



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

Report Nos.: 50-259/87-41, 50-260/87-41, and 50-296/87-41

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: November 2-6, 1987

Inspector: L. R. Moore

12/7/87
Date Signed

Accompanying Personnel: K. R. Jury

Approved by: G. A. Bellisle
G. A. Bellisle, Chief
Quality Assurance Programs Section
Division of Reactor Safety

12/7/87
Date Signed

SUMMARY

Scope: This routine, announced inspection was in the areas of licensee actions on previous enforcement matters, corrective action program and licensee actions on previously identified inspection findings.

Results: One violation was identified for failure to take corrective action.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *D. Burrell, Lead Engineer, Engineering Assurance (EA)
- *A. Capozzi, Manager, EA
 - T. Chapman, Deputy Project Engineer, Division of Nuclear Engineering (DNE)
- *E. Charlton, Supervisor, Quality Assurance (QA)
 - R. Cole, Trend Analysis Coordinator, QA
- *J. Daniel, Plant Operations Review Staff (PORS)
- *M. Emmons, Information Services Specialist
- *R. Erickson, PORS
- *D. Evans, QA Specialist
- *D. Faulkner, Lead Engineer, DNE Conditions Adverse to Quality (CAQ)

Section

- *N. Kazannas, Director, Division of Nuclear QA (DNQA)
- *G. Killian, DNQA, Quality Systems Branch
 - L. Lepisto, Assistant Director, DNE Corporate
- *R. Martin, Modifications Engineer
- *C. McFall, Compliance Specialist
 - D. Miller, Quality Surveillance Supervisor, QA Programs
- *R. Parker, Deputy Director, DNQA
- *A. Pedersen, Office of Nuclear Power (ONP) Task Force
 - R. Peterson, Vendor Manual Control Group Supervisor
- *S. Rudge, Assistant to Site Director
- *J. Savage, Project Engineer, DNE
 - P. Speidel, Project Manager, DNE
- T. Taylor, Quality Engineering Program Supervisor
- *G. Turner, Quality Manager, Browns Ferry (BFN)

Other licensee employees contacted included engineers, technicians, operators, mechanics, and office personnel.

NRC Resident Inspectors

- *G. Paulk
- *C. Patterson

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on November 6, 1987, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee.

Violation, Failure to take corrective action, paragraph 5.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters (92702)

(Closed) Severity Level V Violation 50-260/87-08-01: Failure to Follow Instruction PMI 8.2, Plant Design Change Review, Revision 0.

The licensee's response dated May 15, 1987, was considered acceptable by Region II. The inspector reviewed the corrective action stated in this response. The corrective action permitted delegation of technical review of a design change to a knowledgeable individual rather than the specific cognizant system engineer. This corrective action was incorporated in Revision 1 of PMI 8.2. The inspector concluded that the licensee had corrected the previous problem and developed corrective actions to preclude recurrence of similar problems. The corrective action stated in the licensee's response has been implemented.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Corrective Action (92720)

The inspection reviewed the "old" Conditions Adverse to Quality program and the "new" program initiated March 30, 1987. The volume and backlog closure progress of Corrective Action Reports (CARs) and Deficiency Reports (DRs) were evaluated to assess "old" program resolution performance. It was apparent that the backlog reduction rate had decreased. A status report from the Director of Nuclear Quality Assurance to the Manager of Nuclear Power for the week of October 23, 1987, stated that the number of BFN CAQs was 521, a reduction of seven from the previous week. The average closure rate was 2.3 CAQs per week and a closure rate of 10 per week would be required to support the June 1, 1988, restart date. The onsite QA group tracked only CARs and DRs. Only one CAR and three DRs had been closed in the last eight weeks. It appeared that old program items were low priority. Site QA recently added 30 CARs to the escalation program. These items were previously tied to an event rather than a date, Unit 2 startup previously scheduled for October 1, 1987, and when the event schedule changed the items were designated as late. Discussion with management indicated that many of the remaining CARs were large scope multi-unit items and that decisions were to be made on how to administratively approach item closeout.

Additionally this inspection reviewed the implementation and effectiveness of the licensee's new CAQ program which is currently encompassed by a Conditions Adverse to Quality Report (CAQR) system. The following are the programmatic guidelines for processing Conditions Adverse to Quality Reports (CAQRs):

- Nuclear Quality Assurance Manual (NQAM), Part I, Section 2.16, Corrective Action, Revision 3.
- Site Director Standard Practice (SDSP)-3.7, Corrective Action, Revision 2.
- Nuclear Engineering Procedure (NEP)-9.1, Corrective Action, Revision 1.

The CAQR system was initiated at Brown Ferry's (BFN) on March 30, 1987. An inspection was performed in June 1987 regarding CAQ implementation and effectiveness (NRC Report 50-259, 260, 296/87-24). At that time there were 348 CAQRs initiated (114 had been closed) and it appeared that although there were some programmatic weaknesses, the staff commitment would enable the system to accomplish its function. At the date of this inspection, November 2-6, 1987, 1051 CAQRs had been issued, 159 were determined to be significant and, 427 have been closed. Ten of the closed CAQRs were processed as significant CAQRs. The CAQ program implementation with respect to volume, time frames and completion trends was not fully effective. Notably, the high percentage of late CAQRs and increasing number of escalations demonstrated that the licensee had not yet achieved adequate control of the CAQ program. Inadequate management attention and staff transitions appeared to be contributing factors to the CAQR program implementation inadequacies.

CAQR system trending and tracking appeared to be well done. A weekly site Quality Managers Report identifies trends in system activity and responsible group performance. The site QA group developed this report as part of its duties in monitoring and developing onsite CAQRs. This report clearly displayed via line graphs, bar charts, and pie charts, the performance of plant groups and overall plant performance, providing for management focus on areas or groups requiring improvement. Adverse trends identified by QA were presented to the responsible group. For example, significant CAQRs were issued in June 1987 against Materials (BFP 870339), Quality Control (QC), (BFP 870340) and DNE (BFP 870326) regarding timeliness problems. Both the Materials group and QC resolved their problems and the CAQRs were closed. The DNE CAQR was open and was itself delinquent. An additional tool of QA to resolve CAQRs was to escalate items which are greater than 30 days late. Escalated CAQRs are reviewed in weekly meetings which include representatives from QA, DNE, Modifications, and the Assistant Site Director. A total of 209 items have been escalated, with 136 of these items subsequently deescalated as a result of this additional attention. As of this inspection 73 CAQRs were on escalated status. It appeared the escalation process was effective while the volume of escalations remained manageable. Although the QA group provided adequate identification of ineffective corrective action implementation, it appeared that resolution of the identified poor performance requires additional management attention.

Programmatic reviews were performed onsite by the Quality Surveillance group. This group had performed 10 CAQ program surveillances since April 1987. Survey QBF-S-87-0375 was a review of lower tier discrepancy identification systems utilized at BFN to verify the proper corrective action mechanism was employed for the condition identified. These lower-tier systems were used to document discrepancies that were not considered conditions adverse-to-quality and thereby reduce the volume of items processed via CAQ controls. Generally, the survey findings indicated that not all the lower-tier systems effectively referenced or reflected criteria to identify conditions adverse to quality. For example, a condition can be correctly identified and processed as a drawing deficiency per the appropriate site procedure while this same condition fits the criteria for a CAQR. In this case the discrepant/adverse condition would not be processed via the more stringent CAQ controls nor entered into the single approved trending system as required by plant commitment in the Topical Report. Such potentials existed in a number of the lower tier discrepancy identification programs. The following programs were found to be inadvertently processing identified conditions which met the established CAQR criteria:

Maintenance Requests	MR
Receipt Rejection for Documentation	RRD
Notice of Indications	NOI
Drawing Discrepancies	DD
Problem Identification Reports	PIR
Operational Experience Reports	OER

Of particular note were the MRs, due to the potential level of conditions which can be misidentified, and the PIRs, due to the volume which have been misidentified. The MR and CAQR procedures descend directly from NQAM procedures which are themselves not in alignment with respect to the criteria for CAQRs and MRs in that, these criteria appear to overlap. The MR procedures, NQAM, and site procedures do not acknowledge or cross reference the CAQR procedures. This results in the potential (which has occurred) for a CAQR condition being initiated and resolved via the MR process. This again circumvents CAQ controls and the approved CAQR trending mechanism (TROI). Changes in the site procedures initially require a change in the corporate level procedures. The inspector reviewed a draft Quality Notice to adjust the CAQR procedure. Discussion with QA onsite indicated that revision to the NQAM to correct this misalignment was expected by January 1, 1988. Currently QA will continue to monitor the lower tier systems to identify potential CAQR conditions.

The PIR system which by procedure was described as an information system, appeared to have been used to circumvent the CAQR program despite a procedural requirement to review PIRs for potential CAQRs. This condition was identified by a significant CAQR (BFP 870729) dated September 9, 1987. Corrective action for this item will be verified during a resurvey by the site surveillance group scheduled for the fourth quarter of 1987.

Despite the monitoring and escalation activities by onsite QA, BFN had not demonstrated effective control of the approved corrective action program. Primarily there was a timeliness problem. Approximately 50 percent of all CAQRs were delinquent. Delinquent is procedurally defined as any action which has not met the time frame requirements. For example, the November 2, 1987, Site Quality Manager's Summary Report stated there were 624 CAQRs open and 312 of these were delinquent. Although DNE was responsible for the greatest portion of CAQRs and subsequent delinquencies, other plant groups' performance was also less than effective.

<u>Group</u>	<u># CAQR</u>	<u># Late</u>
Division of Nuclear Engineering	360	194
Division of Nuclear Construction	4	1
Nuclear Safety and Licensing	3	3
Quality Control	4	3
Maintenance	7	3
Technical Support Services	11	7

Delinquencies originated primarily in the resolution/approval phase of the CAQR process. Generally there are no extensions granted in this stage. Up to three extensions can be granted for the completed action commitment dates with Site Manager approval; subsequently there were few delinquencies from this phase. A small percentage of CAQRs (10 percent) occurred in the initiation stage when a greater time period was required to determine if a potential CAQR merited identification as such. The licensee indicated that a CAQR which interfaced several disciplines or plant groups frequently required several time consuming resolution/approval iterations before a resolution achieved consensus.

Closely linked to delinquencies was the increasing number of escalations required, from 42 in September 1987 to 73 at the date of this report. Escalation occurs on CAQRs 30 days after an item has been identified as late. Considering the current 312 CAQRs which were late, the potential exists for a substantial steady increase in the number of escalated items to the point where the escalation process will either become overburdened or require further prioritization. These negative trends, high percentage of late CAQRs and increased escalation, are substantial indicators that BFN had not achieved effective control of the corrective action program. Although QA appeared to function well in monitoring progress and identifying performance trends they were unable to unilaterally enforce corrective action program performance by other plant groups. This aspect of the BFN corrective action program appeared to require a stronger management presence.

Due to DNE's greater responsibility with respect to the site corrective action program, this group's performance was individually reviewed. DNE currently has responsibility for 360 CAQRs (as of November 2, 1987), which represents 58 percent of all open CAQRs at BFN. DNE had 194 delinquent

CAQRs, which represents a 54 percent delinquency rate for open DNE CAQRs, and represents 62 percent of the delinquent CAQRs at BFN. DNE is also responsible for 62 percent of delinquent CARs and 48 percent of delinquent DRs.

During the inspection conducted in June 1987 (NRC Inspection Report Nos. 259, 260, 296/87-24), it was identified that DNE had been issued a significant CAQR, BFP 870326, due to a QA identified adverse trend relating to DNE delinquencies. At that time, the number of delinquent CAQRs was progressively increasing. The major thrust of the corrective action was to establish a 32 member, cross-discipline group dedicated to CAQR evaluation and resolution. Additionally, it was expressed by DNE management that the negative trends identified would begin to reverse in a very short time frame from the origination of this group in June. DNE delinquencies have continued to increase, and CAQR corrective actions have been inadequate, and the significant CAQR identified above itself is now delinquent. Additionally, two CAQRs have been written (BFP 870830 and BFP 870912) concerning DNE's delinquency in performing Potential Generic Condition Evaluations and Management Reviews within the required time frames, respectively. These three CAQRs concerning delinquency are indicative of inadequate DNE CAQR performance relating to corrective action.

This situation was discussed with DNE management, and they were aware of the situation. DNE management expressed to the inspector that there were varying causes for the delinquencies. These included: losing members of the CAQR review team when TVA changed contracting methodology; additional responsibilities (other than CAQRs) placed on this team; and changing CAQR coordinators within DNE. These reasons may be causes for the high numbers of delinquencies within DNE; however, they were conscious management decisions and indicate a lack of management attention being focused on the CAQ program within DNE.

DNE management expressed concern over the number of delinquencies as well as CAQRs addressing these delinquencies; however, the corrective actions identified in the CAQR written in June have not changed, and the "multi-discipline group under one manager dedicated to disposition, track, status, monitor and take management action to ensure meeting CAQ commitments", is still not at full strength and based on CAQR trends, is not effective. Also the dedication of resources to eliminate the backlog of CAQ actions has been insufficient.

The licensee's QA organization has identified adverse trends relating to CAQRs to various levels of DNE management; however DNE had not responded. There were three memorandums sent to DNE (June 18, 1987, July 20, 1987, and September 25, 1987) identifying adverse trends in DNE CAQRs relating to CAQR delinquency, high numbers of CAQRs issued to DNE, and the high number of significant CAQRs with procedural error as the identified root cause. QA has offered to meet with DNE and to establish a Performance Action Team (PAT) to identify and correct the causes of these trends.

However, DNE had not responded to these concerns. As a result, QA was issuing a significant CAQR addressing these trends with recommendations to evaluate policy, procedures, organization, and training to correct these deficiencies. Additionally, this significant CAQR and a letter detailing DNE's unresponsiveness is being forwarded to the Site Director and the Corporate Director of Quality Assurance.

Several measures have been initiated to reduce DNE delinquencies. The assistant to the Site Director now holds a weekly meeting with DNE and modifications management to resolve delinquent and escalated CAQRs (as discussed previously). Additionally, an October 15, 1987, memo sent to BFNs middle management concerning all delinquent CAQRs should help alleviate confusion within departments over CAQR status as well as drawing more attention to CAQR delinquencies. It was expressed to the inspector by the licensee that these memorandums will be sent to management on a periodic basis. DNE has now implemented a two part plan to handle CAQRs. The first part of this plan involves reducing the backlog of CAQRs; 15 personnel have been assigned from Knoxville, TN, and are responsible for analyzing the current status of these backlogged CAQRs and processing and completing corrective action. The second part of the plan involves DNE tracking current status to meet timeframes for newly initiated CAQRs, and has developed production curves to try and reduce the current backlog of delinquent CAQRs while not falling behind on current CAQR responsibilities. It was expressed to the inspector that some backlogged CAQRs will be resolved under a task performance contract; however, this contract has not been awarded and the backlog is not being reduced in size during the time it is taking to award this contract. These measures will be evaluated during future inspections.

The lack of effective corrective action for significant CAQRs BFP 870326, the issuance of two additional significant CAQRs concerning DNE delinquencies (BFP 870830 and BFP 870912), and DNE's unresponsiveness in addressing adverse trends, is indicative of significant corrective action inadequacies within DNE. These inadequacies are identified as violation 259,260,296/87-41-01, Failure to Take Corrective Action.

6. Licensee Action on Previously Identified Inspection Findings (92701)

- a. (Closed) Inspector Follow-up Item 50-259,260,296/87-08-02: Justification In Writing For The Continuance Of BFN Temporary Alteration Control Forms (TACF) Controls Vs. Sequoyah methods.

This item identified ambiguities in the requirements for TACF Unreviewed Safety Question Determination (USQD) reviews. The controlling procedure for USQD, SDSP 27.1, Evaluations of Changes, Tests, and Experiments, Revision 0, stated that DNE would be required to perform USQD reviews of TACFs. This procedure was approved on August 21, 1987, following the identification of this item.

- b. (Open) Inspector Follow-up Item 50-259, 260, 296/84-50-03, Update And Control Of All Vendor Equipment Manuals

This item identified the lack of vendor manual control at BFN. Since that time (1984) an extensive program was developed to control these manuals. A commitment is due February 1, 1988, to have a specific number of manuals under control. This item will remain open until confirmation of the February commitment.

- c. (Closed) Inspector Follow-up Item 50-259, 260, 296/84-50-02, Review Program For Revising Manuals And Instructions

This item identified the lack of a program to review site instructions and procedures when vendor manuals are updated. As a result of the vendor manual control program, plant instructions and procedures were reviewed by the licensee to identify manuals required to be administratively controlled. Additionally, the inspector reviewed a sample of a matrix that was developed by the licensee which cross-references manuals and site procedures.

- d. (Closed) Inspector Follow-up Item 50-296/84-50-01: Licensee To Perform Audit Of Alarm To Verify Accuracy Of Alarm Points

This item required a QA audit of sampling alarm points on the Sequence of Events Recorder (SOE) for Unit 3 due to discrepancies noted on the printout following a plant scram. Audit number SP-30-QAS-85-537 verified and corrected SOE alarm setpoints per Surveillance Instruction 4.1.A.8. The audit was dated July 8, 1985.

- e. (Open) Inspector Follow-up Item 50-259,260,296/84-49-02: Modifications To Reactor Protection System Power Supply Monitoring System

This item addressed NRC approval and Technical Specification changes regarding a modification of the Reactor Protection System Power Supply Monitoring system. These modifications are in various stages of completion on all three units. NRC approval has been received for Units 1 and 2. NRR has requested delay in submitting Technical Specification approval until physical modifications are completed.