



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

Report No.: 50-260/78-22

Docket No.: 50-260

License No.: DPR-52

Licensee: Tennessee Valley Authority
830 Power Building
Chattanooga, Tennessee 37401

Facility Name: Browns Ferry Unit 2

Inspection at: Athens, Alabama

Inspection conducted: August 15-18, 1978

Inspector: R. J. Vogt-Lowell

Approved by: *R. D. Martin*
R. D. Martin, Chief
Nuclear Support Section No. 1
Reactor Operations and Nuclear Support Branch

10/10/78
Date

Inspection Summary

Inspection on August 15-18, 1978 (Report No. 50-260/78-22)

Areas Inspected: Routine, unannounced inspection of the results of startup testing following the refueling outage for Browns Ferry Unit 2. The inspection involved 30 inspector-hours on site by one inspector.

Results: Within the areas inspected, two items of noncompliance were identified. (Deficiency: Failure to adhere to all the qualifications required of quality assurance records, (78-22-01). Deficiency: Failure to adhere to all the requirements for surveillance instruction content (78-22-02)).

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DETAILS I

Prepared by:

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R. Vogt-Lowell, Reactor Inspector
Nuclear Support Section No. 1
Reactor Operations Nuclear Support
Branch

12/10/78
Date

Dates of Inspection: August 15-18, 1978

Reviewed by:

R. D. Martin

R. D. Martin, Chief
Nuclear Support Section No. 1
Reactor Operation Nuclear Support
Branch

10/10/78
Date1. Persons Contacted

- *J. Dewease, Plant Superintendent
- *H. Abercrombie, Assistant Plant Superintendent
- *R. Metke, Results Section Supervisor
- *L. Blankner, Reactor Engineer
- J. Bynum, Nuclear Engineer
- R. Erickson, Nuclear Engineer
- B. Morris, Nuclear Engineer
- F. Kelly, Nuclear Engineer
- *J. Harness, QA Supervisor

*Denotes present at exit interview.

2. Licensee Action on Previous Inspection Findings

Not applicable to this report period.

3. Unresolved Items

No new unresolved items this report period.

4. Exit Interview

The inspector met with J. Dewease, Plant Manager, and members of his staff as denoted in paragraph 1 on August 18, 1978. The inspector summarized the scope and findings of the inspection. Several highlights of the discussions that took place during the exit interview are the following:

- a. The inspector informed the licensee of an apparent item of noncompliance relating to the qualifications of "Quality Assurance

Records." (See paragraph I.5). The licensee agreed that several changes had been made to QA records without followup the proper instructions governing such changes.

- b. The inspector informed the licensee of an apparent item of non-compliance relating to the adequacy of the procedure for calibrating the Local Power Range Monitor system. (See paragraph I.6) The licensee disagreed with this finding and expressed the position that no action would be taken until receipt of the official notice of violation.

5. Quality Assurance Records Qualifications

TVA Browns Ferry Nuclear Plant Standard Practice BFA-8 (Revision August 8, 1978) requires that all quality assurance records have the following qualifications:

- a. Traceable to the individual(s) responsible for their preparation.
- b. Inspection and test reports shall: (1) identify the inspector or data taker; (2) the type of observation; (3) the results; (4) the acceptability; and (5) the action taken.
- c. Operating logs with entries in ink signed by a responsible individual.
- d. Data Sheets shall: (1) identify the data taker and date the data was taken; and (2) be completely filled out. Where data is not required a notation such as N/A should be entered. Where data is normally required, but not taken, appropriate explanatory remarks verified by initials shall be entered. All blanks shall be addressed.
- e. Changes to data or instructions shall be by a single line through the item, with the initials of the person making the change and the date it was changed. Changes may also be made prior to final approval of an instruction using an opaque correction fluid, with appropriate initials and date included.
- f. Be typed or written in ink.

Following the inspector's review of the data and results of the performance of RTI-4, "Shutdown Margin" by means of the insequence critical method of shutdown margin determination, it appeared that adherence to qualification "e" presented above was not routinely exhibited. Paragraph 3.0, "Results," of the written report for this test contained deletions and changes (made with opaque correction fluid) which were not signed or dated as required by qualification "e". Other than by reliance on the memory of the personnel involved, the inspector was unable to determine whether these changes were made before or after final approval of the results of the test.

The inspector noticed several other instances of failure to sign and date changes during his review of the test results for various other refueling test instructions such as RTI 5, 13, 22 and 26.

Criterion XVII of Appendix B to 10 CFR 50 requires that sufficient records shall be maintained to furnish evidence of activities affecting quality. Standard Practice BFA-8, in its implementation of this criterion, establishes the qualifications that quality assurance records shall have. The various examples of undated and unsigned changes to quality assurance records, as indicated above, do not meet these QA records qualifications and as such are contrary to Criterion XVII of Appendix B of 10 CFR 50 as implemented by Standard Practice BFA 8. This is an item of noncompliance (260/78-22-01).

6. Local Power Range Monitor (LPRM) System Calibration

The LPRM calibration procedure (S.I.4.1.B-3) as presently written, does not constitute a valid "Instrument Calibration" as defined in paragraph I.V.1 of the Technical Specifications in that it does not contain a mandatory requirement for the adjustment of the LPRM output signal to correspond, within acceptable range and accuracy, to a known value of the parameter which the instruments monitor. During the exit interview the cognizant plant reactor engineer indicated that LPRM detector output signals were adjusted following a full tip set only when it was practical. Consequently, it is possible that one could find intervals in excess of 1000 effective full power hours (the Technical Specifications LPRM calibration frequency requirement) during which the LPRM output signal was not necessarily adjusted to "within a acceptable range and accuracy . . ." as required by the definition for "Instrument Calibration" in the plant Technical Specifications.

The inspector requested that the procedure be changed to reflect that output signal adjustment was essential to satisfy the calibration requirements of the Technical Specifications; however, the licensee disagreed maintaining that updating the process computer via a full TIP set was the only concern irrespective of the individual readings on the LPRM detectors throughout the reactor core.

In that the signals from the individual LPRM detectors are fed to:

- a. The APRM subsystem for averaging, indication of core power, and RPS inputs,
- b. The LPRM groups to serve as spares and indication,
- c. The select matrix for assignment of LPRMs, around the selected control rod, for inputs to the Rod Block Monitor (RBM) subsystem, and

d. The process computer and control room indications,

the LPRM system is considered safety related and as such is listed among the "Critical Systems, Structures, and Components (CSSC)" paragraph 18 of Appendix A, Part I in the plant's Operations-QA Manual.

Criterion XI of Appendix B to 10 CFR 50 requires, in part, that a test program be established to assure that all testing required to demonstrate that structures systems and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Additionally, paragraph 6.3.A of the Technical Specifications requires, in part, that surveillance and testing requirements be performed by adherence to detailed procedures that have been prepared and approved for the activity in question. Portions of these requirements referenced above from the Appendix B to 10 CFR 50 and the Technical Specifications, as they relate to the requirements of paragraph 4.0, "Surveillance Instruction Content," of Section 4.5, Part II of the plant's Operations QA Manual. These state, in part, that surveillance instructions shall contain a statement of the surveillance requirements, and that performance of these requirements should provide assurance that the Technical Specifications relating to the system being tested are satisfied. In that surveillance instruction S.I.4.1.B-3 for LPRM calibration does not contain a requirement that the LPRM output signal be adjusted to correspond, within acceptable range and accuracy to a known value of the parameter which the instruments monitor, as required by the Technical Specification definition of "Instrument Calibration," following the performance of a full TIP set, performance of S.I.4.1B-3, LPRM Calibration, as presently written does not provide assurance that the Technical Specifications relating to the system are satisfied and is thus contrary to the requirements of 10 CFR 50, Appendix B Criterion XI and Technical Specifications paragraph 6.3.A as implemented by paragraph 4.0, "Surveillance Instruction Content" of Section 4.5, Part II of the Browns Ferry Plant Operations QA Manual.

This is an item of noncompliance (260/78-22-02).

7. Post Refuel Startup Testing

The inspector reviewed selected portions of the results of the post refueling startup testing program. Portions of the data generated in the performance of the following Refueling Test Instructions was reviewed by the inspector:

RTI-3: Fuel Loading

RTI-4: Shutdown Margin

RTI-5: CRD System
RTI-12: APRM Calibration
RTI-13: Process Computer

Within the areas inspected, no additional items of noncompliance were identified.

8. Plant Shutdown

At the request of the USNRC regional office, the inspector reviewed the circumstances surrounding the scram of Units 1 and 2 which took place while the inspector was on site. At 8:20 a.m. (CST) on August 18, 1978, one of six air compressors suffered a failure which resulted in rapid loss of control air pressure for all three units. The failed compressor had a large hole blown in the cylinder head. Both Units 1 and 2, which were operating at nominal full power experienced inward control rod drifting as a result of the loss of control air and both units were promptly manually scrammed in accordance with emergency procedures. Unit 3 was already shut down so it was not affected. The compressor was isolated and startup preparations were initiated for both Units 1 and 2. The specific cause of the failure was still being investigated by the licensee when the inspector left the site.