

## UNITED STATES NUCLEAR REGULATORY COMMISSION

#### REGION IV 611 RYAN PLAZA DRIVE, SUITE 400 ARLINGTON, TEXAS 76011-4005

October 16, 2006

Richard M. Rosenblum
Senior Vice President and
Chief Nuclear Officer
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION - NRC RADIATION

SAFETY TEAM INSPECTION REPORT 05000361/2006014;

05000362/2006014

Dear Mr. Rosenblum:

On September 15, 2006, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your San Onofre Nuclear Generating Station, Units 2 and 3 facility. The enclosed report documents the inspection findings, which were discussed at the conclusion of the inspection with Mr. A. Scherer, Manager, Nuclear Regulatory Affairs, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The team reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, the team evaluated the inspection areas within the Radiation Protection Strategic Performance Area that are scheduled for review every two years. These areas are:

- Radiation Monitoring Instrumentation
- Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems
- Radioactive Material Processing and Transportation
- Radiological Environmental Monitoring Program and Radioactive Material Control Program

On the basis of the results of this inspection, no findings of significance were identified.

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <a href="http://www.nrc.gov/reading-rm/adams.html">http://www.nrc.gov/reading-rm/adams.html</a> (the Public Electronic Reading Room).

Sincerely,

#### /RA/

Michael P. Shannon, Chief Plant Support Branch Division of Reactor Safety

Dockets: 50-361

50-362

Licenses: NPF-10

NPF-15

Enclosure:

NRC Inspection Report 05000361/2006014; 5000362/2006014

w/attachment: Supplemental Information

cc w/enclosure:

Chairman, Board of Supervisors County of San Diego 1600 Pacific Highway, Room 335 San Diego, CA 92101

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Ray W. Waldo Southern California Edison Company San Onofre Nuclear Generating Station P.O. Box 128 San Clemente, CA 92674-0128 David Spath, Chief
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Michael R. Olson San Onofre Liaison San Diego Gas & Electric Company 8315 Century Park Ct. CP21G San Diego, CA 92123-1548

Director, Radiological Health Branch State Department of Health Services P.O. Box 997414 (MS 7610) Sacramento, CA 95899-7414

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## U.S. NUCLEAR REGULATORY COMMISSION REGION IV

Dockets: 50-361, 50-362

Licenses: NPF-10, NPF-15

Report: 05000361/2006014 and 5000362/2006014

Licensee: Southern California Edison Co. (SCE)

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

Location: 5000 S. Pacific Coast Hwy.

San Clemente, California

Dates: September 11-15, 2006

Inspectors: Larry Ricketson, P.E., Senior Health Physicist, Plant Support Branch

Louis Carson II, Senior Health Physicist, Plant Support Branch

Gilbert Guerra, Health Physicist, Plant Support Branch Donald Stearns, Health Physicist, Plant Support Branch

Approved By: Michael P. Shannon, Chief, Plant Support Branch

Division of Reactor Safety

## **SUMMARY OF FINDINGS**

IR05000361/2006014, 05000362/2006014; 09/11/06 - 09/15/06; San Onofre Nuclear Generating Station, Units 2 & 3; Radiation Safety Team

The report covered a five-day period of inspection on site by a team of four region-based health physics inspectors.

A. <u>NRC-Identified and Self-Revealing Findings</u>

No findings of significance were identified.

B. <u>Licensee Identified Violations</u>

None

-2- Enclosure

#### REPORT DETAILS

#### 2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety [OS] and Public Radiation Safety [PS]

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

#### a. Inspection Scope

This area was inspected to determine the accuracy and operability of radiation monitoring instruments that are used for the protection of occupational workers and the adequacy of the program to provide self-contained breathing apparatus (SCBA) to workers. The team used the requirements in 10 CFR Part 20 and the licensee's procedures required by technical specifications as criteria for determining compliance. The team interviewed licensee personnel and reviewed:

- Calibration of area radiation monitors associated with transient high and very high radiation areas and post-accident monitors used for remote emergency assessment
- Calibration of portable radiation detection instrumentation, electronic alarming dosimetry, and continuous air monitors used for job coverage
- Calibration of whole body counting equipment and radiation detection instruments utilized for personnel and material release from the radiologically controlled area
- Self-assessments, audits, and Licensee Event Reports
- Corrective action program reports since the last inspection
- Licensee action in cases of repetitive deficiencies or significant individual deficiencies
- Calibration expiration and source response check currency on radiation detection instruments staged for use
- The licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions, status of SCBA staged and ready for use in the plant and associated surveillance records, and personnel qualification and training
- Qualification documentation for onsite personnel designated to perform maintenance on the vendor-designated vital components, and the vital component maintenance records for SCBA units

The inspectors completed 9 of the required 9 samples.

-3- Enclosure

#### b. Findings

No findings of significance were identified.

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

#### a. Inspection Scope

This area was inspected to ensure that the gaseous and liquid effluent processing systems are maintained so that radiological releases are properly mitigated, monitored, and evaluated with respect to public exposure. The team used the requirements in 10 CFR Part 20, 10 CFR Part 50 Appendices A and I, the Offsite Dose Calculation Manual, and the licensee's procedures required by technical specifications as criteria for determining compliance. The team interviewed licensee personnel and reviewed:

- Radiological effluent release reports since the last inspection, changes to the
  Offsite Dose Calculation Manual, radiation monitor setpoint calculation
  methodology, anomalous sampling results, effluent radiological occurrence
  performance indicator incidents, program for identifying contaminated spills and
  leakage and the licensee's process for control and assessment, self-assessments,
  audits, and licensee event reports
- Gaseous and liquid release system component configurations
- Routine processing, sample collection, sample analysis, and release of radioactive gaseous effluent; and radioactive liquid and gaseous effluent release permits and dose projections to members of the public
- Abnormal releases
- The licensee's understanding of the location and construction of underground pipes and tanks and storage pools that contain radioactive contaminated liquids; the technical bases for onsite monitoring, the licensee's capabilities of detecting spills or leaks and identifying groundwater radiological contamination both on site and beyond the owner-controlled area
- Changes made by the licensee to the Offsite Dose Calculation Manual, the liquid or gaseous radioactive waste system design, procedures, or operation since the last inspection
- Monthly, quarterly, and annual dose calculations
- Surveillance test results involving air cleaning systems and stack or vent flow rates
- Instrument calibrations of discharge effluent radiation monitors and flow measurement devices, effluent monitoring system modifications, effluent radiation monitor alarm setpoint values, and counting room instrumentation calibration and quality control

-4- Enclosure

- Interlaboratory comparison program results
- Licensee event reports, special reports, audits, self-assessments and corrective action reports performed since the last inspection

The inspector completed 11 of the required 11 samples.

## b. <u>Findings</u>

No findings of significance were identified.

#### 2PS2 Radioactive Material Processing and Transportation (71122.02)

## a. <u>Inspection Scope</u>

This area was inspected to verify that the licensee's radioactive material processing and transportation program complies with the requirements of 10 CFR Parts 20, 61, and 71 and Department of Transportation regulations contained in 49 CFR Parts 171-180. The team interviewed licensee personnel and reviewed:

- The radioactive waste system description, recent radiological effluent release reports, and the scope of the licensee's audit program
- Liquid and solid radioactive waste processing systems configurations, the status
  and control of any radioactive waste process equipment that is not operational or
  is abandoned in place, changes made to the radioactive waste processing systems
  since the last inspection, and current processes for transferring radioactive waste
  resin and sludge discharges
- Radio-chemical sample analysis results for radioactive waste streams and use of scaling factors and calculations to account for difficult-to-measure radionuclides
- Shipment packaging, surveying, labeling, marking, placarding, vehicle checking, driver instructing, and disposal manifesting
- Shipping records for non-excepted package shipments
- Licensee event reports, special reports, audits, state agency reports, self-assessments and corrective action reports performed since the last inspection

The inspectors completed 6 of the required 6 samples.

#### b. Findings

No findings of significance were identified.

-5- Enclosure

## 2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program (71122.03)

## a. <u>Inspection Scope</u>

This area was inspected to ensure that the REMP verifies the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program; and that the licensee's surveys and controls are adequate to prevent the inadvertent release of licensed materials into the public domain. The team used the requirements in 10 CFR Part 20, Appendix I of 10 CFR Part 50, the Offsite Dose Calculation Manual, and the licensee's procedures required by technical specifications as criteria for determining compliance. The team interviewed licensee personnel and reviewed:

- Annual environmental monitoring reports and licensee event reports
- Selected air sampling and thermoluminescence dosimeter monitoring stations
- Collection and preparation of environmental samples
- Operability, calibration, and maintenance of meteorological instruments
- Each event documented in the Annual Environmental Monitoring Report which involved a missed sample, inoperable sampler, lost thermoluminescence dosimeter, or anomalous measurement
- Significant changes made by the licensee to the Offsite Dose Calculation Manual as the result of changes to the land census or sampler station modifications since the last inspection
- Calibration and maintenance records for air samplers, composite water samplers, and environmental sample radiation measurement instrumentation, quality control program, interlaboratory comparison program results, and vendor audits
- Locations where the licensee monitors potentially contaminated material leaving the radiological controlled area [or controlled access area] and the methods used for control, survey, and release from these areas
- Type of radiation monitoring instrumentation used to monitor items released, survey and release criteria of potentially contaminated material, radiation detection sensitivities, procedural guidance, and material release records
- Licensee event reports, special reports, audits, self-assessments and corrective action reports performed since the last inspection

The inspectors completed 10 of the required 10 samples.

-6- Enclosure

## b. Findings

No findings of significance were identified.

#### 4. OTHER ACTIVITIES

## 4OA2 Problem Identification and Resolution

## a. <u>Inspection Scope</u>

The team evaluated the effectiveness of the licensee's problem identification and resolution process with respect to the following inspection areas:

- Radiation Monitoring Instrumentation (Section 2OS3)
- Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (Section 2PS1)
- Radioactive Material Processing and Transportation (Section 2PS2)
- Radiological Environmental Monitoring Program and Radioactive Material Control Program (Section 2PS3)

## a. Findings and Observations

No findings of significance were identified.

## 4OA6 Management Meetings

## Exit Meeting Summary

On September 15, 2006, the team presented the inspection results to Mr. A. Scherer, Manager, Nuclear Regulatory Affairs, and other members of the staff who acknowledged the findings. The team confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

-7- Enclosure

#### SUPPLEMENTAL INFORMATION

#### **KEY POINTS OF CONTACT**

## Licensee

- B. Ashbrook, Manager, Environmental Protection
- K. Belford, Health Physics
- M. Chandler, Technical Specialist
- D. Dick, Effluent Supervisor, Chemistry
- P. Elliott, Supervisor, Health Physics
- M. Farmer, Health Physics
- A. Gray, General Foreman, Radioactive Materials Control Group
- N. Hansen, Environmental Technical Specialist
- C. Hays, Supervisor, Computer Engineering
- M. Hunter, Auditor
- J. Hurlocker, Supervisor, Shipping/Receiving/REMS
- M. Johnson, Manager, Environmental
- M. Lewis, Supervisor, Health Physics
- F. Liu, Maintenance Engineering
- A. Scherer, Manager, Nuclear Regulatory Affairs
- J. Scott, Health Physics Engineer, Nuclear Regulatory Affairs
- L. Villalobos, Technician, Health Physics
- D. Wert, Technician, Health Physics

### NRC

C. Osterholtz, Senior Resident Inspector

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed During this Inspection

None

#### LIST OF DOCUMENTS REVIEWED

## Section 20S3: Radiation Monitoring Instrumentation and Protective Equipment

Corrective Action Documents

050301858, 050400020, 051000778, 051001004, 060800820

Audits and Self-assessments

## Audit No. SCES-15-05 Radioactive Material Control

## Procedures

SO123-VII-20.14.1 SO123-VII-20.14.5.1 SO123-VII-20.14.6.2 SO123-VII-20.7.2 SO123-VII-20.7.2.1 SO123-VII-20.13 SO123-VII-20.13.3 SO123-VII-20.13.4 SO123-VII-20.13.6	NE Technology IPM8M Installed Personnel Monitor, Revision 2
Surveillances	
SO23-XXV-4.17	Surveillance Requirement Liquid Radwaste Effluent Line Loop 2/3RE7813 Channel Calibration, Revision 3
SO23-XXV-4.19	Surveillance Requirement Plant Vent Stack/Waste Gas Holdup System Loop 2/3RE7808G Channel Calibration, Revision 2
SO23-XXV-4.23	Surveillance Requirement Turbine Plant Area Sump Radiation Monitor Loop 2(3)RE7821 Channel Calibration, Revision 9
SO23-XXV-4.51	Surveillance Requirement Containment Purge Stack Radiation Monitoring System Loop 2(3)RE7828C Channel Calibration, Revision 3
SO23-XXV-4.10	Surveillance Requirement Containment High Range Area Radiation Monitor

## Post-Accident Offsite Monitors Calibration and Performance Checks

Pressurized Ion Chamber (PIC) Stations: PIC-1, PIC-2, PIC-3, PIC-4, PIC-5, PIC-6, PIC-7, PIC-8, PIC-9

Loop RE7820-2 Channel Functional Test, Revision 6

Loop 2(3)RE7820-1 Channel Functional Test, Revision 6

Surveillance Requirement Containment High Range Area Radiation Monitor

18-Month Test/Calibration (March 1, 2005 and September 1, 2006) 30-Day PIC Check, September 1, 2006

## PIC Procedures

SO23-XXV-4.10.1

SO23-V-12.9.2	Reuter-Stokes Radiation Monitoring System Remote Station, (PIC) Preventive Maintenance Revision 5
SO23-V-12.9.5	Reuter-Stokes Radiation Monitoring System Remote Station, PICs Calibration (Eighteen Months) Revision 5

# <u>Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring</u> Systems

## Procedures

SO123-III-0.7 ISS2	Effluent Quality Assurance and Chemistry Quality Control Programs,
	Revision 27
SO123-III-4.5.3	VAX/VMS Gamma Spectrometer Operation, Revision 13
SO123-III-5.1.23	Units 2/3 Effluent Sampling and Analysis, Revision 26
SO123-III-5.2.23	Units 2/3 Liquid Effluent Sample Collection, Revision 15
SO123-III-5.10	Liquid and Gaseous Effluent Dose Determinations, Revision 11

#### Action Requests

101.0		
040100536	050100130	060301972
040100893	050101334	060400192
040101551	050101560	060600305
040202174	050200818	060800307
040300257	050201162	060801279
040301552	050301493	
040400269	050301494	
040400853	050400345	
040500167	050401508	
040601883	050401453	
040700352	050400085	
040900720	050500424	
041000333	050500539	
041000487	050600422	
041201188	050900391	
	051000001	
	051101227	

#### Audits and Surviellances

SCES-010-04, "Environmental - ODCM," September 22, 2004 NUPIC Audit of Teledyne Brown Engineering Environmental Services, December 6-9, 2005

## Release Permits

Unit 2/3 Batch Liquid Post-Release Report #6L-014-0, #6L-169-0, #5L-013-0, #5L-355-0 Unit 2/3 Continuous Gases Post-Release Report #5G-116-0, #6G-057-0 Unit 2/3 Batch Gases Post-Release Report #6G-034-0, #5G-026-0

## **HVAC Surveillance**

S31504ME370 Fuel Handling Building Post Accident Cleanup Unit

MO#04060614000, 12/20/05 (Inplace) MO#03120188000, 3/24/05 (Carbon)

MO#03031633000, 4/24/04 (Inplace)

S21504ME370 Fuel Handling Building Post Accident Cleanup Unit

MO#03110137000, 4/1/05 (Inplace) MO#03040769000, 6/7/04 (Carbon) MO#04061800000, 9/29/05 (Carbon)

S21504ME371 Fuel Handling Building Post Accident Cleanup Unit

MO#03040765000, 5/3/04 (Carbon) MO#04051646000, 10/28/05 (Carbon) MO#03081655000, 3/19/05 (Inplace)

S31504ME371 Fuel Handling Building Post Accident Cleanup Unit

MO#03040952000, 7/2/04 (Carbon) MO#04080555000, 10/18/05 (Carbon) MO#04010179001, 4/29/05 (Inplace)

SA1510ME418 Control Room Envelope Complex Emergency AC

MO#03050480000, 9/8/04 (Carbon) MO#04091829000, 11/3/05 (Carbon) MO#05010469000, 4/21/06 (Inplace) MO#03050820000, 12/3/04 (Inplace)

#### Other Documents

SONGS Annual Radioactive Effluent Release Report for 2004 SONGS Annual Radioactive Effluent Release Report for 2005 SONGS Unit 2/3 Offsite Dose Calculation Manual, Revision 41 Radiochemistry Cross Check Program Results

- 2nd Quater 2004 and 4th Quater 2004
- 2nd Quater 2005 and 4th Quater 2005

#### **Section 2PS2: Radioactive Material Processing and Transportation**

## Corrective Action Documents

040101289, 040601142, 040800286, 050600536, 060100071, 060400360, 060700399, 060800088

#### Audits and Self-Assessments

Audit Report SCES-015-05, Radioactive Material Control

## <u>Procedures</u>

SO123-VII-8 Control of Radioactive Material, Revision 11

SO123-VII-8.1 Solid Radioactive Waste Stream Analysis for Classification and

Typification, Revision 19

SO123-VII-8.1.4	Solid Radioactive Waste Packaging for Class A Unstable Waste, Revision 11
SO123-VII-8.1.9	Cross-Linked Polyethylene High Integrity Containers for Solid Waste Disposal, Revision 7
SO123-VII-8.1.14	Radioactive Material Container Labeling, Revision 2
SO123-VII-8.2	Shipment of Radioactive Material, Revision 22
SO123-VII-8.2.6	Solid Waste Loading of the 14-190 Series and the 14-210 Series Shipping
	Casks, Revision 13
SO123-VII-8.2.10	Receipt of Radioactive Material, Revision 11
SO123-VII-8.5.1	Radwaste Process Control Program, Revision 8
SO123-VII-8.5.5	Dewatering System Operation, Revision 13
SO123-VII-8.16	Radioactive Equipment and Material Storage, Revision 5

## Radioactive Material Shipment Records

06-2601, 06-6601, 05-2504, 05-2508, 05-2509

#### Other Documents Reviewed

USAR, Section 11.4, Solid Waste Management System
Training Lesson Plan SHIPRW, 49CFR Hazardous Material Employee Training, Revision 3

## <u>Section 2PS3: Radiological Environmental Monitoring Program (REMP) And Radioactive</u> Material Control Program

## Corrective Action Documents

Radiological Environmental Monitoring Program - 04076044, 050601241, 050800146, 060101418, 060700513, 060700730, 060800972

Release of Radioactive Material - 04071784, 04073105, 04084198, 04084582, 04085298, 04085929, 06010120

Meteorological Monitoring - 04041760, 04071784, 050300598

## Procedures

SO123-IX-1.1	Radiological Environmental Monitoring Program Training and Personnel Qualification Guideline, Revision 7
SO123-IX-1.10	Review, Analysis, and Reporting of Radiological Environmental Monitoring Program Data, Revision 5
SO123-VII-20.9.2	Material Release Surveys, Revision 4
SO123-II-8.12	Surveillance Requirement 10 and 40 Meter Meteorological Instrumentation Channel Calibration, Revision 4
SO123-III-5.25	Evaluating and Reporting Abnormal Releases of Radioactive Material, Revision 5
SO123-III-5.42	Evaluating Miscellaneous Release Sources, Revision 5
SO123-V-8	Meteorological Data Acquisition System, Revision 0

A-5 Attachment

SO123-VII-8.16	Radioactive Equipment and Material Storage, Revision 5
SO123-VII-8.16.1	Construction Specifications for a Strong, Tight Box for Radioactive Tools,
	Components and Equipment Storage, Revision 4
SO123-VII-20.9.3	Surveys for Release of Liquids, Sludges, Slurries, and Sands, Revision 5
SO123-XII-18.1	Audit Program, Revision 8
SO123-XII-18.1	Audit Planning, Performance, and Documentation, Revision 8
SO123-XV-2.1	NPDES Monitoring, Revision 10
SO123-XV-2.3	NPDES Best Management Practices Plan (National Pollution Discharge
	Elimination System) Revision 4
SO123-XV-3.5	Groundwater Initiative Voluntary Communication Protocol, Revision 0
SO123-XV-29	Disposition of Plant Generated Liquid Waste, Revision 4
SO123-XV-32	Storm Water Pollution Prevention Plan (SWPPP), Revision 3

## Self-Assessments and Quality Verification

Framatone ANP DE&S Laboratory Analytical Services, Semi-Annual Quality Assurance Status Reports 2004 - 2005

Environmental air sampling stations: 7, 9, 10, 11, 12, 13, and 14

Thermoluminescent dosimetry stations: 10, 12, 14, 59, 64, 65, and 66

#### Calibration Data

## Radiological Environmental Monitoring Program

Digital Gas Meter Flow Totalizer, Serial Number 32756, Dated June 12, 2004 Digital Gas Meter Flow Totalizer, Serial Number 5013, Dated December 8, 2004

### Meteorological Monitoring

Repetitive Maintenance Number 50000812000, Primary Met Tower Instrumentation Semi-Annual Calibration, July 2003

Repetitive Maintenance Number 50000812001, Backup Met Tower Instrumentation Semi-Annual Calibration, July 2003

#### Miscellaneous

2004 and 2005 Annual Radioactive Effluent Release Report

2004 and 2005 Land Use Census Results

2004 and 2005 Analytical QA and Interlaboratory Comparison Report

2006 Environmental Laboratory Report on Lower Limits of Detection (LLDs)

2005 Calibration and Performance Checks of Environmental Air Samplers

Non Conformance Report (NCR) 910500038: Radioactive Material Storage in the South Yard.

Non Conformance Report (NCR) 910500064: Radioactive Material and Equipment Stage in Units 2 and 3 Protected Area