

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

REGION V

Report No. 50-312/79-14

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

Inspection At: Clay Station, California

Investigation Conducted: June 19 - July 6, 1979

Inspectors: P. J. Morrill 27/7/79
P. J. Morrill, Reactor Inspector Date Signed

L. F. Miller 7/27/79
L. F. Miller, Reactor Inspector Date Signed

A. J. Horn 7/27/79
A. J. Horn, Reactor Inspector Date Signed

R. F. Fish 7/30/79
R. F. Fish, Radiation Health Physicist Date Signed

Approved By: B. H. Faulkenberry 7/31/79
B. H. Faulkenberry, Chief, Reactor
Projects Section 2, Reactor Operations
and Nuclear Support Branch Date Signed

Summary:

Investigation on June 19 through July 6, 1979 (Report No. 50-312/79-14)
Areas Investigated: Investigation of allegations made by an anonymous individual on June 18-19, 1979 regarding safety at Rancho Seco and followup of potential items of noncompliance/safety problems identified during interviews conducted June 21-22, 1979 with Rancho Seco operations personnel. This investigation involved 80 hours onsite by four NRC inspectors.

Results: No items of noncompliance or deviations were identified.

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DETAILS

1. Individuals Contacted

- **R. Rodriguez, Manager, Nuclear Operations
- P. Oubre, Plant Superintendent
- R. Colombo, Technical Assistant
- J. Mau, Training Coordinator
- *J. McColligan, Technical Supervisor
- *W. Ford, Operations Supervisor
- *G. Coward, Maintenance Supervisor
- R. Miller, Chemical and Radiation Protection Engineer
- T. Morrill, Senior Chemical and Radiation Assistant
- W. Wilson, Senior Chemical and Radiation Assistant
- F. Kellie, Plant Nuclear Chemist
- D. Wiles, Instrumentation and Controls Foreman

The inspectors also talked with other licensee personnel and interviewed 14 nonlicensed operation personnel.

*Denotes licensee personnel attending exit meeting on June 22, 1979.

**Denotes licensee personnel attending exit meeting on July 6, 1979.

2. Investigation Outline

On June 18, 1979, NRC personnel in Washington, D. C. received by long distance telephone call an anonymous (Individual A) allegation regarding safety at Rancho Seco. The substance of the allegation was that turnover of nonlicensed station operators and other personnel is excessive and that training of new people is minimal. This information was relayed to the IE Region V Office in Walnut Creek for followup the same day.

On June 19, 1979, the IE Region V office informed one of the onsite inspectors of the allegations and requested that the inspector followup by contacting the allegor or one of his friends who was willing to meet and talk in person with a representative from the NRC. Subsequently, the inspector contacted the allegor's friend (Individual B) and set up an interview for 12:30 p.m. the same day. This interview resulted in five allegations. After examining these allegations and discussing the matter with the Regional Office, it was decided to present the general allegations to the licensee and to interview approximately fifty percent of the licensee's nonlicensed operations personnel on shift work.

On June 20, 1979, the inspectors discussed the allegations with licensee management personnel.

On June 21, 1979, the inspectors discussed the operations-oriented allegations with the operations supervisor and requested an opportunity

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to conduct private interviews with nonlicensed operations personnel. On June 21 and 22, 1979, the inspector interviewed 12 nonlicensed operations personnel covering four of the five shifts. Subsequently, the inspector also held discussions with several additional nonlicensed operators. The purpose of these interviews was to determine the validity of the allegations, the effect on plant safety, and if items of noncompliance existed. These interviews resulted in six followup items which could have safety implications or be items of noncompliance. Safety concerns based on hearsay or personal opinion outside the scope of nuclear plant safety or the regulatory requirements were generally not included unless two or more personnel corroborated the concern.

On June 22, 1979, the inspectors interviewed the training coordinator, examined the training program for newly hired operations personnel, and examined training records for 18 persons in this category.

Subsequently, the inspector met with licensee representatives to discuss the investigation findings to date and several concerns which had been identified. In general, the inspector observed that the original allegations appeared to relate to communications and personnel problems which were outside NRC regulatory requirements and indicated these items could be cause for licensee management concern as they relate to plant availability and morale of the plant operating personnel. The inspector stated that the allegations which were substantiated appeared to be either misunderstandings or were not nuclear safety related. However, the inspector stated that during the interviews that were conducted with the operators several concerns having possible safety significance were identified, and Region V was requesting that the following corrective actions be completed during the weekend of June 23-24, 1979:

- a. The shift supervisor (or best qualified person on shift) for each shift should discuss the proper operation of the condensate polisher with all appropriate operators. The system can initiate a major plant transient and should be thoroughly understood by all persons operating the system.
- b. The licensee should verify that all on-shift auxiliary operators have appropriate "Three Mile Island" training prior to going back on shift (i.e., local control of auxiliary feed valves, etc.). One or more persons may not have completed this training due to not being available when the training was originally given.
- c. The licensee should verify that procedures used in the plant by auxiliary operators (AO), equipment attendants (EA), and power plant helpers (PPH) are the current revision and are complete.

The responsible licensee personnel stated that these items would be completed by Monday morning (June 25, 1979).

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On June 25 and 26, 1979, the onsite NRC IE inspector verified that the licensee had successfully completed the above three items.

On June 27, 1979, a Region V Health Physics inspector examined the allegations and followup items related to health physics. His inspection did not identify any items of noncompliance or deviations and, in general, did not substantiate the allegations.

On July 5-6, 1979, the inspector followed up the remaining allegations/followup items to verify that there were no items of noncompliance or deviations from regulatory requirements. On July 6, 1979, the inspector met with the Manager of Nuclear Operations to summarize the scope and findings of the investigation/inspection. No apparent items of non-compliance or deviations were identified, and no nuclear plant safety hazards were identified.

3. Allegations and Findings

a. Anonymous Allegation by Telephone on June 18, 1979 - Individual A

Allegation:

"...Turnover of nonlicensed station operators and other personnel is excessive and training of new people is minimal. Two trainees dropped out of a training and licensing class; we should find out why."

Findings:

As of June 29, 1979, Rancho Seco nonlicensed plant operators on shift work included: six auxiliary operators (AO's) (one upgraded from equipment attendant); nine equipment attendants (EA's) (six upgraded from power plant helper); and 13 power plant helpers (PPH's). Since the beginning of the year, the licensee had lost four EA's and five PPH's.

Training of new operations personnel consists of initial indoctrination (basic health physics, security, and emergency plan) followed by assignment to a shift to become familiar with the plant and its arrangement/function. When a sufficient number of personnel are available, a one month basic plant indoctrination course is given (last given October 1978) followed by reassignment to a shift. At the same time, a power plant self-study course is given which is used (at least in part) to determine eligibility for promotion. Operation of equipment is taught by on-shift personnel and is the responsibility of each shift supervisor. There is no formal training for equipment operation; this training is done on-the-job by assigning an inexperienced operator to other experienced personnel. Personnel are told to ask questions and get help if they do not understand how to do what they are assigned.

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The two personnel who dropped out of training for licensed control operators had stated to plant management that they wished to drop out of this training due to the increased responsibilities being placed on operators after the Three Mile Island accident.

It was substantiated that the turnover of unlicensed plant operators was high (approximately 30% in six months). However, there are no regulatory requirements or specific safety concerns related to this.

It was not substantiated that training of new people is "minimal." It is possible that more and better training could be accomplished, but all operators appeared competent, and experienced personnel are available for inexperienced personnel to seek help from if needed. The licensee's indoctrination program and on-the-job training appear adequate from a regulatory standpoint. Licensee representatives stated that they were developing a more formalized training program for unlicensed operators which would be implemented in 1980.

It was substantiated that two trainees dropped out of a class for control operators; although, no nuclear safety problem or noncompliance with regulatory requirements was identified.

b. Allegations Obtained by NRC IE Inspector on June 19, 1979 - Individual B

Allegations:

- (1) "There is a lack of communication and general disregard concerning A0's and below as to plant status and specific on-going evolutions that affect their work areas. One auxiliary operator was sent into a high radiation area to reposition valves - He found that they had already been repositioned (probably in March or April 1979) with no prior knowledge of this situation."
- (2) "There has been a large (10 people in approximately six months) turnover in personnel filling auxiliary operator, equipment attendant, and power plant helper positions. The on-the-job training for these positions has been conducted by individuals taking the initiative to train themselves. The licensee does not have a formal or on-going training program for auxiliary operators, equipment attendants, etc., for their specific responsibilities in the plant."
- (3) "On April 23, 1979, the following note was observed in the shift supervisor's office on the blackboard:

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'Any communications with anyone about plant operations must be directed to myself or the plant Sup. DO NOT discuss any operating actions/philosophy with anyone other than SMUD management without clearing with me. This includes old friends and PR types.

WF'

The intent of this note was never discussed with AO, EA, and PPH's. Did this include inspectors for example? Who was this aimed at, and for what purpose?"

- (4) "Early in 1979, the flow device for the radiation monitor sampling pump for the regenerative holdup tank was defeated, by direction of plant management, to allow the tank discharge valve to be opened, thereby allowing this water to be discharged to the retention basins.
- (5) "The reliability and workmanship of repairs and maintenance (mechanical, etc., and I/C) are very questionable. In some cases maintenance requests have had to be rewritten two or three times before adequate repairs were made; specifically, conductivity recorders and Na recorders for the condensate polishers, as well as pH meters for the regenerative holdup tanks."

Findings:

- (1) Licensee management personnel stated that the individual has the responsibility for keeping himself/herself informed of plant activities. If the shift supervisor or control operator feels an operations item is germane to another operator's activities, the operator will be informed. The operations supervisor stated that any reasonable question will be answered; although, curiosity type questions may be put off until a nonvital time. Watch relief/turnover is conducted on an individual basis, and if any individual has a recurring problem when obtaining a proper watch relief from another individual then this should be taken up with the shift supervisor.

Regarding the portion of the allegation relating to unnecessary radiation exposure, it appears that this was about the time (shortly after the Three Mile Island accident) that several valve line-ups for auxiliary feedwater and ECCS were required by the IE Bulletin 79-05 series. The general area of radiation exposures/control was subsequently examined in detail. (See Paragraph 3.c.(6) of this report)

The allegation could not be substantiated.

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- (2) The allegation was generally substantiated as described in Paragraph 3.a of this report. Licensee management personnel stated that they were aware and concerned about this matter but that there was little inducement they could offer to retain the best qualified individuals. In any case, this is outside NRC regulatory requirements.
- (3) The operations supervisor stated that he had written such a statement on the shift supervisor's blackboard. He went on to explain that persons had called the plant claiming to be government officials to obtain indepth information about the plant. Similarly, old friends of licensee employees had called to obtain information which would be valuable to their current employer. The note on the board was intended to prevent a multiplicity of personnel from talking to the media and outside industry representatives. Reportedly, about six people asked various shift supervisors what the note was for, and these individuals had the benefit of the above explanation.

The allegation was substantiated; however, there is no safety significance that could be associated with this item.

- (4) The licensee has provided a monitoring system for releases from the regenerant holdup tanks to the basins. This system satisfies the requirements (in Technical Specification 2.6.1.D (Appendix B)) that there be an effluent control monitor with alarm and discharge valve closure capability during the release of radioactive liquid wastes. The monitoring system consists of a flow meter, radiation monitor and small pump with the system flow coming from the suction side of the regenerant waste transfer pump and returning to the regenerant holdup tanks. The radiation monitor has alert and high high alarms with the latter also initiating the closure of the valves in the lines from the regenerant holdup tanks to the basins. A low flow indication on the flow meter will also cause the closure of the valves in the lines to the basins.

Persons were interviewed and records examined to determine whether radioactive liquid wastes had been released from the regenerant holdup tanks during the last 12-18 months. The only potential source of radioactive material that could reach the regenerant holdup tanks is a primary to secondary leak in the steam generators. According to the licensee, weekly samples of the secondary water have been analyzed for gross beta, iodine-131, tritium and scanned for gamma activity. The records of these results for 1978 and 1979 through April 24 showed all results were less than the minimum detectable activity. A random examination of the analyses of samples taken during 1979 from

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the basins prior to release of liquids to the environment showed all results were less than the minimum detectable activity. (The following values are the licensee's minimum detectable activity: gross beta 6×10^{-6} uCi/cc; iodine-131 6×10^{-6} uCi/cc; tritium 6×10^{-6} uCi/cc.)

Individual B in his allegation stated that in early 1979, a device had been used on the flow meter to prevent closure of the valves and permit releases to the basin from a regenerant holdup tank. This allegation could not be confirmed during interviews with operations personnel. A shift supervisor stated that he was not aware of any such action. He said that in early 1979 the I&C personnel had used a hand operator on one of the discharge valves to a regenerant holdup tank while repairing a malfunction. The malfunctioning valve is closed on a high high alarm from the radiation monitor or a low flow indication on the flow meter. The operations supervisor stated that he was not aware of any such action to prevent the low flow shutoff function. According to the operations supervisor, any such actions that are observed by the employees should be reported to supervision because it is not normal to operate in this manner. If it was necessary to override the low flow switch, an interlock bypass key could be obtained from the shift supervisor after appropriate samples were taken from the tank.

The inspector examined plant maintenance and surveillance records for the regenerant holdup tank radiation monitor and flow switch. These records indicated that the switch had required cleaning in July 1978, November 1978 and March 1979. Monthly surveillance tests indicate that the switch also required maintenance in February 1979. The work requests and corrective actions taken by the licensee appeared satisfactory. The inspector was not able to correlate any tank discharges with time periods when the switch was out of service. In any case since no unmonitored radioactive wastes were released from the regenerant waste holdup tanks in 1978 or 1979 and since the retention basins are sampled prior to release, this item has no safety significance.

The allegation could not be substantiated.

- (5) This allegation was discussed with the maintenance supervisor. The maintenance records for selected secondary plant components were also reviewed by the inspector. The inspector examined instrumentation at the condensate polisher station, observing that the devices mentioned in the allegation appeared operable.

Plant management personnel acknowledge that devices/subsystems in the secondary or nonsafety related areas of the plant may not be the best available and may require repeat maintenance. Often, the same device may have to be repaired several times but for different reasons. If a device or system requires too frequent repairs, then the plant engineers have responsibility to identify the situation and take action to redesign or replace the installation. The conductivity and sodium recorder for the condensate polishing system have had problems in the past, but licensee management feels the operability of these components has improved over the last 12 to 18 months due to re-engineering and changes made to the condensate sampling system.

The allegation could not be substantiated.

c. Followup Items Identified by NRC IE Inspectors on June 21-22, 1979 - Unlicensed Plant Operators

Items:

- (1) One auxiliary operator is not Three Mile Island trained for auxiliary feedwater operation.
- (2) Procedures used by operators are not up-to-date and/or are not the same as the official plant procedures.
- (3) Reactor coolant system pressure was lowered below the technical specification limits for about a year to keep technical specification primary leak rate below limits.
- (4) A plant trip occurred due to a failure of valve D-5 to close in the condensate demineralizer system. Operator knowledge of this system is incomplete.
- (5) Manipulation of some valves and reading some instruments results in excessive radiation doses which plant management is not concerned about (specifically, letdown filter and crud tank filter flow gauge).
- (6) Access to important safety related areas is hindered by necessity of getting a guard to open door locks. This prevents rapid access to these areas by plant operations personnel.

NRC Followup:

- (1) The licensee was required to verify AO training and train any AO's who had missed this training prior to returning to regular shift work. This was completed by the licensee on June 23-24, 1979 and verified by onsite NRC inspectors on June 25, 1979.

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- (2) Licensee personnel checked procedures in use in the plant on June 23-24, 1979 to make sure they were up-to-date and complete. Nonsafety related procedures were found at the condensate polisher watch station which were more extensive than the official plant procedures (i.e., margin notes had been neatly added). The procedures relating to taking a demineralizer on or off stream were reviewed, and the notes (if correct) were incorporated into the official procedures prior to plant startup. Onsite NRC personnel verified the above action was completed prior to startup. Other procedures and margin notes will be reviewed and combined in a new revision of the official procedure by the licensee as soon as possible.

Laminated nonsafety related procedures at the radwaste control panel were found which were an out-of-date revision. These were removed and the onsite NRC inspectors verified that current revisions were available to the watchstander at that station.

- (3) The inspector examined selected reactor power and primary system pressure records spanning 1978. No items of noncompliance or deviations were identified.
- (4) The plant trip due to failure of valve D-5 (FV-33022) is summarized in Post Trip Transient Report No. 33. The licensee's actions following this trip appeared satisfactory.

The NRC Region V office requested and the licensee completed additional unlicensed operator training for the condensate polisher system on June 23-24, 1979. The training consisted of classroom discussions and a hands-on session in the plant, both conducted by a knowledgeable operator capable of answering questions relating to the peculiarities of operating this system. The onsite NRC inspectors verified that this training was completed by onshift personnel and that the training was documented.

- (5) Possible Unnecessary Exposures:

(a) Backflushing of Letdown Filter

As stated in the licensee's November 13, 1978 letter to the NRC reporting on an overexposure, a special subcommittee was established by the MSRC to review the "radiation filter operations." A draft of the corrective actions recommended as the result of this special review was distributed during the February 7, 1979 meeting of the MSRC. A formal report of this special review was submitted to the MSRC and discussed during the April 9, 1979 meeting.

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According to the minutes of the April 9, 1979 meeting, the recommended corrective actions of the subcommittee were accepted, and necessary designing will be started by mid-summer and installation completed prior to Cycle IV.

The examination of that portion of the report pertaining to the letdown filter disclosed the recommended corrective actions were supported by the considerations used in making them. These changes would result in being able to backflush the letdown filter from a remote location that is in a lower radiation field. According to the considerations, man-rem exposures related to backflushing of this filter were 0.020, 3.52 and 5.854 for the years 1976, 1977 and 1978, respectively. The summary of the data, from which these yearly exposures were generated, indicates that the average exposure per backflush varied over the range of 2-10 mrem. The effect on curie loading of the makeup filters and the seal inject filters, due to the estimated reduction in time the letdown filter would be bypassed, following the modifications was also considered. The third consideration involved an estimate of the man-rem exposure to be received during the proposed modifications (less than 15 man-rem).

Survey records were examined and discussions held with radiation safety personnel concerning the levels of radiation in those areas occupied during the backflushing of the letdown filter. General area radiation levels have been in the range of 100-200 mR/hr with the significant sources being overhead piping and "hot spots." The radiation safety personnel said they were not aware of any complaints regarding unnecessary exposures related to backflushing the letdown filter.

(b) Crud Tank Filter Differential Pressure Gauge

The gauge, which indicates the condition of the filter, is located in an area near the crud tank filter. Reading the gauge is a routine operation and involves entering this area where generally radiation levels of 100-150 mR/hr exist. Operating supervision estimated that the gauge could be read at a distance of between two and four feet; however, this distance varies with the individual making the reading. Supervision stated that they were aware of the exposures received during the reading of this gauge and other activities of the group of employees performing these functions. Accordingly, the supervision has supplied additional personnel to perform these functions in an effort to limit the individual

exposures received. The crud tank filter was included in the report of the MSRC Subcommittee that was described in Paragraph (a) above. The corrective action should reduce the contribution to the general area radiation level from the crud tank filter.

- (6) The inspector questioned guards and various operators. The inspector also verified that guards were immediately available at locked doors and that they had the appropriate keys. Plant operations personnel do have to obtain a guard to unlock various doors, but the inspector could not identify a major problem in this area.

4. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) on June 22, 1979 and at the conclusion of the investigation/inspection on July 7, 1979 to summarize the scope and findings.