



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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October 30, 2008

Mr. Ashok S. Bhatnagar
Senior Vice President
Nuclear Generation Development and Construction
Tennessee Valley Authority
6A Lookout Place
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**SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC INTEGRATED
INSPECTION REPORT 05000391/2008009**

Dear Mr. Bhatnagar:

On September 30, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection of construction activities at your Watts Bar Unit 2 reactor facility. The enclosed integrated inspection report documents the inspection results, which were discussed on October 3, 2008, 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 safety and compliance with the Commission's rules and regulations, with the conditions of your construction permit, and with fulfillment of Unit 2 regulatory framework commitments. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding which was determined to involve a violation of NRC requirements. However, because this 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 (NCV) consistent with Section VI.A of the NRC Enforcement Policy. If you contest the NCV 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, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC 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 05000391/2008009 w/attachment

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Letter to Ashok S. Bhatnagar from Robert C. Haag dated October 31, 2008

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC INTEGRATED
INSPECTION REPORT 05000391/2008009

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PUBLIC

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-391

Construction Permit No.: CPPR-92

Report No.: 05000391/2008009

Applicant: Tennessee Valley Authority (TVA)

Facility: Watts Bar Nuclear Plant, Unit 2

Location: 1260 Nuclear Plant Rd
Spring City TN 37381

Dates: July 1 - September 30, 2008

Inspectors: W. Bearden, Senior Resident Inspector, Construction Projects
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(Sections C.1.1, E.1.3)
A. Issa, Project Inspector, CPB3, DCP, RII
(Sections C.1.1, E.1.1, E.1.2)
P. VanDoorn, Senior Reactor Inspector, CPB3, DCP, RII
(Sections Q.1.1, Q.1.2)

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 05000391/2008009

This integrated inspection included aspects of engineering and construction activities performed by TVA associated with the Unit 2 construction project. This report covered a three-month period of inspections in the areas of quality assurance; identification and resolution of problems; construction activities; engineering activities; and training and qualification of plant personnel. The inspection program for Unit 2 construction activities is described in NRC Inspection Manual Chapter (IMC) 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 inspectors concluded that TVA continued to implement adequate controls to conduct ongoing procurement, design, and construction activities. The inspection identified one NRC-identified Severity Level (SL) IV Non-Cited Violation.

Inspection Results

- A Severity Level IV non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors when TVA and Bechtel failed to implement existing procedural guidance for the protection of safety-related components. Specifically, measures were not being implemented to protect the reactor vessel from physical damage during ongoing scaffolding work above and around the vicinity of the vessel. TVA entered the issue into the corrective action program and as part of the corrective actions, TVA plans on implementing appropriate measures to protect and inspect installed equipment during construction activities.

The inspectors determined that this finding was more than minor because it represented an improper work practice and represented an inadequate process and quality oversight function that, if left uncorrected, could adversely affect safety-related structures, systems and components (SSCs). Failure to adequately protect the reactor vessel from physical damage could impact the structural integrity of the reactor pressure vessel (RPV) and the failure to periodically conduct quality control inspections could preclude TVA from identifying items which could cause such damage to installed equipment. The cause of this finding was directly related to the work practices component of the Human Performance cross-cutting area because TVA and Bechtel failed to appropriately define and communicate expectations regarding procedural compliance and as a result personnel failed to follow procedure 25402-000-GPP-0000-N-102 (H.4.b). (Section C.1.2)

- Adequate management and quality assurance (QA) oversight was in place commensurate with activities in progress. The level of QA oversight by Bechtel at the site and at the Knoxville engineering offices continued to increase and a significant portion of the ongoing QA oversight was being performed by Bechtel personnel. (Section Q.1.1)

- Development of the corrective action program (CAP) processes continued with the addition of several CAP attributes that should enhance the program. The inspectors reviewed the process for handling potential trends and observed proper implementation of the trending program. Overall, TVA's and Bechtel's processes for identification and resolution of problems continued to be adequate. (Section Q.1.2)
- Other areas inspected were adequate with no findings of significance identified. These areas included physical walkdowns, ASME III N-5 walkdowns, ongoing construction activities, 10 CFR 21 and 10 CFR 50.55(e) programs, training, and fire protection.

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REPORT DETAILS

Summary of Plant Status

During the current inspection period, TVA continued to develop construction procedures and work instructions. Engineering design activities and physical plant walkdowns to determine the existing status of structures, systems and components (SSCs) continued during this inspection period.

I. Quality Assurance Program

Q.1 Quality Assurance Oversight Activities

Q.1.1 Quality Assurance Oversight (IPs 35060, 35061 and 35960)

a. Inspection Scope

The inspectors monitored TVA's and Bechtel's management and quality assurance (QA) oversight activities to assure adequate oversight of construction activities was in place. This included review of oversight and audit plans and schedules; surveillances, assessments, and oversight results; and reports to management. The inspectors reviewed two Bechtel QA audits and auditor qualifications, Bechtel QA reports to management, and problem evaluation reports (PERs) associated with the audits. The inspectors also reviewed Bechtel's QA program for oversight of the design engineering activities which were ongoing in TVA's Knoxville office. The inspectors held discussions with the Knoxville QA manager, several QA assessment personnel, and reviewed the qualifications of all QA personnel assigned to the Knoxville office. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

The inspectors observed TVA and Bechtel management and QA oversight of ongoing physical walkdowns and construction activities. The inspectors concluded that TVA's QA oversight remained adequate and Bechtel's QA process has improved. During previous reporting periods, a significant portion of the oversight had been performed by TVA personnel. However, the presence of Bechtel QA personnel has noticeably increased at the site and at the Knoxville engineering offices during the inspection period and a significant portion of the ongoing QA oversight was being performed by Bechtel personnel. TVA's QA organization oversight was primarily focused on the ongoing auxiliary building secondary containment enclosure (ABSCE) changes, design engineering, and performance of walkdowns. That emphasis was appropriate as these were the major construction activities during the reporting period. The inspectors concluded that the completed QA audits were thorough with value-added findings which were appropriately addressed in the corrective action program (CAP). An appropriate number of auditors had been properly qualified. Some site performance indicators were developed and regular QA reports were sent to management. Work package documentation problems and other errors identified by TVA during QA oversight activities were documented in the CAP.

The inspectors noted that a number of the assigned personnel in the Knoxville office had limited QA experience. However, the Bechtel QA manager and one other individual assigned to the Knoxville office had significant QA experience. Additionally, the Bechtel QA manager had developed an aggressive training plan for QA personnel. Also, TVA QA personnel with significant QA experience were traveling to the Knoxville office to provide additional QA oversight. The inspectors concluded that the level of QA oversight was adequate commensurate with activities in progress.

c. Conclusions

Adequate management and QA oversight was in place commensurate with activities in progress. The level of QA oversight by Bechtel at the site and at the Knoxville engineering offices continued to increase and a significant portion of the ongoing QA oversight was being performed by Bechtel personnel.

Q.1.2 Identification and Resolution of Problems (IP 40504)

a. Inspection Scope

The inspectors reviewed the updated guidance for both TVA's and Bechtel's CAP. This included recent procedure revisions, the new root cause procedure, the Bechtel self-assessment process, CAP performance indicators and goals, CAP trending guidance, a trend report, and PERs related to the CAP and trending. The inspectors observed Management Review Committee (MRC) meetings and reviewed the classification and disposition of selected PERs. The inspectors reviewed several PERs and their respective corrective actions. The review included Level A PER 149043, Conduit Seals Required for ABSCE Seals and Level B PER 148667, Reactor Vessel Arc Strike. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

The inspectors noted progress regarding the CAP processes. Bechtel's updated process included root cause guidance, trend guidance, performance indicators, risk guidance for PER categorization, and an escalation policy for Level C PERs. TVA's process had been updated to include more CAP performance indicator guidance. These areas had not been established during the previous inspection. The trending program was being implemented and trend PERs had been initiated when required. Adequate management oversight of the CAP processes was evident. TVA had established a process for reviewing generic construction issues; however, Bechtel had not yet updated its program to describe how the process would work. Bechtel planned to address this area. Bechtel's self-assessment schedule had been established; however, a project-wide procedure had not yet been established to ensure consistent quality assessments and reports. Bechtel planned to address this area. This observation was documented in PER 149781.

Level A PER 149043 discussed internal conduit seals that were part of ABSCE boundary for Unit 1, but were inadvertently removed. As a result of this issue, all work associated with ABSCE changes was immediately stopped. Work orders (WOs), engineering design change documents, and design change notices associated with ABSCE changes were reviewed by TVA to ensure that appropriate work controls were in place prior to performing work on the ABSCE boundary. There was no immediate safety-significant impact to Unit 1 in that the breaches were within the calculated breach margin allowed by TI-65, "Breaching of Containment Annulus, ABSCE, or Control Building Pressure Boundaries." In addition, a root cause analysis was performed by Bechtel which identified the root cause as weaknesses in the design and work control process. As part of the corrective actions, TVA issued a new work order processing procedure and developed training. The inspectors concluded that TVA's corrective actions associated with this issue were appropriate and commensurate with the level of significance of the issue.

PER 148667 documented an arc strike identified during an inspection of the reactor vessel on July 18, 2008. TVA took appropriate corrective actions including a root cause analysis performed by Westinghouse.

c. Conclusions

Development of the CAP processes continued with the addition of several CAP attributes that should enhance the program. The inspector noted that two CAP initiatives for reviewing new construction generic issues and Bechtel self-assessments did not have implementation guidance to ensure consistency. Overall, TVA's and Bechtel's processes for identification and resolution of problems continued to be adequate. The inspectors reviewed the process for handling potential trends and observed proper implementation of the trending program.

II. Management Oversight and Controls

C.1 Construction Activities

C.1.1 System Walkdowns and Construction Activities (IPs 35061, 50053, 50073, 51053, 51063 and 64051)

a. Inspection Scope

The inspectors continued to monitor TVA's program for conducting physical walkdowns of SSCs to determine the current status of construction completion at Watts Bar Unit 2. Areas inspected included walkdown procedures; qualification and training records, including interviews of walkdown personnel; QA surveillance reports; associated reviews of PERs; and direct observation of selected walkdowns in the following areas:

- piping isometric for component cooling water system
- piping isometric for letdown heat exchanger
- piping isometric for residual heat removal (RHR) spray header line
- steel containment vessel
- electrical conduits

The inspectors also observed selected portions of general walkdowns performed to support Design Change Notice (DCN) 52283, ABSCE Boundary Modification, including the installation of the roll-up doors and reviewed the associated documentation. This modification is discussed in more detail in Section E.1.1.

The inspectors reviewed work procedures, drawings, Work Orders (WOs), Quality Assurance (QA) surveillance reports, training records of six craft personnel, and associated Problem Evaluation Reports (PERs). In addition, the inspectors performed field work observations of WO's and conducted interviews.

Specific documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

TVA continued to perform physical walkdowns of SSCs to determine the current status of construction completion. The walkdown results will be used as design input for planned analysis and design activities. The walkdown teams utilized walkdown packages developed from information and criteria provided by the engineering organization. The teams collected and recorded field information on the as-constructed condition of components in accordance with the applicable walkdown packages and procedures. Results of completed walkdowns were recorded on applicable data forms and/or drawings which were reviewed by the walkdown review team for completeness, accuracy, and compliance to engineering acceptance criteria prior to submittal to design engineering. The walkdown program required walkdown personnel to document non-conforming conditions and discrepancies in the CAP. Additionally, components which required maintenance (e.g., missing bolts, clamps, etc.) were identified in the walkdown packages.

During this reporting period TVA performed walkdowns in the areas of mechanical system flow diagrams, large bore isometric, small bore isometric, steel containment vessel, conduit supports, heating ventilation and air conditioning ducting and supports, embedded components, control room design review, cable attributes, cable pullby, miscellaneous Class 1E cables, electrical panels, ice condensers, and cable vertical drop (cable installation and supports). The inspectors determined that the experience level for personnel performing the walkdowns met TVA's procedural requirements.

The review of WO procedure 25402-000-GPP-0000-N1206 revealed a lack of attention to detail when adapting a Unit 1 procedure for use on Unit 2. TVA documented this issue in their CAP.

c. Conclusions

TVA's program for performing physical walkdowns of SSCs continued to provide adequate detail and guidance to allow walkdown personnel to determine the accurate status of construction completion of Watts Bar Unit 2.

C.1.2 Protection of Installed Plant Equipment During Construction Activities (IPs 35061 and 50053)

a. Inspection Scope

The inspectors conducted inspections of the reactor pressure vessel (RPV) storage, preservation, and protection to determine whether requirements, work procedures and inspection (QC) procedures were being met.

b. Observations and Findings

Introduction: A Severity Level IV non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the failure to implement existing procedural guidance and protect safety-related components. Specifically, measures were not being implemented to protect the reactor vessel from physical damage during scaffolding work above and around the vicinity of the vessel.

Description: TVA and Bechtel personnel failed to take measures to protect the reactor vessel from physical damage and to conduct periodic quality control inspections as required by housekeeping procedure 25402-000-GPP-0000-N-102, Revision 0.

The access door on the temporary protective cover of the RPV was left open from July 18, 2008 to August 19, 2008. During this time, scaffolding was erected above and around the vicinity of the RPV to support ongoing walkdowns. The inspectors questioned the acceptability of this condition. On August 19, TVA informed the inspectors that the access door had been closed and acknowledged that the requirements contained in both the Bechtel Project Nuclear Quality Assurance Manual (PNQAM) and the housekeeping procedures were not being met. As a result, the issue was entered into the CAP as Level B PER 150799, Non-Compliance with QA Manual-RG1.39. TVA's corrective actions for this issue included performing a baseline assessment of Unit 2 and establishing periodic inspections to ensure the integrity of plant equipment.

The inspectors determined that this finding was more than minor because if left uncorrected, the lack of RPV protection from physical damage and the failure to conduct periodic quality control inspections, could adversely affect the structural integrity of the RPV. The cause of this finding was directly related to the work practices component of the Human Performance cross-cutting area because TVA and Bechtel failed to appropriately define and communicate expectations regarding procedural compliance and as a result personnel failed to follow procedures (H.4.b).

Enforcement: Part 50 of Title 10 of the Code of Federal Regulation, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Bechtel Project Nuclear Quality Assurance Manual (PNQAM) requires the implementation of ANSI N45.2.2-1972, "Packaging, Shipping, Receiving, Storage, and handling of Items for Nuclear Plants" and ANSI N45.2.3-1973, "Housekeeping During the Construction Phase of Nuclear Plants."

These ANSI standards specifically address the protection of the reactor vessel from physical damage and inspections of equipment during the construction phase. Bechtel Housekeeping Procedure 25402-000-GPP-0000-N-102, Revision 0, implements the above requirements of the PNQAM by addressing the protection of vessels through the use of covers and periodic quality control inspections.

Contrary to the above, from July 18, 2008 through August 19, 2008, TVA and Bechtel personnel failed to protect the reactor vessel from physical damage and to conduct periodic quality control inspections as required by quality-related housekeeping procedure 25402-000-GPP-0000-N-102, Revision 0. Subsequently, TVA and Bechtel took action to cover the RPV opening and entered the issue into the CAP. TVA also initiated a corrective action to perform a baseline assessment of Unit 2 and establish a periodic inspection to ensure the integrity of the equipment. This finding was determined to be a SL IV violation using Supplement II of the Enforcement Policy. Because this was a SL IV violation and it was entered into the CAP as PER 150799, this violation is being treated as a non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy: NCV 5000391/2008009-01, Protection of Installed Plant Equipment During Construction Activities.

c. Conclusions

A Severity Level IV non-cited violation was identified by the inspectors for failure to implement measures to protect and inspect installed equipment during construction activities. This issue was entered into the CAP.

E.1 Engineering Activities

E.1.1 Engineering Organization and Design Control (IP 37055 and 35061)

a. Inspection Scope

The inspectors reviewed ongoing design and construction activities associated with TVA's plans to modify the Auxiliary Building Secondary Containment Enclosure (ABSCE) boundary. The inspectors also reviewed procedure NGDC-PP-6, Completion of TVA Partial ASME Section III N-5 Data Reports, drawings of the control air system, and training records for two system engineers performing N-5 walkdowns. The inspectors observed portions of an N-5 walkdown for the control air system and conducted interviews with engineers performing the walkdown. In addition, the inspectors reviewed PERs dealing with training and the use of computer software in engineering calculations. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

This modification relocates the ABSCE boundary and creates construction openings to allow material, equipment and personnel access to Unit 2 containment during the Watts Bar Unit 2 completion project. The modification consists of one design change notice (DCN) 52283, "Relocate ABSCE Boundary to Support Unit 2 Completion" and several EDCRs. The DCN has not been issued; however, the EDCRs continued to be implemented and some have been completed. The inspectors observed the drilling for

anchor bolts and welding of structural steel in preparation for the installation of the new rollup doors That will become part of the ABSCE boundary.

c. Conclusions

Ongoing construction activities associated with planned modifications to the ABSCE and the partial ASME Section III N-5 walkdowns were adequate. Some of the engineering packages required for the modifications had not yet been issued.

E.1.2 Procurement Activities (IP 35960 and 35065)

a. Inspection Scope

The inspectors reviewed Audit Report 25402-WBN-AR-08-0004 of procurement and subcontracts activities along with associated PERs and issues identified by the audit. In addition, the inspectors conducted interviews with procurement management. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

The audit report of procurement documented one noteworthy condition, four recommendations, and ten adverse conditions.

c. Conclusions

QA and management oversight of procurement and subcontracts activities appeared to be adequate.

E.1.3 Engineering Support of Construction Activities (IP 36100)

a. Inspection Scope

The inspectors reviewed TVA's and Bechtel's Watts Bar Unit 2 Project programs for 10 CFR Part 21 and 10 CFR Part 50.55(e) to verify that the programs were adequately implemented. The inspectors interviewed personnel and reviewed procedures, procurement documents, and postings. TVA's and Bechtel's implementing procedures were reviewed to verify that adequate guidance was provided. The inspectors also reviewed TVA's 10 CFR 21 posting at the north portal and Bechtel's posting at the offices in Knoxville to verify that they contained the information required by 10 CFR 21.6 and 10 CFR 50.55(e)(2). The inspectors reviewed procurement documents for safety-related work or components to verify they specified the applicability of 10 CFR 21. The inspectors did not review any 10 CFR 50.55(e) screening evaluations or reports because neither TVA nor Bechtel had identified any issues as of the date of this inspection that met the criteria. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

The inspectors identified a number of minor deficiencies associated with the procedures and the implementation of the procedures which indicated a lack of attention to detail. TVA and Bechtel initiated PERs to correct the deficiencies.

c. Conclusions

TVA's and Bechtel's Watts Bar Unit 2 Project 10 CFR 21 and 10 CFR 50.55(e) programs were adequate.

T.1 Training and Qualification of Plant Personnel

T.1.1 Craft Training (IP 35061)

a. Inspection Scope

The inspectors observed activities associated with new employee indoctrination and training. The inspectors monitored craft classroom and Dynamic Learning Center training sessions and reviewed craft personnel training records.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

TVA's program for training of newly hired personnel was adequate for the current level of construction activities being performed.

T.1.2 Training of Engineering and Supervisory Personnel (IP 35061)

a. Inspection Scope

The inspectors observed selected training activities associated with engineering and supervisory personnel. Training monitored included sessions on welding inspections. This training was conducted in support of future walkdowns associated with hangars, supports, and base plates.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

TVA's program for training of supervisory and engineering personnel was adequate.

III. Operational Readiness Activities

F.1 Fire Protection (IP 64051)

a. Inspection Scope

The inspectors reviewed TVA's fire protection procedures and observed ongoing hot-work taking place on the refueling floor in support of Unit 2 construction activities, specifically the installation of the ABSCE roll-up doors on elevation 757. This work was being performed in accordance with the fire protection procedures listed in the attachment. The inspectors also reviewed PER 151860, Control of Combustible Materials.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The work in progress had adequate permits and protection in place to minimize any impact on Unit 1. TVA's fire protection measures in place to support Unit 2 construction activities were adequate.

V. Management Meetings

X.1 Exit Meeting Summary

On October 3, 2008, the resident inspectors presented the inspection results to Mr. Masoud Bajestani and other members of his staff. Although some proprietary information may have been reviewed during the inspection, no proprietary information was included in this inspection report.

Following the exit, the inspectors received new information regarding the NCV discussed in Section C.1.2. This information resulted in the identification of a cross-cutting aspect associated with the NCV. On October 23, 2008, the resident inspectors presented this additional information to Mr. Gordon Arent.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

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D. Olcsvary, Contracts/Procurement Manager, TVA, Unit 2
D. Osborne, Lead Civil Engineer, TVA, Unit 2
J. Robertson, Acting Engineering Manager, Bechtel
S. Sawa, Training Manager, Bechtel
J. Schlessel, Construction Manager, TVA, Unit 2
D. Soberski, Quality Control Supervisor, Bechtel
P. Theobald, Radcon Supervisor, TVA, Unit 2
D. Webster, Acting Construction Manager, Bechtel
D. Tinley, Quality Assurance, TVA, Unit 2
D. Webb, Operations Manager, TVA, Unit 2
Z. Rad, Licensing Supervisor, TVA Unit 2

INSPECTION PROCEDURES USED

IP 35060	Licensee Management of QA Activities
IP 35061	In-depth QA Inspection of Performance
IP 35065	Procurement, Receiving, and Storage
IP 35960	QA Program Evaluation of Engineering Organization
IP 36100	Inspection of 10 CFR Parts 21 and 50.55(e) Programs for Reporting Defects and Noncompliance
IP 37055	Onsite Design Activities
IP 40504	Part 52, Identification and Resolution of Construction Problems
IP 50053	Reactor Vessel and Internals Work Observation
IP 50073	Mechanical Components - Work Observation
IP 51053	Electrical Components and Systems Work Observation
IP 51063	Electrical Cable Work Observation
IP 64051	Procedures - Fire Prevention/Protection

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-391/2008009-01	NCV	Protection of Installed Plant Equipment During Construction Activities (Section C.1.2)
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Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

I. Quality Assurance Program

Q.1.1 Quality Assurance Oversight

Bechtel Oversight/Self-Assessment Documents

25402-WBN-SR-08-0122, Preparation of Instrumentation and Controls Design Calculations
 25402-WBN-SR-08-0123, In-Process Electrical Walkdown
 25402-WBN-SR-08-0130, ABSCE Boundary Penetration Seal Material Storage Control Follow-up
 25402-WBN-SR-08-0143, Design Verification for Movement Data used in Piping Analysis
 25402-WBN-SR-08-0144, Penetration Seal A15632
 25402-WBN-SR-08-0157, TVA Surveyors
 25402-WBN-SR-08-0154, Design Engineering EDCR review
 25402-WBN-SR-08-0155, Electrical Sealing Activities
 25402-WBN-SR-08-0186, EDCR 52621 Roll-up Door Welding Activities
 25402-WBN-SR-08-0194, ASME Section III (Personnel Airlock)
 25402-WBN-SR-08-0196, ABSCE Roll-up Door Activities
 25402-WBN-SR-08-0193, Temporary Roll-up Door #1 (Steel Fire Rated Door)
 Audit No. 25402-WBN-AR-08-001, Quality Assurance Oversight, Rev. 0
 Audit No. 25402-WBN-AR-08-0002, Construction Field Activities, Rev. 0
 Audit Schedule Calendar Year 2008
 Bechtel Quality Oversight Summary Report, March 2008
 Bechtel Quality Oversight Summary Report, April 2008
 Bechtel CAP Status Report dated 08/06/2008
 CAP Key Indicators, July 2008
 Bechtel WBNU-2CCP Self-Assessment Summary dated 07/23/2008

TVA Oversight/Self-Assessment Documents

NA-WB-08-010, ASME Section III Partial N-5 Code Data Reports
 NA-WB-08-013, Nuclear Assurance Oversight Analysis, January-July 2008
 NA-WB-08-014, Nuclear Assurance Oversight Analysis, August/September 2008

Problem Evaluation Reports (PERs)

142233, CAP Procedure Missing Requirement
 142235, PER Processing Timeliness Issues
 142238, Lack of Assigned PER coordinators
 145451, Lack of Nonconformance Procedure Requirements
 145453, Lack of Procedure for Protection of the Identification of Items
 145494, Lack of LDFE Initials on FCR 52589
 145496, FCR Revision to Effected Document not Consistent
 145497, Walkdown Package Documentation
 145498, Work Instruction Discrepancies
 145500, Conflict with Procedure Approvals Between Procedure 25402-MGT-0001 and the PNQAM

145503, Procedure 25402-000-GPP-000-N1301 R/1 was not Reviewed by TVA QA as Required
 145507, Weekly Check of Revised TVA Procedures not Done
 145561, The Bechtel Project NQCM has not been Issued
 145562, Project is not Consistent in Application of Safety/Quality Classifications
 145544, Trend PER. Procurement Document Errors
 146882, Trend Investigation on Walkdown Package Dimensional Discrepancies

Q.1.2 Identification and Resolution of Problems

Procedures and Standards

25402-MGT-0003, Corrective Action Program, Rev. 1
 NGDC PP-3, Watts Bar Unit 2 Corrective Action Program, Rev. 0
 NGDC PP-3, Watts Bar Unit 2 Corrective Action Program, Rev. 1
 TI-65, Breaching the Containment Annulus, ABSCE, or Control Building Pressure Boundaries,
 Rev 14 and 15

Work Orders

08-952351-000, Reactor Coolant Pump and Internals

PERs

149043, Conduit Seals Required for ABSCE Seals
 148667, Reactor Vessel Arc Strike

II. Management Oversight and Controls

C1.1 System Walkdowns

Procedures and Standards

WDP-GEN-1, General Walkdown Requirements, Rev. 8 and 9
 WDP-E-4, Walkdown Procedure for Electrical, Rev. 1
 WDP-M-5, Walkdown Procedure for Mechanical, Rev. 0
 WDP-PD-2, Walkdown Procedure for Piping and Pipe Supports, Rev. 3
 25402-000-GPP-0000-N1206, Work Order Processing, Rev. 0
 25402-000-GPP-0000-N3222, Field Painting and Coating, Rev. 1

Work Orders

08-951329-000, Install structural steel for rollup doors #1 & 1A
 08-951329-003, Install Rail System for rollup doors #1 & 1A
 08-951024-001, Remove temporary latches for personnel air lock

Drawings

2-48W923-1, Equipment Hatch Temporary Doors and Walls, Rev. 1
 2-48W923-2, Equipment Hatch Temporary Doors and Walls, Rev. 1

Oversight/Self-Assessment Documents

25402-WBN-SR-08-0194, ASME Section III (Personnel Air Lock)

PERs

149829, Fire seal breach
 149043, Conduit seals required for ABSCE seals
 152573, ASME Section III (Personnel Air Lock)
 150291, Incorrect Material

Miscellaneous Documents

Walkdown Package, WBN2-PD-070-192-00, CCW line
 Walkdown Package, WBN2-PD-070-203-00-Letdown Heat Exchanger Coolant Support Relief Line
 Walkdown Package, WBN2-C-663-1385-25 Steel Containment Vessel Walkdown Unit 2
 Walkdown Package, WBN-PD-074-242-00, RHR 8" Spray Header Line
 Walkdown Package, WBN-PD-074-243-00, RHR 8" Spray Header Line
 Walkdown Package, WBN 2-E-290-421-12, Electrical Conduits in auxiliary building elevations 782, 757, and 713

C.1.2 Protection of Installed Plant Equipment during Construction ActivitiesProcedures and Standards

TVA Nuclear Quality Assurance Plan, TVA-NQA-PLN89-A, Revision 18
 Bechtel Watts Bar Unit 2 Project Nuclear Quality Assurance Manual, Revision 1 and 2
 Bechtel Housekeeping Procedure 25402-000-GPP-0000-N-102, Revision 0
 ANSI N45.2.2-1972, Packaging, Shipping, Receiving, Storage, and handling of Items for Nuclear Plants
 ANSI N45.2.3-1973, Housekeeping During the Construction Phase of Nuclear Plants

PERs

150799, Non-Compliance with NQA Manual App. B- RG1.39
 143368, Housekeeping
 150831, Housekeeping Zone Signs
 150841, Unawareness of Housekeeping Requirements
 152720, No documented PM Program and Procedures for WBN Unit 2 Completion

E.1 Engineering ActivitiesE.1.1 Engineering Organization and Design ControlModifications

EDCR 52621, ABSCE Rollup door
 EDCR, 52591, Mechanical Penetration Seals (EI 782)
 DCN 52283, Relocate ABSCE Boundary

Procedures

NGDC-PP-6, Completion of TVA Partial ASME Section III N-5 Data Reports, Rev. 3

Drawings

47W848-10, Line W-0-032-HE
 47W600-216, Line W-2-032-FI
 47W600-216, Line W-2-032-FK

Problem Evaluation Reports (PERs)

150776, Owner's QA manual distributed incorrectly
 138182, Adequacy of required training
 138132, Inconsistency between Bechtel and TVA Requirements for Computer Calculations
 139939, Engineering training and qualification

E.1.2 Procurement ActivitiesOversight/Self-Assessment Documents

Audit No. 25402-WBN-AR-08-004, Procurement/Subcontracts Activities, Rev. 0

Problem Evaluation Reports (PERs)

149854, Unistrut did not receive Bechtel QC verification
 147209, Penetration seal material Purchase Request (PR) and not Material Requisition (MR)
 150656, Specifying 10 CFR 21 to Safety Related Service Requisitions
 150649, Technical Bid Evaluation Approvals
 150661, Procurement Documents do not specify access to supplier retained records

E.1.3 Engineering Support of Construction ActivitiesProcedures

TVA NGDC-PP-13, NRC Reporting Requirements
 TVA NGDC-PP-3, Corrective Action Program
 Bechtel 25402-MGT-0006, Reporting of Defects and Noncompliance to the Nuclear Regulatory Commission (10 CFR 21)
 Bechtel 25402-MGT-0003, Corrective Action Program
 TVA SPP-4.1, Procurement of Material, Labor and Services

Procurement Documents

Contract #67415, Design, Fabrication, and Delivery of Advanced Design RB Sump Strainers
 Contract #69016, Auxiliary Feedwater and Emergency Gas Treatment System Controls
 Purchase Order 00069980, Auxiliary Building Rollup Doors
 Westinghouse Procurement Engineering Package for WBS-2.5, System 63:
 Safety Injection System Design
 Westinghouse Procurement Engineering Package for WBS-2.6.8.3, Steam Generator
 Manway and Handhole Services

Westinghouse Procurement Engineering Package for WBS-2.8.1, Residual Heat Removal System Option 1 – RHR Heat Exchanger

T.1 Training and Qualification of Plant Personnel

T.1.1 Craft Training

T.1.2 Training of Supervisory and Engineering Personnel

III. Operational Readiness Activities

F.1 Fire Protection

PER

151860, Fire Watch Requirements

Procedures

BP-241, Fire Protection Review of Facility Design and Modifications, Rev 1

TI-64, Breaching Hazard Barriers, Rev 3

SPP-10.9, Control of Fire Protection Impairments, Rev 2

SPP-10.11, Control of Ignition Sources (Hot Work), Rev 3

SPP-10.10, Control of Transient Combustibles, Rev 4

LIST OF ACRONYMS

ABSCE	auxiliary building secondary containment enclosure
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DCN	design change notice
EMPAC	Enterprise Maintenance Planning and Control
IMC	Inspection Manual Chapter (NRC)
IP	Inspection Procedure (NRC)
MRC	Management Review Committee
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
PER	Problem Evaluation Report
PNQAM	Project Nuclear Quality Assurance Manual (Bechtel)
QA	Quality Assurance
QC	Quality Control
RHR	residual heat removal
RPV	reactor pressure vessel
SSC	structures, systems, and components
TVA	Tennessee Valley Authority
WBN	Watts Bar Nuclear Plant
WO	work order