UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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February 1, 2006

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

SUBJECT: NRC INSPECTION REPORT 050-00206/06-008

Dear Mr. Rosenblum:

This refers to the inspection conducted on January 9-12, 2006, at the San Onofre Nuclear Generating Station, Unit 1 facility. This inspection was an examination of decommissioning 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 inspection included an examination of selected procedures and representative records, observations of activities, and interviews with personnel. The enclosed report presents the results of that inspection. The inspection determined that you were conducting decommissioning activities in compliance with regulatory and license requirements.

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 NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact the undersigned at (817) 860-8191 or Mr. Robert J. Evans, Senior Health Physicist, at (817) 860-8234.

Sincerely,

/RA/

D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle and Decommissioning Branch

Docket No.: 050-00206
License No.: DPR-13

Enclosure:
NRC Inspection Report
050-00206/06-008

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No:	050-00206
License No:	DPR-13
Report No:	050-00206/06-008
Licensee:	Southern California Edison Co. P.O. Box 128 San Clemente, California 92674
Facility:	San Onofre Nuclear Generating Station, Unit 1
Location:	San Clemente, California
Dates:	January 9-12, 2006
Inspector:	Robert J. Evans, P.E., C.H.P., Senior Health Physicist Fuel Cycle & Decommissioning Branch
Accompanied By:	Jerry Holsomback, Deputy Director Division of Reactor Safety
Approved By:	D. Blair Spitzberg, Ph.D., Chief Fuel Cycle & Decommissioning Branch
Attachment:	Supplemental Inspection Information
ADAMS Entry:	IR05000206-06-008 on 01/09/2006 - 01/12/2006; Southern California Edison Co., San Onofre Nuclear Generating Station; Unit 1. Decommissioning Report. No VIOs.

EXECUTIVE SUMMARY

San Onofre Nuclear Generating Station, Unit 1
NRC Inspection Report 050-00206/06-008

This inspection was a routine, announced inspection of decommissioning activities being conducted at San Onofre Nuclear Generating Station, Unit 1 facility. Areas inspected included organization, management, and cost controls; maintenance and surveillance; decommissioning performance and status review; solid radioactive waste management and transportation of radioactive materials; and followup of a previous licensee event report. Overall, the licensee was conducting decommissioning safely and in accordance with regulatory and procedural requirements.

Organization, Management, and Cost Controls at Permanently Shutdown Reactors

- The licensee continued to implement an effective employee safety concerns program (Section 1).

Maintenance and Surveillance at Permanently Shutdown Reactors

- The licensee conducted maintenance of permanent plant equipment in accordance with work instructions and procedure requirements (Section 2).

Decommissioning Performance and Status Review at Permanently Shutdown Reactors

- The licensee was controlling the radiologically restricted area in accordance with regulatory requirements (Section 3).

- A review of air sample results indicated that the recent spent fuel, radwaste and containment building fan outage did not result in an increase in general area airborne radioactivity levels (Section 3).

Solid Radioactive Waste Management and Transportation of Radioactive Materials

- The Unit 1 staff was conducting the radioactive waste shipment program in accordance with approved site procedures and regulatory requirements (Section 4).

Followup

- During February 2005, the licensee reported a leaking plutonium-beryllium neutron source to the NRC. The status of the source was reviewed during this inspection. The source had been packaged for shipment. The licensee subsequently shipped the source in a specification package to the Department of Energy/Los Alamos National Laboratory for permanent disposal just after the onsite inspection (Section 5).

Report Details

Summary of Plant Status

San Onofre Nuclear Generating Station, Unit 1 was permanently shut down during November 1992 and was permanently defueled by March 1993. The unit remained in SAFSTOR until June 1999, when decommissioning was initiated. At the time of this inspection, the licensee was conducting decommissioning activities under the DECON option as stated in its Post Shutdown Decommissioning Activities Report dated December 15, 1998. DECON is defined as the immediate removal and disposal of all radioactivity in excess of levels which would permit the release of the facility for unrestricted use.

Work completed since the previous inspection included demolition of the former refueling water storage tank, removal of miscellaneous tanks and demineralizers from the radwaste building, and transfer of the Independent Spent Fuel Storage Installation temperature indication system from the Unit 1 access control point to the Units 2/3 control room.

Work in progress during the inspection included installation of a material handling system to facilitate waste material movement from inside of containment, removal of equipment from the radwaste building and yard adjacent to the spent fuel building, and backfilling and compacting of soil in the footprint of the former turbine building.

Since August 2005, the licensee has been pumping down the local groundwater to support sub-surface decommissioning activities. The Phase I dewatering subsystem, in part, provided a cone of depression to support excavation of loose soils in the vicinity of the former turbine building. This phase of dewatering was limited to the capacity of the existing yard sump, approximately 600 gpm. The licensee recently discontinued Phase I dewatering because the system could not draw down the groundwater table sufficiently to support excavation of the deepest soils.

The licensee plans to place the new yard sump and related flowpaths into service about May 2006 following the anticipated NRC approval of the July 15, 2005 license amendment request. Once in service, the licensee plans to finish Phase I excavation activities using both Phase I and II pumps. The Phase II dewatering flow rate is designed to be within the capacity of the new sump, approximately 2600 gpm. In addition to completion of Phase I work, Phase II dewatering will be used to support demolition of the radwaste and spent fuel buildings.

1 Organization, Management, and Cost Controls at Permanently Shutdown Reactors (36801)

1.1 Inspection Scope

The inspectors reviewed the licensee's nuclear safety concerns program to ascertain whether it was functioning in accordance with management directive requirements.

1.2 Observations and Findings

The nuclear safety concerns program is designed to allow employees and other individuals to submit concerns related to Unit 1 activities. The program requirements were described in the licensee's Nuclear Organization Directive D-008. The nuclear safety concerns program was a stand-alone department that reported to the Vice President-Nuclear Business & Regulatory Affairs.

Employees could submit concerns via internal mail, U.S. Postal Service mail, telephone, electronic mail, in person, or drop boxes located throughout the plant. To ensure employee and contractor awareness of the program, the nuclear safety program issued routine memoranda to plant personnel and issued handouts to incoming and outgoing personnel. In addition, annual computer-based training was provided to those workers granted unescorted access to the protected area.

The inspector discussed the 2005 results with the program manager. The program manager briefly explained the status of Unit 1 concerns. The inspector concluded that the licensee continued to maintain the employee safety concerns program in accordance with management directive requirements.

During September 2005, a contractor for the licensee conducted a nuclear safety culture survey. The survey concluded that the safety culture was "healthy." The nuclear safety concerns program was listed as one of the strengths of the safety culture survey. The licensee plans to present the results of the survey to the NRC in the near future in a meeting open to the public.

1.3 Conclusions

The licensee continued to implement an effective employee safety concerns program.

2 Maintenance and Surveillance at Permanently Shutdown Reactors (62801)

2.1 Inspection Scope

The inspector observed the performance of selected maintenance and surveillance activities to verify if structures, systems, and components were being maintained in compliance with requirements.

2.2 Observations and Findings

The licensee continued to operate ventilation fans to support decommissioning work inside of the spent fuel, radwaste, and containment buildings. Normally, two of three fans are in service. With one or more fans in service, ventilation stack radiation monitor R-1254 was required to be operable in accordance with Offsite Dose Calculation Manual requirements. In accordance with Operating Instruction SO1-4-25, "Ventilation Systems Operations," Revision 16, if any fan is removed from service, compensatory actions have to be take including stopping work on radioactive equipment in that building until

the work is evaluated for the new effluent conditions. In addition, health physics is notified to provide portable air samplers as necessary to support the work in progress.

Beginning in 2005, the licensee experienced mechanical failure of all three fans for different reasons. The problems included high vibration, drive belt failure, and bearing failure. The inspector observed the licensee conducting maintenance on two of the fans and compared the work activities to instructions provided in maintenance work orders and system operating procedures. The inspector noted that portable air samplers were in place to monitor work areas and building entrances as compensatory measures for the fan outage.

Maintenance was conducted on Fans A21 and A22 during the inspection. Fan A21 was recently replaced but subsequently experienced high vibration. The cause of the vibration was a combination of inadequate bearing grease and misalignment of the fan shroud. Following completion of the field work, the maintenance staff conducted a review of past maintenance activities to identify potential reasons why the fan, which was recently replaced, experienced high vibration. Although this investigation was incomplete at the end of the inspection period, the preliminary assessment suggested that the fan had been damaged during transport to the site. Regardless, the fan was successfully repaired and returned to service during the inspection.

Fan A22 experienced drive belt failure. The belts and associated sheaves were replaced during the inspection. The fan was also successfully returned to service during the inspection. The third fan, A24, had previously experienced bearing failure. The repair of this fan was scheduled for a later date.

The inspector observed the licensee conducting operational startup of the two ventilation fans following maintenance. The operations staff conducted the startup in accordance with procedural requirements. In addition, the inspector confirmed that the associated gaseous effluent radiation monitor R-1254 setpoint was in agreement with the approved setpoint transmittal sheet with two fans in service.

2.3 Conclusions

The licensee conducted maintenance of permanent plant equipment in accordance with work instructions and procedure requirements.

3 Decommissioning Performance and Status Review at Permanently Shutdown Reactors (71801)

3.1 Inspection Scope

The inspector evaluated whether the licensee and its contracted workforce were conducting decommissioning activities in accordance with license and regulatory requirements.

3.2 Observations and Findings

a. Site Tours/Control of Decommissioning Activities

The inspector conducted tours of the Unit 1 facility to observe radiological area postings and boundaries. Access to the restricted and contaminated areas was controlled by radiation caution signs, barricades, boundary lines, locked doors, and locked gates. Radiological boundaries were well defined and postings were up-to-date in all areas.

The inspector conducted independent radiological surveys in the radiologically restricted area using a Ludlum Model 2401-P survey meter (NRC No. 21190G, calibration due date 09/23/06). No abnormal radiological survey results were observed, and all ambient gamma exposure rate measurements were in agreement with posted radiation levels.

b. Review of Air Sample Results

The inspector conducted a review of general area air sample results to ascertain whether the recent ventilation fan outage had a noticeable impact on ambient airborne radioactivity concentrations inside of buildings. The inspector reviewed the air sample results for November 2005 through January 2006. The sample results for late-December 2005, the time frame when all three building ventilation fans were out of service, were comparable to the November 2005 sample results. In summary, the air sample results indicated that the ventilation fan outage had a negligible impact on worker exposures to airborne radioactive material.

3.3 Conclusions

The licensee was controlling the radiologically restricted area in accordance with regulatory requirements. A review of air sample results indicated that the recent spent fuel, radwaste and containment building fan outage did not result in an increase in general area airborne radioactivity levels.

4 Solid Radioactive Waste Management and Transportation of Radioactive Materials (86750)

4.1 Inspection Scope

The purposes of this portion of the inspection effort were to determine whether the licensee properly processed, packaged, stored, and shipped radioactive materials and to determine whether transportation activities were being conducted in compliance with applicable NRC and U.S. Department of Transportation regulations.

4.2 Observations and Findings

During the inspection, the licensee was loading contaminated wastes into intermodal containers for shipment to an out-of-state disposal site. The wastes included contaminated piping, valves, concrete, and other non-compactable solid wastes. The

wastes were being removed from the radwaste building and from the yard area adjacent to the spent fuel building.

The inspector observed the licensee cutting the equipment using mechanical saws and welding torches. Health physics staff conducted continuous surveys of the work area as the equipment was being removed. Air sampling was conducted to ensure that the demolition work was not creating airborne radiological hazards. The workers were observed to be conducting the work in a safe and orderly manner.

The inspector compared the licensee's loading and packaging practices to the guidance provided in several health physics procedures, including Procedure SO123-VII-8.2, Revision 21, "Shipment of Radioactive Material." The licensee used container travelers which provided condensed procedure instructions to control the loading of individual intermodal containers. The travelers were posted on each container. The instructions included limitations on the radioactivity levels of the waste material to ensure compliance with U.S. Department of Transportation shipping requirements. The inspector compared the contents of two intermodals being loaded to the requirements listed in the respective travelers. In both cases, the material that was being loaded into the containers was in accordance with the limitations provided on the travelers.

Once the intermodal containers were loaded, they were shipped to an out-of-state disposal site. Following dumping of the waste material at the disposal site, the containers were supposed to be cleaned, surveyed, and free-released for reuse at Unit 1. The inspector conducted a review of the licensee's control of incoming intermodals. The licensee used the Intermodal Cargo Container Report to document the receipt inspection of the interior and exterior surfaces. The inspection included a review of the physical condition of the seals and surfaces as well as internal loose contamination levels.

The completed Intermodal Cargo Container Reports for the last few months were reviewed. The inspector noted that roughly half of the intermodals had not been surveyed for internal contamination as recommended by the procedure. A licensee representative stated that most intermodals were destined for use inside of containment, and many of these intermodals were not surveyed to expedite the process of moving radioactive wastes out of containment. Procedure SO123-VII-8.2, Step 6.4.8.5 states, "if practical, survey the package for contamination levels before using the package;" therefore, the licensee was not required to conduct a survey of the package interiors upon receipt of the package.

During site tours, the inspector observed two empty intermodals that had been recently received at Unit 1. These two intermodals had been removed from service because both had been identified with damage. The interiors of the containers were observed to be free of residual material, such as dirt and concrete, indicating that the containers had been cleaned prior to shipment to the site.

The inspector conducted radiological surveys of the container interiors. The surface contamination surveys were conducted using an Eberline E600 survey meter (NRC No. 063472, calibration due date 09/06/06) connected to an SHP380AB alpha-beta probe (NRC No. 072357). The inspector measured ambient background beta levels prior to

conducting the surface survey measurements. Since the intermodals were located inside of the radiologically restricted area, the background measurements were noted to be elevated, averaging 1141 counts per minute (cpm). The interior surfaces of the intermodals ranged from 391 to 517 cpm, with an average of 453 cpm. (The shielding effect of the metal walls contributed to a reduced count rate in the interior area of the containers as compared to the exterior.) Based on the survey results and visual examinations, the inspector concluded that the container interiors were free of residual radioactive material.

4.3 Conclusions

The Unit 1 staff was conducting the radioactive waste shipment program in accordance with approved site procedures and regulatory requirements.

5 Followup (92701)

5.1 (Closed) Licensee Event Report 050-00206/0509-02: Leaking Sealed Source

On February 23, 2005, the licensee informed the NRC that a 5-curie plutonium-beryllium sealed source was leaking. Sample results indicate that the amount of removable contamination was 1.35 microcuries with a reporting limit of 0.005 microcuries.

The plutonium-beryllium source was installed in Unit 1 about 1971 for use as a boron analyzer. During August 2004, the licensee attempted to remove the source as part of routine decommissioning, but during removal, the licensee recognized that the source container was cracked. An Action Request was issued to formulate corrective actions. One completed corrective action was to repackage the source into a new leak-tight aluminum overpack container.

Since the previous inspection, representatives from the U.S. Department of Energy repackaged the source into a special form capsule. The capsule was installed in a shipping drum. At the end of the inspection period, the source remained in secured storage at Unit 1. The licensee subsequently shipped the source in a specification package to the Department of Energy/Los Alamos National Laboratory for permanent disposal on January 26, 2006. Following the transfer of the source, the licensee plans to report the material transfer to the NRC in accordance with 10 CFR 74.15 requirements.

6 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at the exit meeting on January 12, 2006. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

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R. Corbett, Manager, Health Physics
J. Custer, Unit 1 Operations Superintendent
M. Kirby, Unit 1 Operations Supervisor
J. Morales, Manager, Decommissioning
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J. Sills, Project Manager, Unit 1 Health Physics
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INSPECTION PROCEDURES USED

36801 Organization, Management, and Cost Controls at Permanently Shutdown Reactors
62801 Maintenance and Surveillance at Permanently Shutdown Reactors
71801 Decommissioning Performance and Status Review at Permanently Shutdown Reactors
86750 Solid Radioactive Waste Management and Transportation of Radioactive Materials
92701 Followup of a Licensee Event Notification for a leaking sealed source

ITEMS OPENED AND CLOSED

Opened

None

Closed

050-00206/0509-02 LER Leaking Sealed Source

Discussed

None

LIST OF ACRONYMS

cpm counts per minute