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

#### REGION $\boldsymbol{V}$

Report No. <u>50-206/80-03</u>		
Docket No. 50-206	License No	Safeguards Group
Licensee: <u>Southern California</u>	Edison Company	
2244 Walnut Grove Avenue		
Rosemead, California 91770		
Facility Name: San Onofre Unit 1		
Inspection at: Camp Pendleton	, California	
Inspection conducted: January 2	9-February 1 and Februar	y 6-7, 1980
Inspectors: D. P. Haint	·	3/6/80
D. P. Havist, Reacto	r Inspector	3/7/80
J. Ø. Elin, Reactor	Inspector	J Date Signed
Approved By: RJRORAS	)	Date Signed $3/2/80$
R. T. Dodds, Chief,	Engineering Support Sec	tion / Date Signed
Summary:		
Inspection on January 29 (Report No. 50-206/80-03	-February 1, 1980 and Fe )	bruary 6-7, 1980
Areas Inspected: Routing required as a result of recommendations (NUREG-O tions of procedures and observation of work acti- and open items from prev	e unannounced inspection the Three Mile Island Le 578). The inspection in representative records, vities, and review of li ious inspections.	of plant modifications sson Learned Task Force cluded selective examina- interviews with personnel, censee action on unresolved

The inspection involved 37 inspector-hours onsite by two NRC inspectors.

<u>Results</u>: One item of noncompliance was identified in the area of control of weld filler material (details, paragraph 3f).

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RV Form 219 (2)

DETAILS

## 1. Persons Contacted

- a. Southern California Edison (SCE)
  - H. L. Ottoson, NE&O
  - D. E. Nunn, Manager, Quality Assurance
  - J. M. Curran, Plant Manager
  - J. D. Dunn, Project QA Supervisor
  - G. W. McDonald, QA/QC Supervisor
  - R. R. Brunet, Superintendent
  - D. K. Nelson, Project Manager
  - M. A. Wharton, Supervising Engineer
  - M. P. Short, Nuclear Engineer 2
  - J. R. Tate, SPO
  - J. Lindberg, QC Inspector
  - J. Buckles, Lead OA Engineer
  - E. Gerloff, Project Engineer
- b. Bechtel Power Corporation (Bechtel)
  - E. Conely, Project Field QC Engineer
  - T. Dadson, Senior Field Welding Engineer
  - C. Paltoma, Superintendent

# 2. Site Tour

The facility was undergoing an expected 17 day outage to complete installation of modifications required by NUREG-0578, TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations. Minor piping modifications to the auxiliary feedwater system and the pressurizer relief and block valve nitrogen supplies were being made. Additional conduit and cables were being installed to support the required instrumentation. The inspector identified poor housekeeping conditions in the auxiliary feedwater pump area including weld filler material stubs on the floor (see paragraph 3f.) and uncapped piping on spool nos. 381-1 and 397-1. The licensee took immediate corrective action on these items.

# 3. Licensee Action on Previous Inspection Findings

## a. <u>(open) Noncompliance (50-206/78-14/01) RPV Closure Stud Examina-</u> tion Calibration Technique.

Straight beam, axial scan ultrasonic examination of reactor vessel closure studs 1-14 utilized a back reflection technique for calibration rather than a calibration block equipped with reflectors.

as required by paragraph T-525.2 of Article 5 of ASME Code Section V.

The licensee responded to this item of noncompliance on December 6, 1978. The licensee has prepared calibration blocks equipped with the reflectors as required by ASME Section V. The licensee evaluated the sensitivity of the back reflection technique used against the technique required by ASME Section V and presented evidence to the inspector showing that the back reflector technique is superior to the ASME Code technique for finding fatigue cracks. This evidence was provided to justify acceptance of the examination on studs 1-14. The licensee has committed to comply with ASME code requirements or provide documentation of equivalence or superiority of the methods used in accordance with IWA-2240 of ASME Section XI. This item will remain open pending review of the new inservice inspection (ISI) contractor's procedures for RPV stud examinations.

b. <u>(Open) Noncompliance (50-206/78-14/03) Failure to perform surface</u> examinations of RPV closure nuts.

Surface examinations of the reactor vessel closure nuts 1-14, class 1 components, did not include examination of threads in the base material as required by IWB-2500 and IWB-2600 of ASME Section XI.

The licensee responded to this item of noncompliance on December 6, 1978. The licensee committed to examine the threaded area of closure nuts 1-14 at the next inservice inspection. This will satisfy the requirements of the code for a surface examination of all the nuts during the ten year interval which began January 1, 1978. This item will remain open pending review of the ISI contractor's examination plans and schedute for the next refueling outage.

c. <u>(Closed) Open Item (50-206/78-14/02) Examination procedures pro-</u> cedures provided leeway for examiners to change procedure variables without Level III approval.

The inspector reviewed field change authorization No. 203 which deleted the paragraph in procedure ISI-104, Section 9.7 and procedure ISI-105 section 9.6 which could be interpreted to allow an examiner to change procedure variables to perform an examination. This item is closed.

d. <u>(Closed) Open Item (50-206/78-14/05) Angle beam ultrasonic scanning</u> procedure for RPV closure nuts.

Examination procedure No. ISI-105 for the reactor vessel closure nuts required ultrasonic scanning in only two axial directions. In practice, examination scans were being performed in two axial and two circumferential directions. The procedure was revised to reflect the actual practice. This item is closed.

e. <u>(Open) Unresolved item (50-206/79-10/01)</u> Safety related activities missing from special engineering procedure.

The licensee had prepared a special engineering procedure (SPE-157) to control safety-related activities during replacement of the feedwater nozzle reducers. Weld build-up activities had not been included in SPE-157. The licensee had incorporated use of the Bechtel WR-5, Field Welding Checklist into the SPE and the inspector had identified the following areas of concern:

- (1) Absence of WR-5 form for weld build-up operations on the inside diameter of the 14-inch end of the reducers.
- (2) Inconsistencies and omissions on the WR-5 forms of such items as Authorized Inspector hold points, quality verifications, designation of engineering specifications and drawings, nondestructive examination requirements, and quality control hold points.
- (3) Removal of the reducers from the shop to the final location inside the containment sphere without completion and signoff of WR-5 forms.

The licensee had initiated corrective action request CAR-P-208 on June 11, 1979. Corrective action was later initiated to familiarize the station personnel with Bechtel forms WR-5, Field Welding Checklist, and WR-6 and 99, Welding Filler Metal Withdrawal. Existing station procedures were to be reviewed and revised as necessary to ensure an appropriate preplanning effort. The familiarization program for station personnel began on November 8, 1979, however, the review of station procedures was considered unnecessary by station engineering personnel due to the recent use of QA organization personnel as the inspector group and improved separation of engineering and inspection responsibilities.

The inspector reviewed the following station procedures for evidence of separation of engineering and inspection responsibilities:

Procedure

SONGS 1

Station Inspection Plan General Inspection Procedure Field Inspection Procedure Control of Purchased Material, Equipment and Service

Special TMI Engineering, Procurement, Construction, Quality Assurance and Corporate Documentation Service Procedure for Major Temporary Modifications to Safety Related Systems for Number

S-E-117 S-XII-1.4	
N10.20 S-A-115	

E&C 26-7-7

-3-

The inspector determined that responsibility for quality control inspection rests with station engineering and supervisory personnel (procedures S-E-117, S-XII-1.4 and S-A-115). Recent procedures (N 10.20 and E&C 26-7-7) provide for inspection of safety related activities by the quality assurance organization, but only upon delegation by the station manager.

The licensee maintains a Bechtel Quality Manual containing a mixture of work plan procedures and quality control instructions for various work activities. The inspector could not find any reference to this manual or the circumstances for its use in the licensee's quality assurance program or procedures.

The licensee stated that for these modifications, Bechtel is performing the work in accordance with Bechtel work plan procedures, SCE Quality Assurance personnel are performing quality control inspections with inspection planning based upon Bechtel work procedures and quality control instructions, and SCE Quality Assurance personnel are auditing the activities. The licensee further stated that during the next refueling outage, Bechtel will perform work and provide quality control services for all safety related modifications except TMI modifications for which SCE Quality Assurance personnel will perform quality control. The station will be allowed to perform quality control on non-safety related maintenance activities only. The licensee's committments to clarify the QA/QC program are discussed in paragraph 6. This item remains unresolved pending a review of the licensee's corrective actions.

## f. (Noncompliance) Unresolved item (50-206/79-10/02) Weld Rod Control

During the feedwater reducer modifications in June, 1979 the inspector had observed several E308 weld rod stubs in the vicinity of the "A" feedwater nozzle work station and approximately 25 E7018 coated weld rods (without a portable rod oven) and ten E308 bare rods in an open Bechtel tool box immediately outside of the containment equipment hatch. No weld rod issue slips were in the area and no welding was being done. During this inspection; the inspector reviewed Bechtel Procedure WPP 19.20 for control of weld filler material and found the following requirements:

- (1) Paragraph 4.4 all welding filler material to be discarded shall be destroyed by bending prior to discarding.
- (2) Paragraph 4.6 Individual welders shall keep their work areas clear of unauthorized or discarded weld filler material. Electrode stubs and damaged filler materials shall be placed in stub buckets. At the end of the work shift, the unused filler material shall be returned to the rod room for reissue or disposition by the rod room personnel.
- (3) Paragraph 6.1.1 No welding filler material will be issued without a properly executed rod request form.
- (4) Paragraph 6.1.6 At the completion of the welder work shift, the portable rod warmer, pouch, all unused filler material and the welder's copy of the WR-6 or WR-99 forms shall be returned to the rod room attendant.

The licensee's quality assurance organization performed an audit of the Bechtel program for weld material control which resulted in no audit findings (audit report no. Bech-2-79) There was no other audit history for this area. The quality assurance organization also audited the station activities against procedure S-I-1.56, Weld Rod Management, and found: (1) issue forms not including the job number or description; and (2) issue forms not signed authorizing weld rod issue as required. Appropriate corrective action including training sessions and revision of the weld rod issue form is in progress.

During observation of the welding activities on the auxiliary feedwater system the inspector found a weld rod stub bucket available for use but found two E-705 stubs and two E-7018 stubs on the floor. In a cardboard box near the work area, apparently being used for trash, the inspector found four full length E-7018 low hydrogen weld rods that had not been bent and twenty E-7018 stubs. In a welder's tool box near the work area, the inspector found eighteen E6011, five E-70-S2 and four nickel coated weld rods. A weld rod issue form was not available and the Bechtel foreman indicated that no welding had been done that day and only E-70-S2 and E-7018 rod was being used on the auxiliary feedwater piping. These findings constitute an apparent item of noncompliance.

# g. (Closed) open item (50-206/79-10/03) Radiograph density of weld no. 391-10.

The inspector had reviewed the radiographs of weld no. 391-10 (Feedwater reducer to nozzle weld for steam generator c) and it appeared to have insufficient density. There was no densitometer available at the time to check the density.

The inspector measured the density of these radiographs with a properly calibrated densitometer and found the minimum and maximum densities to be 2.12 and 3.0, respectively for single viewing. These densities are in accordance with the ASME Code Section V, Article 2, 1974 Edition. This item is closed.

### h. (<u>Closed</u>) <u>Open Item (50-206/78-14/06</u>) - <u>Limited ultrasonic exam</u>ination of feedwater reducer to pipe and nozzle welds.

Examinations were performed only from the reducer side of the 14-inch nozzle to reducer weld and examinations were not performed on the 10-inch reducer to elbow welds.

The inspector reviewed a letter from the Level III examiner showing the configuration of the piping. An examination was not performed from the nozzle side of the 14-inch weld because the nozzle is tapered. Ultrasonic examinations were not performed on the 10-inch weld because of the reducer taper on one side and the elbow on the other side. The Level III felt that the configurations of these components do not allow a proper ultrasonic examination in accordance with the referencing code section. The Level III has recommended radiography as an alternate examination method. The licensee has committed to radiography of these welds at the next refueling outage in accordance with IE Bulletin 79-13. This item is considered closed.

- 4. Safety Related Piping
  - a. Review of Quality Assurance Implement Procedures

The inspector reviewed Bechtel weld procedure P1-At-LH, Rev. 3 and the supporting procedure qualification records for conformance to ASME Section IX. No items of noncompliance or deviations were identified.

b. Observation of Work and Work Activities

The inspector observed fitup activities on Auxiliary Feedwater spool no. 381-1 and visually examined completed shop and field welds on Auxiliary Feedwater spool Nos. 381-1, 397-1 and 397-2 for conformance with ANSI B31.1-1977. No items of noncompliance or deviations were identified.

### c. Review of Records

The inspector reviewed inspection planning data reports and material receiving reports for 3-inch pipe (spool no. 397-1) material heat no. L65394 and 4-inch pipe (spool 381-1) material heat no. L93828. The inspector also reviewed construction inspection planning report nos. 155 and 156 for shop welding activities. The inspector reviewed performance qualification records for four welders involved in the auxiliary feedwater modifications. All were currently qualified in accordance with ASME Section IX for the weld procedures and positions used.

No items of noncompliance or deviations were identified.

### 5. Electrical Modifications

The inspector reviewed the electrical modifications made in response to NUREG-0578, TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations. The installations were compared to the requirements of Reg. Guide 1.75 and IEEE 384. Specific documentation associated with installation and qualification certification for specific equipment was not reviewed, however licensee procedures for quality assurance and quality control coverage were discussed. The specific systems reviewed were:

#### a. <u>Position Switches on Pressurizer Relief Valves, Pressurizer Relief</u> Block Valves and Safety Valves

The position switches were inspected and found to be of a type in use in similar applications inside containment although specific qualification documentation was not reviewed. The workmanship appeared consistent with general practice for installation of class 1E equipment and the requirements of Reg. Guide 1.75 and IEEE 384 for physical separation were met within the containment structure.

# b. Redundant Power to Pressurizer Relief Valves

A nitrogen supply system was installed to back up the low pressure air system that provides motive power to pressurizer relief valves. Instrumentation associated with this system was inspected and found to be of a type generally qualified for use inside containment although specific qualification documents were not reviewed. Wiring associated with this instrumentation appeared to meet the requirements of Reg. Guide 1.75 and IEEE 384 for physical separation inside containment.

#### c. Feedwater systems

The modifications consisted of diverse methods of feedwater flow indication, specifically ultrasonic flow detectors on feedwater and auxiliary feedwater lines, steam generator level indication and condensate storage tank level indication. Additionally provisions were made to incorporate automatic initiation of auxiliary feedwater, although this system will not be placed in service until completion of further study of it's effects on the plant's accident analysis.

Some equipment, such as steam generator level indicators and limitorque valve operators on the auxiliary feedwater system, were found to be of a type generally qualified for class 1E service (although specific qualification documentation was not reviewed). Other equipment, such as the ultrasonic flow detectors, had no qualification history. The selection of 1E qualified equipment was found to be in accordance with a description of these systems provided by letter from Southern California Edison Company to the Director of the Office of Nuclear Reactor Regulation dated January 23, 1980.

The inspector questioned that, as some non-class 1E systems would be powered from the class 1E bus, whether the design incorporated some isolation device other than a circuit breaker activated only by fault current in accordance with Reg. Guide 1.75. The licensee explained that the circuit breakers employed incorporate fuses to provide design overcurrent protection capability. This type of isolation is detailed in IEEE 384 and is in accordance with Reg. Guide 1.75.

The licensee stated the modifications were to be in compliance with IEEE 384, paragraph 5.6.2 internal separation to the extent practical. In the control room panels, the 6 inch separation criteria was not met. Due to the existing layout, which also does not meet this criteria, it did not appear to the inspector that the separation could be easily accomplished. This item will be discussed with NRR personnel by the NRC Resident Inspector during their March 1980 visit to the site.

#### 6. Exit Interview

The inspector met with licensee representatives denoted in paragraph 1 at the conclusion of the inspection on February 1, 1980 to discuss the scope and findings of the inspection. In particular, the various activitydependent responsibilities and procedures for quality control inspections were discussed. The need for adequate training of crafts and surveillance of work activities during plant modifications was also discussed. The licensee recognized these problems and committed to develop, within 60 days, a program which clearly defines the responsibilities and modes of operation of quality control and quality assurance taking into account the type of work being performed, the organization performing the work, and the procedures to be used to perform the work. The licensee committed to clearly define this information for the next refueling outage if the program is not effective at that time.

The results of the inspection relating to the electrical modification were discussed with the Manager, Quality Assurance, by telephone on February 7, 1980.