

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

Report Nos.: 50-259/85-45, 50-260/85-45, and 50-296/85-45 Licensee: Tennessee Valley Authority 500A Chestnut Street Tower II Chattanooga, Tennessee 37401 . Docket Nos.: 50-259, 50-260, and 50-296 License Nos.: DPR-33, DPR-52, and DPR-68 Facility Name: Browns Ferry Nuclear Plant Inspection Conducted: August 20 - September 30, 1985 Inspectors: G. L. Paulk, Senier Resident C. A. Patterson, Resident

Brooks, Res unter

Date

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Approved by:

F. S. Cantrell, Section Chief, Division of Reactor Project

SUMMARY

Scope: This routine inspection involved 240 resident inspector-hours in the areas of operational safety, maintenance observation, reportable occurrences, previous enforcement matters, surveillance testing, regulatory performance improvement program, and refueling activities.

Results: FOUR VIOLATIONS -

- 1. 10 CFR 50, Appendix B, Criterion XVI for failure to take corrective action for a diesel generator false start.
- 2. 10 CFR 50, Appendix B, Criterion V for multiple examples:
 - a. Failure to maintain Reactor Protection System circuitry per plant drawing.
 - b. Failure to maintain record of a diesel generator surveillance instruction.

8511040331 851028 PDR ADDCK 0500256 c. Failure to use a PORC approved maintenance request.

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- d. Failure to have an adequate operating instruction for the containment purge system charcoal heaters.
- 3. 10 CFR 50, Appendix B, Criterion VI for failure to maintain drawings of the vacuum breaking system.
- 4. 10 CFR 50, Appendix B, Criterion XVI, for failure to preclude repetition of violation on failure to perform vendor recommended maintenance items.

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REPORT DETAILS

Licensee Employees

1.

Persons Contacted:

- J. A. Coffey, Site Director R. L. Lewis, Plant Manager (Acting)
- J. E. Swindell, Superintendent Operations/Engineering
- T. D. Cosby, Superintendent Maintenance (Acting) J. H. Rinne, Modifications Manager
- J. D. Carlson, Quality Engineering Supervisor
- D. C. Mims, Engineering Group Supervisor
- R. McKeon, Operations Group Supervisor
- C. G. Wages, Mechanical Maintenance Supervisor
- J. C. Crowell, Electrical Maintenance Supervisor (Acting)
- R. E. Burns, Instrument Maintenance Supervisor
- A. W. Sorrell, Health Physics Supervisor
- R. E. Jackson, Chief Public Safety
- T. L. Chinn, Senior Shift Manager
- T. F. Ziegler, Site Services Manager
- J. R. Clark, Chemical Unit Supervisor
- B. C. Morris, Plant Compliance Supervisor
- A. L. Burnette, Assistant Operations Group Supervisor
- R. R. Smallwood, Assistant Operations Group Supervisor
- S. R. Maehr, Planning/Scheduling Supervisor
- G. R. Hall, Design Services Manager
- W. C. Thomison, Engineering Section Supervisor
- C. E. Burke, Radwaste Group Controller

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

2. Exit Interview (30703)

> The inspection scope and findings were summarized September 20, and October 1, 1985 with the Plant Manager and/or Assistant Plant Managers and other members of his staff.

> The licensee acknowledged the findings and took no exceptions. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

Licensee Action on Previous Enforcement Matters (92702) 3.

(Closed) Unresolved Item (259/83-27-05). The licensee has established a program to certify hydrometers. The hydrometers in the tool room were inspected and each contained a current certification sticker. This item is closed.

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(Closed) Violation (259,260,296/83-19-01). The Pressure Suppression Chamber (PSC) System has been returned to an operable status. Operating Instruction OI-74, Residual Heat Removal, has been revised to provide a method of alignment of the keep fill system using the PSC system or the condensate transfer system. This item is closed.

(Closed) Violation (259,260,296/83-33-06). Instrument Tabulation Drawings 47B607-64-7R and 47B607-64-8R were reviewed and found to have been correctly revised. This item is closed.

(Closed) Open Item (259/83-33-07). This item has been inspected during other routine inspections since Report 83-33 and Unit 3 drywell leak detection equipment is discussed in paragraph five. This item is closed.

(Closed) Open Item (259/83-33-08). The licensee has completed detailed annunciator procedures for the control room panels 9-3 and 9-4. This item is closed.

(Closed) Open Item (259/83-52-01). The licensee has done a detailed review of the control and filing of temporary alterations. Discussions with personnel involved in the review indicated the process was sufficient to correct deficiencies identified in the past. This item is closed.

(Closed) Open Item (259/83-33-05). Technical Instruction 38 has undergone a major revision to upgrade the procedure. This item is closed.

(Closed) Violation (259/83-60-02). Plant procedures have been revised in this area to require notification of the chemistry section upon unit startup. This item is closed.

(Closed) Unresolved (260/81-09-01). The Pressure Suppression Chamber System has been returned to an operating status. This item is closed.

(Closed) Open Item (260/82-06-02). Procedure revisions have been made to designate high worth control rods on the rod pull sheet. This item is closed.

(Closed) Violation (260/82-15-06). The response to this violation was reviewed and the inspector has no further questions. This item is closed.

(Closed) Violation (260/82-12-03). Procedure revisions to Surveillance Instruction 4.6.H.1, Visual Examination of Hydraulic and Mechanical Snubbers were reviewed and found adequate. This item is closed.

(Closed) Violation (260/82-19-03). The licensee response and corrective action were reviewed. The inspector has no further questions in this area. This item is closed.

(Closed) Violation (260/82-24-01). The licensee's corrective action in this area was reviewed and recent inspections have found no equipment problems in this area. This item is closed.

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(Closed) Open Item (260,296/82-34-04). This item was previously closed for Unit 1 and closed now for the other units.

(Closed) Violation (260/83-33-06). The inspector reviewed the licensee response to this violation and the present method of adjusting the R factor. This item is closed.

(Closed) Violation (260/83-43-02). The response and corrective steps to this violation were reviewed and the inspector has no further questions. This item is closed.

(Remain Open) Open Item (259,260,296/81-35-05) Licensee Event Report 85-04 discusses the problems with the low pressure coolant injection (LPCI) motor-generator (MG) sets and the repair program in process. All Unit 2 LPCI MG sets have been returned to the vendor for permanent repair. Units 1 and 3 will be repaired after the return of Unit 2. The MG sets continue to be plagued with problems.

(Closed) Violation (296/82-34-03). Mechanical Maintenance Instruction MMI-28 was reviewed for post-maintenance test requirements. This item is closed.

(Closed) Violation (259/260/296/84-23-02). Further tracking in this area concerning diesel generator will be under the deviation addressed in this report.

4. Unresolved Items* (92701)

In paragraph five there is an unresolved item about the vacuum breaking system, in paragraph six there is an unresolved item concerning fuses, and in paragraph ten there is an unresolved item concerning reactor protection system panel discrepancies.

5. Operational Safety (71707, 71710)

The inspectors were kept informed on a daily basis of the overall plant status and any significant safety matters related to plant operations. Daily discussions were held each morning with plant management and various members of the plant operating staff.

The inspectors made frequent visits to the control rooms such that each was visited at least daily when an inspector was on site. Observations included instrument readings, setpoints and recordings; status of operating systems; status and alignments of emergency standby systems; onsite and offsite emergency power sources available for automatic operation; purpose of temporary tags on equipment controls and switches; annunciator alarm

*An unresolved Item is a matter about which more information is required to determine whether it is acceptable or may involve a violation or deviation.

status; adherence to procedures; adherence to limiting conditions for operations; nuclear instruments operable; temporary alterations in effect; daily journals and logs; stack monitor recorder traces; and control room manning. This inspection activity also included numerous informal discussions with operators and their supervisors.

General plant tours were conducted on at least a weekly basis. Portions of the turbine building, each reactor building and outside areas were visited. Observations included valve positions and system alignment; snubber and hanger conditions; containment isolation alignments; instrument readings; housekeeping; proper power supply and breaker alignments; radiation area controls; tag controls on equipment; work activities in progress; radiation protection controls adequate; vitał area controls; personnel search and escort; and vehicle search and escort. Informal discussions were held with selected plant personnel in their functional areas during these tours. Weekly verifications of system status which included major flow path valve alignment, instrument alignment, and switch position alignments were performed on the primary containment purge system and the circulating water vacuum breaking system.

A complete walkdown of the accessible portions of the primary containment purge system and circulating water vacuum breaking system was conducted to verify system operability. Typical of the items checked during the walkdownwere: lineup procedures match plant drawings and the as-built configuration, hangars and supports operable, housekeeping adequate, electrical panel interior conditions, calibration dates appropriate, system instrumentation on-line, valve position alignment correct, valves locked as appropriate and system indicators functioning properly.

a. Drywell Leak Detection System

During a routine tour of the unit three control room on September 4, 1985, the inspector questioned why both the drywell equipment and floor drain sump level abnormal annunciators were illuminated. The system is setup with high-high, high, low, and low-low trip points. The sump pumps cycle between the high and low points, and the annunciator is actuated by the high-high or low-low. If the system is operating normal, the annunciator should not be received unless a problem has occurred with the sump level.

The operator stated the sump levels were low which had been verified by local level transmitters. Proper operation of the sump pumps and annunciators was understood. One possible explanation for why the drywell equipment drain sump level abnormal annunciator had alarmed was that the sump pump had been manually cycled to try to stop a continuous upward drift of the flow integrator. Three maintenance request stickers were attached to the integrator. Although the integrator was providing a meaningless reading, log readings were still being taken and an average value of greater than 10 gallons per minute leakage had been logged for several days. No leakage was suspected for the plant condition of cold shutdown. The operator stated the log readings were still being taken in hopes that some action would be taken to correct the equipment problems. The plant superintendent for operations was informed of the inspector concerns in this area.

b. Primary Containment Purge System

During a walkdown of the primary containment purge system on September 12, 1985, the following deficiencies were noted:

- (1) The charcoal bed heaters on each unit were turned off for no apparent reason.
- (2) The high efficiency particulate filters were apparently installed in the wrong units. Each filter has a manufacturer identification label which includes the unit designation. The unit designated for unit one was found in unit three, unit two in unit one, and unit three in unit two.
- (3) The cover for unit two charcoal bed temperature sensor (TI-64-125) was missing.
- (4) The foundation bolts for unit two were found not secured.

These concerns were discussed with plant management in a meeting on September 12, 1985. A review of the training departments lesson plan (Lesson Plan 16, Primary and Secondary Containment Systems) found little information concerning the system. The plan merely stated the system's purpose and referenced the plant operating instructions. Further review found that the charcoal heaters were not addressed in any plant operating instruction. The charcoal bed heaters remove any accumulation of moisture to prevent degradation of the system's iodide removal capability. The iodide removal efficiency for the charcoal bed is addressed in Technical Specification 3.7.F.2.6. Failure to have a procedure for operation of the containment purge system charcoal bed heaters is a violation of 10 CFR 50 Appendix B, Criterion 5. (259, 260, This violation is similar to a violation in last 296/85-45-01). month's report concerning the standby gas treatment system charcoal bed heaters (85-39). The violation was discussed in an exit meeting on September 20, 1985, with plant management.

c. Vacuum Breaking System

The inspectors performed a walkdown on the accessible portions of the Vacuum Breaking System (VBS) associated with the Condenser Circulating Water System. The VBS is described in Section 11.6.4 of the FSAR as a redundant, seismic Class I engineered safeguard. The VBS pipe building is located outside the protected area. The building is below grade

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with an earth backfill over the top of the building. Access is through an unsecured manhole. The material condition was found to be generally poor with an excessive amount of dirt and cobwebs. Rags, old pressure gauges and various other loose equipment were laying about. Three check valves (1-27-886, 2-27-886, and 3-27-886) were found removed from the system and blank flanges were installed in their place. These valves were removed as part of ECN L2002 performed in July 1978. As constructed plant drawings (47W831-3 Rev. A) had not been updated to show the removal of the valves. This work was closed out without proper verification of drawing revision. This is a violation of 10 CFR 50, Appendix B, Criterion VI. (259,260,296/85-45-02). The following additional concerns were identified and will be tracked as an unresolved item pending evaluation by the licensee. (259.260.)296/85-45-03):

- (1) Critical System and Components List (CSSC).
- (2) Installed instrumentation is not on a program for periodic functional and calibration testing.
- (3) The operator training plan does not identify the VBS as an engineered safeguard and treats the basis for the system in a superficial manner.
- (4) Radiological Emergency Procedures (REP) Implementing Procedure, IP-24, Earthquake Emergency Procedure identifies the location of Breaker 1427 (power supply for the vacuum breaker valves) as being panel 14 of Battery Board 2. Breaker 1427 is actually located on the Plant Non-Preferred AC Panel Board.
- (5) Although OI-27C, Condenser Circulating Water System, refers to the Radiological Emergency Plan Implementing Procedures for actions in the event of a breach of Wheeler Dam, no Implementing Procedure exists for this situation.

6. Maintenance Observation (62703)

Plant maintenance activities of selected safety-related systems and components were observed/reviewed to ascertain that they were conducted in accordance with requirements. The following items were considered during this review: the limiting conditions for operations were met; activities were accomplished using approved procedures; functional testing and/or calibrations were performed prior to returning components or system to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; proper tagout clearance procedures were adhered to; Technical Specification adherence; and radiological controls were implemented as required. Maintenance requests were reviewed to determine status of outstanding jobs and to assure that priority was assigned to safety-related equipment maintenance which might affect plant safety. The inspectors observed the below listed maintenance activities during this report period:

- a. MMI-29, RHRSW Pump Maintenance
- b. Vacuum breaking system and off-gas building inspections
- c. Refuel floor activities
- d. LPCI MG Set Maintenance Requests
- e. Fuse Problems

During a review of recent maintenance requests related to the LPCI MG sets, numerous requests were written concerning incorrect fuse installations. Further inspections in this area revealed that a program for fuse identification resulting from a previous violation (260/83-27-08), where several control circuit fuses were found incorrectly installed, had identified significant problems in this area. The inspector thought that all the fuse problems had been corrected and the fuse identification program was a program consisting of operator training and labeling of fuse holders. Upon learning of the magnitude of the problem the inspector told plant management on September 17, 1985 these problems needed to be evaluated for reportability. Although all three units have not been operating since March 1985, some of these problems were identified by the licensee while the units were operating. The following Table lists the number of problems found during the labeling program:

Common System	Unit <u>I</u>	Unit <u>II</u>	Unit <u>III</u>	
Fuse Sets Labeled No Fuse Block Found Breaker Installed - No Fuse Block Panel Not Installed Fuse Block Size - Incorrect	1340 12 0 9 21	1970 5 2 6 5	2922 13 6 12 8	3411 33 2 4 6
Total Number F <u>u</u> se Sets	1382	1988	2961	3456
Percent Complete	44	65	99	100
Requires Maintenance Request Written	688	372	757	237
Requires Design Change Request Correction	42	25	38	154

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Fifty percent of the maintenance requests written were estimated for enhancement items and were not actual problems. The problems were varied and in all types of systems. This area will remain unresolved for further evaluation (259,260,296/85-45-04).

a. Failure of a Diesel Generator to Start

On August 27, 1985, the licensee made a 4-hour report regarding the failure of the Units 1 and 2 (shared) B Diesel Generator (hereinafter referred to as the 1 B D/G) to start when required. The residents were kept informed in a general way on the status of the troubleshooting efforts on a daily basis. Following return of the 1 B D/G to an operable status, the inspector reviewed the documentation to determine the initial failure indications, root cause, corrective action, and post-maintenance testing. The documentation was inadequate to support the root cause determination, troubleshooting efforts, and corrective action taken. Interviews with operations and maintenance personnel were initiated to supplement the documentation. The following Chronology describes the maintenance efforts from various logs and interviews:

Aug. 27, 1985 1430

Commenced SI 4.9.A.1.a, Diesel Generator Monthly Test, on 1 B Diesel Generator. It is not known if this was a routine surveillance or done, due to a problem noted during performance of SI 4.9.A.3.a, Common Accident Signal Logic Test (fuel pressure problems).

1545 Licensee Reportable Event Determination (LRED) gives this as the Event Time and Discovery Time. 1 B D/G failed to start when given an auto start signal during the performance of SI 4.9.A.1.a.

NOTE: A copy of this SI 4.9.A.1.a cannot be located; no more details on the failure of 1 B D/G are known.

- 1600 1 B D/G declared inoperable in operators' logs. 4-hour ENS call-in made at 1744.
- 1930 Running 1 B D/G, fuel filters appear to need changing MR'd.
 - 2030 After running 1 B D/G which started OK on slow start, fuel oil system # 1 pressure was 0 when diesel was at idle speed; will try to change filters.



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Aug. 28, 1985 0105 SI 4.9.A.1.a in progress on 1 B D/G.

- 0140 Stopped 1 B D/G due to leak in fuel filter.
- 0145 SI 4.9.A.1.a in progress on 1 B D/G blew gasket on fuel oil strainer. DG shutdown.

NOTE: A copy of this SI 4.9.A.1.a cannot be located; interviews indicated that the fuel filters were changed (although no MR has been located) and that an "O" ring on the fuel filter cap retaining bolt was either not reinstalled or pinched during assembly since this was the source of the fuel leak.

- 0500 1 B D/G still inoperable, will not idle at 450 RPM, appears not to be getting enough fuel. Starts to shutdown.
- 0820 Started SI 4.9.A.1.a on 1 B D/G.
- 1140 SI 4.9.A.1.a on 1 B D/G complete but D/G will not start on # 1 air start motor.

NOTE: The SI cover sheet indicates that the reason this SI was ... performed was that it was required by the routine schedule (a monthly surveillance) and that the SI acceptance criteria was satisfied. Remarks section indicates that the D/G did not start on the # 1 air start motor and that MR A 571512 was written to investigate. An entry was made on September 3, 1985 in the remarks section that MR A 588874 was generated for additional work.

MR A 571512 - Work instructions were to change governor oil, replace fuel filter retaining nut gasket and inspect the engine air box. Sample of old governor oil to be submitted to chemistry laboratory (This MR written on August 28, 1985 and completed on September 29, 1985).

MR A 588874 - Work instructions were to remove starting air motors to be cleaned. Replace after cleaning. (This MR written on August 29, 1985 and completed on August 29, 1985).

NOTE: Neither MR satisfactorily documents what conditions were found but interviews indicate that no abnormal conditions were found and no cause for the previous problems could be determined.

Aug.	29,	1985	0735	Approved MR to work 1 B D/G to change out governor oil.	
			1200	Started SI 4.9.A.1.a on 1 B D/G.	

1458 Completed SI 4.9.A.1.a on 1 B D/G.

1500 1 B D/G declared operable.

This breakdown in corrective action is a violation of 10 CFR 50, Appendix B, Criterion XVI which requires strict control, documentation and reporting of significant conditions adverse to quality (259,260,296/85-45-05). Browns Ferry Standard Practice 1.3, Definitions, describes a significant condition adverse to Quality as (in part) any condition which is reportable to the NRC within 24 hours or within 30 days. This condition was reported as required by the 4-hour reporting requirement of 10 CFR 50.72 on August 27, 1985.

The lost Surveillance Instruction test data for SI 4.9.A.1.a which was performed at 1430 on August 27; 1985 and again at 0105 on August 28, 1985 is a violation for failure to adhere to Standard Practice 17.9, Surveillance Requirement Program (259,260,296/85-45-01). This Standard Practice requires surveillance instruction test data to be maintained as a quality assurance record with a lifetime retention period.

c. RHRSW Relay Wiring

While observing the RHRSW Suction pit cleaning in progress on September 5, 1985, the inspector noted the clearance tag for the B2 RHRSW pump local control switch was not attached to the control switchbut was laying on a workbench nearby. Plant operations personnel were informed of this discrepancy. On September 10, 1985, the inspector once again toured the RHRSW building and discovered that clearance tags for both the C1 and C3 RHRSW pump local control switches were not attached but were found on the ground- in the vicinity of the pump motors. The plant manager was informed of the continuing lack of control of clearance tags on control switches. This deficiency will be tracked as an inspector follow-up item for control of clearance tags on local control switches (259,260,296/85-45-06).

d. Diesel Generator Maintenance

The licensee identified as part of their system operational readiness review that procedures had not been prepared for the standby diesel generators scheduled maintenance as recommended by the manufacturer for the six and twelve year intervals. Procedures were in place for the annual and three year inspections. Technical Specification 4.9.A.1.d requires that each diesel generator be given an annual inspection in accordance with instructions based on the manufacturer's recommendations. The manufacturer's recommendations of scheduled maintenance is given in Electro-Motive Division Maintenance Instruction (M.I. 1742) for 999 system generating plants. The licensee performs Surveillance Instruction (SI) 4.9.A.1.d which is implemented by Mechanical Maintenance Instruction MMI-6 and Electrical Maintenance Instruction EMI-3 to comply with technical specifications. The inspector asked to review the licensee event report (LER) for this discovery which occurred on August 14, 1985, on September 19, 1985, but was told the LER was still in draft form. The LER was being generated for "informational purposes only" and the 30 day reporting requirement was not applicable. This was questioned as a previous violation had been issued concerning diesel maintenance (259,260,296/84-23-02) and the inspections were required by technical specifications.

A review of the licensee's response to the previous violation (84-23-02) found that the licensee stated that MMI-6 would be revised to include the maintenance recommendations made in Electro-Motive Division's M.I. 1742, Revision E. Full compliance was to be achieved October 5, 1984 when MMI-6 was revised to include the manufacturer's recommendations. A review of MMI-6 found that the procedure was revised not on October 5, but on October 23, 1984, to include the recommendations. The procedure only included revisions to the annual and three year requirements. Once the procedure was implemented the three year inspection was not performed and has not been performed for any unit as of the date of this inspection.

The inspector reviewed the package for preparation of the LER and found the following statement:

"Sequoyah and Watts Bar do not follow EMD's recommendations word for word, but have used their judgement to either eliminate, reschedule or modify EMD's program."

Not following the manufacturer's recommendations may be a potentially generic problem at all TVA sites. According to the evaluation in the LER package by the cognizant engineer there was no justification for deviation from the maintenance schedule for some items based on conversations with the vendor. Listed as most important was the six year replacement of cylinder head grommets, inlet and outlet seals and lower line seals. The diesel cooling water is maintained heated for an automatic start and water continually flows by the seals by natural circulation. A failure of the seals could result in cooling water entering the piston cylinder area or the lubricating oil resulting in failure of the engine. Sufficient replacement parts were not available to work even one diesel. Starting in 1972 for the units one and two diesels, the six year items are over seven years past due and since 1976 the items are three years past due on unit three. Other maintenance requirements were additionally not completed and are being evaluated by the licensee.

Additionally, some items on the scheduled maintenance would normally be performed by the electrical maintenance section but a review found none of the six year items were being performed. Also, the electrical section did not have the current revision of the vendor's recommended maintenance. They had M.I. 1742 (original issue) dated August 1970.

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This was part of the root cause for the previous violation 84-23-02 and resulted in the licensee establishing a vendor manual control system. A review of the vendor manual control system found that the diesel manual was not controlled as yet but was on a priority list for later The manual assembled to be established as the control copy control. contained not only M.I. 1742 dated August 1970, but also M.I. 1742, revision D dated April 1975. The Mechanical Maintenance section was the only one which possessed revision E dated June 1976. Although the vendor manual was not controlled as yet, it is reasonable to expect that all sections would be using revision E since this was mentioned in the licensee's response to violation 84-23-02 nearly a year ago. The root cause and corrective action to violation 84-23-02 were only superficially corrected. This is in violation of 10 CFR 50, Appendix B, Criterion XVI which requires that measures shall be established to assure that conditions adverse to quality such as failures, malfunctions and deficiencies are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The licensee failed to take corrective action to preclude repetition of a significant condition adverse to quality. This is identified as Violation Item (259,260,296/85-45-08).

Also, a review of the Final Safety Analysis Report (FSAR) section 8.5, Standby A-C Power Supply and Distribution, found that section 8.5.5, Inspection and Testing, addressed the maintenance on the diesels. FSAR page 8.5-19 states that scheduled maintenance on the diesel generators is conducted in accordance with the manufacturer's recommendations.

The licensee reported on September 24, 1985 that all the diesels were technically inoperable since the vendor required inspections for the three, six, and twelve year intervals had not been performed. The diesels would, however, be maintained in a standby readiness condition.

Simultaneously, the diesels were reported inoperable because the diesel battery racks were determined to be not seismically qualified. This was the subject of a previous violation (259,260,296/85-28-05) in April During correction of the April problem four studs broke which 1985. were welded to an embedded metal plate in the concrete foundation. The battery macks are secured to the floor using the studs. The stud material was given a metallurgical evaluation and found not acceptable for welding. The steel contained too high a carbon content and upon welding would become brittle. The studs have been installed for a number of years and the source of the error was unknown. The licensee plans to systematically repair the diesel battery rack as quickly as possible. The inspector questioned the timing of the information. The plant manager reviewed the sequence of events with the inspector. It was stated the first time the evaluation information was discussed with the plant was on September 20, 1985. However, this was done on the

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telephone and the information not understood fully. The metallurgical evaluation was transmitted to the plant on September 24, 1985. This is the second example of violation 259,260,296/85-45-08 above, in that this condition was not promptly identified and corrected.

As a result of the diesel generators being inoperable the licensee was unable to meet three technical specification requirements. These are summarized as follows:

- T.S. 3.9.C.1 requires that whenever the reactor is in cold shutdown with irradiated fuel in the reactor, at least two diesel generators shall be operable. This was not met for Units 1 and 3.
- (2) T.S. 3.5.A.4 requires operable core spray pumps and associated diesel generators. This was not met for Unit three with irradiated fuel in the vessel and the vessel head installed.
- (3) T.S. 3.5.B.9 requires operable residual heat removal pumps and associated diesel generators. This was not met for Unit three with irradiated fuel in the vessel and the vessel head installed.

The licensee initiated a safety evaluation to analyze the unanalyzed condition of the plant. As a compensatory measure primary containment was reestablished on Unit three.

Additionally, all fuel movement was suspended due to timing problems with some ventilation dampers. FSAR section 5.3.4.2 discusses a time requirement of 2 seconds for the dampers.

The licensee discovered that some solenoid operated ventilation dampers had not been given a post maintenance timing test after installation of new solenoids for environmental qualification purposes. The timing in question related to a fuel handling accident.

7. Surveillance Testing Observation (61726)

The inspectors observed and/or reviewed the below listed surveillance procedures. The inspection consisted of a review of the procedures for technical adequacy, conformance to technical specifications, verification of test instrument calibration, observation on the conduct of the test, removal from service and return to service of the system, a review of test data, limiting condition for operation met, testing accomplished by qualified personnel, and that the surveillance was completed at the required frequency.

a. S.I. 4.9.A.3.A, Common Accident Signal Logic Test.

b. S.I. 4.9.A.1.D, Diesel Generator Annual Inspection.

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On August 28, 1985, while performing SI 4.9.A.3.A, Common Accident Signal Logic Test on Unit 3, the licensee discovered that the B1 RHRSW pump was inoperable for EECW service since it failed to start upon an automatic starting signal. Subsequent troubleshooting by the licensee discovered a wiring error associated with time delay relay TD2C in the B1 pump starting circuitry. This condition is believed to have been in existence since the last surveillance test was performed on the RHRSW timers on April 26, 1985. A review of documentation associated with this event indicated that a similar time delay relay had failed in April 1985 on Unit 1 and was replaced on April 26, 1985. Maintenance Request (MR) A-170596 was written to verify proper operation of the relay following the replacement. This MR contains detailed step-by-step work instructions with a temporary jumper installation and independent verification sign-off steps. Normally, MRs should refer to PORC reviewed instructions to assure procedural controls are maintained. Standard Practice 7.6, Maintenance Request and Tracking, requires that CSSC MRs that have no PORC reviewed instruction and are beyond the skill of the craft shall be sent to PORC for review and to the plant superintendent for approval. MR A-170596 was not reviewed and approved as required. This is a violation for failure to adhere to written instructions. (259,260,296/85-45-01).

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Reportable Occurrences (90712, 92700)

The below listed licensee events reports (LERs) were reviewed to determine if the information provided met NRC requirements. The determination included: adequacy of event description, verification of compliance with technical specifications and regulatory requirements, corrective action taken, existence of potential generic problems, reporting requirements satisfied, and the relative safety significance of each event. Additional in-plant reviews and discussion with plant personnel, as appropriate, were conducted for those reports indicated by an asterisk. The following licensee event reports are closed:

LER No.	Date	Event
*260/85-05	June 11, 1985	Reactor Water Cleanup Isolation.
*260/85-06	June 20, 1985	Secondary Containment Isolation Initiated from Refuel Zone Radiation Detector
*260/85-09	July 12, 1985	Containment Isolation Because of Improper Transfer
*260/85-08	July 11, 1985	Reactor Water Cleanup Isolation Because of Improper Transfer
*259/85-10	April 03, 1985	Discontinuance of CAM Hourly Sampling Due to Personnel Error.

9. Regulatory Performance Improvement Program (RPIP)

The responsible section chief reviewed the status of RPIP and actions taken by TVA to implement specific items as required by NRC Confirmatory Order EA 84-34 dated July 13, 1984. TVA has assigned a senior manager as RPIP Coordinator at the site. His responsibilities include verifying that each task has been implemented as described, has met objectives, and that the necessary programs are in place to insure that objectives will continue to be met. Most of the short term items have been indicated as complete, but have not been signed off as completed by the RPIP Coordinator. The inspectors reviewed implementation of Short Term Action Item 4.11, Establishment of the Independent Safety Engineering Group (ISEG) and found that contrary to the indicated status on the RPIP, the ISEG did not exist. Follow-up discussions with licensee representative led to a concern that the proposed ISEG functions and responsibilities did not satisfy the discussion in NUREG-0737 regarding ISEG. Although the plant is not committed to this TMI action item, it was expected that the guidance contained in NUREG-0737 would be followed in the implementation of this RPIP action item. This item will continue to be tracked under the RPIP program.

Long Term Item 9.7, Utilize outside contractor to evaluate Technical Specifications was reviewed. The contractor's report dated September 27, 1984 was reviewed and actions initiated by the licensee to resolve identified technical specification discrepancies were followed up to verify initiation of necessary corrective action.

10. Refueling Activities (60710)

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The inspector observed activities associated with fuel off-loading on Unit I and verified that technical specification requirements related to containment integrity, neutron monitoring instrumentation, control rods, refueling interlocks, and staffing were being satisfied.

An inspection of the Reactor Protection System Trip Panels (panels 9-15 and 9-17) was performed to verify removal of SRM Shorting links per GOI-100-3, Refueling Operations, Step B.1.p. The inspector verified that the links were removed as required; however, several apparent discrepancies regarding the internal wiring of the panels prompted a detailed inspection. The as-constructed drawing for panel 9-17 was obtained (Drawing 791E247-2A) and the following problems were identified on the Unit I panels:

a. The metallic jumper link connecting terminals 79 and 80 of terminal board CC on panel 9-17 was not secured with terminal screws. The link was merely resting on the terminals and the integrity of the electrical connection could not be determined. Plant personnel immediately installed appropriate screws when informed. This link was in the control rod timing test circuitry and was believed to have no effect on the Reactor Protection System (RPS) should it have fallen off the terminals.



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- b. The insulation on several wires adjacent to fuses 22, 23, and 24 on terminal board BB of panel 9-17 was discolored from a previous overload condition.
- c. On panels 9-15 and 9-17 diodes CR2B and CR2D were observed to be supported only by the attached wires and were dangling, loose, from the plastic wire ways from which the wires emerged.
- d. The main power supply wire from terminal 2 of the RPS MG set breaker (CBIB) to terminal 1 of the hot bus (CR) which supplies power to all of the panel 9-17 components shows evidence of an overloaded condition. The jacket is cracked, discolored and sections of the jacket are missing. The cable insulation is also cracked in several locations.
- e. The fire proof metallic enclosures which house fuses F12, F13, F16, and F17 in panel 9-17 had lost their fire proof integrity. The hinged enclosure cover plate was not secured to the enclosure with the required wing nuts and as a result a one-half inch opening to the enclosure was observed.
- f. The one-half inch flex conduit from the fire proof metallic enclosures housing fuses F12, F13, F16, and F17 in panel 9-17 terminated about one inch from the enclosure and the wires emerged into an adjacent wire was for a distance up to 3 feet before the wires exited the bundle and were terminated on terminal block CC. Drawing 791E247-2A requires the conduit carrying these wires to be terminated as close as possible to the terminal block.
- g. The wires shown on Drawing 791E247-2A from terminal 3 of fuse F13 to terminal 3 of fuse F27 and from terminal 3 of fuse F17 to terminal 3 of fuse F25 were not installed in panel 9-17.

Items a, e, f and g are examples of a violation for failure to have equipment installed per approved plant drawings. (259, 260, 296/85-45-01). Items b, c, and d will be further evaluated by the licensee and left as an unresolved item until evaluation completion. (259, 260, 296/85-45-07).

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