



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

June 19, 2009

TVA-BFN-TS-466-T

10 CFR 50.90

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Stop: OWFN P1-35  
Washington, D.C. 20555-0001

In the Matter of )  
Tennessee Valley Authority )

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

**BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 - TECHNICAL SPECIFICATIONS (TS) CHANGE TS-466-T - REQUEST FOR ONE-TIME EXTENSIONS OF TS 3.8.1 CONDITION B REQUIRED ACTION B.4 COMPLETION TIME - EMERGENCY DIESEL GENERATORS (EDGs) A, B, C, D, 3A, 3B, 3C, AND 3D**

Pursuant to 10 CFR 50.90, TVA is submitting a request for TS change (TS-466-T) to licenses DPR-33 for BFN Unit 1, DPR-52 for BFN Unit 2, and DPR-68 for BFN Unit 3. The TS changes propose one-time extensions of the TS 3.8.1 Condition B Required Action B.4 Completion Time for EDGs A, B, C, D, 3A, 3B, 3C, and 3D from seven days to fourteen days. These extensions would allow continued operation of Units 1, 2, and 3 while corrective maintenance, modifications, post-maintenance and modification testing, and surveillance testing of the subject EDGs are completed. These activities will sustain the reliability of the EDGs.

BFN EDGs are in need of timely corrective maintenance and equipment improvements that will sustain system reliability. These modifications include:

1. Turbocharger replacements on six of the eight EDGs.
2. Modification of the Lube Oil System in accordance with vendor recommendations.
3. Replacing the obsolete Governor Control System.

Also, to conserve unavailability, the following maintenance work will be performed:

4. Replacement of the 3D Diesel Generator Battery.
5. Replacement of the existing cylinder test valves with new Kiene valves, which have improved performance monitoring capabilities

DO30  
NRR

Based on the work planned, the outage critical path duration has been determined to exceed seven days.

EDG routine outages are scheduled every 2 years to perform preventive maintenance, corrective maintenance, and elective maintenance. The next routine outages are scheduled for June 2010 through August 2010. BFN does not feel it is appropriate to delay the identified scope of work until these 2010 outages. Additionally, since the 2010 outages are scheduled to be the 12-year overhaul outages, this additional work would not be achievable within the present 7-day Required Action Completion Time. Therefore BFN believes the best solution is to schedule a mid-cycle outage ahead of the 2010 routine outage. Two-week windows have been reserved for each EDG outage and the outages are currently scheduled to start on October 5, 2009, and continue through February 28, 2010, with contingencies through June 30, 2010.

Station personnel successfully executed extended diesel generator outages in 2008 for the eight emergency diesel generators for Browns Ferry. A similar approach will be taken to plan and execute these outages. Detailed schedules will be developed and challenged by senior management. Senior management will meet to challenge the readiness of the station and grid to execute the work prior to each outage.

TVA is requesting one-time extensions of the seven-day Required Action Completion Time by an additional seven days to ensure adequate time is available for completion of the maintenance, modifications, and testing activities for each EDG.

Enclosure 1 to this letter provides the justification for this request. Enclosure 2 provides mark-ups of the affected TS pages.

TVA has determined that there are no significant hazards considerations associated with the proposed changes and that the TS changes qualify for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Alabama State Department of Public Health.

TVA requests approval of these TS changes by September 11, 2009, based on the scheduled EDG outages, and implementation of the revised TSs be within 14 days of NRC approval.

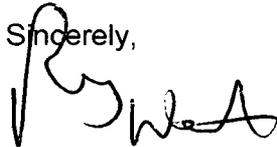
There are two new regulatory commitments associated with this submittal as contained in Enclosure 3.

U.S. Nuclear Regulatory Commission  
Page 3  
June 19, 2009

If you have any questions about this change, please contact Russ Godwin at  
(256) 729-2636.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the  
19th day of June, 2009.

Sincerely,

A handwritten signature in black ink, appearing to read "R. G. West". The signature is written in a cursive style with a large initial "R" and a distinct "W".

R. G. West  
Site Vice President

Enclosures:

1. TVA Evaluation of the Proposed Change
2. Proposed Technical Specifications Changes (mark-up)
3. Regulatory Commitments

U.S. Nuclear Regulatory Commission  
Page 4  
June 19, 2009

Enclosures

cc:(Enclosures):

Ms. Eva A. Brown, Project Manager  
U.S. Nuclear Regulatory Commission  
(MS 08G9)  
One White Flint, North  
11555 Rockville Pike  
Rockville, Maryland 20852-2739

Mr. Eugene F. Guthrie, Branch Chief  
U.S. Nuclear Regulatory Commission  
Region II  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, Georgia 30303-8931

NRC Resident Inspector  
Browns Ferry Nuclear Plant  
10833 Shaw Road  
Athens, Alabama 35611-6970

State Health Officer  
Alabama Dept. of Public Health  
RSA Tower - Administration  
Suite 1552  
P.O. Box 303017  
Montgomery, AL 36130-3017

## Enclosure 1

### Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3

#### Technical Specifications (TS) Change TS-466-T - Request for One-Time Extensions of TS 3.8.1 Condition B Required Action B.4 Completion Time - Emergency Diesel Generators (EDGs) A, B, C, D, 3A, 3B, 3C, and 3D

#### Description and Assessment

---

### 1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, TVA is submitting a request for TS change (TS-466-T) to licenses DPR-33 for BFN Unit 1, DPR-52 for BFN Unit 2, and DPR-68 for BFN Unit 3. The TS changes propose one-time extensions of the TS 3.8.1 Condition B Required Action B.4 (TS 3.8.1.B.4) Completion Time for EDGs A, B, C, D, 3A, 3B, 3C, and 3D from seven days to fourteen days. These extensions would allow continued operation of Units 1, 2, and 3 while corrective maintenance, modifications, post-maintenance and modification testing, and surveillance testing of the subject EDGs are completed.

#### Proposed Change:

The proposed Units 1, 2, and 3 TS changes revise the TS 3.8.1.B.4 Completion Time for EDGs A, B, C, D, 3A, 3B, 3C, and 3D from seven days to fourteen days on a one-time basis. Marked-up TS pages showing the proposed revisions are provided in Enclosure 2.

The mark-up for the Unit 3 TS affected page includes revision of the changes NRC previously approved and TVA incorporated with Amendment No. 257 (Enclosure 1, Reference 1).

Amendment 257 was issued in response to TVA's application dated April 6, 2007, Issue of Emergency Regarding One-Time Extension of Diesel Allowed Outage Time (TS-460-T) and consisted of a revision of the TS 3.8.1.B.4 Completion Time for EDG 3D from seven days to fourteen days on a one-time basis. That extension has expired and the proposed TS mark-up includes deletion of the extension note.

### 2.0 DETAILED DESCRIPTION

#### Proposed Mid-cycle EDG Outage Scope:

The EDGs are in need of timely corrective maintenance and equipment improvements that will sustain system reliability. These modifications include:

1. Turbocharger replacements on six of the eight EDGs
2. Modification of the Lube Oil System in accordance with vendor recommendations
3. Replacing the obsolete Governor Control System

Also, to conserve unavailability, the following maintenance work will be performed:

4. Replacement of the 3D Diesel Generator Battery
5. Replacement of the existing cylinder test valves with new Kiene valves, which have improved performance monitoring capabilities.

**Work Scope Basis:**

1. Turbocharger Replacements on six of the eight EDGs

The turbocharger removed from EDG A in 2008 for pre-emptive disassembly inspection revealed abnormal compressor thrust bearing degradation. This inspection was performed as a corrective action associated with the EDG 3A turbocharger failure in May 2007. Close inspection of the surfaces indicates that the thrust bearing surfaces had been overheated due to lack of lubrication/cooling as evident by the surface smearing. This seems to confirm the root cause performed for the EDG 3A turbocharger failure. The root cause was determined to be inadequate lubrication resulting in cumulative bearing wear from repeated starts with delays in establishing normal oil pressure. BFN does not have a vendor recommended lube oil modification installed as added protection to the turbocharger for all starting scenarios by keeping the main lube oil galley full of lube oil. The recommended modification allows rapid (2-3 seconds) build up of lube oil pressure at the turbocharger when compared to systems without the modification (5-6 seconds) during the critical acceleration of the turbocharger during the starting sequence. Most of the Nuclear EMD users have installed this recommended modification. Turbocharger bearing surface conditions cannot be determined without a complete disassembly inspection conducted at the EMD (Electro Motive Diesel Generator Manufacturer) facility. Therefore, BFN has elected to conservatively replace the remaining six EDG Turbochargers and remove any doubt of the turbocharger condition and reliability.

2. Modification of the Lube Oil System in accordance with Vendor recommendations

The root cause of the May 2007 EDG A turbocharger failure was determined to be inadequate lubrication resulting in cumulative bearing wear from repeated starts with delays in establishing normal oil pressure. The vendor endorsed corrective action to prevent recurrence of this failure is to modify the existing engine lube oil system in accordance with the vendor maintenance instruction. This modification will provide an improved immersion heater lube oil circulating system that will continuously supply oil to the turbocharger and crankshaft in preparation of an emergency start. Most importantly, the modification will provide additional protection to the turbocharger for all starting scenarios by keeping the main lube oil gallery full of lube oil. This allows rapid (2-3 seconds) build up of lube oil pressure at the turbocharger when compared to systems without the modification (5-6 seconds) during the critical acceleration of the turbocharger during the starting sequence. This modification has been successfully installed on Electro Motive (EMD) EDGs similar to the BFN EDGs.

3. Replacing the obsolete Governor Control System

The existing governor control system on the EDGs is obsolete and repair/spare parts are no longer guaranteed to be supported by the vendor. Additionally, the existing governor controls do not allow for controlled acceleration of the engine. As a result,

the BFN engines are accelerated at a greater rate than the vendor recommended acceleration rate of 150 RPM/sec. The BFN engine acceleration rate can be as high as 230 rpm/sec. This uncontrollable acceleration rate was identified as a contributing cause of the EDG 3A turbocharger failure in May 2007. Replacement of the governor controls was previously scheduled for implementation in 2012. BFN has conservatively elected to replace these controls in the October 2009 to February 2010 mid-cycle outages.

4. Replacement of the 3D Diesel Generator Battery

The 20 year life of the 3D Diesel Generator battery expires in September 2010. BFN has elected to group this battery replacement in the mid-cycle outages to conserve EDG unavailability. Replacement of this battery will have very little risk of extending the mid-cycle outage critical path.

5. Replacement of the existing cylinder test valves with new Kiene valves, which have improved performance monitoring capabilities

Replacing the existing cylinder test valves with Kiene valves allows BFN to perform engine testing to get an accurate picture of the engine health prior to the 2010 12-year scheduled overhaul outages. This will allow BFN to eliminate unnecessary intrusive maintenance during those outages. Replacement of these valves will have very little risk of extending the mid-cycle outage critical path.

**Testing Activities during Outage:**

1. Calibration of new instrumentation added.
2. Motor and control checks for new pumps installed.
3. Electrical Checkout of Lube Oil Modification Electrical Equipment and associated modified controls (Includes checks of interlocks and alarms).
4. Electrical Checkout of Governor Upgrade and associated modified controls.
5. Install temporary Instrumentation in preparation for Dynamic Checks of the Lube Oil Modification and Governor Upgrade.
6. Battery Checks on the EDG 3D (Quarterly Check per 3-SR-3.8.6.2(DG A)).

**Outage Post-Maintenance/Modification: (After Hold Order Pickup or Temp Lift)**

1. Perform Functional test of Lube Oil Modification Equipment in standby Mode.
2. Perform Functional test of Lube Oil Modification and Governor Upgrade during engine start, idle, load, etc.
3. Perform Fast Start Monthly Operability test.

**Outage Unavailability Impact:**

The mid-cycle outages will result in an adverse impact on EDG Maintenance Rule, INPO, and NRC ROP Mitigating System Performance Indicator unavailability hours. Each outage will result in approximately 168-336 hrs of planned unavailability. Based on unavailability reported through March 2009, each unavailability performance indicator will remain Green.

### **Discussion of Outage Scheduling and Extension Request Duration:**

TS Required Action 3.8.1.B.4 provides a seven-day Completion Time for returning an inoperable EDG to service. If an EDG cannot be returned to operability by then, a shutdown of the affected unit(s) will be required in accordance with LCO 3.8.1.I.1 within 12 hours.

From October 2009 through February 2010, TVA has scheduled eight EDG mid-cycle outages. Preparations for the outages (e.g., issuance of the planned design changes and procurement of parts) support the October 2009 outage schedule. Completion of outage maintenance/modification activities, post-maintenance/modification testing, and surveillance testing to re-establish EDG operability may not be completed prior to expiration of the current seven-day Required Action Completion Time of TS 3.8.1.B.4. Based on the work planned, the outage critical path duration has been determined to be approximately seven days, six hours.

Standard practice for TVA is to limit scheduled activities to 50 percent of the TS Required Action Completion Times. This practice minimizes the risk of shutting down the plant due to unforeseen impacts to work completion and has been shown to be prudent in the past. Therefore, for each EDG outage, TVA is requesting a one-time extension of this seven-day Required Action Completion Time by an additional seven days to assure adequate time is available for completion of these activities and to minimize the risk of a potential unnecessary unit shutdown. The requested extensions would be limited to the planned period of EDG inoperability during the outages.

### **Basis for Current Requirements:**

The operability requirements for the alternating current (AC) power sources during plant operation ensures that sufficient power will be available to supply the safety-related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant alternating power sources satisfy the objectives of General Design Criteria 17, "Electric Power Systems," of Appendix A to 10 CFR 50.

The TS action requirements specified for the levels of degradation of the power sources provide restrictions for continued facility operation commensurate with the level of degradation. The operability requirements for the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining the remaining onsite alternating current power sources and associated distribution systems operable.

## **3.0 TECHNICAL EVALUATION**

The proposed amendment to allow one-time extensions of the Required Action Completion Time for each EDG is based on the following considerations.

## Onsite Emergency Power System Description:

As described in Updated Final Safety Analysis Report (UFSAR), Section 8.5, "Standby Alternating Current Power Supply and Distribution", and as shown in UFSAR Figures 8.5-4.a through h, the standby AC supply and distribution system for Units 1 and 2 consists of four EDGs (A, B, C, and D), four 4.16-Kv shutdown boards (4Kv-SDBD-A, B, C, and D), four 480v shutdown boards (480v-SDBD-1A, 2A, 1B, and 2B), ten MOV boards, eight MG sets, two 480v diesel auxiliary boards, and one control bay ventilation board. In addition to its other functions, the system serves as the alternate supply to two 480v condensate demineralizer boards and as the emergency supply to two radwaste boards.

The standby AC supply and distribution system for Unit 3 is separate from that of Units 1 and 2. It consists of four EDGs (3A, 3B, 3C, and 3D), four 4.16-Kv shutdown boards (4Kv-SDBD-3EA, 3EB, 3EC, and 3ED), two 480v shutdown boards (480v-SDBD-3A, and 3B), one 480v HVAC board, five MOV boards, four MG sets, two 480v diesel auxiliary boards, one 480v control bay vent board, and Standby Gas Treatment (SBGT) Board C.

For flexibility of operation, provisions have been made for the interconnection of 4.16-Kv shutdown board A (Units 1 and 2) with 4.16-Kv shutdown board 3EA (Unit 3). Similar interconnections have been provided between boards B and 3EB, C and 3EC, and D and 3ED. The interconnections are through manually controlled circuit breakers. Operator training and procedures are in place to support this flexibility of operation.

Eight EDGs (four for Units 1 and 2, and four for Unit 3) are provided as a standby power supply to be used on loss of the Normal Auxiliary Power System. Each of the EDGs is assigned primarily to one 4.16-Kv shutdown board. All AC loads necessary for the safe shutdown of the plant under accident or non-accident conditions are fed from this distribution system.

A matrix of the inoperable EDG and dependent equipment and the equipment required to be protected is provided in Table 1.

A list of acronyms (undefined to this point) used in Table 1 is provided as an aid in system/component recognition.

OS PWR-DIV-I = Off-Site Power-Division I  
RHR = Residual Heat Removal System  
CS = Core Spray System  
DAB = Diesel Auxiliary Board  
SBGT = Standby Gas Treatment System  
SLC-Pmp = Standby Liquid Control System-Pump  
RMOV = Reactor Motor Operator Valve Board  
CREV = Control Room Emergency Ventilation  
ECCS = Emergency Core Cooling System  
RHRSW = RHR Service Water System  
LPCI = Low Pressure Coolant Injection System  
MG-2DA, -2EN = Motor/Generator-unique identifier  
EECW = Emergency Equipment Cooling Water System  
CHLR = Chiller  
MB BATT = Main Board Battery

**Table 1: EDG / Out of Service Equipment Risk & Protected Equipment Matrix**

<p><b><u>Inoperable EDG</u></b> Out-of-Service Subsystem, Feature, Components</p>	<p><b>TS LCO 3.8.1 Condition B</b> <b>Required Action B.4 Completion Time</b> (Requested Completion Time)</p>	<p><b>Protected Features, Subsystems, Components</b></p>
<p><b><u>EDG-A</u></b> (4Kv-SDBD-A) 1/2-ECCS-I (RHR/CS-A) (A1/2-RHRSW-Pmp) (480v-DAB-A) (SBGT-A) (480v-SDBD-1A) (1A-SLC-Pmp) (480v-RMOV-1A) (CREV-A)</p>	<p>7 Days (14 days)</p>	<p>EDG-B, C, D OS-PWR-DIV-I &amp; II 1-ECCS-II (CS &amp; RHR) (B/D) 2-ECCS-II (CS &amp; RHR) (B/D) SBGT-B, C CREV-B 1B-SLC-Pmp RHRSW-Pmps (B1, B2, C1, C2, D1, D2)</p>
<p><b><u>EDG-B</u></b> (4Kv-SDBD-B) 1/2-ECCS-I (RHR/CS-C) (C1/2-RHRSW-Pmp) (480v-SDBD-2A) (2A-SLC-Pmp)</p>	<p>7 Days (14 days)</p>	<p>EDG-A, C, D OS-PWR-DIV-I &amp; II 1-ECCS-II (CS &amp; RHR) (B/D) 2-ECCS-II (CS &amp; RHR) (B/D) 2B-SLC-Pmp LPCI-MG-2DA, 2EN RHRSW-Pmps (A1, A2, B1, B2, D1, D2)</p>
<p><b><u>EDG-C</u></b> (4Kv-SDBD-C) 1/2-ECCS-II (RHR/CS-B) (B2-RHRSW-Pmp) (B3-EECW-Pmp) (480v-SDBD-1B) (1B-SLC-Pmp)</p>	<p>7 Days (14 days)</p>	<p>EDG-A, B, D OS PWR-DIV-I &amp; II 1-ECCS-I (CS &amp; RHR) (A/C) 2-ECCS-I (CS &amp; RHR) (A/C) 1A-SLC-Pmp</p>
<p><b><u>EDG-D</u></b> (4Kv-SDBD-D) 1/2-ECCS-II (RHR/CS-D) (D2-RHRSW-Pmp) (D3-EECW-Pmp) (B-CB-CHLR) (480v-DAB-B) (SBGT-B) (480v-SDBD-2B) (2B-SLC-Pmp)</p>	<p>7 Days (14 days)</p>	<p>EDG-A, B, C OS-PWR-DIV-I &amp; II 1-ECCS-I (CS &amp; RHR) (A/C) 2-ECCS-I (CS &amp; RHR) (A/C) SBGT-A,C 2A-SLC-Pmp LPCI-MG-2DN, 2EA</p>

**Table 1: EDG / Out of Service Equipment Risk & Protected Equipment Matrix**  
(continued)

<p align="center"><b><u>Inoperable EDG</u></b> Out-of-Service Subsystem, Feature, Components</p>	<p align="center"><b>TS LCO 3.8.1 Condition B</b> <b>Required Action B.4</b> <b>Completion Time</b> (Requested Completion Time)</p>	<p align="center"><b>Protected Features, Subsystems, Components</b></p>
<p align="center"><b><u>EDG-3A</u></b> (4Kv-SDBD-3EA) (MB BATT-1) 3-ECCS-I (RHR/CS-3A) (A3-EECW-Pmp) (480v-SDBD-3A) (3A-SLC-Pmp) (480v-RMOV-3A) (480v-DAB-3A)</p>	<p align="center">7 Days (14 days)</p>	<p align="center">EDG-3B, 3C, 3D OS PWR-DIV-I &amp; II 3-ECCS-II (CS &amp; RHR)(B/D) 3B-SLC LPCI-MG-3DA, 3EN</p>
<p align="center"><b><u>EDG-3B</u></b> (4Kv-SDBD-3EB) (SD BATT-3EB) 3-ECCS-I (RHR/CS-3C) (C3-EECW-Pmp)</p>	<p align="center">7 Days (14 days)</p>	<p align="center">EDG-3A, 3C, 3D OS PWR-DIV-I &amp; II 3-ECCS-II (CS &amp; RHR)(B/D)</p>
<p align="center"><b><u>EDG-3C</u></b> (4Kv-SDBD-3EC) (MB BATT-2) 3-ECCS-II (RHR/CS-3B) (B1-RHRSW-Pmp) (480v-SDBD-3B) (3B-SLC-Pmp) (480v-RMOV-3B) (CREV-B)</p>	<p align="center">7 Days (14 days)</p>	<p align="center">EDG-3A, 3B, 3D OS PWR-DIV-I &amp; II 3-ECCS-I (CS &amp; RHR) (A/C) CREV-A 3A-SLC LPCI-MG-3DN, 3EA</p>
<p align="center"><b><u>EDG-3D</u></b> (4Kv-SDBD-3ED) (MB BATT-3) 3-ECCS-II (RHR/CS-3D) (D1-RHRSW-Pmp) (480v-SBGT-BD) (SBGT-C)</p>	<p align="center">7 Days (14 days)</p>	<p align="center">EDG-3A, 3B, 3C 3-ECCS-I (CS &amp; RHR)(A/C) SBGT-A, B</p>

As an added measure of risk management, TVA has also elected to protect the High Pressure Coolant Injection and Reactor Core Isolation Cooling Systems for the affected unit(s).

## **Grid Reliability:**

Regarding the likelihood of needing EDGs due to the loss of offsite power or degraded voltage conditions, it is noted that TVA's power system provides some of the most reliable electric power in North America. TVA's regional transmission grid spans portions of seven states. TVA's nuclear plants generate approximately 30 percent of TVA's net power. The remaining 70 percent of power generation comes from reliable fossil and hydroelectric plants, pumped storage, and green power.

In actions taken in response to Generic Letter 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power," protocols have been put in place to improve communications between TVA grid operators and BFN operating staff. This includes daily communications regarding plant activities and TVA system grid activities, coordination of scheduling activities on matters related to off-site power and on-site power systems, contingency planning for degraded configurations, and prompt notification of plant operators in the event of degraded grid situations.

Adverse weather contingency procedures have also been established for meteorological conditions which could potentially affect off site power availability. Operators will monitor weather forecasts each shift. Weather conditions will be evaluated prior to entering the extended DG outage and will not be entered if official weather forecasts are predicting severe conditions (tornado or thunderstorm warnings). If severe weather or grid instability is expected after a diesel generator outage begins, station managers will assess the conditions and determine the best course for returning the diesel generator to an available status.

## **EDG Outage Oversight and Operation and Maintenance Restrictions:**

During each emergency diesel generator outage a senior management representative will be assigned to provide oversight of the maintenance activities. The work activities will be walked down in the field and parts availability will be verified prior to the start of the outage. Vendor technical representative availability will also be verified prior to each outage start. The critical path activities will be worked around the clock. System engineer and vendor support will provide on site coverage throughout the outage. Responsible task leads will be assigned around the clock to provide coordination and resolve issues that could challenge timely completion of the work. Daily progress will be reported during morning and afternoon work control meetings and a conference call each evening will be used to update the management team on current status.

During the time of EDG inoperability, planned maintenance and testing activities on components/systems, which could result in inoperability or equipment loss, or which would increase the probability of an unplanned plant transient will be avoided. These components/systems include those features specifically redundant to the features supported by the inoperable EDG and listed in Enclosure 1, Table 1.

Switchyard activities will be carefully monitored and restricted to those needed for plant operation.

As an added measure of risk management, TVA has also elected to protect the High Pressure Coolant Injection and Reactor Core Isolation Cooling Systems for the affected unit(s).

## Technical Evaluation Summary:

In summary, based on the considerations discussed above and for the proposed fourteen day Required Action Completion Time period, TVA concludes that (1) the BFN standby AC system for Units 1 and 2 and Unit 3 can accommodate the extended Required Action Completion Time for an EDG, (2) sufficient protocols are in place to communicate plant and grid activities such that continued reliable electric power is available, and (3) protected equipment and switchyard activities are monitored and are restricted to those needed for plant operation.

## 4.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.90, TVA is submitting a request for a one-time TS change (TS-466-T) to licenses DPR-33 for BFN Unit 1, DPR-52 for BFN Unit 2, and DPR-68 for BFN Unit 3. The proposed change revises the TS Completion Time for Required Action 3.8.1.B.4 from seven days to fourteen days for restoration of an inoperable EDG.

### 4.1 Applicable Regulatory Requirements/Criteria

This amendment request is made under the provisions of Section 50.90 to Title 10 of the Code of Federal Regulations.

### 4.2 Precedent

NRC previously approved Amendment No. 257 to Renewed Facility Operating License No. DPR-68 for the Browns Ferry Nuclear Plant, Unit 3 including the related safety evaluation by the Office of Nuclear Reactor Regulation on April 6, 2007 (Package No. ML011070302, ADAMS Accession No. ML071070289).

This amendment was in response to TVA's application dated April 6, 2007, Issue of Emergency Regarding One-Time Extension of Diesel Allowed Outage Time (TAC No. MD5148)(TS-460-T).

### 4.3 Significant Hazards Consideration

TVA has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment", as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed change does not affect the design of the EDGs, the operational characteristics or function of the EDGs, the interfaces between the EDGs and other plant systems, or the reliability of the EDGs. Required Actions and their associated Completion Times are not considered initiating conditions for any UFSAR accident previously evaluated, nor are the EDGs considered initiators of any previously evaluated accidents. The EDGs are provided to mitigate the

consequences of previously evaluated accidents, including a loss of off-site power.

The consequences of previously evaluated accidents will not be significantly affected by the extended EDG Completion Time because a sufficient number of onsite Alternating Current power sources will continue to remain available to perform the accident mitigation functions associated with the EDGs, as assumed in the accident analyses. Thus, the consequences of accidents previously evaluated are not affected by the proposed change in Completion Time.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed change does not involve a change in the design, configuration, or method of operation of the plant. The proposed change will not alter the manner in which equipment operation is initiated, nor will the functional demands on credited equipment be changed. The proposed change allows operation of the unit to continue while an EDG is repaired and retested. The proposed extension does not affect the interaction of an EDG with any system whose failure or malfunction can initiate an accident. As such, no new failure modes are being introduced. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No

BFN's standby AC system is designed with sufficient redundancy such that an EDG may be removed from service for maintenance or testing. The remaining EDGs are capable of carrying sufficient electrical loads to satisfy the UFSAR requirements for accident mitigation or unit safe shutdown. The proposed change does not impact the redundancy or availability requirements of offsite power supplies or change the ability of the plant to cope with station blackout events. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, TVA concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

#### 4.4 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

#### 5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed TS changes meet the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed TS changes.

#### 6.0 REFERENCES

- 6.1 NRC approved Amendment No. 257 to Renewed Facility Operating License No. DPR-68 for the Browns Ferry Nuclear Plant, Unit 3 including the related safety evaluation by the Office of Nuclear Reactor Regulation on April 6, 2007 (Package No. ML011070302, ADAMS Accession No. ML071070289).
- 6.2 TVA application dated April 6, 2007, Issue of Emergency Regarding One-Time Extension of Diesel Allowed Outage Time (TAC No. MD5148)(TS-460-T).
- 6.3 TVA response to Generic Letter 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power."

**Enclosure 2**

**Browns Ferry Nuclear Plant (BFN)  
Units 1, 2, and 3**

**Technical Specifications (TS) Change TS-466-T - Request for One-Time  
Extensions of TS 3.8.1 Condition B Required Action B.4 Completion Time -  
Emergency Diesel Generators (EDGs) A, B, C, D, 3A, 3B, 3C, and 3D**

**Proposed TS Changes (mark-ups)**

---

**ACTIONS**

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	<p>B.2 Declare required feature(s), supported by the inoperable Unit 1 and 2 DG, inoperable when the redundant required feature(s) are inoperable.</p>	<p>4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)</p>
	<p><u>AND</u></p>	
	<p>B.3.1 Determine OPERABLE Unit 1 and 2 DG(s) are not inoperable due to common cause failure.</p>	<p>24 hours</p>
	<p><u>OR</u></p>	
	<p>B.3.2 Perform SR 3.8.1.1 for OPERABLE Unit 1 and 2 DG(s).</p>	<p>24 hours</p>
<p><u>AND</u></p>		
<p>B.4 Restore Unit 1 and 2 DG to OPERABLE status.</p>	<p>7 days *</p> <p><u>AND</u></p> <p>14 days from discovery of failure to meet LCO</p>	

-----TEMPORARY NOTE -----

\* A DG that is INOPERABLE due to the planned maintenance/modification outage described in TS-466-T shall be returned to operable status within 14 days. This DG outage Completion Time extension is applicable to one DG at a time and on a one-time, once per DG basis. This temporary note expires upon completion of the planned DG outage but no later than June 30, 2010.

(continued)

**ACTIONS**

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Declare required feature(s), supported by the inoperable Unit 1 and 2 DG, inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	B.3.1 Determine OPERABLE Unit 1 and 2 DG(s) are not inoperable due to common cause failure.	24 hours
	<u>OR</u>	
	B.3.2 Perform SR 3.8.1.1 for OPERABLE Unit 1 and 2 DG(s).	24 hours
<u>AND</u>		
B.4 Restore Unit 1 and 2 DG to OPERABLE status.		7 days *
		<u>AND</u> 14 days from discovery of failure to meet LCO

-----TEMPORARY NOTE -----

\* A DG that is INOPERABLE due to the planned maintenance/modification outage described in TS-466-T shall be returned to operable status within 14 days. This DG outage Completion Time extension is applicable to one DG at a time and on a one-time, once per DG basis. This temporary note expires upon completion of the planned DG outage but no later than June 30, 2010.

(continued)

**ACTIONS**

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Declare required feature(s), supported by the inoperable Unit 3 DG, inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	B.3.1 Determine OPERABLE Unit 3 DG(s) are not inoperable due to common cause failure.	24 hours
	<u>OR</u>	
	B.3.2 Perform SR 3.8.1.1 for OPERABLE Unit 3 DG(s).	24 hours
<u>AND</u>		
B.4 Restore Unit 3 DG to OPERABLE status.	7 days *	
<u>AND</u>		
	14 days from discovery of failure to meet LCO	

-----TEMPORARY NOTE -----

\* A DG that is INOPERABLE due to the planned maintenance/modification outage described in TS-466-T shall be returned to operable status within 14 days. This DG outage Completion Time extension is applicable to one DG at a time and on a one-time, once per DG basis. This temporary note expires upon completion of the planned DG outage but no later than June 30, 2010.

(continued)

## Enclosure 3

### Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3

#### Technical Specifications (TS) Change TS-466-T - Request for One-Time Extensions of TS 3.8.1 Condition B Required Action B.4 Completion Time - Emergency Diesel Generators (EDGs) A, B, C, D, 3A, 3B, 3C, and 3D

#### Regulatory Commitments

---

1. During the time of EDG inoperability, planned maintenance and testing activities on components/systems, which could result in inoperability or equipment loss, or which would increase the probability of an unplanned plant transient will be avoided. These components/systems include those features specifically redundant to the features supported by the inoperable EDG and listed in Enclosure 1, Table 1.

As an added measure of risk management, TVA has also elected to protect the High Pressure Coolant Injection and Reactor Core Isolation Cooling Systems for the affected unit(s).

2. To best assess grid reliability and the impact on plant risk and the operability of offsite power, protocols have been put in place to improve communications between TVA grid operators and BFN operating staff.

Daily communications regarding plant activities and TVA system grid activities, coordination of scheduling activities on matters related to off site power and onsite power systems, contingency planning for degraded configurations, and prompt notification of plant operators in the event of degraded grid situations will be maintained during the time of EDG inoperability. Switchyard activities will be carefully monitored and restricted to those needed for plant operation.

Adverse weather contingency procedures have also been established for meteorological conditions which could potentially affect off site power availability. Weather conditions will be evaluated prior to entering the extended EDG outage and will not be entered if official weather forecasts are predicting severe conditions (tornado or thunderstorm warnings).