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

REGION V

Report No. 50-206/80-31

Docket No. 50-206 License No. DPR-13 Safeguards Group

Licensee: Southern California Edison Company

2244 Walnut Grove Avenue

Rosemead, California 91770

Facility Name: San Onofre Nuclear Generating Station Unit 1

Inspection at: San Onofre, California

Inspection conducted: September 29 - October 31, 1980

Inspectors: B. H. Faulkenberry for 11/26/80
L. Miller, Resident Inspector Date Signed

Date Signed

Date Signed

Approved By: B. H. Faulkenberry 11/26/80
B. H. Faulkenberry, Chief, Reactor Projects Section 2, Reactor Operations and Nuclear Support Branch Date Signed

Summary:

Inspection on September 29-October 31, 1980 (Report No. 50-206/80-31)

Areas Inspected: Routine, resident inspection of plant operations during long term outage, monthly maintenance and surveillance observations, follow-up on enforcement items, follow-up on licensee responses to IE Bulletins, TMI Short Term Lessons Learned verification (Temporary Instructions 2515/42, 43 and 44), and follow-up on a significant event (loss of foreing material control inside reactor coolant system). This inspection involved 70 inspector-hours onsite by the resident inspector.

Results: No items of noncompliance or deviation were identified.

RV Form 219 (2)

DETAILS

1. Persons Contacted

*J. Haynes, Manager, Nuclear Operations
*D. Nunn, Manager, Quality Assurance
*J. Curran, Plant Manager
*R. Brunet, Superintendent, Unit 1
M. Wharton, Supervising Engineer, Unit 1
*D. Dunn, Project Quality Assurance Supervisor
*J. Tate, Supervisor of Plant Operations
*G. McDonald, Unit 1 Quality Assurance Supervisor

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

*Denotes those attending the Exit Interview on October 31, 1980.

2. Inspection of Plant Operations During Long-Term Outage

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, 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 reviewed the Temporary Modifications Log (lifted leads and jumpers) and the active "Clearances." Selected "Clearance" tags were verified to be in place as indicated by the records.

The inspector walked down portions of the auxiliary feedwater and chemical and volume control system to verify they were correctly lined up for the existing plant status. Five RWP's were reviewed for proper completion, and five radiation monitoring instruments were checked for operability and calibration.

No items of noncompliance or deviations were identified.

3. Monthly Surveillance Observations

The inspector observed licensee personnel measure boron concentrations, perform portable radiation detector calibrations, perform area radiation monitoring system checks, and perform radiation surveys. Surveillance activity was relatively low. The activities observed were performed in accordance with the appropriate procedures. Limiting conditions for operation were met where applicable. Logs and records were kept, and were reviewed independently where required. The licensee's records indicate that all surveillances required to be completed during this period were completed.

No items of noncompliance or deviations were identified.

4. Monthly Maintenance Observations

a. Routine Activities

The inspector observed portions of the following maintenance:

- Steam driven auxiliary feedwater pump turbine repair.
- 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, replacement parts and materials used were certified, and that fire prevention controls were appropriate for the activities.

b. Steam Generator Repair Program

During this inspection period, the licensee completed the water and magnetite grit mixture decontamination of the "B" and "A" steam generators and commenced decontamination of the "C" steam generator. In addition the licensee began to individually hone the surface corrosion layer from each "B" steam generator tube which was planned to be sleeved. By the end of this period approximately 1500 of the 2500 tubes to be sleeved in the "B" steam generator had been honed.

The inspector reviewed the licensee's actions taken in response to the dilution event of September 21, 1980. These actions were to revise the 10 CFR 50.59 analysis to further discuss the measures to be taken to remove grit from the reactor coolant system, to install a newer type of inflatable seal which was designed to reduce the likelihood of seal rupture, and to revise the decontamination procedure to require more frequent monitoring of the system for rapid inventory losses which might indicate seal failure. The inspector confirmed these actions. (Item 50-206/80-28-01 Closed).

On October 20, 1980, the inspector reviewed the records of the decanting of the decontamination waste storage tank performed on October 19. This decanting was performed using a temporary hose from the decontamination waste storage tank through a filter to the containment sump, and thence immediately to the west holdup tank. Licensee samples of the water for radioactivity indicated the presence of alpha radioactivity. A licensee representative stated that these samples would be analyzed offsite using alpha spectometry to quantify the radioactivity in the samples. (OI 50-206/80-31-02).

On October 22, 1980, licensee personnel informed the inspector that the decontamination spray arm had fallen off while it was being used to decontaminate the "A" steam generator hot leg channel head, for an unknown period of up to 38 minutes. While the explanation and analysis of this event was still being developed by the licensee, the arm again fell off on October 24; this time for up to sixty minutes. The arm is in three segments, each connected by a sliding dovetail joint, with each joint locked by a hand-tightened bolt. The licensee concluded that due to insufficient care by one operator, two of these segments had been misassembled on October 22. After the separation at one joint on that date, the arm had been inspected for proper assembly, but the inspection had failed to detect the improper assembly at a second joint, according to a contractor representative. The contractor conducted immediate retraining of all operators who were required to assemble this equipment. A licensee representative stated that an inspection of the "A" hot leg channel head would be performed prior to steam generator closure and appropriate corrective action developed. The inspector interviewed the licensee and contractor supervisory personnel, inspected the equipment to evaluate the licensee's explanation, and stated that the actions taken appeared adequate to prevent recurrence. The inspector also stated that the licensee should report the results of the steam generator inspection once it was performed. (OI 50-206/80-31-03).

No items of noncompliance or deviations were identified.

5. Followup on Significant Event (Loss of Foreign Material Control Inside the Reactor Coolant System)

On October 10, 1980, the licensee informed the inspector that several pieces of debris were unaccounted for in the "A" hot leg of the reactor coolant system. In addition, on October 14, 1980, the Plant Manager provided the inspector with a list of 12 additional items which had been recovered from that leg after the initial report on October 10. Also, he informed the inspector that a metal cover plate for the "A" steam generator cold leg loop seal had been inadvertently dropped into the "A" cold leg and could not be immediately recovered.

Prompt discussions between licensee representatives and the NRC were conducted. These discussions resulted in the Immediate Action Letter dated October 15, 1980. This letter confirmed that the licensee would halt all steam generator work until it had revised its written procedures to incorporate stricter tool control, foreign material exclusion and steam generator channel head debris inspection requirements. The inspector subsequently verified that these procedural requirements had been incorporated by the licensee.

In addition, the letter confirmed that prior to the resumption of power operations, the licensee would submit to the Regional Office of Inspection and Enforcement a written report on the deleterious effects, if any, of any unrecovered foreign material in the reactor coolant system. This report, of necessity, must evaluate what amount of foreign material might not be recovered due to size, location and other considerations (OI 50-206/80-31-01).

No items of noncompliance or deviations were identified.

6. Followup on Items of Noncompliance

A. (Closed) Deficiency (79-12-01)

The inspector reviewed the licensee's response and verfied by review of the revised procedure, S-A-112, "Station Quality Assurance Program", that the list of safety-related equipment had been corrected. This item is closed.

B. (Closed) Infraction (79-12-02)

The inspector reviewed the licensee's procedure, SO1-II-1.9, "Control, Calibration, and Maintenance of Measuring and Test Equipment" and verified that the procedure now included a reference to the four Roylyn pressure gauges which had cited as not being calibrated on time.

C. (Closed) Infraction (80-09-01)

Time constraints during which required actions must be taken had been incorporated into all emergency operating instructions. The inspector reviewed a portion of these instructions and stated the licensee's actions appeared adequate. This item is closed.

D. (Closed) Infraction (80-09-02)

The inspector verified that the licensee's emergency operating instructions had been reviewed and revised. This completes the required corrective action for this item.

E. (Closed) Infraction (80-12-01)

The inspector reviewed the licensee's response and discussed it with licensee personnel. The inspector verified that the required data had been subsequently recorded. The inspector stated that licensee's discussion of the mandatory nature of procedures with the instrument technicians appeared adequate. This item is closed.

F. (Closed) Deficiency (80-12-02)

The inspector reviewed the licensee's corrective action and measures to prevent recurrence, and stated that the discussion of the importance of following procedures with the instrument technicians appeared to be sufficient. This item is closed.

G. (Closed) Deficiency (80-16-01)

The inspector verified that the licensee had revised its procedures SOI-3-1.3, "Determination of Just Critical Rod Position and Reactor Shutdown Margin" and the associated calculation form. The inspector stated that the revised form and procedure appeared adequate to ensure accurate calculation of shutdown margin in the future. This item is closed.

H. (Open) PAT Notices of Violation (80-19-02)

(1) The inspector reviewed the licensee amended schedule and progress report for the revision of all procedures to incorporate requirements of ANSI N18.7-1976. The inspector stated that the stretchout of the schedule was acceptable provided that other commitments made by the licensee in regard to maintenance personnel retraining and establishment of a preventive maintenance program were not also delayed by the proposed postponement of the development of new maintenance procedures until August 1, 1981. A licensee representative stated that no modifications of those commitments was intended.

(2) The inspector reviewed the revised SOI-I-1.14 - "General Maintenance Procedure" and verified that it established requirements for maintenance schedules and periodic replacement of safety-related parts with a service life.

(3) The inspector stated that the licensee's commitment to establish a maintenance retraining program (due November 30, 1980) and to develop a procedure for fire hose inspections remained open on this item and would be inspected later.

I. (Closed) Infraction (80-21-01)

The inspector reviewed the licensee's response and verified that the licensee had established manned control points to prevent future unauthorized entry with improper clothing or monitoring devices. This item is closed.

J. (Closed) Deficiency (80-21-02)

The inspector reviewed the licensee's response and verified that protective clothing requirements for steam generator platform work appeared to be uniformly applied. This item is closed.

K. (Closed) Infraction (80-21-03)

The inspector reviewed the licensee's response and corrective action and stated that they appeared adequate. This item is closed.

No items of noncompliance or deviations were identified.

7. Followup On Licensee Responses to IE Bulletins (IEB's)

A. IEB 78-12, 12A (Closed)

The inspector reviewed the licensee's statement in their July 13, 1979 letter (Head to Engelken). According to a licensee representative, this letter stated that weld material records for the reactor pressure vessel had not been maintained, but that the vessel had been built to code. This item is closed.

B. IEB 79-14 (Open)

The inspector reviewed the current status of the licensee's final report on this Bulletin with a licensee representative. The representative stated that the report was not yet available.

C. IEB 79-17 (Closed)

The inspector reviewed the licensee's report: "A Review of Stress Corrosion Cracking at San Onofre Unit 1" (Bechtel - 14000-027 dated February, 1980). This report reviewed the history of austenitic stainless steel corrosion at San Onofre Unit 1 and made three recommendations:

1. Replace all TP 304 pipe and fittings with TP304L.
2. Provide a protective coating for systems directly or indirectly exposed to the seacoast environment.
3. Replace the stainless steel braided electrical tracing with Chemelex 20 PVT-Trace, a fluoropolymer-covered electrical tracing.

Licensee personnel stated that the third recommendation had been accomplished, and that the first two recommendations would be seriously considered for long-range corrective action. The inspector stated that this Bulletin would be closed, but that the contractor's report would be forwarded for further review by NRC, and the licensee's progress in accomplishing these recommendations would be monitored. (OI 50-206/80-31-04).

D. IEB 79-18 (Open)

The inspector determined that the licensee had not yet completed the installation and checkout of the modified announcing system.

E. IEB 79-23 (Open)

A licensee representative stated that the test report on the diesel generator was not yet available for inspection. The inspector stated that the report would be reviewed when it became available.

F.. IEB 79-25 (Open)

A licensee representative stated that the test results on overtravel measurements were not available due to the temporary absence of personnel familiar with their location. The inspector stated that the results would be reviewed upon the return of the knowledgeable person.

G. IEB 79-27 (Closed)

The inspector confirmed with a licensee representative that an emergency procedure for loss of electrical power to the 125 vdc buses would be prepared sufficiently prior to the unit's return to power for the Resident Inspector to review and comment on. (OI 50-206/80-31-05). This item is closed.

No items of noncompliance or deviations were identified.

8. Inspection of TMI Task Action Plan Category "A" Requirements

The inspector confirmed that the licensee had completed several TMI "Lessons Learned" actions, or had initiated action to complete them, as noted below by the reference to the NRC Action Plan (NUREG 660) item number:

a. Task Action Plan (TAP) 1.A.1.1

The inspector verified through discussions with licensee personnel and review of Operating Instruction S-0-6, "Duties and Responsibilities and Authority of the Shift Technical Advisor" that the licensee had stationed interim Shift Technical Advisors as required.

b. TAP 1.A.1.2

The inspector reviewed Operating Instruction S-O-4, "Watch Engineer's Authority, Responsibilities and Duties," and a memo from Vice President for Nuclear Engineering and Operations, R. Dietch, dated January 2, 1980 to verify that the Watch Engineer's duties had been described as required by this item.

c. TAP 1.C.3

The inspector reviewed Operating Instruction S-O-100, "Station Operations" and verified that the definition of authority required had been made by the licensee. He further verified that the Watch Engineer training program emphasized the safety responsibility of the Watch Engineer.

d. TAP 1.C.4

The inspector reviewed S-O-100, "Station Operations" and S-A-103, "Control Room Access," and determined that these procedures made adequate provisions for controlling control room access.

e. TAP II.D.3

The inspector verified that positive indications of valve position for the pressurizer power operated relief valves had been installed. The inspector also reviewed the preoperational test results for this system. The inspector stated that the licensee's actions adequately addressed this item.

f. TAP II.E.1.2

The inspector interviewed a licensee representative responsible for this item who stated that the licensee had agreed with NRR to implement all seven required criteria in its automatic feedwater system by January 1, 1981. This system is to be "safety grade." The representative further stated that this commitment was contingent upon regional power availability and the availability of required materials. The inspector determined by observation that the licensee's present auxiliary feedwater system has been modified by the installation of a remote manual (from the control room) discharge valve for the electric-driven auxiliary feedwater pump. The inspector further noted that a letter from NRR dated December 21, 1979 required that the licensee not automate the auxiliary feedwater system until NRR had reviewed and approved the licensee's steam line break and feedwater break analyses. The licensee representative stated that these analyses would be submitted to NRR by December 1, 1980. On the basis of these facts the inspector stated that the licensee's actions were acceptable.

g. TAP II.E.3.1

The inspector reviewed the licensee's pressurizer heater power supply installation. He observed that the heaters are powered from 480 Vac buses 1 and 2 which can be powered redundantly from either onsite or offsite power. The inspector also verified that Procedure S-3-5.5, "Loss of Coolant", specifically required the operator to reenergize the necessary groups of pressurizer heaters to establish and maintain natural circulation. The inspector stated that the time required to connect pressurizer heaters to their emergency power source appeared consistent with prompt initiation and maintenance of natural circulation. The inspector observed that the interfaces of the pressurizer heaters to the Vital Buses were through Westinghouse Mode DB-25 ACB's which tripped on overcurrent or low level in the pressurizer. The inspector stated that this appeared to be isolation similar to that used for safety-related components powered from the vital buses, and that the licensee's actions appeared acceptable.

h. TAP II.E.4.2

The inspector reviewed the licensee's completed preoperational test 2.1.4-1, "Diverse Containment Isolation System Test"; observed the installed equipment in the control room; reviewed the licensee's list of essential and non-essential systems; verified that all non-essential systems were isolated by the containment isolation signal when tested; that resetting of the isolation signal did not result in automatic reopening of containment isolation valves when tested; that reopening of containment isolation valves required deliberate operator action when tested; and that containment isolation was initiated by either a safety injection initiation signal or by high pressure in the containment. The inspector stated that the licensee's actions were acceptable.

i. TAP II.F.2

The inspector observed that a "control grade" primary coolant saturation meter was installed in the control room which automatically selected the hottest hot leg loop temperature for control room display. The inspector noted that the licensee had decided that additional instrumentation to supplement this meter was unwarranted in their March 25, 1980 letter to NRR. The inspector stated that the meter installation in addition to the procedures confirmed in Inspection Report (50-206/80-12) appeared to adequately address this item. In addition the inspector stated that Open Items 50-206/80-12-04 and 80-12-05 were closed.

j. TAP II.G.1

The inspector observed that the licensee had installed a backup nitrogen pneumatic operation system for the pressurizer power operated relief valves (PORV's) and PORV block valves. The inspector also observed that the nitrogen system had been identified as essential, and the containment isolation system had been appropriately modified. The inspector noted that this item implied that these valves were electrically operated, while at San Onofre 1 they are pneumatically operated, and the pneumatic source of power, the instrument air system, is not safety related or qualified. The inspector stated that notwithstanding this anomaly, the licensee's actions appeared acceptable.

k. TAP III.A.1.2

The inspector observed that neither the Technical Support Center (TSC) nor the Operational Support Center (OSC) definitions had been incorporated into the licensee's Emergency Plan, but noted that according to a licensee representative the plan would be updated to reflect these centers as well as other changes by January 1, 1981. Licensee personnel stated that the facility presently does not have isometric drawings for some piping systems less than 2" in diameter, nor photographs of these systems, so that the TSC set of drawings is incomplete. Furthermore, the inspector noted that some inaccuracy in the existing facility drawings of safety-related systems had been recently identified by the inspector (See Inspection Report 80-16 pp 5-6). Notwithstanding this, the inspector stated that it was apparent that the licensee had in fact established an interim TSC and OSC, and therefore the completion of this item was substantially confirmed.

l. TAP III.D.1.1

The inspector reviewed the leak reduction program established by the license in S-I-1.71, "Maintenance of Auxiliary Radioactive Systems Outside Containment", S-111-2.40, "Post Accident Operation of Radioactive Waste Systems", S-3-3.26, "Leakage Test of Radioactive Systems Outside Containment", and Technical Specification 4.2, "Safety Injection and Containment Spray System Periodic Testing. The inspector observed that the licensee's test program was in two parts: measurements of leakage from the recirculation loop outside containment, as required by the Technical Specifications; and measurements of other leakage from other systems that might contain highly radioactive fluids during a serious transient. The licensee has submitted the overall leak rate results to NRR in a letter dated January 17, 1980. A licensee representative stated that the implied acceptance criteria for all leakage was 625 "effective" cc/hr, where the Technical Specification weighted leak rate known as "effective leak rate" is used. The inspector

noted that S-3-3.26 did not specify the plant valve lineup in which the leakage was measured, and to that extent a different valve lineup might produce different leak rate data. The licensee was not able to retrieve the raw test data at the time of the inspection. The inspector stated that it would be reviewed once the licensee retrieved it. (OI 50-206/80-31-07).

The inspector additionally reviewed the licensee's preventive maintenance program to reduce leakage to as-low-as-practical, S-I-1.71. The inspector observed that this procedure only required that when components were repaired that the use of lower leakage rate materials or components should be "considered". The inspector stated that this vague direction to workers was acceptable absent any regulatory guidance. However, the inspector will monitor the licensee's implementation of this program to ensure that it is effective. (OI 50-206/80-31-06).

No items of noncompliance or deviations were identified.

9. Exit Interview

An exit interview (Paragraph 1) was held on October 31, 1980 to summarize the scope and findings of this inspection. The inspector also reminded the licensee of the importance of vigilant fire prevention inside the containment during this outage, due to the large amounts of combustible (albeit fire-resistant) polyethylene sheeting being used there. The inspector noted that the sheeting (Visqueen) releases large quantities of noxious black smoke when it burns. A licensee representative stated that the use of large quantities of this material inside containment would be reviewed. (OI 50-206/80-31-07).