U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos.: 50-361/94-07, 50-362/94-07

License Nos.: NPF-10, NPF-15

Licensee: Southern California Edison Company (SCE)
Irvine Operations Center
23 Parker Street
Irvine, California 92718

Facility Name: San Onofre Nuclear Generating Station (SONGS), Units 2 and 3

Inspection at: SONGS Site, San Diego County, California

Inspection Conducted: March 7-10, 1994

Inspectors: M Blume for
F. R. Huey, Enforcement Officer — 3/23/94 Date Signed

James H. Reese, Chief — 3/22/94 Date Signed
Facilities Radiological Protection Branch

Approved by: G. P. Yuhas
Ross A. Scarano, Director — 3/29/94 Date Signed
Division of Radiation Safety and Safeguards

Inspection Summary:

Areas Inspected: Special announced inspection of unresolved item (URI) 50-361/93-18-02, concerning the licensee's investigation into several personnel contaminations which occurred during work associated with the Unit 2 pressurizer on June 13, 1993. Inspection procedure 93702 was used.

Results: The licensee's investigation of this contamination event was thorough and identified several problems and potential root causes of the event. However, a weakness was identified, in that the Division Investigation Report (DIR) documenting the licensee's investigation was too narrowly focused, only addressing construction department problems, and failing to adequately evaluate or correct health physics problems which were also identified during the investigation. Two inspector follow up items are discussed in sections 2 and 3.a. No violations or deviations were identified.

DETAILS

1. Persons Contacted

SCE Personnel

*R. Krieger, Vice President, Nuclear Generation
*P. Knapp, Manager, Site Health Physics (HP)
D. Warnock, Assistant HP Manager
*J. Fee, Assistant HP Manager
*T. Adler, HP Supervisor
*D. Axline, Onsite Nuclear Licensing (ONL) Engineer
G. Gibson, ONL Supervisor
K. O'Connor, Construction Manager
*W. Frick, Safety Engineering Supervisor
W. Marsh, Manager Nuclear Regulatory Affairs
C. Olvera, Senior Engineer
*R. Douglas, Licensing Engineer
S. Brown, Nuclear Safety Concerns Coordinator
C. Chiu, Safety Engineering Manager
*B. Katz, Manager of Nuclear Oversight Division
*R. Stoker, Nuclear Engineer
*C. Balog, Supervisor Nuclear Construction
*M. Farr, ONL Engineer

NRC Personnel

*J. Sloan, NRC Senior Resident Inspector
*F. Huey, Enforcement Officer, Region V
*G. Power, Office of Investigation

(*) Denotes those individuals who were at the exit meeting held on March 10, 1994. Additional licensee personnel were contacted and present at the exit meeting but are not reflected in the above listing.

2. Unresolved Item 93-18-02

The inspectors reviewed the licensees investigation into several personnel contaminations which occurred during welding on a Unit 2 pressurizer vent opening on June 13, 1993. The investigation was documented in Division Investigation Report (DIR) NC-93-03, dated August 9, 1993. The review consisted of interviews with personnel involved with the work and the investigation, review of licensee procedures, and a review of documents associated with the investigation.

The DIR was assigned to the construction department for investigation and documentation. The scope of the DIR was narrowly focused from the viewpoint of the construction department, and did not consider other problems which were identified during the investigation. Thus, concerns identified by the lead investigator in the area of health physics were not addressed in the final report nor were these concerns formally transmitted to the health physics department for follow up action. In

particular, the inspectors noted the following examples of problems identified during the investigation which were not appropriately documented in the DIR or referred for specific corrective actions:

a. The licensee's investigation identified potential concerns with the design of the purge dam and the appropriateness of its use as a barrier for Zone III hot particle control. Although the licensee had concluded that the personnel contaminations occurred when the purge dam was inadvertently dislodged or removed from the vent, the DIR does not identify apparent dam design deficiencies as a potential root cause of the event. The inspectors were informed by licensee personnel involved with the design of the purge dam that it was not initially intended to serve as a contamination barrier, and was purposefully designed to allow easy removal. The licensee did not appear to have thoroughly evaluated the adequacy of the purge dam to also serve as a contamination barrier.

b. The licensee's investigation also identified that the vent opening was not posted as a Zone III hot particle control area at the time of the contaminations and that confusion existed among the health physics technicians (HPT) regarding the exact location of the Zone II and Zone III hot particle control boundaries. Some of the HPTs believed that Zone III began at the outside entrance of the vent while others, including supervision, assumed that Zone III began on the pressurizer side of the weld purge dam. This confusion led to the conclusion on the part of HPTs that the welders had violated the radiation exposure permit (REP) by working in Zone III without health physics coverage, by placing their hands inside the vent to work. The licensee did not appear to have thoroughly evaluated the adequacy of hot particle zone posting requirements.

c. Finally, the licensee's investigation identified a concern with revisions to REPs. Specific REPs were issued for 72 hour periods, after which the REP would be reviewed and updated as appropriate. The last computer screen in the REP revision process queries the operator as to whether the workers should be required to re-read the REP. If the operator answers in the affirmative, anyone subsequently entering the radiological control area (RCA) on the revised REP would receive a red screen and be prohibited from entering until they have re-read the REP. At midnight on the night of the contaminations, the REP was revised to include additional special instructions for the workers. However, the workers were not aware of this revision because they had entered the RCA prior to midnight and did not exit until after midnight. This also led to confusion by some health physics personnel that the workers had violated the REP.

The inspectors questioned the licensee as to whether these concerns were communicated to the health physics department and if so, what actions were taken to resolve the concerns. The lead investigator informed the inspectors that the concerns had been verbally communicated to health

physics management at the end of the investigation. The inspectors were informed by the Manager of Health Physics (RPM) that corrective actions had not been implemented for the above concerns. The RPM subsequently stated that the concerns involving hot particle zone posting requirements and the effectiveness of the weld purge dam as a Zone III hot particle barrier would be evaluated by the licensee. Licensee actions to correct these concerns will be reviewed during future inspections (IFI 50-361/94-07-01).

The RPM also stated that the health physics computer program had been changed at the first of 1994 to incorporate revised 10 CFR Part 20 regulations. As part of this change, the REPs are now electronically maintained on the computer and can be reviewed by workers at anytime.

No violations or deviations were identified.

3. Other Observations

The inspectors noted three additional concerns:

a. The first concern dealt with feedback to the originators of Radiological Observation Reports (ROR). Several RORs were generated from this event, each indicating that the cause of the contamination was an REP violation. However, after completing the investigation, licensee management determined that a violation of the REP requirements had not occurred. During interviews in December 1993, and during this inspection, health physics personnel involved with the origination of the RORs had not been informed of management's decision regarding whether the REP had been violated. Failure to provide feedback to the ROR originators can create two problems: (1) the originator's misunderstanding is never corrected; and (2) licensee management is denied possible additional information from the originator that may alter management's conclusions. The RPM acknowledged the inspector's observation and stated that a method to provide feedback would be explored. Development of a feedback mechanism will be reviewed in a future inspection (IFI 50-361/94-07-02).

b. Additionally, the inspectors raised a concern with the willingness of the involved contractor craft workers to come forth with information regarding problems that appear to have occurred during the performance of their duties. During the investigation, the workers interviewed by the licensee failed to substantiate the licensee's conclusion that the purge dam must have become significantly dislodged, and likely had completely fallen out of the vent opening. The licensee acknowledged that the DIR did not reflect this concern, but stated it had raised the concern with contractor management and had been satisfied that the workers unwillingness to readily provide all the information to the investigators in this case was an isolated incident.

c. During interviews with contractor craft workers and HPTs, a concern with reduction in the use of respirators was expressed. Workers felt that the reduction in respirator use was a reduction in protection. The RPM stated that they had provided information regarding the reduction, but acknowledged that if some workers remain concerned, these actions may not have been fully effective and that additional information would be provided to the workers.

4. Exit Meeting

The inspectors met with the licensee representatives denoted in Section 1 at the conclusion of the inspection on March 10, 1994. The scope and findings of the inspection were summarized. No violations or deviations were identified.