



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET SW SUITE 23T85  
ATLANTA, GEORGIA 30303-8931**

June 7, 2001

Tennessee Valley Authority  
ATTN: Mr. J. A. Scalice  
Chief Nuclear Officer and  
Executive Vice President  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

**SUBJECT: WATTS BAR NUCLEAR PLANT - NRC INSPECTION REPORT NO.  
50-390/01-06 AND 50-391/01-06**

Dear Mr. Scalice:

On May 11, 2001, the NRC completed an inspection at your Watts Bar 1 & 2 reactor facilities. The enclosed report presents the results of that inspection. The results were discussed on May 11, 2001, with Mr. W. Lagergren and other members of your staff.

The inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations and with the conditions of your operating license. Within these areas the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel.

On the basis of the sample selected for review, the inspectors concluded that in general, problems were properly identified, evaluated, and corrected. There was one Green finding identified during this inspection associated with the timeliness of corrective actions for revisions to fire detection surveillance procedures for the emergency diesel generators. These deficient procedures had previously resulted in the issuance of a non-cited violation. This finding was determined to be a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny this non-cited violation, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Watts Bar facility.

Although your corrective action program was overall effective, several programmatic issues were identified which include: (1) procedure clarity for when to initiate a problem evaluation report; (2) absence of risk considerations in program procedures; and (3) challenges presented as a result of numerous corrective action program processes.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Public Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

*/RA/*

Paul E. Fredrickson, Chief  
Reactor Projects Branch 6  
Division of Reactor Projects

Docket Nos. 50-390, 50-391  
License No. NPF-90 and Construction  
Permit No. CPPR-92

Enclosure: NRC Inspection Report 50-390/01-06, 50-391/01-06  
w/Attachment

cc w/encl: (See page 3)

TVA

3

cc w/encl:

Karl W. Singer  
Senior Vice President  
Nuclear Operations  
Tennessee Valley Authority  
Electronic Mail Distribution

Jack A. Bailey, Vice President  
Engineering and Technical Services  
Tennessee Valley Authority  
Electronic Mail Distribution

William R. Lagergren  
Site Vice President  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
Electronic Mail Distribution

General Counsel  
Tennessee Valley Authority  
Electronic Mail Distribution

Robert J. Adney, General Manager  
Nuclear Assurance  
Tennessee Valley Authority  
Electronic Mail Distribution

Mark J. Burzynski, Manager  
Nuclear Licensing  
Tennessee Valley Authority  
Electronic Mail Distribution

Paul L. Pace, Manager  
Licensing and Industry Affairs  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
Electronic Mail Distribution

Larry S. Bryant, Plant Manager  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
Electronic Mail Distribution

County Executive

Rhea County Courthouse  
375 Church Street, Suite 215  
Dayton, TN 37321-1300

County Executive  
Meigs County Courthouse  
Decatur, TN 37322

Lawrence E. Nanney, Director  
TN Dept. of Environment & Conservation  
Division of Radiological Health  
Electronic Mail Distribution

Ann Harris  
305 Pickel Road  
Ten Mile, TN 37880

Distribution w/encl: (See page 4)

TVA

4

Distribution w/encl:

A. P. Hodgdon, OGC  
B. J. Keeling, GPA/CA  
M. A. Satorius, OE  
R. E. Martin, NRR  
H. N. Berkow, NRR  
A. Boland (Part 72 Only)  
RIDSNRRDIPMLIPB  
PUBLIC

PUBLIC DOCUMENT (circle one): YES NO

OFFICE	DRP/RII	DRP/RII	DRS/RII	DRS/RII			
SIGNATURE	PTaylor:vyg	DRich	RGibbs	EGirard			
NAME	pt	dr	rg	eg			
DATE	6/7/2001	6/7/2001	6/7/2001	6/7/2001			
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY

DOCUMENT NAME: G:\WB\REPORTS\Previous RPTDraft\WB Report 01-06Rev1

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-390, 50-391

License Nos: NPF-90 and Construction Permit CPPR-92

Report Nos: 50-390/01-06, 50-391/01-06

Licensee: Tennessee Valley Authority (TVA)

Facility: Watts Bar Nuclear Plant, Units 1 and 2

Location: 1260 Nuclear Plant Road  
Spring City TN 37381

Dates: April 23, 2001 through May 11, 2001

Inspectors: R. Gibbs, Senior Resident Inspector, Sequoyah, Lead Inspector  
E. Girard, Senior Reactor Inspector  
D. Rich, Resident Inspector

Approved by: Paul E. Fredrickson, Chief  
Reactor Projects Branch 6  
Division of Reactor Projects

Enclosure

## Summary of Findings

### Adams Template:

IR 05000390-01-06, IR 05000391-01-06, on 4/23/2001 - 5/11/2001, Tennessee Valley Authority. Watts Bar Nuclear Plant, Units 1 & 2, annual baseline inspection of the identification and resolution of problems. A violation was identified with the licensee's timeliness of corrective actions.

The inspection was conducted by a senior resident inspector, a resident inspector, and a Region II senior reactor inspector. One Green finding of very low safety significance was identified during this inspection and was classified as a non-cited violation. The finding was evaluated using the significance determination process.

### Identification and Resolution of Problems

The inspectors determined that the licensee was effective at identifying plant deficiencies and placing them in their corrective action program. The licensee's effectiveness at problem identification was evidenced by few deficiencies identified by external organizations, including the NRC, that had not been previously self identified. In addition, the licensee's operation of the facility and its material condition were indicative of effective self identification and correction of plant problems. Problem evaluation report (PER) trending was considered a proactive means to identify lower threshold problems before resulting in more significant ones. Root causes and apparent cause determinations were effectively performed. In particular, the licensee's process for management review committee (MRC) review of PERs was considered an effective means to ensure plant issues were properly addressed. Corrective actions were effective and were generally timely. The licensee's response to a previously identified non-cited violation was not timely but this performance issue was of very low safety significance. Audits and self-assessments were effective because they were, for the most part, thorough and self critical providing useful feedback to improve plant performance. Operating experience was effectively implemented. Although plant risk was not formally captured in corrective action program procedures, there was no indication that a significant performance problem existed. The inspectors did not identify significant differences between the licensee's assessment of their overall condition of the corrective action program and the NRC's program assessment. Based on worker interviews, the inspectors determined that a safety conscious work environment was evident. All those interviewed indicated a willingness to raise nuclear safety issues without fear of retaliation.

### Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for a failure to promptly correct surveillance instructions to ensure that relays were reset to permit operation of exhaust fans required for long term operation of the emergency diesel generators.

The finding was of very low safety significance because there had been no loss of the function of relays following identification that the instructions were inadequate and required correction.

## Report Details

### 4. Other Activities (OA)

#### **4OA2** Problems Identification and Resolution

##### a. Effectiveness of Problem Identification

##### (1) Inspection Scope

The inspectors reviewed items selected across the seven cornerstones of safety to determine if problems were being properly identified, characterized, and entered into the corrective action program for evaluation and resolution. Specifically, the inspectors reviewed 96 problem evaluation reports (PERs) from approximately 1600 which had been issued between August 2000 through April 2001. The inspectors examined PERs and work orders (WOs) associated with eight risk significant plant systems which included the following:

- residual heat removal (RHR) system
- reactor protection system (RPS)
- safety injection system
- auxiliary feedwater (AFW) system
- 6.9KV shutdown board electrical distribution system
- 480V shutdown board electrical distribution system
- emergency diesel generators
- essential raw cooling water (ERCW) system

The inspectors also reviewed PERs, personnel contamination events (PCEs) and personnel contamination reports (PCRs) associated with radiological protection deficiencies, PERs and safeguards event reports (SGERs) for security deficiencies, and PERs for emergency preparedness deficiencies. While reviewing these deficiencies, the inspectors evaluated the licensee's effectiveness in the implementation of Procedure SPP-3.1, Corrective Action Program, to determine if the licensee had initiated PERs as required. This was done to ensure that lower tier corrective action processes such as WO, PCE, PCR, and SGER were properly considered for entry into the higher tier program defined by SPP-3.1. The inspectors also reviewed various trend reports to determine if deficiencies of lower importance were assessed for greater cumulative significance for such factors as generic or common cause effects. The inspectors reviewed audits and self-assessments, including two assessments of the corrective action program. The effectiveness of the audits and assessments was evaluated by comparing the audit and assessment results against self-revealing and NRC-identified issues. The inspectors reviewed selected operating experience documents to ensure they were properly evaluated for potential effects on plant operation. Recommendations and comments from the nuclear safety review board (NSRB) meeting minutes were also



reviewed. The inspectors conducted system walkdowns and interviewed plant personnel to identify other processes that may exist where problems and issues could be identified. The inspectors attended a daily work control meeting to understand the interface between the corrective action program and the work control process. The documents reviewed for these inspection activities are listed in the Attachment.

(2) Issues and Findings

The inspectors determined that the licensee was effective at identifying problems and entering them into the corrective action program. This was evidenced by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee, during the review period. Audits and assessments were generally of good depth and identified issues similar to those that were self-revealing or raised during previous NRC inspections. Operating experience was effectively implemented. During this inspection there were some instances identified where plant deficiencies did not result in PERs being initiated.

The inspectors noted that the corrective action program contained numerous lower tier processes. In addition to PERs, which represented the highest degree of importance, the WO process was used in the maintenance area, the PCE and PCR processes were used in the radiological protection area, and the safeguards event report (SGER) process was used for the security area. Other programs reviewed included the corrosion control program, the tracking of enhancement items in the activities management and oversight system (AMOS), and the trending and reporting of open items system (TROI) processes. Although these processes appeared to be viable ways to analyze and correct deficiencies of lower importance, they appeared to challenge the licensee in identifying whether PERs should be initiated for more significant plant deficiencies.

The inspectors found that Procedure SPP-3.1 was somewhat unclear as to when PERs should be initiated. The criteria for the thresholds for PERs was in many cases very subjective which could contribute to workers not understanding when PERs should be initiated. Interviews with some workers indicated that there was mixed understanding of the PER guidance. Some workers described the guidance as vague.

During the inspection, the inspectors identified two examples of how these multiple processes and unclear PER guidance may have contributed to plant deficiencies that should have reached the threshold for a PER, but did not. These specific examples were an ERCW pipe leak further discussed in Section 4OA2c, and several intrusion detection system equipment problems in the security area discussed below as part of a trending discussion.

The inspectors determined that PER trending was a proactive means to identify lower threshold problems before more significant ones resulted. Trending programs in

radiation protection and security also provided useful information. However, the inspectors noted that certain aspects of the WO trending program were not as informative. For example, the licensee's component failure trending program using trending evaluation data sheets did not appear to provide a user friendly approach for reporting individual component performance. Although trending of plant deficiencies was considered effective from an overall program perspective, trending results were not being effectively used in all cases. In one trend report in the security area, the report indicated problems with intrusion detection devices due to environmental conditions such as rain and fog. In addition, the report indicated that certain equipment had experienced multiple failures. Yet, a self-assessment performed for the intrusion detection system did not discuss these issues as potential areas for improvement. In addition, the trend report results did not result in PERs being initiated for these problems although Procedure SPP-1.3, Plant Access and Security, suggested that PERs be initiated for these conditions.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors evaluated a sample from the 96 PERs that were reviewed during the inspection for agreement with the classification level descriptions in SPP-3.1. Classification levels (i.e., levels A through D) defined the significance of the plant deficiencies with level A as the most significance and level D as the least significant. The classification requirements of the procedure were reviewed for clarity and consistency. Results from the management review committee (MRC) meetings were reviewed, particularly for level B PERs, to ensure proper classification. The inspectors also evaluated the licensee's effectiveness in apparent cause and root cause determinations. Level A PERs required a root cause analysis and level B root cause analyses were performed at the discretion of the MRC. Level C PERs required an apparent cause. The inspectors reviewed seven level B PERs of the 15 that had been initiated since August 2000. In addition, the inspectors evaluated the use of risk in prioritization of corrective actions. The inspectors also reviewed audits and assessments for licensee observations concerning prioritization and evaluation activities. The documents reviewed for the above inspection activities are listed in the Attachment.

(2) Issues and Findings

Root causes and apparent cause determinations were effectively performed in that the technical adequacy and depth of analysis were appropriate. In most cases, proposed corrective actions were reasonable toward addressing the problems identified. In particular, the licensee's process for MRC review of PERs was considered an effective means to ensure plant issues were properly evaluated. The licensee program required that all PERs were reviewed by the MRC within three days of initiation, and that if

required, the classification level would be adjusted at the direction of the MRC. The inspectors noted, through a self-assessment review, that cause determinations had improved since May 2000.

The inspectors evaluated the licensee's use of risk for prioritization of corrective actions and found that risk was not evident in plant corrective action program procedures. In particular, the criteria for the PER classifications (i.e., levels A through D) described in SPP-3.1 made no reference to "risk important" deficiencies. In addition, the procedure for the prioritization of work orders, Procedure, SPP-7.1, Work Control Process, did not address risk considerations. The inspectors discussed the use of risk with several plant personnel who agreed that risk was not evident in plant procedures. The workers and their management, however, stated that risk was factored into the prioritization of corrective actions. Although risk was not evident in certain plant corrective action procedures, the inspectors did not identify a significant performance issue in this area. The inspectors determined, however, that this lack of risk information may have contributed to the licensee's failure to promptly correct the procedure deficiencies discussed in Section 4OA2c. The licensee acknowledged that this issue represented a potential area of needed improvement.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed selected PERs, WOs, other corrective action process documents (e.g., PCEs, PCR, SGERs), and licensee audits and assessments to evaluate the effectiveness of corrective actions. For more significant deficiencies identified in level B PERs, the inspectors reviewed selected corrective actions to ensure appropriate actions were performed. The inspectors performed a review of selected non-cited violations and their associated correction actions to determine the licensee's timeliness and effectiveness of corrective actions. The inspectors also held discussions with licensee management and workers at various levels of the plant's organization concerning their perceptions as to the effectiveness of their corrective action programs. The documents reviewed are listed in the Attachment.

(2) Issues and Findings

Based on a review of numerous corrective action plans and their implementation, the inspectors found, for the most part, that the licensee's corrective actions were effective. The inspectors noted that licensee management was focused on improving human performance, addressing certain material condition issues, and standardizing of the corrective action program for all TVA nuclear sites.

Finding

A finding of very low safety significance (Green) was identified by the inspectors for a failure to promptly correct a condition adverse to quality related to clarifying several procedures to ensure that relays were reset after being latched for fire detection system tests in the emergency diesel generator (EDG) building. This finding was also a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. The failure of one of the subject relays to reset had prevented EDG exhaust fan operation and rendered an EDG inoperable (for long term operation) on two occasions. The inadequate instructions had been previously identified by the NRC in NCV 50-390/00-04-01, Failure to Maintain Adequate Fire Detection Surveillance Instruction. Corrective actions were addressed in the licensee's corrective action program through PER 00-009248-000, dated June 6, 2000.

PER 00-009248-000 specified the following corrective actions for the inadequate instructions:

- Revise System Operating Instructions (SOI)-39.01 and -39.02 used to reset the relays to provide a picture of the relay in the reset position and enhance the instructions to provide verification of the relay state.
- Revise the instructions (SOI-39.01 and -39.02) to provide a measurable way to verify the relay is reset based on the determination of any failure mechanisms found.

As documented in the PER, the first corrective action above was originally scheduled to be completed by August 25, 2000. Its completion was later extended to November 11, 2000, then December 12, 2000, and then to March 3, 2001. The second corrective action above was originally scheduled to be completed by November 11, 2000. Its completion was later extended to December 12, 2000 and then to March 3, 2001. The inspectors reviewed the status of corrective actions on April 25, 2001 and found that neither corrective action had been completed. The inspectors noted that the instructions had been performed again without correction in December 2000 and that it had been over nine months since the reset failure that led to the initiation of PER 00-009248-000. Subsequently, during the inspection, the licensee revised SOI-39.01 and -39.02 to incorporate the above corrective actions, effective May 5, 2001.

The deficient instructions used to reset the relays was of more than minor significance because there was a credible impact on safety and there was a potential to affect operation of the EDGs in that:

- Past experience indicated the instructions did not provide adequate guidance to ensure the relays were reset, and
- If not reset, the relays would prevent operation of EDG exhaust fans potentially leading to EDG inoperability.

Failures of relays to reset had not been detected in EDG testing performed following initiation of PER 00-009248-000. In addition, the inspectors observed the relays during the current inspection and observed them to be in the reset condition. Therefore, there had been no subsequent loss of function and this issue was determined to have very low safety significance. Because the deficient instructions were determined to be of very low safety significance, the inspectors determined that the licensee's failure to revise the instructions in a timely manner was also of very low safety significance (Green).

Criterion XVI of 10 CFR 50, Appendix B, requires in part that conditions adverse to quality be promptly corrected. The licensee's failure to revise the instructions to verify that the relays were reset was not prompt, since the instructions had been performed again without correction in December 2000 and since it had been over nine months since the reset failure that led to initiation of PER 00-009248-000. This violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy and is identified as NCV 50-390/01-06-01: Failure to Promptly Correct Procedures to Confirm That Relays Were Reset. The licensee entered this issue into their corrective action program as PER 01-007402-000.

#### Issue

The inspectors observed one instance of ineffective corrective action relating to American Society Of Mechanical Engineers (ASME) code compliance and the corrosion control program. While evaluating an ERCW pinhole leak identified on January 21, 2000, the licensee identified that corrosion control program instructions were not clear on how to identify and document leaks. Corrective actions were documented in PER 00-001219-000 and were completed on August 11, 2000. The inspectors reviewed actions taken after August 11, 2000, for two different leaks and found several examples where not all requirements of the corrosion control program were being met. These examples included incomplete documentation of degraded conditions, failure to periodically monitor a leak for worsening conditions, and failure to perform required analyses prior to installing a temporary patch. In addition, the inspectors identified one example where one of the same leaks was not documented by a PER. The licensee documented these deficiencies in PERs 01-006440-000 and 01-006508-000.

The inspectors considered these issues to be minor because the licensee's evaluations demonstrated that beyond the pin-holes, the pipe walls were of adequate thickness to ensure structural integrity. Also, the amount of system fluid loss was insignificant. Finally, the licensee had promptly replaced piping in the past when corrosion issues had been identified. Although there was no credible impact on plant safety, the inspectors considered this an example of ineffective corrective action, due to the previous opportunity the licensee had to recognize performance problems in this area.

Although these issues should be corrected, these examples constitute a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy.

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

The inspectors reviewed numerous audits, assessments, issues in PERs, WOs, PCEs, PCR's, and SGERs, and held discussions with numerous personnel at various levels in the organization to assess if a work environment existed that was conducive to the identification of nuclear safety issues. The inspectors also examined the concerns resolution program files to determine if issues affecting nuclear safety were being appropriately addressed.

(2) Issues and Findings

The inspectors determined that a safety conscious work environment was evident. Selected personnel interviewed stated that they would not hesitate to raise nuclear safety issues to their management. They also understood and believed that they could raise issues without fear of retaliation by their management. The workers also stated that use of direct supervision was their preferred approach to raising issues, but there would be no hesitation to use other mechanisms such as the concerns resolution program or the NRC if the desired results were not achieved through normal reporting chains.

4OA6 Management Meetings

The inspectors presented the inspection results to Mr. William Lagergren and other members of licensee management at the conclusion of the inspection on May 11, 2001. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

**PARTIAL LIST OF PERSONS CONTACTED**

R. Beecken, Maintenance and Modifications Manager  
D. Boone, Radiological Control Manager  
R. Boren, Acting Security Manager  
B. Briody, Mechanical Engineering Design Supervisor  
L. Bryant, Plant Manager  
S. Casteel, Radiological and Chemistry Control Manager  
J. Cox, Training Manager  
D. Davis, Emergency Preparedness Specialist  
B. Eiford-Lee, Chemistry Program Manager  
C. Faulkner, Reactor Engineering Supervisor  
M. King, Acting Chemistry Manager  
D. Kulisek, Assistant Plant Manager  
W. Lagergren, Site Vice President  
L. Laughlin, Concerns Resolution Specialist  
J. Maddox, Engineering & Support Manager  
R. McCollum, Maintenance Planning and Technical Superintendent  
D. Nelson, Business and Work Performance Manager  
P. Pace, Licensing and Industry Affairs Manager  
J. Roden, Operations Superintendent  
H. Smith, Mechanical Maintenance Production  
J. Sterchi, Fire Operations  
J. Swanson, Mechanical Maintenance Supervisor  
S. Swindlehurst, System Engineer  
K. Ware, Mechanical Design  
S. Warren, Security Department Corrective Action and Training Coordinator  
J. West, Site Quality Manager  
J. Woods, Instrument Maintenance Engineer

**ITEMS OPENED AND CLOSED**

Opened and Closed

50-390/01-06-01

NCV

Failure to Promptly Correct Procedures to Confirm That Relays Were Reset (Section 40A2c).



## PARTIAL LIST OF DOCUMENTS REVIEWED

### Procedures

SPP-1.3	Plant Access and Security, Rev. 4
SPP-3.1	Corrective Action Program, Rev. 2
SPP-6.1	Work Order Process Initiation, Rev. 0
SPP-7.1	Work Control Process, Rev. 2
SPP-9.1	ASME Section XI, Rev. 2
SPP 9.7	Corrosion Control Program, Rev. 2
NADP-3	Managing the Operating Experience Program, Rev. 2
RCI-130	Personnel Decontamination and Skin Dose Evaluation, Rev. 1
MMDP-1	Maintenance Management System, Rev. 1
NADP-3	Managing the Operating Experience Program, Rev. 2.
SOI-39.02	DG CO2 System, Rev. 6
CMC 4.05	Non-Oxidizing Biocide Injections For Control of Asiatic Clams, Zebra Mussels, and MIC, Rev. 9
0-PI-CEM-3.0	Verification of Flow in ERCW For Chemical Additions to Control Clams, Rev. 3

### Audits, Self-Assessments, Related PERs and Nuclear Safety Review Board Meeting Minutes

Self Assessment, WBN-SA-SEC-00-004, Intrusion Detection System, dated August 30, 2000  
Self Assessment, WBN-SA-RAD-00-002, Radiation Worker Performance/RP Performance, dated January 18, 2001  
Self Assessment, WBN-SA-PAG-00-001, Corrective Action Program, dated May 16, 2000  
Self Assessment, WBN-SA-PAG-01-001, Corrective Action Program, dated April 23, 2001  
Self Assessment WBN-ENG-00-010, Fire Protection-Fire Safe Shutdown, dated August 1, 2000  
Audit SSA0002, Maintenance Functional Area Audit, dated September 1, 2000  
Self Assessment WBN-TRN-00-02, Verification of Corrective Actions From October 1999 Accreditation Team Visit, dated August 31, 2000  
Audit Report No. SSA0005, Browns Ferry, Sequoyah, and Watts Bar Nuclear Plants, and Chattanooga (CORP) Radiological Emergency Preparedness (REP) and Meteorological Monitoring (MM) Programs, dated August 18, 2000  
Minutes of Meeting No. 42 of the Watts Bar Nuclear Safety Review Board Meeting, November 30 - December 1, 2000  
Self Assessment, SA-WBN-ENG-00-004, Design Change Program, August 8 - 28, 2000  
Effectiveness Assessment Report WBN-ENG-SA-01-004, November 27 - December 11, 2000  
Nuclear Assurance Quality Audit Report SSA0006, Engineering Functional Area Audit, October 23, 2000 - January 24, 2001  
PER 01-000122-000 Motor-operated valve (MOV) pullout efficiency not revised in calculation  
PER 99-011436-000 U1C2 trending report not completed within 90 days of outage  
PER 00-014987-000 Valve Reference Value Worksheets have incorrect stroke times  
PER 01-000034-000 Ineffective corrective actions for corporate trend analysis and reporting

PER 00-014863-000 Incorrect DCN number referenced and incorrect actuator designation

### Operating Experience Evaluations

Nuclear Experience Review (NER) 00 0953, Licensee's evaluation for NRC Information Notice 2000-12, Potential Degradation of Firefighter Primary Protective Garments

NER 00-0973, Licensee's evaluation for NRC Information Notice 2000-13, Review of Refueling Outage Risk

NER 00 1050, Licensee's evaluation for NRC Information Notice 2000-07, Crack in Weld Area of Reactor Coolant System Hot Leg Piping at V. C. Summer

NER 00 1170, Licensee's evaluation for NRC Information Notice 2000-07, Supplement 1, Crack in Weld Area of Reactor Coolant System Hot Leg Piping at V. C. Summer

NER 01 0239, Licensee's evaluation for NRC Information Notice 2000-07, Supplement 2, Crack in Weld Area of Reactor Coolant System Hot Leg Piping at V. C. Summer

NER 00 1287, INPO SEN 217, Licensee's evaluation for INPO SEN 217, Emergency Diesel Generator Failure During Surveillance Testing

NER 00 0844, Licensee's evaluation for INPO OER 11330, EDG Fuel Oil Switching Valve (Surry)

Vendor Notification 37275, Licensee's evaluation for a 10 CFR Part 21 Notification issued by Eaton - Cutler Hammer for breakers

NER 01-0107, February 15, 2001, Licensee's evaluation for WAT-D-10898, Fuel Assembly Top Nozzle Spring Screws (NSAL99-004, Revision 1)

NER 01-0056, January 26, 2001, Licensee's evaluation for OER 01-11821, Emergency Service Water Check Valve Failure

NER 00-1139-001, February 09, 2001, Licensee's evaluation for OER 00-11617, INPO Nuclear Network OE 11617-Fuses Blow in On-Line Inverters Resulting in Transfer of Power to Alternate Source

NER 01-0083, February 09, 2001, Licensee's evaluation for OER 01-11848, Incorrect Torque Check Method for Woodward EGB-13C Governor Actuator

Sequoyah Nuclear Plant PER 00-008645-000

### Emergency Preparedness PERs and Related Documentation

PER 00-016491-000 REP Pager Malfunction

PER 00-010754-000 Four Workers Failed to respond to REP Drill Within Required Time

PER 00-009234-000 Masks for Control Room Evacuation Event

PER 01-000020-000 Improper Turnover of REP Duties

Green Team REP Drill Report, dated November 26, 2000

### Security PERs and SGERS

PER 99-009745-000 Security Officer Inattentive to Duty

PER 00-014859-000 Lightning Strikes Security Equipment

PER (Corporate) 00-000208-000 Lightning Strikes Security Equipment

PER 00-015445-000 Medical Qualifications of Security Officer

PER 00-011096-000 Failure of Security Officer to Report Incidents

PER 00-009308-000 Use of Self Contained Breathing Apparatus for Security Officers  
SGER 01-02-074 Loss of Assessment Capabilities During Fog

Radiological Protection PERs, PCEs, PCRs and Related Documentation

PER 00-012731-000 Unit 1 Steam Generator Nozzle Dam Installation  
 PER (Corporate) 00-000232-000 Unit 1 Steam Generator Nozzle Dam Installation  
 PER 00-011521-000 Improperly Labeled Transport Vehicle  
 PER 00-013702-000 Inadequate Survey Maps  
 PER 00-012156-000 Three Workers Contaminated During Transfer Canal Modification  
 PER 00-012415-000 Laundry Box Shipped Improperly  
 PER 00-011105-000 Radioactive Material Found in Clean Bag  
 PER 01-000139-000 Tracking of RCA Contaminated Tools  
 PER 01-000003-000 Worker Breached Barrier Without HP Coverage  
 PER 01-000365-000 Worker Alarmed Plant Exit Portal Monitor  
 PER 01-000669-000 Worker Contaminated Three Times While Changing Filters  
 PER 01-000878-000 Trending of Contaminated Transferrable Tools  
 PER 01-000844-000 Near Miss Regarding Inadequately Labeled Radioactive Shipment  
 PER 00-013376-000 Worker Skin Dose Assessment Exceeds Limit  
 PCE 00-126 Worker Contamination Due to Cross Contamination  
 PCR 00-007 Worker Contamination When Removing Personnel Contamination Clothing  
 Monthly PCE Trend Report, dated December 2000

Corrective Action Program PERs and Trend Reports

PER 00-015206-000 Improvements for the Corrective Action Program  
 PER 01-000386-000 Adequacy of Processing Level C PERs  
 PER Analysis Report for Period Ending March 31, 2001, dated April 13, 2001  
 PER 00-009780-000, Deficiencies Identified During Audit SSA-0002  
 Watts Bar Nuclear Plant (WBN) - Monthly Corrective Action Program and Trend Analysis  
 Report, dated March 27, 2001  
 Analysis of Operations Performance for March 2001, dated April 10, 2001  
 Watts Bar Nuclear Plant (WBN) - Component Failure Trending Program Evaluation Report,  
 dated May 2, 2001

AFW System PERS and WOs

WO 01-000399-000 Calibrate 1-PI-3-117  
 WO 01-002321-000 Repair Press AFW Pump Suction Pressure Switch  
 WO 00-013200-000 Valve 1-LCV-3-156 or 156A Leaks  
 WO 00-009941-000 Troubleshoot AFW Pump 1B-B Differential Pressure, 1-PDI-3-132A  
 WO 00-013169-000 1-LCV-003-0156A Failed Stroke Time  
 WO 00-013193-000 Support 1A-A Motor Driven AFW Pump Performance Test  
 WO 01-000637-000 Disassemble and Do Complete Internal Inspection of Terry Turbine  
 PER 01-003722-000 Excessive Amount of Water Was Encountered in The Terry Turbine  
 Room  
 PER 01-003524-000 Turbine Driven AFW Pump 1A-S Failed to Achieve Required Speed

PER 00-017091-000 Oil Analysis Particle Count Data Received On The Turbine Oil Reservoir  
 PER 00-013428-000 Level Control Valves 1-LCV-3-171 AND 1-LCV-3-171A Leak At  
 Approximately 20 gallons per minute  
 PER 00-016051-000 Gas Buildup Affecting AFW Instruments  
 PER 00-014632-000 Surface Pipe Temperatures On Piping Indicate Back-leakage  
 PER 00-014154-000 Main Gear Case Lube For The Environmental Qualification Valves Was  
 Not Checked  
 PER 00-013242-000 ERCW Supply Motor Operated Valve Stalled While Closing  
 PER 00-012263-000 Bypass Feedwater Isolation Valves Were Found Open

#### ERCW System PERs and WOs

WO 00-011493-000 ERCW Traveling Screens Broken Mesh  
 WO 00-016521-000 ERCW Traveling Screen Oil Bath Had 10 ppm Copper  
 WO 00-012671-000 Unclog ERCW strainer vents  
 WO 01-002355-002 Fabricate and Install a Clean-Out Port In The ERCW Piping  
 WO 00-014673-000 CRDM Cooler 1B-B TCVs Have Intermittent Dual Indication  
 WO 01-000119-000 ERCW Screen Wash Pump Motor 1A-A Vibration  
 WO 00-014333-000 System 67 Pipe has Pin Hole Between 24 inch header and Isolation Valve  
 WO 00-012962-000 Pin Hole Leak Downstream of 1-ISV-67-0531B  
 WO 00-016519-000 System 26 Pipe Has Pin Hole Leak  
 PER 00-014702-000 Completed TI-27 Part III Appendix L Data Sheets  
 PER 00-013651-000 Shutdown Board Room Chiller A-A Has Low ERCW Flow  
 PER 00-013099-000 Unable to Achieve Normal ERCW Flow Through "C" CCS Heat Exchanger  
 PER 00-012536-000 Relief Valve Was Tested to the Wrong Requirements  
 PER 00-013246-000 Maximum Weld Weave Exceeded  
 PER 00-013332-000 Found A 40 Inch Piece of Green Polyflow Tubing  
 PER 01-003851-000 Evaluation of INPO Operating Experience Item 11898  
 PER 00-010526-000 Design Change to Replace Sense Line Tubing  
 PER 01-006440-000 SPP Form 9.7.1, Corrosion Control Program Report was not generated  
 PER 01-006508-000 Two Active Leaks in TVA Class C Piping  
 PER 01-000079-000 SPP 9.7 Contains Requirements Which Are Not Being Followed  
 PER 00-001219-000 Thru-Wall Leak Reported On ERCW Line  
 PER 00-012966-000 Leak Has Occurred In The Four Inch ERCW Supply

#### RHR System PERs and WOs

WO 00-012382-000 RHR Cross Tie 1-FCV-74-35  
 WO 00-013008-000 RHR Minimum Flow Valve Did Not Open  
 PER 00-010741-000 Change to RHR System Description Was Required  
 PER 00-012385-000 "A" RHR Pump Discharge Pressure  
 PER 00-014295-000 Inleakage To The RHR System Is Causing RHR Discharge Pressure To  
 Go Up  
 PER 00-016856-000 Evaluate Sequoyah PER 00-010071-000

PER 01-000917-000 Evaluate Sequoyah PER 00-008645-000  
PER 01-001957-000 Repeated Performance of Surveillance May Misposition Throttle Valve  
PER 01-003520-000 RHR System Operating Instruction Was Revised

Reactor Protection System PERs and WOs

PER 00-011177-000 Documentation for reactor trip breaker testing was missing  
PER 00-009975-000 Test Sequence Processor power supply failed  
WO 01-005151-000 Rack wire deteriorated due to frequent use and needs to be replaced

Safety Injection System PERs and WOs

WO 01-003247-000 Troubleshoot High Pressure Alarm from 1-PI-63-126  
WO 00-014170-000 Troubleshoot SI Pump A Flow Indication, 1-FT-63-151  
WO 00-012478-000 1-FCV 63-11 Open With Breaker Control In The Auxiliary Position  
WO 00-010213-000 Cold Leg Accumulator Tank 3 Level Exceeded Maximum Deviation  
WO 01-004073-000 Replace 1B-B Safety Injection Pump Outboard Thrust Bearing  
PER 00-010979-000 Second Maintenance Rule Functional Failure  
PER 00-013290-000 Portions of Flow Turbulators Were Removed From The 1A-A Safety Injection Pump Room Cooler  
PER 00-014989-000 Changes to Several Surveillances Were Incorrectly Processed as Non-Intent Changes  
PER 00-015882-000 Skirt Surrounding Unit 2 Refueling Water Storage Tank Is in Disrepair  
PER 01-002007-000 Pressure in Cold Leg Accumulator Number 1 Dropped After Nitrogen Addition  
PER 01-002008-000 Solid State Protection System Rack Came Out Of Bypass During Performance Of Surveillance  
PER 00-012537-000 Motor Operated Valves Failed Rapid Impact Overload Test  
PER 01-001631-000 Accuracy Computations For Scaling and Setpoint Documents Do Not Follow Required Methodology  
PER 00-012537-000 MOVs failed rapid impact overload test.

6.9KV Shutdown Board System PERs and WOs

PER 00-009955-000 Logging contractor caused phase to phase fault in offsite power  
WO 01-003315-000 Implement change notice to reset degraded voltage timers  
WO 00-012945-000 Relay target not resetting and dropping properly

480V Shutdown Board System PERs and WOs

PER 00-016760-000 Maintenance rule functional failure had not been reported  
WO 00-013292-000 Troubleshooting to identify and correct ground  
WO 00-012548-000 Troubleshoot/repair ground showing on 480V shutdown board

Emergency Diesel Generators PERs and WOs

PER 00-014550-001 Replace generator if required, due to increasing silicon levels in the oil.  
WO 01-001744-000 DG water expansion tank level low alarmed (DG2A1).



PER 01-001745-000 DG water expansion tank level low alarmed (repeat - DG2A1).  
 WO 01-000663-000 DG water expansion tank level low alarmed (DG2A2).  
 PER 00-015678-000 DG start air receiver supply valve found mispositioned.  
 WO 00-015681-000 DG air compressor running due failure of isolation valve to fully close.  
 WO 00-014809-000 Replace DG control board safety related relay that failed during testing.  
 WO 00-014708-000 Remove switch cover and inspect screw stud size versus ring lug size.  
 WO 00-009855-000 Starting air compressor drain valve plugged.  
 PER 00-010197-000 Leaking relief valve on cooling water to 2B-B DG.  
 PER 00-005872-000 DG exhaust manifold heat shield support brackets broken.  
 PER 00-010431-000 Surveillance instructions do not satisfy all requirements stated.  
 PER 00-012224-000 Failure to declare DG inoperable during test.  
 PER 00-016986-000 DG exhaust fans did not automatically start.  
 PER 00-016988-000 Sensor failed to record start time in DG test.  
 WO 00-005872-003 Engine exhaust manifold heat shield support bracket weld broken.  
 WO 00-013816-001 Install new thermocouple cable and tighten conduit supports and fittings.

#### System Status Health Reports

System Status, 1<sup>st</sup> Qtr FY01, Diesel Generators, Air, Fuel Oil; System No. 082/018.  
 System Status, 1<sup>st</sup> Qtr FY01, Reactor Protection; System No. 099.  
 System Status, 1<sup>st</sup> Qtr FY01, 161/6.9 KV Electrical; System No. 200/201/202/211/262.  
 System Status, 1<sup>st</sup> Qtr FY01, 480 V Switchgear; System No. 203/205/206/212/226.

#### Level B PERs

PER 00-012456-000 Control Rod Assembly Dropped Due to Personnel Error  
 PER 01-000705-000 Ineffectiveness of Second Party Reviews in Operations PER 00-014628-000, Oil and vibration analyses indicated adverse trend in DG 1B-B bearing  
 PER 00-014715-000 Rod control urgent failure alarms received  
 PER 00-011139-000 Thermal overload circuit fuse blown in 480V reactor MOV board  
 PER 00-013705-000 At About 13 Percent Reactor Power, "B" Main Feed Pump Tripped On Low Vacuum  
 PER 00-011559-000 Main Steam Isolation Valve 1-FCV-001-004 Failed Its Stroke Time Test  
 PER 00-011538-000 Turbine Driven AFW Pump Inadvertent Start

#### Non-Cited Violations (NCV) and Associated PERs

NCV 50-390/00-05-01 Both Trains of CREVS Inoperable  
 PER 00-007416-000 Control Room Leakage Path Identified Due to Ductwork Problem  
 NCV 50-390/00-04-01 Failure to Maintain Adequate Fire Detection Surveillance Instruction  
 PER 00-009248-000 Relay did not reset and resulted in diesel generator (DG) inoperability  
 PER 01-007402-000 Corrective action for relay not timely  
 WO 00-001189-000 Six month fire detection test Panel L619  
 NCV 50-390/00-03-01 Inadequate Chemistry Procedures to Prevent Asiatic Clam Infestation

PER 00-006894-000 Low ERCW Flow to Pump Room Coolers