

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-361/82-26

Docket No. 50-361 License No. NPF-10 Safeguards Group _____

Licensee: Southern California Edison Company
P. O. Box 800
2244 Walnut Grove Avenue
Rosemead, California 91770

Facility Name: San Onofre Unit 2

Inspection at: San Clemente, California

Inspection conducted: August 2-6, 1982

Inspectors: F. A. Wenslawski 8/23/82
G. P. Yunas, Radiation Specialist Date Signed

Date Signed

Date Signed

Approved by: F. A. Wenslawski 8/23/82
F. A. Wenslawski, Chief Date Signed
Reactor Radiation Protection Section

Approved by: H. E. Book 8/23/82
H. E. Book, Chief Date Signed
Radiological Safety Branch

Summary:

Inspection on August 2-6, 1982 (Report No. 50-361/82-26)

Areas Inspected: Routine, unannounced inspection of initial radiation protection activities including zero power shield verification surveys and review of startup and power ascension chemical and radio-chemical test procedures. The inspection involved 43 hours onsite by a regionally based inspector.

Results: Of the three areas inspected, no items of noncompliance were identified. One item of significant safety concern was brought to the licensee's attention.

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DETAILS

1. Persons Contacted

- *H. B. Ray, Station Manager
- *W. C. Moody, Deputy Station Manager
- *P. J. Knapp, Health Physics Manager
- *P. A. Croy, Manager, Compliance and Configuration Control
- *B. Katz, Technical Manager
- *J. Droste, Assistant Technical Manager
- *L. D. Brevig, Chemical Manager
- *J. D. Dunn, Project Quality Assurance Supervisor
- *P. R. King, Operations Quality Assurance Supervisor
- *C. R. Horton, Startup Quality Assurance Supervisor
- *R. E. Reiss, Quality Assurance Engineer
- *R. S. Schofield, ALARA Supervisor
- T. Cooper, ALARA Engineer
- R. Morgan, ALARA Engineer
- S. Jones, Health Physics Foreman
- W. Kephart, Health Physics Foreman
- M. Vroman, Junior Health Physics Technician

*Indicates those individuals attending the exit interview on August 6, 1982.

In addition to the individuals noted above, the inspector met with and held discussions with other members of the licensee's and contractor's staff.

2. Chemical and Radio-Chemical Testing

Final Safety Analysis Report (FSAR) Chapter 14, Section 14.2.12.92, "RCS Chemistry and Radio-Chemistry Test" describes the test to be performed at the power plateaus specified in Table 14.2-2A, "Power Ascension Testing Sequency." Section 14.2.11 states in part that the approved test procedures will be available for review by NRC inspectors at least thirty days prior to their scheduled performance date.

The inspector requested to review the procedure developed pursuant to 14.2.12.92. After considerable discussion, the licensee informed the inspector that the procedure or procedures intended to fulfill this commitment were not yet available for review.

Based on the licensee's estimate it appears that the tests will begin in about thirty seven days. Therefore, no item of noncompliance or deviation was identified.

3. Shield Verification Surveys

FSAR Sections 14.2.12.81, "Zero Power Biological Shield Survey Test," and 14.2.12.97, "Biological Shield Survey Test" present the licensee's commitment to perform radiation surveys necessary to verify that radiation levels are within the design criteria.

Two procedures, "Biological Shield Effectiveness Survey Test Procedure" No. 2LP-701-01; and Health Physics Procedure S023-VII-9.4, "Biological Shield Survey SONGS Unit 2" have been developed to implement the commitments.

The inspector reviewed these procedures to determine adherence with FSAR Sections 14.2.12.81, 14.2.12.97; the recommendations of USNRC Regulatory Guide 1.68, "Initial Test Programs for Water-Cooled Nuclear Power Plants; and American Nuclear Society, ANSI/ANS-6.3.1-1980, "Program for testing radiation shields in light water reactors (LWR)."

Based on this review the procedures fulfill the licensee's commitment expressed in Chapter 14. The procedures do not specify extrapolation of low power measurement data to rated full power as required in section 5.4.3.1 of ANSI/ANS-6.3.1-1980. However, the licensee representative stated that all data results will be forwarded to the Bechtel Power Corporation (BPC) for review and analysis. The licensee expects to be informed by BPC of any problems prior to proceeding to the next power level plateau.

Review of the "Official Test Copy" of the procedures as implemented indicated some informality in documentation of the reactor critical at 320°F survey. Specifically the date of pre-survey briefing had not been logged and the survey instrument identification and calibration dates had not been recorded. The inspector cautioned the licensee representative to carefully adhere to their procedures. The missing data was retrieved from other sources and appropriately entered.

On August 4, 1982 the inspector entered the containment with the reactor at 7 E-3 percent power to observe performance of the shield survey. The technicians were performing the survey in accordance with procedural requirements. The inspector made independent gamma radiation measurements with an NRC portable survey instrument Serial No. 008421 calibrated on June 10, 1982. The dose rates observed were consistent with the licensee's measurements.

No items of noncompliance or deviations were identified. Subsequent inspections will review the power ascension surveys. (82-26-01)

4. Radiation Protection Activities

A. Personnel Dosimetry

In connection with the shield verification survey, the inspector reviewed the licensee's evaluation of survey instruments to be used and personnel monitoring devices to be provided.

The licensee conducted and documented a literature search and performed tests to demonstrate the adequacy of portable survey instruments to be used and personnel monitoring devices to be worn. These instruments included: Eberline PRM-7, Micro-R Meter, RO-2, and PRS-1/2 with 9" REM ball. Personnel monitoring devices included: pocket ionization chambers, beta/gamma film, and Neutrak-ER neutron badges. In addition, the licensee has contracted with Battelle, Pacific Northwest Laboratories to characterize the neutron and gamma spectra in containment.

The inspector's review considered the guidance provided in USNRC Regulatory Guides 1.68, 8.4 and 8.14.

Based on this review of the licensee's data, the inspector concluded that an adequate evaluation pursuant to 10 CFR 20.201 had been made to demonstrate the appropriateness of personnel monitoring equipment provided to individuals entering the containment at power.

B. ALARA

Review of the licensee memorandum and ALARA evaluations confirm that station management is being informed of recommendations to reduce potential exposure and that the licensee is responding to the recommendations. Specific examples reviewed included:

- ALARA Review of Reactor Coolant Pump Seal Cartridge Exchange and Repair at SONGS Units 2 and 3
- Safety Injection Tank Sampling Unit 2 and 3
- Spent Resin System Piping, Unit 2 and 3
- Filter Crud Tank Piping, Units 2 and 3
- Steam Generator Platform Modification, Units 2 and 3
- Reactor Head Vent Modification, Unit 1 estimated dose to complete this task was 140 person-rem. After implementation of ALARA recommendation the task was completed at an actual cost of 35 person-rem
- Reactor Coolant Pump Lube Oil Collection, Unit 1

Based on this review the inspector concluded the licensee is implementing an ALARA program consistent with the recommendations expressed in 10 CFR 20.1.

C. Posting, Labeling and Control of Radiation and Radioactive Material

1. On August 2, 1982 during a tour of the health physics technician's office the inspector noted that the key box used to store keys to the radioactive source storage areas and the source containers was labeled as follows:

"ALL TECHNICIANS

- 1) Keep key locker locked at all times
- 2) Do not issue keys to any person other than the HP staff."

The inspector found the key locker not to be locked. Inventory of the keys found two absent (#14 20 mCi Cs 137, #15 300 mCi Cs 137). Review of the key sign-out log book indicated that both keys should have been present.

Investigation by the Health Physics Foreman determined that a junior health physics technician probably had both sources in use on the roof of the Penetration Building. The inspector located the sources at that location. They were unlocked and attended by an I&C technician. The junior health physics technician was close by and had possession of the keys. From discussions with the technician the inspector learned that although the instructions were clear, the key locker was frequently unlocked and he had used but not signed out for other keys from the locker. The inspector verified that both technicians were authorized to use the sources as permitted by REP-54595. Review of the source utilization log indicated the health physics technician had properly logged the 20 mCi source out, however the 300 mCi source was not correctly logged out.

High Radiation Area access and key control was previously brought to the licensee's attention during the March 1982 inspection and documented in Inspection Report No. 50-206/82-09. In response, the licensee developed and implemented S0123-VII-7.4, "Posting and Access Control," issued June 24, 1982. Steps 6.3.8.1 establishes a key box and key control technique.

The inspector discussed the informality described above with the Health Physics Manager. On August 5, 1982 the inspector observed that the key locker had been moved to the Health Physics Foremen's office, that it was locked, and that clear directions for key control consistent with S0123-VII-7.4 had been posted.

2. Technical Specification 6.12, "High Radiation Area" states in 6.12.2:

"In addition to the requirements of 6.12.1, areas accessible to personnel with radiation levels such that a major portion of the body could receive in one hour a dose greater than 1000 mrem shall be provided with locked doors to prevent unauthorized entry, and the keys shall be maintained under the administrative control of the Shift Supervisor on duty and/or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved REP which shall specify the dose rate levels in the immediate work area and the maximum allowable stay time for individuals in that area. For individual areas accessible to personnel with radiation levels such that a major portion of the body could receive in one hour a dose in excess of 1000 mrem** that are located within large areas, such as PWR containment, where no enclosure exists for purposes of locking, and no enclosure can be reasonably constructed around the individual areas, then that area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device. In lieu of the stay time specification of the REP, direct or remote (such as use of closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities within the area"

During the March 1982 inspection (Report No. 50-361/82-11) the inspector and licensee representatives toured the containment including the area under the reactor vessel. The inspector emphasized to the licensee representatives the need to insure that once the reactor is operated positive control over each entry into the reactor cavity must be exercised. The licensee pointed out that the cavity access hatch could be bolted and locked closed as necessary. The inspector discussed significant exposure incidents involving under vessel cavity entries. NRC issued IE Circular No. 76-03, "Radiation Exposures in Reactor Cavities" in September 1976. Since 1976 three additional individuals have received doses in the range of 5 to 10 rem during cavity entries under shut down conditions.

On August 4, 1982 the Health Physics Foreman and the inspector entered the containment with the reactor at 7 E-3 percent power to observe the performance of the shield verification survey. The containment was posted with a "Radiation/Restricted Area/REP Required for entry" sign. The entry was made in accordance with S023-VII-7.8, "Radiological Evaluation for Containment Entry During Power Operation," Revision 0, dated July 27, 1982. Access to containment was controlled by a Security Guard.

During the containment inspection the inspector observed that the access hatch permitting entry to the cavity under the reactor vessel was not bolted closed, was not locked, was not posted in any manner, and opened freely. Depending upon power level, it is possible for an individual to receive a dose in excess of 1000 mrem in one hour in the reactor cavity. Since a change in reactor power could produce a significant radiation hazard in this area, the inspector did not enter the cavity to verify the dose rate.

The inspector confirmed that no posted signs warning individuals not to enter the reactor cavity, the refueling canal near the reactor vessel head, or inside the biological shield wall with the reactor at power were observed. In addition, procedures S-23-VII-7.8, and S023-VII-9.4 do not in the "Precautions" section specifically warn individuals not to enter these areas where biologically significant exposures are possible.

The three Health Physics Foremen stated to the inspector that they were under the impression that the cavity access hatch had been secured.

Because the reactor was at a very low power level, it is not expected that radiation levels in the cavity were high enough to consider this finding as noncompliance with Tec Spec 6.12, discussed above. However, because of the potential for a significant impact on personnel safety and the licensee's apparent inaction to the previous inspection findings, the matter was of concern to the inspector.

This finding was brought to the attention of the Health Physics Manager. On August 6, 1982 the Health Physics Foreman informed the inspector that the cavity hatch had been chained and locked closed. The inspector will followup on licensee actions associated with this finding. (82-26-02)

Also noted during the August 4, 1982 containment inspection was a small water leak (a few drops per minute) from mirror insulation on the shutdown cooling system piping near the loop penetration in proximity to reactor coolant pump RCP-001. The inspector requested the Health Physics Foreman to initiate appropriate follow-up action regarding this observation.

No items of noncompliance were identified in this area.

5. Exit Interview

The inspector met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on August 6, 1982. The inspector summarized the scope and findings of the inspection.

The inspector made favorable comments regarding implementation of the ALARA program and development of the shield verification program.

The inspector expressed concern relative to the lack of formality noted in paragraph c.1. and the safety significance of access to potentially very high radiation areas in containment at power. The issue of compliance with Tech Spec 6.12 was discussed.

The licensee responded by acknowledging the safety concern involving high radiation area control and stated that appropriate action would be taken. Regarding the Chemistry/Radiochemistry power ascension test procedure, the licensee stated the procedure would be completed in time for NRC review.