U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos.: 50-206/92-22, 50-361/92-22, 50-362/92-22

License Nos.: DPR-13, NPF-10, NPF-15

Licensee: Southern California Edison Company (SCE)
Irvine, California 92718

Facility Name: San Onofre Nuclear Generating Station (SONGS) - Units 1, 2, & 3

Inspection at: SONGS Site, San Diego County, California

Inspection Conducted: July 20-24, 1992

Inspectors: _____ 8/13/92
H. D. Chaney, Senior Radiation Specialist — Date Signed

_____ 8/13/92
N. Mamish, Radiation Specialist - In Training — Date Signed

Approved by: _____ 8/13/92
James H. Reese, Chief, Reactor Radiological Protection Branch — Date Signed

Inspection Summary

Areas Inspected: Routine announced inspection of the licensee's radiological environmental monitoring program (REMP), National Pollution Elimination Discharge System program implementation, and selected attributes of the licensee's radiation protection (RP) program, involving: licensee actions on previous inspection findings, organizational changes, audits, special and periodic reports, and nonroutine radioactive liquid and gaseous effluent releases. Inspection procedures 84750, 84523, 92700, 92701, and 90713 were used.

Results: The licensee's radiation protection activities inspected were effective with respect to meeting the safety objectives of the licensee's radiation protection program. The licensee's conduct of quality assurance audits and activities, the REMP, and the NPDES program were considered strengths. The licensee's resolution to technical health physics issues continues to be a noteworthy program attribute. A violation concerning an unmonitored liquid effluent pathway is described in Section 4.d of the report. Due to the licensee's self identification of this violation and the corrective actions taken to rectify and prevent further violations of this nature, this violation will not be cited. No deviations were identified.

DETAILS

1. Persons Contacted

SCE Personnel

T. Adler, Unit 2/3 HP Supervisor
*D. Brevig, Supervisor On-site Nuclear Licensing
*J. Clark, Manager Chemistry
*J. Fee, Assistant Health Physics (HP) Manager
*P. Chang, Supervisor Effluent Engineering
*J. Demlow, Quality Assurance Engineer
*J. Garner, Environmental Specialist
*N. Goeders, Environmental Engineer
*E. Goldin, Supervisor Health Physics & Environmental
*G. Hammond, Supervisor On-site Nuclear Licensing
*R. Heckler, Environmental Engineer
*B. Katz, Manger, Nuclear Oversight
*S. Medling, Manger, Unit 1 Licensing
*H. Newton, Manager, Site Support Services
*R. Plappert, Supervisor Compliance
*J. Reilly, Manager, Nuclear Engineering & Construction
*R. Rosenblum, Manager, Nuclear Regulatory Affairs
*A. Tally, Unit 1, HP Supervisor
*D. Tuttle, Station Technical Division Supervisor
*K. Yhip, Environmental Engineer

Others

*D. Solerio, NRC Resident Inspector

(*) Denotes those individuals that were at the exit meeting held on July 24, 1992. Additional licensee personnel in HP, QA, and Licensing were contacted and/or present at the exit meeting but are not reflected in the above listing.

2. Follow-up on Previous Inspection Findings and Written Reports (92700 and 92701)

(Closed) Violation 50-206/91-10-01: "Failure to Perform 10 CFR 50.59 Reviews on Mixed Waste and Radioactive Material Storage Facilities" - This violation and the licensee's response were previously discussed in NRC Inspection Report Nos. 50-206/91-10 and 50-206/92-13, and remained open pending licensee initiation of training as committed to in the NOV response. The NRC inspector verified that training had been initiated. This item is considered closed.

(Closed) NRC Information Notice (IN) No. 91-35: "Labeling Requirements for Transporting Multi-Hazard Radioactive Materials" - The licensee had received and completed their evaluation of this IN. The review, conducted by the SONGS Independent Safety Engineering Group (ISEG), had focused on the facility's procedures for release and shipment of radioactive materials (RAMs). Based on the ISEG evaluation, the licensee had concluded that the facility's procedures adequately

addressed the NRC and Department of Transportation regulations. The HP Department's own review of the IN concluded that additional precautions would need to be added to SONGS procedure SO-VII-8.2, "Shipment of Radioactive Material." The inspectors had no further questions regarding this matter.

3. In Office Review of Periodic and Special Reports (90713 & 92700)

a. Annual Radiological Environmental Monitoring Report

The licensee's Annual Radiological Environmental Monitoring Report for SONGS Units 1, 2 & 3, for 1991, submitted in accordance with the requirements of Unit 1 and Units 2/3 Technical Specifications (TSs) 6.9.1.6, on April 30, 1992, was reviewed. The report was submitted in a timely manner and was compiled in accordance with the guidance contained in NRC Regulatory Guide 4.8, and the respective Units 1 and 2/3 Offsite Dose Calculation Manual requirements.

b. Special Reports Submitted to the NRC

(Closed) Special Report: "Inoperability of the Unit 1, Wide Range Gas Monitor, R-1254" - This report was submitted to the NRC on March 26, 1992 detailing the inoperability of R-1254 for a period of approximately 11 days. TS 3.5.10 requires a report when the period of inoperability exceeds 7 days. The inspectors discussed the reason behind the inoperability of the monitor with the Effluent Engineer. No anomalies were noted in the monitor's long term performance and the inspector had no further questions concerning the report.

National Pollution Discharge Elimination System (NPDES) Reports

Unit 1 Provisional Operating License Technical Specifications 6.16.2.c and Section 3.2 of Appendix B of the Facility Operating License for Units 2 & 3, require the reporting of violations of NPDES requirements. The inspectors reviewed the cause of the incidents in reports submitted by the licensee from October 1991 through June 1992 (4 reports covering 6 incidents). None of the incidents were of a significant nature. The licensee's NPDES program implementation is discussed in Section 5 of this report. No significant deficiencies or concerns were noted in this area of the inspection.

4. Radioactive Waste Treatment, Effluents, and Environmental Monitoring (84750 & 84523)

The inspectors noted that the REMP was the responsibility of the Health Physics and Environmental (HP&E) Group which is located at the SCE Irvine, CA corporate offices. The HP&E group is part of the SCE Corporate Nuclear Engineering, Safety & Licensing (NES&L) Department.

NES&L has in place detailed programs and implementing procedures for both the REMP and the Environmental Monitoring Plan Program (Required by the NPDES permit and discussed in Appendix B to the Unit-1 Technical Specifications (TSs).

a. Quality Assurance Programs, Audits, Surveillances, and Corrective Action Responses

(1) Audits and Surveillances

Discussions were held with the Nuclear Oversight Division Site Quality Assurance (NOD Site QA) personnel responsible for surveillance and auditing of the licensee's radiation protection program. Selected audits and assessments of the REMP occurring since the last inspection of this area (NRC Inspection Report No. 50-206/91-02) were reviewed. The licensee's audit program for the REMP is detailed in the site Topical Quality Assurance Manual, Chapter 8-B. The following audit and surveillances were examined:

- Audit Plan SCES-537-92, REMP Audit covering the period January 1, 1991 through March 31, 1992. This audit was still in progress during this inspection.
- Surveillance Report No. SOS-010-92, "Performance Based Observation of Environmental Air Sampling."
- Surveillance Report No. SOS-204-92, "Verifying corrective actions for SOS-010-92 had been completed."

The inspectors noted that current surveillance and audits were conducted at a suitable frequency and were of sufficient detail and scope. Findings of minor significance were noted and corrective actions were for the most part timely and comprehensive in nature.

The inspectors reviewed HP&E group procedures A-5 and A-6, which are used for the review of and qualification of prospective suppliers of REMP services. The Site QA organization has verified that suitable supplier audits have been accomplished. This was done using the NUPIC (Nuclear Utilities Procurement Issues Committee) services. NUPIC is a utility based organization that coordinates on a quarterly basis joint utility audits of suppliers. All NRC licensed nuclear power plants belong to NUPIC. During the current REMP audit the auditors will be reviewing the latest NUPIC audit of the radiochemistry services supplier (1990) to determine if the supplier meets the guidance contained in RG 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment," 1979. Furthermore, during November 1992, the

same environmental laboratory will be audited again, under the auspices of NUPIC. SCE will be providing an auditor for the audit team.

The inspectors followed-up on the corrective actions taken to resolve the many findings of the last audit (1990) of the REMP. This audit was previously discussed in NRC Inspection Report No. 50-206/91-02. Approximately 14 Problem Review Reports from the 1990 audit were examined by the inspectors. The timeliness and technical quality of the responses were considered adequate to resolve the audit findings.

The HP&E group's implementing procedures (A-5 through A-9, and R-1), Site QA periodic audits of HP&E and supplier activities met the requirements of the Unit-1 and Unit 2/3 TSs 6.8.1.i; and the guidance contained in RG 4.15.

(2) Corrective Action Requests

The inspectors reviewed the following Corrective Action Requests (CARs), written in response to a Quality Assurance (QA) Audit of the licensee's meteorological monitoring program (MMP).

* P-1387, "Meteorological Monitoring System," dated September 19, 1991

* P-1394, "Site Emergency Preparedness Program," dated November 27, 1991

The CARs reviewed indicated that a thorough audit of the MMP had been accomplished. Perceptive findings related to the Emergency Plan aspects of the MMP were noted. The licensee was actively resolving the QA identified deficiencies.

b. Changes

Three organizational staff changes were recently completed involving the corporate HP&E group, the site HP Engineering group, and the site Chemistry Department.

- Corporate HP&E: The Corporate HP&E Supervisor who had been reassigned to the position of Unit 1 Licensing Manager, was replaced by the Site HP Engineering Supervisor. An additional engineer had been added to the non-radiological monitoring program.

- Site HP Engineering Group: The Supervisor of site HP Engineering had been temporarily reassigned, with other HP Engineers, to work on the new Part 20 implementation. The vacancy had been filled by the Supervisor for Analytical

Engineering Group.

- Site Chemistry Group: The Effluents Supervisor had been reassigned to the Corporate HP&E Group and was replaced by an ISEG Engineer.

The qualifications and experience of all personnel satisfied the qualification requirements of Unit 1 and Units 2/3 TSs 6.3, where applicable.

The inspectors discussed with licensee representatives of the Effluents Control Group the current status of the licensee's response to the NRC contractor's comments to Revision 6 of their Unit 1 ODCM. In March 1992 the NRC informed the licensee that the contractor had indicated that "the ODCM did not contain the proper methodology to limit dose rates when there are simultaneous release of radioactive materials in gaseous effluents from all units (1, 2 & 3)." The licensee indicated that the necessary changes had been made to the Unit 1 ODCM in revision 8, dated June 29, 1992. These changes will be discussed in the first-half of 1992 Semi-annual Effluent Release Report, due out in August. The NRC inspectors had no further question regarding this matter.

c. Training and Qualification

The inspector reviewed HP&E Radiological Environmental Monitoring Procedure R-2 which establishes qualification criteria, training and retraining requirements for HP&E personnel managing, supervising, and implementing the non-radiological and radiological environmental monitoring program. The licensee provides opportunities for employees to attend industry conferences and advanced training in their specialties. Environmental specialists that collect samples gained their qualification by procedure review and on-the-job training by HP&E environmental engineers or supervisory personnel.

All employees contacted possessed sufficient specialized education, and applicable qualifications and experience for their assignments.

d. Process and Effluent Radiation Monitors (84750 & 84523)

10 CFR Part 50, Appendix A, Criterion 64, "Monitoring radioactive releases," states, in part, that means shall be provided for monitoring the effluent discharge paths, and the plant environs for radioactivity that may be released from normal operation.

The inspectors were briefed on the licensee's finding that the Unit 1 Yard Drain Sump contained a previously unidentified "French Drain" in the bottom of the sump. This gravity drain (20 inch diameter hole) was shown on plant drawing No. 5129326, dated

October 30, 1974. The drawing represents the as built condition. The percentage of flow via this pathway had not been fully defined at the time of the inspection; however, licensee personnel stated that flow via the "French Drain" is a small fraction of the volume routinely pumped from the sump and discharged (with monitoring) via the Unit 1 circulating water outfall to the ocean. In addition, licensee staff indicated that a ground water motion study would be performed to characterize the worst release scenario.

Following the discovery the drain during routine cleaning of the sump on June 21, 1992, the licensee diverted potentially contaminated liquids away from the sump. The NRC resident inspector was informed of the situation on June 22, 1992.

The licensee determined that formal notification per 10 CFR 50.72 or 50.73 was not required because preliminary estimates of the total amount of radioactivity released via this pathway show that any releases were significantly below 10 CFR 20, Appendix B, Table II, Column II limits.

On June 24, 1992, action was taken to obtain soil samples from inside and below the drain. On June 25, 1992, the drain was covered with a stainless steel plate and the sump was returned to service. Potentially radioactive drainage remains diverted to the monitored auxiliary building sump.

Subsequent analysis of the soil samples (sludge, sand, and gravel) showed low level concentrations of cobalt-60, cesium-134 & 137 radioisotopes. The licensee has performed and documented an initial evaluation of possible abnormal/unmonitored releases via this liquid effluent pathway. Using historical (1989) information on the highest known concentrations of radionuclides in the sump and application of conservative values on hydraulic conductivity, isotopic retentivity (zero), dilution (zero), distance to the restricted area boundary (ground water contact at approximately one centimeter into the sand below the drain hole) it was shown that the resultant total Maximum Permissible Concentration for the liquid at the unrestricted area boundary (ground water interface), for all radionuclides, was less than half the value allowed in 10 CFR Part 20, Appendix B, Table II, Column II. The licensee has documented the findings in Nonconformance Report (NCR) No. 92060067. The licensee stated that this incident will be documented in accordance with the requirements of 50.75(g) and Unit 1 ODCM Specification 6.3.1.

The licensee further verified by visual inspection and review of plant drawings that similar conditions did not exist at other sumps in Unit 1, 2 & 3. These reviews were documented in the above noted NCR. The inspectors noted that the site "task force" for identifying, evaluating, and characterizing all site effluent pathways did not discover this drain.

The licensee's failure to identify and monitor the above noted liquid effluent pathway is considered a violation of 10 CFR Part 50, Appendix A, Criterion 64. However, this violation will not be subject to enforcement action because your efforts in identifying and correcting the violation meet the criteria specified in Section V.G. of the Enforcement Policy.

e. Radiological Environmental Monitoring Program

The licensee's REMP was examined to determine compliance with the requirements of the Operating License Technical Specifications (TSs) 6.5.2.9, 6.8.1.h, 6.8.4.g, 6.9.1.6 for Unit 1, and 3.3.3.4, 6.8.1.h, 6.8.4.f, 6.9.1.6 of Units 2/3; and agreement with the commitments contained in Sections 2.3.3 of the Unit 1 and Unit 2/3 Updated Final Safety Analysis Reports (UFSARs), and with guidance contained in NRC Regulatory Guides (RGs) 1.23 and 4.15.

The inspectors examined Nuclear Engineering, Safety and Licensing (NES&L) Department environmental monitoring program procedures that were changed since the last time this area was inspected, NRC Inspection Report No. 50-206/91-02. NES&L procedures established authorities and responsibilities for NES&L personnel, including the HP&E staff. The inspectors noted that the HP&E procedures were detailed and reviewed once every 24 months per procedural requirements. The development, review, and approval of environmental procedures are adequately addressed in NES&L documents.

An inspector accompanied licensee personnel on the collection of environmental air samples (6 locations). The inspector noted that sample collection and preparation were performed using good techniques, equipment was observed to be in good operating condition and in current calibration, and the quality controls applied to filter preparation and documentation agreed with the guidance in RG 4.15.

The inspectors reviewed ongoing environmental monitoring work concerned with the annual land use census required by ODCM specification 5.2 (Units 1 & 2/3 ODCMs). The review included the following:

- Selection criteria of vendors.
- Service purchase order.
- Experience and qualifications of personnel performing the census.
- Vendor's interim report on the current land use census being conducted for 1992.

- Licensee's methods for correcting the dose factors of the ODCM when nearest receptors changed.

- Cognizant Environmental Engineer methods used to determine changes in the nearest receptors for residences, vegetables, and meat animals.

No anomalies were noted in this area.

The inspectors held discussions with HP&E program supervisors and engineers concerning clarification of several items in the 1991 Annual Radiological Environmental Monitoring Report.

- Table I-2: The 10 CFR Part 20 Appendix B limits referenced appeared to be in error.

  The licensee agreed that the microCuries per liter should be in volumetric units of milliliters, and that the table's use is somewhat questionable due to the different measuring units (picoCurie per cubic meter (m^3) vs microCurie per liter, and picoCurie (pCi) per liter vs microCurie per milliliter). The licensee agreed to re-evaluate the arrangement of the table data.

- Clarification of the statement on page 17, "that the higher than expected direct radiation dose for TLD (thermoluminescent dosimeter) No. 42, in Horno Canyon (4.7 east of SONGS), was due to other environmental factors." The subject TLD showed an annual corrected net dose of 10 millirem which was marginally higher than other similarly located TLDs.

  The licensee explained that the U.S. Marine Corp Camp Pendelton Base, where Horno Canyon is located, appears to have a higher than normal concentration of primordial radioactivity in its soil. The licensee provided no information supporting their theory. The inspector agreed that higher than normal concentrations of radioactivity in the soil could be the cause, since the TLD is somewhat shielded by the a mountain range from the SONGS site.

- The inspectors noted in the report that several close in direct radiation TLDs (Nos. 13, 16, 55, & 56) installed per the ODCMs, had higher than ambient doses but were described as not being required by the Unit 2/3 TSs. Since all units now have the REMP in the Units respective ODCMs the statement appears in error. The inspectors questioned the licensee as to how the true dose was calculated for several of the TLDs.

  The Supervisor of HP&E agreed that due to their use of

occupancy factors and application of the resultant dose for determining compliance with 40 CFR Part 190 total dose limit (25 millirem) the report gets confusing. The inspectors noted that no doses when reasonable occupancy factors were applied exceeded 40 CFR Part 190 limits. This area of the licensee's REMP and annual report will be considered an area for further review during a future inspection (361/92-22-02).

- Clarification of the deviation from the sampling requirements on December 14, 1991, alluded to on page 212, Part I, "Terrestrial Sampling;" e. "Soil," of the report?

  The licensee stated that they had reviewed their records and that no deviation had occurred.

Inspectors noted that the licensee had effectively controlled the dose being received at direct dose receptor monitoring point No. 13 by removing the RAM stored near it. See the discussion concerning this TLD in NRC Inspection Report No. 50-206/90-33.

Other minor inconsistencies or typographical errors were discussed with the licensee. The licensee's annual report complies with the commitments contained in Sections 5.1, 5.2, and 5.3 of the ODCMs. The licensee's REMP program continues to be a noted strength.

f. Meteorological Monitoring Program (MMP)

The inspectors reviewed MMP to ensure compliance with the requirements of TSs 3.3.3.4 for Unit 2/3; agreement with the commitments in Section 2.3.3 of the UFSAR for Unit 1 and Units 2/3; and agreement with the guidance contained in RG 1.23, "Onsite Meteorological Programs."

The inspectors evaluated the licensee's program by interviewing licensee personnel, reviewing calibration records and procedures, and conducting tours of the Meteorological Monitoring Instrumentation (MMI) areas.

(1) Examination of documentation of MMI calibration

The following licensee procedures were reviewed:

- SO23-II-8.12, "Surveillance Requirement, Combined 10 & 40 Meter Meteorological Instrumentation Channel Calibration," Revision 6.

- SO23-II-8.12.1, "10 Meter Backup Meteorological Instrumentation Calibration," Revision 0.

- SO123-II-8.16, "Meteorological Instrumentation Inspection," Revision 2.

- SO23-3-3.21.1, "Once A Day Surveillance - Common," Revision 6.

The procedures were found to conform with the surveillance requirements outlined in the Unit-1 and Units 2/3 TSs. Calibration frequencies and accuracies of the MMI met the commitments in the UFSAR and RG 1.23.

Calibration, maintenance, and surveillance records were reviewed and found to be in accordance with licensee procedures. The inspectors noted that the records were complete, thorough, and well documented.

In review of the calibration records, the inspectors noted that the "As Found Data" on some components of the MMI were outside the specified acceptance criteria. Subsequently, the inspectors asked licensee personnel what actions were taken when MMI were found outside the specified tolerance. Licensee personnel indicated that the station meteorologist reviewed the entire calibration package and made a determination on whether or not the raw computer data would be adjusted.

The inspectors ensured that the meteorological data, reviewed by the station meteorologist, was in fact used for the offsite dose calculations in the semiannual effluent report. The inspectors had no further concerns in this area.

(2) Tours and verifications of MMP

The inspectors toured the MMI areas to ensure the licensee was in compliance with the UFSAR, TS, and RG 1.23. The tours included the following areas:

- Meteorological Towers
- Chart recorders in the primary and backup field instrumentation stations
- Chart recorders in the Unit 1 and Units 2/3 control rooms
- PC based Meteorological Information Dose Assessment System (MIDAS) computer software

The Meteorological Towers and MMI appeared to be in good physical condition. Chart recorders in the control room and field instrumentation stations were fully operational. During the tour, the inspectors verified the operability of the wind direction instrumentation by comparing chart

recorders in the field instrumentation stations and control room to the wind indicators on the Meteorological Towers.

The inspectors concluded that the licensee's MMP program, in the areas reviewed, appeared to be in compliance with the applicable regulations.

No violations or deviations were identified in this area of the inspection.

5. National Pollution Discharge Elimination System (NPDES)

The inspectors examined the licensee's organization for the monitoring and implementation of the NPDES.

Unit 1 TS 6.16.2.c and Section 3.2 of Appendix B of the Facility Operating License for Units 2 & 3, require the reporting of violations of NPDES requirements.

The NPDES program, overseen by the State of California, is implemented under the cognizance of the Manager of Site Support Services through the Supervisor Nuclear Services. Authorities and responsibilities for implementation of the NPDES and hazardous waste programs are set forth in station Environmental Services Order SO123-EN-1, "Environmental Services," revision 2.

The licensee's implementation of the NPDES Permit program is set forth in the following Station Environmental Procedures:

- SO123-IX-2.1, "NPDES Monitoring," revision 0, TCN 0-2.
- SO123-IX-2.3.1, "NPDES Best Management Practices Plan - Unit 1, revision 0, TCN 0-1.
- SO123-IX-2.3.23, "NPDES Best Management Practices Plan - Unit 2/3, revision 1, TCN 1-2.
- SO123-IX-2.206, "Inspections," revision 0, TCN 0-2.

Reporting of NPDES violations and changes to the NPDES permits are set forth in the following NES&L procedures:

- A-9, "Transmittal of San Onofre Unit-1 NPDES Permit Changes to the NRC, revision 1.
- A-10, "Transmittal of NPDES Reports to the NRC for SONGS Units 1, 2 and 3," revision 2.

The inspectors examined organization staffing, personnel qualifications, site monitoring programs, recent State of California audits, Site QA audit: SCES-037-91, "Nonradiological Effluent and Environmental

Controls," dated August 1991, and monthly and semiannual NPDES reports. The NPDES program appears to be well documented and implemented. No violations or deviations were identified in this area.

6. Exit Meeting

The inspector met with the licensee representatives denoted in Section 1 at the conclusion of the inspection on July 24, 1992. The Scope and findings of the inspection were summarized.

Licensee representatives did not identify as proprietary any of the materials provided to or reviewed by the inspector during the inspection.