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ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

IN REGARD TO VOLUME 3 OF THE BROWNS FERRY NUCLEAR PERFORMANCE PLAN

SECTION II.5.0 PLANT SURVEILLANCE PROGRAM

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-260

1.0 INTRODUCTION

The Tennessee Valley Authority (TVA or the licensee) reviewed the Browns Ferry Nuclear Plant (BFN) Surveillance Program as part of the development of their Nuclear Performance Plan (NPP), Volume 3, for Browns Ferry. The resulting program assessment identified seven root causes for surveillance-related deficiencies which had resulted in numerous notices of violations from the NRC. These root causes were grouped into one of the following general categories: unclear, difficult to use procedures, and insufficient attention to detail by personnel performing surveillances and reviewing the surveillance results. In the NPP, TVA described four specific programmatic actions which would be implemented to correct the identified root causes.

The staff reviewed the programmatic actions as described in Section II.5.0 of the NPP to determine if they would correct the identified root causes. These actions, and the root causes they are intended to correct, are as follows:

Program	Associated Root Cause
a. Surveillance Instruction (SI) Upgrades	--Inconsistent Acceptance Criteria in SI's --Difficult to Use Procedures
b. Vendor Manual Control Program (VMCP)	--Inaccurate or Outdated Technical Criteria
c. Improved Management Practices	--Failure to Follow Procedures
d. Implementation of Systems Engineer (SE) Concept	--Incomplete Technical Reviews --Shallow Resolution of Technical Issues --Delayed Corrective Actions

2.0 EVALUATION

The staff's review of TVA's implementation of the programs described above included a programmatic assessment of the following attributes: organization; duties and responsibilities; governing procedures; program methodology; management oversight and procedure implementation, and, tracking of commitments.

2.1 Surveillance Instruction (SI) Upgrades

The upgrades to BFN's Surveillance Instructions (SI or SIs) are governed by Site Director Standard Procedure (SDSP) 2.14, "Surveillance Instruction Evaluation." The purpose of upgrading SIs is to correct the root causes identified as contributing to poor SIs; difficult to use procedures, and inconsistent acceptance criteria. The complete resolution of inconsistent acceptance criteria will be attained by both the SI Upgrade Program and by the Vendor Manual Control Program. BFN management intends to complete the upgrade of all SIs applicable to Unit 2 prior to the restart of that reactor. SDSP 2.14 is structured to allow for a smooth, logical flow of procedure development steps, including SI drafting, verification by a cognizant engineer, review by a qualified technical reviewer, a review by an Independent Review Group (IRG) of 20% of the SIs selected at random, physical walkdown of every SI, final SI approval, and documented SI validation on each SI first scheduled performance, with IRG observation of a random 10% sample of these validations. "Non-performance" type SIs (e.g., data recording surveillances), however, do not need to undergo walkdown and validation. The walkdown of an SI consists of a non-manipulative walkthrough of the procedure by appropriately qualified SI performers to verify that equipment configuration and labeling and the flow of procedural steps are accurate, efficient and logical. The validation run of an SI is the first operational run of that procedure. The entire SI upgrade process is effectively controlled by the use of one or more detailed checklists, as required, which encourage uniformly high quality among the procedures.

Two programmatic deficiencies have been identified with the process described above. First, there is no requirement for personnel reviewing SIs to verify the circuit or piping flow paths used in SIs. The lack of such a requirement means that, programmatically, there is an incomplete second check of the SI drafter's work. Any drafter's errors in tracing the proper path would most likely become apparent only during the validation run of an SI. The modes of discovery of such errors during validation could range from simple non-receipt of expected indications to possible personnel injury or equipment damage.

The second programmatic deficiency noted with the SI Upgrade Program is that there exists no requirement for a qualified third party to observe the execution of all SI validations in order to provide a quality check on the ability of SI performers to perform every procedure precisely as written. The staff's underlying concern is that, with an essentially new surveillance program being implemented in a substantially modified plant, there appears to exist insufficient provisions to assure the quality necessary to guarantee the workability and repeatability of every SI.

The staff has determined that, except for the noted deficiencies, the management controls established to upgrade SIs at BFN appear to adequately address the root causes which, in the past, contributed to difficult-to-use SIs and unsatisfactory acceptance criteria.

TVA has initiated a limited third party observation of SI validations. The staff has noted that this limited scope third party review may not produce the consistency and quality required for the level of correctness and procedure repeatability necessary for an effective surveillance program. Alternatives discussed with TVA included the concept of increasing the third party review to a more significant percentage of SI validation.

2.2 Vendor Manual Control Program

The Vendor Manual Control Program (VMCP) was instituted at BFN in order to establish a formal integrated control system for vendor manuals. Prior to the creation of the VMCP, the vendor technical manuals (VMs) on site were considered information only, and, as such, were not maintained in a controlled manner. This loose control of VMs resulted in the inclusion of outdated and inaccurate technical information in SIs. The objective of the VMCP with respect to the BFN Surveillance Program is to ensure that vendor information relating to plant equipment is accurately reflected in SIs. Under the VMCP, VM/procedure cross reference tables have been established to ensure that simple means exist for procedure drafters and reviewers to evaluate the effects of VMs changes on all plant procedures, including SIs.

The OSP staff has found that the management controls established by the VMCP, as they apply to SI procedures and acceptance criteria, are acceptable. The methodology outlined in SDSP 10.1, "Vendor Manual Control Program," appears to meet the need to have the correct vendor manual information properly reflected in SI procedures and acceptance criteria.

2.3 Improved Management Practices

The purpose of instituting improved management practices at BFN relative to the Surveillance Program was to correct the problem of plant personnel not complying with procedures. To substantiate that appropriate corrective action has been implemented at BFN to address this problem, the staff conducted interviews with both BFN staff members and management personnel, and reviewed plant procedures relating to this issue. The OSP reviewers particularly wanted to verify the existence of personnel training in the proper use of procedures, and to determine if there existed any consequences for personnel who failed to follow procedures.

The staff concluded that there have been sufficient improvements in the BFN management practices to foster an environment of procedural compliance at the site. Specific programs instituted to achieve this end include the Nuclear Accreditation Bonus Pay (governed by PMI-6.16), which requires successful completion of annual basic training in nuclear plant practices, demonstrated by passing an examination, in order to continue receiving the Nuclear Accreditation Bonus Pay. The proper use of procedures is addressed by this training. Another policy which has been implemented at BFN is "Personnel

Policies and Procedures" (SDSP-32.2) which contains provisions for disciplinary action against plant personnel, including those who do not adhere to procedures. Objective evidence reviewed by the staff substantiated that BFN managers take advantage of the-disciplinary latitude granted them by SDSP-32.2.

Contributing to the improvement of procedural compliance at BFN is the improvement in the workability of SIs resulting from the SI upgrade process.

2.4 Implementation of the Systems Engineer Concept

The Systems Engineer (SE or SEs) concept was intended, with respect to the Surveillance Program, to ensure that SI data would be reviewed, trended, and, where required, in-depth technical reviews and timely effective corrective action executed. At the time of the staff review of the upgraded surveillance program at BFN, the SE group had been established, but was not constituted to adequately address the root causes identified in the NPP. Specific staff concerns in this area follow.

The SE organization found to exist at BFN was a loosely constituted group of apparently well-qualified individuals who were frequently called upon to solve a wide variety of engineering problems. This SE group had existed for over a year, yet had neither an organizational charter nor formally defined responsibilities. The plant management was aware of this situation, yet did not have any specific plan to correct the problems with the SE organization. Concerning the role of the SEs in the surveillance program, the SEs had been given cognizance over about 70 SIs, which was about 10% of the SIs which were to have been implemented prior to plant restart. The functions of the SI reviews were still mostly under the cognizance of the various engineering groups on site which had traditionally had responsibility for technical review and corrective action associated with those SIs. In essence, the root causes meant to be corrected by the implementation of the SE concept were still in existence. The following extract from Section II.5.0 of the NPP (July 1, 1987, Revision 1) describes the situation which existed at BFN at the time the NPP was published, and which still appeared to exist at the time of the staff review:

> "In the past, SI reviews were done by engineers who had day-to-day responsibilities other than their assigned system cognizance. This effectively diluted the amount of time which could be spent on system performance evaluations such as SI review."

Effective implementation of the SE concept to address the identified root causes would require, as a minimum, that the SE organization be formally chartered and that its Charter should include, as SE responsibilities, those functions envisioned for this organization in Section II.5.0 of NPP Volume 3.

2.5 Commitment Tracking

A final concern developed during the staff's review of the BFN Surveillance Program was that commitments made in the NPP do not seem to be tracked by the licensee. Of the four programs identified in the Introduction to this Safety Evaluation to correct the root causes of the problems previously existing with

the BFN Surveillance Program, only two are being tracked on the licensee's Corporate Commitment Tracking System (CCTS). The Improved Management Practices and the implementation of the Systems Engineering role with respect to the surveillance program are not being tracked using the CCTS.

This deficiency may be indicative of a possible generic problem with the commitments made in the NPP not specifically being tracked as licensing commitments, even though the NPP was submitted to the NRC in response to a 10 CFR 50.54(f) letter.

3.0 CONCLUSION

3.1 Summary

The staff concludes that adequate mechanisms exist at BFN to correct most of the Surveillance Program related root cause problems identified in the NPP. Correction of the open items listed in Section 3.2 of this Safety Evaluation should adequately address those areas where root cause deficiency corrective action remains outstanding. The areas where TVA has satisfactorily addressed the root causes listed in NPP Section II.5.0 are:

a. Overall, the SI Upgrade program governed by SDSP-2.14 appeared to effectively implement the necessary procedural upgrades to SIs with the exceptions noted in Section 3.2 below.

b. The provisions of the VMCP which address the proper inclusion of vendor manual information into SIs appear to satisfactorily address previously existing problems in this area.

c. Management practices aimed at improving procedural compliance at the BFN site seemed to effectively foster an environment of procedural compliance among plant personnel.

Though the above conclusions are generally positive, they apply only to the programmatic aspects of their respective issues. The licensee should be made aware that the proper implementation of these corrective actions will determine the future effectiveness of the Plant Surveillance Program.

3.2 Open Items

The licensee should formally address the following issues by October 31, 1988. This response should include specific courses of action to correct identified weaknesses and schedules for implementation. In addition, TVA should provide a justification of the acceptability of completed SI validations on those systems required for fuel load.

a. Implementation of the Systems Engineering concept with respect to the Plant Surveillance Program.

b. Implementation of an expanded third party or qualified independent observer approach for SI validations to assure consistency and the quality needed for an effective surveillance program.

c. Address the issue that circuit and piping flow paths be reviewed by drafters in developing SIs.

d. Tracking of the programs committed to in the NPP as specific licensing commitments.

These items should remain open pending a NRC follow-up review for satisfactory resolution.

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