UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report Nos. 50-259/79-35, 50-260/79-35, and 50-296/79-35

Licensee: Tennessee Valley Authority
500A Chestnut Street
Chattanooga, Tennessee 37401

Facility Name: Browns Ferry Nuclear Plant, Units 1, 2, and 3

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

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

Inspection at Browns Ferry site near Decatur, Alabama

Inspector: _____ 11/23/79
for L. L. Jackson Date Signed

Approved by: _____ 11/23/79
for A. F. Gibson, Section Chief, FFMS Branch Date Signed

SUMMARY

Inspection on October 22-26, 1979

Areas Inspected

This routine, unannounced inspection involved 42 inspector-hours onsite in the areas of radiation protection procedures, exposure control, licensee audits, control of radioactive materials, and followup of previously identified enforcement items and inspector identified items.

Results

Of the six areas inspected, no apparent items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Licensee Employees

*H. L. Abercrombie, Plant Superintendent
*J. L. Harness, Assistant Plant Superintendent
*R. T. Smith, Quality Assurance Supervisor
*J. L. Pittman, Instrument and Controls Supervisor
*R. Cole, Office of Power, Quality Assurance Site Representative
*S. G. Bugg, Plant Health Physicist
R. Burns, Instrument Engineer
R. Turberville, Senior Instrument and Controls Foreman

Other licensee employees contacted included one construction craftsman, and seven technicians.

NRC Resident Inspector

*R. F. Sullivan

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on October 26, 1979, with those persons indicated in Paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

(Closed) Infraction (260/78-33-01) Main Steam Line High Radiation Monitor Setpoints. The inspector observed the main steam line high radiation monitor readings for Unit 2 and compared the actual monitor readings with the posted setpoints. The setpoints were within the limits allowed by the Technical Specifications. A senior instrument and controls foreman showed the inspector a log of periodic readings taken from these monitors in order to determine the stability of the monitors and to provide a history of the normal full power background. In addition, the Master Refueling Test Instruction has been revised to include a signoff that the setpoints for the main steam line high radiation monitors have been reevaluated and reset, as necessary, upon resumption of full power operation following a refueling outage. The inspector was satisfied that the proper attention was being given to the main steam line high radiation monitor setpoints.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. New unresolved items identified during this inspection are discussed in Paragraph 5.

5. Licensee Audits of Health Physics Program

a. Technical Specifications Section 6.2.C requires that the Office of Power Quality Assurance and Audit Staff (OPQA&AS) shall formally audit operation of the nuclear plant and that audits should include verification of compliance with internal rules, procedures (including radiation control procedures), regulations and license provisions. These audits are being conducted by the Radiological Hygiene Branch (RHB) whereby RHB will conduct the audits and OPQA&AS will audit the RHB program, including the audit reports and corrective actions.

b. The inspector reviewed audit report RHB/QA-79-7, BFN Health Physics Audit. This audit, performed in July 1979, appeared to be technically adequate and identified several problem areas to which the plant staff responded with proposed corrective actions. The inspector discussed these corrective actions with the appropriate plant management representatives and determined that the corrective actions were reasonable. The Plant Superintendent was aware of recurring items and had placed additional emphasis on these items. An example of such an item is the findings of unlocked doors on High Radiation Areas where readings exceed 1000 mr/hr. Routine periodic checks by the health physics staff are being made to determine if all areas of greater than 1000 mr/hr are being kept locked as required. In addition, the Health Physics Supervisor presents a status report on unlocked areas at the plant management meeting which is held each morning to ensure that supervisory personnel are aware of the importance of this requirement.

c. While reviewing the audit, the inspector became aware of a potential weakness in the quality assurance program as it applies to the plant radiation protection procedures. The report identified a lack of administrative authority by the RHB to deal with any radiation protection problems, except those which apply specifically to the plant health physics staff. The RHB has no authority to require corrective actions of any plant group except the plant health physics group, which is actually a part of the RHB. Problems identified during an audit which require corrective action by any group other than the health physics group are identified in the RHB audit reports but no response is required. This weakness in the audit program was confirmed during a telephone call from the inspector and the onsite OPQA&AS representative to the Supervisor, Audit Section, OPQA&AS, whose office is in Chattanooga, Tennessee. The Audit Section Supervisor stated that the audit arrangement between RHB and OPQA&AS is being revised to assure that future audits of the radiation protection program carry the full administrative authority of the OPQA&AS.

The inspector informed licensee management that delegation of the responsibility of OPQA&AS to audit the radiation protection program to the RHB without providing the RHB with the same authority as OPQA&AS may mean that past audits did not fully meet the intent of the technical specifications.

This item is identified as an unresolved item pending further study by the inspector and NRC regional management (259/79-35-01, 260/79-35-01, 296/79-35-01). The inspector informed licensee management that the proposed changes to the audit program as stated by the Supervisor, Audit Section, OPQA&AS appeared to be a satisfactory resolution to this problem. This item will require additional review by the inspector.

6. Radiation Protection Procedures

a. Technical Specification 6.3.A states that plant procedures will be prepared, approved, and adhered to, including radiation protection procedures.

b. The inspector spent several hours in various plant work areas observing the work in progress and talking to workers. The main objective of this effort was to see if workers were following the Special Work Permit (SWP) procedure and observing SWP requirements and to determine if the Special Work Permit requirements appeared adequate for the work conditions. The inspector noted no problems for those activities observed.

7. Exposure Control

a. The inspector reviewed the licensee's external exposure control program for compliance with the following regulatory requirements:

(1) 10 CFR 20.202.a - personnel monitoring
(2) 10 CFR 20.101.a - permissible doses
(3) 10 CFR 20.101.b - extended permissible doses
(4) 20 CFR 20.102 - exposure history

The inspector selected several individuals from a special work permit which was being used for work in the drywell area and checked to see if these individuals had a current NRC Form-4 on file, if their dose records were up to date, and that none had exceeded any regulatory dose limits. The records checked by the inspector appeared to meet regulatory requirements.

b. The inspector reviewed records required by a rule change to 10 CFR 20, commonly called the "transient worker rule", which was to be implemented by August 20, 1979. This rule change requires licensees: (1) to obtain from a prospective employee information on occupationally related doses received during a current calendar quarter from sources outside the licensee's control, if there is a chance that the employee may subsequently receive a dose in excess of 25 percent of the regulatory standards in the facility of the new employer; (2) to furnish prompt estimates of occupational dose, at the request of an individual, upon termination of work; and (3) to keep associated records.

The inspector reviewed the signed statements of several individuals providing the licensee with their estimated quarterly doses from

sources outside the licensees control. Copies of dose estimates provided to individuals upon their departure from the licensees facility were also reviewed. It appeared that implementation of the "transient worker" rule was satisfactory.

c. The inspector, with the permission of the Plant Health Physicist, had several TLD badges opened to determine if the TLD chips were in the right relationship to the shielded and unshielded portions of the badge. All TLD badges inspected were assembled correctly.

d. The inspector discussed with the Plant Health Physicist the licensee's program for comparing the monthly tabulation of pocket dosimeter results with the monthly TLD results. This comparison is routinely made on the plant computer which prints out a list of the TLD versus pocket chamber comparisons which disagree by more than 25 percent. The Plant Health Physicist stated that discrepancies between the pocket dosimeters and the TLDs are evaluated when they exceed 25 percent, except when the total dose is very low, in which case a 25 percent difference is not significant. The inspector had no further questions concerning this item.

e. As part of the respiratory program, bioassay is required by 10 CFR 20.103 to determine individual intakes of radioactivity. As part of this program, the licensee requires background counts on all personnel who may have to work in an area where respiratory protection is required. The inspector received a whole body count as part of this program. The inspector identified no problems with the manner in which whole body counts were conducted. The inspector discussed action levels with the technician operating the whole body counter. The technician stated that he had no written guidance on action levels but oral instructions were to report any positive indication of radioactivity to the Plant Health Physicist or one of his assistants for an evaluation. This was confirmed by discussions with the Assistant to the Plant Health Physicist, who is responsible for over-seeing the whole body counting program. The inspector was informed that all official calculations relating to activity detected in an individual are performed off-site but approximations of an individual's uptake could be made by calculations performed onsite, if necessary. Although there were no apparent problems with the manner in which the whole body counting program was being operated, the inspector asked the licensee to consider providing the whole body counter (WBC) operators with written action levels, perhaps in memorandum form, which can be posted near the whole body counter to ensure that technicians newly assigned to operate the WBC are made aware of the requirements. The inspector had no further questions at this time.

8. Investigation Into A Possible Overexposure Of An Employee Of The General Electric Company

a. Upon arrival at the site, the inspector was informed by the USNRC Resident Inspector that TVA had informed him of a letter from General Electric stating that their film badge results for one of their employees indicated that the individual had received a dose of 3040 mrem at the Browns Ferry Nuclear Plant for the period 10-1-79 through 10-9-79. This number exceeds the quarterly limit allowed by 10 CFR 20.

The GE employee was not available for an interview, however, the inspector reviewed the direct reading pocket dosimeter data and TLD data for the individual in question. The individual's pocket dosimeter reading was entered onto a special work permit and also in a log at the work area each time the individual entered or left the work area. The total dose recorded on the pocket dosimeter for the period October 1 through 9 was 2560 mrem. For the same period, the licensee issued TLD was read on four separate occasions. These readings totaled 2023 mrem. The difference of 537 mrem between the TLD and pocket dosimeter is attributed primarily to the period prior to 10/4/79, at which time, the licensee issued TLD was read for the first time and gave a dose of 1256 mrem, which was 524 mrem below the total of 1780 mrem, as recorded by the pocket dosimeter. Although this difference is more than expected, neither pocket dosimeter nor the TLD indicated that the individual's dose was over the allowable limit. The licensee had compared the TLD and pocket chamber results of the GE employee with those of individuals who had been working in the same area at the same time. This comparison indicated that the indiviudal's dose was accurately measured by the TLD badge worn during all work.

The dose, as measured by the GE film badge, was 2740 mrem for the period October 1-8, and 300 mrem for 10/10/79. Since the individual did not enter the work area on 10/10/79, the licensee has concluded that the 300 mrem was a erroneous reading. This again is supported by the licensee's TLD data which indicated that the individual received only 7 mrem on 10/10/79.

The licensee made the determination that the TLD data reflected the true exposure to the individual. The inspector concurred with the licensee's action. There were no further questions in this case.

9. Health Physics Personnel Qualifications

Technical Specification 6.3.E requires that health physics technicians, health physics coordinators and health physics shift supervisors meet or exceed the requirements of ANSI 18.1-1971. The lead resident inspector recently evaluated all personnel in the above positions (as of the date of the inspection) and determined that all meet the requirements of ANSI 18.1-1971. (Refer to Inspection Report Nos. 259/79-27, 260/79-27 and 296/79-27.)

10. Control of Radioactive Material

Utilizing a HP-210 probe (GM-tube) the inspector surveyed the contents of several large garbage containers located just outside of the turbine building. Nothing above background was detected.

The inspector also performed a general survey of the onsite landfill using a sodium iodide scintillation detector. Nothing above background was detected.

11. Progress on Inspector Identified Items

(Closed) IFI 259/78-27-04, 260/78-30-04 and 296/78-26-04, Inability to Find Records of Quarterly Functional Tests For Selected Single Channel Constant Air Monitors. These records are required by Instrument Maintenance Instruction (IMI) 90.9. The inspector determined from discussions with a Senior Instrument and Controls Foreman that the record keeping system for the single channel CAMs has been significantly improved. In addition, yearly test schedules are now being generated by the plant computer system (PRIME Computer) and provided to the instrument and controls foreman responsible for calibrating and testing the CAMs. The inspector reviewed the paperwork from two functional tests to ensure that the paperwork was adequate. The inspector had no more questions in this area.

12. Plant Tour

The inspector spent several hours walking through various areas of the plant including the reactor buildings of all three units, the turbine building of Unit 3 and the drywell and main steam tunnel on Unit 3. The inspector informed management personnel that housekeeping on the reactor building elevation where the Unit 3 residual heat removal heat exchanger work was in progress, could be improved. Housekeeping in the rest of the areas visited by the inspector appeared to be somewhat improved as compared to past inspections.

The inspector checked several doors to high radiation areas where postings indicated dose rates of greater than 1000 mr/hr and found them to be locked as required by Technical Specification 6.3.D.

13. Review of Radiological Incident Reports (RIRs)

The licensee has a system for recording incidents which have actual or potential radiological significance. These incidents deal primarily with the failure of individuals to observe certain procedural requirements. The report provides for assessing the seriousness of an incident, for determining if the individual involved is a repeat offender and for recording of the corrective action by the appropriate supervisor.

The inspector reviewed approximately 70 RIRs. Failure to pick up lapel air samplers prior to reporting to a work area requiring their use or failure

to return the lapel sampler filter after use and failure to rezero pocket dosimeters at the predetermined reading were recurring items. The inspector suggested that the RIRs be reviewed periodically and that recurring items be considered for additional emphasis in the health physics training given to individuals needing unescorted access. These items, although important, were not serious safety violations on the part of the licensee. The licensee utilizes low volume air samplers, in addition to lapel samplers, in the work areas as a means of monitoring the airborne activity that workers are exposed to. Lapel samplers are used to better define breathing zone concentrations. The failure of workers to rezero their pocket dosimeters creates additional work for health physics personnel, but due to Special Work Permit controls and the use of TLDs, it is not likely that failure to rezero a pocket dosimeter (for example, when the reading reaches 50 percent of the scale) would contribute directly to an overexposure. The inspector had no more comments in this area.