U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-206/50-30, 50-361/50-32 and 50-362/50-32

Docket Nos. 50-206, 50-361 and 50-362

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

Licensee: Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, California 91770

Facility Name: San Onofre Nuclear Generating Station - Units 1, 2 and 3

Inspection at: San Onofre Nuclear Generating Station

Inspector: _____ 1-14-88
J. E. Russell, Radiation Specialist — Date Signed

Approved by: _____ 1-14-88
G. P. Yuhas, Chief — Date Signed
Facilities Radiological Protection Section

Summary:

Inspection on December 14 through 18, 1987, and telephone calls of December 22, 1987 (Report Nos. 50-206/50-30, 50-361/50-32 and 50-362/50-32)

Areas Inspected:

Routine, unannounced inspection of licensee action on unresolved and open items; licensee events; inoffice review of periodic reports; allegation follow-up; Units 1, 2 and 3 - solid, liquid and gaseous waste; Units 1, 2 and 3 - transportation and including tours of the licensee's facilities. Inspection procedures 30703, 84722, 84723, 84724, 86721, 90713, 92700, and 92712 were addressed.

Results:

In the areas inspected, one unresolved item was identified concerning the auditing of radioactive waste transportation activities (paragraph 10) and two open items were identified concerning the documentation of changes to the Process Control Program (PCP) (paragraph 5) and contamination control (paragraph 6).

DETAILS

1. Persons Contacted

Licensee Personnel

H. Morgan, Station Manager
W. Moody, Deputy Station Manager
P. Knapp, Health Physics (HP) Manager
R. Rosenblum, Quality Assurance Manager
J. Madigan, HP Supervisor
K. Helm, Effluent Engineer
J. Kelly, Radioactive Material Control (RMC) Supervisor
D. Gregory, Radiation Monitoring
E. Bennett, Quality Assurance (QA) Engineer
G. Gibson, Compliance Engineer

All of the above noted individuals were present at the exit interview on December 18, 1987. In addition to the individuals identified, the inspector met and held discussions with other members of the licensee's staff.

2. Correction - Inspection Report No. 50-362/86-37

Paragraph 3, page 8, of the report states in reference to a contaminated shoe of a site HP technician:

> "The shoe was discarded, so the activity of the particle and its composition could not be determined."

This statement was incorrect although it reflected statements made to the inspectors by licensee personnel. The sentence should be corrected to read:

> "The activity and composition of the particle on the shoe was determined prior to the shoe being discarded."

3. Licensee Action on Unresolved and Open Items

Item 50-206/361/362/87-04-Y2 (Closed) Errors were noted on the annual exposure distribution summary submitted by the licensee. The inspector verified that the errors had been corrected and that a revised report had been submitted.

Item 50-206/87-10-13 (Open). Monitor R-1254 was experiencing excessive corrosion problems (also see paragraph 8 of this report). The licensee was still evaluating the problem. This item will be reviewed further during a subsequent inspection.

Item 50-361/87-24-01. (Closed) Concerns were identified in regard to the licensee's procedures for identifying an emergency relative to the implementation of the exception specified in 10 CFR 50.54 (x). The

inspector verified that the actions specified in the licensee's reply had been implemented.

Item 50-361/87-13-LO (Closed). This item was investigated and documented in Inspection Report Number 50-361/87-25. The inspector verified that the corrective action indicated in the licensee's report had been taken and appeared to be effective to prevent recurrence.

Item 50-361/87-19-LO (Closed). The Unit 2 containment was deliberately purged with purge system monitors 2RT-7856 and 57 inoperable. The Region V office was notified prior to this voluntary entry into Technical Specification (TS) 3.0.3. Appropriate air samples and release permits were taken and instituted. The health and safety of the public and plant personnel were not affected by this event.

Item 50-361/87-16-LO (Closed). There were numerous Fuel Handling Building isolations due to activity buidup on the sampling cartridge. This item was reviewed and documented in Inspection Report Number 50-361/87-25. The inspector verified that the corrective action indicated in the licensee's report had been taken and appeared to be effective to prevent recurrence.

Item 50-361/87-20-LO (Closed). This Licensee Event Report reviews the health physics aspects of the failure of 2HV-9378. These matters were reviewed in Inspection Report No. 50-361/87-24 and associated correspondence. This item is closed.

Item 50-362/87-15-LO (Closed). The Containment Purge Isolation System (CPIS) activated due to failure of Containment Airborne Monitor 3RT-7807 when its photomultiplier tube failed. The monitor was repaired and was tested satisfactorily. No further action appeared necessary.

4. Semiannual Effluent Release Reports (Items 50-206/361/362/87-04-Y1, Closed)

The inspector performed an in-office review of the timely July-December 1986 and the January-June 1987 Semiannual Effluent Release Reports submitted in accordance with the requirements of Technical Specification (TS) 6.9.1.8. Radioactive releases and resulting doses for the periods appeared to be below the TS limits of paragraphs 3.15, 3.16 and 3.17 for Unit 1 and 3/4.11 for Units 2/3. Liquid particulate and radioiodine releases showed a marked decrease from 1985, 7.84 curies in the third and fourth quarters, to 0.582 curie in the first and second quarter of 1987. Quarterly summaries of hourly meteorological data, providing a listing of wind speed and wind direction by stability class, were supplied in each report as required by TS 6.9.1.9. The assessment of doses to offsite members of the public appeared to be performed in accordance with the methodology specified in the Offsite Dose Calculation Manuals (ODCM) for Units 1 and 2/3.

The January-June 1987 report contained a notification that, during the reporting period, the Process Control Program (PCP) was changed to agree with the TS relating to PCP procedure review requirements. Station Procedure SO123-VII-8.5.1, Process Control Program for San Onofre Units

1, 2 and 3, now allows those procedures which supplement the PCP to be reviewed by the Station HP Manager. Previously, the procedures were required to be reviewed and approved by the On-Site Review Committee. TS 6.13.2.1 states in part that:

> "Licensee initiated changes to the PCP:
>
> "1. Shall be submitted to the Commission in the semi-annual Radioactive Effluent Release Report for the period in which the change(s) was made. This submittal shall contain:
>
> "a. Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information;
>
> "b. A determination that the change did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes; and
>
> "c. Documentation of the fact that the change has been reviewed and found acceptable pursuant to 6.5.2."

No determination that the change did not reduce the overall conformance of the solidified waste product to existing criteria for solid waste was provided and no documentation of the fact that the change had been reviewed and found acceptable pursuant to 6.5.2. was provided within the body of the report. The inspector noted that a similar finding relative to the documentation of changes to the ODCM (TS 6.14) had been made in April 1986 by the licensee's QA department. The corrective action to this finding should have been effective to assure the proper documentation of changes to the PCP if it had been adequately implemented. Licensee management representatives acknowledged during the inspection and at the exit interview that the required information had not been appropriately included in the Semiannual Report relative to the change to the PCP and indicated that this would be corrected in a later Report. This is an open item (50-362/87-32-01).

No violations or deviations were identified.

5. Followup of Allegation RV-A-87-0068 (Closed)

An allegation was received by the Region V office that the licensee had failed to properly evaluate the potential for unmonitored exposure to personnel from a highly radioactive irradiate fuel particle (IFP) found in the vicinity of valve 2HV-9378 subsequent to a loss of primary coolant event on August 31, 1987.

Inspection revealed that an IFP which would have produced a contact dose rate of 25 rem/hr, had it come into contact with the skin of an individual, was found in the area of 2HV-9378. Surveys prior to the event revealed no unusual dose rates in the area and those subsequent to the event indicate very high dose rates and loose contamination levels. The survey information thus indicated that the loss of coolant event was

the most likely source of the IFP. (Further information on the event is contained in Inspection Report No. 50-361/87-24)

During the event, maintenace personnel wearing protective clothing entered the leak area during efforts to stop the leak. Some of these personnel became highly contaminated on their protective clothing and some also received moderate levels of skin contamination. However, continuous HP technician coverage was provided and personnel were monitored to assure that IFPs were not deposited on their skin or protective clothing. Although the survey information available during efforts to ameliorate the event was not complete (see 50-361/87-24), the HP technician coverage appeared to be sufficient to indicate that a large unmonitored exposure to personnel at this time was unlikely.

Subsequent to the event, complete documented survey information was available and indicated an elevated dose rate in the area in which the particle in question was eventually found. The licensee instituted the controls of SO123-VII-7.12, Fuel Fragment Exposure and Contamination Control, for entry to and work in the area. The controls of this procedure require specific protective clothing and survey requirements to preclude excessive doses to personnel from IFPs. No evidence was found that these controls were not adequately implemented. The licensee performed no evaluation, subsequent to the discovery of the particle, to assess whether or not personnel received unmonitored exposure from the particle. Licensee representatives stated that, as the particle had not been detected on an individual, there was no indication that any unmonitored exposure had occurred and also noted that no such dose evaluation is required by SO123-VII-7.12.

The allegation that personnel received unmonitored exposure from the IFP could not be substantiated.

6. Onsite Followup of a Licensee Event (Item 50-361/87-26-LO, closed)

On November 25, 1987, the licensee notified the Regional Office by telephone of a event on November 22, 1987, in which a Quality Control Inspector (QCI) became contaminated on his personal clothing with three radioactive particles and was mistakenly released from the radiologically controlled area of units 2/3. The inspector then left the protected area but not the licensee controlled area. A followup written report, LER 87-26 for unit 2 dated December 10, 1987, was issued and was received at the Regional Office on December 11, 1987. This event was investigated by the inspector during this routine inspection.

The inspector reviewed associated Radiation Exposure Permits (REPs), personnel contamination injury reports, surveys, dose evaluations and personnel statements; interviewed involved personnel and toured the Hot Machine Shop (HMS), which appeared to be the source of the contamination. The revealed sequence of events corresponded to that specified in the LER with the following additions.

The QCI was exclusively in Zone I areas of the HMS during his shift but spent a large percentage of his time in a narrow Zone I passage which extended to behind the Zone III plexiglas work enclosure. The QCI felt

that this was the most likely area in which he might have become contaminated and recalled that another individual had become contaminated in that same area on the day in question. No record of another contamination due to entry to the HMS Zone I area could be found. Another contamination on the day in question was documented but, as noted in the LER, this was a technician that had entered the Zone II area.

The technicians on duty in the HMS on the various shifts attested that no unusual work conditions existed which might have spread contamination to the Zone I areas. Survey records indicated no excessive contamination levels in the Zone I area and noted the high contamination and radiation levels on the RCP seal being worked therein. Surveys subsequent to the event indicated no contamination in the Zone I area of the HMS or in the areas outside the radiologically controlled area which the QCI traversed. Statements by the radwaste building control point technicians and supervisors reflected the sequence of events expressed in the LER and all were familiar with the appropriate procedures for handling personnel which alarm the PBM-200 beta booths. All were familiar with an interim procedure, Plan X, Release of Noble Gas Victims, written by the Unit 2/3 HP Supervisor to deal with the problem of suspected Noble Gas contaminations and a copy of this was posted on the control point bulletin board.

The technician that released the QCI from the control point could not be interviewed as he had been terminated but a signed statement from the technician was provided to the inspector and it reflected the events as noted. The inspector was also informed by the Assistant HP Manager that the HP technician in question had also improperly released a contaminated shirt to another worker on the same shift. The shirt was subsequently recovered prior to it being allowed to leave the site.

In addition to the corrective actions noted in the LER, the inspector noted that the Zone I area, which the QCI occupied behind the plexiglas booth, was being controlled as a Zone II area at the time of the inspection. The HP technicians interviewed stated that the reposting was made because of potential contamination control problems with the area and that this was done immediately after the QCI event. The Assistant HP Manager stated that this action was taken independently by the duty technicians and was not a corrective action from the event. The three particles found on the QCI were assayed and an estimate of his dose was completed. The particles were sufficiently separated to preclude overlap of the doses from each of the particles. The largest dose was calculated to be from the largest of the particles, 5.9E-2 μCi, and was assigned as 287 mrem to the skin of the whole-body and 2 mrem penetrating dose to the whole-body.

10 CFR 20.201(b) requires that each licensee shall make such surveys as may be necessary to comply with the regulations in Part 20 and are reasonable to evaluate the extent of radiation hazards that may be present. 10 CFR 20.201 (a) defines "survey" as an evaluation of the radiation hazards incident to the production, use, release, disposal, and presence of radioactive materials. The release of the QCI from the radiologically controlled area of the radwaste building on November 22, after repeated personnel monitoring booth alarms indicated radioactive

material in or on the worker's body, without performing a survey adequate to locate the contamination is an apparent violation of 10 CFR 20.201 (b).

10 CFR 2, Appendix C, Paragraph V, Enforcement Actions, provides that the NRC will not generally issue a Notice of Violation for a violation if (1) it was identified by the licensee; (2) it fits in Severity Level IV or V; (3) it was reported, if required; (4) it was or will be corrected, including measures to prevent recurrence, within a reasonable time; and (5) it was not a violation that could reasonably be expected to have been prevented by the licensee's corrective action for a previous violation.

This event was identified by the licensee; it would normally be considered of Severity Level IV as defined in Supplement IV of 10 CFR 2, Appendix C; it was reported by the licensee; and the event was evaluated and corrective action was instituted which, it appears, will be effective to prevent recurrence. It could not reasonably have been expected that the event could have been prevented by licensee corrective action for previous violations as the licensee had instituted procedures which prohibit the release of personnel under the above noted circumstances, had trained HP personnel on those procedures and all the HP technicians appeared to be familiar with the prescribed procedure, including the involved technician that mistakenly released the QCI.

No Notice of Violation will be issued for this event.

During the course of the investigation of the above event, the inspector noted that there had been numerous clothing and skin contaminations as a result of work in and entries to the HMS on November 24. Surveys from that period also indicated some contamination and IFPs in the Zone I area of the HMS. The Assistant HP Manager stated that this matter was being investigated in concurrence with the QCI event. This investigation was incomplete at the time of the inspection. The inspector was not able to complete the investigation of these subsequent contaminations and contamination control problems and will review the matter further during a subsequent inspection. This is an open item (50-361/87-32-01).

No violations or deviations were identified.

7. Solid Waste

The inspector reviewed Quality Assurance Audit Report SCES-026-87 and QA Surveillance Report HP-297-87, which covered areas of the solid waste program. No deficiencies were identified in these reports.

The inspector interviewed select individuals in the HP and RMC organizations and was informed that there had been no significant changes in the procedures or facilities of the solid waste program.

The inspector reviewed Health Physics Procedures:

SO123-VII-8.0	Radioactive Material Control Program and Solid Waste Program Responsibilities

SO123-VII-8.1	Solid Radioactive Waste Sampling and Classification
SO123-VII-8.1.2	Solid Waste Curie Content Determinations

Select records of package activity determinations, waste classifications, waste stream analyses and curie content determinations were reviewed. Waste processing and storage areas in units 2/3 were toured and waste compacting operations were observed during the inspection. Observed operations and procedures appeared to be in compliance with the requirements of TS 3.19 and 4.19 for unit 1 and TS 3/4.11.3 for units 2/3.

No violations or deviations were identified.

8. Liquid Waste

The inspector reviewed Quality Assurance Audit Reports SCES-063-86 and SCES-004-87 and Field Surveillance Report CH-471-86 which covered areas of the liquid waste program. Two Problem Review Reports (PRRs) were generated from Report SCES-063-86 having to do with the evaluation of composite sample results and maintenance of documentation of ODCM changes. Corrective action appeared to be prompt and appropriate.

The inspector interviewed select HP and Chemistry personnel and was informed that there had been no significant changes to the liquid waste program since the last inspection.

Select liquid batch release permits, monitor set-point calculations, sampling records, and pre- and post-release calculations were reviewed. Calculations appeared to have been made in accordance with the methodology of the ODCM and the sampling records and release permits appeared to be complete and in accordance with unit 1 TSs 3.5.8, 3.15 and 4.15 and units 2/3 TSs 3/4.11.1 and 3/4.11.4.

No violations or deviations were identified.

9. Gaseous Waste

The Audits noted in paragraph 7 above as well as Field Surveillance Reports CH-430-86, CH-391-87 and G-451-87 were reviewed, as applicable to the gaseous waste program, and no additional deficiencies were identified.

Changes to the gaseous waste monitoring systems were discussed with licensee representatives. A design change was being implemented to provide backup instrumentation for monitors 2/3RT-7865 and 70. RT-7814 has been deleted from the TS and the associated instrumentation was being removed. Monitor R-1254 had experienced out-of-service periods of greater than 72 hr due to continuing corrosion problems as well as part replacement difficulties. This monitor's flow measuring capability has been out-of-service since the last inspection and the licensee is continuing to estimate flow.

Select instrument isotopic calibrations, channel checks, channel functional tests, flow calibrations, and channel calibrations were reviewed. All records appeared to be complete and timely. Select gaseous release permits, sampling records, set-point calculations, and pre- and post-release calculations were reviewed for both batch and continuous releases and appeared to be complete and in accordance with unit 1 TSs 3.5.9, 3.16, 4.1.3, and 4.6 and unit 2/3 TSs 3/4.3.3, 4.3.3.1, 3.3.3.9, 4.3.3.9, 3.4.11.2, 3.11.2.2 and 3.11.2.4.

No violations or deviations were identified.

10. Transportation

The inspector reviewed Quality Assurance Audit Reports SCES-038-86 and SCES-026-87 and QA Surveillance Reports HP-542-86, HP-553-86 and HP-297-87 which covered some areas of radioactive material packaging and transportation. HP-553-86 provided closure of Corrective Action Request SO-P-929 which documented an event which occurred on February 25, 1986, involving the improper receipt of radioactive material by SCE outside the protected area, at the Main Gate, and transportation of the package by SCE fork-lift over Basilone Road to the North Hold-down Area. The dose rates on the package were a maximum of 100 mR/hr on contact and 10 mR/hr at 3 ft. The package remained at the main gate on the fork-lift in the custody of licensee personnel that controlled access to the package for a maximum of 25 m before transfer to the North Hold-down area. No placarding, monitoring or shipping papers were completed for the fork-lift transfer.

10 CFR 20.105 requires that no licensee shall possess, use or transfer licensed material in such a manner as to create in any unrestricted area from radioactive material and other sources of radiation in his possession radiation levels which, if an individual were continuously present in the area, could result in his receiving a dose in excess of two millirem in any one hour. 10 CFR 71.5 requires that each licensee who transports licensed material outside of the confines of its plant shall comply with the applicable requirements of the regulations of the Department of Transportation in 49 CFR Parts 170 through 189. The above receipt of radioactive material outside the licensee controlled area and transport of that package over a public road are apparent violations of 10 CFR 20.105 and 71.5.

However, this event was identified by the licensee, it would normally be considered of Severity Level IV or V, it did not appear to be a reportable event in accordance with 20.205 or 20.405, the event was evaluated and corrective action was taken. The corrective actions included disciplinary action against the involved supervisors, development of a procedure which establishes the responsibilities for receipt of radioactive shipments and inclusion of specific information in Training Division lesson plans. The corrective action appeared to be adequate and effective to prevent recurrence. It did not appear reasonable that the event could have been prevented by licensee corrective action to previous violations. Therefore, no Notice of Violation will be issued for this event.

Discussions with licensee QA management representatives relative to the licensee's program to implement the requirements of 10 CFR 71 Subpart H revealed the following. The licensee had obtained Commission approval for use of their 10 CFR 50, Appendix B, program to fulfill the requirements of Subpart H in 1984. The QA management representatives stated that there were no specific procedures which established a program for auditing the requirements of Subpart H and that no schedule had been established to assure that the applicable sections of Subpart H are audited at a specific frequency. They stated that the Subpart H areas are covered to some degree during execution of the annual Radwaste audit which deals primarily with TS requirements 4.11.3, 6.8.1, 6.5.2.9, 6.10.1, 6.13, 6.15, 6.11, and 6.9. They also stated that they did not consider the following sections of Subpart H to apply to the packaging of radioactive material but only to transportation, as the word "packaging" had not been specifically included in those subparagraphs:

71.103	Quality assurance organization.
71.109	Procurement document control.
71.111	Instructions, procedures, and drawings.
71.113	Document control.
71.115	Control of purchased material, equipment, and services.
71.117	Identification and control of materials, parts, and components.
71.119	Control of special processes.
71.121	Internal inspection.
71.125	Control of measuring and test equipment.
71.131	Nonconforming materials, parts, or components.
71.133	Corrective action.

The inspector requested and licensee QA management representatives agreed to provide a review of licensee audits since 1984 to demonstrate the degree to which previous audits have covered the applicable criteria of Subpart H. The extent to which the QA program was in noncompliance with the requirements of Subpart H could not be completely determined during the inspection and will be reviewed further during a subsequent inspection. This matter is unresolved (50-362/86-32-02).

An unresolved item is a matter about which more information is required in order to ascertain whether it is an acceptable item, an open item, a deviation or a violation.

Select records of the characterization, packaging, and transport of radioactive waste shipments from 1987 were reviewed. At the time of the

inspection, there had been 12 flat-bed or van waste shipments of boxes and barrels of LSA Type A material and 4 cask waste shipments usually of greater than Type A quantity. All had been shipped exclusive use. There was one shipment in process at the time of inspection. The documentation of these shipments appeared to have been completed in accordance with the requirements of 10 CFR Part 71.

The inspector also reviewed the following procedures:

SO123-VII-8.1.3	Handling and Storage of Radioactive Waste Packages
SO123-VII-8.1.4	Solid Radioactive Waste Packaging
SO123-VII-8.1.6	Radioactive Waste Package Accountability
SO123-VII-8.2	Shipment of Radioactive Material
SO123-VII-8.2.2	Shipment of Radioactive Waste for Land Disposal

The procedures appeared to satisfy the requirements of 10 CFR Part 71.

In this area, one unresolved item was identified.

11. Exit Interview

The inspector met with the licensee representatives, denoted in paragraph 1, at the conclusion of the inspection on December 18, 1987. The scope and findings of the inspection were summarized. The licensee acknowledged the observations of the inspector concerning the documentation of changes to the PCP and control of contamination in the HMS. The licensee observed that there was a difference of opinion between the inspector and themselves relative to the requirements for auditing radioactive material packaging and transportation activities but stated that they would review their previous audits as the inspector had requested.