



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

MAY 21 1985

Report Nos.: 50-259/85-23, 50-260/85-23, 50-296/85-23

Licensee: Tennessee Valley Authority
500A Chestnut Street
Chattanooga, TN 27401

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

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

Facility Name: Browns Ferry 1, 2 and 3

Inspection Conducted: April 15-18, 1985

Inspectors: R. R. Marston 5/3/85
R. R. Marston, Lead Inspector Date Signed

for WE Cline 5/3/85
W. M. Sartor Date Signed

for WE Cline 5/3/85
M. Poston-Brown Date Signed

Approved by: WE Cline 5/3/85
W. E. Cline, Section Chief Date Signed
Emergency Preparedness and Radiological
Protection Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine, unannounced inspection involved 75 inspector-hours on site in the areas of emergency preparedness.

Results: Of the areas inspected, one violation was identified - failure to provide adequate training of Shift Engineers in the area of offsite protective action decisionmaking.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *G. Jones, Plant Manager
- *J. Swindell, Superintendent-Operations/Engineering
- *H. Williamson, Program Administration
- *E. Kiessling, Emergency Preparedness Coordinator
- *J. L. Ingwerson, Site Services Supervisor
- *B. C. Morris, Plant Compliance Supervisor
- *A. W. Gorden, Plant Compliance Engineer
- W. E. Webb, Projects Engineer
- J. D. Johnson, Licensed Operator Regional Training Unit Supervisor
- Lt. T. L. Bonds, Public Safety Training Supervisor
- J. Membourne, Shift Engineer and Supervisor Non-Licensed Training
- L. S. Clardy, Quality Surveillance Supervisor

Other licensee employees contacted included technicians, operators, mechanics, security force members and office personnel.

Offsite Personnel

- H. S. Black, Director Limestone County Emergency Management Agency
- C. H. Edmonds, Assistant Administrator Decatur General Hospital
- M. West, Chief, EMT Athens-Limestone Hospital

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on April 18, 1985, with those persons indicated in Paragraph 1 above. Enforcement item in Paragraph 8 was discussed at this time. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Emergency Detection and Classification (82201)

Pursuant to 10 CFR 50.47(b)(4) and 10 CFR Part 50, Appendix E, Sections IV.B and IV.C, this program area was inspected to determine whether the licensee used and understood a standard emergency classification and action level scheme.

The inspector reviewed the licensee's classification procedures. The event classifications in the procedures were consistent with those required by regulation. The classification procedures did not appear to contain impediments or errors which could lead to incorrect or untimely classification.

Selected emergency action levels (EALs) specified in the classification procedures were reviewed. The reviewed EALs appeared to be consistent with the initiating events specified in Appendix I of NUREG-0654.

The inspector verified that the licensee's notification procedures included criteria for initiation of offsite notifications and for development of protective action recommendations. The notification procedures required that offsite notifications be made promptly after declaration of an emergency.

The inspector discussed with licensee representatives the coordination of EALs with State and local officials. Licensee documentation showed that the licensee had discussed the EALs during 1984 with State and local officials, and that these officials agreed with the EALs used by the licensee. State and licensee representatives stated that the 1985 discussion of EALs was to be done soon.

The responsibility and authority for classification of emergency events and initiation of emergency action were prescribed in licensee procedures and in the emergency plan. Interviews with selected key members of the licensee's emergency organization revealed that those personnel understood their responsibilities and authorities in relation to accident classification, notification and protective action recommendations.

Selected Emergency Operation Procedures (EOPs) were reviewed by the inspector and discussed with licensee personnel. The EOPs provided direction to users concerning timely classification of accidents. All personnel interviewed appeared to be familiar with the classification information in the EOPs.

Walk-through evaluations involving accident classification problems were conducted with four Shift Engineers. All personnel interviewed promptly and properly classified the hypothetical accident situations presented to them, and appeared to be familiar with appropriate classification procedures.

No violations or deviations were identified in this program area.

4. Protective Action Decisionmaking (82202)

Pursuant to 10 CFR 50.47(b)(9) and (10) and 10 CFR Part 50, Appendix E, Section IV.D.3, this area was inspected to determine whether the licensee had 24-hour-per-day capability to assess and analyze emergency conditions and make recommendations to protect the public and onsite workers, and whether offsite officials had the authority and capability to initiate prompt protective action for the public.

The inspector discussed responsibility and authority for protective action decisionmaking with licensee representatives and reviewed pertinent portions of the licensee's emergency plan and procedures. The plan and procedures clearly assigned responsibility and authority for accident assessment and protective action decisionmaking. Interviews with members of the licensee's emergency organization revealed that these personnel understood their

authorities and responsibilities with respect to accident assessment and protective action decisionmaking.

The capability of offsite officials to make protective action decisions and to promptly notify the public was discussed with licensee representatives. Licensee procedures made provisions for contacting responsible offsite authorities on a 24-hour basis. Backup communications links with offsite authorities were available.

The inspector discussed protective action decisionmaking by offsite agencies during a telephone conversation with a senior emergency management representative of the State of Alabama. According to this official, key State decisionmakers had predetermined criteria for use in protective action decisionmaking which were consistent with those used by the licensee.

Walk-throughs were conducted. Problems were noted. See Paragraph 8 for details.

No violations or deviations were identified in this program area.

5. Notification and Communication (82203)

Pursuant to 10 CFR 50.47(b)(5) and (6) and 10 CFR Part 50, Appendix E, Section IV.D, this area was inspected to determine whether the licensee was maintaining a capability for notifying and communicating (in the event of an emergency) among its own personnel, offsite supporting agencies and authorities, and the population within the EPZ.

The inspector reviewed the licensee's notification procedures. The procedures were consistent with the emergency classification and EAL scheme used by the licensee. The inspector determined that the procedures made provisions for message verification.

The inspector determined by review of applicable procedures and by discussion with licensee representatives that adequate procedural means existed for alerting, notifying and activating emergency response personnel. The procedures specified when to notify and activate the onsite emergency organization, corporate support organization, and offsite agencies. Selected telephone numbers listed in the licensee's procedures for emergency response support organizations were checked in order to determine whether the listed numbers were current and correct. No problems were noted.

The content of initial emergency messages was reviewed and discussed with licensee representatives. The initial messages appeared to meet the guidance of NUREG-0654, Sections II.E.3 and II.E.4. Licensee representatives stated the format and content of the initial emergency messages had been reviewed by State and local government authorities.

The licensee's management control program for the prompt notification system was reviewed. According to licensee documentation and discussions with licensee representatives, the system consisted of 48 fixed sirens, 5 mobile

sirens, and 65 tone alert radios. A review of licensee records verified that the system as installed was consistent with the description contained in the emergency plan. Maintenance of the system had been provided for by the licensee. The inspector reviewed siren tests with licensee representatives. The licensee representatives stated that silent tests were conducted every two weeks, growl tests quarterly, as specified in NUREG-0654, Appendix 3, and a full-cycle test monthly. No offsite agency problems relating to the prompt notification system were disclosed during these discussions.

Communications equipment in the Control Room and the Technical Support Center was inspected. Provisions existed for prompt communications among emergency response organizations, to emergency personnel and to the public. The installed communications systems at the emergency response facilities were consistent with system descriptions in the emergency plan and implementing procedures.

The inspector conducted operability checks on selected communications equipment in the Technical Support Center. No problems were observed. The inspector reviewed licensee records for the period March 1985 to April 1985 which indicated that communications tests were conducted at the frequencies specified in NUREG-0654, Section II.N.2.a. Licensee records also revealed that corrective action was taken on problems identified during communications test.

Redundancy of offsite and onsite communications links was discussed with licensee representatives. The inspector verified that the licensee had established a backup communications system. The backup system made use of Bell Telephone lines and a microwave direct dialing system.

No violations or deviations were identified in this program area.

6. Changes to the Emergency Preparedness Program (82204)

Pursuant to 10 CFR 60.47(b)(16), 10 CFR 50.54(q), and 10 CFR 50, Appendix E, Sections IV and V, this area was reviewed to determine whether changes were made to the program since the last routine inspection in November 1984 and to note how these changes affected the overall state of emergency preparedness.

The inspector discussed the licensee's program for making changes to the emergency plan and implementing procedures. The inspector reviewed the licensee's procedure BF-2.1, Controlled Documents, governing review and approval of changes to the plan and procedures. The inspector verified that changes to the plan and procedures were reviewed and approved by management. It was also noted that all such changes were submitted to the NRC within 30 days of the effective date, as required.

Discussions were held with licensee representatives concerning recent modifications to facilities, equipment, and instrumentation. By review of selected procedures, the inspector verified that procedural and plan changes were made to reflect the recent modifications to Communication systems.

The organization and management of the emergency preparedness program were reviewed. The inspector verified that there had been some significant changes in the organization, assignment of responsibility, and the location of the Emergency Director for the plant and corporate emergency planning staffs since the last inspection. The inspector's discussions with the licensee representatives also disclosed that there have been changes in the organization and staffing of the offsite support agencies since the last inspection.

The inspector reviewed the licensee's program for distribution of changes to the emergency plan and procedures. Document control records for the period November 1983 to March 1985 showed that appropriate personnel and organizations were sent copies of plan and procedure changes as required.

No violations or deviations were identified in this program area.

7. Shift Staffing and Augmentation (82205)

Pursuant to 10 CFR 50.47(b)(2) and 10 CFR Part 50, Appendix E, Sections IV.A and IV.C, this area was inspected to determine whether shift staffing for emergencies was adequate both in numbers and in functional capability, and whether administrative and physical means were available and maintained to augment the emergency organization in a timely manner.

Shift staffing levels and functional capabilities of all shifts were reviewed with licensee representatives and found to be consistent with the guidance of Table B-1 of NUREG-0654.

No violations or deviations were identified in this program area.

8. Knowledge and Performance of Duties (Training) (82206)

Pursuant to 10 CFR 50.47(b)(15) and 10 CFR Part 50, Appendix E, Section IV.F, this area was inspected to determine whether emergency response personnel understood their emergency response roles and could perform their assigned functions.

The inspector reviewed the description (in the emergency plan) of the training program, training procedures, and selected lesson plans, and interviewed members of the instructional staff. Based on these reviews and interviews, the inspector determined that the licensee had established a formal emergency training program.

Records of training for key members of the emergency organization for the period February 1984 to March 1985 were reviewed. The training records revealed that personnel designated as alternates in the emergency organization were provided with appropriate training. According to the training records, the type, amount and frequency of training were consistent with approved procedures.

The inspector conducted walk-through evaluations with selected key members of the emergency organization. During these walk-throughs, individuals were given various hypothetical sets of emergency conditions and data and asked

to discuss their response as if the emergency actually existed. Walk-through evaluations involving protective action decisionmaking were conducted with three Shift Engineers. Personnel interviewed appeared to be cognizant of appropriate onsite protective measures and aware of the range of protective action recommendations appropriate to offsite protection. Personnel had difficulty in making protective action recommendations for offsite protection, however, this appeared to be due to inadequate training. The general lack of procedure clarity and specificity (IP-5) also appeared to contribute to this problem. The protective action decisions made by the Shift Engineers were not always consistent with each other and were not always appropriate for the postulated emergency conditions. For example, in some instances an initial sheltering recommendation was not made, improper recommendations related to evacuation zones were made, and in one instance no recommendation was made. This constitutes a violation: Failure to Provide Adequate Training in Protective Action Decisionmaking as Required by 10 CFR 50.47(b)(15) (50-259, 260, 296/85-23-01). The flow chart used in the procedure (Figure 1, IP-5) made provisions for decisions based on core and containment status, but not on offsite radiological dose rates or total doses as prescribed in Federal guidance.

It was also noted that the flow chart used by the Muscle Shoals center for protective action decisionmaking (MSEC IP-10, Attachment 7) provided for radiological releases, but was not always consistent with the flow chart used by the Shift Engineers at Browns Ferry.

9. Dose Calculation and Assessment (82207)

Pursuant to 10 CFR 50.47(b)(9), this area was inspected to determine whether there was an adequate method for assessing the consequences of an actual or potential radiological release.

The inspector reviewed MSEC IP-10 on an inspection of Sequoyah. MSEC IP-10 was also discussed in a phone conversation with a licensee representative. The procedure had provisions for calculating doses for ground and elevated releases and monitored and unmonitored releases such as plant stacks and steam releases. The procedures allowed for refinement of dose projections through incorporation of feedback from field monitoring.

The inspector discussed the dose projection models used by the licensee and the State of Alabama with representatives of both parties. The models used by both parties were different. Based on the interviews with representatives of both parties, it appeared that the reasons for the differences, as well as their impact, were understood and taken into account during assessment actions.

The licensee procedures made provisions for timely incorporation of dose assessment results into the offsite protective action recommendation process. However, during the interviews with key licensee emergency response personnel, they all appeared to recognize the uncertainties associated with those dose projections and the importance of making protective action recommendations on the basis of plant conditions.

An inspection and operability check were made of selected equipment and support items used for dose assessment at the Control Room, TSC, and EOF. No problems were observed.

The inspector requested and observed dose assessment walk-throughs by selected licensee personnel designated as responsible for dose projection during an emergency. The individuals demonstrated ability to make such calculations using both manual and computerized methods. Each individual was able to produce acceptable results by either method within 10 minutes.

The inspector discussed the backshift availability of personnel qualified to make dose calculations. Licensee representatives stated that such personnel were available on all shifts. The inspector verified from a review of current staffing levels and emergency response training records that this capability existed.

No violations or deviations were identified in this program area.

10. Public Information Program (82209)

Pursuant to 10 CFR 50.47(b)(7) and 10 CFR Part 50, Appendix E, Section IV.D.2, this area was inspected to determine whether basic emergency planning information was disseminated to the public in the plume-exposure-pathway emergency planning zone (EPZ) on an annual basis.

The licensee has developed an emergency response information brochure for use by the public residing in or frequenting the 10-mile EPZ. Licensee representatives stated that the brochure was updated annually. Licensee procedures required a coordinated review and annual update of the brochure. The inspector reviewed the current brochure and verified that it included the information specified by NUREG-0654, Section II.G.

The public information brochure provided a point of contact for obtaining additional information via a TVA Citizen Action Line.

No violations or deviations were identified in this program area.

11. Licensee Audits (82210)

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 or audit of the emergency preparedness program.

Records of audits of the program were reviewed. The records showed that an independent audit of the program was conducted by the TVA Plant Evaluation Group during May-July 1984, in addition monthly evaluations were conducted by plant quality surveillance groups. These audits fulfilled the 12-month frequency requirement for such audits. The audit records showed that the State and local governments interfaces were evaluated. Audit findings and recommendations were presented to plant and corporate management. A review of past audit reports indicated that the licensee complied with the five-year retention requirement for such reports.

The licensee's program for follow-up action on audits, drill and exercise findings was reviewed. Licensee procedures required followup on deficient areas identified during audits, drills and exercises.

No violations or deviations were identified in this program area.

12. Coordination with Offsite Agencies (92706)

The inspector held discussions with licensee representatives regarding the coordination of emergency planning with offsite agencies. Written agreements existed with those offsite support agencies specified in the emergency plan. The inspector determined through face-to-face interviews with representatives of key local support agencies that the licensee was periodically contacting those agencies for purposes of offering training and maintaining mutual familiarization with emergency response roles. Those interviews disclosed no significant problems related to the interfaces between the licensee and the offsite support agencies listed in paragraph 1.

13. Inspector Followup (92701)

(Closed) Inspector Followup Item (IFI) 84-42-02, Notification Assistance required for Shift Engineer. The inspector reviewed implementing procedures IP-2 through IP-5. It was verified that the Shift Engineer's clerk is assigned to make required notification calls before the Shift Engineer calls the Operations Duty Specialist.

(Closed) IFI 83-40-06: Followup on pamphlet distribution. The inspector reviewed the new pamphlet and was advised by a licensee representative that distribution was complete.

(Open) IE Bulletin 79-BU-18: Audibility problems encountered on evacuation of personnel from high-noise areas. Licensee representatives stated that solution now being implemented would be to have operators inspect those areas when evacuation desired. Procedures being developed.

(Open) IFI 81-19-35: Cross-reference EOIs to IPDs. Licensee representative stated that EOIs were now being evaluated and rewritten.

(Open) IFI 82-31-01: Document and establish schedules for testing or evaluating the PNS system. A contractor has been selected to assist in this task. a licensee representative stated that work is expected to start in May or June 1985.