UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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January 21, 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: NRC INTEGRATED INSPECTION REPORT 05000361/2003005;
05000362/2003005

Dear Mr. Ray:

On December 31, 2003, the NRC completed an integrated inspection at your San Onofre Nuclear Generating Station, Units 2 and 3, facility. The enclosed report documents the inspection findings which were discussed on September 30, December 5 and December 17, 2003, with Mr. J. Wambold, 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.

In accordance with 10 CFR 2.790 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/

Kriss M. Kennedy, Chief
Project Branch C
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Dockets: 50-361
50-362
Licenses: NPF-10
NPF-15

Enclosure:
NRC Inspection Report
05000361/2003005; 05000362/2003005

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R:_SO23\2003\SO2003-05RP-CCO.wpd

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets:	50-361, 50-362
Licenses:	NPF-10, NPF-15
Report:	05000361/2003005 and 05000362/2003005
Licensee:	Southern California Edison Co.
Facility:	San Onofre Nuclear Generating Station, Units 2 and 3
Location:	5000 S. Pacific Coast Hwy. San Clemente, California
Dates:	September 28 through December 31, 2003
Inspectors:	C. C. Osterholtz, Senior Resident Inspector, Project Branch C M. A. Sitek, Resident Inspector, Project Branch C R. V. Azua, Project Engineer, Project Branch C B. D. Baca, Health Physics Engineer, Plant Support Branch P. Elkmann, Emergency Preparedness Inspector T. Jackson, Resident Inspector, Project Branch E R. Lantz, Senior Emergency Preparedness Inspector G. W. Johnston, Senior Operations Engineer T. Stetka, Senior Operations Engineer G. Warnick, Resident Inspector, Project Branch D
Approved By:	Kriss M. Kennedy, Chief Project Branch C Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR05000361/2003005, 05000362/2003005; 09/28 - 12/28/2003; San Onofre Nuclear Generating Station, Units 2 & 3; Integrated Resident and Regional Report.

The report covered a 3-month period of inspection by resident inspectors and three announced inspections by regional inspectors. 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

- No findings of significance were identified.

B. Licensee-Identified Violations

- None

Enclosure

REPORT DETAILS

Summary of Plant Status

Units 2 and 3 began the period at approximately 100 percent reactor power. Unit 2 remained at approximately 100 percent reactor power throughout the inspection period.

Unit 3 was reduced to approximately 95 percent power on November 23, 2003, in order to replace a failed motor on Heater Drain Pump 3P058. The unit returned to approximately 100 percent reactor power on November 30, 2003, following replacement of the motor. On December 17, 2003, power to Unit 3 was again reduced, this time to 50 percent, as a result of both trains of emergency core cooling being inoperable. Train B was inoperable for planned maintenance activities when Train A became inoperable as a result of the supply breaker to 480V Motor Control Center 3BE tripping open. The licensee replaced the circuit breaker for Motor Control Center 3BE and declared Train A operable the same day. Unit 3 returned to approximately full reactor power on December 17, 2003, and remained at that power level through the end of the inspection period.

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors reviewed the design features and procedures for protecting Units 2 and 3 and associated mitigating systems from the adverse effects of a hurricane.

The inspection consisted of reviewing Procedure SO23-13-8, “Severe Weather,” Revision 3. The inspectors also interviewed licensee personnel and directly observed systems and plant conditions. In addition, the inspectors walked down areas around Units 2 and 3 to determine the potential hazard associated with wind-generated missiles.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial System Walkdowns. The inspectors performed three partial system walkdowns during this inspection period. On October 10, 2003, the inspectors walked down emergency chilled water system Train B while the Train A emergency chiller (ME336) was out of service for corrective maintenance. On December 5, 2003, the inspectors walked down the Unit 3 emergency alternating current system (i.e., emergency diesel generator) Train B while the Unit 3 Train A emergency diesel generator was out of

service for planned maintenance. On December 9, 2003, the inspectors walked down Train A of the Unit 2 component cooling water and saltwater cooling (SWC) systems, while the Unit 2 component cooling water/SWC systems' Train B heat exchanger was out of service for planned corrective maintenance. To evaluate the operability of the selected train or system, when the redundant train or system was inoperable or out of service, the inspectors checked for correct valve and power alignments. This was done by comparing positions of valves, switches, and electrical power breakers against the procedures listed below as well as applicable chapters of the Updated Final Safety Analysis Report:

- Procedure SO23-1-3.1, "Emergency Chilled Water System Operation," Revision 15
- Piping and Instrument Diagram 40180A, "Auxiliary Building Emergency Chilled Water System Loop B System No. 1513," Revision 27
- Piping and Instrument Diagram 40180D, "Auxiliary Building Emergency Chilled Water System - Water Chiller E335 System No. 1513 Loop B," Revision 14
- Procedure SO23-3-3.23, "Diesel Generator Monthly and Semi-annual Testing," Revision 22
- Operations Division Manual 5, "Operator Rounds," Revision 0
- Procedure SO23-2-17.1, "Component Cooling Water System Alignments," Revision 6
- Procedure SO23-2-17, "Component Cooling Water System Operation," Revision 18
- Procedure SO23-2-8, "Saltwater Cooling System Operation," Revision 25
- Procedure SO23-2-8.1, "Saltwater Cooling System Alignments and Infrequent/Outage Operations," Revision 1-3
- Piping and Instrumentation Diagram 40127A, "Component Cooling Water System (Pumps) System No. 1203," Revision 27
- Piping and Instrumentation Diagram 40127C, "Component Cooling Water System (Heat Exchangers) System No. 1203," Revision 39
- Piping and Instrumentation Diagram 40127B, "Component Cooling Water System (Tanks) System No. 1203," Revision 32

Complete System Walkdown. The inspectors conducted a detailed review of the alignment and condition of the control room emergency air cleanup system. The inspectors used licensee procedures and documents listed below to verify proper system alignment:

- Piping and Instrument Diagram 40173A, "Control Room Complex HVAC (Normal A.C.) System No. 1510," Revision 21
- Piping and Instrument Diagram 40173C, "Control Room Complex HVAC (Emergency V.S. & A.C. Units) System No. 1510," Revision 23
- Piping and Instrument Diagram 40173D, "Control Room Complex HVAC System, System No. 1510," Revision 11
- Procedure SO23-I-2.44, "CREACUS - Control Room Emergency Air Cleanup System Operation and Operability Test Surveillance," Revision 7

The inspectors also verified electrical power requirements, labeling, hangers and support installation, and associated support systems' status. Operating pumps were examined to ensure that any noticeable vibration was not excessive, pump leakoff was not excessive, bearings were not hot to the touch, and pumps were properly ventilated. The walkdown also included evaluation of system piping and ventilation ducts and found that:

- Component foundations did not appear to be degraded
- Piping, ventilation ducts, and pipe/duct supports did not show evidence of degradation
- Dampers and boundary door seals did not appear to be degraded

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:

- SWC pump room (Unit 2)
- SWC pump room (Unit 3)
- Train A control room emergency air cleanup system room (Unit 2/3)
- Train B control room emergency air cleanup system room (Unit 2/3)

- Train B Emergency Diesel Generator 2G003 room (Unit 2)
- Train A Emergency Diesel Generator 3G002 room (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.

1R06 Flood Protection Measures(71111.06)

a. Inspection Scope

The inspectors performed one inspection sample of the plant external flood protection features, including the operational status of seals, barriers, sumps, drains, and alarms, to identify the existence of any unanalyzed flooding hazards. The inspectors also reviewed Updated Safety Analysis Report Chapter 3.4, "Water Level (Flood) Design," Revision 13.

The inspectors also performed two inspection samples of the plant internal flood protection features to verify that adequate safeguards were in place for the associated risk-significant structures, systems, and components. The following two areas were inspected:

- Safety equipment building (Unit 2)
- Safety equipment building (Unit 3)

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalifications (71111.11)

.1 Quarterly Inspection

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 December 9, 2003, with performance observed in the control room during this inspection period.

The inspectors reviewed 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.

.2 Biennial Inspection (71111.11B)

a. Inspection Scope

The inspectors: (1) evaluated examination security measures and procedures for compliance with 10 CFR 55.49; (2) evaluated the licensee's sample plan for the written examinations for compliance with 10 CFR 55.59 and NUREG-1021, as referenced in the facility requalification program procedures; and (3) evaluated maintenance of license conditions for compliance with 10 CFR 55.53 by review of facility records (medical and administrative), procedures, and tracking systems for licensed operator training, qualification, and watchstanding. In addition, the inspectors reviewed remedial training for examination failures for compliance with facility procedures and responsiveness to address areas failed.

Furthermore, the inspectors: (1) interviewed eight personnel (four operators, two instructors/evaluators, and two training supervisors) regarding the policies and practices for administering examinations; (2) observed the administration of two dynamic simulator scenarios to two requalification crews by facility evaluators; and (3) observed the administration of three job performance measures in the simulator by three evaluators.

The inspectors also reviewed the remediation process for two individuals, who had written examination failures. The biennial written examinations that were administered in August 2002 were also reviewed. The results of the examinations were assessed to determine the licensee's appraisal of operator performance and the feedback of performance analysis to the requalification training program. The inspectors interviewed members of the training department, training department managers, and four members of an operating crew to assess the responsiveness of the licensed operator requalification program. Inspectors also observed the examination security maintenance for the operating tests during the examination week.

Additionally, the inspectors assessed the San Onofre Unit 2 plant-referenced simulator for compliance with 10 CFR 55.46 using Baseline Inspection Procedure IP-71111.11 (Section 03.11). The inspectors assessed the adequacy of the licensee's simulation facility for use in operator licensing examinations and for satisfying experience requirements as prescribed in 10 CFR 55.46, "Simulation Facilities."

The inspectors reviewed a sample of simulator performance test records (i.e., transient tests, surveillance tests, malfunction tests, and scenario-based-tests), simulator work request records, and processes for ensuring simulator fidelity was commensurate with 10 CFR 55.46. The inspectors also interviewed personnel involved in the licensee's simulator configuration control program as part of this review.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Degradation of Wire Insulation in Emergency Diesel Generator Circuitry

a. Inspection Scope

The inspectors independently verified that the licensee appropriately handled safety significant component performance associated with the degradation of polyvinyl chloride copper wire insulation in emergency diesel generator relay circuitry. The inspectors reviewed Action Requests (AR) 030800063 and 031200053 and discussed the maintenance plan for identifying and replacing the degraded wires with Engineering and Maintenance personnel.

b. Findings

No findings of significance were identified.

.2 Snubber Reduction Program

a. Inspection Scope

The inspectors reviewed the performance and condition history of pipe snubbers for safety-related systems to ensure that the licensee appropriately addressed any degraded or declining performance conditions. The inspectors also reviewed the licensee's snubber reduction program and discussed the basis and systematic plan for the reduction with Engineering and Maintenance 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 five activities:

- Unit 3 first point feedwater heater level anomalies (AR 030500952)
- Unit 2 Emergency Diesel Generator 2G003 maintenance lockout relay self-reset (AR 030701339)
- Unit 2 Emergency Diesel Generator 2G002 electric governor troubleshooting (AR 030801530)
- Unit 3 containment cooling actuation test signal failure to lock in (AR 030901016)
- Unit 3 Emergency Diesel Generator 3G002 fan belt analysis following test failure (AR 030901208)

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 two operability evaluations and cause assessments documented in the following ARs to ensure the operability was properly justified:

- AR 030900744: Unit 3 Charging Pump 3P190 leaking secondary packing in seal cylinder assembly

- ARs 031000328 and 980700082: Unit 3 Train A Emergency Diesel Generator 3G002 moisture in synchronizing circuit relay

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

Cumulative Effects. The inspectors reviewed 21 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.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

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

- Unit 2/3 Train A Emergency Chiller ME336 postmaintenance test per Procedure SO23-I-8.116, “HVAC-Carrier Chiller Inspection and Testing,” Revision 3-4, performed on October 10, 2003, following corrective maintenance and Maintenance Orders 03100666000, 03040685000, and 03062315000

- Unit 2 Train A Emergency Diesel Generator 2G002 postmaintenance test per Procedure SO23-3-3.23, “Diesel Generator Monthly and Semi-annual Testing,” Revision 22-1, performed on November 24, 2003, following planned motor-driven relay replacement

- Diesel Fire Pump MP-220 postmaintenance test per Procedure S023-3-3.36, “Diesel Fire Pump MP-220 Monthly Operability Verification,” Revision 20, performed on November 29, 2003, following corrective maintenance (Units 2/3)

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 reactor coolant system water inventory balance per Procedure SO23-3 3.37, "Reactor Coolant System Water Inventory Balance," Revision 1, performed on October 30, 2003

- Unit 2/3 reactor coolant system specific activity surveillance test per Procedure SO123-III-1.10.23, "Operation of the Unit 2/3 Reactor Coolant Gas/Liquid Separation Panel," Revision 5-1, and Procedure SO123-III-1.6.23, "Units 2/3 - Normal Operation of the Reactor Coolant Sample System," Revision 17, performed on November 5, 2003

- Unit 3 Auxiliary Feedwater Pump 3P140 surveillance test per Procedure SO23-3-3.60.6, "Auxiliary Feedwater Pump and Valve Testing," Revision 9-1, performed on November 12, 2003

- Unit 2 Auxiliary Feedwater Pump 2P141 surveillance test per Procedure SO23-3-3.60.6, "Auxiliary Feedwater Pump and Valve Testing," Revision 9-1, performed on November 19, 2003

- Unit 2 Train B High Pressure Safety Injection Pump 2P019 surveillance test per Procedure SO23-3-3.60.1, "High Pressure Safety Injection Pump and Valve Testing," Revision 3-2, performed on December 11 and 12, 2003

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

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

- Temporary Engineering Change Package 021200170-3, “Temporary Jumper Control Room Annunciator 2UA0061C23, ‘Carbon Dioxide to Turbine/Generator Isolated’ ” (Unit 2)

- Temporary Engineering Change Package 030202091-8, Temporary Jumper Control Room Annunciator 3UA2799C17, “Generator Overheating Detector” (Unit 3)

- Temporary Engineering Change Package 030301058-7, “Change E/I Module 3PY0100D output from 4-20 mA to 3.5-20 mA to Allow Pressurizer Spray Valve B to Fully Close” (Unit 3)

The inspectors also reviewed Procedures SO123-XV-5.10, “Temporary Facility Modification,” Revision 1; SO123-XV5.1, “Temporary Modification Control”; and SO123-XXIV-10.1, “Preparation, Review, Issuance, Implementation and Closure of Engineering Change Packages and Engineering Change Notices,” Revision 5, as part of this inspection.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness (EP)

1EP1 Exercise Evaluation (71114.01)

a. Inspection Scope

The inspectors reviewed the objectives and scenario for the 2003 biennial emergency plan exercise to determine if the exercise would acceptably test major elements of the emergency plan. The scenario simulated a fuel handling accident, a failure of the automatic reactor protection system, a loss of reactor coolant, failed reactor fuel, and a rupture of steam generator tubes causing a radiological release to the environment through a stuck open steam relief valve.

The inspectors evaluated exercise performance by focusing on the risk-significant activities of classification, notification, protective action recommendations, and offsite dose consequences in the following emergency response facilities:

- Simulator Control Room
- Technical Support Center
- Operations Support Center
- Emergency Operations Facility

The inspectors also assessed personnel recognition of abnormal plant conditions, the transfer of emergency responsibilities between facilities, communications, protection of emergency workers, emergency repair capabilities, and the overall implementation of the emergency plan.

The inspectors attended the postexercise critiques in each of the above facilities to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended a subsequent formal presentation of critique items to plant management.

The licensee's exercise performance was evaluated against licensee procedures for classification, notification, protective action recommendations, and worker protection, against the requirements of 10 CFR 50.47(b) and Appendix E, and against the guidance of Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2. The licensee's critique was evaluated against the requirements of the licensee's corrective action procedures and the requirements of 10 CFR 50.47(b)(14) and 10 CFR Part 50, Appendix E IV.F.2(g). The inspectors completed the one required sample in NRC Inspection Procedure 71114, Attachment 1, "Exercise Evaluation."

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors performed an on-site review of Revision 12 to Sections 1, 2, and 7; Appendix E, Revision 13, to Section 3; and Revisions 13 and 14 to Sections 5 and 6 of the San Onofre Nuclear Generating Station Emergency Plan, submitted August and October 2003. These revisions to the Emergency Plan incorporated changes related to addition of the protective action recommendation for administration of potassium iodide to the public, construction and use of the Independent Spent Fuel Storage Facility, and the use of personnel in the emergency advisor position. The inspectors also performed an on-site review of Revision 20 to Procedure SO123-VIII-1, "Recognition and Classification of Emergencies," submitted September 2003. This Emergency Action Level revision made clarifications and editorial changes to several emergency action levels. The revisions were compared to the respective previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the requirements of 10 CFR 50.47(b)(4) and 50.54(q) to determine if the revisions decreased the effectiveness of the emergency plan. The inspectors completed the one required sample in NRC Inspection Procedure 71114, Attachment 4, "Emergency Action Level and Emergency Plan Changes."

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY
Cornerstone: Occupational Radiation Safety (OS)

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

To assess the licensee's performance, with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable (ALARA), the inspector interviewed radiation protection personnel and radiation workers involved in high dose rate, high exposure, and airborne area work activities. The inspector assessed the licensee's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, and high radiation areas; radiation worker practices; work activity dose results; and the following, against procedural and regulatory requirements:

- Current 3-year rolling average collective exposure
- Site-specific trends in collective exposures by using NUREG-0713 and plant historical data and source-term measurements using EPRI TR-108737
- Five Unit 3 Cycle 12 outage work activities and associated exposure estimates and results which resulted in the highest personnel collective exposures
- Unit 3 Cycle 12 Refueling Outage ALARA Report
- Site-specific procedures associated with maintaining occupational exposures ALARA, including the procedures outlining processes used to estimate and track work activity specific exposures
- Worker performance, associated exposure estimates, and exposure results for two work activities of highest exposure significance associated with ALARA package A0905030001, "2003 Unit 2/3 Resin Transfer Campaign"
- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements
- Actual work activity doses, work intended, and the reasons for any inconsistencies
- Assumptions and basis for the current annual collective exposure estimate, the methodology for estimating work activity-specific exposures and the intended dose outcome, and the accuracy of both dose rate and person-hour estimates

- The licensee's method for adjusting exposure estimates, or replanning work, when unexpected changes in scope, plant conditions, or emergent work were encountered
- The licensee's use of engineering controls to achieve dose reductions, procedures, and dose reduction benefits afforded by shielding
- Exposure tracking system to include trending and work activity distribution within radiation exposure permits
- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, and high radiation areas
- Individual exposures of selected work groups (In-house and contract maintenance)
- Dose rate reductions incorporated into work activity planning
- Permanent and temporary shielding program and implementation
- Postjob reviews required by procedure and associated corrective actions entered into the corrective action program
- Declared pregnant workers during the current assessment period and the exposure results and monitoring controls employed by the licensee
- Licensee's self-assessments, leadership observations, and audits related to the ALARA program since the last inspection (Audit SOS-023-03, "ALARA")
- The effectiveness of the licensee's self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies
- Resolution through the corrective action process of problems identified through postjob reviews and postoutage ALARA report critiques
- Corrective action reports related to the ALARA program, initial problem identification, characterization, and tracking; disposition of operability/reportability issues; evaluation of safety significance/risk and priority for resolution; identification of repetitive problems; identification of contributing causes; identification and implementation of effective corrective actions; resolution of noncited violations (NCVs) tracked in the corrective action system; and implementation/consideration of risk significant operational experience feedback

The inspector completed all of the required 15 samples and 7 of the optional samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

.1 Reactor Safety Cornerstone

a. Inspection Scope

The inspectors verified the accuracy of data reported by the licensee for the following three performance indicators to ensure that the performance indicator color was correct for both Units 2 and 3:

Reactor Safety Cornerstone

- BI1 Reactor Coolant System Specific Activity
- BI2 Reactor Coolant System Leakage
- MS5 Safety System Functional Failures

The inspectors reviewed the performance indicator data for the last quarter of 2002 and the first three quarters of 2003. The inspectors reviewed NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2, and licensee operating logs. The inspectors discussed the status of the performance indicators and compilation of data with engineering and operations personnel.

b. Findings

No findings of significance were identified.

.2 Emergency Preparedness Cornerstone

a. Inspection Scope

The inspectors sampled licensee submittals for the performance indicators listed below for the period October 1, 2002, through September 30, 2003. The definitions and guidance of NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, were used to verify the licensee's basis for reporting each data element in order to verify the accuracy of performance indicator data reported during the assessment period. The licensee's performance indicator data were also reviewed against the requirements of Procedure SO 23-N1-1, "NRC Performance Indicator (PI) Program," Revision 2.

Emergency Preparedness Cornerstone:

- Drill and Exercise Performance (DEP)
- Emergency Response Organization Participation
- Alert and Notification System Reliability

The inspectors reviewed a sampling of drill and exercise scenarios, licensed operator simulator training sessions, notification forms, and attendance and critique records associated with training sessions, drills, and exercises conducted during the verification period. The inspectors reviewed emergency responder qualification, training, and drill participation records for 10 key emergency responders. The inspectors reviewed siren test results, maintenance records, and procedures. The inspectors also interviewed licensee personnel that were accountable for collecting and evaluating the PI data. The inspectors completed three of the required samples in NRC Inspection Procedure 71151, "Performance Indicator Verification."

b. Findings and Observations

The inspectors identified 12 instances where the licensee had identified DEP PI opportunities contrary to the guidance in NEI 99-02. For a group of drills conducted during the first quarter of 2003, 8 protective action recommendation (PAR) development opportunities and 4 related notification opportunities were identified and evaluated as successful for determination that a state beach evacuation PAR was not required (due to no radiological release in progress) in an Alert emergency declaration. Procedure SO123-VIII-10.3, "Protective Action Recommendations," requires that a state beach evacuation be recommended in any Site Area Emergency declaration, and in an Alert declaration if a radiological release related to the emergency has occurred. Although the evaluation that no PAR was required was accurate, determination that a PAR is not required is not a PAR development opportunity. The licensee removed the 12 opportunities from the PI data, and recalculated the PI results for 2003. The licensee entered the inaccurate PI evaluation into their corrective action process as AR 031001221. The correction did not cause the DEP PI to change from Green.

.3 Occupational Radiation Safety Cornerstone

Section 2OS2 evaluated the effectiveness of the licensee's problem identification and resolution processes regarding exposure tracking, higher than planned exposure levels, and radiation worker practices. No findings of significance were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Annual Sample Review

a. Inspection Scope

The inspectors reviewed performance and facility problems documented in calendar years 2002 and 2003 in the licensee's corrective action program, emergency

preparedness action tracking system, audits, and drill reports. The inspectors selected 15 items to verify effective corrective action through observation during the evaluated exercise.

b. Findings and Observations

No findings of significance were identified.

.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

None.

4OA5 Other

Discussed. Additional information associated with NCV 50-362/2003002-05.

NRC inspectors previously identified and assessed a human performance deficiency for the failure to follow a maintenance procedure when packing material was not installed during the Unit 3 reactor vessel head planned maintenance of the heated junction thermocouple penetrations (ALARA package A101002002, "Reactor Head Disassemble and Reassembly"). This failure was documented in NRC Inspection Report 05000361/2003002, 05000362/2003002, Section 1R13.3. However, the resulting rework from this failure also resulted in an ALARA finding. The rework was evaluated and determined by the licensee not to be emergent work or scope growth and the original collective dose estimate was not revised. Human performance deficiencies are not considered credible justifications for dose estimate revisions. The original work estimate was established at 6.3 person-rem and the final work activity collective dose was 9.691 person-rem. The difference between the original and final dose was approximately 54 percent.

Since the dose estimate was greater than 5 person-rem and the difference between the original and the final collective dose was greater than 50 percent, this rework resulted in an ALARA finding. However, since the root cause was previously identified and assessed by NRC inspectors, this issue was not considered a separate finding. The ALARA aspects of this finding were found to have no more than very low safety significance because the finding was an ALARA work control issue and the licensee's three-year rolling average collective dose was less than the 135 person-rem limit specified in Manual Chapter 0609, Appendix C, for pressurized water reactors.

4OA6 Meetings, including Exit

On September 30, October 24, and December 5 and 17, 2003, inspectors presented the inspection results to Mr. J. Wambold, Mr. D. Nunn, and other members of their staffs who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

R. Allen, Supervisor, Reliability Engineering
C. Anderson, Manager, Site Emergency Preparedness
J. Barrows, ALARA Supervisor, Health Physics
D. Brieg, Manager, Maintenance Engineering
G. Cook, Supervisor, Compliance
G. Cooper, Supervisor, Compliance
M. Cooper, Manager, Plant Operations
B. Culverhouse, Supervisor, Offsite Emergency Planning
M. Farmer, Supervisor, Health Physics
K. Fowler, Emergency Planning Coordinator
S. Giannell, Emergency Planning Coordinator
M. Goettel, Manager, Business Planning and Financial Services
A. Hagemeyer, Manager NTD Operations Training
M. Love, Manager, Maintenance
J. Madigan, Manager, Health Physics
C. McAndrews, Manager, Nuclear Oversight and Assessment
M. McBrearty, Engineer, Nuclear Regulatory Affairs
F. McCormmick, Training Specialist
D. Nunn, Vice President, Engineering and Technical Services
N. Quigley, Manager, Mechanical/Nuclear Maintenance Engineering
K. Rauch, Operations Training Manager
R. Sandstrom, Manager, Training
A. Scherer, Manager, Nuclear Regulatory Affairs
J. Scott, Senior Emergency Planner
M. Short, Manager, Systems Engineering
T. Vogt, Manager, Operations
R. Waldo, Station Manager
T. Yackle, Manager, Design Engineering
J. Wambold, Vice President, Nuclear Generation

NRC

J. Mateychick, Inspector, Division of Reactor Safety

Other personnel

Mats Häggblom, Swedish Nuclear Power Inspectorate

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None.

Closed and Closed

None.

Closed

None.

Discussed

05000362/2003002-05	NCV	Thermocouple packing not replaced in accordance with procedural requirements (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R06: FLOOD PROTECTION MEASURES

Calculation IPE-IFA-000, "Internal Flood Analysis," Revision 0

Calculation M120.15, "Plant Flooding Analysis Review - Supplement A," Revision 0

Drawing 401188, "Sump & Drain Systems - System No. 2426," Revision 8

Letter 102-6-5-0, "Joseph M. Farley Nuclear Plant Units 1 & 2 - Bechtel Jobs 7597-03/20, Watertight Doors," September 12, 1973

Section 1R11: LICENSED OPERATOR REQUALIFICATON

Procedures

SO23-XXI-3.2.9, Simulator Configuration Management Program, Revision 2

SO123-XXI-8.6, Conducting Training in the Simulator, Revision 4

SO123-XXI-1.11.7, Licensed Operator Requalification Training Program Description, Revision 13

SO123-XXI-8.4, Licensed Operator Requalification Examinations, Revision 11

Records

Licensed Operator Requalification Weekly Schedules
2003 Licensed Operator Participant Reaction Forms

2002 Annual Dynamic Simulator Examination Summary Report
SONGS 2002 Biennial Exam Sample Plan
SONGS 2002 Biennial Exam Outlines (Crews A through E)
SONGS 2002 Biennial Exam Proctor Forms
SONGS 2002 Biennial Exam Test Statistics
SONGS 2002 Biennial Exam Written Exam Analysis Report
SONGS 2002 Annual Dynamic Simulator Examination Summary Report
SONGS 2002 JPM Examination Summary Report
SONGS 2002 Biennial Written Examination #1D RO Test Statistics
SONGS 2002 Biennial Written Examination #1D SRO Test Statistics
SONGS 2002 Biennial Written Examination #2B SRO Test Statistics
SONGS 2002 Biennial Written Examination #3A RO Test Statistics
SONGS 2002 Biennial Written Examination #3A SRO Test Statistics
SONGS 2002 Biennial Written Examination #4E RO Test Statistics
SONGS 2002 Biennial Written Examination #4E SRO Test Statistics
SONGS 2002 Biennial Written Examination #5C RO Test Statistics
SONGS 2002 Biennial Written Examination #5C SRO Test Statistics

Examination Material

Simulator Scenarios

Dynamic No. 46, Revision 3
Dynamic No. 50, Revision 2
Dynamic No. 23, Revision 8
Dynamic No. 45, Revision 2
Dynamic No. 56, Revision 0
Dynamic No. 40, Revision 2
Dynamic No. 42, Revision 2
Dynamic No. 17, Revision 2

Written Examination

SONGS 2002 Biennial Written Examination #1D RO
SONGS 2002 Biennial Written Examination #1D SRO
SONGS 2002 Biennial Written Examination #2B SRO
SONGS 2002 Biennial Written Examination #3A RO
SONGS 2002 Biennial Written Examination #3A SRO
SONGS 2002 Biennial Written Examination #4E RO
SONGS 2002 Biennial Written Examination #4E SRO
SONGS 2002 Biennial Written Examination #5C RO
SONGS 2002 Biennial Written Examination #5C SRO

Job Performance Measures

J016F1
J109
J111S
J116FS
J113S

J096S
J014S
J062S
J081S
J112
J079S
J126S

Self-Assessment Corrective Action

Action Requests

AR 030101734–01
AR 030202235-01
AR LOP03063022-00
AR LOP03059147–00
AR LOP03059225-00
AR LOP03059853-00
AR LOP03059773-00
AR LOP03055447–00

Section 1EP1: EXERCISE EVALUATION 71114.01

So123-VIII-1, "Recognition and Classification of Emergencies," Revision 20
SO123-VIII-10, "Emergency Coordinator Duties," Revision 17
SO123-VIII-10.1, "Station Emergency Director Duties," Revision 12

SO123-VIII-10.2, "Corporate Emergency Director Duties," Revision 9
SO123-VIII-10.3, "Protective Action Recommendations," Revision 7
SO123-VIII-30.3, "OSC Operations Coordinator Duties," Revision 4
SO123-VIII-30.7, "Emergency Notifications," Revision 2
SO123-VIII-40, "TSC Health Physics Leader," Revision 17
SO123-VIII-50, "Technical Leader Duties," Revision 12
SO123-VIII-60, "Security Leader Duties," Revision 15
SO123-VIII-70, "Administrative Leader Duties," Revision 13

Section 2OS2: ALARA PLANNING AND CONTROLS IP 71121.02

Action Requests:

020600044, 020701255, 020800666, 021201416, 030100437, 030100716, 030101245, 030101636, 030101646, 030200363, 030200819, 030201607, 030201837, 030300887, 030400265, 030601307, and 030801209

ALARA Committee Meeting Minutes:

2002 - Third and Fourth Quarters
2003 - First, Second, and Third Quarters

ALARA packages:

A1010020002	U3 Cycle 12, Reactor Disassemble and Reassembly
A1010020027	U3 Cycle 12, Reactor Head Insulation
A1010020030	U3 Cycle 12, Balance of Containment - Health Physics Technician Job Coverage
A1020000026	U3 Cycle 12, Primary Steam Generator Work
A1114020007	U3 Cycle 12, Main Steam Generator Scaffold

Health Physics Division Performance Standards:

HP-I-6	Personnel Contamination Record (PCR) Process, Revision 3
HP-S-14	Hot Spot Program, Revision 2
OT-S-1	Job Performance Standards, Leadership Observation of Tailboards, Revision 2
OT-S-9	ALARA Working Group Duties and Responsibilities

Health Physics Division Self-Assessment Orders (SO123-SA-1):

Third Quarter 2002, Fourth Quarter 2002, First Quarter 2003, and Second Quarter 2003

Leadership Observation Program:

LOP-02042130, 02048443, 03051353, 03051394, 03051738, 03051899, 03052038, 03052444, 03052758, 03052862, 03056588, 03054886, 03053362, 03053361, 03061851, 03061683, 03055630, 03054014, 03053895, 03053222, and 02043624

Procedures:

SO123-VII-8.5.5	Dewatering System Operation, Revision 11
SO123-VII-20.4	ALARA Program, Revision 3
SO123-VII-20.4.1	ALARA Design Change Reviews, Revision 3
SO123-VII-20.4.3	ALARA Job Reviews, Revision 3
SO123-VII-20.6	External Occupational Exposure Monitoring, Revision 4
SO123-VII-20.6.1	Calculation of Dose from Skin Contamination, Revision 3
SO123-VII-20.10	Health Physics Work Control Plans, Revision 2
SO123-VII-20.10.2	Health Physics Tailboards/Pre-job Meetings, Revision 3
SO123-VII-20.15	Radiation Protection for Unborn Children, Revision 1

Section 4OA1

Emergency Preparedness Desktop Instruction, “Emergency Preparedness Performance Indicators,” Revision 6

SO 23-XV-24, “Quarterly NRC Performance Indicator (PI) Process,“ Revision 1

LIST OF ACRONYMS

ALARA	as low as is reasonably achievable
AR	action request
CFR	Code of Federal Regulations
DEP	drill and exercise performance
NCV	noncited violation
NEI	Nuclear Energy Institute
PAR	protective action recommendation
PI	performance indicator
SWC	saltwater cooling