accordance with Post-Shutdown Decommissioning Activities Report requirements. The spent fuel pool islanding installation work was temporarily placed on hold while the licensee reconsidered the seismic qualification of the system design. (Section 5.2)
- The licensee continued to plan for the construction of the synchronous condenser. Since the last inspection, the licensee upgraded its procedures to implement NRC-accepted guidance for conducting final status surveys. (Section 5.2)
- The licensee conducted adequate radiological surveys in the truck bay loading dock area to establish baseline conditions and to help develop radiological controls for planned remodeling work. (Section 5.2)
- The inspectors conducted site tours within the radiologically restricted areas and concluded that the licensee was maintaining the areas in accordance with radiation protection procedures and regulatory requirements. (Section 5.2)

### Radioactive Waste Treatment, and Effluent and Environmental Monitoring

- The licensee implemented its effluent and environmental monitoring programs in accordance with license requirements. No sample result exceeded the respective release limit. The licensee reported the results in annual reports as required by the license. The licensee's program results indicate that no individual member of the public received a dose in excess of license or regulatory limits. (Section 6.2)
- The licensee continued to implement its voluntary groundwater initiative program as required by site procedures in 2014, and the licensee reported these sample results to the NRC in the annual radioactive effluent release report. (Section 6.2)
- As allowed by the license, the licensee plans to make changes to the Offsite Dose Calculation Manual based on changes in plant conditions. (Section 6.2)

## Solid Radioactive Waste Management and Transportation of Radioactive Materials

- The licensee continued to store and ship radioactive wastes in accordance with procedural and regulatory requirements. (Section 7.2)

## Report Details

### Site Status

The licensee elected to permanently shut down the SONGS facility in June 2013. At the time of this inspection, the licensee continued to prepare for future site decommissioning. Current work included construction of “cold & dark” modifications and design review of the forthcoming spent fuel pool (SFP) islanding work in accordance with guidance provided in the Post-Shutdown Decommissioning Activities Report (PSDAR) dated September 23, 2014. Further, the licensee continued to conduct routine operations, maintenance and surveillance activities, effluent monitoring, and environmental monitoring as required by the two licenses.

### **1 Organization, Management, and Cost Controls (36801)**

#### 1.1 Inspection Scope

The inspectors reviewed management organization and controls to ensure that the licensee was maintaining effective oversight of decommissioning activities. In particular, the inspectors reviewed recent changes to site staffing to ensure compliance with updated procedures and revised license requirements.

#### 1.2 Observations and Findings

The facility staffing requirements are provided in Sections 5.2 of the technical specifications for both units. Also, the management organizational structure is provided in Figure 13.1-2, Nuclear Site Management, from the Updated Final Safety Analysis Report (UFSAR). Additional staffing requirements are provided in the site emergency plan, fire plan, and associated implementing procedures, documents that were recently updated. The inspectors reviewed the licensee’s staffing to ensure that required positions were being filled as required.

During the July 2015 inspection, the licensee was required to have a minimum of five individuals on site, although site procedures required a minimum of six individuals. Technical specifications Table 5.2.2-1, Minimum Shift Crew Composition, required at least three operators, one certified fuel handler and two certified operators (one per unit). For potential emergencies involving fire, the licensee was required to have at least two fire brigade staff onsite at all times. Emergency response procedures required three individuals to be onsite. In addition to emergency response and operations staff, a minimum number of security guards were required to be onsite at all times.

Many of the required positions were shared. For example, the certified fuel handler may also fill the role as shift manager and/or emergency director. Technical specifications also require an individual qualified in radiation protection procedures to be onsite during fuel handling operations or movement of loads over storage racks containing fuel. In practice, the licensee commonly had more than the minimum number of workers onsite at all times.

The inspectors noted that the licensee used daily log sheets to help ensure that the minimum staffing levels were being maintained. The shift manager turnover included a check to ensure that the minimum staffing was available for each shift. In summary, the licensee implemented administrative programs to ensure that the minimum number of



emergency response and operations staff were onsite at all times in accordance with license and procedure requirements.

The inspectors also reviewed the licensee's management structure, as described in the UFSAR. The inspectors compared the required structure to the actual structure. The licensee's current organizational structure included all required management positions specified in the UFSAR. All management level positions had been filled. In summary, the licensee's organizational structure was in agreement with the commitments made in the UFSAR.

### 1.3 Conclusions

The licensee's operations, fire brigade, and emergency response staffing was being maintained in accordance with recently updated license and procedural requirements. The licensee continued to implement an organizational structure as stipulated in the UFSAR.

## 2 **Safety Reviews, Design Changes, and Modifications (37801)**

### 2.1 Inspection Scope

The inspectors reviewed the licensee's safety review processes, procedures, and training to verify that the safety review program is effective at contributing to protection of public health and safety and the environment. Additionally, the inspectors reviewed selected design changes and facility modifications to determine if changes, tests, experiments, and modifications are effectively conducted, managed, and controlled during plant decommissioning. This inspection verified that major and minor decommissioning activities are being implemented in accordance with the requirements of 10 CFR 50.59, 10 CFR 50.71, 10 CFR 72.48, and 10 CFR Part 50, Appendix B.

### 2.2 Observations and Findings

#### a. Decommissioning Safety Review Program

Regulation 10 CFR 50.59(c)(1) states that a licensee may make changes in the facility as described in the final safety analysis report (as updated), make changes in the procedures as described in the final safety analysis report (as updated), and conduct tests or experiments not described in the final safety analysis report (as updated) without obtaining a license amendment pursuant to 10 CFR 50.90 in certain situations. The inspectors reviewed the licensee's 10 CFR 50.59 safety evaluation program, as implemented by Procedure SO123-XV-44, "10 CFR 50.59 and 72.48 Program," Revision 16. The inspectors compared this procedure with the NRC-endorsed acceptable method for complying with the provisions of 10 CFR 50.59, Nuclear Energy Institute NEI 96-07, "Guidelines for 10 CFR 50.59 Implementation," Revision 1, dated November 2000. The inspectors determined that the licensee's safety evaluation program procedure and processes were adequate for complying with the provisions of 10 CFR 50.59 and 10 CFR 72.48.

The inspectors observed the conduct of the May 20, 2015, Onsite Review Committee meeting. The inspectors compared the conduct of the meeting with the requirements specified in UFSAR, Section 17.2.20.2, and Procedure SO123-XV-60.1, "Onsite Review

Committee,” Revision 15. The inspectors determined that the procedure was adequate to implement the licensee’s commitments provided in Section 17.2.20.2 of the UFSAR. Additionally, the inspectors determined that the committee members were properly trained and the committee was properly staffed to conduct meetings. The committee members fulfilled the charter of the committee as specified in the procedure.

The licensee’s 10 CFR 50.59 safety evaluation program provides effective periodic training for personnel preparing, reviewing, and approving safety evaluations. Additionally, the licensee’s program established an adequate process to assess training effectiveness.

b. Design Changes, Test, Experiments, and Modifications

The inspectors reviewed procedure SO123-XXIV-10.1, “Engineering Design Control Process – NECPs,” Revision 33, that controls and provides implementation of design changes, tests, experiments, and modifications. The inspectors determined that the procedure provided adequate instructions to assure proper implementation, review, and approval of design changes.

The inspectors reviewed 17 screenings, where licensee personnel had determined that a 10 CFR 50.59 evaluation was not necessary. In particular, the inspectors reviewed NECP 202693263-1 and NECP 202765438-1 screenings that involved changes to the equipment quality classification groups for spent fuel pool cooling equipment and other retired in place systems. The inspectors determined that the quality classification changes should not have been processed as changes to the quality plan in accordance with 10 CFR 50.54(a) because Regulatory Guide 1.26, “Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants,” is not a specific commitment to the SONGS quality assurance plan. The inspectors determined that these changes should have been completed under 10 CFR 50.55(a) exemption processes. No violation exists because the licensee submitted a technical specification amendment to delete TS 5.5.2.10, “Inservice Inspection and Testing Program,” which included the changes to equipment quality classifications. This amendment was approved by the NRC on July 17, 2015. The safety evaluation report for the amendment determined that this change was acceptable.

Although the NRC determined that the removal of the ASME code inspection and testing program requirements from technical specifications was acceptable, the NRC did not agree with the basis for altering the equipment classification commitments of Regulatory Guide 1.26, “Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants”. In the 10CFR 50.59 screening documents, the licensee stated that Regulatory Guide 1.26 only applied to structures, systems, and components that meet the 10 CFR 50.2 definition of “safety related.” This statement was included in a change to UFSAR Appendix 3.2A. The inspectors determined that this statement did not conform to the guidance in Regulatory Guide 1.26, requirements of 10 CFR 50.55(a), or the requirements of General Design Criteria 1, “Quality Standards and Records.” The inspectors communicated that Regulatory Guide 1.26 applies to all equipment important to safety in accordance with General Design Criteria 1, “Quality Standards and Records.” Any changes to the licensee’s commitments conforming to RG 1.26 should be submitted to the NRC for review and approval.

In addition, the inspectors reviewed 9 modification packages that had been installed in the plant since the licensee permanently shutdown in June 2013. The inspectors performed an in-depth review of 5 evaluations performed pursuant to 10 CFR 50.59, to determine whether the evaluations were adequate and that prior NRC approval was obtained as appropriate. Following are the design change packages that were reviewed:

- NECP 801249702, "Power Ring," Revision 0
- NECP 801249707, "Ring Bus Distribution for Cold & Dark Condition," Revision 1
- NECP 801249774, "Fuel Handling Building Heating Ventilation & Air Conditioning for Cold & Dark Condition," Revision 0
- NECP 801261394, "Spent Fuel Pool Makeup," Revision 0
- NECP 801288493, "Independent Spent Fuel Cooling System," Revision 0

As described below, the inspectors identified a Severity Level IV, Non-Cited Violation of 10 CFR 50.59, "Changes, Tests, and Experiments," during the review of one design change (NECP 801261394).

The inspectors reviewed the changes associated with the SFP cooling and makeup system as described in UFSAR Section 9.1.3. The prior revision, Revision 37, of UFSAR Section 9.1.3, "Spent Fuel Pool Cooling and Cleanup System," Section 9.1.3.1, stated:

Makeup to the spent fuel storage pool is from the Seismic Category I refueling water storage tank.

The current revision, Revision 38, of UFSAR Section 9.1.3, "Spent Fuel Pool Cooling and Cleanup System," Section 9.1.3.1, states:

Makeup to the spent fuel storage pool is via the Seismic Category II primary plant makeup pumps from the Seismic Category I primary makeup water storage tank.

The inspectors determined that this description was a departure from a regulatory commitment to design SFP makeup capability in accordance with Regulatory Guide 1.13, "Spent Fuel Storage Facility Design Basis," Revision 1, dated December 1975. The licensee's conformance to Regulatory Guide 1.13 is reflected in UFSAR Appendix 3A, "Comparison of Design with NRC Regulatory Guides," and Appendix 3.2A, "Q-List." Position C.8 of Regulatory Guide 1.13 states:

A Seismic Category I system should be provided to add coolant to the pool.

Nuclear Energy Institute NEI 96-07, "Guidelines for 10 CFR 50.59 Implementation," Revision 1, dated November 2000, Section 4.3.2 describes the guidance when a departure from a regulatory commitment results in a more than minimal increase in the likelihood of occurrence of a malfunction of a system important to safety. Specifically, Section 4.3.2 states that:

licensees must still meet applicable regulatory requirements and other acceptance criteria to which they are committed. Further, departure from design, fabrication, construction, testing, and performance standards as outlined in the General Design Criteria (Appendix A to Part 50) are not compatible with the “no more than minimal increase” standard.

Based on the information provided in Section 4.3.2 of NEI 96-07, the inspectors determined that this departure from the regulatory commitment resulted in a more than minimal increase in the likelihood of occurrence of a malfunction of a system important to safety previously evaluated in the UFSAR.

The inspectors identified a Severity Level IV, non-cited violation of 10 CFR Part 50, Section 59, “Changes, Tests, and Experiments,” paragraph (c)(2)(ii), which requires that a licensee shall obtain a license amendment pursuant to Section 50.90 prior to implementing a proposed change, test, or experiment if the change would result in a more than minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report (as updated). Contrary to this requirement, on May 20, 2014, the licensee failed to obtain a license amendment prior to implementing a change to the facility that resulted in a more than minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the UFSAR.

Specifically, the licensee changed the SFP makeup system to include components designed to the Seismic Category II seismic design classification, which is a lower seismic design classification than described in Section 9.1.3 of the UFSAR. This lower seismic design classification departed from the licensee’s commitment to position C.8 of Regulatory Guide 1.13, “Spent Fuel Storage Facility Design Basis,” as reflected in UFSAR Appendix 3A. Regulatory Guide 1.13, Position C.8, states that “a Seismic Category I system should be provided to add coolant to the pool.” This departure from the regulatory commitment resulted in a more than minimal increase in the likelihood of occurrence of a malfunction of a system important to safety previously evaluated in the final safety analysis report (as updated).

Because this change resulted in a more than minimal increase in the likelihood of occurrence of a malfunction of a system important to safety previously evaluated in the UFSAR, the change would require prior NRC review and approval using the license amendment process pursuant to 10 CFR 50.90. Therefore, this violation has more than minor significance. This violation has been characterized at the Severity Level IV significance in accordance with Section 6.1.d of the NRC’s Enforcement Policy because the violation results in very low safety significance.

Because the violation has a Severity Level IV significance and has been entered into the licensee’s corrective action program as Nuclear Notification 203232453, this violation is being treated as a Non-Cited Violation, consistent with Section 2.3.2.a of the NRC’s Enforcement Policy (NCV 050-00361/1509-01; 050-00362/1509-01). The inspectors determined that the licensee had sufficient contingency plans and ample time for implementation of backup systems and determined that there was no concern of continued operation until the licensee was able to restore compliance with Seismic Category 1 system requirements.

Additionally, the inspectors performed an in-depth review of design change NECP 801288493, "Independent Spent Fuel Cooling System," Revision 0. The design change will implement a self-contained SFP cooling system to remove decay heat independent from the existing SFP cooling system. Once the independent SFP cooling system equipment is placed into service, the existing SFP cooling system is scheduled to be removed from service and decommissioned. This design change is expected to be implemented in late 2015.

However, during the inspection, the inspectors questioned the licensee's seismic classification of the proposed independent SFP cooling system. The inspectors questioned the appropriateness of using Section 1613 of the Uniform California Building Code in lieu of the seismic design recommendations of Regulatory Guide 1.29, "Seismic Design Classification," Revision 1, in the design of the system. At the end of the inspection, the inspectors determined that a safety concern does not currently exist because the existing Seismic Category I spent fuel cooling system remained in service, and the licensee had not implemented the independent SFP cooling system. Based on inspector's questions, the licensee submitted a license amendment request dated August 20, 2015, to change the seismic design classification of the independent SFP cooling system

c. Major and Minor Decommissioning Activities

The inspectors reviewed the licensee's work activities in Units 2 and 3, which included removal of systems from service that were no longer required to maintain the integrity of the reactor coolant pressure boundary, shutdown the reactor, and maintain the reactor in a shutdown condition. The inspectors confirmed that these activities were completed in accordance with the licensee's safety review processes.

2.3 Conclusions

The licensee's safety evaluation program procedure and processes were adequate for complying with the provisions of 10 CFR 50.59 and 10 CFR 72.48.

The Onsite Review Committee members were properly trained and the committee was properly staffed to conduct the meeting. The committee members fulfilled the charter of the committee as specified in the applicable procedure.

The licensee's 10 CFR 50.59 safety evaluation program provided effective periodic training for personnel preparing, reviewing, and approving safety evaluations. Additionally, the licensee's program established an adequate process to assess training effectiveness.

Procedures provided adequate instructions to assure proper implementation, review, and approval of design changes. However, the inspectors identified that the licensee's implementation of the program needed to ensure that any changes to the commitments of RG 1.26 should be submitted to the NRC for review and approval.

The inspectors identified a Non-Cited Violation of the requirements of 10 CFR 50.59, because the licensee failed to obtain a license amendment prior to implementing a change to the facility that resulted in a more than minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report (as updated). Specifically, the

licensee changed the spent fuel pool makeup system to include components designed to Seismic Category II seismic design classification, which is a lower seismic design classification than described in the Updated Final Safety Analysis Report.

The licensee's work activities, which included removal of systems from service that were no longer required to maintain the integrity of the reactor coolant pressure boundary, shutdown the reactor, and maintain the reactor in a shutdown condition, were completed in accordance with the licensee's safety review processes.

### **3 Self-Assessment, Auditing, and Corrective Action (40801)**

#### **3.1 Inspection Scope**

The inspectors evaluated the effectiveness of licensee controls in identifying, resolving, and preventing issues that degrade safety or the quality of decommissioning. These controls include self-assessment, auditing, corrective actions, and root and apparent cause evaluations. The inspectors reviewed changes to the licensee's corrective action program after the facility announced permanent cessation of operations and management oversight of the corrective action program. The inspectors observed the licensee's Management Review Committee meetings to assess the effectiveness of the management oversight of the corrective action program. The inspectors also reviewed a number of audits and self-assessments and evaluated the independence of the licensee's quality organization. The inspectors' reviews focused on activities performed between July 2014 and May 2015. The audits reviewed included an audit of the corrective action program that was completed in June 2015.

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

##### **a. Self-Assessments and Audits**

The licensee performs audits on a two-year cycle. Because at the time of the inspection it had been less than two years since the licensee decided to permanently cease operations and decommission Units 2 and 3, the inspectors noted that it was difficult to assess the adequacy of audit results for programs that were specific to either shut-down or power operations. Actions to address audit findings prior to the decommissioning decision may not apply to a permanently shut-down facility; actions to address audit findings since the decommissioning decision may not have had enough time to be effective. Therefore, the inspectors' review focused on audits of programs that were less likely to be affected by the licensee's decision to shut down Units 2 and 3.

From this sample, the inspectors noted that the audits performed by the licensee's Nuclear Oversight Group were thorough, self-critical, and well-documented. However, there were several examples of inadequate follow-up by the line organizations. The most significant example was the abandonment of corrective actions to remedy audit-identified programmatic deficiencies in records retention, as discussed below.

##### **b. Corrective Action Program**

In September 2014, the licensee implemented a significant structural change to its corrective action program (CAP). This change included collapsing six sub-procedures into the main body of the CAP program procedure, SO123-XV-50, "Corrective Action

Program,” Revision 32, and redefining the significance levels for identified issues. This change is further described in NRC Inspection Report 050-00361; 050-00362/14-004 (ADAMS Accession No. ML14321A900).

During the first four months of 2015, licensee personnel initiated approximately 1,400 notifications (NNs), or an average of 12 per day. Of these, approximately 460 (33 percent) were classified as conditions adverse to quality. Since implementing the September 2014 change to the CAP, the number of notifications initiated has increased by an average of about 20 percent per month. The licensee’s performance improvement personnel expect a further increase in notification initiation when construction work begins on major decommissioning projects.

On May 21 and June 25, 2015, the inspectors observed the licensee’s weekly Management Review Committee meetings, at which station management reviewed the notifications initiated at the station over the past week. The Management Review Committee reviewed 55 notifications on May 21 and 48 on June 25, 2015. The inspector noted that at least three of the notifications screened at the May 21, 2015, meeting appeared to document conditions adverse to quality, but were classified at significance level three or lower. However, procedure SO123-XV-50 requires that conditions adverse to quality be classified as significance level one or two. These conditions included a required correction to the licensee’s quality assurance program documentation (Notification NN203221892), failure to perform maintenance on saltwater cooling pumps that the licensee intended to be maintained and available for use (NN201330393), and potential structural degradation in an area of the plant containing equipment being used for fuel pool cooling (NN203222732). This observation was discussed with the licensee, who promptly initiated Notification NN20369997 to document the issue. This deficiency constitutes a minor violation that is not subject to enforcement action in accordance with the NRC’s Enforcement Policy.

c. Cause Evaluation Quality

During July 2014-May 2015, the licensee performed one root cause evaluation and eight apparent cause evaluations. The inspectors determined that these cause evaluations were adequate to find and correct causes of events. However, the inspector noted weaknesses in the licensee’s use of operating experience, as discussed below.

The licensee has a high number of cause evaluators relative to the number of cause evaluations being performed (approximately four qualified root cause evaluators and approximately twenty apparent cause evaluators). These cause evaluators are qualified with a lifetime qualification, with no proficiency requirement. The inspectors noted that this could lead to a decline in cause evaluation quality as qualified evaluators lose proficiency in preparing the cause evaluation products.

d. Operating Experience

When performing apparent cause evaluations, the licensee’s procedures no longer require the cause evaluator to review operating experience to determine if previous corrective actions for similar issues had been ineffective. This requirement was removed with the issuance of Revision 32 to the licensee’s CAP procedure, SO123- XV-50, in March 2015. Further, the licensee is no longer a member of the Institute of

Nuclear Power Operations and therefore no longer has access to their operating experience database.

In the inspector's review of the operating experience portion of apparent cause evaluations completed before the operating experience requirement was removed from the procedure, the licensee's operating experience reviews appeared largely ineffective. For example, in the apparent cause evaluation performed under notification NN203119439, which identified procedure use issues as the cause of inadequate implementation of mitigating strategies during an emergency plan drill in November 2014, the cause evaluator stated, "Based on availability of search data, no operating experience for procedure use and adherence was found." However, the inspectors noted that in all three other apparent cause evaluations completed between June and November 2014, the licensee identified procedure compliance issues either in the problem statement or as a cause. The cause evaluators failed to identify these common themes in their operating experience review. Further, the cause evaluators failed to document the key words used in the operating experience searches as was required by procedure.

On April 2, 2015, the licensee identified an adverse trend in procedure compliance, as documented in notification NN203205243, based on twelve procedure noncompliance issues having been identified in three nuclear oversight (quality assurance) audits performed between January and March 2015. The inspectors noted that the ineffective operating experience reviews in some 2014 cause evaluations represented a missed opportunity for the licensee to earlier identify the adverse trend and implement more timely corrective actions.

During an audit of the CAP, completed June 18, 2015 (audit report SCES 004-15), the licensee's Nuclear Oversight Group independently identified several discrepancies with the licensee's use of operating experience. These discrepancies—characterized as four weaknesses and one recommendation—included inconsistent application of the operating experience program and inconsistent or inadequate program guidance. Because this audit had been ongoing during the inspectors' first visit to the site, the inspectors waited to review the completed audit prior to providing inspection observations. The weaknesses and recommendations identified by the audit team were similar to those identified by the inspectors.

e. Inadequate Records Management

In May 2014, during a document and records control audit (audit report SCES 003-14) the licensee's Nuclear Oversight Group identified a "significant programmatic breakdown" in archiving and storing quality records, as documented in NN202898928. This was a repeat finding from a 2012 audit. The Nuclear Oversight Group identified that corrective actions implemented after the 2012 audit finding had been abandoned shortly after the licensee made the decision to permanently cease operations and decommission Units 2 and 3. These corrective actions had initially reduced the backlog from 58,000 documents in 2012 to 16,000 documents in mid-2013. Since that time, the backlog has again increased to 38,000 documents. The inspectors noted that the licensee has reinitiated efforts to reduce the backlog; these efforts appear that they will be successful if continued.



While the inspectors identified no other similar-scope corrective action cancelations, the inspectors identified several corrective actions to prevent recurrence that were canceled without adequate justification, as discussed below. When considered together with this abandonment of a major project to remedy a significant programmatic breakdown, the inspectors noted that these issues may be symptomatic of a broader issue with inappropriate or premature program changes due to the decision to decommission. Further licensee management oversight may be warranted in this program area.

f. Cancelation of Corrective Actions to Prevent Recurrence (CAPRs)

Following the decision to permanently shut down and decommission Units 2 and 3, the licensee reviewed all open corrective actions to prevent recurrence (CAPRs) that had been generated to address significant conditions adverse to quality. The licensee determined that many of these CAPRs were no longer necessary due to permanent cessation of power operations. In August 2014, several CAPRs that had modified human performance (HU) procedures were canceled with a justification that included the following language:

With the plant in the permanently defueled condition there is a significant reduction in risk, there is a significant reduction in the amount of equipment important to safety and no Technical Specification that requires automatic actuations for operable equipment. There can be no more operational transients, no challenges to operability of safety related equipment, and there has been a significant reduction in the amount of risk significant equipment. Moreover, malfunction or misoperation of currently operating equipment will not cause a significant reduction to safety.

In addition to the above, the station has gone through organizational changes and staff reductions to the point that rigorous adherence to the human performance program as currently structured provides little benefit.

This justification failed to consider the safety-related portions of the SFP cooling system, or that “malfunction or misoperation” of SFP systems, fire protection systems, accident monitoring systems, or some support systems could cause a significant reduction to safety. The canceled CAPRs had been designed to ensure procedure adequacy, to provide for conservative decision-making, and to establish effective human performance error reduction tools. These processes were put in place to prevent recurrence of: (1) “non-compliances with the technical specifications and 10 CFR 50 Appendix B, a high industrial safety accident rate and significant challenges with the operability of safety-related and risk-significant equipment;” and (2) an adverse trend of “failing to provide adequate procedures or work instructions.”

The inspectors noted that contrary to the licensee’s justifications for cancelation of these CAPRs, as the licensee reduces its staff and increases contractor staff, enforcing “rigorous adherence” to the human performance program and ensuring adequacy of procedures and work instructions will likely provide greater benefit. Further, as discussed in the Operating Experience section above, the licensee has recently identified an adverse trend in procedure compliance. While the inspectors were unable to identify a causal connection between the canceled CAPRs and the adverse trend, the trend demonstrates the need for continued licensee management attention to use of

human performance tools, enforcing expectations for procedure compliance, and maintaining procedure quality.

### 3.3 Conclusions

Based on the inspection sample, the inspectors concluded that the licensee's corrective action program was adequate to support nuclear safety during decommissioning. However, additional management attention may be warranted in some areas, including cancellation of corrective actions to prevent recurrence without adequate review and justification

## 4 **Spent Fuel Pool Safety (60801)**

### 4.1 Inspection Scope

The inspectors conducted a review of the Unit 3 SFP and associated cooling system to ensure that the licensee was maintaining the pool in accordance with technical specifications and procedural requirements.

### 4.2 Observations and Findings

Technical specifications provide the operability requirements for the Unit 3 SFP including minimum water level and minimum boron concentration. Additional operational limitations and specifications are provided in Operating Instruction SO23-3-2.11, "Spent Fuel Pool Operations Limitations and Specifics," Revision 42. These operational limits include SFP temperature, SFP cooling support system flow rates and pressures, and system functional requirements.

The inspectors conducted a walk down of the Unit 3 SFP. At the time of the inspection, the pool water level was 27-feet, 10-inches with a technical specification lower limit of 23-feet above the top of the fuel. The boron concentration was 2,720 parts per million with a technical specification lower limit of 2,000 parts per million. In summary, the Unit 3 SFP was being maintained in accordance with technical specifications requirements.

The inspectors conducted a walk down of the Unit 3 SFP support equipment to ensure compliance with procedural requirements. At the time of the inspection, one SFP cooling pump and heat exchanger were in service, with the second pump and heat exchanger in standby. The system valves were aligned to support system operation. The inspectors noted that the component cooling water and salt water systems were in service providing cooling water to the operating SFP heat exchanger. The Unit 3 SFP water temperature was 75-degrees Fahrenheit, a temperature below the procedural limit of 110-degrees Fahrenheit. The operating pump discharge pressure was 30-pounds per square inch and the heat exchanger cooling water flow rate was 3,100 gallons per minute. Both the pump discharge pressure and heat exchanger cooling water flow rate were within the limits specified in the operating procedure.

The inspectors observed the status of the new level indicators that were recently installed by the licensee in each of the two SFPs. By letter dated August 26, 2013

(ML13240A130), the licensee committed to install alternative SFP level indication. These newly installed mechanical level gauges provide remote monitoring capability for SFP level. As part of the design change, the licensee installed pressure gauges on the SFP cooling pump suction piping. The pressure in the non-operating pump suction piping would be indicated as pool level on the Units 2 and 3 control room panels.

The inspectors reviewed portions of Engineering Change Package No. 801096772 which included a table of elevation differences between the SFP and pressure gauges. This table provided a calibration correlation between gauge pressure in the plant and level indication in the control room. (The static water head pressure within the suction piping is proportional to the level in the SFP.) The inspector noted that the pressure displayed on the local pressure gauge was comparable to the level indication provided in the Unit 3 control room, using the differential pressure values presented in the Engineering Change Package.

#### 4.3 Conclusions

The licensee was maintaining the Unit 3 SFP and was operating the SFP cooling system in accordance with technical specifications and procedural requirements. The licensee had installed alternate SFP level indicators in the Unit 3 control room in accordance with commitments previously made to the NRC.

### **5 Decommissioning Performance and Status Review (71801)**

#### 5.1 Inspection Scope

The inspectors evaluated whether the licensee and its contracted workforce were conducting decommissioning activities in accordance with license and regulatory requirements. In particular, the inspectors reviewed the licensee's progress towards implementing "cold & dark" modifications, construction of the synchronous condenser, and partial demolition of a truck bay. In addition, the inspectors conducted site tours to observe the licensee's control of radioactive materials, radiation areas, and radiologically restricted areas.

#### 5.2 Observations and Findings

##### a. Review of Cold & Dark Modifications and SFP Islanding

Section II of the PSDAR provides an overview of the planned decommissioning activities. These activities include site modifications as necessary to support future decommissioning and decontamination efforts. One such modification specifically mentioned in Section II.A of the PSDAR is the planning, design, and implementation of cold & dark. The licensee plans to have all cold & dark modifications in place by the end of March 2016. The inspectors reviewed the status of the licensee's efforts to implement the cold & dark modifications.

As of July 2015, the priority work included installation of the 12-kilovolt electrical ring bus around the power block and installation of SFP makeup system modifications. The ring bus work included installation of cables, panels, raceways, and cabinets. The 2 backup diesel generators (500-kilowatt and 1500-kilowatt) were onsite but were not installed.

The 12-kilovolt line was partially installed. The licensee had a target date of late-November 2015 for energizing the ring bus.

In addition, the licensee was implementing SFP makeup modifications during the July 2015 inspection. The purpose of the SFP makeup system is to provide demineralized makeup water to the SFP from the existing primary makeup water tanks. The planned work consisted of reusing two existing plant pumps, installing a new high-capacity makeup pump, and associated piping. At the time of the onsite inspection, the licensee was preparing to install the new equipment.

In addition to cold & dark work, the licensee planned to isolate each SFP by removing the permanent plant equipment from service and installing skid-mounted equipment to cool and clean the SFP water on an interim basis. The inspectors reviewed the licensee's efforts to implement the SFP islanding modifications. As noted in Section 2.2.b of this Inspection Report, the NRC inspectors questioned the licensee's proposed seismic classification of the new SFP islanding equipment. At the conclusion of the onsite inspection, the equipment continued to be stored onsite, and the licensee was reconsidering its proposed seismic classification of the new equipment.

The inspectors will continue to review the licensee's implementation of cold & dark activities during future inspections.

b. Radiological Surveys of Electrical Switchyard

The licensee notified the NRC by letter dated March 3, 2015 (ML15071A018), of its proposed plans to construct the synchronous condenser in the southern switchyard. During the inspection, the licensee continued to plan for construction of a synchronous condenser in the southern end of the main switchyard. The licensee's contractors developed a final status survey plan and cross-contamination prevention plan for the area where the synchronous condenser will be located. The proposed final status survey of the switchyard area included collection of surface and subsurface soil samples, walk-over scan surveys for gamma emitting radionuclides, and static measurements for gamma emitting radionuclides. The licensee estimated that approximately 23,000 cubic yards of soil will be moved as part of the construction project.

During the previous inspection, the NRC inspectors questioned whether the licensee had established an approved program for conducting final status surveys in the switchyard. In response, the licensee developed a design basis document and updated existing procedures to implement a program based on guidance provided in NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)," Revision 1, and NUREG-1575, Supplement 1, "Multi-Agency Radiation Survey and Assessment of Materials and Equipment (MARSAME)," January 2009.

In mid-July 2015, the licensee issued an internal memorandum to file which provided a design basis for adding MARSSIM and MARSAME guidance to existing procedures. This document provided instructions for unconditional releases of materials and equipment located outside the radiologically controlled area and the restricted area but within the owner controlled property. The licensee also updated two procedures to incorporate MARSSIM and MARSAME guidance. Procedure SO123-VII-20.9.2, "Material Release Surveys," Revision 18, was revised to provide guidance based on

MARSAME for release of materials and equipment. Similarly, Procedure SO123-VII-20.9.3, "Surveys for Release of Liquids, Sludges, Slurries, and Sands," Revision 12, was revised to provide guidance based on MARSSIM for release of bulk materials.

Based on the instructions provided in the revised procedures, the licensee developed a material release work plan for the synchronous condenser excavation work. (The work plan was in draft and had not been formally issued during the July 2015 onsite inspection.) The work plan provided survey requirements for the switchyard based on guidance provided in the updated procedures as well as NUREG-1575. During the inspection, the NRC staff provided comments to the licensee for its consideration regarding the proposed sampling and survey program for the area of the proposed synchronous condenser.

In summary, the inspectors noted that the licensee upgraded its radiological survey program using the guidance provided in NUREG-1575. The inspectors will review the final status survey results for the synchronous condenser area during a future inspection. The NRC currently plans to conduct an independent confirmatory survey of the area where the synchronous condenser will be located, after completion of the excavation and prior to construction of the synchronous condenser.

c. Preparation for Demolition Work in Truck Bay

During the July 2015 inspection, the licensee was preparing to demolish internal walls and remove equipment and piping from the truck bay loading dock within the radiologically restricted area. The licensee planned to use this space for installation of electrical equipment to support cold & dark operations. The licensee conducted radiological surveys to quantify the radioactivity within the room and to identify the radiation protection controls needed during demolition. The inspectors toured the truck bay and reviewed the licensee's radiological survey records.

The licensee conducted general area radiation measurements, surface contamination surveys, and removable contamination surveys. The areas surveyed included internal walls, floor, equipment, and piping within the room. The licensee's survey records indicate that the room contained minor levels of contamination, primarily in discrete locations on wall and floor surfaces.

Based on these results, the licensee plans to implement radiation protection controls, which included general area air sampling and use of dust masks for industrial protection. The licensee does not plan to take credit for the protection factor of the masks in its airborne radioactive material dose assessments. The licensee plans to store the building rubble onsite pending eventual disposal at an offsite location.

In summary, the licensee conducted radiological surveys of an area scheduled to be remodeled, and the licensee collected sufficient radiological data to establish radiation protection controls for the actual work. At the conclusion of the onsite inspection, the licensee had not started the wall demolition work. The inspectors will review the licensee's records, including air sampling results and work dose assessments, during a future inspection.

d. Site Tours

During site tours within the radiologically restricted areas, the inspectors conducted independent gamma radiation measurements using a Ludlum Model 2401-EC2 survey meter (NRC No. 35484G, calibration due date of 03/13/16). The inspectors also observed the status of boundaries, postings, and labeling to ensure compliance with regulatory and procedural requirements. The inspectors' survey measurements were comparable to the survey results as presented on area maps created by the licensee's health physics staff. In the areas toured, the licensee had implemented radiation protection controls, including postings and labeling, that were in compliance with regulatory and procedure requirements.

### 5.3 Conclusions

The licensee continued to implement the cold & dark modifications in accordance with PSDAR requirements. The SFP islanding installation work was had been placed on hold while the licensee reconsidered the seismic qualification of the system design. The licensee continued to plan for the construction of the synchronous condenser. Since the last inspection, the licensee upgraded its procedures to implement NRC-accepted guidance for conducting final status surveys. The licensee conducted adequate radiological surveys in the truck bay loading dock area to establish baseline conditions and to help develop radiological controls for planned remodeling work. The inspectors conducted site tours within the radiologically restricted areas and concluded that the licensee was maintaining the areas in accordance with radiation protection procedures and regulatory requirements.

## **6 Radioactive Waste Treatment, and Effluent and Environmental Monitoring (84750)**

### 6.1 Inspection Scope

The inspectors reviewed the licensee's effluent and environmental monitoring programs to ensure that the licensee had effectively controlled, monitored, and quantified releases of radioactive materials in liquid, gaseous, and particulate forms to the environment.

### 6.2 Observations and Findings

Technical specifications, Sections 5.5.2, for the two licenses require the licensee to establish, implement, and maintain the Offsite Dose Calculation Manual (ODCM). The ODCM provides detailed guidance for monitoring and controlling liquid and gaseous effluents as well as calculating offsite doses. The ODCM also provides the requirements for the radiological environmental monitoring program. In addition, technical specifications Sections 5.7.1 require the licensee to submit annual radiological environmental and radioactive effluent release reports to the NRC. The inspectors reviewed the licensee's implementation of the ODCM requirements and reviewed the two most recent annual reports for 2014.

#### a. Effluent Monitoring

The licensee submitted the Annual Radiological Effluent Release Report for 2014 to the NRC by letter dated April 27, 2015 (ML15121A270). This report summarizes all gaseous and liquid effluents for 2014 as well as radioactive waste shipments. The inspectors reviewed the annual report and selected data used in the development of the report, compared the information provided in the report against the requirements

provided in the ODCM, and interviewed licensee staff about the development of the annual report. In summary, the inspectors confirmed that the ODCM's release limits were not exceeded in 2014.

The inspectors compared the gaseous effluent releases to the limits provided in the ODCM. The licensee measured releases from fission and activation gases, iodines, radioactive particulates, and tritium. All releases in 2014 were less than 1-percent of the applicable effluent concentration limit. The licensee also calculated the potential radiation doses at the site boundary based on these gaseous effluents. The radiation doses were less than 1-percent of the applicable limits specified in the ODCM.

The inspectors compared the liquid effluent releases to the ODCM limits. The licensee monitored releases of fission and activation products, tritium, dissolved and entrained gases, and gross alpha radioactivity in the liquid effluents. All releases in 2014 were less than 1-percent of the applicable effluent concentration limit. Similar to gaseous effluents, the licensee calculated radiation doses from liquid effluents at the site boundary. Total body doses were calculated to be less than 1 millirem for the year.

The annual radioactive effluent release report for 2014 summarized the radioactive waste shipments during the year. The licensee shipped spent resins, filters, filter sludge, dry active wastes, and irradiated components during the year. The licensee shipped the material in 73 individual shipments.

As part of the effluent monitoring program evaluation, the inspectors reviewed the licensee's records for the last liquid effluent batch release, conducted in June 2014. This batch release consisted of approximately 20,000 gallons of fluid from the 25,000-gallon miscellaneous wastes evaporator condensate monitor tank T-076. The released fluid contained measurable quantities of cobalt-60, cesium-137, and tritium (hydrogen-3). The release rate (78 gallons per minute) was below the ODCM limit of 95 gallons per minute. The dilution flow rate (30,400 gallons per minute) was above the minimum dilution flow rate of 28,000 gallons per minute. The setpoint for the radwaste discharge monitor was set at 3.00 E-4 microcuries per cubic centimeter, below the ODCM limit of 3.60 E-3 microcuries per cubic centimeter. In summary, the licensee conducted the release in accordance with the requirements specified in the ODCM.

The inspectors reviewed the instrument calibration and channel check records for one randomly selected liquid effluent monitor, the Unit 2 turbine plant area sump radiation monitor. The 18-month calibration was last conducted in April 2014, and the 3-month channel check was last conducted in May 2015. The inspectors confirmed that the as-left monitor trip setpoint was below the ODCM required maximum setpoint, and the channel check confirmed the trip setpoint and operability of the electronics. Based on successful completion of the calibration and channel check, the monitor could be considered as operable at the time of the inspection.

Finally, the inspectors reviewed the status of a recent notification to the NRC. On April 27, 2015, the licensee formally notified the NRC about an exceedance of oil and grease in the north industrial area yard drain sump (Event Notification 51018). The NRC was notified, as required by 10 CFR 50.72(b)(2)(xi), because the licensee notified an offsite agency about the exceedance. The licensee's initial assessment concluded that the oil and grease in the sump was 22 parts per million, a value above the monthly average of 15 parts per million and the instantaneous limit of 20 parts per million. The

licensee notified the San Diego Regional Water Quality Control Board as required by its discharge permit. However, the licensee collected additional samples and concluded that original limit had not been exceeded. The licensee characterized the first sample result as an anomalous event, invalid sample, or possibly the result of a contaminated sample container. The licensee notified the water quality control board of the retracted notification by letter dated May 20, 2015. At the conclusion of the onsite inspection in July 2015, the licensee was considering its options for submitting a revised event notification report to the NRC, to update the status of the original notification.

b. Environmental Monitoring

The inspectors reviewed the Annual Radiological Environmental Operating Report for 2014, submitted to the NRC by letter dated May 4, 2015 (ML15126A422). The purposes of the licensee's radiological environmental monitoring program are to quantify ambient radiation levels and concentrations of radioactivity in the vicinity of the site. The licensee's environmental monitoring program consisted of measurement of ambient gamma radiation levels, collection of airborne radioiodine and particulates, and collection of various soil, water, sediment, plant, and marine samples.

The inspectors compared the licensee's implementation of its environmental monitoring program to the requirements provided in the ODCM. The inspectors confirmed that the licensee collected the samples required by the ODCM. The licensee's sample results confirmed that the public dose limit had not been exceeded in 2014.

The ODCM requires the licensee to measure ambient gamma radiation at 30 locations. The licensee measured ambient gamma radiation levels at 49 locations including 12 onsite and 2 control locations. The highest gamma radiation measurement was recorded inside the plant at the south yard facility, the location where radioactive materials were being stored. This location measured 82 millirem for the year, with an average control (background) of about 60 millirem. The exposure rate at the San Onofre State Beach Park, located about 1 mile from the plant centerline, was measured at 53 millirem for 2014, equivalent to the ambient gamma radiation level measured at the backup control station at Oceanside City Hall. In summary, the public exposure was estimated by the licensee to be less than 1 millirem for 2014.

The licensee sampled for airborne radioiodine and particulates at eight locations including one onsite and one control location. The ODCM requires five sampling locations. The licensee collected iodine-131, gross beta, and gross gamma radioactivity levels at each location. The samples were analyzed for gamma-emitting radionuclides on a quarterly basis. No licensed radioactivity was identified in the samples, and no sample result exceeded the reporting levels provided in the ODCM.

The licensee collected soil, ocean water, drinking water, sediment, non-migratory marine animal, local crops, and kelp samples. The licensee collected more than the minimum number of samples required by the ODCM. In summary, the sampling identified detectable quantities of cesium-137 in soil, and detectable quantities of cesium-137 and strontium-90 in deer. These radionuclides were attributed to atmospheric fallout. Low levels of iodine-131 were identified in kelp samples. The iodine-131 was attributed to medical wastes in ocean water. Based on the samples collected in 2014, the licensee concluded that the site had a negligible radiological impact on the environment.



Based on the licensee's environmental and effluent monitoring sample results, the inspectors concluded that the dose limit for individual members of the public (100 millirem per year) provided in regulation 10 CFR 20.1301(a) was not exceeded in 2014.

Section 5.2 of the ODCM provides the requirement for the land use census. The land use census was included as Appendix F to the Annual Radiological Environmental Operating Report for 2014. The land use census provided a description of the nearest milking animal, residence, and garden. The annual land use census also included changes in land use since the last census. In summary, the licensee conducted a land use census as required by the ODCM.

c. Groundwater Protection Initiative

The licensee collected groundwater samples from underneath the site as part of its voluntary implementation of the industry groundwater protection initiative. The sampling program is described in site procedures. The sample results for 2014 were presented in an attachment to the Annual Radioactive Effluent Release Report.

The licensee sampled nine wells as part of the initiative. The licensee also sampled several other investigation wells at a variable frequency. The licensee analyzed the water samples for tritium, gamma radiation, gross beta, and gross alpha activities. Certain samples were analyzed for uranium, transuranics, and hard to detect radionuclides such as nickel-63 and iron-55. No tritium radioactivity, gamma-emitting radionuclides, transuranics, or hard to detect radionuclides were identified in samples collected in 2014. The licensee's results identified some naturally occurring uranium in the samples. In summary, the licensee continued to voluntarily implement the industry groundwater protection initiative in 2014.

As part of the groundwater protection initiative, the licensee has been extracting groundwater from beneath the site to hydraulically contain any radioactive fluid plume and to direct the potentially contaminated water to a monitored release point. During April 2015, the licensee conducted a review of its groundwater monitoring program including trending of monitor well sample results. Based on its review of five years of data, the licensee elected to discontinue groundwater extraction but to continue with groundwater monitoring. If future groundwater sample results exceed a pre-established action level for tritium, the licensee plans to restart groundwater extraction. The licensee plans to reduce the groundwater sampling frequency in September 2015, depending on the monthly groundwater sampling results from May-August 2015. The NRC inspectors will continue to review the licensee's efforts in this voluntary program area during future inspections.

d. Changes to the ODCM

Technical specifications Sections 5.5.2 for each license allows the licensee to implement changes to the ODCM under certain circumstances. The licensee plans to update the ODCM based on current and future plant conditions. For example, the licensee plans to remove short-lived radioisotopes and permanently retired equipment from the ODCM. With regards to short-lived radioisotopes, the licensee plans to discontinue charcoal sampling for iodine. The NRC inspectors will review these ODCM changes during future inspections.

### 6.3 Conclusions

The licensee implemented its effluent and environmental monitoring programs in accordance with license requirements. No sample result exceeded the respective release limit. The licensee reported the results in annual reports as required by the license. The licensee's program results indicate that no individual member of the public received a dose in excess of license or regulatory limits. The licensee continued to implement its voluntary groundwater initiative program as required by site procedures in 2014, and the licensee reported these sample results to the NRC in the annual radioactive effluent release report. As allowed by the license, the licensee plans to make changes to the ODCM based on changes in plant conditions.

## 7 **Solid Radioactive Waste Management and Transportation of Radioactive Materials (86750)**

### 7.1 Inspection Scope

The inspectors reviewed the licensee's radioactive waste management and transportation activities to determine whether the licensee properly processed, packaged, stored, and shipped radioactive materials.

### 7.2 Observations and Findings

Section II.A of the PSDAR provides a detailed breakdown of the activities necessary to remove or reduce levels of radioactive contamination necessary to terminate the two 10 CFR Part 50 licenses. One activity is the disposition of legacy radioactive wastes. The inspectors reviewed the status of the licensee's legacy wastes in storage and shipments made in 2015. The majority of the legacy wastes, including spent resins and filters, have been removed from the plant. The remaining legacy wastes include contaminated an asbestos gasket and radioactive check source standards.

Some wastes were staged for shipment, but no major shipments have been made in 2015. The shipments that have been completed include samples, instruments, empty containers, and laundry. The inspectors reviewed a sampling of shipping papers for the shipments made in 2015, and the papers properly reflected the types of material being shipped. The licensee has some radioactive waste liquids in storage, but currently don't have the permanent plant equipment to process the liquid wastes, pending installation of temporary plant equipment.

The inspectors compared the material in storage around the plant to regulatory requirements. The inspectors noted that the licensee continued to maintain adequate control over radioactive material in storage, post the areas where the radioactive material was being stored, and maintain proper radioactive material labeling for each container.

### 7.3 Conclusions

The licensee continued to store and ship radioactive wastes in accordance with procedural and regulatory requirements.

## **8 Exit Meeting**

The inspectors presented the preliminary inspection results to members of the licensee's staff at the conclusion of the onsite inspections. The inspectors presented the final inspection findings to the licensee's staff in person on July 30, 2015, and by telephone on July 23 and August 17, 2015. The inspectors confirmed that any proprietary information reviewed during the inspection had been returned to the licensee or destroyed.

## SUPPLEMENTAL INSPECTION INFORMATION

### KEY POINTS OF CONTACT

#### Licensee Personnel

T. Adler, Manager, Decommissioning Transition  
C. Ahola, Radiation Protection Manager  
V. Barone, Senior Nuclear Engineer  
L. Bosch, Plant Manager  
J. Davis, Operations and Training Manager  
D. Evans, Licensing/Compliance Specialist  
D. Faass, Licensing/Compliance Specialist  
K. Gallion, Manager, Emergency Preparedness Planning  
J. Janke, Manager, Radiation Protection and Chemistry  
J. Madigan, Technical Advisor, Oversight and Nuclear Safety Concerns  
B. Metz, Environmental Manager  
M. Moran, Manager, Site Engineering  
T. Palmisano, Vice President, Decommissioning, and Chief Nuclear Officer  
J. Peattie, Manager, Maintenance and Work Control  
R. Pontes, Deputy Director, Decommissioning Projects

### INSPECTION PROCEDURES USED

IP 36801	Organization, Management, and Cost Controls at Permanently Shutdown Reactors
IP 37801	Safety Reviews, Design Changes, and Modifications at Permanently Shutdown Reactors
IP 40801	Self-Assessment, Auditing, and Corrective Action at Permanently Shutdown Reactors
IP 60801	Spent Fuel Pool Safety at Permanently Shutdown Reactors
IP 71801	Decommissioning Performance and Status Review at Permanently Shutdown Reactors
IP 84750	Radioactive Waste Treatment, and Effluent and Environmental Monitoring
IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials

### ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

050-00361; 050-00362/1509-01	NCV	Failure to obtain license amendment for change in seismic classification for SFP makeup system
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#### Closed

050-00361; 050-00362/1509-01	NCV	Failure to obtain license amendment for change in seismic classification for SFP makeup system
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Discussed

None

### **LIST OF ACRONYMS**

ADAMS	Agencywide Documents Access and Management System
CAP	Corrective Action Program
CAPR	Corrective Actions to Prevent Recurrence
CFR	Code of Federal Regulations
IP	Inspection Procedure
MARSAME	Multi-Agency Radiation Survey and Assessment of Materials and Equipment
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PSDAR	Post-Shutdown Decommissioning Activities Report
SFP	spent fuel pool
UFSAR	Updated Final Safety Analysis Report