

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket Nos.: 50-361  
50-362

License Nos.: NPF-10  
NPF-15

Report No.: 50-361/97-01  
50-362/97-01

Licensee: Southern California Edison Co.

Facility: San Onofre Nuclear Generating Station, Units 2 and 3

Location: 5000 S. Pacific Coast Hwy.  
San Clemente, California

Dates: January 13-17, 1997

Inspectors: Gilbert L. Guerra, Radiation Specialist  
Michael P. Shannon, Radiation Specialist

Approved By: Blaine Murray, Chief, Plant Support Branch  
Division of Reactor Safety

ATTACHMENT: Supplemental Information

## EXECUTIVE SUMMARY

San Onofre Nuclear Generating Station, Units 2 and 3  
NRC Inspection Report 50-361/97-01; 50-362/97-01

### Plant Support

- An effective radiological environmental monitoring program was implemented (Section R1.1).
- An effective meteorological monitoring program had been implemented (Section R1.2).
- Environmental monitoring stations were properly maintained and the equipment was operable. A good program was in place regarding the packaging and shipment of environmental samples (Section R2.1).
- The meteorological monitoring tower was maintained properly and data recovery was greater than 90 percent (Section R2.2).
- Good radiological environmental monitoring implementing procedures with sufficient detail had been established (Section R3.1).
- Air sample data collection logs did not receive supervisory review in accordance with management's expectations (Section R3.2).
- Personnel responsible for implementing the monitoring program were properly trained and qualified. However, station procedures did not specify training frequency or instructor requirements (Section R5.1).
- An adequate staff was maintained and management provided good support for the radiological environmental monitoring program (Section R6.1).
- A good, comprehensive audit was performed of the radiological environmental monitoring program. Audits and surveillances were performed by technically qualified auditors at the required frequency (Section R7.1).
- Good Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports were submitted and in accordance with Regulatory Guide 1.21 (Section R8.1).

## Report Details

### Summary of Plant Status

Unit 1 was in a shutdown safe store condition. Unit 2 was in a refueling outage during this inspection. Unit 3 was at full power. There were no events during this inspection that adversely affected the inspection results.

## III. Engineering

### **E2 Engineering Support of Facilities and Equipment**

#### **E2.1 Final Safety Analysis Report Review (FSAR)**

##### **a. Inspection Scope**

The inspectors reviewed selected topics presented in the FSAR to ensure agreement with any commitments contained therein pertaining to this inspection.

##### **b. Observations and Findings**

A recent discovery of a licensee operating their facility in a manner contrary to the FSAR description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the FSAR descriptions. While performing the inspection discussed in this report, the inspectors reviewed the applicable portions of the FSAR that related to the areas inspected. The inspectors verified that the FSAR wording was consistent with the observed plant practices, procedures and/or parameters.

##### **c. Conclusions**

No deviations to the commitments in the FSAR were identified.

## IV. Plant Support

### **R1 Radiological Protection and Chemistry Controls**

#### **R1.1 Radiological Environmental Monitoring Program (84750)**

##### **a. Inspection Scope**

The inspectors reviewed the radiological environmental monitoring program to determine compliance with the requirements in the Offsite Dose Calculation Manual.

b. Observations and Findings

The inspectors reviewed the Offsite Dose Calculation Manual and appropriate plant procedures and found them adequate. Minor changes had been made to the Offsite Dose Calculation Manual; however, the inspectors did not identify any items of concern. Management controls were appropriate; annual reports were written and submitted to the NRC as required. The annual land use census was performed as required.

The inspectors noted that the control air sampler was appropriately located in Sector Q (NW), when using the original siting wind rose data from a study conducted between January 25, 1973, and January 24, 1976. However, wind rose data from a study conducted between 1979 and 1983 to determine prevalent wind directions at San Onofre Nuclear Generation Station indicated that the control air sample station was not in the least prevalent wind direction but in the fifth least prevalent wind direction, in which an air sample station could be positioned. The inspectors determined that the licensee's current control station satisfied regulatory requirements based on meteorological conditions that existed when the original environmental monitoring program was approved. However, this matter will be referred to the Office of Nuclear Reactor Regulation to evaluate the generic implications and if any actions should be taken when meteorological conditions change.

c. Conclusions

Overall, a good radiological environmental monitoring program was implemented in accordance with the Offsite Dose Calculation Manual. The control air sampler was appropriately located when using the original siting wind rose data from a study conducted between January 25, 1973, and January 24, 1976.

R1.2 Meteorological Monitoring Program (84750)

a. Inspection Scope

The inspectors reviewed the meteorological monitoring program to determine agreement with the recommendations in NRC Regulatory Guide 1.23 and compliance with the commitments in Final Safety Analysis Report, Section 2.3.

b. Observations and Findings

The inspectors toured the meteorological tower with the responsible engineer assigned for the tower and monitoring equipment. Instrumentation, including recording and transmitting equipment, was noted to be in good operating condition. The meteorological tower's monitoring instrumentation provided the required instrument channels for wind speed, wind direction, and temperature indication.

Daily channel checks, physical inspections, and semi-annual calibrations were performed on the meteorological instruments.

The inspectors reviewed data collection procedures and discussed the data results with the licensee's corporate meteorologist. The inspectors determined that a proper data collection program was in place.

c. Conclusions

An effective meteorological monitoring program was implemented. The performance of the meteorological monitoring program satisfied the commitments of Final Safety Analysis Report, Section 2.3 and agreed with the guidance contained in Regulatory Guide 1.23.

**R2 Status of Radiological Protection and Chemistry Facilities and Equipment**

R2.1 Environmental Monitoring Equipment and Facilities (84750)

a. Inspection Scope

The inspectors visited selected environmental sampling stations to verify that stations were properly maintained and equipment was operable and properly calibrated. Sample preparation and storage facilities were inspected to verify that sufficient supplies and spare equipment were available.

b. Observations and Findings

The inspectors observed the facilities used by the licensee, which included the environmental media sample storage and preparation area. The sample preparation/storage area was equipped with the necessary spare equipment and supplies to perform the required radiological environmental monitoring program sampling activities.

The inspectors toured air sample and thermoluminescent dosimeter monitoring stations with an environmental specialist. The inspectors noted that air sampler equipment in use was properly calibrated and operational. A timing device was used on each air sampler to track operation history. Samples were properly prepared for shipment to a vendor laboratory for analyses.

c. Conclusions

The licensee maintained sufficient supplies and spare environmental sampling equipment to perform the activities described in the Offsite Dose Calculation Manual. Environmental monitoring stations were properly maintained and the equipment was operable. A good sample packaging program was in use.

**R2.2 Meteorological Monitoring Equipment and Facilities (84750)**

a. Inspection Scope

The inspectors observed the meteorological instrumentation at the meteorological tower and reviewed the associated calibration records to ensure that the remote meteorological instrumentation on the towers was operable, calibrated, and maintained in accordance with written procedures, the guidance in Regulatory Guide 1.23, and Final Safety Analysis Report, Section 2.3.

b. Observations and Findings

The licensee maintained a primary tower with monitoring instrumentation at the 10 and 40 meter levels, and a backup tower with instrumentation located at the 10 meter level. The instrumentation at these levels indicated wind speed and wind direction. The primary tower was also equipped with temperature sensing instrumentation.

The inspectors noted that the tower's instrumentation was adequate to comply with Regulatory Guide 1.23 and Final Safety Analysis Report, Section 2.3. The inspectors noted that all instrumentation was operable and properly calibrated. Daily checks were performed in accordance with procedure requirements. The licensee maintained the meteorological tower operational with a greater than 90 percent data recovery rate.

c. Conclusions

Meteorological monitoring instrumentation channels were operating properly and properly calibrated. The meteorological monitoring tower was maintained properly and data recovery was greater than 90 percent.

**R3 Radiological Protection and Chemistry Procedures and Documentation**

**R3.1 Changes in the Offsite Dose Calculations Manual and Radiological Environmental Monitoring Implementing Procedures (84750)**

a. Inspection Scope

The inspectors reviewed changes made to the Offsite Dose Calculation Manual and implementation procedures regarding the radiological environmental monitoring program.

b. Observations and Findings

Changes had been made to the Offsite Dose Calculation Manual since the last inspection; however, no items of concern were identified by the inspectors. The

implementing procedures described the responsibilities for collection, documentation, and shipment of environmental media samples collected around the San Onofre site. Procedures were written with sufficient detail for conducting the required radiological environmental monitoring program activities. No concerns were identified in the review of the environmental procedures.

c. Conclusions

Minor changes had been made to the Offsite Dose Calculation Manual. However, these changes did not adversely affect the radiological environmental monitoring program. Good radiological environmental monitoring implementing procedures with sufficient detail were in use.

R3.2 Collection Logs and Records (84750)

a. Inspection Scope

The inspectors reviewed sample collection logs and records to ensure compliance with program procedure requirements.

b. Observations and Findings

A review of the air sample data collection logs for 1996 indicated that the logs did not receive supervisory review in accordance with management's expectations. During discussions with the Site Services Manager he stated that logs should be reviewed within a week of completion. The inspectors reviewed 33 air sample data collection log sheets and noted that 22 of these logs received supervisory review 2-3 months after completion, one was reviewed more than 5 months after completion. The inspectors determined after discussions with licensee management and staff that the review of the air sample collection logs was used to identify adverse trends and equipment type problems. The licensee acknowledged the inspectors' observation. No other problems were noted.

c. Conclusions

Air sample data collection logs for 1996 did not receive supervisory review in accordance with management's expectations.

R4 **Staff Knowledge and Performance**

The inspectors observed and held discussions with personnel involved with the implementation of the radiological environmental monitoring program to determine their knowledge of environmental sampling and implementing procedures. The inspectors noted that good practices were used by the environmental specialist to

**R5 Staff Training and Qualification**

a. Inspection Scope (84750)

The training and qualification programs for the technical staff responsible for implementing the radiological environmental monitoring program were reviewed.

b. Observations and Findings

The training program implemented for the environmental specialist and other personnel involved in the environmental program was reviewed. The inspectors noted that a nuclear oversight division audit dated December 1996, identified a concern with the frequency of re-qualification training and its lack of documentation in procedures.

During the review of the training records, the inspectors noted that the individual who performed the majority of the environmental training was not required by station procedures to complete the stations "train-the-trainer, and on-the job training and evaluation" programs prior to providing training. The inspectors commented that this was atypical, and that industry practice was for instructors to complete training programs prior to training personnel. The licensee acknowledged the inspector's observation.

c. Conclusions

Personnel were trained and qualified, however, station procedures did not specify training frequency or instructor requirements for environmental personnel.

**R6 Radiological Protection and Chemistry Organization and Administration**

R6.1 Environmental Monitoring (84750)

a. Inspection Scope

The organization, staffing, and assignment of the radiological environmental monitoring program responsibilities were reviewed.

b. Observations and Findings

The environmental management group within the site services division was responsible for implementing the radiological environmental monitoring program. No significant changes in the organization were noted since the last inspection conducted in 1994.



One individual and a supervisor were responsible for the majority of the collection and preparation of the environmental samples. Two additional individuals were designated as backup personnel. Additionally, the control air sample was collected and packaged by personnel employed by Southern California Edison but not assigned to the San Onofre Nuclear Generation Station staff.

c. Conclusions

The inspectors determined that the present organization maintained an adequate staff and provided management support for implementing the radiological environmental monitoring program.

**R7 Quality Assurance in Radiological Protection and Chemistry Activities**

R7.1 Audits and Surveillances (84750)

a. Inspection Scope

Quality assurance audits and surveillances concerning the radiological environmental monitoring and meteorological programs were reviewed for scope, thoroughness, and timely follow-up of identified deficiencies.

b. Observations and Findings

The inspectors reviewed the audit plan, checklist, and results for the audit performed by the licensee in December, 1996. Three surveillances performed between 1994 and 1996 were also reviewed.

The audit was comprehensive, thorough, and provided management with the appropriate oversight of the radiological environmental monitoring program. Two problem review reports and two improvement opportunities involving; the lack of procedure requirements for the re-training of personnel, the lack of procurement supplier assessment, the lack of a Nuclear Oversight Division review of the 1995 Annual Radiological Environmental Operating Report prior to issue, and the generic use of the training records information management system (TRIMS) encode "ENV 600" for training documentation, were identified during the audit. The recommended corrective actions were being evaluated by the licensee during this inspection.

The inspectors determined that the quality assurance auditors assigned to perform the audit and surveillances had appropriate radiological environmental knowledge and experience, which enabled them to properly assess performance and identify problems.

During the review of the Topical Quality Assurance Manual Revision 13, which became effective on December 20, 1996, the inspectors noted that the audit frequency requirement for the environmental program stated, "The conformance of unit operation to provisions contained within the Technical Specifications, the Licensee Controlled Specifications, and applicable license conditions shall be audited at least once every 12 months." In discussions with nuclear oversight division management, the inspectors were informed that the actual intent of the environmental audit frequency was to be once every four years as stated in Revision 12 of the Topical Quality Assurance Manual. The licensee stated that they would clarify the wording in Revision 13 to comply with their original intent.

The licensee performed proper audits of the contract laboratory responsible for the collection of aquatic environmental samples and the contract laboratory responsible for analyzing environmental samples. The licensee's contractor laboratory participated in a intercomparison program and results were forwarded to the licensee.

c. Conclusions

A good, comprehensive audit was performed which identified items for improvement and evaluated the performance and implementation of the radiological environmental monitoring program. The audit and surveillances were performed by qualified auditors. The wording in the frequency section of Table 1-E-1 of Revision 13 of the Topical Quality Assurance Manual did not clearly state the licensee's intent. Audits were performed at the required frequency.

**R8 Miscellaneous Radiological Protection and Chemistry Issues**

**R8.1 Annual Environmental Operating and Effluent Release Reports (84750)**

a. Inspection Scope

The inspectors reviewed the Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports concerning the radiological environmental monitoring program activities to determine compliance with the requirements of Technical Specifications and the Offsite Dose Calculation Manual. These reports were reviewed for omissions, obvious mistakes, anomalous measurements, observed biases, trends in the data, and laboratory inter-comparisons.

b. Observations and Findings

Sampling results included in the 1994, and 1995 Annual Radiological Environmental Operating Reports indicated that sampling was performed as required.

Discrepancies or missed samples were reported as required. The inspectors noted that sampling, analyses, and reporting requirements were met. The annual land use censuses were conducted as required, and the results were included in the report.

The 1994 and 1995 Annual Radioactive Effluent Release Reports included meteorological data as required. The reports contained the required information and the report format satisfied the recommendations of Regulatory Guide 1.21.

c. Conclusions

Good Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports were submitted in a timely manner and contained the required information.

V. Management Meetings

**X1 Exit Meeting Summary**

An exit meeting was conducted on January 17, 1996. During this meeting, the inspectors reviewed the scope and findings of the inspection as detailed in this report. The licensee acknowledged the findings presented and stated that they believed the location of the environmental control air sample station, discussed in Section R1.1, had been previously reviewed and approved by the NRC staff. No proprietary information was identified.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Krieger, Vice President, Nuclear Generation  
D. Nunn, Vice President, Engineering and Technical Services  
P. Chang, Supervisor, Chemistry  
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K. Yhip, Engineer, Health Physics  
K. Slagle, Manager Nuclear Oversight

NRC

J. Sloan, Senior Resident Inspector

INSPECTION PROCEDURES USED

84750      Radioactive Waste Treatment, and Effluent and Environmental Monitoring

LIST OF DOCUMENTS REVIEWED

Procedures

Environmental Procedure SO123-IX-1.1, Revision 3, "Terrestrial Radiological Environmental Sample Collection."  
Environmental Procedure SO123-IX-1.2, Revision 7, "Air Sampling."  
Environmental Procedure SO123-IX-1.3, Revision 6, "Environmental TLD Exchange."  
Environmental Procedure SO123-IX-1.4, Revision 7, "Drinking Water."  
Environmental Procedure SO123-IX-1.5, Revision 7, "Sediment From Shoreline."  
Environmental Procedure SO123-IX-1.6, Revision 7, "Local Crops."  
Environmental Procedure SO123-IX-1.8, Revision 7, "Soil Sampling."

Environmental Procedure SO123-IX-1.10, Revision 0, "Review, Analysis and Reporting of Radiological Environmental Monitoring Program Data."

Environmental Procedure SO123-IX-1.20, Revision 0, "Land Use Census."

Environmental Procedure SO123-IX-1.30, Revision 0, "Marine Radiological Sample Collection."

Site Technical Services Procedure SO123-XIV-8, Revision 1, "Meteorological Data Acquisition System."

Audits and Surveillances

Site Quality Assurance Audit Report SCES-624-96 Units 1,2, & 3, Radiological Environmental Program Audit, December, 1996.

Site Quality Assurance Audit Report OEES-1-94 Units 1,2, & 3, Ogden Environmental and Energy Services Program Audit, March, 1994.

Surveillance SOS-130-94, "Meteorological Instrumentation System," June 6, 1994.

Surveillance SOS-187-94, "Environmental Samples For Emergency Drill," September 20, 1994.

Surveillance SOS-024-96, "Annual Radiological Environmental Operating Report," June 19, 1996.

Other Documentation

Chapter 1-E of the Topical Quality Assurance Manual, Revision 12.

Chapter 1-E of the Topical Quality Assurance Manual, Revision 13.

1994 and 1995 Annual Radiological Environmental Operating Reports.

Meteorology Section of the 1994 and 1995 Annual Radioactive Effluent Release Reports.

Meteorological Data 1996

REM Monthly Status Reports from 1994-1996.

Section 5.0 of the Offsite Dose Calculation Manual, Revision 29.