

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

REGION V

Report No. 50-206-80-28  
Docket No. 50-206 License No. DPR-13 Safeguards Group \_\_\_\_\_  
Licensee: Southern California Edison Company  
P. O. Box 800 - 2244 Walnut Grove Avenue  
Rosemead, California 91770

Facility Name: San Onofre Unit 1

Inspection at: San Onofre, California

Inspection conducted: September 4-26, 1980

Inspectors: L. Miller, Resident Inspector

*[Signature]*  
10/23/80  
Date Signed

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Approved By: *[Signature]*  
B. H. Faulkenberry, Chief, RONS II

10/23/80  
Date Signed

Summary:

Inspection on September 4-26, 1980 (Report No. 50-206/80-28)

Areas Inspected: Routine, resident inspection of plant operations during long term outage, monthly maintenance and surveillance observations, and independent inspection. The inspection involved 62 inspector-hours by one NRC inspector.

Results: Two items of noncompliance were identified (failure to observe reactor coolant chemistry limit - deficiency; failure to follow radioactive waste discharge procedure deficiency).

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## DETAILS

### 1. Persons Contacted

- \*H. Ottoson, Manager, Nuclear Engineering and Safety
- \*J. M. Curran, Manager, San Onofre Nuclear Generating Station
- \*D. Nunn, Manager, Quality Assurance
- \*R. Brunet, Superintendent, Unit 1
- \*J. R. Tate, Supervisor, Plant Operations
- \*R. Warnock, Supervisor, Chemistry and Radiation Protection
- \*G. McDonald, Supervisor, Quality Assurance/Quality Control
- \*E. S. Medling, Assistant Chemistry and Radiation Protection Engineer
- \*E. J. Bennett, Division Chemical Foreman
- \*G. E. Davis, Division Chemical Foreman
- M. Wharton, Supervising Engineer, Unit 1

The inspector also interviewed other licensee employees on the maintenance, security and operations staffs during this inspection.

\*Denotes those attending the Exit Interview on September 26, 1980.

### 2. Monthly Maintenance Observations

#### a. Routine Activities

The inspector observed portions of the following maintenance:

Spent letdown demineralizer resin transfer to spent resin tank.  
Steam driven auxiliary feedwater pump repair.

The inspector determined that these activities did not violate limiting conditions for operation, that required administrative approvals and layouts were obtained prior to initiating the work, that approved procedures were being used by qualified personnel, and that radiological and fire prevention controls were appropriate for the activities.

#### b. Steam Generator Repair Program

In this inspection period, the licensee completed the test brazing of three steam generator tube sleeves to their respective tubes. The first two were not successful. The inspector observed a portion of this activity and stated that the licensee's controls appeared adequate. Later in the period, the licensee began to decontaminate the "B" steam generator hot leg channel head with a water and magnetite grit mixture under high pressure. Prior to commencement of decontamination, the inspector reviewed the licensee's work package, entitled "Steam Generator Decontamination Process for Sleeving Program San Onofre Unit 1 (Revision 1)". This document described the organization, administrative controls, drawings, technical description, safety review, health physics controls, and decontamination procedures. The inspector stated that, if implemented, these procedures appeared adequate to safely control the contamination work. The inspector interviewed several

decontamination equipment operators and Westinghouse and Southern California Edison shift supervisors. Those interviewed were knowledgeable concerning these procedures. In addition, the inspector attended a pre-decontamination briefing of all participants conducted by licensee representatives at which the integrated operation and safety precautions were adequately explained. The inspector observed the initiation of steam generator "B" decontamination on September 17, 1980.

At 9:42 P.M. on September 21, 1980 during the decontamination of the "B" steam generator hot leg channel head, the licensee determined that the inflatable rubber seal installed in the "B" hot leg had ruptured in service and consequently, a dilution of approximately 50 ppm of the reactor coolant system had occurred. Licensee representatives stated that the seal had ruptured due to the use of inadequate seal material, and that its rupture had not been immediately detected because the seal pressure monitoring gage was inadvertently out of service. They further stated that the rupture had been suspected after decontamination operators noted an excessive amount of makeup water being required for the decontamination system, and decontamination was halted. The inspector reviewed the records of this event. These records indicated that from 9:09 P.M. until 9:42 P.M. when decontamination was halted, 61.6 gallons of water were lost from the system, a loss rate that was nearly four times normal. The inspector determined that due to an unforeseen procedural inadequacy, this greatly increased loss rate did not immediately result in the stopping of decontamination.

The procedure, MRS 2.2.2 Gen-13, "Steam Generator Channelhead Decontamination Using Magnetite Grit and Water", required the surge tank to be refilled to 22 plus or minus 2" at least once each 30 minutes. The procedure required control room notification if the change between readings was greater than 12 inches, and stopping decontamination if the change between readings was greater than 23 inches. The records for September 21 indicate that the surge tank was refilled much more frequently than every thirty minutes; i.e. at 9:09, 9:16, 9:34 and 9:42 P.M. Consequently, the difference between any two levels was not sufficient to require any action according to the procedure. A critique of this event was performed by the licensee for the Resident Inspector, Senior Resident Inspector and representatives of the NRC Office of Nuclear Regulation and Office of Inspection and Enforcement on September 26, 1980. As a result of this discussion, a licensee representative stated that a revised 10 CFR 50.59 safety analysis and a revised decontamination procedure would be developed prior to the resumption of steam generator decontamination.

The representative stated that this analysis would address what amounts of magnetite grit would be added to the reactor coolant system assuming further dilutions due to seal rupture, how that amount of grit would be recovered from the reactor coolant system prior to startup, how pieces of ruptured loop seals would be recovered from the reactor coolant system, what measures had been taken to prevent future loop seal failures, and how future loop seal failures would be promptly

detected. During this interview they stated that no abrasive, corrosive, or mechanical plugging would result from the magnetite grit which had already entered the reactor coolant system as a result of the seal failure, nor was any such effect due to future seal failures expected.

The licensee representative further stated that the decontamination procedure would be revised to incorporate adequate controls to promptly detect unexpected loss of system inventory, and that the decontamination system would be modified to prevent isolation of the remotely monitored loop seal pressure gage and to incorporate a more reliable sealing material.

The inspector acknowledged these commitments and stated that the results of them would be reviewed prior to any additional decontamination by the licensee. (O/I 50-206/80-28-01). No items of noncompliance or deviation were identified.

3. Monthly Surveillance Observations

The inspector witnessed portions of the following surveillance testing:

- a. Hydrazine Tank Level Alarm Calibration Check (Instrument and Test Procedure S-II-1.2).
- b. Diesel Generator Monthly Testing (Operating Instruction S-2-11).

The inspector reviewed the surveillance activities to verify that the testing was in accordance with the Technical Specification requirements, the procedures were followed by qualified personnel, and the system was properly restored to service. In addition, the inspector observed that the test instrumentation for the level alarm check was calibrated and the test date accurately recorded.

No items of noncompliance or deviation were identified.

4. Inspections during Long Term Shutdown.

The inspector observed control room operations for proper shift manning, for adherence to procedures and limiting conditions for operation, and for appropriate recorder and instrument indications. The inspector reviewed logs and operating records regularly, and verified that the radiation controlled area access points were safe and clean.

The inspector noted that records of surveillance tests required during the shutdown had been completed, that the equipment clearance system was in effect, and that the physical security plan appeared to be properly implemented. Frequent discussions with control room operators were held by the inspector to discuss their understanding of the reasons for existing indications and plant conditions. The inspector frequently toured throughout the facility. The licensee's fire protection plan appeared to be properly implemented and the cleanliness of the facility was adequate.

The inspector witnessed a portion of the planned radioactivity release of the west holdup tank from the control room. He observed that the radiation monitoring alarm setpoint was set at 110,000 counts per minute (CPM) during this activity, a value more than 95,000 cpm above the normal background count rate. The Control Operator stated that this was standard practice at the facility. The inspector discussed this condition with the Watch Engineer, who ordered the release stopped. The Watch Engineer stated that the high discharge count rate was a direct consequence of the relatively high activity in the holdup tank for this release, and that the high count rate was not necessarily indicative of an uncontrolled release of radioactivity. The inspector reviewed the Radioactive Discharge Permit and stated his agreement with this conclusion. However, the inspector noted that Technical Specification 6.8.1 requires that written procedures and administrative policies shall be established, implemented and maintained that meet or exceed the requirements and recommendation of Appendix "A" of USNRC Regulatory Guide 1.33, Revision 1. Paragraph 7a(3) of this Appendix, "Liquid Radioactive Waste System; Discharge to Effluents," is one of the recommended procedures. The licensee's Operating Instruction S-3-2/27, "Receiving, Storage, Processing, and Discharge of Liquid Waste" implements the Appendix "A" recommendation. Precaution III A of this instruction states that "during holdup tank releases, the set point for ORMS 1218 shall be set at a maximum of 20,000 cpm above background." Contrary to this requirement, on September 24, 1980 the inspector observed that while the west holdup tank was being discharged to the circulating water system, the setpoint for ORMS (Operational Radiation Monitoring System) 1218 was set at 110,000 cpm, approximately 95,000 cpm above the background count rate.

This is a deficiency. (50-206/80-28-02)

##### 5. Independent Inspection

The inspector reviewed the reactor coolant chemistry results for September 1-18, 1980. These results indicated that on each daily sample recorded from September 2-13, 1980, the chloride concentration of reactor coolant had been in excess of the chloride limit of 0.15 ppm specified by the Station Order S-E-2, "Operation, Maintenance and Chemical Control of Heat Exchange Equipment." This area was reviewed as part of a continuing concern by the inspector which originated after a Southern California Edison Corrective Action Request, S01-P-263, identified a similar chloride concentration out of limits for the period from April 12-17, 1980. As of the date of this inspection the licensee had not completed corrective action for the April event to prevent recurrence of excessive chloride concentrations. Therefore, the inspector advised the licensee that Technical Specification 6.8.1 requires that written procedures and administrative policies shall be established, implemented and maintained that meet or exceed the requirements and recommendations of Appendix "A" of USNRC Regulatory Guide 1.33, Revision 1. Paragraph 10 of this Appendix states that procedures should be written to prescribe the instructions maintaining water quality within prescribed limits, and the

limits on concentrations of agents that may cause corrosive attack on fouling of heat transfer surfaces. Station Order S-E-2, "Operation, Maintenance and Chemical Control of Heat Exchange Equipment," provides that "Corrosion of the primary system components will be controlled by maintaining the chloride levels within the defined limits." Paragraph B.1.b of this Station Order defines the chloride limit as "less than .15 ppm." Contrary to the above, on each daily sample recorded from September 2 to September 13, 1980, the chloride concentration was in excess of the specified limit by an amount which varied from 0.03 to 0.35 ppm, or 20-233% in excess of the limit.

This is a deficiency. (50-206/80-28-03).

6. Exit Interview

An exit interview was held on September 26, 1980 to summarize the scope and findings of this inspection. In addition, the inspector reconfirmed the licensee's commitment to prepare emergency procedures for the loss of d.c. buses prior to resuming operation; stated that the licensee's shift turnover procedures and logs prepared in response to TMI Category "A" item 2.2.1.C appeared adequate; and requested a copy of the revised 10 CFR 50.59 safety analysis for steam generator decontamination which was to be prepared to incorporate the lessons learned from the inflatable seal failure of September 21, 1980. Finally, the inspector requested a copy of the Maintenance Order and any associated welding records which the licensee had retained for the repair of the South Charging Pump completed on June 6, 1980. A licensee representative stated that the documents requested would be provided to the inspector.