UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

April 30, 2008

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 - NRC INTEGRATED CONSTRUCTION INSPECTION REPORT 05000391/2008006

Dear Mr. Bhatnagar:

On March 31, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection of construction activities at your Watts Bar Nuclear Plant Unit 2. The enclosed inspection report documents the inspection results, which were discussed on April 10, 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, the conditions of your construction permit and the fulfillment of Unit 2 regulatory framework commitments. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Additionally, during the inspection period a construction readiness team inspection was conducted. The scope of the inspection included a review of your quality assurance organization, the corrective action program, procurement, engineering, training, qualification, and document control processes. The inspectors concluded that adequate controls were in place to conduct ongoing procurement, design, and construction activities. However, some processes and procedures required for construction work were not yet established, therefore, no conclusion regarding your readiness to perform associated work was made. American Society of Mechanical Engineers (ASME) design, procurement, and construction activities were examples of such processes. Due to the limited availability of output documents and completed installation activities, the inspection of the implementation of programs, processes, and procedures was very limited and will be performed later.

Based on the results of this inspection, no findings or violations of significance were identified. Overall, your oversight of construction completion activities was generally effective.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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
License No. CPPR-92

Enclosure: Inspection Report 05000391/2008006
w/attachment: Supplemental Information

cc w/encl: (See next page)

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w/attachments

cc w/encl: (See next page)

*See previous concurrence

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cc w/encl:

Gordon P. Arent, Manager
New Generation Licensing
Nuclear Generation Development
and Construction
Watts Bar Nuclear Plant
P.O. Box 2000
Spring City, TN 37381

Masoud Bajestani, Vice President
Watts Bar Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

Michael K. Brandon, Manager
Licensing and Industry Affairs
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

William R. Campbell
Chief Nuclear Office
and Executive Vice President
Tennessee Valley Authority
3R Lookout Place
1101 Market Place
Chattanooga, TN 37402-2801

County Executive
375 Church Street
Suite 215
Dayton, TN 37321

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

John C. Fornicola, General Manager
Nuclear Assurance
Tennessee Valley Authority
3R Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

General Counsel
Tennessee Valley Authority
6A West Tower
400 West Summit Hill Drive
Knoxville, TN 37902

Michael J. Lorek, Plant Manager
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

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

Larry E. Nicholson, General Manager
Performance Improvement
Tennessee Valley Authority
4X Blue Ridge
1101 Market Street
Chattanooga, TN 37402-2801

Michael D. Skaggs
Site Vice President
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

Letter to Ashok S. Bhatnagar from Robert C. Haag dated April 30, 2008

SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 CONSTRUCTION – NRC INTEGRATED INSPECTION REPORT 05000391/2008006

Distribution w/encl:
L. Raghavan, NRR
J. Williams, NRR
C. Evans,RII
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R. Neese, RII DRP
R. Monk, RII Watts Bar SRI
OE Mail (email address if applicable)
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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-391
License No.:	CPPR-92
Report No.:	05000391/2008006
Applicant:	Tennessee Valley Authority (TVA)
Facility:	Watts Bar Nuclear Plant, Unit 2
Location:	1260 Nuclear Plant Rd Spring City TN 37381
Dates:	January 1 - March 31, 2008
Inspectors:	W. Bearden, Senior Resident Inspector, Construction Projects Branch 3 (CPB3), Division of Construction Projects (DCP), Region II (RII) T. Nazario, Resident Inspector, CPB3, DCP, RII H. Abuseini, Project Engineer, CPB3, DCP, RII (Section E.1.2) J. Bartley, Senior Project Inspector, CPB3, DCP, RII (Section C.1.2) A. Issa, Project Inspector, CPB3, DCP, RII (Section E.1.1) K. VanDoorn, Senior Reactor Inspector, CPB3, DCP, RII (Sections Q.1.1, Q.1.2, Q.1.3) J. Tapia, Senior Construction Inspector, P.E., Construction Inspection Branch 2 (CIB2), Division of Construction Inspection (DCI), RII (Section E.1.2) J. Lizardi, Construction Inspector, CIB2, DCI, RII, In-training S. Lewis, Construction Inspector, Construction Inspection Branch 1 (CIB1), DCI, RII (Sections Q.1.1, Q.1.2, Q.1.3)
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 05000391/2008006

This integrated inspection included aspects of engineering and construction activities performed by the applicant associated with the Unit 2 construction project. This report covered a three-month period of resident inspector inspections in the areas of quality assurance; identification and resolution of problems; construction activities; engineering activities; procurement; and training and qualification of plant personnel. The inspection program for the Unit 2 Construction Program 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 NRC conducted a construction readiness inspection from March 3-14, 2008. Due to the uniqueness of this inspection, the inspection plan used elements from multiple IMC 2512 inspection procedures (IPs). The scope of the inspection included a review of the quality assurance organization, corrective action program (CAP), procurement, engineering, plant equipment layup and preservation, training, qualification, and document control. Programs, procedures, and processes of both the applicant and Bechtel Corporation were reviewed. In addition, personnel from both organizations were interviewed. A table which provides the status of the IPs utilized during this inspection is included in the attachment to this inspection report.

The construction readiness inspection team made a number of observations regarding quality assurance (QA), management oversight, training and qualification, CAP, procurement, engineering, and system walkdowns. Various problem evaluation reports (PERs) were initiated to cover deficiencies identified during the inspection. The team concluded that the applicant has adequate controls in place to conduct ongoing procurement, design, and construction activities. The inspection did not result in any findings of significance.

Inspection Results

- The applicant had established adequate manuals, plans, and procedures commensurate with the current level of activity. However, a number of required manuals and procedures are yet to be developed. These include several American Society of Mechanical Engineers (ASME) manuals; ASME quality control (QC) and non-destructive examination (NDE) personnel qualifications; and construction process installation and inspection procedures for cable installation, concrete installation, raceway and accessories, heating ventilation and air conditioning, instrumentation installation, and test control. (Section Q.1.1)

- Generally, adequate management and QA oversight was in place commensurate with activities in progress. The applicant and Bechtel plan to implement additional oversight tools such as site quality indicators and additional management reports. (Section Q.1.2)

- The inspectors determined that the applicant's and Bechtel's CAPs and associated procedures were adequate commensurate with the current level of activity. However, some procedures and aspects of the CAP were not yet developed. (Section Q.1.3)

- The applicant's and Bechtel's employee concerns programs were being effectively implemented. Management was actively involved in overseeing the programs to ensure that employees have alternate means to raise their concerns and that these concerns are appropriately resolved. The inspectors did not identify any issues regarding the applicant's ability to maintain a safety-conscience work environment. (Section Q.1.4)

- The applicant's program for performing physical walkdowns of structures, systems, and components (SSCs) included adequate detail and guidance to allow walkdown personnel to determine the as-built status of construction completion for Watts Bar Unit 2. QA oversight in this area was adequate. (Section C.1.1)

- The preservation and maintenance program was implemented in accordance with the applicant's program requirements. Preventive maintenance activities on many components, including most safety-related components, had been previously stopped due to economic reasons. Design changes, modifications, and required corrective actions were implemented and documented in accordance with the QA program. SSCs were in good physical condition with most foreign material exclusion barriers in place and intact. (Section C.1.2)

- No defined process existed to identify the requirements and specifications for restoring Unit 2 SSCs due to the suspension of the preventive maintenance activities. (Section C.1.2)

- Engineering and design control activities were being conducted in accordance with the applicant's processes. However, some processes were not yet established and, therefore, no conclusion regarding readiness to perform associated work could be made. Similarly, no onsite design work and safety-related field installation could be inspected due to lack of activity; therefore, the inspection of the implementation of programs, processes, and procedures was very limited. (Section E.1.1)

- The applicant's program for performing procurement activities was consistent with QA program requirements. Quality assurance responsibilities, procedures, procurement actions, source selection, procurement documentation, receiving inspection and storage were found to be acceptable commensurate with the current level of activity. The procurement engineering group had a high level of experience. (Section E.1.2)

- Radiographs of previously completed safety-related piping welds reviewed met applicable code requirements and other regulatory requirements. (Section E.1.3)

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REPORT DETAILS

Summary of Plant Status

On August 3, 2007, the applicant informed the NRC of their intention to reactivate construction activities at Watts Bar Unit 2. Bechtel Power Corporation was selected as the primary contractor for architect engineering and construction in October 2007. The applicant reactivated an onsite construction organization and restarted limited construction activities in December 2007. Unit 2 had remained in a long-term deferred condition with no ongoing construction activities since 1987. During the current inspection period, the higher tier procedures and programs were developed by the applicant. Many lower level procedures and work instructions are still under development. Limited engineering design activities and physical plant walkdowns to determine existing status of structures, systems and components (SSCs) were initiated.

I. Quality Assurance Program

Q.1 Quality Assurance Oversight Activities

Q.1.1 Review of QA Manual (IPs 35100, 35960)

a. Inspection Scope

The inspectors reviewed quality assurance (QA) manuals, plans, and available implementing procedures for safety-related activities to confirm that these documents conformed to the approved QA program and applicable QA requirements of American National Standards Institute (ANSI) N45.2, Quality Assurance Program Requirements for Nuclear Power Plants. The inspectors also held discussions with applicant and contractor personnel regarding the status of these activities. The following areas were covered:

- Organizational structure and QA personnel, including functional relationships, responsibilities and duties of QA personnel, independence of QA personnel, training, and stop work authority
- Audits, including procedures, plans, and schedules
- Procedures for control of welding
- Document control
- Quality records

Inspection of quality requirements for procurement of materials and components and control of materials is documented in Section E.1.2. Inspection of procedures for corrective action is documented in Section Q.1.3. Inspection of procedures for design control is documented in Section E.1.1. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

The inspectors determined that the applicant had contracted with Bechtel Power Corporation (Bechtel) to identify the remaining work scope for construction completion; develop/update design information associated with construction completion, including design and analyses required for dual unit operation; and complete Unit 2 construction, including required rework and implementation of Corrective Action Programs (CAPs) and Special Programs (SPs) similar to those completed for Unit 1. Bechtel's responsibilities include all QA requirements associated with design and construction. The applicant was providing independent management and QA oversight of Bechtel activities. Any new design or construction activities directly affecting Unit 1 were required to be performed using Unit 1 programs and procedures previously determined to meet NRC requirements.

c. Conclusions

No findings of significance were identified. The inspectors determined that the applicant and contractor had established adequate manuals, plans, and procedures commensurate with the current level of activity; however, a number of required manuals and procedures are yet to be developed. These include several American Society of Mechanical Engineers (ASME) manuals; ASME quality control (QC) and non-destructive examination (NDE) personnel qualifications; and construction process installation and inspection procedures for cable installation, concrete installation, raceway and accessories, heating/ventilation and air conditioning, instrumentation installation, and test control.

Q.1.2 Quality Assurance Oversight (IPs 35060, 35960)

a. Inspection Scope

In conjunction with inspections documented in Sections Q.1.1 and Q.1.3, the inspectors reviewed the applicants and contractor's management and QA oversight activities to verify adequate oversight was in place. This included review of oversight and audit plans and schedules; surveillance, assessment, and oversight results; and reports to management. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

Management policy statements endorsing the QA program commitments were in place. Future staffing and qualification plans were established. The training process was in place regarding QA requirements. Both the applicant and Bechtel had established management and QA oversight activities with adequate plans and schedules in place. The QA organizations were staffed and functionally independent of line management. The applicant's QA organization was conducting individual oversight activities and assessments and providing periodic reports to management. Bechtel was providing oversight via surveillance activities and plans to perform audits in the near future. However, no audits had been performed yet by either organization. Bechtel QA planned to issue reports to management, but none had yet been initiated. TVA QA had been effective in that they identified that the Bechtel QA oversight of engineering was limited. To address this, Bechtel added more oversight with additional oversight planned.

Bechtel planned to establish a self-assessment program; however, only the engineering self-assessment procedure had been issued and no self-assessments had been performed.

The primary tool for management oversight was the applicant and Bechtel management review committees. These were in place and providing adequate oversight commensurate with the level of activity. Site quality indicators were planned but not yet initiated. The applicant had established an experienced management organization for oversight of Bechtel engineering with multiple personnel assigned to each discipline.

c. Conclusions

No findings of significance were identified. Generally, adequate management and QA oversight by both the applicant and Bechtel was in place commensurate with activities in progress. The applicant and Bechtel plan to implement additional oversight tools such as site quality indicators and additional management reports.

Q.1.3 Identification and Resolution of Construction Problems (IP 40504)

a. Inspection Scope

The inspectors reviewed both the applicant's and Bechtel's problem identification and resolution (PI&R) programs and procedures to verify that 10 CFR 50, Appendix B, Criterion XVI and current industry standards were being met. This included verifying the following:

- That the processes ensure deficiencies are promptly identified, fully evaluated, tracked, trended, and corrected in a timely manner commensurate with their safety significance and complexity
- Applicant/Bechtel interface guidelines
- Cause evaluations
- Effectiveness reviews for significant problems
- Provisions for escalation to higher management when corrective actions are not adequate or timely
- Periodic trending and assessment of information from the PI&R process
- Apparent and root cause evaluation
- Use of site-specific risk information; evaluation of information external to the site such as 10 CFR 21 information, NRC information, vendor notices, and operating experience
- Oversight/self-assessment of the PI&R process.

The inspectors also reviewed problem evaluation reports (PERs) and PER lists to evaluate PER threshold and adequacy of corrective actions. Since most PERS were open, the review of implementation of corrective actions was limited. Management oversight activities were also reviewed and observed including Project Management Review Committee (PMRC) meetings and Construction Completion Management Review Committee (CCMRC) meetings. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

The applicant plans to use the TVA PI&R process to address QA oversight observations and findings. The Unit 1 process for initiation of a PER will be utilized for activities or problems potentially affecting Unit 1. Bechtel developed a similar process for Unit 2 construction issues which also utilized PERs with four levels of significance. Processes were in place to differentiate between Unit 2 PERs and Unit 1 PERs. The processes were well defined and included regulatory requirements and most current industry standards. However, areas yet to be developed included the root cause procedure; program performance goals/indicators; the trending guidance procedure; a policy for escalation of corrective actions associated with Level C PERs; utilization of site-specific risk insights and Bechtel guidance for handling of generic communications.

The applicant developed a procedure for evaluating generic information and was performing these reviews, however, this process had not yet been coordinated with Bechtel. In addition, Bechtel was still developing the procedure for reportable items. Separate Management Review Committees (MRCs) have been established by the applicant and the contractor. The MRC personnel exhibited a good questioning attitude, defined proper PER classifications, and appropriately identified deficiencies in PER documentation. The PMRC was implemented by Bechtel and the CCMRC was implemented by the applicant to oversee the respective PI&R processes. In addition, the CCMRC was the current primary tool for applicant management oversight of the Bechtel and applicant QA activities and Bechtel design and construction work.

The inspectors noted that Bechtel management had highlighted the fact that multiple PERs had been initiated in the areas of training and documentation errors. While the program guidance discussed handling of potential trends utilizing the PER process, detailed trending guidance had not yet been established.

c. Conclusions

No findings of significance were identified. The inspectors determined that the applicant and Bechtel had established adequate PI&R programs and procedures commensurate with the current level of activity. However, some procedures and aspects of the process were not yet developed.

Q.1.4 Employee Concerns Program (IP 40504)

a. Inspection Scope

The inspectors reviewed the applicant's and the contractor's programs for resolving employee concerns. The purpose of the inspection was to evaluate the construction safety culture and safety-conscious work environment aspects and to determine whether adequate means existed to resolve safety concerns raised by employees. The inspectors reviewed existing program requirements and interviewed the applicant's Employee Concerns Program (ECP) representative and management personnel. Additionally, contractor employees were interviewed to evaluate their awareness of the ECP program and to evaluate their willingness to identify quality or

safety concerns to their supervision or management without fear of retribution. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

TVA's ECP is described in Nuclear Power Standard SPP-1.0, Organization and Administration, Appendix D, Concerns Resolution, which is implemented by Watts Bar Unit 2 Procedure, NGDC Employee Concerns Program Plan.

Both procedures provided two methods for resolving employee concerns. The first was through line supervision, and the second was through the ECP. The procedures described the importance of creating an environment which supports and encourages the free expression of concerns by employees. Both procedures stated that the resolution of employee concerns by supervisors must be thorough and timely, and should also directly involve the employee when possible. All employees are required to participate in an exit interview when leaving the Unit 2 construction project. The exit interview record addresses whether the employee is knowledgeable of any nuclear safety or quality problems.

The method of handling employee concerns by the ECP was described in Concerns Resolution Staff Instruction 1, Program Administration. The instruction dealt with how to process the concern and included all the different receipt avenues, confidentiality, classification, investigation, resolution, closure, and reporting.

Based on discussions with applicant management and ECP representatives, the inspectors concluded that management was actively involved in overseeing the applicant's and contractor's programs to ensure that employees had alternate means to address their concerns and that these concerns would be appropriately resolved.

The inspectors performed a series of random interviews with 40 employees assigned to the Watts Bar Unit 2 project which included a large cross-section of craftsmen, QC inspectors, engineers, support personnel, and first-level supervision. The objective of the interviews was to evaluate the awareness and use of the applicant and contractor ECPs, and to evaluate the willingness of persons to identify quality or safety concerns to their supervision or management without fear of retribution. Personnel working for Bechtel and the Washington Group, which is a sub-contractor that provides additional personnel that report directly to Bechtel supervision, were interviewed. The inspectors did not identify any problems or concerns regarding the applicant's ability to provide a safety-conscious work environment. All of the employees interviewed had the proper sensitivity to identifying and resolving problems, showed acceptable knowledge of the CAP, and were aware of how to document problems. All stated willingness to identify problems to their supervisor. Approximately 20 percent of those interviewed could not identify the name or location of their ECP representative. However, all of the personnel appeared highly motivated to discuss problems with supervision and to use the existing CAP to document problems.

c. Conclusions

No findings of significance were identified. The inspectors did not identify any issues or concerns regarding the applicant's ability to provide a safety-conscience work environment. Employees exhibited the proper sensitivity to identifying and resolving roblems, showed acceptable knowledge of the CAP, and were aware of how to document problems.

II. Management Oversight and Controls

C.1 Construction Activities

C.1.1 System Walkdowns (IP 35061)

a. Inspection Scope

The inspectors reviewed the applicant's program for conducting physical walkdowns of SSCs to determine current status of construction completion at Watts Bar Unit 2. Areas inspected included walkdown procedures, qualification and experience of walkdown personnel, management and QA oversight of ongoing walkdown activities, and direct observation of selected walkdowns. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

The applicant had initiated a series of physical walkdowns of SSCs to determine current status of construction completion. The walkdown results will be used as design input for planned analysis and design activities.

The inspectors determined that the walkdown teams utilized walkdown packages developed from information and criteria provided by the engineering organization. Walkdown packages and associated walkdown activities were assigned by system, building/area, and discipline. 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 which were reviewed by the walkdown review team for completeness, accuracy, and compliance to engineering acceptance criteria prior to submittal to design engineering. The inspectors confirmed that the applicant's walkdown program required walkdown personnel to document non-conforming conditions in the CAP. Additionally, components which required maintenance (e.g. missing bolts, clamps, etc.) were identified in the walkdown packages.

The inspectors reviewed qualifications and experience levels for personnel assigned to perform the initial series of mechanical walkdowns. The inspectors reviewed the resumes for the QC and field engineering personnel and determined that the experience level for those personnel met the applicant's procedural requirements.

The inspectors observed portions of ongoing mechanical flowpath (flow diagram) walkdowns for System 3, Feedwater; System 68, Reactor Coolant System; and System 62, Chemical and Volume Control System, along with an isometric walkdown of the turbine-driven auxiliary feedwater pump lube oil cooler.

The inspectors reviewed various nuclear assurance assessment and observation reports to determine the extent of QA oversight for the ongoing walkdowns. The inspectors determined that QA oversight in this area was adequate. QA personnel challenged walkdown personnel frequently and provided coaching as needed. One example involved OA personnel identifying that the walkdown team failed to document a missing bonnet bolt and nut on Valve 2-FCV-003-0087 in the Unit 2 north main steam valve vault. This feedwater valve was a Unit 1 auxiliary building secondary containment enclosure (ABSCE) interface boundary valve. The applicant determined that the ABSCE boundary integrity had not been compromised due to a single missing bolt and nut. This problem was documented in PER 136470. Additionally, Work Order 08-810940-000 was generated to replace the missing bolt and nut and to tighten any loose nuts.

c. Conclusions

No findings of significance were identified. The applicant's program for performing physical walkdowns of SSCs included adequate detail and guidance to allow walkdown personnel to determine the accurate status of construction completion of Watts Bar Unit 2. In general, physical walkdowns were being performed in an acceptable manner. QA oversight in this area was adequate.

C.1.2 Plant Layup (IP 92050)

a. Inspection Scope

The inspectors reviewed the WBN Unit 2 layup program to determine the status of the program including performance of preventive maintenance (PM). Specific areas inspected were:

- PERs associated with changing SSCs status in the PM program from active to inactive were reviewed to determine when PMs on WBN Unit 2 components were stopped. In addition, the inspectors reviewed the applicant's program for restoration of these SSCs.

- Work documents associated with maintenance performed on WBN Unit 2 SSCs were reviewed to verify work was performed in accordance with the QA program.

- The listing of WBN Unit 2 design change notices (DCNs) was reviewed to determine if all were completed. Five of the DCNs were reviewed to verify completion.

- A sample of PM tasks performed since the last IP 92050 inspection was reviewed to verify completion.

- PERs generated within the last two years for deficiencies in the layup program were reviewed to verify that problems were identified and corrected.

- SSCs were walked down to verify physical condition, preservation, and status of foreign material exclusion (FME) barriers. Specific SSCs observed were:

  - 2A centrifugal charging pump
  - 2A safety injection pump
  - 2B residual heat removal pump
  - 2B containment spray pump
  - Turbine-driven and motor-driven auxiliary feedwater pumps
  - Piping and valves in the rooms for the above pumps
  - Piping and components in the Unit 2 reactor building

- Audits of the WBN Unit 2 layup program conducted within the last four years were reviewed to verify the required audits were completed and effective.

Specific documents reviewed are listed in the attachment.

b. Observations and Findings

(1) WBN Unit 2 Layup Program

The applicant implemented a PM program to maintain WBN Unit 2 components while construction activities were suspended. Initially there were approximately 20,500 components in the PM program. In the late 1990s, the applicant made the decision that it was not economically viable to continue performing the PMs on all of the WBN Unit 2 components and changed the QA program to define a category of "inactive" components for which PMs would not be performed. As of the end of 2002 there were approximately 300 components classified as active and 20,200 components classified as inactive. By the end of 2004 the number of active components was down to 49 and mainly consisted of large capacity pumps and motors. Only 14 of the 49 were safety-related components (emergency core cooling system pumps and motors). In early 2006 all of the dehumidifiers pumping warm, dry air through the piping were turned off. In June of 2007, all but 4 of the 49 components were made inactive. The four remaining active components were the turbine building main and auxiliary cranes, main generator, and generator exciter. The last PMs conducted on any safety-related components were performed in early 2007.

(2) Condition of WBN Unit 2 SSCs

The WBN Unit 2 SSCs observed were in good condition. FME barriers were in place and were, for the most part, intact. Little to no visible corrosion was visible on the outside of the components. The inspectors did not view the inside of the components. The structures were also in good physical condition. The rooms were clean and there were no indications of water inleakage. The inspectors performed a walkdown of warehouse HUT 29 which was used to store WBN Unit 2 components. The warehouse roof had water leaks and the doors had gaps which would allow rodents to enter. Components inside the warehouse appeared to be in good condition. The applicant

previously identified the warehouse conditions and posted a sign on the warehouse doors to ensure that parts stored in the warehouse would not be issued. The inspectors noted that PER 139291 had been previously generated to document this condition.

(3) Conduct of WBN Unit 2 Programs

The inspectors determined that work activities performed on WBN Unit 2 were done in accordance with the applicant's QA program. PM activities were conducted as required on the active components. QA audits of the layup program were performed as required. No significant audit findings were identified. All issued WBN Unit 2 DCNs were completed. PERs were generated for problems associated with the WBN Unit 2 layup program during the suspended construction period. Corrective actions for the reviewed PERs were adequate.

The inspectors determined that the applicant did not have a program to control the process for recovering WBN Unit 2 components for which PM activities were stopped. The applicant planned to use the procurement process to control the refurbishment and replacement of SSCs by vendors and the ASME Section III N-5 packages to ensure restoration of ASME components. The inspectors determined this may not provide adequate resolution for not performing the layup PM activities. The applicant generated PER 140101 to evaluate this observation.

c. Conclusions

No findings of significance were identified. The applicant had followed the approved preservation and maintenance program; however, the program was modified to allow stopping PM activities based on economic reasons. PM activities were stopped on most safety-related components by 2004. The applicant did not have a process to identify the requirements and specifications for restoring WBN Unit 2 SSCs due to the suspension of the PM program.

Design changes, modifications, and required corrective actions were implemented and documented in accordance with the QA program. WBN Unit 2 SSCs were in good physical condition with most FME barriers in place and intact. Based on the applicant resuming construction on Unit 2, no additional layup inspections performed in accordance with IP 92050 are anticipated.

E.1 Engineering Activities

E.1.1 Engineering Organization and Design Control (IPs 35060, 35100, 35960)

a. Inspection Scope

The inspectors reviewed engineering activities focusing on the engineering organization and design control. The main objective of this portion of the inspection was to assess the readiness of the engineering organization to support ongoing construction activities. The inspectors interviewed engineering personnel at various levels within the engineering

organization. The following areas were reviewed:• Available engineering programs and administrative procedures

- Training and qualification of engineering personnel
- Interfaces within Unit 2 construction disciplines and activities
- Interfaces between Unit 2 and Unit 1
- QA oversight (also discussed in Section Q.1.2 of this report)
- Management oversight
- TVA oversight of Bechtel's activities
- Software qualification and control
- Engineering databases
- Applicant's acceptability of A/E Design Services

Specific documents reviewed are listed in the attachment.

b. Observations and Findings

The inspectors reviewed the training program for engineering personnel. The program only required the reading of administrative procedures in order to qualify to perform engineering tasks. No additional form of training, such as classroom presentations, was required. The inspectors also noted that the level of prior engineering experience was not factored into the scope of required training. For example, a recent graduate from an engineering school was required to take the same training as a very knowledgeable engineer with many years of nuclear power plant experience. In addition, there was no formalized method to evaluate the level of comprehension gained from the training. Once engineering personnel completed the required reading, they were not required to demonstrate that the expected knowledge was obtained. PER 139939 was initiated to address these concerns. A similar concern was previously identified in an applicant's self-assessment and documented in PER 138182.

The inspectors interviewed Bechtel personnel at various levels and determined that they all knew how to identify problems and what to do in case the problems were not resolved to their satisfaction. In addition, the inspectors determined that the databases used by engineering were adequate to identify design interfaces and to assist in the collection of design inputs.

c. Conclusions

No findings of significance were identified. The team concluded that the applicant had adequate design controls in place to conduct ongoing procurement, design, and

construction activities. However, some processes, such as the conduct of ASME Section III activities, had not yet been established and, therefore, no conclusion regarding the applicant's readiness to perform associated work could be made. Furthermore, the availability of completed engineering work products was very limited. Similarly, no onsite design work and safety-related field installation could be inspected due to lack of activity. Therefore, the inspection of implemented activities associated with programs, processes, and procedures was very limited.

E.1.2 Procurement Activities (IPs 35960, 35065)

a. Inspection Scope

This portion of the inspection focused on the applicant's implementation of procurement activities. The inspectors verified that pertinent QA program attributes were correctly translated into procedural requirements. The items reviewed included the following:

- Specification of the requirements for evaluating and selecting suppliers
- Identification of the responsibilities of personnel involved in the preparation and approval of procurement documents
- Definition of the requirements and responsibilities for surveillance of suppliers to determine that the quality of work and implementation of quality programs are in conformance with the procurement documents
- The requirements of and responsibilities for the review of supplier documentation specified by procurement documents
- The requirements and responsibilities for reporting and dispositioning supplier nonconformances
- The responsibilities for the inspection of items and the associated quality verification documents received at the plant site
- Adequacy of site storage facilities to meet quality storage level requirements

In addition to the programmatic review, the inspection also included available completed procurement activities to verify that they had been adequately implemented in accordance with programmatic and QA plan requirements. Selected procurement packages and associated documentation were reviewed. Associated receipt inspection documentation was reviewed and a tour of storage facilities was conducted. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

At the time of the inspection, the applicant was in a transition period with regard to procurement activities. The planned implementation of activities under Bechtel

responsibility had not occurred and development of several Bechtel procedures had not been completed. Limited activities had been implemented utilizing TVA programs and procedures. Only four safety-related items had been procured to date. Consequently, the main focus of this inspection was on programmatic and procedural requirements established to date. Because of the amount of items procured to date, the inspection of in-process procedural implementation was limited.

(1) Quality Assurance Responsibilities

The inspectors evaluated the organizational structure related to procurement and held discussions with cognizant management concerning the procurement staffing plan. Interviews were conducted with QA management to determine QA's role in procurement and to clarify the procurement/QA interface. The inspectors verified that the QA organization was procedurally involved in the review of procurement documents and also in providing quality requirement inputs to procurement packages.

The inspectors reviewed the plans for conducting oversight (surveillances and audits) of procurement activities. The Watts Bar Nuclear Plant Unit 2 Construction Completion Oversight Plan was specifically reviewed to ensure that procurement activities were subject to ongoing review and effectiveness assessments. Additionally, the Watts Bar Nuclear Plant Unit 2 Construction Completion Project (WB2CCP) Nuclear Assurance Plan was also reviewed to ascertain the planned methodology for audits and systematic, independent assessments of procurement program effectiveness. The WB2CCP Master Audit Schedule Calendar Year 2008 and the WB2CCP General Surveillance Schedule 2008 were also reviewed and were found to adequately address procurement activities. The results of two completed surveillances on ongoing procurement processes were reviewed. The Procurement Department Self Assessment Plan was also reviewed.

Based on the above reviews, the inspectors concluded that organizational responsibilities for the control of procurement activities, including interfaces between design, procurement, and QA organizations, were adequately specified.

(2) Procedures

The inspectors reviewed available TVA and Bechtel procedures. The list of procedures reviewed is listed in the attachment to this report.

Several procedures were in draft and had not been issued for use. New Nuclear Generation Development and Construction (NGDC) Procedure PP-13, NRC Reporting Requirements, had not been finalized. This procedure specifies the requirements for reports to the NRC as required by 10 CFR 50.55(e) and 10 CFR 21. TVA Procedure SPP-3.5, Rev. 19, Regulatory Reporting Requirements, was being utilized in the interim period to satisfy regulatory requirements.

WB2CCP Procedure 25402-3DP-G06G-00502, Commercial Grade Dedication, was in the review process and had not been issued for use. This procedure established the work activities that are to be performed by the Bechtel project supplier quality personnel assigned to the site and also by personnel deployed as supplier quality representatives, lead auditors, and auditors that will perform supplier shop services assignments.

WB2CCP Procedure 25402-PSQ-0001, Project Supplier Quality Procedure, was still in review for site approval. This procedure provided a consistent and recognized methodology to evaluate and dedicate commercial-grade items for use in safety-related applications.

Procedures were found to be adequate and consistent with QA program requirements. However, some of the required Bechtel program procedures had not yet been issued. Implementation of procurement activities at the time of the inspection was limited to four items procured under the TVA site program. The transition to the Bechtel procedures had not occurred, and items currently being procured were being done under the TVA site program.

(3) Procurement Action

The inspectors reviewed a representative number of procurement specifications generated to date. The inspectors verified that qualified personnel were conducting procurement specification activities and noted that the procurement engineering group had a high level of experience. The technical evaluations performed during the procurement process were reviewed.

As part of the sample of procurement specifications reviewed, the inspectors verified that all work performed on the Unit 1 and Unit 2 interface boundary or on the Unit 1 side of the interface boundary was required to be performed in accordance with TVA Nuclear Power Group procedures.

In addition to procurement documents reviewed, the inspectors also reviewed records of nonconforming items generated to date. The documents reviewed indicated that the applicant was effectively identifying and resolving issues. The inspectors concluded that procedures were established for the review of procurement documents to determine that quality requirements were correctly specified.

(4) Source Selection

The inspectors reviewed procurement engineering packages for seven vendors listed on the approved supplier list (ASL). The review included associated audits that served as the basis for placing the vendor on the ASL. The inspectors' review served to determine how source selection was accomplished and verified that procedural requirements were met. The audit findings and followup actions were included as part of the review.

The maintenance of the ASL was also reviewed. Each vendor entry contained 'Restrictions' and 'Remarks' that incorporated the results of previous audits and industry information. The applicant's reviews to maintain suppliers on the approved vendor list and the frequency of surveys of suppliers' QA programs were evaluated.

The inspectors concluded that the selection of suppliers was adequately controlled and the basis for the selection and continued use were adequately documented. Supplier performance was periodically evaluated by audits and surveillances. Appropriate

verification of suppliers' activities was planned and performed in accordance with written procedures to assure conformance to purchase order requirements.

(5) Procurement Documentation

The inspectors reviewed available procurement documentation to verify the following:

- Procurement documentation emphasized adequate technical and quality assurance requirements
- The documentation had been reviewed prior to release for bid
- Notification points, hold points, and access rights had been incorporated in or provided for in the documentation
- 10 CFR 21 and 10 CFR 50.55(e) reporting requirements were appropriately addressed
- Applicable QA requirements were imposed on subcontractors
- The applicant's procedures required verification of supplier QA systems to support certificates of conformance

The reviewed data indicated conformance with technical and quality requirements. Documents reviewed also identified applicable regulatory reporting requirements

(6) Receiving Inspection

During the review of Procurement Engineering Group packages, the inspectors verified that receipt verification and inspection requirements were specified and that they were appropriate to items purchased. The inspectors also performed the following:

- Reviewed the procedures for conducting receiving inspection
- Reviewed available receipt inspection records and determined compliance with acceptance requirements
- Reviewed the requirements specified in the procurement document for documentation and acceptance of the item

Receiving inspection was adequately controlled to verify that the item procured was properly identified and that specified inspection and test records were available with the shipment. Requirements were established to ensure that documentary evidence that an item conformed to procurement requirements was available prior to the item being placed in service or used.

(7) Storage

The inspectors conducted a tour of available storage facilities and stored items. The inspectors reviewed work and QA/QC procedures established to store safety-related items in Class A, B, C, and D levels of storage.

The inspectors determined that procedures ensured that items received were assigned to a controlled storage area. However, storage facility capacity was limited. The applicant planned to expand storage facility capacity in the near future. Storage facilities for storage of Class A equipment had not been constructed. Facilities for Class B, C, and D equipment storage were going to be increased. Current protection from damage during storage was adequate. Temperature-monitoring equipment was available and suitable for intended use. Records of storage conditions were being maintained.

c. Conclusions

No findings of significance were identified. The applicant's program for performing procurement activities was consistent with QA program requirements. Quality assurance responsibilities, procedures, procurement actions, source selection, procurement documentation, receiving inspection and storage were found to be acceptable. There were some activities and procedures not yet completed or issued; however, the controls in place were adequate for the current level of activity. The existing procurement engineering group had a high level of experience.

E.1.3 Quality Assurance Records (IP 57090)

a. Inspection Scope

The inspectors reviewed selected vendor radiographs of welds on safety-related piping which the applicant had obtained from an offsite storage facility. Radiographs were reviewed to determine whether they were prepared, evaluated, and maintained in accordance with applicable commitments and/or requirements.

b. Observations and Findings

The inspectors were informed that all of the original radiographs performed by vendors for Unit 2 have been stored in a secure offsite storage facility and that the radiographs performed by TVA have been stored in the records vault on site. The inspector reviewed selected radiographs which the applicant had obtained from the offsite storage facility. Specific vendor radiographs reviewed included the following:

Weld ID	Component
X-4819-A	Pressurizer Safety Valve A Nozzle Weld
X-4820-B	Pressurizer Safety Valve B Nozzle Weld
X-4821-C	Pressurizer Safety Valve C Nozzle Weld
X-4826-D	Pressurizer Relief Valve Nozzle Weld
X-4818-E	Pressurizer Upper Head Spray Safe End Weld
X-5003-S	Pressurizer Surge Line Nozzle Weld

The records were compared to the applicable code (ASME Boiler and Pressure Vessel Code, Section III, 1971 Edition with Addenda through Summer 1973) to verify compliance.

c. Conclusions

No findings of significance were identified. The inspectors determined that the observed/reviewed radiographs met applicable code requirements and other regulatory requirements.

T.1 Training and Qualification of Plant Personnel

T.1.1 Craft Training

a. Inspection Scope

The inspectors reviewed the applicant's program for new employee indoctrination and training. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

The inspectors observed selected classroom and Dynamic Learning Center training sessions. New employee indoctrination and training for management expectations on procedural compliance**,** SCWE, and work rules were required before newly hired employees were released for work. The inspectors noted that the applicant had not yet developed training plans for specific task-related requirements to support future construction activities. The inspectors determined that the applicant's program for training of newly hired personnel was adequate commensurate with the current level of activity.

c. Conclusions

No findings of significance were identified. The inspectors determined that the applicant's program for training of newly hired personnel was adequate commensurate with the current level of activity.

T.1.2 Engineering Organization Training

a. Inspection Scope

The inspectors reviewed the applicant's program for training and examination of field engineering personnel selected to perform physical walkdowns of SSCs to determine current status of construction completion at Watts Bar Unit 2. Specific documents reviewed are listed in the attachment.

b. Observations and Findings

The inspectors determined that initial training consisted of self-study and reading of a series of procedures for performing walkdowns. Early deficiencies with this method of training were identified by management oversight. Afterwards, steps were taken to ensure a more structured study approach and formal classroom training was conducted.

In addition to training, those personnel selected to perform walkdowns were required to perform proficiency walkdowns. The inspectors observed initial proficiency training for flow diagram walkdowns. Proficiency training consisted of independent walkdowns by separate walkdown teams while being monitored by members of management and QA personnel. Comparison of the walkdowns revealed consistent results. The inspectors noted that walkdown personnel were required to demonstrate knowledge of procedural requirements during the proficiency walkdowns before they were considered fully qualified. The inspectors determined that the applicant's program for training of walkdown personnel was adequate.

c. Conclusions

No findings of significance were identified. The applicant's program for training of field engineering personnel to perform physical walkdowns was adequate

V. Management Meetings

X.1 Exit Meeting Summary

On April 10, 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 will be included in this inspection report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Applicant personnel

G. Arent, Licensing Manager, Unit 2
J. Atwell, Engineering Manager, 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
G. Caul, Project Quality Assurance Supervisor, Bechtel
B. Crouch, Lead Mechanical Engineer, TVA, Unit 2
R. Esnes, Engineering Manager, Washington Group, Inc
T. Francheck, Quality Assurance Manager, Bechtel
E. Freeman, Acting Engineering Manager, TVA, Unit 2
W. Goodman, Procurement Manager, Bechtel
B. Heinmiller, Project Engineering Manager, Bechtel
M. Lackey, ECP Rep, TVA, Unit 2
S. Loofbourrow, Quality Manager, Bechtel
S. Hilmes, Lead Electrical Engineer, TVA, Unit 2
R. Jackson, Project Director, Bechtel
D. Malone, Quality Assurance, TVA, Unit 2
J. McCarthy, Licensing Supervisor, Unit 2
R. Moll, Preop Startup Manager, 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
S. Sawa, Training Manager, Bechtel
J. Schlessel, Construction Manager, TVA, Unit 2
P. Theobold, Radcon Supervisor, TVA, Unit 2
H. Thornberry, Construction Manager, Bechtel, Unit 2
D. Tinley, Quality Assurance, TVA, Unit 2
J. Valente, Engineering Manager, TVA, Unit 2
D. Webb, Operations Manager, TVA, Unit 2

INSPECTION PROCEDURES USED

IP 35060	Applicant 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 40504	Part 52, Identification and Resolution of Construction Problems
IP 57090	Nondestructive Examination - RT
IP 92050	Review of Quality Assurance for Extended Construction Delay

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None

STATUS OF MC 2512 INSPECTION PROCEDURES

IP	Title	Section	Status
35060	Licensee Management of QA Activities	02.02	Partially Complete
		02.03	Partially Complete
		02.04	Partially Complete
		02.05	Partially Complete
35061	In-depth QA Inspection of Performance	02.01	Partially Complete
35065	Procurement, Receiving, and Storage	02.01	Partially Complete
		02.02	Partially Complete
		02.03	Partially Complete
		02.04	Partially Complete
35100	Review of QA Manual	02.01	Complete
		02.02	Complete
		02.03	Partially Complete
		02.04	Partially Complete
		02.05	Complete
		02.06	Complete
		02.07	Complete
		02.08	Complete
		02.09	Partially Complete
		02.10	Complete
		02.11	Not Applicable
35960	QA Program Evaluation of Engineering Organization	02.01	Partially Complete
		02.02	Complete

		02.03	Partially Complete
		02.04	Partially Complete
		02.05	Complete
		02.06	Partially Complete
57090	Nondestructive Examination – RT	02.02	Not Applicable
		02.03	Partially Complete
92050	Review of Quality Assurance for Extended Construction Delay	02.02	Partially Complete
		02.03	Complete

LIST OF DOCUMENTS REVIEWED

Q.1 Quality Assurance Oversight Activities

Q.1.1 Review of QA Manual

Procedures and Standards

TVA-NQA-PLN89-A, Nuclear Quality Assurance Plan, Rev. 18
Watts Bar Unit 2 Construction Completion Project Bechtel Project Nuclear Quality Assurance Manual, Rev. 1
TVA Nuclear Assurance Plan dated 10/29/2007
25402-ADM-001, Document Control, Rev. 1
25402-000-GMX-GCE-00001, Special Processes Manual, Rev. 0
25402-000-GPP-0000-N3105, Field Change Requests, Rev. 0
25402-000-GPP-0000-N3503, Piping Installation, Rev. 0
25402-000-GPP-0000-N3701, Welding Program, Rev. 0
25402-000-GPP-0000-N3705, Welding & NDE Documentation and Records Management, Rev. 0
25402-000-GPP-0000-N7102, Control of Measuring and Test Equipment, Rev. 0
25402-000-GPP-0000-N3707, Welding Filler Material, Rev. 0
25402-QAS-0001, Indoctrination and Training of Quality Assurance Personnel, Rev. 0
NGDC PP-1, Procedure Control, Rev. 0
NGDC PP-2, Organizational Structure, Roles and Responsibilities, Rev. 0
NGDC PP-8, Operating Experience Plan, Rev. 0
SPP-2.3, Document Control, Rev. 6
SPP-2.4, Records Management, Rev. 6

Q.1.2 Quality Assurance Oversight

Procedures and Standards

25402-QAS-0002, Quality Assurance Surveillance, Rev. 0
25402-QAS-0003, Project Quality Assurance Audits and Audit Personnel Qualifications, Rev. 0
25402-3DP-G04G-00505-000, Self-Assessment Program, Rev. 0
NADM-5.1, Nuclear Assurance Oversight of Watts Bar Unit 2 Construction Completion dated 03/12/2008

Oversight/Self-Assessment Documents

Quality Assurance Surveillance Plan (Job No. 25402), Rev. 0
Audit Plan (Job No. 25402), Rev. 0
TVA Construction Completion Oversight Plan dated 02/22/2008
Surveillance No. 25402-WBN-SR-08-0007; Walk Down Package, WBN2-PD-610-63-01, Partial Flow Diagram Walk Down dated 02/26/2008
Surveillance No. 25402-WBN-SR-08-0001, General Walkdown Proficiency Training dated 01/17/2008
Surveillance No. 25402-WBN-SR-08-0002, General Walkdown Proficiency Training dated 02/20/2008
Bechtel Functional Management Assessment conducted February 5-8/2008

Self-Assessment Report WB2-08-001, Preparation for NRC Construction Readiness Inspection
NA-WB-08-001; Nuclear Assurance Oversight Report for the Period of November 1, 2007 to January 31, 2008
NA-WB-08-002, Nuclear Assurance Assessment of Unit 1/2 Interface Points dated 02/22/2008
Oversight Results, Discrepancy between Calculations WCG-1-351 and -352 and CEB Report 80-62 dated 03/05/2008

Problem Evaluation Reports (PERs)

137352, Administrative Change Processed Incorrectly
138059, Incomplete Part 21 Implementation
138533, Procedures Processed without Meeting all QA Requirements (CAR WB2CCP-CAR-001)
138636, Incomplete Training Record
138712, Training Record Documentation Errors
138996, Issues from Bechtel Corporate QA Surveillance
139222, Problems Identified with Corrective Action Program Procedure
139679, Undesirable Trend in Documentation Errors
139683, Potential Adverse Trend in Training-Related Issues

Q.1.3 Identification and Resolution of Problems

Procedures and Standards

25402-MGT-0003, Corrective Action Program, Rev. 0
NGDC PP-3, Watts Bar Unit 2 Corrective Action Program, Rev. 0

Q.1.4 Employee Concerns Program

Procedures and Standards

Nuclear Power Standard SPP-1.0, Organization and Administration, Rev 3
Watts Bar Unit 2 Procedure, NGDC Employee Concerns Program Plan, Rev 0
Concerns Resolution Staff Instruction 1,Program Administration, Rev 9

C.1 Construction Activities

C1.1 System Walkdowns

Procedures and Standards

WDP-GEN-1, General Walkdown Requirements, Rev. 0
WDP-E-4, Walkdown Procedure for Electrical, Rev. 0
WDP-M-5, Walkdown Procedure for Mechanical, Rev. 0
WDP-I-6, Walkdown Procedure for Instrumentation, Rev. 0

PERs

135965, Higher that expected failure rate for testing walkdown personnel
136470, Missing bolt and nut on Valve 2-FCV-003-0087

Miscellaneous Documents

NA-WB-08-001, Nuclear Assurance Oversight Report for November 1, 2007, to January 31, 2008
NA-WB-08-003, Nuclear Assurance Oversight Report for February 2008
Observation Report 43219, 480 volt shutdown walkdowns
Observation Report 43395, Walkdown package reviews

C1.2 Plant Layup

Procedures and Standards

Watts Bar Nuclear Plant Site Specific Engineering Specification N3M-935 for Plant Equipment Layup/Preservation
Business Practice (BP) -380, Requests for Installed Unit 2 Non-Transferred Components
Technical Instruction (TI) -92, Removal of Unit 2 Components for Other Units & Unit 2 Minor Maintenance
TVAN Standard Department Procedure NEDP-8, Technical Evaluation for Procurement of Materials and Services

Audits

Nuclear Assurance Audit Report No. SSA0303 – Bellefonte and Watts Bar Unit 2 Construction Permit and Plant Lay-up Activities, June 2003
Nuclear Assurance Audit Report No. SSA0403 – Bellefonte and Watts Bar Unit 2 Construction Permit and Plant Lay-up Activities, June 2004
Nuclear Assurance Audit Report No. SSA0504 – Bellefonte and Watts Bar Unit 2 Construction Permit and Plant Lay-up Activities, August 2005
Nuclear Assurance Audit Report No. SSA0602 – Bellefonte and Watts Bar Unit 2 Construction Permit and Plant Lay-up Activities, September 2006

Work Documents

TI-273, WBNP Unit 2 PM Maintenance Record for 2-MTR-003-118-A, A train motor driven auxiliary feedwater pump motor, 5/6/2007
TI-273, WBNP Unit 2 PM Maintenance Record for 2-MTR-063-010-A, A train safety injection pump motor, 5/25/2007
TI-273, WBNP Unit 2 PM Maintenance Record for 2-MTR-072-027-A, A train containment spray pump motor, 2/9/2007
TI-273, WBNP Unit 2 PM Maintenance Record for 2-MTR-074-010-A, A train residual heat removal pump motor, 2/9/2007
TI-273, WBNP Unit 2 PM Maintenance Record for 2-MTR-074-020-B, B train residual heat removal pump motor, 2/9/2007
TI-273, WBNP Unit 2 PM Maintenance Record for 2-PMP-003-118, motor driven auxiliary feedwater pump, 1/20/2007
TI-273, WBNP Unit 2 PM Maintenance Record for 2-PMP-072-027, A train containment spray pump, 1/20/2007
TI-273, WBNP Unit 2 PM Maintenance Record for 2-MTR-003-128-B, B train motor driven auxiliary feedwater pump motor, 5/6/2007

CAI-1.01, Work Control for Non-transferred Features (Unit 2), ER No. 06-97-006, Removal of valve 2-ISV-74-524, 2-ISV-74-525, and 2-HCV-74-0036 from the residual heat removal system
CAI-1.01, Work Control for Non-transferred Features (Unit 2), ER No. 10-96-019, Removal of 2B motor driven auxiliary feedwater pump
TI-273, Preventive Maintenance for Non-transferred Features, Appendix A, WBNP Unit 2 PM Maintenance Record, 2-SGEN-068-SG1,2,3,4, Open and inspect Unit 2 steam generators per minor maintenance U2-MM-298, completed on 4/19/2007
TI-273, Preventive Maintenance for Non-transferred Features, Appendix A, WBNP Unit 2 PM Maintenance Record, 2-SGEN-068-SG1,2,3,4, Open and inspect Unit 2 heat exchangers, coolers, and condensers per minor maintenance U2-MM-309, completed on 5/15/2007
TI-272, Work Control for Non-transferred Features (Unit 2), ER No. 05-03-005, Removal of 2-FCV-074-016 from the residual heat removal system

DCNs

28715-A, Replace Pipe transferred to Unit 1
A-05467-A, New Support Installation
P-010010-A, Replacement of IAC and IFC Relays
P-01726-A, As-built welds deviate from design
P-00707-A, Anchor Bolt LOC. not in tolerance
P-01209-A, Add support to 3/4" conduit
P00382-C, Pipe Support as-built gap problem

PERs

125617, Place 41 of the remaining 45 Unit 2 components, in the Unit 2 PM program, in the deferred plant equipment status
109686, Maintenance audit WBA0602, Unit 2 PM Maintenance, revealed documentation discrepancies
110058, Unit 2 PMs have not been completed, by MSB, for the months of May, June, and July 2006
110215, The process used to schedule, track and perform Unit 2 PMs is not meeting management expectations
111489, Eight Unit 2 PMs were not worked in August as scheduled due to U1C7 outage preparation
123087, Hut 29 Storage issues
139291, Track evaluation and disposition of all material stored in Hut 29

E.1 Engineering Activities

E.1.1 Engineering Organization and Design Control

Procedures and Standards

SPP-2.6, Rev. 0011, Computer Software Control
25402-3DP-G04G-00025, Rev. 0, Design Interface Control
25402-000-GPP-0000-N1204, Rev. 0, Engineering Document Construction Release (EDCR) Process
25402-3DP-G04G-00027, Rev. 0, Design Verification
25402-3DP-G04G-00025, Rev. 0, Field Change Requests

25402-3DP-G04G-00062, Rev. 0, (Engineering) Field Change Request
25402-3DP-G04G-00001, Rev. 1, Design Criteria Documents

PERs

137466, Administrative errors in engineering documents
138132, Inconsistency between Bechtel and TVA requirements for Computer Calculations
138182, Adequacy of Required Training
138533, Procedures Processed without Meeting all QA Requirements (CAR WB2CCP-CAR-001)
138996, Issues from Bechtel Corporate QA Surveillance
139939, NRC Inspection of Engineering
140152, Errors in calculation for Construction opening

Miscellaneous Documents

Training Program Description for EDP personnel dated 1/17/2008
Watts Bar Unit 2 Construction Completion Project Bechtel Project Nuclear Quality Assurance Manual, Rev. 1
TVA Construction Completion Oversight Plan dated 02/22/2008
Surveillance Report No. 25402-WBN-SR-08-0004, dated 2/21/08, 10 CFR 21 Postings and Document Control at the Knoxville Operations Office
Surveillance Report No. 25402-WBN-SR-08-0009, dated 2/25/08, Engineering Process Evaluation (Knoxville)
Bechtel Functional Management Assessment conducted February 5-8/2008

E.1.2 Procurement Activities

Procedures and Standards

Watts Bar Unit 2 Project Nuclear Quality Assurance Manual, Rev. 1
Bechtel Supplier Quality Manual Section 4.06, “Administration of Evaluated Supplier List”, Rev. 1
Bechtel Supplier Quality Manual Section 4.07, “Evaluation of Supplier Assessment Reports” Rev. 2
Engineering Design Guide/Standard, DS-M18.2.18, “Standardized Procurement Notes”, Rev. 17
Nuclear Generation Development and Construction Project Procedure, PP-8, “Operating Experience Plan”, Rev. 0
Standard Programs and Processes Procedure, SPP-3.5, “Regulatory Reporting Requirements” Rev. 19
SPP-3.5, “Regulatory Reporting Requirements”, Rev. 19
SPP-4.1, “Procurement of Material, Labor and Services”, Rev. 19
SPP-4.2, “Material Receipt Inspection”, Rev. 19
SPP-4.3, “Material Storage and Handling”, Rev. 5
SPP-4.4, “Material Issue, Control, and Return”, Rev. 7
Standard Department Procedure, NEDP-8, “Technical Evaluation for Procurement of Materials and Services”, Rev. 12
25402-QAS-0002, “Quality Assurance Surveillance”, Rev. 0
25402-QAS-0003, “Project Quality Assurance Audits and Audit Personnel Qualifications”, Rev. 0

25402-3DP-G04G-00503, “Master Equipment List”, Rev. 0
25402-3DP-G06G-00001, “Material Requisitions”, Rev. 0
25402-3DP-G06G-00002, “Contracts and Subcontracts”, Rev. 0
25402-3DP-G06G-00005, “Technical Bid Evaluation”, Rev. 0
25402-3DP-G06G-00009, “Supplier Document Submittal Requirements and Document Review Process”, Rev. 0
25402-3DP-G06G-00010, “Specifying and Evaluating Supplier Quality Management System or Quality Assurance Program Requirements”, Rev. 0
25402-PRO-0002, “Purchase Order Formation”, Rev. 0
25402-PRO-0005, “Material Receiving”, Rev. 0
25402-PRP-0006, “Material Withdrawal”, Rev. 0
25402-PRO-0007, “Field Material Storage Control”, Rev. 0

PERs

123087, Warehouse Hut 29 storage deficiencies
131417, Procurement of source material without completion of required documents
137296, Vendor not qualified to provide replacement parts for 480 Volt shutdown boards
138011, Bechtel procurement procedures not approved for use by TVA
139176, Prime contractor did not have active N-Stamp prior to time of award
139291, Need for evaluation and disposition for all material stored in Hut 29

Miscellaneous Documents

TVA Approved Supplier List
Construction Completion Project Nuclear Assurance Plan, 10/29/07
Construction Completion Oversight Plan, 02/22/08
Surveillance Report No. 25402-WBN-SR-08-0005, 2/26/08
WB2CCP Master Audit Schedule Calendar Year 2008
WB2CCP General Surveillance Schedule 2008
Watts Bar Unit 2 Procurement Self Assessment Plan, Rev. 0
Procurement Functional Self Assessment, February 4-7, 2008

T.1 Training and Qualification of Plant Personnel

T.1.1 Craft Training

Miscellaneous Documents

Lesson Plan DLC308.000, Safety and Human Reinforcement, Rev. 0

T.1.2 Engineering Organization Training

PERs

135965, Higher that expected failure rate for testing walkdown personnel

LIST OF ACRONYMS

ABSCE	auxiliary building secondary containment enclosure
ANSI	American National Standards Institute
ASL	approved supplier list
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CCMRC	Construction Completion Management Review Committee
CFR	Code of Federal Regulations
DCN	design change notice
ECP	Employee Concerns Program
EOC	extent of condition
FME	foreign material exclusion
IMC	Inspection Manual Chapter (NRC)
IP	Inspection Procedure (NRC)
MRC	Management Review Committee
NGDC	New Generation Development and Construction
NRC	Nuclear Regulatory Commission
PER	Problem Evaluation Report
PI&R	problem identification and resolution
PM	preventive maintenance
PMRC	Project Management Review Committee
QA	quality assurance
QA/QC	quality assurance/quality control
SCWE	safety conscious work environment
SP	special program
SSC	structures, systems, and components
TVA	Tennessee Valley Authority
WB2CCP	Watts Bar Nuclear Plant Unit 2 Construction Completion Project
WBN	Watts Bar Nuclear Plant