



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

SEP 14 1988

Report Nos.: 50-259/88-23, 50-260/88-23, and 50-296/88-23

Licensee: Tennessee Valley Authority  
 6N 38A Lookout Place  
 1101 Market Street  
 Chattanooga, TN 37402-2801

Docket Nos.: 50-259, 50-260 and 50-296

License Nos.: DPR-33, DPR-52,  
 and DPR-68

Facility Name: Browns Ferry 1, 2, and 3

Inspection Conducted: August 1-5, 1988

Inspectors:	<u><i>C. M. Hosey</i></u>	<u>9/2/88</u>
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	C. M. Hosey, Section Chief	Date Signed
	Division of Radiation Safety and Safeguards	

SUMMARY

Scope: This routine, unannounced inspection was conducted in the areas of Organization and Management Controls in Radiation Protection and Radwaste; Radiation Safety Training and Qualifications; External Occupational Exposure Control; Internal Exposure Control and Assessment; Control of Radioactive Materials; Maintaining Occupational Exposures ALARA; Solid Wastes; Transportation; NRC Information Notices; Operational Readiness Performance Evaluation; and Previously Identified Inspection Findings.

Results: The licensee's radiation protection program continues to be effective in protecting the health and safety of occupational workers. The licensee's ALARA measures appeared to be generally effective for reducing personnel exposures. It was also apparent that there was high level corporate and station involvement in assuring an above-average quality assurance program in the area of whole-body counting.

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- P. Byrd, Radcon Shift Supervisor
- \*H. Crowson, Radcon Field Operations Supervisor
- \*D. Hixon, Radwaste Coordinator
- R. Howard, ALARA Supervisor
- E. Mastich, Radcon Supervisor
- \*R. McKeon, Operations Superintendent
- R. Nite, Health Physicist
- \*J. Savage, Compliance Supervisor
- \*A. Sorrell, Site Radcontrol Superintendent
- F. Tsakeres, Radiological Health Supervisor
- \*J. Walker, Plant Manager
- \*J. Wallace, Compliance Engineer
- \*R. Weedon, Supervisor, Water and Waste Group

Other licensee employees contacted during this inspection included engineers, operators, technicians, and administrative personnel.

#### NRC Resident Inspectors

- \*W. Bearden
- \*C. Brooks
- \*D. Carpenter
- \*E. Christnot

\*Attended exit interview

### 2. Audits (83724, 83725, 83726, 83728, 84722, 86721)

The inspector reviewed selected audits and appraisals of the Radiological Control Organization performed since January 1988. The inspector evaluated the quality of the audits with regards to their effectiveness in identifying programmatic weaknesses and assessing the quality of the program. The following audits were reviewed:

- ° Nuclear Quality Audit and Evaluation Branch Audit Report No. SSA88808, June 13-30, 1988
- ° Condenser Tube Pullout - Radiological Material Storage (QBF-S-88-0058) January 28 - February 1, 1988
- ° Radiological Control (QBF-S-88-0099) February 4-8, 1988
- ° Contamination Control (QBF-S-88-0142) February 25-29, 1988

- ° Radiological Control Instrumentation (QBFS-88-0211) March 2-16, 1988
- ° ALARA (QBF-S-88-0271) April 7-11, 1988
- ° Radwaste Shipments (QBF-S-88-0522) May 23, 1988
- ° Radiological Survey Program (QBF-S-88-0728) June 16-17, 1988

The inspector noted that the audits were generally complete and thorough. There were no major deficiencies identified in the audits. The inspector noted that a corporate appraisal of the Radiological Control Program (SSA-88808) identified four minor findings which were corrected by the licensee before the conclusion of the audit.

No violations or deviations were identified.

### 3. Organization and Management Controls (83722)

Technical Specification (TS) 6.1.B describes the licensee's plant organization. The inspector reviewed the organization and staffing of the licensee's radiological control (Radcon) group.

The Radcon group was authorized a total of 229 technicians, engineers and supervisory personnel. 221 positions were currently filled. This total included a full complement of 94 ANSI-N18.1, dated March 8, 1971, qualified health physics technicians. However, the inspector was informed by a licensee management representative that by March 1989, the Radcon group would be reduced to a total of 122 personnel of which 82 of these personnel would be health physics technicians. This reduction in force (RIF) was apparently related to only operating a one unit facility, rather than all three units. The inspector discussed this issue with the Radcon Superintendent and the Plant Manager to determine if adequate health physics coverage would be available when the RIF was completed as of March 1989. At present, the licensee had a ratio of health physics technicians to field operations personnel of 12.7 to 1. The inspector determined, after discussion and review of the licensee's proposed staffing levels of all groups onsite as of March 1989, that a 20.0 to 1 ratio of health physics technicians to field operations personnel would be available. Licensee management informed the inspector that this issue would be evaluated and indicated that a reduction in the Rad Con Group that would adversely affect the health and safety of plant personnel would not occur. The inspector informed licensee management that this issue would be reviewed again during a subsequent inspection and will be tracked by the NRC as an Inspector Followup Item (IFI) (50-259/88-23-01).

No violations or deviations were identified.

### 4. Training and Qualification (83723)

TS 6.1.E requires that the qualification of the Browns Ferry Nuclear Plant Management and Operating staff meet the minimum acceptable levels as

described in ANSI-N18.1, dated March 8, 1971. The inspector reviewed with licensee representatives the qualifications and experience of selected personnel in the Radcon Group and determined that the qualifications were consistent with technical specification requirements.

The inspector discussed with licensee representatives proposals to fill senior positions within the licensee's Radcon Group. At the time of the inspection, specific personnel assignments to fill certain Radcon Group positions had not been made.

No violations or deviations were identified.

5. External Occupational Exposure Control and Personnel Dosimetry (83724)

a. Surveys

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

During several tours of the facility, the inspector reviewed Radiological Work Permits (RWPs) posted at work areas. Current radiological survey information was indicated on the RWP form. Radiological survey information was also indicated on information boards at the controlled area access. During the tours of the facility, the inspector performed independent radiation surveys and noted no inconsistencies with licensee survey results.

During this inspection, there were no high-exposure jobs being performed. Most of the work activities were occurring in the Unit 2 drywell. The inspector reviewed the following RWPs:

- 88-6101 Replace/Inspect Electrical Penetrations
- 88-6768 Paint Secondary Containment Blowout Panels (Steam Tunnel)
- 88-6118 Miscellaneous Conduit Inspection and Rework

The inspector verified that selected individuals who signed the above RWPs received the general employee training and respirator training and qualification (where applicable).

The inspector reviewed the licensee's computerized "watch list" which was generated twice daily and contained pertinent exposure and training data for all persons granted access to the site. These data included quarterly exposure limits, quarter-to-date exposure totals, maximum permissible concentration (MPC) hour totals, and complete training status.

b. High Radiation Area Control

TS 6.3.D requires that any individual or group of individuals permitted to enter a high radiation area shall be provided with or accompanied by one of more of the following: (1) a radiation monitoring device which continuously indicates the radiation dose rate in the area; (2) a radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received; or (3) an individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device.

From discussions with licensee representatives, the inspector determined that there were ten high radiation control areas in the plant (that is, areas with dose rates greater than 1000 milliRoentgen per hour (mR/hr)). The following areas were identified: (1) Units 1, 2, and 3 Incore Probe Room; (2) Units 1, 2, and 3 Cleanup Backwash Tank Room; (3) Cleanup Sludge Pump Room; (4) Evaporator Building (inside); (5) Evaporator Building outside door; and (6) Waste Phase Separators Valve Gallery.

During tours of the facility, the inspector was made aware of the high radiation area control problem in the area of the Unit 1B Fuel Pool Heat Exchanger located at the 621 foot elevation. The licensee identified the high radiation area during a weekly routine radiation survey on June 30, 1988. The licensee was prepared for potential high radiation area problems associated with the heat exchanger since a similar problem occurred with the Unit 2 Fuel Pool Heat Exchangers during previous fuel reconstitution work. Part of the preparation included placing three area radiation monitors with alarms around the heat exchangers. The June 30, 1988 survey results indicated that the contact dose rate on the 1B Fuel Pool Heat Exchanger was 4200 mR/hr while the dose rate at 18 inches was 1500 mR/hr. The highest dose rates were 6000 mR/hr (contact) and 2500 mR/hr (18 inches) on July 7, 1988. On July 11, 1988, temporary shielding was placed around the heat exchanger. The shielding reduced the radiation levels around the heat exchanger to below 1000 mR/hr. After the weekly radiation survey performed on July 14, 1988, the radiation levels once again increased to greater than 1000 mR/hr. During the periods when the 1B Fuel Pool Heat Exchanger was greater than 1000 mR/hr, the high radiation door watch procedure RCI-17 was implemented. The inspector reviewed the Locked High Radiation Area Door Access Control Log. The "door watch" was in effect during the periods June 30 - July 11, 1988 and July 14 - August 1, 1988. Additionally, the area surrounding the heat exchangers was conspicuously posted as a high radiation area. Entrance to this area was controlled by Transit RWP 88-1111. Specific RWPs were issued when work was performed on the heat exchangers. The frequency of the radiation surveillance activities was once per eight-hour shift at the boundary and once per week surveillance of the entire area. The inspector reviewed the weekly radiation surveillance records from June 30 - July 28, 1988. The

inspector and licensee representatives discussed long-term dose rate reduction plans for the fuel pool heat exchangers. The plan called for: (1) source term reduction by performing a high volume flush of the heat exchanger, (2) permanent shield wall installation, and (3) locked fence around the heat exchanger. The inspector identified the long-term dose rate reduction plans as an IFI (50-259/88-23-02).

c. Personal Dosimetry

The inspector reviewed the licensee's methodology for thermoluminescent dosimeter (TLD) processing. All TLDs were processed onsite in the licensee's dosimetry laboratory. The licensee utilized a Panasonic Type 802 dosimeter which contains two elements of calcium sulfate and two elements of lithium borate. During the first half of 1988, there were 12 TLD/Pocket Chamber (PC) Discrepancy Reports. The licensee used the following criteria to generate a Discrepancy Report:

Type A: TLD greater than or equal to PC times 1.5  
and TLD greater than 250 mrem

Type B: PC greater than or equal to TLD times 1.5  
and PC greater than 250 mrem

Of the 12 variances identified, one was a "Type A". As of this inspection, two variances have been resolved, including the Type A variance. Resolution of the remaining Type B discrepancies was still being pursued by the licensee.

Licensee representatives stated that the person-rem exposure total through July 31, 1988, was approximately 644 person-rem which was approximately 46 percent of the goal for 1988. The maximum exposed individual to date received 2438 mR. Additionally, the inspector compared exposures due to routine RWPs with exposures due to Special or Specific RWPs. Less than one percent of the year-to-date exposures was attributable to routine RWPs. This low percentage indicated that the licensee had a more adequate program for tracking dose.

d. Records, Reports, and Notifications

The inspector reviewed selected Radiation Incident Reports (RIRs) generated since April 1988. A 1988 year-to-date total of 77 RIRs had been written. The licensee discussed three levels of RIRs: (1) Level 2 - letter of reprimand to personnel file; (2) Level 3 - minimum three-day suspension; and (3) Level 4 - termination of employee. The RIRs reviewed were minor in terms of safety significance and most of them were the Level 2 category.

No violations or deviations were identified.

## 6. Internal Exposure Control (83725)

The licensee is required by 10 CFR 20.103, 20.201(b), 20.401, and 20.403 to control intakes of radioactive materials, assess such intakes, and keep records of and make reports of such intakes. Chapter 12 of the Final Safety Analysis Report (FSAR) also includes commitments regarding internal exposure control and assessment.

During tours of the facility, the inspector examined the licensee's respirator repair area. The facility was used to dispatch and receive respirators from an offsite contractor laundry facility. The inspector observed respirators being inspected and tested in the facility. When the respirators are received from the INS, 100 percent of the respirators are surveyed directly for contamination and approximately 10 percent are smeared for both alpha and beta contamination. After testing and making necessary repairs, the masks were heat sealed in plastic bags and taken to the issue areas. The inspector visited the respirator issue area and observed the use of the licensee's computerized equipment issue system. The equipment issue program was designed such that an individual was not issued a respirator if all the training, medical examination, and fit-testing prerequisites were not satisfied. The inspector observed that the licensee had purchased and had in service, four American Bristol SAC-25 air compressors to provide breathing air to supplied air respirators. The air compressors also had the capability of filling the compressed air bottles of the self-contained breathing apparatus (SCBA). The inspector noted that 21 SCBAs were available in the Control Room for emergency use.

The inspector also observed the licensee's whole-body counting facility. The licensee had two counting systems in operation. The first system was a unique table top geometry designed by Nuclear Data which incorporated one intrinsic germanium detector with a nominal efficiency of 15 percent.

The second system was a Bionuclear Measurements chair geometry system which incorporated a two inch by two inch sodium iodide (2x2 NaI) detector for the lung and gastrointestinal (GI) regions and a 1x1 NaI detector for the thyroid. Although the Nuclear Data System was mainly used for screening individuals to determine if there was an uptake, the system was calibrated to quantify the amount of radioactive material in the lungs and lower GI tract. The chair geometry system was mainly used for quantification of radioactive material in the thyroid, however, it was also calibrated for both the lung and lower GI track geometries. The licensee participated in the Measurements Quality Assurance (MQA) Program organized by the Corporate Office. Once per quarter MQA comparison tests were performed using a Humanoids (trademark) phantom. The inspector reviewed the second quarter 1988 MQA results in which the phantom was loaded with I-131 in the thyroid and the following nuclides in the lungs: Ce-144, Co-60, Cs-137, and Cs-134. The licensee's Bionuclear Measurements chair geometry system failed both the bias and precision criteria for Cs-137 and Cs-134. This was due to the inability of the NaI detector to resolve the interfering peaks of Cs-137 and Cs-134. It should be noted

that the licensee had the capability to resolve and determine the amount of Cs-137 and Cs-134 by using the intrinsic germanium detector system. The inspector also reviewed the daily quality assurance tests that were performed on both whole-body counting systems. The inspector also discussed changes to the whole-body counting program with the licensee. The licensee indicated that two Canberra Stand-up Fastscans have been purchased as well as a Nuclear Data chair geometry system. The Nuclear Data System will incorporate two intrinsic germanium detectors for the lung and GI regions and a 1x1 NaI detector for the thyroid. The licensee expected the systems to be operational by November 1988. The licensee's Quality Assurance Program was more than adequate and demonstrated strong management involvement in assuring quality.

The inspector also reviewed the licensee's Non-Routine Whole Body Counting Second Quarter 1988 Report, dated August 3, 1988. During the second quarter 1988, a total of 2124 persons were counted and 114 were documented as non-routine whole-body counts (the total number of whole-body counts in 1987 was 8509). A non-routine count was defined as a whole body count other than an initial, annual, or termination count. Of the 114 non-routine counts, 17 were performed at the Radiological Control Department's discretion for medical treatments and 20 were performed upon randomly selected employees to test the respiratory protection program. Of the 77 remaining counts, 73 indicated a body burden of less than one percent maximum permissible organ burden (MPOB) and four indicated body burdens in excess of one percent. In each of these four cases, a known body burden was detected prior to entering the licensee's facility. In no case was there a body burden greater than five percent MPOB.

The inspector also reviewed the licensee's urinalysis program which was described in the following procedures:

- ° DSIL-17, Invitro Bioassay Sampling, Revision 3, June 29, 1988
- ° RCI-8, Bioassay Program, Revision 2, March 30, 1988

The licensee's Western Area Radiological Laboratory (WARL) was used for analyzing invitro bioassay samples. The WARL was equipped to analyze for Sr-89, Sr-90, H-3 and transuranics in bioassay samples. During the second quarter 1988, 20 urinalyses were performed. It should be noted that 20 urine samples corresponded to the 20 randomly selected individuals for verifying the effectiveness of the respirator protection program mentioned above. This verification program was recently implemented and was described in RCI-8.

No violations or deviations were identified.

#### 7. Control of Radioactive Material (83726)

10 CFR 20.201(b) states that each licensee shall make or cause to be made such surveys as (1) may be necessary for a licensee to comply with the



regulations in this part, and (2) are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present.

During the inspection, the inspector discussed with the licensee the number of personal contamination reports (PCRs) generated since January 1988. As of June 30, 1988, the licensee generated 275 PCRs. There were 80 skin contaminations, 172 clothing contaminations, and 23 involving both skin and clothing contaminations. The licensee's goal for the year was to have less than 270 personnel contamination. After an investigation into the source of the problem was initiated, it was determined that some of the contamination zone clothing received from the contractor laundry facility had loose particles in the range of 100-4500 counts per minute. The contaminated C-Zone clothing was found after the licensee started a 100 percent contamination survey of both the inside and outside of each article of clothing. The licensee later determined that the contract laundry facility had placed a bag of C-Zone clothing reading approximately 100 mR/hr with a load of low contamination clothing. Additionally, the laundry facility was not following a generally considered good practice of reducing the maximum allowable weight load per wash load ratio for more highly contaminated C-Zone clothing. Since the laundry problem has been identified, the rate of personnel contamination reports has been significantly reduced.

No violations or deviations were identified.

8. Maintaining Occupational Exposures ALARA (83728)

The inspector discussed with licensee representatives the program to maintain exposures as low as reasonably achievable (ALARA). The ALARA committee consisted of the plant manager, site radcon manager, modifications manager, maintenance supervisor, and the ALARA supervisor. The ALARA committee met monthly and was chaired by the plant manager. The ALARA committee tracks and trends person-rem totals, PCRs, RWP entries, ALARA preplans, and ALARA suggestions. ALARA reports are generated weekly. Since January 1988, the licensee had 177 ALARA suggestions submitted. The licensee's incentive program for ALARA suggestions appeared to be successful. The inspector also made note of an ALARA information board which was placed at the Turbine Building entrance to the controlled area. The board contained color-coded radiological information on plant diagrams and other ALARA and exposure control information. The licensee also had a series of informational pamphlets that TVA had prepared to keep workers informed on subjects such as radon, noble gas, whole-body counting, prenatal exposure, solar radiation, uses of radiation sources, radiation health effects, and invitro bioassay.

The inspector discussed ALARA preplanning involving radiological work with licensee representatives, including a comparison between the estimated and

actual doses. The following ALARA preplans were reviewed:

<u>ALARA Preplan Report Number</u>	<u>Job Description</u>	<u>Estimate (man-rem)</u>	<u>Actual (man-rem)</u>	<u>Percent Job Completion Status</u>
88-012	Condenser tube replacement and associated support work	82.7	15.9	70
88-021	Fuel Reconstitution	31.8 (revised from 5.9)	26.8	80
88-023	CRD Removal and Replacement	73.8	65.2	98

Additionally, the licensee indicated that other dose-intensive jobs that were being planned included the cleaning of the Unit 1B Fuel Pool Heat Exchanger and the rerouting of a drain line on the Unit 2 Reactor Water Cleanup Heat Exchanger.

No violations or deviations were identified.

#### 9. Solid Wastes (84722)

The inspector discussed with licensee representatives their waste stream sampling program for developing 10 CFR Part 61 scaling factors. Licensee representatives stated that all plant waste streams would be sampled prior to Unit 2 restart and the Unit 2 waste streams would be resampled after startup and the system had stabilized.

The inspector toured the resin dewatering process area. The current process requires three 8-hour dewaterings separated by 16 hours of settling. The licensee was evaluating a new rapid dewatering system, thereby decreasing the complete dewatering process to 12 hours. This process was planned to begin operation prior to Unit 2 startup.

The inspector discussed with licensee representatives their current and proposed radwaste organization and staffing levels. Under the proposed organization plan, the manager of this group will report directly to the Operations Superintendent and will be responsible for water and wastewater processing, packaging and shipping of radioactive waste, and decontamination activities of plant facilities and equipment. The inspector determined by review that the proposed staffing levels and organization entities for the processing and handling of radioactive waste was adequate. At present, the licensee has a dedicated decontamination group of 48 decon personnel; however, as of March 1989, the decon staff will be reduced to 30 decon personnel. The inspector concluded that this

reduction of personnel should not adversely affect safe plant operations for a single unit operating power reactor.

The inspector was informed that at the end of 1987, the total contaminated square feet of the facility was 6.4 percent of the total area which excluded drywells and fuel pools. However, at the time of the inspection 11.5 percent was being controlled as contaminated area. Licensee representatives informed the inspector that this increase was primarily due to the reorganization of the decon group being reassigned from the chemistry group to the water and wastewater processing group. Efforts were underway to continue to reduce this percentage.

No violations or deviations were identified.

10. Transportation (86721)

The inspector discussed with licensee representatives radioactive material shipments performed in 1988, and reviewed the shipment log. The inspector reviewed the completed files for selected radioactive material shipments made during the first two quarters of 1988. The shipments reviewed were of dry active waste (DAW) and dewatered resin shipped to Chem Nuclear Systems, Inc. (CNSI) for burial. The inspector determined that the shipments had been prepared consistent with NRC and Department of Transportation (DOT) requirements.

On August 1, 1988, the licensee was preparing to transfer a shipment of radioactive material to CNSI for burial. This shipment contained 170 cubic feet of dewatered condensate (powdex) resin in a high integrity container (HIC), cask identification number USA/9139/A, and contained  $1.4 \times 10^4$  millicuries. After completion of loading the HIC liner in the shipping cask, the radiation levels were measured to be 11 mrem/hr at 2 meters and 80 mrem/hr on contact. Licensee management representatives were contacted because the 11 mrem/hr measurement at 2 meters exceeded the legal limit of 10 mrem/hr at 2 meters as required by 49 CFR 173.441. Licensee management representative performed seven additional radiation survey measurements of the shipment in question using various types of survey instruments and determined that the highest radiation level measured was 9.0 mrem/hr which was below the legal limit of 10 mrem/hr. The inspector discussed this event with licensee representatives and reviewed the survey records performed by the licensee and determined that even though an initial reading of 11 mrem/hr was measured, followup surveys revealed that the radiation levels were within regulatory limits. The licensee's radiation surveys were performed at a distance of 2 meters from contact of the shipping cask, rather than from the vertical plane of the outer edges of the vehicle, which was in a conservative direction. The inspector concluded after review that the radiation levels of the radioactive waste shipment were within regulatory limits.

No violations or deviations were identified.

11. Operational Readiness Performance Evaluation (83722, 83723, 83724, 83725, 83726, 83727 and 83728)

The licensee had developed and completed an Operational Readiness Performance Evaluation Program (ORPEP) which was initially scheduled to be completed by August 15, 1988, to assess the readiness of the Radcon Group to support Unit 2 startup and operational activities.

Radcon operational readiness performance objectives included thirty-eight separate objectives in six general categories as described below:

◦ Organization and Administration

Organizational understanding, management positions filled, technician authority, incident report system, performance indicators established, radcon training and qualification, procedure adequacy, internal communications, supervisory involvement, external interfaces and computerized information controls.

◦ Radiation Exposure Controls

Minimizing external exposure, minimizing beta exposure to skin and eyes, exposure reduction program planning, exposure reduction (job-specific), exposure and other ALARA goals, self-analysis and industry wide comparison, diagnosis and response to unusual situations and accidents.

◦ Airborne Radioactivity Control

Engineered airborne radioactivity controls - use of, plant controls to limit internal exposure, respiratory protection program, minimizing respiratory protection areas, bioassay program, restrictions on eating, drinking, smoking and chewing.

◦ Instrumentation and Dosimetry

Survey equipment calibration and use, use of dosimetry devices, selection and placement of dosimetry devices, extremity dosimetry devices, exposure records availability, and dosimetry QA program.

◦ Contamination Control

Minimizing contamination of areas and equipment, minimizing contamination of personnel.

◦ Radcon Personnel Performance Standards

Protection against ionizing radiation, Health Physics Information System, hot particle program implementation, source term control program, transuranic assessment and control.

The inspector discussed this program with licensee representatives and was informed that this program, once completed, would be reviewed by upper level management. After final review and approval by plant management of the ORPEP, corporate management would perform an assessment of their own to ascertain the operational readiness of the Radcon Group prior to Unit 2 startup and operation. The inspector informed licensee management representatives that this program would be reviewed again during a subsequent inspection.

No violations or deviations were identified.

12. NRC Information Notices (INs) (92717)

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

- a. IN 88-32: Prompt Reporting to NRC of Significant Incidents Involving Radioactive Material
- b. IN 88-34: Nuclear Material Control and Accountability of Non-Fuel Special Nuclear Material at Power Reactors

13. Action on Previous Inspection Findings (92701, 92702)

(Closed) Violation (50-259, 50-260, and 50-296/86-38-01.a,b, and d): Failure to Follow Written Material Control and Accounting Procedures, T1-14, Special Nuclear Material Control, Failure to Immediately Report the Loss of Five Dunking Chambers (fission counters) Containing Special Nuclear Material, and Failure to Complete and Distribute a DOE/NRC Form 741 for the Transfer of Five Dunking Chambers (fission counters) containing 10 grams) of Special Nuclear Material. The inspector reviewed the licensee's responses of February 11 and 19, and June 12, 1987, and verified that the the corrective action specified in the responses had been taken. This item is considered closed.

(Closed) IFI (50-259, 50-260, 50-296/88-14-01): Clarification of Survey Requirements for Releasing Material from a Contaminated Area. The inspector reviewed procedure TSIL-2, Contamination Surveys, Revisor 22, August 4, 1988, and determined that the procedure provided sufficient guidance on the types of surveys required to release material from a controlled area. Additionally, the procedure provided guidance on when the surveys were to be performed and the limits for release of the material to ensure that surveys were being performed in a consistent manner. This item is considered closed.

(Closed) IFI (50-259, 50-260, and 50-296/88-14-02): 1) The licensee's skin dose assessment procedure from "Hot Particles" did not contain all dose factors from the NRC's computer code; 2) the skin dose assessment procedure did not contain any provisions to assess the effect of

self-absorption on the calculated dose; and 3) the skin dose assessment procedure did not contain dose assessments for contaminants that are not readily removable that have been embedded in the skin. The inspector reviewed and verified that the licensee's procedure DSIL-30, Skin Dose Assessment and Calculations, was revised on May 12, 1988, which incorporated the appropriate actions and changes necessary to evaluate adequately skin doses from the hot particles. This item is considered closed.

(Closed) IFI (50-259, 50-260, and 50-296/88-14-03): The licensee's dosimetry computer software program did not reflect the correlation of TLDs and pocket ion-chambers if there was greater than or equal to 50% differences, and if the TLD or pocket ion-chambers was greater than or equal to 250 millirem. The inspector reviewed and verified that the licensee's procedure DSIL-7, Use of Direct Reading Dosimeters, dated June 21, 1988, was revised to incorporate investigation both in the computer software and in their operating procedure to perform investigations of TLDs and pocket ion-chambers discrepancies. This item is considered closed.

(Closed) IFI (50-259, 50-260, 50-296/88-14-04): Revision of Procedure TSIL-28, Hot Particle Control Program. The inspector reviewed TSIL-28, Hot Particle Control Program, Revision 2, August 4, 1988, and noted that the following elements had been incorporated into the procedure:

- ° Hot particle control areas were identified by an insert on the warning sign.
- ° The procedure specified actions taken if contamination was detected on personnel in hot particle control areas.
- ° The procedure specified that every person in the hot particle control area be surveyed.
- ° The procedure provided guidance on handling material, such as waste, by promptly containing and disposing the waste through the normal plant processing to prevent the spread of hot particles.

This item is considered closed.

#### 14. Exit Interview

The inspection scope and results were summarized on August 5, 1988, with those persons indicated in Paragraph 1. The inspector described the areas examined and discussed in detail the inspection results described in this report. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection. Two inspector followup items were identified in the areas of organization and management controls (Paragraph 3) and high radiation area control (Paragraph 5.b). The inspector discussed the licensee's proposed Health Physics staffing levels after the proposed reduction-in-force and whether

or not the licensee could maintain an adequate health physics staff to support field operations. The plant manager acknowledged the inspectors' comments and stated that adequate Radcon staff would be available after the RIF is completed.

<u>Item Number</u>	<u>Description and Reference</u>
50-259/88-23-01	IFI - Adequacy of Radcon staffing following reduction-in-force.
50-259/88-23-02	IFI - Long-term dose rate reduction plans for the fuel pool heat exchangers.