



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

May 9, 2012

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
05000391/2012612**

Dear Mr. Skaggs:

On March 28, 2012, 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 March 28, 2012, 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.

Based on the results of this inspection, one violation of NRC requirements is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding this violation are described in detail in the enclosed report. The violation involved failure to promptly identify and correct all aspects of a condition adverse to quality that was previously discussed in an NRC identified non-cited violation. Although determined to be a Severity Level IV violation, it is being cited because the criteria, specified in Section 2.3.2 of the NRC Enforcement Policy, for a non-cited violation was not satisfied. Specifically, TVA personnel failed to restore compliance within a reasonable period of time following the identification of a violation of NRC regulations. Please note that you are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements. The current Enforcement Policy is included on the NRC's Web site at (<http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>).

In addition, the enclosed report documents one NRC-identified finding 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 enclosures, and your response 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).

Sincerely,

/RA/

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

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

Enclosures: 1. Notice of Violation
2. Inspection Report 05000391/2012612 w/attachment

cc w/encl: (See next page)

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 ADAMS: Yes
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SIGNATURE	RCT1 via e-mail	DJS3 via e-mail	CNO1 via e-mail	GXC2 via e-mail	PKV via e-mail		
NAME	R. Taylor	J. Seat	C. Oelstrom	G. Crespo	K. VanDoorn		
DATE	05/04/2012	05/02/2012	05/02/2012	05/01/2012	05/09/2012		
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TVA

4

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Tennessee Valley Authority
Electronic Mail Distribution

Letter to Michael D. Skaggs from Robert C. Haag dated May 9, 2012.

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC PROBLEM
IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000391/2012612

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PUBLIC

NOTICE OF VIOLATION

Tennessee Valley Authority
Watts Bar Nuclear Plant - Unit 2
Spring City, TN

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

During an NRC inspection conducted on March 12-28, 2012, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," states 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, the applicant did not promptly correct an NRC identified condition adverse to quality. NCV 05000391/2011609-01 identified four vendor recommended layup and preventive maintenance activities that were not being performed on safety-related containment spray pumps. This discrepancy initially was reported to the applicant on October 5, 2011, and entered into the applicant's corrective action program on October 6, 2011. This discrepancy was identified as an NCV in NRC Inspection Report 05000391/2011609, dated December 16, 2011. On January 12, 2012, the applicant closed its corrective action document associated with the NCV, however, two of the four vendor recommendations (coat the exposed portions of the shafts with rust preventative and store the mechanical seal packages separately after one year of layup) were neither completed nor evaluated.

This is a Severity Level IV violation (Enforcement Policy 6.5.d)

Pursuant to the provisions of 10 CFR 2.201, Tennessee Valley Authority is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the construction permit should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest the 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.

Enclosure 1

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that delete such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 9th day of May, 2012

U.S. NUCLEAR REGULATORY COMMISSION
REGION II

Docket No: 50-391

Construction Permit No: CPPR-92

Report No.: 05000391/2012612

Applicant: Tennessee Valley Authority (TVA)

Facility: Watts Bar Nuclear Plant, Unit 2

Location: 1260 Nuclear Plant Rd
Spring City TN 37381

Inspection Dates: March 12 through March 28, 2012

Inspectors: R. Taylor, (Lead) Senior Project Inspector
K. VanDoorn, Senior Construction Inspector
G. Crespo, Senior Construction Inspector
C. Oelstrom, Construction Inspector
J. Seat, Resident Inspector

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

EXECUTIVE SUMMARY
Watts Bar Nuclear Plant, Unit 2
NRC Inspection Report 05000391/2012612

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>.

Inspection Results

- A Severity Level (SL) IV Notice of Violation (NOV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified by the inspectors for failure to take adequate corrective actions related to a previously identified Non-Cited Violation (NCV). [Section Q.1.1.b(i)]
- A SL IV Non-Cited Violation (NCV) of CV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified by the inspectors for failure to resolve Corrective Action Program (CAP) deficiencies which have resulted in an increased backlog of outstanding corrective actions. [Section Q.1.1.b(ii)]
- The inspectors identified a decline in performance of the Watts Bar Unit 2 corrective action program since the last problem identification and resolution inspection was performed in May 2011. The two violations and other less significant problems identified during the inspection involved incomplete problem identification/ descriptions and a lack of timely corrective actions. (Section Q.1.1)
- 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).
- With the exception the failure take adequate corrective actions related to a previously identified Non-Cited Violation, 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)

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 May 2011. 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 reviewed the provisions provided for workers to report conditions that may be adverse to quality. The inspectors conducted reviews to evaluate management/quality assurance oversight of the corrective action program.

The inspectors reviewed a sample of over 100 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 also reviewed the applicant's alternate issue tracking systems which 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 inspectors reviewed applicable portions of the applicant'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. 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 reviewed several anonymous PERs to determine if they had been adequately captured and addressed.

The inspectors reviewed a sample of 12 management and quality assessments, audits, trend reports, 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.

Specific documents reviewed are listed in the attachment.

b. Observations and Findings

The inspectors identified two violations of regulatory requirements as discussed below.

- (i) Introduction: On March 28, 2012, the inspectors identified a SL IV NOV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," for failure to promptly correct a condition adverse to quality associated with layup and preventive maintenance (LUPM) of the containment spray pumps.

Description: On January 19, 2010, the applicant began on-site refurbishment of the 2A-A and 2B-B containment spray pumps. This work included disassembly and inspection of the pumps and subsequent cleaning or replacement of various piece parts according to their material condition. These refurbishment activities concluded on September 27, 2010, when both pumps were installed in their final locations.

During an earlier review of the two WO packages for the refurbishment in 2011, the inspectors noted that the following LUPM activities were delineated by the vendor technical document (VTD) but were not listed as steps in either WO:

- Fill the pump bearing housing with rust inhibiting lubricating turbine oil
- Store the mechanical seal package separately after one year of pump layup
- Coat shaft sleeve and exposed portions of shaft with rust preventative
- Rotate pump shaft every three months to recoat bearings with lubricant

The inspectors also noted that the Bechtel procedure 25402-000-GFP-000-N1304, System/Component Layup, Rev. 1, states that vendor-recommended LUPM activities shall be performed unless justified by an engineering evaluation. On October 5, 2011, the inspectors questioned the applicant as to whether the activities had been performed or whether such an evaluation had been completed.

On October 6, 2011, the applicant initiated PER 444516 to evaluate the conditions identified by the inspectors. The applicant concluded that neither the vendor-recommended LUPM activities nor an engineering evaluation had been performed for

the Unit 2 containment spray pumps although the pumps had been installed and idle since September 27, 2010.

This previous finding was determined to be more than minor because it represented an improper work practice (failure to perform LUPM) that can impact safety by adversely affecting the material condition of the safety-related Unit 2 containment spray pumps. This condition adverse to quality was identified as NCV 05000391/2011609-01 on December 16, 2011. On January 12, 2012, PER 444516 was closed, and stated that oil had been added to the pumps, and that work orders had been initiated to rotate the shafts quarterly. PER 444516 did not address the vendor recommendations to coat the exposed shafts with rust preventative or store the mechanical seal packages separately.

On March 5, 2012, as a result of a request for information to support an NRC inspection, the applicant discovered that corrective actions to adequately address NCV 05000391/2011609-01 had not been performed. The applicant initiated PER 517102 to address the vendor recommendation for coating the exposed shafts with rust preventative and for storage of the mechanical seal packages, which were not adequately addressed prior to the closure of PER 444516.

This finding was determined to be more than minor because the failure to correct the condition adverse to quality represents an inadequate process, procedure, or quality oversight function that, if left uncorrected, could adversely affect the quality of the fabrication, construction, testing, analysis, or records of a safety-related component. The finding was a SL IV because the ineffective corrective actions did not result in multiple examples of recurring significant deficiencies.

This finding is related to the operating experience component of the Problem Identification and Resolution cross-cutting area, as defined in Inspection Manual Chapter 0610, because the applicant failed to implement operating experience through changes to station processes and procedures, P.2(b). Specifically, the applicant failed to use information identified in an NCV to ensure appropriate containment spray pump LUPM activities were incorporated into station processes and procedures.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," states 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, the applicant did not promptly correct an NRC identified condition adverse to quality. NCV 05000391/2011609-01 identified four vendor recommended layup and preventive maintenance activities that were not being performed on safety-related containment spray pumps. This discrepancy was initially reported to the applicant on October 5, 2011, and entered into the applicant's corrective action program on October 6, 2011. On January 12, 2012, the applicant closed its corrective action document associated with the NCV, however, two of the four vendor recommendations (coat the exposed portions of the shafts with rust preventative and store the mechanical seal packages separately after one year of layup) were neither completed nor evaluated.

This finding was determined to be a SL IV violation using Section 6.5 of the Enforcement Policy. Although this was a SL IV violation, it did not meet the criteria for a non-cited violation in Section 2.3.2 of the NRC Enforcement Policy because the applicant's

corrective actions did not adequately address the findings or restore compliance within a reasonable timeframe. This finding is identified as VIO 005000391/2012612-01, Failure to Correct a Condition Adverse to Quality Associated with Containment Spray Pump Layup and Preventive Maintenance.

- (ii) Introduction: On March 28, 2012, the inspectors identified a SL IV NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," for failure to resolve Corrective Action Program deficiencies which have resulted in an increased backlog of outstanding corrective actions.

Description: On March 28, 2012, the inspectors identified a history of adverse Corrective Action Program trends in the areas of late corrective action plans, late corrective actions, and corrective action extensions.

- On September 9, 2010, the applicant identified an adverse trend showing a significant increase in the number of late CAP actions associated with multiple Engineering disciplines. The cause was determined to be a failure to maintain appropriate attention on CAP and action due dates in an atmosphere of staff reductions and other project support requirements. Engineering failed to consider the Corrective Action Program commitments as high priority along with other project support requirements. This issue was documented in PER 250234.
- On April 20, 2011, Bechtel Management and Project CAP team identified an adverse trend in late corrective action plans, extensions, and actions that involved several different organizations. The apparent cause analysis identified the causes to be an ineffective project schedule and responsibilities of personnel not being well defined. This issue was documented in PER 357871.
- On November 3, 2011, the applicant completed an effectiveness review of PER 357871 and determined the corrective actions for PER 357871 have been ineffective based on the number of late actions. As of November 1, 2011, there were approximately 1,370 late actions. The apparent cause was determined to be setting corrective action due dates to an estimated schedule that can change and lack of re-enforcement of management expectations.

The applicant initiated a mass extension of all outstanding corrective actions on November 3, 2011, in part, due to the change in the construction schedule. However, many of the backlogged items involved issues that should not have been backlogged, such as process improvements and this mass extension was not in accordance with procedure requirements. The applicant recognized this was not in accordance with procedures and initiated PER 459499 on November 7, 2011. The corrective actions included a re-review of backlogged items to attempt to reschedule some actions earlier. The inspector reviewed the backlog list and picked 21 of those that appeared to be inappropriate to extend. These included actions such as evaluation of procedure adequacy, evaluation of the PER problem description, extent of condition evaluations, and evaluate the need for additional training. For these items the inspector reviewed the applicant's justification for extension and results of the applicant's re-review of actions. The inspectors determined that many of these items could have been relatively easily closed and a number of these involved process improvements that had been inappropriately extended. Some examples of action from the backlog list included PER 172745 (changing a weld procedure); PER 172753 (changing a procedure for shock

arrestors); PERs 232383, 235456, 238158, 241569, 242214, 282451, and 284156 (all involved performing an engineering evaluation of the stated problems); PER 232383 (evaluating the need for additional training); and PER 260918 (conducting a meeting to determine if procedure enhancements were needed for ABSCE boundary control). Several of the issues selected by the inspector had not been rescheduled and some of the rescheduled dates had not been met.

The team determined that the applicant had yet to adequately address identified Corrective Action Program deficiencies. The licensee captured this issue in PER 522107. This finding was determined to be more than minor because the applicant's identified Corrective Action Program deficiencies, if left uncorrected, could adversely affect the quality of construction of construction of safety related structures, systems, and components. The finding was a SL IV because the ineffective corrective actions did not result in multiple examples of recurring significant deficiencies. The inspectors reviewed this finding for cross-cutting aspects and determined that none exist.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," states 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, the applicant failed to correct longstanding CAP deficiencies, which have resulted in a backlog of untimely corrective actions. This finding was determined to be a SL IV violation using Section 6.5 of the Enforcement Policy. Because this was a SLIV violation and because it was entered into the corrective action program as PER 522107, it is being treated as a NCV consistent with section 2.3.2 of the NRC Enforcement Policy: NCV 005000391/2012612-02, Failure to Correct Longstanding CAP Deficiencies.

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 the applicant was effective in identifying problems and entering them into the CAP. PERs normally provided complete and accurate characterization of the subject issues. In general, the threshold for initiating PERs was low as evidenced by the continued large number of PERs entered annually into the CAP. Employees were encouraged by management to initiate PERs. The inspectors' independent review did not identify any significant adverse conditions which were not in the CAP for resolution. Use of trending at the site was comprehensive and effective in identifying areas for improvement.

Evaluating Problems

The inspectors found no significant issues with the evaluations provided for individual PERs and determined that the applicant had adequately prioritized issues entered into the CAP consistent with established procedures. Generally, the applicant performed evaluations that were technically accurate and of sufficient depth. The inspectors

identified a few examples (listed below) where evaluations were found to be less than adequate.

- PER 507424: This PER involved the applicant's discovery that several pipe supports were incomplete in that components were loose. For each of these, there was closed WO documentation that the supports had been completed. During an inspection of an open item associated with these supports, an NRC inspector had been informed of this problem on February 14, 2012 and held a meeting with the applicant's licensing staff on February 15, 2012. Concerns were expressed that, if additional WOs were not identified that showed the supports were subsequently worked on after initial completion, tampering or records problems could exist, both being potential serious issues. On March 15, 2012 the PER was brought to MRC for review. The PER stated that no WOs had been found and the only corrective action planned was to fix the supports. The PER failed to address the potential serious issues. The MRC did ask for the PER to be brought back since the person presenting the PER did not appear to be sufficiently knowledgeable of the problem. Subsequent to the inspector questioning about the potential more serious issues, the applicant conducted further reviews and showed that additional work had been performed subsequent to the original work which resulted in the loose components. Therefore this is considered to be a minor issue. However, the initial evaluation was weak. The applicant's actions for this observation were not yet developed.
- PER 460295: This PER involved a WO that did not document completion of all refurbishment activities for dampers as required. These activities were preventive maintenance type activities such as verifying proper lubrication and replacement of degraded parts such as air lines. The applicant's reportability evaluation inappropriately stated that the preoperational test program would discover such problems. This test program is not designed to detect degraded parts and would only do so if these failed during the test. However, later review showed that the dampers, originally thought to be safety-related, were non-safety-related and therefore the problem was not reportable and is considered to be a minor issue. The applicant initiated PER 522152 and planned to change the reportability guidance procedure and train personnel regarding crediting of the preoperational test program.

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. However, the team found that the applicant's corrective actions developed and implemented for problems were not always timely, and effective. This is evident by the longstanding adverse trends in late CAPs, CAP extensions, and late actions (PERS 250234, 357871, and 458205). This issue is described in the NCV listed above.

In addition, several examples were noted which occurred during the period since the last PI&R inspection, where the applicant failed to take comprehensive corrective action in a timely manner. These involved URI 05000391/2011603-03 concerning corrective actions associated with motor control center buckets (see NRC Report 05000391/2012602, Section OA.1.7 and URI 05000391/2011607-02 concerning the

Commercial Grade Dedication Program (see NRC Report 05000391/2011610, Section C.1.10).

In December 2011, the licensee identified deficiencies regarding the completion of PER effectiveness reviews. Specifically the licensee identified eight late and incomplete effectiveness reviews. These effectiveness reviews were rescheduled and completed at the time of inspection. The completed effectiveness reviews were generally of good depth and correctly identified issues.

(2) Use of Operating Experience

The inspectors found that the applicant's measures to evaluate and incorporate applicable operating experience into the corrective action program contained processes for including vendor recommendations and internally generated lessons learned. An exception to this observation included the containment spray pump LUPM activities discussed above. The industry and operating experience (I&OE) information was collected, evaluated, and communicated to affected internal stakeholders as specified in TVA procedures, and appropriate corrective actions were developed for issues applicable to the Watts Bar Unit 2 Construction Completion Project.

(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.

(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 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 corrective action plan and corrective action (CA) backlog remains relatively high due to extensions and late actions as identified by Bechtel trending in these areas. As a result, an action plan has been initiated to complete development of overdue and extended corrective action plans and to schedule realistic completion dates for corrective actions tied to system schedule milestones.
- The inspectors determined that PER initiation was not always timely. In some instances, the applicant tried to resolve issues or questions before initiating a corrective action document rather than letting the process resolve the issue. This issue has been documented in the sites self assessments, communicated via the

resident staff, and is evident through some of the long standing corrective action issues that have been discussed.

- 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 identified CAP deficiencies in the area of problem correction. These deficiencies are related to timeliness and adequacy of corrective actions. The cause of these programmatic deficiencies appears to be a result of a lack of management oversight and emphasis on the CAP. This deficiency is discussed in the above NCV and is captured in the licensee's corrective action program as PER 522107. Ineffective management oversight of the CAP was also identified during the 2010 NRC PI&R inspection.

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.

Based on the two violations and other less significant problems identified during the inspection, the inspectors concluded that a decline in performance of the Watts Bar Unit 2 corrective action program had occurred since the last problem identification and resolution inspection was performed in May 2011.

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.

V. Management Meetings

X.1 Exit Meeting Summary

On March 28, 2012, 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. Beckley, Electrical Design, TVA, Unit 2
T. Cheek, Performance Improvement, TVA, Unit 2
D. Charlton, Licensing, TVA, Unit 2
R. Enis, Mechanical Engineer, TVA, Unit 2
E. Heinrich, Project Control Specialist, TVA
E. Hicks, Preop / Startup, Bechtel
J. Martin, QA Manager, Bechtel
D. Morgan, Field Engineering, Bechtel
K. Rose, CAP Coordinator, Bechtel
G. Scott, Licensing, TVA, Unit 2
I. Zeringue, General Manager, TVA, Unit 2
R. Hruby, 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

005000391/2012612-01	VIO	Failure to Correct a Condition Adverse to Quality Associated with Containment Spray Pump Layup and Preventive Maintenance
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Opened and Closed

005000391/2012612-02	NCV	Failure to Correct Longstanding CAP Deficiencies
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Discussed

None

Closed

None

List of Documents Reviewed

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

- 244073, Loose Wire Discovered During System Testing by Preoperational Startup
- 324543, Closed Work Order Issues
- 325122, NRC Identified: During the 2/14/2011 IDVP NRC Inspection, the following Drawing Discrepancies were found.
- 323458, Wiring Mismatch Under Compression-Plate/Clamp Connections.
- 332015, P and R Cable Separation for CSST C and D Transformers
- 330697, Failure To Pull Cables Of BT5250, 5251, and 5265
- 334077, NRC Identified: Regarding Containment RHR Sump Analytical Limits and Setpoints
- 334082, NRC IDVP Inspection – Diesel Generator Loading and Battery Chargers
- 334092, NRC Identified: Unit 2 6.9-kV Protection and Coordination Calculation
- 334094, NRC Identified: Calculation WBNOSG4071 Issue
- 352247, NRC IDVP Inspection – ITE EF3 Circuit Breaker Interrupting Capacity
- 375347, NRC Unresolved Item Regarding Battery Charger Calculation
- 375350, NRC Unresolved Item Regarding Battery Amp-hours
- 375359, NRC Unresolved Item Regarding Diesel Generator Loading Sequence
- 375360, NRC Unresolved Item Regarding Diesel Generator Capacity
- 383524, System 30 Dual Speed Motors with Undersized Thermal Overloads
- 390060, ASME Closed Work Order Issues
- 414288, Closed Work Order Issues
- 491952, Raychem NHVT Termination Kit Installation
- 512566, PER Inadvertently Closed.
- 338929, Incorrect Component Worked
- 369688, ASME Missed ANI Hold Point
- 378571, Additional Hardware Work and QC Re-Inspections not Completed
- 387395, Temporary Pipe Supports not Removed
- 455950, ASME Pipe Defects and Rust
- 442614, Cracks Found in Pipe to be Installed
- 459653, Incomplete Refurbishment Evaluation/Work Instructions
- 460295, Damper Work Order does not Provide Evidence of Completion of Refurbishment Activities
- 460344, Lack of Tracking Incomplete Refurbishment
- 465030, Work Order does not Show all Inspections were Performed for Hand Switches
- 476385, Discrepancies Between Refurbishment Procedures
- 476392, Incorporation of Commitments for Inspection of Terminal Blocks not Clear
- 488807, No Internal Cleanliness Inspection Documentation
- 494997, Work Order Implementation Issues and Improper Work Order Revisions
- 507424, TVA QA Field Observation of Loose Support Components
- 353596, associated with NCV 2011607-03
- 447750, associated with NCV 2011604-03
- 444516, associated with NCV 2011609-01
- 517102, associated with NCV 2011609-01
- 471188, Containment Spray Pump vendor manual clarification
- 510903, No Documentation to Demonstrate Trend Data are Analyzed
- 348970, NRC Review Findings of Commercial Grade Dedication Packages

373805, PER Written to Document NRC Non-cited Violation Regarding Commercial Grade Evaluation
 431164, Potential Adverse Trend – Closed Work Order Deficiencies
 434537, Errors and Inconsistencies in PER 411227 QC Re-inspection
 452524, Trend PER: PQAM Review of B Level PER 297689 correction actions deemed ineffective
 394793, Trend PER – WO Documentation and Ineffective Preventative Actions Associated with PER 262178
 380115, NRC Inspectors noted the following HAAUP related pipe support discrepancies
 421515, Historical. Imperfection in MSVR fabricated beam
 441360, NRC Id'd / Historical Issue: Weld Defects in round spiral duct & support
 441372, NRC Id'd/ Historical Issue: Secondary Efflorescence on Shield Building Concrete Near HVAC Vent Stack
 478920, Concrete Spalling in Unit 2 Shield Wall
 491403, NRC Id'd - Crack in Ceiling of the General Ventilation Supply Room
 443185, NRC identified ATC Nuclear Report QTR10T3000-06 requires additional detail
 418540, PER written to address NRC Non-Cited violation (NCV) 2011605-02
 364388, NCV Level-NRC Id'd: PER 229082 related to anchor bolt spacing violations was closed inappropriately.

Quality Audit, Assessment, and Surveillance Reports

Procedures and Programs

SMP-14.0, Watts Bar Nuclear Plant Unit 2 Test Deficiency Notices, Rev. 2, 10/29/2010
 25402-000-GPP-0000-N1206, Work Order Processing, Rev. 14, 02/02/2012
 25402-000-GPP-0000-N1304, System/Component Layup, Rev. 1, 06/11/2010

Other

Watts Bar Nuclear Plant Construction Completion Project, Assessment Report NGDC-WB-12-002, Trending Program
 Technical Deficiency Notice Logbook
 LUPM00083Adef01, Layup Initiation/Revision/Deferral/Deletion Request, WBN-2-PMP-072-0027 Containment Spray Pump 2A-A, 03/15/2012
 LUPM00084Adef01, Layup Initiation/Revision/Deferral/Deletion Request, WBN-2-PMP-072-0010 Containment Spray Pump 2B-B, 03/15/2012

List of Acronyms

BFN	Browns Ferry Nuclear Plant
CAP	Corrective Action Program
CAPR	Corrective Action to Prevent Recurrence
CCMRC	Construction Completion Management Review Committee
CFR	Code of Federal Regulations
EDMS	Electronic Document Management System
I&OE	Industry and Operating Experience
IMC	Inspection Manual Chapter
IP	Inspection Procedure (NRC)
NCR	Nonconformance Report
NCV	Non-Cited Violation

NOV	Notice of Violation
NRC	Nuclear Regulatory Commission
OE	Operating Experience
OSDD	Over, Short, Damaged, and Discrepant
PER	Problem Evaluation Report
PI&R	Problem Identification and Resolution
PRC	Project Review Committee
QA	Quality Assurance
QAP	Quality Assurance Program
QC	Quality Control
SCWE	Safety Conscious Work Environment
SL	Severity Level
SR	Service Request
TVA	Tennessee Valley Authority
UOS&D	Unsatisfactory Overage, Shortage and Damage
URI	Unresolved Item
WBN	Watts Bar Nuclear Plant
WO	Work Order