



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

AUG 05 1988

Report Nos.: 50-327/88-31 and 50-328/88-31

Licensee: Tennessee Valley Authority
6N38 A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Docket Nos.: 50-327 and 50-328

License Nos.: DPR-77 and DPF-79

Facility Name: Sequoyah 1 and 2

Inspection Conducted: June 6-10, 1988

Inspector: *C. M. Hosey* 7/19/88
R. E. Weddington Date Signed

Accompanying Personnel: C. H. Bassett

Approved by: *C. M. Hosey* 7/19/88
C. M. Hosey, Section Chief Date Signed
Division of Radiation Safety and Safeguards

SUMMARY

Scope: This was a routine, announced inspection in the areas of training and qualifications, external exposure control, internal exposure control, control of radioactive material and surveys, solid wastes, transportation, followup on previous open items and NRC Information Notices, allegation followup and Units 1 and 2 Operational Readiness.

Results: The licensee's radiation protection program is adequate for routine operations as well as the upcoming refueling outage of Unit 2. The radiation protection program is also adequate to support the startup of Unit 1. Within the areas inspected, the following violation was identified - failure to adhere to or establish procedures for performing breathing zone air samples and for exposure control during steam generator work, Paragraphs 3 and 4.

Three inspector identified items were identified concerning:

- hot particle control training for employees, Paragraph 2.
- licensee development of hot particle control procedures, Paragraph 5.
- licensee action to improve coordination for insulation removal and replacement in radiological areas, Paragraph 8.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *J. Flood, Health Physicist, Corporate Staff
- *O. Hickman, Manager, Radiation Protection Group
- S. Holdefer, Supervisor, Radiological Control Technical Section
- *J. Kurtz, Quality Assurance Specialist
- *J. LaPoint, Deputy Site Director
- *S. Layendecker, Health Physicist, Corporate Staff
- J. Leamon, ALARA Engineer, ALARA Section
- M. Littleton, Manager, Radiological Control Field Operations
- J. Osborne, Supervisor, ALARA/Health Physics Section
- *M. Palmer, Supervisor, Radiation Health Section
- *R. Prince, Superintendent, Site Radiological Control
- *T. Ritter, Engineering Assurance Engineer
- *H. Rogers, Supervisor, Plant Operation Review Staff
- *V. Shanks, Supervisor, Water and Waste Processing Group
- *S. Smith, Plant Manager
- *S. Spencer, Nuclear Engineer, Licensing
- J. Steigelman, Supervisor, Radiological Surveillance Section
- *L. Strickland, Supervisor, Power Operations Training Center
- *J. Vincelli, Radiological Assessor
- *K. Walker, Quality Evaluator, Site Quality Assurance

Other licensee employees contacted included engineers, technicians, security office members, and office personnel.

Nuclear Regulatory Commission

- *K. Jenison, Senior Resident Inspector
- G. Humphrey, Resident Inspector

*Attended exit interview

2. Training and Qualifications (83723)

a. General Employee Training (GET)

The licensee is required by 10 CFR 19.12 to provide basic radiation safety training for workers. Regulatory Guides 8.13, Instruction Concerning Prenatal Radiation Exposure, 8.27, Radiation Protection Training for Personnel at Light-Water-Cooled Nuclear Power Plants; and 8.29, Instruction Concerning Risks from Occupational Radiation Exposure, provide an outline of the topics that should be included in such training/retraining programs.

The inspector and licensee representatives discussed recent developments in the training program and current topics of interest to the industry. It was noted that one current topic of significance, that of hot particles and hot particle control, was not covered in GET or continuing training. The licensee indicated that the subject of hot particles and their control was being reviewed and would likely be included in future GET and continuing training courses. The inspector informed the licensee that this issue would be reviewed during a subsequent inspection. (50-527, 528/88-31-01)

No violations or deviations were identified.

b. Radiation Control (Rad Con) Technician Training

The inspector and licensee representatives discussed the revisions that have been made to the Rad Con technician training program. The entire program was revised and rewritten to provide more comprehensive training for every technician. The new program now requires each Rad Con technician trainee to complete every section of the training course which includes instruction in the basics of health physics, dosimetry, respiratory protection and instrumentation. The program also provides detailed performance verification sheets or sign-off sheets that specifically outline what is required for job performance verification. This also provides a standardized criteria for supervisors to evaluate performance and give a sign-off for completion of a task. Once qualified, a technician is able to function in any radiation control job at the facility.

The licensee also indicated that the Institute for Nuclear Power Operations (INPO) had recently performed an accreditation inspection of the program and that they expected to be formally informed of their program accreditation shortly.

No violations or deviations were identified.

c. Advanced Radiation Workers

The licensee's Advanced Radiation Worker program was also discussed. It was noted that people with this type of training will not provide their own radiological control job coverage but will have expanded instruction of rad con principles and the instrumentation used. Such topics as glove bag and glove box usage, supplied air usage, contamination control, expanded coverage of biological effects of radiation and the capabilities and limitations of the instruments used in radiation control will be covered. A pilot program which will consist of one week of training for those managers and supervisors interested, is scheduled to begin in July.

No violations or deviations were identified.

3. External Exposure Control (83724)

a. High Radiation Area Access Control

The inspector reviewed licensee procedure HPSIL-31, Radcon Personnel Responsibilities During Activities of Significant Radiological Concern, Revision 2, May 23, 1988. During a previous health physics inspection (Inspection Report Nos. 50-327, 328/88-04) it was noted that the procedure had been changed to require the Radiological Controls Shift Supervisor (RCSS) to initial the radiation work permit or timesheets for entries into areas greater than 1 rem/hour to signify that appropriate controls were in place and that personnel understood their responsibilities. It was noted that the RCSS sometimes makes or accompanies such high radiation area entries and the procedure did not clarify if the RCSS could approve his own entry or if a higher level of approval was required. During this inspection, licensee representatives stated that HPSIL-31 had been changed to require approval by another RCSS or higher level supervisor for entries made by the RCSS. The inspector reviewed the procedure change that had been made and noted that in addition to high radiation area entries, the section that contained the change also discussed work involving wearing of self contained breathing apparatuses, entries into airborne radioactivity areas and work involving estimated worker doses in excess of 500 millirem. It was unclear if the new requirement in regard to the RCSS applied to just high radiation area entries or to the other situations as well. Licensee representatives stated that the change had been intended to apply only to high radiation area entries and that the procedure would be revised to provide clarification.

No violations or deviations were identified.

b. Startup Surveys

Prior to the Unit 2 startup, the licensee had established and published in an internal memorandum of March 16, 1988, a list of areas that had the potential of becoming high radiation areas after startup. Shiftly surveys were required of these area. The inspector reviewed baseline and startup radiation surveys performed in the auxiliary building during May 1988, and performed independent radiation surveys during the inspection. Licensee postings were consistent with licensee survey results and those of the inspector.

No violations or deviations were identified.

c. Beta Radiation Exposure Control

Technical Specification 6.11 requires that procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

10 CFR 20.201(b) requires that each licensee shall make or cause to be made such surveys as (1) may be necessary for the licensee to comply with 10 CFR Part 20, and (2) are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present.

The inspector reviewed records of surveys performed by the licensee on June 7, 1988, during and following the removal of the manway covers and diaphragm from the number two steam generator in Unit 1. The surveys indicated the beta radiation levels just inside the manway opening were significantly higher than the gamma radiation levels (approximately 17 Rem/hour beta and 1 Rem/hour gamma).

The inspector discussed beta radiation exposure control with licensee representatives, who stated they assumed from past experience that beta radiation exposure was not a problem during steam generator work and that this fact was confirmed when the worker's thermoluminescent dosimeters (TLDs) were read. The inspector was also shown documentation of three beta radiation studies that had been performed by the licensee which concerned beta correction factors for portable survey instruments, the change in beta correction factors when instruments are covered in plastic and the beta radiation attenuation capability of the licensee's protective clothing. The licensee stated that they had not performed attenuation studies with various samples of clothing and eye protection to be worn by workers prior to allowing access to the steam generator in order to evaluate the adequacy of prescribed protective clothing and in order to assess the need for other control measures such as beta radiation stay times. Such evaluations are typically performed within the industry each time a steam generator is accessed due to the potential for changing radiological conditions. The licensee had no procedure which required these types of beta exposure control evaluations prior to allowing access to the steam generator.

The licensee showed the inspector the four highest TLD dose values from the multiple badge sets worn by workers during the steam generator preparatory work. The records did not show any lens of the eye dose greater than the whole body dose.

The licensee then performed an attenuation survey on the diaphragm plate that had been removed from the Unit 1 number four steam generator. The survey indicated that the intensity of the beta radiation field from the diaphragm was reduced from between sixty to seventy-eight percent depending on the type of protective clothing sample being used as a shield for the survey instrument.

The inspector stated that failure to have a procedure for performing beta radiation exposure control evaluations prior to steam generator work was an apparent violation of Technical Specification 6.11 (50-327/328/88-31-02).

d. Steam Generator Exposure Control

The inspector discussed with licensee representative the method used to control worker doses for steam generator work. The licensee stated that when workers reported to the control point at the containment access, their stay time was computed by radiological control personnel based on the individual's remaining dose available of their administrative dose limit and highest contact beta-gamma dose rates in the work area. The stay time was phoned to the radiological control technician at the steam generator access and was told verbally to the worker. The licensee showed the inspector an informal section notebook that contained guidelines for the technicians to use in computing and administering stay times.

The inspector discussed with licensee representatives the need for establishing in procedures the steam generator exposure control guidelines and for providing documentation of the basis for the calculated stay time, what the stay times were, the workers actual time in the exposure area and exposure received. Failure of the licensee to have a procedure for computing, administering and documenting work area stay times is an additional example of an apparent violation of Technical Specification 6.11 (50-327/328/88-31-02).

4. Internal Exposure Control and Assessment (83725)

a. Uptake Investigation

10 CFR 20.103(a) requires the licensee to use measurements of radioactivity in the body, measurements of radioactivity excreted from the body, or any combination of such measurements as may be necessary for timely detection and assessment of individual intakes of radioactivity by exposed individuals.

The inspector reviewed the licensee's investigation of an apparent internal exposure of an employee to radioactive material that occurred June 6, 1988. During the afternoon of June 6, a contract worker entered a tent that had been constructed in support of steam generator work in Unit 1 containment. The steam generator (S/G) had not been opened and the worker was to connect some conduit/tubing in preparation for removing the S/G diaphragm and other associated work. After connecting the tubing and completing the assigned work, the individual left the tent area, proceeded to the step off pad of the contaminated area, removed his protective clothing (PCs) and exited containment. As he was performing a personal contamination survey, the individual noted contamination on his face varying from 300 to 600 counts per minute (cpm). Rad Con technicians responded to the scene and took nasal smears which showed contamination levels of 1,200 disintegrations per minute (dpm).

Because of the facial contamination and the results of the nasal smears, the individual was given an initial whole body count (WBC) in the licensee's stand-up whole body counter. The results indicated up to nine percent (9%) of a Maximum Permissible Organ Burden (MPOB) of Cobalt-60 (Co-60) in the lower torso before the individual showered. Following a shower, the individual was given another WBC using the licensee's chair whole body counter which showed 3% MPOB of Co-60 in the lower torso. Two other people who had been working in the tent area were also given WBCs and they were determined to have MPOBs of from 2-3% of Co-60 in the lower torso as well. The licensee calculated a Maximum Permissible Concentration-hour (MPC-hr) exposure of 0.5 MPC-hrs based on an uptake of 17 nanocuries of Co-60. The inspector reviewed the licensee's exposure calculations and noted that they appeared to be adequate.

The licensee determined that the uptake occurred as a result of the worker handling some items that had been placed inside the tent in sealed bags in preparation for the steam generator work. The bags had been opened at some point although the worker was told not to open the bags and indicated that he had not done so. The Radiation Work Permit (RWP) the individual was signed in on also had instructions that did not permit opening any bags or handling any contaminated items. The items in the bags were contaminated to 12,000 dpm/100 cm² with contact radiation levels of 50 millirem per hour (mrem/hr) beta and 30 mrem/hr gamma. The tent was not posted as an airborne radioactivity area and Rad Con did not provide coverage for the work since the tent was newly installed and had not yet been used for radiological work; therefore, no air samples were taken inside the tent during the time of the incident.

Following the incident, the licensee posted the tent as an airborne radioactivity area and informed the oncoming crew of the problem. Other individuals, who had been working in the same general area on the same RWP, were also given WBCs but no positive results were reported. The licensee was still evaluating further action with regard to the individual involved. The inspector determined the licensee's actions in this matter were adequate.

No violation or deviations were identified.

b. Air Sampling

10 CFR 20.103(a)(3) requires the licensee to perform suitable measurements of the concentrations of radioactive materials in air for detecting and evaluating airborne radioactivity in restricted area.

Technical Specification 6.11 requires that procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

Licensee Procedure, HPSIL-5, Airborne Radioactivity Surveys, Revision 30, dated April 1, 1988, requires that air samples be placed as close as possible to the breathing zone of a worker and that this distance should be no greater than one or two feet. The procedure also requires that air samplers be kept off the floor while taking an air sample.

During tours of the facility of June 6, 1988, the inspector observed a contractor Rad Con technician performing job coverage for work in the Unit 2 Containment Purge Filter Bank Room on the 690 foot elevation. The inspector noted that an individual, dressed in personal PCs but not wearing any respiratory protective device, was working inside the filter bank room opening and inspecting the charcoal filter drawers while the Rad Con technician was taking both a gaseous and a particulate air sample at the entrance to the area. This area had a potential for airborne radioactivity during unit operation and a warning to that effect was stenciled on the door to the area. The pump drawing air for the gaseous air sample was attached to some of the equipment just inside the entrance to the filter bank area while the particulate air sampler was setting on the floor just inside the entrance and greater than six feet from the worker.

Failure to perform air sampling in accordance with written procedures was identified as an additional example of an apparent violation of Technical Specification 6.11 (50-327,328/88-31-02).

c. Whole Body Counting Facility

The inspector reviewed the changes that had been made in the whole body counting facility. The whole body chair counter had been moved from a small area near the lunch room to a much larger room. This facilitated not only operation of the chair counter, but acquisition, installation and operation of a stand-up counter as well. The chair became operational March 11, 1988. Dosimetry Section personnel completed orientation on the fastscan system in March and became fully qualified in May. The fastscan was placed in full operation May 9, 1988, and is being used as a screening device. When positive results are noted on a fastscan WBC, the chair counter is used to ascertain a more accurate analysis of the nuclides present. The fastscan can perform a whole body count in 60 seconds and has a nuclide library as specified in ANSI Standard N343-1978. The fastscan system recomputes the Minimum Detectable Activity (MDA) for each count which is typically less than five percent of MPOB for isotopes in the library.

No violations or deviations were identified.

d. Identification of Respirators

During tours of the facility, the inspector observed that respiratory protection devices are now tagged with a unique identification number made up of initials and letters indicating mask type, size and serial number. This identification number was reflected on mask issuance records. The use of the identification numbers was specified in the following licensee procedures:

RPSIL-3, Selection, Issue, and Use of Respiratory Protection Devices, Revision 1, May 17, 1988.

RPSIL-3, Cleaning/Sanitizing, Maintenance, Inspection, Storage, and Inventory of Respiratory Protection Devices, Revision 1, May 24, 1988.

No violations or deviations were identified.

5. Control of Radioactive Materials and Contamination, Surveys and Monitoring (83726)

a. Hot Particle Program

(1) Procedures

The inspector reviewed the following licensee procedures:

HPSIL-2, Contamination Surveys, Rev. 19, dated April 15, 1988.

HPSIL-10, Personnel Decontamination and Confiscation of Contaminated Articles, Rev. 14, dated May 23, 1988.

HPSIL-39, Protective Clothing Laundry Handling and Shipments, Rev. 3, dated April 15, 1988.

DOS-3, Calculation of Skin Dose from Direct Contamination Survey Measurements, Rev. 2, dated February 22, 1988.

The procedures included a definition of hot particles, survey techniques to be used when hot particles are suspected, action levels for skin dose calculations and whole body counts, and instructions on laundry monitoring techniques. The inspector noted that the laundry handling procedure did not specify whether or not the returned laundry should be surveyed on the outside of the garment, on the inside of the garment or both. The licensee indicated that instructions had been issued to survey the laundry on both the inside and outside but that the instructions had not been included in a procedure.

The inspector also noted that there were no procedures outlining the specific identification of hot particle contamination areas and detailing the extra precautions required for their control. Also, there were no provisions to have personnel working in such areas monitor themselves periodically to ensure that no hot particle contamination was present and to prevent the extra skin dose that results. The licensee acknowledged that no such procedures had been prepared but indicated that they would continue to improve their program by initiating such procedures. The inspector informed licensee representatives that this issue would be reviewed during a subsequent inspection.
(50-327, 328/88-31-03)

(2) Hot Particle Investigation

Since instituting their hot particle program on March 7, 1988, the licensee had experienced 73 hot particle occurrences/contamination events. From those that were determined to be skin contaminations, the highest dose to the skin was calculated to be 1.777 rem. A qualitative analysis of the particles has shown that they are all mixtures of fission and/or activation products. To date there have been no single isotope hot particles identified.

The inspector reviewed the licensee's ongoing investigation of the hot particle contamination event that resulted in the 1.777 rem exposure to the skin. The event was documented in the Hot Particle Occurrence Log and Personnel Contamination Report #88-58.

During the afternoon of April 30, 1988, an individual was inspecting and repairing mirror insulation inside the Unit 2 reactor cavity. After working in the cavity for approximately two hours, the worker left the area and proceeded to the entrance/exit of the contaminated area where he removed the PCs he had been wearing and exited the area. While performing a whole body frisk, the worker detected contamination on his back. Upon further investigation by the Rad Con technicians who responded to help with the problem, it was determined that the contamination was located on the person's sweatshirt and not on the skin. It was also determined that the contamination was a hot particle which read 8,000 cpm while holding a frisker probe on the outside of the sweatshirt and 33,000 cpm while holding the probe on the inside of the sweatshirt.

The licensee performed skin dose calculations using 0.181 microcuries as the total activity of the particle and 2.18 hours as the time of exposure. The resultant skin dose was calculated to be 1.633 rad beta and 0.144 rem gamma. The inspector reviewed the licensee's methodology for performing the

calculations and determined that the dose assigned was conservative.

No violations or deviations were identified.

b. Surveys

10 CFR 20.201(b) requires each licensee to make or cause to be made such surveys as (1) may be necessary for the licensee to comply with the regulations and (2) are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present.

During tours of the facility, the inspector observed Rad Con technicians surveying items at the "green tag" table. These items, after being surveyed and found clean, were to be released for unrestricted use. It was noted that the quantity of material taken into the Radiation Control Area (RCA), which was then required to be surveyed out, had decreased from that observed during past inspections.

The inspector discussed with licensee representatives other steps that have been or are being taken to further reduce the amount of material taken into the RCA. Storage areas inside the RCA are being developed for scaffolding and other items of equipment routinely used in that area. A work area or calibration area is also being sought inside the RCA to eliminate the need to transport items across the barrier to receive the proper maintenance and/or calibration.

No violations or deviations were identified.

6. Solid Waste (84722)

The inspector discussed with licensee representative the current staffing within the Water and Waste Processing Group. Two personnel were temporarily reassigned from the corporate radioactive waste section to provide technical support for the site personnel. Based on interviews and comments from other onsite personnel, the corporate assistance had proven beneficial in improving the group's effectiveness.

The licensee had recently sampled three of their waste streams (dry active waste, radwaste demineralizer and contaminated oil) and had forwarded the samples to an offsite laboratory for analysis so that new 10 CFR Part 61 waste classification scaling factors could be determined for these waste streams. Following unit startup and establishment of equilibrium radioactivity with the system, the remaining site waste streams will be sampled.

The inspector reviewed the results of an audit performed during the period January 19-22, 1987, by the TVA Procurement Quality Assurance Branch at the laboratory which analyzed the licensee's 10 CFR Part 61 waste stream samples. The audit determined the vendors quality plan was not being

adequately implemented. A summary of the more significant audit findings follows:

- ° Logs for strontium and transuranic analysis did not indicate personnel performing tests. Some analysis were performed by laboratory technicians that were not qualified for the specific analysis.
- ° Intralaboratory analysis program does not comply with vendor requirements in that data from actual samples is not reviewed in an acceptable fashion for reasonableness and consistency of laboratory results.
- ° No interlaboratory analysis program had been established.
- ° Verification and approval of computer programs was not in accordance with vendor procedures.

The licensee suspended analysis work at the vendor lab because these findings reflected negatively on the labs ability to provide accurate results.

Licensee representatives stated that the problems noted at the laboratory had been resolved.

The inspector discussed with licensee representatives the status of the new radioactive waste building. The licensee was having difficulty placing the bale compactor into operation due to poor compression factors.

No violations or deviations were identified.

7. Transportation (86721)

The inspector discussed the licensee's transportation of radioactive materials program with licensee representatives and reviewed selected records maintained by the licensee of radioactive materials shipments. There had been no transportation incidents within the past year.

The inspector noted that a teletector survey meter (maximum scale of 1000 Rem per hour) had been used to perform the shipping survey on a package of 10 CFR Part 61 samples being sent to an offsite laboratory. The shipment was classed as a Limited Quantity shipment which required, pursuant to 49 CFR 173.421(b), that the dose rates on the external surface of the package not exceed 0.5 mrem/hr. The documents indicated that the package dose rates were 0.4 mrem/hr. The inspector observed that it may be more appropriate to select survey instruments with range midpoints closer to the limit being applied toward the measurement.

No violations or deviations were identified.

8. Followup on Allegations (99014)

a. Statement of Concern

Allegation No. OSP-88-A-0037. It was alleged that primary piping insulation was being taken off and put back on repeatedly for different purposes rather than consolidating the maintenance and inspections. Licensee management had agreed with the alleged last year to establish the position of an insulation coordinator to plan this type of work to minimize the radiation dose to the insulators. However, there is still no coordinator and the alleged has heard that the licensee no longer intends to get one. The problem is continuing worse than ever. Poor planning of work had caused workers to be sent into radiation areas to perform work, only to then find out the work could not be performed or had been simultaneously assigned to another work group.

b. Discussion

The inspector discussed this concern with licensee representatives. The inspector reviewed exposure records of the personnel involved and reviewed an ALARA suggestion that had been prepared by an individual on the subject.

The exposure records indicated the following:

- ° During the period January 1 to June 7, 1988, the 24 mechanical maintenance insulators received a total dose of 2.457 man-rem. During this same period, the 25 modifications section insulators received a total dose of 10.247 man-rem.
- ° The highest individual dose for the year in the mechanical maintenance insulator section was 278 millirem. The highest individual dose for the year in the modifications insulator section was 908 millirem. The alleged had a total dose which was substantially less than the highest dose received.
- ° Of the 137 designated sections at the site, 38 had total doses for the year in excess of one man-rem. The modifications section insulators had the 11th highest dose and the mechanical maintenance insulator section had the 26th highest dose.
- ° The total station dose for the year was 354.014 man-rem. The total dose for the insulators was 12.704 man-rem or 3.6 percent of the total station dose.

None of the licensee representatives interviewed disputed the allegation that there was an apparent coordination problem with insulation removal and replacement and that improvement could be made in this area. However, the magnitude of the dose to the work groups suggested that this problem was not a significant contributor to

cumulative station dose. The licensee stated that they would ask their newly formed Work Control Group to review this area to determine what actions would be appropriate.

c. Finding

There was acknowledged coordination problem with insulation removal and replacement. However, worker doses were being maintained well within NRC limits and compared favorably with other work groups at the station. The licensee's referral of this problem to the Work Control Group appears to be responsive to the problem. Whether or not an individual is designated as an insulation coordinator would be at the licensee's discretion.

d. Conclusion

The allegation was substantiated. Actions taken by the licensee's Work Control Group to minimize the work coordination problem in radiation areas will be reviewed during a future inspection (50-327/328/88-31-04).

No violations or deviations were identified.

9. Action on Previous Inspection Findings (92701)

a. (Closed) IFI (50-327/328/88-04-02), Evaluation of Improved Reliability of Digital Alarming Dosimeters (DADs).

A previous inspection identified that the DADs used by the licensee as the dose warning device required by Technical Specification 6.12.1 for personnel entering high radiation areas experienced high rates of failure on the three times a week source check. The licensee was to evaluate means of improving the reliability of the instruments and increasing their source check frequency.

The inspector reviewed licensee procedure ISIL-1, Radiological Control Instrument Inventory and Response Criteria, Revision 1, May 27, 1988. The procedure now requires that the DADs be response checked prior to each issue. The inspector toured the area where DADs were source checked in the radiological controls field office. The licensee used a Sheppard calibrator containing a 400 Curie Cesium-137 source for the response check. The instrument alarms were set to a radiation source strength of 200 millirem/hour and 100 millirem integrated dose. After source check, the instruments were taken to the equipment issue window at the controlled area access. Through discussion with licensee representatives the inspector determined the licensee was no longer experiencing a high failure rate on the more frequent instrument response checks.

- b. (Closed) IFI (50-327/328/88-04-04), Provide Revised ALARA Preplan Exposure Estimates When Work Scope Changes.

The licensee now required that exposure estimates be revised when work scope changes. The inspector reviewed selected records of work plans issued during 1988 and discussed the new program with licensee representatives. Approximately eighty percent of the preplanned jobs have had revisions processed to the original exposure estimate. The inspector determined the licensee's actions were appropriate.

10. NRC Information Notice (IN) (92717)

The inspector determined that the following information notice had been received by the licensee, reviewed for applicability, distributed to appropriate personnel and that action, as appropriate, was taken or scheduled:

IN 88-08: Chemical Reactions with Radioactive Waste Solidification Agents

11. Units 1 and 2 Operational Readiness

Licensee readiness to support Unit 2 restart in the areas of inplant health physics and radwaste had been favorably assessed during inspection 50-327/328/88-04. This inspection did not reveal any new issues that would adversely impact on Unit 1 startup or on the upcoming refueling outage.

12. Exit Interview

The inspection scope and results were summarized on June 10, 1988, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection findings listed above. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection. Dissenting comments were not received from the licensee.

<u>Item Number</u>	<u>Description and Reference</u>
338,339/88-31-01	Violation - Failure to adhere to or establish procedures, Paragraphs 3 and 4.