U. S. NUCLEAR REGULATORY COMMISSION OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No.	50-206/80-04		,
Docket No.	50-206	License No. DPR-13	Safeguards Group
Licensee: _	Southern California		
	2244 Walnut Grove Avenue		
· ,	Rosemead, Californi	ia 91770	: •
Facility Name: San Onofre Unit 1			
Inspection at: San Onofre			
Inspection conducted: January 28 - February 29, 1980			
Inspectors: B. Haulenhem 4/11/80			
Fic L. Miller, Resident Inspector			Date Signed
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FIL R. Pate, Resident Inspector			Date Signed
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Approved By: B7/ auchunden 4/1/80			
Fue	B. H. Faulkenberry,	Chief, Reactor Projects Secti	on 2, Date Signed
Summary:	Reactor Operation	s and Nuclear Support Branch	
Inspection on January 28-February 29, 1980 (Report No. 50-206/80-04)			
Areas Inspected: Routine, resident inspection of plant operations, surveillance,			

maintenance, receipt of new fuel, charging pump mini-flow line repair, design changes and modifications, licensee event reports, and onsite review committee activities. The inspection involved 121 inspector-hours by two NRC inspectors.

<u>Results</u>: Of the eight areas inspected, no items of noncompliance were identified in five areas; one apparent item of noncompliance was identified in the design changes and modifications area (Deficiency - failure to report reactor protection system setpoints less conservative than those established by the Technical Specifications, Paragraph 8); two apparent items of noncompliance were identified in the charging pump mini-flow line repair area (Infractions - use of a nonstandard fitting and failure to dispose of unused welding filler material by bending, Paragraph 7).

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RV Form 219 (2)

DETAILS

1. Persons Contacted

- *J. Curran, Station Manager
- *D. Nunn, Manager, Quality Assurance
- *R. Brunet, Superintendent, Unit 1
- *J. Dunn, Project QA Supervisor
- *G. W. McDonald, OA/OC Supervisor
- J. R. Tate, Supervisor of Plant Operations
- *M. A. Wharton, Plant Supervising Engineer
- R. Santusuosso, Supervisor of Instrumentation
- S. Scholl, Associate Nuclear Engineer, Unit 1
- J. Schramm, Watch Engineer
- J. Reeder, Watch Engineer
- W. Frick, Nuclear Engineer
- *E. Conley, Bechtel Quality Control Engineer
- *R. Garcia, Bechtel Welding Engineer
- *M. Short, Nuclear Engineer

The inspector also interviewed several other licensee employees including licensed operators, health physics personnel, and contractor employees.

*Denotes those present at the exit interview.

2. Review of Plant Operations

The inspector reviewed various shift logs and operating records, including data sheets, instrument traces and records of equipment malfunction. Cognizance of significant plant operations was maintained by the inspector.

No significant changes or trends in plant operations or plant parameters affecting the safe operation of the facility were observed. The following specific areas were included in this review.

- a. Control Room logs were observed to be filled out for the period covered by this report. Abnormal conditions were identified by the operating staff in their logs and resolution of these conditions was noted by the inspector to be underway or completed. Specific abnormal conditions noted by the inspector during the inspection included:
 - Open ventilation between the control room and the 4KV switchgear room via several hundred one inch diameter holes underneath the J-console.
 - (2) Failure of the "B" feedwater line flow straightener.
 - (3) Isolation of both pressurizer power operated relief valves due to leakage.

(4) Heavy silting of the diversion channel north of the protected area due to heavy rains.

-2-

- (5) Through-wall erosion of the north charging pump mini-flow line and erosion of the south charging pump mini-flow line.
- b. The Generating Station and Watch Engineer's Logs for the period of this report provided sufficient detail to communicate equipment status, testing of redundant components, clearances, permissions, and approvals.
- c. Daily steam generator water chemical analysis was observed. No discrepancies were noted.
- d. Temporary Operating Memoranda Nos. 256-268 were reviewed, and found not to conflict with the intent of the Technical Specifications.
- e. The Temporary Modifications Log was reviewed on February 6, 1980. It did not contain any bypassing that conflicted with the Technical Specifications or 10 CFR 50.59. The following lifted leads jumper was verified to have been approved and installed:

Position 21 on Sphere Temperature Recorder, R-9: "Reactor Primary Shield Temperature"

- f. Tours of accessible areas were performed periodically by the inspector in order to independently assess equipment and plant conditions. Specifically, the following observations were made:
 - Monitoring recorders were operable and no Technical Specification violations were observed.
 - (2) Radiation controls and procedures in use at the facility were in accordance with the requirements of 10 CFR 20. The inspector discussed the following observations with licensee personnel:
 - (a) Some stepoff pads were obliterated by the rain. Reportedly, more permanent plastic stepoffs have been ordered to improve this condition.
 - (b) The control point practices of some personnel did not appear sound, nor were they always in accordance with the training reportedly received by personnel working in controlled areas. Specifically:
 - . Workers were frequently observed to remove potentially contaminated shoe covers directly over 'clean' stepoff pads.

. Masking tape, cotton, plastic gloves, and plastic shoe covers located at the turbine deck control point were in such a location that workers sometimes handled them with either their bare hands or with potentially contaminated gloves, depending on whether or not the controlled area was being entered or departed, respectively.

. A number of barrier ropes around controlled areas were observed to be laying on the ground. On one occasion a contractor reported to the inspector that he had walked into the spent fuel cask trailer area, when the ropes there were down, without knowing the rope's significance.

- (3) Flammable materials were not observed to be generally stored inside or adjacent to safety related buildings or systems. However, considerable amounts of treated fire-resistant wood were present in both the 4KV switchgear room and the lube oil storage area to provide scaffolding for the installation of plant modifications. On one occasion, a five-gallon can of white gasoline was found by the inspector in the 480 V switchgear room. Fire watches were always present when welding was observed to be in progress by the inspector. The general level of cleanliness was acceptable, with evidence of continuing effort by the licensee to keep work areas reasonably clean.
- (4) The fluid leak on the north charging pump, discussed in Paragraph 6, was the only significant leak observed.
- (5) No gross piping vibrations were observed.
- (6) No safety-related hydraulic snubbers were observed to be leaking.
- (7) The inspector traced the piping in the modified pneumatic supply line to the PORV Isolation valve, and in the charging pump miniflow lines. No lineup discrepancies were noted.
- (8) No new discrepancies were observed in the licensee's clearance tagging system during the period of this inspection.
- (9) Control room operators were knowledgeable about the causes for every lighted annunciator selected, and took appropriate corrective action for abnormal annuciators.
- (10) Two licensed operators were observed to be present in the control room. One of the operators was always observed to be "at the controls."

- g. No examples of equipment status or operating parameters which did not conform to the Limiting Safety System Settings or Limiting Conditions for Operation were identified.
- h. The fire extinguishers that were observed were unobstructed and fully charged; fire alarm stations were clearly identified and unobstructed; the battery room ventilation system appeared operable; and no evidence of smoking in the no smoking areas was observed.
- i. Shift turnovers between the Watch Engineers and the Control Operators were observed. The information conveyed was adequate to convey significant evolutions in progress as well as plant status.

No items of noncompliance or deviations were identified.

3. Onsite Review Committee Activities

The Onsite Review Committee meeting of February 20, 1980, was attended by the inspector. The meeting was conducted in accordance with regulatory requirements.

No items of noncompliance or deviations were identified.

4. Surveillance

Three surveillance tests were observed by the inspector:

- a. Semi-annual calibration of source range instrument (partial).
- b. Auxiliary Feedwater flow operability test.
- c. Control rod exercising and boric acid flow path verification.

The surveillance tests were performed in accordance with the licensee's surveillance procedures. The test procedure in each case was available for use; the test equipment required by the procedure was in calibration; the test prerequisites had been met; the procedures met the applicable Technical Specification requirements for testing frequency; and the testing was performed by qualified individuals.

No items of noncompliance or deviations were identified.

5. Receipt of New Fuel

The inspector reviewed Station Engineering Procedure, "Receipt Inspection of New Fuel Assemblies and Fuel Assembly Inserts," S-V-2.24, as well as

-4-

the inspection and storage of one new fuel element by the licensee and contractor personnel. The inspection and storage was performed in accordance with the licensee's procedure.

No items of noncompliance or deviations were identified.

6. Maintenance

The inspector witnessed portions of the following maintenance activities:

- a. Repair of the leak in the mini-flow line of the north charging pump.
- b. Loading and handling of spent fuel assemblies.
- c. Mechanical jumpering of the pneumatic supply to CV-530, a pressurizer power operated relief valve blocking valve.
- d. Replacement of the "B" feedwater flow straightener.

The activity identified in a, above, is discussed in Paragraph 7. For the remainder of the activities identified above, the inspector verified that they were conducted in accordance with the facility's Technical Specifications and Quality Assurance Program. The inspector selectively verified that administrative approvals to perform the work were obtained; that approved procedures were used; that necessary inspections and testing were performed and recorded; and the activities were accomplished by gualified personnel.

No items of noncompliance or deviations were identified for activities b through d. Activity a is discussed below in Paragraph 7.

7. Charging Pump Mini-flow Line Repair

a. Review of codes, documents and procedures.

The following codes, documents and procedures were reviewed as applicable to the repair of the charging pump mini-flow line.

- (1) ANSI B31.1-1977
- (2) ANSI B16.11-1973
- (3) ASME B&PV Code, Section XI-1977, Addenda through Summer 1978
- (4) Bechtel Power Corporation General Welding Standard

- (a) WD-1
- (b) Weld Procedure P-8-A
- (c) GWS-SN
- (5) Bechtel Power Corporation Project Quality Program Manual

-6-

- (a) Work Plan Procedure No. 19.20
- (b) Work Plan Procedure No. 20.5, "Mechanical Pipe Inspection"
- (6) Nonconformance Report (NCR) No. S01-P.196, Rev. 0 and Rev. 1
- b. Observation of Work and Work Activities.

The charging pump mini-flow line for the north charging pump (Line 2019-2"-2502R) had a 1/8 inch linear indication that was reported to have been dripping water. The defective portion of the line had been replaced by cutting the pipe at two socket welds and welding in a new assembly of three pipe sections and a tee pipe fitting.

The installation of the new assembly was inspected after the pump had been put back in service. The NRC inspector made the following observations:

- The weld configuration of the two socket welds appeared nonstandard (Welds SA and SB).
- (2) The welds SA and SB had been inspected by liquid penetrant (PT) and residue from the developer and dye remained on the weld due to the roughness of the weld finish. The suitability of the weld surface for PT inspection appeared questionable.
- (3) Six E208L weld rods were found laying on the floor of the charging room.
- (4) Several unmarked grinding disks were also on the floor of the charging room. Some of the disks appeared used and some appeared unused.

A discussion of the socket weld fitup for welds SA and SB with the Welding Engineer, Field Welding Engineer and the Quality Control Engineer revealed that the socket weld fitting for weld SB had been cut on a bevel leaving only 1/8 inch of socket insertion depth at the bottom. Due to the modification of the 2 inch tee fitting, the fitting, per Section 106.1B of ANSI B31.1-1977 must conform to the requirements of ANSI B31.1, Paragraph 104.7. (The minimum socket depth per ANSI B16.11 referenced by ANSI B31.1 is 0.62 inches.) Paragraph 104.7 states, in part, that, "...pressure-containing components not covered by the standards listed in Table 126.1...may be used where the design of similarly shaped, proportioned and sized components has been proven satisfactory by successful performance under comparable service conditions....In the absence of such service experience, the pressure design shall be based on an analysis consistent with the general design philosophy embodied in this Code Section, and substantiated by at least one of the following:

- Proof test (as described in Paragraph A-22 of Section 1 of the ASME Boiler and Pressure Vessel Code).
- (2) Experimental stress and analysis."

SCE management personnel stated that the analysis and substantiation had not been done. SCE is required by 10 CFR 50.55(a) to meet the requirements of ASME B&PV Code, Section XI. Section XI allows the repair requirements of Section XI to be used or the Code of Construction. The Code of Construction was ANSI B31.1. SCE management chose to use ANSI B31.1-1977, supplemented by PT examination of the welds as stated in the NCR SO1-P-196, Rev. 1. Therefore, it is concluded that the use of the modified fitting is not in compliance with the applicable code. This is an apparent item of noncompliance. (50-206/80-04-02)

The results of the PT inspection on welds SA and SB were discussed with the Field Welding Engineer and the Authorized Nuclear Inspector. Both agreed that the weld surface roughness made it difficult to interpret. The Field Weld Engineer agreed to repeat the inspection. Subsequent to this discussion, the inspector found that the QC Engineer had not witnessed the PT and the PT had to be repeated for this reason. The surface of the weld was conditioned by grinding and the repeat PT performed. No unacceptable indications were found. However, the inspector noted that the charging pump had been put back in service prior to the inspection by the QC Engineer. This was also a finding of the SCE QA personnel and a Corrective Action Request (CAR) was initiated. During the review of this testing sequence and applicable procedures, SCE QA and Bechtel QA personnel made the following findings:

(1) The QC inspection form used was a WR-S. The Procedure WD-1 requires a WR-SA form to be used. The WR-SA form is specifically for socket welds and has space for the depth of the socket weld pullback to be noted. As a result of not using the proper form, the socket pullback record was not made. Bechtel issued a CAR.

- (2) Per WD-1, the Field Weld Engineer is to monitor the socket weld fitup. This was not done. Bechtel issued a CAR.
- (3) Per WD-1, when the QC Engineer does not witness the socket weld fitup, he must use the scribe marks to verify the required pullback. There were no scribe marks on the pipe and the QCE did not issue a NCR. Bechtel issued a NCR for this after the fact.
- (4) Work Plan Procedure No. 20.5 requires a Construction Inspection Data Report (CIDR) be completed for inspection of piping welds. A CIDR was not used for the inspection of weld SA and SB on charging pump line 2019-2"-2502R. Bechtel issued a CAR for this failure to follow procedures.
- (5) The Bechtel procedures have special forms to be completed for doing work per the ASME B&PV Code, Section III, but the procedures are not clear what forms are applicable for work performed in accordance with Section XI. The repair of the charging pump line was done in accordance with Section XI, this lack of clarity probably contributed to the procedural nonconformances described above. SCE QA issued a CAR to Bechtel to clarify their procedures.
- (6) The Unit 1 station operating personnel put the north charging pump back into operation prior to the completion of the NCR (NCR was not signed off). The Station QA Program and implementing procedures are not specific in this area. SCE QA issued a CAR to SCE station to clarify the procedures in this area.

SCE management personnel committed to completion of Items 1 through 4, above, by March 31, 1980. SCE management personnel committed to complete Item 5 by July 1, 1980, and Item 6 by April 30, 1980.

The six E308L weld rods that were found in the charging room should have been disposed of in accordance with the Work Plan Procedure No. 19.20 which states that in controlled radiation areas Paragraph No. 6.1.12.2, "Unused material shall be disposed of by bending...." Therefore, the welding rods found in the charging room were not in conformance with the procedure referenced by the Unit 1 QA Program. This is an apparent item of noncompliance. (50-206/80-04-03)

The use of grinding disks without identifying marks was discussed with SCE management personnel. To prevent grinding wheels and disks which were used on one material from being subsequently used on a weld preparation for a noncompatible material, SCE management personnel stated that a controlling procedure would be issued for all safety related work at Unit 1. The inspector will verify the incorporation and implementation of the proposed procedure at a future inspection. (50-206/ 80-04-04)

8. Design Change and Modifications

The inspector reviewed the following changes and modifications:

- a. 79-12: Tripping of Pressurizer level bistable per IE Bulletin 79-06A.
- b. 79-19: Undergrounding of the 12 Kv Line.
- c. 79-23: Reactor coolant pump trip on safety injection.
- d. 79-24: Radioactive waste filter modification.
- e. 79-25: Refueling water pump suction line reinforcing collars.
- f. No number: Installation of unauthorized digital feedwater flow meter.

The design changes selected, except for f, were controlled by Station Order S-E-116, "Design Control and Review." No completed test records for these design changes were available for review with the design change packages. At the time of the review, the as-built drawings were still being revised for changes a and e.

The inspector witnessed portions of the following Three Mile Island modifications:

a. Pressurizer relief and safety valve limit switch installation.

b. Auxiliary feedwater system piping additions.

c. Additional steam generator level indications.

d. Modification of safety injection reset functions.

As noted in the January 1980 resident inspection report, the internal "Station Incident Report," 79-50, disclosed that an unauthorized digital feedwater flow meter was installed and used by some operators to obtain feedwater flow data for the daily thermal calorimeter. Subsequently, the licensee personnel estimated that the unauthorized feedwater flow meter introduced a one to two percent nonconservative source of error into all three power range nuclear flux instruments. This usage of the digital feedwater flow meter was contrary to Operating Instruction S-3-3.13, "Reactor Power Calculations," which states that the "Precision Barton dp indicators should be used to make more accurate feedwater flow measurements." When the uncontrolled and undocumented installation became known to supervisory personnel, they immediately had it removed and the Onsite Review Committee reviewed the incident. However, Technical Specification 6.9.2.b.(1) requires that reactor protection system or engineered safety feature instrument settings which are found to be less conservative than those established by the Technical Specifications but which do not prevent the fulfillment of the functional requirements of affected systems shall be the subject of written reports to the Director of the appropriate Regional Office within thirty days of occurrence of the event. Contrary to the Technical Specification cited, the observed inadequacies were not reported as required. This is a deficiency. (80-04-01) Licensee representatives stated that a report was carefully considered, but the decision was made that the incident was not reportable. The inspector stressed to licensee representatives the potentially serious consequences which might result from this or other unauthorized modifications, and re-emphasized the necessity for all personnel to adhere to design change procedures.

9. Follow-up on Licensee Event Reports

- a. 79-02: "B" Feedwater Flow Straightener Dislodged. The inspector reviewed the licensee's report and discussed with licensee personnel their plans for corrective action. These plans concentrated on the replacement of the failed component. The licensee could not provide a diagnosis for the conditions which caused this and other similar failures. Licensee personnel stated they will monitor the replaced straighteners' performance and, as previously agreed, will replace all straighteners with stainless steel ones. This item is closed.
- b. 79-03: <u>Cotter Pin Failure on CV-515</u>, a Solenoid Valve. The inspector reviewed the licensee's report and discussed it with licensee personnel. The actions taken by the licensee appeared adequate. This item is closed.
- c. 79-07: Failed Power Supply on "A" Steam Generator Steam Flow Indication. The inspector reviewed the licensee's report. The actions taken by the licensee appeared adequate. This item is closed.
- d. 79-13: <u>Cracks in Heat Affected Zones of Schedule 10 Piping</u>. The inspector reviewed the licensee's report. The actions taken by the licensee appeared adequate. This item is closed.
- e. 79-15: <u>Containment Air Lock Left Open</u>. The inspector reviewed the licensee's report, discussed it with licensee personnel, and inspected the air lock mechanism. Based on these actions, the licensee's corrective action appeared adequate. This item is closed.
- f. 79-16: <u>Safety Injection System Piping Indication</u>. The inspector reviewed the licensee's report, and discussed it with licensee personnel. Based on these actions, the licensee's corrective actions appeared adequate. This item is closed.

- report, discussed it with licensee personnel, toured the affected areas to examine housekeeping, ventilation, and fire protection measures in existence after the event. In addition, significant discussions were held with the licensee while the event was occurring. Based on this, the licensee's corrective actions appeared adequate. This item is closed.
- h. 79-18, 79-19, 79-20, and 79-22: <u>Missing and Misinstalled Seismic</u> <u>Support LERs</u>. The inspector reviewed these reports individually, and examined the corrective installations. These supports were discovered as a result of the reanalysis and field examination required by IE Bulletin 79-14. Based on this, the licensee's corrective actions appeared adequate. These items are closed.
- i. 79-21: <u>Inoperable Diesel Generator Sequencer</u>. The inspector reviewed the licensee's report and discussed it with licensee personnel. These personnel stated that it was their understanding that the hourly checks performed by the operators to ensure that the sequencers had not tripped were to continue only until the licensee was satisfied of the sequencers reliability. The inspector stated that IE desired to be informed if and when this occurred, in order to review that decision. A licensee representative stated that at this time, the licensee was not willing to provide control room indication to annunciate that an ECCS train was out of service. The inspector acknowledged this position, while noting that current NRC practice is to require some annunciation of deliberate operator switch positioning which disables an ECCS train. This item is closed.

No items of noncompliance or deviations were identified.

10. Exit Interview

79-17:

g.

An exit interview (Paragraph 1) was held on February 29, 1980, to summarize the scope and findings of this inspection.