APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-361/94-12
50-362/94-12

Operating Licenses: NPF-10
NPF-15

Licensee: Southern California Edison Company
Irvine Operations Center
23 Parker Street
Irvine, California 92718

Facility Name: San Onofre, Units 2 and 3

Inspection At: San Onofre, San Clemente, California

Inspection Conducted: April 19 through May 28, 1994

Inspectors: J. A. Sloan, Senior Resident Inspector
J. J. Russell, Resident Inspector
D. L. Solorio, Resident Inspector

Approved By: H. J. Wong, Chief, Project Branch F — Date 7/5/94

Inspection Summary

Areas Inspected (Units 2 and 3): Routine, announced resident inspection of onsite followup of events, operational safety verification, maintenance and surveillance observations, engineering and plant support observations, licensee self-assessment, and corrective actions observations.

Results (Units 2 and 3):

Plant Operations

The licensee's performance in Operations during this inspection period was generally good. Operations response to a dropped Unit 2 control element assembly (CEA) illustrated competent and professional operation of the plant. The operating crew displayed good teamwork and was proactive, and operations management was involved (Section 2.1). The licensee's control of spent fuel pool (SFP) cooling system maintenance on May 4, 1994, was adequate: however, one instance was identified in which communication between the licensed operator assigned to coordinate maintenance activities for both units and the Unit 3 control operator were weak. The licensee's proposed corrective actions for the communications issue were appropriate (Section 3.1).

Maintenance

Maintenance performance during this inspection period was average. Performance of an in-service test of a Unit 2 high pressure safety injection (HPSI) pump was considered good. However, Unit 2 experienced two dropped CEAs, one of which occurred during postmaintenance testing. During a review of the implementation of the maintenance program, the NRC inspector identified programmatic problems with the control of vendor information and identified one violation for failure to follow procedures while overhauling a pump bearing.

- The inspector observed an in-service test of HPSI Pump 2P019 and considered the pretest tailboard, valve alignment, and review of test data to have been performed well (Section 5.1).

- The inspector reviewed the licensee's implementation of their maintenance program and concluded overall that it was appropriate. However, the inspector noted weaknesses with control of vendor information and identified one violation for failure to follow procedure (Section 11).

- The violation described above occurred when the inspector noted that licensee machinists failed to apply sealant to component cooling water Pump 2P025 inboard bearing adapters when required by the guiding procedure during inspection of the bearing. During the performance of the overhaul, the sealant was applied later than the procedure allowed (Section 11.3.1).

- The inspector noted the problems with control of vendor information mentioned above in that the licensee maintenance division was exceeding nominal times to incorporate vendor information into site documents, and the system engineer had not forwarded vendor information to the central document maintenance department in accordance with the licensee's program (Section 11.4.2).

- During a review of maintenance activities, the inspector noted a decrease in the maintenance order backlog, from approximately 1170 items in December 1993 to approximately 494 items in May 1994 (Section 11.5).

Engineering

Engineering performance during this inspection period was generally good.

- The licensee was proactive in identifying that some in-service tests had been performed with instrumentation that did not strictly conform to ASME code requirements. The licensee's response to this issue, though not yet complete, appears to be appropriate (Section 6).

- The inspector determined, during a review of the licensee's implementation of corrective actions, that the licensee routinely implemented effective corrective actions. The inspector did identify, however, some instances in which corrective actions were too narrow, some problems with initial prioritization, and one example of corrective actions not being timely (Section 10).

Plant Support

Performance in the Plant Support functional area declined during this inspection period, but remained adequate. The inspector identified a violation for a chemistry technician failing to follow the radiological exposure permit (REP). The inspectors also determined that a management expectation for documenting posted contaminated areas in radiological surveys was not being met. No security or emergency preparedness deficiencies were noted.

- On May 23, 1994, the inspector witnessed a chemistry technician sampling a potentially contaminated sump, without a lab coat on, in violation of the applicable (REP). The inspector also determined that some health physics and chemistry supervision found no problem with the protective clothing that the chemistry technician was wearing even after the REP requirements were reviewed (Section 7.2).

- The inspector discovered loose surface radioactive beta/gamma contamination (11,000 disintegrations per 100 square centimeters)in an area not posted as a contaminated area (Section 7.3).

- The inspector determined that health physics management expectations, for including posted contaminated areas on routine radiological survey maps, were not being met (Section 7.3).

Management Oversight

The violations in this inspection report were based on failures to follow procedures, one by a chemistry technician and the other by maintenance personnel. The first violation is of concern because chemistry and health physics supervisors initially stated that the radiation entry permit had been followed. The second violation by maintenance personnel is similar to NRC concerns regarding previous failures to follow procedures in the maintenance area.

Summary of Inspection Findings:

- One violation (362/9412-01) was identified (Section 7.2).

- One violation (362/9412-02) was identified (Section 11.3.1).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Acronyms

DETAILS

1 PLANT STATUS (71707)

1.1 Unit 2

The Unit began the inspection period at 98 percent power. On April 23, 1994, CEA 20 dropped to the bottom of the reactor core. In order to comply with Technical Specifications (TS) requirements and perform repairs, power was reduced to 78 percent. The unit was returned to 98 percent power operation later that same day. The Unit operated at 98 percent power until May 20, 1994, when power was reduced to 94 percent to repair a leaking high pressure stop valve. The Unit was returned to 98 percent power on May 21, 1994. The Unit operated at 98 percent power until May 28, 1994, when CEA 79 dropped fully into the reactor core (Section 2.1). Power was reduced to 68 percent to comply with TS requirements and then was stabilized at 55 percent power in order to install a new circuit card. CEA 79 was withdrawn and the Unit was returned to full power later that same day. The Unit operated at essentially 98 percent power through the end of the inspection period.

1.2 Unit 3

The Unit began the inspection period at 97 percent power. On May 28, 1994, power was reduced to 80 percent in order to support a heat treatment of the circulating water system and operated at 80 percent power at the end of the inspection period.

2 ONSITE RESPONSE TO EVENTS (93702)

2.1 Dropped CEA - Unit 2

At 9:33 a.m. on May 27, 1994, CEA 79 dropped fully into the core during postmaintenance functional testing. The inspectors confirmed that the operators initiated and completed a reactor power reduction to 68 percent within the time allowed by TS 3.1.3.1.c. Reactor power stabilized at approximately 55 percent. During the downpower, the licensee replaced an automatic CEA timer module (ACTM), tested the CEA functionality, and put CEA 79 to the fully withdrawn position, consistent with the other CEAs in Regulating Group 2.

The inspector observed that the control room operating staff worked effectively as a team. The control room supervisor (CRS) directed the downpower and CEA recovery in a precise manner and ensured that communications within the crew were relayed to those affected. The shift superintendent and CRS initiated briefings as necessary to ensure that the crew was informed of the status of the evolutions in progress. The shift superintendent and CRS were both proactive in monitoring and directing the boration rate, to ensure that the downpower was completed in the time required, and appropriately

considered the reactivity effects of withdrawing CEA 79 during the boration. Additionally, Operations management personnel were present throughout the transient, and the reactor engineer present provided conservative guidance related to the CEA withdrawal method.

The ACTM replaced during this event had been replaced about 1 hour before the event in response to a control element drive mechanism control system (CEDMCS) trouble alarm which had annunciated in the control room. The licensee stated that the replacement ACTMs had both been functionally tested prior to being installed in the Unit. The licensee was performing postmaintenance testing of the ACTM when the CEA drop occurred. The licensee stated its intention of attempting to determine the cause of the ACTM failures. It appeared that the first failure may have been related to high temperature in the CEDMCS room that resulted from a problem with the CEDMCS room cooling system.

2.2 Conclusions

The inspector concluded that the operations crew effectively controlled the plant during the transient and that crew communications, command, and control were particularly good during this event. Additionally, the maintenance performed appeared to be appropriate.

3 OPERATIONAL SAFETY VERIFICATION (71707)

3.1 SFP Cooling Outage

On May 4, 1994, the licensee removed both trains of SFP cooling from service in Unit 3 to work on a leaking cross-train valve. The licensee controlled the removal of both trains in accordance with Work Authorization Record 3-9401687. The removal of both trains was administratively controlled to be in process for a period less than 48 hours. The license had previously demonstrated that the pool heat up rate was approximately 1.4 degrees per hour and concluded that the pool temperature would not reach an unsafe condition within 48 hours. While both trains were out of service, operators increased the SFP temperature monitoring to every 6 hours. The inspector noted that the actual heatup rate was approximately 1 degree per hour over the period of the equipment outage. The maximum temperature reached before restoring cooling to the spent fuel pool was 117.0 degrees. The inspector considered that the licensee's controls were adequate.

In the work authorization record, the licensee had specified contingency actions for implementation in the event of inventory losses to the SFP. Specifically, a temporary pump had been staged in the Unit 2 SFP to facilitate transfer of water to the Unit 3 SFP in the event of inventory losses. The inspector questioned Unit 3 control room operators as to their knowledge of these contingency actions and determined that the operators were not cognizant of the contingency actions nor the method to implement them. The inspector subsequently verified that the shift supervisor and work control operator were aware of the contingency actions and the methods to implement them and, therefore, considered that the contingency actions would have been implemented

had there been a need. The inspector discussed this observation with licensee management who indicated that the Unit 3 control room operators should have been aware of the contingency actions. In addition, Operations management indicated that this observation brought to light the need to address the effectiveness of tailboards between the work control operator and the affected unit control room operators. As a result of this event, Operations management indicated that weaknesses identified would be addressed through routine operator training.

3.2 Conclusions

The inspector concluded that the licensee's control of activities related to the SFP cooling system outage was adequate. However, the inspector identified a weakness in communications between the work control operator and the control room operators. The licensee's proposed corrective actions for the communications issue were appropriate.

4 PLANT MAINTENANCE (62703)

During the inspection period, the inspector observed and reviewed selected documentation associated with maintenance and problem investigation activities listed below to verify compliance with regulatory requirements, compliance with administrative and maintenance procedures, required quality assurance/quality control department involvement, proper use of safety tags, proper equipment alignment and use of jumpers, personnel qualifications, and proper retesting. The inspector verified that reportability for these activities was correct.

Specifically, the inspector witnessed portions of the following maintenance activities:

Unit 2

- Replace the grease in the motor operator for Valve 2HV4731 (auxiliary feedwater (AFW) discharge isolation valve to Steam Generator 2E089)
- Inspect and replace bearings for component cooling water (CCW) Pump 2P025
- Replace motor connections for emergency air conditioning cooling Unit ME518
- Replace motor connections for emergency air conditioning cooling Unit 2ME454
- Change Emergency Diesel Generator 2G003 (20 cylinder engine) lube oil temperature alarm setpoint

- Perform lubrication and inspection on CCW Pump 2P025 suction Valve 2HV6224A

Unit 3

- Install a hydrogen monitoring test panel in Unit 3 postloss of coolant accident hydrogen monitor

5 SURVEILLANCE OBSERVATIONS (61726)

Selected surveillance tests required to be performed by the TS were reviewed on a sampling basis to verify that: (1) the surveillance tests were correctly included on the facility schedule; (2) a technically adequate procedure existed for performance of the surveillance tests; (3) the surveillance tests had been performed at the frequency specified in the Technical Specifications; and (4) test results satisfied acceptance criteria or were properly dispositioned.

Specifically, portions of the following surveillances were observed by the inspector during this inspection period:

Unit 2

- In-service test of HPSI Pump 2P019
- In-service test of AFW Pump P504

Unit 3

- Engineered safety features subgroup Relay K-401B semiannual test

5.1 In-service Test of HPSI Pump 2P019

The inspector observed the pretest tailboard in the control room and noted that it was thorough in addressing all aspects of the test performance. The test was performed as specified in Procedure SO23-V-3.4.4, "High Pressure Safety Injection Inservice Pump Test," Temporary Change Notice (TCN) 6-13. The inspector noted that the valve lineups and independent checks were properly performed by the operations personnel involved. The inspector reviewed the test results and verified that they were acceptable. The inspector noted that the test data was compared to previous test data and evaluated in the field to provide a preliminary operability assessment.

5.2 Conclusions

The inspector concluded that the surveillance tests observed were adequately performed.

6 ENGINEERING OBSERVATIONS (37551)

During this inspection period, the licensee identified some in-service tests which did not comply to the letter of the ASME code with respect to the ranges of the instrumentation used for the tests. In each case, the licensee promptly reperformed the tests with acceptable results. The licensee initiated a comprehensive review of in-service tests and identified other examples of improper instrumentation. In each case, the licensee determined that the instrumentation used was at least as accurate as required by the ASME code and concluded that only an administrative issue existed. The inspectors concluded that the licensee's actions were proactive and that the corrective actions were appropriate. The inspectors will monitor the licensee's resolution of the issue.

7 PLANT SUPPORT ACTIVITIES (71750)

7.1 Dropped Dosimeter

On May 12, 1994, during performance of an in-service test of HPSI Pump 2P019, the lead test engineer's PED-1 dosimeter fell out of the pocket of his protective clothing into a contaminated area on the HPSI pump skid. The engineer noticed that the dosimeter was missing about 10 minutes later when the engineer left the contaminated area. After the dosimeter was found (1 minute later) the test personnel notified Health Physics (HP) personnel, who responded to the scene, retrieved the dosimeter, and evaluated the radiological conditions. When found, the dosimeter indicated a dose of approximately 1.0 mrem, compared to a dose of about 1.5 mrem received by each of the other personnel in the area. Based on this, the HP technician determined that the engineer could complete the test (an estimated 10 minutes additional time) wearing the same dosimeter, but that he would have to get a whole body count later. The inspector concluded that these actions were appropriate.

7.2 Inadequate Protective Clothing

On May 23, 1994, the inspector observed a chemistry technician sampling the contents of the Unit 3 safety equipment building sump, which was potentially contaminated. The sump was located below the deckplates and was marked by tape on the deckplates as a contaminated area. The inspector noted that the technician, using only plastic surgical gloves and no other protective clothing, lowered a beaker into the sump with a string and obtained the sample. The inspector reviewed REP 100030, Revision 3, "Chemistry Functions, All Areas Except Containments," which the technician was signed in under. The REP guidance was that a lab coat and gloves were required when reaching into a contaminated area. No specific precautions, guidance, or provisions, were listed for the sampling activities that the inspector observed .

The inspector concluded that the technician sampled the sump without the lab coat specified in the REP. The inspector considered that sampling in this manner constituted reaching into a contaminated area and that the technician

was required by the REP to wear a lab coat. Failure to wear the protective clothing (gloves and lab coat) prescribed by the applicable REP was a violation (Violation 362/9412-01).

Based on discussions with licensee personnel, it appeared to the inspector that a root cause for this violation was acceptance by some HP and chemistry supervisors of performing the sampling without a lab coat. Based on the discussions, the inspector also concluded that the chemistry technicians who performed this sample routinely considered the lab coat as optional, regardless of the guidance on the applicable REP, and that sampling the sump with gloves only was not isolated to this particular technician.

The licensee was performing an interdivisional investigation into this matter at the end of the inspection report period.

7.3 Radiological Survey Maps Not in Accordance With Management Expectations

On May 16, 1994, the inspector identified loose surface radioactive contamination in an area (Charging Pump 2P191 discharge piping) that was not marked as a contamination area (CA) either at the location or on the most current weekly routine radiation survey map. The contamination was identified by swipe survey, read with a pancake probe-type beta/gamma radiation detector, and measured approximately 1100 cpm above background. The licensee conducted a survey for additional contamination and found none. The inspector also noted that the most recent survey map of this area (Survey 940515-001, dated May 15, 1994) did not indicate a CA posted at the location adjacent to the loose radioactive contamination found.

On May 17, 1994, the inspector walked down the emergency core cooling pump rooms (Rooms 2, 5, and 15) and the charging pump rooms in both units. The inspector compared actual radiological postings for hot spots and CAs to the postings indicated in the most recent routine radiological survey maps. The inspector noted that the posted CA boundaries had been enlarged for the Unit 2 charging pump rooms, but no survey indicated this. The inspector noted five CAs not indicated on the most recent surveys present in the field. Including these rooms, the inspector also noted three hot spots that were posted in the field, none of which were clearly labeled as hot spots on the surveys and none of which appeared to be indicated by radiation levels on the surveys.

The inspector interviewed the HP technician on duty and noted that it was the technician's belief that routine surveys could be used to prepare for maintenance (although some maintenance activities might require a special survey) as well as to brief people on radiological hazards. The inspector was concerned that there seemed to be no pattern to which CAs were indicated on survey maps and which were not and that the surveys maps were marginal for use in performing briefs or planning for maintenance.

The inspector concluded that licensee's response to the contamination found by the NRC inspector was adequate because the area was surveyed and posted boundaries in the area were confirmed. The inspector also concluded, however,

that management expectation was not being met as expressed in Procedure SO123-VII-20.9, TCN 0-2, "Radiological Surveys." Step 6.3.4.10 of this procedure stated "CA and HCA [high contamination area] posting and boundary locations should be recorded on the survey map, as appropriate."

At the end of the inspection period, the licensee was in the process of conducting training for all HP technicians to reinforce the expectation stated above. The inspector considered this adequate and will continue to monitor this area in the future.

8 ONSITE REVIEW COMMITTEE (OSRC) MEETING (40500)

The inspector attended the April 21, 1994, regularly scheduled meeting of the OSRC. During this meeting the OSRC briefly reviewed plant operational events for March 1994 and three licensee event reports (LERs). The Onsite Licensing department determined that the event discussed in LER 3-93-005, Revision 1, constituted an unreviewed safety question (USQ) of very low safety significance and presented this conclusion to the OSRC. The event, discussed in NRC Inspection Report 50-362/94-08, involved inoperable containment isolation Valve 3HV6371. The licensee determined that the valve had been inoperable for an unknown period prior to discovery of its failure and that TS 3.0.3 should have been entered. The OSRC had previously determined that noncompliance with TS 3.0.3 should be considered to constitute a USQ. There was no additional discussion of this event by the OSRC at this meeting.

The inspector reviewed licensee Procedure SO123-XXII-5.1, "OSRC - Onsite Review Committee," TCN 1-2, and noted that the OSRC actions were in accordance with the procedure for handling a USQ. The inspector concluded that the OSRCs actions were appropriate.

9 EFFECTIVENESS OF CORRECTIVE ACTIONS FOR CORE PROTECTION CALCULATOR (CPC) AXIAL SHAPE ANOMALY (92720)

In February 1993, the licensee noted an anomaly in the shape of the axial power distribution curves generated by the CPCs for the middle of cycle (MOC) 6. The CPC-generated curves were cosine-shaped, instead of saddle-shaped as predicted for the MOC and beyond. This condition was discussed in NRC Inspection Report 50-361/93-05.

The inspector reviewed the licensee's corrective actions and determined that they all had been implemented. The inspector reviewed the MOC data from Unit 2 Cycle 7 and confirmed that the corrective actions were effective in detecting an increasing magnitude of error between the CPC and predicted axial power distributions. The licensee established an acceptable error which had not been exceeded and generated a new shape annealing matrix for Unit 2 consistent with the stated corrective actions. This was to reduce the error for the remainder of Unit 2 Cycle 7. Combustion Engineering was reviewing the revised shape annealing matrix prior to implementation. The inspector reviewed the fast power ascension test data and noted that a correction was required after Unit 3 reached MOC. The inspector also noted that the licensee

developed Procedure SO23-V-1.12.1, TCN 0-2, "Axial Power Shape Verification," to monitor the power distribution on a weekly basis. The inspector concluded that the licensee's corrective actions were adequate.

10 CORRECTIVE ACTIONS (92720)

The inspector reviewed licensee activities in the area of corrective actions for various problems to determine if the licensee was implementing an effective corrective actions process. The inspector selected problems, listed below, and assessed the licensee's response in terms of effectiveness, timeliness, and thoroughness of corrective actions. The inspector selected both problems identified by the licensee and problems identified by NRC inspectors. The selections were from a variety of areas, in order to make a broad assessment. The inspector concluded that, overall, the licensee routinely implemented effective corrective actions. For the problems listed below and not mentioned as negative examples, the inspector considered that the licensee's corrective actions were good. However, the inspector did identify some instances in which corrective actions were: too narrowly focused to prevent recurrence of similar problems; not completely thorough due to the initial prioritization of the problem; or, although effective, not timely. These instances were not so significant as to affect the overall conclusion that an effective corrective action program existed.

10.1 Problems Reviewed

The problems reviewed included the following:

- Licensee discovery that acoustic monitor circuit drawers were not seismically mounted (May 1993, described in NRC Inspection Report 50-361/93-11).

- Partial loss of annunciators event (July 1993, described in NRC Inspection Report 50-361/93-19).

- Licensee installation of vital transformers without seismic supports (July 1993, described in NRC Inspection Report 50-361/93-19).

- Licensee discovery that tornado shields were not in place for AFW minimum flow lines (September 1993, described in LER 93-06).

- Licensee discovery that degraded grid conditions could cause certain control circuits to drop below a minimum required voltage (November 1993, described in LER 94-12).

- Licensee discovery that weld filler material was not being properly controlled prior to the Unit 2 Cycle 7 refueling outage (August 1992).

- Licensee discovery that Units 2 and 3 containment emergency sump cover plates had gaps and holes (November 1993, described in NRC Inspection Report 50-361/93-38).

- Licensee discovery that sealed radiological sources were being transported off site without a dedicated radiation leak test (September 1992).

- Licensee discovery that a radiographic weld examination for an ASME code upgrade of the primary plant makeup storage tank was not acceptable (June 1993).

- Licensee discovery that a high radiation area was not sufficiently posted (August 1993).

- Licensee discovery that personnel were in a high radiation area without the proper REP (November 1993).

- Licensee discovery that a TS required surveillance was inadvertently deleted from a procedure (July 1993).

- NRC violations issued for inadequate control of measuring and test equipment (November 1992, described in NRC Inspection Report 50-361/92-26).

- Loss of control of watertight doors and plugs during the Unit 3 Cycle 7 refueling outage and associated NRC violation (August 1993, described in NRC Inspection Report 50-362/93-29).

- NRC violation issued for inadequate corrective actions to prevent a change to the lift setpoint of the main steam safety valves due to removal of lagging (February 1993, described in NRC Inspection Report 50-361/93-19).

- NRC violation issued for inadequate corrective actions to prevent inadvertently increasing level in the SFP (October 1993, described in NRC Inspection Report 50-361/94-08).

- Licensee response to industry events pertaining to fire dampers installed in ventilation ducting (described in NRC Inspection Report 50-361/94-08).

- Licensee response to motor-operated valve concerns as expressed in NRC Generic Letter 89-10 and supplements.

- Licensee Nuclear Safety Concerns 9407 and 9405 (dates and specifics not listed to protect confidentiality of the licensee program).

- Licensee Worker Concerns 9403 and 9405 (dates and specifics not listed to protect confidentiality of the licensee program).

- Licensee-identified discrepancy between actual and predicted reactor core axial power distributions (February 1993, described in NRC Inspection Report 50-361/93-05).

10.2 Corrective Actions Too Narrow

The inspector concluded that in some instances licensee corrective actions were too narrow to prevent recurrence of similar, although not exactly the same, problems. These problems are listed below:

- Inadvertent SFP Level Increases

  The licensee twice inadvertently allowed an increase in containment pressure to decrease the refueling pool water level by forcing water into the SFP. This occurred once during the Unit 3, Cycle 6, refueling outage and again during the Unit 3 Cycle 7 refueling outage. The NRC issued Violation 362/9408-01 for ineffective corrective actions related to the second occurrence. During the second event, refuel pool level decreased to slightly below the TS minimum allowed level. For both events, the level change was due to procedural and human factors problems related to increased containment pressure. The inspector concluded that the licensee's corrective actions for the first refuel pooling level increase (SFP level increase) in making procedure changes were too narrow and did not include guidance in all appropriate sections of the procedure and did not specify actions if a delay was encountered.

- Measuring and Test Equipment (M&TE)

  The NRC performed an extensive review of the licensee's M&TE program in November 1992 and identified several program weaknesses. Three violations were for problems with control and documentation of M&TE, including failures to follow site procedures. As part of the corrective actions for the weaknesses, the licensee committed to continue its Quality Action Team's evaluation of the overall program. In May 1994, the NRC issued a violation for the failure to follow procedures for the control of M&TE. The inspector considered that, while the licensee implemented corrective actions for the earlier violations, they were too narrowly focused on the issues in the violations and did not provide for adequate program followup. The licensee's corrective actions were not effective in assuring continued compliance with site procedures in the M&TE area.

- Surveillance Requirements

  In August 1993, the licensee discovered that a TS-required check of SFP level had been omitted from Procedure SO23-3-3.27.1, "Once a Week

Surveillance (Modes 5 and 6)," after the procedure had been revised, despite supervisory review of the revision. In April 1994, the licensee issued LER 94-03 for a TS-required surveillance of fire protection equipment not being performed due to the applicable procedure having been revised and the repetitive maintenance order that was used to perform and schedule the surveillance not being updated. The fire surveillance procedure had been revised in January 1992. The inspector considered that both these problems were similar because both involved procedure revisions that deleted TS-required surveillances. The inspector considered that, if the licensee had performed a detailed check of TS-required surveillances to ensure that they were being performed in August 1993, when the first problem was discovered, then they would have discovered the nonperformance of the fire protection surveillance earlier than April 1994. Thus, the inspector concluded that the corrective actions for the SFP problem in August 1993 were too narrow.

- Watertight Doors

The NRC identified concerns with the amount of preoutage work being done in on both trains of safety equipment in Unit 3, while the Unit was in Mode 1, prior to the Cycle 7 refueling outage. Licensee Quality Assurance personnel increased monitoring of the work, but failed to identify that a safety evaluation had not been performed until questioned by the NRC inspector regarding internal flooding events due to the combination of watertight doors being blocked open and a watertight plug removed. The NRC issued a violation and the licensee developed a program to control watertight doors and plugs. The inspector considered that the licensee's initial approach to the NRC concerns were too narrowly focused and had not reviewed the significance of working on both trains of emergency core cooling simultaneously, such as for internal flooding events.

The inspector discussed this issue with the licensee management. The licensee stated that it considered the flooding issue to be independent of the original issue related to the extent of preoutage work. Therefore, licensee management did not agree that this was a corrective actions issue.

The inspector noted that the licensee was doing extensive construction work for design changes in the two rooms that housed both trains of emergency core cooling. The inspector concluded that, after NRC raised this concern over the amount of work being performed, the licensee should have focused on elements of the work that were common to both trains. In this manner, the licensee might have identified that both trains' doors were blocked open simultaneously and realized this was an abnormal condition that warranted additional scrutiny. It was only when

the NRC inspector raised the issue of internal flooding did the licensee recognize that the matter warranted additional review.

10.3 Problems Not Initially Categorized Appropriately

- Acoustic Monitor Drawers

  In May 1993, the licensee discovered that the four pressurizer safety valve acoustic monitor power supplies were not seismically secured. This problem had been initially noted by the licensee in 1990 and documented in a Site Problem Report (SPR). The licensee generated a nonconformance report (NCR) in May 1993 and corrected the problem by installing brackets. The inspector concluded that the initial generation and approval of an SPR, and not an NCR, was an example of corrective actions not being prioritized appropriately. (An SPR was of lower priority than an NCR and was not meant to indicate a nonconforming condition that could bring the operability of safety-related equipment into question. SPRs were assigned a lower priority for work.)

- High Radiation Areas

  The licensee discovered during the Unit 3 Cycle 7 outage that two contract personnel were in a posted high radiation area without a REP that allowed entry into a high radiation area. The licensee considered this a field corrected error (the lowest priority licensee quality assurance finding), and consequently no in-depth investigation or root cause analysis was performed. The inspector considered this more safety significant than a field corrected error because it indicated that the contractors did not regard posted radiological boundaries and did not comply with their REP. Thus, significant barriers to excessive radiation exposure, in this instance, were not in place.

10.4 Corrective Actions Not Timely

- Fire Dampers

  The NRC issued Information Notice 89-52 in June 1989, which alerted licensees that curtain-type fire dampers might not shut under air flow conditions. The licensee determined that this Information Notice was applicable to their facility and decided to revise Procedure SO23-13-21, "Fire," as a result, concurrent with other corrective actions. The licensee revised this procedure in April 1994. The inspector considered that almost 5 years to revise the procedure was an example of untimely corrective action.

10.5 Conclusion

Overall, the inspector concluded that the licensee's corrective action program was effective. However, some instances of corrective actions were too

narrowly focused to prevent recurrence of similar problems and some instances of corrective actions were not thorough due inappropriate initial categorization of the problem and one instance of untimely corrective actions.

11 IMPLEMENTATION OF MAINTENANCE PROGRAM (62703)

The inspectors performed a limited scope assessment of the licensee's maintenance program to verify that maintenance activities for safety-related structures, systems, and components were being conducted in a manner which resulted in reliable, safe operation of the plant and plant equipment. Inspection efforts were focused in the areas of equipment removal and restoration; equipment retest; equipment maintenance; maintenance training; control of vendor information; and maintenance backlog. The inspectors concluded that, overall, the licensee performed maintenance activities appropriately. The inspector did identify, however, some instances in which corrective actions were not effective, procedural compliance was not achieved, and management expectations were not consistently implemented. These instances were not of sufficient magnitude to affect the overall conclusion.

11.1 Maintenance Retest

On May 16, 1994, the inspector observed a retest committee meeting held to discuss the equipment retest requirements for Unit 2 CCW Pump 2P025. The inspector considered that the retest committee appropriately evaluated the pump's retest requirements based on the scope of maintenance activities which were scheduled to be performed on the pump. In addition, the inspector considered that the retest committee appropriately re-evaluated the pump retest requirements when the scope of work changed.

11.2 Removal of Equipment for Maintenance

The inspector reviewed documentation which controlled the removal and return to service for Unit 2 Diesel Generator 2G003 and CCW Pump 2P025 in May 1994. In addition, the inspector verified that the licensee had implemented TS-required surveillance tests while the diesel was out of service for maintenance. Based on the review of documentation the inspector concluded that licensee appropriately controlled the removal and restoration of both components.

11.3 Maintenance Observations

The inspector conducted field observations of several maintenance evolutions across several maintenance disciplines. The results and conclusions are as follows:

11.3.1 CCW Pump 2P025 Maintenance

On May 17, 1994, the inspector observed machinists perform maintenance work on the Unit 2 CCW Pump 2P025 in accordance with maintenance order (MO) 93120491. Specifically, the craft were to inspect the pump's inboard and outboard

bearings. The inspector concluded that the craft personnel were very knowledgeable, and in general, were performing maintenance in accordance with licensee programs. However, the inspector identified one example where the machinists did not follow the procedural requirements for reassembling the pump's inboard bearing.

The inspector noted that MO 93120491 required the CCW pump to be dissembled and reassembled in accordance with Procedure SO23-I-8.148, "Pump-Goulds Model 3415 Bearing Replacement And Overhaul," TCN 0-8. Step 6.4.3.15 of the procedure required application of silicone sealant to the upper-half and lower-half bearing adapters. However, the inspector noted that the silicone sealant was not applied until several subsequent steps had been completed (including Step 6.4.3.18). The inspector concluded that the sequence actually used to reassemble the pump appeared appropriate for the circumstances, and therefore, considered the safety significance was low. In addition, the licensee acknowledged that the application of the silicone sealant should not have been included in Step 6.4.3.15, but rather later in the pump reassembly sequence.

Maintenance Procedure SO123-I-1.7, "Maintenance Order Preparation, Use and Scheduling, TCN 4-13, Section 6.15.1.2.1, states that "work packages, including maintenance orders and procedures, must be followed in procedural compliance, subject to the following exceptions . . ." The exceptions listed were not satisfied in this case.

The inspector concluded that the mechanics performed the reassembly of the CCW pump in a technically adequate manner, but failed to follow Procedure SO23-I-8.148 for reassembling CCW Pump 2PO25. This is a violation of TS 6.8.1 (NRC Inspection Report 50-361/9412-02).

The inspector also noted that Procedure SO23-I-8.148 did not provide clear guidance with respect to installation of the pump lower and upper bearing halves and adapters. In addition, the inspector noted that the previous TCN, TCN 0-7, had not adequately corrected the inconsistent guidance which had been the cause for initiating the TCN. A contributing factor may have been that TCN 0-7 was initiated by field personnel and had been reviewed and approved within the same day. Based on the above observations the inspector considered that additional management attention was warranted with respect to field-generated changes to maintenance procedures.

11.3.2 Emergency Room Cooler Maintenance

On May 16, 1994, the inspector observed electricians perform maintenance on the Unit 2 CCW pump room emergency air condition unit motors for air conditioning Cooling Units ME518 and ME454 in accordance with MO 91100478 and MO 91100480, respectively. The inspector concluded that the craft performed maintenance activities in accordance with the licensee's program requirements.

During the performance of maintenance on Cooling Unit ME454, the electricians identified that the motor connections had been improperly terminated.

Specifically, the motor lead lugs broke off while electricians removed electrical tape from the connections. The licensee preliminary conclusions were that the termination had probably been incorrectly secured during either initial installation or at the factory. The licensee initiated NCR 9405003201 to document and evaluate the condition observed and concluded that Cooling Unit ME454 was operable prior to the electricians removing the tape. The inspector noted that the licensee appropriately evaluated the condition in similar components in both units.

11.4 Implementation of Vendor Information Program

The inspector concluded that, overall, the licensee appropriately evaluated and incorporated vendor information. However, the methods by which the information was reviewed and dispositioned were not always in accordance with management's expectations.

11.4.1 Processing of Vendor Information

The inspector reviewed the licensee's vendor information program governing Procedure SO123-XIV-4.1, "Configuration Document Change Control For Vendor Information," TCN 4-5. The inspector noted that licensee's program required that station division managers ensure vendor information, which was received outside of normal program distribution channels (i.e., directly from vendors), was forwarded to the Corporate Documentation Management (CDM) department. Once the vendor information was sent to CDM, the formal review and documentation of the review would be initiated. However, the inspector noted that the licensee's program did not specify timeliness requirements with which division managers had to ensure that vendor information was forwarded to CDM. The inspector considered that the absence of time requirements was a weakness. The licensee stated that their program requirements were currently under review and that the inspector's observations would be evaluated as part of the review. The inspector considered the licensee's proposed corrective actions as adequate.

The inspector requested the licensee's evaluations for vendor technical bulletins received from Byron Jackson Company (reactor coolant pump vendor). In the process of responding to the inspector's request, the licensee discovered that several of the technical bulletins had not been forwarded to CDM. However, the licensee stated that the bulletins had been previously evaluated for impact to station equipment by present and previous reactor coolant pump system engineers. The inspector reviewed a sample of six Byron Jackson technical bulletins to assure they had been properly evaluated. The inspector concluded that the licensee had evaluated and taken appropriate action where applicable. The inspector noted that the licensee's program indicated that the system engineer would evaluate the technical bulletin after it had been forwarded to CDM. The technical bulletins which were not in CDM were forwarded to CDM. The licensee acknowledged that the reason the bulletins were not forwarded to CDM was because not all system engineers consistently forwarded vendor information to CDM. The inspector considered that a contributing factor was that program requirements had not been

adequately communicated to system engineers. To address this problem, the licensee stated that the requirements and expectations with respect to the processing of vendor information would be discussed with all system engineers during upcoming continuing training being initiated in July 1994. The licensee stated that the current program for training system engineers did not effectively promulgate responsibilities with respect to the vendor information program. Additionally, the licensee stated that the need to include training on the vendor information program would also be evaluated to include it as part of system engineer initial training requirements. The inspector considered that the licensee's proposed corrective actions were adequate.

The inspector concluded that the licensee had appropriately addressed the review of the reactor coolant pump technical bulletins, however, additional training on program requirements was necessary to achieve program performance in accordance with licensee management's expectations.

11.4.2 Implementation of Changes to Affected Documents

The inspector noted that licensee's program required that division managers implement changes to impacted documents normally within 60 days. The inspector reviewed a backlog report generated to track the completion of changes to impacted documents for all onsite divisions. The inspector noted that the Maintenance division had approximately 56 action items to incorporate vendor information into impacted site documents. The inspector noted that the majority of the items were over 60 days old. As a result of the inspector's observation, the licensee re-evaluated the outstanding items and concluded that outstanding items were appropriately prioritized. The inspector reviewed several past due items and concluded that there was no safety significance associated with the items reviewed. In addition, the inspector noted that the licensee was aggressively working off these items and had recently reduced the number to 56 from over 100 items.

11.4.3 Licensee Oversight Activities

The inspector reviewed Nuclear Oversight Division Surveillance Report SOS-063-94, dated March 3, 1994, which addressed the process for control of vendor manuals. The licensee determined that a significant backlog of vendor technical information existed, but that it was being adequately managed, with the items being appropriately prioritized. The surveillance report also noted that the backlog was being worked off at a reasonable rate.

The inspector reviewed Nuclear Oversight Division Surveillance Report SOS-022-94, dated January 21, 1994. This surveillance report verified that, for selected design changes performed during the Cycle 7 refueling outages, all vendor manuals required by purchase orders and specifications were received by the licensee and entered into the licensee's document management system.

The licensee also informed the inspector of a configuration control audit, planned for later in 1994. The inspector reviewed the audit scope and noted that it included an evaluation of the receipt, review, evaluation, approval,

and incorporation of vendor technical information in drawings, procedures, and instructions. The licensee indicated that the audit was scheduled to begin in July 1994 so that it could assess the effectiveness of the reassignment of responsibility to the Nuclear Construction organization. This reassignment occurred in April 1994. The inspector will review the audit results in a future inspection.

The inspector concluded that the licensee's oversight activities and plans were appropriate.

11.5 Maintenance Backlog

The inspector reviewed the licensee's maintenance order backlog. As of May 9, 1994, the backlog consisted of approximately 494 maintenance items. The inspector noted that the licensee had aggressively worked down the total number which was approximately 1170 in December 1993. The inspector concluded that the licensee was making reasonable efforts to address outstanding maintenance for plant equipment.

11.6 Conclusions

The inspector concluded that the licensee's control of maintenance activities resulted in reliable and safe operation of the plant. However, problems identified with effectiveness of corrective actions, compliance with procedures, and implementation of management's expectations related to the vendor information program indicated that additional management attention was warranted in these areas.

ATTACHMENT 1

1 PERSONS CONTACTED

1.1 Licensee Personnel

*T. Adler, Supervisor, Health Physics
*D. Axline, Engineer, Onsite Nuclear Licensing
*L. Cash, Maintenance Manager
C. Chiu, Manager, Quality Engineering
*J. Clark, Manager, Chemistry
*J. Fee, Assistant Manager, Health Physics
*G. Gibson, Supervisor, Onsite Nuclear Licensing
*R. Giroux, Licensing Engineer, Onsite Nuclear Licensing
*D. Herbst, Manager, Quality Assurance
*M. Herschthal, Manager, Nuclear Systems Engineering
*J. Hirsch, Manager, Power Generation
*R. Joyce, Maintenance Manager, Units 2 and 3
*P. Knapp, Manager, Health Physics
*R. Krieger, Vice President, Nuclear Generating Station
*J. Madigan, Supervisor, Health Physics
*W. Marsh, Manager, Nuclear Regulatory Affairs
*G. Plumlee, Lead Engineer, Onsite Nuclear Licensing
*J. Reilly, Manager, Nuclear Engineering & Construction
*R. Rosenblum, Vice President, Nuclear Engineering and Technical Support
*R. Sandstrom, Supervisor, Operations Training
*M. Short, Manager, Site Technical Services
*K. Slagle, Manager, Nuclear Oversight
D. Stonecipher, Supervisor, Quality Control
T. Vogt, Plant Superintendent, Units 2/3
*R. Waldo, Operations Manager
M. Wharton, Manager, Nuclear Design Engineering

1.2 Other Personnel

*R. Erickson, Site Representative, San Diego Gas and Electric

1.3 NRC Personnel

*J. Russell, Resident Inspector
*J. Sloan, Senior Resident Inspector
*D. Solorio, Resident Inspector

In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

*Denotes personnel that attended the exit meeting.

2 EXIT MEETING

An exit meeting was conducted on May 31, 1994. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee

acknowledged the inspection findings documented in this report. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.

ATTACHMENT 2

ACRONYMS

ACTM	automatic CEA timer module
AFW	auxiliary feedwater
CA	contamination area
CCW	component cooling water
CDM	corporate document management
CEA	control element assembly
CEDMCS	control element drive mechanism control system
CPC	core protection calculator
CRS	control room supervisor
HP	health physics
HPSI	high pressure safety injection
LER	licensee event report
M&TE	measuring and test equipment
MO	maintenance order
MOC	middle of cycle
NCR	nonconformance report
OSRC	Onsite Review Committee
REP	radiation exposure permit
SFP	spent fuel pool
SPR	site problem report
TCN	temporary change notice
TS	Technical Specifications
USQ	unreviewed safety question