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ATTACHMENT: Supplemental Information

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ATTACHMENT: Supplemental Information

EXECUTIVE SUMMARY

San Onofre Nuclear Generating Station, Units 2 and 3
NRC Inspection Report 50-361/97-06; 50-362/97-06

NRC Region IV inspectors performed an inspection at the San Onofre Nuclear Generating Station during the weeks of March 17-21 and March 31 to April 4, 1997. The inspectors reviewed: (1) the implementation of the licensee's corrective action program, (2) the implementation of the licensee's fire protection program, and (3) the licensee's corrective actions for previously identified violations and open items. The objective of the inspection was to evaluate the licensee's effectiveness in identifying, resolving, and preventing issues that degrade the quality of plant operations or safety.

Operations

- Conditions adverse to quality were generally being appropriately identified and corrected by means of action requests or other appropriate corrective action documents (Section O1.1).
- The inspectors noted that the action request procedure did not require that conditions adverse to quality be identified by means of an action request. The procedure also did not specify the minimum composition of the action request committee for the performance of operability evaluations. These were considered to be procedure weaknesses (Section O1.1).
- The inspectors noted acceptable housekeeping throughout the plant. Although the conditions in the switchgear rooms were generally good, the conditions in the charging pump rooms and radwaste building were poor. Specifically, the inspectors observed rags, oil, tools left after work, and puddles of water in the pump rooms and radwaste building (Section O1.1).
- The inspectors verified that the licensee had appropriately resolved safety significant problems identified in the control room logs by means of action requests or a routine maintenance orders (Section O1.2).
- The licensee's operator workaround program minimized the impact of equipment deficiencies on the operators (Section O2.2).
- The licensee performed reasonable evaluations and corrective actions for the action requests and nonconformance reports reviewed by the inspectors (Section O7.1).
- The independent safety engineering group met the function, composition, and responsibilities specified in the licensee's quality assurance manual. The inspectors determined that the independent safety engineering group surveillances and root-cause evaluations were excellent (Section O7.2).

- Operating experience information was appropriately disseminated to plant personnel and reviews and root-cause evaluations for operating experience was conducted properly (Section O7.2).
- The onsite review committee generally met the function, composition, and responsibilities requirements of the licensee's quality assurance program description. The onsite review committee considered and recommended areas for improving plant safety during their reviews (Section O7.3).
- The licensee's quality assurance program description described a "Nuclear Control Board," which included corporate officers and upper management personnel of the owners of the San Onofre facility. However, the inspector noted that the program description did not assign the functions that are typically assigned to offsite review committees to such a high level board, nor did it specify the functions of the board. Rather, the nuclear safety group was fulfilling the requirements of the NRC-approved quality assurance program description (Section O7.4).
- A joint utility management audit found that the nuclear safety group was not performing the required review and audit of quality assurance practices. This was identified as a noncited violation (Section O7.4).

Maintenance

- The maintenance department appropriately used corrective maintenance orders for repair and replacement of plant equipment. Appropriate corrective actions had been performed for a majority of the event reports reviewed by the inspectors. The inspectors identified one unresolved item involving the failure to perform a surveillance test on the containment purge stack radiation monitors (Section M2.1).
- The inspectors noted an increasing trend in the maintenance backlog, which consisted of action requests and open maintenance orders. The licensee was aware of the increasing trend and attributed the increase to problems identified during review of the recently implemented improved Technical Specifications, review of Final Safety Analysis Report commitments, and a comprehensive Engineering Self Assessment (Section M2.2).
- Surveillance procedures for the pressurizer safety valves and main steam safety valves met their Technical Specification surveillance requirements. In addition, the licensee took appropriate actions for setpoint failures and met the applicable reportability requirements (Section M3.1).

Engineering

- The inspectors verified that action requests assigned to engineering had appropriate resolutions with proper engineering justification and that the proposed corrective actions were adequate to preclude recurrence (Section E2.1).

- The inspectors concluded that the licensee had adequately dispositioned the eight action requests selected from the 1996 engineering self assessment and resolved the issues in a timely manner (Section E7.1).
- The licensee was updating the Updated Final Safety Analysis Report to include an adequate description of a modification and corrected the weakness identified in the 10 CFR 50.59 initial screening process to resolve a previously identified 10 CFR 50.59 violation (Section E8.1).

Plant Support

- Appropriate fire prevention and protection practices were being utilized by maintenance personnel while performing welding activities (Section F2.1).
- Fire detection and suppression systems were tested in accordance with the Technical Specification (Section F2.2).
- The erosion and corrosion program was maintaining the fire water system in an operable condition (Section F2.3).
- The licensee's fire department had qualified personnel to fight fires, handle hazardous material, conduct rescue operations, and provide emergency medical treatment. Similarly, personnel assigned firewatch duties were well-trained and conducted their tours in a professional manner (Section F3).
- Audits of the fire protection program were comprehensive, well defined in scope and depth, and used performance-based observations of the fire protection program via qualified auditors (Section F7.1).
- A new fire protection innovation team (fire pit) maintenance program was initiated to remedy the fire protection maintenance backlog problems (Section F7.2).
- The inspectors verified that licensee identified and reported inoperable fire dampers had been repaired and tested. The failure to post compensatory fire watches, as required by the technical specifications, was identified as a licensee identified and corrected noncited violation (Section F8.1).
- The inspectors determined that San Onofre Nuclear Generating Station fire protection program was effective in its ability to prevent, detect, and respond to a fire emergency (Section F8.2).

Report Details

I. Operations

O1 Conduct of Operations

O1.1 Problem Identification

a. Inspection Scope (40500)

The inspectors reviewed the implementation of the licensee's corrective action process to determine if issues that degrade the quality of plant operations or safety were being appropriately identified. The inspectors reviewed associated action requests and discussed issues with licensee management and working level personnel. The inspectors performed walkdowns of various accessible areas of the plant, observed equipment condition, and observed work performance by plant personnel.

b. Observations and Findings

Work Process Procedure SO123-XX-1 ISS 2, "Action Request/Maintenance Order initiation and Processing," Revision 4, provided the licensee's single system primary process for reporting of conditions, events, and proposed improvements (i.e., equipment and non-equipment related). The procedure provided a process for documenting problems, or potential problems, by means of an action request on the licensee's electronic local area network. The procedure also provided the option for electronic or hard copy initiation of an action request. The procedure also required the action request originator to notify "Equipment Control" on weekday day shift or the "Unit SRO Operations Supervisor" if the problem being reported potentially affects the operability of equipment.

Procedure SO123-XX-1 ISS 2 established the "AR Committee," which was composed of management representation from operations, maintenance, and technical divisions. The committee met daily during the normal work week to review, discuss and prioritize assignments for new action requests and action requests that are sent back for committee reconsideration. The procedure also allowed the committee to perform the operability evaluation of equipment affected by action requests that were reviewed by the committee.

The inspectors discussed with licensee personnel the action request procedure and process. Although the licensee's action request procedure met the regulatory requirements for identifying, processing, and correcting conditions adverse to quality, the inspectors noted weaknesses in the procedure. The inspectors discussed the following procedure weaknesses with the licensee.

- The procedure provided a process for plant personnel to identify conditions adverse to quality; however, the procedure did not specifically require plant personnel to document conditions adverse to quality by means of an action request or other corrective action program process. The licensee acknowledged the inspectors observation and stated that the procedure would be changed to specifically include a requirement.
- The procedure described the composition of the action request committee and specified the committee's functions. The procedure allowed the committee to perform operability evaluations. However, the inspectors noted that the procedure did not specify a minimum committee composition that would constitute a quorum, nor did it specify the minimum required membership for performance of operability evaluations (i.e., operations and/or engineering personnel). The licensee acknowledged the inspectors observation and stated that the procedure would be changed to add requirements for the action request committee composition and quorum.
- Section 6.9 of the procedure stated that selected action requests would be electronically flagged for ". . . post-closure staff review to ensure that all actions were appropriately closed and that the original problem was satisfactorily addressed." However, the inspectors noted that the procedure did not specify the criteria for action requests selected for post-closure review, the staff that would perform the review, nor the process for performing the review. The licensee acknowledged the inspectors observation and stated that the procedure would be changed to specifically include the requirements for post-closure review of action requests.

The above noted examples of the action request procedure weaknesses will be followed as an inspection followup item pending the changes to the procedure (50-361;-362/9706-01).

The inspectors performed a walkdown of various plant areas on April 1, 1997, and noted several potential conditions adverse to quality. The licensee evaluated the conditions and initiated action requests, as needed, to evaluate and resolve the conditions. None of the observed conditions were determined by the licensee to be conditions adverse to quality. The licensee discussed the resolution of the observed conditions with the inspectors. The inspectors determined that the licensee's evaluations and actions for the observed conditions were reasonable. A description of the more noteworthy conditions and licensee actions are as follows.

- Charging Pump 3P-191 Banging - The licensee initiated Action Request 970400113 on April 3, 1997, which described that the discharge check valve for Charging Pump 3P-191 was "banging loudly." The licensee subsequently determined that the banging valve was the discharge check valve for Pump 3P-192 (MU017) and initiated Action Request 970400205 to address the noted condition.

The licensee determined that the check valve noise was periodic and almost unnoticeable, then building to a loud rapping when the valve disk was agitated by pressure pulsations from the other Charging Pump 3P-191, which was operating. The licensee determined that the upstream piping between Check Valve MU017 and Pump 3P-192 was pressurized to charging pump discharge header pressure. With the upstream piping pressurized, there was no differential pressure across Check Valve MU017 and the valve disk could move freely with system pulsations. The action request operability assessment determined that Check Valve MU017 was operable with the observed agitation. The licensee evaluation also determined that there was no specific seat leakage requirements and that there were no direct operational problems associated with the observed agitation or potential seat leakby.

The licensee concluded that the valve and the charging piping remained operable. The licensee stated that further investigative efforts will check for seat leakage past Check Valve MU017, and that corrective maintenance will be pursued to eliminate the check valve agitation by reworking the valve. The licensee stated these actions were pending work completion and return to service of Charging Pump 3P-190. The inspectors determined that the licensee's review of the identified condition, operability determination, and investigative efforts were appropriate.

- Oil Leakage on Charging Pump 29-191 - The licensee initiated Action Request 970400228 on April 4, 1997, to address the oil that was observed to be all over the crank case and floor beneath Charging Pump 2P-191. The licensee performed an operability assessment that determined that the pump was operable and cleaned up the oil spill. The licensee determined that oil had been spilled during recent oil additions. During the fill, the technicians had noted that some oil had entered the plunger well, but did not consider the condition to be a problem because the oil drained through the normal drains and the condition was no different than would occur with a baffle packing leak into the plunger well. The NRC inspector's concluded that the licensee's review of the identified condition, operability determination, and conclusions were appropriate.
- Housekeeping - The inspectors noted that housekeeping throughout the plant was acceptable. The inspectors noted that conditions in the switchgear room were generally good, but that conditions in the charging pump rooms and radwaste building were poor. Specifically, the inspectors observed rags, oil, tools left after work, and puddles of water in the pump rooms and radwaste building. The inspectors informed the licensee of all observed housekeeping conditions and the licensee promptly corrected the observed conditions.

c. Conclusions

The inspectors concluded that conditions adverse to quality were generally being appropriately identified and corrected by means of action requests or other appropriate corrective action documents. The inspectors concluded that overall plant housekeeping was acceptable, although poor conditions were noted in the charging pump rooms and the radwaste building.

O1.2 Problem Resolution

a. Inspection Scope (40500)

The inspectors reviewed operating logs, interviewed licensed and non-licensed operators, observed two of the daily plant status meetings, observed control room activities, accompanied equipment operators in the plant, and reviewed corrective action documents. The inspectors performed the reviews to determine if problems were being appropriately identified and handled using the corrective action program.

The inspectors reviewed Units 2 and 3 control room operator logs for the period of December 15-31, 1996. The inspectors selected six entries from the Unit 2 logs, and eight entries from the Unit 3 logs, that appeared to be safety significant conditions that required corrective actions. The inspectors selected these items to determine if the operations department was identifying problems, performing conservative operability evaluations, and initiating appropriate corrective actions.

b. Observations and Findings

The inspectors determined that operations personnel were initiating action requests as new issues were identified. The inspectors determined that the issues identified in the control room log entries, which appeared to be safety significant, were resolved by means of an action request or a routine maintenance order. For example, the inspectors noted that a Unit 2, December 19, 1996, log entry that stated that Refueling Pool Pump P014 became air bound when trying to pump the lower refueling cavity. The licensee subsequently lowered the water in the lower refueling cavity by another method. The licensee informed the inspectors that a subsequent evaluation of the problem determined that a temporary "tri-nuke" pump provided suction pressure to Pump P014. The temporary tri-nuke pump electrical connection was discovered to be miswired causing the pump to run backwards. The miswired tri-nuke pump, and subsequent reverse flow caused by the condition, was determined to be the cause of the air binding of Refueling Pool Pump P014. The licensee corrected the wiring error and returned Pump P014 into service on December 21, 1996, at 1:25 a.m., without noting problems. The inspectors determined that the licensee evaluations and corrective actions were appropriate.

c. Conclusions

The inspectors concluded that conditions adverse to quality were generally being appropriately identified by operations personnel and those conditions were being corrected by means of action requests or other appropriate corrective action documents.

02 Operational Status of Facilities and Equipment

02.1 Operator Workarounds

a. Inspection Scope (40500)

The inspectors reviewed Unit 2 and Unit 3 operator workarounds to determine if conditions adverse to quality were being appropriately identified, evaluated, and resolved in accordance with the licensee's corrective action program. The inspectors performed an inspection of Units 2 and 3 control boards to identify and evaluate any plant or equipment deficiency that was an operator workaround. The inspectors reviewed licensee records of Units 2 and 3 operator workarounds.

b. Observations and Findings

Work Process Procedure SO123-XX-6, "Operator Work Around Program," Revision 0, provided the licensee controls for operator workarounds. The procedure defined an operator workaround as an equipment condition or deficiency, which causes an operator to deviate from the normal means of accomplishing a task or function, and requires operator compensatory action, which may challenge the safe and reliable operation of the unit.

The inspectors determined that the licensee documented operator workarounds by watchstation and type. The licensee had two types of operator workarounds. The licensee defined a routine operator workaround as a plant deficiency which required operator action with a uniform frequency, and defined a conditional operator workaround as a plant deficiency, which required operator action during specific circumstances. The inspectors determined that the licensee documented and resolved both types of operator workarounds by means of action requests. The operator workarounds, and corresponding action requests, had closure mechanisms in place (i.e., repair during refueling, planning, or waiting parts) with work windows, priorities, and responsible departments assigned to control and resolve the conditions that resulted in each of the operator workarounds. The inspectors also determined that the operator workaround action requests included appropriate operability and reportability determinations.

Work Process Procedure SO123-XX-6 also specified compensatory action duration limits (i.e., the total time to perform all compensatory actions) for each watchstation. The inspectors determined that for the control room operators the total compensatory action time was required to be less than 45 minutes. For operators outside the control room, the total compensatory action time was required

to be less than 60 minutes. The licensee stated that the plant superintendent or assistant plant superintendent established the compensatory action duration limits based on the ability of the operator to perform both normal functions and required compensatory actions. In addition, the licensee stated that only one event per watchstation was allowed to impact the abnormal operating instructions or emergency operating instructions.

The inspectors determined that plant or equipment deficiencies observed on the Units 2 and 3 control boards, that resulted in operator workarounds, had already been previously identified by the licensee as operator workarounds. The inspectors noted that the unit operators were well informed of every board deficiency and operator workaround. The inspectors' review of both units' control boards indicated that each primary or secondary operator had, at the most, two operator workarounds to accomplish a task or function. All watchstations were within their required total compensatory action limits.

c. Conclusions

The inspectors concluded that the licensee's operator workaround program reasonably minimized the impact of equipment deficiencies on the operators.

07 Quality Assurance in Operations

07.1 Problem Evaluation and Resolution

a. Inspection Scope (40500)

The inspectors reviewed the licensee's implementation of its corrective action process to determine if issues that degrade the quality of plant operations or safety were being appropriately evaluated and resolved. The inspectors performed walkdowns of various accessible areas of the plant, observed equipment condition, and observed work performance by plant personnel.

The inspectors reviewed action requests and associated corrective action documents. The inspectors discussed conditions adverse to quality that were observed by the inspectors with licensee management and working level personnel. The inspectors selected two action requests associated with steam generator manway cover gaskets and five action requests associated with failed Unit 2 snubbers for review.

b. Observations and Findings

During the recent Unit 2 outage in December 1996 and January 1997, the licensee initiated Action Requests 961202068, 961201378, 970100170, 970100335, and 970100914 to identify various failed and/or nonconforming snubbers. The action requests were processed by the licensee as nonconformance reports. The inspectors determined, through review of the nonconformance reports and discussions with licensee personnel, that all the nonconforming snubbers were

either replaced or eliminated. In addition, the inspectors determined that generic concerns for the various reported snubber problems were being appropriately addressed by means of the Technical Specification snubber surveillance program and a snubber service-life monitoring program.

However, the inspectors noted that the snubber failures that were reported in two of the nonconformance reports were partially attributed to vibration of the low pressure safety injection piping. The licensee indicated that the piping vibration was evaluated and the affected piping was visually inspected. The piping vibration was acceptable because there was no obvious evidence of rubbing between the piping and pipe supports, and the piping vibration was not considered a nonconforming condition. The inspectors determined that the licensee had performed a reasonable evaluation of the cause of the reported snubber failures and performed reasonable corrective actions.

c. Conclusions

The inspectors concluded that the licensee performed reasonable evaluations and corrective actions for conditions adverse to quality.

07.2 Independent Safety Engineering Group

a. Inspection Scope (40500)

The inspectors interviewed members of the independent safety engineering group to determine whether they were accomplishing the functions described in the Topical Quality Assurance Manual, Chapter 1-A, paragraph 7.0. The inspectors also reviewed three completed plant surveillances and seven completed root-cause evaluations to confirm that required independent safety engineering group verifications were being performed.

The inspectors reviewed the licensee's operational experience feedback program to determine its effectiveness. The inspectors reviewed 21 significant event reports, and 9 NRC information notices. The inspectors reviewed Nuclear Oversight Procedure SO123-XII-2.24 to assess the licensee's implementation of the operating experience feedback program.

b. Observations and Findings

The inspectors determined that the independent safety engineering group consisted of eight, dedicated, full-time engineers (including the supervisor). Each member had greater than 10 years of professional level experience in engineering. The inspectors determined that the independent safety engineering group was a subgroup within the Nuclear Oversight Division.

The inspectors determined that the independent safety engineering group reviewed plant operating events, NRC issuances, industry advisories, and other sources of plant operating experience information. Based on those reviews and root-cause evaluations, the independent safety engineering group made detailed recommendations for improving plant safety to the Manager of Nuclear Oversight.

The inspectors reviewed three root-cause evaluations and determined that the root-cause evaluations were excellent evaluations. For example, the licensee evaluated the root cause of the spurious actuation of a deluge valve which resulted in spraying approximately 1,000 gallons of water on Reactor Coolant Pump 2P004 motor for approximately ten minutes. The independent safety engineering group documented the evaluation in Failure Analysis Report 97-09. The independent safety engineering group determined that the root cause of the problem to be the deluge valve's clapper not being latched. The root-cause evaluation included supporting evidence to reach the conclusion. The root-cause evaluations considered other likely causes, such as, galvanic corrosion or water hammer, and obtained refuting evidence to dismiss each of the other potential causes.

The inspectors attended a weekly industry operating experience evaluation screening committee meeting held on March 31, 1997. The inspectors noted that a list of items to be reviewed during the meeting was forwarded to the members prior to the meeting. The inspectors noted that the meeting discussed industry operating experience items and the recent San Onofre Unit 2 steam generator manway cover gasket leak.

The inspectors determined that the operating experience feedback procedure provided appropriate controls for forwarding event information to appropriate licensee personnel. The independent safety engineering group performed evaluations of industry operating experience reports, and provided recommended actions to the responsible organizations as appropriate.

From the sample of events reviewed, the inspectors noted that the independent safety engineering group operating experience reviews, and recommendations were comprehensive, detailed, and appropriate. For example, the evaluation for Information Notice 96-15, "Unexpected Plant Performance During Performance of New Surveillance Tests," concluded that the San Onofre Nuclear Generating Station did not have a similar problem. The information notice described a November 1995 event at the Hatch Nuclear Plant, Unit 2. Approximately 12,000 gallons of water drained out of the reactor vessel in less than 1 minute during the event. The root cause of the event was determined to be unexpected plant performance during the conduct of newly required surveillance tests arising from the implementation of improved Standardized Technical Specifications. In addition, inadequate modification, maintenance and testing control, with respect to the remote shutdown panel and related equipment, was also identified as contributors to the cause of the problems.

The independent safety engineering group evaluated the information notice described above and determined that prior to implementation of the new Standardized Technical Specifications on August 5, 1996, the operations department had developed a list of 12 new surveillance requirements, identified the affected procedures, planned the surveillance evolution, and revised the procedures to reflect the necessary changes. In addition, the operations department also stated that none of the surveillances were completely new at the site since the system or component involved had been exercised periodically over the years as part of other testing (inservice) or operational requirements. The licensee evaluation stated that the 9 new surveillance requirements had been completed at the site without any problem and 3 were awaiting implementation during the applicable power mode. The evaluation report concluded that the conditions for the event described in the information notice did not exist at the site.

The licensee informed the inspectors that a joint utility management audit of the licensee's quality assurance program had been performed in March 1997 and that the audit included a review of the independent safety engineering group's performance. The audit noted two independent safety engineering group strengths. Specifically, the root-cause evaluation program was excellent and the education and experience levels of the staff members of the independent safety engineering group were considered strengths. However, the audit also identified a "deviation" and two recommendations, discussed below, regarding the independent safety engineering group's performance of its functions.

The joint utility management audit identified a deviation regarding the failure to update the licensee's plan for an annual effectiveness evaluation of the operating experience review program as required by Nuclear Oversight Procedure SO123-XII-2.24, Section 6.2.12. In addition, the audit team noted that the "plan" for an evaluation of the effectiveness of the industry experience program was last issued in January 1994 and did not reflect the current organizational references. The audit team recommended that the plan be updated. The licensee issued Corrective Action Request 002-97, dated March 17, 1997, to resolve this concern. The response to the corrective action request was not due until April 16, 1997, and was not complete at the time of the NRC inspection.

The NRC inspectors reviewed the licensee's implementation of the yearly evaluation of the industry operating experience program required by Nuclear Oversight Procedure SO123-XII-2.24, Section 6.8. The inspectors determined that the licensee performed the annual effectiveness evaluation of the operating experience review program in two ways. During years when INPO performs their appraisals, the licensee takes credit for the INPO review as the annual effectiveness evaluation. In other years, the licensee arranges for a peer evaluation using industry peers and a consultant.

The inspectors reviewed an effectiveness review report, dated December 29, 1995, and revised on January 29, 1996. The review was performed by six industry peers and determined that the industry experience program had the following areas for improvement. On March 28, 1996, the Safety Engineering Department completed a response to the recommendations made by the audit team. The NRC inspectors' reviewed the response and determined that licensee corrective actions were completed throughout 1996. For example, the inspectors determined the following status of some of the areas of improvement:

- Distribution of lower-tier industry documents - Site technical services improved the distribution of applicable documents to the appropriate personnel. Action completed on May 23, 1996.
- Documentation of San Onofre Nuclear Generating Station experience in industry experience reviews - independent safety engineering group revised the procedure to document if site's experience was similar to industry experience. Action completed on May 31, 1996.
- Timeliness of industry experience reviews - The independent safety engineering group revised their procedure to screen applicability of the item for upcoming plant activities. Also, the independent safety engineering group procedure was revised to include a contact, or participant list in the evaluations significant operating experience reports. Action completed on May 31, 1996.

The joint utility management audit team also determined during interviews with site personnel that "... essentially the only time that independent safety engineering group staff is seen in the plant is when they are investigating a plant event to perform a Root Cause Evaluation or to lead or participate in a special project initiated by someone else, i.e., in a reactionary mode." The audit team considered that a large part of the independent safety engineering group's charter was to examine plant operating characteristics and provide surveillance of plant activities in a proactive involvement in the oversight of plant activities. As a result, the audit team recommended that the licensee evaluate whether the independent safety engineering group met the "... NRC's intent of the original ISEG charter, which is delineated in the San Onofre Nuclear Generating Station UFSAR, TQAM, and the ISEG procedures." As noted above, the licensee issued Corrective Action Request 002-97 to resolve the joint utility management audit concerns regarding the independent safety engineering group's performance. At the time of the NRC inspection, the licensee was still evaluating the audit observations and recommendations. Pending licensee evaluation and resolution of the joint utility management audit finding regarding the proactiveness of the independent safety engineering group, and further review by the NRC of licensee corrective actions, this was identified as a followup item (50-361;-362/9706-02).

c. Conclusions

The inspectors concluded that the independent safety engineering group were generally meeting the function, composition, and responsibilities requirements of the Topical Quality Assurance Manual, Chapter 1-A, paragraph 7.0. The inspectors determined that the independent safety engineering group surveillances and root-cause evaluations were excellent. The inspectors concluded that the operating experience information was generally being disseminated appropriately to plant personnel and reviews and root-cause evaluations for operating experience was being conducted properly.

A joint utility management audit, conducted on March 3-10, 1997, identified a weakness in the proactive oversight of plant activities by the independent safety engineering group. The audit also found that the annual effectiveness review plan for the operating experience review program had not been performed. The licensee issued a corrective action request for the audit findings and was still developing the corrective actions.

07.3 Onsite Review Committee

a. Inspection Scope (40500)

The inspectors attended one monthly onsite review committee meeting and reviewed meeting minutes that had been issued for recent committee meetings to determine the effectiveness of the committee.

b. Observations and Findings

The inspectors determined that the requirements for the onsite review committee function, composition, and responsibilities were contained in Section 17.2.20.2 of the quality assurance program description (Topical Report SCE-1A, Change Notice 41). In a letter dated February 9, 1996, the NRC approved Amendment No. 127 to Facility Operating License No. NPF-10 and Amendment No. 116 to Facility Operating License No. NPF-15 for Units 2 and 3. The Safety Evaluation Report for the license amendments approved the relocation of the review and audit functions (including the requirements for the onsite review committee previously contained in Section 6.5 of the Technical Specifications) to the quality assurance program (SCE-1-A). General Administrative Procedure S0123-XV-60.1, "OSRC - Onsite Review Committee," Revision 2, implemented the requirements contained in Section 17.2.20.2 of the quality assurance program description. The procedure provided the implementing requirements for the function, composition and responsibilities of the onsite review committee.

The inspector observed the onsite review committee monthly meeting for the month of March held on March 20, 1997. The committee meeting was chaired by the Vice President of Nuclear Generation. The operations manager discussed with the committee operational activities of Units 2 and 3. The committee reviewed reportable events. The committee discussed plans for chemical cleaning the Unit 3 steam generators during the upcoming outage. Lessons learned from the Unit 2 chemical cleaning and areas for improvement during the Unit 3 chemical cleaning were discussed.

The Inspectors reviewed the meeting minutes for the onsite review committee meetings held on October 8, November 21, December 19, 1996, and January 12, 1997. The minutes reflected discussions that were similar in nature to the discussions that were observed during the committee meeting that was held on March 20, 1997. The inspectors determined that the onsite review committee was generally fulfilling the requirements of the Quality Assurance Program Description, Section 17.2.20.2, Change Notice 41.

c. Conclusions

The inspectors concluded that the onsite review committee generally met the function, composition, and responsibilities requirements contained in Section 17.2.20.2 of the Quality Assurance Program Description, San Onofre Topical Report SCE-1A, Change Notice 41. The onsite review committee considered and recommended areas for improving plant safety during their reviews.

07.4 Offsite Review Committee

a. Inspection Scope (40500)

The inspectors reviewed the licensee's implementation of offsite review committee functions to determine the effectiveness of the committee.

b. Observations and Findings

As previously indicated the NRC approved Amendments 127 and 116 for Units 2 and 3 in a letter dated February 9, 1996. The NRC Safety Evaluation Report for the license amendments approved the relocation of review and audit functions (including the requirements for the offsite review group previously contained in Section 6.5 of the Technical Specifications) to the quality assurance program (SCE-1-A). The inspectors determined that the licensee relocated the noted Technical Specification administrative requirements to the quality assurance program description. Similar to the previous Technical Specification administrative requirements, Section 17.2.20.4 of the quality assurance program description provided the requirements for the function, composition, and responsibilities of an offsite review committee. The Topical Report also assigned those functions to the nuclear safety group.

The inspectors determined that the nuclear safety group (i.e., the group assigned the offsite review committee functions and responsibilities) reported to the Supervisor of Nuclear Safety, who reported to the Quality Manager of Engineering, who reported to the Manager of Nuclear Oversight, who reported to the Vice President of Engineering and Technical Services, who reported to the Executive Vice President. This was unusual, in that, most other utility offsite review committees consisted of senior utility managers and industry experts and reported to the utilities top executive responsible for the plant.

Section 17.2.20.4.1.h of the quality assurance program description assigned the nuclear safety group the function to provide independent review and audit of quality assurance practices. Section 17.2.20.4.4 required that audits of unit activities be performed under the cognizance of the nuclear safety group. Section 17.2.1.4 assigned the development and administration of the quality assurance program to the Nuclear Oversight Division, under the direction of the Manager of Nuclear Oversight. As previously noted, the nuclear safety group was supervised by the Supervisor of Nuclear Safety, who reported to the Quality Manager of Engineering, who reported to the Manager of Nuclear Oversight.

Section 17.2.20.4.3.1 of the quality assurance program description required the nuclear safety group to perform an independent review of reports and meeting minutes of the onsite review committee. The Chairman of the onsite review committee is the Vice President, Nuclear Generation, who was three management levels higher than the Supervisor of Nuclear Safety and one management level higher than the Manager of Nuclear Oversight. However, the inspectors also noted that the Manager of Nuclear Oversight had a direct organizational reporting link to the executive vice president.

The inspectors determined that Procedure SO123-XII-2.21, "Nuclear Safety Group Functions and Responsibilities," Revision 1, adequately specified the functions and responsibilities of the nuclear safety group. The procedure provided implementing instructions for the requirements previously contained in Section 6.5.3 of the Units 2 and 3 Technical Specifications and the quality assurance program. The inspectors discussed the groups functions with the supervisor of Nuclear Safety and observed a group meeting that was held on March 31, 1997. The inspectors observed that the group was generally fulfilling their assigned responsibilities.

The inspectors reviewed the nuclear safety group report for January 1997. The inspectors noted that the report was transmitted to the Executive Vice President, the Vice President of Nuclear Generation, and the Vice President of Engineering, by a March 1997 letter from the Manager of Nuclear Oversight. The letter stated that no items of nuclear safety significance were identified in January 1997. The report summarized the activities of the nuclear safety group that were performed to satisfy the requirements of Section 17.2.20.4 of the quality assurance program description.

The January 1997 nuclear safety group report also included a description of five risk assessments performed by the nuclear safety group. The report documented valuable risk insights that were used by the operating unit in decisions that were made for the Unit 2 outage schedules. The risk input was typical of the routine risk assessment activities of the nuclear safety group that contributed to plant safety. However, the inspectors were concerned that these contributions were staff functions, rather than an independent review and audit by an oversight group. The inspectors noted that Section 17.2.1.2 of the quality assurance program description described a "Nuclear Control Board," which included corporate officers and upper management personnel of the owners of the San Onofre facility. This section stated that the nuclear control board would be ". . . an additional means by which SCE corporate management is involved with quality assurance matters." The topical report did not assign the functions that are typically assigned to offsite review committees to the nuclear control board, nor did it specify the functions of the nuclear control board.

The inspectors noted that a joint utility management audit that was performed from March 3-10, 1997, found that the nuclear safety group had reviewed only 9 of the 19 audits issued in 1996 that were reviewed by the audit team. The audit team noted that the monthly reports of the nuclear safety group were the only product of the group that could be reviewed. Nuclear safety group meeting minutes were not available. The audit team noted that:

". . . few of the monthly reports contain reference to quality assurance activities. The audit reviews are the only regular NSG activities that can be credited to satisfy TQAM Chapter 1-A Section 6.1 (h). There is no documented performance-based assessment conducted to support NSG oversight of the adequacy of quality assurance activities."

The licensee issued Corrective Action Request 002-97 to evaluate and resolve the above discussed joint utility management audit identified procedural violation. The inspectors noted that Section 6.5.1 of Quality Assurance Procedure SO123-XII-2.21, "Nuclear Safety Group Functions and Responsibilities," Revision 1, states that the nuclear safety group reviews audits. The failure to independently review and audit quality assurance activities as required by Section 17.2.20.4.1.h of the quality assurance program description and Section 6.5.1 of Quality Assurance Procedure SO123-XII-2.21, is a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." The violation was self-identified by the licensee during an audit and could not have been reasonably prevented by licensee corrective actions for a previous violation or a previous licensee finding that occurred within the past 2 years of this NRC inspection. The NRC inspectors also noted that the licensee promptly initiated action to evaluate and correct the violation. The violation did not appear to be willful in nature. Therefore, this licensee-identified violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-361;-362/9706-03).

c. Conclusions

The inspectors concluded that the nuclear safety group was generally fulfilling the requirements of the quality assurance program description. However, the NRC inspectors noted that the licensee's program was unusual, in that, this facility assigned the functions of the offsite review committee to a group that had three management levels between it and the senior utility executive responsible for the nuclear plant. A noncited violation was identified for the failure of the group to perform its function to independently review and audit quality assurance activities.

II. Maintenance

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Maintenance Action Items

a. Inspection Scope (40500)

The inspectors reviewed 10 corrective maintenance orders to determine if repetitive problems existed and to determine if maintenance orders were being used to improperly modify the plant design. In addition, the inspectors reviewed 10 event reports to determine if the licensee was correcting human performance problems that were identified. The inspectors discussed some of the maintenance orders and event reports with applicable licensee personnel.

b. Observations and Findings

The inspectors found that the corrective maintenance orders were used appropriately for repair and replacement of plant equipment. The inspectors did not identify any examples where the maintenance orders were improperly used to modify the plant design. In addition, no examples of repetitive maintenance were identified. The inspectors determined that the licensee had performed appropriate corrective actions for the majority of the event reports reviewed.

The inspectors reviewed Action Request/Event Report 970101498, dated January 24, 1997, wherein the licensee declared both Radiation Monitors 2RY7828 and 3RY7828 out-of-service while an evaluation was made on the need to test the containment mini-purge valves during the quarterly channel test. The event report indicated that the licensee's maintenance department had revised Surveillance Procedure SO23-XXV-4.50, "Surveillance Requirement Containment Purge Stack Radiation Monitoring System Loop Z7.ZZZZ 7828 Channel Functional Test (92 Day Interval)," Revision 0, with Technical Change Notice 4 on January 24, 1989. This revision deleted the testing requirements contained in Technical Specification 3/4.3.3.9 from the surveillance procedure. However, due to an

administrative error the licensee did not submit a technical specification change to the NRC to remove the containment purge system from the technical specifications and incorporate the testing requirements into the offsite dose calculation manual until September 11, 1989. Although the change was approved by the NRC on January 12, 1990, the licensee had not met their Technical Specification surveillance requirements in the interim.

The action request had been initiated January 24, 1997, as a result of an ongoing review of the technical specification surveillance testing requirements. The licensee had performed an initial operability assessment on January 28, 1997, which concluded that the monitors were operable based on the satisfactory completion of the channel functional test. The licensee had also performed a reportability assessment on January 29, 1997; however, it incorrectly determined that this condition was not reportable, based on the satisfactory operability assessment. Although the licensee re-opened Action Request/Event Report 970101498 on January 29, 1997, after determining that the surveillance testing had not been accomplished for approximately one year, the licensee had not re-opened the reportability evaluation for this condition until questioned by the NRC inspector. The licensee indicated that they were currently developing a licensee event report. The failure to perform the surveillance testing of the radiation monitors in accordance with Technical Specification 3/43.3.9 and the failure to report this condition within 30 days as required by 10 CFR 50.73 will be reviewed during the closure of the licensee event report. This review will be followed as an unresolved item (50-361;-362/9706-04).

The inspectors also noted that the additional information concerning the failure to perform the Technical Specification surveillance requirement had been determined after the initial operability and reportability assessments had been completed during the evaluation of the action request. At the time of the inspection (approximately two months later), these evaluations had not been revised to indicate that the missed surveillance was reportable. The inspectors reviewed Procedure SO123-XX-1, "Action Request/ Maintenance Order Initiation and Processing," Revision 4, and found that the procedure did not appear to have a mechanism for performing re-reviews of the operability and reportability assessments if additional information was found that could change the assessments. The inspectors concluded that this procedure weakness was another example of the weaknesses identified in Inspection Followup Item 50-361;-362/9706-01 discussed in Section O1.1.b, which the licensee had indicated would be revised.

While reviewing Action Request/Event Report 970101498, the inspectors noted a licensee statement in the event report that the above surveillance procedure change had reduced the local leak rate test requirements for the containment purge vent isolation valves and not the isolation actuation function. When questioned about this statement, the licensee stated that the event report was in error and the local

leak rate test requirements had not been revised. The inspectors reviewed Procedure SO23-V-3.31, "Containment Penetration Leak Rate Testing," Revision 9, and found that the testing requirements had not changed. The inspectors noted a few other inconsistencies in the event report that required clarification by the licensee. The inspectors concluded that this event report was weak.

c. Conclusions

The inspectors concluded that the corrective maintenance orders were appropriately used for repair and replacement of plant equipment. The inspectors concluded that appropriate corrective actions had been performed for a majority of the event reports. The inspectors identified an unresolved item concerning the failure to perform and report a missed surveillance test on the containment purge radiation monitors. The inspectors also identified a weakness in the licensee's action request procedure (previously discussed in Section O1.1.b) where the procedure appeared to allow the reportability and operability assessments to be made and closed out in the early stages of the action request process without requiring re-review if new information was discovered.

M2.2 Review of Maintenance Backlog

a. Inspection Scope (40500)

The inspectors reviewed the overall site backlog and the maintenance backlog to determine the backlog size, the trend (i.e., increasing, decreasing or steady), how the backlog was tracked and managed, and how priorities were determined. The inspectors also discussed the backlog with applicable maintenance personnel.

b. Observations and Findings

The inspectors reviewed the March 5, 1997, action item assignment division report which was prepared monthly to provide a graphic display of the monthly progression of total open action request assignments and a tabular listing of backlog trends for actions assigned to each division. The inspectors noted that the site action requests backlog had increased from 1825 items in September 1996 to 3004 action requests in February 1997. The total number of action requests important to safety was 1850 as of March 1997. The open high priority action requests that were important to safety had increased from 256 in October 1996 to 426 in March 1997. The number of action requests that were important to safety, including all priorities, had increased from 947 in October 1996 to 1850 in March 1997. The 3004 action requests did not include any maintenance orders. From this report, the inspectors noted that the maintenance department's open action requests, including both important to safety and nonsafety, had increased from 253 in September 1996 to 628 open action requests in February 1997. The inspectors found that, of these 628 open action requests, 469 were open assessments without a forecast date. The maintenance department had 259 open items for procedure change requests, which had increased from 120 in September 1996.

The inspectors reviewed a graph of all active maintenance orders from March 2, 1996, to March 29, 1997. The number of active maintenance orders include those from all three units. In March 1996, the total number of open maintenance orders was approximately 6000. This total included 2200 maintenance orders for Unit 3, 2600 for Unit 2, and 1100 for Units 2 and 3 common items. In March 1997, the total number of active maintenance orders had increased to approximately 9000. Of this 9000, 3917 were open corrective maintenance orders and 942 of the 3917 were safety related. The inspectors noted that the open maintenance orders had increased from 6000 to 9000 maintenance orders. The licensee stated that the current number of open maintenance orders was high because Unit 2 had just ended an outage and preparations were being made for the Unit 3 outage, which would begin April 12, 1997. The inspectors concuded there was an increasing trend in open maintenance orders.

The inspectors discussed the action request trend with appropriate licensee personnel. The licensee stated that a number of these open items were directly the result of the Engineering Self Assessment SEA 96-007, dated November 7, 1996. The licensee stated that the action requests increased by 400 to 500 due to Final Safety Analysis Report discrepancies. Also, due to the new revised Technical Specifications, the licensee found approximately 500 surveillance requirement problems. In addition, the licensee stated that the open maintenance orders were high due to the Units 2 and 3 outages.

c. Conclusions

The inspectors concluded that the licensee's maintenance backlog, which consisted of action requests and open maintenance orders had an increasing trend. The licensee was aware of the increasing trend and attributed the increase to problems identified during review of the recently implemented improved Technical Specifications, review of Final Safety Analysis Report commitments, and a comprehensive Engineering Self Assessment.

M3 Maintenance Procedures and Documentation

M3.1 Review of Surveillance Test Packages

a. Inspection Scope (40500)

The inspectors reviewed the surveillance test results for the main steam safety valves and the pressurizer safety valves for Units 2 and 3 for the previous three outages. The inspectors reviewed the surveillance test procedures to determine if the tests were in accordance with Technical Specification requirements and, if failures occurred, appropriate reportability requirements were met and appropriate corrective actions were performed.

b. Observations and Findings

The inspectors reviewed Procedure WSC-SV-011, "Procedure for Lift Setpoint and Seat Leakage Testing of SCE Unit 2, 3 Pressurizer Safety Valves," Revision 1, to determine if the procedure met the Technical Specification requirements for both the Units 2 and 3 pressurizer safety valves. The inspectors determined that the procedure met all of the Technical Specification surveillance requirements for testing and acceptance. The inspectors noted that procedure included testing the valves at the plant normal operating conditions, which required the test facility to heat up the valve prior to testing to simulate plant conditions. The inspectors noted during the review of the test data that, during the Unit 2 Cycle 8 refueling outage, both pressurizer safety valves exceeded the as-found setpoint of 2500 psia \pm 1 percent. The as-found test results indicated the valves had opened at 2609 and 2563 psig. In addition, the inspectors found that, during the Unit 3 Cycle 8 refueling outage, both pressurizer safety valves also exceeded the Technical Specification as-found setpoint of 2500 psia \pm 1 percent. The as-found setpoints for the two valves were 2514 and 2530 psig. The inspectors found that the licensee had issued licensee event reports for both units since the pressurizer safety valves had exceeded the Technical Specification setpoint tolerances.

The inspectors reviewed Licensee Event Reports 95-010, Revision 0, for Unit 2, and 96-002, Revision 0 for Unit 3. The licensee performed an analysis for both events with the as-found pressurizer safety valve setpoints and determined that the plant had remained bounded by the existing Updated Final Safety Analysis Report accident analysis.

The inspectors reviewed Procedure SO23-I-2.5, "Testing of Main Steam Safety Valves Surveillance," Revision 10, to determine if the procedure met the Technical Specification surveillance requirements for Units 2 and 3 main steam safety valves. The inspectors concluded that the Technical Specification surveillances were met by the procedure. In addition, the inspectors reviewed the test data for the as-found main steam safety valve setpoints. The inspectors found that with a few minor exceptions, the as-found setpoints were within the Technical Specification setpoint requirements.

c. Conclusions

The inspectors concluded that the surveillance procedures for the pressurizer safety valves and main steam safety valves met Technical Specification surveillance requirements. In addition, the licensee took appropriate actions when there were setpoint failures and met the applicable reportability requirements.

M7 Quality Assurance in Maintenance Activities

M7.1 Quality Assurance in Maintenance Activities

a. Inspection Scope (40500)

The inspectors reviewed Quality Assurance Audit SCES-501-95, "Environmental Qualification of Equipment," which was performed during the period of May 1 through December 13, 1995. The inspectors reviewed Quality Assurance Audit SCES-512-95, "Biannual Corrective Action Audit," which was performed from December 4-23, 1995. Quality Assurance Audit SCES-606-96, "Action Request/ Non Conformance Report," was also reviewed, which was performed between August 12 and October 11, 1996. The inspectors discussed the audit findings with licensee personnel to determine if the corrective actions and recommendations that resulted from the audits were adequate and completed in a timely manner.

b. Observations and Findings

The inspectors determined that Audit SCES-501-95 was thorough and very critical of maintenance department processes. The audit found that equipment qualification and documentation were not maintained during maintenance, and controls for replacement parts did not ensure that qualified parts were used for maintenance. As part of the corrective actions, the licensee stated that maintenance would include equipment qualification refresher training as part of one of the required continuous periodic training courses. The inspectors reviewed the licensee's corrective actions and found that the licensee's Maintenance Training Module MT-7095, "MNT-13 Bonus Program Equipment Control," Revision 5, to address the equipment qualification concerns. The licensee stated that the interval for requalification training was every 2 years. The employees requiring requalification training included all licensee maintenance craft.

Audit SCES-512-95 found that the corrective action process was being satisfactorily carried out. The audit team made two recommendations. The first recommendation was to trend the proactivity of an organization and the second was to increase distribution of focus reports. The inspectors determined that both recommendations had been cancelled because the event report program performed trending and provided quarterly reports. In addition, the inspectors determined that the focus reports had been superseded by the event report process and site quarterly reports.

Audit SCES-605-96 determined that the action request program was in compliance with the appropriate procedures and found that the program was a very good method for identifying problems. The audit team had a few recommendations, which the inspectors followed up on. The inspectors found that the licensee had adequately addressed the recommendations by means of three action requests.

c. Conclusions

The inspectors concluded that the audits reviewed were thorough and critical. In addition, the inspectors concluded that the licensee had appropriate responses to the discrepancies found during the audits and that the audits were effective.

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Engineering Support of Action Requests/Nonconforming Condition Reports

a. Inspection Scope (40500)

The inspectors selected a sample of action requests that were assigned to engineering for resolution. The action requests that the inspectors reviewed are listed in the attachment to this inspection report. The inspectors reviewed the action requests and discussed them with licensee engineers.

b. Observations and Findings

The inspectors found that the action requests assigned to engineering had resolutions with proper engineering justification and that the proposed corrective actions were adequate to preclude recurrence.

c. Conclusions

The inspectors concluded that the action requests had resolutions with proper engineering justification and the proposed corrective actions were adequate.

E2.2 Engineering Support of Component Repetitive Failures

a. Inspection Scope (40500)

The inspectors discussed repetitive equipment failure trending with the licensee's personnel to determine if the licensee had a system established which identified and corrected repetitive equipment failures. In addition, the inspectors reviewed the 1996 fourth calendar quarter maintenance rule status report that was issued by means of a January 30, 1997, memorandum. The inspectors selected and reviewed action requests that reported repeat failures to determine if the repeat failures were being identified and corrected.

b. Observations and Findings

The licensee stated that they used two methods for monitoring repetitive equipment failures. Every 6 months, the licensee downloaded their corrective maintenance order data base for the previous 18 months and compared their data base with the industry NPRDS data base. The licensee stated that the industry data base

contained approximately 90 percent of the licensee's safety-related equipment. The licensee's component failure rates were compared with industry failure rates. Component failure rates that exceeded one and one-half standard deviations of the industry average failure rate were considered outliers. When this failure rate was reached, the licensee performed an engineering evaluation.

The licensee informed the inspectors that the second method used for trending repetitive failures was trending in accordance with the maintenance rule. With this method, the licensee trended risk-significant component functional failures monthly using the previous 36 months of data from the corrective maintenance order data base. The licensee stated that the component functional failures included all failures, not just the maintenance preventable functional failures. The licensee stated, that when a second repeat failure occurred, a maintenance rule evaluation was performed and an action request was written. In addition, the licensee issued a quarterly report that identified components that had a high unavailability or repeat failures. The inspectors reviewed the licensee's January 30, 1997, 4th quarter of 1996 maintenance rule status report and chose six action requests generated due to failures. The inspectors found that the action requests had resolutions with proper engineering justification and that the proposed corrective actions were adequate to preclude recurrence. In addition, the inspectors concluded that this means of trending component repetitive failures was appropriate.

c. Conclusions

The inspectors concluded that the method of trending component failures using the industry NPRDS data base was not effective since only 18 months of data was reviewed at one time and component failures were compared with an industry average failure rate, which could miss generic problems. However, the inspectors concluded that trending component repetitive failures using the maintenance rule appeared to be appropriate since all functional failures were included. The upcoming maintenance rule inspection will review this subject further.

E7 Quality Assurance in Engineering Activities

E7.1 Quality Assurance Audits and Self Assessments

a. Inspection Scope (40500)

The inspectors selected and reviewed the licensee's corrective actions for eight of the observations from the licensee's self-assessment report number SEA 96-007, "Self Assessment of Engineering and Fire Protection," dated November 7, 1996. The inspectors reviewed the eight action requests to determine the licensee's effectiveness in resolving the self-assessment findings.

b. Observations and Findings

The inspectors reviewed eight action requests generated from the 1996 engineering self assessment and discussed some of them with the applicable engineering personnel to determine the adequacy of the action request response. The inspectors found that the licensee had adequately dispositioned the action requests and had resolved the issues in a timely manner.

c. Conclusions

The inspectors concluded that the licensee had adequately dispositioned the eight action requests selected from the 1996 engineering self assessment and resolved the issues in a timely manner.

E8 Miscellaneous Engineering Issues (92903)

E8.1 (Closed) Violation 50-361;-362/9526-02: Failure to Perform 10 CFR 50.59 Evaluation

Background

The licensee replaced the reactor gas vent system flow limiting orifice, described and depicted in the Updated Final Safety Analysis Report, with Orifice Gate Valve 3MU995 without performing a 10 CFR 50.59 safety evaluation and without changing the Updated Final Safety Analysis Report. NRC Inspection Report 50-361;-362/95-26 also identified a weakness in Procedure SO123-XXIV-10.21, "Field Change Notice and Field Interim Design Change Notice," Revision 5, regarding the lack of a written basis justifying whether a plant change required a 10 CFR 50.59 safety evaluation. The licensee responded to this violation by letter, dated February 20, 1996, which provided the results of the safety evaluation and a commitment to update Updated Final Safety Analysis Report, Figure 9.3-15 (reactor coolant gas vent system).

The violation was reviewed in NRC Inspection Report 50-361;-362/96-17 and left open because: (1) the Updated Final Safety Analysis Report update for the modification did not include an adequate description of the existence and function of Orifice Gate Valve 3MU995, and (2) the weakness identified in the 10 CFR 50.59 screening (no written justification of screening decisions) had not been corrected. The inspector found that the change made to Figure 9.3-15 of the Updated Final Safety Analysis Report was accurate, but not complete. A complete Updated Final Safety Analysis Report would have modified Section 9.3.7 to make it clear that the reactor coolant gas vent system orifice was replaced with a gate valve that could act as a restricting orifice when closed, or could be opened to expedite filling and venting operations. In addition, the previous inspector reviewed Procedure SO123-XXVI-10.21 and had concluded that no changes had been made to the applicable portions of the procedure at that time, and that documentation of the basis for determining if a plant change required a 10 CFR 50.59 safety evaluation was still absent from the procedure.

Followup

The inspectors reviewed Procedure SO123-XXVI-10.21, "Field Change Notice and Field Interim Design Change Notice," Revision 6, to determine if the weakness identified in NRC Inspection Reports 50-361;-362/95-26 and 50-361;-362/96-17 had been corrected by the licensee. The inspectors noted that the licensee had revised the procedure to add requirements to describe on the field change notice cover sheet why the function and/or design bases, as described in the Updated Final Safety Analysis Report, was not affected, and to list the Updated Final Safety Analysis Report sections reviewed for impact for field change notices that did not have a 10 CFR 50.59 safety evaluation. The inspectors noted that the licensee had made clarifications both in the body of the procedure and in the attachments, which contained the field change notice decision tree. The inspectors questioned the licensee about employee training on the revised procedure and the licensee stated that training had been provided in the first quarter of 1997. The inspectors reviewed the training records and found there had been 192 employees trained.

The inspectors reviewed the licensee's commitment tracking record for Commitment 9612009 to determine if the licensee planned to revise the Updated Final Safety Analysis Report to modify Section 9.3.7 to be more descriptive of the gate valve. The inspectors determined that the licensee planned to revise Section 9.3.7 and other applicable references of the Updated Final Safety Analysis Report to clarify that the reactor coolant gas vent system orifice was replaced with a gate valve that could act as a restricting orifice when closed, or could be opened to expedite filling and venting operations. The due date for this commitment was April 25, 1997. The inspectors discussed the commitment due date and the planned changes with the licensee and found that the licensee was already revising Section 9.3.7 of the Updated Final Safety Analysis Report and would submit to the NRC an Updated Final Safety Analysis Report change by April 25, 1997.

The violation was closed because (1) the Updated Final Safety Analysis Report update for the modification would include an adequate description of the existence and function of Orifice Gate Valve 3MU995, and (2) the weakness identified in the 10 CFR 50.59 initial screening had been corrected.

IV. Plant Support

F2 Status of Fire Protection Facilities and Equipment

F2.1 Maintenance Activities

a. Inspection Scope (64704)

The inspectors reviewed fire-risk maintenance evolutions that were being performed in the plant. Specifically, during a plant tour with the turbine building fire watch, the inspectors observed a maintenance activity being performed. The maintenance was a weld repair in a northwest stairwell.

b. Observation and Findings

The inspectors observed that a hot work permit had been issued and was posted for the weld repair work. The hot work permit specified appropriate precautions for the work. The inspectors observed a fire watch standing by the welding job. The inspectors noted that the stairwell area beneath the area where the welding was being performed was covered with a non-burnable mat. The turbine building fire watch checked the area thoroughly prior to moving to the next fire watch station.

c. Conclusion

The inspectors concluded that appropriate fire prevention and protection practices were being utilized by maintenance personnel while performing the observed welding activities.

F1.2 Surveillance Activities

a. Inspection Scope (64704)

The inspectors reviewed the completed records of surveillances to verify that fire detection and suppression systems were being maintained operable in accordance with the Technical Specifications. The inspectors reviewed the completed licensee surveillances and maintenance activities listed in the attachment to the inspection report.

b. Observations and Findings

The inspectors reviewed the completed records for the monthly fire pump operability verification as conducted by Surveillance Procedure SO23-3-3.36. The review determined that the licensee conducted the verifications on schedule, verified required prerequisites, and met the test acceptance criteria (i.e., operated for 15 minutes). The inspectors reviewed the completed records for the annual fire pump operability verification conducted by Surveillance Procedure SO23-3-3.36.1. The review determined that the licensee conducted the tests on schedule, verified the required prerequisites, and met the tests acceptance criteria. As an example, the inspectors determined that the annual surveillances for the Firewater Pumps MP-221 and P-222, both conducted in 1996, were conducted with satisfactory results. No deficiencies were identified.

The inspectors reviewed the completed records of the monthly valve position verification performed by Surveillance Procedure SO23-3-3.36 and the annual valve cycle performed by Surveillance Procedure SO23-3-3.36.1. Both the monthly and annual valve verifications were performed in a controlled manner, appropriate cautions stated as necessary, prerequisites verified, briefings conducted as

necessary, and acceptance criteria given. In addition, for the annual valve cycle surveillance, the procedure was performed with a performer and an independent verifier. The inspectors' review of the records for both the 1995 and 1996 determined that they were performed satisfactory, and deficiencies were identified with action requests.

The inspectors reviewed the completed records for the monthly portable fire extinguisher surveillances performed by Surveillance Procedure SO123-XIII-52. The review indicated that for every fire extinguisher deficiency discovered, a corrective action code was assigned. These corrective action codes detailed when the fire extinguisher would be replaced or serviced within 30 days or prior to the next inspection. In addition, the inspectors noted that an action request or a maintenance order was provided for each deficiency. As an example, the inspectors determined that the completed fire extinguisher surveillance data record for Unit 1, completed in February 1997, indicated that each deficiency had an action request or a maintenance order written to repair, or properly mount the cabinet.

The inspectors reviewed the completed records for the monthly fire equipment inspection conducted in accordance with Surveillance Procedure SO123-XIII-54. The review indicated that the fire hose station inspections, mobile fire apparatus equipment inspections, self-contained breathing apparatus inspections, and smoke removal equipment inspections were conducted in accordance with the prerequisites, and the acceptance criteria of each section. The inspectors noted that each attachment of this fire equipment inspection procedure, provided the inspection requirements, the acceptance criteria, and the directions for deviations from the inspection criteria. The inspectors noted that the attachments were completed satisfactory with very clear acceptance criteria. The inspectors did not identify any deficiencies.

The inspectors reviewed both completed records for the 18- and 36-month fire hose station inspections and functional tests conducted by Surveillance Procedures SO23-XIII-56 and SO23-XIII-44. This review indicated that the inspections and functional tests were conducted in accordance with their prerequisites, precautions, and acceptance criteria. For example, the inspectors determined that the inservice hose test, which was performed annually on hose used in the protected area, inspected the entire length of hose for defects and ensured that the correct hose length was installed. In addition, the inservice hose test pressurized the hose to 300 psi for at least 5 minutes. After the test, the hose is thoroughly cleaned, drained, and dried prior to returning the hose to its storage location. Based on the records reviewed by the inspectors for both the 18-month and the 36-month fire hose inspections, no deficiencies were identified.

The inspectors reviewed the completed records for the fire dampers inspections as conducted by Surveillance Procedure SO23-XV-57. The review indicated that the fire damper visual inspections, functional testing, and preventative maintenance activities were conducted in accordance with the procedures' prerequisites, precautions, and acceptance criteria. The inspectors noted that damper visual

inspections, functional tests, and preventative maintenances were conducted every 6 months, and that the surveillance coordinator maintained a master tracking system to document each fire damper visual inspection, functional test, and preventative maintenance. The inspectors verified that due to Licensee Event Report 95-11, continuing actions were being conducted to ensure that the dampers were being subjected to visual inspections at least once per 18 months. The inspectors' review of completed damper records indicated that deviations from the acceptance criteria required that the damper be determined to be inoperable, and that compensatory measures were established within one hour of failure of the acceptance criteria.

c. Conclusion

The inspectors' concluded that the licensee fire detection and suppression systems currently were tested in accordance with the Technical Specification operability requirements. The inspectors concluded that the fire surveillance activities were being conducted effectively.

F2.3 Erosion and Corrosion Program for Fire Suppression Equipment

a. Inspection Scope (64704)

The inspectors evaluated the licensee's erosion and corrosion program for fire system piping and components. In this evaluation, the inspectors reviewed completed procedures for the fire water system inspections and tests which ensured that the fire water system was capable of meeting its design function. The completed surveillance and test procedures reviewed are listed in the attachment to this inspection report.

b. Observations and Findings

The inspectors determined that the licensee performed an inspection/test according to a schedule for each component of the fire water system. During the review of the completed procedures, the inspectors noted that the fire water pumps were tested by the licensee for proper operability every month in accordance with Surveillance Procedure SO23-3-3.36. In addition, the licensee conducted an annual fire water pump flow discharge functional test. The licensee inspected the fire water tanks every 7 days for proper water level in accordance with Surveillance Procedure SO23-3-3.27.3. In addition, the licensee inspected the fire water tanks internally and externally every 5 years. The licensee indicated that the last fire water tank inspection conducted in 1996 and that there was very little corrosion of the tank walls and internals. The inspectors determined that the licensee verified the fire water valves position monthly, and cycled the valves on a annual basis. On a periodic basis, the licensee conducted either a flush or a flow verification on the fire water main, fire hydrants, and sprinkler systems.

During the review of the completed test records, the inspectors determined that the licensee conducted the tests in accordance with the procedures, and noted the results on the test records. For example, the 36-month fire water system flow test conducted by Surveillance Procedure SO23-XIII-40, conducted on October 29, 1996, indicated a satisfactory flow at a residual pressure of 132 psig. The inspectors reviewed the data, and the calculations and determined them to be correct. In addition, the inspectors reviewed the 18-month fire water system flow test for Unit 1 conducted by Surveillance Procedure SO1-XIII-40, conducted on November 6, 1996. The licensee determined that the tests results were satisfactory. Similar review of the data, and the calculations by the inspectors determined them to be correct. The inspectors determined that no deficiencies were identified in the two examined tests.

During discussions with the licensee fire protection engineering staff, the inspectors were informed that the licensee has performed a complete fire water main flush and flow verification, and has not experienced any degradation due to erosion or corrosion in the fire water main. The licensee indicated that the isolation valves before the deluge valves have been corroded due to material buildup after completion of the flush of the system. The licensee indicated that this problem is being addressed with the fire protection innovation team, which instituted major refurbishment activity on exterior deluge valves and associated equipment. During the inspection, the inspectors witnessed a deluge valve refurbishment which indicated no corrosion or erosion of the valve body internals. The licensee stated that only the isolation valve to the deluge valve experiences corrosion, notably due to buildup of material after completion of flushes, since it is the low point in the system.

c. Conclusion

The inspectors concluded that the licensee had implemented an adequate erosion/corrosion monitoring program for the fire water system. Specifically, the system was being inspected, maintained, and tested in accordance with a schedule as provided by the fire engineering department. In addition, completed flow verification tests indicated satisfactory flow requirements for the fire water suppression systems.

F3 Fire Protection Staff Training and Qualification

a. Inspection Scope (64704)

The inspectors reviewed the licensee's station fire protection organization to determine the readiness of the licensee's personnel to prevent and fight fires. The licensee's "Fire Hazard Analysis," Revision 10, dated June, 1994, described the program administrative requirements, and described the personnel responsibilities for implementation of the fire protection program. The inspectors reviewed the following aspects of the fire protection program:

- Fire department readiness
- Fire watches
- Assess the quality of the fire protection/prevention training

The inspectors reviewed selected fire protection procedures, records, and training lesson plans to determine the effectiveness of the licensee's personnel to prevent and fight fires. The following procedures reviewed are listed in the attachment to the inspection report.

The inspectors reviewed the fire department's composition, qualifications, and training to determine the fire department's effectiveness in preventing and fighting fires.

b. Observations and Findings

The inspectors determined that the San Onofre Nuclear Generating Station has its own complete fire station, manned with qualified firefighter personnel. However, the inspectors determined that Fire Procedure SO123-FP-1, still defined a trained fire brigade as one source of effective handling of fire emergencies. The licensee stated to the inspectors that the procedure is undergoing an extensive revision to delete the fire brigade wording. The inspectors reviewed the qualification records of some of the firefighters and determined them to be qualified in fire fighting, hazardous material, rescue operations, and emergency medical technician. The inspectors noted that prior to assignment as an emergency service officers, the licensee requested that each applicant have the following certification or experience, training, or education equivalent to firefighter professional qualification as follows:

- Graduate of an accredited fire academy
- 2 years paid professional full-time firefighter experience
- 4 years volunteer firefighter experience as paid-call or reserve
- Possess an A.A.S. degree in fire science
- Possess an EMT-1A certificate.

The inspectors reviewed Training Procedure SO123-XIII-20, which provided details of the licensee fire department officers training program. This procedure detailed the objectives of training the fire department personnel, and detailed that the program is divided into four phases. The inspectors attended one classroom training on fire department leader training and determined the training to be effective. This training discussed the objectives of effective command at emergency situations, described command responsibilities both at initial and continuing phases, and described the transfer of command. An examination was presented at the completion of the classroom training. The test was designed to test the fire fighter's knowledge and responsibilities during the emergency situation.

The inspectors reviewed the qualifications of fire watches, interviewed two fire watches and toured with a turbine building fire watch.

The inspectors noted that the fire watches were knowledgeable of their duties, and responsibilities. For example, the inspectors determined that all three fire watches knew what a Class C fire was (i.e., energized electrical fire) and what type of fire extinguisher would suppress it. The inspectors reviewed the training records of the three fire watches and determined the records to be complete and noted the training classes each fire watch had attended. The inspectors toured with the turbine building fire watch and determined that individual to be knowledgeable of his duties and responsibilities. In addition, the licensee fire watch was very observant of plant conditions, and knowledgeable of past fire watch history of each room.

c. Conclusion

The inspectors concluded that the licensee fire department had qualified personnel who fight fires, handle hazardous material, conduct rescue operations, and are qualified emergency medical technicians.

F7 Quality Assurance in Fire Protection Activities

F7.1 Fire Prevention/Protection Audits

a. Inspection Scope (64704)

The inspectors reviewed the licensee's adequacy and implementation of the Quality Assurance program for fire prevention/protection audits. The licensee conducted fire protection audits annually, biennially, and triennially, as proscribed in the NRC Generic Letter 82-21 and Topical Quality Assurance Manual, Table 1E-1. The inspectors reviewed three licensee audits listed in the attachment to this inspection report.

b. Observations and Findings

The inspectors reviewed the 1996 Annual Fire Protection Audit Report SCES-617-96, and determined that the licensee identified the following:

- There was strong ownership among the responsible individuals within the fire protection groups.
- The formation of a new group of dedicated fire protection and maintenance personnel had occurred to address emergent and long standing equipment issues.
- Administrative controls were in place to limit transient combustibles in the protected area.

The inspectors noted that the 1996 audit was conducted by experienced personnel from onsite, as well as, offsite personnel. The licensee identified three improvement items during the audit. Two of the improvement items were related to procedural adequacy. The first procedural adequacy improvement item was for not updating training procedures to mirror current practices, in that, nuclear plant equipment operators training was no longer as extensive as initially required. The second procedural improvement item was for inconsistencies between site emergency preparedness and maintenance hot work administrative procedures. The third improvement item was a programmatic procedure issue identified during an observed drill, in which, fire protection personnel were not consistent with the use of personal safety gear.

In addition, the licensee identified three recommendations to improve program performance, and were not considered as corrective action items. The first recommendation was to Site Emergency Preparedness to consider having Camp Pendelton and the San Onofre Nuclear Generating Station fire fighting teams use the same radio frequency during drills. The second recommendation was that the overly conservative administrative limits on combustible fire loading requirements, as compared to regulatory requirements, be reconsidered. The third recommendation was addressed to maintenance regarding the need to consider making a formal system of their post-maintenance preservation practices for fire system components. The inspectors determined that all improvement items and recommendations were entered into the action request process for tracking and status.

The inspectors reviewed the 1995 Quality Assurance Audit Report SCES-513-95. In this audit, the licensee identified that pre-outage staging was taking place and that the material laydown and transient combustible control fire protection process was being circumvented. The licensee issued Corrective Action Request 001-95 to initiate corrective actions. The licensee stated that immediate corrective actions were taken to resolve the combustible loading issue prior to start of the outage. In addition, site quality assurance observations during the outage confirmed that the issue had been stopped. Also, the licensee continued the corrective actions prior to the Unit 3 Cycle 8 refueling outage and quality assurance field observations confirmed that the issue had been adequately addressed. During the time period, the inspectors' review of the 1995 audit determined that the fire protection program was conducted satisfactory.

The inspectors reviewed the 1994 Quality Assurance Tri-Annual Fire Protection Program Report SCES-420-94, which determined that the overall implementation and effectiveness of the fire protection program at San Onofre Nuclear Generating Station was determined to be satisfactory. However, the audit did determine the following:

- Twenty-five Inter-Con firewatch personnel did not receive their procedurally required annual training. This licensee administrative requirement was evaluated and determined to be of little value based on the firewatch initial and continuous on the job training program. As a result, the licensee deleted the annual requirement in a procedural revision on May 20, 1994.
- Maintenance personnel were attempting to rebuild a fire pump with a procedure which inadequately defined all work required. As a result of the procedural difficulties, the licensee proposed clarifications for the next revision which would be amended prior to the next pump rebuild.
- Field observations performed by the audit team noted several minor deficiencies related to the fire hazards within the station yards. The licensee fire protection engineering group resolved the concerns using the site's weekly transient combustible control inspection program, corrective action process via action requests, or the housekeeping program E-mail notification process. However, the licensee determined that the administrative controls to limit transient combustibles and protect plant systems and personnel were judged satisfactorily implemented.

The inspectors determined that all the above concerns were resolved by Fire Protection Engineering. The inspectors noted that items requiring field correction were tracked on the licensee's weekly transient combustible control inspection program or were resolved by using the corrective action process via action requests. This audit was conducted using qualified fire protection engineers from Palo Verde Nuclear Generating Station, and San Onofre Nuclear Generating Station corporate insurance department. The inspectors determined that this audit was comprehensive. Specifically, the audit provided emphasis for changing training requirements for firewatch personnel, and of changing a fire pump maintenance procedure. In addition, the audit noted several minor fire hazard deficiencies within the station yards.

c. Conclusion

The inspectors concluded that the licensee quality assurance audits appeared to identify deficiencies, made recommendations, and suggestions for improvement to the fire program. The audits were comprehensive, well defined in scope and depth, and used performance-based observations of the fire protection program via qualified auditors. The inspectors concluded that the reviewed fire protection audits were meeting the audit requirements of Generic Letter 82-21 and Topical Quality Assurance Manual, Table 1E-1.

F7.2 Corrective Action Effectiveness in Fire Protection

a. Inspection Scope (64704)

The inspectors reviewed the licensee's controls in identifying, resolving, and preventing problems in the area of fire protection. The inspectors reviewed the fire protection program for strengths or weaknesses in the identification and resolution of issues in fire protection program. The inspectors reviewed Action Request 960901135, "Minimal Involvement by Operations in Fire Drills," to determine how the licensee resolved and prevented the problem from recurring:

b. Observations and Findings

During the review of Action Request AR 960901135, the inspectors noted that the minimal involvement of operations in fire drills was a long-time deficiency. The inspectors determined that the licensee Procedure SO123-XIII-21, "Fire Department/Emergency Services Officers Fire Drills," did not require operations to approve drill scenario plans, nor did the procedure have any minimum requirements for operation's participation/self assessment. The inspector witnessed an actual fire drill on September 19, 1996. In this drill, other inspectors in the control room observed that only the shift superintendent was informed of the drill, and that the other control room watchstanders were unaware of the drill.

As a result of corrective actions from Action Request 960901135, the licensee changed the Procedure SO123-XIII-21 with Revision 5 to add operations participation in the fire department drills and to add an operations' review section. The inspectors reviewed the revised procedure and determined that operations would be involved in the development of fire drill scenarios, and are included in the review of the drill scenario.

c. Conclusion

The inspectors determined that the corrective actions for Action Request 960901135 were comprehensive and extensive to ensure operations would participate in fire drills.

F8 Miscellaneous Fire Protection Issues

- F8.1 (Closed) Licensee Event Report 50-361/95-11 and 95-11, Revision 1: This licensee event report identified the failure to meet the requirements of Technical Specification visual and voluntary functional fire damper surveillance testing being conducted from May 9 through June 15, 1995. The licensee identified that out of 44 fire dampers drop tested, 26 failed the test. The applicable Technical Specification required restoration of an inoperable fire damper to an operable condition within 1 hour or establishment of a compensatory fire watch.

On June 5, 1995, the licensee concluded that the types of failures observed (i.e., dirt and corrosion, ineffective springs, and out-of-true blades), were due to long-term material degradation. The licensee expanded the initial test group and tested additional dampers. This expanded licensee test identified an additional 28 dampers as failures.

The licensee performed the following corrective actions:

- Compensatory fire watches for the affected areas were established. These actions were established on June 5, 1995, and continued until the fire dampers were repaired on May 13, 1996.
- Repair or replaced all 54 impaired fire dampers. These actions were completed on May 13, 1996.
- Service fire dampers that were not tested in the initial and expanded groups. These actions were completed on March 11, 1996.
- Service the fire dampers at appropriate intervals and increase damper drop test frequency. These actions are continuing.
- Dampers would be replaced with a material less susceptible to long-term material degradation. These actions are continuing.

As a result of the 54 test failures, the licensee initiated a review of past damper surveillances, maintenance orders, and nonconformance report data. Based on this review, the licensee confirmed that the majority of the pre-1995 failures were attributed to air flow during the test. As noted in the licensee investigation, the licensee determined that the failed dampers would have functioned properly had the appropriate ventilation fans been turned off.

The inspectors reviewed the licensee corrective actions which appeared to be satisfactory to prevent recurrence. The inspectors determined the failure to establish compensatory fire watches within one hour was a violation of Technical Specification 3.7.9. This failure was due to the lack of recognition of the long-term material degradation of the fire dampers. The licensee described three previous failures in 1994 which were contributed to corrosion and dirt buildup, and were determined to be isolated failures. For these events, after cleaning no further action was taken.

The inspectors determined that the licensee was currently performing the following actions in accordance with Surveillance Procedure SO23-XV-57, "Fire Damper Inspection, Testing, and Maintenance."

- A visual inspection of a cross section of fire dampers at least once per 18 months
- A functional test of a cross section of fire dampers at least once per 3 years

- A preventive maintenance of a cross section of fire dampers at least once per 3 years

The inspectors concluded that the failure to meet the requirements of Technical Specification 3.7.9 was a licensee-identified and corrected violation that will be treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-361;-362/9706-05).

F8.2 (Closed) Inspection Followup Item 50-361;-362/9613-01: The licensee self-assessment of the fire protection program missed several important inspection attributes of NRC Inspection Procedure 64704 that must be reviewed prior to closure of the module. The inspection attributes missed are the following:

- Classroom and practical fire training was not observed; however, the inspectors did observe the performance of a fire drill.
- Fire watch activities were not observed.
- Licensed operator understanding and training in the use of safe shutdown procedures and the pre-fire strategy manual was not reviewed.
- The adequacy of corrective actions related to fire protection program audits was not reviewed.
- Standpipe fire hose length was not assessed.
- The program used to detect corrosion, erosion, protective coating failure, silting and biofouling in fire system piping and components was not reviewed.

The inspectors conducted a modified inspection in accordance with NRC Inspection Procedure 64704 based upon the attributes missed. The inspectors noted that the licensee has its own dedicated fire department staffed with qualified fire fighters, and that the fire department readiness was good. The inspectors noted improved fire extinguisher maintenance activities, and that in general, the fire protection systems were being maintained. The inspectors noted that the damper program was outstanding in its maintenance, inspection, and testing of dampers. The inspectors determined that the fire water suppression systems were being maintained via inspections, flow verification tests, and periodic flushes. In general, the inspectors concluded that the San Onofre Nuclear Generating Station fire protection program was effective in its ability to prevent, detect, and respond to a fire emergency; therefore, this item is closed.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on April 4, 1997. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection were proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Axline, Licensing Engineer, Nuclear Regulatory Affairs
R. Clark, Quality Manager, Nuclear Oversight Division
T. Elkins, Construction Supervisor, Nuclear Construction
J. Fee, Manager, Maintenance
D. Frey, Technician, Technical
W. Frick, Manager, Nuclear Safety Concerns
G. Gibson, Manager, Compliance
D. Herbst, Manager, Quality Operations, and Support
K. Johnson, Electrical Supervisor, Nuclear Engineering Design
R. Krieger, Vice President Nuclear Generation
R. LaBeaf, Maintenance Engineer, Maintenance Support Services
C. McAndrews, Supervisor, Nuclear Oversight Division
R. McWey, Quality Manager, Nuclear Oversight Division
D. Nunn, Vice President Engineering and Technical Services
R. Osborne, Civil Supervisor, Nuclear Engineering Design
B. Pennington, Supervisor, Site Emergency Preparedness
G. Plumlee III, Compliance
R. Priormer, Vendor Information Program Compiler, Nuclear Construction
J. Rainsberry, Plant Licensing Manager, Nuclear Regulatory Affairs
P. Shaffer, Superintendent, Plant Maintenance
K. Slagle, Manager, Nuclear Oversight Division
Q. Tran, Snubber Engineer, Station Technical
C. Williams, Compliance Supervisor, Nuclear Regulatory Affairs

INSPECTION PROCEDURES USED

IP 40500: Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems.

IP 64704: Fire Protection Program

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-361;-362/9706-01	IFI	Action Request Procedure Weaknesses (Section O1.1.b)
50-361;-362/9706-02	IFI	Proactiveness of the Independent Safety Engineering Group (Section O7.2.b)
50-361;-362/9706-03	NCV	Nuclear Safety Group's Failure to Review Quality Assurance Audits (Section O7.4.b)
50-361;-362/9706-04	URI	Failure to Perform Technical Specification Surveillance Requirement 3/4/3.3.9 on Containment Purge Radiation Monitors and Failure to Report Failure within 30 days.
50-361;-362/9706-05	NCV	Failure to Post Fire Watches In Accordance With Technical Specification 3.7.9 (Section F8.1)

Closed

50-361;-362/9706-03	NCV	Nuclear Safety Group's Failure to Review Quality Assurance Audits (Section O7.4.b)
50-361;-362/9706-05	NCV	Failure to Post Fire Watches In Accordance With Technical Specification 3.7.9 (Section F8.1)
50-361;-362/9526-02	VIO	Failure to Perform 10 CFR 50.59 Evaluation (Section E8.1)
50-361/95-167	LER	LER 95-11, Inoperable Fire Dampers (Section F8.1)
50-361/95-258	LER	LER 95-11, Revision 1, Inoperable Fire Dampers (Section F8.1)
50-361;-362/9613-01	IFI	Completion of Fire Protection Program Inspection Not Covered by Self Assessment (Section F8.2)

DOCUMENTS REVIEWED

Quality Assurance Procedures

SO23-XII-2.24, "Independent Safety Engineering Group Functions," Revision 1

SO123-XX-6, "Operator Work Around Program," Revision 0

SO23-3-3.27.3, "Once a Week Surveillances," Revision 4

SO23-XV-3, "Technical Surveillance Program Implementation," Revision 7

SO123-XX-1, "Action Request/Maintenance Order Initiation and Processing," Revision 4

SO123-XXVI-10.21, "Field Change Notice and Field Interim Design Change Notice." Revision 6

WSC-SV-011, "Procedure for Lift Setpoints and Seat Leakage of PSVs," Revision 1

SO23-I-2.5, "Testing of Main Steam Safety Valve Surveillance"

SO23-V-3.13, "Containment Penetration Leak Rate Testing," Revision 9

SO23-XXV-4.5, "Containment Purge Radiation Monitoring System," Revision 0

SO123-XV-60.1, "OSRC - Onsite Review Committee," Revision 2

SO123-XII-2.21, "Nuclear Safety Group Functions and Responsibilities," Revision 1

Fire Protection Surveillance Procedures

SO23-3-3.36.1, "Fire Suppression System Annual Tests," Revision 7

SO23-3-3.36, "Fire Suppression System Monthly Tests," Revision 12

SO23-XIII-44, "36-Month Fire Hose Station Functional Test," Revision 3

SO123-XIII-52, "Monthly Portable Fire Extinguisher Surveillance," Revision 6

SO123-XIII-54, "Monthly Fire Equipment Inspection," Revision 5

SO23-XIII-56, "18-Month Fire Hose Station Inspection," Revision 2

SO23-XV-57, "Fire Damper Inspection, Testing and Maintenance," Revision 0

Erosion/Corrosion Surveillance Procedures

SO1-XIII-40, "Fire Suppression Water System Tests," Revision 3

SO1-XIII-70, "Fire Suppression System 18-month Flush," Revision 3

SO23-3-3.36.3, "Fire Suppression Water System Triennial Flush," Revision 4

SO23-3-3.27.3, "Once a Week Surveillances (Monitors)," Revision 4

SO23-I-2.79, "Unit 2 Outside Containment Deluge Water Spray/Sprinkler Airflow Test Surveillance," Revision 2

SO23-I-8.152, "Wet Pipe Sprinkler Systems Drain/Water Flow Tests with Strainer Flush," Revision 2

SO23-XIII-40, "36-Month Fire Water System Flow Tests," Revision 3

SO23-XIII-48, "18-Month Spray and/or Sprinkler System Inspection," Revision 2

Fire Protection Program Procedures

Fire Hazard Analysis, Revision 10

SO123-FP-1, "Fire Protection Program," Revision 3

SO123-XIII-7, "Fire Watch," Revision 2

SO123-XIII-20, "Fire Department/Emergency Services Officers Training Program,"
Revision 2

SO23-XV-3, "Technical Surveillance Program Implementation," Revision 7

Fire Protection Audits

Quality Assurance Annual Fire Protection Program Audit Report SCES-617-96, dated
July 2, 1996

Quality Assurance Annual Fire Protection Program Audit Report SCES-513-95, dated
December 8, 1995

Quality Assurance Tri-Annual Fire Protection Program Audit Report SCES-420-94, dated
June 30, 1994

Action Requests

961000057	960601337	961000972	970400205
961000060	960700160	970300204	970400228
960900515	970101805	970200104	970201509
961000062	961000946	970201050	970301091
960900875	960700066	961200617	961202068
960900505	960700982	960901135	961201378
961000192	960800177	960901309	970100170
961000188	961000318	970100523	970100335
960401257	970101498	961000251	970100914
960601178	970101539	970400113	

Maintenance Orders

97020399	Rebuild relief valve
97021178	Pup seal staging pressures do not conform
96090923	Request for valve repair
96060626	Request for valve repair
96091951	Primary to atmosphere leak unisolable
97011251	Pump flow indicates lower than expectations
96061181	Whining sound coming from pump area
96051015	Excess flow noise heard until discharge valve shut
96121843	Hydraulic snubbers cannot be installed in original location
96080138	Main steam safety valves found simmering

Assessments and Audits

SEA 96-007, "Self Assessment of Engineering and Fire Protection"

SCES 512-95, "Biannual Corrective Action Audit"

SCES 606-96, "Action Request/Non Conformance Report"

SCES 501-95, "Environmental Qualification of Equipment"

SCES-617-96, "Quality Assurance Annual Fire Protection Program Audit"

SCES-513-95, "Quality Assurance Annual Fire Protection Program Audit"

SCES-420-94, "Quality Assurance Annual Fire Protection Program Audit"

Operating Experience Program Effectiveness Review, dated December 29, 1995, and revised January 29, 1996.

Joint Utility Management Audit of the San Onofre Nuclear Generating Station Quality Assurance Program, dated March 10, 1997

Licensee Event Reports

95-010, Pressurizer Safety Valve Setpoints Out-of-Tolerance

95-011, Inoperable Fire Dampers

96-002, Pressurizer Safety Valve Setpoints Out-of-Tolerance