U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-206/86-43, 50-361/86-32, 50-362/86-31

Docket Nos. 50-206, 50-361, 50-362

License Nos. DPR-13, NPF-10, NPF-15

Licensee: Southern California Edison Company
P. O. Box 800, 2244 Walnut Grove Avenue
Rosemead, California 92770

Facility Name: San Onofre Units 1, 2 and 3

Inspection at: San Onofre, San Clemente, California

Inspection conducted: October 9, through November 14, 1986

Inspectors: for F. R. Huey, Senior Resident Inspector, Units 1, 2 and 3 — 12/4/86 Date Signed

for J. P. Stewart, Resident Inspector — 12/4/86 Date Signed

for J. E. Tatum, Resident Inspector — 12/4/86 Date Signed

for R. C. Tang, Resident Inspector — 12/4/86 Date Signed

Approved By: P. H. Johnson, Chief
Reactor Projects Section 3 — 12/4/86 Date Signed

Inspection Summary

Inspection on October 9, through November 14, 1986 (Report Nos. 50-206/86-43, 50-361/86-32, 50-362/86-31)

Areas Inspected: Routine resident inspection of Units 1, 2 and 3 Operations Program including the following areas: operational safety verification, evaluation of plant trips and events, monthly surveillance activities, monthly maintenance activities, refueling activities, independent inspection, licensee events report review, and follow-up of previously identified items. Inspection Procedures 30703, 60705, 61726, 62700, 62703, 71707, 71710, 72700, 86700, 92700, 92701, 92702 and 93702 were covered.

Results: No violations or deviations were identified.

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DETAILS

1. Persons Contacted

Southern California Edison Company

H. Ray, Vice President, Site Manager
*W. Moody, Deputy Site Manager
*G. Morgan, Station Manager
M. Wharton, Deputy Station Manager
D. Schone, Quality Assurance Manager
D. Stonecipher, Quality Control Manager
R. Krieger, Operations Manager
D. Shull, Maintenance Manager
J. Reilly, Technical Manager
*P. Knapp, Health Physics Manager
B. Zintl, Compliance Manager
D. Peacor, Emergency Preparedness Manager
P. Eller, Security Manager
*W. Marsh, Operations Superintendent, Units 2/3
J. Reeder, Operations Superintendent, Unit 1
V. Fisher, Assistant Operations Superintendent, Units 2/3
B. Joyce, Maintenance Manager, Units 2/3
H. Merten, Maintenance Manager, Unit 1
T. Mackey, Compliance Supervisor
C. Couser, Compliance Engineer

San Diego Gas & Electric Company

R. Erickson, San Diego Gas and Electric

*Denotes those attending the exit meeting on November 14, 1986.

The inspectors also contacted other licensee employees during the course of the inspection, including operations shift superintendents, control room supervisors, control room operators, QA and QC engineers, compliance engineers, maintenance craftsmen, and health physics engineers and technicians.

2. Operational Safety Verification

The inspectors performed several plant tours and verified the operability of selected emergency systems, reviewed the Tag Out log and verified proper return to service of affected components. Particular attention was given to housekeeping, examination for potential fire hazards, fluid leaks, excessive vibration, and verification that maintenance requests had been initiated for equipment in need of maintenance.

a. Improper Return to Service of Safety Related Equipment Following Maintenance

The inspector observed that the nuts were missing from the limit switch cover on auxiliary feedwater isolation valve 2HV4730, following maintenance activities associated with troubleshooting spurious tripping of the valve power supply breaker. The inspector raised the concern of poor maintenance practice and inadequate post maintenance inspection of safety related equipment with the Maintenance Manager and Quality Control Manager. The Maintenance Manager stated that he had also noted other examples of this type deficiency and was taking the following actions: (1) specific inspection for missing or loose fasteners was added to the maintenance supervision surveillance program, and (2) proper return-to-service maintenance practices were re emphasized with cognizant maintenance foremen and craft personnel. The inspector noted that the licensee had not established the specific personnel responsible for the missing nuts. The inspector noted that the licensee maintenance management system (SOMMS) clearly establishes who last performed maintenance on equipment which is subsequently discovered to have been returned to service in a deficient condition. The Maintenance Manager stated that he would specifically emphasize such deficiencies with involved individuals.

b. Unit 3 Plant Material Condition Deficiencies

Prior to Unit 3 return to service following the reactor coolant pump seal outage, the inspector made several tours of containment, paying particular attention to containment isolation valve positions, housekeeping and material condition of equipment located inside containment. The inspector noted several deficient conditions which had not been identified by the licensee for correction during the outage. Examples included:

3HV-7258	Loose access plug in valve body.
3HV-9203	Leaking flanged connection for pressurizer surge line sample line high point vent (near 3HV-9203)
3HV-9337	Boric acid leakage from bonnet area.
1201MR018	Downstream fitting leaks.
1204MU058	Leaking at hinge pin covers and possibly through the pressure seal gasket.
1204MU097	Upstream flexitalic gasket leak.
1513MR056	Pipe cap leak.
1901MU058	Boric acid leak from bonnet plug.
P-023	No oil in the "chicken feeder" for Reactor Coolant Drain Tank pump
E403 & 404	Leakage from CEDM cooling units.

The inspector discussed these deficiencies with the maintenance supervisor to ensure that they would not be overlooked. Since some system leakage is expected to occur during normal plant operation, these observations did not necessarily indicate that the plant material condition was unacceptable or that appropriate actions would not have been taken to resolve the deficient conditions. The inspector recognized that fluid system packing may develop leaks during cold plant conditions that stop after the plant is heated up. However, it was not apparent to the inspector that the licensee had implemented a workable program for ensuring that cold plant leaks are corrected or systematically identified for inspection subsequent to plant heat up. This item remains open pending additional review of the licensee's program (50-362/86-31-01).

c. Unit 3 Reactor Startup Following the RCP Seal Outage

The inspector observed the Unit 3 reactor startup on October 20, 1986, following the RCP seal outage. Procedure SO23-3-1.1, Reactor Startup, was adhered to and the startup was well controlled and supervised. The inverse count rate ratio (1/M) plot was conducted as required by the procedure, the operators were very attentive and the startup was not rushed.

No violations or deviations were identified.

3. Evaluation of Plant Trips and Events

Shutdown to Repair Turbine Plant Cooling Water (TPCW) System (Unit 1)

At 2101 on October 10, 1986, Unit 1 was taken off the line to repair the south TPCW system. The planned two day outage was extended to five days due to extensive damage to the TPCW inlet piping rubber liner. The Unit returned to service at 1923 on October 15, 1986.

Shutdown to Repair East Feedwater Pump/Safety Injection Pump (Unit 1)

At 0709 on October 16, 1986, the Unit entered Mode 3 to repair oil leaks on the discharge piping of the shaft driven oil pump. The Unit returned to service at 1435 on October 17, 1986, and returned to full power operation on October 22, 1986 after heat treating the main condenser circulating water system.

Reactor Trip on October 21, 1986 (Unit 3)

The reactor coolant pump seal replacement outage was completed on October 11, 1986, and the unit entered Mode 2 on October 20, 1986. Mode 1 entry was delayed pending repair of the letdown system back-pressure regulator transmitter (PT 201). Upon completion of repairs to PT 201, the unit entered Mode 1 at 1437. The reactor subsequently tripped at 1444 on October 21, 1986 due to high water level in steam generator E088. The water level control system had been placed in "automatic" and did not control well at the low power level. The operator was aware of the problem, but did not take manual control of the water level in time to

avoid the reactor trip. The unit was returned to service on October 22, 1986.

Unit Load Reduction to 83% on October 29, 1986 (Unit 3)

Prior to the reactor coolant pump (RCP) seal outage, the unit was operating at 83% power due to harmonic vibration in several of the steam generator code safeties. This was previously discussed in paragraph 5.h in Inspection Report 50-362/86-25. Although the code safeties were replaced during the RCP seal outage, the harmonic vibration was not eliminated. The licensee plans to implement a design change during the next refueling outage to eliminate the vibration. In addition, the licensee reduced power to 83% on October 29, 1986, to minimize the harmonic vibration.

Shutdown to Repair West Feedwater Pump/Safety Injection Pump (Unit 1)

At 1800 on November 14, 1986, the Unit entered Mode 3 to repair oil leakage from the inboard motor bearing. A similar occurrence of oil leakage occurred on October 1, 1986 and was documented in Inspection Report 86-37, paragraphs 3.e and 5.b. The unit remained out of service until 0659 on November 17, 1986.

4. Monthly Surveillance Activities

a. Unit 1

The inspector observed the following surveillance:

- Turbine Stop Valve test (Procedure SO1-12.3-15)

b. Unit 2

The inspector observed portions of the performance of the following surveillances:

- 31 day surveillance on containment airborne radiation monitor (containment purge isolation), CPIS Train A, 2 RT 7804 (Procedures SO123-II-15.3, SO23-XXV-4.6, TCN 0-11);
- Shiftly surveillance on radiation monitors (Procedure SO23-3-3.21, TCN 12-1);
- Post maintenance test on containment purge/vent stack gaseous (wide range) radiation monitor, 2 RT 7865 (Procedure SO23-II-9.368, TCN 4-1).

c. Unit 3

The inspector observed the following surveillance activities:

- Reactor Plant Protection System, Channel A, Channel Functional Test (Procedure SO23-II-1.1.1): Paragraphs 6.4, 6.5 and 6.6

were accomplished to restore the high power trip and pre trip following restoration of the steam generator code safeties.

- o Determination of Reactor Shutdown Margin (Procedure SO23-3-3.29)

No violations or deviations were noted.

5. Monthly Maintenance Activities

a. Feedwater Pump/Safety Injection Pump Lube Oil System Modifications (Unit 1)

In May 1986, the licensee rerouted the lube oil lines for both feedwater pumps (FWP), as a result of installation of an improved design oil pump. The east feedwater pump developed leakage on the suction piping to the oil pump on October 3 and October 8. The leakage was stopped by applying sealant to the threaded joints. During a planned shutdown on October 10, 1986, oil leakage increased to a point which prompted the east FWP to be secured. On October 15, 1986, the discharge piping of the oil pump also developed oil leakage due to cracks in the oil piping. Inspection of the pipe after the plant shutdown identified severance in the threaded section of the lube oil pipe. The licensee identified the cause of the failure as vibration induced fatigue.

As a result of these failures, the licensee modified the lube oil line piping to replace the rigid piping with flexible couplings on both the east and west pumps in order to eliminate possible vibration induced failure. The inspector reviewed the following documents concerning the modifications to the Unit 1 FWP lube oil system: Nonconformance Reports (NCRs) SO1-P-5989 and SO1-P-5990, Maintenance Order (MO) 86101539, Purchase Order 6W106004, and Failure Analysis (Interim) of East Feedwater Pump Lubrication Oil Line, dated October 15, 1986. No problems or deficiencies were noted.

On November 13, 1986, the west feedwater pump motor developed excessive oil leakage from the inboard motor bearing. A similar occurrence on October 1, 1986 was attributed to improper assembly of the inboard motor bearing labyrinth seal (Inspection Report 86-37, paragraph 5.b.). A preliminary licensee investigation following the November 13 event determined that an apparent contributor to both the October 1 and November 13 events was the absence of flow restricting orifices in the lube oil supply piping to the pump motor bearings. The licensee's investigation did not establish when or why the flow orifices were removed. However, based on further review of the motor bearing design and discussion with the motor vendor, the licensee concluded that the orifices should be installed. The licensee installed orifices in the bearing oil supply lines for both the east and west feedwater pumps and, following concurrence of the Onsite Review Committee (OSRC), returned the unit to power operation on November 16. The inspector reviewed the actions taken by the OSRC and noted the following:

(1) The licensee's oil monitoring program was effectively used to identify the pump motor bearing problem prior to damage of any plant components. The licensee investigation into the root cause of the bearing leakage problem was thorough and aggressive. However, based on review of the specific implementation of the bearing oil monitoring program for these pumps, the inspector noted several areas for further improvement. For example:

(a) The specific requirements for review and trending of oil monitoring data should be more formally established. Following the November 13 event, the licensee had difficulty locating previous oil monitoring data sheets or clearly establishing to what extent the data had been reviewed or evaluated by cognizant technical personnel.

(b) The format of the oil monitoring data forms may warrant revision with respect to their application to continuously operating pumps with forced lubrication systems such as the main feedwater pumps. For example, since the feedwater pump bearing lubrication system involves forced flow to several bearings, a problem involving inadequate flow to one bearing might be masked by flow to other bearings.

(c) Plant operators are not recording data on the oil monitoring forms in a consistent or proper manner. Numerous inconsistencies and deficiencies were noted and discussed with the station technical manager.

(2) Reinstallation of the bearing oil supply orifices resulted in a significant change in the dynamic flow mechanism of the pump motor bearings. Since the licensee had not clearly established why these orifices were previously removed, the inspector was concerned that the licensee had not implemented appropriate additional measures to ensure that the effected change did not result in unanticipated damage to the pump during subsequent operation. In this regard, the inspector noted the following:

(a) Plant operators had not specifically confirmed proper operation of the pump bearing temperature monitor and alarm.

(b) Plant operators could not effectively confirm proper oil flow to the motor bearings during their periodic plant tours, since the west pump flow meter does not have the ability to indicate flow at the reduced level associated with reinstallation of the flow orifices.

(c) Plant operators could not effectively confirm proper oil level in the inboard motor bearings due to inaccessibility of the oil sight glass.

This item remains open pending completion of licensee actions addressing the above concerns (50-206/86-43-01).

b. Boric Acid Makeup Pump, MP-175 (Unit 2)

This pump recently experienced problems with mechanical seal leaks, oil drain plug leaks and front oil seal leaks. During the current inspection period, the pump was overhauled, with a new mechanical seal being installed. The inspector observed part of the licensee effort to disassemble the pump and to inspect the impeller clearance during reassembly of the pump. The activities were observed to be conducted in accordance with MO 86092288000 and procedure SO23-I-8.52, and QC was present on both occasions.

c. Boronometer, 2 AE 0203 (Unit 2)

This boronometer failed high intermittently several times during the period October 23 - 28, 1986. The inspector observed part of the licensee effort in troubleshooting the cause of the failures (testing of the power supply and the discriminator, etc.). The technicians were observed to be following MO 86102288000 and procedure SO23-II-9.527, Rev. 5.

d. Reactor Coolant Pump (RCP) Seal Replacement (Unit 3)

The inspector observed the conduct of this evolution on several occasions during the outage. The Byron Jackson seals were removed and the Bingham-Willamette seals were installed as specified by DCP 3-6025.0SM. The evolution was well planned and controlled and the DCP was completed on schedule. Upon return to service, the inspector observed operation of the new seals and the differential pressures across the seals were in accordance with the design requirement. The controlled bleed-off temperatures, as was seen on the Unit 2 Bingham-Willamette seal installations, were running approximately 150 - 160 F instead of the design temperature of 140 F. This anomaly is currently being reviewed and evaluated by the licensee.

e. Charging Pump 3P-191 Relief Valve Maintenance (Unit 3)

The inspector observed the installation of charging pump 3P-191 relief valve. The activity was conducted in a contaminated area, which was posted to require that an additional pair of plastic booties be worn over the rubber shoes. The inspector observed that neither of the two maintenance technicians were wearing the plastic booties over the rubber shoes, and one of the individuals was not wearing a cloth hood as required by the REP. In addition, while performing the maintenance activity, one of the craftsmen was allowing his weight to rest on a section of installed 1/4 inch diameter tubing. The inspector discussed these observations with the maintenance supervisor to ensure that corrective actions would be taken.

f. Possibly Improper Use of Procedure for Radiation Monitor Calibration (Units 2/3)

The inspector observed restoration of the liquid radioactive waste effluent monitoring system (2/3 RT 7813) following the 18 month isotopic calibration of the detector. The inspector made the following observations:

(1) The isotopic calibration of the detector, required to be performed at least once every 18 months by Technical Specifications 4.3.3.8.1, had been completed during the previous shift in accordance with procedure SO23-XXV-9.343. However, the post calibration restoration (Section 6.5 of this procedure), as observed by the inspector, was performed by an I&C technician without the associated maintenance order and procedure at the job site. This appeared to be contrary to the requirements of station maintenance procedure SO123-I-1.7, Rev. 0, TCN 0-14 (Maintenance Order Preparation, Use, and Scheduling) and the Topical Quality Assurance Manual, Chapter 5-A (Rev. 5), Section 6.0. Also, step 6.5.1.1.9 of the calibration procedure requires that the "as left" valve positions be recorded on the valve position verification sheet, attachment 4 to the procedure. This was not done. Instead, the valve positions were recorded as the "as found" positions in attachment 4 of procedure SO23-II-4.16, Rev. 6, TCN 6-7. This was the procedure for the 92 day Channel Functional Test for the monitor which was to be performed next by the technician.

(2) Section 3.14 of procedure SO23-II-4.16, Rev. 6, TCN 6-7 (re verification of prerequisites) had been signed off by the technician prior to performing the prerequisite.

The inspector discussed the above concerns with the I&C and QA supervisors. This item remains unresolved pending completion of licensee response to the inspector concerns (50-361/86-32-01).

No violations or deviations were identified.

6. Engineered Safety Feature Walkdown (Unit 1)

The inspector performed walkdown of the Unit 1 containment cooling and containment spray systems outside of the containment building. The system valves were found to be in the proper alignment, as required by the current operating mode (Mode 1). Except for minor buildup of rust on several components, no deficiencies were noted. These observations were communicated to licensee management for corrective action.

No violations or deviations were identified.

7. Refueling Activities

a. Preparations for Unit 3 Refueling

The licensee has previously contracted with Westinghouse, Combustion Engineering or Babcox and Wilcox to perform refueling activities at San Onofre. Each recent refueling has been closely supervised by cognizant licensee personnel and, based on this experience, the licensee is currently making preparations to perform the January 1987 refueling of Unit 3 without the use of vendor contracted refueling personnel.

During this period, the inspectors attended refueling personnel training activities and reviewed refueling preparations with cognizant refueling group supervision.

The refueling training activities appeared to be well implemented and managed. The instructors were well prepared and provided information in a manner that held the interest of and encouraged the participation of the students. The content of the material covered appeared to be significant and fundamental to the efficient and safe performance of refueling activities. The licensee has developed an extensive and well organized training program and has implemented adequate controls to ensure proper training and qualification of all involved personnel. One area in which the inspector suggested additional emphasis involved more training interface between refueling supervision and Health Physics personnel in order to ensure maximum mutual benefit when reviewing appropriate lessons learned from previous refuelings or training on evolutions involving significant radiation levels.

During discussions with the licensee refueling group supervisor, the inspectors noted that the licensee has performed very well during the last four refuelings at San Onofre. In this regard, and considering the additional responsibilities that the licensee will be undertaking during the upcoming Unit 3 refueling, the inspectors reviewed several concerns which warrant continued emphasis and management attention.

(1) Refueling supervisors should be continuously alert to the tendency to allow repetitive type refueling operations to be treated in a "routine" manner.

(2) Licensee management should continue their program emphasizing verbatim procedure compliance for all refueling operations.

(3) The licensee should ensure a continued high standard of material condition for the refueling seal pressurization system.

(4) The licensee should consider implementing specific requirements which define minimum supervisory coverage of high risk refueling operations.

The refueling group supervisor stated that licensee management will continue to emphasize rigorous attention to detail and verbatim procedure compliance for all refueling activities. With regard to

the additional controls noted above, the licensee agreed to evaluate if additional requirements are warranted. This is an open item (50-362/86-31-02).

b. Review of Unit 2 Refueling Startup Test Data

The inspector reviewed the data packages for the core physics tests performed following the second Unit 2 refueling. The following tests were reviewed:

SO23-V-1.0	"Low Power Physics Test"
SO23-V-1.0.5, 1.0.6	"CEA Worth"
SO23-V-1.9	"Isothermal Temperature Coefficient"
SO23-V-1.11	"Power Coefficient"
SO23-V-1.18	"NSSS Calorimetric"
SO23-V-1.19	"Nuclear/Thermal Power Calibration"
SO23-V-1.21	"Core Performance Record"
SO23-V-1.25	"Process Variable Cross Comparison"
SO23-V-2.6	"Power Ascention Testing"

All test results met applicable acceptance criteria.

No violations or deviations were identified.

8. Independent Inspection

a. Saltwater Cooling Piping Rubber Liner Degradation (Unit 1)

During this report period, the saltwater inlet piping of the turbine plant cooling water (TPCW) heat exchanger and the saltwater outlet piping of the lower component cooling water (CCW) heat exchanger both experienced degradation of the rubber liners internal to the piping, reducing the saltwater flow through the heat exchangers.

The TPCW piping rubber liner was damaged over a 30 foot section. The piping liner was repaired during the planned October 10 through October 15 outage.

The CCW lower heat exchanger outlet piping internal liner was noted to be degraded and the heat exchanger was taken out of service on November 1, 1986 to prevent further degradation. The liner had been placed in service in May 1986, as part of the piping modifications to upgrade the saltwater piping to a 0.67g seismic rating.

The inspector questioned the licensee representatives whether the liner degradation problem was generic in nature. The licensee indicated that they were not and offered the following explanations: (1) the two liners were installed at different times, (2) the TPCW liner degradation was due to expected aging and (3) the failure of the CCW liner was induced by cavitation at the elbow in the heat exchanger outlet piping. The licensee plans to reduce the cavitation by throttling the flow out of the CCW heat exchanger and eliminating the slight vacuum which currently exists in the outlet piping. The top CCW heat exchanger outlet piping is T-shaped and no

degradation of the liner has been observed in this piping. The licensee will further evaluate a design change to eliminate the cavitation if throttling the outlet flow does not reduce it. The inspector will monitor the performance of the Unit 1 saltwater piping systems as part of the routine inspection program.

b. Containment Penetrations (Unit 2)

The inspector walked down some of the Unit 2 containment penetrations. All the valves inspected were found to be in the required position and were properly locked, capped, etc.

c. Operator Accessibility to Safety Equipment in Locked Rooms (Unit 2)

It was stated in Section 7 of Inspection Report 50-361/86-27 that a health physics lock had been noted on the door to Unit 2 Safety Equipment Building Room 005, which houses HPSI pump 2P-017 and LPSI pump 2P-015, and that this lock was later removed since "licensee procedures only required HP locks for areas with radiation levels of greater than 15 R/hr..." This level was misstated and should be 1 R/hr. During the current inspection period, the inspector looked into the circumstances under which the above lock had been installed/removed, and was informed by the Unit 2/3 health physics supervisor that hot spots in the piping elbows resulted in radiation levels as high as several hundred mr/hr at 18". Since the hot spots were located several feet overhead, close to the room entrance, dosimeters worn at the chest area would not accurately record the dosage received at the point closest to the source, i.e., top of the head. On this basis, the Unit 2/3 HP supervisor decided to have the room locked to prevent inadvertent entry by personnel. However, a high radiation area lock was used, requiring an operator to obtain the key from HP in order to gain entry to the room. Apparently, in early October, an Operations Shift Superintendent had complained to HP about this lock, stating that it impaired operator ability to gain access to the room. As a result, the lock was removed on or about October 6. The inspector noted the following concerns:

(1) The licensee does not appear to have implemented a clear policy for use of high radiation area locks, in that high radiation area locks are used for other purposes than securing areas which are required by technical specification to be locked (e.g., areas with accessible radiation levels in excess of 1R/hr). During discussion with the inspector, the licensee agreed to review current practice with regard to the use of technical specification required locks and the specific documentation needed to install and remove those locks.

(2) The licensee does not appear to have implemented a clear policy for use of locks involving health physics concerns other than those associated with technical specification high radiation areas. The licensee agreed to evaluate the use of non high radiation area locks, specifically with regard to operator accessibility.

This item remains open pending completion of licensee review (50-361/86-32-02).

No violations or deviations were identified.

9. Review of Licensee Event Reports

Through direct observations, discussions with licensee personnel, or review of the records, the following Licensee Event Reports (LERs) were closed:

Unit 1

86-002 Reactor Trip During Transfer of Vital Bus Power
86-013 Main Feedwater Pump Failure

Unit 2

86-007 Loss of Shutdown Cooling
86-016 Toxic Gas Isolation System (TGIS) Spurious Actuation
86-025 Toxic Gas Isolation System (TGIS) Actuation
86-027 Reactor Trip Caused by Failed CEA Position Indication

Unit 3

85-036 Shutdown Cooling System Valves Partially Open
86-013 Reactor Trip on Loss of Load

10. Follow-up of Previously Identified Items

a. Allegation (RV-86-A-001)

(1) Characterization

An allegation was received stating that some licensee I&C surveillance procedures are not sufficiently specific. For example, technicians performing these surveillances must determine what electronic loop is to be tested, what connections or disconnections are to be made, what test equipment is to be used and what acceptance criteria are to be applied. The alleger indicated specific concerns with Procedure SO/23-II-8.10.1, stating that a technician is normally faced with time constraints which may affect his/her ability to make correct decisions, whereas inclusion of the information in a procedure would require it to be reviewed and approved prior to its use.

(2) Implied Significance to Design, Construction or Operation

The purpose of periodic surveillances is to test and demonstrate the operability and functional ability of systems and components, as required by the Technical Specifications. If the allegation were true, improperly conducted I&C surveillances due to inadequate procedures may result in a defective system or component being improperly considered operable.

(3) Evaluation/Inspection Findings

(a) Procedure Review

The inspector reviewed the following I&C surveillance procedures:

- SO1-II-1.43, Rev. 1 (5/20/83) Foxboro Dual Scaler Model 2AP+DLS Calibration
- SO123-II-8.10.1, Rev. 1 (10/20/86) and Rev. 0, TCN 0-5 (12/4/85) Electronic Loop Verification
- SO23-II-9.56, Rev. 2 (1/19/83) Foxboro Absolute Pressure Transmitter Models E11 AM and E11 AH Calibration
- SO23-II-1.1.1, TCN 0-8 (6/23/86) and TCN 0-5 (10/16/86) Surveillance Requirement, Reactor Plant Protection System, Channel A, Channel Functional Test (31 day Interval)
- SO23-II-5.5, Rev. 8 (12/9/85) and TCN 8-7 (7/28/86) Surveillance Requirement, Nuclear Instrumentation Safety Channel A Drawer Test, Linear Power Subchannel Gains, Channel Functional Test and Channel Calibration (31 day Interval, S/V)
- SO23-II-1.10.1, TCN 1-5 (10/1/86) Surveillance Requirement, Containment Post LOCA Hydrogen Concentration Monitor - Train B, Channel Functional Test (31 day Interval)

These procedures were reviewed against the alleger's specific concerns (i.e., do they specify what loop to test, what Measuring and Test Equipment (M&TE) to use, and what acceptance criteria to apply?). All the reviewed procedures as listed above appeared to satisfy these criteria. The inspector noted that Procedure SO123-II-8.10.1 is a generic procedure providing instructions for functional verification of the instrument electronic loop, and is intended to be used in conjunction with other more specific procedures. One example reviewed by the inspector was Maintenance Order No. 86082920000, Calibration of 2PT8766, which required that the electronic loop verification be performed in accordance with

procedure SO123-II-8.10.1. However, procedure SO23-II-9.56 is also listed in this maintenance order as a component calibration procedure and is to be used if calibration is deemed warranted during the functional verification test. The Maintenance Order specified the equipment ID based on which the technician can locate the correct instrumentation calibration data (ICDC), and thus the type and manufacturer of the instrument, the appropriate measuring and test equipment (M&TE), the loop diagram number, the calibration procedure number, the instrument range and accuracy, etc.

(b) Personnel Interview

The inspector interviewed one Unit 3 I&C supervisor (working in I&C field since 1972; came to SONGS in 1/78) and three I&C technicians with varying background and experience levels (one with 13 years of I&C experience; one had been a nuclear instrumentation technician at SONGS since 12/84; one had become a journeyman in 1981). All felt that SCE I&C surveillance procedures are sufficiently specific and that it would not be practical to have current drawings attached to individual procedures which would be bulky and may often be subject to revision. All four indicated that the Maintenance Orders associated with the instrument under surveillance would specify the loop component surveillance procedures, etc.; that the acceptance criteria are defined in or incorporated throughout the procedures; that the appropriate M&TEs are specified in the procedures and the ICDCs. None recalled having a problem with procedure SO123-II-8.10.1, the procedure in question. The inspector also spoke with the Unit 2/3 I&C Supervisor regarding this procedure and was given similar information.

(4) Conclusion

Based on the procedure review and the personnel interviews conducted, the inspector concluded that this allegation as stated cannot be substantiated. This allegation is closed.

(5) Action Required

None.

b. (Closed) Follow Up Item 50-206/82-20-02, Moisture in Service Air System

Previously the inspector had observed excessive water being blown down from instrument air headers. The excessive water was possibly being introduced into the system from the service air system, which was utilizing temporary diesel driven air compressors. The inspector noted that excessive moisture has not been noted since removal of the temporary air compressors. This item is closed.

c. (Closed) Follow Up Item 50-206/82-26-04, Refueling Water Storage Tank (RWST) Design Change

The inspector had previously requested that the licensee provide drawings and description of proposed RWST replacement. The licensee subsequently decided not to replace the RWST. This item is closed.

d. (Closed) Follow Up Item 50-206/82-34-02, Inadequate Snubber Test Procedures

The inspector had previously noted that procedures SO1-I-2.17 and SO1-I-2.29 were found to be inadequate in that the acceptance criteria were inadequate and there were no procedures which existed to functionally test mechanical snubbers. The inspector reviewed the following procedures: SO1-I-2.17, Routine Inspection of Mechanical Snubbers and SO1-I-2.47, Snubbers - 18 Month Functional Test of Mechanical Snubbers. Based upon the review of the above procedures, the inspector determined that the procedures were adequate. This item is closed.

e. (Closed) Follow Up Item 50-206/82-34-04, Training Required For Maintenance Personnel On Snubber Inspection Procedures

The inspector identified that a machinist performing inspections of snubbers had not been trained on a newly revised procedure which was being used by the individual. The licensee has subsequently demonstrated adequate training of personnel performing mechanical snubber inspections. This item is closed.

f. (Closed) Follow Up Item 50-206/82-37-02, Reactive Load Acceptance Criteria Not Listed In Diesel Generator Test Procedure

The operating procedure SO1-12.3-10, "Diesel Generator Load Test," did not have acceptance criteria for reactive load. The licensee performed a load test on March 8, 1983 and determined that by placing a maximum allowable value between 245 and 250 amps dc for the field current, that an acceptable reactive load on the diesel generator is achieved. The licensee issued revision 2 to SO1-12.3-1.0 on June 6, 1983, adding a statement to increase the reactive load to a value at which the field current is between 245 and 250 amps dc. This item is closed.

g. (Closed) Follow Up Item 50-206/83-05-01, Maintenance Required Items Appear Excessive

The inspector had previously identified that the licensee's maintenance order tracking system appeared to be overloaded with a large backlog of equipment deficiencies. The inspector's review of current maintenance order tracking and prioritization indicates the licensee program to be effective. The inspector noted that the drip control program, area monitoring program and system of the week program indicate that the licensee is properly accomplishing

required maintenance and prioritizing equipment deficiencies. This item is closed.

h. (Closed) Unresolved Item 50-206/86-13-01, Evaluation of Five Radiographs By Licensee On Main Steam and Feedwater Piping Welds

The special non destructive examination (NDE) performed by the NRC noted five weld radiographs which required further evaluation. The licensee completed its evaluation, which was documented in licensee letters: (1) D. Henry to J. Mundis dated June 30, 1986, and (2) D. Henry to M. Short, dated April 11, 1986. These documents and evaluations were then reviewed by Livermore National Laboratory (LNL) personnel on July 25, 1986 and determined to be acceptable (LNL Report - October 1, 1986). This item is closed.

i. (Closed) Unresolved Item 50-206/86-13-02, Procedure Did Not Contain Reference To Applicable Year and Addendum of Code Used

Bechtel Power Corporation procedure RT-XG-2 did not contain any reference of year and addendum of the code used as a basis for acceptance criteria. Bechtel Construction, Inc. provided the required information in letter number NBE-86, T. Valenzano to W. Schwab (licensee) dated May 13, 1986. This document was then reviewed by LNL personnel on July 25, 1986 and determined to be acceptable (LNL Report October 1, 1986). This item is resolved and closed.

j. (Open) Follow Up Item 50-206/86-22-01, Discrepancies Identified for Modifications Performed on Eight Pipe Supports

Eight pipe supports were identified as having deficiencies by LNL personnel. Follow-up inspections by LNL personnel resolved the discrepancies for seven of the pipe supports. The discrepancy for pipe support S1-02-6004-H005 requires additional information to be provided by the licensee. The licensee is required to provide acceptance criteria for inspection of allowable gap between the spherical bearing and the clamp ear on a pipe clamp for the snubber.

k. (Closed) Follow Up Item 50-206/86-22-02, Licensee Acceptance of Radiographic Film That Did Not Meet ASME Requirements

The specific ASME requirements were not required and additional review by LNL contracted personnel determined that this item requires no additional action. This item is closed.

l. (Closed) Violation 50-206/86-07-02, Failure To Take Effective Corrective Action for Noise in "B" Feedwater Line

The inspectors previously reviewed the licensee's corrective actions to respond to operating occurrences on Unit 1 and based on this review, documented in inspection reports 50-206/86-16 (paragraph 5) and 50-206/86-22 (paragraph 7), licensee corrective actions appear to be adequate. This item is closed.

m. (Closed) Follow Up Item 50-206/86-07-03, Inappropriate Procedures for Paralleling Transformers

The licensee has completed the corrective actions associated with the inadequate troubleshooting of 4KV grounds procedures, which contributed to the initiation of the November 21, 1985 water hammer event. The licensee issued a new abnormal operating procedure to troubleshoot 4KV grounds, SO1-2.6-6. Based upon the above procedure addition, and other procedural changes to SO1-10-1, SO1-1.0-60, and SO1-1.0-61, the licensee's corrective actions appear to be adequate. This item is closed.

n. (Closed) Follow Up Item (50-362/82-06-02) Water in Mass Flow Meter During CILRT

Documentation concerning this item was reviewed by the inspector to ensure appropriate actions were taken by the licensee. When the water was detected, the in-line filter was removed and the system was blown dry with nitrogen. Both flow meters were compared to the standard and they correlated. The technical manual for the flow meter was sent to the inspector as requested. The inspector had no additional comments. This item is closed.

o. (Closed) Follow Up Item (50-362/82-06-03) Potential Computer Program Problem for CILRT

The inspector reviewed licensee documentation concerning follow-up on this item to ensure that the BN-TOP-1 method was used for the CILRT computer program calculations. The inspector also verified that the computer program was sent to the regional office for review as requested. The inspector had no additional comments. This item is closed.

p. (Closed) Follow Up Item (50-362/85-36-01) Limitorque Valve Operators - Torque Switch Settings

The licensee issued an FCN to rewire the limitorque valve actuators such that the torque bypass switch and the remote position indication are not activated by the same rotor. The licensee is currently in the process of implementing the FCN on Unit 3. This item is closed.

q. (Closed) Violation (50-362/86-11-02) Failure to Follow Procedures - Early Criticality - Reactor Trip

The inspector reviewed licensee documentation and verified that actions had been taken as stated in the licensee response to the

notice of violation. The licensee had completed the following actions:

- o This event was reviewed with operations personnel and a special order was issued for required reading which emphasized the duties and responsibilities of qualified operators and trainees.
- o The Nuclear Design Data Book and Operations Physics Summary now require independent review and approval.
- o Operating Instruction SO23-3-1.1, "Reactor Startup," was enhanced to require that the regulating group rods be dressed as each group is pulled to the upper group stop. In addition, an inverse count rate ratio (1/M Plot) is required to be performed during each reactor startup.
- o The strip chart recorders for startup flux level and log power were modified to allow fast and slow speed operation.
- o The operator training program was enhanced to include "Startup Certification Examinations."

The inspectors have observed several subsequent reactor startups and found that they were well controlled and received adequate supervision and emphasis. The inspectors offered some comments regarding use of the 1/M Plot, and the licensee included these comments in the reactor startup procedure. This item is closed.

r. (Closed) Follow Up Item (50-362/86-11-01) Shift Supervision and Operator Attentiveness During Plant Operation and Training Evolutions

This item is closed based on follow-up of enforcement item 50-362/86-11-02.

s. (Closed) Open Item (50-362/86-11-04) Review Licensee Actions to Improve Post Trip Review Process

The licensee issued TCN 0-2 to procedure SO123-0-25, "Trip/Transient Review," dated June 2, 1986. This change enhanced the procedure as follows:

- o Pre-shift briefing was specified to ensure that oncoming shifts are fully informed of the event.
- o The CPC trip buffer was addressed to ensure that pertinent information is collected and the trip buffer is cleared and available for subsequent plant operation.
- o Abnormal occurrences and conditions, not necessarily related to the event, were included as part of the post trip review process.

This item is closed.

t. (Open) IE Notice (86-03) Potential Deficiencies in Environmental Qualification of Limitorque Motor Valve Operator Wiring (Units 2 and 3)

This issue was previously discussed in paragraph 9 of Inspection Reports 50-361/86-19 and 50-362/86-19. During this report period, the internal jumpers associated with valves 3HV-9101, 3HV-9216 and 3HV-9217 were examined during the Unit 3 reactor coolant pump seal outage. One jumper in valve 3HV-9101 looked questionable in that the terminal lugs were not insulated. Approximately 32 of the 79 EQ valves on Unit 3 have been inspected by the licensee, and the jumpers were routinely replaced with Rockbestos Firewall III switchboard wire, which is labelled. The inspector examined the jumpers that the licensee removed from Unit 3 MOVs to determine if the jumper qualification appeared to be consistent with the licensee assessment previously discussed in Inspection Report 50-361/86-19. In many instances, the wire did not appear to be qualified as previously assumed. Jumpers were found that were CSA Type TEW wire or CSA Type MTW wire, and some were not labelled. On this basis, the inspector requested that the licensee specifically document the type of wire found in each MOV and provide justification for continued operation. This item remains open pending completion of licensee action.

u. (Closed) IE Notice (86-47) LaSalle ATWS Identified Defective DP Switches by SOR (Units 1, 2 and 3)

The licensee has received the information notice, and preliminary action has been taken by ISEG to evaluate the use of SOR switches at SONGS. Two SOR switches were procured on purchase order #8CON5028, and currently have not been used. ISEG has identified that the diesel generator lube oil system on Units 2 and 3 make use of SOR switches, and there have not been any other safety related usage of these switches identified. IE Bulletin 86-02 has subsequently been issued to specifically address SOR switches, and additional follow-up action will be documented under the IE Bulletin. This IE Notice is closed.

11. Unresolved Item

An unresolved item is an item about which the NRC needs additional information to determine if the item is a violation, a deviation, or an acceptable condition. An unresolved item is discussed in paragraph 5.f.

12. Exit Meeting

On November 14, 1986 an exit meeting was conducted with the licensee representatives identified in Paragraph 1. The inspectors summarized the inspection scope and findings as described in this report.