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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202 WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

February 13, 1981

Docket No. 50-206

Southern California Edison Company
P. 0. Box 800
2244 Walnut Grove Avenue
Rosemead, California 91770

Attention: Dr. L. T. Papay
Vice President, Advanced Engineering

Gentlemen:

Subject: NRC Inspection - San Onofre Unit 1

This refers to the inspection conducted by Mr. G. P. Yuhas of this office on January 19-23, 1981 of activities authorized by NRC License No. DPR-13, and to the discussion of our findings held by Mr. G. P. Yuhas with Mr. J. M. Curran and other members of your staff at the conclusion of the inspection.

Areas examined during this inspection are described in the enclosed inspection report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector.

No items of noncompliance with NRC requirements were identified within the scope of this inspection.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If this report contains any information that you believe to be proprietary, it is necessary that you submit a written application to this office, within 20 days of the date of this letter, requesting that such information be withheld from public disclosure. The application must include a full statement of the reasons why it is claimed that the information is proprietary. The application should be prepared so that any proprietary information identified is contained in an enclosure to the application, since the application without the enclosure will also be placed in the Public Document Room. If we do not bear from you in this regard within the specified period, the report will be placed in the Public Document Room.

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely,

H. E. Book, Chief
Fuel Facility and Materials
Safety Branch

Enclosure:
IE Inspection Report
No. 50-206

cc w/o enclosure:
J. M. Curran, SCE
R. Dietch, Vice President,
Nuclear Engineering & Operations

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

REGION V

Report No. 50-206/81-02
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 Unit 1 (SONGS-1)

Inspection at: Camp Pendleton, California

Inspection conducted: January 19-23, 1981

Inspectors: G. P. Yuhas,
Radiation Specialist2-13-81

Approved by: F. A. Wenslawski,
Chief, Reactor Radiation Safety Section2/13/81

Approved by: H. E. Book,
Chief, Fuel Facility and Materials Safety Branch2/13/81

Summary:

Inspection on January 19-23, 1981 - Report No. 50-206/81-02

Areas Inspected: Routine unannounced inspection by a regional based inspector of the radiation protection program during major outage conditions; response to IE Circulars 80-03, 80-14, and 80-18; review of Licensee Event Report 80-37; and followup on previous inspection findings. The inspection involved 38 inspector-hours onsite.

Results of the areas inspected, no items of noncompliance were identified.

DETAILS

1. Persons Contacted

*J. G. Haynes, Manager, Nuclear Operations
*H. L. Ottoson, Manager, Nuclear Engineering and Safety
*J. M. Curran, Plant Manager, San Onofre
*R. R. Brunet, Superintendent, Unit 1
H. B. Ray, Steam Generator Repair Project Manager
*R. V. Warnock, Radiation Protection Supervisor
M. Wharton, Supervising Engineer, Unit 1
*W. G. Frick, Compliance Engineer
*J. D. Dunn, Project Quality Assurance Supervisor
*D. D. Duran, Engineer
*E. J. Bennett, Radiation Protection Foreman

*Denotes those individuals attending the exit interview on January 23, 1981.

In addition to the individuals noted above, the inspector met with other members of the licensee's and contractor's staffs.

2. Licensee Response to IE Circulars

IE Circular No. 80-03, "Protection from Toxic Gas Hazards", was received and reviewed by the licensee. Primary responsibility for performance of the NRC recommended action was assigned to the corporate Nuclear Engineering Staff. The inspector reviewed a draft report prepared by a contractor which addressed the toxic gas issue. This report had also been reviewed by the onsite licensee representatives. The report and the licensee's comments were responsive to the circular guidance. A corporate Nuclear Engineering staff representative informed the Inspector that their January 1, 1981 date for issuance of an implementation schedule has been delayed to April 1, 1981. Since appropriate corrective actions have not yet been finalized, this matter will be reviewed in a subsequent inspection.

IE Circular No. 80-14, "Radioactive Contamination of Plant Demineralized Water System and Resultant Internal Contamination of Personnel", was received by the licensee. Its review was assigned to an onsite Individual. From discussions with the assigned individual, the inspector learned that no action had yet taken place. The licensee's response to this Circular will be reviewed in a subsequent inspection.

IE Circular No. 80-18, "10CFR50.59 Safety Evaluation for Changes to Radioactive Waste Treatment Systems" , was received and reviewed by the licensee. The licensee's recommended action documented in a January 13, 1981 memorandum was to revise Station Order SOI-A-110, "Organization and Responsibility of the Onsite Review Committee to

include the guidance provided in this Circular. The inspector discussed with licensee representatives the need to insure that individuals who are in a position to make field changes to radioactive waste treatment systems are aware of this guidance so that they may initiate the required safety evaluation. This Item is considered closed.

No items of noncompliance was identified in this area.

3. Licensee Event Report

On October 27, 1980 the licensee submitted a report pursuant to Section 5.6.3b(3)(a) of Appendix B to Provisional Operating License DPR-13 that thermal measurement data required in Section 3.1.1.a.(5) of the Environmental Technical Specifications had not been collected on seven occasions during 1979. From discussions with the Supervisory Research Scientist, the inspector confirmed that the reported corrective action to replace the aged detectors and deploy duplicate temperature sensors had been completed on July 3, 1980. The licensee reported that the corrective action has been successful. The inspector had no further questions regarding this matter.

4. Licensee Action on Previous Inspection Findings

(Closed) (50-206/80-13-01) Noncompliance, failure to adhere to Radiation Protection Procedure, S-VII-1.5 regarding smoking and drinking water in controlled areas. The licensee includes a warning regarding smoking In controlled areas in the training program. There are no longer any functioning drinking fountains in the controlled area. During tours of the controlled area, the inspector did not observe any indication of smoking.

(closed)(50-206/80-17-01) Noncompliance, failure to label containers of radioactive material. The inspector verified by record review that the two laborers, three contract radiation protection technicians, and the Radwaste Foreman had all received the specialized training described in the licensee's September 8, 1980 response letter. No additional instances of improperly labeled containers of radioactive material were observed by the inspector during tours of the restricted area.

(Closed)(50-206/80-33-01) Inspector identified item involving the disposal of excavated material. During December 1980, about 100 cubic yards of sand, black top, and concrete were removed from a location near Unit 1 containment structure and dumped at a landfill on federal property near Jap Mesa. Based on review of licensee survey data, the inspector determined that trace quantities of radioactive material were probably present and that the aggregate

sum of material present may have exceeded the values expressed in 10CFR20.304, "Disposal by burial in soil". The inspector brought these observations to the licensee's attention at the exit interview held on December 18, 1980.

The licensee responded to this observation by:

- Prohibiting further disposal of excavated material originating at Unit 1 from being dumped at Jap Mesa.

- Identification, posting, and control of the material already dumped at the mesa so as to prevent its dispersion.

- Collection of 13 samples from the dumped material for relative counting. Shipment of the highest activity sample to an independent laboratory for analysis.

- Performing a direct radiation survey of the dumped materials with a low level survey instrument.

On January 6, 1981, the licensee notified Region V that based on preliminary results of activity as reported by their independent laboratory, that all excavated materials which had been dumped would be drummed and shipped-to a licensed burial facility.

During the course of this inspection, the inspector reviewed the licensee's data, performed independent radiation surveys using an Eberline PRM7 Micro "R" meter serial No. 453, calibrated December 15, 1980, and collected samples for analysis by NRC laboratory facilities.

The highest concentration sample taken from the dumped excavated material at Jap Mesa was reported by the independent laboratory to have the following significant isotopic content.

Isotope	Activity pCi/gram
40 K	16.6 + .8
54 Mn	2.2 + .1
58 Co	3.9 + .2
60 Co	29 + 1.0
134 Cs	8.8 + .4
137 Cs	26 + 1.0
144 Ce	3.5 + .2

These activities were used by the licensee to estimate the total activity shipped to the burial facility.

The inspector reviewed the licensee's direct radiation survey performed on January 7, 1981, using a Ludlum Micro "R" meter prior

to removal of the excavated materials. This survey indicated 8-12 ur/hr general background with twenty five readings taken on and around the dumped material ranging from 8 to 25 ur/hr.

Review of radioactive material shipping records indicate that 390 fifty-five gallon drums containing a total of 7.5 mci of licensed material in 108 cubic yards of dirt were shipped from the dump site to a licensed burial facility in the period January 9 to January 15, 1981.

The licensee's resurvey of the area after drumming indicated 8-12 ur/hr.

On January 20, 1981 the inspector performed an independent direct radiation survey consisting of 30 locations in the general area where the material had been dumped. This survey indicated radiation levels from 5-10 ur/hr with no statistically significant increase in the localized area from where the excavated materials had been removed.

On January 21, 1981 the inspector collected one square meter surface samples from the effected area and from an area considered to be background. The licensee was provided a fraction of each sample for comparative analysis. NRC analysis of the samples performed at Region V using the ND6600/intrinsic germanium detector located in the mobile van indicate that virtually all the excavated material containing trace quantities of radionuclides had been effectively removed. The residual activity is noted below:

Isotope	Activity pCi/gram
54 Mn	.04 + .02
137 Cs	.53 + .27
60 Co	.57 + .29
109 Cd	.1 + .05

Based on a weighted average technique, the licensee calculated that the mix of isotopes. present in the removed material represented 773 times the values specified in 10CFR20 Appendix C.

Review of regulatory requirements expressed in 10CFR20.304, "Disposal by burial in soil", indicates that if the licensee had bulldozed the piles of excavated materials into the fill area as is the common practice for clean fill from Units 2 and 3 a violation of regulatory requirements would likely have occurred.

Since the material was not buried, did not exceed the regulatory limits expressed in 10CFR20.105, "Permissible levels of radiation in unrestricted areas", and was completely removed in an expeditious manner, no item of noncompliance was identified.

(Open)(50-206/80-26-09) Noncompliance, failure to make appropriate measurements of radioactivity in the body and measurements of radioactivity excreted from the body of those individuals involved in handling the NFS-4 NAC-IE cask on September 5, 1980. On October 2, 1980 NRC Region V issued an Immediate Action Letter confirming actions the licensee agreed to take regarding the cask. Item 3 of that letter stated that the licensee would make such measurements as necessary for them to evaluate the individuals' exposure in accordance with 10CFR20.103.

In response to the above commitment, the licensee arranged through the U.S. Department of Energy for the individuals to receive a comprehensive series of measurements at Oak Ridge Associated Universities. The measurements were performed November 6 and 11, 1980. They included a physical evaluation, cytogenetic study, whole body counting, and measurements of radioactivity excreted from the body. Based on the results of these measurements, the licensee concluded that neither individual received an intake of radioactive material in excess of the regulatory limit. The inspector reviewed the data and agreed that the licensee's conclusion was appropriate.

(Health Physics Appraisal, Inspection Report No. 50-206/80-17) In a letter dated September 30, 1980, the licensee responded to the findings of that inspection. The inspector reviewed five commitments presented in the response which were scheduled for completion in January 1981.

- The first two areas reviewed involve reorganization of the facility staff and separation of the Station Nuclear Chemistry and Health Physics groups. Reorganization of the facility staff requires amendment of Section 6.2 of the Technical Specifications. As of January 26, 1981 a proposed amendment had been generated, reviewed and was expected to be forwarded to NRR for approval by January 30, 1981. Station Order SOI-E-211 which describes the duties and responsibilities for members of the radiation protection organization has been drafted. Separation of the chemistry and radiation protection technicians has taken place.

- The licensee has implemented Health Physics Procedure SOI-VII-4.2, "Bioassay Program". Review of this procedure indicates that it may not provide sufficient direction to insure compliance with the requirements expressed in IOCFR20.103b(2). This was brought to the licensee's attention.

- The licensee stated that an inventory, maintenance, and calibration program for health physics instruments will be established and

implemented by January 1, 1981. In a letter dated January 15, 1981, the licensee informed Region V that this program will not be in place until January 31, 1981. Review of this commitment will take place in a subsequent inspection (50-206/81-02-01).

- A new high pressure baler was installed in the Auxiliary Building. The inspector reviewed Radiation Protection Procedure SOI-VII-1.56, "Compacting Low Level Radio-active Waste", which directs operation of that equipment.

No item of noncompliance was identified in this area.

5. Radiation Protection Activities

On January 19, 1981 after normal working hours, the inspector made an unannounced radiation survey of the beach area adjoining the Tsunami wall to determine compliance with IOCFR20.105. The survey was performed using a PRM7 Mirco "R" portable survey instrument. 10CFR20.105(b)(2) permits a maximum radiation level of 100 mrem in any sevel consecutive days (0.595 mr/hr) in an unrestricted area unless otherwise authorized by the Commission. The maximum observed radiation level was 0.1 mr/hr at a position approximately 50 feet from the wall southwest of the Auxiliary Building. The 30 measurements ranged from 0.007 mr/hr to the maximum 0.1 mr/hr. The distribution of radiation levels appeared to indicate a localized source within the restricted area near the Auxiliary Building.

The inspector discussed the survey results with licensee representatives in terms of the ALARA criterion. Several licensee representatives stated that they felt the probable source of radiation was the Waste Monitor Tanks. On January 22, 1980 the inspector performed an independent survey of the Waste Monitor Tanks and Auxiliary Building area using a Keithley, Model 36100 Serial No. 9864 portable radiation survey instrument, calibrated January 6, 1981. The average radiation level measured at contact with the exterior of the Waste Monitor Tanks was less than 30 mr/hr. The concrete block cubicle adjacent to the Auxiliary Building was found to have a general area radiation level ranging from 50 to 350 mr/hr on its roof. The maximum observed contact measurement on the surface of this roof was 550 mr/hr. Since the entrance to this cubicle had a radiation level 420 mr/hr, the inspector did not perform a survey inside. A licensee representatives stated that the cubicle contained some fairly high level radioactive waste. Based on the survey and discussions with licensee representatives, it appears that the high level radwaste storage cubicle is responsible for most of the radiation measured on the beach. The inspector observed that the licensee had placed 3/8 inch sheet lead on the roof of this structure

since the August inspection; however, the storage of high level waste appears one area worthy of additional review from an ALARA point of view.

The inspector performed a tour of the controlled area including the containment on the evening of January 19, 1981. During this tour, the inspector made independent radiation measurements to verify compliance with posting and control of radioactive material requirements expressed in 10CFR20.203, observed compliance with the licensee's radiation protection procedures, and reviewed licensee survey records.

Radiation areas and radioactive materials were properly posted and controlled. Considerable ALARA effort was observed in the containment and steam generator work areas.

Radiation survey records used by the Chemistry Radiation Protection Technicians to determine precautionary requirements for Radiation Exposure Permits were reviewed. Surveys performed on December 17, 1980 January 10 and January 19, 1981 indicated beta-gamma smearable activity from 50,000 to 500,000 dpm/100cm on the 38' and -10' elevations of containment. These survey records did not include a measurement of alpha activity as required by Radiation Protection Procedure S-VII-1.13, Section IV, 10. This procedure requires an 2 alpha count anytime the beta-gama activity exceeds 22,000 dpm/100cm The surveys were performed by contractor Radiation Protection Technicians. The survey records had other minor errors and omissions and did not include any evidence that they had been reviewed by station personnel.

The inspector questioned the Senior Radiation Protection Technician associated with the cadre of contractor technicians that had performed these surveys. This individual acknowledged that they had been trained in the licensee's survey techniques including procedure S-VII-1.13 and had errored with respect to the surveys in question. The individual stated that this same point had been brought to his attention earlier In the day by a licensee representative.

The Radiation Protection Supervisor informed the inspector that his Acting Radiation Protection Foreman had identified this problem and was in the process of preparing a memorandum to reemphasize proper survey techniques and documentation.

On the evening of January 21, 1981 while performing a survey of the protected area, the inspector measured average radiation levels of 1.0 mr/hr inside the Security Escort Trailer. This trailer is located in close proximity to the R.E.D. Building. In discussions with the Security Escort Shift Supervisor, the inspector was told

that the trailer is occuppied 24 hours a day normally by two individuals. Recently, the dose received by these individuals had increased. Based on review of survey records dated December 21 and 23, 1980 and discussion with licensee representatives, it appears that the movement of steam generator grit tank, which read an average of 400 mr/hr on contact, from the containment on December 21, 1980 to the R.E.D. Building increased the dose rate in the trailer. Surveys performed on December 23, 1980 indicated a measurement of 4 mr/hr was made outside the R.E.D. Building near the trailer. Although no record indicates survey results inside the trailer, a licensee representative stated that he surveyed the trailer and posted it with a sign requiring personnel dosimetry. He stated that no action was taken to reduce the radiation level inside the trailer since he did not expect the grit tank to be in the R.E.D. Building very long.

The inspector brought the licensee's attention to the apparent unnecessary exposure being received by occupants of the Security Escort Trailer. The licensee performed a survey of the situation and had the trailer moved to a low background area within the Protected Area. On January 23, 1981, the inspector resurveyed the trailer and noted the average radiation level had decreased to 0.04 mr/hr.

With regard to the steam generator repair project, survey data, operational experience and personnel exposures were examined and discussed with licensee and contractor representatives.

Several additional positive steps have been accomplished to reduce exposures since the last inspection. These included revision of security escort practices and installation of the tube sheet shields. The revision of security escort practices is expected to save 20 person-rem. Installation of the tube sheet shield reduced the A steam generator dose rate from 2.8 to 1.6 r/hr. This will result in considerable exposure savings.

Additional area shielding has been installed and more channel head surface shielding is planned.

Review of actual versus projected radiation exposures associated with the steam generator repair project Indicates that 820 person-rem have been Incurred through January 21, 1981. This is about 245 Person-rem in excess of the November 16, 1980 dose projection. The excess 245 person-rem were primarily the result of program changes and process system failures.

The licensee is experiencing considerable difficulty in the brazing Phase of the repair project. If the previous dose accumulation versus dose projections results continue during the sleeving phase

then, in spite of the good ALARA engineering efforts, it appears the total dose projection of 1783 person-rem will be exceeded.

No item of noncompliance was identified in this area.

6. Exit Interview

The inspector met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on January 23, 1981. The inspector summarized the scope and findings of the inspection.

In addition, the inspector brought to the licensee's attention the somewhat subjective observation that there appears to be a deterioration in cooperation between licensee and contractor radiation protection personnel. The inspector noted that if this condition is real and is allowed to continue, the positive improvements in the radiation protection program could be effected.