



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

Report Nos.: 50-259/88-36, 50-260/88-36, and 50-296/88-36

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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 at Browns Ferry Site near Decatur, Alabama

Inspection Conducted: December 8-31, 1988

Inspector: *W. S. Little*
for D. R. Carpenter, NRC Site Manager

4/7/89
Date Signed

Accompanied by: E. Christnot, Resident Inspector
W. Bearden, Resident Inspector
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Approved by: *W. S. Little*
W. S. Little, Section Chief,
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4/7/89
Date Signed

Scope: This special, announced inspection assessed the conduct of plant operations, management control over plant activities, and the work control process, in order to make a determination of licensee readiness for fuel load. Evaluations were based on control room observations, observation of shift turnovers, accompaniment of watch-standers on their tours and rounds, personnel interviews, observation of surveillance tests, and direct observation of work items from tagout clearance installation through the post-maintenance testing phase and return to service.

Results: The inspection concluded that licensee activities in the areas of fuel load readiness were adequate to support fuel load. As the licensee approached fuel load, continuing improvement was noted in the conduct of operations, particularly in the areas of work control, shift turnovers, and effective communications.

The following violations were identified:

VIO 259,260,296/88-36-01: Violation of Technical Specification (TS) Requirements to Properly Establish and Implement a Procedure for Configuration Control (paragraph 5)

VIO 259,260,296/88-36-02: Violation of TS 6.8.1.1.a, for Failure to Follow SDSP 3 15 Regarding Qualifications Requirements for Independent Reviewers of Electrical Lineups (paragraph 8)

Adequate corrective action to support fuel load was taken for each of the violations. Final resolution of the violations is required prior to startup.

The following violations satisfied the NRC enforcement policy criteria for discretionary enforcement and were not cited:

LIV 260/88-36-03: Failure to Comply With The Logkeeping Requirements of Procedure PMI-2.12 (paragraph 2)

LIV 260/88-36-04: Failure to Adequately Document Identities of Persons Performing and Verifying Clearance Hold Order System Alignments (paragraph 7.e)

One unresolved item* was identified during the inspection:

UNR 259,260,296/88-36-05: Adequacy of Corrective Actions in Response to NRC Violations at Sequoyah in Area of Configuration Control (paragraph 5)

One Inspector Followup Item was identified:

IFI 259,260,296/88-36-06: Review of Operability Determinations for Nonconforming Items (paragraph 7.f.)

The following aspects were considered to be particular strengths of the licensee program:

- Effectiveness of operations shift turnovers (Paragraph 2)
- The creation of a Work Control Center in February 1988 and the refinement of that process in order to coordinate plant equipment operations and to control clearances (Paragraph 7.b)

*An unresolved item is an issue for which additional information is required in order to determine if the item is a violation of regulatory requirements.

Configuration control was identified as an area of significant weakness, requiring substantial management attention. The licensee had failed to establish an administrative procedure governing system status control in accordance with TS requirements. The lack of a properly reviewed controlling procedure, the licensee's practice of incorrectly initialling steps in the Operating Instruction's Valve and Electrical Lineup checklists as completed verbatim without indicating that components were actually out of position, the lack of adequate reviews of deviations to initial checklist performances, the use of non-electrically qualified AUOs for independent verification, and the failure to retain essential system status documentation as quality records, raised questions about the validity of the completed lineups on file for systems required for fuel load. Prior to fuel load, the licensee was requested to demonstrate assurance of system status control. The licensee's commitments to resolve these concerns are described in paragraph 5.

REPORT DETAILS

1. Persons Contacted

Licensee Employees:

O. Kingsley Jr., Senior Vice President, Nuclear Power
C. Fox, Vice President and Nuclear Technical Director
*J. Bynum, Vice President, Nuclear Power Production
*C. Mason, Acting Site Director
*G. Campbell, Plant Manager
H. Bounds, Project Engineer
*J. Hutton, Operations Superintendent
*T. Temple, Manager - Nuclear Engineering
*D. Mims, Manager - Technical Services Supervisor
*G. Turner, Manager - Site Quality Assurance
*P. Carrier, Manager - Site Licensing
*J. Savage, Compliance Supervisor
A. Sorrell, Site Radiological Control Superintendent
R. Tuttle, Site Security Manager
L. Retzer, Fire Protection Supervisor
H. Kuhnert, Office of Nuclear Power, Site Representative
T. Valenzano, Restart Director

Other licensee employees or contractors contacted included licensed reactor operators, auxiliary operators, craftsmen, technicians, and public safety officers; and quality assurance, design, and engineering personnel.

NRC Attendees

*D. Carpenter, Site Manager
*W. Bearden, Resident Inspector

*Attended exit interview

Acronyms used throughout this report are listed in the last paragraph.

2. Conduct of Plant Operations

The conduct of plant operations and control room activities were evaluated against TS requirements; Browns Ferry PMI 12.12, "Conduct of Operations"; and good operating practices. This included observation of overall control room decorum, operator cognizance and responsiveness, shift turnover, control room manning, and proper use of logs. The NRC inspectors conducted sustained control room observation activities on at least two occasions per shift, including backshift and weekend coverage, during the period of December 8-23, 1988.

The following observations were made:

- The shift manning requirements of TS were consistently met.
- Qualified reliefs were present whenever operators left the controls.
- Overall control room decorum and demeanor were good.
- Shift turnovers were very good. They were professional and thorough, making good use of checklists to ensure the transfer of sufficient, accurate information regarding plant conditions. Panel walkdowns and reviews were appropriately conducted. The inspectors found that the checklists accurately reflected plant conditions.
- System status boards were accurately updated. Operator cognizance of plant status was acceptable.
- Operation's communication was good. During the performance of SIs, orders were clear, precise, acknowledged and repeated back.
- Alarms and annunciators were generally responded to in a considered, controlled fashion. The first-out printer was out of service during the inspection and could have contributed to an operator initially failing to recognize the source of a half scram that occurred on December 9, 1988. The operators announced that the half-scram was caused by SRM High Level (it was actually an APRM High/Inop Channel Trip), which resulted in subsequently receiving a full scram.
- Test personnel demeanor and communications were not appropriate for an operating plant. At times, the use of nicknames and humorous responses detracted from what was otherwise good control room decorum.
- On occasions, communication could have been improved through the use of headsets rather than several people talking simultaneously over handsets.
- Control room access was adequately restricted to persons having legitimate business.
- At times, traffic noise through the walkway outside the control panels was excessive. Whenever possible personnel should use other routes.
- Control room area housekeeping was good.
- The Shift Operations Supervisor's desk had recently been relocated to the control room from an office adjacent to the control room. This appeared to have positive effects on control room activities.
- Operators displayed a conservative, questioning approach to surveillance testing activities, adhering to procedures, and contributing to successful SI performance.

- Four concerns with the keeping of logs were identified:

On December 13, 1988, an RHR pump breaker failed, but the log did not identify the affected pumps.

On December 15, 1988, the UO and ASOS logs did not record the start of 2-SI-4.5.A.1d(11), "Core Spray Flow Rate Loop 2," as late as 2½ hours after the start of the test.

On December 14, 1988, the log did not identify that an SGBT Train C start was unauthorized.

On December 14, 1988, the ASOS log in the control room did not state the location of the ASOS who had left the control room to conduct activities on the refueling floor.

The overall result of this part of the inspection indicated that licensee performance in this area supported their readiness for fuel loading. The keeping of logs appeared to be an area of weakness, and the failure to promptly log the start of core spray test 2-SI-4.5.A.1.d(II) on December 15, 1988, was a failure to follow sections 4.4.1 and 2.2.10 of PMI-2.12, "Conduct of Operations". When the concerns about the logs were brought to the attention of Browns Ferry management, immediate corrective action was taken and improvement in the quality of the logs was subsequently noted by the inspectors. NRC management review of this violation has concluded that this instance was of minor safety significance, and that the licensee initiated appropriate corrective action. Therefore, in accordance with the NRC enforcement policy, no violation will be issued. The inspectors will continue to monitor this area. (LIV 260/88-36-03)

3. Surveillance Testing

The NRC inspectors observed portions of the performances of the following SIs:

- 2-SI-4.2.B-45(A)(I)(II), "RHR Loop I, II Logic System Function Test"
- 2-SI-4.5.A.1.D(II), "Core Spray Flow Rate Loop 2"
- 2-SI-4.2.C(A), "Instrumentation that Initiates Rod Blocks/Scrams Source Range Monitor (SRM) Calibration and Functional Test"
- 2-SI-4.2.C.3(E), "Instrumentation that Initiates Rod Blocks/Scrams Intermediate Range Monitor (IRM) Calibration"
- 2-SI-4.2.C-4(C), "Instrumentation that Initiates Rod Blocks/Scrams Source Range Monitors (SRM) Calibration and Functional Test"

- 2-SI-3.2.10 H, "Verification of Remote Position Indicators for Residual Heat Removal System Valves"

Many of the surveillance procedures in use during the NRC inspection were being performed by the licensee for the first time. These procedures had been walked through to verify their adequacy prior to use. It appeared that an excessive number of temporary changes had to be made for procedures which had been previously verified as being correct. The NRC inspector reviewed the Immediate Temporary Changes (ITCs) written against selected surveillance procedures and considered many of the changes to be significant, in that they involved incorrect component numbers and steps which were not adequate to perform their intended purpose. Many of the procedural deficiencies corrected by the ITCs were identified and resolved by the control room operators, through consulting applicable system drawings and other references. For example, RHR Logic System Surveillance 2-SI-4.2.B-45 A (I) (II) contained steps to verify that certain contacts had opened by verifying that no continuity existed between two particular terminals. As the procedure was originally written, the open contacts could not be verified because a parallel closed loop existed in the circuit. To satisfy the intent of the procedure, an ITC was written to remove the indicator lightbulb from the parallel portion of the circuit. Interviews with operations personnel indicated that the frequent need for ITCs was a burden.

The NRC inspector expressed concern to management regarding the level of reliance on operators to identify and correct inadequate procedure steps. Management responded that they were aware of this recurring problem. Engineering personnel had been assigned to work closely with the personnel running surveillance tests to aid in identifying and resolving this type of procedural problem.

The NRC inspector reviewed the test deficiencies associated with Source Range Monitor Surveillance 2-SI-4.2.C-4(C). During the performance of the SI, the neutron source used to establish the discriminator setting had been moved before the surveillance was completed. Therefore, certain annunciators associated with SRM low count rate could not be cleared during the restoration of the system to normal. While witnessing the performance of Section 7.13.27, the NRC inspector observed that Test Deficiency #5 had been initiated to address seven steps of the procedure which could not be performed with the SRM downscale. The NRC inspector was told that the cognizant engineer was not planning to require the steps identified in TD #5 to be reperformed for the SI to be considered complete, because the test deficiency resulted from a known system condition and it was assumed that all the annunciators would have properly cleared had sufficient neutron counts been available. This was inconsistent with a thorough, conservative approach to plant activities.

The NRC inspector questioned licensee management regarding the planned disposition of Test Deficiency #5 to the SRM surveillance. After evaluation, the licensee reported that two of the procedure steps addressed by TD #5 had been reidentified as TD #7 and would be evaluated

further to determine if reperformance was required. The other test deficiencies written against the procedure were also reviewed by the inspector and discussed with cognizant licensee personnel. No other problems were identified. The adequacy of test deficiency dispositioning will be given additional review during future NRC inspections.

No violations or deviations were identified during the observations of surveillance testing.

4. Implementation of Reportability Requirements

The NRC inspector reviewed the LREs generated during the period of the inspection to verify adherence to reporting requirements. No deficiencies were identified in the reportability determinations.

As a specific example, the NRC inspector noted that on December 14, 1988, two SBT trains were simultaneously inoperable and the licensee immediately complied with the restrictions in the appropriate TS action statement. When the cause of the low flow was identified, and determined to be reportable, the licensee promptly reported the incident.

No violations or deviations were identified.

5. System Status Control

The NRC inspector determined that an Operations Section Instruction letter, OSIL 43, "System Status Control", was the document governing the configuration control process and the completion of OI checklists for component alignment. TS 6.8.1.1.a requires that the applicable procedures recommended in Appendix A of Regulatory Guide 1.33 be established. Administrative procedures for the control of equipment are required by Appendix A of Regulatory Guide 1.33. TS 6.8.1.2 requires that each administrative procedure required by TS 6.8.1.1.a shall be reviewed by PORC. As an OSIL, the procedure administratively governing system status control was issued by the Operations Manager without the level of review and approval required by TS. Section 5.4.5 of the NQAM, Part III, specifically states that section instruction letters are not to be used in areas where review in accordance with TS is required. The failure to have a procedure as defined in the NQAM to administratively control activities controlling system status is considered to be a violation of TS 6.8.1.1.a. and TS 6.8.2.1 (Violation 259,260,296/88-36-01). Resolution of this item was identified as a requirement for fuel loading.

The inspector identified the following deficiencies in the configuration control program as implemented by OSIL-43:

- System alignment checklists were being initialed even though the component was not positioned in accordance with the checklist. No indication was made on the checklist to identify that a TACF, clearance sheet, or an abnormal status sheet existed that documented the actual position of the components; or that the component was not

in the checklist position because the system was running. This was contrary to PMI 12.12, "Conduct of Operations," which states that initialling a procedure step means that the step was completed "as stated."

- Deviations from OI checklist steps during initial checklist performance did not receive the level of approval required by TS for a temporary change to a procedure.
- Abnormal Status Sheets controlling deviations from the specified positions during OI checklist performance were not being controlled as quality assurance records and were discarded when the deviations were cleared.

The inspection findings described above were discussed with and acknowledged by plant management, and are to be addressed with the implementation of an adequate configuration control procedure as corrective action for violation 259,260,296/88-36-01.

On December 28, 1988 NRC and TVA management had a telephone conversation to determine the actions needed to resolve these concerns prior to fuel loading. TVA agreed to do the following prior to fuel load:

- Issue a new PORC approved system status control procedure, plant managers instruction (PMI) 12.15 "System Status Control."
- Perform PMI 12.15 on five selected systems.
- All deviations found during the initial system alignments using PMI-12.15 will be documented and receive the same technical review as a procedure change.
- All documentation required by PMI-12.15 will be QA records. This will allow for a clear and auditable trails of system status control.

TVA management stated they were confident that BFN was ready to refuel the Unit 2 reactor based on the existing alignment of the fuel load systems. This confidence was based on the following:

- During the system pre-operability checklist (SPOC) program, QA reviewed portions of all the operations' checklists for the systems required for fuel load. This review resulted in one finding related to valve positioning. This finding was made early in the SPOC process and resulted in a heightened awareness as to the importance of proper system alignment. No other component mispositioning had been identified.
- As part of the SPOC program and in preparation for fuel load activities, an extensive amount of testing had been conducted. Most of this testing was in the performance of surveillance instructions

and identified no system operation problems resulting from lack of system status control.

- As a result, of the identified NRC concerns, five systems were reviewed for proper alignment. These systems were core spray, residual heat removal, diesel generators, standby gas treatment, and standby liquid control. All operations' checklists were performed on these five systems and no alignment problems were found.

TVA documented the telephone conversation in a letter to NRC dated December 29, 1988.

NRC management concluded that while initially the licensee's system for system configuration control was unacceptable, that program changes and commitments made during this inspection period were acceptable and that system status and alignments were adequate for fuel loading.

The inspectors noted that violations of NRC requirements similar to some of those described above had previously been cited at TVA's Sequoyah facility. Per 10 CFR Part 50, Appendix B, Criterion XVI, and implementing commitments and procedures, corrective actions should have been taken at Browns Ferry in response to the violations identified at Sequoyah. The adequacy of the licensee's corrective actions at Browns Ferry in response to configuration control violations at Sequoyah will be assessed during future NRC inspections and will be tracked as Unresolved Item 259,260,296/88-36-05.

6. Management Control

The licensee's onsite management organization has experienced several changes within the last year including assignment of a new Plant Manager, Operations Manager, and Maintenance Manager. The new Site Director had not yet been announced at the time of the inspection. Interviews with senior managers indicated a well rounded level of management experience and technical ability. With the exception of the NRC concerns about system configuration and status control, there was evidence of improvement in major program areas.

The licensee's commitment to improved management control of activities was evidenced by the recent decision to relocate the Shift Operations Supervisor into the Control Room directly adjacent to the Unit 2 controls area. Additionally, the Plant Manager and other key managers have been observed frequently on plant tours and were usually able to discuss first-hand observations on such issues as maintenance housekeeping, and operational activities. Another positive step was the ongoing program to reduce the number of outstanding open TACFs. The backlog of open TACFs had been allowed to increase to a level too large to allow proper administration of the program. Within the last year the licensee has made significant progress in the reduction of outstanding TACFs (see paragraph 9).

With respect to routine shift activities, management has effectively promulgated the required degree of professionalism expected among its operations staff (see paragraph 2) and exercised appropriate monitoring techniques to assure that no "dual-system" of conduct exists for back-shifts. Management has maintained an awareness of the level of secondary activity assigned to each shift with respect to support for maintenance, system return-to-service activities, testing, and modifications to ensure that these activities do not interfere with the primary duties of conducting plant system manipulations and monitoring. The NRC inspectors' observations, including back shifts, are that shift and control room activities are conducted in a consistent and acceptable manner.

7. Work Control Activities

To ascertain whether the licensee was implementing a program of work control adequate to support fuel load, the NRC inspectors reviewed administrative controls, evaluated maintenance organization work control procedures, reviewed maintenance work requests, and observed personnel in their daily activities. The inspection evaluated maintenance organization work control procedures, and the interface between the Maintenance organization and Operations. Interviews were conducted with maintenance supervisors, planning supervisors, system evaluators, and a number of craftsmen, foremen, and supervisors in the mechanical, electrical, and instrumentation/controls areas.

a. War Room Meetings

The licensee had established an upper level management control center, referred to as the War Room, to provide constant monitoring of all plant activities associated with fuel load and pre-fuel load milestones, and to facilitate communication between managers of interfacing organizations. The NRC inspectors attended a number of War Room meetings to determine whether day-to-day plant activities and planned future activities were being adequately disseminated to the applicable staff. Good participation and interface between plant groups was observed. Overall, members of the plant management staff appeared cognizant of plant status, ongoing or planned maintenance and/or testing activities, and general problem areas. There was good management control at the meetings and adequate multi-disciplinary attendance. The level of attention to detail displayed during the War Room meetings helped to ensure that individuals were well aware of their specific responsibilities and assisted in the dissemination of information. The NRC inspectors observed adequate communication between members of plant management.

b. Work Control Center

In February 1988, the licensee established a Work Control Center (WCC) to coordinate plant equipment operations and control clearances. The WCC took an administrative burden away from the

Operations crew, and was considered by the NRC inspectors to be a strength of the licensee program.

During the period of this inspection, the NRC inspectors were informed that a major change in the method of controlling work activities was in progress. The revised work control program is described in procedure SDSP 7.9, "Integrated Schedule and Work Control". Revision 0 of this procedure was effective December 1, 1988.

Although the effectiveness of the revised program could not be evaluated until after full implementation and a settling period, the NRC inspectors concluded that licensee work control activities were adequate to support fuel load based on the following:

- Establishment of the War Room to provide constant monitoring of all plant activities associated with fuel load and pre-fuel load milestones.
- The revised work control methodology being based on the program used successfully at TVA's Sequoyah facility. A number of the work control personnel had previously worked at Sequoyah under that program.

Prior to criticality, a further review of work control activities will be conducted.

c. Work Planning Effectiveness

The NRC inspector evaluated whether the coordination among plant organizations and feedback to appropriate levels of management were adequate to minimize the out-of-service time for critical components, limit entry into TS action statements, and control TS LCOs.

During this assessment period, taking equipment out-of-service to perform specific work was done on a limited basis due to the emphasis on return to service in preparation for fuel load. This NRC inspection activity consisted of a review of procedure SDSP 7.9, "Integrated Schedule and Work Control"; observation of the work control group's daily activities; and walk through of the processing of MRs. The NRC inspector noted that status updates of work activities were being made to senior managers on a daily basis including weekends.

The NRC inspector also assessed whether responsibility and accountability for plant systems and components had been accepted by the applicable licensee personnel, and whether responsibilities for addressing discrepant issues were being clearly assigned.

The NRC inspector reviewed the methodology outlined in procedures SDSP 2.12, "Document Distribution Control"; SDSP 6.7, "Post

Maintenance Test Program; SDSP 7.9, "Integrated Schedule and Work Control"; and SDSP 14.9, "Equipment Clearance Procedure". The NRC inspector concluded that these procedures, together with the qualifications of the assigned personnel, should be sufficient to adequately control work.

The effectiveness of communications during work planning and implementation was also assessed by the NRC inspectors. This activity was monitored throughout the assessment period and the NRC inspectors observed a high degree of management involvement and effective use of the system evaluators. Communications between the work control shift managers and the integrated schedulers appeared to be effective in conveying to personnel what to work, when to work it and in ensuring that supporting activities took place. On several occasions, various personnel involved in this activity were observed updating the status of ongoing and upcoming work in a timely manner, and effectively communicating the status information to applicable managers or groups.

d. Tracking of Outstanding Work Items

The NRC inspectors reviewed the day to day activities of the Work Control Group and observed that the licensee used a computer input to track each item identified as a maintenance request or a preventive maintenance item. The system evaluators maintained continuous monitoring of the outstanding work items associated with their assigned systems. This process appeared to be adequate for those items identified as being needed for fuel load. The Work Control Group issued four-day schedules listing items by systems and/or support activities.

e. Clearance Hold Orders

The NRC inspectors assessed the effectiveness of the clearance process by interviewing personnel who coordinated and performed hold order tagging, reviewing the procedural controls over the clearance process, and auditing selected clearance hold orders for adherence to procedures and for good practice.

In reviewing the clearance records, the NRC inspector identified that the clearance sheets contained numerous illegible initials signifying the performance and independent verification of hold order tagging. The names of these individuals were not identified on the document. In the efforts to determine the identities of approximately 15 selected individuals who had initialled steps on the clearance forms, several licensee personnel had to be interviewed at length, some contradictory information was obtained, and the identity of one individual was never established. Also clearance sheet 2-88-1358 dated December 2, 1988 had no initial recording that independent verification had been performed. The failure to provide an auditable record of an activity affecting quality was a violation of 10 CFR

Part 50, Appendix B, Criterion XVII, Quality Assurance Records. When the issue was identified to the licensee, corrective action was initiated. No system misalignments were identified, and the issue was primarily administrative resulting in the actual safety significance being minimal. Therefore, per the criteria of the NRC enforcement policy, this item was not cited. (LIV 260/88-36-04). The licensee was requested to evaluate this violation for possible fuel load implications concerning the qualifications of individuals performing work affecting quality. The licensee was also requested to review other types of plant quality records to ensure that similar traceability problems did not exist.

NRC inspectors identified that electrical lineups on clearances were being independently verified by individuals who had not received the 2B electrical training required in order to be qualified to perform the verifications. This issue is discussed in paragraph 8.

f. CAQR Tagging

The NRC inspector, during plant walkdowns, observed several examples of Nonconforming Item tags on installed equipment. These tags contained a CAQR number and described the nonconformance. There were check blocks for PORS determination of potential impact on operability and whether the component could be used or not. None of the tags had any conditional release statement on them. The licensee explained that conditional statements would be on the CAQR. The NRC inspector reviewed the TVA Nuclear Quality Assurance Manual, Part I, Section 2.15, "Nonconforming Materials, Parts or Components" and the subtier document BFN SDSP 3.8, "Nonconforming Material, Parts or Components" and determined that they were at odds with respect to conditional releases.

The NQAM requires a "Conditional Release Log" to be attached to the "Nonconforming Item Log" and the accompanying form to be filed prior to use of that component under conditions less than fully operable. The licensee indicated that they were in the process of revising SDSP 3.8 to implement the requirements of the NQAM; however, the revision had not been released. Prior to the conclusion of the inspection, an Immediate Temporary Change was issued to SDSP 3.8 to bring it into conformance with the NQAM.

The NRC inspector disagreed with some of the Nonconforming Item tags in the field with respect to the designation of impact on operability. For example:

- CAQR BFP 870319 on LPCI Motor Generator (MG) 2DA was designated as having no impact on operability, yet this condition involved electrical terminations protected with tape vice the required RayChem splices on several pieces of electrical equipment.

- CAQR BFP 870542 on RCIC control panel 25-31 was designated as having no impact on operability, yet the condition was lifted leads not tagged, cables not supported, spare cables not sealed, insulation brittle and cracking and trash inside the panel.
- CAQR BFP 881046P documented that weld 2RFW-03-40C1 was inspected by a QC inspector prior to QC inspector qualification.
- CAQR 0870541D03 on valves 2-69-67 and 2F1-69-38 indicated that the nonconformance had potential impacts but the item could be used. The nonconforming condition was that the bolting material did not conform to design requirements.

None of the above systems were required by TS to be operable at the time of the inspection.

As a result of conversations with QA/QC personnel, a CAQR was written and a review of all Nonconforming Item Logs on systems required for fuel load was performed. At the close of the inspection period, nine operability impact determinations had been reversed and six additional tags were being considered for a change classification.

The NRC inspector believes that with the revised SDSP 3.8 and increased sensitivity to operability determination, that the licensee performance in this area is acceptable for fuel load. This area will continue to be monitored during future NRC inspections and is identified as IFI 259,260,296/88-36-06. This item will be reviewed prior to Unit 2 startup.

8. Independent Verification Policy

While reviewing work requests and clearance hold orders, an NRC inspector observed on the AUO work schedule that only 15 of 84 AUOs were designated as being electrically qualified. When NRC inspectors questioned licensee management on the independent verification policy for clearances, management stated that only electrically qualified AUOs were allowed to clear and tag electrical equipment, but that non-electrically qualified fourth period student AUOs could perform the independent verifications. This position was based on SDSP 14.9, "Equipment Clearance Procedure", which differentiated between the qualification requirements for personnel hanging and verifying electrical clearance hold order tags.

Similarly, an NRC inspector noted that the OI electrical lineup checklists required the "first-person" check to be performed by personnel who have completed 2B electrical training, but allowed the "second-person" check to be performed by a fourth period student without electrical training.

The scope of Site Director Standard Practice SDSP 3.15, "Independent Verification", specifically included applicability to both clearance tagging and system alignment checklists. Step 6.3.2 of SDSP 3.15 stated that the individual assigned to perform independent verification must have completed appropriate training requirements and shall be qualified to perform the test, alignment, or temporary alteration being independently

verified. SDSP 3.15 also stated that the term second person verification, when used in procedures, shall be synonymous with independent verification. The independent verification requirements of SDSP 3.15 were in definite conflict with the requirements of SDSP 14.9 and the OI checklists regarding independent verifications for electrical components. Adequate independent verification of an action requires the same qualification level as that established to perform the action, as is specified in SDSP 3.15. Therefore, if SDSP 14.9 and the OI checklists required 2B electrical training to position or tag electrical components, the same training requirements should apply for the independent verification of these actions.

The NRC inspectors reviewed recent clearance sheets and identified a number of examples where the operation and tagging of electrical breakers had apparently been independently verified by persons without the electrical qualifications. Examples included clearances 2-88-1208, 2-88-1241, 2-88-1314, and 2-88-1359.

The performance of independent verifications of electrical alignments by individuals who had not received the 2B electrical training required to perform the steps was identified as Violation 259,260,296/88-36-02 for failure to follow SDSP 3.15.

9. Temporary Alterations

A total of 46 open TACFs existed on December 19, 1988, down from 64 during June 1988. The NRC inspectors selected 16 TACFs for review that were listed as open on the Unit 2 and common TACF indexes located in the Control Room area. The TACFs selected for review were chosen because by nature of Title or description contained in the TACF index, there existed a potential for affecting systems needed for refueling operations. No discrepancies or significant impact on the associated systems were noted and a planned permanent modification was referenced.

For TACF 2-84-106-92, which bypassed the SRM function, the Unit 2 TACF index listed this TACF as open although no TACF file could be located. The NRC inspector determined after further discussion with licensee operations personnel that the TACF had been recently closed and the Unit 2 index had not yet been annotated to reflect the closure. The Unit 2 index was updated and no open TACFs exist for the Unit 2 Nuclear Instrumentation System.

Two TACFs associated with the Unit 2 Refueling System were open. TACF 2-86-020-79, associated with minor structural modifications to the Cask Decontamination Chamber has no significant impact on refueling, and will remain open after fuel load. TACF 2-88-006-079 disabled a portion of the refueling interlocks by removing track switches from the Unit 2 refueling platform. These track switches provide signals to the Rod Block System when the refueling platform is positioned over the core. The interlocks were disabled in order to perform functional testing of the RBS associated with LPRM and neutron source installation work in the Unit 2 Reactor

Vessel. The NRC inspector noted that this TACF was planned to be closed, with SI 4.10.A.1 performed as a retest, prior to fuel load.

The NRC inspector reviewed the TACF File for the Core Spray System and the Emergency Equipment Cooling Water System and noted there were no open TACFs for the CS System. However, four TACFs for the EECW were outstanding. The NRC inspector reviewed the system status file, located in the Unit 2 control room, for the EECW system and noted that TACF 0-86-020-67 was signed off as being completed. However, additional review indicated that the BFN Quality Monitoring group identified the TACF as still being outstanding. The Control Room Status file was changed to reflect this. None of the open TACFs adversely affected the plants readiness for fuel load.

10. Preventive Maintenance Program

The NRC inspectors reviewed SDSP 6.2, "Preventive Maintenance Program" and found it acceptable. During this assessment period, the NRC inspectors reviewed the PM activities involved with the overhaul and restoration of the 4160 volt circuit breakers. This activity appeared to be well controlled and proceduralized. The NRC inspector also noted the PM was tracked and controlled by the Work Control Group and was listed on the Four Day Look Ahead Schedule.

11. Post-Maintenance Testing

The NRC inspectors reviewed post-maintenance testing to evaluate its effectiveness in reducing component operability problems following a maintenance activity.

The NRC inspectors reviewed SDSP 6.7, "Post Maintenance Test (PMT) Program", ten maintenance requests, and the Attachment A to SDSP 6.7. The NRC inspectors noted that on the MR form, the type of PMT required is indicated by the maintenance planners with the assistance of the Discipline Technical Group. The review of the ten maintenance requests indicated that some PMT requirements were very specific, such as requiring that a specific section of a procedure be performed. The review also indicated that some PMTs were very general such as stating PMT to be performed per a procedure that may be more than a hundred pages in length. These observations were discussed with plant management.

12. Exit Interview

The inspection scope and findings were summarized on December 23, 1988, with those persons indicated in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the inspection findings listed below. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection. Dissenting comments were not received from the licensee. The concerns over system status control were discussed with TVA management on December 28, 1988. TVA's actions to resolve these concerns for fuel loading were documented in a December 29, 1988 letter to the NRC.

Inspection Findings:

(Open) VIO 259,260,296/88-36-01: Violation of TS Requirements to Properly Establish and Implement a Procedure for Configuration Control (paragraph 5)

(Open) VIO 259,260,296/88-36-02, Example 2: Violation of TS 6.8.1.1.a, for Failure to Follow SDSP 3.15 Regarding Qualifications Requirements for Independent Reviewers of Electrical Lineups (paragraph 8)

(Closed) LIV 260/88-36-03: Failure to Comply with the Logkeeping Requirements of Procedure PMI-2.12 (paragraph 2)

(Closed) LIV 259,260,296/88-36-04: Failure to Adequately Document Identities of Persons Performing and Verifying Clearance Hold Order System Alignments (paragraph 7.e.)

(Open) UNR 259,260,296/88-36-05: Adequacy of Corrective Actions in Response to NRC Violations at Sequoyah in Area of Configuration Control (paragraph 5)

(Open) IFI 259,260,296/88-36-06: Review of Operability Determinations for Nonconforming Items (paragraph 7.f)

6. Acronyms

ANSI	American National Standards Institute
APRM	Average Power Range Monitor
ASOS	Assistant Shift Operations Supervisor
AUO	Auxiliary Unit Operator
BFNP	Browns Ferry Nuclear Power Plant
CAQR	Condition Adverse to Quality Report
CFR	Code of Federal Regulations
CS	Core Spray
CSSC	Critical Structures, Systems, and Components
EECW	Emergency Equipment Cooling Water
ESF	Engineered Safety Feature
IFI	(NRC) Inspector Followup Item
ITC	Immediate Temporary Change
IRM	Intermediate Range Monitor
LCO	Limiting Condition for Operation
LIV	(NRC) Licensee Identified Violation (or Discretionary Enforcement)
LPCI	Low Pressure Core Injection
LPRM	Local Power Range Monitor
LRED	Licensee Reportable Event Determination
MG	Motor Generator
MR	Maintenance Request
NQAM	Nuclear Quality Assurance Manual
NRC	Nuclear Regulatory Commission
OI	Operating Instructions

OSIL	Operations Section Instruction Letter
PM	Preventive Maintenance
PMI	Plant Manager Instruction
PMT	Post Maintenance/Modification Test
PORC	Plant Operations Review Committee
PORS	Plant Operations Review Section
QA	Quality Assurance
QC	Quality Control
RBS	Rod Block System
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
SBGTS	Stand By Gas Treatment System
SDSP	Site Director Standard Practice
SI	Surveillance Instruction
SOS	Shift Operations Supervisor
SPOC	System Pre-Operation Checklist
SRM	Source Range Monitor
TACF	Temporary Alteration Change Form
TD	Test Deficiency
TS	Technical Specifications
TVA	Tennessee Valley Authority
UNR	(NRC) Unresolved Item
UO	Unit Operators
VIO	(NRC) Violation