UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

January 29, 2009

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

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC INTEGRATED INSPECTION REPORT 05000391/2008010

Dear Mr. Bhatnagar:

On December 31, 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 January 15, 2009, 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 consistent with Section VI.A of the NRC Enforcement Policy. If you contest the non-cited violation in the enclosed report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTENTION: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Senior Resident Inspector at the Watts Bar Unit 2 Nuclear Plant

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000391/2008010 w/attachment

cc w/encl: (See next page)

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Letter to Ashok S. Bhatnagar from Robert C. Haag January 29, 2009

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION - NRC INTEGRATED INSPECTION REPORT 05000391/2008010

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-391
Construction Permit No.:	CPPR-92
Report No.:	05000391/2008010
Applicant:	Tennessee Valley Authority (TVA)
Facility:	Watts Bar Nuclear Plant, Unit 2
Location:	1260 Nuclear Plant Rd Spring City TN 37381
Dates:	October 1 - December 31, 2008
Inspectors:	W. Bearden, Senior Resident Inspector, Construction Projects Branch 3 (CPB3), Division of Construction Projects (DCP) Region II (RII) T. Nazario, Acting Senior Resident Inspector, CPB3, DCP, RII H. Abuseini, Resident Inspector, CPB3, DCP, RII J. Bartley, Senior Project Inspector, CPB3, DCP, RII (Section Q.1.3) A. Issa, Project Inspector, CPB3, DCP, RII (Sections C.1.3, E.1.1, E.1.2, T.1.2) J. Fuller, Senior Construction Inspector, Construction Inspection Branch (CIB) 3, Division of Construction Inspection (DCI), RII (Sections Q.1.1, Q.1.2, C.1.2, E.1.2, F.1) C. Abbott, Construction Inspector, CIB2, DCI, RII (Sections Q.1.2, C.1.1, C.1.3, T1.1) R. Chou, Reactor Inspector, Engineering Branch 3 (EB3), Division of Reactor Safety (DRS), RII (Section C.1.1) R. Hamilton, Senior Health Physicist, Plant Support Branch 1 (PSB1), DRS, RII (Section C.1.4) L. Miller, Senior Operations Examiner, PSB1, DRS, RII (Section EP.1)
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 05000391/2008010

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 construction problems; employee concerns program; construction activities; environmental protection; engineering activities; procurement; training and qualification of plant personnel; fire protection; and Emergency Preparedness (EP). 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 (NCV).

Inspection Results

- A Severity Level IV NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors when TVA and Bechtel failed to meet existing procedural guidance for identification and documentation of non-conforming conditions during cable raceway physical separation walkdowns. TVA entered the issue into the corrective action program and, as part of the corrective actions, TVA plans to conduct an extent of condition review.

  The inspectors determined that this finding was more than minor because it represented an improper work practice that could impact quality or safety, involving safety-related Structures, Systems, and Components (SSCs), in that TVA would have missed the opportunity to evaluate this non-compliance and take appropriate corrective actions. 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 communicate expectations regarding procedural compliance and as a result personnel failed to follow Walkdown Procedure WDP-GEN-1 (H.4.b). (Section C.1.1)

- Adequate management and quality assurance (QA) oversight was in place commensurate with activities in progress. (Section Q.1.1)

- 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, ongoing construction activities, employee concerns, environmental, procurement, document control, training, fire protection, and EP.

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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 SSCs also continued during this inspection period.

I. Quality Assurance Program

Q.1 Quality Assurance Oversight Activities

Q.1.1 Quality Assurance Oversight (IPs 35060, 35061, 35100 and 35960)

a. Inspection Scope

The inspectors observed TVA and Bechtel management and Quality Assurance (QA) oversight of ongoing physical walkdowns and construction activities. The inspectors continued to monitor TVA's and Bechtel's management and QA oversight activities to assure adequate oversight of construction activities was in place. This included review of surveillances, assessments, oversight results and reports to management. The inspectors reviewed a TVA QA audit report and several Bechtel quality surveillance reports, applicable procedures, and associated problem evaluation reports (PERs). In addition, the inspectors held discussions with the QA manager and several QA assessment personnel and reviewed auditors' training records. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

The inspectors determined that TVA had established an adequate program to audit and survey internal and external organizations. Audit and surveillance findings were adequately documented in the corrective action program and reported appropriately to site management. The inspectors also noted that corrective actions in this area were initiated in a timely manner. The inspectors concluded that TVA's and Bechtel's QA oversight remained adequate commensurate with activities in progress.

c. Conclusions

Adequate management and QA oversight was in place commensurate with activities in progress.

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

a. Inspection Scope

The inspectors reviewed documents associated with the corrective action program. This included recent procedure revisions, several trend reports, and PERs related to the corrective action program 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 corrective actions associated with PERs 158528 and 158293. These PERs were issued due to several discrepancies identified during quality assurance surveillances 25402-WBN-SR-08-0262 and 0266 of completed piping support walkdown packages. Piping support walkdowns are discussed further in Section C.1.1. The inspectors also reviewed the handling of potential Unit 1 operability issues caused by Unit 2 construction activities. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

The trending program continued to be implemented adequately and trend PERs were initiated when required. The inspectors raised concerns regarding the timeliness of identification, processing, and communication of potential Unit 1 operability issues between the Unit 2 construction and the Unit 1 operations organizations. TVA initiated PER 159751 to address these concerns. Note that the inspectors did not identify any immediate Unit 1 operability issues resulting from these concerns.

c. Conclusions

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.

Q.1.3 Employee Concerns Program (TI 2512/15)

a. Inspection Scope

The inspectors reviewed nineteen Corrective Action Tracking Documents (CATDs) that Bechtel determined, through the Phase 1 reviews, were not applicable to Watts Bar Unit 2. The inspectors reviewed the documentation package for each CATD to verify that: the CATD was not applicable to Watts Bar Unit 2 and adequate justification was provided; if the CATD was closed to another CATD or an existing PER, that the other CATD or PER covered the concern and the CATD was designated to go to Phase 2; and Bechtel followed the guidance in Engineering Department Procedure Instruction 25402-3DP-G04G-00501, Historical Document Review Process. The CATDs reviewed are listed in the attachment.

Background

In 1985, TVA hired a contractor to administer an Employee Concerns Special Program as part of the TVA-wide Nuclear Performance Plan (NPP). This contractor interviewed all TVA employees associated with TVA nuclear activities to gather a comprehensive list of employee concerns independent of TVA. This resulted in a list of over 5000 concerns. The contractor grouped similar concerns and provided a single consolidated concern to TVA for which TVA issued a CATD. There were 1592 CATDs issued which covered TVA corporate, Browns Ferry, Bellefonte, Sequoyah, and Watts Bar.

The Watts Bar site and Watts Bar Unit 1 CATDs were inspected using Temporary Instruction (TI) 2512/15, Inspection of Watts Bar Nuclear Plant Employee Concerns Program, and was documented in inspection reports prior to the startup of Watts Bar Unit 1. Inspection Report 05000390, 05000391/95-77 documented the closure of TI 2512/15 and provided a good overview of the Employee Concerns Special Program development, the NRC inspection approach, and issues identified during the inspections.

Bechtel is planning to review all CATDs for applicability to WBN Unit 2 to ensure historical concerns identified in the CATDs are identified and addressed. The process that Bechtel will use is documented in 25402-3DP-G04G-00501. This procedure provides guidance for this effort and the review of other historical documents. The Bechtel review consists of two phases. Phase 1 is a review of all 1592 CATDs to determine which ones are applicable to Watts Bar Unit 2. Items not applicable to Watts Bar Unit 2 will be documented and closed. Phase 2 will evaluate, track, and close open items that are applicable.

b. Observations and Findings

No findings of significance were identified.

The inspectors reviewed TI 2512/15 to determine which inspection requirements previously completed for Watts Bar Unit 1, can also be considered complete for Unit 2. As a result, the following TI 2512/15 inspection requirements are considered complete for Watts Bar Unit 2:

- 05.02
- 05.03 a – j, and l
- 05.05
- 05.08

The remaining inspection requirements will be completed as they apply to CATDs deemed to be applicable for Watts Bar Unit 2. To meet the intent of the 05.01 inspection requirement, the inspectors will periodically review the current Employee Concerns Program to verify that concerns are being adequately addressed. In addition, the Bechtel process to review the CATDs for applicability to Watts Bar Unit 2 will be inspected to verify that the CATDs are being properly screened and accurately entered into the current tracking system.

c. Conclusions

The Bechtel Phase 1 reviews were adequate and appropriately screened the CATDs for applicability to Watts Bar Unit 2. The Phase 1 packages provided adequate documentation to justify why the CATDs were not applicable to Watts Bar Unit 2.

II. Management Oversight and Controls

C.1 Construction Activities

C.1.1 Walkdowns (IPs 35061, 50090, 51053 and 51063)

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, interviews of walkdown personnel; associated reviews of PERs; and direct observation of selected walkdowns in the area of collecting nameplate data of electrical components and instrumentation, cable attributes information for various systems, and cable raceway physical separation of cable trays and conduits.

In the area of cable raceway physical separation, the inspectors reviewed work procedures, walkdown packages, drawings, work orders (WOs), QA surveillance reports, training records of five craft personnel, and associated PERs. In addition, the inspectors observed pre-job briefing, performed field work observations of WOs, and conducted interviews to determine that walkdowns were performed in accordance with walkdown procedures WDP-GEN-1, WDP-I-6 and WDP-E-4.

The inspectors also reviewed procedures associated with piping support walkdowns to verify appropriate review and approval and to assess whether lessons learned and NRC generic communications had been incorporated. As part of the piping support walkdown inspection, the inspectors primarily focused efforts on reviewing applicable procedures and the piping support walkdown program. This review included QA surveillance reports 25402-WBNSR-08-0262 and 0266 associated with piping support walkdowns. The surveillance reports identified several discrepancies associated with completed piping support walkdown packages. As a result, PERs 158293 and 158528 were issued and appropriate immediate corrective actions were taken. Inspections of specific piping support walkdowns and walkdown packages will be conducted during future inspections.

Specific documents reviewed are listed in the attachment.

b. Observations and Findings

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 corrective action program.

Additionally, components which required maintenance, e.g., missing bolts and clamps, were identified in the walkdown packages. Walkdown personnel exhibited an appropriate knowledge of the engineering requirements for the various configurations encountered in the field. The inspectors determined that the experience and training level for personnel performing the walkdowns met TVA's procedural requirements.

The inspectors determined that the QA surveillances were adequate and that their findings had been reported in sufficient detail to permit a meaningful assessment by those responsible for corrective action, final disposition and trending.

One finding of significance was identified as discussed below.

Introduction: A non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for failure to accomplish activities affecting quality in accordance with instructions and procedures. Specifically, walkdown procedure WDP-GEN-1, Revision 10, requires that as-found conditions requiring correction shall be gathered during walkdown/walkthrough, documented as a condition adverse to quality (CAQ), and forwarded to engineering for evaluation.

Description: During cable raceway physical separation walkdowns, TVA and Bechtel personnel failed to identify and document a non-conforming condition and forward it to engineering for evaluation as required by walkdown procedure WDP-GEN-1.

TVA had performed various walkdowns to ensure compliance with the cable raceway physical separation criteria, WB-DC-30-4, Revision 22. The final walkdown packages are then forwarded to engineering for evaluation as part of the electrical baseline calculation program. During an inspection of a sample walkdown package, which was performed by the Bechtel walkdown team on October 29, 2008, the inspectors noticed a conduit, 2B1049F, within close proximity to a divisional cable tray 4A2384/2385. The tray section carries 12 cables: four cables are required for Unit 1 operation, two cables are Unit 2 specific cables not required for Unit 1, six cables are spare/abandoned. The inspectors measured the distance between the conduit surface and the tray section and found it to be 5/8 inch, which is less than the 1 inch required by the design criteria. The inspectors found that the team had marked the acceptance criteria data sheet in the walkdown package, WBN2-E-292-1053-08, as not applicable (N/A) meaning the conduit was not in the envelope of the tray, instead of unsatisfactory (UNSAT), for this tray section. The issue was entered into the corrective action program as PER 158979, Cable separation issues not identified during walkdown. TVA's corrective actions for this issue included coaching the appropriate personnel concerning identifying all non-conforming items found during a walkdown, revising the walkdown package to include the non-conforming item identified in the PER, and performing an extent of condition review.

The inspectors determined that this finding was more than minor because it represented an improper work practice that could impact quality or safety involving safety-related SSCs, in that, TVA would have missed the opportunity to evaluate this non-compliance and take appropriate corrective actions.

TVA investigated this issue and found an existing exception, EX-WB-DC-30-4-38, that discusses the non-conforming condition above; however, the evaluation in this exception

covered the current configuration and did not take into account the potential energization of the Unit 2 specific cables in support of Unit 2 operation.

The cause of this finding was directly related to the work practices component of the Human Performance cross-cutting area because TVA failed to appropriately 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 Regulations (10 CFR 50), 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.

Contrary to the above, on October 29, 2008, TVA did not accomplish the quality activities of identifying and documenting the non-conforming condition described above as a CAQ in accordance with procedure WDP-GEN-1.

c. Conclusions

A Severity Level IV NCV was identified by the inspectors for failure to identify and document non-conforming conditions in accordance with walkdown procedures. This issue was entered into the corrective action program.

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, housekeeping, and protection activities to determine whether requirements, work procedures and inspection (QC) procedures were being met. On December 9, 2008, the inspectors observed work performed associated with WO 08-954512-000, Perform NO-WBT-001. The inspectors reviewed procedure NO-WBT-001, Watts Bar Unit 2 Bottom Mounted Instrumentation (BMI) Path Length Measurement and observed work activity from the BMI seal table and from the inside of the RPV.

Specific documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

The inspectors observed that TVA implemented an adequate foreign material exclusion control associated with activities in the RPV. This included the installation of a protective covering over the top of the RPV to prevent entry of foreign objects and debris and the control of the entry of tools, equipment, and personnel into the RPV. TVA used nonflammable work platforms and scaffolding inside the RPV to prevent the spread of accidental fires. The inspectors noted that TVA has not yet performed a baseline housekeeping assessment of the RPV; however, adequate controls were in place to protect the RPV at the time of inspection.

c. Conclusions

TVA's program for housekeeping and protection of installed equipment continued to be developed; however, adequate controls were in place to protect the RPV at the time of inspection.

C.1.3 Construction Activities - Mechanical and Electrical Penetrations (IPs 51053, 53051, 53053, 53055 and 64051)

a. Inspection Scope

The inspectors reviewed and observed ongoing work associated with the auxiliary building secondary containment enclosure (ABSCE) modification and the removal and installation of seal material for mechanical and electrical penetrations. The purpose of the ABSCE modification is to enable craft access to Unit 2 containment without entering the radiologically controlled area. The penetrations observed are within the auxiliary building wall and the Unit 2 concrete containment associated with the ABSCE modification. TVA is also replacing some existing seals that lacked documentation.

The inspectors performed various inspections of electrical and mechanical seal work. The inspections consisted of interviewing personnel responsible for implementation of work, walkdowns of various penetrations, direct observations of activities, and review of documentation and calculations. The documentation review included a review of the electrical penetration seal removal craft briefing plan, WOs, drawings, and procedures to ensure that work was being performed in accordance with written instructions and that the seal material had been tested and rated appropriately. The inspectors directly observed the mixing of seal materials and sampling to ensure proper density. In addition, the inspectors observed the pouring of seal material into the penetrations using appropriate tools.

Specific documents reviewed are listed in the attachment.

b. Observations and Findings

The inspectors noted that detailed instructions and procedures were adequately followed by personnel performing the work. The craft briefing plan contained useful information on removal of existing seals and the craft exhibited knowledge in performing this work.

c. Conclusions

The ABSCE boundary construction activities were completed in accordance with design requirements. TVA's program for installing and replacing penetration seals provided adequate detail and guidance to allow craft personnel to properly remove and install penetration seals as required.

C.1.4 Environmental Inspection (IP 80210)

a. Inspection Scope

The inspectors performed a periodic inspection of the environmental activities associated with the Watts Bar Unit 2 project. The inspection consisted of a meeting with representatives of the various organizations responsible for the implementation of the environmental program at Unit 2, walkdown of various structures and use areas, and documentation review.

The organizations represented during the meeting included TVA corporate, Watts Bar Unit 1 TVA, Watts Bar Unit 2 TVA, and Bechtel. The inspectors discussed how the program requirements imposed by the National Pollution Discharge Elimination System (NPDES) permits on Unit 1 would cover many of the activities on Unit 2.

The inspectors performed a documentation review that included the Final Environmental Impact Statement Supplement, the Atomic Energy Commission Construction Permit for the plant, the State of Tennessee NPDES permit, and the National Environmental Policy Act (NEPA) review of the construction permit which were the inspection basis documents. The review encompassed the annual non-radiological environmental operation reports for years 2003 through 2007, two QA audits, a self-assessment, numerous problem evaluation reports, various TVA and Bechtel procedures, and two State of Tennessee Department of Environment and Conservation inspections.

The inspectors performed walkdowns of various site areas both inside and outside the protected area. These walkdowns included the areas associated with fuel oil and chemical handling inside the protected area and areas associated with wastewater treatment and holdup such as yard ponds. Waste oil and asbestos storage areas were also looked at in the owner-controlled area.

Specific documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified.

The detailed written directives and procedures adequately documented the environmental program requirements. The program had clearly identified roles and responsibilities. There was sufficient documented audit and assessment activity to establish that the supporting laboratories were appropriately responsive to the customers' needs. The construction site used the same condition reporting system as the operating units with some differences in implementation to account for the differences in processes, organization, and plant status. The QA plans provided appropriate surveillance of the environmental program, and numerous low-level condition reports indicated an appropriate sensitivity to environmental requirements.

c. Conclusions

The inspectors concluded that the environmental requirements in the Watts Bar Nuclear Plant Construction Permit, the Watts Bar Final Supplemental Environmental Impact

Statement, and the State of Tennessee NPDES permit have been properly implemented and maintained.

E.1 Engineering Activities

E.1.1 Engineering Organization, Document Control and Design Control (IPs 37055, 35061 and 35960)

a. Inspection Scope

The inspectors reviewed ongoing design activities associated with TVA's plans to modify the ABSCE boundary. In addition, the inspectors reviewed Bechtel's Document Control (DC) activities, interviewed the DC supervisor and inspected the DC facilities in Knoxville.

Specific documents reviewed are listed in the attachment.

b Observations and Findings

No findings of significance were identified.

Document Control activities in Knoxville were limited for the most part to the process and intermediate control of calculations. Documents were being processed and controlled adequately. Fireproof cabinets were used to store documents as appropriate.

c. Conclusions

Ongoing design activities associated with planned modifications to the ABSCE continued to be adequate. Engineering packages continued to be developed by the engineering organization and Document Control activities in Knoxville were adequate.

E.1.2 Procurement Activities (IPs 35065, 35960 and 51053)

a. Inspection Scope

The inspectors interviewed staff and reviewed activities, facilities, records and procedure SPP-4.2, Material Receipt Inspection, Revision 20 for conducting receiving inspections. This included a review of the requirements specified in the procurement document for documentation and acceptance of items, Purchase Order 00069414, Material Inspection Form No. 00002474, Procurement Data Sheet T49 081208 806, Certificate of Conformance, and the vendor/manufacturer's manual related to storage upon receipt. In addition, the inspectors held discussions with TVA receipt inspection personnel regarding the completed receipt inspection of four safety related inverters, reviewed the qualification and certification records for the Level II receipt inspectors, and performed an independent receipt inspection of these items.

b. Observations and Findings

No findings of significance were identified.

Procedure SPP-4.2, Material Receipt Inspection, Revision 20, adequately implemented the receipt inspection requirements of ANSI N45.2.2, Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants. Adequate identification appeared on components, and associated receiving documentation. No physical signs of damage or deterioration of stored equipment were observed. The qualification and certification of Level II inspectors met requirements. Suppliers reviewed were currently listed on TVA's Acceptable Suppliers' List.

c. Conclusions

Receipt inspection activities were adequately controlled and performed in accordance with TVA receipt inspection requirements. QA and management oversight of procurement activities were adequate.

T.1 Training and Qualification of Plant Personnel

T.1.1 Craft Training (IPs 35061 and 50090)

a. Inspection Scope

The inspectors observed activities associated with new employee indoctrination and training. The inspectors monitored craft classroom training sessions including required training for obtaining weld data in support of piping support walkdowns. The inspectors also 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. The inspectors monitored classroom training sessions including required training for identifying Unit 1/Unit 2 boundary interfaces.

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 conducted a walkdown of the Watts Bar Unit 2 fire protection/prevention controls that had been established by TVA and interviewed a fire watch. Discussions were held with TVA's fire protection engineer regarding fire protection requirements applied to Unit 2 construction activities which were established to prevent an adverse affects of a fire on Unit 1 operations. The inspectors observed work activities associated with the Unit 2 ABSCE boundary doors at the Unit 2 equipment hatch, which were in progress and required a hot work permit, and a permanent fire watch. In addition, the inspectors observed several fire suppression devices dedicated for Unit 2 areas inside the reactor building and several common fire suppression devices in the auxiliary building.

b. Observations and Findings

No findings of significance were identified.

The fire watch person was fully cognizant of their responsibilities in case of a fire in their assigned area. Three fire hoses inspected had been hydrostatically tested in accordance with site procedures. TVA had adequate storage for flammable liquids both in the Unit 2 reactor building and in the auxiliary building.

c. Conclusions

Work in progress had adequate fire protection controls in place to minimize any impact on Unit 1. TVA's fire protection measures in place to support Unit 2 construction activities were also adequate.

EP.1 Emergency Preparedness

a. Inspection Scope

An Emergency Preparedness inspection was conducted at the Watts Bar Nuclear site from October 20 through October 24, 2008. The inspection focused on Unit 1 and was conducted in accordance with IMC 2515 inspection procedures; however, in order to have a complete assessment of emergency preparedness at the site, the inspectors reviewed Watts Bar Unit 2 current and major milestone activities to determine if they could have an impact on emergency response capability or on any emergency action levels for event declaration. In addition, the inspectors' walk-through of the plant-protected area included Unit 2 activities. The inspectors also discussed with TVA the demonstration of the assembly and accountability for the site taking into account the impact of Unit 2 construction activities.

b. Observations and Findings

No findings of significance were identified.

The activities reviewed would not have a negative impact on Watts Bar emergency response capability or the emergency action levels. Two items related to assembly, accountability, and possible early dismissal of Unit 2 personnel as required by an emergency response event, were identified by the TVA. These items involved additional accountability card readers that may be necessary to meet the time requirement for personnel accountability, and early dismissal of Unit 2 construction personnel may be necessary to minimize the impact on egress routes from the site. These items were captured in PER 155276.

c. Conclusions

The inspectors determined that the Watts Bar emergency response capabilities were adequate commensurate with ongoing Watts Bar Unit 2 construction activities at the time of inspection. TVA was considering the implementation of additional measures to enhance the program.

V. Management Meetings

X.1 Exit Meeting Summary

On January 15, 2009, 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.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Applicant personnel

G. Arent, Licensing Manager, Unit 2
J. Atwell, Project Director, Bechtel
M. Bajestani, Vice President, Unit 2
M. Bali, Electrical Design Manager, Bechtel
R. Baron, Nuclear Assurance Project Manager, TVA, Unit 2
B. Briody, Maintenance and Modifications Manager, TVA, Unit 2
P. Byron, Licensing Engineer
B. Crouch, Lead Mechanical Engineer, TVA, Unit 2
R. Esnes, Engineering Manager, Washington Group, Inc
T. Franchuk, Quality Manager, Bechtel
E. Freeman, Engineering Manager, TVA, Unit 2
W. Goodman, Procurement Manager, Bechtel
J. Hannah, Corrective Action Coordinator, Bechtel
S. Hilmes, Lead Electrical Engineer, TVA, Unit 2
M. Lackey, ECP Rep, TVA, Unit 2
R. Kuhn, Quality Assurance Manager, Bechtel
D. Malone, Quality Assurance, TVA, Unit 2
J. McCarthy, Licensing Engineer, Unit 2
R. Moll, Preop Startup Manager, TVA, Unit 2
D. Myers, Quality Assurance Manager, TVA, Unit 2
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. Theobold, 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 35100	Review of QA Manual
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 50090	Pipe Support and Restraint Systems
IP 51053	Electrical Components and Systems Work Observation
IP 51063	Electrical Cable Work Observation
IP 53051	Containment Penetrations (Mechanical) Procedure Review
IP 53053	Containment Penetrations (Mechanical) Work Observation
IP 53055	Containment Penetrations (Mechanical) Record Review
IP 64051	Procedures - Fire Prevention/Protection
IP 80210	Environmental Protection – Initial and Periodic Inspections
TI 2512/15	Inspection of Watts Bar Nuclear Plant Employee Concerns Program

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-391/2008010-01	NCV	Failure to document a cable raceway separation non-conforming condition as required by procedure WDP-GEN-1 (Section C.1.1)

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-08-0206, Design Verification for the Summary of Piping Analysis Problem, Plant Design; September 30, 2008
25402-WBN-SR-08-0228, V4 Cable Ampacity Calculation by Electrical; October 30, 2008
25402-WBN-SR-08-0234, Station Blackout Coping Evaluation Calculation; November 16, 2008;
25402-WBN-SR-08-0247, Calculation Process Review; November 20, 2008
25402-WBN-SR-08-0259, Review of Calculation EPMJSR012286, Sample and Radiation Monitoring Line Operating Temperature; November 20, 2008
25402-WBN-SR-08-0229, Design Engineering's Training Records; October 30, 2008
25402-WBN-SR-08-0267, Westinghouse Measurements for WINCISE; December 15, 2008
25402-WBN-SR-08-0262, WBN2-PD-063-1835-01 Data Pipe Support 63-2SIS-R106
25402-WBN-SR-08-0266, WBN2PD-003-1572-00, Pipe Support Walkdown Package

TVA Oversight/Self-Assessment Documents

NA-WB-08-015, Safety-Related Work Order Assessment
NA-WB-08-017, ASME Section III Partial N-5 Package Assessment
NA-WB-08-018, Oversight Report for October 2008

Audits

2008V-10, Limited Scope Audit of Bechtel Power Corporation; September 18, 2008

PERs

151340, Audit Findings related to QC Inspectors qualification

Procedures

25402-QAS-0002, Quality Assurance Surveillance, Rev. 1

Q.1.2 Identification and Resolution of Problems

Procedures and Standards

25402-MGT-0003, Corrective Action Program, Rev. 2

Surveillances

25402-WBNSR-08-0262, WBN2-PD-063-1835-01 Data Pipe Support 63-2SIS-R106
25402-WBNSR-08-0266, WBN2PD-003-1572-00, Pipe Support Walkdown Package

PERs

159751, Learning Opportunity U1/U2 Cap Communication
158293, Hanger Walkdown Gap Dimension
158528, Pipe Support Walkdown Package Discrepancies
158100, Unit 2 Polar Crane Weld Deficiency
153576, Design Verification of the Summary of Piping Analysis Problem
161491, Administrative Errors Associated with Issued Calculation N361A08R
158818, Revisions to Drawing Revision Authorizations (DRAs) were not Identified with Required Circles or Bubbles
152655, Incomplete Training Records

Q.1.3 Employee Concerns Program

CATDs

80202-BLN-02
90400-WBN-02
90400-WBN-03
701-NPS-01
721-NPS-02
702-NPS-01
10400-WBN-02
SWEC-BFN-60-15
SWEC-BFN-60-17
SWEC-BFN-60-18
SWEC-BFN-27-03
30701-SQN-01
22800-BFN-01
23702-SQN-04
21801-BLN-01
21801-BFN-01
21506-SQN-02
21506-SQN-01
19200-BLN-03

Procedures

25402-3DP-G04G-00501, Engineering Department Procedure Instruction Historical Document Review Process, Rev. 1

II. Management Oversight and Controls

C1.1 System Walkdowns

Procedures and Standards

WDP-GEN-1, General Walkdown Requirements, Rev. 8 and 9
WDP-PD-2, Walkdown Procedure for Piping and Pipe Supports, Rev. 4
WDP-E-4, Walkdown Procedure for Electrical, Rev. 1
WDP-M-5, Walkdown Procedure for Mechanical, Rev. 0

25402-000-GPP-0000-N3302, Raceway and Accessories, Rev.1
25402-000-GPP-0000-N3301, Electrical Equipment Installation, Rev.1
WB-DC-30-5, Power, Control, and Signal Cables for use in Category I Structures (unit 1/unit 2), Rev. 22
WB-DC-30-4, Separation/Isolation, Rev.22
WB-DC-30-22, Electrical Raceways, Rev.7
IEEE Std. 690-2004, Design and Installation of Cable Systems for Class IE Circuits in Nuclear Power Generating Stations.
IEEE Std. 384-1992, Criteria for Independence of Class IE Equipment and Circuits.

Drawings

45W888-43, Cable Tray Node Diagram, El.757, Rev.2
45W888-52, Cable Tray Node Diagram, El.757, Rev.1
45W888-63, Cable Tray Node Diagram, El.772, Rev.5
45W888-27, Cable Tray Node Diagram, El.737, Rev.12
45W888-64, Cable Tray Node Diagram, El.772, Rev.3
45W888-50, Cable Tray Node Diagram, El.757, Rev.3
45W888-28, Cable Tray Node Diagram, El.737, Rev.8
45W888-30, Cable Tray Node Diagram, El.737, Rev.1
45W888-6, Cable Tray Node Diagram, El.713, Rev.1
45W888-7, Cable Tray Node Diagram, El.713, Rev.2
45W888-65, Cable Tray Node Diagram, El.782, Rev.1
45W888-50, Cable Tray Node Diagram, El.757, Rev.3
45W888-51, Cable Tray Node Diagram, El.757, Rev.3
45W888-19, Cable Tray Node Diagram, El.737, Rev.3
45W888-20, Cable Tray Node Diagram, El.737, Rev.6

Surveillances

25402-WBNSR-08-0262, WBN2-PD-063-1835-01 Data Pipe Support 63-2SIS-R106
25402-WBNSR-08-0266, WBN2PD-003-1572-00, Pipe Support Walkdown Package

PERs

158979, Cable Separation Issues not Identified during Walkdowns
158980, Cable Separation Issues not Identified during Walkdowns
158293, Hanger Walkdown Gap Dimension
158528, Pipe Support Walkdown Package Discrepancies

Walkdown Packages

WBN2-E-292-1053-07, Cable Tray Physical Separation Walkdown Package (Aux. Building), Rev.1
WBN2-E-292-1053-08, Cable Tray Physical Separation Walkdown Package (Aux. Building), Rev.0
WBN2-E-292-1053-39, Cable Tray Physical Separation Walkdown Package (Aux. Building), Rev.0
WBN2-E-292-1053-01, Cable Tray Physical Separation Walkdown Package (Aux. Building), Rev.0

WBN2-E-292-1053-38, Cable Tray Physical Separation Walkdown Package (Cable Spreading Room), Rev.0
WBN2-E-292-1053-27, Cable Tray Physical Separation Walkdown Package (Aux. Building and Shutdown Board Rooms), Rev.0
WBN2-E-292-1053-04, Cable Tray Physical Separation Walkdown Package (Emergency Gas Treatment Room and Reactor Building Annulus), Rev.0
WBN2-E-278-541-01, Electrical Component and Cables Nameplate Data and Information Walkdown Package (Control Building, Panel 2-L-10), Rev.0
WBN2-I-278-558-00, Instrumentation Nameplate Data and Information Walkdown Package (Control Building, Panel 2-M-9), Rev.0
WBN2-E-278-537-02, Electrical Component and Cables Nameplate Data and Information Walkdown Package (Remote Shutdown Panels 2-L-11A/B), Rev.0
WBN2-E-275-629-00, As Installed information walkdown package (Control Building panel 2-R47), Rev.0

C.1.2 Protection of Installed Plant Equipment during Construction Activities

Procedures and Standards

NO-WBT-001, Watts Bar Unit 2 Bottom Mounted Instrumentation (BMI) Path Length Measurement
TVA Nuclear Quality Assurance Plan, TVA-NQA-PLN89-A, Rev. 18
Bechtel Watts Bar Unit 2 Project Nuclear Quality Assurance Manual, Rev. 3
Bechtel Housekeeping Procedure 25402-000-GPP-0000-N-2102, Rev. 1
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

Work Orders

WO 08-954512-000, Perform NO-WBT-001

C.1.3 System Walkdowns and Construction Activities-Mechanical and Electrical Penetrations

Procedures and Standards

25402-000-GPP-0000-N3224, Penetration Closure and Seals, Rev. 0
MAI-2.2, Mechanical Penetration Seals, Rev. 5
MAI-3.6, Cable Tray and Sleeve Seals, Rev. 7
WB-DC-40-66, Penetration Assemblies and Seals for Category I Structures, Rev. 4
WB-DC-40-69, Design Criteria for Electrical and Mechanical Penetration Seal Assemblies for Category I Structures, Rev. 2
N3M-937, Installation, Modification, and Maintenance of Electrical and Mechanical Penetration Seal Assemblies, Rev. 3

Work Orders

08-951310-000, Replace ABSCE Penetration Seals in Room A9, El. 737
08-951733-012, Install Internal Conduit and Cable Tray Seals as Required for ABSCE in Room A-4, El. 782

C.1.4 Environmental Inspection

Procedures

Environmental Compliance Manual (ECM), Chapter 1, Air Pollution Control Program, Rev. 0012
ECM-2, National Environmental Policy Act (NEPA) Reviews, Rev. 4
ECM-3, National Pollutant Discharge Elimination System (NPDES) Program, Rev. 0013
ECM-4, Erosion/Storm Water Pollution Prevention Controls, Rev. 0028
ECM-5, Handling, Storage, and Disposal of Used Oil and Hazardous Waste, Rev. 0017
ECM-7, Asbestos Waste Management, Rev. 3
ECM-8, Spill Prevention Control and Countermeasure (SPCC) Plan, Rev. 0027
ECM-9, Drinking Water Program, Rev. 2
ECM-11, Non-Radioactive Solid Waste and Demolition Waste Landfill, Rev. 0006
ECM-12, Superfund Amendment and Reauthorization Act of 1986 (SARA) Reporting, Rev. 0003
EP&P-SDP-5.7, Environmental Audit Procedure, Rev. 0003
NPG Common Technical Procedure, EITP-100, Environmental Compliance, Rev. 0005
NPG Common Technical Procedure, EITP-101, Environmental Waste Management, Rev. 0001
NPG Standard Programs and Processes, SPP-5.4, Chemical Traffic Control, Rev. 0008
TVAN Common Technical Procedure, EITP-102, Environmental Shipping, Rev. 3
TVA Nuclear Power Group, Requirements and References SPP-5.4, Rev. 2
TVAN Standard Programs and Processes, Environmental Control, SPP-5.5, Rev. 0004
TVAN Standard Programs and Processes, SPP-5.13, Environmental Review Process for NEPA Compliance Rev. 0
TVA Watts Bar Nuclear Unit 2 Construction Completion Project Procedure (Bechtel), Construction Environmental Control Plan, #250402-000-GPP-000-N1105, Rev. 1
Tennessee Valley Authority Instruction, Procedure for Compliance with the National Environmental Policy Act, 4/28/1983
Construction Environmental Control Plant (CECP), Completion and Operation of Watts Bar Nuclear Plant Unit 2, Rev. B
Watts Bar Nuclear Plant Unit 2 Construction Completion Project (Bechtel), Corrective Action Program, 25402-MGT-0003, Rev. 2
Watts Bar Nuclear Plant Unit 2 Construction Completion Project (Bechtel), Self-Assessment Program, 25402-MGT-0007, Rev. 0
Watts Bar Unit 2 Corrective Action Program NGDC PP-3, Rev. 1
Watts Bar Nuclear Plant Unit 2 Construction Completion Project Quality Assurance Department Procedures Manual (Bechtel), QADPM TOC, Rev. 3

Records

United States Atomic Energy Commission Construction Permit for Watts Bar Nuclear Plant Units 1 and 2, 1/3/1973
Final Environmental Impact Statement Supplement, Completion and Operation of Watts Bar Nuclear Plant Unit 2, June 2007
Watts Bar Nuclear Plant Annual Non-Radiological Environmental Operating Report, 2/7/2003-2/6/2004
Watts Bar Nuclear Plant Annual Non-Radiological Environmental Operating Report, 2/7/2004-2/6/2005
Watts Bar Nuclear Plant Annual Non-Radiological Environmental Operating Report, 2/7/2005-2/6/2006

Watts Bar Nuclear Plant Annual Non-Radiological Environmental Operating Report, 2/7/2006-2/6/2007
High Level Construction Schedules from 10/1/2008 to 10/21/2011

PERs, Audits, Inspections, and Self-Assessments

Audit: WBN (HW)-08-07-30, Hazardous Waste Audit (Unannounced), 7/30/08
State of Tennessee Department of Environment and Conservation Compliance Evaluation Inspection Report, 2/26/08
Watts Bar Nuclear Plant – National Pollutant Discharge Elimination System (NPDES) Permit TN0020168-2007 Compliance Evaluation Inspection Report Response, 3/28/08
Audit: WBN-07-03-26, Environmental Management System Audit, 3/26/07
Self-Assessment WBN-CEM-08-005, Asbestos, 10/1/2008
PER 120106, Chemistry Integrated Trend Review Conducted 2/9/07 Identified an Adverse Trend in the Labeling and Control of Universal Waste. (Examples of Universal Waste Would be Used Fluorescent Light Tubes and Flashlight Batteries.)
PER 122463, During Environmental Audit it was Identified that the Label Instructions for Disposal of Empty 5 Gallon Plastic Containers of Microbiocide were not being Followed.
PER 139754, Findings from Tennessee Department of Environment and Conservation Compliance Evaluation Inspection 3/3/2008
PER 14306, While Collecting Information for Input into the National Inventory of Dams (NID), River Water Operations Identified Some Structures on Nuclear Power Generation Sites
PER 149457, The 2006 Annual Hazardous Waste Year-End Report Value was not Carried Forward to the 2007 Annual Report
PER 149459, Documentation was not Available to Show that the Facility has Met the Land Ban Notification Requirement of a One-Time Notice for Chemicals Used in the Plant's Water Purification System
PER 149464, Several Containers of Used Oil were not Properly Labeled "Used Oil"
PER 154216, During the Environmental Protection Agency (EPA), Tennessee Department of Environment, and Conservation (TDEC) Compliance Evaluation Inspection Exit Interview on 81/5/2008, the Agencies had Questions
PER 154760, Yard Holding Pond Dam Inspection was not Performed for the Month of September per 0-PI-ENV-3.7, Inspection of the Yard Holding Pond Dam, Effective September 10, 2008
PER 156431, Oil spill Occurred while Cutting Drain Pipe
PER 155859, Initial evaluation of the Bechtel Construction Environmental Control Plan Found that the Plan did not Fully Integrate with the TVA Watts Bar Environmental Control Plan

E.1 Engineering Activities

E.1.1 Engineering Organization and Design Control

Modifications

DCN 52283, Relocate ABSCE Boundary

E.1.2 Procurement Activities

Procedures and Standards

SPP-4.2, Receipt Inspection, Revision 20

25402-000-GPP-0000-N6102, Field Material Requisitions and Purchasing, Revision 2

Miscellaneous

PO 00069414,
Material Inspection Form No. 00002474
Procurement Data Sheet T49 081208 806
TVA Audit No. 2008N-65, Ametek Solid-state Control, Inc.

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

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

EP.1 Emergency Preparedness

None

LIST OF ACRONYMS

ABSCE	Auxiliary Building Secondary Containment Enclosure
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
BMI	Bottom-Mounted Instrumentation
CAP	Corrective Action Program
CAQR	Condition Adverse to Quality Report
CATD	Corrective Action Tracking Document
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
NEPA	National Environmental Policy Act
NPDES	National Pollution Discharge Elimination System
NPP	Nuclear Performance Plan
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
TI	Temporary Instruction
TVA	Tennessee Valley Authority
WBN	Watts Bar Nuclear Plant
WO	Work Order