U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos.	50-206/86-41, 50-361/86-30, 50-362/86-29
Docket Nos.	50-206, 50-361, and 50-362
License Nos.	DPR-13, NPF-10, and NPF-15
Licensee:	Southern California Edison Company P. O. Box 800, 2244 Walnut Grove Avenue Rosemead, California 91770
Facility Name:	San Onofre Nuclear Generating Station Units 1, 2, and 3
Inspection at:	San Clemente, California
Inspection conducted:	September 29 - October 3, 1986

Inspector: C. W. Caldwell
C. W. Caldwell, Project Inspector — Date Signed: 10/21/86

Approved By: P. H. Johnson
P. H. Johnson, Chief,
Reactor Projects Section 3 — Date Signed: 10/21/86

Inspection Summary:

Inspection on September 29 - November 3, 1986 (Report Nos. 50-206/86-41, 50-361/86-30, 50-362/86-29)

Areas Inspected: Routine project inspection in the areas of audit program implementation, nonlicensed staff training, licensed operator training, and licensee event report review. Inspection procedures 41701, 41400, 41701, and 90712 were covered.

Results: Of the areas inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

San Onofre Nuclear Generating Station (SONGS)

*K. Baskin, Vice President, Nuclear Engineering Safety and Licensing
*H. Ray, Vice President and Site Manager, Nuclear Generation Site
*M. Wharton, Deputy Station Manager
*R. Krieger, Operations Manager
*D. Shull, Maintenance Manager
*T. Mackey, Compliance Supervisor
*D. Schone, Manager, Site Quality Assurance
*D. Nunn, Manager of Nuclear Generation Services
*H. Morgan, Station Manager
*M. Wharton, Deputy Station Manager
*J. Curran, Nuclear Safety Manager
*A. Schramm, Supervisor Coordinator, Unit 1
*P. Knapp, Health Physics Manager
*J. Patterson, Maintenance Engineering and Services Manager
J. Harmon, Program Audit & Assessment QA Supervisor
R. Montroy, Operations QA Supervisor
W. Kirby, Ops/Maint. Inspection QC Supervisor
R. Neal, Technical Training Supervisor
L. Simmons, Operations Training Supervisor
W. Lazear, Maintenance/Outage Quality Assurance Supervisor
*G. Gibson, Compliance Group Lead
*R. Maisel, Compliance Engineer
*W. Zintl, Compliance Manager
*M. Metz, Compliance Engineer

*Denotes those attending the final exit meeting on October 3, 1986.

The inspector also contacted other licensee employees during the course of the inspection, including operations shift superintendents, control room operators, QA and QC engineers and inspectors, compliance engineers, maintenance craft and training instructors.

2. Audit Program Implementation

The inspector examined the licensee's activities in the implementation of the audit program. The purpose of this inspection was to ascertain whether the licensee is using qualified personnel to conduct routine audits and whether these audits are in conformance with regulatory requirements, licensee commitments, and industry guides and standards.

a. The inspector witnessed the performance of an audit performed by a QA auditor, required by section 4.5. of the Unit 2 station Technical Specifications (TS). The purpose of the audit was to compare the operations shiftly logs to verify that the safety injection tank was operable for the period audited. The controlling document for this

audit was Quality Assurance Procedure (QAP)-17.01, "Performance of Audits."

The inspector found that the audit was performed in accordance with the procedural requirements established in the QAP. In addition, discussions with the auditor indicated that he was knowledgeable of procedural requirements when dealing with discrepancies identified during the course of the audit.

b. The inspector reviewed the background and training of personnel who perform these audits including the auditor discussed previously. These requirements are established in ANSI N45.2.12 and ANSI N45.2.23 as implemented by QAP-N2.19, "Qualification of Quality Assurance Organization Auditors." The inspector found that all personnel qualification records reviewed were in accordance with the requirements established.

The inspector reviewed TS 6.5.3.2 for the requirement established with regards to the composition of the audit team. The TS require the nuclear safety group (NSG) to provide independent review and audit of designated activities.

The inspector determined through discussions with the appropriate QA and NSG personnel that the QA organization has been tasked with the performance of audits and that this has been identified in chapter 13.4-3 of the FSAR. The QA organization is required to perform the audit in the capacity of a "fact finder." The verification that the audit meets TS requirements and any corrective actions established, as a result of discrepancies identified, is performed by NSG. Thus, the NSG is responsible for the audit. As a result of these discussions, the inspector concluded that the qualifications of the auditors are acceptable within the ANSI standards established. However, the inspector noted that the NSG could be more involved with the audit package preparation rather than just reviewing a final product. As a result of these discussions, the licensee decided to review NSG involvement in the day-to-day mechanics of the audit program implementation.

c. The inspector reviewed the following completed audit packages: SCE Quality Assurance Audit Report SCES-024-86, which was performed to audit chapter 1-I of the QA Manual and 10 CFR50.49, and SCES-011-86 which was performed to audit paragraphs 6.1 and 6.2 of the TS.

The inspector found that these audit packages were completed in accordance with the controlling procedure and that they were reviewed and approved by the responsible personnel. The inspector noted that discrepancies identified in these reports received timely followup action by the auditors. The inspector also reviewed the audit schedule, sampled 10 audit reports, and verified that these audits were being performed within the required frequency required by the TS.

Within this area inspected, no violations or deviations were identified.

3. Non-Licensed Staff Training

The inspector reviewed the licensee's training program to evaluate the effectiveness for non-licensed staff personnel and technicians. The areas inspected included enhancements to training that occurred as a result of recent abnormal events and occurrences, general training of non-licensed personnel with regards to items such as health physics and security regulations, and status of Institute for Nuclear Power Operations (INPO) accreditation of the SONGS training program.

a. The inspector reviewed the plant operating history and selected three recent licensee events. The purpose of this review was to determine if the classroom training and on-the-job training (OJT) received by the operators before the event was sufficient to have prevented or mitigated it. In addition, the training program was reviewed to determine if enhancements were made as a result of the event.

The inspector selected the following licensee event reports (LER) and found the following actions to have been taken by the licensee:

- Unit 2, 85-17, "Delinquent Source Range Neutron Flux Monitors Surveillance" - The licensee indicated that the root cause of this LER was a TS mis-interpretation with regards to the Mode requirements for performing this surveillance. The corrective action taken included a review of this event with all station I&C supervisors to clarify the TS requirement.

- Unit 2, 85-48, "Delinquent Purge Sample" - The licensee indicated that, prior to this event, OJT had identified the purge sample requirements. However, the qualification manuals were vague on the TS requirements for effluent samples. Licensee representatives indicated that the cause of this event was the failure of a chemistry technician to follow supervision. For corrective action, the training program was enhanced to include the TS requirements for sampling. This was implemented in June, 1986 in lesson plan MT-7156.

- Unit 2, 85-58, "Unit 2 Trip on Low Steam Generator Level" - The licensee indicated that the cause of this event was personnel error by an I&C technician and a control room operator. For corrective action, the licensee discussed this event with all I&C technicians and control operators.

Prior training and OJT for these personnel appeared adequate. However, enhancements were required. The inspector reviewed the supporting documentation to verify that the corrective actions had been implemented for these LERs. These documents included training logs and lesson plans. All were found to be complete and appeared to be adequate to preclude the occurrence of similar events in the future.

b. The inspector questioned several new and several experienced employees in the maintenance and QA/QC organizations to determine if

their knowledge in administrative controls, HP, safety, security regulations, emergency plan, and quality assurance was sufficient for them to perform their assigned tasks. In addition, The inspector interviewed maintenance personnel to determine if they were trained for specific tasks assigned to them. Discussions with these personnel indicated that they were satisfied with the training that they had received in these areas. Personnel questioned were knowledgeable of their duties during implementation of the emergency plan and of basic health physics precautions. The inspector observed and interviewed motor operated valve testing and analysis (MOVATs) personnel. They appeared to be sufficiently trained to handle their specific tasks and to deal with abnormal conditions that may be expected during performance of their work activities.

c. The inspector reviewed the qualifications of selected QC and QA personnel to determine if they met regulatory commitments. The personnel qualification records reviewed were found satisfactory as described in paragraph 2.b.

d. The inspector reviewed the status of Edison's non-licensed staff training program with regards to Institute for Nuclear Power Operations (INPO) accreditation. The inspector learned that this program had recently been reviewed by INPO. The review was conducted for all three units on October 14-18, 1985, and the report was issued on December 4, 1985. In this report, several recommendations for enhancement were identified. As of this inspection period, INPO is still reviewing the licensee's program for final acceptance.

Within this area inspected, no violations or deviations were identified.

4. Licensed Operator Training

The inspector reviewed the licensee's licensed operator training program to evaluate its effectiveness. The areas inspected included enhancements to training that occurred as a result of recent abnormal events and occurrences, general training of operators with regards to items such as health physics and security regulations, and status of Institute for Nuclear Power Operations (INPO) accreditation of the SONGS training program.

a. The inspector reviewed the plant operating history and selected three recent licensee events, including the loss of shutdown cooling event. The purpose of this review was to determine if the classroom and on-the-job training (OJT) received by the operators before the event was sufficient to have prevented or mitigated it. In addition, the training program was reviewed to determine if enhancements were made as a result of the event.

The inspector selected the following LERs and found the following actions to have been taken by the licensee:

- Unit 3, 86-06, "Unit 3 Trip During Reactor Startup" - Prior to this event, the licensee did not perform a 1/M (Inverse

Countrate) plot of criticality during performance of a routine startup nor was it included in the training program. However, the licensee indicated that 1/M plots were in the process of being added to the initial and requal training programs prior to this event. For corrective actions, the licensee added this to their initial and requal training and 1/M plots are included on simulator startups. Procedure SO23-3-1.1, "Reactor Startup," has been revised to require a 1/M plot to be performed during routine startups. In addition, pre-shift briefings were held to discuss the event and priority 2 (by the end of shift cycle) required readings were issued to further emphasize the need for close attention to detail during the performance of startups.

- Unit 2, 85-45, "Missed CEA Position Verification" - Prior to this event, there was no specific training given on Technical Specification (TS) logging requirements for items such as this. As a result of this event, the Operations Department requested that simulator instructors update their lesson plans to include the operator's responsibilities to perform the required TS documentation to satisfy action statements. In addition, an entry was made in the shiftly surveillance log to require that the necessary verifications be performed, on a four-hour basis, when a control element assembly calculator is removed from service. As a final action, the licensee discussed TS action statement requirements during the shift briefings held subsequent to this event.

- Unit 2, 86-07, "Loss of Shutdown Cooling" - Prior to this event, the licensed operators were trained on the abnormal operating instruction (AOI) dealing with a loss of shutdown cooling. However, this training did not focus on all conditions that could lead to a loss of shutdown cooling. The root causes of this event were determined by the licensee and focused on three main areas: non safety related controls over the reactor coolant system (RCS) level detectors, lack of formal data on the potential for vortexing at lower RCS levels, and the lack of formal control over the routing and installation of tygon tubing used for level indication. The LER indicates the actions that were taken by the operators when the loss of shutdown cooling occurred. These actions appeared adequate. However, in retrospect, more could have been done in formalized training and procedural controls to have prevented this event.

  For corrective action with regard to training, the licensee implemented a major training upgrade to focus on the loss of shutdown cooling experience review. This training covered 17 elements which included the factors leading to the event, industry statistics for the potential of a loss of shutdown cooling, potential consequences of this event, procedures which address the operation of the shutdown cooling system, and indications available and actions necessary to mitigate the consequences of this type of event. Upon completion of

training on the loss of shutdown cooling event, the operators were required to take an exam covering the topics discussed. Other corrective actions taken by the licensee included pre-shift briefings and a priority 1 (prior to assuming the shift) required reading to reemphasize the operator's responsibility to act as the first line of defense against error.

The inspector reviewed the supporting documentation to verify that the corrective actions had been implemented for these LERs. These documents included training logs, required reading logs, experience review reports, lesson plans, and exam results. All were found to be complete and appeared to be adequate to preclude the occurrence of similar events in the future. In addition, the inspector interviewed several ROs and SROs, whose records were on file, and determined that they were trained on these events as the records indicated.

b. The inspector reviewed the records and determined the pass rate for initial and requal exams for each of the past three years. The following data were obtained:

INITIAL LICENSE TRAINING

UNIT 1

	REACTOR OPERATORS			SENIOR REACTOR OPERATORS		
	PASS	FAIL	%	PASS	FAIL	%
1982	6	0	100	4	1	80
1983	11	1	91	12	1	92
1984	1	0	100	5	0	100
1985	12	5	71	7	2	78
TOTAL	30	6	83	28	4	88

UNITS 2/3

	REACTOR OPERATORS			SENIOR REACTOR OPERATORS		
	PASS	FAIL	%	PASS	FAIL	%
1982	15	7	68	18	2	90
1983	12	12	50	13	0	100
1984	27	5	84	9	4	69
1985	8	6	57	10	2	83
1986	18	4	82	5	1	83
TOTAL	110	35	76	57	25	70

OPERATOR REQUALIFICATION

UNIT 1

YEAR	NUMBER GIVEN	NUMBER PASSED	NUMBER FAILED	PERCENT PASSED
1982	16	13	3	81.2%
1983	30	28	2	94.3%
1984	29	24	5	82.7%
1984 (NRC)	9	6	3	66.7%*
1984 - total	38	30	8	78.9%
1985	29	28	1	96.6%
1985 (NRC)	7	7	0	100%
1985 - total	36	35	1	97.2%
UNITS 2/3				
1983	34	34	0	100%
1984	35	23	12	65.7%
1984 (NRC)	25	19	6	76.0%#
1984 - total	44	27	17	61.4%
1985	92	89	3	96.7%

* In 1984 the NRC only gave two sections of a four section exam. One individual failed the NRC section. Two individuals failed the SCE sections. The NRC evaluation was therefore rated as satisfactory (>80% passed) even though three people failed that exam.

\# NRC numbers for Units 2/3 counted orals and writtens separately i.e. if a person took both a written and an oral exam it counted as two exams. Hence the numbers do not add up properly. The SCE numbers are for written exams only.

The inspector's review of this information gave no indication of adverse trends in the licensee's operator initial or requal training.

c. The inspector reviewed the status of Edison's licensed operator training program with regards to Institute for Nuclear Power Operations (INPO) accreditation. The inspector learned that this program had recently been reviewed and accepted by INPO. The review was conducted for all three units on October 14-18, 1985, and the report was issued on December 4, 1985. In this report, several recommendations for enhancement were identified. In a subsequent visit, November 18-19, 1985, the INPO team reviewed the status of the previous recommendations and found that they had been or were in the process of being implemented. This effort was documented in a supplement to the original report dated December 9, 1985. As a result of this INPO review, the licensee's training program for licensed operators was found acceptable for INPO accreditation.

Within this area inspected, no violations or deviations were identified.

5. Review of Licensee Event Reports

a. The inspector reviewed Unit 2 Licensee Event Report (LER) 86-07, "Loss of Shutdown Cooling." The specific areas reviewed were the enhancements made to the training program as a result of this event. The licensee's actions are discussed in paragraph 4.a and appear to be adequate. Therefore, this LER is closed.

Other contributing causes to the loss of shutdown cooling and corrective actions proposed were discussed in inspection report 50-361/86-11. The implementation of these other corrective actions will be reviewed as followup action to item 50-361/86-11-03 previously identified.

b. The following LERs were closed on the basis of in-office review:

- Unit 1, 86-05, "Containment Noble Gas Activity Monitor Inoperable During Mode Changes"
- Unit 2, 86-24, "Containment Purge Isolation Spurious Actuations"
- Unit 3, 86-08, "Containment Purge Isolation System Actuation"

Within this area inspected, no violations or deviations were identified.

6. Plant Organizational Structure

On March 17, 1986, the Region V office received a copy of an SCE Nuclear Safety Concern Request for Independent Review that was submitted anonymously. The concern request identified that section 6.2.2 of the Unit 2 and 3 TS requires the Instrumentation and Controls (I&C) supervisor to report functionally to the Technical Manager. However, the supervisor of I&C reports to the Units 2/3 Maintenance Manager under the current organizational scheme.

The inspector compared TS section 6.2.2 and the current organizational charts, and discussed this matter with the licensee. The inspector noted that proposed TS change NPF-10/15-83, submitted to NRC on March 7, 1984, included this organizational change. This change occurred as a result of the transition from the construction to the operational phase for Units 2 and 3. As a result of this concern request, the licensee issued Problem Review Report SO-110-86 on May 2, 1986, which addressed the individual's concerns and closed out this item.

The inspector concluded that the existing organization structure was consistent with the TS change submittal and that the licensee's actions appeared to be appropriate.

7. Licensee Action on IE Bulletins

(Closed) Bulletin 85-03, Motor Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings

The inspector reviewed the program established in response to IE Bulletin 85-03, "Motor-operated valve common mode failures during plant transients due to improper switch settings," which was generated as a result of the Davis Besse event. The areas inspected included the licensee's programs for (1) establishing the maximum differential pressure (dP) expected during operation of safety related valves during normal and abnormal events, (2) establishing the baseline data used in determining switch settings, (3) implementing the Motor Operated Valve Analysis and Testing (MOVATS) program, and (4) performing valve testing.

This review was performed as a part of a team inspection which was documented in inspection report 50-361/86-25; 50-362/86-26 for Units 2 and 3 respectively. The inspector considers that the licensee's actions, with regards to this bulletin, are applicable to Unit 1. Therefore, this item is also closed for Unit 1.

8. Exit Meeting

On October 3, 1986, an exit meeting was conducted with the licensee representatives identified in paragraph 1. The inspector summarized the inspection scope and findings as described in this report.