UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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November 1, 2006

Richard M. Rosenblum
Senior Vice President and
Chief Nuclear Officer
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
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SUBJECT: SAN ONOFRE, NUCLEAR GENERATING STATION UNITS 2 AND 3 - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000361/2006013 AND 05000362/2006013

Dear Mr. Rosenblum:

On September 21, 2006, the U S Nuclear Regulatory Commission (NRC) completed a team inspection at the San Onofre Nuclear Generating Station. The enclosed report documents the inspection findings, which were discussed on September 21, 2006, with Mr. B. Katz, Vice President, Nuclear Oversight and Regulatory Affairs, and other members of your staff during an exit meeting.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations and the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel.

The team reviewed approximately 260 action requests and work orders, associated root and apparent cause evaluations, and other supporting documents. The team reviewed cross-cutting aspects of NRC and licensee-identified findings and interviewed personnel regarding the condition of a safety conscious work environment at the San Onofre Nuclear Generating Station.

Overall performance had improved since the last problem identification and resolution inspection. The team identified notable improvement in the quality of cause evaluations and decision making documentation. The team found that established thresholds for identifying and classifying issues were appropriately low. The use of operating experience improved, but examples were identified where actions to address operating experience were ineffective or incomplete to have prevented similar problems. The team concluded that a safety-conscious work environment exists at your facility, although some workers expressed concerns that were associated with a decrease in confidence that the corrective action program will adequately address low-level problems.

On the basis of the sample selected for review, there were no findings of significance identified during this inspection. The team concluded that problems were properly identified, evaluated, and resolved within the problem identification and resolution programs.

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

Sincerely,

/RA/

Linda J. Smith, Chief
Engineering Branch 2
Division of Reactor Safety

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

Enclosure: Inspection Report 05000361 and 05000362/2006013
w/Attachment: Supplemental Information

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R:_REACTORS_SO\2006\SO2006013

RIV:DRS/EB2	DRP/SRI	EB2	EB1	C:EB2	C:PBD	C:EB2
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets No.:	50-361, 50-362
License No.:	NPF-10, NPF-15
Report No.:	05000361/2006013 and 05000362/2006013
Licensee:	Southern California Edison, Co.
Facility:	San Onofre Nuclear Generating Station, Units 2 and 3
Location:	San Clemente, CA
Dates:	August 21 - September 21, 2006
Inspectors:	Neil F. O'Keefe, Senior Reactor Inspector (Team Leader) Clyde C. Osterholtz, Senior Resident Inspector Greg A. Pick, Senior Reactor Inspector Ron A. Kopriva, Senior Reactor Inspector
Approved By:	Linda J. Smith, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

SUMMARY OF ISSUES

IR 05000361/2006013 and 05000362/200613; 08/21/2006 - 09/21/2006; San Onofre Nuclear Generating Station; annual baseline inspection of the identification and resolution of problems.

The inspection was conducted by three region based inspectors and one resident inspector. No findings were identified during this inspection. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Identification and Resolution of Problems

The inspectors reviewed 260 action requests, work orders, associated root and apparent cause evaluations, and other supporting documentation to assess problem identification and resolution activities. Overall, the team concluded that the licensee was effective in identifying, evaluating, and correcting problems. Corrective actions, when specified, were generally implemented in a timely manner. The licensee continued to be proactive in performing self-assessments which were probing and self-critical, and in addressing negative behavior trends at a low level. However, the team concluded that the licensee's efforts to address a longstanding trend in human performance errors has not been completely effective because workers were not consistently using the error prevention techniques. The team noted that the licensee used bench marking of industry best practices to make numerous improvements to the corrective action program since the last PI&R inspection. While some of the changes were too recent to evaluate, the team concluded that improvements in the quality of evaluations, documentation of the decision making process, and scope and timing of corrective actions showed improvement. The team identified that the quality and documentation for operability assessments and operational decision-making improved over the course of the evaluation period. The licensee expanded review of operating experience during cause evaluations, however several root cause evaluations identified instances where applicable operating experience had not been addressed sufficiently to prevent subsequent events. On the basis of 41 interviews conducted during this inspection, workers at the site felt free to input safety findings into the corrective action program, raise safety concerns to their supervision or bring concerns to the employee concerns program. The team concluded that a positive safety-conscious work environment exists at San Onofre Nuclear Generating Station.

NRC-Identified and Self-revealing Findings

None.

REPORT DETAILS

4 OTHER ACTIVITIES (OA)

4OA2 Identification and Resolution of Problems

The inspectors based the following conclusions, in part, on all issues that were identified in the assessment period, which ranged from August 1, 2004, (the last biennial problem identification and resolution inspection) to the end of the inspection on September 21, 2006. The issues are divided into two groups. The first group (current issues) included problems identified during the assessment period where at least one performance deficiency occurred during the assessment period. The second group (historical issues) included issues that were identified during the assessment period where all the performance deficiencies occurred prior to the assessment period. Because the majority of the examples listed in this report are current issues, only the historical issues will be labeled as such.

a. ASSESSMENT OF CORRECTIVE ACTION PROGRAM EFFECTIVENESS

(1) Inspection Scope

The team reviewed items selected across the seven cornerstones of safety to determine if problems were being properly identified, characterized, and entered into the corrective action program for evaluation and resolution. Specifically, the team selected and reviewed 260 action requests (ARs) from approximately 44,000 that had been issued between August 2004 and September 2006. The team also performed field walkdowns of selected systems and equipment, such as the component cooling water system. Additionally, the team reviewed a sample of self assessments, trending reports and (not needed) metrics, system health reports, and various other documents related to the corrective action program.

The team evaluated action requests, work orders, and operability evaluations to assess the licensee's threshold for identifying problems, entering them into the corrective action program, and the ability to evaluate the importance of adverse conditions. Also, the licensee's efforts in establishing the scope of problems were evaluated by reviewing selected control room logs, work requests, self-assessments results, audits, system health reports, action plans, and results from surveillance tests and preventive maintenance tasks. The team reviewed work requests and attended the licensee's daily Action Request Review Committee meeting to understand the interface between the screening and prioritization of problems, as well as the interfaces with the operability assessment and work control processes. The ARs and other documents listed in Attachment 2 were used to facilitate the review.

The team reviewed a sample of action requests and apparent cause analyses (ACEs), as well as all the root cause analyses (RCEs) performed during this period, to ascertain whether the licensee properly considered the full extent of causes and conditions, generic implications, common causes, and previous occurrences. The team also attended action request review committee, management review committee, and

plan-of-the-day meetings to assess the threshold of prioritization and significance determination process. The team assessed the timeliness and effectiveness of corrective actions, completed or planned, and looked for additional examples of similar problems.

The team also conducted walkdowns and interviewed plant personnel to identify other processes that may exist where problems may be identified and addressed. A review of the component cooling water system was performed for a 5-year period to determine whether problems were being effectively addressed.

(2) Assessments

(a) Assessment - Effectiveness of Problem Identification

The team concluded that problems were generally prioritized and evaluated in accordance with the licensee's corrective action program guidance and NRC requirements. The team found that, for the sample of root cause reports reviewed, the licensee was generally self critical and thorough in evaluating the causes of significant conditions adverse to quality. The licensee was identifying problems at a low threshold, and had added a category of action requests for "betterment issues." The intent was to have this category to encourage self-reporting of minor errors as well as to get suggestions for better ways to do things that were not currently problems. Also, the licensee had written approximately 44,000 action requests during the 2-year period of review. This demonstrated that the licensee was effectively identifying problems and entering them into the corrective action program.

Since the last biennial problem identification and resolution inspection, the licensee had implemented a significant number of improvements to the corrective action program. These were evaluated during this inspection, and are discussed in each section. In particular, the licensee made a number of organizational and procedural changes to shift the program away from a maintenance-centered program to make it more flexible in addressing the full spectrum of problems. The licensee stated that only about half of action requests relate to equipment problems.

(b) Assessment - Effectiveness of Prioritization and Evaluation of Issues

The team reviewed each of the RCEs performed during the inspection period, and a sample of the ACEs from the same period and concluded that the licensee had improved the effectiveness of their problem evaluations. This was also apparent in action requests with more routine problems, where the licensee had implemented a new process for performing Direct Cause Evaluations. The quality of the documentation and the management review had improved, resulting in more complete evaluations in terms of depth, extent of condition, and quality of the cause evaluation.

The licensee had implemented an improvement to assign a significance categorization to action requests. Previously only a work priority was assigned, which was a "speed to fix" measure. The new significance categorization was intended to convey the importance of an action request issue in terms of safety, business, and regulatory performance. A panel reviewed all open action requests and backfit a significance

category when this change was made. The most apparent use of the significance was to prioritize resources to working down the backlog of open action requests. Through interviews, the team determined that site personnel were not yet familiar with using the significance categorization, and AR issues were still discussed in terms of work priority. The team also identified one example where the significance assigned was lower than the program guidance specified.

- Action Request 060800900 documented a problem controlling pressurizer level on 8/21/06 in Unit 3. The problem required entry into Abnormal Operating Instruction SO23-13-27, “Pressurizer Pressure and Level Malfunction,” and the starting of a second charging pump. This action request was classified Significance Level 4, when the guidance specified assigning Level 3 due to entry into an abnormal operating instruction. This was corrected when the team raised the issue.

The team reviewed the new Operational Decision Making process. This process was implemented in Procedure SO123-XX-19, “Operational Decision Making Process,” Revision 0. It was intended to improve the quality and documentation associated with making decisions that have the potential to affect plant operations. Entry into this process triggered a detailed review of potential risks or reduction in safety margin. The team reviewed several examples where this process was used, and concluded that the process was effective. The scope of the problem was clearly documented, the significance and potential operational and safety impacts were evaluated by a multi-disciplined group, and recommendations for corrective actions, compensatory measures and prudent actions were recommended to a senior manager. The process was operationally focused and safety-oriented, so the end result was in a form that was useful to plant operators that were not present during the decision-making process.

The team also noted that the licensee had taken action to prevent new problems from bypassing the management review. The most common way this had occurred in the past was to include them in existing ARs that had already been reviewed. The licensee clarified the instructions and added software changes that automatically send an AR back for management review under circumstances which may fit this situation. While these actions were effective in most cases, the team identified one example where a new problem was added into previously existing ARs.

- A large air pocket was found in a radwaste section of a component cooling water header on 8/3/06. This was added into old AR 0603000413 as an "Other" assignment on 8/17/06, bypassing the ARC and management review (new AR 060801030 was written when the team identified this issue).

The team reviewed ARs that involved operability issues to assess the quality of the operability assessments and the level of documentation. In general, the quality of operability assessment documentation was improved. However, this was still somewhat inconsistent, as illustrated in the following examples.

- The licensee identified a lack of a clear definition of operations responsibilities for performance or review of operability assessments for plant equipment consistent with the guidance established in NRC’s Regulatory Issue

Summary 2005-20. (AR 060501066)

- Immediate operability determinations were not always being performed or documented in a timely manner by licensed personnel. The shift technical advisor operability review was not always documented in a timely manner, and in some cases the STA did not document the review. (ARs 060400750, 060400204, 060500131, 060401707, and 060401705).

- The corrective action program software (MOSAIC) was found to have automatically changed the operablilty status of equipment to “Declared Operable," even though the equipment was not declared operable by Operations. An Operability Declaration flag of “NO” was often linked to an action request assignment, which, when completed should restore operability. When those assignments were closed, the operability flag automatically changed to “Declared Operable.” The automatic change occurred even if the assignment was not worked and other actions were needed to restore operability. The actual operability status was tracked in the control room, and was not affected by this condition. (ARs 060400750, 060400097, 060401223, and 060401260)

- In the ACE evaluating component cooling water valve taper pin problems (AR 040801442), it was concluded that the issue had been from a maintenance isolation standpoint and had not considered the operability impact of the valve leaking.

- Action Request 060700159 documented check valve leakage associated with safety injection tanks. The operability assessment concluded that “leakage is slightly over two gallons per day, which is somewhat acceptable.” The team concluded that this assessment did not provide a basis or a limit for this conclusion.

The team assessed the adequacy of documentation within action requests to demonstrate that problems were properly evaluated and addressed. Improvement was apparent over the inspection period, although the team identified the following examples where documentation was not complete:

- Action Request 060500893 documented that a polishing stone was found inside Unit 2 main generator. A trend assignment was initiated, but nothing was written in it.

- Action Request 060101146 had a training assignment for transmission and distribution division personnel. The action was closed with a statement in notes section that it would be scheduled in March 2006, but there was no documentation to show it was actually performed.

- Root Cause Analyses 050200281 (U2 unit auxiliary transformer trip) specified a change was to be made to Procedure SO23-II-11.113 via AR 050200281-39. The documentation does not show that the change was made, although the action was closed.

- Action Request 050200315 documented that a foreign material exclusion log for Steam Generator 2-88 was lost. It does not document what happened to the log or what was done to assure that no foreign material remained inside the steam generator.

- Action Request 050401214 (on enhancements to operator rounds because operators were not identifying or following up on problems) was closed without documenting any action. Individual made five recommendations, but documentation does not show that any were addressed.

- Action Request 040501155 specified that a change was to be made for the procedure used for component cooling water system venting, but the documentation did not show that the change had been implemented. [Historical issue]

- Action Request 030801234 documented a high level of ferrous material in oil sample for component cooling water Pump 3MP026. The action request documented that the component was operable, but the results of the maintenance and evaluation were not documented. [Historical issue]

- Action Request 010801361 documented debris plugging of salt water cooling heat exchanger, but had incomplete information on the apparent cause and maintenance performed. [Historical issue]

In reviewing the effectiveness of the human performance improvement program (discussed in Section 4OA2.a(2)(c)), the team noted that the human performance improvement team relied upon trend coding in ARs to identify issues that involved human performance errors. The team identified examples where human performance errors were involved, but an appropriate trend code was not included:

- Action Request 060301125 documented inadvertent reactor coolant system draining when an operator opened the wrong valve. The team identified that communication problems among operations personnel, lack of supervision, and pre-job brief deficiencies were not documented or addressed, and no human performance trend coding was applied.

- Action Request 051201304 reported clogged auxiliary feedwater drains due to foreign material introduced during maintenance activities with the associated MO then closed. No human performance trend coding was applied.

- Action Request 060900605 reported that a crane was damaged. This was apparently due to human performance errors, but no human performance trend coding was applied.

The team noted that, despite improving the evaluations to consistently include extent of condition and extent of cause reviews, the quality of this type of evaluation was inconsistent. It appeared that the expectations were unclear on how to perform these evaluations. This was most evident in RCEs since it is a required area to address. In the case where loose electrical connections were identified in an emergency diesel

generator cooling fan (AR 050601315), a well-supported statistical sample of risk-informed equipment was examined to assess the extent of condition. However, in some cases (e.g. AR 041101239, AR 041200074, AR 050200761), the possible extent of condition was described as large, but a small portion was actually addressed without providing a supporting basis.

(c) Assessment - Effectiveness of Corrective Actions

The team reviewed plant records, primarily action requests, to verify that corrective actions related to the issues were identified and implemented, including corrective actions to address common cause or generic concerns. This included samples of specific technical issues to evaluate the adequacy of the licensee's operability determinations. The team reviewed the licensee's human performance improvement program to assess progress. Interviews were conducted with members of the human performance Improvement Team, and action requests were reviewed to determine whether human performance errors were being identified and addressed. Also, the team reviewed a sample of condition reports that addressed past NRC identified violations to assess whether the corrective actions adequately addressed the issues as described in the inspection reports. The team also reviewed a sample of corrective actions closed to the work management processes to ensure that corrective actions were still appropriate and timely.

The team concluded that corrective actions to address adverse conditions were generally effective. This was particularly true for the more significant problems, where management was involved in addressing the problems. However, more routine problems of a routine nature did not always get effective corrective actions.
The team identified a number of examples of ineffective corrective actions where the problem repeated:

- Action Request 060301623 reported clogged drains for a motor driven auxiliary feedwater pump in Unit 3. The drains were cleared, but the source of clogging and extent of condition were not assesses. The following month, AR 060400194 reported the same drains had clogged again. The team identified that the second action request got the same response, without any documentation to show the licensee recognized the problem as repetitive.

- The team identified that corrective actions for AR 050800099 (maintenance worker lifted incorrect leads and caused steam generator blowdown flow increase and core reactivity transient) did not prevent AR 051001450 (jumper placed on wrong switch tripped supply breaker to reserve auxiliary transformer) or AR 051200922 (wrong leads lifted rendering Emergency Diesel Generator 2G002 inoperable for 27 hours). Each of these events involved workers having to decide how to do work in the field because work instructions did not explicitly identify how the work was to be accomplished. These issues were previously dispositioned in NRC inspection reports.

- The team identified that corrective actions for AR 030301105 (contract worker operated red tagged component) were ineffective because they addressed only contract work groups. Subsequently, the problem recurred as documented in

AR 041000105 (contract pipe fitter removed a red tagged valve), AR 050201049 (training instructor repositioned a red tagged switch to take photograph), and AR 060400736 (maintenance worker operate a red tagged breaker for a crane). In each case, the corrective actions were narrowly directed at the work group that seemed to have the problem.

- The team identified that AR 051200064 (coordination problems caused an auxiliary feedwater outage to go longer than planned) was subsequently closed without additional action into AR 060100325 (written to look at betterment on improving work control). The team concluded that there were no corrective actions, because the new action request had only one field support assignment with nothing written on it nine months later.

- The team identified that corrective actions for AR 031001853 (flow gage not working properly because it was thought that the instrument line was not properly vented) were ineffective. The action request was closed without venting the line. The problem repeated the next time the flow gage was placed it in service, and was documented in AR 040501155. [Historical issue]

In the area of human performance, the team noted that errors contributed to a significant number of NRC inspection findings. This trend was also identified in self-assessments. The licensee's program to address this trend was created several years earlier, but the human performance trend continued to some degree, indicating that the corrective actions have not been fully effective. The team reviewed the corrective actions implemented under this program, and concluded that the tools provided to managers and workers to help identify error-likely situations, to get peer checks, to improve job planning, etc., were industry best practices. However, problems continued because these tools were not being used consistently. From discussions, it appears that the licensee intended to shift the focus from introducing new error prevention techniques toward enforcing standards and expectations.

b. **ASSESSMENT OF THE USE OF OPERATING EXPERIENCE (OE)**

(1) Inspection Scope

The team examined the licensee's program for reviewing industry operating experience. A number of operating experience notification documents (NRC Bulletins, Information Notices, Generic Letters, Part 21s, Licensee Event Reports, vendor notifications, etc.) that had been issued during the assessment period were selected to verify whether the licensee had appropriately evaluated the notification for relevance to the facility. The team also then examined whether the licensee had entered those items into their corrective action program. The team reviewed a sample of root cause evaluations and significant action requests to verify if the licensee had appropriately evaluated for industry operating experience.

(2) Assessment

Overall, the team determined that the licensee had appropriately evaluated industry operating experience for relevance to the facility, and had entered applicable items in

the corrective action program. The team concluded that the licensee had appropriately evaluated for industry operating experience when performing root cause and apparent cause evaluations. During this evaluation period, the licensee implemented numerous enhancements to the Operating Experience Program, including: line manager review for selected operating experience evaluation reports; periodic effectiveness reviews for Significant Operating Experience Reports; training on the use of operating experience and available search tools; and improved guidance for evaluating operating experience documents. The team noted that the licensee had also been effectively expanding the use of operating experience in routine activities. It appeared that both internal and external operating experience was being incorporated into lessons learned for training and pre-job briefs.

The team noted that root and apparent cause evaluations were now being required to evaluate whether internal or external operating experience was available associated with the event or failure being examined, and whether the evaluation and actions to address those items had been effective. Several recent root cause evaluations were effective in identifying relevant operating experience which had been ineffectively addressed. The team did not identify any additional examples.

In the area of problem trending, the equipment trending process was handled outside the corrective action program, but it was effective in identifying trends and repeat problems. The trending of human performance issues was done as part of the corrective action program. The team noted that it was a management decision whether to code an action request in a way that made it available for trending (i.e. assigning a "Trend" assignment). The team observed several action request review committee meetings and one management review committee meeting, where trend assignments were decided, and reviewed action requests involving human performance issues to assess whether there was a low threshold for making a trend assignment. The team concluded that there were missed opportunities for collecting data on human performance. The team noted that there was not clear guidance on what was to be trended, and the existing practice incorporated an inspppropriate high threshold which was not low. However, since the human performance improvement process relied on this data, any missed opportunities to record examples would have a negative impact on improvement in this important area.

c. **ASSESSMENT OF SELF-ASSESSMENTS AND AUDITS**

(1) Inspection Scope

The inspectors reviewed a number of licensee self and independent assessments and audits. The team reviewed Station Performance Reports, Corrective Action Monthly Status Reports, Quarterly Division Self Assessments to assess whether the licensee was regularly identifying performance trends and effectively addressing them. The team also reviewed directed self assessments and audit reports to assess the effectiveness of assessments in specific areas. The specific self-assessment documents reviewed are listed in the Attachment.

(2) Assessment

The team concluded that the licensee continued to have a strong self-assessment program. The number of self-assessments performed and the variety of ways used to assess site performance provided a broad perspective on site performance. The team concluded that the assessments were of good depth and effective in identifying problems and trends. The directed self assessments were particularly effective in using external subject matter experts, and assessing relevant operating experience and industry best practices. Directed self-assessments were thorough, probing, and self-critical. They routinely identified underlying organizational issues that contributed to problems that had manifested themselves as design errors or equipment problems. For example:

- In assessing the effectiveness of the corrective action program, the licensee performed an "Action Request Process Gap Analysis," (AR 050500741-02). This self-assessment included performance assessments from NRC reports, INPO reports, an internal directed self-assessment, and two audits. The team evaluated many of the significant improvements implemented as a result of recommendations from this self-assessment, and the conclusions are documented throughout this report.

- Audit SCES-003-06, “Corrective Action Program and Effectiveness,” identified a few issues where engineering evaluations were not conducted with sufficient depth or rigor to ensure all failure modes were identified and evaluated or that available information was used to ensure potential consequences and ramifications were understood.

- Audit SCES -007-05, “Design and Configuration Control,” identified some instances where the Design Engineering products had inaccurate or incomplete information. These included inadequate designs, drawing errors and omissions, and conflicts between design documents. In some examples, this has impacted field implementation or plant operation (letdown line crack that caused reactor coolant system leakage, non-conservative degraded grid voltage setpoints, reactor coolant system cold leg resistance temperature detector failures, iso-phase bus deionizer grid failure and butterfly valve taper pin issues).

d. **ASSESSMENT OF SAFETY CONSCIOUS WORK ENVIRONMENT**

(1) Inspection Scope

The team interviewed 41 individuals from different departments representing a cross section of functional organizations, as well as representing supervisory and non-supervisory personnel. These interviews assessed whether conditions existed that would challenge the establishment of a safety conscience work environment. The team reviewed the 2005 Nuclear Safety Culture Assessment results and discussed the associated action plan with the key owners. The team also reviewed the training and literature made available to all personnel on site regarding how to raise and handle nuclear safety concerns. Finally, the team interviewed the managers responsible for the Nuclear Safety Concerns Program.

(2) Assessment

The inspectors concluded that a safety conscious work environment exists at the San Onofre Nuclear Generating Station. Site workers expressed a willingness to raise nuclear safety concerns to their supervisors, the Nuclear safety Concerns Program personnel, and the NRC, and expressed confidence that nuclear safety issues would be appropriately addressed. Site workers were also willing to enter problems into the corrective action program. However, several people expressed a reduced confidence level that lower level problems were consistently being effectively addressed within the corrective action program. The team noted that examples given which were not effectively addressed were minor issues that did not have a clear statement as to why they were dispositioned as non-problems. The individuals stated that this reduced confidence would not inhibit them from raising future nuclear safety concerns.

The team noted that the 2005 Safety Culture Assessment, conducted by external consultants, was thorough. The action plan to address several specific areas were appropriately focused. The team noted that there was an extensive improvement effort underway to train managers at all levels on topics that included numerous elements of safety culture that would be of benefit in this area.

The team also interviewed one long-time employee who was unfamiliar with the Nuclear Safety Concerns Program or how to raise an issue in this program. In reviewing how site personnel receive periodic refresher information on this program, the team identified that refresher training was provided to personnel with red badges (people with regular plant access), but only annual pamphlets were provided to other site personnel. Based on the one example, the annual pamphlets may not have been an effective way to keep the non-red badged site workers familiar with how to use the program after their initial training.

4OA5 Other Activities

.1 (Closed) Unresolved Item 05000361; 05000362/2005005-03: Adequacy of the Component Cooling Water Surveillance Methods

The inspectors had initiated this unresolved item because of concerns related to the component cooling water heat exchanger capability and the test methods used to evaluate the heat exchanger capability. The inspectors determined the following in response to each of the concerns:

- The heat exchanger capability value (176 E6 BTU/hour) specified in the Updated Final Safety Analysis Report represented the maximum capacity of the component cooling water heat exchanger with a component cooling water discharge temperature of 105°F. This was determined to be greater than the design basis required heat removal capability, which was 151.4 E6 BTU/hour. The licensee initiated a revision to clarify these parameters. The vendor specified capability of 125 E6 BTU/hour on the heat exchanger data sheet represented the heat removal rate if the cooling water discharge temperature reached 95°F (i.e., smaller delta temperature).

- The licensee had incorporated into their design basis testing requirement to verify a specified minimum value for the overall heat transfer coefficient. The licensee demonstrated that the two heat exchanger test methods did demonstrate the capability to meet the worst case design basis conditions. The inspectors verified that: (1) between the two tests the licensee extrapolated the heat transfer test parameters to the design conditions, (2) back washing of the heat exchangers was appropriate, and (3) the guidance provided to operators ensured that macrofouling did not prevent capability of the heat exchangers from performing their design function.

The inspectors determined that the concerns were addressed, and the testing adequately verified that the design basis capability was met. This item is closed.

.2 (Closed) Unresolved Item 05000361; 05000362/2005005-04: Control Room Air Conditioning Surveillance

The inspectors initiated this unresolved item because of concerns regarding whether the control room air conditioning system surveillance demonstrated the capability to remove the design basis heat load. Specifically, the licensee: (1) did not secure nonsafety-related air conditioning units during the surveillance nor show through analysis that the safety-related unit had adequate capacity without the nonsafety-related units operating and (2) did not extrapolate the test results to design conditions (85°F outside air temperature and 67°F seawater). Prior to the end of the inspection, the licensee demonstrated that the existing surveillance met the applicable requirements. The safety-related air conditioning units had adequate excess capacity to account for the use of nonsafety-related air conditioning units and accounted for the differences between test and accident conditions. Therefore, the only remaining concern related to the adequacy of the surveillance to demonstrate equipment operability.

During this inspection, the inspectors verified that the licensee had developed an adequate surveillance test to demonstrate equipment operability. Specifically, the inspectors determined that: (1) the licensee had established a valve position for the control room air conditioner outlet valve that ensured sufficient chilled water flowed through the control room air cooler to remove the design basis heat load, (2) the calculations demonstrated that for a control room outlet air temperature of 54°F the design basis heat load could be removed, (3) the operators stroked the temperature control valve monthly, and (4) instrument and control personnel verified calibration of the temperature control valve every 24 months.

The inspectors determined that the concerns were addressed. This item is closed.

4OA6 Exit Meeting

On September 21, 2006, the inspection findings were discussed with Mr. B. Katz, Vice President, Nuclear Oversight and Regulatory Affairs, and other members of your staff, who acknowledged the findings. The team confirmed that proprietary information was handled in accordance with NRC policy and was returned to the licensee.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

D. Axline, Nuclear Regulatory Affairs
D. Breig, Station Manager
W. Frick, Manager, Nuclear Safety Concerns
D. Hansford, Manager, Operations
B. Katz, Vice President, Nuclear Oversight and Regulatory Affairs
L. Kelly, Nuclear Regulatory Affairs
M. Love, Manager, Maintenance
C. McAndrews, Manager, Nuclear Oversight and Assessment
M. McBrearty, Manager, Events Assessment
J. Osborne, Manager, Corrective Action Program
N. Quigley, Manager, Mechanical/Nuclear Maintenance Engineering
A. Scherer, Manager, Nuclear Regulatory Affairs
T. Vogt, Manager, Operations
D. Wilcockson, Manager, Plant Operations
C. Williams, Manager, Compliance
T. Yackle, Manager, Maintenance Engineering

NRC

None.

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened or Discussed

None.

Closed

05000361; 05000362/2005005-03	URI	Adequacy of the Component Cooling Water Surveillance Methods (Section 4OA5.1)
05000361; 05000362/2005005-04	URI	Control Room Air Conditioning Surveillance (Section 4OA5.2)

LIST OF DOCUMENTS REVIEWED

Procedures:

SO123-XV-5, Nonconforming Material, Parts, or Components, Revision 17
SO123-XV-50, Corrective Action Process, Revision 5
SO123-XX-1 ISS2, Action Request/Maintenance Order Initiation and Processing, Revision 16
SO123-XX-19, Operational Decision Making Process, Revision 0
SO23-II-11.113, Hathaway Digital Fault Recorder Testing and Maintenance, Revision 1-1
SO123-XXX-3.6,"Accessing Events and Conditions For Reporting to the NRC", Revision 0
SO123-CA-1, Corrective Action Program, Revision 3
SO123-XV-50.39, Cause Evaluation Standards, Methods, and Instructions, Revision 5
SO123-XV-50, Corrective Action Process, Revision 5
SO123-XXX-3.7, Preparing and Submitting a Request For an NRC Notice of Enforcement Discretion, Revision 0
SO123-XXX-3.4, Determination to Report Abnormal Occurrences and Events or Adverse-to-Quality Conditions and Follow-Up Licensee Event Report (LER), Revision 6
SO123-XV-3.3, NRC Reporting Requirements, Revision 12
SO123-XIV-5.5, Operating Experience Report: Sharing Industry Information, Revision 1
SO123-OR-1,Operational Experience Review Program, Revision 7
SO123-XV-52, Operability Assessments and Reportability Evaluations, Revision 6
SO123-XXX-3.2, Preparation of Responses to NRC Enforcement Action, Revision 5
SO123-XXX-3.5, Evaluation and Reporting of Problems to the NRC Pursuant to 10 CFR 21, Revision 1

Self-Assessments:

Corrective Action Monthly Status Reports: September 2005 through July 2006

Station Performance Reports: 1Q06, 2Q06

Directed Self Assessments:

040701239	Troubleshooting Plant Equipment and Systems
050101583	Assessment of Infrequently Performed Tests or Evolutions Controls Program
050500741	Effectiveness Assessment of Human Performance Improvement Plan
050600107	Assessment of Reactivity Management Program
050601378	Strengthening Engineering Methods Within the Design Process
050900010	Operational Focus Directed Assessment
051000852	Equipment Reliability Assessment

Quarterly Division Self Assessments:

Maintenance Division 4Q05
Operations Division 1Q06
Engineering Division 3Q05
Site Emergency Planning 4Q05
Security Division 4Q05
Health Physics Division 4Q05

Work Control 3Q05

Audits:

Corrective Action Program & Effectiveness,SCES-003-06,
Design and Configuration Control,SCES-007-05,

Action Requests:

020201440	060900581	050400312	060801052	050200097
030200027	060900605	050400700	050700487	051100589
030301105	060900673	050600923	050501600	050200315
040501825	060900771	050601521	060100318	031200992
041000105	060900777	051000224	060100672	060100222
041000320	010801361	051100271	060101146	060401223
041101239	030801234	060100124	050800086	040101536
041101246	031200967	060100125	051100050	060101070
041101247	040300903	060201021	051200142	060401260
041101274	040701021	060201555	051200543	040900220
041200074	040501155	060501579	051200094	060101369
050200269	040801442	060600526	051100423	060401649
050200272	040801664	030101666	050901251	040901452
050200275	040900059	031200697	050600574	060201392
050200281	040900533	041001203	050201759	060401705
050200297	041002041	050200097	060701164	041000320
050201049	041100092	060200163	060101240	060301103
050601315	041100467	060201528	050301980	060401707
050800099	041101079	031200823	060101141	041001213
050801627	050200233	040202547	060100007	060301594
050900010	050301068	040300099	060500564	060500131
051001450	050301800	040300824	060601085	041100092
051200922	050701607	040801664	060500459	060301852
060200413	050800086	040900059	060200207	060500681
060200902	051200087	040900074	060201750	041101239
060201082	060300413	040901557	051200090	060400097
060201415	060500578	041100294	060500893	060501066
060201423	041201554	041101160	060301935	041200177
060300350	050101113	050200792	060301623	060400194
060300731	050301752	051100079	060900645	060501155
060301594	050401222	060102023	060900234	041200363
060301702	050500705	060200158	060800551	060400204
060400234	050401214	060300045	060800529	060608655
060400639	060600109	060500169	060800217	060400280
060400736	020700922	060800973	060800048	060400236
060600655	031000197	060701280	060700079	050301896
060701170	040500661	060301125	051100650	060400239
060800900	040701478	060400194	050900189	050401277
060801030	040901675	060300413	060601101	060400256
060801035	041101448	051201304	050100783	050400354
060900580	050100457	051200064	050500445	060400261

050400751	050601315	050900849	051100747	040801442
060400262	060400265	060400639	051200151	041000288
050500027	050800238	050901009	040202333	041200017
060400263	060400298	060400750	050301752	
050500999	050900585	051000543	060600644	
060400264	060400447	060400860	040701194	

Root Cause Evaluations:

041101079	050200281	050601315	060301822
041101239	050200761	060201415	060400888
041200074	050301091	060301594	

Component Cooling Water 5 Year Review

010801361	040801442	041100467	050800086
030801234	040801664	041101079	051200087
031200967	040900059	050200233	060300413
040300903	040900533	050301068	060500578
040701021	041002041	050301800	
040501155	041100092	050701607	

Safety Conscious Work Environment Review:

SONGS Nuclear Safety Culture Assessment Analysis Action Plan, dated June 22, 2006

Synergy report: 2005 Nuclear Safety Culture Assessment Nuclear Safety Culture Summary, dated October 2005

Pamphlet: “Nuclear Safety and Priorities,” dated Summer 2004

Memorandum: “Principles of Our Nuclear Safety Culture and Our Priorities,” Dated October 12, 2004

Memorandum: “Resolving Nuclear Safety Concerns,” Dated December 3, 2005

Pamphlet: “The Nuclear Safety Concerns Program - Questions and Answers.”

Pamphlet: “A Supervisor’s Role in SONGS’ Safety Conscious Work Environment.”

Memorandum: “Responsibilities of Supervisors and Managers - Establishing and Maintaining a Safety Conscious Work Environment and Treatment of Individuals Who Raise Safety Concerns,” dated December 3, 2005

Memorandum: “Identification of Safety and Other Issues and the Action Request System,” dated July 1, 2005.

Memorandum: “Safety Conscious Work Environment, Resolution of Safety Concerns, and the Nuclear Safety Concerns Program,” dated December 3, 2005

Miscellaneous:

Unit 2 Post Trip Review 2/3/05

Unit 2 Post Trip Review 11/19/04

Plan of the Day Package dated August 22, 2006

Top 10 Systems and Equipment that Require Management Attention, dated April 2006

Feedwater Heater White Paper, dated March 31, 2006

Maintenance Orders: 04071873, 05121733

Selected component cooling water and feedwater system health reports from 2nd Quarter 2003 through 2nd Quarter 2006