

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-206/86-12, 50-361/86-10 and 50-362/86-10

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 and SCE Corporate Office

Inspection Conducted: March 24-28, 1986 and telephone conversation on
April 16, 1986

Inspected by: GP Yuhas for 4/17/86
H. S. North, Senior Radiation Specialist Date Signed

Approved by: GP Yuhas 4/17/86
G. P. Yuhas, Chief Date Signed
Facilities Radiation Protection Section

Summary:

Inspection on March 24-28, 1986 and telephone conversation on April 16, 1986
(Report Nos. 50-206/86-12, 50-361/86-10 and 50-362/86-10)

Areas Inspected: Routine, unannounced inspection of allegation followup and licensee action on radiological environmental monitoring, occupational exposure during extended outages, control of radioactive materials and contamination, surveys and monitoring, and facility tours. Inspection procedures addressed included 80721, 83726 and 83729.

Results: Of the areas inspected, no violations or deviations were identified. One unresolved item related to ventilation in the Unit 2/3 radwaste area was identified.

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DETAILS

1. Persons Contacted

Southern California Edison

- *H. E. Morgan, Station Manager
- *E. Bennett, QA Engineer
- C. Bostrom, Health Physics/Chemistry Training Administrator
- *C. A. Couser, Compliance Engineer
- R. Dickey, Supervisor Dosimetry
- G. Gibson, Supervisor Compliance
- *K. Helm, Effluent Engineer
- *R. A. Jervey, QA Engineer
- *P. J. Knapp, Manager Health Physics
- M. Lewis, ALARA Engineer, Unit 1
- S. Marsh, Meteorologist, Corporate Office
- S. Medling, Corporate Health Physics Supervisor
- *R. N. Santosuosso, Assistant Maintenance Manager
- *D. B. Schone, Site QA Manager
- *R. V. Warnock, Health Physics Engineering Supervisor
- *M. A. Wharton, Deputy Station Manager

Bechtel

- E. Elliott, Foreman, Electrical
- F. Lopez, Electrician (terminated 3/17/86)
- G. Ramirez, Foreman, Electrical
- R. Thomas, General Foreman, Electrical

(*) Denotes attendance at the March 28, 1986, exit interview.

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

2. Allegation Followup

(Closed) Allegation Number RV-86-A-0008

On February 3, 1986, an anonymous telephone call was received at the San Onofre NRC Resident Inspectors office. The anonymous caller reported hearing a conversation between several electricians at a job site not associated with SCE or San Onofre. One of the electricians, identified by name, reportedly stated that he had removed contaminated tools from San Onofre when he worked there. The informant also provided a means for identifying the tool box used by the electrician. The electrician was contacted by telephone and interviewed during the call on March 26, 1986 and also at his residence on March 27, 1986. From licensee records it was determined that the individual had been employed at San Onofre May 21 - July 14, 1982. The electrician admitted making the statement regarding removal of contaminated tools from San Onofre. He further stated that he had been employed as a foreman and had never used tools at San Onofre.

He stated that he was describing, to fellow electricians, the technique he used to discourage apprentice electricians from borrowing his tools. The tools and tool box (as described by the alleged) indicated no counts above background (50 cpm) when surveyed with a G-M survey instrument (NRC-007908, due for calibration 5/14/86). No evidence of the contaminated tool markings used at San Onofre was evident on any tool. This matter is considered closed.

(Closed) Allegation 3 of Allegation Number 86-RV-A-010

On February 6, 1986, an unsigned letter addressed to NRC, from a contract worker (Fluor), was found in a San Onofre Nuclear Safety Concerns box. SCE personnel delivered the letter to the NRC resident inspectors office. The letter presented three separate allegations. The results of the inquiry into the first two allegations will be documented in another report(s). The third allegation, that radioactive material, specified that the Unit 1 turbine crossover pipe, had been shipped offsite because the craft giving the order was not qualified. SCE conducted an investigation into the matter addressed in the letter. In early December 1985 the turbine crossover pipe from Unit 1, part of the secondary plant, outside the radiologically controlled area, was removed. Because of space limitations the licensee wished to store the pipe in an SCE controlled area on the Mesa. Since the pipe came from an uncontaminated area and a presumably clean system, prerelease surveys in the Unit 1 hold down area were limited to the accessible portions of the pipe. The survey was performed by a qualified Radioactive Materials Control (RMC) technician. The pipe was found to be free of contamination and was released for transfer to the Mesa. Approximately one week later, surveys of other secondary piping found internal contamination to approximately 10,000 dpm/100 sq. cm. As a result, the crossover pipe was resurveyed by a qualified RMC technician. No contamination of accessible areas was found, however localized fixed contamination of up to 8000 dpm/100 sq. cm. was identified inside the pipe near the right angle weld. No removable contamination in excess of 1000 dpm/100 sq. cm. was identified. The pipe was then returned to the protected restricted area. The licensee's procedure S0123-VII-7.3.2 Rev. 4 (1/30/86) Release of Potentially Contaminated Items from the Restricted Area provides unrestricted release limits of 1000 dpm/100 sq. cm. for removable beta/gamma activity and 5000 dpm/100 sq. cm for fixed plus removable beta/gamma activity.

The licensee identified the transfer of the contaminated crossover pipe as a result of the continued implementation of the RMC program. The individuals performing the surveys were qualified to make such surveys and the surveys performed were consistent with the licensee's procedures. The transfer of the crossover pipe to the Mesa did not violate DOT regulations. The portion of the allegation addressing the crossover pipe was determined to be unsubstantiated in that the individuals who released the crossover pipe to the Mesa were qualified. This matter is considered closed.

(Closed) Allegation Number RV-86-A-015

On February 13, 1986 a former Bechtel electrician/welder telephoned the San Onofre resident inspector's office and made allegations regarding the improper assignment and use of radiation exposure permits (REP) and improper placement of dosimetry devices by craftworkers to minimize indicated exposures. The allegor was subsequently interviewed, on February 24, 1986, by telephone by Region V personnel concerning the allegations. On February 28, 1986, a letter transmitting a Statement of Concerns was mailed to the allegor to clearly enumerate and clarify his concerns. The allegor was encouraged to correct any misunderstanding of his concerns by Region V. The Statement of Concerns stated:

- "Item 1. Electrical conduit work involving welding, grinding or drilling, which was required by "xxxx", Bechtel Foreman, on January 28, 1986, was not authorized by Radiation Exposure Permit (REP) No. 13075.
- Item 2. "The allegor", electrician/welder, Bechtel, was neither provided with a copy of or the opportunity to read REP 13075 prior to being required to sign in on the REP and being taken to the work location in the Unit 1 containment on January 27-28, 1986.
- Item 3. Electricians at the Local 569 Union Hall were overheard discussing ways to minimize dosimeter measured exposure by removing dosimeters and concealing them in low exposure rate areas during work involving possible exposure to radiation."

It was reported that because of the allegors concerns regarding these matters he had been terminated by Bechtel on January 29, 1986 for "Refusal of Work Assignment (containment)". Prior to leaving the site the allegor expressed his concerns to Mr. H. B. Ray, Vice President - Site Manager and subsequently discussed his concerns with Mr. P. J. Knapp, Manager Health Physics. As a result of these discussion the licensee's health physics organization conducted an investigation into the allegor's concerns. In addition the licensee's health physics organization addressed the allegors concerns in an internal publication, Songs Health Physics Information Notice, Number 13, February 25, 1986, in an article entitled, Working with Inexperienced Radiation Workers. The article encouraged the health physics staff to be particularly sensitive and understanding of worker concerns.

The NRC inquiry included an examination of the results of the licensee's investigation and interviews with licensee and Bechtel personnel. The allegor had previous work experience at several nuclear facilities under construction but had no prior experience at an operating plant. The allegor had completed the training required to work in the Unit 1 controlled access areas.

With respect to Item 1.

The REP 13075 job description specified, "Remove cables from conduits, install new cable and conduit, scaffolding included, setup and layout

included." The REP further noted that the health physics (HP) technician was to be notified prior to each entry, escort workers to the job location and brief workers on radiological conditions. Work requiring respiratory protection and special dosimetry was specifically excluded from the REP. On January 27, 1986 the allegor was twice escorted to the proposed work area by a foreman and a HP technician who made surveys of the work locations and identified radiation (60 mr/hr general area and 280 mr/hr at contact with a hot spot on a nearby pipe) and contamination levels (less than 2000 dpm/100 sq cm most areas, 10,000 - 40,000 dpm/100 sq cm at one location). The following day the allegor and his assigned helper, an electrician, also inexperienced in radiation work, discussed the planned work (including grinding, drilling and welding) under REP 13075 with two HP technicians not assigned to the containment. When asked to identify the work location, it was described to the HP technicians as, "inside the bio-area around level seven in the highly contaminated, hot area." The location was misidentified by the technicians as the "beta wall," an area of high fixed contamination inside the bioshield. The work was also identified as involving old (and therefore possible contaminated) material in that area. Examination of REP 13075 by the technicians, disclosed that grinding, welding and drilling in highly contaminated areas was not authorized. REP 13076 had been reserved for such work in highly contaminated areas but had not been issued at that time. As a result of the confusion created by the misidentification of the work location the allegor and his helper were instructed by the technicians not to enter on REP 13075 but to return later and sign in on REP 13076. Subsequently a copy of REP 13076 was provided to the allegor and he was informed that he would have to shave his beard by the next morning in order to wear a respirator for work under REP 13076. Clarification of the work area to which the allegor had been assigned, after his termination, established that, in fact, REP 13075 was proper for the assigned activities (welding, grinding and drilling in low contamination areas) and work location, and that respiratory protection was not required. Item 1 of the allegation was found to be false.

Item 2.

The allegor had successfully completed the licensee's "Red Badge" training, including practical factors training which incorporated REP examination, sign in, donning and removing protective clothing and exit frisk. The training program addresses the workers responsibility to read REPs carefully and to sign a statement acknowledging an understanding of the REP prior to entry into a "Red Badge" zone. A licensee representative, who interviewed the allegor prior to his departure from the site, reported that the allegor knew where REP 13075 was located (active REPs are posted in the Unit 1 HP building) and signed the acknowledgement that the REP had been read and understood. During the interview the allegor reportedly stated that he had not read the REP because of perceived "pressure" from his foreman. The foreman to whom the allegor was assigned, and who accompanied the allegor on two tours of the Unit 1 containment work location on January 27, 1986, stated that he spent all afternoon (approximately 4 hours) with the allegor because he was aware that the allegor was concerned about working in containment.

The foreman also stated that the alleged appeared to be scared of working in containment and repeatedly said he didn't want to work in containment or to wear a respirator. The foreman said that because of the alleged's apparent concern he spent extra time with him and took time for a coffee break and that he did not believe he was pushing or pressuring the alleged. The foreman stated that he had introduced the alleged to another electrician/welder who told him that he had never had to wear a respirator. At the conclusion of the foreman's contact with the alleged on January 27, 1986, he said he told him to go home and think over working in containment.

Based on the results of the inquiry it was established that the alleged had received "Red Badge" training including practical factors training which included the REP sign in requirements, was aware that the work was to be in a controlled access area involving exposure to radiation, that he knew where the REPs were posted and available for review and that he signed in on REP 13075 acknowledging that he had read and understood the REP requirements. Based on these facts it was found with respect to Item 2 that it was true that the alleged had not been given a copy of the REP and false that he had not been provided with the opportunity to read the REP.

Item 3.

Discussions with licensee personnel, Bechtel electrical foreman and two electricians previously employed at San Onofre revealed no indications that workers were not wearing supplied dosimetry devices as required. In addition it was reported that the ALARA goal for the Bechtel electricians was 50 person rem for the Unit 1 outage work. As of March 22, 1986 the Bechtel electricians cumulative exposure was 43 person rem 14% below the goal. The Unit 1 ALARA Engineer estimated, based on the fact that the electrical work was nearing completion that the electrician group would be approximately 10% under the goal when the work was completed. The discrepancy between the goal and the actual exposure was not significantly different from the average for all Bechtel work groups. In addition two individuals, one Bechtel and one SCE, commented that the electricians generally wish to be credited with every mrem of exposure received since rotation out of containment work is practiced to more evenly distribute dose. The result of the inquiry indicated that although the conversation reported by the alleged probably did occur, in practice no problem seems to exist with respect to failure to wear dosimetry devices as required. The third item of the allegation was not substantiated.

No violations or deviations were identified.

3. Radiological Environmental Monitoring

(Closed) Followup (50-206, 361 & 362/86-02-03)

The inspection of the onsite portion of the licensee's program was documented in Inspection Report No. 50-206, 50-361, 50-362/86-02. The corporate office aspects of the program were discussed with the Corporate Health Physics Supervisor/Administrator-Environmental Program. The

environmental program corporate staff consisted of two Ph.D. radiochemists (environmental). The corporate staff prepares the environmental reports based on data supplied by EAL, the contractor responsible for radiochemical analysis, counting and results reporting. TLD's are read and reported by Radiation Detection Company under a subcontract with EAL. Marine samples are collected and shipped to EAL under a contract issued to Westec Services Inc.

Changes

Several monitoring stations had been relocated, the station at the meteorological tower was moved to parking lot 4 and the Visitor Center station was moved to the evaporation pond. The land use census identified new Marine Corps housing north of Basilone Road and the fact that residential development in San Clemente is moving to the east. In addition the fact that the Marine Corps had a contract with a shepherd, permitting grazing of sheep on all landward sectors except P. Actual use of the area for sheep grazing appeared to be very limited.

Implementation of the Environmental Monitoring Program

Historically no impact of plant operation had been detectable in the environment. In the recent past iodine had occasionally been detected on samples from within the EAB (Exclusion Area Boundary). The licensee had back calculated and correlated the results with releases. In addition cesium and cobalt isotopes had been identified in marine life. The marine sampling program had historically been more concerned with nonmigratory species. The licensee was attempting to establish a pathway study based on Fish and Game sport and commercial catch data. The species to be sampled were to be selected shortly. The environmental program report for 1986 may include data from this study. Beach sand samples, collected north and south of the site from the intertidal zone at distances up to 5 miles showed no activity traceable to plant origin.

The licensee reported an anomalous result from kelp sampling and analysis. Radioactive iodine had been identified in both near site and control location kelp samples collected at approximately the same time. The control location kelp sample came from near Huntington Beach approximately 35 miles from the site. The licensee had no explanation for this anomaly. The Technical Specifications no longer require kelp sampling.

Meteorological Program

The Senior Research Engineer (meteorologist) was interviewed. The licensee contracts with Dames and Moore for meteorological support services including equipment maintenance, calibration, emergency visits, remote interrogation of the meteorological equipment approximately three times a week to verify operability and data reduction. The contractor supplies reports of monthly maintenance, quarterly calibrations, semi annual meteorological data and analysis and an annual summary of all of the preceding.

The meteorologist reported that the 40 and 10 meter towers were provided with uninterruptible power supplies and that the towers were out of fall radius of each other. He also noted that no problems with instrument reliability or intercomparison had been experienced.

The inspector observed the meteorological tower installation. The tower bases and instrument houses were enclosed in locked chainlink fenced enclosures.

No violations or deviations were identified.

4. Occupational Exposure During Extended Outages

Unit 1 (Closed) Followup (50-206/86-02-03)

Selected survey records for the period January 6 - March 10, 1986 were examined. Three months of survey records were maintained in the health physics office. Earlier records were transferred to permanent storage on site. Survey records were maintained in ink, indexed on a daily basis, legible, of an appropriate level of detail, included general area and contact beta/gamma dose rates and contamination levels, identified the surveyor and instruments used and the instrument calibration due dates and were reviewed by a HP foreman.

No violations or deviations were identified.

Unit 2

All levels of the containment were toured with a resident inspector and an HP technician. On March 25, 1986 portions of the auxiliary/rad waste building, including the new, operating, laundry/respirator cleaning, issue/protective clothing issue/change room facility were toured with a resident inspector. On both occasions independent surveys were performed using an ion chamber survey instrument (NRC 008985 due for calibration May 13, 1986). Posting and access controls were consistent with regulatory requirements.

One matter was called to the licensee's attention. It was noted that on the 37 foot elevation the door between the radwaste area, housing the waste compactor, and the corridor was standing open. In addition the rollup door to the radwaste area truck bay was open. No activities were being conducted in the radwaste area at that time. No air movement between the radwaste area and the auxiliary building corridor was detectable when the door was closed indicative of maintenance of a negative pressure within the auxiliary building. At the time of the observation Unit 3 was at 100% power and Unit 2 was in the early phases of a refueling outage (e.g. the reactor vessel head had not been removed). Inspection Report No. 50-361, 362/86-02 closed followup item 50-362/82-15-03 relating to the radwaste building and compactor ventilation. The inspector expressed concern that it appeared that this condition was inconsistent with the description of this area contained in the FSAR.

FSAR section 9.4.2 Auxiliary Building Ventilation System, in subsection 9.4.2.1.1 Design Basis specifies that the intent of the normal HVAC system is to, "B. Minimize the possibility of exfiltration from the radwaste area...." In addition subsection 9.4.2.1.2.1 General Description, states in part that, "B. Radwaste Area --- The radwaste area is maintained at a slightly negative pressure, this minimizing the possibility of exfiltration of building air to the outside atmosphere. This is a common system for both Units 2 and 3." Insufficient time was available to resolve this concern therefore this matter is considered unresolved and will be addressed during a subsequent inspection (50-361, 362/86-10-01, unresolved).

No violations or deviations were identified.

5. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, open items, deviations or violations.

6. Control of Radioactive Material, Surveys and Monitoring

On February 25, 1986, a properly packaged, contaminated under water vacuum cleaner was unloaded from the transport vehicle at the main gate rather than in the restricted area. The equipment was transported for a short distance along Basilone Road and the access road by the old Visitor Center. The vehicle which delivered the package departed before being surveyed and had to be recalled. The vehicle was found to be free of contamination. Since the package was unloaded outside of the restricted area personnel monitoring devices were not worn by the unloading/transporting crew. Personnel exposures were estimated based on survey results. The maximum calculated exposure was 21 mrem. The licensee investigated the occurrence, identifying communications breakdown as the root cause. The licensee took appropriate corrective action with respect to this deviation from procedures.

On April 16, 1986 a telephone conversation was held between NRC Region V and the Health Physics Manager and Health Physics Supervisor to discuss the implication of the words "release limits" as used in S0123-VII-7.3.2. The licensee explained that these words referred to the limits of detection for hand held instrument surveys as described in IE Information Notice No. 81-07: Control of Radioactively Contaminated Material. Region V called to the licensee's attention the recent IE Information Notice No. 85-92: Surveys of Wastes Before Disposal From Nuclear Reactor Facilities which states that no licensed radioactive material may be released except as permitted pursuant to 10 CFR 20. No licensed radioactive material means "no detectable" radioactive material. Region V explained that improvements in radiation measurement technology since 1981 may give rise to the situation where radioactive material could be detected at less than the "release limit" presented in S0123-VII-7.3.2 and might be released to the unrestricted area. The licensee stated that S0123-VII-7.3.2 would be revised to preclude the release of detected licensed radioactive material.

S0123-VII-8.2.11, Release of Potentially Contaminated Liquids, Sludges, Slurries, and Sands to Unrestricted Areas, Revision 0, dated February 4, 1986 was also discussed in terms of IE Information Notice No. 85-92. Region V explained that with the exception of liquid and gaseous releases made pursuant to the Technical Specifications all other licensed radioactive material must be disposed pursuant to 10 CFR 20.301. The licensee's reference to 10 CFR 30.70, Schedule A - exempt concentrations and 10 CFR 30.71, Schedule B as release criteria is not consistent with the position presented in Information Notice No. 85-92.

The licensee stated that they will review S0123-VII-8.2.11 in view of Information Notice No. 85-92.

The results of the licensee revision of S0123-VII-7.3.2 and review of S0123-VII-8.2.11 will be the subject of subsequent inspection effort (50-361/86-10-02).

No violations or deviations were identified.

Exit Interview

The scope and findings of the inspection were discussed with the individuals denoted in report section 1. The licensee was informed that no violations or deviations were identified.