UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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January 26, 2001

Harold B. Ray, Executive Vice President
Southern California Edison Co.
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, California 92674-0128

SUBJECT: ERRATA - NRC INSPECTION REPORT 50-361/00-14; 50-362/00-14

Dear Mr. Ray:

On November 25, 2000, the NRC completed an inspection at your San Onofre, Units 2 and 3, facility. The inspection report was transmitted to you via letter dated December 11, 2000. Unfortunately, the report did not contain the details of a Safeguards inspection conducted on October 2-6 and November 1 and 7, 2000.

Please replace the “Report Details” section and attachments with the enclosed report. We regret any inconvenience that this may have caused.

In accordance with 10 CFR 2.790 of the NRC's “Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC’s document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

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

Sincerely,

/RA/

Charles S. Marschall, Chief
Project Branch C
Division of Reactor Projects

Docket Nos.: 50-361
50-362
License Nos.: NPF-10
NPF-15

Enclosure:
NRC Inspection Report
50-361/00-14; 50-362/00-14

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Only inspection reports to the following:
Scott Morris **(SAM1)**
NRR Event Tracking System **(IPAS)**
SONGS Site Secretary **(SFN1)**
Dale Thatcher **(DFT)**

R:_SO23\SO2000-14RP-JAS-Errata.wpd

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.:	50-361 50-362
License Nos.:	NPF-10 NPF-15
Report No.:	50-361/00-14 50-362/00-14
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:	October 2 through November 25, 2000
Inspectors:	J. A. Sloan, Senior Resident Inspector J. G. Kramer, Resident Inspector A. B. Earnest, Senior Physical Security Inspector
Approved By:	Charles S. Marschall, Chief, Project Branch C

ATTACHMENTS:

Attachment 1: Supplemental Information

Attachment 2: NRC's Revised Reactor Oversight Process

SUMMARY OF FINDINGS

San Onofre Nuclear Generating Station, Units 2 and 3
NRC Inspection Report No. 50-361/00-14; 50-362/00-14
10/15/00 - 11/25/00

IR05000361-00-14, IR05000362-00-14: 10/15-11/25/2000; Southern California Edison; San Onofre Nuclear Generating Station, Units 2 & 3; Resident Report; Personnel Performance During Nonroutine Plant Evolutions, Surveillance Testing.

This integrated inspection included a 6-week routine inspection conducted by resident inspectors on October 15 through November 25, 2000, and a safeguards inspection conducted by a Region-based inspector on October 2-6 and November 1 and 7, 2000. The inspection identified two green findings, both of which were violations. The significance of issues is indicated by their color (Green, White, Yellow, Red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609.

Cornerstone: Barrier Integrity

- Green. Operators failed to follow the procedure for stopping the last running reactor coolant pump and therefore caused a cooldown rate of the reactor coolant system in excess of limits. This was a violation of Technical Specification 5.5.1.1.a. This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Action Request 001000469. The failure to follow the procedure was a human performance deficiency that was the direct cause of exceeding the cooldown rate.

  Based on consultation with an NRC regional senior reactor analyst and review of the licensee's evaluation of the event, the inspectors concluded that the issue was of very low safety significance because the reactor vessel remained operable (Section 1R14.1).

- Green. As a result of switching instrumentation used to monitor the reactor coolant system cooldown and then reinitializing the cooldown log, the operators failed to verify the cooldown rate. This caused the operators to fail to promptly identify a cooldown rate of the reactor coolant system in excess of limits. This was a violation of Technical Specification Surveillance Requirement 3.4.3.1. This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Action Request 001000469. Operator human performance in the implementation of the surveillance was a contributing cause of not promptly detecting that the cooldown rate limit had been exceeded.

  Based on consultation with an NRC regional senior reactor analysts and review of the licensee's evaluation of the excessive cooldown event, the inspectors concluded that the issue was of very low safety significance because the reactor vessel remained operable (Section 1R22).

Report Details

Summary of Plant Status:

Unit 2 began the inspection period in Mode 6 of the Cycle 11 refueling outage. On October 28, 2000, the unit entered Mode 5. On November 12, the unit entered Mode 4 and on the following day Mode 3. On November 15, operators performed a reactor startup and placed the unit online the following day. On November 18, the unit reached full power. On November 23, a circulating water pump tripped on overcurrent and operators reduced power to 75 percent. The unit operated at essentially 75 percent power through the end of the inspection period.

Unit 3 operated at essentially 100 percent power throughout this inspection period.

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

1R04 Equipment Alignments (71111.04)

a. Inspection Scope

The inspectors performed partial walkdowns during outages of the following systems to confirm the operability of the redundant trains:

- Replace Train A component cooling water heat exchanger (Unit 2)
- Train B emergency core cooling system/shutdown cooling system outage (Unit 2)

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 plant areas important to reactor safety:

- Auxiliary feedwater pump room (Unit 3)
- Main Steam Isolation Valve 3HV8204 area (Unit 3)
- Feedwater Block Valve 3HV4047 area (Unit 3)

The inspectors observed the material condition of plant fire protection equipment, the control of transient combustibles, and the operational status of barriers.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors performed a periodic walkdown of the Unit 3 component cooling water rooms to determine the operational status of flooding seals and barriers, sumps and drains, and level alarms and to identify the existence of other potentially unanalyzed internal flooding hazards.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors observed performance tests for Unit 2 Train B component cooling water Heat Exchanger 2ME002 and reviewed the test acceptance criteria and results.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed the implementation of the requirements of the Maintenance Rule (10 CFR 50.65) for the following systems and components:

- Failure of containment normal Chiller 2ME201 (Unit 2)
- Saltwater Cooling Pump 2P112 inservice test failure (Unit 2)
- Control room emergency air cleanup system boundary excessive inleakage (Units 2 and 3)

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- 4 kV Bus 2A06 outage risk effect on the opposite unit (Unit 3)
- Troubleshooting of internal leakage on hydraulic actuator for Feedwater Block Valve 3HV4047 (Unit 3)

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14)

.1 Stopping the Last Running Reactor Coolant Pump (RCP) and the Effects on the Reactor Coolant System (RCS) Cooldown (Unit 2)

a. Inspection Scope

The inspectors reviewed the licensed operator actions surrounding stopping the last running RCP during the Unit 2 shutdown. The inspectors reviewed Action Request (AR) 001000469, Nuclear Training Division Lesson Plan 2RS770, and Procedure SO23-5-1.8, "Shutdown Operations (Modes 5 and 6)," Revision 10. The inspectors discussed the evolution with the operators involved in the event and operations management.

b. Findings

Operators failed to follow the procedure for stopping the last running RCP and therefore caused a cooldown rate of the RCS in excess of limits. This was a violation of Technical Specification 5.5.1.1.a. The failure to follow the procedure was a human performance deficiency that was the direct cause of exceeding the cooldown rate.

On October 8, 2000, the operators prepared to stop the last running RCP. Procedure SO23-5-1.8, step 6.1.12, provided the instructions for stopping the RCP. After stopping the RCP, step 6.1.12.6 directs operators to adjust shutdown cooling system flowrates, as required, to stabilize the RCS cold leg temperature (Tcold) or continue the cooldown. The intent of the step is to control Tcold, with the understanding that the hot leg temperature (Thot) will rise after the RCP is stopped, because flow through the core decreases from approximately 100,000 gpm with the RCP running to approximately 4000 gpm when on shutdown cooling. Based on perceived urgency to reduce/control the shutdown heat exchanger inlet temperature (RCS Thot), an operator opened the shutdown cooling heat exchanger outlet valve and closed the bypass valve. This action caused a reduction in Tcold from 128°F to 80° F in a few minutes. Operators then continued with a controlled cooldown of the RCS. Approximately one

hour after the rapid cooldown, Operations management determined that the Technical Specification RCS cooldown rate of approximately 40°F in an hour had been exceeded. Operators entered Technical Specification Limiting Condition for Operation (LCO) 3.4.3, Action C.1, and immediately stopped the cooldown as required by the action statement.

Technical Specification LCO 3.4.3, Action C.2, requires the licensee to determine if the RCS is acceptable for continued operation when the requirements of the LCO are not met. The licensee documented the evaluation in AR 001000469, Assignment 2. The licensee performed a finite element analysis of the reactor vessel wall at the belt line to determine if the ASME code limits had been exceeded. The licensee's evaluation included several conservative assumptions and concluded that continued plant operation was acceptable.

The inspectors reviewed the training records of the operators involved in stopping the RCP and observed that the operators had completed training specific to stopping the last running RCP approximately a month prior to the event. The training included discussions of which temperature indications to use when stopping the last RCP and how to control temperature after the RCP was stopped. In addition, the instructors reviewed the procedure with the operators during dynamic simulator training. In the apparent cause evaluation of AR 001000469, the licensee documented a simulator deficiency in that the simulator model has very little decay heat when compared to the actual plant after extended full power operations.

Technical Specification 5.5.1.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, in part, recommends general plant operating procedures for cold shutdown. Procedure SO23-5-1.8, "Shutdown Operations (Modes 5 and 6)," step 6.1.12.6 states, in part, to adjust shutdown cooling system flowrates, as required to stabilize RCS Tcold or continue the cooldown. Contrary to the above, operators failed to adjust shutdown cooling system flowrates, as required to stabilize RCS Tcold and instead opened the shutdown cooling heat exchanger outlet valve and closed the bypass valve. This action caused a reduction in Tcold from 128°F to 80°F in a few minutes and a cooldown rate in excess of that allowed by Technical Specification LCO 3.4.3. This violation of Technical Specification 5.5.1.1.a is being treated as a noncited violation (NCV 361/2000014-01) consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as AR 001000469. Based on consultation with an NRC regional senior reactor analyst and review of the licensee's evaluation of the event, the inspectors concluded that the issue was of very low safety significance (Green) because the reactor vessel remained operable.

.2 Reactor Startup (Unit 2)

a. Inspection Scope

On November 15, 2000, the inspectors observed the initial reactor startup of Unit 2 following the Cycle 11 refueling outage. The inspectors reviewed

Procedure SO23-3.1.1, “Reactor Startup,” Revision 22, and Procedure SO23-5-1.3.1, “Plant Startup from Hot Standby to Minimum Load,” Revision 19. The inspectors discussed the observations with Operations and Engineering management.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors discussed equipment operability with licensee personnel and/or reviewed the operability evaluations documented in the following ARs to ensure the operability was properly justified:

- Trip mechanism latch for Auxiliary Feedwater Pump 3P140 not fully engaged (AR 991201049) (Unit 3)
- Nitrogen supply check valve to safety injection tanks leakage back to the nitrogen header (AR 001000900) (Units 2 and 3)
- Blowdown flow orifice plate data sheet from the vendor found to be incorrect (AR 0011000455) (Units 2 and 3)
- Emergency Diesel Generator 2G002 Engine 2 high governor oil level (Unit 2)

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors observed the modification of Main Feedwater Isolation Valve 2HV4052. The inspectors reviewed Field Change Notice F-12449 and its associated 10 CFR 50.59 safety analysis; Maintenance Order 97011254001; and Procedure SO23-I-6.14, “Main Steam and Main Feedwater Isolation and Blocking Valve Overhaul,” Revision 8.

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 activities to verify that the test procedures and activities adequately demonstrated system operability:

- Train A Component Cooling Water Heat Exchanger 2ME001 replacement (Unit 2)
- Main steam safety valve replacement (Unit 2)
- Auxiliary Feedwater Pump 2P140 maintenance (Unit 2)

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors periodically observed plant conditions in Unit 2 to verify that safety systems and support systems, including electrical distribution, were properly aligned, with defense-in-depth commensurate with the outage risk control plan. The inspectors periodically verified that the shutdown cooling system configuration was consistent with Technical Specification requirements and that the RCS inventory was adequately controlled. The inspectors also verified that containment closure requirements were met.

The inspectors observed and verified refueling activities. The inspectors verified that fuel handling operations and containment penetration closure were performed in accordance with Technical Specifications and approved procedures and verified that the location of the fuel assemblies, including new fuel, was tracked during the core shuffle. The inspectors observed core shuffle from the refueling machine and control element assembly transfer from the control element assembly change-out fixture.

On November 8, 2000, the inspectors reviewed the midloop preparations and observed operator performance during the drain to midloop. The inspectors performed a containment cleanliness tour prior to entry into Mode 3.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- Control element assembly drop time testing (Surveillance Requirement (SR) 3.1.5.5) (Unit 2)

- Verify RCS cooldown rates within limits (SR 3.4.3.1) (Unit 2)

b. Findings

As a result of switching instruments used to monitor the RCS cooldown and then reinitializing the cooldown log, the operators failed to verify the cooldown rate. This caused the operators to fail to promptly identify a cooldown rate of the RCS in excess of limits. This was a violation of Technical Specification SR 3.4.3.1. Operator human performance in the implementation of the surveillance was a contributing cause of not promptly detecting that the cooldown rate limit had been exceeded.

As a result of switching instruments used to monitor the RCS cooldown and then reinitializing the cooldown log, the operators failed to verify the cooldown rate as required by Technical Specification SR 3.4.3.1. Therefore, the operators failed to promptly identify a cooldown rate of the RCS in excess of limits. Operator human performance in the implementation of the surveillance was a contributing cause of not promptly detecting that the cooldown rate had been exceeded.

The inspectors reviewed the circumstances surrounding the stopping of the last running RCP, as documented in Section 1R14.2 of this report, to understand the delay time of the operating crew to recognize that an RCS cooldown rate had been exceeded. Both Technical Specification SR 3.4.3.1 and Procedure SO23-5.1.8, “Shutdown Operations (Modes 5 and 6),” Revision 10, Attachment 11, “Cooldown/Heatup Plots,” require the operators to verify that RCS cooldown rates are within limits every 30 minutes.

The inspectors identified that the operators switched the instrument used to monitor the cooldown rate three times. Each time they reinitialized the cooldown rate and plot and therefore were not appropriately verifying the RCS cooldown rate. Initially, operators monitored Loop 2A Cold Leg Temperature Instrument 2T125 and at 1:30 p.m. recorded RCS temperature at 137.4°F with a cooldown rate of 23°F per hour. When the operators stopped RCP 2P004, they transitioned to Loop 1B Cold Leg Temperature Instrument 2T115 and at 1:45 p.m. recorded RCS temperature at 130.6°F and marked the cooldown rate as “N/A.” Operators then stopped the last running RCP, transitioned to low pressure safety injection pump discharge header temperature Instrument 2T351X and at 2:20 p.m. recorded RCS temperature at 83.0°F and again marked the cooldown rate as “N/A.” At 2:50 p.m. the operators recorded RCS temperature using Instrument 2T351X at 79.75°F with a cooldown rate of 6.5°F per hour. Operators

waited from 1:30 p.m. to 2:50 p.m., a period of 80 minutes, without recording a cooldown rate. In that time frame, operators exceeded the Technical Specification 3.4.3 cooldown rate and failed to recognize it.

Technical Specification SR 3.4.3.1 requires verification that RCS pressure, temperature, and cooldown rates are within specified limits every 30 minutes. Contrary to the above, on October 8, 2000, operators verified the cooldown rate at 1:30 p.m. and again at 2:50 p.m., an 80-minute period, and therefore failed to verify the RCS cooldown rate every 30 minutes. This resulted in the failure of the operating crew to detect a cooldown rate in excess of limits. Operations management review of the stopping of the last RCP transient ultimately identified the cooldown rate in excess of limits. Because of the errors, the surveillance did not identify the excess cooldown as it was intended to do. This violation of Technical Specification SR 3.4.3.1 is being treated as a noncited violation (NCV 361/2000014-02) consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as AR 001000469. Based on consultation with an NRC senior reactor analyst and review of the licensee's evaluation of the excessive cooldown event, the inspectors concluded that the issue was of very low safety significance (Green) because the reactor vessel remained operable.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

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

- Installation of temporary pressure relief valve to replace Relief Valve PSV4048C on the hydraulic actuator for Feedwater Isolation Valve 3HV4048 per Nonconformance Report 000700328 (Unit 3)

- Implementation of Abnormal Alignment 3-00-102 for troubleshooting of Feedwater Block Valve 3HV4047 (Unit 3)

b. Findings

No findings of significance were identified.

3. SAFEGUARDS
Cornerstone: Physical Protection

3PP1 Access Authorization (7113001)

a. Inspection Scope

The inspector:

- Reviewed licensee event reports and safeguards event logs to identify problems in the access authorization program.

- Reviewed procedures, audits, and self-assessments of the following programs/areas: behavior observation, access authorization, fitness-for-duty, supervisor and escort training, and requalification training.

- Interviewed five supervisors/managers and five individuals who had escorted visitors into the protected and/or vital areas to determine their knowledge and understanding of their responsibilities in the behavior observation program.

- Reviewed condition reports, licensee event reports, safeguards event logs, audits, selected security event reports, and self-assessments for the licensee's access authorization program to determine the licensee's ability to identify and resolve problems.

b. Findings

No findings of significance were identified.

3PP2 Access Control (7113002)

a. Inspection Scope

The inspector:

- Reviewed licensee event reports and safeguards event logs to identify problems with access control equipment.

- Reviewed procedures and audits for testing and maintenance of access control equipment and for granting and revoking unescorted access to protected and vital areas.

- Interviewed security personnel concerning the proper operation of the explosive and metal detectors, X-ray devices, and key card readers.

- Observed licensee testing of access control equipment and the ability of security personnel to control personnel, packages, and vehicles entering the protected area.

- Reviewed procedures to verify that a program was in place for controlling and accounting for hard keys to vital areas.

- Reviewed the licensee's process for granting access to vital equipment and vital areas.

- Reviewed condition reports, licensee event reports, safeguards event logs, audits, selected security event reports, and self-assessments for the licensee's access control program in order to identify the licensee's ability to identify and resolve problems with the access control program.

- Interviewed key security department and plant support personnel to determine their knowledge and use of the corrective action reports and resolution of problems regarding repair of security equipment.

b. Findings

No findings of significance were identified.

3PP3 Security Plan Changes (7113004)

a. Inspection Scope

The inspector completed the following actions:

- Reviewed the Physical Security Plan, Revisions 64, 65, 66, and 67; Safeguards Contingency Plan, Revisions 23 and 24; Training and Qualifications Plan, Revisions 21 and 22, to determine if requirements of 10 CFR 50.54(p) had been met

- Reviewed the previous year's safeguards event logs and interviewed security personnel to determine their knowledge and use of the corrective action program and resolution of problems as it relates to making changes to the licensing documents

b. Findings

During a review of Revision 22 to the licensee Training and Qualifications Plan, dated September 29, 2000, and Revision 24 to the Safeguards Contingency Plan, dated August 29, 2000 [both were 10 CFR 50.54(p) changes], the inspector determined that one change to both plans appeared to be a reduction in plan effectiveness.

10 CFR 50.54(p)(2) states that the licensee can make changes to plans without NRC approval if the changes do not decrease the safeguards effectiveness of the plans.

Paragraph II.D of Appendix B to 10 CFR Part 73 states that, "The areas of knowledge, skills, and abilities that shall be considered in the licensee's training and qualifications plan are as follows: . . . 5. The use of non-lethal weapons . . . 75. Response to civil disturbances (e.g., strikes, demonstrations)."

Paragraph V.A.5 of Appendix B to 10 CFR Part 73 states that "personal equipment to be readily available for individuals whose assigned contingency security job duties, as described in the licensee physical security and contingency plans, warrant such equipment . . . (e) Baton."

The previously approved plans committed to batons and corresponding training. The changes to the plans removed the requirements to have batons and training. The contingency plan continued to require that the licensee prevent demonstrators from entering the protected area. The licensee issued pepper spray to the response force;

however, this capability/provision was not incorporated into the plans. This issue is characterized as an unresolved item pending further NRC review (50-361/0014-04; 50-362/0014-04).

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors verified the accuracy of data reported by the licensee for the following performance indicators to ensure that the performance indicator color was correct:

- MS2 High Pressure Injection System Unavailability (Units 2 and 3)
- MS3 Heat Removal System Unavailability (Units 2 and 3)
- MS4 Residual Heat Removal System Unavailability (Units 2 and 3)

Additionally, the inspector reviewed the program for collection and submittal of physical security performance indicator data. Specifically, a random sampling of security event logs and corrective action reports were reviewed for the following program performance areas:

- PP1 Protected Area Equipment
- PP2 Personnel Screening Program
- PP3 Fitness for Duty/Personnel Reliability Program

b. Findings

The licensee determined that the unavailability hours associated with heat treating the saltwater cooling system (a support system for the high pressure safety injection system and the shutdown cooling system) were not required to be counted and reported in the MS2 and MS4 performance indicators. This determination was based on Frequently Asked Question 152, which disallows hours associated with routine swapping of components and flowpaths in support systems. Because the heat treat evolution takes approximately 6 hours, and recovery can be complicated, the inspectors disagreed with the licensee's determination. Counting these hours would increase the unavailability by approximately 0.2 percent, but would not result in crossing a performance indicator threshold. The inspectors submitted a performance indicator interpretation feedback form to resolve the difference. The assessment of this issue is unresolved pending a final determination by the NRC (URI 361; 362/2000014-03).

No findings of significance were identified.

4OA3 Event Followup (71153)

a. Inspection Scope

The inspectors reviewed a licensee event report to determine the significance of the event, the cause of the event and corrective actions, and whether the event involved a violation of requirements.

b. Findings

(Closed): Licensee Event Report 361/2000-013-00: missed RCS cooldown rate Technical Specification surveillance. The inspectors discussed the issue in Section 1R22 of this report. No new issues were revealed by the licensee event report.

4OA6 Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. R. Krieger and other members of licensee management at an exit meeting on November 28, 2000. The licensee acknowledged the findings presented.

The inspector presented the inspection results to Mr. Nunn, Vice President, Engineering and Technical Services, and other members of licensee management at the conclusion of the inspection on October 6, 2000. Subsequent telephonic discussions were held on November 1 and 7, 2000, to discuss the recharacterization of one issue. The licensee acknowledged the findings presented.

During these exit meetings, the inspectors asked the licensee whether or not any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

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G. Broussard, Supervisor, Security Operations
G. Cook, Supervisor, Compliance
J. Fee, Manager, Maintenance
M. Flannery, Supervisor, Access Authorization
R. Krieger, Vice President, Nuclear Generation
M. McBrearty, Compliance Engineer
R. McWey, Manager, Nuclear Oversight Division
J. Madigan, Manager, Health Physics
D. Nunn, Vice President, Engineering and Technical Services
G. Plumlee, Supervisor, Security Compliance
M. Short, Manager, Site Technical Support
T. Vogt, Plant Superintendent, Units 2 and 3
R. Waldo, Manager, Operations
J. Wallace, Manager, Security Division

ITEMS OPENED AND CLOSED

Opened

361; 362/2000014-03	URI	reportability of unavailable hours during heat treatment of the saltwater cooling system (Section 4OA1)
361;362/20000014-04	URI	potential reduction in security plan effectiveness (Section 3PP3)

Opened and Closed During this Inspection

361/2000014-01	NCV	cooldown limits exceeded when last RCP stopped (Section 1R14.1)
361/2000014-02	NCV	RCS system cooldown in excess of limits not detected because of failure to properly perform surveillance (Section 1R22)

Previous Item Closed

361/2000-013-00	LER	missed RCS cooldown rate Technical Specification surveillance (Section 4OA3)

LIST OF ACRONYMS USED

AR	action request
CFR	Code of Federal Regulations
LCO	limiting condition for operation
NCV	noncited violation
NRC	Nuclear Regulatory Commission
RCP	reactor coolant pump
RCS	reactor coolant system
SR	surveillance requirement
Tcold	RCS cold leg temperature
Thot	RCS hot leg temperature

LIST OF DOCUMENTS REVIEWED

Security Procedure SO123-IV-5.3.3, Revision 6, "Search and Inspection"

Security Procedure SO123-IV-5.3.5, Revision 1, "Vehicle Search Facility/Area Search and Inspection"

Security Procedure S123-XV-6, Revision 6, “General Access Authorization Procedure”

Security Event Logs, Fourth Quarter, 1999, and First, Second, and Third Quarters, 2000

Security Shift Schedule, October 3, 2000

Fitness-for-Duty, Access Authorization, and Security Program Audits:

1. Audit 1081-A001, dated February 10, 2000

2. Audit CPSI-1-00, dated March 16, 2000

3. Audit USIS-1-00, dated February 9, 2000

4. Audit 99-02, dated October 18, 2000

5. Audit 10257-A00, dated June 9, 2000

6. Audit SCES 908-99, dated October 22, 1999

7. Audit SCES-920-99, dated November 19, 1999

8. Audit SCES-017-00, dated May 12, 2000

Semi-Annual Fitness-for-Duty Data Reports, dated February 5 and August 22, 2000

Reference Guide for Supervisors, Escorts, and Individuals on Nuclear Fitness-for-Duty Behavior Observation and Chemical Testing, Revision 3, dated December 1994

ATTACHMENT 2

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

January 26, 2001

Harold B. Ray, Executive Vice President
Southern California Edison Co.
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, California 92674-0128

SUBJECT: ERRATA - NRC INSPECTION REPORT 50-361/00-14; 50-362/00-14

Dear Mr. Ray:

On November 25, 2000, the NRC completed an inspection at your San Onofre, Units 2 and 3, facility. The inspection report was transmitted to you via letter dated December 11, 2000. Unfortunately, the report did not contain the details of a Safeguards inspection conducted on October 2-6 and November 1 and 7, 2000.

Please replace the “Report Details” section and attachments with the enclosed report. We regret any inconvenience that this may have caused.

In accordance with 10 CFR 2.790 of the NRC's “Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC’s document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

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

Sincerely,

/RA/

Charles S. Marschall, Chief
Project Branch C
Division of Reactor Projects

Docket Nos.: 50-361
50-362
License Nos.: NPF-10
NPF-15

Enclosure:
NRC Inspection Report
50-361/00-14; 50-362/00-14

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Only inspection reports to the following:
Scott Morris **(SAM1)**
NRR Event Tracking System **(IPAS)**
SONGS Site Secretary **(SFN1)**
Dale Thatcher **(DFT)**

R:_SO23\SO2000-14RP-JAS-Errata.wpd

RIV:SPE:DRP/C	C:DRS/PSB	C:DRP/C		
DPLoveless;df	GMGood	CSMarschall		
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1/26/01	1/26/01	1/26/01		

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.:	50-361 50-362
License Nos.:	NPF-10 NPF-15
Report No.:	50-361/00-14 50-362/00-14
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:	October 2 through November 25, 2000
Inspectors:	J. A. Sloan, Senior Resident Inspector J. G. Kramer, Resident Inspector A. B. Earnest, Senior Physical Security Inspector
Approved By:	Charles S. Marschall, Chief, Project Branch C

ATTACHMENTS:

Attachment 1: Supplemental Information

Attachment 2: NRC's Revised Reactor Oversight Process

SUMMARY OF FINDINGS

San Onofre Nuclear Generating Station, Units 2 and 3
NRC Inspection Report No. 50-361/00-14; 50-362/00-14
10/15/00 - 11/25/00

IR05000361-00-14, IR05000362-00-14: 10/15-11/25/2000; Southern California Edison; San Onofre Nuclear Generating Station, Units 2 & 3; Resident Report; Personnel Performance During Nonroutine Plant Evolutions, Surveillance Testing.

This integrated inspection included a 6-week routine inspection conducted by resident inspectors on October 15 through November 25, 2000, and a safeguards inspection conducted by a Region-based inspector on October 2-6 and November 1 and 7, 2000. The inspection identified two green findings, both of which were violations. The significance of issues is indicated by their color (Green, White, Yellow, Red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609.

Cornerstone: Barrier Integrity

- Green. Operators failed to follow the procedure for stopping the last running reactor coolant pump and therefore caused a cooldown rate of the reactor coolant system in excess of limits. This was a violation of Technical Specification 5.5.1.1.a. This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Action Request 001000469. The failure to follow the procedure was a human performance deficiency that was the direct cause of exceeding the cooldown rate.

  Based on consultation with an NRC regional senior reactor analyst and review of the licensee's evaluation of the event, the inspectors concluded that the issue was of very low safety significance because the reactor vessel remained operable (Section 1R14.1).

- Green. As a result of switching instrumentation used to monitor the reactor coolant system cooldown and then reinitializing the cooldown log, the operators failed to verify the cooldown rate. This caused the operators to fail to promptly identify a cooldown rate of the reactor coolant system in excess of limits. This was a violation of Technical Specification Surveillance Requirement 3.4.3.1. This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Action Request 001000469. Operator human performance in the implementation of the surveillance was a contributing cause of not promptly detecting that the cooldown rate limit had been exceeded.

  Based on consultation with an NRC regional senior reactor analysts and review of the licensee's evaluation of the excessive cooldown event, the inspectors concluded that the issue was of very low safety significance because the reactor vessel remained operable (Section 1R22).

Report Details

Summary of Plant Status:

Unit 2 began the inspection period in Mode 6 of the Cycle 11 refueling outage. On October 28, 2000, the unit entered Mode 5. On November 12, the unit entered Mode 4 and on the following day Mode 3. On November 15, operators performed a reactor startup and placed the unit online the following day. On November 18, the unit reached full power. On November 23, a circulating water pump tripped on overcurrent and operators reduced power to 75 percent. The unit operated at essentially 75 percent power through the end of the inspection period.

Unit 3 operated at essentially 100 percent power throughout this inspection period.

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

1R04 Equipment Alignments (71111.04)

a. Inspection Scope

The inspectors performed partial walkdowns during outages of the following systems to confirm the operability of the redundant trains:

- Replace Train A component cooling water heat exchanger (Unit 2)
- Train B emergency core cooling system/shutdown cooling system outage (Unit 2)

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 plant areas important to reactor safety:

- Auxiliary feedwater pump room (Unit 3)
- Main Steam Isolation Valve 3HV8204 area (Unit 3)
- Feedwater Block Valve 3HV4047 area (Unit 3)

The inspectors observed the material condition of plant fire protection equipment, the control of transient combustibles, and the operational status of barriers.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors performed a periodic walkdown of the Unit 3 component cooling water rooms to determine the operational status of flooding seals and barriers, sumps and drains, and level alarms and to identify the existence of other potentially unanalyzed internal flooding hazards.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors observed performance tests for Unit 2 Train B component cooling water Heat Exchanger 2ME002 and reviewed the test acceptance criteria and results.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed the implementation of the requirements of the Maintenance Rule (10 CFR 50.65) for the following systems and components:

- Failure of containment normal Chiller 2ME201 (Unit 2)
- Saltwater Cooling Pump 2P112 inservice test failure (Unit 2)
- Control room emergency air cleanup system boundary excessive inleakage (Units 2 and 3)

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- 4 kV Bus 2A06 outage risk effect on the opposite unit (Unit 3)
- Troubleshooting of internal leakage on hydraulic actuator for Feedwater Block Valve 3HV4047 (Unit 3)

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14)

.1 Stopping the Last Running Reactor Coolant Pump (RCP) and the Effects on the Reactor Coolant System (RCS) Cooldown (Unit 2)

a. Inspection Scope

The inspectors reviewed the licensed operator actions surrounding stopping the last running RCP during the Unit 2 shutdown. The inspectors reviewed Action Request (AR) 001000469, Nuclear Training Division Lesson Plan 2RS770, and Procedure SO23-5-1.8, "Shutdown Operations (Modes 5 and 6)," Revision 10. The inspectors discussed the evolution with the operators involved in the event and operations management.

b. Findings

Operators failed to follow the procedure for stopping the last running RCP and therefore caused a cooldown rate of the RCS in excess of limits. This was a violation of Technical Specification 5.5.1.1.a. The failure to follow the procedure was a human performance deficiency that was the direct cause of exceeding the cooldown rate.

On October 8, 2000, the operators prepared to stop the last running RCP. Procedure SO23-5-1.8, step 6.1.12, provided the instructions for stopping the RCP. After stopping the RCP, step 6.1.12.6 directs operators to adjust shutdown cooling system flowrates, as required, to stabilize the RCS cold leg temperature (Tcold) or continue the cooldown. The intent of the step is to control Tcold, with the understanding that the hot leg temperature (Thot) will rise after the RCP is stopped, because flow through the core decreases from approximately 100,000 gpm with the RCP running to approximately 4000 gpm when on shutdown cooling. Based on perceived urgency to reduce/control the shutdown heat exchanger inlet temperature (RCS Thot), an operator opened the shutdown cooling heat exchanger outlet valve and closed the bypass valve. This action caused a reduction in Tcold from 128°F to 80° F in a few minutes. Operators then continued with a controlled cooldown of the RCS. Approximately one

hour after the rapid cooldown, Operations management determined that the Technical Specification RCS cooldown rate of approximately 40°F in an hour had been exceeded. Operators entered Technical Specification Limiting Condition for Operation (LCO) 3.4.3, Action C.1, and immediately stopped the cooldown as required by the action statement.

Technical Specification LCO 3.4.3, Action C.2, requires the licensee to determine if the RCS is acceptable for continued operation when the requirements of the LCO are not met. The licensee documented the evaluation in AR 001000469, Assignment 2. The licensee performed a finite element analysis of the reactor vessel wall at the belt line to determine if the ASME code limits had been exceeded. The licensee's evaluation included several conservative assumptions and concluded that continued plant operation was acceptable.

The inspectors reviewed the training records of the operators involved in stopping the RCP and observed that the operators had completed training specific to stopping the last running RCP approximately a month prior to the event. The training included discussions of which temperature indications to use when stopping the last RCP and how to control temperature after the RCP was stopped. In addition, the instructors reviewed the procedure with the operators during dynamic simulator training. In the apparent cause evaluation of AR 001000469, the licensee documented a simulator deficiency in that the simulator model has very little decay heat when compared to the actual plant after extended full power operations.

Technical Specification 5.5.1.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, in part, recommends general plant operating procedures for cold shutdown. Procedure SO23-5-1.8, "Shutdown Operations (Modes 5 and 6)," step 6.1.12.6 states, in part, to adjust shutdown cooling system flowrates, as required to stabilize RCS Tcold or continue the cooldown. Contrary to the above, operators failed to adjust shutdown cooling system flowrates, as required to stabilize RCS Tcold and instead opened the shutdown cooling heat exchanger outlet valve and closed the bypass valve. This action caused a reduction in Tcold from 128°F to 80°F in a few minutes and a cooldown rate in excess of that allowed by Technical Specification LCO 3.4.3. This violation of Technical Specification 5.5.1.1.a is being treated as a noncited violation (NCV 361/2000014-01) consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as AR 001000469. Based on consultation with an NRC regional senior reactor analyst and review of the licensee's evaluation of the event, the inspectors concluded that the issue was of very low safety significance (Green) because the reactor vessel remained operable.

.2 Reactor Startup (Unit 2)

a. Inspection Scope

On November 15, 2000, the inspectors observed the initial reactor startup of Unit 2 following the Cycle 11 refueling outage. The inspectors reviewed

Procedure SO23-3.1.1, “Reactor Startup,” Revision 22, and Procedure SO23-5-1.3.1, “Plant Startup from Hot Standby to Minimum Load,” Revision 19. The inspectors discussed the observations with Operations and Engineering management.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors discussed equipment operability with licensee personnel and/or reviewed the operability evaluations documented in the following ARs to ensure the operability was properly justified:

- Trip mechanism latch for Auxiliary Feedwater Pump 3P140 not fully engaged (AR 991201049) (Unit 3)
- Nitrogen supply check valve to safety injection tanks leakage back to the nitrogen header (AR 001000900) (Units 2 and 3)
- Blowdown flow orifice plate data sheet from the vendor found to be incorrect (AR 0011000455) (Units 2 and 3)
- Emergency Diesel Generator 2G002 Engine 2 high governor oil level (Unit 2)

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors observed the modification of Main Feedwater Isolation Valve 2HV4052. The inspectors reviewed Field Change Notice F-12449 and its associated 10 CFR 50.59 safety analysis; Maintenance Order 97011254001; and Procedure SO23-I-6.14, “Main Steam and Main Feedwater Isolation and Blocking Valve Overhaul,” Revision 8.

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 activities to verify that the test procedures and activities adequately demonstrated system operability:

- Train A Component Cooling Water Heat Exchanger 2ME001 replacement (Unit 2)
- Main steam safety valve replacement (Unit 2)
- Auxiliary Feedwater Pump 2P140 maintenance (Unit 2)

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors periodically observed plant conditions in Unit 2 to verify that safety systems and support systems, including electrical distribution, were properly aligned, with defense-in-depth commensurate with the outage risk control plan. The inspectors periodically verified that the shutdown cooling system configuration was consistent with Technical Specification requirements and that the RCS inventory was adequately controlled. The inspectors also verified that containment closure requirements were met.

The inspectors observed and verified refueling activities. The inspectors verified that fuel handling operations and containment penetration closure were performed in accordance with Technical Specifications and approved procedures and verified that the location of the fuel assemblies, including new fuel, was tracked during the core shuffle. The inspectors observed core shuffle from the refueling machine and control element assembly transfer from the control element assembly change-out fixture.

On November 8, 2000, the inspectors reviewed the midloop preparations and observed operator performance during the drain to midloop. The inspectors performed a containment cleanliness tour prior to entry into Mode 3.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- Control element assembly drop time testing (Surveillance Requirement (SR) 3.1.5.5) (Unit 2)

- Verify RCS cooldown rates within limits (SR 3.4.3.1) (Unit 2)

b. Findings

As a result of switching instruments used to monitor the RCS cooldown and then reinitializing the cooldown log, the operators failed to verify the cooldown rate. This caused the operators to fail to promptly identify a cooldown rate of the RCS in excess of limits. This was a violation of Technical Specification SR 3.4.3.1. Operator human performance in the implementation of the surveillance was a contributing cause of not promptly detecting that the cooldown rate limit had been exceeded.

As a result of switching instruments used to monitor the RCS cooldown and then reinitializing the cooldown log, the operators failed to verify the cooldown rate as required by Technical Specification SR 3.4.3.1. Therefore, the operators failed to promptly identify a cooldown rate of the RCS in excess of limits. Operator human performance in the implementation of the surveillance was a contributing cause of not promptly detecting that the cooldown rate had been exceeded.

The inspectors reviewed the circumstances surrounding the stopping of the last running RCP, as documented in Section 1R14.2 of this report, to understand the delay time of the operating crew to recognize that an RCS cooldown rate had been exceeded. Both Technical Specification SR 3.4.3.1 and Procedure SO23-5.1.8, “Shutdown Operations (Modes 5 and 6),” Revision 10, Attachment 11, “Cooldown/Heatup Plots,” require the operators to verify that RCS cooldown rates are within limits every 30 minutes.

The inspectors identified that the operators switched the instrument used to monitor the cooldown rate three times. Each time they reinitialized the cooldown rate and plot and therefore were not appropriately verifying the RCS cooldown rate. Initially, operators monitored Loop 2A Cold Leg Temperature Instrument 2T125 and at 1:30 p.m. recorded RCS temperature at 137.4°F with a cooldown rate of 23°F per hour. When the operators stopped RCP 2P004, they transitioned to Loop 1B Cold Leg Temperature Instrument 2T115 and at 1:45 p.m. recorded RCS temperature at 130.6°F and marked the cooldown rate as “N/A.” Operators then stopped the last running RCP, transitioned to low pressure safety injection pump discharge header temperature Instrument 2T351X and at 2:20 p.m. recorded RCS temperature at 83.0°F and again marked the cooldown rate as “N/A.” At 2:50 p.m. the operators recorded RCS temperature using Instrument 2T351X at 79.75°F with a cooldown rate of 6.5°F per hour. Operators

waited from 1:30 p.m. to 2:50 p.m., a period of 80 minutes, without recording a cooldown rate. In that time frame, operators exceeded the Technical Specification 3.4.3 cooldown rate and failed to recognize it.

Technical Specification SR 3.4.3.1 requires verification that RCS pressure, temperature, and cooldown rates are within specified limits every 30 minutes. Contrary to the above, on October 8, 2000, operators verified the cooldown rate at 1:30 p.m. and again at 2:50 p.m., an 80-minute period, and therefore failed to verify the RCS cooldown rate every 30 minutes. This resulted in the failure of the operating crew to detect a cooldown rate in excess of limits. Operations management review of the stopping of the last RCP transient ultimately identified the cooldown rate in excess of limits. Because of the errors, the surveillance did not identify the excess cooldown as it was intended to do. This violation of Technical Specification SR 3.4.3.1 is being treated as a noncited violation (NCV 361/2000014-02) consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as AR 001000469. Based on consultation with an NRC senior reactor analyst and review of the licensee's evaluation of the excessive cooldown event, the inspectors concluded that the issue was of very low safety significance (Green) because the reactor vessel remained operable.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

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

- Installation of temporary pressure relief valve to replace Relief Valve PSV4048C on the hydraulic actuator for Feedwater Isolation Valve 3HV4048 per Nonconformance Report 000700328 (Unit 3)

- Implementation of Abnormal Alignment 3-00-102 for troubleshooting of Feedwater Block Valve 3HV4047 (Unit 3)

b. Findings

No findings of significance were identified.

3. SAFEGUARDS
Cornerstone: Physical Protection

3PP1 Access Authorization (7113001)

a. Inspection Scope

The inspector:

- Reviewed licensee event reports and safeguards event logs to identify problems in the access authorization program.

- Reviewed procedures, audits, and self-assessments of the following programs/areas: behavior observation, access authorization, fitness-for-duty, supervisor and escort training, and requalification training.

- Interviewed five supervisors/managers and five individuals who had escorted visitors into the protected and/or vital areas to determine their knowledge and understanding of their responsibilities in the behavior observation program.

- Reviewed condition reports, licensee event reports, safeguards event logs, audits, selected security event reports, and self-assessments for the licensee's access authorization program to determine the licensee's ability to identify and resolve problems.

b. Findings

No findings of significance were identified.

3PP2 Access Control (7113002)

a. Inspection Scope

The inspector:

- Reviewed licensee event reports and safeguards event logs to identify problems with access control equipment.

- Reviewed procedures and audits for testing and maintenance of access control equipment and for granting and revoking unescorted access to protected and vital areas.

- Interviewed security personnel concerning the proper operation of the explosive and metal detectors, X-ray devices, and key card readers.

- Observed licensee testing of access control equipment and the ability of security personnel to control personnel, packages, and vehicles entering the protected area.

- Reviewed procedures to verify that a program was in place for controlling and accounting for hard keys to vital areas.

- Reviewed the licensee's process for granting access to vital equipment and vital areas.

- Reviewed condition reports, licensee event reports, safeguards event logs, audits, selected security event reports, and self-assessments for the licensee's access control program in order to identify the licensee's ability to identify and resolve problems with the access control program.

- Interviewed key security department and plant support personnel to determine their knowledge and use of the corrective action reports and resolution of problems regarding repair of security equipment.

b. Findings

No findings of significance were identified.

3PP3 Security Plan Changes (7113004)

a. Inspection Scope

The inspector completed the following actions:

- Reviewed the Physical Security Plan, Revisions 64, 65, 66, and 67; Safeguards Contingency Plan, Revisions 23 and 24; Training and Qualifications Plan, Revisions 21 and 22, to determine if requirements of 10 CFR 50.54(p) had been met

- Reviewed the previous year's safeguards event logs and interviewed security personnel to determine their knowledge and use of the corrective action program and resolution of problems as it relates to making changes to the licensing documents

b. Findings

During a review of Revision 22 to the licensee Training and Qualifications Plan, dated September 29, 2000, and Revision 24 to the Safeguards Contingency Plan, dated August 29, 2000 [both were 10 CFR 50.54(p) changes], the inspector determined that one change to both plans appeared to be a reduction in plan effectiveness.

10 CFR 50.54(p)(2) states that the licensee can make changes to plans without NRC approval if the changes do not decrease the safeguards effectiveness of the plans.

Paragraph II.D of Appendix B to 10 CFR Part 73 states that, "The areas of knowledge, skills, and abilities that shall be considered in the licensee's training and qualifications plan are as follows: . . . 5. The use of non-lethal weapons . . . 75. Response to civil disturbances (e.g., strikes, demonstrations)."

Paragraph V.A.5 of Appendix B to 10 CFR Part 73 states that "personal equipment to be readily available for individuals whose assigned contingency security job duties, as described in the licensee physical security and contingency plans, warrant such equipment . . . (e) Baton."

The previously approved plans committed to batons and corresponding training. The changes to the plans removed the requirements to have batons and training. The contingency plan continued to require that the licensee prevent demonstrators from entering the protected area. The licensee issued pepper spray to the response force;

however, this capability/provision was not incorporated into the plans. This issue is characterized as an unresolved item pending further NRC review (50-361/0014-04; 50-362/0014-04).

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors verified the accuracy of data reported by the licensee for the following performance indicators to ensure that the performance indicator color was correct:

- MS2 High Pressure Injection System Unavailability (Units 2 and 3)
- MS3 Heat Removal System Unavailability (Units 2 and 3)
- MS4 Residual Heat Removal System Unavailability (Units 2 and 3)

Additionally, the inspector reviewed the program for collection and submittal of physical security performance indicator data. Specifically, a random sampling of security event logs and corrective action reports were reviewed for the following program performance areas:

- PP1 Protected Area Equipment
- PP2 Personnel Screening Program
- PP3 Fitness for Duty/Personnel Reliability Program

b. Findings

The licensee determined that the unavailability hours associated with heat treating the saltwater cooling system (a support system for the high pressure safety injection system and the shutdown cooling system) were not required to be counted and reported in the MS2 and MS4 performance indicators. This determination was based on Frequently Asked Question 152, which disallows hours associated with routine swapping of components and flowpaths in support systems. Because the heat treat evolution takes approximately 6 hours, and recovery can be complicated, the inspectors disagreed with the licensee's determination. Counting these hours would increase the unavailability by approximately 0.2 percent, but would not result in crossing a performance indicator threshold. The inspectors submitted a performance indicator interpretation feedback form to resolve the difference. The assessment of this issue is unresolved pending a final determination by the NRC (URI 361; 362/2000014-03).

No findings of significance were identified.

4OA3 Event Followup (71153)

a. Inspection Scope

The inspectors reviewed a licensee event report to determine the significance of the event, the cause of the event and corrective actions, and whether the event involved a violation of requirements.

b. Findings

(Closed): Licensee Event Report 361/2000-013-00: missed RCS cooldown rate Technical Specification surveillance. The inspectors discussed the issue in Section 1R22 of this report. No new issues were revealed by the licensee event report.

4OA6 Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. R. Krieger and other members of licensee management at an exit meeting on November 28, 2000. The licensee acknowledged the findings presented.

The inspector presented the inspection results to Mr. Nunn, Vice President, Engineering and Technical Services, and other members of licensee management at the conclusion of the inspection on October 6, 2000. Subsequent telephonic discussions were held on November 1 and 7, 2000, to discuss the recharacterization of one issue. The licensee acknowledged the findings presented.

During these exit meetings, the inspectors asked the licensee whether or not any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Allen, Supervisor, Reliability Engineering
D. Brieg, Manager, Station Technical
G. Broussard, Supervisor, Security Operations
G. Cook, Supervisor, Compliance
J. Fee, Manager, Maintenance
M. Flannery, Supervisor, Access Authorization
R. Krieger, Vice President, Nuclear Generation
M. McBrearty, Compliance Engineer
R. McWey, Manager, Nuclear Oversight Division
J. Madigan, Manager, Health Physics
D. Nunn, Vice President, Engineering and Technical Services
G. Plumlee, Supervisor, Security Compliance
M. Short, Manager, Site Technical Support
T. Vogt, Plant Superintendent, Units 2 and 3
R. Waldo, Manager, Operations
J. Wallace, Manager, Security Division

ITEMS OPENED AND CLOSED

Opened

361; 362/2000014-03	URI	reportability of unavailable hours during heat treatment of the saltwater cooling system (Section 4OA1)
361;362/20000014-04	URI	potential reduction in security plan effectiveness (Section 3PP3)

Opened and Closed During this Inspection

361/2000014-01	NCV	cooldown limits exceeded when last RCP stopped (Section 1R14.1)
361/2000014-02	NCV	RCS system cooldown in excess of limits not detected because of failure to properly perform surveillance (Section 1R22)

Previous Item Closed

361/2000-013-00	LER	missed RCS cooldown rate Technical Specification surveillance (Section 4OA3)

LIST OF ACRONYMS USED

AR	action request
CFR	Code of Federal Regulations
LCO	limiting condition for operation
NCV	noncited violation
NRC	Nuclear Regulatory Commission
RCP	reactor coolant pump
RCS	reactor coolant system
SR	surveillance requirement
Tcold	RCS cold leg temperature
Thot	RCS hot leg temperature

LIST OF DOCUMENTS REVIEWED

Security Procedure SO123-IV-5.3.3, Revision 6, "Search and Inspection"

Security Procedure SO123-IV-5.3.5, Revision 1, "Vehicle Search Facility/Area Search and Inspection"

Security Procedure S123-XV-6, Revision 6, “General Access Authorization Procedure”

Security Event Logs, Fourth Quarter, 1999, and First, Second, and Third Quarters, 2000

Security Shift Schedule, October 3, 2000

Fitness-for-Duty, Access Authorization, and Security Program Audits:

1. Audit 1081-A001, dated February 10, 2000

2. Audit CPSI-1-00, dated March 16, 2000

3. Audit USIS-1-00, dated February 9, 2000

4. Audit 99-02, dated October 18, 2000

5. Audit 10257-A00, dated June 9, 2000

6. Audit SCES 908-99, dated October 22, 1999

7. Audit SCES-920-99, dated November 19, 1999

8. Audit SCES-017-00, dated May 12, 2000

Semi-Annual Fitness-for-Duty Data Reports, dated February 5 and August 22, 2000

Reference Guide for Supervisors, Escorts, and Individuals on Nuclear Fitness-for-Duty Behavior Observation and Chemical Testing, Revision 3, dated December 1994

ATTACHMENT 2

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

_____ (the Public Electronic Reading Room).

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

Sincerely,

/RA/

Charles S. Marschall, Chief
Project Branch C
Division of Reactor Projects

Docket Nos.: 50-361
50-362
License Nos.: NPF-10
NPF-15

Enclosure:
NRC Inspection Report No.
50-361/00-14; 50-362/00-14

cc w/enclosure:
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Only inspection reports to the following:
Scott Morris **(SAM1)**
NRR Event Tracking System **(IPAS)**
SONGS Site Secretary **(SFN1)**
Dale Thatcher **(DFT)**

R:_SO23\2000\SO2000-14RP-JAS.wpd

RIV:RI:DRP/C	SRI:DRP:C	C:DPR/C		
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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.:	50-361 50-362
License Nos.:	NPF-10 NPF-15
Report No.:	50-361/00-14 50-362/00-14
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:	October 15 through November 25, 2000
Inspectors:	J. A. Sloan, Senior Resident Inspector J. G. Kramer, Resident Inspector
Approved By:	Charles S. Marschall, Chief, Project Branch C

ATTACHMENTS:

Attachment 1: Supplemental Information

Attachment 2: NRC's Revised Reactor Oversight Process

SUMMARY OF FINDINGS

San Onofre Nuclear Generating Station, Units 2 and 3
NRC Inspection Report No. 50-361/00-14; 50-362/00-14
10/15/00 - 11/25/00

IR05000361-00-14, IR05000362-00-14: 10/15-11/25/2000; Southern California Edison; San Onofre Nuclear Generating Station, Units 2 & 3; Resident Report; Personnel Performance During Nonroutine Plant Evolutions, Surveillance Testing.

The inspection was conducted by resident inspectors. The inspection identified two green findings, both of which were violations. The significance of issues is indicated by their color (Green, White, Yellow, Red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609.

Cornerstone: Barrier Integrity

- Green. Operators failed to follow the procedure for stopping the last running reactor coolant pump and therefore caused a cooldown rate of the reactor coolant system in excess of limits. This was a violation of Technical Specification 5.5.1.1.a. This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Action Request 001000469. The failure to follow the procedure was a human performance deficiency that was the direct cause of exceeding the cooldown rate.

  Based on consultation with an NRC regional senior reactor analyst and review of the licensee's evaluation of the event, the inspectors concluded that the issue was of very low safety significance because the reactor vessel remained operable (Section 1R14.1).

- Green. As a result of switching instrumentation used to monitor the reactor coolant system cooldown and then reinitializing the cooldown log, the operators failed to verify the cooldown rate. This caused the operators to fail to promptly identify a cooldown rate of the reactor coolant system in excess of limits. This was a violation of Technical Specification Surveillance Requirement 3.4.3.1. This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Action Request 001000469. Operator human performance in the implementation of the surveillance was a contributing cause of not promptly detecting that the cooldown rate limit had been exceeded.

  Based on consultation with an NRC regional senior reactor analysts and review of the licensee's evaluation of the excessive cooldown event, the inspectors concluded that the issue was of very low safety significance because the reactor vessel remained operable (Section 1R22).

Report Details

Summary of Plant Status:

Unit 2 began the inspection period in Mode 6 of the Cycle 11 refueling outage. On October 28, 2000, the unit entered Mode 5. On November 12, the unit entered Mode 4 and on the following day Mode 3. On November 15, operators performed a reactor startup and placed the unit online the following day. On November 18, the unit reached full power. On November 23, a circulating water pump tripped on overcurrent and operators reduced power to 75 percent. The unit operated at essentially 75 percent power through the end of the inspection period.

Unit 3 operated at essentially 100 percent power throughout this inspection period.

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

1R04 Equipment Alignments (71111.04)

a. Inspection Scope

The inspectors performed partial walkdowns during outages of the following systems to confirm the operability of the redundant trains:

- Replace Train A component cooling water heat exchanger (Unit 2)
- Train B emergency core cooling system/shutdown cooling system outage (Unit 2)

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 plant areas important to reactor safety:

- Auxiliary feedwater pump room (Unit 3)
- Main Steam Isolation Valve 3HV8204 area (Unit 3)
- Feedwater Block Valve 3HV4047 area (Unit 3)

The inspectors observed the material condition of plant fire protection equipment, the control of transient combustibles, and the operational status of barriers.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors performed a periodic walkdown of the Unit 3 component cooling water rooms to determine the operational status of flooding seals and barriers, sumps and drains, and level alarms and to identify the existence of other potentially unanalyzed internal flooding hazards.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors observed performance tests for Unit 2 Train B component cooling water Heat Exchanger 2ME002 and reviewed the test acceptance criteria and results.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed the implementation of the requirements of the Maintenance Rule (10 CFR 50.65) for the following systems and components:

- Failure of containment normal Chiller 2ME201 (Unit 2)
- Saltwater Cooling Pump 2P112 inservice test failure (Unit 2)
- Control room emergency air cleanup system boundary excessive inleakage (Units 2 and 3)

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- 4 kV Bus 2A06 outage risk effect on the opposite unit (Unit 3)
- Troubleshooting of internal leakage on hydraulic actuator for Feedwater Block Valve 3HV4047 (Unit 3)

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14)

.1 Stopping the Last Running Reactor Coolant Pump (RCP) and the Effects on the Reactor Coolant System (RCS) Cooldown (Unit 2)

a. Inspection Scope

The inspectors reviewed the licensed operator actions surrounding stopping the last running RCP during the Unit 2 shutdown. The inspectors reviewed Action Request (AR) 001000469, Nuclear Training Division Lesson Plan 2RS770, and Procedure SO23-5-1.8, "Shutdown Operations (Modes 5 and 6)," Revision 10. The inspectors discussed the evolution with the operators involved in the event and operations management.

b. Findings

Operators failed to follow the procedure for stopping the last running RCP and therefore caused a cooldown rate of the RCS in excess of limits. This was a violation of Technical Specification 5.5.1.1.a. The failure to follow the procedure was a human performance deficiency that was the direct cause of exceeding the cooldown rate.

On October 8, 2000, the operators prepared to stop the last running RCP. Procedure SO23-5-1.8, step 6.1.12, provided the instructions for stopping the RCP. After stopping the RCP, step 6.1.12.6 directs operators to adjust shutdown cooling system flowrates, as required, to stabilize the RCS cold leg temperature (Tcold) or continue the cooldown. The intent of the step is to control Tcold, with the understanding that the hot leg temperature (Thot) will rise after the RCP is stopped, because flow through the core decreases from approximately 100,000 gpm with the RCP running to approximately 4000 gpm when on shutdown cooling. Based on perceived urgency to reduce/control the shutdown heat exchanger inlet temperature (RCS Thot), an operator opened the shutdown cooling heat exchanger outlet valve and closed the bypass valve. This action caused a reduction in Tcold from 128°F to 80° F in a few minutes. Operators then continued with a controlled cooldown of the RCS. Approximately one

hour after the rapid cooldown, Operations management determined that the Technical Specification RCS cooldown rate of approximately 40°F in an hour had been exceeded. Operators entered Technical Specification Limiting Condition for Operation (LCO) 3.4.3, Action C.1, and immediately stopped the cooldown as required by the action statement.

Technical Specification LCO 3.4.3, Action C.2, requires the licensee to determine if the RCS is acceptable for continued operation when the requirements of the LCO are not met. The licensee documented the evaluation in AR 001000469, Assignment 2. The licensee performed a finite element analysis of the reactor vessel wall at the belt line to determine if the ASME code limits had been exceeded. The licensee's evaluation included several conservative assumptions and concluded that continued plant operation was acceptable.

The inspectors reviewed the training records of the operators involved in stopping the RCP and observed that the operators had completed training specific to stopping the last running RCP approximately a month prior to the event. The training included discussions of which temperature indications to use when stopping the last RCP and how to control temperature after the RCP was stopped. In addition, the instructors reviewed the procedure with the operators during dynamic simulator training. In the apparent cause evaluation of AR 001000469, the licensee documented a simulator deficiency in that the simulator model has very little decay heat when compared to the actual plant after extended full power operations.

Technical Specification 5.5.1.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, in part, recommends general plant operating procedures for cold shutdown. Procedure SO23-5-1.8, "Shutdown Operations (Modes 5 and 6)," step 6.1.12.6 states, in part, to adjust shutdown cooling system flowrates, as required to stabilize RCS Tcold or continue the cooldown. Contrary to the above, operators failed to adjust shutdown cooling system flowrates, as required to stabilize RCS Tcold and instead opened the shutdown cooling heat exchanger outlet valve and closed the bypass valve. This action caused a reduction in Tcold from 128°F to 80°F in a few minutes and a cooldown rate in excess of that allowed by Technical Specification LCO 3.4.3. This violation of Technical Specification 5.5.1.1.a is being treated as a noncited violation (NCV 361/2000014-01) consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as AR 001000469. Based on consultation with an NRC regional senior reactor analyst and review of the licensee's evaluation of the event, the inspectors concluded that the issue was of very low safety significance (Green) because the reactor vessel remained operable.

.2 Reactor Startup (Unit 2)

a. Inspection Scope

On November 15, 2000, the inspectors observed the initial reactor startup of Unit 2 following the Cycle 11 refueling outage. The inspectors reviewed

Procedure SO23-3.1.1, “Reactor Startup,” Revision 22, and Procedure SO23-5-1.3.1, “Plant Startup from Hot Standby to Minimum Load,” Revision 19. The inspectors discussed the observations with Operations and Engineering management.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors discussed equipment operability with licensee personnel and/or reviewed the operability evaluations documented in the following ARs to ensure the operability was properly justified:

- Trip mechanism latch for Auxiliary Feedwater Pump 3P140 not fully engaged (AR 991201049) (Unit 3)
- Nitrogen supply check valve to safety injection tanks leakage back to the nitrogen header (AR 001000900) (Units 2 and 3)
- Blowdown flow orifice plate data sheet from the vendor found to be incorrect (AR 0011000455) (Units 2 and 3)
- Emergency Diesel Generator 2G002 Engine 2 high governor oil level (Unit 2)

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors observed the modification of Main Feedwater Isolation Valve 2HV4052. The inspectors reviewed Field Change Notice F-12449 and its associated 10 CFR 50.59 safety analysis; Maintenance Order 97011254001; and Procedure SO23-I-6.14, “Main Steam and Main Feedwater Isolation and Blocking Valve Overhaul,” Revision 8.

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 activities to verify that the test procedures and activities adequately demonstrated system operability:

- Train A Component Cooling Water Heat Exchanger 2ME001 replacement (Unit 2)
- Main steam safety valve replacement (Unit 2)
- Auxiliary Feedwater Pump 2P140 maintenance (Unit 2)

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors periodically observed plant conditions in Unit 2 to verify that safety systems and support systems, including electrical distribution, were properly aligned, with defense-in-depth commensurate with the outage risk control plan. The inspectors periodically verified that the shutdown cooling system configuration was consistent with Technical Specification requirements and that the RCS inventory was adequately controlled. The inspectors also verified that containment closure requirements were met.

The inspectors observed and verified refueling activities. The inspectors verified that fuel handling operations and containment penetration closure were performed in accordance with Technical Specifications and approved procedures and verified that the location of the fuel assemblies, including new fuel, was tracked during the core shuffle. The inspectors observed core shuffle from the refueling machine and control element assembly transfer from the control element assembly change-out fixture.

On November 8, 2000, the inspectors reviewed the midloop preparations and observed operator performance during the drain to midloop. The inspectors performed a containment cleanliness tour prior to entry into Mode 3.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- Control element assembly drop time testing (Surveillance Requirement (SR) 3.1.5.5) (Unit 2)

- Verify RCS cooldown rates within limits (SR 3.4.3.1) (Unit 2)

b. Findings

As a result of switching instruments used to monitor the RCS cooldown and then reinitializing the cooldown log, the operators failed to verify the cooldown rate. This caused the operators to fail to promptly identify a cooldown rate of the RCS in excess of limits. This was a violation of Technical Specification SR 3.4.3.1. Operator human performance in the implementation of the surveillance was a contributing cause of not promptly detecting that the cooldown rate limit had been exceeded.

As a result of switching instruments used to monitor the RCS cooldown and then reinitializing the cooldown log, the operators failed to verify the cooldown rate as required by Technical Specification SR 3.4.3.1. Therefore, the operators failed to promptly identify a cooldown rate of the RCS in excess of limits. Operator human performance in the implementation of the surveillance was a contributing cause of not promptly detecting that the cooldown rate had been exceeded.

The inspectors reviewed the circumstances surrounding the stopping of the last running RCP, as documented in Section 1R14.2 of this report, to understand the delay time of the operating crew to recognize that an RCS cooldown rate had been exceeded. Both Technical Specification SR 3.4.3.1 and Procedure SO23-5.1.8, “Shutdown Operations (Modes 5 and 6),” Revision 10, Attachment 11, “Cooldown/Heatup Plots,” require the operators to verify that RCS cooldown rates are within limits every 30 minutes.

The inspectors identified that the operators switched the instrument used to monitor the cooldown rate three times. Each time they reinitialized the cooldown rate and plot and therefore were not appropriately verifying the RCS cooldown rate. Initially, operators monitored Loop 2A Cold Leg Temperature Instrument 2T125 and at 1:30 p.m. recorded RCS temperature at 137.4°F with a cooldown rate of 23°F per hour. When the operators stopped RCP 2P004, they transitioned to Loop 1B Cold Leg Temperature Instrument 2T115 and at 1:45 p.m. recorded RCS temperature at 130.6°F and marked the cooldown rate as “N/A.” Operators then stopped the last running RCP, transitioned to low pressure safety injection pump discharge header temperature Instrument 2T351X and at 2:20 p.m. recorded RCS temperature at 83.0°F and again marked the cooldown rate as “N/A.” At 2:50 p.m. the operators recorded RCS temperature using Instrument 2T351X at 79.75°F with a cooldown rate of 6.5°F per hour. Operators

waited from 1:30 p.m. to 2:50 p.m., a period of 80 minutes, without recording a cooldown rate. In that time frame, operators exceeded the Technical Specification 3.4.3 cooldown rate and failed to recognize it.

Technical Specification SR 3.4.3.1 requires verification that RCS pressure, temperature, and cooldown rates are within specified limits every 30 minutes. Contrary to the above, on October 8, 2000, operators verified the cooldown rate at 1:30 p.m. and again at 2:50 p.m., an 80-minute period, and therefore failed to verify the RCS cooldown rate every 30 minutes. This resulted in the failure of the operating crew to detect a cooldown rate in excess of limits. Operations management review of the stopping of the last RCP transient ultimately identified the cooldown rate in excess of limits. Because of the errors, the surveillance did not identify the excess cooldown as it was intended to do. This violation of Technical Specification SR 3.4.3.1 is being treated as a noncited violation (NCV 361/2000014-02) consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as AR 001000469. Based on consultation with an NRC senior reactor analyst and review of the licensee's evaluation of the excessive cooldown event, the inspectors concluded that the issue was of very low safety significance (Green) because the reactor vessel remained operable.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

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

- Installation of temporary pressure relief valve to replace Relief Valve PSV4048C on the hydraulic actuator for Feedwater Isolation Valve 3HV4048 per Nonconformance Report 000700328 (Unit 3)

- Implementation of Abnormal Alignment 3-00-102 for troubleshooting of Feedwater Block Valve 3HV4047 (Unit 3)

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors verified the accuracy of data reported by the licensee for the following performance indicators to ensure that the performance indicator color was correct:

- MS2 High Pressure Injection System Unavailability (Units 2 and 3)

- MS3 Heat Removal System Unavailability (Units 2 and 3)
- MS4 Residual Heat Removal System Unavailability (Units 2 and 3)

b. Findings

The licensee determined that the unavailability hours associated with heat treating the saltwater cooling system (a support system for the high pressure safety injection system and the shutdown cooling system) were not required to be counted and reported in the MS2 and MS4 performance indicators. This determination was based on Frequently Asked Question 152, which disallows hours associated with routine swapping of components and flowpaths in support systems. Because the heat treat evolution takes approximately 6 hours, and recovery can be complicated, the inspectors disagreed with the licensee's determination. Counting these hours would increase the unavailability by approximately 0.2 percent, but would not result in crossing a performance indicator threshold. The inspectors submitted a performance indicator interpretation feedback form to resolve the difference. The assessment of this issue is unresolved pending a final determination by the NRC (URI 361; 362/2000014-03).

No findings of significance were identified.

4OA3 Event Followup (71153)

a. Inspection Scope

The inspectors reviewed a Licensee Event Report to determine the significance of the event, the cause of the event and corrective actions, and whether the event involved a violation of requirements.

b. Findings

(Closed): Licensee Event Report 361/2000-013-00: missed RCS cooldown rate Technical Specification surveillance. The inspectors discussed the issue in Section 1R22 of this report. No new issues were revealed by the licensee event report.

4OA6 Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. R. Krieger and other members of licensee management at an exit meeting on November 28, 2000. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether or not any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Allen, Supervisor, Reliability Engineering
D. Brieg, Manager, Station Technical
J. Fee, Manager, Maintenance
R. Krieger, Vice President, Nuclear Generation
J. Madigan, Manager, Health Physics
M. Short, Manager, Site Technical Support
T. Vogt, Plant Superintendent, Units 2 and 3
R. Waldo, Manager, Operations

ITEMS OPENED AND CLOSED

Opened

361; 362/2000014-03	URI	reportability of unavailable hours during heat treatment of the saltwater cooling system (Section 4OA1)

Opened and Closed During this Inspection

361/2000014-01	NCV	cooldown limits exceeded when last RCP stopped (Section 1R14.1)
361/2000014-02	NCV	RCS system cooldown in excess of limits not detected because of failure to properly perform surveillance (Section 1R22)

Previous Item Closed

361/2000-013-00	LER	missed RCS cooldown rate Technical Specification surveillance (Section 4OA3)

LIST OF ACRONYMS USED

AR	action request
CFR	Code of Federal Regulations
LCO	limiting condition for operation
NCV	noncited violation
NRC	Nuclear Regulatory Commission
RCP	reactor coolant pump
RCS	reactor coolant system
SR	surveillance requirement
Tcold	RCS cold leg temperature
Thot	RCS hot leg temperature

ATTACHMENT 2

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.