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

June 7, 2013

Mr. Michael D. Skaggs
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 05000391/2013613

Dear Mr. Skaggs:

On April 26, 2013, 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 April 26, 2013, with Mr. Zeringue and other members of your staff.

This problem identification and resolution (PI&R) 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.

No findings were identified during this inspection.

In accordance with 10 *Code of Federal Regulations* (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 the 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).

Should you have questions concerning this letter, please contact us.

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 05000391/2013613 w/Attachment

cc w/encl: (See next page)

Should you have questions concerning this letter, please contact us.

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 05000391/2013613 w/Attachment

cc w/encl: (See next page)

* Previous Concurrence

■ PUBLICLY AVAILABLE □ NON-PUBLICLY AVAILABLE □ SENSITIVE ■ NON-SENSITIVE

ADAMS: ■ Yes ACCESSION NUMBER: ML13158A115 ■ SUNSI REVIEW COMPLETE ■ FORM 665 ATTACHED

OFFICE	RII:DCP	RII:DCP	RII:DCP	RII:DCI	RII:DCI	RII:DCI	RII:DCI
SIGNATURE	PJH4	PKV	CDT via e-mail	AAW via e-mail	EJP1 via e-mail	RCH	
NAME	P. Heher	K. VanDoorn	C. Taylor	A. Wilson	E. Patterson	R. Haag	
DATE	06/03/2013	06/04/2013	05/24/2013	05/22/2013	05/28/2013	06/06/2013	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: OFFICIAL RECORD COPY DOCUMENT NAME: G:\CCI\DCP\CPB3\WATTS BAR 2\CURRENT DRAFT INSPECTION REPORT\2013\IR 2013-613\INSPECTION REPORT REV 2.DOCX

cc w/encl:
Mr. Gordon P. Arent
Senior Manager, Licensing
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. O. J. Zeringue, General Manager
Engineering and Construction
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. R. A. Hruby, General Manager
Technical Services
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City Tennessee 37381

Ms. Donna Guinn, Manager
Licensing and Industry Affairs
WBN Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. Preston D. Swafford
Chief Nuclear Officer
and Executive Vice President
Tennessee Valley Authority
1101 Market Place
3R Lookout Place
Chattanooga, Tennessee 37402-2801

County Executive
375 Church Street
Suite 215
Dayton, Tennessee 37321

Mr. Dave Gronek
Plant Manager, WBN Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. R. R. Baron, Senior Manager
Nuclear Construction Quality Assurance
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. Joseph Shea, Vice President
Nuclear Licensing
Tennessee Valley Authority
1101 Market Street
3R Lookout Place
Chattanooga, TN 37402-2801

Mr. E. J. Vigluicci
Assistant General Counsel
Tennessee Valley Authority
400 West Summit Hill Drive
6A West Tower
Knoxville, Tennessee 37402

Mr. Lawrence E. Nanney, Director
Tennessee Department of Environmental
Health & Conservation
Division of Radiological Health
3rd Floor, L&C Annex
401 Church Street
Nashville, TN 37243-1532

Mr. T. P. Cleary
Site Vice President
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

County Mayor
P.O. Box 156
Decatur, Tennessee 37322

Ms. Ann P. Harris
Public
341 Swing Loop
Rockwood, TN 37854

cc email distribution w/encl:
Greg Scott
Tennessee Valley Authority
Electronic Mail Distribution

Watts Bar 2 Licensing
Tennessee Valley Authority
Electronic Mail Distribution

Letter to Michael D. Skaggs from Robert C. Haag dated June 7, 2013.

WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000391/2013613

Distribution w/encl:
Region II Regional Coordinator, OEDO (J. Cassidy)
J. Quichocho, NRR
J. Poole, NRR
A. Hon, NRR
C. Evans, RII
L. Douglas, RII EICS
S. Shaeffer, RII DRP
R. Monk, RII WBN Unit 1 SRI
OE Mail (email address if applicable)
ConE_Resource@nrc.gov
PUBLIC

U.S. NUCLEAR REGULATORY COMMISSION
REGION II

Docket No:	50-391
Construction Permit No:	CPPR-92
Report No.:	05000391/2013613
Applicant:	Tennessee Valley Authority (TVA)
Facility:	Watts Bar Nuclear Plant, Unit 2
Location:	1260 Nuclear Plant Rd Spring City TN 37381
Inspection Dates:	April 22 through April 26, 2013
Inspectors:	P. Heher, (Lead) Senior Construction Project Inspector K. VanDoorn, Senior Construction Project Inspector C. Taylor, Senior Construction Project Inspector A. Wilson, Construction Project Inspector E. Patterson, Construction Resident Inspector
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 05000391/2013613

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/info-finder/reactor/wb/watts-bar/construction-insp-info.html.

Inspection Results

- In general, the threshold for initiating problem evaluation reports (PERs) was low and PERs were appropriately categorized. For the majority of PERs reviewed, the inspectors determined that problem evaluations were effective in identifying corrective actions that addressed the problem. [Section Q.1.1]

- The inspectors noticed that the corrective action backlog had been greatly reduced since the last PI&R inspection. [Section Q.1.1]

- The inspectors determined that adequate measures have 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 have established an acceptable program and environment for allowing employees to identify quality or safety-related concerns. [Section Q.1.1]

Table of Contents

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 March 2012. This was accomplished by reviewing selected PERs, verifying corrective actions were implemented, and attending meetings where PERs were screened for significance to determine whether the licensee was identifying, accurately characterizing, and entering problems into the Corrective Action Program (CAP) at an appropriate threshold.

The inspectors reviewed a sample of PERs and Service Requests (SRs) selected from the applicant's CAP for 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 also reviewed the applicant's alternate issue tracking systems that address issues that were not classified as conditions adverse to quality. This review targeted verification of appropriate characterization and closure of issues managed outside the corrective action program. The alternative issue tracking systems that were sampled included TVA Over, Short, Damaged, and Discrepant items (OSDDs), Test Deficiency Notices (TDNs), and Quality Control (QC) Rejects. These systems were defined as corrective Work Processes approved to track/implement correction, according to TVA's CAP procedure (NC-PP-3, Revision 15).

The inspectors reviewed applicable portions of TVA's and Bechtel's Quality Assurance Program (QAP) implementing procedures in order to ensure that commitments for the identification, evaluation, and resolution of conditions adverse to quality had been adequately addressed. The inspectors' review evaluated the applicant's consideration for extent of condition, generic implications, common cause and previous occurrences (trending), including the identification of root and contributing causes along with actions to prevent recurrence for significant conditions adverse to quality.

The inspectors reviewed TVA's and Bechtel's respective programs for resolving employee concerns. The inspectors interviewed TVA and the major contractor's (Bechtel) employee concern representatives, reviewed a sample of PERs referred to

employee concerns and PERs initiated as a result of employee concerns. The inspectors also reviewed several anonymous PERs to determine if they had been adequately captured and addressed. 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 surveys and assessments of the employee concerns programs.

The inspectors reviewed a sample of the applicant's management and quality assessments, audits, and trend reports to verify adverse results were properly evaluated and dispositioned within 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.

The inspectors reviewed the status of actions taken to address multiple problems involving loose bolts and parts. Previous inspection of some interim actions was documented in Report 05000391/2012610 (ADAMS ACCESSION NUMBER ML13035A201), Section Q.1.1. During the previous inspection untimely corrective action was noted, in that, actions to address potential wrongdoing had not been initiated and the extent of condition (EOC) review was not yet developed. The inspectors reviewed the status of corrective actions identified in the two primary PERs associated with this issue (PER 549197 concerning loose flex conduit and PER 584243 which documented a trend of issues involving loose bolts and parts). In addition, the inspectors reviewed a sample of PERs with similar issues identified since the original PERs were documented.

Specific PERs and other documents reviewed are listed in the attachment.

b. Observations and Findings

(i) Introduction: The inspectors identified a Unresolved Item (URI) associated with the quality of the piping alignment installation process for numerous components across several safety-related systems. In addition, the inspectors questioned the adequacy and implementation of the procedures associated with piping alignment for static and rotating safety-related equipment.

Description: The inspectors reviewed a SR and 6 PERs, written between March of 2012 and April of 2013, associated with piping alignment issues. The inspectors noted that the issues identified were generally related to safety-related heat exchangers that had been refurbished during construction. The applicant identified misalignments that were not in accordance with the alignment procedure tolerances between the heat exchanger shell flange and the existing pipe flange. In addition, the inspectors reviewed PER 528852, "Piping misalignment is a major cause of pump and seal reliability problems." The PER identified that the construction personnel assigned to align rotating equipment were not following the requirements of the procedures with regards to alignment tolerances. The PER details identified an issue with construction personnel that were potentially transmitting stresses to the pump through the misaligned pipe to pump flange. The PER details identified three safety-related pumps, the turbine driven auxiliary feed water pump, and the two containment spray pumps, as having potential misalignment issues. The PER Corrective Action Plan initiated walkdowns of the safety-related pumps

and identified an additional issue with the misalignment of the two safety injection pumps. The majority of the safety related pumps were removed, refurbished, and reinstalled during construction. During the reinstallation of the piping to the pumps the misalignment issues were identified. The applicant initiated WOs to investigate the pump alignment issues and closed the PER. Approximately three months after the implementation of the corrective actions for PER 528852 to investigate the pump alignment issues, additional piping alignment process issues were observed by the inspectors. The inspectors identified that the total population of safety related pumps that had misalignment issues had increased from the five, noted in PER 528852, to eleven safety-related pumps which included the addition of the two charging pumps, two motor driven auxiliary feed water pumps, and the two thermal barrier booster pumps. During field observations of the piping alignment for the pumps, the inspectors noted several discrepancies with the adequacy of the procedures governing the pump piping alignment which was noted by the applicant in the request for information (RFI) No. 412, 4/15/2013, and RFI 1410, 4/10/2013. In addition, during interviews with the applicant's engineering and construction personnel, the inspectors noted that the applicant considered the misalignment issues as being part of the construction process, and at the time of the inspection, the applicant had not completed an engineering evaluation of the historical or in process conditions related to the equipment piping misalignments.

The above observations indicated a potential weakness in the quality process for the static and rotating equipment piping alignment. The inspectors questioned the adequacy of the piping alignment procedures for both static and rotating equipment; and questioned if the corrective action program had properly identified and corrected the piping misalignment issues.

The applicant created PER 719796 to address the URI.

Further review is needed to address the issue of concern as defined by NRC Manual Chapter 0612, "A well-defined observation or collection of observations that may have a bearing on safety which may warrant further inspection, screening, evaluation, or regulatory action," related to the equipment piping alignment. The following items will be reviewed to address the URI:

1. Evaluate the applicant's review of the adequacy of the piping alignment procedures to include static and rotating equipment
2. Inspect the interim actions put in place by the applicant
3. Review actions associated with PER 719796
4. Review/observe additional field work as necessary

This unresolved item is identified as URI 05000391/2013613-01, Potential Inadequate Corrective Actions for Piping Misalignment.

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, for the most part, the applicant was effective in identifying problems and entering them into the CAP. PERs normally provided complete and accurate characterization of the subject issues. Employees were encouraged by management to initiate PERs. However, the inspectors did identify some instances where the applicant was correcting issues outside of their CAP when a PER should have been developed. The URI in this report is one example of this. None of the issues identified by the inspectors resulted in more than minor considerations with the possible exception of the URI.

Evaluating Problems

The inspectors attended several meetings throughout the week, including the PRC and the CCMRC. It was determined that the applicant had adequately prioritized issues entered into the CAP consistent with established procedures. Service requests that were being initiated and discussed during the meetings were being appropriately dispositioned. The threshold of closing items as SRs, closing items to a WO, and creating a PER when necessary was determined to be adequate. The inspectors did notice a few examples of PERs where documentation was lacking, however, appropriate corrective actions were being taken for each example.

Correcting Problems

Based on a review of numerous PER corrective actions and their implementation, the team found, for the most part, that the applicant's corrective actions developed and implemented for problems were commensurate with the safety significance of the issues. Based on discussions with staff and PER reviews, the inspectors noted that corrective actions related to procedure changes, in some cases, were taking a long time to implement. The inspectors did not find any technical issues with delays of procedures changes, however, it was discussed with the applicant as something that could become an issue in the future.

For the loose parts issues, the applicant appropriately initiated evaluation of potential wrongdoing and has considered EOC. The EOC for flex conduit resulted in an action to inspect 100% of those that are accessible. For those that are not accessible, an engineering evaluation was planned. In addition, PERs were being initiated for individual issues in this area.

Additional actions included craft training, procedural improvements, establishing a match mark process for marking components after these have been tightened, initiation of a process for enhanced field monitoring for tightness, and confirming that walkdown processes are in place to inspect these types of issues. The primary walkdown process for loose, damaged and missing parts had not yet begun and associated craft training had not been completed at the time of this inspection. Further NRC inspections are planned in this area. The applicant's current actions are considered acceptable and planned actions should identify and correct/evaluate other problems, if properly implemented.

(2) Use of Operating Experience

The inspectors determined that the applicant's measures used to identify, evaluate and incorporate applicable industry and operating experience (I&OE) information into the corrective action program contained processes for including vendor recommendations and internally generated lessons learned. The I&OE information was collected, evaluated, and communicated to the affected internal stakeholders as specified in TVA and Bechtel procedures. The inspectors determined that appropriate corrective actions were developed and taken for the sample of I&OE problem evaluation reports reviewed for the Watts Bar Unit 2 Construction Completion Project.

(3) Safety Conscious Work Environment (SCWE)

The inspectors reviewed several anonymous PERs and PERs that either referred to the employee concerns program or PERs generated as a result of employee concerns. The inspectors also interviewed senior employee concerns coordinators from both TVA and Bechtel. The inspectors determined that TVA's and Bechtel's employee concern programs were adequate. The senior employee concerns coordinators expressed knowledge of the employee concerns program and the ability to raise safety related concerns through various available means. The inspectors noted that the employee concerns program staff provide several training sessions they provide employee concerns program information in newsletters, and they also walk around the site frequently, talk daily to staff, and attend several meetings to ensure that staff are aware of the employee concerns programs and know how to raise concerns if necessary. Also, there appeared to be strong management support for both employee concerns programs.

(4) Corrective Action Program Performance Insights

The sample of audits, assessments, and surveillances reviewed by 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. The applicant continues to track and trend issues, run summary reports on the trend data, and present results to management in several meetings, such as the site status meeting, CCMRC, etc. Also, management showed support for this process and the inspectors noted that the corrective action backlog had been greatly reduced since the last PI&R inspection.

(5) Corrective Action Program Effectiveness

As discussed above, in general, the applicant's CAP was effective and adequate. The inspectors did observe where some PERs were lacking detail. The inspectors also observed that in some cases it took too long to make procedure revisions. However, the inspectors did not find any significant technical issues with the CAP effectiveness, and none of the examples the inspectors observed resulted in more than minor considerations.

Also, during the assessment period, inspectors identified examples where PERs were not initiated for issues involving work that was still in progress or that did not involve specific hardware issues. Although no significant problems were noted, this observation

is indicative of a vulnerability that may preclude the applicant from entering issues into the corrective action program and addressing broader non-hardware issues that may warrant corrective actions such as procedure, training, or process deficiencies. The URI identified in this report is one example of this issue.

c. Conclusions

As documented above, the inspectors determined that implementation of the CAP for the Watts Bar Unit 2 construction completion project was generally adequate, with exceptions to the areas previously discussed. The threshold for initiating PERs was appropriate, PERs were categorized in accordance with their significance, and problem evaluations were effective in identifying appropriate corrective actions.

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.

IV. OTHER ACTIVITES

OA.1.1 (Closed) Non-Cited Violation (NCV) 05000391/2011604-02: Failure to Maintain Adequate Design Specifications

a. Inspection Scope

Background: This issue involved the inappropriate use of Type 410 stainless steel for check valve internal parts highlighted in NRC Bulletin 89-02. This issue was documented in PER 356559. The applicant failed to preclude use of this type material in the design specifications.

Inspection Activities: The inspectors reviewed the applicant's corrective action documented in PER 356559 to determine if the applicant appropriately resolved the concern in a timely manner. The applicant's actions included correction of the specifications and conducting an extent of condition review of check valves to confirm the wrong material was not used. Further NRC inspections later identified that additional documents needed correction which was documented as NCV 05000391/2012608-02 (ADAMS Accession Number ML12319A368), Failure to Take Adequate Corrective Action Associated with NCV 391/2011604-02 (ADAMS Accession Number ML12167A212). The applicant's actions for this problem included correction of the additional documents to preclude use of the wrong material. These actions were documented in PERs 605338 and 686961. The inspectors reviewed the applicant's actions and confirmed these were completed.

b. Observations and Findings

No findings of significance were identified. The applicant has taken appropriate corrective actions to address both NCVs.

c. Conclusions

Based on the activities reviewed, the inspectors concluded that the NCV can be closed.

V. Management Meetings

X.1 Exit Meeting Summary

On April 26, 2013, the inspectors presented the inspection results to Mr. Zeringue and other members of his staff. Proprietary information reviewed during the inspection was returned and no proprietary information was included in this inspection report.

SUPPLEMENTAL INFORMATION

Partial List of Persons Contacted

Applicant personnel
D. Charlton, Licensing, TVA, Unit 2
G. Scott, Licensing, TVA, Unit 2
T. Cheek, CAP Manager, TVA, Unit 2
B. Heinmiller, CAP Manager, Bechtel
K. Rose, CAP Coordinator, Bechtel
J. O'Dell, Regulatory Compliance, TVA, Unit 2
Y. Hink, Employee Concerns, Bechtel
R. Traugott, Employee Concerns, TVA, Unit 2
J. Martin, Quality Assurance Manager, Bechtel
J. Adair, Engineering, TVA, Unit 2
I. Zeringue, Engineering and Construction General Manager, TVA, Unit 2
R. Enis, Mechanical Engineer, TVA, Unit 2
E. Heinrich, Project Control Specialist, TVA
E. Hicks, Preop / Startup, Bechtel
D. Morgan, Field Engineering, Bechtel
R. Hruby, Technical Services General Manager, TVA, Unit 2
R. Wigall, Engineering Manager, TVA, Unit 2

Inspection Procedure Used

IP 35007 Quality Assurance Program Implementation during Construction

List of Items Opened, Closed, and Discussed

Opened

05000391/2013613-01	URI	Potential Inadequate Corrective Actions for Piping Misalignment

Opened and Closed

None

Discussed

None

Closed

05000391/2011604-02	NCV	Failure to Maintain Adequate Design Specifications

List of Documents Reviewed

Problem Evaluation Reports (PERs)

551507	Redesign Motor Driven LCV Platform
558846	Trend PER: PER Negative Trend Regarding WBN-2 ESQ Documentation
567544	CCS SFPC Isolation Valve 0-FCV-70-194-B Located on Train 2A is Train 2B Powered
578074	Historical Rebar Damage, Ground Wire Damage, and Chipped Concrete
588880	Non-ASME Safety Related Components were not Replaced with ASME Material
594311	No Impact Review Performed for Requirement Deviating from the BQAM
596357	DCA 58777-001 was not Revised to Incorporate the Design Change Approved by an SDDR
597961	PER Action Closed Without Additional Actions Created for All Conditions
626084	SA WBN2-CAP-12-1 Identified Improper Closure of PER 521584
632829	2-RTV-1-277 (CS Valve) Needs Seat Pitting Defects Evaluated/Repaired
633616	Upper Ice Condenser Deck Doors Blocked by Air Handling Unit
637891	Service Request for Deficiency in Stress Calculation 06002500601 Rev.004 and 06002500602 Rev.004
639185	Ineffective and/or Lack of Recurrence Controls for PER 257379 Corrective Actions
651792	Historical Issue: Discrepancies between Drawing and As-Constructed Configurations
656081	Calculations in Support of FCRs are not Being Issued Prior to the Final Disposition of the FCRs
663692	Unit 1 DCN 58387 Terminated Conductors on 125V Vital Battery BD III Points Reserved by U2 DCN 59456
675294	ASME, Lay-up of Piping not Per 25402-000-GPP-0000-N1304 Rev. 3 and N3M-935 Rev. 3
680826	Inspection of Entire Sense Lines May not have been Performed
685068	EDCRs were Closed Prior to Completion of Construction Work as Identified on Work Scope Statements
687169	Excess Letdown Heat Exchanger Anchor Needs Washers to Hold Down
687176	PER 683814 Closed Without Issue Resolved
617956	Electrical Near Miss – 2A2-A 480 Volt Shutdown Board
629135	Potential Adverse Trend with EDCRs Being Closed Without Complete Implementation
654404	ASME Package Review
635002	Possible Improper Anchor Bolt Installation on (2) HVAC Supports
330697	Failure to Pull Cables 0FBT5250, 5251, 5264, And 5265
695726	QC Rejection of Final for Grouting of Sleeve A16984 A/B
581139	TVA QA Oversight in Unit 2 Annulus (Loose Bolts)
641725	ASME Hardware Non-Conformance System 062
615657	Improvements Needed to Prevent Recurrence of Missed QC Holdpoints
615681	ASME Section III Work Order Processed as Section XI
648507	ASME Hardware Non Conformance: 2-DRV-74-0540 Installed Incorrect Valve
680253	NRC Identified, RWST Flow Fill Material 28 Day Test Results did not Meet Strength Requirements
622420	Construction Startup Organization Breakdown Identified – Testing
706112	ASME Hardware Non-Conformance SYS 062/070 FBOS-2-70-F-9-13 at 2-HTX-062-0066 Misaligned

533419	WBN-2-HTX-072-0002A-A Upper Restraint Steel Misaligns with Replacement Shell Seismic Lugs
597932	ASME Harware Non-Conformance WBN-2-RFV-062-0649 Procured with Misaligned Outlet Flange
647822	ASME Related, Historical: CL.2 TVA CL. C WBN-2-HTX-062-0124-CCS Pipe to Flange Misalignment
695067	ASME III CL.2 Sys 062/070 WBN-2-HTX-062-0124 Non-Regen Letdown HTX Misaligned Bolt Holes
706112	ASME Harware Non Conformance Sys 062/070 FBOS-2-F-9-13 at 2HTX-062-006 Misaligned
528852	Piping Misalignment is a Major Cause of Pump and Seal Reliability Problems
584243	Adverse Trend in Number of Loose Bolting and Clamps Found in the Field
628455	MGT-0003 Procedure Interpretation Causing PER Closure Issues
649340	PER Corrective Action Plans not Approved by Managers/Supervisors
684422	Subcontractor (Basic-PSA, Inc.) Currently Working to Unapproved Procedure Revisions
530199	Interim Actions not Documented for PER 491542
606807	Part 21- Event Number 48164
621780	Potential Weakness Identified in Mechanical Support Installations Based on QC Reject Rate
632883	Lost Traceability on Box Hanger
632944	Material Transfer to WO Subdivided not Verified by QC
633612	Work Performed on Incorrect Component
637151	QC Inspector Involvement in SR 634881
641770	QC Involvement in PER 638512
685079	Improper Thread Engagement
653077	NRC Identified - Procedure NC PP-13, NRC Reporting Requirements
656115	WBN Review Masoneilan Evaluation 12-04 10CFR21 Communication
622434	WBC Review/Evaluate NRC IN 2012-01 Seismic Considerations - Tanks
622436	WBC Review NRC IN 2012-11 Failure of Capacitors Due To Age
622440	WBC Review NRC IN 2012-14 MOV Inoperable due to Stem-Disc Separation
622442	WBC Review NRC IN 2012-17 – CMTR and Age-Hardened Concrete Compressive Strength in Calculations
647845	NRC Part 21 2012-048 - Fisher Controls International 9200 Butterfly Valves
656115	WBN Review Masoneilan Evaluation 12-04 10CFR21 Communication
581850	Improper Entry on Work Order
534660	Required Reading Procedures not Assigned Correctly in eTrack
561608	Complaint on Unit 2 Safety Department
571889	Concerns with TVA Evaluators Creating Unsafe Environment
590752	Concerns on Identifying ASME Docs Submitted to BSL-EDMS
602100	Issues with WBN2 Supervisor
617312	Bechtel Eng. is both Inept and Incompetent
620518	FCRs for Conduit Work Are Violating the FCR & CAP Procedures
622426	Conduit Support #113743398-22 has Visible Run on Baseplate
626063	Configuration Control Lost on Penetration Tags
654425	Possible Non-Conformance with Procedure
652510	PDF Files in BSL should have OCR Application
670847	QC Inspector Qualifications
678604	QA Incentive Plan
680202	Supervisor Employee Discussion about Safety Issue
687811	Management does not Allow Craft to Exercise ALARA

585047 Initials and Dates Documented in Work Order not Confirmed
403095 NRC Review of Commercial Grade Dedication Process for WBN Unit 2
613858 Learning Opportunities from Self Assessments WBC-SYS-S-12-001 and 002
621813 ASME Related Hardware Non Conformance for Soft Seat Valve Replacement
624162 Self Assessment Recommendation Regarding Unique Identification of ABSCE Boundary Interface Points
624164 Incomplete Actions for PER 460344
629849 Revise Engineering Disposition for PER 520828
642848 QA-0 Tubing Fittings may have been Installed on U2 SR Equipment
647189 Timeliness in Getting Some Safety-Related HX and Piping into a Proper Layup State is Insufficient
654443 Incorrect QA Level Belts Installed on RHR Pump Room Cooler
654476 RHR Heat Exchanger Flange Face Indications
659314 Large Amount of Grindings and other Debris Found at 2-FCV-63-11
549197 Flex Conduit Connections are not Tightened in Accordance with MAI-3.1
584243 Adverse Trend in Number of Loose Bolting and Clamps
625257 Oversight Observations of ERCW Flange Bolting in Lower Containment
641770 QC Inspector Involvement in PER 638512
641097 Pipe Support 2-70-281 Final Inspection Found Loose Locknuts and 9/16 Holes not Documented on DRA
673393 Loose Bolting on Flange Joints for System WBN065
684613 Self-Assessment Identified Issues with Cause Evaluation and Extent of Condition for PER 625257
695031 Loose Support Bolting
541641 NRC Concern Regarding Remote Valve Operators (NCV 2012603-02)
553405 Review of NRC Non-Cited Violation 2012603-02
356559 Type 410 Stainless Steel Recurrence Controls for IEB 89-02 (NCV 2011604-02)
605368 NEDP-8 Revision 20 Contains an Apparent Error (NCV 2012608-02)
686961 Corrective Actions for NRC NCV did not Address All Aspects of NCV (NCV 2012608-02)

Service Requests (SRs)

677234 Missing Data Sheets in Work Order
687633 2-CKV-33-797 is Incorrectly Classified in MEL
687694 ASME III SYS 062/070 WBN-2-HTX-062-0124 Sized C.S. Studs in Tubesheet Flange
685846 Damaged Conductor Insulation
704754 CCS (SYS 70) Flanged Inlet Piping-Cold Sprung against 2B RHR Inlet Flanged Nozzle
685106 RPVH Mirror Installation
685623 W.O. 111572543 - While Preparing for Closure, an Attachment N was Found Without Proper QC Notification
686051 Misinterpretation of MAI 3.2 on WO 114 375 599
638512 TVA Oversight of Unit 2 Containment Air Vent Clean Up Units

Test Deficiency Notices

13-072 Cooler had High Vibrations; 3/13/2013
13-073 Wire Lug to Power on Light in MCCC Broke; 3/14/2013
13-077 Contacts 1 & 2 Found Normally Open but should be Normally Closed; 3/21/2013
13-091 High Vibration Measurements; 3/28/2013
13-097 Interpanel Wiring Incorrect; 4/18/2013

TVA Over, Short, Damaged, and Discrepant (OSDD)

40327 Clamp Pipe, QA-1, Support; Report date: 10/31/12
45727 Damper Mechanical, QA-1; Report date: 2/27/13
40431 Anchor, Concrete/Expansion, QA-1; Report date: 11/2/12
48429 Kit Parts, QA-1, Flange; Report date: 4/22/13
47329 Pipe Seamless, QA-1; Report date: 4/1/13

Procedures and Programs

25402-MGT-0003, Corrective Action Program, Rev. 15, 10/11/2012
25402-MGT-0004, Incident Investigation and Root Cause Analysis, Rev. 4, 02/05/2013
NC-PP-3, Watts Bar Unit 2 Corrective Action Program, Rev. 15, 11/28/2012
25402-000-GPP-000-N6104, Materials Receiving, Rev 8, 3/29/13
25402-000-GPP-0000-N1206, Work Order Processing, Rev. 15, 3/27/2012
25402-QCD-002, Guide for Evaluating QC Performance, Rev 3, 1/22/13

Other

Test Deficiency Notice Trends; November, 2012 through March, 2013
QC Inspection Log; week of 11/12/2012 through 11/18/2012
QC Inspection Log; week of 4/15/2013 through 4/21/2013
QC Reject Metrics; week of 11/12/2012 through 11/18/2012
QC Reject Metrics; week of 4/15/2013 through 4/21/2013
Project Quality Assurance Program Status Report, 4th Quarter 2012, 2/14/13
NC-WB-12-009, Quality Assurance (QA) Oversight Report, 8/07/12
WB-NC-12-013, Quality Assurance (QA) Oversight Report, 11/08/12
NC-WB-13-003, Quality Assurance Yearly Oversight Analysis Report, 2/07/13
25402-WBN-SR-12-2204, Monthly Corrective Action Review For April 2012, 6/07/12
25402-WBN-SR-12-2302, Monthly Corrective Action Review For July 2012, 9/20/12
25402-WBN-SR-12-2376, Monthly Corrective Action Review For October 2012, 11/30/12
25402-WBN-SR-13-2462, Monthly Corrective Action Review For December 2012, 2/06/13
25402-WBN-SR-13-2481, PER 378571 Corrective Action 378571-40 Review (Backshift), 2/21/13
25402-WBN-SR-13-2500, Monthly Corrective Action Review For January 2013, 2/27/13
25402-WBN-SR-13-2514, Corrective Action Review Requested by TVA, 3/01/13
25402-WBN-AR-12-0005, Audit Report: Corrective Action and Non-conformances (September 24, 2012 through October 4, 2012, Rev. 0, 11/01/12
NC-WB-12-008, Quality Assurance Assessment Report - PER Backlog, 7/19/12
WBN2-CAP-12-1, WBN U2 Corrective Action Program Self Assessment from 10/01/2012 through 10/18/2012, 10/30/12
WBN2-CAP-13-1, WBN U2 Corrective Action Program Self Assessment from 1/14/2013 through 1/25/2013, 2/14/13
WB2 CAP Metrix (February ’13)
Bechtel CAP Status Report (for February 2013)

List of Acronyms

CAP	Corrective Action Program
CCMRC	Construction Completion Management Review Committee
CFR	Code of Federal Regulations
EOC	Extent of Condition
I&OE	Industry and Operating Experience
IP	Inspection Procedure (NRC)
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OSDD	Over, Short, Damaged, and Discrepant
PARS	Publicly Available Records
PER	Problem Evaluation Report
PI&R	Problem Identification and Resolution
PRC	Project Review Committee
QA	Quality Assurance
QAP	Quality Assurance Program
QC	Quality Control
RFI	Request for Information
SCWE	Safety Conscious Work Environment
SR	Service Request
TDN	Test Deficiency Notice
TVA	Tennessee Valley Authority
URI	Unresolved Item
WBN	Watts Bar Nuclear Plant