UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

May 20, 2004

Harold B. Ray, Executive Vice President
San Onofre, Units 2 and 3
Southern California Edison Co.
P.O. Box 128, Mail Stop D-3-F
San Clemente, CA 92674-0128

SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION - NRC INTEGRATED INSPECTION REPORT 05000361/2004002; 05000362/2004002

Dear Mr. Ray:

On April 7, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your San Onofre Nuclear Generating Station, Units 2 and 3. The enclosed report documents the inspection findings which were discussed on February 18, February 26, March 12, and April 7, 2004, with Mr. D. Nunn and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the NRC has identified four issues that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that violations were associated with these issues. The violations are being treated as noncited violations (NCVs), consistent with Section VI.A of the Enforcement Policy. The NCVs are described in the subject inspection report. If you contest the violations or significance of the NCVs, 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 the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the San Onofre Nuclear Generating Station, Units 2 and 3, facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/ by W. Walker acting for

Kriss M. Kennedy, Chief
Project Branch C
Division of Reactor Projects

Dockets: 50-361
50-362
Licenses: NPF-10
NPF-15

Enclosure:
NRC Inspection Report 05000361/2004002; 05000362/2004002
w/Attachment: Supplemental Information

cc w/enclosure:
Chairman, Board of Supervisors
County of San Diego
1600 Pacific Highway, Room 335
San Diego, CA 92101

Gary L. Nolff
Power Projects/Contracts Manager
Riverside Public Utilities
2911 Adams Street
Riverside, CA 92504

Eileen M. Teichert, Esq.
Supervising Deputy City Attorney
City of Riverside
3900 Main Street
Riverside, CA 92522

Joseph J. Wambold, Vice President
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

David Spath, Chief
Division of Drinking Water and
Environmental Management
California Department of Health Services
P.O. Box 942732
Sacramento, CA 94234-7320

Michael R. Olson
San Onofre Liaison
San Diego Gas & Electric Company
P.O. Box 1831
San Diego, CA 92112-4150

Ed Bailey, Radiation Control Program Director
Radiologic Health Branch
California Department of Health Services
P.O. Box 942732 (MS 178)
Sacramento, CA 94234-7320

Mayor
City of San Clemente
100 Avenida Presidio
San Clemente, CA 92672

James D. Boyd, Commissioner
California Energy Commission
1516 Ninth Street (MS 34)
Sacramento, CA 95814

Douglas K. Porter, Esq.
Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, CA 91770

Dwight E. Nunn, Vice President
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

Dr. Raymond Waldo
Southern California Edison Company
San Onofre Nuclear Generating Station
P. O. Box 128
San Clemente, CA 92674-0128

A. Edward Scherer
Southern California Edison
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

Chief, Technological Services Branch
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

Electronic distribution by RIV:
Regional Administrator **(BSM1)**
DRP Director **(ATH)**
DRS Director **(DDC)**
Senior Resident Inspector **(CCO1)**
Branch Chief, DRP/C **(KMK)**
Senior Project Engineer, DRP/C **(WCW)**
Staff Chief, DRP/TSS **(PHH)**
RITS Coordinator **(KEG)**
Rebecca Tadesse, OEDO RIV Coordinator **(RXT)**
SONGS Site Secretary **(SFN1)**
Dale Thatcher **(DFT)**
ANO Site Secretary **(VLH)**
W. A. Maier, RSLO **(WAM)**

ADAMS: ✖Yes ☐ No Initials: __wcw___
✖ Publicly Available ☐ Non-Publicly Available ☐ Sensitive ✖ Non-Sensitive

R:_SO23\2004\SO2004-02RP-CCO.wpd

RIV:RI:DRP/C	SRI:DRP/C	SPE:DRP/C	C:DRS/PSB	C:DRS/OB
MASitek	CCOsterholtz	RVAzua	MPShannon	ATGody
/RA/	***/RA/***	***E - WCWalker***	***E - WCWalker***	***E - WCWalker***
4/29/04	4/29/04	5/19/04	5/19/04	5/20/04

C:DRS/EB	C:DRS/PEB	C:DRP/C		
CSMarschall	LJSmith	KMKennedy		
E - WCWalker	***E - WCWalker***	***WCWalker for***		
5/19/04	5/20/04	5/20/04		

OFFICIAL RECORD COPY T=Telephone E=E-mail F=Fax

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	50-361, 50-362
License:	NPF-10, NPF-15
Report:	05000361/2004002 and 05000362/2004002
Licensee:	Southern California Edison Co. (SCE)
Facility:	San Onofre Nuclear Generating Station, Units 2 and 3
Location:	5000 S. Pacific Coast Hwy. San Clemente, California
Dates:	January 1 through April 7, 2004
Inspectors:	C. C. Osterholtz, Senior Resident Inspector, Reactor Projects Branch C M. A. Sitek, Resident Inspector, Reactor Projects Branch C P. J. Elkmann, Emergency Preparedness Inspector M. P. Shannon, Senior Health Physicist W. C. Sifre, Reactor Inspector B. K. Tharakan, Health Physicist
Approved By:	Kriss M. Kennedy, Chief Project Branch C Division of Reactor Projects

Enclosure

CONTENTS

SUMMARY OF FINDINGS

San Onofre Nuclear Generating Station, Units 2 and 3
NRC Inspection Report 0500361/2004002; 05000362/2004002

IR05000361/2004002, 05000362/2004002; 1/1 - 4/7/2004; San Onofre Nuclear Generating Station, Units 2 & 3; Integrated Resident and Regional Report; Maintenance Effectiveness, Access Control to Radiologically Significant Areas, and Problem Identification and Resolution.

The report covered a 3-month period of inspection by resident inspectors and regional inspectors. Four Green noncited violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a noncited violation of Technical Specification 5.5.1.1 and Regulatory Guide 1.33, Revision 2, Appendix A, February 1978, because the licensee failed to implement adequate foreign material exclusion control during maintenance on Steam Generator E089, in accordance with established procedures.

  This finding is greater than minor because it had a credible impact on safety since, if left uncorrected, the finding would become a more risk significant safety concern. Lack of control of foreign material in steam generators has the potential to significantly compromise the integrity of steam generator tubes and thus increase the likelihood of a steam generator tube rupture initiating event. The finding is of very low safety significance because the foreign material did not adversely effect the operability of the SG, and did not actually contribute to the likelihood of a loss-of-coolant accident initiator, given the material composition of the foreign material and the location that it was left in the steam generator. This finding also had crosscutting aspects associated with human performance because personnel failed to adequately control foreign material during maintenance activities (Section 1R12.1).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, because the licensee failed to adequately correct an identified oil leak from the inboard bearing of the motor to Auxiliary Feedwater Pump 3P504 and subsequently failed to promptly re-identify the leak during subsequent routine inspections of the pump.

This finding is greater than minor because it had a credible impact on the mitigating systems cornerstone in that, if left uncorrected, it would have become a more significant safety concern. Specifically, the unidentified accelerated oil leak would have likely continued to the point where Auxiliary Feedwater Pump 3P504 would have been rendered inoperable. The finding was determined to have very low safety significance (Green) because Auxiliary Feedwater Pump 3P504 remained operable (Section 4AO2).

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed the circumstances related to a self-revealing noncited violation of Technical Specification 5.8.2 because the licensee failed to control two high radiation areas with radiation levels greater than 1.0 rem in 1 hour at 30 centimeters. On March 8, 2004, a plant operator entered Unit 2 Volume Control Tank Valve Room 319A and received a personal electronic dosimeter alarm due to higher than expected radiation levels. Health Physics personnel subsequently surveyed the room and determined that the radiation levels were as high as 15 rem per hour at 30 centimeters. In addition, Room 305H, Ion Purification Exchanger Room to E075, was found to have radiation levels as high as 5 rem per hour at 30 centimeters. Neither of these rooms was controlled in accordance with Technical Specification requirements.

  The two examples of a failure to control a high radiation area with radiation levels greater than 1.0 rem in 1 hour at 30 centimeters is a performance deficiency. The finding was greater than minor because it was associated with the occupational radiation safety cornerstone attribute of program and process and affected the cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation. When processed through the occupational radiation safety significance determination process, the finding was determined to be of very low safety significance because it was not associated with as low as is reasonably achievable planning or work controls, there was no overexposure or a substantial potential for overexposure, and the ability to assess dose was not compromised. The finding was entered into the licensee's corrective action program as Action Request 040300701 (Section 2OS1).

- Green. On March 10, 2004, the inspectors identified a noncited violation of Technical Specification 5.5.1.1a because the licensee failed to post a radiological hazard (hot spot). A survey performed by the licensee on February 17, 2004, identified a hot spot with radiation levels of 350 millirem per hour on contact and 50 millirem per hour at 30 centimeters on the 17-foot elevation of the Unit 2 containment building.

  The failure to post a hot spot is a performance deficiency. The finding was greater than minor because it was associated with the occupational radiation safety cornerstone attribute of program and process and affected the

cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation. When processed through the occupational radiation safety significance determination process, the finding was determined to be of very low safety significance because it was not associated with as low as is reasonably achievable planning or work controls, there was no overexposure or a substantial potential for overexposure, and the ability to assess dose was not compromised. The finding was entered into the licensee's corrective action program as Action Request 040201480 (Section 2OS1).

B. Licensee-Identified Violations

Violations of very low safety significance which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program.

- The licensee failed to perform a survey of two rooms and post them as radiation areas in accordance with 10 CFR 20.1902(a). A monthly survey conducted on February 6, 2003, documents the deposting of ion exchanger valve inlet Rooms 403K and 403L on the 50-foot elevation of the Unit 3 radwaste building. Unit 3 was shut down during that monthly survey and dose rates were less than 3 millirem per hour. On February 10, 2003, Unit 3 came up to power and the dose rates increased; however, no surveys were conducted in those rooms and normal operations in those rooms were allowed to continue. It was not until a survey performed on February 26, 2003, that the licensee identified that the two rooms had radiation levels between 5 and 35 millirems per hour at 30 centimeters. These dose rates required the rooms to be posted as radiation areas. These events are described in the licensee's corrective action program as Action Request 030202100. Because the violation does not involve as low as is reasonably achievable planning or work controls, no individual received an overexposure or a substantial potential for overexposure, and the ability to assess dose was not compromised, this violation is of very low safety significance.

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at approximately 100 percent reactor power. On February 9, 2004, Unit 2 was shutdown for a scheduled refueling outage (Cycle 13) and entered Mode 6 refueling operations on February 16, 2004. Refueling operations were completed and Unit 2 entered Mode 5 on March 15, 2004. Operations personnel commenced a reactor startup and the unit entered Mode 2 on March 23, 2004. On March 23, 2004, two resistance temperature detectors (RTDs) in the cold legs of the reactor coolant system (RCS) failed. As a result, Unit 2 was returned to Mode 5 on March 26, 2004, and drained to a midloop condition in the RCS hot legs in order to replace the failed RTDs. Following the repairs, operations personnel commenced a reactor startup and returned Unit 2 to Mode 2 on April 3, 2004. Mode 1 was entered later the same evening and the unit attained approximately 17 percent reactor power. On the morning of April 4, 2004, Unit 2 was returned to Mode 2 in order to stop a minor leak on Main Feedwater Block Valve 2HV4051 by adjusting its packing. The unit was returned to Mode 1 in the late morning on April 4, 2004. In the early afternoon that same day, the Unit 2 turbine generator tripped during grid synchronization at approximately 20 percent reactor power. The Unit 2 reactor remained in Mode 1 at 20 percent reactor power using the steam bypass control system to divert steam directly to the condenser. The cause of the turbine generator trip was determined to be an improperly wired current transformer that had been replaced during the refueling outage. The transformer was wired correctly and Unit 2 was synchronized to the electrical grid on April 6, 2004. Unit 2 ended the inspection period at approximately 55 percent reactor power and was in the process of increasing reactor power at a rate of approximately 3 percent per hour.

Unit 3 began the inspection period at approximately 100 percent reactor power. On January 22, 2004, the licensee recognized that the Unit 3 RCS leakrate had increased slightly and subsequently determined that a minor RCS leak had developed. On January 24, 2004, operations personnel commenced a reactor shutdown and the unit entered Mode 3 that evening. Unit 3 was cooled down further and entered Mode 4 on January 25, 2004. The unit remained in Mode 4 while the licensee investigated and subsequently identified the source of the minor RCS leakage. The leak was identified to be in a weld in the letdown piping exiting the regenerative heat exchanger. The licensee repaired the degraded piping and commenced a reactor startup on January 31, 2004. Unit 3 entered Mode 1 later the same day and reached approximately 100 percent reactor power on February 2, 2004. On March 12, 2004, Unit 3 was reduced to approximately 94 percent reactor power in order to perform a Technical Specification reactor physics surveillance test. Unit 3 returned to approximately 100 percent reactor power on March 13, 2004, and remained at that power level through the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial System Walkdowns. The inspectors performed three partial walkdowns during this inspection period. On February 14, 2004, the inspectors walked down portions of the Unit 2 shutdown cooling system while the licensee was draining the RCS to midloop conditions in order to install steam generator (SG) nozzle dams. On February 17, 2004, the inspectors walked down portions of the Unit 3 auxiliary feedwater (AFW) system following its realignment after an evolution where plant operations personnel had manipulated valves associated with the condensate storage tanks. On April 6, 2004, the inspectors verified electrical lineups for Units 2 and 3 during and after Unit 2 grid synchronization.

To evaluate the operability of the selected train or system, the inspectors checked for correct valve and power alignments by comparing positions of valves, switches, and electrical power breakers to the appropriate procedures as well as applicable chapters of the Updated Final Safety Analysis Report.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors performed routine fire inspection tours and reviewed relevant records for the following six plant areas important to reactor safety:

- Control room and control room cabinet area (Units 2 and 3)
- Containment (Unit 2)
- Secondary alarm station (Units 2 and 3)
- Train A safety equipment building pump Room 005 (Unit 3)
- Train B safety equipment building pump Room 002 (Unit 3)
- High pressure safety injection Pump 3P018 Room 015 (Unit 3)

The inspectors observed the material condition of plant fire protection equipment, the control of transient combustibles, and the operational status of barriers. The inspectors compared in-plant observations with the commitments in portions of the Updated Fire Hazards Analysis Report.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed performance tests for the Unit 2 Trains A and B component cooling water Heat Exchangers S21203ME001 and S21203ME002. The inspectors reviewed Procedures SO23-2-8.1, "Saltwater Cooling System Alignments and Infrequent/Outage Operations," Revision 2, and SO23-I-8.94, "Component Cooling Water Heat Exchanger Cleaning and Inspection," Revision 7, along with Calculation 0027-029, "CCW/SWC Heat Exchanger Performance Tests," and compared the test acceptance criteria with the results. The inspectors also verified that the frequency of testing was sufficient to detect degradation prior to loss of heat removal capabilities below design basis values.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08)

1. Performance of Nondestructive Examination (NDE) Activities Other than SG Tube Inspections

a. Inspection Scope

The procedure requires inspection of at least five non-SG inservice inspection samples representing at least two NDE activities. The inspectors observed the ultrasonic system calibration and observed 1 magnetic particle, 2 liquid penetrant, and 19 ultrasonic examinations, as noted in the attachment, "Observed Nondestructive Examinations."

During the review of these examinations, the inspectors verified that the correct NDE procedure was used, examinations and conditions were as specified in the procedures, and test instrumentation or equipment was properly calibrated and within the allowable calibration period. The inspectors also reviewed the documentation to determine if indications revealed were compared against the American Society of Mechanical Engineers (ASME) Code specified acceptance standards and that the indications were appropriately dispositioned. The NDE certifications of those personnel observed performing examinations or identified during review of completed examination packages were reviewed by the inspectors.

The inspection procedure specified the review of one or two examinations from the previous outage with recordable indications that have been accepted by the licensee for continued service. This activity was not performed because the licensee did not have any recordable indications that were accepted for continued service.

The inspection procedure specified that, if welding on the pressure boundary for Classes 1 or 2 systems had been completed since the beginning of the previous refueling outage, then verify for one to three welds that the welding acceptance (e.g., radiography) and preservice examinations were performed in accordance with ASME Code requirements. The inspector reviewed a weld repair performed on the Unit 3 letdown line exiting the regenerative heat exchanger and found that it satisfied the ASME Code requirements.

b. Findings

No findings of significance were identified.

2. SG Tube Inspection Activities

a. Inspection Scope

The inspection procedure specified performance of an assessment of in-situ screening criteria to assure consistency between assumed NDE flaw sizing accuracy and data from the Electric Power Research Institute examination technique specification sheets. It further specified assessment of appropriateness of tubes selected for in-situ pressure testing, the inspection procedure specified observation of in-situ pressure testing, and review of in-situ pressure test results. At the time of this inspection, there were no pressure tests performed; however, the inspector reviewed the licensee's procedures for pressure testing.

The inspection procedure specified comparing the estimated size and number of tube flaws detected during the current outage against the previous outage operational assessment predictions to assess the licensee's prediction capability. The inspectors reviewed the licensee's report, "Steam Degradation Assessment for the Cycle 13 Refueling Outages in 2004," dated February 6, 2004. The purpose of the assessment is to identify degradation mechanisms and for each mechanism to determine proper detection technique, determine number of tubes, establish structural limits, and establish flaw growth rates.

The inspection procedure specified confirmation that the SG tube eddy current test scope and expansion criteria meet Technical Specification requirements, Electric Power Research Institute guidelines, and commitments made to the NRC. The inspector reviewed the SG tube eddy current test scope and expansion criteria.

The inspection procedure specified that, if the licensee identified new degradation mechanisms, then verify that the licensee had fully enveloped the problem in an analysis and had taken appropriate corrective actions before plant startup. At the time of this inspection, no new degradation mechanisms had been identified.

The inspection procedure required confirmation that the licensee inspected all areas of potential degradation, especially areas which were known to represent potential eddy current test challenges (e.g., top-of-tubesheet, tube support plates, and U-bends). The inspector confirmed whether all known areas of potential degradation, including eddy current test-challenged areas, were included in the scope of inspection and were being inspected.

The inspection procedure further required verification that repair processes being used were approved in the Technical Specifications for use at the site. At the time of this inspection, the licensee had not identified any required repairs.

The inspection procedure also required confirmation of adherence to the Technical Specification plugging limit. The inspection procedure required determination whether depth sizing repair criteria were being applied for indications other than wear or axial primary water stress corrosion cracking in dented tube support plate intersections. The inspector confirmed that the licensee was adhering to these specifications.

If SG leakage greater that 3 gallons per day was identified during operations or postshutdown visual inspections of the tubesheet face, the inspection procedure required verification that the licensee had identified a reasonable cause and corrective actions for the leakage based on inspection results. The inspector determined that leakage greater than 3 gallons per day did not exist.

The inspection procedure required confirmation that the eddy current test probes and equipment were qualified for the expected types of tube degradation and assessment of the site-specific qualification of one or more techniques. The inspector observed portions of all eddy current test performed. During these examinations, the inspectors verified that: (1) the probes appropriate for identifying the expected types of indications were being used, (2) probe position location verification was performed, (3) calibration requirements were adhered to, and (4) probe travel speed was in accordance with procedural requirements.

Finally, the inspection procedure specified review of one to five samples of eddy current test data if questions arose regarding the adequacy of eddy current test data analyses. The inspector did not identify any results where eddy current test data analyses adequacy was questionable.

b. Findings

No findings of significance were identified.

3. Identification and Resolution of Problems

a. Inspection Scope

The inspector reviewed inservice inspection related condition reports issued during the current and past refueling outage and verified that the licensee identified, evaluated, corrected, and trended problems. In this effort, the inspectors evaluated the effectiveness of the licensee's corrective action process, including the adequacy of the technical resolutions.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The inspectors reviewed licensed operator requalification training activities, including the licensed operators' performance and the evaluators' critique. The inspectors compared performance in the simulator on January 15, 2004, with performance observed in the control room during this inspection period.

The inspectors observed high risk operator actions, operator activities associated with the emergency plan, and previous lessons learned items. These items were evaluated to ensure that operator performance was consistent with protection of the reactor core during postulated accidents.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

1. SG Foreign Material Exclusion (FME)

a. Inspection Scope

The inspectors reviewed maintenance activities that resulted in foreign material being inadvertently left in Unit 2 SG E089.

b. Findings

Introduction. The inspectors determined that the licensee failed to adequately follow plant procedures for controlling FME while conducting planned maintenance on Unit 2 SG E089. A 25-foot length of 6-inch diameter flexible hose had been inadvertently left

in the SG, which caused a high chloride condition in the SG during plant heatup. This finding is being documented as a noncited violation with a very low safety significance (Green).

Description. On March 22, 2004, the licensee was performing startup activities for Unit 2 following the Unit 2 Cycle 13 refueling outage. During plant heatup to normal operating temperature, the licensee noted an increase in chloride concentration in SG E089 of approximately 1 part per million. Following the increase, chloride levels were reduced to acceptable levels using SG blowdown. The licensee performed an analysis and determined that the increase in chloride levels equated to approximately 1 pound of polyvinyl chloride (PVC) material. PVC was used in the manufacturing of multiple pieces of equipment used during outage maintenance in the SGs. The licensee also performed an analysis using the worst case piece of equipment (an electric lamp with a 50-foot plastic cord) that could have been left in SG E089 to demonstrate that SG tube integrity was intact and that plant startup to power operation could continue. The inspectors reviewed the licensee's analysis and found it acceptable.

On March 23, 2004, two RTDs in the cold legs of the RCS failed. As a result, Unit 2 was returned to Mode 5 on March 26, 2004, and drained to a midloop condition in the RCS hot legs in order to replace the failed RTDs. The licensee took this opportunity to inspect the interior of SG E089 and to attempt to determine the source of the PVC material. The licensee discovered that a 25-foot length of 6-inch diameter flexible hose (steel coil with a thin coating of PVC) had been inadvertently left inside SG E089. Five 25-foot lengths of flexible hose had been used in SG E089 for FME control during maintenance in the can deck area of the SG. The can deck is the portion of the SG between the top of the centrifugal moisture separators and the bottom of the chevron steam dryers. The five lengths of hose had been laid around the outside perimeter of the can deck to block the annulus between the can deck floor and the shell of the SG to prevent tools and other material from inadvertently falling further into the SG. No other foreign material was discovered during the inspection. The remnants of the hose left in the SG were removed from SG E089. The licensee determined that the chemical composition of the flexible hose was consistent with the increase in chlorides identified in SG E089 during the initial plant heatup.

The inspectors reviewed the licensee's procedures for providing proper FME controls. Procedure SO23-XXVI-14.18, "FME Control for Steam Generator Secondary Side Work Activities," Revision 0, required "logging ALL foreign material introduced into and extracted from the steam generator . . . in a neat and orderly manner." The inspectors reviewed the FME accountability logs maintained during the Cycle 13 outage work for SG E089. The logs had five separate entries for the flexible hose sections, indicating that each went in and came out of SG E089. However, the inspectors were unable to determine from the recorded entries the precise times that each section of flexible hose had been removed from SG E089. The inspectors also reviewed Procedure SO23-I-6.1, "Steam Generator Secondary Side Entry," Revision 9. Procedure SO23-I-6.1, step 6.5.10.2, requires that a "Responsible Maintenance Supervisor inspect the steam generator internals to ensure that all foreign material has been removed from the

accessible portions of the steam generator" prior to returning the SG to service. The inspectors noted that the closeout inspection performed on SG E089 on February 23, 2004, identified "all foreign material removed."

The inspectors determined that procedural requirements for FME controls during maintenance on SG E089 were not met. The licensee could offer no immediate explanation on how the flexible hose could have been left in SG E089 or how it was missed during the SG E089 closeout inspection. However, the licensee initiated root cause evaluation and corrective action followup assignments to identify program enhancements to prevent recurrence.

Analysis. The inspectors evaluated the significance of the finding using the significance determination process. The inspectors determined that the issue had a credible impact on safety because, if left uncorrected, the finding would become a more risk significant safety concern. Lack of control of foreign material in SGs has the potential to significantly compromise the integrity of SG tubes and thus increase the likelihood of an SG tube rupture initiating event. The finding is therefore more than minor. However, the inspectors determined that, in this specific instance, the foreign material did not effect the operability of the SG and did not actually contribute to the likelihood of a loss-of-coolant accident initiator, given the material composition of the foreign material and the location that it was left in the SG. The inspectors therefore concluded that the finding had very low safety significance and that a Phase 2 analysis in accordance with Manual Chapter 609, "Significance Determination Process," was not required. This finding had crosscutting aspects associated with human performance because personnel failed to adequately implement procedures for the control of foreign material in the SG.

Enforcement. Technical Specification 5.5.1.1 states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Section 9, "Procedures for Performing Maintenance," specifies that maintenance affecting the performance of safety-related equipment should be performed in accordance with written procedures appropriate to the circumstances. Contrary to this criterion, the licensee failed to ensure that all foreign material introduced to and extracted from SG E089 was properly logged in accordance with procedural requirements. Additionally, the licensee failed to ensure that all foreign material had been removed from SG E089 during its closeout inspection as required by procedure. This violation of Technical Specifications is being treated as a noncited violation (NCV 05000361/2004002-01, Failure to follow foreign material exclusion procedures) consistent with Section VI.A of the Enforcement Policy. This violation is in the licensee's corrective action program as Action Request (AR) 040301923.

2. Routine Maintenance Effectiveness

a. Inspection Scope

The inspectors independently verified that the licensee appropriately handled safety significant component performance associated with the Unit 2 pressurizer heater sleeve inspections. The inspectors independently examined the heater sleeves and discussed the results of the inspections with engineering personnel.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

a. Inspection Scope

The inspectors verified the accuracy and completeness of risk assessment documents and that the licensee's maintenance risk assessment program was being appropriately implemented. The inspectors also ensured that plant personnel were aware of the appropriate licensee established risk categories for maintenance activities, according to the risk assessment results and licensee program procedures.

The inspectors also reviewed selected emergent work items to ensure that overall plant risk was being properly managed and that appropriate corrective actions were being properly implemented.

The inspectors reviewed the effectiveness of risk assessment and risk management for the following eight activities:

- Inadvertent partial actuation of Unit 2 Train A containment isolation actuation system on December 2, 2003 (AR 031200122)

- Unexpected trip of Unit 3 Feeder Breaker 3B0414 that caused Train A emergency core cooling system and containment spray system components to lose power as a result of Motor Control Center 3BE losing power on December 17, 2003 (ARs 031200114, 0312001089, 031200053, and 031200992)

- Inability to remotely lower electrical load for Unit 3 emergency diesel generator (EDG) 3G002 during a surveillance test on December 28, 2003 (AR 031201555)

- Unit 3 Control Element Assembly (CEA) 82 automatic transfer to its lower gripper accompanied by an abnormal voltage alarm on January 1, 2004 (AR 040100021)

- Degraded motor for circulating lubricating oil and turbocharger pumps for Unit 2 EDG 2G002 identified on January 3, 2004 (AR 040100080)

- Unit 2 Containment Recirculation Fan MA74 “on” indication remaining illuminated after the fan was secured on January 4, 2004

- Leak in a weld of the letdown piping on the outlet side of the Unit 3 regenerative heat exchanger on January 23, 2004 (AR 040101536)

- Incore instrument tool separation during Unit 2 incore instrument removal on February 19, 2004

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed selected operability evaluations to evaluate technical adequacy and to verify that operability was justified. The inspectors considered the impact on compensatory measures for each condition being evaluated and referenced the Updated Final Safety Analysis Report and Technical Specifications. The inspectors also discussed the evaluations with cognizant licensee personnel.

The inspectors reviewed five operability evaluations and cause assessments documented in the following ARs to ensure the operability was properly justified:

- AR 031201664, Unit 2 Train B containment cooler failed to start during subgroup relay test

- AR 031201694, Unit 3 CEA calculator erratic indication for CEA 13

- AR 040101045, Unit 2 EDG 2G002 ready to start light not illuminated following a surveillance test

- AR 040201498, Unit 2 incore instrument zircaloy thimble growth

- AR 040300251, 10 Unit 2 SG tube sleeves found degraded

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

Cumulative Effects. The inspectors reviewed five operator workaround items to evaluate their cumulative effects on the reliability, availability, and potential for misoperation of a system and on the ability of operators to respond in a correct and timely manner to plant transients and accidents. The inspection included a review of the licensee's criteria and processes used for identifying and tracking deficiencies as operator workarounds. The review also focused on the length of time the identified workarounds had been in existence and the efforts initiated to resolve them.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

On January 30, 2004, the inspectors observed a modification to the Unit 3 regenerative heat exchanger. The inspectors reviewed test data and observed testing of portions of the Unit 3 chemical and volume control system following the addition of a pipe support that was added to the letdown outlet piping from the regenerative heat exchanger. In addition, the inspectors discussed the modification with cognizant engineering and maintenance personnel.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors observed and/or reviewed postmaintenance testing for the following four activities to verify that the test procedures and activities adequately demonstrated system operability:

- Unit 3 Main Feed Pump K006 postmaintenance test per Procedure SO23-2-1.1, "Main Feedwater Pump/Turbine Protective Device Trip Tests," Revision 7, performed on January 28, 2004, following corrective maintenance

- Unit 3 Train A Saltwater Cooling Pump 3P307 postmaintenance test per Procedure SO23-3-3.60.4, "Saltwater Cooling Pump and Valve Testing," Revision 5, performed on March 14, 2004, following replacement of the pump

- Unit 2 Train A Motor-Driven AFW Pump 2P141 postmaintenance test per Procedure SO23-3-3.60.6, "Auxiliary Feedwater Pump and Valve Testing," Revision 10, performed on March 15, 2004, following corrective maintenance

- Unit 2 Train B Motor-Driven AFW Pump 2P504 postmaintenance test per Procedure SO23-3-3.60.6, "Auxiliary Feedwater Pump and Valve Testing," Revision 10, performed on March 18, 2004, following corrective maintenance

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors periodically observed and reviewed shutdown activities during the scheduled Unit 2 Cycle 13 refueling outage to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. The inspectors also verified that activities were performed in accordance with approved procedures and Technical Specification requirements.

The inspectors periodically evaluated plant conditions to verify that safety systems were properly aligned and that maintenance activities were controlled in accordance with the outage risk control plan. The inspectors verified that RCS inventory was properly controlled and that containment closure requirements were met. The inspectors also performed an independent inspection of containment prior to entry into Mode 3.

The following activities were evaluated:

- Plant shutdown in accordance with Procedure SO23-5-1.4, "Plant Shutdown to Hot Standby," Revision 11

- Plant cooldown in accordance with Procedure SO23-5-1.5, "Plant Shutdown from Hot Standby to Cold Shutdown," Revision 23

- Midloop operations in accordance with Procedure SO23-3-1.8, "Draining the Reactor Coolant System," Revision 22

- Shutdown operations in accordance with Procedure SO23-5-1.8, "Shutdown Operations (Modes 5 and 6)," Revision 14

- Refueling operations in accordance with Procedure SO23-I-3.5, "Refueling Sequence," Revision 8

- Containment inspection prior to startup in accordance with Procedure SO123-V-8.15, “Boric Acid Leak Inspection,” Revision 0

- Plant startup in accordance with Procedure SO23-5-1.3, “Plant Startup from Cold Shutdown to Hot Standby,” Revision 27, and Procedure SO23-5-1.3.1, “Plant Startup from Hot Standby to Minimum Load,” Revision 22

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed and/or reviewed performance and documentation for the following five surveillance tests to verify that the structures, systems, and components were capable of performing their intended safety functions and to assess their operational readiness:

- Unit 2 Mode 1 boric acid walkdown per Procedure SO123-V-8.15, “Boric Acid Leak Inspection,” Revision 0, performed on January 9, 2004

- Unit 2 Train A Containment Spray Pump 2P012 quarterly surveillance test per Procedure SO23-3-3.60.7, “Containment Spray Pump and Valve Testing,” Revision 7, performed on January 12, 2004

- Unit 2 Train A Component Cooling Water Pump 2P024 surveillance test per Procedure SO23-3-3.60.3, “Component Cooling Water and Seismic Makeup Pump Test,” Revision 4, performed on January 12, 2004

- Unit 2 Train B Component Cooling Water Pump 2P025 surveillance test per Procedure SO23-3-3.60.3, “Component Cooling Water and Seismic Makeup Pump Test,” Revision 4, performed on January 26, 2004

- Unit 2 Main Steam Isolation Valve 2HV8205 surveillance test per Procedure SO23-3-3.31.4, “Main Steam Valve Testing - Offline,” Revision 6, performed on March 8, 2004

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the following temporary plant modification to verify that the safety functions of safety systems were not affected:

- Cross-tie of Unit 3 service water header to Unit 2 service water supply to Unit 2 Saltwater Cooling Pumps 2P307 and 2P114 bearing seals as documented in ARs 040202110 and 040200691 (Units 2 and 3)

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

Cornerstone: Emergency Preparedness (EP)

a. Inspection Scope

The inspector performed an in-office review of the following:

- Revision 13 to Sections 1 and 2 of the Emergency Plan, submitted January 9, 2004
- Revision 15 to Sections 5 and 6 of the Emergency Plan, submitted January 9, 2004
- Revision 12 to Emergency Plan, Appendices A and B, submitted January 9, 2004
- Revision 21 to Emergency Plan Implementing Procedure SO123-VIII-1, "Recognition and Classification of Emergencies," submitted January 23, 2004

The revisions of the emergency plan added details concerning the owner controlled area, clarified staffing for the emergency advisor for operations position, clarified the process for evacuation of nearby beaches, and updated offsite letters of agreement. The revision to Emergency Plan Implementing Procedure SO123-VIII-1 added the interim spent fuel storage facility to Emergency Action Level E1-3 and added the mesa area to Emergency Action Level F2-1.

These revisions to the emergency plan were compared to their previous versions and to the requirements of 10 CFR 50.47(b) and 50.54(q) to determine if the revisions decreased the effectiveness of the emergency plan.

This revision of Emergency Plan Implementing Procedure SO123-VIII-1 was compared to its previous revision, to the criteria of NEI 99-01, "Methodology for Development of Emergency Action Levels," Revision 2, and to the requirements of 10 CFR 50.47(b) and 50.54(q) to determine if the revision decreased the effectiveness of the emergency plan.

The inspector completed two samples during this inspection.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

This area was inspected to assess the licensee's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas, and worker adherence to these controls. The inspector used the requirements in 10 CFR Part 20 and the licensee's procedures required by Technical Specifications as criteria for determining compliance. During the inspection, the inspector interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspector performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator (PI) events and associated documentation packages reported by the licensee in the occupational radiation safety cornerstone (none were identified)
- Controls (surveys, posting, and barricades) of three radiation, high radiation, or airborne radioactivity areas
- Radiation exposure permit (REP), procedure, engineering controls, and air sampler locations
- Conformity of electronic personal dosimeter alarm setpoints with survey indications and plant policy; workers knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Physical and programmatic controls for highly activated or contaminated materials (nonfuel) stored within spent fuel and other storage pools

- Self-assessments, audits, licensee event reports (LERs), and special reports related to the access control program since the last inspection (no LERs or special reports were documented)
- Corrective action documents related to access controls
- Licensee actions in cases of repetitive deficiencies or significant individual deficiencies (none were identified)
- REP briefings and worker instructions
- Adequacy of radiological controls such as required surveys, radiation protection job coverage, and contamination controls during job performance
- Dosimetry placement in high radiation work areas with significant dose rate gradients (reactor head work)
- Changes in licensee procedural controls of high dose rate - high radiation areas and very high radiation areas (none were identified)
- Controls for special areas that have the potential to become very high radiation areas during certain plant operations
- Posting and locking of entrances to all accessible high dose rate - high radiation areas and very high radiation areas
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

The inspector completed all 21 of the required samples. No opportunities were available to review barrier integrity and performance of engineering controls in airborne radioactivity areas and the adequacy of the licensee's internal dose assessment for any actual internal exposures greater than 50 millirem CEDE because the conditions did not exist.

b. Findings

1. Introduction. The inspectors reviewed the circumstances related to a self-revealing, Green, noncited violation of Technical Specification 5.8.2, because the licensee failed to control two high radiation areas with radiation levels greater than 1.0 rem in 1 hour at 30 centimeters.

Description. On March 8, 2004, an operator entered the Unit 2 volume control tank, Valve Room 319A, on the 37-foot elevation, to verify that the letdown purification return to the volume control tank valve was closed. As the operator completed his task and was leaving the room, his personal electronic dosimeter alarmed due to higher than expected radiation levels. Health physics personnel were contacted and they subsequently surveyed the room and adjacent areas. The survey indicated that the

highest dose rate in Valve Room 319A was 15 rem per hour at 30 centimeters from a pipe elbow near the Letdown Strainer F100, indicating the conditions for a Technical Specifications high radiation area at greater than 1.0 rem per hour. In addition, Room 305H, ion purification exchanger room to Room E075, had radiation levels as high as 5 rem per hour at 30 centimeters, which was not identified by the licensee until this event. Neither of these rooms was properly controlled as a high radiation area with radiation levels greater than 1.0 rem per hour, as required by Technical Specification 5.8.2.

Analysis. The inspectors determined that the licensee's failure to control access to high radiation areas greater than 1.0 rem per hour in accordance with Technical Specification 5.8.2 is a performance deficiency. The finding was greater than minor because it was associated with the occupational radiation safety cornerstone attribute of program and process and affected the cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation. The finding involved the potential for a worker's unplanned or unintended dose resulting from actions contrary to regulations and Technical Specifications. When processed through the occupational radiation safety significance determination process, the finding was determined to be of very low safety significance (Green) because the finding did not involve as low as is reasonably achievable planning or work controls, no individual received an overexposure or a substantial potential for overexposure since the individual stayed in the high radiation area for only a few minutes, and the ability to assess dose was not compromised.

Enforcement. Technical Specification 5.8.2 requires that areas accessible to personnel with radiation levels greater than 1.0 rem in 1 hour at 30 centimeters from the radiation source be provided with locked doors to prevent unauthorized entry. Doors shall remain locked except during periods of access by personnel under an approved REP that specifies the dose rates and maximum stay times in that area.

On March 8, 2004, the licensee failed to control access to high radiation areas with radiation levels greater than 1.0 rem in 1 hour at 30 centimeters. Specifically, access to Room 319A was not provided under an REP that specified the dose rates and maximum stay times in the area, and Room 305H was not locked to prevent unauthorized entry. Because the finding was of very low safety significance and has been entered into the corrective action program as AR 040300701, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361, 362/2004002-02, two examples of a failure to control a high radiation area with radiation levels greater than 1.0 rem in one hour at 30 centimeters.

2. Introduction. A Green noncited violation was identified by the inspectors for the failure to post a radiological hazard (hot spot) in accordance with a Technical Specification required procedure.

Description. On March 10, 2003, during discussions with the licensee's staff about AR 040201480, the inspectors identified a hot spot that was not posted in accordance with procedures. The inspectors interviewed radiation protection personnel about the AR which was generated on February 17, 2004, because an individual's personal

electronic dosimeter alarmed due to higher than expected radiation levels. The licensee provided the inspectors with a survey taken after the event. The survey performed on February 17, 2004, on the 17-foot elevation of the Unit 2 containment building, indicated the presence of a hot spot. The radiation levels were 350 millirem per hour on contact and 50 millirem per hour at 30 centimeters. The licensee posts hot spots to warn workers of radiological hazards; however, in this case, the licensee failed to post the hot spot.

Analysis. The inspectors determined that the licensee's failure to properly post a radiological hazard (hot spot) in accordance with a Technical Specification required procedure is a performance deficiency. The finding was greater than minor because it was associated with the occupational radiation safety cornerstone attribute of program and process and affected the cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation. The finding involved the potential for a worker's unplanned or unintended dose resulting from actions contrary to licensee procedures. When processed through the occupational radiation safety significance determination process, the finding was determined to be of very low safety significance because the finding did not involve as low as is reasonably achievable planning or work controls, no individual received an overexposure or a substantial potential for overexposure, and the ability to assess dose was not compromised.

Enforcement. Technical Specification 5.5.1.1a requires that written procedures be established, implemented, and maintained covering the activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Appendix A, Section 7, references procedures for control of radioactivity and limiting personnel exposure. Station Procedure SO123-VII-20.11.1, "Radiological Posting," Revision 7, step 6.2.8, stated, in part, that each accessible localized point source that has a deep dose equivalent contact radiation level of greater than 100 millirem per hour and is 5 times greater than the deep dose equivalent measured at 30 centimeters are conspicuously posted with the words "HOT SPOT." However, on February 17, 2004, the licensee did not post a hot spot to alert workers of the radiological hazard as required by this procedure. Because the failure to post a radiological hazard was of very low safety significance and has been entered into the corrective action program as AR 040201480, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361, 362/2004002-03, failure to post a radiological hazard.

4. OTHER ACTIVITIES (OA)

4OA1 PI Verification (71151)

1. Reactor Safety Cornerstone

a. Inspection Scope

The inspectors verified the accuracy of data reported by the licensee for the following two PIs to ensure that the PI color was correct for both Units 2 and 3:

- IE1 Unplanned Scrams per 7000 Critical Hours
- IE2 Unplanned Scrams with Loss of Normal Heat Removal

The inspectors reviewed the PI data for the last three quarters of 2003 and the first quarter of 2004. The inspectors reviewed NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2, licensee operating logs and LERs.

b. Findings

No findings of significance were identified.

2. Occupational Radiation Safety Cornerstone

a. Inspection Scope

The inspectors sampled licensee submittals for the PI listed below for the period from January 1 through December 31, 2003. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, were used to verify the basis in reporting for each data element.

Occupational Exposure Control Effectiveness PI

Licensee records reviewed included corrective action documentation that identified occurrences of high radiation areas greater than 1.0 rem at 30 centimeters (as defined in Technical Specification 5.8.2), very high radiation areas (as defined in 10 CFR 20.1003), and unplanned personnel exposures (as defined in NEI 99-02). Additional records reviewed included as low as is reasonably achievable records and whole-body counts of selected individual exposures. The inspector interviewed licensee personnel that were accountable for collecting and evaluating the PI data. In addition, the inspector toured plant areas to verify that high radiation and very high radiation areas were properly controlled.

b. Findings

No findings of significance were identified.

3. Public Radiation Safety Cornerstone

a. Inspection Scope

The inspector sampled licensee submittals for the PI listed below for the period from January 1 through December 31, 2003. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, were used to verify the basis in reporting for each data element.

- Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences

Licensee records reviewed included corrective action documentation that identified occurrences for liquid or gaseous effluent releases that exceeded PI thresholds and those reported to the NRC. The inspector interviewed licensee personnel that were accountable for collecting and evaluating the PI data.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

1. Annual Sample Review

a. Inspection Scope

The inspectors reviewed corrective actions that the licensee took in response to an oil leak in the inboard bearing of the motor to AFW Pump 3P504 as documented in AR 040101988. The review was conducted to ensure that the full extent of the issues was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized.

b. Findings

Introduction. The inspectors determined that the licensee did not properly evaluate the extent of an oil leak in the inboard bearing of the motor to AFW Pump 3P504. The inspectors also determined that the licensee did not initiate prompt corrective actions to fix the oil leak which led to the bearing oil level draining to its low level mark for pump operability. This finding was determined to be a noncited violation with very low-safety significance (Green).

Description. On January 29, 2004, the licensee identified that the motor inboard bearing oil level for AFW Pump 3P504 was low in the bearing's oil level sight glass during pump operation. The oil level was below the scribe mark on the sight glass that is used to signify the minimum amount of oil that is to be present in the bearing. After securing the pump, plant personnel observed that the bearing oil level remained below the minimum scribe mark on the oil level sight glass and declared AFW Pump 3P504 inoperable. AR 040101988 was written that same day and included assignments for maintenance to add oil to the bearing and for engineering to evaluate the condition of the pump. Maintenance personnel added approximately 24 ounces of oil to the pump's inboard motor bearing that evening. Engineering personnel characterized the oil leak as minor and the pump was declared operable.

On February 3, 2004, the inspectors walked down the Unit 3 AFW area to observe the degraded condition of AFW Pump 3P504. Upon inspection of the pump, the inspectors noticed approximately 4 ounces of oil underneath the pump's motor inboard bearing. In

addition, the inspectors observed that the oil level in the sight glass of the motor inboard bearing was at its minimum scribe mark. The inspectors interviewed the onshift primary plant equipment operator who indicated that he had not noticed the 4 ounces of oil underneath the bearing. Furthermore, the operator indicated that the oil level in the inboard motor bearing sight glass was at the minimum scribe mark when he inspected the pump on his rounds a few hours earlier. Maintenance personnel subsequently added 4 ounces of oil to the bearing housing.

The inspectors reviewed AR 040101988 and discovered that the AR had been closed without a maintenance order assignment to correct the oil leak on AFW Pump 3P504. The inspectors subsequently interviewed maintenance and engineering personnel that were involved in the initial evaluation of the oil leak when it was identified on January 29, 2004. The individuals interviewed indicated that, at the time of the initial identification of leakage on January 29, both a maintenance supervisor and an engineering manager determined that a maintenance order needed to be generated to have the oil leak corrected. The engineering manager indicated that neither one of them initiated the necessary maintenance order because each one thought that the other one would generate the order.

The licensee generated AR 040200173 in response to the inspectors' observations and the accelerated oil leak rate. The primary leak source was corrected by adjusting the thermocouple entering the motor inboard bearing housing. The 4 ounces of oil underneath the pump was also removed. In response to the operator not identifying nor removing the oil underneath the pump on February 3, 2004, AR 040200173-06 was initiated to provide additional training to the operators on the significance of proper oil monitoring.

Analysis. The inspectors evaluated the significance of the finding using the significance determination process. The inspectors determined that the finding had a credible impact on the mitigating systems cornerstone because the availability and capability of a portion of the AFW system could have been compromised. The finding was determined to be more than minor because, if left uncorrected, it would have become a more significant safety concern. Specifically, the oil leak would likely have continued to degrade to the point where AFW Pump 3P504 would have been rendered inoperable. The finding was determined to have very low safety significance (Green) because AFW 3P504 remained operable. This finding had crosscutting aspects associated with problem identification and resolution because the licensee failed to take adequate corrective actions to address the oil leak.

Enforcement. The regulations in 10 CFR Part 50, Appendix B, Criterion XVI, state, in part, that measures shall be established to assure that conditions adverse to quality, such as deficiencies, are promptly identified and corrected. Contrary to this criterion, the licensee failed to adequately correct the identified oil leak in the inboard bearing of the motor to AFW Pump 3P504 and failed to promptly re-identify the leak during subsequent inspections of the pump . This violation of 10 CFR Part 50 is being treated as a noncited violation (NCV 05000362/2004002-04, failure to promptly identify and correct an oil leak in the inboard bearing of the motor to AFW Pump 3P504) consistent

with Section VI.A of the Enforcement Policy. This violation was entered into the licensee's corrective action program as ARs 040101988 and 04040200173.

2. Quarterly Review of Corrective Action Documents

a. Inspection Scope

The inspectors reviewed a selection of ARs written during this period to determine if the licensee was entering conditions adverse to quality into the corrective action program at an appropriate threshold, to determine if the ARs were appropriately categorized and dispositioned in accordance with the licensee's procedures and, in the case of conditions significantly adverse to quality, to determine if the licensee's root cause determination and extent of condition evaluation were accurate and of sufficient depth to prevent recurrence of the condition.

b. Findings

No findings of significance were identified.

3. Cross-References to Problem Identification and Resolution Findings Documented Elsewhere

The inspector determined that the licensee failed to identify a problem involving the posting of a hot spot. As discussed in Section 2OS1, AR 040201480 was generated because of a personal electronic dosimeter alarm that occurred on February 17, 2004. A survey conducted of the area where the alarm occurred indicated a hot spot. However, the licensee did not identify the lack of a hot spot posting and, therefore, did not adequately resolve the problem.

4OA4 Crosscutting Aspects of Findings

The inspectors determined that a human performance deficiency in procedure compliance directly contributed to the finding in Section 1R12.1. Maintenance workers failed to implement FME controls per procedural requirements.

4OA5 Other

1. Temporary Instruction 2515/150, Revision 2: Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles (NRC Order EA-03-009)

a. Inspection Scope

The inspectors observed and reviewed actions the licensee took in response to NRC Order EA-03-009 (first revision) dated February 20, 2004. The Order was effective immediately and established interim inspection requirements for reactor pressure vessel heads at pressurized water reactors. This Order was a revision to a previous version that was issued on February 11, 2003. The licensee was conforming to the requirements of the original Order dated February 11, 2003, during the Unit 2 Cycle 13

refueling outage when the revision was issued on February 20, 2004. The licensee changed its approach to inspecting the Unit 2 reactor vessel head to meet the revised requirements of the Order.

Susceptibility Ranking

The Unit 2 head is in the high susceptibility category and, as a result, is being inspected by the licensee at the maximum frequency specified in the Order.

NDEs

The inspectors reviewed the testing methodology and reviewed the overall results with licensee and contract personnel, which indicated no detectable defects associated with primary water stress corrosion cracking of any of the Unit 2 reactor vessel head penetrations. The inspectors also independently reviewed samples of the results of the ultrasonic and eddy current tests performed. The inspectors interviewed plant personnel and contractors performing the inspections to determine their understanding of inspection standards and data acceptance criteria. The inspectors reviewed and verified that the Westinghouse field service procedures on data acquisition, instrument calibration, and data analysis were properly utilized and incorporated into the licensee's procedures. The inspectors also reviewed licensee and contractor qualifications and certifications for conducting the nondestructive data evaluations. The inspectors also observed the use of data gathering equipment and data analysis for a sample of head penetration nozzles.

The licensee utilized the nondestructive techniques of ultrasonic testing (UT), eddy current testing (ECT), and dye penetrant testing to inspect for cracks in all 91 control element drive mechanism (CEDM) penetrations, all 10 incore instrumentation (ICI) penetrations, and the reactor head vent penetration. UT was utilized to assess for leakage in the interference fit zone for all 102 penetrations. Both UT and ECT were utilized to inspect the 91 CEDMs. The licensee was not able to meet all of the requirements of the Order for inspecting below the toe of the j-groove weld on the 91 CEDMs because of interference from guide cones. The licensee was granted relaxation from the NRC staff for those inspections. The licensee utilized a combination of UT, ECT, and penetrant testing to meet the requirements of the Order for inspecting the 10 ICIs. ICI Nozzles 93, 97, 98, and 101 had material indications that the licensee determined were not cracks and successfully corrected the indications in accordance with the appropriate ASME Code.

Bare Metal Visual Examinations

The licensee performed a visual inspection of the bare metal surfaces of the Unit 2 reactor vessel head during the Cycle 13 refueling outage that occurred in this inspection period. The reactor vessel head lifting rig obstructed approximately 1.5 percent of the bare metal surface of the vessel head on the periphery. The obstruction did not impede inspection of the head penetrations and, as a result, the visual inspection of the head met the requirements of the Order. The inspectors performed an independent visual inspection of the reactor vessel head through both direct physical inspection and video

recordings. The inspectors noted that the video camera equipment provided sufficient clarity and resolution to identify the presence of small boron deposits (less than 1 cubic inch), as described in NRC Bulletin 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles." The inspectors reviewed qualification records and discussed the experience and qualifications of the examiners. Three experienced and trained engineers independently performed the head examination. The inspectors verified that the entire circumference of each head penetration was examined and that no evidence of boron crystals or cracking were present. The licensee identified minor streaks of boron residue on some CEDM housings and light streaks on the reactor head. The licensee attributed the residue to a CEDM venting activity that occurs before reactor startup.

The inspectors also reviewed the licensee's procedure for identifying the potential for boric acid leaks above the vessel head. They also interviewed and observed engineering personnel perform the inspections of components above the head. The inspection that was performed was limited to the components on the periphery that could be easily observed. The licensee did not identify any indications of boric acid leakage from components above the reactor vessel head.

b. Findings

No findings of significance were identified.

2. Temporary Instruction 2515/153: Reactor Containment Sump Blockage

a. Inspection Scope

The inspectors observed and reviewed licensee activities in response to NRC Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors (PWRs)." The TI was issued to assess the impact of potential postaccident debris blockage effects for the emergency core cooling system and containment spray system.

In addition to reviewing the licensee's response to NRC Bulletin 2003-01, the inspectors reviewed the licensee's programs and procedures for performing containment walkdowns and controlling containment coating and insulating materials, as well as a comprehensive survey of current Unit 2 containment materials and their susceptibility during accident conditions to quantify potential debris sources.

The inspectors reviewed surveillance data obtained during the Unit 2 Cycle 13 outage for ensuring containment integrity and containment recirculation sump operability. The inspectors verified that the surveillances included checks for gaps in recirculation sump screen flowpaths and for potential obstructions upstream of the recirculation sumps. The inspectors also verified that the surveillances contained steps to quantify potential debris sources.

The inspectors also reviewed licensed operator requalification lesson plans used for providing operations personnel appropriate success paths for accident mitigation during scenarios where a delay in transfer to sump recirculation may be desirable.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

On February 18, February 26, March 12, and April 7, 2004, the inspectors presented the inspection results to Mr. J. Wambold, Mr. D. Nunn, and other members of their staffs who acknowledged the findings. The inspector asked the licensee whether any material examined during the inspection should be considered proprietary. The licensee identified several documents that were proprietary. The inspectors informed the licensee that these documents would be destroyed upon completion of the inspection.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a noncited violation.

10 CFR 20.1501(a) requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present. Pursuant to 10 CFR 20.1003, a survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material, or other sources of radiation.

The licensee failed to perform a survey of two rooms and post them as radiation areas in accordance with 10 CFR 20.1902(a). A monthly survey conducted on February 6, 2003, documents the deposting of ion exchanger valve inlet Rooms 403K and 403L on the 50-foot elevation of the Unit 3 radwaste building. Unit 3 was shut down during that monthly survey and dose rates were less than 3 millirem per hour. On February 10, 2003, Unit 3 came up to power and the dose rates increased; however, no surveys were conducted in those rooms and normal operations in those rooms were allowed to continue. It was not until a survey performed on February 26, 2003, that the licensee identified that the two rooms had radiation levels between 5 and 35 millirems per hour at 30 centimeters. These dose rates required the rooms to be posted as radiation areas. These events are described in the licensee's corrective action program as AR 030202100. Because the violation does not involve as low as is reasonably

achievable planning or work controls, no individual received an overexposure or a substantial potential for overexposure, and the ability to assess dose was not compromised, this violation is of very low safety significance.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

C. Anderson, Manager, Site Emergency Preparedness
D. Brieg, Manager, Maintenance Engineering
R. Coe, Engineer, Systems Engineering/Steam Generators
G. Cook, Supervisor, Compliance
M. Cooper, Manager, Plant Operations
R. Corbett, Manager-2, Health Physics
M. Love, Manager, Maintenance
J. Madigan, Manager, Health Physics
A. Mahindrakar, Engineer, Maintenance Engineering/Codes and Welding
A. Matheny, Engineer, Systems Engineering/Steam Generators
C. McAndrews, Manager, Nuclear Oversight and Assessment
A. Meichler, Supervisor, Maintenance Engineering/Codes and Welding
D. Nunn, Vice President, Engineering and Technical Services
N. Quigley, Manager, Mechanical/Nuclear Maintenance Engineering
D. Richards, Supervisor, Onsite Emergency Preparedness
A. Scherer, Manager, Nuclear Regulatory Affairs
M. Short, Manager, Systems Engineering
T. Vogt, Manager, Operations
R. Waldo, Station Manager
T. Yackle, Manager, Design Engineering
J. Wambold, Vice President, Nuclear Generation

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000361/2004002-01	NCV	Failure to follow FME procedures (Section 1R12.1)
05000361;362/2004002-02	NCV	Two examples of a failure to control a high radiation area with radiation levels greater than 1.0 rem in 1 hour at 30 centimeters (Section 2OS1)
05000361;362/2004002-03	NCV	Failure to post a radiological hazard (Section 2OS1)
05000362/2004002-04	NCV	Failure to promptly identify and correct an oil leak in the inboard bearing of the motor to AFW Pump 3P504 (Section 4OA2)

Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignments (71111.04)

Procedures

SO23-3-1.8, "Draining the Reactor Coolant System," Revision 22
SO23-3-3.25, "Once a Shift Surveillance (Modes 1-4)," Revision 23
SO23-3-3.30.10, "Miscellaneous Systems Online Valve Test," Revision 8
SO23-9-5, "Condensate Storage and Transfer System," Revision 17

AR

AR 040400365

Drawings

Piping and Instrument Diagram 40160A, "Auxiliary Feedwater System," Revision 38

Section 1R08: Inservice Inspection Activities (71111.08)

Procedures

SO123-IN-1, "Inservice Inspection Program," Revision 6

SO23-XXVII-1, "Inservice Inspection Program Implementation," Revision 0

SO23-XXVII-1.1, "Inservice Inspection Program Maintenance," Revision 0

SO23-XXVII-2, "Inservice Inspection of Reactor Coolant Pump Flywheels," Revision 3

SO23-XXVII-3.1, "Inservice Inspection of Class 1 Components and Their Supports," Revision 4

SO23-XXVII-3.2, "Inservice Inspection of Class 2 Components and Their Supports," Revision 3

SO23-XXVII-4.76, "Criteria For Installing 17.5 Inch TIG Welded I-690 Transition Zone Sleeves in Steam Generators," Revision 2

SO23-XXVII-4.88, "Installation of I-690 TIG Welded Transition Zone Sleeves in the Steam Generator Tube Sheet Region," Revision 2

SO23-XXVII-4.91, "Welding Procedure Specification For Automatic Tube Sleeve"

SO23-XXVII-20.47, “Magnetic Particle Examination,” Revision 2

SO23-XXVII-20.48, “Liquid Penetrant Examination (PT-10),” Revision 1

SO23-XXVII-20.49, “Visual Examination Procedure to Examine the Condition of Nuclear Parts, Components, or Surfaces (VT-1),” Revision 2

SO23-XXVII-20.51, “Visual Examination procedure for Operability of Nuclear Components and Supports and Conditions Relating to Their Functional Adequacy (VT-3),” Revision 2

SO23-XXVII-20.55, “Ultrasonic Examination of Austenitic Vessels, Two Inches and Less in Thickness,” Revision 4

SO23-XXVII-20.59, “Planar Flaw Characterization to ASME Section XI Code Requirements,” Revision 1

SO23-XXVII-20.66, “Ultrasonic Examination of Vessel Welds and Adjacent Base Metal,” Revision 2

SO23-XXVII-30.1, “Ultrasonic Thickness Measurements,” Revision 0

SO23-XXVII-30.5, “Ultrasonic Examination of Ferritic Piping Welds,” Revision 1

SO23-XXVII-30.6, “Ultrasonic Examination of Austenitic Piping Welds,” Revision 2

SO23-XXVII-30.7, “Ultrasonic Examination of Bolts and Studs,” Revision 1

SO23-XXVII-30.8, “Ultrasonic Through Wall Sizing in Pipe Welds,” Revision 1

SO23-XXVII-30.10, “Ultrasonic Examination of Reactor Vessel Closure Head Welds and Adjacent Base Metal,” Revision 2

SO23-XXVII-30.11, “Manual Through Wall and Length Sizing of Ultrasonic Indications in Reactor Pressure Vessel Welds,” Revision 1

Observations of NDEs:

System	Component/Weld Identification	Examination Method
Main Steam	02-052-026/Header Extrusion to 6" Pipe	Ultrasonic Examination
Main Steam	02-052-027/Header Extrusion to 6" Pipe	Ultrasonic Examination
Main Steam	02-052-029/Header Extrusion to 6" Pipe	Ultrasonic Examination
Main Steam	02-052-030/Header Extrusion to 6" Pipe	Ultrasonic Examination
Main Steam	02-052-031/Header Extrusion to 6" Pipe	Ultrasonic Examination
Main Steam	02-052-045/Header Extrusion to 6" Pipe	Ultrasonic Examination

System	Component/Weld Identification	Examination Method
Main Steam	02-052-046/Header Extrusion to 6" Pipe	Ultrasonic Examination
Main Steam	02-052-047/Header Extrusion to 6" Pipe	Ultrasonic Examination
Main Steam	02-052-048/Header Extrusion to 6" Pipe	Ultrasonic Examination
Main Steam	02-052-042/40" Reducing Tee to 26" Elbow	Ultrasonic Examination
Main Steam	02-052-042A/26" Elbow Body Outside Radius	Ultrasonic Examination
Main Steam	02-052-042B/26" Elbow Body Inside Radius	Ultrasonic Examination
Main Steam	02-052-044/26" Elbow to Header	Ultrasonic Examination
Main Steam	02-052-044A/Main Steam Header Longitudinal Weld	Ultrasonic Examination
Regenerative Heat Exchanger	02-080-001/Shell to Tubesheet Weld	Ultrasonic Examination
Regenerative Heat Exchanger	02-080-002/Tubesheet to Shell	Ultrasonic Examination
Regenerative Heat Exchanger	02-080-003/Nozzle to Shell Circumferential Weld	Ultrasonic Examination
Regenerative Heat Exchanger	02-080-004/Head to Shell Circumferential Weld	Ultrasonic Examination
Regenerative Heat Exchanger	02-080-005/Shell to Shell Circumferential Weld	Ultrasonic Examination
Reactor Pressure Vessel Head	02-002-001/Flange to Torus Weld	Magnetic Particle Examination
Regenerative Heat Exchanger Piping	02-080-010/Integrally Welded Attachment	Liquid Penetrant Examination
Regenerative Heat Exchanger Piping	02-080-018/Integrally Welded Attachment	Liquid Penetrant Examination

Maintenance Orders

02041362000, 03070732000, 03070734000, 03080640000, 03090329002, and 03091575000

Section 2OS1: Access Control to Radiologically Significant Areas (71121.01)

ARs

021200624, 021201026-2, 021201416, 030100716, 030100762, 030100910, 030101130, 030101186, 030101646, 030200819, 030201839, 030202100, 030300887, 030501475, 030601243, 030800250, 030901051-16, 031101149, 031100298, 031201238, 040200337, 040200416, 040200868, 040201480, 040201801, 040300701, 040300805, and 040300934

Audits and Self-Assessments

Radiation Protection Audit, SCES-012-03, dated October 30, 2003

Health Physics Division Self-Assessment Report for the First Quarter 2003, SO123-SA-1, Self-Assessment Order, dated April 30, 2003

Health Physics Division Self-Assessment Report for the Second Quarter 2003, SO123-SA-1, Self-Assessment Order, dated July 28, 2003

Health Physics Division Self-Assessment Report for the Third Quarter 2003, SO123-SA-1, Self-Assessment Order, dated October 29, 2003

Health Physics Division Self-Assessment Report for the Fourth Quarter 2003, SO123-SA-1, Self-Assessment Order, dated January 30, 2004

REPs

200124, Activity Number A0808000027, SCE Radiography
200129, Task #1, Activity Number A0808000009, Upper Guide Structure Installation
200125, Task #2, Activity Number A0808000009, Pool Work Support

Procedures

SO123-VII-20, Health Physics Program, Revision 10
SO123-VII-20.10, Radiological Work Planning and Controls, Revision 9
SO123-VII-20.10.3, Health Physics Work Control Plans, Revision 2
SO123-VII-20.11, Access Control, Revision 8
SO123-VII-20.11.1, Radiological Posting, Revision 7

Section 4OA5.1: Temporary Instruction 2515/150, Revision 2: Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles (NRC Order EA-03-009)

Procedures

SO23-XXXIII-8.16, “Reactor Coolant System Alloy 600 Inspection,” Revision 2

SO23-XXVII-3.51.1, “IntraSpect Eddy Current Inspection of J-Groove Welds in Vessel Head Penetrations,” Revision 2

SO23-XXVII-3.51.2, “IntraSpect Eddy Current Inspection of Reactor Vessel Head Penetrations,” Revision 2

SO23-XXVII-3.51.3, “IntraSpect Eddy Current Analysis Guidelines,” Revision 2

SO23-XXVII-3.51.4, “IntraSpect Ultrasonic Testing for Inspection of Reactor Vessel Head Penetrations, Time of Flight UT, Longitudinal Waves, and Shear Wave,” Revision 2

SO23-XXVII-3.51.5, “IntraSpect Ultrasonic Procedure for Inspection of Reactor Vessel Head Vent Tube,” Revision 2

SO23-XXVII-3.51.6, “Pulser/Receiver Linearity Procedure,” Revision 1

SO23-XXVII-3.51.8, “Reactor Vessel Head Penetration Inspection Tool Operation for San Onofre,” Revision 2

SO23-XXVII-3.51.9, “IntraSpect UT Analysis Guidelines,” Revision 1

SO23-XXVII-4.94, “Remote Fluorescent Post-Emulsifiable Dye Penetrant Examination and Acceptance Standards,” Revision 2

Section 4OA5.2: Temporary Instruction 2515/153: Reactor Containment Sump Blockage

Calculation #A-98-NM-002, “Post LOCA Emergency Sump Operability in Presence of Loose Coatings and Other Debris,” Revision 0

Ameron International Design Basis Analysis Qualification Report for Amerlock 400 Containment Coating Material, dated December 22, 1977

Mobile Chemical Company Design Basis Analysis Qualification Report for Hi-Build Epoxy 84 and 89 Series, dated December 6, 1976

San Onofre Response to NRC Bulletin 2003-01, “Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors,” dated August 1, 2003

San Onofre Final Safety Analysis Report Section 6.2, “Containment Systems,” Revision 16

“Hydraulic Model Studies of Containment Emergency Sump Recirculation Intakes with Revised Operating Water Levels,” performed by Western Hydraulic Laboratories, dated October 10, 1990

Southern California Edison Memorandum on Unit 2 Containment Coating Walkdowns dated February 24, 2004

Unit 2 Cycle 13 Refueling Outage Containment Coatings Walkdown Summary per MO 03021706

San Onofre Nuclear Training Division Lesson Plan Number 2RP370, “Emergency Operating Instructions,” Revision 4

SO23-1-2.53, “Containment Emergency Sump Inspection Surveillance,” Revision 6

SO23-3-2.34, “Containment Access Control, Inspections, and Airlocks,” Revision 16

ARs 030600583, 040301091, and 040301450

LIST OF ACRONYMS

AR	action request
ASME	American Society of Mechanical Engineers
AFW	auxiliary feedwater
CEA	control element assembly
CEDM	control element drive mechanism
CFR	Code of Federal Regulations
ECT	eddy current testing
EDG	emergency diesel generator
FME	foreign material exclusion
ICI	incore instrumentation
LER	licensee event report
NDE	nondestructive examination
PI	performance indicator
PVC	polyvinyl chloride
REP	radiation exposure permit
RCS	reactor coolant system
RTD	resistant temperature detectors
SG	steam generator
UT	ultrasonic testing