

**FIFTH ANNUAL REPORT  
OF THE  
EMPLOYEE CONCERNS SPECIAL PROGRAM  
CORRECTIVE ACTIONS IMPLEMENTATION**

**Calendar Year 1992**

**TENNESSEE VALLEY AUTHORITY  
NUCLEAR POWER**

**MAY 1993**

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**EXECUTIVE SUMMARY**

This report is the Fifth Annual Report of the Employee Concerns Special Program (ECSP). The ECSP investigations resulted in the development of 1,591 Corrective Action Tracking Documents (CATDs). Of these, 1,057 were closed through December 31, 1992.

Between January 1, 1992 and December 31, 1992, the ECSP closed a net of 55 CATDs. During this period, there were 67 Corrective Action Plans (CAPs) that required a deviation from the originally approved corrective actions. Of these, 37 were Level II CAP deviations and 30 were Level III CAP deviations (administrative in nature). There were no Level I CAP deviations during this reporting period.

Based on the CAP implementation, verification, overview and closure activities conducted through December 31, 1992, the completion of the CATDs is continuing to ensure correction of the problems identified by the ECSP. The Tennessee Valley Authority (TVA) intends to continue implementing, verifying, and closing CAPs or CATDs resulting from the ECSP evaluations to fulfill its commitment to employees and the Nuclear Regulatory Commission (NRC), and to realize the maximum benefit from the program.

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**1.0 INTRODUCTION**

This report provides information pertaining to the implementation and verification of actions required to resolve employee concerns evaluated by the ECSP.

Section 2.0 of this report provides background information on the ECSP. Section 3.0 contains a summary of the status of CATDs resulting from the ECSP evaluations that have been implemented and verified complete through December 31, 1992. Section 4.0 of this report summarizes the nature of and technical justification for the Level II CAP deviations identified and approved during the reporting period, and lists identified Level III CAP deviations.

**2.0 BACKGROUND**

In July 1988, TVA committed to the NRC to provide an annual report of deviations from the ECSP CAPs. These CAPs were developed as part of encompassing CATDs to correct and/or resolve deficiencies or problems arising from the investigation of employee concerns addressed by the ECSP. The employee concerns included in the scope of the ECSP were those collected or otherwise identified before February 1986, and generally dealt with TVA's nuclear program activities between 1980 and 1985.

This report is the fifth submitted in accordance with a commitment made by TVA to the NRC in July 1988. A synopsis of the events leading to this commitment is provided below.

In February 1986, TVA established the ECSP to evaluate approximately 6,000 employee concerns that had originated primarily at Watts Bar Nuclear Plant (WBN). The major findings, actions, and conclusions resulting from the nearly two years of ECSP evaluations were documented in a series of reports. The last of these reports were submitted to the NRC on February 6, 1989.

On March 11, 1988, the NRC forwarded to TVA its preliminary Safety Evaluations on the ECSP reports relating to Sequoyah Nuclear Plant (SQN). One of these Safety Evaluations dealt with engineering issues of a programmatic nature, primarily organizational and/or procedural problems in the engineering design process. In this particular Safety Evaluation, the NRC made the following statement: "Any additional program changes should be submitted for staff review and should not be implemented prior to review and approval by the staff."

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In a letter dated July 6, 1988, from Mr. R. L. Gridley, TVA's Director of Nuclear Licensing and Regulatory Affairs, TVA provided the NRC with comments on the preliminary SQN Safety Evaluations.

In response to the previously quoted statement, TVA committed to submitting to the NRC for review, prior to implementation, any deviation to a CAP commitment that significantly deviates from the original intent of the CAP (Level I). For those CAP deviations not considered to implement such changes (Levels II and III), TVA would notify the NRC in an annual report of all approved deviations to CAPs implemented during the reporting period. Deviations to a CAP were assigned to one of three levels in accordance with TVA Nuclear Power Standard STD-1.2 as follows:

Level I CAP Deviation - A proposed change to a previously approved CAP whose implementation would (1) deviate from technical specifications, the design basis or the Final Safety Analysis Report, or (2) cause a reduction in safety margins.

Level II CAP Deviation - A proposed change to a previously approved CAP whose implementation would (1) affect multiple plants; or (2) affect a programmatic area of weakness; or (3) deviate from the techniques or methods established by commitments previously made; or (4) involve major organizational changes that directly affect CAP closure.

Level III CAP Deviation - Any other change to a previously approved CAP.

On July 9, 1992, TVA received approval from the NRC to revise the CATD closure process. The revision also included modification of the Level II CAP deviation definition. Necessary revisions to procedural documents were in progress during the calendar year, but were not implemented. Therefore, the CATD closure process and the Level II CAP deviation definition remained unchanged throughout the calendar year.

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**3.0 PROGRAM STATUS AND RELATED ACTIONS**

As of December 31, 1992, 1,057 CATDs had been completely implemented by the line organization, verified by the ECSP, and closed.

During the period between January 1, 1992 and December 31, 1992, the ECSP closed a net of 55 CATDs and processed 67 CAP deviations. These are shown in Tables 1 and 2.

Changes in the CATD closure process will be implemented in 1993. The CATD closure process will be divided into two separate processes as outlined below. The Level II CAP deviation definition will be refined. These changes will be further described in the ECSP Sixth Annual Report.

1. For WBN Unit 1, CATDs will continue to be closed using the current closure process with some enhancements.
2. For Bellefonte Nuclear Plant (BLN), BFN, SQN, and WBN Unit 2 (Note: WBN Unit 2 after WBN Unit 1 receives its operating license) will use the new closure process: CATDs will be closed when the open CAP actions are tracked through the normal licensing commitment management process.

These changes are discussed in more detail in March 2, 1992 submittal to the NRC. The changes become effective at Browns Ferry after Unit 3 restart and at Watts Bar after Unit 1 full power licensing.

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Table 1 (1)  
CATD Closure and CAP Deviations - 1992

<u>Site</u>	<u>Closed (2)</u>	<u>Deviation Level</u>		
		<u>I</u>	<u>II</u>	<u>III</u>
Bellefonte	0 (3)	0	0	0
Browns Ferry	7	0	10	4
Nonplant Specific	23	0	9	7
Sequoyah	13	0	4	3
Watts Bar	14	0	14	16
<b>Total</b>	<b>55</b>	<b>0</b>	<b>37</b>	<b>30</b>

Table 2 below is a summary of program status through the end of 1992.

Table 2 (1)  
CATD Status

<u>Site</u>	<u>Total</u>	<u>Closed (2)</u>	<u>Open</u>
Bellefonte	193	50	143
Browns Ferry	359	221	138
Nonplant Specific	170	130	40
Sequoyah	335	310	25
Watts Bar	534	346	188
<b>Total</b>	<b>1,591</b>	<b>1,057</b>	<b>534</b>

NOTES: (1) The status of CATDs is based on Tracking and Reporting of Open Items as of December 31, 1992.

(2) The number of CATDs closed in these tables represents the net number closed during the year.

(3) BLN had no closures and two CATDs reopened during the year.

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#### 4.0 CAP DEVIATIONS

During this reporting period, there were no Level I CAP deviations, 37 Level II CAP deviations, and 30 Level III CAP deviations.

This section presents a description of all Level II CAP deviations approved during the reporting period by location. The original CAP or that portion of the CAP being changed is identified, the CAP revision is described, and a summary of the technical justification supporting the approved CAP deviation is presented. Those CATDs having Level III CAP deviations are identified but not described.

#### 4.1 Sequoyah Nuclear Plant

During this reporting period, there were four approved Level II CAP deviations and three Level III CAP deviations for SQN CATDs.

##### 4.1.1 Level II Cap Deviations

#### CATD 11301-SQN-05 - LOAD REQUIREMENTS IN SQN-DC-V-1.3.4 WERE NOT MET

CATD 11301-SQN-05 documents that the original design of some cable tray supports may not have considered all loading conditions. The applied load requirements in SQN-DC-V-1.3.4 were not met.

##### Original CAP

Performance of disposition and subsequent closure of SCR SQNCEB8622.

##### Revised CAP

Performance and disposition of the corrective actions for resolution of issues identified in SQP890524PER for cable tray supports.

##### Summary of Technical Justification

CAQR SQP890524 was written to consolidate issues affecting the adequacy of the cable tray system (trays, tray hardware and supports) identified in several condition adverse to quality reports and employee concerns. The issues identified in SCR SQNCEB8622 with regards to supports were included in the description of condition of SQP890524. SQNCEB8622 was closed.

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The corrective action for SQP890524 stated that the prerestart actions performed for SQNCEB8622 demonstrated that the cable tray supports complied with the interim acceptance criteria in the SAR and design criteria SQN-DC-V-1.3.4. This was accomplished by a worse case sample method, as described in the corrective action for SQNCEB8622. The methodology for this sampling method was reviewed and accepted for restart by the Employee Concern Task Group for 238.03 SQN-04 (U10 880307 001). This employee concern addresses cable tray overfills. This issue effects cable tray support adequacy, and is also being addressed by SQP890524. The corrective action for SQP890524 states that the post restart action is to demonstrate that the cable tray supports meet the design basis as contained in the SAR and design criteria SQN-DC-V-1.3.4.

The corrective action for SQNCEB8622 contained a sentence which states "An additional number of cable tray supports would be analyzed after restart to provide a minimum of a ninety-five percent confidence level that no more than five percent of the supports would exceed design allowables." This sentence is not consistent with the rest of the stated corrective action. Following this statement, the corrective action reads, "In the event that a failure (or failures) is identified in the evaluation of the worse-case supports then the particular aspect or deficiencies to which the failures is attributed must be investigated."

The methodology used and accepted for restart was a worse-case sampling method, not a statistical acceptance based on random sampling. A worse-case sampling method with investigation of the total population for any failure attributes will provide a higher confidence level than random sampling.

The post restart action for SQP890524, which is based on the worse-case sampling method will provide adequate resolution of the issues with regard to the adequacy of cable tray supports. SQP890524 will remain open to address issues identified by ECP 238.03 SQN-04 with regard to the adequacy of the trays and tray hardware.

**CATD 30501-SQN-02 - LOCATION OF THE LOCAL CONTROL PANEL FOR ABSCE VENTILATION DAMPER IN THE CDWE IN A HIGH RADIATION AREA**

CATD 30501-SQN-02 documents the issue that the local control panel for ABSCE ventilation damper in the CDWE is located in a high radiation area. Please evaluate the situation and state corrective action required, if any.

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**Original CAP**

The controls for ABSCE ventilation dampers are not operated under emergency conditions. They are operated on an once a month average. The source of the high radiation area will be removed when the Dry Active Waste (DAW) building is completed. This work is planned under ECN 6596 (DCR 1898).

**Revised CAP**

Remove the high level radioactive waste from the area adjacent to the control panel for the ABSCE ventilation damper. Minimum amount of radioactive waste will be stored in this area. Administratively maintain control of access to the control panel to radiation levels less than 100 mr/hr.

**Summary of Technical Justification**

1. The design bases for the DAW building does not allow storage of potentially high level radioactive waste.
2. The proposed CAP administratively controls the radiation levels in this area to an acceptable degree.
3. Access to the area is very infrequent, once per year.

**CATD 30801-SQN-01 - MAINTENANCE PROCEDURE ENHANCEMENT PROGRAM AT SEQUOYAH**

CATD 30801-SQN-01 documents the issue that the maintenance procedure enhancement program at Sequoyah is scheduled for completion in two phases: (1) Eight months after startup (High Risk Procedures); and (2) Twenty-one months after startup (Low Risk Procedures).

**Original CAP**

Procedure program progress is being tracked on the Management Action Tracking System (MATS).

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**Revised CAP**

Complete the Maintenance Procedure Enhancement Program (MPEP) at Sequoyah by:

- (a) Implementing procedures that provide requirements for procedure enhancement,
- (b) Enhancement of all "High Priority" maintenance procedures,
- (c) Completing the enhancement process for at least 75% of all maintenance procedures.

**Summary of Technical Justification**

1. The MPEP was established to ensure that procedures are enhanced/upgraded to meet the following criteria: (a) Technical Accuracy, (b) Administrative Consistency, (c) Incorporation of Human Factors Considerations, (d) Standard Format & Organization, (e) Skill of Craft/Performer.
2. All maintenance procedures were reviewed for enhancement priority.
3. Criteria for procedure priority:
  - "High Priority"
    - Restart procedures (commitments associated with restart efforts)
    - Critical to safe operation of the plant
    - Technically inadequate
    - Consequence of error in its use had high risk
    - Crafts had problem using these procedures
    - Frequently used procedures
    - Outage related
    - Consideration of skill-of-craft, training, etc.
  - "Low Priority"
    - Nonrestart procedures
    - Not critical to safe operation of the plant
    - Technically accurate (although not enhanced, some of these procedures were associated with the restart effort and were reviewed for technical accuracy; hence changes will be cosmetic).
    - Craft had no problem using these procedures
    - Consequence of error in its use had low risk
    - Infrequently used procedure
    - Nonoutage-related

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4. Low priority procedures that have not been enhanced have been reviewed for technical accuracy and usability through biannual review and verification and validation processes. These reviews verified that procedures are technically accurate by use, walk through, and/or tabletop review. Additionally, procedures that are not suitable for use are placed on "Administrative Hold," preventing use until revised.

**CATD 80101-SQN-01 - COMPLIANCE WITH APPLICABLE REGULATORY, DESIGN BASES AND QUALIFICATION DOCUMENTS**

CATD 80101-SQN-01 documents the issue that the procurement program did not assure safety-related materials, components, devices, equipment, systems, etc. procured by Power Stores/Nuclear Plant Power Operations process complied with applicable regulatory, design bases and qualification documents. (Concern OE-QMS-1)

NOTE: Only the affected portions of the CAP are listed below.

**Original CAP**

As a longer term effort, the existing Power Stores inventory will be evaluated and appropriate dedication documentation prepared. Any item with a potential safety-related application which can not be dedicated will be reviewed for past unacceptable usage and corrective action will be initiated if required.

**Revised CAP**

The existing Nuclear Stores inventory will be evaluated and appropriate dedication documentation prepared in accordance with the established processes defined in SQN Technical Instruction (TI) -104, "Replacement Items Verification For Critical Structures, Systems, and Components Equipment." Evaluations will be performed, as required, based on plant identified needs.

Any item with a potential safety-related application which can not be dedicated will be reviewed for past unacceptable usage and handled in accordance with established corrective action programs (PER, SCAR).

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**Summary for Technical Justification**

The proposed CAP does not change how evaluations are performed, nor does it change the requirement that items in the current warehouse inventory (procured commercial grade prior to April 1, 1987) be evaluated by Procurement Engineering prior to being issued for potential safety-related applications.

The deviation only affects the timeframe for performing the evaluations. The classification screen on all inventory items procured commercial grade has been completed. Seismically sensitive devices (689 line items [TIICs]) have been evaluated. This has been documented in the Seismic Screening Report No. 03-0060-1167, RIMS No. B29 890815 200. Only nonseismically sensitive items remaining in inventory have yet to be evaluated. These are considered "low risk" items from a technical perspective and present a very small liability to any items previously installed. Based on these reasons, the expenditure of additional resources required to complete a total inventory review on other than an "as-needed" basis would not increase the margin of safety defined by design criteria.

**4.1.2 Level III CAP Deviations**

Level III CAP deviations were identified during the closure process for the following three SQN CATDs:

23209-SQN-01  
30202-SQN-01  
90100-SQN-16

**4.2 Browns Ferry Nuclear Plant**

During this reporting period, there were 10 approved Level II CAP deviations and four Level III CAP deviations for BFN CATDs.

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**4.2.1 Level II Cap Deviations**

**CATD 20101-BFN-01 - BROWNS FERRY DESIGN BASELINE AND VERIFICATION PROGRAM HAS NOT YET BEEN COMPLETED FOR ALL UNITS OF BROWNS FERRY**

CATD 20101-BFN-01 documents the issue that the BFN design baseline and verification program in the areas of identification of licensing commitments and development of design criteria/design basis have not yet been completed for all units of Browns Ferry.

**Original CAP**

- (a) The identification of Licensing Commitments and development of Design Criteria/Design Bases is in progress for the Unit 2 systems identified by the safe shutdown analysis as being required for restart. This work will be completed before restart of Unit 2. The issuance of the balance of the system and General Design Criteria required for Unit 2 Restart is currently forecasted to be complete by the end of July 1987. The Design Criteria Documents required to support non-restart portions of Unit 2, and to support both the restart and non-restart portions of Units 1 and 3, will be developed at a later date and implemented as required.
- (b) The design basis document is part of the issue outputs of the Design Baseline and Verification Program for each BFN unit. This document is currently being produced in accordance with NEP 3.2 and will be complete before restart of the applicable unit.
- (c) The program elements of BFEP PI 86-17 have been implemented and the C/R data base does exist. The portion of the C/R data base which represents each BFN unit will be completed prior to the restart of each unit. Current plans are the C/R data base will be maintained current over the life of the plant in accordance with NEP 3.2.

**Revised CAP**

Track and close licensing commitments NCO919147001 for Unit 1, NCO860326059 for Unit 2, and NCO910147002 for Unit 3. Commitment descriptions are as follows:

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NC0860326059 - The post-restart phase of the DBVP will continue the engineering activities to complete engineering documentation describing the functional as-constructed configuration of the remaining systems or portions of systems that are safety related. (See additional commitment in inspection report response 89-07, enclosure 2, items 20, 21)

NC0910147001 and NC0910147002 - The DBVP will consolidate the two-phase (pre- and post-restart) approach performed on unit 2 and will be completed prior to restart.

**Summary of Technical Justification**

Necessary corrective actions for Unit 2 restart have been completed and the Unit 2 restart portion of this CATD is closed. Commitments NC0910147001 and NC0910147002 are the commitments (for Units 1 and 3) tracking completion of all actions associated with the Browns Ferry design baseline program submitted to the NRC by TVA letter dated June 13, 1991. This letter also provides a plan for the remaining post-restart Unit 2 actions for resolution of design baseline issues - the actions are tracked by NC0860326059. The NRC has approved this plan by letter dated November 21, 1991. This plan addresses the areas of licensing commitments, C/R database and design criteria/design basis. Prior to Units 1 and 3 restart, the C/R database will be updated as part of the establishment of the design baseline for each unit. After restart, licensing commitments will continue to be tracked through existing site procedures and the TROI database. Thus, the plan provides for adequate resolution of design baseline issues to support restart of individual units as Browns Ferry units are being brought back into service. The proposed CAP will resolve the concerns of the CATD.

**CATD 20103-BFN-03 - NONVERIFICATION OF THE DESIGN BASIS DOCUMENT (DBD) PROGRAM FOR BROWNS FERRY NUCLEAR PLANT (BFN) PHASE TWO (LONG-RANGE)**

CATD 20103-BFN-03 documents the issue that the existence of the detailed scope and completion schedule for reviewing, revising or generating design criteria for BFN Phase Two (Long-Range) of the DBD program could not be verified. The schedule for this program is to be in place for each unit prior to restart.

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**Original CAP**

The post-restart (Phase 2) program, as currently described in the Design Baseline & Verification Program (DB&VP) Plan, Rev. 1, will complete engineering documentation and evaluations, describing the final functional configuration as CCDs. The change control and management review procedures used during the pre-restart phase (1) will also be in effect during the post-restart phase (2).

The post-restart phase (2) will:

- Issue design change packages which were not required for pre-restart and complete the related modifications.
- Complete the design criteria/design basis.
- Complete other corrective actions resulting from the restart final report.
- Implement the permanent design change control system.
- Complete system evaluation not required for restart.

The current goal is to complete the post-restart activities by the end of the first refueling outage following restart of each respective unit at BFN.

**Revised CAP**

The DB&VP Phase II Program Plan (B22 910429 011) defines the scope of the post-restart activities for Browns Ferry Unit 2. One of the essential elements of the Phase II Program Plan is to complete the design criteria for Unit 2 by converting the Restart Design Criteria Documents to System Design Criteria Documents.

The Unit 2 design criteria documents will be completed prior to Unit 2, Cycle 7 operation. The Units 1 and 3 DB&VP will consolidate the two-phase approach performed on Unit 2 and will be completed prior to the restart of Units 1 and 3, respectively. Therefore, completion of Phase II (post-restart) design criteria documents is not applicable to Units 1 and 3.

**Summary of Technical Justification**

The problem description for CATD 20103-BFN-03 addressed the completion of design criteria documents. The original CAP described the entire Phase II (post-restart) DB&VP for Unit 2, one aspect of which was the completion of design criteria documents. Completion of the design criteria documents is the only action required to address the concern documented in the Problem Description.

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By letter to the NRC dated June 13, 1991 (R08 910613 893), TVA committed to the completion of Unit 2 Phase II DB&VP prior to restart from the next Unit 2 refueling outage and completion of the entire DB&VP program for Units 1 and 3 prior to the restart of each unit respectively.

**CATD 22201-BFN-01 - WELD FUSING TO THE PROCESS PIPE EXISTS FOR PIPE ANCHORS ON THE REAR ANCHOR PLATE**

CATD 22201-BFN-01 documents the issue that the possibility of weld fusing to the process pipe exists for pipe anchors that do not specify a gap for welding on the rear anchor plate. The anchors with weld fused to the process pipe may overstress the process pipe as well as the rear plate.

**Original CAP**

A review of pipe support drawings issued in 1980 or later will identify where box anchors may have been installed with inadvertent weld fusion between the anchor box rear plate and the pipe. These supports will be evaluated in the as-built configuration and modified if required. Pipe supports installed before 1980 will be evaluated under the NRC Bulletin 79-14 Program and the Small Bore Piping and Supports and Class II over Class I programs. Since drawings for these supports aren't available, these programs will rely predominantly on field walkdowns for configuration of installed supports.

**Revised CAP**

A review of pipe support drawings issued in 1980 or later will identify where box anchors which may have been installed with inadvertent weld fusion between the anchor box rear plate and the pipe. These supports will be evaluated in the as-built configuration and modified if required. Pipe supports installed before 1980 will be evaluated under the NRC Bulletin 79-14 Program and the Small Bore Piping and Supports Program. Since drawings for these supports aren't available, these programs will rely predominantly on field walkdowns for configuration of installed supports.

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Box anchors evaluated for BFN Unit 2 as a result of a drawing review and the Bulletin 79-14 and Small Bore Piping Programs found all box anchors to be acceptable. Since pipe anchors are typically installed at the interface of Class I and Class II piping, all box anchors are evaluated under the safety-related piping and supports review or programs. Therefore, a review for box anchors under the Class II or Class I program is not required and is not within the scope of the program.

**CATD 22911-BFN-02 - EXCEPTIONS TO REGULATORY GUIDE 1.97 FOR BROWNS FERRY**

CATD 22911-BFN-02 documents the issue that TVA has not obtained formal agreement by the NRC to TVA's stated exceptions to Regulatory Guide 1.97 for BFN.

**Original CAP**

NRC partial approval of BFN R.G. 1.97 conformance was received via letter to TVA/BFN dated January 29, 1985 (A02 850128 008). TVA additional information, per NRC request, was submitted by letter dated May 8, 1985 (L44 850507 800) to NRC. NRC currently has a contractor reviewing BFN R.G. 1.97.

**Revised CAP**

There are ongoing elements to this issue.

Obtain formal NRC approval (by safety evaluation report) of the BFN ongoing approach/methodology toward resolution of exceptions taken to RG 1.97.

Documented approval of the final implemented solution of all sub-issues related to this subject is not required.

**Summary of Technical Justification**

An employee concern originally expressed was that "there is not enough radiation detection equipment in the plant (Watts Bar) to meet current federal regulations or guidelines."

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During review by the employee concerns evaluator, a peripheral issue was identified related to BFN's status in obtaining formal agreement from the NRC on submitted deviations to RG 1.97. It is noted that BFN's status was similar to other utilities regarding RG 1.97, and the subject was an active licensing issue which was being resolved by both utilities and NRC.

A CATD was subsequently written to track implementation of commitments for radiation monitoring and this particular CATD was written to track NRC approval of BFN exceptions to RG 1.97 for radiation monitoring equipment.

The phrasing of the current CAP has created problems in closing this CATD. The current CAP has been interpreted to mean that TVA must have final approval on RG 1.97 issues before this CATD can be closed. In particular, closure has been rejected pending resolution of a generic, industry issue related to the qualification of core instrumentation (not related to process radiation monitors) which is not expected to be resolved for a lengthy period.

Safety evaluation reports (SER) document formal agreement between a licensee and NRC, regardless of the stage of completion of ongoing activities. Commitments and/or modifications may not be fully implemented, or resolution of sub-issues may be deferred at the time of issuance of an SER. This is common in the industry and is a normal NRC approach.

The proposed CAP fully satisfies the original intent of the CATD in obtaining agreement with the NRC on the exceptions taken. The proposed CAP is a more accurate corrective action for resolving the issue identified by this CATD.

(Note: BFN submitted a report defining the methods for implementing RG 1.97 (Rev. 2) along with supporting technical justification of any proposed alternatives on April 30, 1984. There are ongoing issues toward exceptions taken to RG 1.97. TVA meets the intent of RG 1.97, Rev. 3, since this revision relaxes guidance in the area of radiation and environmental monitoring.)

**CATD 23001-BFN-01 - FIRE DAMPERS CLOSURE AGAINST AIRFLOW**

CATD 23001-BFN-01 documents the issue of fire dampers closure against air flow.

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**Original CAP**

1. Review and verify all BFN curtain type Fire Damper installations (in designated Fire Barriers as required for 10CFR50 Appendix R compliance) to determine which dampers may not close against system airflow. This review will consist of: A) Determine duct velocities at Fire Damper locations and compare velocities results against manufacturer's test data and identify and document problem dampers, B) Document any dampers that will not close against airflow on a CAQR, and C) BFN Fire Protection Program Plan will be revised to require periodic Fire Damper closure testing.
2. Resolve any problems noted by CAQR in accordance with NEP 9.1. Corrective action for any CAQR may consist of damper tests against airflow to provide damper closure and/or Administrative Instructions to shut off the ventilation system in the fire affected area where Fire Dampers have been determined not to close against airflow.
3. The Surveillance Instruction covering periodic closure testing of Fire Dampers references the correct revision of the fire zone and compartmentation drawings. The next revision level of these drawings has been issued to reflect compartmentation changes being implemented under the 10CFR50 Appendix R program. However, these changes will not go into effect until the Appendix R program is fully implemented.

Technical Specifications and Surveillance Instructions are revised during a modification and are not approved and issued until the modification is complete. This is in accordance with existing procedures and Corrective Action is not required.

**Revised CAP**

1. To ensure fire damper closure, the prime air mover (fan, air handling unit, air conditioning unit, etc.) for an HVAC system containing fire dampers in designated Appendix R fire barriers shall either be shut down upon confirmation of a fire in an area served by the prime air mover, or the dampers shall be able to close against maximum air flow.

The fire dampers will be shut down in accordance with Instruction AOI-30-1.

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2. Perform periodic surveillance (closure tests) on all fire barriers in designated Appendix R fire barriers to ensure their closure when called upon.

Surveillances will be performed in accordance with Instruction SI-4.11-G.1.b.

3. All new and replacement fire dampers installed shall have positive closure springs.

The new dampers will be procured and installed in accordance with DS-M18.2.15.

#### Summary of Technical Justification

The proposed CAP fully meets the intent of the approved CAP, i.e., "to ensure closure of fire dampers against air flow and their periodic testing." Additionally, it requires that new installations shall include fire dampers which will positively close against air flow.

The requirement to review and verify all curtain-type fire damper installations to close against air flow based on actual air velocities and their comparison to manufacturers test data has been removed. The reasoning behind actual velocity measurements and their comparison to manufacturers data was to write off the fire dampers which conform to manufacturers acceptance criteria for velocity limitations, thus reducing the number of fire dampered areas where air movers have to be shut down. There are a number of problems associated with this concept, namely:

- a. The HVAC systems provided at BFN generally serve multiple rooms and floor elevations in a given building. For example, all floors of a reactor building are served by a single supply and exhaust duct system encompassing several fire dampers; control building HVAC system serves multiple rooms and multiple floors and include several fire dampers installed in the ducted system. Any one fire damper in the entire system failing the acceptance criteria will still require HVAC system for that area to be shut down. Hence, going through this extensive exercise will have an insignificant affect on reducing the number of areas where air movers have to be shut down.

- b. Due to ongoing changes in the duct design system, the HVAC systems are rebalanced and velocities change. This may cause fire dampers which were previously acceptable to now fail the acceptance criteria.

- c. Manufacturers data on acceptable velocities for some fire dampers purchased more than 15 years ago will be difficult to obtain.

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d. To obtain velocity measurements, pitot tube traverse points need to be available in straight run of ducts. Traverse points are not available at all fire damper locations. Also, a straight run of duct at a fire damper location is uncommon.

New fire damper installations are currently planned for compliance with the Appendix R requirements for Unit 1 and 3. These installations will include fire dampers which can positively close against air flow. Hence, these areas will not require shutting down of the air moving systems.

Conclusion: The current operating instruction (AOI-30) is adequate to address the fire damper closure concerns against air flow for existing fire damper installations whereas all new installations will be required to have positive closure mechanisms to close against air flow. Based on the above discussion, it is concluded that the revised corrective action plan (CAP) adequately addresses the concern.

CATD 24000-BFN-01 - NO PROGRAM IS CURRENTLY IN PLACE TO VERIFY THE ADEQUACY OF CABLE AMPACITIES FOR INSTALLED CABLES

CATD 24000-BFN-01 documents the issue that no program is currently in place to verify the adequacy of cable ampacities for installed cables (including derating for Flammastic). No specific requirements for evaluation of overfilled raceways were identified in the memorandum by Raughley to Those listed (B43 861008 909). No evidence was identified that corrective actions as defined in PIR GEN EEB 8603 including corrective action "c" of CAR-86-0078, -0079 and -0080 have been implemented. No records were found which show that the program in project instruction BFEP-PI-7-22 was initiated.

Original CAP

The implementation of Corrective Action and subsequent closure of SCRBFNEEB8711 will resolve the concerns identified in the problem description. Corrective Action for SCRBFNEEB8711 imposes Cable Ampacity Evaluation/Calculations in compliance with DS-E12.6.3R1 which addresses all known Ampacity Derating Conditions and considerations including those addressed by this Employee Concern (Flammastic and overfilled Raceway). Any unrelated nonconformance identified during the Ampacity Evaluation will be addressed by separate CAQR.

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**Revised CAP**

Close licensing commitments NCO890113005 for Unit 1 and NCO890113006 for Unit 3. Commitment descriptions are as follows (same description for both commitments):

NCO890113005 - Complete ampacity commitments for Unit 1 as described in letter from E. G. Wallace to NRC dated January 9, 1991 (R08910109997).

NCO890113006 - Complete ampacity commitments for Unit 3 as described in letter from E. G. Wallace to NRC dated January 9, 1991 (R08910109997).

**Summary of Technical Justification**

The Unit 2 portion of this CATD is closed. These commitments track implementation of an ampacity program for Units 1 and 3 in accordance with the Unit 2 criteria and implementation precedent. BFN's Unit 2 ampacity program addressed the issues identified in the CATD. By letter dated January 9, 1991, TVA committed to the NRC that an ampacity program would be implemented on Units 1 and 3 prior to the restart of each unit. This plan was accepted by the NRC by letter dated April 1, 1992. Thus, the proposed CAP will resolve the concerns of the CATD.

**CATD 30201-BFN-01 - DESIGN OUTPUT DOCUMENTS SHOULD BE CONTROLLED DOCUMENTS ONSITE**

CATD 30201-BFN-01 documents the issue that the design output documents should be controlled documents onsite. Presently, this control is inadequate. Standard drawings and G Specs G-4 and G-38 in Document Control Station in Trailer 16 have problems. Manuals in the main design building were correct.

**Original CAP**

1. Missing procedures from Document Control Station (Trailer #16) listed on the above CATD 30201-BFN-01 have been requested, received, and filed in appropriate books. An audit has been scheduled with a completion date of 02/27/87 on all Controlled Manuals located in trailer 16. A chain shall be installed by 02/28/87 to rope off the Document Control Area.

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2. A letter has been initiated to all supervisors to inform their employees during working hours (7:00 a.m. to 3:30 p.m.), all material must be checked out/in by a DCC employee. Material needed after 3:30 p.m. or on weekends must be requested from the technical library, A18 extension 2898. These actions should correct and prevent recurrence of the subject condition.

**Revised CAP**

Issue SSP-2.7 "Document Control" which establishes administrative controls for distribution and establishes requirements for a sign-out process for controlled documents being removed from controlled document stations (CDS).

**Summary of Technical Justification**

1. The proposed CAP describes the current program and processes for controlled documents at BFN.
2. Because of organizational and programmatic changes at BFN, the original corrective action is no longer applicable. However, the intent of the corrective action is still appropriate in that design output documents should be "controlled documents." Apparently the understanding of "controlled" in the past at BFN was that the document control organization maintained physical access control of these documents. The current definition describes a controlled document as one which provides instructions and is subject to revision and, as such, must be controlled to ensure that only the latest revision of a document is used in performing activities affecting safety unless an earlier revision is specifically cited in a controlling document. Note that this definition does not require "controlled access" to CDS's. The current revision of SSP-2.7, "Document Control" includes the administrative controls for distribution and establishes a requirement for a sign-out process for controlled documents being removed from CDS's. In addition, SSP-2.7 places administrative controls on distribution of revisions, including receipt acknowledgment and has requirements for periodic assessments of controlled manuals. This procedure is established in STD-2.7, "Document Control." Based on the issuance of SSP-2.7, no additional corrective action is required for this CATD.
3. Additionally, the CDS in trailer 16 was merged with a manned information center in trailer 23 in the Spring of 1988. The information center in trailer 23 was dismantled in September of 1989.

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CATD 31211-BFN-01 - NO "AS CONSTRUCTED" DRAWINGS FOR OUTSIDE SECURITY LIGHTING

CATD 31211-BFN-01 documents the issue that there are no "As Constructed" drawings for outside security lighting. Workplan 8521 (ECN P0286) was partially completed and marked up drawings were not sent to DCC per Standard Practice BF-8.3. As a result, no "As Constructed" drawings were issued reflecting the actual equipment configuration. Maintenance personnel have had to maintain and repair security lighting using data from ECN P0286.

Original CAP

Workplan No. 8521 was field completed and transmitted to Operations on August 21, 1986 by the Workplan Coordinator. Operations has the workplan for a procedure change. Upon receipt of Workplan No. 8521 from the Operations Group, the Workplan Coordinator will, by procedure BF-8.3, transmit it to Document Control Center for as constructing the drawings. Workplan No. 8644 will accompany Workplan No. 8521 as it has common drawings. As recurrence control, all backlog workplans will be closed prior to applicable unit startup.

Revised CAP

Verify upon completion of the permanent Security System upgrade that all workplans are properly closed and that all affected drawings are "As Constructed" in accordance with procedure.

Summary of Technical Justification

Prior to restart of BFN Unit 2, the Security System was exempted from the drawings baseline program based on the knowledge that the Permanent Security System Upgrade Project was about to replace or modify the entire system and, it being an nonsafety-related system, the cost expenditure and time required to "As Construct" the drawings prior to restart could not be justified.

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CATD R-81-02-BFN-01 - ECN P0289. WORKING DOCUMENT OF NRC IE 79-14 -  
NONCOMPLETION OF PIPE TUNNEL SUPPORTS

CATD R-81-02-BFN-01 documents the issue that ECN P0289, the working document of NRC IE 79-14, has not been completed regarding pipe tunnel supports. Tech Spec 3.5.C, table 3.5-1, requiring two (2) RHR pump operation conflicts with operating instruction OI-67, design criteria BFN-50-7023, and BFN's commitment requirement NEB RAC 1057 which requires the capacity of three pumps for operation of a three (3) unit plant.

Original CAP

The corrective action for the first statement of the Employee Concern shall be to complete ECN P0289, per the BFNPP, Vol 3, Revision 1, Section III, Article 3.2, "Piping and Supports (IE Bulletins 79-02 and 79-14)."

No corrective action is required for the remainder of the Employee Concern because there exist no conflict between Tech Spec. 3.5.C, table 3.5-1 and Operating Instruction OI-67, Design Criteria BFN-50-7023, and BFNs commitment requirement NEB RAC 1057. Tech Spec. 3.5.C, table 3.5-1 requires 3 pumps to supply the EECW System indefinitely, and if only 2 pumps are operable, 1 per header, the Plant may operate for up to 7 days.

Revised CAP

Track and close licensing commitments NCO860326081, NCO860326082 and NCO860326083 for Units 1, 2 and 3 respectively. Commitment descriptions are as follows (same for each commitment):

A final reinspection and analysis to establish full compliance of all covered piping and supports with bulletins 79-02 and 79-14 will be completed prior to restart of Units 1 and 3 and before the end of the next refueling outage (cycle) for Unit 2.

No corrective action is required for the remainder of the Employee Concern because there exists no conflict between Tech Spec. 3.5.C, table 3.5-1 and Operating Instruction OI-7, Design Criteria BFN-50-7023, and BFNs commitment requirement NEB RAC 1057. Tech Spec. 3.5.C, table 3.5-1 requires 3 pumps to supply the EECW System indefinitely, and if only 2 pumps are operable, 1 per header, the Plant may operate for up to 7 days.

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**Summary of Technical Justification**

These licensing commitments track implementation of the IEB 79-14 program at BFN. These commitments were originally made in the Browns Ferry Nuclear Performance Plan (BFNPP). The NRC has accepted the BFNPP by safety evaluation NUREG-1232 and supplements.

By letter dated February 27, 1991, BFN submitted its small bore piping corrective action plan for units 1 and 3 (Note: The original licensing commitment tracking numbers from the commitments made in the BFNPP were retained to track implementation of the program described in this letter). NRC accepted the Units 1 and 3 corrective action plan by safety evaluation transmitted by letter dated February 4, 1992. The concerns identified in the CATD are enveloped by the above corrective action programs and the proposed CAP will resolve the CATD.

The portion of the original CAP stating "No corrective action is required for the remainder of the Employee Concern..." is retained for completeness.

**CATD SWEC-BFN-05-02 - OVERHEATING OF VITAL EQUIPMENT DURING DESIGN BASIS ACCIDENT CONDITION**

CATD SWEC-BFN-05-02 documents the issue that by original design, a safety injection signal concurrent with loss of offsite power would have shut off exhaust fans in Units 1 and 2 shutdown board room. The design erroneously assumed the signal could be reset after 10 minutes following the safety injection. This condition could result in overheating of vital equipment during design basis accident condition.

**Original CAP**

Corrective action has already been defined on NCR BFNMEB8403 R1 and consists of an interim solution and a permanent solution. The interim solution outlines a method for bringing the appropriate cooling units into service by operator intervention and initiates ECNs P3148, P3151, and P3152 for short term design modifications. The permanent solution requires redesign of the power feeds for the a/c units to eliminate redundant cooling systems being fed from the same board and permit manual restart of the system.

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Although work was already accomplished on ECN P3148 for unit 2, a decision to proceed with the permanent solution prior to restart resulted in the initiation of ECN P3219 to remove the design implemented by P3148. The permanent design changes will be accomplished by ECN P0956 for unit 2, but ECN numbers for units 1 and 3 have not yet been assigned and a similar decision to proceed directly to the permanent design is probable.

Revised CAP

Track and close licensing commitments NCO850079002 and NCO850079004 for closure of this CATD for Units 1 and 3 respectively.

Summary of Technical Justification

This concern was originally identified by Stone and Webster Engineering Corporation (SWEC) to track an open NRC issue related to the subject nonconformance report for which an LER was also submitted. The Employee Concerns Task Group, after its inception, was given the charter to resolve issues from other sources besides employee concerns (ECs). The SWEC items were given CATD tracking numbers. The referenced NRC commitments in the LER track the issue. Thus, the CATD and the NCOs are referring to the same issue. Additionally, CAQ documents are also tracking this same item. The Unit 2 portion of this CATD is closed.

At the time the LER was first issued, interim corrective actions were being taken while a design study was being performed for the long-term corrective action. When the final, revised LER was issued, commitments were made (NCO850079002 thru -004) to perform the modification recommended by the design study. CAQRs were also written to resolve the issue. At the time the original CAP was written, the design to resolve the issue had changed and had become to install two new, redundant, environmentally and seismically qualified HVAC systems powered from separate power sources. Although the final design will differ from the commitment description, Licensing will use this NCO item to track resolution of the issue. The closure of the commitment will require addressing the problems identified in the original submittal (LER) per SSP 4.3. Hence, this proposed CAP change will provide for tracking of adequate corrective actions, through the Nuclear Licensing commitment tracking system and closure process.