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Status: This prerequisite was satisfied by the issuance of the TVA Operational Readiness Review (ORR) report on January 4, 2007. A team of experienced TVA and industry personnel conducted this comprehensive review of BFN's operational readiness over a period from November 6-9, 2006, and during a follow-up review December 18-19, 2006. The team evaluated the actions taken to address the ORR recommendations/action items, and performed an in-depth review of the corrective actions taken for a sample of the areas for improvement. The ORR team concluded that the BFN programs, procedures, management and staff are ready to restart Unit 1 and are ready to safely operate three units subject to completion of the remaining restart open items identified in the BFN management restart open items list. The restart items identified by the ORR team have been closed as documented in the TVA Operational Readiness notebooks which are available for ORAT review. A copy of the January 4, 2007, ORR report is attached (Attachment 1).

- 3) All Special Programs and safety-related modifications required for startup are essentially complete.

Status:

Special Programs

Attachment 2 contains a listing and status of the Nuclear Performance Plan (NPP) Special Programs. Completion of a program requires both the TVA actions and the NRC inspection/approval. The NPP Special Programs have been completed by TVA and NRC with three exceptions:

Cable Installation/Cable Separation Issues  
Environmental Qualification  
Restart Test Program

Engineering and field actions for the Cable Installation/Cable Separation program are complete. The only remaining action is the final NRC inspection.

The Environmental Qualification program is complete except for one stage of one design change notice (DCN). It is expected to be complete by April 23, 2007.

The Restart Test Program (RTP) has elements that are completed before unit startup (i.e., pre-restart) and some that are completed after unit startup; therefore, full closure of the program will not occur until after restart. Pre-restart actions for the Restart Test Program (RTP) are complete for the systems which have been completed through the System Pre-Operability Checklist (SPOC) II milestone. There are five safety related or risk significant systems which are not through SPOC II. These will be discussed in item 4 below. These systems will have completed the SPOC II milestone prior to startup.

#### Safety Related Modifications

The Browns Ferry Unit 1 system turnover process is controlled under the System Pre-Operability Checklist (SPOC) procedure. The procedure is divided into two phases. The first phase (SPOC I) ensures all modifications are field complete. The second phase (SPOC II) ensures all the post-modification testing is complete, such that the modification is ready to support system operability. Thus the safety related modifications for a system have been installed when a system has undergone the SPOC I process.

Phase I SPOCs, and hence the associated modifications, have been completed for the safety related and risk significant systems with the following exceptions:

- System 1 - Main Steam
- System 3 - Feedwater
- System 47 - Electro-Hydraulic Control

These systems are expected to complete SPOC I prior to April 23, 2007.

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- 4) System Pre-Operability Checklists (SPOC) II for all safety-related and risk-significant systems and areas are complete and systems turned over to Operations.

Status: SPOC Phase IIs have been completed for the safety related and risk significant systems with the following exceptions:

System 1	Main Steam
System 2	Condensate
System 3	Feedwater
System 27	Condenser Circulating Water
System 47	Electro-Hydraulic Control

There are Exceptions or Deferrals for some systems which have already completed the SPOC II milestone. This list is controlled under the System Return to Service Procedure (1-TI-437). The exceptions are required to be closed prior to system operability. The list of items is available on site for review.

- 5) Completion of approximately 75% of the surveillance tests required for start-up, and identification of any significant outstanding surveillance tests required by Technical Specifications.

Status: Currently 95% of the Surveillance Requirement/Surveillance Instruction (SR/SI) tests required prior to startup are complete. The remaining pre-restart tests will be completed for the SPOC II of the systems listed in item 4 above or at the appropriate plant milestone.

- 6) Issuance of essentially all safety-related procedure and drawing revisions needed to support startup and power operation.

Status: Essentially all safety related procedures have been issued. The system related and non-system related procedures have been issued with the exception of seven procedures. These procedures are expected to be issued before April 23.

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The safety-related drawing revisions are complete except for the three systems listed above which have not completed the SPOC I milestone. These drawings are expected to be issued before April 23, 2007.

- 7) Completion of the restart test program and resolution of essentially all test deficiencies for safety-related and risk significant systems required to support startup.

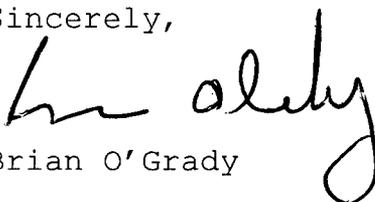
Status: As discussed above, the completion of the pre-restart portion of the restart test program is tied directly to the SPOC II milestone for each system. There are five systems that have not reached the SPOC II milestone. SPOC II for each system is required prior to restart.

TVA believes that the above described outstanding issues will not impact our ability to demonstrate that we are ready to safely operate the three units, and that the NRC inspection for readiness can proceed as discussed in Item 1.

TVA expects the current restart schedule to support the completion of the ORAT inspection prerequisites as described herein. However, we will keep the NRC informed of the current status of each item through periodic communications with Malcolm Widmann, Region II, Branch Chief.

If you have any questions, please telephone William D. Crouch at BFN, 256-729-2636.

Sincerely,



Brian O'Grady

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Enclosures

cc (Enclosures):

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Attachment 1

TVA Operational Readiness Review Letter  
January 4, 2007

(See attached letter)

EDMS

January 4, 2007

Karl Singer, LP 6A-C

**BROWNS FERRY NUCLEAR (BFN) UNIT 1 RESTART - OPERATIONAL READINESS REVIEW (ORR)**

The Operational Readiness Program for restart of BFN Unit 1 and three unit operation includes an independent Operational Readiness Review to advise the Chief Nuclear Officer of the BFN site readiness to restart Unit 1 and safely operate three units. The scope of this review, to be conducted by a team of experienced TVA and industry personnel, was to assess the readiness of BFN management, personnel, programs, processes, and procedures to support three-unit operation.

The ORR team, consisting of Larry Bryant, Bill Russell, Ed Hux, John Moyer, and me, conducted an initial review from November 6-9, 2006. The team reviewed actions being taken for Areas of Improvement (AFIs) identified by department readiness self-assessments, the Institute of Nuclear Power Operations (INPO) three unit readiness review and the World Association of Nuclear Operators (WANO) Peer Review. The team also reviewed Nuclear Safety Review Board (NSRB) open items, restart actions included in the BFN Excellence Plan; conducted a plant walkdown; and interviewed selected site managers and Operations, Maintenance, and Systems Engineering personnel.

The team provided recommendations and action items to the site. A follow-up review was conducted on December 18-19, 2006 which evaluated the actions being taken to address the ORR recommendations/action items, and performed an in-depth review of the corrective actions being taken for a sample of AFIs. A plant walkdown was conducted and control room operations were observed.

The ORR team found that BFN is adequately addressing the previously identified AFIs and the recommendation/action items from the initial ORR review. The ORR provided five recommendations to improve restart readiness preparations from the follow-up review. BFN is including these recommendations in the restart open items list.

The ORR team concludes that BFN programs, procedures, management, and staff are ready to restart Unit 1 and to safely operate three units subject to completion of the remaining restart open items identified by BFN management. The ORR team report is attached.



Preston Swafford  
Senior Vice President  
Nuclear Support  
LP 6A-C

PDS:TJM:PCW  
Attachment  
cc See page 2

Karl Singer  
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January 4, 2007

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## BROWNS FERRY OPERATIONAL READINESS REVIEW (ORR)

### PURPOSE

Advise the Chief Nuclear Officer of Browns Ferry (BFN) site readiness to restart Unit 1 and to safely operate three units.

### DATES

Initial Review	November 6-9, 2006
Follow-up Review	December 18-19, 2006

### TEAM MEMBERS

\*Preston D. Swafford, TVAN, Team Leader  
Larry S. Bryant, TVAN  
Ed Hux  
John W. Moyer  
\*William Russell

*\* Conducted follow-up review*

### CONCLUSION

The ORR team concludes that BFN programs, procedures, management and staff are ready to restart Unit 1 and to safely operate three units subject to completion of the remaining restart open items identified in the BFN management restart open item list. These open items include addressing the ORR team recommendations.

### RECOMMENDATIONS

1. While housekeeping was much improved since the initial ORR review, ORR team observations indicated that continued emphasis is necessary to maintain operating plant standards in Unit 1 to that level turned over at SPOC II.
2. Performance indicators (PIs) for Engineering have been identified and goals established; however, the indicator data is not yet being collected and the PIs are not published. The ORR team recommends prompt implementation.
3. BFN has developed closure packages for the Areas of Improvement (AFIs) identified by internal and external reviews. The ORR team recommends that these packages be reviewed and updated to ensure that information is complete and current, and that documentation for completion of actions is included.
4. BFN has implemented shutdown risk management tools (e.g., ORAM/Sentinel) for Unit 1, but the software is currently only operational on one computer in Work Control. Full implementation on the LAN is planned prior to restart. The ORR team recommends that BFN evaluate accelerating this schedule to facilitate risk management reviews now that Unit 1 is fueled.

5. Actions are planned to review outage surveillances and preventive maintenance activities for shared Unit 1 and Unit 2 systems to identify potential dual unit outage requirements. The ORR team recommends completing these reviews promptly to support implementation or alternative resolution prior to Unit 1 restart.

## SCOPE of REVIEW

The ORR consisted of two phases, an initial review in November 2006 and a follow-up in December 2006. The initial review included assessments of the actions being taken to address the Areas for Improvement (AFIs) identified by the BFN department readiness process in accordance with Business Practice (BP) 339, including the AFIs from both the initial and follow-up department self-assessments, the INPO three unit readiness review and the WANO Peer review. The team was briefed on these actions by the responsible BFN department managers. The team also reviewed NSRB open items and restart related actions in the BFN Excellence Plan. The team interviewed selected site managers and Operations, Maintenance and Systems Engineering personnel, and conducted a plant walkdown. The team provided recommendations and action items to the site based on these reviews.

During the follow-up review, the team evaluated the actions being taken in response to the ORR recommendations and action items, and performed an in-depth review of the corrective actions being taken for a sample of AFIs. Control room operations were observed and a plant walkdown conducted.

## FINDINGS

### TRANSITION PLANS

During the initial review, the team identified the need for improvement in BFN actions to effectively transition to a three unit operating site, particularly with regard to the need for an integrated site transition plan. Based on interviews with plant personnel, plant walkdowns and reviews of department transition plans, the BFN Excellence Plan and the INPO three unit readiness review, the team concluded:

- While individual department transition plans were developed, there was not an integrated site transition plan.
- Employees did not have a good understanding of the current site organizational structure and the plans to transition to an operating organization structure.
- Operating plant standards had not yet been effectively implemented for Unit 1, as evidenced by deficiencies in Foreign Material Exclusion (FME) standards and housekeeping.
- There was an inconsistent understanding of Operations' responsibility for turned-over Unit 1 equipment.
- The BFN Excellence Plan was not being effectively used as a restart readiness tool. The team found significant variations in the plan quality among organizations and noted that the large number (>1400) of actions in the plan diluted the focus on important issues.
- Site Nuclear Assurance needed to accelerate transition plans for oversight of operating standards at Unit 1 like those provided for Units 2 and 3.
- The team's findings were consistent with INPO observations.

Based on these observations, the ORR team recommended development of an integrated site transition plan which would address these areas. The need for timely

action to begin changing behaviors to those based on operating standards was emphasized. This was particularly important regarding housekeeping and FME.

During the follow-up visit, the team found that BFN had developed an integrated transition plan, and clearly communicated site ownership and the requirements for operational standards in Unit 1. While some deficiencies were noted, housekeeping and FME standards had significantly improved. BFN also addressed the weaknesses in use of the Excellence Plan, by specifically designating which actions were required for Unit 1 fuel load and restart. A single open items list for fuel load operational readiness was developed to focus management attention. The actions from the Excellence Plan were included in this list. A similar single list for restart is being completed.

The team noted that the integrated site transition plan did not address management monitoring of performance during the transition period. The Site Vice President informed the team that he was accelerating the normal cycle for the site Integrated Trend Report to provide an assessment of transition period performance by the end of January 2007, and noted that plant management was also required to certify readiness as part of the fuel load and restart prerequisite process (1-TI-270).

The team also observed Unit 1 control room operations and noted no deficiencies.

## **RECOMMENDATIONS**

1. While housekeeping was much improved since the initial ORR review, ORR team observations indicate that continued emphasis is necessary to maintain operating plant standards in Unit 1.
2. PIs for Engineering have been identified and goals established; however, the indicator data is not yet being collected and the PIs are not published. The ORR team recommends prompt implementation.

## **COMMUNICATIONS**

Related to the above finding on transition plans, the ORR team found that BFN had not effectively communicated the detailed plan and schedule for transition to a three unit operating site. The organizational structure which would be in effect during the transition period had also not been clearly communicated. The team recommended a bold declaration of site ownership of Unit 1. The team considered that a timely declaration would provide more time to monitor and reinforce standards and behaviors before start up.

In response to the ORR recommendations, BFN conducted a site-wide "Declaration Day" on November 17, 2006 to communicate the expectations, plans, and schedule for site ownership of Unit 1. Business Practice 344 was issued to clearly define responsibilities and expectations for Unit 1. Weekly communication newsletters are being issued, and another site-wide communication was provided just prior to Unit 1 fuel load. The team considers that BFN is satisfactorily addressing this area.

## **AREAS for IMPROVEMENT**

During the initial review, the ORR team concluded that actions being taken, or planned for the AFIs identified by the department readiness process (BP-339) and the INPO Three Unit Readiness Review, were appropriate and reasonable. The team recommended that closure

packages be prepared for each AFI. The ORR team also recommended that BFN perform a self-assessment of fuel load readiness using NRC inspection procedures.

During the follow-up visit, the team conducted an in-depth review of a selected number of AFIs, including review of the associated closure package. The team noted some weaknesses in the corrective action documentation included in closure packages. For example:

- The package for Outage and Scheduling (O&S) AFI-3 concerning training on design changes and process changes was incomplete. The actual training provided, which the team considered satisfactory, was more extensive than that described in the needs analysis and associated Problem Evaluation Report (PER).

NOTE: BFN will revise the existing PER or issue a new PER to accurately reflect the training provided.

- In some cases, the package did not include all PER attachments, procedure revisions, or actual closure documents (e.g., there was only reference to plan). Some documents were not current.
- The packages for Chemistry AFI-7 on technical strategy were strong and well supported. However, implementation details, which were provided at the team's request, were not included.
- The PER documentation of the planned actions for the INPO AFI on critical BOP components was incomplete. The PER was revised during the ORR review to require documentation of the critical component testing review during the System Pre-Operational Check (SPOC) II process.

The team also found that the recommended fuel load readiness self-assessment had been completed. The findings were included in the fuel load open items list and resolved.

#### **RECOMMENDATION**

1. BFN has developed closure packages for the AFIs identified by internal and external reviews. The ORR team recommends that these packages be reviewed and updated to ensure that information is complete and current, and that documentation for completion of actions is included.

#### **OTHER ACTION ITEMS**

The ORR team identified several other action items during the initial review which are not discussed in the above sections of this report. During the follow-up visit, the team found the following items were being adequately addressed:

- During the initial ORR, deficiencies in the protection and monitoring of turned-over equipment were noted. The site has implemented effective controls.
- The team recommended familiarization of Operators with the operation of Unit 1 under technical specification conditions. The site initiated the use of technical specifications several weeks prior to fuel load, including the use of tracking LCOs.
- The team requested additional information concerning the cycle plans for three unit operation. The information was provided and the plans found to be satisfactory.

- The team recommended a walkdown of Unit 1 for inappropriate or out-of-date operator aides. This was completed by the site. No such operator aides were found during the follow-up visit plant walkdown.
- The team recommended that simulator training be evaluated regarding increased RWCU flow and the potential impact to level control. This training has been scheduled for early 2007.
- A BFN department readiness self-assessment had identified the need to complete effectiveness reviews for six Unit 1 PERs. During the initial team visit, the team recommended timely completion of these reviews. The effectiveness reviews have been completed.

During the initial review the team reviewed the plans for shutdown risk management implementation for Unit 1. The team recommended timely completion of these plans and the development of a training needs analysis to ensure the adequacy of the planned O&S training. During the follow-up visit, the team also conducted an in-depth review of shutdown risk management implementation for Unit 1, including observations in the work control center. The team has the following recommendations in this area:

#### **RECOMMENDATIONS**

1. BFN has implemented shutdown risk management tools (e.g., ORAM/Sentinel) for Unit 1, but the software is currently only operational on one computer in Work Control. Full implementation on the LAN is planned prior to restart. The ORR team recommends that BFN evaluate accelerating this schedule to facilitate risk management reviews now that Unit 1 is fueled.
2. Actions are planned to review outage surveillance and preventive maintenance activities for shared Unit 1 and Unit 2 systems to identify potential dual unit outage requirements. The ORR team recommends completing these reviews promptly to support implementation or alternative resolution prior to Unit 1 restart.

#### **BRIEFING**

The ORR team leader briefed the site Vice President and the Senior Program Manager, Operational Readiness on the ORR team conclusions and recommendations. The site stated that ORR recommendations will be included in the Unit 1 restart open items list.

NOTE: During the initial review, the ORR team recommended consideration of three actions (testing of purchased spares, engineering indicators presented at site meetings, and system health meeting attendance) which are not Unit 1 restart related. Status was not evaluated during the follow-up visit.

## Attachment 2

### Nuclear Performance Plan Special Program Status

NPP Special Program	TVA Work Complete	NRC Inspection Complete
1. Cable Ampacity	X	X
2. Cable Installation / Cable Separation Issues	X	Note 1
3. Cable Splices	X	X
4. Cable Tray Supports	X	X
5. Component and Piece Part Qualification	X	X
6. Conduit Supports	X	X
7. Configuration Management	X	X
8. Containment Coatings	X	X
9. Control Rod Drive Insert / Withdrawal Piping	X	X
10. Design Calc Review	X	X
11. Drywell Steel Platforms and Upper Drywell Platforms	X	X
12. Environmental Qualification	Note 2	X
13. Fire Protection / Appendix R	X	X
14. Flexible Conduit	X	X
15. Fuses	X	X
16. HVAC Duct Supports	X	X
17. Instrument Sensing Lines	X	X
18. Instrument Tubing	X	X
19. Intergranular Stress Corrosion Cracking	X	X
20. Large Bore Pipe Supports	X	X
21. Long Term Torus Integrity Program	X	X
22. Miscellaneous Steel Frames	X	X
23. Moderate Energy Line Break	X	X
24. Platform Thermal Growth	X	X
25. Probabilistic Safety Assessment	X	X
26. Q List	X	X
27. Restart Test Program	Note 3	X
28. Seismic II over I	X	X
29. Small Bore Piping Supports	X	X
30. Thermal Overloads	X	X

Note 1: Pending NRC Inspection of internal panel cable separation.

Note 2: One stage of one DCN remaining. Expected completion by April 23, 2007.

Note 3: Pre-restart activities complete at SPOC II. Full program closure following restart.