



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

November 1, 2006

EA-06-084

Richard M. Rosenblum
Senior 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 INTEGRATED
INSPECTION REPORT 05000361/2006004; 05000362/2006004; AND
OFFICE OF INVESTIGATIONS REPORT OI 4-2005-028

Dear Mr. Rosenblum:

On September 23, 2006, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your San Onofre Nuclear Generating Station, Units 2 and 3 facility. The enclosed integrated report documents the inspection findings, which were discussed on September 28, 2006, with Dr. R. Waldo and other members of your staff.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The report documents one self-revealing noncited violation. The finding was evaluated under the risk significance determination process as having very low safety significance (Green). Because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating the finding as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. One licensee-identified violation (EA-06-084), which was determined to be of very low safety significance is listed in Section 40A7 of this report. If you contest these noncited violations 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, Region IV; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-001; and the NRC Resident Inspector at San Onofre.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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).

Sincerely,

/RA/

Troy W. Pruett, Chief
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Division of Reactor Projects

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

Enclosure:
NRC Inspection Report 05000361/2006004; 05000362/2006004
w/Attachment: Supplemental Information

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SUNSI Review Completed: __TWP__ ADAMS: ☒ Yes ☐ No Initials: __TWP__
☒ Publicly Available ☐ Non-Publicly Available ☐ Sensitive ☒ Non-Sensitive

R:\ REACTORS\ SO23\2006\SO2006-04RP-CCO.wpd

RIV:RI:DRP/D	SRI:DRP/D	C:DRS/PSB	C:DRS/OB	C:DRS/EB1
MASitek	CCOsterholtz	MPShannon	VGGaddy	JAClark
E-TWPrutt	T-TWPrutt	/RA/	/RA/	/RA/
10/15/06	10/15/06	11/01/06	10/19/06	10/19/06
C:DRS/EB2	ACES	SAC	C:DRP/D	
LJSmith	GMVasquez	HAFreeman	TWPrutt	
/RA/	/RA/	/RA/	/RA/	
10/18/06	11/01/06	11/01/06	10/31/06	

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 50-361, 50-362

Licenses: NPF-10, NPF-15

Report: 05000361/2006004 and 5000362/2006004

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: June 25 through September 23, 2006

Inspectors: C. C. Osterholtz, Senior Resident Inspector, Project Branch D, DRP
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Approved By: Troy W. Pruett, Chief
Project Branch D
Division of Reactor Projects

SUMMARY OF FINDINGS

IR05000361/2006004, 05000362/2006004; 06/25/06 - 09/23/06; San Onofre Nuclear Generating Station, Units 2 & 3; Resident and Regional Inspector Report; ALARA.

This report covered a 3-month period of inspection by resident inspectors, a health physicist, a reactor inspector, and a contractor. No findings were identified. The inspection identified one noncited violation. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609. "Significance Determination Process." Findings of which the significance determination process does not apply may be Green or be assigned a severity level after NRC management's 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: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing, noncited violation of 10 CFR Part 20.1501(a), resulting from the licensee's failure to adequately evaluate radiological conditions in a work area. While assisting in decontaminating the reactor cavity on March 12, 2006, four workers were exposed to concentrations of airborne radioactivity higher than anticipated, resulting in unplanned dose. The licensee was alerted to the problem when the four workers attempted to leave the radiological controlled area and caused the personnel contamination monitors to alarm. The licensee's immediate corrective actions included a review of the occurrence and assessment of the committed effective dose equivalents for each of the four workers. The highest dose received by a worker was approximately 60 millirem more than planned. Additional corrective action associated with the work planning process was still being evaluated.

This finding is greater than minor because it is associated with the occupational radiation safety program attribute of exposure control and affected the cornerstone objective, in that the lack of knowledge of radiological conditions led to an unplanned personnel dose. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined that the finding was of very low safety significance because it did not involve: (1) an ALARA finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess doses. Additionally, this finding has a crosscutting aspect in the area of human performance associated with resources because the work plan did not fully identify the job site controls and action plans necessary to do the job.

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective actions are listed in section 40A7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at approximately 99 percent reactor power. On July 2, 2006, Unit 2 reduced power to approximately 86 percent to perform maintenance on the manways for condenser Waterboxes 115 and 118. Unit 2 returned to approximately 99 percent power on July 4, 2006, and remained there throughout the rest of the inspection period.

Unit 3 began the inspection period at approximately 100 percent reactor power. On July 30, 2006, Unit 3 reduced power to approximately 75 percent power to lower the radiation dose levels in the area of reactor coolant Pump 2P001. Oil was added to the motor upper bearing reservoir of Pump 2P001 and Unit 3 was returned to approximately 100 percent power the same day. Unit 3 remained at 100 percent power throughout the rest of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness For Seasonal Susceptibilities

a. Inspection Scope

The inspectors completed a review of the licensee's readiness of seasonal susceptibilities involving brush fires that are likely to occur during high temperatures and high winds. The inspectors: (1) reviewed plant procedures, the Updated Final Safety Analysis Report (UFSAR), and Technical Specifications (TS) to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the below listed system to ensure that adverse weather protection features were sufficient to support operability, including the ability to perform safe shutdown functions; (3) evaluated operator staffing levels to ensure the licensee could maintain the readiness of essential systems required by plant procedures; and (4) reviewed the corrective action program (CAP) to determine if the licensee identified and corrected problems related to adverse weather conditions.

- July 26, 2006, Units 2 and 3, electrical switchyard

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Readiness For Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors completed a review of the licensee's readiness for impending adverse weather involving severe thunderstorms, tornado warnings, and high winds. The inspectors: (1) reviewed plant procedures, the UFSAR, and TSs to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the below listed system to ensure that adverse weather protection features (heat tracing, space heaters, weatherized enclosures, and temporary chillers) were sufficient to support operability, including the ability to perform safe shutdown functions; (3) reviewed maintenance records to determine that applicable surveillance requirements were current before the anticipated severe thunderstorms, tornado warnings, and high winds developed; and (4) reviewed plant modifications, procedure revisions, and operator workarounds to determine if recent facility changes challenged plant operation.

- July 26, 2006, Units 2 and 3, electrical switchyard

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors: (1) walked down portions of the below listed risk important systems and reviewed plant procedures and documents to verify that critical portions of the selected systems were correctly aligned; and (2) compared deficiencies identified during the walkdown to the licensee's UFSAR and CAP to ensure problems were being identified and corrected.

- July 18, 2006, Unit 2 Train A auxiliary feedwater system while the Train B system was out of service for planned maintenance on Pump 2P504
- July 24-25, 2006, Unit 3 Train A emergency diesel Generator 3G002 while Train B emergency diesel Generator 3G003 was out of service for planned maintenance

- August 8, 2006, Unit 2 Train A component cooling water and saltwater cooling systems while Train B heat Exchanger 2E002 was out of service for the repair of leaking tubes

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

Quarterly Inspection

The inspectors walked down the six below listed plant areas to assess the material condition of active and passive fire protection features and their operational lineup and readiness. The inspectors: (1) verified that transient combustibles and hot work activities were controlled in accordance with plant procedures; (2) observed the condition of fire detection devices to verify they remained functional; (3) observed fire suppression systems to verify they remained functional and that access to manual actuators was unobstructed; (4) verified that fire extinguishers and hose stations were provided at their designated locations and that they were in a satisfactory condition; (5) verified that passive fire protection features (electrical raceway barriers, fire doors, fire dampers, steel fire proofing, penetration seals, and oil collection systems) were in a satisfactory material condition; (6) verified that adequate compensatory measures were established for degraded or inoperable fire protection features and that the compensatory measures were commensurate with the significance of the deficiency; and (7) reviewed the UFSAR to determine if the licensee identified and corrected fire protection problems.

- July 7, 2006, Unit 2 Train A emergency core cooling system pump room
- July 7, 2006, Unit 2 Train B emergency core cooling system pump room
- July 7, 2006, Unit 2 high pressure safety injection Pump 2P018 room
- July 26, 2006, Unit 2 Train A emergency diesel generator room
- July 26, 2006, Unit 2 Train B emergency diesel generator room
- July 26, 2006, Units 2 and 3 Technical Support Center

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

Annual Inspection

On August 10, 2006, the inspectors observed a fire department drill to evaluate the readiness of licensee personnel to prevent and fight fires, including the following aspects: (1) the number of personnel assigned to the fire department; (2) use of protective clothing; (3) use of breathing apparatuses; (4) use of fire procedures and declarations of emergency action levels; (5) command of the fire department; (6) implementation of prefire strategies and briefs; (7) access routes to the fire and the timeliness of the fire department response; (8) establishment of communications, (9) effectiveness of radio communications; (10) placement and use of fire hoses; (11) entry into the fire area; (12) use of firefighting equipment, (13) searches for fire victims and fire propagation, (14) smoke removal; (15) use of prefire plans; (16) adherence to the drill scenario; (17) performance of the postdrill critique; and (18) restoration from the fire drill. The licensee simulated a fire at the Unit 2 main transformer.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

Semiannual Internal Flooding

a. Inspection Scope

The inspectors: (1) reviewed the UFSAR, the flooding analysis, and plant procedures to assess seasonal susceptibilities involving internal flooding; (2) reviewed the UFSAR and CAP to determine if the licensee identified and corrected flooding problems; (3) inspected underground bunkers/manholes to verify the adequacy of: (a) sump pumps, (b) level alarm circuits, (c) cable splices subject to submergence, and (d) drainage for bunkers/manholes; (4) verified that operator actions for coping with flooding can reasonably achieve the desired outcomes; and (5) walked down the below listed area to verify the adequacy of: (a) equipment seals located below the floodline, (b) floor and wall penetration seals, (c) watertight door seals, (d) common drain lines and sumps, (e) sump pumps, level alarms, and control circuits, and (f) temporary or removable flood barriers.

- July 26 and 27, 2006, Unit 2 and 3 auxiliary feedwater pump rooms, pipe tunnels, and Tank T-120 enclosures

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification (71111.11)

a. Inspection Scope

The inspectors observed testing and training of senior reactor operators and reactor operators to identify deficiencies and discrepancies in the training, to assess operator performance, and to assess the evaluator's critique. The inspectors observed the following two scenarios:

- August 17, 2006, Unit 2 simulator scenario involving the failure of a reactor coolant pump and steam generator tube rupture
- August 25, 2006, Unit 2 simulator scenario involving a seismically induced loss of offsite power coupled with a failure of condensate storage Tank 2T121 crosstie Valve 2MU088 to open

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

1. Maintenance Effectiveness Baseline Review

a. Inspection Scope

The inspectors reviewed the below listed maintenance activity to: (1) verify the appropriate handling of structure, system, and component (SSC) performance or condition problems; (2) verify the appropriate handling of degraded SSC functional performance; (3) evaluate the role of work practices and common cause problems; and (4) evaluate the handling of SSC issues reviewed under the requirements of the maintenance rule; 10 CFR Part 50, Appendix B; and the TSs.

- August 7 - September 12, 2006, Units 2 and 3, premature tripping of thermal overloads associated with safety-related motors

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

2. Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed the overall implementation of the requirements of the Maintenance Rule (10 CFR 50.65) to verify that the licensee had conducted appropriate evaluations of equipment functional failures, maintenance preventable functional failures, unplanned capacity loss factor, and system unavailability. The inspectors reviewed root causes and corrective action determinations for equipment failures and reviewed performance goals for ensuring corrective action effectiveness. The inspectors discussed the evaluations with the reliability engineering supervisor and the system engineers.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

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

.1 Risk Assessment and Management of Risk

a. Inspection Scope

The inspectors reviewed the two below listed assessment activities to verify: (1) performance of risk assessments when required by 10 CFR 50.65 (a)(4) and licensee procedures prior to changes in plant configuration for maintenance activities and plant operations; (2) the accuracy, adequacy, and completeness of the information considered in the risk assessment; (3) that the licensee recognizes, and/or enters as applicable, the appropriate licensee-established risk category according to the risk assessment results and licensee procedures; and (4) that the licensee identified and corrected problems related to maintenance risk assessments.

- July 5, 2006, Unit 2, risk assessment associated with high pressure safety injection Pump 2P017 and charging Pump 2P191, both out of service
- August 3, 2006, Unit 3, risk assessment associated with high levels of sea grass intruding upon the saltwater cooling and circulating water systems

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

.2 Emergent Work Control

a. Inspection Scope

The inspectors: (1) verified that the licensee performed actions to minimize the probability of initiating events and maintained the functional capability of mitigating systems and barrier integrity systems; (2) verified that emergent work-related activities such as troubleshooting, work planning/scheduling, establishing plant conditions, aligning equipment, tagging, temporary modifications, and equipment restoration did not place the plant in an unacceptable configuration; and (3) reviewed the UFSAR to determine if the licensee identified and corrected risk assessment and emergent work control problems.

- July 7, 2006, Unit 3 control element Assembly 12 spontaneous transfers from the upper gripper to the lower gripper (Action Request (AR) 060700122)
- July 30, 2006, Unit 3 reactor coolant Pump 3P001 motor upper bearing oil reservoir leak (AR 060600655)
- August 30, 2006, Unit 3 broken relay on component cooling water Pump 3P025 (AR 060600644)

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Nonroutine Evolutions and Events (71111.14)

a. Inspection Scope

The inspectors: (1) reviewed operator logs, plant computer data, and/or strip charts for the below listed condition to evaluate operator performance in coping with nonroutine events and transients; (2) verified that operator actions were in accordance with the response required by plant procedures and training; and (3) verified that the licensee has identified and implemented appropriate corrective actions associated with personnel performance problems that occurred during the nonroutine evolutions sampled.

- July 25, 2006, Units 2 and 3, operations personnel response to escalated offsite power voltage

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors: (1) reviewed plants status documents, such as operator shift logs, emergent work documentation, deferred modifications, and standing orders to determine if an operability evaluation was warranted for degraded components; (2) referred to the UFSAR and design basis documents to review the technical adequacy of licensee operability evaluations; (3) evaluated compensatory measures associated with operability evaluations; (4) determined degraded component impact on any TSs; (5) used the Significance Determination Process to evaluate the risk significance of degraded or inoperable equipment; and (6) verified that the licensee has identified and implemented appropriate corrective actions associated with degraded components.

- June 25, 2006, Unit 3 steam Generator 3EO89 tube leak
- July 14, 2006, Unit 2 safety injection tank isolation Valve 2HV9350 water in valve yoke
- August 23, 2006, Unit 2 voided line in the radioactive waste system of the noncritical loop of the component cooling water system

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the three below listed postmaintenance test activities of risk significant systems or components. For each item, the inspectors: (1) reviewed the

applicable licensing basis and/or design-basis documents to determine the safety functions; (2) evaluated the safety functions that may have been affected by the maintenance activity; and (3) reviewed the test procedure to ensure it adequately tested the safety function that may have been affected. The inspectors either witnessed or reviewed test data to verify that acceptance criteria were met, plant impacts were evaluated, test equipment was calibrated, procedures were followed, jumpers were properly controlled, the test data results were complete and accurate, the test equipment was removed, the system was properly realigned, and deficiencies during testing were documented. The inspectors also reviewed the UFSAR to determine if the licensee identified and corrected problems related to postmaintenance testing.

- August 2, 2006, Unit 2 auxiliary feedwater Pump 2P141 postmaintenance test following planned maintenance
- August 17, 2006, Unit 2 component cooling water Pump 2MP026 postmaintenance test following corrective and planned maintenance
- September 10, 2006, Unit 2 Train B shutdown cooling heat exchanger component cooling water discharge Valve 2HV6500 postmaintenance test following actuator maintenance

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the UFSAR, procedure requirements, and TSs to ensure that the below listed surveillance activities demonstrated that the SSCs tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the following significant surveillance test attributes were adequate: (1) preconditioning; (2) evaluation of testing impact on the plant; (3) acceptance criteria; (4) test equipment; (5) procedures; (6) jumper/lifted lead controls; (7) test data; (8) testing frequency and method demonstrated TS operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of ASME Code requirements; (12) updating of performance indicator data; (13) engineering evaluations, root causes, and bases for returning tested SSCs not meeting the test acceptance criteria were correct; (14) reference setting data; and (15) annunciators and alarms setpoints. The inspectors also verified that the licensee identified and implemented any needed corrective actions associated with the surveillance testing.

- July 6, 2006, Unit 3 unscheduled inservice test performed to verify operability status of boric acid to volume control tank control Valve 3FV9253
- July 31 through August 4, 2006, Units 2 and 3 Train B control room emergency air cleanup system 18-month surveillance

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the UFSAR, plant drawings, procedure requirements, and TSs to ensure that the listed temporary modification was properly implemented. The inspectors: (1) verified that the modifications did not have an affect on system operability/availability; (2) verified that the installation was consistent with modification documents; (3) ensured that the postinstallation test results were satisfactory and that the impact of the temporary modifications on permanently installed SSCs were supported by the test; (4) verified that the modifications were identified on control room drawings and that appropriate identification tags were placed on the affected drawings; and (5) verified that appropriate safety evaluations were completed. The inspectors verified that the licensee identified and implemented any needed corrective actions associated with temporary modifications.

- September 6, 2006, Unit 3 low pressure safety injection vent Valve 3MR120 bonnet cap

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance was identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

For the below listed drill and simulator-based training evolutions contributing to Drill/Exercise Performance and Emergency Response Organization Performance Indicators, the inspectors: (1) observed the training evolution to identify any weaknesses and deficiencies in classification, notification, and Protective Action Requirement development activities; (2) compared the identified weaknesses and deficiencies against licensee identified findings to determine whether the licensee is properly identifying failures; and (3) determined whether licensee performance is in accordance with the guidance of the Nuclear Energy Institute 99-02, "Voluntary Submission of Performance Indicator Data," acceptance criteria.

- July 12, 2006, Unit 2 simulator and Emergency Operations Facility, failure of reactor trip function, followed by a loss of coolant
- August 23, 2006, Unit 2 simulator and Emergency Operations Facility, multiple seismic events coupled with a steam generator tube rupture and a main steam safety valve that fails to close

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

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 (HRAs), and worker adherence to these controls. The inspectors used the requirements in 10 CFR Part 20, the TSs, and the licensee's procedures required by TSs as criteria for determining compliance. During the inspection, the inspector interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed independent radiation dose rate measurements and reviewed the following items:

- Controls (surveys, posting, and barricades) of three radiations, high radiation, or airborne radioactivity areas
- Radiation exposure permits, procedures, engineering controls, and air sampler locations

- Adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 millirem Committed Effective Dose Equivalent
- Corrective action documents related to access controls
- Radiation exposure permit briefings and worker instructions
- Posting and locking of entrances to all accessible high dose rate - high radiation areas and very high radiation areas

The inspectors completed 8 of the required 21 samples.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

The inspectors assessed licensee performance with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspectors used the requirements in 10 CFR Part 20 and the licensee's procedures required by TSs as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed:

- Current 3-year rolling average collective exposure
- Site specific trends in collective exposures, plant historical data, and source-term measurements
- Site specific ALARA procedures
- Four work activities of highest exposure significance completed during the last outage
- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements
- Intended versus actual work activity doses and the reasons for any inconsistencies
- Dose rate reduction activities in work planning
- Post-job (work activity) reviews
- Assumptions and basis for the current annual collective exposure estimate, the methodology for estimating work activity exposures, the intended dose outcome, and the accuracy of dose rate and man-hour estimates

- Method for adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work were encountered
- Use of engineering controls to achieve dose reductions and dose reduction benefits afforded by shielding
- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry
- Self-assessments, audits, and special reports related to the ALARA program since the last inspection
- Resolution through the corrective action process of problems identified through post-job reviews and post-outage ALARA report critiques
- Corrective action documents related to the ALARA program and follow-up activities such as initial problem identification, characterization, and tracking
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

The inspectors completed 16 of the required 29 samples.

b. Findings

Introduction. The inspectors reviewed a self-revealing, non-cited violation of 10 CFR 20.1501(a), resulting from the licensee's failure to adequately evaluate radiological conditions. The finding had very low safety significance.

Description. On March 12, 2006, the licensee was alerted to a potential problem when four workers attempted to exit the radiological controlled area and caused personnel contamination monitors to alarm. The workers had been stationed on the upper part of the reactor cavity to assist while the lower cavity was cleaned following refueling activities. The licensee determined that the workers had been in greater than expected airborne radioactivity concentrations. In accordance with the applicable radiation exposure permit, the workers wore no respiratory protection. Workers on the lower cavity elevation were not affected because higher airborne radioactivity levels were expected there, and workers were required to use respiratory protection.

The licensee's review of the occurrence determined the direct cause to be that the work plan did not fully identify the job site controls and action plans necessary to do the job. The work plan addressed the potential for increased airborne radioactivity, but did not fully consider the incore instrumentation cutting and thimble replacement work conducted earlier in the outage. This work caused increased contamination levels within the cavity which later led to the increased airborne radioactivity concentrations. The licensee's pre-job evaluation of the need for respiratory protection equipment, assumed the airborne radioactivity concentration would be an average of one Derived Air Concentration (DAC) in the area around the workers on the upper cavity. The evaluation concluded that the use of respiratory protection was not warranted.

However, the actual value was as high as 32 DAC, according to air samples analyzed after the work was completed. The licensee's review also found the work plan and pre-job briefing did not establish a threshold of unacceptable radiological conditions. The inspectors noted that the licensee had not identified that airborne radioactivity concentrations were higher than expected in time to stop the work and, therefore, may not have been able to recognize when a threshold had been exceeded. This was due to the lack of real-time evaluation of changing radiological conditions. The continuous air monitors in service at the time were located on a higher elevation, and they did not representatively monitor airborne radioactivity on the upper cavity.

The licensee's immediate corrective actions included a review of the occurrence and assessment of the committed effective dose equivalents (CEDE) for each of the four workers. One worker received approximately 60 mrem (CEDE) more than planned. Adequate air sampling data was available to ensure that a job-specific scaling factor could be determined to ensure proper consideration of transuranic isotopes in the dose calculation. Planned corrective actions associated with the work planning process were still being evaluated.

Analysis. This finding is greater than minor because it is associated with the occupational radiation safety program attribute of exposure control and affected the cornerstone objective, in that the lack of knowledge of radiological conditions led to an unplanned personnel dose. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined that the finding was of very low safety significance because it did not involve: (1) an ALARA finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. Additionally, this finding has a cross-cutting aspect in the area of human performance associated with resources because the work plan did not fully identify the job site controls and action plans necessary to do the job.

Enforcement. Part 20.1501(a) of Title 10 of the Code of Federal Regulations 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 Part 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. 10 CFR Part 20.1201(a) states, in part, that the licensee shall control the occupational dose to individual adults. The licensee violated 10 CFR Part 20.1501(a) when it failed to perform an adequate evaluation of airborne radioactivity to ensure compliance with 10 CFR Part 20.1201(a). Because this failure to perform a radiological survey is of very low safety significance and has been entered into the licensee's corrective action program (Action Request 060301191), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2006004-01, "Failure to evaluate radiological conditions."

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

.1 Cornerstone: Mitigating Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the PI listed for the period July 2004 through June 2006 for Units 2 and 3. The definitions and guidance of Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 4, were used to verify the licensee's basis for reporting each data element in order to verify the accuracy of PI data reported during the assessment period. The inspectors reviewed licensee event reports, out-of-service logs, operating logs, and the maintenance rule database as part of the assessment.

- Safety System Functional Failures (Units 2 and 3)

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

.2 Occupational Radiation Safety Cornerstone

a. Inspection Scope

- Occupational Exposure Control Effectiveness

The inspectors reviewed licensee documents from January 1, 2006, through June 30, 2006. The review included corrective action documentation that identified occurrences in locked high radiation areas (as defined in the licensee's TS's), very high radiation areas (as defined in 10 CFR Part 20.1003), and unplanned personnel exposures (as defined in NEI 99-02). Additional records reviewed included as low as reasonably achievable (ALARA) records and whole body counts of selected individual exposures. The inspectors interviewed licensee personnel that were accountable for collecting and evaluating the PI data. In addition, the inspectors toured plant areas to verify that high radiation, locked high radiation, and very high radiation areas were properly controlled. PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 4, were used to verify the basis in reporting for each data element.

The inspectors completed the required sample (1) in this cornerstone.

Public Radiation Safety Cornerstone

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

The inspectors reviewed licensee documents from January 1, 2006, through June 30, 2006. 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 inspectors interviewed licensee personnel that were accountable for collecting and evaluating the PI data. PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 4, were used to verify the basis in reporting for each data element.

The inspectors completed the required sample (1) in this cornerstone.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a daily screening of items entered into the licensee's CAP. This assessment was accomplished by reviewing maintenance orders, ARs, and the management focus list and attending corrective action review and work control meetings. The inspectors: (1) verified that equipment, human performance, and program issues were being identified by the licensee at an appropriate threshold and that the issues were entered into the CAP; (2) verified that corrective actions were commensurate with the significance of the issue; and (3) identified conditions that might warrant additional follow-up through other baseline inspection procedures.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors evaluated the effectiveness of the licensee's problem identification and resolution process with respect to the following inspection areas:

- Access Control to Radiologically Significant Areas (Section 2OS1)
- ALARA Planning and Controls (Section 2OS2)

b. Findings

No findings of significance were identified.

.2 Operator Workaround Program - Cumulative Effects

a. Inspection Scope

The inspectors conducted a cumulative review of operator workarounds for SONGS, Units 2 and 3, and assessed the effectiveness of the operator workaround program to verify that the licensee is identifying operator workaround problems at an appropriate threshold and entering them into the CAP with appropriate corrective actions proposed or implemented. The review included walkdowns of the control room panels, interviews with licensed operators, and reviews of the control room operational distractions list.

b. Assessment and Observations

All of the operator distractions identified by the licensee included items such as operator workarounds, operator burdens, control room deficiencies, and annunciator compensatory actions. At the time of the inspection, there were no operator workarounds, five operator burdens, 13 annunciator compensatory actions, and eight control room deficiencies being tracked by the licensee. The inspectors did not identify any existing operator workarounds or any operator burdens which should have been categorized as operator workarounds. The licensee maintained an operations distractions tracking system, which identified the distractions by type and unit affected, and tracked the aggregate burden to the station. The amount of operational distractions were not excessive at the time of this inspection.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

c. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

- .1 (Closed) Licensee Event Report 05000362/2006-002-00, "Unit 3 Shutdown to Inspect Safety Injection Tank Spiral Wound Gaskets"

The inspectors determined that a Green noncited violation occurred. This issue is documented in Section 1R12 of San Onofre Nuclear Generating Station - NRC Integrated Inspection Report 05000361/2006003; 05000362/2006003. This licensee event report is closed.

4OA5 Other Activities

- .1 (Closed) Temporary Instruction 2515/169: Mitigating Systems Performance Index (MSPI) Verification

a. Inspection Scope

The inspectors sampled licensee data to verify that they correctly implemented the MSPI guidance for reporting unavailability and unreliability of the monitored safety systems. The monitored systems included emergency alternating current, high pressure safety injection, heat removal via auxiliary feedwater, residual heat removal, and component/saltwater cooling. The inspectors reviewed operating logs, corrective maintenance records, ARs, surveillance test data, and the maintenance rule database to verify that the licensee properly accounted for planned and unplanned unavailability. Specifically, the inspectors sampled data to verify that the licensee: (1) accurately documented the baseline planned unavailability hours for the MSPI systems; (2) accurately documented the actual unavailability hours for the MSPI systems; and (3) accurately documented the actual unreliability information for each MSPI monitored component. The inspectors did not identify any significant errors in the reported data that resulted in a change to the indicated index color. In addition, the inspectors did not

identify any significant discrepancies in the basis document that resulted in: (1) a change to the system boundary; (2) an addition of a monitored component; or (3) a change in the reported index color.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

.2 (Discussed) Unresolved Item 05000361; 05000362/2004008-01: Potentially Inadequate Safe Shutdown Procedure

The inspectors performed inoffice review of licensee documentation and discussed this item with onsite fire protection staff and engineers.

During the triennial fire protection, the team identified a number of concerns with Procedure SO23-13-21, "Fire," Revision 8, that questioned the adequacy of the procedure to achieve and maintain safe shutdown conditions for fires located outside the control room. The specific concerns with Procedure SO23-13-21 included for each fire area failures to: (1) translate all equipment specified in the safe shutdown analysis into the procedure; (2) identify diagnostic instrumentation that remained available; (3) prioritize operator actions required to prevent damage to required shutdown equipment; (4) include limitations resulting from fire scenarios (i.e., had based response times on accident analyses) when identifying critical times for operating equipment; and (5) provide an adequate 10 CFR Part 50.59 evaluation of a 1996 change.

The licensee had informed the team that these issues had been self-identified during a manual action evaluation in 2001 and during a 2004 Directed Assessment of the Fire Protection Program. The team determined the licensee: (1) had performed a comprehensive self assessment that expanded the potential safety significance of issues identified in the 2001 manual action assessment, (2) initiated Action Request 040400370 to address each issue identified during the 2004 Directed Assessment, and (3) implemented compensatory measures (i.e., roving fire watches in safe shutdown areas of both units) on August 17, 2004.

Concern 1 - Identification of equipment assured to remain available for post-fire safe shutdown

The safe shutdown analysis identified for each fire area the specific train of equipment that may be used to accomplish the required safe shutdown functions. This information, however, was not translated into Procedure SO23-13-21, Revision 7, which would be used to mitigate the effects of a fire in this area. Although a fire in Fire Area 2-AC-50-29, Auxiliary Building 50, Lobby/Motor Control Room, could require shutdown of both operating units, the procedure did not provide a clear way for operators to identify actions that may be necessary in both units due to shared systems, rooms, etc. The lack of this information could result in significant human performance implications by causing operators to be unsure of which train would remain available for a given fire location.

The inspectors verified that the licensee structured Procedure SO23-13-21 like the other plant off-normal event instructions that provided a consistent format for operators. The manual actions required within the first 30 minutes for Fire Area 2-AC-50-29 apply to both trains of safe shutdown. Operator training and knowledge of plant equipment location provide a means to determine the train available for post-fire safe shutdown. Therefore, the licensee concluded that, based on operator's knowledge of plant layout and safe shutdown system operation, the operators would be able to achieve and maintain safe shutdown without the procedure needing to identify the protected safe shutdown train. However, the licensee revised this procedure to identify the safe shutdown equipment train.

The inspectors determined that Procedure SO23-13-21 had provided sufficient guidance to operators. The inspectors verified that the licensee documented this concern in Action Request 040400370-09 and -15. This concern is closed.

Concern 2 - Providing Instructions to Operators on Which Diagnostic Instrumentation Could be Relied on for a Fire in Each Fire Area

Because of a lack of identified diagnostic instrumentation in Procedure SO23-13-21, the team determined that performance of time-critical actions could be significantly delayed beyond the specified time constraints or not performed at all. The licensee stated that some control room instrumentation and alarms, which would usually be available for use during a normal plant shutdown, may not be available in the event of a fire. However, the licensee stated that this does not create a significant concern since: (1) inconsistent operation or maloperation of indicators will alert operators, and (2) the operators would be able to reference the fire-protected indications listed in Procedure SO23-13-21, Attachment 5.

The inspectors verified that the licensee revised Procedure SO23-13-21 to identify the protected train of safe shutdown equipment that can be relied upon for a fire in any fire area. The inspectors reviewed the information and determined that Procedure SO23-13-21 provided appropriate diagnostic information. No violation of NRC requirements was identified and this concern is closed. The inspectors verified that the licensee documented this concern in Action Request 040400370-08 and -11.

Concern 3 - Prioritizing Operator Actions Needed To Prevent Damage to Required Shutdown Equipment

For each fire area, Procedure SO23-13-21 identified operator actions needed to assure the availability of required safe shutdown systems. However, the procedure only provided a list of actions to be performed without regard to any priority. This lack of prioritization was particularly significant for certain fire areas. For example, the procedure failed to identify, as a high priority, the need to trip the charging pumps, since the licensee had not determined a maximum allowed time for operators to take the required actions to prevent damage. The licensee stated that this scenario would be unlikely and that charging system maloperation would be noted by available instrumentation. However, the licensee revised Procedure SO23-13-21 to clarify entry conditions and to require that all steps with times listed of 1 hour or less must be performed for the applicable train. In addition, to prevent the specific scenario described above, the licensee revised the procedure to require that the three charging pumps be stopped immediately for a fire in fire Area 2-AC-50-29.

The inspectors verified that Procedure SO23-13-21 was adequate to accomplish safe shutdown. No violation of NRC requirements was identified and this concern is closed. The inspectors verified that the licensee documented this concern in Action Request 040800989-10.

Concern 4 - Providing Technical Basis for Operator Action Times Delineated in the Procedure

The licensee identified in the 2004 Directed Assessment that additional documentation of the manual action time constraints was needed and initiated Action Request 040400370-38 to address this issue. The licensee conducted post-fire event simulations using plant transient computer codes and the plant simulator. Specifically, the three events evaluated whether: (1) the steam generators would dry out within 30 minutes with no auxiliary feedwater flow available, (2) the pressurizer level would go off-scale within 30 minutes and whether reactor coolant system pressure exceeds the pressurizer safety valve setpoint with a fire-induced isolation, and (3) one or both steam generators would overfill in the first 30 minutes, or if the reactor coolant system would over-cool and cause pressurizer level to go off-scale "low" due to a fire induced transient. The computer and simulator results for these postulated fire scenarios confirmed the licensee's shutdown analysis conclusions.

The inspector reviewed the licensee's information and determined that Procedure SO23-13-21 was adequate to accomplish safe shutdown. No violation of NRC requirements was identified and this concern is closed. The inspector verified that the licensee documented this concern in Action Request 040400370-38.

Concern 5 - Adequacy of 10 CFR Part 50.59 Review of Procedure Change

The licensee provided information to address this concern, but additional review was necessary to determine the significance and enforcement aspects of this issue. This concern remains open pending additional review.

4OA6 Meetings, Including Exit

On August 4, 2006, the inspectors presented the occupational radiation safety inspection results to Mr. B. Katz, Vice President, Nuclear Oversight and Regulatory Affairs, and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

On August 25, 2006, the fire protection inspectors discussed the results of the inoffice evaluation of Unresolved Item 05000361; 05000362/2004008-01 with Mr. D. Axline, Licensing Engineer and other licensee personnel. The licensee acknowledged the inspection results. No proprietary information was reviewed by the inspectors.

On September 28, 2006, the inspectors presented the inspection results to Dr. R. Waldo and others. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

4OA7 Licensee Identified Violations. The following finding of very low significance 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.

Technical Specification 5.5.1.1 states 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, Appendix A, Section 7.e.(1), specifies procedure for "Access Control to Radiation Areas Including a Radiation Work Permit System." Procedure SO123-VII-20, "Health Physics Program," Revision 10, implements this requirement and Section 6.10.6.5 states that, "Individuals entering a radiological controlled area sign-up on an appropriate radiation exposure permit (REP) acknowledging that they agree to comply with the radiological controls specified on the REP." REP No. 200124 (for radiography) states, "If a momentary dose rate alarm is received at an expected time, such as while cranking the source in or out, work may continue after verifying the dose rate using a dose rate meter. If the alarm persists, or occurs at any other time, stop work, place the source in a safe configuration, and notify health physics." The licensee identified that, contrary to the above, on June 22, 2005, a radiographer failed to stop work, place the source in a safe configuration, and notify health physics after an unexpected dosimeter alarm. The NRC reviewed this finding and determined that the radiographer willfully violated the requirement (OI 4-2005-028). Although this violation is willful, it was brought to the NRC's attention by the licensee, it involved isolated acts of a low-level individual, and it was addressed by appropriate remedial action (EA-06-084).

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Axline, Technical Specialist, Nuclear Regulatory Affairs
C. Bostian, Manager, Instrumentation and Control Maintenance
D. Breig, Station Manager
R. Corbett, Manager, Health Physics
M. Farmer, Supervisor, Health Physics
K. Gallion, ALARA Planner, Health Physics
K. Johnson, Manager, Design Engineering
B. Katz, Vice President, Nuclear Oversight and Regulatory Affairs
L. Kelly, Technical Specialist, Nuclear Regulatory Affairs
M. Love, Manager, Maintenance
A. Martinez, Manager, Health Physics Operational support
C. McAndrews, Manager, Nuclear Oversight and Assessment
N. Quigley, Manager, Mechanical/Nuclear Maintenance Engineering
R. Richter, Supervisor, Fire Protection
A. Scherer, Manager, Nuclear Regulatory Affairs
M. Short, Manager, Systems Engineering
T. Vogt, Manager, Operations
R. Waldo, Vice President, Nuclear Generation
D. Wilcockson, Manager, Plant Operations
T. Yackle, Manager, Maintenance Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000361/200600-4-01 NCV Failure to Evaluate Radiological Conditions

Closed

05000362/2006-002-00 LER Unit 3 Shutdown to Inspect Safety Injection Tank Spiral Wound Gaskets (Section 4OA3)

Discussed

05000361; 05000362/
2004008-01 URI Adequacy of Procedure Necessary for Achieving and Maintaining Hot Shutdown (Section 4A05)

LIST OF DOCUMENTS REVIEWED

In addition to the documents specified in the inspection report, the following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

Section 1R01: Adverse Weather Protection

Procedures

SO23-13-8	"Severe Weather"	Revision 6
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Section 1R04: Equipment Alignment

Procedures

SO23-2-4	"Auxiliary Feedwater System Operation"	Revision 21
SD-SO23-750	"Emergency Diesel Generators"	Revision 6
SO23-2-13.1	"Diesel Generator Alignments"	Revision 1
SO23-2-17	"Component Cooling Water System Operation"	Revision 19
SO23-2-8.1	"Saltwater Cooling System Alignments and Infrequent/Outage Operations"	Revision 4
SO23-2-17.1	"Component Cooling Water System Alignments"	Revision 8

Drawings and Calculations

40160A	"Auxiliary Feedwater System"	Revision 22
40126A	"Component Cooling Water System (Salt Water Pumps)"	Revision 26
40127A	"Component Cooling Water System (Pumps)"	Revision 28
40127C	"Component Cooling Water System (Heat Exchangers)"	Revision 41

Action Requests

040400696	040302364	060300281	060400384	060400834	060400835
060401275	060500368	060600525	0607002990	060700426	

Section 1R05: Fire Protection

Procedures

SOG-AD-0007	"Fire Department Drill Process"	Revision 1
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Other Documents

Updated Fire Hazards Barrier Analysis

SOFD Fire Drill 2006-10-Unit 2 Main Transformer, dated August 10, 2006

Section 1R06: Flood Protection Measures

Procedures

S023-9-5	"Condensate Storage and Transfer System"	Revision 19
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Drawings and Calculations

M.120.15	"Songs 2 & 3 Plant Flooding Analysis Review"	Revision 6
23800	"Condensate Storage & Refuel Tank Building Floor Plan, Sheet 1"	Revision 23
23800	"Condensate Storage & Refuel Tank Building Floor Plan, Sheet 2"	Revision 0
23802	"Condensate Storage & Refuel Tank Building Wall Elev. & Sections Sheet 1"	Revision 24
23803	"Condensate Storage & Refuel Tank Building Wall Elev. & Sections Sheet 2"	Revision 8
23804	"Condensate Storage & Refuel Tank Building Wall Elev. & Sections Sheet 3"	Revision 16
23805	"Condensate Storage & Refuel Tank Building Wall Elev. & Sections Sheet 4"	Revision 14

Section 1R11: Licensed Operator Requalification

Procedures

SO23-13-3	"Earthquake"	Revision 8
SO23-9-5	"Condensate Storage and Transfer System"	Revision 19

Miscellaneous

2006 Week 5 Simulator Summary	Revision 0
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Section 1R12: Maintenance Effectiveness

Procedures

SO123-XXVI-6.8	"Generic Test Procedure for Thermal Overload Test"	Revision 5
SO23-302-4-2-357	"Model 4 MCC Installation and Maintenance Instruction Manual"	Revision 3

Drawings and Calculations

E4C-112	"Class 1E 480V MCC Protection Calculation"	Revision 1
E4C-086	"SONGS 2&3 Data Development and Documentation"	Revision 5

Action Requests

060600089	030700889	970701286	060400194	060301623
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Miscellaneous

"Station Performance Report for the Second Quarter, 2006, San Onofre Nuclear Generating Station"	September 5, 2006
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Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

SO23-13-13	"Misaligned or Immovable Control Element Assembly"	Revision 11
SO123-XX-10	"Maintenance Rule Risk Management Program Implementation"	Revision 3
SO23-15-99.C	"Annunciator Panel 99C, General Auxiliaries"	Revision 8
SO23-2-5	"Circulating Water System Operation"	Revision 24
SO23-2-7	"Operation of Traveling Rakes and Screens"	Revision 12
SO23-2-8.1	"Saltwater Cooling System Alignments and Infrequent/Outage Operations"	Revision 4
SO23-3-1.7	"Reactor Coolant Pump Operation"	Revision 27
SO23-I-1.50	"Lubrication Manual"	Revision 19

Action Requests

060700122 060600655 060700128 060600644

Maintenance Orders

06070174 06061011

Section 1R14: Operator Performance During Non-Routine Evolutions and Events

Procedures

SO23-13-4	"Operation During Major System Disturbances"	Revision 8
SO23-3-3.27.2	"Weekly Electrical Bus Surveillance"	Revision 14

Action Requests

060701086

Section 1R15: Operability Evaluations

Procedures

SO23-2-17.1	"Component Cooling Water System Alignments"	Revision 8
SO23-2-17.2	"Component Cooling Water System Outage Evolutions"	Revision 6

Drawings and Calculations

M-0027-013	"Component Cooling Water Transient Analysis"	Revision 0
40127G	"Component Cooling Water System (Non-critical Loop)"	Revision 14
40127F	"Component Cooling Water System (Non-critical Loop)"	Revision 33

Action Requests

060801030 060300413 060700536 060600130

Section 1R19: Postmaintenance Testing

Procedures

SO23-2-17	"Component Cooling Water System Operation"	Revision 19
SO23-XV-1	"Post Maintenance Retest Guide"	Revision 5

SO123-I-9.13	"480 VAC Linestarter Inspection, Coil, and Power Contact Replacement"	Revision 5
SO123-I-1.43	"Maintenance Human Performance Application"	Revision 3
SO123-II-11.152	"Circuit Device Tests and Overall Functional Test"	Revision 7

Maintenance Orders

06040089011	03100993	04080017	05032060	04081558	06080096
06050468	04101830	06040360	04010744		

Miscellaneous

WAR 2-0600358

Section 1R22: Surveillance Testing

Procedures

SO23-3.30.5	"CVCS Online Valve Test"	Revision 4
SO23-3.30	"Inservice Valve Testing Program"	Revision 17
SO23-I-2.44	"CREACUS - Control Room Emergency Air Cleanup System Operation and Operability Test Surveillance"	Revision 8

Action Requests

060700057

Maintenance Orders

05040585

Section 1R23: Temporary Plant Modifications

Temporary Modification Packages

060301918-13

Section 1EP6: Drill Evaluation

Procedures

SO123-VIII-0.200	"Emergency Plan Drills and Exercises"	Revision 9
SO123-VIII-1	"Recognition and Classification of Emergencies"	Revision 24
SO123-VIII-10	"Emergency Coordinator Duties"	Revision 22
SO123-VIII-10.1	"Station Emergency Director Duties"	Revision 17
SO123-VIII-10.2	"Corporate Emergency Director Duties"	Revision 13
SO123-VIII-10.3	"Protective Action Recommendations"	Revision 10
SO23-13-14	"Reactor Coolant Leak"	Revision 10
0602	"Emergency Plan Drill"	Revision 7/12/06
0603	"Emergency Plan Drill"	Revision 8/22/06

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

Procedures

SO123-VII-20.6	External Occupational Exposure Monitoring, Revision 6
SO123-VII-20.7	Internal Occupational Exposure Monitoring, Revision 5
SO123-VII-20.9	Radiological Surveys, Revision 6

Section 2OS2: ALARA Planning and Controls (71121.02)

Corrective Action Document (Action Requests)

060200827, 060400840, 060501052, 060600178

Outage Work Projects

U2C14 ICI Thimble Replacement
U2C14 Pressurizer Half-Nozzle Repair
U2C14 Refueling Maintenance
U2C14 Steam Generator Primary Inspection

Procedures

SO123-VII-20.4.3	ALARA Job Reviews, Revision 4 (9/23/04)
SO123-VII-20.10	Radiological Work Planning and Controls, Revision 10

Miscellaneous

Unit 2 Cycle 14 Refueling Outage ALARA Report

Section 4OA1: Performance Indicator Verification

Procedures

SO23-XV-24	"Quarterly NRC Performance Indicator (PI) Process"	Revision 5
SO23-NI-1	"NRC Performance Indicator (PI) Program"	Revision 6

Section 4OA2: Identification and Resolution of Problems

Procedures

SO123-XX-6	"Operator Work Around Program"	Revision 4
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Section 4OA5: Other Activities

Procedures

SO23-3-3.60.1	"High Pressure Safety Injection Pump Testing"	Revision 7
SO23-3-3.60.2	"Low Pressure Safety Injection Pump Testing"	Revision 6
SO23-3-3.60.7	"Containment Spray Pump and Valve Testing"	Revision 9
SO23-3-3.60.6	"Auxiliary Feedwater Pump and Valve Testing"	Revision 12
SO23-13-21	"Fire"	Revisions 8, 9, and 10

Action Requests

060300800	060300984	051101380	051200069	050200761	040700701
030901208	040701362	040101516	040400370	060400430	

Miscellaneous

"San Onofre Nuclear Generating Station MSPI Basis Document"	June 2006
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LIST OF ACRONYMS

ALARA	as low as reasonably achievable
AR	action request
CAP	corrective action program
CEDE	committed effective dose equivalent
CFR	<i>Code of Federal Regulations</i>
DAC	derived air concentration
LER	licensee event report
MSPI	mitigating systems performance index
NEI	Nuclear Energy Institute
PI	performance indicator
REP	radiation exposure permit
SSC	structure, system, and component
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report