



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

October 1, 2010

Mr. Ashok S. Bhatnagar
Senior Vice President
Nuclear Generation Development and Construction
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC PROBLEM
IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000391/2010607

Dear Mr. Bhatnagar:

On August 27, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection of construction activities at your Watts Bar Unit 2 reactor facility. The enclosed inspection report documents the inspection results, which were discussed on August 27, 2010, with Mr. Masoud Bajestani and other members of your staff.

This inspection examined activities conducted under your Unit 2 construction permit as they relate to identification and resolution of problems, compliance with the Commission's rules and regulations, and with the conditions of your construction permit. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, one NRC-identified finding was identified which was determined to involve a violation of NRC requirements. However, because the finding was a Severity Level IV violation and was entered into your corrective action program, the NRC is treating it as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest the non-cited violation in the enclosed report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTENTION: 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 Senior Resident Inspector at the Watts Bar Unit 2 Nuclear Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS).

ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Robert C. Haag, Chief
Construction Projects Branch 3
Division of Construction Projects

Docket No. 50-391
Construction Permit No: CPPR-92

Enclosure: Inspection Report 05000391/2010607 w/attachment

cc w/encl: (See next page)

ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

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Letter to Ashok S. Bhatnagar from Robert C. Haag dated October 1, 2010.

SUBJECT: WBN NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC REPORT
05000391/2010607

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PUBLIC

U.S. NUCLEAR REGULATORY COMMISSION
Region II

Docket No: 50-391

Construction Permit No: CPPR-92

Report No.: 05000391/2010607

Applicant: Tennessee Valley Authority (TVA)

Facility: Watts Bar Nuclear Plant, Unit 2

Location: 1260 Nuclear Plant Rd
Spring City TN 37381

Inspection Dates: August 2 through August 27, 2010

Inspectors: C. Jones, (Lead) Sr. Construction Inspector
J. Baptist, Sr. Construction Project Inspector
P. Van Doorn, Sr. Construction Inspector
J. Lizardi, Construction Inspector

Accompanying
Personnel: R. Mathis, Construction Inspector (In Training)
J. Vasquez, Construction Inspector (In Training)

Approved By: Robert C. Haag, Chief
Construction Projects Branch 3
Division of Construction Projects

Enclosure

EXECUTIVE SUMMARY
Watts Bar Nuclear Plant, Unit 2
NRC Inspection Report 05000391/2010607

Introduction

This inspection assessed implementation of the corrective action program for the Watts Bar Unit 2 construction completion project. The inspection program for Unit 2 construction activities is described in NRC Inspection Manual Chapter 2517. Information regarding the Watts Bar Unit 2 Construction Project and NRC inspections can be found at <http://www.nrc.gov/reactors/plant-specific-items/watts-bar.html>.

The inspection identified one NRC-identified Severity Level (SL) IV non-cited violation (NCV), and one Unresolved Item (URI).

Inspection Results

- A SL IV NCV of 10 *Code of Federal Regulations* (CFR) 50, Appendix B, Criterion XVI, "Corrective Action," was identified by the inspectors for the failure to establish measures that were sufficient to assure prompt identification and correction of conditions adverse to quality (Section Q.1.1).
- The inspectors identified a URI related to problems with the PER screening process for reportability under 10 CFR 50.55(e). The inspectors concluded that in order to properly evaluate and disposition this issue, additional inspection would be required to determine the extent and significance of the condition (Section Q.1.1).
- The inspectors determined that adequate measures had been established to evaluate and incorporate applicable operating experience into the corrective action program (Section Q.1.1).
- The inspectors determined that TVA and Bechtel had established an acceptable program and environment for allowing employees to identify quality or safety-related concerns. (Section Q.1.1)

REPORT DETAILS

I. Quality Assurance Program

Q.1 Quality Assurance Program Implementation

Q.1.1 Implementation of Corrective Action Program During Construction (IP 35007)

a. Inspection Scope

The inspectors assessed the adequacy of the Tennessee Valley Authority (TVA) and Bechtel program for identification, evaluation, and corrective action of conditions adverse to quality during the period since the previous problem identification and resolution inspection in June 2009. This was accomplished by evaluating the thresholds for problem identification, the effectiveness of immediate and preventive corrective actions, the accuracy and thoroughness of problem documentation, and the adequacy of corrective actions for previously identified compliance issues. The inspectors conducted reviews to evaluate management/quality assurance oversight of the corrective action process. In addition, the inspectors evaluated TVA and Bechtel compliance with NRC requirements, including implementation of 10 CFR 50.55(e) for reporting significant construction deficiencies. Inspection information related to cross-cutting areas was evaluated in support of the assessment process.

The inspectors reviewed a sample of over 175 Problem Evaluation Reports (PERs) and Service Requests (SRs) selected from reports of plant problems at Watts Bar Unit 2. The sample included problems addressed by a diverse selection of plant departments and problems classified under all of the significance levels. The sample also covered a diverse selection of sources, including problems identified in audits and assessments, nonconforming results from inspections and tests, findings from NRC inspections, concerns from anonymous sources, and concerns identified as adverse trends. Most PERs were reviewed after corrective actions had been implemented; however, some were reviewed after the corrective action plan was developed but prior to implementation.

The inspectors reviewed TVA's and Bechtel's respective programs for resolving employee concerns. This review covered documents and reports, some of which were documented in previous NRC inspection reports. The inspectors interviewed TVA and the major contractor's (Bechtel) employee concern representatives, reviewed a listing of new employee concerns, and reviewed corrective actions for selected concern files. The inspectors reviewed and evaluated the adequacy of the programs which provide employees with an alternate method to identify quality or safety-related concerns. The inspectors also reviewed the provisions provided for workers to report conditions that may be adverse to quality. The inspectors reviewed several anonymous PERs to determine if they had been adequately captured and addressed.

The inspectors reviewed a sample of 11 management and quality assessments, audits, and focused surveillances to verify adverse results were properly evaluated and dispositioned in the corrective action program. The inspectors reviewed the revision history for corrective action program implementing procedures and assessed the integration of industry operating experience into the corrective action process. Direct observations by inspectors included

meetings of the Project Review Committee (PRC) and the Construction Completion Management Review Committee (CCMRC) as they screened newly reported problems and reviewed dispositions for selected issues. In addition, the inspectors observed a management trend review meeting and held discussions with personnel at various levels regarding specific issues and overall implementation of the corrective action program.

Specific documents reviewed are listed in the attachment.

b. Observations and Findings

The inspectors identified one violation of regulatory requirements as discussed below.

Introduction A Severity Level (SL) IV non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified by the inspectors for a failure to establish measures that were sufficient to assure prompt identification and correction of conditions adverse to quality. Specifically, the applicant failed to promptly identify or correct multiple instances where conditions adverse to quality were known to exist.

Description On August 27, 2010, the inspectors identified the following instances where known conditions adverse to quality were either not adequately identified or not adequately corrected.

PER 175013 – A known condition where a supplier shipped incorrectly sized bolts for the Vital Power Inverter was not identified in the corrective action program until after a delay of nearly one month. The inappropriate procurement, delivery, and receipt acceptance of the deficient bolting was identified on May 28, 2009, but the PER was not issued until June 25, 2009. The applicant issued PER 243282 to address this issue.

PER 175429 – Corrective actions specified as necessary by the CCMRC were not established in a corrective action plan and were not implemented. The PER documented that the CCMRC called for the addition of a review by the Authorized Nuclear Inspector (ANI); however, the PER was closed without implementing the prescribed action. The applicant issued PER 243529 to address this problem.

PER 179078 – Corrective actions related to control of scaffolding on the Polar Crane were identified as necessary by PER evaluators, but were not established in a corrective action plan and were not implemented. The PER was issued after ductwork attached to the steel containment vessel was struck by scaffolding on the Polar Crane as the crane was operated. The applicant's evaluation of the condition identified a need to implement some preventive measures that were not implemented as corrective actions prior to closing the PER. The applicant issued PER 246376 to address this issue.

PER 208279 – Corrective actions for an issue, where construction activities caused an adverse impact to Unit 1, were identified as necessary by PER evaluators, but were not established in a corrective action plan. Specifically, construction workers inadvertently actuated a switch which led to a Limiting Condition for Operation on Unit 1. Corrective actions were outlined in a narrative section of the PER but were not formalized into official corrective actions requiring approval for implementation and closure. As a result, the PER was closed without confirmation or supporting documentation that the prescribed actions were completed. After closure, the licensee did self-identify that one of the prescribed

actions, regarding training, could not be verified as complete. PER 224070 was written to address this issue and re-training for all applicable personnel was conducted.

PER 224255 – Deficiencies with activities performed by quality control inspectors were known by the applicant but were not accurately identified in the associated PER. The issues had been communicated to licensee personnel on February 10 and February 12, 2010; however, PER 22425 was not written until April 7, 2010. This PER did not accurately identify the issue and recorded an incorrect date of occurrence of April 2, 2010. It was not until later, May 3, 2010, that PER 227742 was written to properly document these problems.

PER 234478 – Corrective actions identified by PER evaluators were not established in a corrective action plan and were not implemented. The PER was initiated to address a concern that Work Orders created before establishment of the Refurbishment Program did not contain instructions to contact refurbishment program engineers to determine whether affected areas require inspection. The originator of the PER identified several corrective actions in an E-mail attached to the PER. None of these actions were implemented or discussed in the PER.

PER 239527 – Corrective actions were not established or implemented for a condition identified in the PER problem statement which involved violations of radiation safety requirements. Further, although the violations involved a Unit 1 Radiation Work Permit, the PER did not require notification of Unit 1. The corrective action plan only established actions to evaluate the need for corrective actions rather than specifying clear actions. One of these actions, to interview affected personnel, was not scheduled for completion until September 24, 2010 even though the violation of radiation requirements was known as of July 14, 2010. Subsequent to NRC questioning, the applicant conducted a dose assessment for the individuals involved and determined that no dose implications resulted.

PER 243820 – Multiple conditions adverse to quality related to problems with components supplied by a fabrication vendor were known by the applicant but were not established in a corrective action plan. The omitted problems were related to deficient conduit supports. The omitted problems were not entered into PER 243820 until prompted by NRC inspectors.

PER 244072 – Conditions adverse to quality related to providing temporary supports to disconnected piping at the Motor Driven Auxiliary Feedwater pumps were known by the applicant but were not documented in a PER until after a delay of nearly two months. Further, the PER did not accurately capture the elements of the adverse condition and an incorrect date of occurrence was recorded. The concern about the piping was communicated to applicant personnel on June 30, 2010, but was not documented in a PER until August 12, 2010. The PER incorrectly recorded the date of occurrence as August 11, 2010 instead of June 30, 2010. The applicant has issued PER 244072 to address this issue.

The finding was determined to be more than minor because the above items were examples of inadequate implement of the corrective action program, that if left uncorrected, could adversely affect the quality of construction of safety related structures, systems, and components. The applicant issued PER 247901 to address this condition. There was no cross-cutting aspect associated with this violation.

Enforcement

10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected."

Contrary to the above, measures established by the applicant were not sufficient to assure conditions adverse to quality were promptly identified and corrected. This finding was determined to be a SL IV violation using Section 6.5 of the Enforcement Policy. Because this was a SL IV violation and because it was entered into the corrective action program as PER 246901, it is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 5000391/2010607-01, Ineffective measures to assure prompt identification and correction of conditions adverse to quality.

In addition, the inspectors made the following observations as a result of their inspections:

(1) Effectiveness of Identifying, Evaluating, and Correcting Problems

Identifying Problems

The inspectors determined that thresholds for initiating PERs were appropriately low. However, as stated in the NCV, the four PERs listed below provided examples where adverse conditions were either not promptly identified, or were not properly identified for evaluation and disposition under the corrective action process. Details about the PER deficiencies are provided above in the NCV.

PER 175013, Incorrect Vendor Material

PER 224255, Deficiencies with QC Activities not accurately recorded

PER 243820, Issues identified in PER evaluation were not addressed in the corrective action plan

PER 244072, Evaluate Lack of Temporary Supports

Interviews conducted by the inspectors with responsible applicant management indicated administrative difficulties have existed with application of the electronic (MAXIMO) information system since its implementation in CY2009. Specific inspection insights on the use of MAXIMO are provided below under Corrective Action Program Performance Insights.

The reportability program is defined in applicant procedure NGDC PP-13, NRC Reporting Requirements. The program requires an initial evaluation by the PER screening committee for potential reportability and subsequent screening evaluation and documentation for those items considered to be potential reportable. The inspectors determined that the screening committee was routinely considering historic issues to be not reportable. While many of these may not be reportable since they may have been covered by previously reported deficiencies such as those covered by Corrective Action Programs, the potential exists for new problems to be identified that are not covered by previously reported deficiencies. The inspectors reviewed nine historical issue PERs, which the applicant had indicated did not require evaluation, and determined that the applicant's decision was appropriate for those PERs. However, the applicant was unable to provide documentation of screening for potentially reportable issues since the latest computer software being used for the PER process had been implemented. The applicant indicated that although the new computer

software program had a tool for documenting reportability reviews, the feature was not used because it inappropriately sent these items to the Unit 1 staff for review. The Unit 1 process is governed by different requirements. The applicant indicated that the screening process would be reviewed and appropriate documentation would be completed. Further review is necessary to evaluate the significance of this issue and whether reportable issues were not reported as required. This is Unresolved Item (URI) 5000391/2010607-02: Potential Problems with Implementation of the Program for Reporting Significant Construction Deficiencies in Accordance with 10 CFR 50.55(e).

Evaluating Problems

The inspectors found no significant issues with the evaluations provided for individual PERs. In particular, the inspectors found evaluations provided for Level B PERs were sufficiently thorough and were consistent with the identified issues.

The inspectors observed instances where the CCMRC provided added value to the evaluations and dispositions of PERs. For example, in one instance a CCMRC member identified that the proposed evaluation focus of a PER, on use of work packages, was too limited. The CCMRC directed the PER owner to expand the scope of issues to include a concern that the affected craft workers and responsible managers did not adequately understand the procedure requirements for the work control process.

Correcting Problems

The inspectors identified seven examples where corrective actions for problems were not defined, not adequately defined, or were closed with inadequate evidence that corrective actions were completed. The five examples listed below are described above in the NCV.

PER 175429, Receipt Inspection
 PER 179078, Control of Scaffolding on Polar Crane
 PER 208279, Inadvertent Switch Actuation
 PER 234478, Improvements needed in Refurbishment Program
 PER 239527, Safety Violations

In addition to the above, the inspectors identified two PERs that represented further examples of problems with correcting conditions adverse to quality. The PERs listed below were not cited as part of the basis for the NCV because they were previously identified in another inspection report.

PER 227786, Seismic Qualification of Vital Power Circuit Breakers

The inspectors determined that this PER provided an example where inadequate corrective action was established to analyze the seismic qualification of electrical circuit breakers installed in a Vital Instrument Power Board. A seismic calculation cited by the PER Corrective Action Plan was not sufficient to demonstrate the qualification of the breakers. The deficient PER was previously identified by NRC as NOV 2010603-08 in Inspection Report 05000391/2010603.

PER 230811, Nonconforming Placement of Concrete

The inspectors determined this PER was an example of not providing corrective action to address a nonconforming condition with placement of concrete. The deficient PER

was previously identified by NRC as NCV 2010603-05 in Inspection Report 05000391/2010603.

(2) Use of Operating Experience

The inspection of measures to evaluate and incorporate applicable operating experience into the corrective action program noted that a program and process were in place which included vendor recommendations and internally generated lessons learned. The industry and operating experience (I&OE) information was collected, evaluated, and communicated to affected internal stakeholders as specified in TVA procedures.

The inspectors reviewed TVA procedure NGDC PP-8, "Operational Experience Construction Experience Plan," several PERs that had been initiated to address I&OE lessons learned, and held discussions with applicant personnel. No issues were identified.

(3) Safety Conscious Work Environment (SCWE)

The inspectors determined that TVA's and Bechtel's employee concern programs were adequate with significant improvement noted for the Bechtel program, in that the program procedure had undergone significant improvement and use of employee surveys had resulted in improvement initiatives. Employees interviewed expressed knowledge of the employee concerns program and the ability to raise safety related concerns through various available means. Generally, there appeared to be a low threshold for initiating PERs with strong management support for the program evident.

Trending for Anonymous PERs showed a modest increase 2010. The largest contributors to the increase were associated with "Safety" (7/Month) and "Intimidation/Harassment" (6/Month). This trend information did not reach the criteria for increased management attention. The inspectors determined the change in volume of anonymous PERs did not indicate an adverse trend.

(4) Corrective Action Program Performance Insights

The sample of audits, assessments, and surveillances reviewed in the inspectors confirmed that management and quality personnel actively conducted observations and effectiveness reviews of the corrective action program. These program assessments concluded that overall, the corrective action program was effectively implemented. Some reports called for improvement in program areas such as ensuring corrective actions fully address problems and providing clear and complete problem descriptions.

The inspectors verified a trending program had been implemented. One of the trends depicting the ability to self-identify problems was particularly well constructed in that it provided information to show whether performance was meeting management expectations. The trend of self-identified PERs by the line organization indicated that management expectations for problem identification were being met.

The sample of reported problems reviewed by the inspectors, interviews with responsible personnel, observations of program activities, and evaluation of program trends identified the following insights:

- The weakness in prompt identification of conditions adverse to quality and the accuracy of the problem statement was a particular concern because the corrective action process cannot proceed without this knowledge.
- A practice of prescribing future actions in the narrative “actions taken” section of PERs, had not been effectively integrated into the development of corrective action plans. The applicant issued PER 246208 to address this observation.
- The various information fields and attachments to PERs often did not contain sufficient information for the evaluators or various reviewers to assess the identified problems or corrective actions. Most times the required information could be recovered by subject matter experts; however, some PERs were not “stand-alone” records.
- The design of the MAXIMO information system has created difficulties in administration of the corrective action program. For example, the system prevented the trend codes from being updated after additional knowledge or insights were obtained from subsequent investigations of PER issues. Other difficulties were reported in regards to tracking nonconforming hardware, NRC identified issues, and reportability determination.
- While the applicant’s management and quality oversight personnel actively conducted oversight of the corrective action program, the efforts were not fully effective in correcting the issues identified in the NRC’s PI&R inspection.

(5) Corrective Action Program Effectiveness

As discussed above, the inspectors found that the applicant had conducted program assessments and focused assessments which addressed effectiveness. Also, following NRC’s 2009 PI&R inspection, the applicant implemented changes to procedure 25402-MGT-0003 which expanded the use of effectiveness assessments to include focused assessments for correction of adverse trend PERs.

Despite the measures established by the applicant, such as enhanced procedural guidance, problem trending, management oversight, and closeout assessments, the conditions identified in this inspection indicate that implementation of the corrective action program has not been fully effective. In particular, the review of corrective action program PERs found that important elements of the program need to be improved.

c. Conclusions

As documented above, the inspectors identified deficiencies with identification and correction of conditions adverse to quality. In addition, the inspectors identified problems with the process for screening PERs for reportability under 10 CFR 50.55(e).

The inspectors determined that adequate measures had been established to evaluate and incorporate applicable operating experience into the corrective action program.

In regards to maintaining a Safety Conscious Work Environment, the inspectors determined that TVA and Bechtel had established an acceptable program and environment for allowing employees to identify quality or safety-related concerns.

Inspection Manual Chapter (IMC), 2517, Section 10.03 contained a provision to stop the NRC's practice of performing follow-up inspections for all non-cited violations when the applicant's corrective action program is deemed to be effective. Based on the results of this PI&R inspection, the NRC will continue this practice. During future PI&R inspections, this consideration in IMC in 2517 will be reviewed again.

IV. Other Activities

OA.1.1 (Closed) NCV 05000391/2009604-001, Design Changes Not Addressed or Evaluated.

This item involved the failure to thoroughly evaluate deviations from Unit 1 design for Unit 2. The applicant's corrective actions were covered in PER 200105. The applicant conducted a thorough evaluation and cause determination. Corrective actions included procedure changes, evaluation of the specific problems, an extent of condition review, revision of the documentation as necessary, training and coaching of personnel, and an effectiveness review. The applicant's actions were adequate to close this item.

V. Management Meetings

X.1 Exit Meeting Summary

On August 27, 2010, the inspectors presented the inspection results to Mr. Masoud Bajestani and other members of his staff. No proprietary information was reviewed during the inspection and no proprietary information was included in this inspection report.

SUPPLEMENTAL INFORMATION

Partial List of Persons Contacted

Applicant personnel

G. Arent, Licensing Manager, Unit 2
M. Bajestani, Vice President, Unit 2
R. Baron, Nuclear Assurance Project Manager, TVA, Unit 2
B. Briody, Maintenance and Modifications Manager, TVA, Unit 2
D. Charlton, Licensing, TVA, Unit 2
T. Cheek, Corrective Action Program Coordinator, TVA, Unit 2
B. Crouch, Lead Mechanical Engineer, TVA, Unit 2
D. Fink, Corrective Action Manager for Construction, Bechtel
T. Franchuk, Quality Manager, Bechtel
E. Freeman, Engineering Manager, TVA, Unit 2
M. Grohman, WBNPP Unit 2 Site Coating Superintendent
M. Hickey, Project Director, Bechtel
M. Lackey, ECP Rep, TVA, Unit 2
B. Perkins, Lead Civil Engineer, Bechtel
T. Ryan, Licensing, TVA, Unit 2
G. Scott, Licensing, TVA, Unit 2

Inspection Procedure Used

IP 35007 Quality Assurance Program Implementation during Construction

List of Items Opened, Closed, and Discussed

Opened

5000391/2010607-01	NCV	Ineffective measures to assure prompt identification and correction of conditions adverse to quality
5000391/2010607-02	URI	Potential problem with reporting of significant deficiencies in accordance with 10CFR 50.55(e)

Closed

5000391/2009604-01	NCV	Design Changes Not Addressed or Evaluated
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Discussed

None

List of Documents Reviewed

Problem Evaluation Reports (PERs) and Service Requests (SRs)

PER 159451, Potential Trend PER
 PER 162911, Deficiencies in processing Hardware Disposition Tracking Reports
 PER 164546, Actions for a previous PER on control of work order packages were ineffective
 PER 164962, Excessive Number of PER Extensions
 PER 165024, Corrective action tracking item closed prematurely
 PER 165025, Attention to Detail Errors found in an EDCR
 PER 170502, Piping Material Certs do not cite the Correct Code Edition and Addenda
 PER 171896, OE28711 - Down power on Condenser Tube Leak
 PER 172961, Unit 2 M&TE flooding
 PER 173096, PER Descriptions are not entered as written
 PER 174286, Issues identified with in M&TE Issue Station
 PER 174289, Recommendations for improvement identified for M&TE procedure
 PER 174560, Acceptance of ASME Material to Incorrect Edition and Addenda
 PER 174776, Design Inputs to SR Calculation Incorrectly Used Data from a Cancelled Document
 PER 174989, NRC Observation related to Walk-down Training Qualification
 PER 175013, Incorrect vendor material
 PER 175016, Corrective Action Program Improvement
 PER 175052, Incorrect Piping Class Designation on DRA 53327-140
 PER 175429, Receipt Inspection
 PER 175470, Potential Adverse Trend PER-Training Records not Current
 PER 175496, PER Closure without ANI concurrence
 PER 178213, Adverse trend for quantity of PICs & FCRs to design outputs
 PER 178558, Trend PER on Calculation Errors
 PER 178713, Control of Valve Data Sheets for EDCRs
 PER 178763, Effects of Stellite Elimination
 PER 179078, Control of Scaffolding on Polar Crane
 PER 179320, Added Tie Back Loads not transmitted in PSAM 933
 PER 179401, Revised CDS's Caused Invalidation of Existing CDS's for Operational Use
 PER 200105, NRC Engineering Inspection Issues
 PER 200118, Paint chipping from ice condenser support steel
 PER 200165, Unit 1 Drawings Being Inappropriately Revised by Unit 2
 PER 200180, Piping Section Removed Near AMSCE Boundary Valve
 PER 200500, Incorrect circuit breaker was labeled and reported as Rejected
 PER 200537, Repeat Failure to Perform Design Verification
 PER 200704, Address issues identified in BFN PER 129791 to allow closure of actions 016, 026, 027 and 046
 PER 200766, Stop Work Notice – Work Potentially Impacting the ABSCE Boundary
 PER 208279, Inadvertent Switch Actuation
 PER 201075, Corporate QA Audit QSM-25402-09-002 Observations Related to QA and the Corrective Action Program
 PER 201076, RF-09: Breakers failed PEG test requirements
 PER 201310, Incorrect Identification of Design Input References in a Calculation
 PER 201973, Electrical craft bypassed a QC hold point during the installation of safety related cable
 PER 202088, ASME – Pits found in Containment Spray Header B
 PER 202125, Failure of a spare Limitorque actuator motor at Cristal River Unit 3

PER 203029, PER attachments missing in the MAXIMO system
 PER 203094, Improperly stored flammable items
 PER 203245, Superseded procedure printed from eCAP attachments appear to be current due to watermark
 PER 203838, ASME Audit: Functional Mgr documentation of training evaluation
 PER 203910, NRC noted lack of documentation clarity for inspection attributes checked by QC
 PER 204710, All required inspections not performed for a flanged joint activity
 PER 205394, Chilling Effect Received From Management
 PER 206102, Bolting Material not verified by QC prior to installation
 PER 207030, Address issues identified in common cause PER from BFN & allow closure of PER Action 137614-014
 PER 209080, Delinquent Training
 PER 209740, A PER was closed without completing assigned actions
 PER 211836, WBN2 Generic Review of PER 204756
 PER 212707, Five Supplier Deviation Disposition Requests did not receive required reviews, justifications, and approvals
 PER 212708, Deficiencies with entering Supplier Deviation Disposition Reports into Records
 PER 215127, Level B storage area "New Paint Shop" dropped below required 40 degrees
 PER 215259, NDRF/ HDTR Processes are inadequate
 PER 215781, Anonymous PER: Individuals on U2 have been instructed by QA not to use the term HDTR or NRDF
 PER 217216, PER 216519 inadvertently pushed to closed status – complete CAP in the PER
 PER 217958, Electrical Cables were not adequately protected against damage during construction activities
 PER 218287, Scuff marks and outer jacket tear found on SR cable 2PL4816A
 PER 218353, Failure to take Immediate Corrective Action
 PER 219039, Deficiencies Found in Prefabricated Conduit Supports
 PER 219895, Clarification for Procedure 25402-QAS-0002, Rev.2, Section 6.3.3
 PER 220456, Multiple errors were found in an EDCR package
 PER 220716, Drawing Revision Authorizations were assigned an incorrect status code
 PER 221250, ASME Related: Supplier NDE inspection of ASME III pipe performed by uncertified inspector
 PER 221600, Discrepancy between drawing and field conditions
 PER 222233, ANSI N45.2.6 Level I SQR used instead of the required N45.2.6 Level II SQR
 PER 223298, Self-Assessment of CAP program (significant issue PERs and NRC identified)
 PER 224070, Failure to Document Completion of Training
 PER 224231, ASME Related- Bechtel Corrective Action Program procedure changes conflict with BPC and BCOI BQAMs
 PER 224255, Deficiencies with QC Activities not accurately recorded
 PER 224434, ASME Related: NRC identified material condition in RCS Loop 3
 PER 224911, ASME Related Procedure Contains Inappropriate Changes
 PER 225297, Lack of Access Control in the 500KV Switchyard
 PER 225708, No Seismic Test Approval
 PER 226097, ASME Related: ANI Identification of QC not documenting Material Substitution
 PER 227742, Initiation of PER was not Timely
 PER 227776, Watts Bar 2 Project personnel show blatant disregard of ASME code requirements
 PER 227786, Seismic Qualification of Vital Power Circuit Breakers
 PER 230188, Schedule is taking priority over the Quality of work
 PER 230811, Nonconforming Placement of Concrete
 PER 231006, In Process Receipt Activity: Refurbished Breakers

PER 231016, Piping Walkdown Issues
 PER 231028, Extent of Condition for PER169391 was inadequately performed
 PER 231318, Incorrect size WB Anchors installed
 PER 233210, Procedure Issues Identified in SA on Refurbishment
 PER 233442, Resident Engineer Deficiency Issues
 PER 234305, Anonymous PER: Hostile work environment and safety concerns
 PER 234478, Improvements needed in Refurbishment Program
 PER 234538, Supplier Quality Shop Surveillance requested for vendor
 PER 235532, QC Inspector accepted Zone switch wiring that was incorrect
 PER 236775, QC Reject: Cable Pull in conduit with bends greater than 360 degrees
 PER 237014, Work Order not performed as Planned
 PER 237408, Missed Signature in a Work Order
 PER 237830, 2B CCP Oil System FME Covers Missing
 PER 237861, Question Regarding Contractor Authority
 PER 237865, CCP Oil Reservoirs not covered in Passive Refurbishment Program
 PER 237879, Question Regarding Vendor Technical Direction
 PER 237896, Cables Not Installed per MAI-3.2 Requirements
 PER 238200, Missed Documentation in Work Order
 PER 238403, Question on Use of N/A for Blocks in Work Orders Intended for QCE
 PER 239118, Cable Installed in Wrong Raceway
 PER 239527, Safety Violations
 PER 241594, Potential trend of NRC Violations with Cross-Cutting Aspects
 PER 243282, NRC Timeliness issue with PER 175013
 PER 243529, MRC Comments Not Included in Corrective Action Plan
 PER 243820, Issues identified in PER evaluation not addressed in the corrective action plan
 PER 244072, Evaluate Lack of Temporary Supports
 PER 246376, Add Corrective Action Plan Actions to Scaffold Procedure
 PER 246901, PI&R Inspection Finding

Quality Audit, Assessment, and Surveillance Reports

25402-WBN-SR-09-0508, Surveillance to evaluate effectiveness of actions to correct deficiencies identified in an ASME Survey, dated 06/30/2009
 25402-WBN-SR-10-0978, Surveillance to verify effectiveness of action to close trend PER on Calculation Errors, dated 04/19/2010
 25402-WBN-SR-10-1044, Surveillance of Corrective Action Program Trending, dated 05/20/2010
 25402-WBN-SR-10-1049, dated 05/24/2010, Surveillance to evaluate CAP for QA Initiated PERs
 25402-WBN-SR-10-1050, Surveillance to evaluate closure of Audit PER 209740, dated 05/26/2010
 25402-WBN-SR-10-1058, Surveillance to evaluate closures of audit PERs, dated 05/20/2010
 25402-WBN-SR-10-1063, Surveillance to evaluate Project Review Committee Performance, dated 05/11/2010
 25402-WBN-SR-10-1064, Surveillance to evaluate closure of PERs for SDDRs, dated 6/3/2010
 NGDC-WB-09-001, Watts Bar Nuclear Plant (WBN) Unit 2 – Quality Assurance (QA) – Oversight Analysis Report February – December 2009, dated 12/18/2009
 NGDC-WB-10-004, Watts Bar Nuclear Plant (WBN) – Quality Assurance (QA) – Oversight Report for January-March 2010, dated 05/07/2010
 NGDC-WB-10-005, Watts Bar Nuclear Plant (WBN) Unit 2 Quality Assurance (QA) Assessment Report – Corrective Action Program, dated 07/20/2010

QA-WB-09-029, Watts Bar Nuclear Plant (WBN) Unit 2 – Quality Assurance (QA) – Corrective Action Program Assessment, dated 11/10/2009
 WBC-LIC-F-10-001, Focused Self Assessment – Problem Identification & Resolution, dated 08/25/2010

Procedures and Programs

2504-MGT-0003, Watts Bar Nuclear Plant Unit 2 Construction Completion Project – Corrective Action Program, Rev. 7
 NGDC PP-3, Watts Bar Nuclear Plant Unit 2 Construction Completion Project – Corrective Action Program, Rev. 5
 NGDC PP-8, “Operating Experience/Construction Experience,” Rev. 1
 NGDC PP-13, NRC Reporting Requirements, Rev 1.
 SPP-3.9, “Operating Experience Program,” Rev. 4
 SPP-4.4, “Material Issue, Control and Return,” Rev. 9

List of Acronyms

ASME	American Society of Mechanical Engineers
BFN	Browns Ferry Nuclear Plant
CAP	Corrective Action Program
CCMRC	Construction Completion Management Review Committee
CFR	Code of Federal Regulations
DRA	Drawing Request Authorization
EDCR	Engineering Document Construction Release
FCR	Field Change Request
HDTR	Hardware Deficiency Tracking Request
I&OE	Industry and Operating Experience
IMC	Inspection Manual Chapter
IP	Inspection Procedure (NRC)
M&TE	Measurement and Test Equipment
NCR	Nonconformance Report
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OE	Operating Experience
PEG	Plant Engineering Group
PER	Problem Evaluation Report
PI&R	Problem Identification and Resolution
PRC	Project Review Committee
QA	Quality Assurance
QC	Quality Control
SCWE	Safety Conscious Work Environment
SDDR	Supplier Deviation Disposition Request
SL	Severity Level
SR	Service Request
TVA	Tennessee Valley Authority
WBN	Watts Bar Nuclear Plant
WO	Work Order