



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

SEP 25 1991

Report Nos.: 50-259/91-30, 50-260/91-30, and 50-296/91-30

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 26-30, 1991

Inspector: A. Gooden

A. Gooden

09-19-91

Date Signed

Approved by: Fred N. Wright for

W. Rankin, Chief

09-19-91

Date Signed

Emergency Preparedness Section
 Radiological Protection and Emergency
 Preparedness Branch
 Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the area of emergency preparedness. Several aspects of the program were reviewed to determine if the program was being maintained in a state of operational readiness. Areas examined included: key program changes (equipment, facilities, personnel, etc.), administrative program governing the distribution of changes to the Plan and Emergency Plan Implementing Procedures (EPIPs), training, independent audits, augmentation and pager notification drills, public information program, maintenance of select emergency equipment, and event reporting.

Results:

In the areas inspected, no violations or deviations were identified. The program elements appeared to be adequately defined and properly implemented. Noted program strengths included a computer based tracking system for monitoring emergency response training; a human factored Radiological Emergency Preparedness (REP) van for environmental monitoring; administrative program governing the distribution of EPIP changes to controlled copy holders; independent audits; and drill documentation. As a result of difficulties in timely augmentation of emergency response staff during drills, the licensee made changes to the system for augmentation. The licensee plans to demonstrate the effectiveness of these changes in a drill before the end of the year.



REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *M. Bajestani, Manager, Technical Support
- *P. Carier, Manager, Site Licensing
 - P. Carthen, Specialist, Information System
 - R. Champion, Instructor, Operations
- *L. Clardy, Supervisor, Quality Assurance
- *J. Corey, Manager, Radcon
- *T. Cornelius, Manager, Site Emergency Preparedness
 - A. Feltman, Emergency Preparedness Engineer
 - K. Giggy, Manager, State/Local Programs
 - S. Gray, Shift Operations Supervisor
- *M. Herrell, Manager, Plant Operations
 - J. Kinsella, Supervisor, Document Control
- *R. Kitts, Manager, Emergency Preparedness/Chattanooga
 - R. Marsh, Reactor Operator
 - M. Martin, Instructor, Operations
 - J. McCamy, Shift Technical Advisor
 - R. Newton, Manager, EP Exercises and Special Projects
- *S. Rudge, Manager, Site Support
- *J. Sabados, Chemistry and Environmental Superintendent
- *P. Salas, Manager, Compliance/Licensing
- *J. Scalice, Plant Manager
 - J. Smith, Shift Operations Supervisor Clerk
- *J. Swindell, Manager, Unit 3 Restart Operations
 - C. Wallace, Shift Supervisor, Health Physics
- *J. Wallace, Compliance Engineer, Site Licensing

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

Nuclear Regulatory Commission

- *W. Bearden
- *E. Christnot
- *C. Patterson

*Attended exit interview



2. Emergency Plan and Implementing Procedures (82701)

Pursuant to 10 CFR 50.47(b)(16), 10 CFR 50.54(q), and Appendix E to 10 CFR Part 50, this area was reviewed to determine whether changes were made to the program since the last routine inspection (May 1990), and to assess the impact of these changes on the overall state of emergency preparedness at the facility.

The inspector reviewed the licensee's administrative program for making changes to the Plan and EIPs. A random sampling of changes to the Plan and procedures were examined to verify that changes were reviewed and approved by management in accordance with procedures governing the development, review, and approval. As evidenced by the transmittal dates, changes were distributed to onsite and offsite copy holders in a timely manner. Documentation for EIP changes was reviewed to verify that submittals were made to the NRC within 30 days of the approval date. No problems were noted. Since the last inspection, two Plan changes were submitted for NRC review and approval. Changes incorporated as Revision 6 were mailed to the NRC on June 4, 1990. By letter dated March 27, 1991, the NRC informed the licensee that Revision 6 changes appeared to decrease the effectiveness of the Emergency Plan. The specific inconsistencies were discussed telephonically with members of the licensee's staff during January 1991 according to documentation. Subsequently, the licensee submitted Revision 7 of the Plan to correct the identified inconsistencies in Revision 6 and other noted changes. At the time of the inspection, changes incorporated as Revision 7 had not been reviewed in its entirety; only those items pertinent to inconsistencies identified as Revision 6 were reviewed and approved. Controlled copies of the Plan, EIPs, and/or position notebooks (e.g. Site Emergency Director) were audited in the Control Room, Technical Support Center (TSC), and the Operations Support Center (OSC). The selected documents were all current and up to date.

The inspector reviewed the public information program to verify that basic emergency planning information was being disseminated to the public in the plume exposure pathway emergency planning zone (EPZ). The licensee's public information brochure was designed in a calendar format. Documentation was provided to show that on an annual basis, calendars were mailed to residents and businesses within the 10-mile EPZ. The inspector reviewed the current calendar issued January 1991. It was noted that the emergency information contained in the calendar was consistent with the criteria in NUREG-0654, Section II.G. A licensee representative provided documentation to show that the calendar update and review was coordinated with the appropriate offsite authorities. When questioned regarding the methods for informing the transient population of appropriate emergency response measures, the interviewee stated that signs were posted at the various recreational sites near the plant and calendars were distributed throughout the 10-mile EPZ. The inspector visited a location East South East of the plant (Round Island Creek) along Wheeler Lake. It was noted that information was provided to the public regarding actions to take in the event of an emergency at the plant. Included in the list of actions was an instruction to turn on the radio for further instructions.

However, no radio frequency or call signs were included. In addition, the sign/lettering size did not provide an early recognition of transient information. In response, a licensee representative stated that by November 1, 1991, radio call signs and/or frequencies will be included on signs. Further, State/local agencies will be contacted regarding sign recognition improvements. The licensee issued an Automated Management Oversight Tracking System (AMOS) No. 001538-00 for tracking the aforementioned corrective actions.

No violations or deviations were identified.

3. Emergency Facilities, Equipment, Instrumentation, and Supplies (82701)

Pursuant to 10 CFR 50.47(b)(8) and (9), 10 CFR 50.54(q), Section IV.E of Appendix E to 10 CFR Part 50, and Section A.3 of Appendix A to the licensee's Plan, this area was inspected to determine whether the licensee's emergency response facilities (ERFs) and other essential emergency equipment, instrumentation, and supplies were maintained in a state of operational readiness.

The inspector toured the Control Room, TSC, and OSC, and noted that the facilities were in accordance with the description in Appendix A of the Emergency Plan. Discussions were held with members of the emergency preparedness staff concerning modifications to facilities, equipment, and instrumentation since the last inspection. The discussion disclosed no facility or significant instrumentation changes. Regarding equipment, a new radio system had been installed and was operational for various plant teams (in-plant, offsite monitoring, etc.). The inspector was informed that the referenced radio system had three repeater stations which resulted in enhanced communications with offsite monitoring teams in the 10-mile EPZ. In addition, a field monitoring van had been purchased to replace an existing van. The van, equipment, and supplies therein appeared to be maintained in a state of readiness. The van's design was well thought out from a practicality and safety standpoint. Redundant communications was noted by virtue of a two way radio system and a cellular phone. In assessing the operational status of the ERFs, the inspector verified that protective equipment, and supplies were operational and inventoried on a periodic basis. Emergency kits and/or cabinets from the Radcon area, TSC (Control Bay elevation 617), environmental van, and elevation 565 of the Service Building near the Radcon laboratory were inventoried and randomly selected equipment was checked for operability. The selected equipment displayed current calibration stickers, and successful battery checks were obtained. Equipment operability status, or response to a source check, could not be immediately determined. The licensee's current practice is to determine equipment operability by conducting a quarterly source check. The inspector discussed with members of the licensee's staff that a mechanism for determining the operability status of portable survey equipment by survey teams prior to deployment would provide assurance regarding the reported detectable or non-detectable levels of radiation following an accident. The inspector indicated there was no regulatory requirement for such a device; however, without assurance that equipment is operational,



erroneous data could be provided by field monitoring personnel. In response to this matter, the Radcon Manager discussed plans to change the periodic source check from quarterly to weekly, and to provide a check source for each kit. During the Control Room tour, the inspector verified that the stack off-gas radiation monitor range and units were consistent with the prompt dose assessment procedure for a stack release. The Control Room meteorological readout was noted as operational and provided instantaneous as well as averaged data for use in dose assessment and protective action recommendations (PARs). The Emergency Notification System (ENS) phone in the TSC was checked and found operational but produced an echo effect during voice transmission. When questioned regarding the periodic testing and operability check of the ENS and Health Physics Network (HPN) phone, the inspector was informed that licensee personnel performed monthly checks of the ENS and HPN phones located in the TSC. Regarding the Control Room ENS, the daily check performed by the NRC Operations Center was documented as the periodic test. The inspector informed the licensee that an Information Notice (IN) (86-97) had been issued to licensees which provided guidance on the operation and testing of the NRC emergency communications system. Further, the inspector stated that the current procedure places reliance on the NRC operability test, rather than the licensee initiated test from the Control Room to NRC Operations Center in accordance with the guidance in the IN. In response to this item, the licensee reviewed the Information Notice and the applicability to communications testing, and a non-intent procedural change was issued to the communications test procedure (EPIP-17) which incorporated the guidance in Information Notice No. 86-97.

By review of applicable procedures and check-list documentation covering the period of May 1990 to July 1991, the inspector determined that emergency equipment (e.g., communications equipment, respiratory equipment, hospital kits, and monitoring team kits) was being checked in accordance with the procedures governing such tests. Records indicated that all discrepancies or problems identified during inventories and communications checks were corrected in a timely manner.

The licensee's management control program for the Prompt Notification System (PNS) was reviewed. According to documentation, the current system consists of 100 sirens. The licensee provided a siren availability report for calendar year 1990, and seven months of data for calendar year 1991, which detailed the availability for 1990 as 99.6 percent and to date 99 percent for 1991. Further, the inspector reviewed PNS test data summary sheets for the period January 1990 thru July 1991, that showed tests were conducted at the frequency specified in Appendix A of the licensee's Emergency Plan.



The inspector reviewed the operation of the interim SPDS in the TSC. System operability was demonstrated using a 14-inch tabletop monitor for displaying various critical plant parameters. The tabletop monitors and system appeared to be user friendly as evidenced by the use of a touch screen for displaying plant data on demand.

No violations or deviations were identified.

4. Organization and Management Control (82701)

Pursuant to 10 CFR 50.47(b)(1) and (16) and Section IV.A of Appendix E to 10 CFR Part 50, this area was inspected to determine the effects of any changes in the licensee's emergency response organization and/or management control systems on the emergency preparedness program and to verify that such changes were properly factored into the REP and EIPs.

The inspector was informed by a member of the licensee's staff that several administrative changes had been made since the last inspection. Changes included the reassignment of personnel previously filling the position of Plant Manager at Browns Ferry, to the position of Plant Manager at Bellefonte. The Plant Manager's position at Browns Ferry was filled by an individual previously assigned as Plant Manager at Watts Bar. The new Plant Manager had received Site Emergency Director (SED) training in addition to participation in a table-top drill conducted during the period of the inspection. An additional change involved the reassignment of responsibility for exercise scenario development from the site to the corporate office. Regarding changes to the licensee's offsite organization, although significant changes (e.g., President, TVA Generating Group) had occurred, the changes would not appear to affect emergency preparedness. When training records were compared to position assignments, no problems were noted with newly assigned members of the onsite nor offsite emergency organization.

Regarding changes to State/local emergency organizations, the inspector was informed that a new Alabama Emergency Management Agency Director had been appointed. No further changes had occurred.

No violations or deviations were identified.

5. Training (82701)

Pursuant to 10 CFR 50.47(b)(2) and (15), and Section IV.F of Appendix E to 10 CFR Part 50, this area was inspected to determine whether the licensee's key emergency response personnel were properly trained and understood their emergency responsibilities.

The inspector reviewed the Site Director Standard Procedure (SDSP)-22.4 for a description of the training program and training procedures. In addition, selected training modules and exams were reviewed, and personnel with the responsibility for conducting and tracking the emergency response training were interviewed. A member of the licensee's staff indicated



that quarterly printouts are generated and reviewed for verification that response personnel training is current and up to date. A review of the computer based tracking program disclosed the following tracking capability: review of an individual's training due date, current status of individual's training, current duty roster assignments, and a list of personnel with training to expire during the designated period.

The inspector observed emergency response training for members of the technical assessment staff. The referenced training involved a table-top drill for TSC and OSC management personnel. No plant teams (damage control, radiation monitoring, etc.) were involved. In addition, two members of the Control Room were interviewed and asked to talk through their response as SED in response to postulated accident conditions. No problems were noted in the areas of emergency action level (EAL) recognition, classification, and PARs. The Shift Operations Supervisor (SOS) was also knowledgeable regarding those responsibilities as SED which are non-delegatable. A SOS Clerk was also interviewed regarding her role and responsibility in the event of an emergency. No problems were noted. The interviewee demonstrated an excellent familiarity with her role and responsibility in the activation and notification of emergency response organization (ERO). When questioned regarding backup means for notifying ERO personnel, the interviewee described a manual method for implementing notifications that made use of a call-list. The inspector verified that the call list was maintained current and up to date.

Training records were reviewed for 25 randomly selected members of the emergency organization. Training records were chosen based on the August 16, 1991 EPIP-6 REP call-out list and a duty list dated August 21-28, 1991. When personnel training records were compared with position assignments, no problems were noted. In accordance with Section 14.0 of the Plan, documentation was provided to show that annual medical drills were conducted at each agreement hospital during calendar year 1990. Documentation for accountability drills was reviewed to determine if accountability was completed within the required time regime. Results from drills conducted September 5, 1990, and January 23, 1991, disclosed that accountability times were consistent with procedural requirements. The licensee utilizes a card reader system for accountability purposes known as Personnel Radiological Emergency Accountability System (PREAS). Card readers are at various locations within the protected area. Regarding augmentation drills, a licensee contact provided documentation to show the results of an unannounced augmentation drill requiring travel to the site. The referenced drill commenced at 5:55 a.m. and produced unsatisfactory results. Although the majority of the augmentation staff site arrival time was consistent with Plan commitments, several key positions identified in Appendix A of the Plan (Figure A-1) were not staffed in a timely manner in accordance with the Plan or Table B-1 of NUREG-0654. Further, a review of documentation for the periodic test of the automated pager system (APS) used for activation and notification of the response organization disclosed that, during early calendar year 1991, there were frequent non-responders to page tests. Corrective actions taken in response to unsuccessful pager tests was apparently effective as



evidenced by improvements during July and August 1991 test results. However, a recent unannounced drill requiring augmentation personnel to respond to the site for verification that timely augmentation is available was not fully successful. The inspector discussed with the licensee actions that were taken or planned to enhance augmentation time (procedural, equipment, etc.). The inspector was informed as follows:

- Individuals assigned to the duty roster were reviewed for removal from the duty rotation based on the proximity of an individual's residence to the plant.
- Personnel assigned pagers were counseled regarding the use of pagers, and emphasis was placed on the responsibility as a member of the emergency response organization for the period of duty.
- A corrective action tracking number was assigned to the automated tracking system to conduct an unannounced drill by December 31, 1991.

The licensee assigned commitment No. 001537-00 for performance of an unannounced drill demonstrating timely augmentation by the end of December 1991.

No violations or deviations were identified.

6. Independent Review/Audits (82701)

Pursuant to 10 CFR 50.47(b)(14) and (16) and 10 CFR 50.54(t), this area was inspected to determine whether the licensee had performed an independent review of the audit of the emergency preparedness program, and whether the licensee had a corrective action system for deficiencies and weaknesses identified during exercise and drills.

According to documentation, an independent audit was conducted by the Corporate Office Nuclear Quality Audit and Evaluation (NQA&E) staff during the period May 7 through June 11, 1990, and documented in Audit Report No. SSA 90008. This audit was previously reviewed and referenced by an NRC inspector in NRC Inspection Report Nos. 50-259, 260, 296/90-16, dated May 31, 1991. However, at the time of the aforementioned inspection, the audit results were not final. Two areas for improvement were identified in the audit details. There were no significant findings (conditions adverse to quality) regarding the Browns Ferry program. In addition to the aforementioned audit, the inspector reviewed the most recent audit which fulfilled the 12-month frequency requirements for such an audit. The audit was performed during the period May 20 through June 28, 1991, and documented in Audit Report No. SSA 91112. The audit report identified no adverse conditions or recommendations requiring response. The audit appeared detailed and comprehensive. In accordance with 10 CFR 50.54(t), the audit results was transmitted to the State of Alabama by letter dated August 12, 1991.

The licensee's program for follow-up action on audits, drills, and exercise findings was reviewed. The exercise and drill findings were being effectively tracked. The inspector reviewed the critique items identified during the following drills: Medical (March 22, 1990, October 17, 1990, and March 27, 1991), Post Accident Sampling System (November 8, 1990), and Radcon (August 8, 1991). The critiques were very detailed and critical. A review of items identified during the referenced medical drills disclosed that items were resolved in a timely manner.

No violations or deviations were identified.

7. NRC Information Notice (92701)

The inspector discussed with a licensee representative their response to IN 91-33 "Reactor Safety Information for States During Exercises and Emergencies." Documentation was provided to show that the licensee had reviewed the subject IN and discussed this matter with the appropriate State agencies for applicability with site plans and procedures.

8. Exit Interview

The inspection scope and results were summarized on August 30, 1991, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results and the actions planned by the licensee in response to issues involving staff augmentation (Paragraph 5), equipment operability/response check (Paragraph 3), and improvements to transient notification signs (Paragraph 2). Proprietary information is not contained in this report. No dissenting comments were expressed by the licensee.

