

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-312/82-42

Docket No. 50-312 License No. DPR-54 Safeguards Group \_\_\_\_\_

Licensee: Sacramento Municipal Utility District  
P. O. Box 15830  
Sacramento, California 95813

Facility Name: Rancho Seco Unit 1

Inspection at: Herald, California (Rancho Seco Site)

Inspection conducted: November 5 to December 6, 1982

Inspectors: Talbert Young Jr. for 12-15-82  
Harvey L. Canter, Senior Resident Inspector Date Signed  
Talbert Young Jr. for 12-15-82  
John O'Brien, Unit Resident Inspector Date Signed

Approved by: Talbert Young Jr. 12-15-82  
T. L. Young, Jr., Chief, Reactor Projects Section No. 2 Date Signed  
Reactor Projects Branch No. 1  
Date Signed

Summary:

Inspection between November 5 to December 6, 1982 (Report No. 50-312/82-42)

Areas Inspected: Operational safety verification; long-term shutdown activities; maintenance observations; surveillance observations; review of plant operations; followup on regional requests; followup on items of noncompliance; Licensee Event followup; followup significant events, and independent inspection effort. The inspection involved 160 inspector hours by the Resident Inspectors.

Results: Of the ten areas inspected, no items of noncompliance or deviations were identified.

## DETAILS

### 1. Persons Contacted

- \*R. Rodriguez, Manager Nuclear Operations
- P. Oubre', Plant Superintendent
- \*F. Blachly, Operations Superintendent
- \*R. Colombo, Technical Assistant
- G. Coward, Maintenance Superintendent
- \*J. Edwards, Associate Nuclear Engineer Assistant
- D. Gardiner, Senior Chemical and Radiation Assistant
- W. Jurkovich, Supervising Resident Construction Engineer
- F. Kellie, Assistant Chem. and Radiation Superintendent
- R. Miller, Chemistry/Radiological Superintendent
- \*T. Perry, On-site Quality Assurance Supervisor
- J. Price, Surveillance Test Coordinator
- \*D. Ross, Special Agent (Part Time)
- L. Schwieger, Quality Assurance Director
- B. Spencer, Shift Supervisor
- T. Tucker, Planner/Scheduler
- J. Uhl, Mechanical Engineer
- \*D. Whitney, Engineering and Quality Control Superintendent
- B. Wichert, Plant Mechanical Engineer

The inspectors also talked with and interviewed several other licensee employees, including members of the engineering, maintenance, operations, and quality assurance (QA) organizations.

\*Denotes those attending the Exit Interview on December 6, 1982.

### 2. Operational Safety Verification

The plant was critical and at power until the swing shift on November 20, 1982, when the plant was shutdown due to a Steam Generator tube leak of 4-5 GPM (see paragraph 10). The plant was immediately taken to cold shutdown. The resident inspectors were on site and observed the licensee's implementation of the emergency plan.

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators. The inspectors verified the operability of selected emergency systems, reviewed tagout records, and verified proper return to service of affected components. Tours of the Auxiliary Building and Turbine Building were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspector verified that the Physical Security Plan was being implemented in accordance with the Station Security Plan.

The inspectors examined plant housekeeping/cleanliness conditions and verified the implementation of radiation protection controls. The inspector also walked down the accessible portions of the Auxiliary Feed System and Emergency Power System to verify operability, and witnessed portions of the Radioactive Waste System controls associated with radwaste barreling.

The Systematic Appraisal of Licensee Performance (SALP) Board met in the Region V office on November 23, 1982. Their report of SMUD's Rancho Seco performance over the period of July 1, 1981, to September 30, 1982, will be issued at a later date.

On November 9, 1982, the NRC issued an approval for the use of a facility next to the SMUD General Office for the Emergency Offsite Facility (EOF). The EOF will be used as a nerve center for emergency activities in the event of major safety problems at Rancho Seco.

Also, on November 9, 1982, Mr. J. J. Mattimoe was named SMUD's General Manager. The position he vacated, Assistant General Manager and Chief Engineer, is expected to be appointed by Mr. Mattimoe during the month of December 1982.

During the middle of November 1982, the International Atomic Energy Agency (IAEA) performed an inspection. Their main interests were with spent fuel accountability.

The licensee's operational staff was diminished by two during this report period. A shift supervisor moved to the SMUD Geothermal site as a Plant Superintendent and a Control Room Operator left the SMUD organization. This turnover in personnel has been accounted for in the licensee's ability to staff the site with six four-person licensed crews. The date for this full staffing event is still estimated as June 1985.

Finally, due to the steam generator tube leak shutdown, the licensee may extend the shutdown for the 1983 refueling outage from January 22, 1983, to mid-February 1983.

### 3. Long Term Shutdown Activities

The plant was shutdown with the RCS drained down between November 21, 1982, and the end of the inspection period. During this time, the licensee performed Eddy Current testing of about 1,280 tubes in the "A" OTSG. It is expected that the plant will return to power during the second week in December.

During the report period, the inspectors observed control room operations, reviewed applicable logs, and conducted discussions with control room operators. The inspector verified that surveillance tests required during the shutdown were accomplished, reviewed tagout records, and verified containment integrity. Tours of the Auxiliary Building and Reactor Building, including exterior areas, were made to assess equipment conditions and plant conditions. Also, the tours were made to assess the effectiveness of radiological controls and adherence to regulatory requirements. Maintenance work requests were verified to have been initiated for equipment maintenance. The inspectors observed plant housekeeping/cleanliness conditions and looked for potential fire hazards. The inspectors, by observation and direct interview, verified that the Physical Security Plan was being implemented in accordance with the Station Security Plan. The inspectors reviewed the licensee's jumper/bypass controls to verify there were no conflicts with technical specifications. Finally, the inspectors witnessed portions of the radioactive waste systems controls associated with radwaste shipments.

No items of noncompliance or deviations were identified.

4. Maintenance Observations

The inspectors observed portions of the maintenance activities listed below and verified that work was accomplished in accordance with approved procedures, that work was accomplished by qualified personnel, that provisions for stationing a fire watch to oversee activities involving welding and open flame were complied with, and that LCO requirements were met during repair.

- a. Plant fire control systems.
- b. Diesel fire pump repairs.
- c. "A" One-Through-Steam-Generator (OTSG) tube repairs.
- d. Secondary holdup tank radiation monitor repairs.

No items of noncompliance or deviations were identified.

5. Surveillance Observations

The inspectors observed portions of the below listed surveillance testing to verify that the tests were covered by properly approved procedures; that the procedures used were consistent with technical specification requirements; that a minimum crew requirements were met; that test prerequisites were completed; that special test equipment was calibrated and in service; and that the test results were adequate.

- a. SP201.03B - Surveillance of Plant Fire System (diesel).
- b. SP200.18 - Monthly Auxiliary Feed Pump P-319 Operational Verification Test.
- c. SP207.04 - Weekly RCS Leakage evaluation.
- d. SP206.03B - Monthly test of "B" diesel-generator.

No items of noncompliance or deviations were identified.

6. Review of Plant Operations

Procurement

The inspector examined procurement and storage activities to ascertain whether the purchase of components, materials, and supplies used for safety-related functions is in conformance with the licensee's approved QA program and implementing procedures.

The inspector witnessed a receipt inspection, and verified nonconforming items are segregated and marked accordingly; housekeeping and environmental requirements for storage of QA Class I components are being met; and limited shelflife items are controlled.

In addition to the above the inspector selected three QA Class I components (one mechanical, one electrical, and one instrument and control) and verified their traceability. The inspector examined records that include (1) purchase orders; (2) receipt records; (3) storage locations; (4) issue records; and (5) QA certification records.

No items of noncompliance or deviations were identified.

7. Follow-up on Regional Requests

During the inspection period, personnel from the Region V office of the NRC in Walnut Creek, California, requested information from the resident inspectors regarding the operation and maintenance of the Rancho Seco power plant. Information was obtained and transmitted to the Region V office concerning:

- a. "A" OTSG tube leak repair status.
- b. QA, QC, and Emergency procedures.
- c. Chemistry and radiological program.
- d. Construction schedules for plant modifications.
- e. IAEA inspection of November 15-16, 1982.

No items of noncompliance or deviations were identified.

8. Follow-up on Items of Noncompliance

a. Item 81-36-01: CLOSED - Inaccurate Prints

Three Engineering Change Notices (ECNs) have been issued which encompass changes to about 99 drawings in the Reactor Protection System. The licensee appears to be following procedures for issuing DCNs and for checking drawings per Engineering Configuration Procedure 1.

The commitments for corrective action noted in a February 19, 1982 letter to R. H. Engelken from J. J. Mattimoe appear to have been satisfied.

This item is CLOSED.

b. Item 82-28-01: CLOSED - Quality Assurance Procurement Practices

Commitments made in a September 9, 1982 letter, J. J. Mattimoe to R. H. Engelken, had apparently been satisfied.

This item is CLOSED.

No items of noncompliance or deviations were identified.

9. Licensee Event Report Follow-up

The resident inspectors performed an examination of the following licensee event report to ascertain whether additional inspection effort or other IE response is warranted, whether corrective action discussed in the licensee's report appears appropriate, and whether the information reported to the NRC appears to satisfy reporting requirements. The report listed below appears to meet the above criteria and requires no further follow-up at this time.

LER 82-29: CLOSED - Auxiliary Feed Pump Technical Specification Problem

The inspector verified that monthly surveillance tests have been performed as intended in the original technical specification Amendment 31, even though the issued specification was in error.

No safety problem was caused by this problem. The licensee intends to amend the technical specification such that the phase imbalance/underpower RCP-AFP start circuit is only checked each shift and calibrated each refueling. The low main feedwater pressure AFP start specification will be tested monthly and calibrated each refueling.

This item is CLOSED.

No items of noncompliance or deviations were identified.

## 10. Follow-up on Significant Events

Three events occurred during the month of November which the inspectors examined:

### a. Steam Generator Tube Leak

At 11:09 p.m. on November 20, 1982, while the reactor was at 95 percent power, the licensee determined on the basis of radiation monitor readings and alarms that a steam generator tube leak had occurred in the "A" steam generator. Shortly thereafter, the operators commenced a shutdown towards the cold shutdown condition. The three counties around Rancho Seco, the State, and the NRC were notified as required. The resident inspectors were on site about an hour and a half after declaration of an Unusual Event (UE), and stayed on site until after the plant was placed on Decay Heat Removal cooling at 8:08 a.m. on November 21, 1982. The plant reached cold shutdown at 1:05 p.m. on November 21, 1982 and the UE was terminated. The licensee expected the facility to be shutdown for at least four weeks for repairs.

The senior resident inspector (SRI) observed that the noble gas release rate at 1:10 a.m. on November 21, 1982, was about 0.021 percent of the instantaneous release rate limit for X 133 and 0.003 percent of the instantaneous release rate limit for X 135. The licensee had estimated the total amount released to have been on the order of 10 curies, principally X 133. This release was estimated to be less than one percent of the amount allowed by the Technical Specifications (TS).

A press release was issued by the licensee at about 1:00 p.m. on November 21, 1982. Media interest had been moderate. Region V had made this information available to the news media through their recorded message system.

The IE:HQ Duty Officer and the resident inspectors were notified at 11:32 p.m. and 11:45 p.m., respectively, on November 20, 1982. Commissioner Assistants were briefed by telephone at approximately 6:15 a.m. (PST) on November 21, 1982.

On November 27, 1982, the licensee determined the leaking tube to be a lane tube (#77-2). One additional tube (#74-15) adjacent to the lane was found with a 46 percent through-wall indication. The broken tube exhibited a 340 degree circumferential clean brittle type break with a maximum separation of about 1/32 inch. This was seen by a fibre-optics inspection of the tube prior to plugging. The inspector viewed this tape. Both tubes were plugged on December 2, 1982. Approximately 1,280 tubes received Eddy Current testing in response to the tube leak. The Reactor Coolant System was turned over to Operations on December 3, 1982, for filling and venting.

If the plant is back on line by December 10, 1982, their shutdown for refueling and TMI modifications will be moved back from January 22, 1983, to about February 9, 1983.

Two events occurred while the inspector was onsite witnessing the response to the vent. First, a number of control rods dropped in Safety Groups 1 while the licensee was driving the control rods into the core. The dropped rods represented no safety concern at the time for core was already subcritical. Maintenance work performed later in the week after this event indicated that the cause of the dropped rods on the Safety Groups was a rod programmer hardware problem. Maintenance procedures performed on the programmers seems to have corrected the problem. During plant startup, the rods will be surveillance tested to assure operability.

Second, the "A" Decay Heat Cooler outlet safety features valve (SFV26039) failed to close while attempting to bring the "A" Decay Heat System in service on the morning of November 21, 1982. Since the valve failed in its Safety Features position, and for other reasons, there was no immediate concern. An electrical maintenance foreman was in the control room and had seen this problem occur before. He went to the motor control center which powered the valve and repaired the problem. A work request was then written to document his repair effort and to enter the motor control center prior to start up to perform some preventive maintenance on the valves logic circuits. This work request (#70231) was not complete at the end of this inspection period. The inspectors will follow-up on the results of this maintenance because the relay that failed may have been one of a type that caused generic problems throughout the industry about five years ago. (82-42-01)

No items of noncompliance or deviations were identified.

b. Nuclear Services Electrical Building Fire Incident

The following excerpts from an incident report dated December 1, 1982, summarizes the event that occurred on November 24, 1982:

"Investigation of the fire incident in the Nuclear Service Electrical Building was conducted on November 24, 1982.

This incident occurred on the grade level floor of the NSEB in the East switchgear room. During the work day of November 23, Foley personnel placed 2"x12" scaffolding planks six inches from the face of a 480 volt radiant heater, suspended vertically from cable tray supports, ten feet above floor level. The heater was energized at approximately 1545, as Foley personnel left for the day.

At approximately 0300 hours on November 24, 1982, Security personnel notified the Control Room of smoke in the NSEB. A search by Fire Brigade personnel was made, and the point of origin found. The planks were removed and extinguished and the heater disconnected.

The type of planking involved is full sized 2"x12" Douglas Fir, pressure treated and painted with fire retardant materials, and are cut and graded for scaffolding purposes. The fire retardant qualities of the material allowed no flame propagation or spread beyond the heater's direct radiation. The fact that the planking was charred to a depth of 1-7/8 inches is due to pyrolysis, or thermal decomposition, indicative of low temperatures, (lower than ignition temperatures) over a long period of time, 11 hours of radiant heat in this instance. This phenomenon occurred in this instance due to the fire retardant chemicals and the mass of the materials.

In conclusion, the following has been established to minimize a recurrence.

1. More frequent surveillance by Safety personnel.
2. Hourly fire watch on backshifts and weekends.
3. Strict controls in the placement of materials in the NSEB by Engineering, and Foley supervision.
4. Reaffirm hot work fire watch procedures for Foley personnel."

No items of noncompliance or deviations were identified. There was no effect on the plant due to this event because the plant was shut down for steam generator leak repairs.

c. Contaminated/Injured Man

At 7:35 p.m. on November 27, 1982, a 31-year old boilermaker fell about 17 feet in the reactor building. He was working on the "A" OTSG tube leak repairs. All licensee efforts were expended in aiding the victim who had many potential physical maladies following his fall. The licensee informed the NRC of the employee's fall and the resident inspectors followed up on the event on Monday, November 29, 1982.

When the employee left the site in an ambulance, he had contamination on his clothes at a level of about 200 dpm/100 cm<sup>2</sup>. A licensee health physicist accompanied the ambulance to Sutter General Hospital in Sacramento.

The employee is recovering at this time with a number of minor injuries.

No items of noncompliance or deviations were identified. The plant was shutdown during this event and no spread of contamination was noted.

#### 11. Independent Inspection Effort

Discussions were held between the resident inspectors and operations, security, and maintenance personnel in an attempt to better understand problems they may have which are related to nuclear safety. These discussions will continue as a standard practice.

On numerous occasions, during the month of November 1982, the resident inspectors attended operations status meetings. These meetings are held by the Operations Supervisor to provide all disciplines onsite with a update on the plant status and ongoing maintenance work.

In addition to the above, independent inspection effort was performed on the following items:

a. Item 81-25-02; CLOSED - Auxiliary Feed Pump "Phantom" Starts

Pressure switches at the main feed pump discharge may be used to start auxiliary feed pumps. Instrument drift in some of these instruments could have caused an auxiliary feed pump start without operator action. All pump logics were verified to be operational by the performance of STP-895 and the pressure switches recalibrated.

This item is CLOSED.

b. Item 81-25-03: CLOSED - Failure of "A" Decay Heat Pump Protection Interlock.

A limit switch was found to be out of adjustment on HV20001, the first out dropline Decay Heat Pumps suction valve. This disabled the interlock which is supposed to trip the "A" decay heat pump when HV20001 comes off its open seat. The interlock is provided to preclude a loss of suction to the pump while operating. The limit switch was adjusted via work request 59725, and the system was functionally tested satisfactorily.

This item is CLOSED.

No items of noncompliance or deviations were identified.

12. Exit Interview

The inspectors met with the licensee representatives (denoted in paragraph 1) on December 6, 1982. The scope of the inspection, the observations and findings of the inspectors were discussed, and the licensee representative acknowledged the inspectors' observations.

The inspector informed the licensee of a problem with high density fuel rack installation at Quad Cities Nuclear Power Station. The manufacturer of these fuel racks is the same one who may manufacture Rancho Seco's new fuel racks. The licensee acknowledged the inspectors information.

Also, the inspector dicussed a problem with the Rancho Seco security system which could be an operational hazard. The licensee is pursuing a change to the security system which will alleviate operational concerns.