

October 20, 2006

COMSECY-06-0052

MEMORANDUM TO: Chairman Klein
Commissioner McGaffigan
Commissioner Merrifield
Commissioner Jaczko
Commissioner Lyons

FROM: Luis A. Reyes */RA/*
Executive Director for Operations

SUBJECT: STATUS OF BROWNS FERRY UNIT 1 RECOVERY PROJECT

The purpose of this memorandum is to provide the Commission with the status of the staff's regulatory oversight of the recovery and restart of Browns Ferry Nuclear Plant (BFN) Unit 1 and request that the Commission authorize the Region II Administrator to allow restart of BNF Unit 1. This memorandum also provides an overview of the regulatory oversight process that the staff is employing during the recovery and restart project and identifies certain issues of potential significance.

Browns Ferry is a three unit boiling water reactor facility near Decatur, AL. The licensee (Tennessee Valley Authority or TVA) has maintained BFN Unit 1 shut down and in a layup condition since 1985 when it voluntarily shut down and maintained shutdown of all three BFN units due to poor performance (i.e., significant enforcement actions, several operational events, equipment failures, and management's inability to identify and correct problems). BFN Units 2 and 3 were restarted in the 1990's as described in SECY-95-264 (Unit 3) and SECY-91-101 (Unit 2).

In 2002, the TVA Board of Directors authorized recovery and restart of Unit 1. The licensee outlined a 5-year restart and recovery plan, with restart scheduled for mid-2007. TVA described its plan for recovery and restart of Unit 1 in a meeting on April 24, 2003, and in letters dated December 13, 2002, February 28, 2003, and June 11, 2003. The NRC staff accepted TVA's proposed regulatory framework in a letter dated August 14, 2003. The regulatory framework identifies the generic communication responses, special programs, technical specification changes, and other licensing and regulatory issue responses that TVA agreed to submit to the NRC for review prior to the restart of Unit 1.

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The NRC has established a methodology and plan for oversight of the Unit 1 recovery. After an extensive review of NRC lessons learned from TVA's recovery of BFN Units 2 and 3 during the 1990s and a critical evaluation of differences between the previous recoveries and TVA's recovery plan for Unit 1, the agency formally defined the detailed methodology in Inspection Manual Chapter (IMC) 2509, "Browns Ferry Nuclear Unit 1 Restart Project Inspection Program," issued on August 6, 2003. The purpose of IMC 2509 is to provide the policies and requirements for the restart inspection program, to establish a restart oversight panel, and to provide guidance for documenting the major regulatory and licensee actions associated with the restart. In addition, IMC 2509 provides guidance on assessing the licensee's readiness for restart and for the eventual return of the unit to the Reactor Oversight Process. In SECY 03-0123, dated July 22, 2003, the staff informed the Commission of its plan to use traditional enforcement before plant restart.

The Browns Ferry Restart Oversight Panel was chartered in October 2005 to review and guide the staff's efforts to implement the requirements of IMC 2509. Under the auspices of the Restart Oversight Panel, the staff is performing inspections and oversight activities to ensure the key issues which led to the shutdown have been adequately addressed and that the licensee is in compliance with requirements that have emerged since 1985. The Restart Oversight Panel monitors TVA's activities through periodic meetings with TVA senior management, frequent panel status meetings, and review of the NRC BFN Unit 1 recovery inspection process. The panel also reviews staff progress on related activities that must be completed prior to the restart of Unit 1. These activities include processing of a number of license amendment requests and coordination with external stakeholders. The agency has also developed a Browns Ferry Unit 1 Recovery web page on the NRC public web site. The web page contains background documents on the Unit 1 recovery process, related inspection reports, and TVA and restart oversight panel meeting minutes.

TVA plans to load fuel into the Unit 1 reactor vessel in December 2006. TVA currently plans to restart Unit 1 (i.e., place the reactor in Mode 2) in May 2007. In a public meeting in August 2006, TVA advised the staff that they are attempting to improve on that date. The staff has developed a flexible inspection plan that could provide the necessary oversight for a restart date as early as February 2007. The staff has developed a master schedule that outlines the agency actions and processes that must be completed before the Regional Administrator, in consultation with the Director of NRR, would be prepared to authorize restart. The master schedule is included as an Enclosure. After satisfactory completion of regulatory activities needed for Unit 1 recovery, the Restart Oversight Panel will recommend restart to the Regional Administrator, Region II, and the Director of NRR. Consistent with Commission direction for BNF Unit 3 restart in SECY 95-264, IMC 2509, and following a Commission briefing, the Regional Administrator, with the concurrence of the Director of NRR, will authorize the restart.

At the present time, TVA has completed a substantial portion of its planned construction activities. These activities have included significant piping and component replacement, a significant amount of electrical re-cabling, and upgrading of a large number of components throughout the plant. As construction activities near completion, the licensee is focusing on returning rebuilt and refurbished systems to service and transferring control of those systems from the construction organization to the Browns Ferry operations staff.

TVA has also completed many of the licensing activities associated with the restart of Unit 1. A number of license amendments are required to reflect plant modifications, corrective actions, and other generic improvements needed to update Unit 1 to current regulatory requirements. Of the 21 license amendments identified by TVA as required to revise the technical specifications prior to restart, 17 have been issued. Also, the staff is reviewing TVA's completion of about 49 generic communications, including generic letters, bulletins, and Three Mile Island Action items, which had not been previously implemented at Unit 1. The staff is still reviewing the power uprate license amendments, which are discussed below.

As noted above, the staff, through the efforts of the Restart Oversight Panel, is monitoring both the licensee's recovery activities and the staff's regulatory activities. Several issues warrant Commission awareness because of their importance to the licensee's planned restart schedule and the staff's efforts to perform the necessary oversight activities.

- **Extended Power Uprate (EPU):** TVA has applied to increase the licensed power level for Unit 1 by approximately 20 percent to 3952 MWt. During its recovery activities, the licensee has rebuilt or upgraded systems to support the new power level. (TVA has applied for similar new power levels for Units 2 and 3 and intends to modify Unit 2 systems to support the new power level during its Spring 2007 refueling outage). As outlined in letters dated July 11 and July 12, 2006, the staff has identified several technical and schedule issues associated with the review of the EPU application for Unit 1. Principal among these issues are concerns about the licensee's analyses related to steam dryer structural adequacy and credit for containment overpressure for emergency core cooling systems analyses. On September 22, 2006, TVA submitted a revised power uprate application for Unit 1. The application includes analyses for a 20 percent uprate, but will limit power to 105 percent (a five percent increase). BFN Unit 2 and BFN Unit 3 were approved for 105 percent in 1998. To effectively resolve the steam dryer concerns, TVA will collect plant specific steam dryer performance data at 105 percent power. TVA will subsequently submit a revised steam dryer performance analysis to support operation at 120 percent power. TVA has proposed that upon review of the revised steam dryer analysis, NRC approve operation at 120 percent.
- **System Return to Service Program:** As the licensee completes construction and testing activities on systems throughout the plant, it turns those systems over to the control of the plant operating staff. The licensee has established a comprehensive schedule for the turnover activities for all systems, both safety and non-safety, throughout the plant. In early 2006, the staff and licensee identified several concerns with the implementation of the system turnover process (referred to as the System Pre-Operability Checklist process). Since that time, the licensee has developed and implemented a number of corrective actions to address these concerns and they are applying an improved process to the turnover of systems. As a result of the process revisions, the licensee has reorganized the schedule for turnover of systems. The staff has advised TVA that the licensee's schedule needs to allow sufficient time for the NRC to conduct appropriate and effective inspections and develop a recommendation to NRC management regarding restart as outlined in the enclosed master schedule.

- Fire Protection: The licensee has made some plant modifications to address compliance with 10CFR50 Appendix R. However, their current approach includes use of manual operator actions to address individual instances of noncompliance with Appendix R, Section III.G.2. Consistent with the approach outlined in a notice published in the *Federal Register* on March 6, 2006 (71 FR 11169), the licensee has entered these instances of noncompliance into their corrective action program. The staff completed an inspection regarding the licensee's approach in May 2006 and has further inspected the licensee's program as part of the Triennial Fire Protection Inspection for BFN Units 1, 2 and 3 in August and September 2006. The staff continues to review the results of those inspections and will evaluate the need for additional fire protection inspections.
- TVA currently plans to restart Unit 1 in May 2007. TVA has advised the staff that they are attempting to improve on that date to as early as February 2007. The staff is expediting its activities to ensure that regulatory activities do not result in any significant delays for the Unit 1 restart. The ACRS has historically waived the review of power uprates up to 105 percent except in special cases where the request involves significant plant changes, potentially higher impacts, or uncommon issues. The staff is interfacing with the ACRS to determine the scope and schedule for a Unit 1 ACRS review, which may include presentations on items of interest to the ACRS. The staff does not believe a full ACRS review is needed for the restart at 105 percent power, since Units 2 and 3 have been operating at the 105 percent power level since 1998 and Unit 1 is similar in design and operation to Units 2 and 3. The ACRS will review the staff's safety evaluation for the 120 percent power level in its entirety. Assuming the ACRS agrees with this proposal, the staff expects to complete its review of the 105 percent uprate by December 2006 which would allow restart as early as February 2007. Full ACRS review at 105 percent will delay the issuance of the 105 percent amendment by three to four months.

In summary, the Restart Oversight Panel will continue to manage the overall restart oversight activities. The panel will ensure that, in concert with line managers, the status of restart oversight activities are appropriately briefed to agency senior managers. The staff has developed a communication plan to ensure information is exchanged with all stakeholders as restart and recovery progresses. The staff will provide additional updates to the Commission as the effort continues.

SECY please track.

Enclosure:
BF1 Restart Master Tracking Forecast
Schedule

cc: SECY
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Distribution: See next page

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ADAMS: Yes ACCESSION NUMBER: ML062780394

*See previous concurrence

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Memo to Commission from Luis A. Reyes dated October 20, 2006.

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