

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-312/86-14

Docket No. 50-312

License No. DPR-54

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

Facility Name: Rancho Seco Nuclear Generating Station

Inspection at: Clay Station, California

Inspection Conducted: April 2-11 and 21-25, 1986

Inspectors:

Kent M. Prendergast
K. Prendergast, Emergency Preparedness Analyst

June 6, 1986
Date Signed

Greg Martin
for Greg Martin, Health Physicist
Pacific Northwest Laboratories

6/6/86
Date Signed

Approved By:

R. Fish
for R. Fish, Chief
Emergency Preparedness Section

6/6/86
Date Signed

Summary:

Inspection on April 2-11 and 21-25, 1986 (Report No. 50-312/86-14)

Areas Inspected: Unannounced routine inspection of the licensee's emergency preparedness program including: knowledge and performance of duties, licensee audits, protective action decision making, emergency detection and classification, changes to the emergency preparedness program, notification and communication, and followup on open items identified during previous NRC inspections. Inspection procedures 82201, 82202, 82203, 82204, 82206, 82207, 82210, and 92701 were addressed.

Results: Of the 7 areas evaluated, 3 apparent violations (with multiple examples) of NRC requirements were identified. The violations concerned: (1) The licensee's failure to insure emergency plan training is provided to all appropriate personnel required by Technical Specification 6.8.1.; (2) The licensee's failure to maintain their emergency implementing procedures current, as required by Technical Specification 6.8.1.; (3) The licensee's failure to follow some of the requirements contained in 10 CFR 50.54(q) and Appendix E.

DETAILS

1. Persons Contacted

SMUD PERSONNEL:

- * J. McColligan, Nuclear Operations Assistant Manager
- * S. Redeker, Operations Manager
- * B. Dieterich, Manager, Nuclear Licensing Department
- S. Woods, Shift Supervisor
- D. Dickey, Senior Control Operator
- R. Macias, Shift Supervisor
- C. Crumpler, Senior Control Operator
- * R. Myers, Emergency Preparedness Coordinator
- R. Le Neave, Emergency Planner
- * D. Finley, Emergency Planner
- * W. Hellums, Emergency Planner
- * R. Tobin, Emergency Planner
- F. Kellie, Health Physics Manager
- E. Bradley, Supervising Health Physicist
- J. Reese, Plant Health Physicist
- B. McDonald, Associate Nuclear Engineer
- D. Elliot, Quality Assurance

CONTRACTORS:

- M. Borter, IMPELL, Emergency Planning
- R. Bass REALOGIC, Software Coordinator

- * Indicates those attending the exit interview.

2. FOLLOW-UP ON OPEN ITEMS

(Open) 85-26-03, Review the responsibility to make PARs in the Emergency Plan and procedures. Section 6 of the Emergency Plan was reviewed and noted to have been changed to clarify the licensee's responsibility to formulate and make a protective action recommendation (PAR) to offsite authorities when conditions warrant. The emergency procedures were reviewed and noted to contain provisions for protective action recommendations. However, the notification form used to notify the offsite authorities referenced AP 528 (Protective Action Guides) which provided no guidance on PARs associated with deteriorating plant conditions, rather it offered guidance only for PARs based upon the results of dose projection. The procedure was determined to be inadequate to be used as a tool for the formulation of PARs based upon plant conditions. This matter is discussed further in paragraph 4B.

(Closed) IN 85-44, Monthly testing of the ENS and HPN. The licensee had reviewed this Information Notice and their procedures for the monthly checks and changed them to include a check of the Emergency Notification System from the Control Room and the TSC. Records of monthly checks were reviewed for 1985 and noted to be adequate.

(Closed) IN-85-62, Backup telephone numbers for the NRC Operations Center. The licensee has followed the guidance in this notice and placed backup numbers for the NRC Operations Center on the ENS phones in the Control Room (CR), Technical Support Center (TSC), and the Emergency Operations Facility (EOF). A physical inspection of the ENS phones in the CR and TSC demonstrated that the labels had been placed on the phones and the correct numbers were in place.

(Closed) IN-85-77. Possible Loss of ENS Due to Loss of AC Power. According to the licensee's file on this issue, the information notice had been reviewed and an evaluation of the wiring for the ENS system was made. The licensee determined that the system was adequately wired and would remain operable if there was a loss of AC power.

3. KNOWLEDGE AND PERFORMANCE OF DUTIES (TRAINING)

The Emergency Plan, emergency implementing procedures, and records of training were reviewed and interviews with plant personnel, Emergency Planning Personnel and the Training Manager were held. The following are the findings and observations.

A review of the licensee's emergency preparedness training program revealed the licensee's contracted training program and related training procedure (Temporary Change AP 580) for emergency preparedness training, had expired on 12-31-85 and had not been replaced by the beginning of this inspection. When the temporary procedure was allowed to expire without being replaced by another procedure, an outdated 1983 procedure, which was not being implemented, became effective. The licensee currently plans to use the site training organization to accomplish EP training. On April 14, 1986, the licensee acquired an additional individual to help reestablish the emergency preparedness training program, and to update AP 580 (Training).

The EP, Section 8.1.3.(a), states in part, "It is the responsibility of the Emergency Preparedness Coordinator to assure appropriate personnel receive Emergency Preparedness Training." In addition Section 8.1.3(c) also states "Records of the District's Onsite Emergency Response Organization training will be maintained by the Emergency Preparedness Coordinator (EPC) with a copy to be forwarded to the Nuclear Training Superintendent." The intent of Section 8 was to insure that someone in the emergency organization was tracking EP training to assure personnel maintained their required training. The review of training performed indicated the EPC was not maintaining training records or tracking required training. The EPC was in possession of a box of records from the former contracted training organization. However, the EPC was unable to produce selected records of the onsite organization, which included Control Room staff, and did not appear to have a method to track required training. The discussions revealed the EPC was not cognizant of the status of EP training implementation. In addition, the licensee did not appear to be maintaining a tracking system to assure appropriate individuals receive timely training. The licensee committed to the NRC in a letter dated August 31, 1984, to establish a tracking system to assure that training is maintained. This review determined that the licensee had initiated a Nuclear Tracking list, but failed to maintain it, in that

the list did not include all members of the control room staff and those individuals who would be designated for the Emergency Team. There was no indication that the licensee was attempting to use the list for its intended purpose.

In order to ascertain the status of emergency preparedness training, the inspector examined individual training records maintained by the Site Training Department. The examination revealed that eight individuals on the Control Room staff had not received their annual emergency preparedness retraining during periods that varied between 15.7 and 17 months. Four of these individuals were Shift Supervisors, the individuals who would be the Emergency Coordinator at the beginning of an emergency. In addition 24 members of the District's Emergency Response Organization, according to records, did not receive retraining, including personnel who would fill positions of the EOF Manager, Radiation Assessment Coordinator, Technical Support Coordinator and other essential positions. Training for the above individuals varied between 16 and 20 months. AP 580, "Training" states that, "Training will be conducted annually, and whenever necessitated by significant revisions to the Emergency Plan, Emergency Plan Procedures, equipment or when changes occur to emergency assignments" and further references attachment 7.1 to describe the specific training. Failure to conduct the required training is an apparent violation of Technical Specification 6.8.1.e which requires implementation of procedures governing the EP.

In addition to the findings identified above, the matter of first aid training was noted to be deficient. First aid training is described in Section 6 of the Emergency Plan. Section 6.2.7 states "Health Physics personnel and the Emergency Team are provided Advanced First Aid, Standard Multi-Media and Cardio-Pulmonary Resuscitation (CPR) Training at Rancho Seco." Section 6.2.7(d)(1) states, "Retraining of personnel qualified in Advanced First Aid or Standard Multi-Media is conducted every three years," and paragraph 3 states "At least one member of the Emergency Team will have Advanced First Aid training."

Based upon discussions with the site nurse it appears that the training for advanced first aid was discontinued approximately 5 years ago, and that multi-media first aid was discontinued 3 years ago. Failure to conduct the required training is an apparent violation of 50.54(q), that requires the licensee to follow and maintain in effect Emergency Plans which meet the standards in 50.47(b) and the requirements of Appendix E.

The inspector further noted there were no records to support that the licensee had conducted training that would have been necessitated by changes in the Emergency Preparedness Program. Discussions with licensee personnel further supported that training has not been provided in all cases. Examples of changes in the emergency preparedness program and the subsequent lack of training are described in Paragraph 4 and 5 of this report.

Two apparent violations for failure to implement training pursuant to 10 CFR 50.54(q) and Technical Specification 6.8.1.e were identified. The Technical Specification violation is a repeat violation. A similar violation was issued August 2, 1984. Apparently the licensee's corrective actions contained in their August 31, 1984 reply to the Notice of Violation have been ineffective (86-14-01).

4. CHANGES TO THE EMERGENCY PREPAREDNESS PROGRAM

Records of changes to the EP and implementing procedures were reviewed, interviews with licensee personnel were performed, and changes in the licensee's Emergency Response Organization (ERO) were examined to determine that the EP and implementing procedures are being adequately maintained, and changes to the Plan and procedures do not degrade the effectiveness of the EP. As a result of this review the inspector identified a number of instances where the EP and implementing procedures were not maintained current. The following are the inspector's findings:

- a) Prior to July 1985 The Herald Fire Department and Lone Fire Academy were designated as offsite relocation points and provisions were made to store emergency equipment and supplies at these facilities. During July 1985 the licensee elected to remove emergency equipment from these 2 facilities, although they still remain offsite relocation points. AP 519, "Site Evacuation" was revised to reflect the changes made to the Herald and Lone facilities. The revised procedure states in 5.2.2, "Radiation monitoring and decontamination equipment must be brought from Rancho Seco to the offsite relocation point." The following procedures were not maintained in that emergency equipment and supplies are still listed as available at these facilities.
 - 1) Section 7 of the EP still lists the Herald Fire Department & Lone Fire Academy as a place where dedicated emergency equipment and supplies are stored. Emergency lockers, ambulance kits, and decontamination (decon) kits are specifically mentioned.
 - 2) AP 516, "Personnel Decontamination," Section 4 refers to decontamination kits which are maintained at the Herald Fire Station and the Lone Fire Academy.
 - 3) AP 552, "Activation And Operation Of The Offsite Relocation Points," Sections 1 and 5 also reference emergency equipment, protective clothing, survey instruments, decontamination kits and respiratory equipment, etc.
 - 4) AP 305-9D, "Personnel Decontamination," Section 3, still lists Herald & Lone as an area where decontamination kits are stored.

It should be noted that during a walkthrough with an individual who would fill the position of the Radiation Assessment Coordinator the individual was not aware of the removal of the emergency equipment formerly stored at the offsite relocation areas. The individual also stated he had not received emergency plan training in over a year. The matter of training necessitated by changes to the Emergency Preparedness Program was previously discussed in Paragraph 3 of this report.

- b) AP 528, "Protective Action Guides" Revision 1, dated 9/27/85, added a requirement that Plant conditions or trends will be considered when promulgating protective actions to recommend to offsite authorities. A review of this procedure identified that the procedure only addressed protective actions based upon dose projection. The statement "plant conditions and trends" was merely added to the instruction portion of the procedure and not the body of the procedure. The procedure and attachments do not offer guidance as to what plant condition or trend must be present to recommend shelter or evacuation.
- c) The EP, Section 7.1.2, Technical Support Center, states, "The Technical Support Center (TSC) is located adjacent to the Control Room and incorporates the Nuclear Operating Superintendents office area and the computer room as shown in figures 7.2 and 7.3. This procedure and attachments 7.2 and 7.3 have not been maintained current, in that prior to September 10, 1985 the licensee established a new TSC separate from the Control Room. The new facility is located down the hallway from the Control Room.

Section 7.1.5 of the Emergency Plan describes the First Aid Room as being adjacent to the Auxiliary Building and next to the Safety Office. In addition Figure 7.8 shows this location as being in the building housing the Tool Room. The First Aid Room was moved in the fall of 1984. The new location of the First Aid room is in the T&R Building next to the cafeteria.

Additional examples of noncurrent procedures are discussed in Section 5 of this report.

Based upon the findings of this inspection, the licensee has not implemented an effective method to assure that when changes to the EP, emergency implementing procedures, or emergency facilities occur, other impacted procedures are identified and training is accomplished for those individuals who may be affected by the changes.

The failure to maintain the Emergency Plan and implementing procedures current is an apparent violation of 10 CFR 50.54(q) and Technical Specification 6.8.1.e, respectively (86-14-02).

5. DOSE ASSESSMENT

The inspector reviewed the following dose assessment related documentation to ascertain that adequate methods and procedures exist for the licensee to formulate emergency action levels (EALS) and to continually assess the impact of a release to the environment.

The Emergency Plan

Control Room Dose Calculation, AP 509

Technical Support Center Dose Calculation, AP 511

Emergency Operations Facility Dose Calculation, AP 512

Activation of the Unified Dose Assessment Center, AP 554

Recognition and Classification of Emergencies, AP 501

Protective Action Guides, AP 528
Dose Assessment Codes (Racode, Jade, and Specter)

Interviews with key personnel responsible for dose assessment in the Control Room (CR), Technical Support Center (TSC) and the Unified Dose Assessment Center (UDAC) were held. The interviews with plant and contractor personnel and procedural reviews identified several problems as discussed below.

Radiation monitors R150044 and R150045 are the high range effluent monitors for the reactor and auxiliary building vents. These monitors were installed pursuant to item II.F.1 of NUREG 0737 and provide the capability to measure gaseous effluents that might be expected during an accident. The licensee's procedures that utilize source term for dose assessment are contained in AP 509, "Control Room Dose Calculation," AP 511, "TSC Dose Calculation," and AP 512, "EOF Dose Assessment". None of these procedures contain reference to nor incorporate any methodology to convert high range instrument response to a source term. The importance of being able to utilize data from the high range effluent monitors is partially illustrated by a careful review of AP-509, "Control Room Dose Calculation". This procedure addresses release pathways from the auxiliary building stack. If a calculation is performed using the maximum reading from the normal range monitors (R15001 and R15002) and default values (most conservative) for vent flow rate and X/Q, the projected doses obtained are below the lowest range of Protective Action Guide values listed in AP 528. Consequently, the procedure as written is of limited value in assessing the dose consequences from a severe event with a release rate greater than the capabilities of the normal range monitors. From a previous NRC inspection (Report No. 50-312/86-06), it is noted that AP-501, "Recognition and Classification of Emergencies" also makes no reference to the high range monitors for purposes of classifying an event. The failure to update and incorporate instructions for use of the high range effluent monitors (R150044 and R150045) in procedures AP 501, AP 509, AP 511 and AP 512 represents an apparent violation of Technical Specification 6.8.1.e which requires that written procedures covering the emergency plan to be maintained.

Additional deficiencies were noted in procedures AP 509, 511 and 512 and are discussed below.

- a) procedures AP 509 and 511 only provide a methodology for determining the release rate from the auxiliary building. No methodology is provided for the containment (reactor building) vent.
- b) procedure AP 512 states, "obtain the release rate from Attachment 7.1." Attachment 7.1 has a place for recording release rates (noble gas and iodine) but provides no methodology on determining what the release rate is from instrumentation readings.

Paragraphs (a) & (b) above are additional examples of failure to maintain procedures.

Interviews with licensee personnel established that computer based dose assessment is the principal method expected to be used by the licensee in

the TSC and EOF. Manual calculations would be performed by control room personnel early in an event and as backup methodology for TSC and EOF calculations. As discussed above, AP 511 and AP 512, "TSC Dose Calculation" and "EOF Dose Calculation", respectively, are the licensee's procedures governing dose calculations. It is noted that in both of these procedures the primary emphasis is on manual calculational techniques. AP 511, under paragraph 5.0, "Instructions" has a note which states, "NOTE: These calculations may be performed using Apple II Code 'RACODE'". No further instructions are given regarding how to use the code, a description of the code, or its limitations and capabilities. AP 512 has a similar note that states "NOTE: These calculations may be performed using Apple II Code 'UDACODE'". (See AP 554, Attachment 7.7)". The inspector noted that "JADE" has replaced "UDACODE" and Attachment 7.6 is the correct reference in AP 554. Otherwise the referenced instructions (Attachment 7.6) appeared adequate for setting up and running the code. However, as is the situation with "RACODE", no further instructions on code description, limitations and capabilities were provided. Failure of AP 511 to provide instructions on use of computer based dose calculations represents an apparent violation of Technical Specification 6.8.1.e for failure to maintain a procedure.

Further examination of the licensees use of computer codes for dose assessment disclosed the following.

- ° The licensee has three separate codes available for use in the TSC, "JADE", "SPECTER" and "RACODE".
- ° Various changes to the codes occurred in 1985.
- ° The Unified Dose Assessment Center in the EOF only uses the "JADE" code.
- ° Only the "SPECTER" code provides a capability to calculate doses based on a primary to secondary release source term. It is also noted that none of the licensee's procedures for manual dose calculation (AP 509, 511 and 512) contain methodology for calculating doses from a primary to secondary source term. Since control room personnel would rely on the manual calculations, and the EOF does not use "SPECTER" it is apparent that the licensee's capability for assessing the consequences of a primary to secondary source term is limited.
- ° The licensee was unable to produce documentation such as user guides that would describe the codes methodologies, assumptions, capabilities and limitations.
- ° Several key individuals (those expected to use the codes, i.e. a Radiological Assessment Coordinator and a UDAC Dose Assessment Coordinator) interviewed were not aware of all the capabilities contained in the codes. The lack of awareness of computer code capabilities or existence indicates that training has not been given in all cases when codes were added or revised.

The licensee's failure to provide procedures to calculate doses from a primary to secondary system source term (except for the TSC) represents an apparent violation of Technical Specification 6.8.1.e for failure to maintain procedures.

One apparent violation for failure to maintain procedures pursuant to Technical Specification 6.8.1.e (with multiple examples) was identified in this program area.

6. NOTIFICATIONS AND COMMUNICATIONS

The inspector reviewed AP 506, "Notification/Communication" to determine that adequate provisions exist for notifying both offsite agencies and District personnel of an emergency event. This included a review of AP 506.01, "Activation of the TSC", and AP 506.02, "Activation of the EOF". In addition, the inspector had discussions with one individual from security. This individual would be tasked with making notifications to activate the TSC during the evening and backshift hours.

The inspector determined that the licensee has the capability, by procedure, to notify all appropriate personnel and agencies. However the discussion with the individual from security further substantiated weaknesses in the area of training. The individual indicated that it had been more than a year since emergency plan training had been provided, and he was unable to locate the proper procedure for notifying District personnel to activate the TSC. The individual was also unaware of proper record keeping procedures. AP 506.01 requires records of names of individuals contacted and the time of contact for planning purposes.

No violations were identified in this program area.

7. LICENSEE AUDITS

10 CFR 50.54(t) requires licensees to provide for a review of the emergency preparedness program by persons who have no direct responsibility for implementation of the emergency preparedness program.

A review of the 1986 annual EP audit was performed. From this review the audit appears to satisfy the regulatory requirements contained in 10 CFR 50.54(t). An examination of the 1985 annual EP audit (audit 0-692) was also performed to ascertain the status of items identified as deficient during 1985. Emergency Preparedness Audit number 0-692, the 1985 annual EP audit, identified deficiencies in the Training Program, maintenance of the Emergency Plan and implementing procedures, and the licensee's system for maintaining required records (Plaza 50 Files). The findings of audit 0-692 were transmitted to Corporate and Plant management by letter dated March 22, 1985. The findings of this inspection and the licensee's 1986 annual EP audit indicate that major deficiencies exist in the Training Program, maintenance of the Emergency Plan and implementing procedures, and the licensee's record system. It appears that the licensee has been ineffective in correcting identified deficiencies (86-14-03).

There were no violations observed in this area.

8. EMERGENCY DETECTION AND CLASSIFICATION

This program area was inspected to determine whether the licensee used and understood the standard emergency classification and action level scheme. Selected emergency action levels (EALs) specified in the classification procedures were reviewed. The reviewed EALs appeared to be consistent with the initiating events specified in Appendix 1 of NUREG-0654. The inspector noted that some of the EALs were based on parameters obtainable from Control Room instrumentation.

Interviews were held with two Shift Supervisors and two Senior Control Room Operators to verify that they understood their responsibility and authority in relation to accident classification, notification, and protective action recommendations. Walk-through evaluations involving accident classification problems were conducted with these personnel. The following weaknesses were identified:

- (1) All personnel exhibited difficulty in using the EPIPs to classify the hypothetical accident situation presented to them. It was necessary for them to search several times through the procedures to locate desired information.
- (2) The individuals were unable to locate in the procedures the person responsible for assembly/accountability at the assembly area.

The inspector attributed the above weaknesses to the poor quality of the licensee's training program as discussed in paragraph 3 above and in NRC Inspection Report 50-312/86-06, paragraph 4.b.

To insure that the licensee's EALs are consistent with those of the state and local agencies, discussions with those agencies were held. 10 CFR 50, Appendix E Section IV.B states in part, "That emergency action levels shall be based on in plant conditions and instrumentation in addition to onsite and offsite monitoring. These emergency action levels shall be discussed and agreed on by the applicant and State and local governmental authorities and approved by NRC. They shall also be reviewed with State and local governmental authorities on an annual basis."

The discussions with state and local agencies indicated that a review of the EALs had not taken place in 1985. In addition, the licensee was unsure if such a review had taken place and was unable to provide documentation that such a review had been accomplished.

One apparent violation of 10 CFR 50, Appendix E Section IV.B was identified in this program area for failure to provide for state and local governmental review of EAL's (86-14-04).

9. PROTECTIVE ACTION DECISION-MAKING

This area was inspected to determine whether the licensee had a 24-hour-per-day capability to assess and analyze emergency conditions and make recommendations to protect the public and onsite workers.

Essentially, inspection findings affecting protective action decision making are discussed in previous sections of this report. Problems were identified in:

- (a) Lack of guidance in the procedures for a protective action recommendation based upon plant conditions.
- (b) General impediments in the dose assessment area.
- (c) Training deficiencies affecting the performance of key individuals.

The capability of offsite officials to make protective action decisions and to promptly notify the public was discussed with licensee representatives. Licensee procedures made provisions for contacting responsible offsite authorities on a 24-hour basis. Backup communications links with offsite authorities were available.

There were no violations identified in this program area.

10. EXIT INTERVIEW

An exit interview was held on April 25, 1985, for the purpose of discussing the preliminary findings of this inspection. Licensee personnel present have been previously identified in paragraph 1 above. G. Perez, acting Senior Resident Inspector was also present. The licensee was informed that violations were identified in a number of program areas, and that NRC Management would determine the specific course of action to be taken. The following observations were made by the inspector:

1. Training was deficient for numerous personnel in the onsite organization, and the licensee's EP training program and implementing procedure for training were not current.
2. The Emergency Plan and implementing procedures were not being maintained. District Personnel were also aware of this fact, This may have an adverse effect on their effectiveness during an emergency.
3. The dose assessment program appeared marginal in several areas.
4. The licensee had been ineffective in correcting problems previously identified by the NRC and their own audit program of the emergency preparedness program.
5. The licensee does not have the capability to use their procedures to determine a protective action recommendation based on plant conditions.