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April 1, 2011

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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In the Matter of	)	Docket Nos. 50-438
Tennessee Valley Authority	)	50-439

TENNESSEE VALLEY AUTHORITY (TVA) - BELLEFONTE NUCLEAR PLANT (BLN) UNITS 1 (CPPR-122) AND 2 (CPPR-123) – QUALITY VERIFICATION PROGRAM

References:

1. Letter from TVA to NRC, "Bellefonte Nuclear Plant (BLN) Units 1 and 2 - Withdrawal of Construction Permits CPPR-122 (Unit 1) and CPPR-123 (Unit 2) - Request for Approval," dated April 6, 2006 [ML061000538].

2. Letter from NRC to TVA, "Bellefonte Nuclear Plant, Units 1 and 2 - Withdrawal of Construction Permit Nos. CPPR-122 for Unit 1 and CPPR-123 for Unit 2 (TAC NOS. MD1185 and MD1186)," dated September 14, 2006 [ML061810505]

3. Letter from TVA to NRC, "Bellefonte Nuclear Plant (BLN) Units 1 (CPPR-122) and 2 (CPPR-123) – Key Regulatory Assumptions for the Possible Completion of Construction Activities," dated April 9, 2010 [ML101050030].

4. Letter from TVA to NRC, "Bellefonte Nuclear Plant, Units 1 and 2 - Request to Reinstate Construction Permits CPPR-122 (Unit 1) and CPPR-123 (Unit 2)," dated August 26, 2008 [ML082410087].

5. Letter from NRC to TVA, "Bellefonte Nuclear Plant Units 1 (CPPR-122) and 2 (CPPR-123) – Transition to Deferred Status – NRC Inspection Report 05000438/2009601 and 05000439/2009601," dated December 2, 2009 [ML093370083].

6. Letter from NRC to TVA, "Watts Bar Nuclear Plant, Unit 2 – Safety Evaluation Input Regarding Quality Assurance Records Corrective Action Program (TAC No. ME2168)," dated September 8, 2009 [ML092320707].

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7. Letter from NRC to TVA, "Watts Bar Nuclear Plant, Unit 2 – Safety Evaluation Input Regarding Replacement Items Corrective Action Program," dated September 9, 2009 [ML092320914].

8. Letter from TVA to NRC, "Watts Bar Nuclear Plant (WBN) Unit 2 – Response to Request for Additional Information on Program for Construction Refurbishment (TAC No. MD6581)," dated July 8, 2009 [ML091940094].

9. Letter from NRC to TVA, "Watts Bar Nuclear Plant, Unit 2 – Program for Construction Refurbishment," dated July 2, 2010 [ML101720050].

By letter dated April 6, 2006 (Reference 1) TVA requested the withdrawal of the Construction Permits (CPs) for the Bellefonte Nuclear Plant (BLN), and this request was subsequently granted by the Nuclear Regulatory Commission (NRC) by letter dated September 14, 2006 (Reference 2). As described in TVA's letter dated April 9, 2010 (Reference 3) regarding the key assumptions for the possible completion of BLN construction activities, TVA suspended the Nuclear Quality Assurance Plan (NQAP) at BLN and removed some plant equipment during this period under a commercially controlled investment recovery (IR) program. This suspension remained in effect until March 2009, when TVA submitted Revision 20 of the TVA NQAP that reinstituted the NQAP at BLN. In TVA's August 26, 2008 letter to the NRC (Reference 4) requesting reinstatement of construction permits CPPR-122 (BLN Unit 1) and CPPR-123 (BLN Unit 2), TVA explained that systems and components (equipment) that may have been affected in the course of IR activities would be prohibited from being placed in service without a full evaluation and subsequent restoration or replacement. This commitment is consistent with the Plant Equipment Policy described in Appendix G of the TVA NQAP which currently applies to the BLN site.

The purpose of this letter is to provide the NRC Staff with the program that TVA will implement to address the potential effects related to pre-service degradation of the equipment as well as effects associated with the temporary cessation of the TVA NQAP at BLN. During the period that the NQAP was suspended, no activities advancing the construction or completion of the plant occurred. This program is described in Enclosure 1, the BLN Quality Verification Program (QVP). TVA is submitting the BLN QVP to obtain NRC review and approval of this program prior to the potential reactivation of construction activities.

TVA submitted a letter dated April 9, 2010 (Reference 3) that discussed the key assumptions for the possible completion of BLN construction activities. The second key assumption outlined TVA's approach to addressing the temporary cessation in the NQAP. The BLN QVP is consistent with this approach and utilizes appropriate elements of programs already implemented at Watts Bar Unit 1 and Browns Ferry Unit 1, as well as the program currently being implemented at Watts Bar Unit 2. The BLN

QVP is augmented to address conditions and activities specific to BLN. The BLN QVP will be developed and implemented under the current NQAP and:

- Confirm the adequacy of the requisite quality records
- Verify plant fidelity with the design basis
- Reestablish plant configuration management
- Evaluate the potential degradation of plant structures, systems, and components (SSCs), and
- Identify required remediation efforts.

The BLN QVP implements the following specific elements: Quality Assurance (QA) Records Verification, Design Basis Reconstitution and Verification, Replacement Items Verification, and Refurbishment, similar to the elements being implemented at Watts Bar Unit 2. Implementation of these elements will accomplish the objective of restoring BLN SSCs and meet the requirements of the TVA NQAP and related codes and standards, as described in the Plant Equipment Policy established in Appendix G of the TVA NQAP.

The BLN QVP will utilize the physical configuration management baseline effort incorporated into Design Basis Reconstitution and Verification as the primary vehicle for the determination of physical plant status, enhanced by walk-down tasks that identify the potential for impacts resulting from the temporary cessation of the NQAP and subsequent IR. The program includes this physical configuration management baseline effort and elements of the other programs mentioned above in the following manner:

- QA Records Verification will further assess the potential for missing, damaged or degraded records that may have resulted during the temporary cessation of the NQAP.

- Design Basis Reconstitution and Verification will coordinate design basis verification activities as well as establish the physical configuration baseline for installed equipment, including the impact of actions occurring during the temporary cessation of the NQAP.

- Replacement Items Verification will establish the integrity of installed safety-related parts and maintenance activities conducted during the temporary cessation of the NQAP.

- Refurbishment will evaluate and remediate identified pre-service damage or degradation of installed equipment, including concomitant damage from IR activities performed during the temporary cessation of the NQAP.

These four elements were previously discussed in TVA's key assumptions letter (Reference 3). The methods that will be used to implement them are consistent with the summary discussions presented in that letter. Enclosure 1 further explains the scope of the BLN QVP and the associated four elements.

The scope of the BLN QVP is limited to SSCs that are safety-related or important to safety (hereafter referred to as safety-related). Non-safety-related SSCs will undergo a similar process, prior to construction completion, using elements of this program and/or separately developed programs to ensure consistency with design requirements. The BLN QVP will include a structured and rigorous series of walk-downs, inspections, and testing that will verify and document consistency between engineering documentation and field installation, ensure conformance of installed components with applicable codes and standards, and ensure that the material condition of the plant meets design standards. These walk-downs will be performed by personnel who are appropriately qualified and trained and will include specific instructions to address potential effects related to the temporary cessation of the NQAP and subsequent IR activities.

Consistent with current QA requirements implemented under the TVA NQAP at the BLN site, potential deviations or noncompliances identified during walk-downs, inspections, or testing will be documented, evaluated, and tracked within the design process or entered in the BLN Corrective Action Program (CAP). Identified deviations or noncompliances that are determined to be outside the scope of this program will be evaluated for reportability in accordance with 10 CFR 50.55(e) or 10 CFR 21, as applicable. Deficiencies will be remediated through refurbishment or replacement in a manner similar to the Refurbishment Program at the Watts Bar Unit 2 completion project, augmented to address activities and conditions specific to BLN.

In addition to the normal internal and external review process for similar programs, TVA has sought the review and concurrence of ASME Code-related portions of this program by a representative of HSB Global Standards, acting as the Authorized Inspection Agency (AIA). These Code-related activities include the evaluation, repair/replacement, and future use of ASME Code components as well as the applicability of ASME Code Case N-520-3 to the Bellefonte site. Additionally, TVA has submitted an inquiry to the ASME Section III Code committee seeking clarification related to the applicability of Code Case N-520-3 to the Bellefonte site and expects an official response during the May 2011 ASME Section III Code Committee meeting (Enclosure 2).

BLN QVP activities undertaken during the period of deferral, including inspections, tests and nondestructive examination, will be controlled to ensure consistency with the provisions of the NRC Policy Statement on Deferred Plants (GL 87-15) and compliance with the TVA Nuclear Quality Assurance Plan, as well as to ensure no activities will further plant construction. These activities will be fully integrated and implemented through approved site procedures that are issued prior to the conduct of the activity. In addition to addressing concerns related to pre-service condition, successful implementation of the approved QVP will adequately assess the potential for and correct identified adverse impacts from the temporary cessation of the NQAP at BLN.

Based upon achievements to date, TVA has demonstrated its ability to develop and implement successful programs to address plant recovery issues similar to this temporary cessation of the NQAP in support of the overall design basis configuration management program. Finalization of engineering design activities will follow the NRC's approval of the BLN QVP, with full implementation of the program occurring prior to completion of construction, should such a decision be approved by the TVA Board.

Enclosure 1 of this letter provides the BLN QVP and describes the implementation of each of the four elements described above, with specific emphasis on how each will address the temporary cessation of the NQAP.

Enclosure 2 is TVA's request to the ASME Section III Code Committee for a code interpretaion related to Code Case N-520-3.

Enclosure 3 provides a list of TVA commitments made in this letter. If you have questions concerning this matter, please call Zackary W. Rad at (256) 574-8265.

Sincerely,

R. A. Hruby, Jr.

Raymond A. Hruby, Jr.
General Manager
Bellefonte Project

Enclosures:

1. TVA's Quality Verification Program for BLN Unit 1
2. TVA request for a code interpretaion related to Code Case N-520-3
3. List of TVA Commitments

cc: See page 6

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Enclosure 1

BLN QUALITY VERIFICATION PROGRAM

1.0 Quality Verification Program Overview

The regulatory history of Bellefonte (BLN) has been one of exemplary performance. During active construction and throughout the period of construction deferral, BLN successfully maintained a high rating under the NRC's Systematic Assessment of Licensee Performance (SALP) Program, and the BLN construction project was specifically excluded in the September 1985 letter issued to TVA under 10 CFR 50.54(f). Throughout the deferral period, NRC continued to conduct regular reviews and inspections and documented that TVA had adequately maintained BLN's lay-up and preservation. However, after withdrawal of the BLN Construction Permits, TVA suspended the Nuclear Quality Assurance Plan (NQAP) and removed some plant equipment under TVA's commercially controlled investment recovery (IR) program. The suspension of the NQAP remained in effect until March 2009, when TVA submitted Revision 20, reinstituting the NQAP at BLN. During the entire deferral period, no construction activities advancing the completion of the plant occurred.

In order to address the potential effects of the temporary cessation of the NQAP, TVA plans to implement a Quality Verification Program (QVP) at BLN having elements that are similar in nature to programs previously employed during the initial licensing of Watts Bar Unit 1, the recovery and restart of Browns Ferry Unit 1, and the program TVA is currently implementing for the Watts Bar Unit 2 construction completion project. The QVP will be developed and implemented under the current TVA NQAP and include basic elements utilizing the requisite quality records, verification of plant fidelity with the design basis, determining current plant configuration including identifying the potential for impacts resulting from the cessation of the NQAP and IR, evaluation of the potential degradation of plant structures, systems, and components (SSCs), and identification of required remediation efforts, augmented to consider BLN specific activities and conditions. The scope of the BLN QVP is limited to SSCs that are safety-related or important to safety (hereafter referred to as safety-related). Non-safety-related SSCs will undergo a similar process, prior to construction completion, using elements of this program and/or separately developed programs to ensure consistency with design requirements. This will result in restoring BLN SSCs to the requirements of the TVA NQAP. The BLN QVP will consist of four basic elements, as follows:

1.1 QA Records Verification

Reviews by TVA and outside consultants have determined that BLN Quality Assurance (QA) Records are being properly stored, maintained, and controlled. The NRC verified these findings in the BLN inspection performed in October 2009 and documented in NRC's Inspection Report 0500043812009601 and 0500043912009601, dated December 2, 2009 (Reference 5). Additionally, a review of ASME records conducted by HSB Global Standards, acting as the Authorized Inspection Agency (AIA),

concluded that there is reasonable assurance that TVA maintained the quality level of documents and records as required by the ASME Section III Division 1 and ASME NQA-1 during the period March 2005 thru October 2009. The location of records is known and records can be retrieved in a reasonable timeframe. In order to further verify that site QA records are complete, retrievable in a timely manner, meet requisite retention requirements, and do not have quality problems (are not technically or administratively deficient), TVA will implement a QA Records Verification task using an approach consistent with that used for the QA Records Program approved for Watts Bar Unit 2 in NRC's letter to TVA dated September 8, 2009 for Watts Bar Unit 2 (Reference 6).

QA Records Verification will identify and correct significant QA record deficiencies resulting from the temporary cessation of the NQAP and ensure that the requisite QA records are complete, retrievable, and meet regulatory requirements.

1.2 Design Basis Reconstitution and Verification

TVA will verify the plant's design baseline in a manner similar to that currently being implemented for WBN Unit 2. Design Basis Reconstitution and Verification will identify and correct inconsistencies between BLN licensing basis documentation and either design basis documentation or the as-found plant configuration.

Additionally, Design Basis Reconstitution and Verification will include, as a part of the configuration management effort, the task of focusing on safety and quality-related equipment that may have had qualified parts replaced with unqualified parts, been degraded due to environmental effects or removed as part of IR activities or other work not controlled under the NQAP, and potential, direct and concomitant damage to adjacent SSCs as a result of the removal effort. Aspects of the QVP walk-downs, including identification of concomitant damage, will be enhanced in that they will be performed by specialized personnel trained to identify attributes specifically related to IR and other work activities occurring during the temporary cessation in the NQAP, as well as the use of processes and procedures specific to the BLN QVP. The walk-downs will verify and document consistency between engineering documentation and field installation, ensure conformance of installed components with applicable codes and standards, and ensure that the material condition of the plant meets design standards.

The other components of Design Basis Reconstitution and Verification will include:

- Licensing verification, to ensure that regulatory requirements and commitments to NRC are captured in the appropriate controlling documents and to establish procedures to maintain compatibility between commitments and controlling documents.

- Design basis verification, to establish system and topical design basis documents that contain or reference appropriate engineering requirements including design basis commitments and to ensure the existence and retrievability of calculations that are technically adequate and consistent with the "safety-related" plant design.

1.3 Replacement Items Verification

Replacement Items Verification will resolve quality and technical problems related to non-qualified replacement items installed in safety-related equipment including those installed after the cessation of the NQAP. TVA has determined that, for certain categories of components, the most effective strategy is replacement or refurbishment, either by the Original Equipment Manufacturer (OEM) or qualified vendor. Equipment that will be refurbished or replaced will be excluded from the Replacement Items review.

TVA will verify plant replacement items, using as a basis the approach approved for Watts Bar Unit 2 in NRC's letter to TVA dated September 9, 2009 (Reference 7). This process will employ a systematic approach starting with program walk-downs to identify the replacement items installed in safety-related equipment after the cessation of the NQAP. The process will be focused on identifying the safety-related systems that were in service after the cessation of the NQAP and then reviewing available TVA non-quality records to determine whether maintenance was performed on these systems. These records will provide a roadmap for further evaluation of acceptability of these parts. If acceptable, these items will be considered in the design process. If not, these items will be replaced with qualified components.

In addition, for items identified as being replaced with no documentation of the replacement, this task will review attributes of the replacement part provided by the walk-downs and determine if these attributes might provide a roadmap for acceptance and, if so, these items will be considered in the design process. If not, these items will be replaced with qualified components.

1.4 Refurbishment

Subsequent to the submittal of the BLN Key Regulatory Assumptions letter (Reference 3), TVA submitted a Construction Refurbishment Program to address the potential for pre-service degradation of installed equipment at

Watts Bar Unit 2 (Reference 8) and NRC has approved this program (Reference 9). TVA has adopted that framework to address similar issues at BLN, and Refurbishment, the fourth element of the QVP, is discussed in more detail in the following sections.

Components requiring evaluation for potential refurbishment or replacement will be identified during program walk-downs to determine general material condition and construction status. Identified deficiencies will be remediated via refurbishment in a manner similar to that currently being implemented through the Construction Refurbishment Program at the Watts Bar Unit 2 completion project.

2.0 Quality Verification Program Integration

The QVP is designed to work in conjunction with the overall design basis configuration management activities (i.e., 10 CFR Part 50 Appendix B Design Control Program) that will be used for the design and construction completion activities. The interfaces between the program elements are as follows:

- Design Basis Reconstitution and Verification will provide physical configuration walk-down results and design basis calculation requirements for the completed plant as inputs to the design activities function and the results will also be used by Replacement Items Verification and Refurbishment, as necessary. Design Basis Reconstitution and Verification will also use the outputs and results of the design activities to support plant completion verification activities, including the determination of additional tests, inspections, or analysis necessary to determine that passive SSCs meet applicable codes and standards.

- Replacement Items Verification will provide the basis for acceptance of installed parts or replacement with qualified components or sub components.

- Refurbishment activities will create or augment QA records and evaluate acceptability of components identified by program walk-downs as potentially requiring repair, refurbishment or replacement. Refurbishment activities will provide necessary inputs to plant design engineering activities.

- TVA's QA organization provides independent oversight of the BLN QVP implementation by performing audits and review of procedures. The QA organization also performs surveillance activities on program output packages to verify that the appropriate QA requirements are satisfied.

Activities related to the physical condition of the plant (walk-downs, inspections, testing) will be performed prior to performing construction activities on a given SSC and will be implemented through BLN procedures that will be developed and controlled in accordance with the requirements of the TVA Nuclear Quality Assurance Plan. Accordingly, results will be evaluated and required actions tracked via the design process or the BLN Corrective Action Program (CAP). This approach is consistent with

TVA's commitment to evaluate the viability of construction reactivation and completion including the impact of equipment age on its continued suitability for use that was outlined in Appendix G of the TVA NQAP. Additionally, TVA will assign a QVP manager to coordinate the activities discussed above and use a project plan, the BLN CAP and Table 1 (Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix) of this enclosure to ensure that required QVP activities are performed at the component level. The Engineering organization will manage and perform most of the elements of this program, with specific responsibilities delineated in the project plan. The Project Support organization will be responsible for the QA Records task.

3.0 Consideration of the Watts Bar Corrective Action Programs

The BLN QVP will include the applicable aspects of the Watts Bar CAPs and Special Programs. Program attributes related uniquely to Watts Bar quality issues will not be incorporated into the BLN program. The BLN program will include additional attributes unique to the BLN physical condition and configuration to assess age-related degradation, the effects of potentially adverse environmental conditions, the impact of IR and the potential for concomitant damage to adjacent SSCs due to IR activities that may have occurred after the cessation of the NQAP.

The Watts Bar Design Baseline and Verification Program was a corrective action program (CAP) designed to address the configuration and technical issues that were identified in the final stages of plant design, construction, and licensing. In addition, the Design Baseline and Verification Program for Unit 2 had to address as-constructed configuration changes resulting from equipment removed for spare part usage on Unit 1 or other plants.

The BLN plant design and construction activities did not exhibit the technical and quality issues identified at Watts Bar. For BLN, Design Basis Reconstitution and Verification is designed to address differences between the as-designed and as-built configurations resulting from equipment removed for spare part usage on other plants during the period of the cessation of the NQAP and from IR activities. The walk-downs and as-built configuration assessment, will establish the current, as-found configuration of the plant, including the use of replacement items that may be unacceptable, degradation due to IR, concomitant damage that occurred during IR and other degradation as a result of the temporary cessation of the NQAP. BLN Design Basis Reconstitution and Verification is also designed to ensure consistency between the design basis and licensing basis during the completion of plant licensing.

The Watts Bar Unit 1 Quality Records Program was a CAP designed to address the technical and quality issues with required records that were identified in the final stages of plant design, construction, and licensing. The Watts Bar Unit 2 program is similar to the Watts Bar Unit 1 program, but uses a sampling approach based on the lessons learned from the Watts Bar Unit 1 program.

The BLN plant design and construction activities did not exhibit the technical and quality issues with required records that were identified at Watts Bar. The BLN QA Records Verification task, using the sampling approach, is designed to verify that the temporary cessation in QA oversight did not result in missing, damaged, or degraded required records and correct identified problems.

The Watts Bar Replacement Items Program was a CAP designed to address technical and quality issues with the suitability for use evaluations for spare parts purchased as commercial grade items.

The BLN project did not exhibit the technical and quality problems with spare parts procurement identified at Watts Bar. BLN Replacement Items Verification is designed to address potential problems affecting spare parts that might exist because of the temporary cessation of the NQAP. It will identify and address spare parts that were installed in safety-related equipment including those installed after the cessation of the NQAP. Since very few safety-related systems were in service during this period, little or no maintenance was performed on these systems, minimizing the opportunity for the installation of unqualified parts. Additionally, this task will also address the potential for parts removal and replacement with no documentation of the activities.

The Watts Bar Construction Refurbishment Program was designed to address the potential for pre-service degradation of active and passive safety-related, quality-related and non-quality-related equipment that will not be replaced or refurbished prior to Unit 2 operation. The program focused on Watts Bar Unit 2 equipment that were not in service for Watts Bar Unit 1 operation or that were in controlled environments resulting from Watts Bar Unit 1 operation.

BLN Refurbishment activities are also designed to address the potential for pre-service degradation of SSCs that will not be replaced. It focuses on equipment required to support BLN Unit 1 operation. BLN Refurbishment activities are designed to address the potential for pre-service degradation of active equipment associated with conditions similar to those at WBN Unit 2 as well as those unique to BLN.

TVA is incorporating lessons learned from the development, review, and implementation of the CAPs from WBN Unit 2. The remainder of this enclosure describes the four elements of the verification program in greater detail.

4.0 QA Records Verification

Reviews by TVA and outside consultants have determined that BLN QA Records have historically been properly stored, maintained, and controlled. NRC verified these findings in the BLN inspection performed in October 2009 and documented it in the NRC's Inspection Report dated December 2, 2009 (Reference 5). Additionally, a review of ASME records Conducted by Hartford Steam Boiler (HSB) Global Standards, acting as the Authorized Inspection Agency (AIA), concluded that there is reasonable

assurance that the documents and records maintained their quality level as required by the ASME Section III Division 1 and ASME NQA-1 during the period March 2005 thru October 2009. Records location is known and records can be retrieved in a reasonable timeframe. In order to further verify that site QA records are still complete, retrievable in a timely manner, do not have quality problems (are not technically or administratively deficient) as a result of the temporary cessation of the NQAP, and are controlled under a 10 CFR 50 Appendix B program, TVA will implement a QA Records Verification task.

To address the specific issue of QA records associated with the temporary cessation of the NQAP and the potential that the IR effort resulted in discrepancies between QA records and plant condition, a significant sample of records associated with items potentially impacted by IR and other activities that occurred during this period will be reviewed. The determination of the adequacy of the associated records will be made with the aid of the historical Engineering Construction Monitoring and Documentation (ECM&D) database. This database has been updated to identify such activities.

TVA will statistically sample completed BLN QA records to ensure their retrievability, storage integrity and condition, and completeness. A sample of ANSI N45.2.9 record types from the current BLN ECM&D database will include records from each discipline and a range of components and activities. Within each of these categories, the sample will be random.

To ensure that these records and all other QA records are properly stored, retrievable, of adequate quality and technically correct, TVA will use a systematic records review process of those ANSI N45.2.9 record types applicable to BLN, and potentially affected by some aspect of cessation of the NQAP or IR. The QA records will include those potentially impacted and relevant to significant programs being performed for BLN. This will consider the attributes as well as record types that are relevant to a given program or population.

Should deficiencies be identified, they will be resolved by one of the following mechanisms:

- Retrieval of information from alternative and/or redundant source documents that attest to, or substantiate, the quality of the feature.
- Use of information generated by BLN programs that provide new or superseding information.
- Use of testing and other performance data.
- Use of re-analysis, re-work, or replacement of the plant feature in accordance with the current NQAP.

5.0 Design Basis Reconstitution and Verification

Design Basis Reconstitution and Verification will identify and correct inconsistencies between BLN licensing basis documentation and either design basis documentation or the as-found plant configuration. Additionally, Design Basis Reconstitution and

Verification will include, as a part of the configuration management effort, the task of focusing on safety and quality-related equipment that may have had qualified parts replaced with unqualified parts, been degraded due to environmental effects or removed as part of IR activities or other work not controlled under the NQAP, and potential, direct and concomitant damage to adjacent SSCs as a result of the removal effort. This effort to determine physical condition/construction status will assess replaced parts with and without documented evidence of replacement, and the attributes of the replacement item; pre-service condition; the effects of adverse environmental conditions; and the potential for concomitant damage to adjacent SSCs. A significant element of this portion of the QVP will be accomplished through a structured and rigorous series of Program walk-downs. Aspects of these walk-downs, including identification of concomitant damage, will be performed by specialized personnel trained to identify attributes specifically related to IR and other work activities occurring during the temporary cessation in the NQAP, as well as the use of special instructions specific to the BLN QVP. The walk-downs will verify and document consistency between engineering documentation and field installation, ensure conformance of installed components with applicable codes and standards, and ensure that the material condition of the plant meets design standards. Results of these walk-downs will inform, as a matter of process, other elements of the QVP, including Replacement Items Verification and Refurbishment as well as plant engineering design activities.

Design Basis Reconstitution and Verification will ensure that changes to the baseline design effort are captured, tracked and implemented. This will be accomplished by a combination of the use of elements of the QVP, such as walk-downs, and the BLN CAP, such as service requests. Further, the Design Basis Reconstitution and Verification will ensure that design basis documents (DBD's) are current, complete, accurate, capture regulatory requirements and commitments, and are reconstituted to reflect regulatory and industry guidance for content. This program, through the engineering design process, will ensure that configuration control drawings (CCD's) establish the physical configuration baseline when BLN construction is complete.

By the nature of the activities included in the program, Design Basis Reconstitution and Verification provides a vehicle for many of the tasks required for the QVP and will address the potential conditions that could exist at BLN due to the combined effects of unfinished plant design and construction as a result of intermittent engineering and construction activity; controlled activities to remove plant components for use as replacement parts for other projects; and physical configuration changes during the period of cessation in the NQAP. Thus, while the primary element of this program that will implement the QVP activities is configuration management, each of the elements of the program provides tools to resolve the above issues, should they exist. These elements are:

Licensing Verification

The FSAR development plan will be integrated with the engineering recovery/completion work efforts and project change management controls. The development process will include compliance verifications and independent reviews to support the final certification requirements of 10 CFR 50.30(a)(4) and 10 CFR 50.9.

Regulatory requirements and TVA commitments will be verified to be incorporated into the highest tier controlling TVA or vendor document that implements the requirement. Inconsistencies between licensing basis requirements and implementing documents that are determined to be an adverse condition will be documented and controlled by the design process or the TVA CAP.

Design Basis

The Design Basis activity involves the review of existing criteria contained in either design criteria/requirements documents or system descriptions. The review will assure that these documents contain the licensing basis and engineering requirements that make up the design basis of the BLN. In order to accomplish this review, licensing basis requirements and design requirements will be reviewed by qualified personnel familiar with plant design and categorized as to whether they contain design input associated with plant SSCs, or general design topics.

The Design Basis activity includes the preparation of a new design criteria/requirements document that addresses BLN design basis events. Identified inconsistencies between the licensing commitments/design requirements and the existing criteria that are determined to be an adverse condition will be documented and controlled by the design process or the TVA CAP.

Calculations

Calculation activities include the review of safety-related calculations for technical completeness and the development of calculations necessary to support the safety-related plant design. Calculations that are necessary to establish or support the safety-related plant systems and features will be generated.

Configuration Management

The configuration management activity ensures that the functional configuration of systems that are required to mitigate design basis events are accurately depicted on plant control room drawings and other design documents. Configuration management activities also include the implementation of design control, consistent with TVA's current approach for new construction.

The design control process will be used to develop a set of baseline drawings and documents that will become the new drawings of record, replacing the former as-designed and as-constructed versions of the drawings. As construction is completed, these drawings and documents will be converted to Configuration Control Drawings

(CCDs). A subset of these documents will be identified as the control room drawings. Portions of the CCDs that are required to mitigate design basis events will be verified to match plant functional configuration by walk-downs or testing. Systems and components that cannot be confirmed through walk-downs (for example electrical circuits represented on schematics) will be tested and evaluated in order to ensure functional performance consistent with the drawings.

Program Walk-downs

As indicated in Section 1.2, Design Basis Reconstitution and Verification will include the tasks that focus on safety-related SSCs that may have: had parts replaced with unqualified parts; been degraded due to environmental effects; had equipment removed as part of IR; or, been affected through direct or concomitant damage as a result IR. This task will focus on physical condition/construction status and include guidance that addresses concerns associated with the cessation of the NQAP and IR. As previously mentioned, the QVP will include, as an element of the Design Basis Reconstitution and Verification, a structured and rigorous series of walk-downs that will verify and document consistency between engineering documentation and field installation, ensure conformance of installed components with applicable codes and standards, and ensure that the material condition of the plant meets design standards. These walk-downs will be divided into a series of sequential and overlapping activities each with a specific scope and designated focus. The scope (breadth and depth) will be determined through a structured decision-making process while the focus will be developed through an analysis of the potential effects of each degradation mechanism and resulting attributes. These program walk-downs will also inform other elements of the QVP including Replacement Items Verification and Refurbishment as well as plant design completion activities.

Program related walk-down activities will include both passive and active SSCs. Passive SSCs will be inspected for program related attributes, included in Table 1, and the results will inform the engineering design process. The engineering design process will determine the scope of additional tests, inspections or analysis necessary to ensure that these SSCs meet applicable codes and standards. For example, a degraded base-plate would be identified during the walk-down phase and necessary subsequent tests, inspections, analysis and repair activities would be identified through the engineering design process. Design documentation would then be issued containing repair or replacement instructions and limitations. This would be followed by a post-installation inspection per design requirements for a repair or replacement of the base-plate with a configuration that satisfies design requirements. Active components will be included in these walk-downs with pre-service condition concerns resolved through Refurbishment activities.

TVA will use a graded approach to determine the necessary scope of walk-downs that will address attributes necessary to satisfy the elements of the QVP including the potential effects of work that may have occurred in the absence of QA controls. Initial determinations will be based on review of historical work control documentation that was

generated prior to and during the period of cessation of QA controls. Additionally, TVA will utilize documentation from the extensive review performed under a vendor QA program that began in preparation for CP reactivation in the 2008 to 2009 timeframe that identified plant conditions due to IR activities and provided documented and verified evidence of plant conditions in the areas where IR was known to have taken place. The QVP will go beyond those reviews. For safety-related systems, portions of SSCs for which objective evidence (work documents, previous inspections, or obvious visual indications) demonstrates that work was performed in the absence of QA controls, as well as those in accessible areas during the period of cessation in QA controls will undergo the highest level of scrutiny. SSCs for which there is no objective evidence (work documents, previous inspections, or obvious visual indications) that demonstrates that work was performed in the absence of QA controls and these portions of the SSCs are not readily accessible via normal means (unassisted) and thus, work occurring in the absence of QA controls is not considered credible, will be subject to a thorough though less comprehensive review. However, if evidence is discovered during this inspection that indicates work was performed in the absence of QA controls, the scope and depth of the walk-down will be expanded to address the area as having been impacted by work that was performed in the absence of QA controls. A similar approach will be used for non-safety-related systems.

The logical steps used to determine the necessary scope of each walk-down will be based on the potential for the presence of effects related to work that was performed in the absence of QA controls. The walk-down scope will be designated by system and area (i.e. pipe chase) and other structural barriers and discontinuities (i.e. walls, ceilings, floors, and mezzanines). Certain exceptions to this process are anticipated due to plant configuration (i.e. piping embedded within structural concrete) and will be considered on a case-by-case basis. In such cases, alternate means of inspection such as NDE will be employed to satisfy inspection criteria necessary to determine pre-service condition. This process will be contained in procedures, guidance and training for walk-down managers, and those individuals responsible for preparing, performing and documenting the walk-down packages and subsequent results.

Safety-related SSCs will receive initial walk-downs consistent with the scope and depth as described below for Level III areas. Additionally, those SSCs that are determined, through the graded approach, to be Level II or Level I areas will undergo additional, specialized, walk-down activities performed by a designated team specially trained in the identification and classification of attributes associated with potential direct and concomitant effects of work performed in the absence of QA controls.

Inspection scope and depth will be assigned by areas that will be determined by zone of influence of IR activities as follows:

- Level I Area – Primary Zone of Influence for removal of equipment via the IR program - Portions of SSCs and those in the immediate vicinity (adjacent to structural boundaries or within a reasonable radius of work area) for which objective evidence (work documents, previous inspections, or obvious visual

indications) demonstrates that work was performed in the absence of QA controls.

Walk-down Scope - Complete circumferential visual inspection of all passive and active components for direct and concomitant effects of work performed in the absence of QA controls[1]

- Level II Area – Secondary Zone of Influence – potentially affected by IR related activities - SSCs along or adjacent to the egress route for equipment removal during IR activities for which objective evidence (work documents, previous inspections, or obvious visual indications) demonstrates that work was performed in the area in the absence of QA controls.

  Walk-down Scope - Visual inspection of all passive and active components, visible by normal and assisted means, for direct and concomitant effects of work performed in the absence of QA controls[1]

- Level III Area - Area not affected by IR activities - SSCs for which there is no objective evidence (work documents, previous inspections, or obvious visual indications) that demonstrates that work was performed in the absence of QA controls but portions of the SSCs are readily accessible via normal means.

  Walk-down Scope - Inspections necessary to satisfy other elements of the QVP (configuration management, design completion activities and pre-service degradation) and programs unrelated to the cessation in QA (i.e. regulatory related programs) will be performed as required with implementing procedures and training programs augmented to provide guidance on the identification of direct and concomitant effects of work performed in the absence of QA controls.[1]

Instructions and training will be provided based on a thorough understanding of the SSCs most likely to be affected by these events and will include increased scrutiny of those SSCs that are potentially more vulnerable to these effects based on location, environment, SSC function or material composition. Examples of items that may be included in the instruction are:

- The possibility of an unexpected temporary load (i.e. due to unauthorized rigging) that would cause damage to mechanical or civil features such as piping, cable tray, conduit, HVAC, tubing and their associated supports during the period of the temporary cessation of the NQAP will be considered during the Program walk-downs.
- Potential deformation of engineered or procured commodities such as electrical boxes, panels, instrument racks that may have experienced local damage in areas where IR, or other activities, are known to have occurred.

[1] In areas where visual inspection is not achievable (i.e. piping encased in concrete), other means of comprehensive inspection, such as robotic, boroscopic or other NDE methods, will be utilized to satisfy inspection criteria.

The scope and depth of walk-downs that will address the potential effects of work that may have been performed in the absence of QA controls will also provide adequate scope and depth for inspection of SSCs for potential pre-service degradation due to age and/or environmental effects. Although the latter will be identified by the initial program walk-downs, certain pre-service degradation mechanisms, particularly those associated with aging and/or environmental effects, will require additional, tests, inspections or analysis (NDE) that will be included in refurbishment activities for active components or determined through engineering design activities for passive components. Program walk-downs will also include examination of equipment and their components to determine if documented and undocumented components and/or subcomponents were installed as replacements. In these cases, the item along with evidence of its identity will be documented during the walk-down and the information provided to the Replacement Items Verification task for evaluation.

The governing documents and implementing procedures for the above processes will identify qualification, independence and training requirements for each task. In particular, walk-down procedures will provide qualification and training requirements for walk-down personnel, including an awareness of the potential for instructions that specify increased rigor. Other project procedures will provide qualification and training requirements for the engineering tasks involving Design Basis Reconstitution and Verification.

6.0 Replacement Items Verification

Replacement Items Verification will resolve quality and technical problems related to non-quality replacement items installed in safety-related equipment including those installed as a result of the lack of QA controls and oversight during the period of cessation of the NQAP. A systematic process will be used to identify these replacement items as an element of the program walk-downs previously described as well as a comprehensive review of plant records. The process will focus primarily on safety-related systems that were in service during the period of cessation of the NQAP and involve a review of available TVA non-quality records to determine what system status changes occurred and whether maintenance was performed on safety-related systems that were in service. During the period of cessation of the NQAP, BLN remained a TVA owned and controlled site that was governed by TVA procedures that produced non-quality records (e.g., work authorizations, directions, tag out hold orders and warehouse accounting transactions). These records are considered reasonable to establish evidence of work performed. This documentation of work performed on safety-related systems provides input and guidance for further investigations and evaluations to potentially qualify the item. These further investigations will be accomplished as part of the design process.

The scope for the evaluation of replacement items installed on safety-related systems is limited, since the majority of safety-related systems were not in service during the cessation period of the NQAP and would not have been subject to corrective or preventive maintenance work. The objective of the task is to ensure that replacement parts installed into safety-related SSCs are consistent with their qualification

requirements and that the capability of the SSCs to perform their intended safety functions is maintained. Otherwise, the unsatisfactory replacement part will be removed and replaced with a replacement part meeting the applicable requirements.
As indicated in the discussion of walk-downs to establish current configuration, there is the possibility that items were replaced with no documentation. Once identified, these parts will be evaluated for replacement or potential future use based on verification of an acceptable pedigree. The Replacement Item task will evaluate the information provided and determine if there is a path to acceptance and, if there is, the information gathered will be used in the design process for a final determination.

7.0 Refurbishment

Refurbishment activities apply only to active safety-related, quality-related and non-quality-related equipment already installed or purchased. BLN Refurbishment activities will resolve the potential for pre-service damage or degradation to installed equipment, including direct and concomitant damage from IR activities performed during the period of cessation of the NQAP and include, as necessary, additional inspections / evaluations, refurbishment or replacements, and system testing to ensure the plant meets its original licensing, design and equipment specifications. Equipment that will be refurbished will be excluded from the Replacement Items review.

The remaining safety-related and quality-related SSCs, including those items receiving the additional focus described in Section 5.0, will be inspected / evaluated for pre-service degradation to ensure that the item is capable of meeting its design specifications, vendor function and applicable Code requirements. Equipment found to be unacceptable will be replaced or considered for refurbishment.

Refurbishment will be conducted in accordance with site implementing procedures or vendor specifications to restore a component to like-new condition. Criteria will be provided for the various types of inspections / evaluations for each type of equipment or component. A similar process will be followed for non-quality-related equipment.

In general, refurbishment will involve inspections, cleaning, flushing, lubrication, replacement of shelf-life-limited parts (e.g., gaskets, packing, elastomers, etc.) and testing. In some cases, it may be more economical to replace whole components rather than refurbish sub-parts of a component. Consideration will be given to specific engineering requirements, such as environmental qualification, when establishing the refurbishment activities required for specific components. These activities will be governed by BLN specific project procedures that meet the requirements of the NQAP, Appendix G and that consider the QVP. For an active component such as a safety-related pump, the program would include using the Original Equipment Manufacturer (OEM), where feasible, and taking the following actions:

- Review and replacement of soft material (e.g. gaskets)
- Evaluation of impeller, rotor, housing, etc. with needed repairs/ replacement of parts

- Resolution of vendor material/ design conditions (e.g. Part 21)
- Receipt of updated vendor manual documenting material changes of component, including maintenance requirements and operating parameters
- Resolution of potential subcomponent quality issues
- Receipt of pump with certificate of compliance to the vendor's Appendix B program.

This program will include all active components required to operate BLN Unit 1, including Unit 2 equipment required for Unit 1 operation, and provide a basis for the population that must be included in the QVP. The equipment will then be characterized using the criteria contained in Table 1 of this enclosure and BLN procedures and a determination made as to whether a refurbishment / replacement or an inspection / evaluation will be performed. BLN procedures will provide guidance for the inspections to be performed and the expected degradation mechanisms. The program consists of five steps: (1) identification, (2) classification, (3) inspection/evaluation, (4) refurbishment/replacement, and (5) component/system testing. The details of this process are described in the sections that follow.

Identification

Identification of equipment will be accomplished using BLN design documentation. The identified equipment will be documented by a unique equipment identifier (UNID) in an equipment matrix / form in accordance with approved procedures. Some plant features (e.g., piping / tubing, pipe supports, conduit / conduit supports, concrete, coatings, etc) do not have UNIDs but will be identified by Engineering and addressed on a commodity type basis. The process of identifying the affected equipment will be documented via program implementing procedures. Equipment / components to be replaced are then excluded from the scope of the inspection process since no pre-service degradation could have occurred after replacement or refurbishment.

Classification

The equipment / components will be classified by functional categories (e.g. structures, pumps, motors, valves, chillers, piping, pipe hangers, transmitters, controllers, etc.), as shown in Table 1. For those items that do not have UNIDs (e.g., piping / tubing, pipe supports, conduit supports, concrete coatings, etc.) the commodity type has been used. The category assignments for safety-related and quality-related commodities are documented in the equipment category matrices grouped for civil components / structures, electrical equipment / components, I&C equipment / components and mechanical equipment / components. Other commodity categories may be added as deemed necessary by Engineering.

Inspection / Evaluation

Due to the lengthy construction deferral period, components that typically would have been installed, tested, and placed in service could have aged to the point where refurbishment to a like-new condition may be warranted.

Qualified personnel will be utilized to perform checks and verifications for the refurbishment scope of work. The required qualifications will be included in the Refurbishment procedure or a reference provided in that procedure to the appropriate requirements. Applicable quality records will be maintained by the organizations performing inspections and / or work.

Refurbishment activities are those activities performed to assure a component functions as designed. Refurbishment activities typically:

- Are intrusive for active components.
- Do not impact the interfaces with the system the components are installed in (other than disconnect and reconnect).
- Are aimed at assuring functionality of a device
- Frequently involve replacement of non-metallic parts of active components to assure functionality and system integrity.
- Are performed by personnel trained to perform the work.

For equipment that will be refurbished, the licensing / design specifications and vendor technical documents will be used along with program implementation procedures to ensure the equipment is capable of meeting its original licensing /design functional requirements.

The BLN Refurbishment activities and the guidance provided in Table 1 are modeled after the Watts Bar refurbishment program. The inspections / evaluations for each category will be tracked via either the matrices created by program implementation procedures for components having UNIDs or by Engineering Reports for components not having specific UNIDs. QA will perform oversight of this process in accordance with site procedures. For equipment that will be inspected / evaluated, potential pre-service degradation mechanisms have been identified based on material types, equipment / component locations, conditions experienced since original installation (e.g., dry or wetted), and equipment / components functional status (i.e. active or passive). The items included in these inspections will be based on the scope identified early in the design process and included in walk-down packages. The mechanisms and associated recommendations for inspections / evaluations will be provided in Table 1 with additional guidance provided in BLN procedures. TVA Engineering concurrence will be documented for the final scope of activities performed for each category of equipment. Table 1 is currently modeled after the WBN Unit 2 Inspection Matrix, and while it is not expected to change significantly, some modifications are anticipated as the program is implemented.

As implemented by the engineering programs, the material types will be established based on direct observation and / or existence of a Bill of Materials. The equipment locations will be as shown on issued plant drawings.

The determination of wetted versus dry will be based upon a review of the system construction, operational history, location, and layout with consideration for the potential for water stagnation or collection. If evidence of wetting is confirmed, the component will receive further inspection / evaluation.

The inspection activities under the guidelines of the engineering programs will be a combination of actual inspections (e.g., direct visual, boroscope, chemical swipes / analysis, etc.) and component specific testing (e.g., bridge, meggar, hi-pot, etc). These inspections and component tests will be used to establish the current capability of the equipment to meet its design criteria requirements for its specified life.

The inspection matrix for safety-related and quality-related commodities by category (Table 1) contains the specific inspection / test criteria applicable to each pre-service degradation mechanism for the associated equipment / component or commodity type. The specified life can be either the 40 year licensed life of the plant or a shorter approved qualified life. For example, safety-related electrical equipment subject to the 10 CFR 50.49 rule is sometimes qualified to a period shorter than 40 years with required periodic replacement.

Items that do not have UNIDs (e.g., piping / tubing, pipe supports, conduits / conduit supports, concrete, coatings, etc.) will be evaluated by Engineering within the appropriate Engineering processes. Table 1 will indicate whether the category will be inspected, refurbished, or tested during in-service testing; the type of pre-service inspection; and the pre-service degradation mechanism.

Mechanical / Civil components that are comprised of metal components are subject to loss of material, cracking, change in material properties (e.g., reduction of fracture toughness, distortion), fouling and physical damage (i.e. arc strikes, gouges, etc.). Several of these mechanisms are credible for BLN and inspections will include consideration of these. Loss of material will be evaluated for causes such as general corrosion, galvanic action, crevice corrosion, pitting and microbiologically-induced corrosion. Loss of material due to flow accelerated corrosion is only credible for systems that have operated. As indicated in Section 4, the QVP will consider adverse effects due to the lack of proper maintenance or lay-up, and provisions will exist in the inspection/evaluation task of Refurbishment to ensure those effects that may not be visible during Program walk-downs will be considered here. Required refurbishment will be addressed by this task. Fouling and material loss due to microbiologically-induced corrosion will be evaluated based on system boundaries and interfaces, and the potential for wetting from sources such as valve leak through.

Electrical components are comprised of conducting materials (e.g., cables, penetrations, hand switches, terminal blocks and relays) or the associated insulating material. These

components are subject to degradation due to aging (with very little thermal and no radiation effects), contactor oxidation, and surface contamination. BLN electrical equipment is located in areas that to this point in time have not experienced environmental conditions outside the range of normal controlled / ambient environmental conditions and these areas will be maintained in this range until the plant is operated. TVA will address potential cable degradation via a Cable Program that will address known issues for BLN, such as those discussed in previous position papers (sidewall bearing pressure, pull-bys and cable bend radius). In addition, TVA will include attributes in this program that will ensure that potential deviations that may have occurred at BLN, including those during the period of the cessation of the NQAP and IR, will be addressed.

Civil components that are comprised of concrete are subject to pre-service degradation such as material loss (due to freeze-thaw, abrasion or cavitation, elevated temperature, aggressive chemicals, and corrosion of embedded steel and steel reinforcement), cracking (due to freeze thaw, reactions with aggregates, shrinkage, settlement, elevated temperature and fatigue) and change in material properties (due to leaching of calcium hydroxide, aggressive chemicals, elevated temperature, and creep). Program walk-downs will consider conditions that could have occurred during the period of cessation of the NQAP that could lead to the above degradations such as standing water in the presence of concrete cracking. When these are identified, Refurbishment will follow-up with inspections/evaluations.

Program walk-downs of SSCs will look for other potential collateral damage due to various equipment removals made as part of the IR efforts, and when such damage is identified, Refurbishment will inspect and/or test each on a case-by-case basis.

The results of the inspections / tests will be evaluated to determine if the applicable, expected pre-service degradation mechanism has impacted the associated equipment / component. This ensures that the equipment will be capable of meeting its specified life. If the equipment is found not to be capable of meeting its design / licensing requirements, the problem will be entered in the CAP. If an unexpected degradation mechanism is identified, the problem will be further evaluated via the CAP. The results of the evaluation will be documented in accordance with program implementing procedures. Equipment determined to be incapable of meeting its design criteria for its specified life will receive appropriate refurbishment or replacement, as described below.

Refurbishment / Replacement

When inspection and testing is completed, a refurbishment scope evaluation will be prepared for each component in accordance with site implementing procedures. Table 1 will be used as a guide to determine what will be refurbished and the type of refurbishment required. The results of the evaluation could require inspections, cleaning, testing, lubrication, part replacement, and in some cases complete

replacement. Refurbishment may be accomplished via a combination of on-site and off-site activities.

For equipment expected to be accepted based on inspections / evaluation, the equipment will be evaluated for detrimental pre-service degradation. If no degradation is found, the equipment will be documented as acceptable and no further action is required. If unacceptable degradation is present, the equipment will be refurbished or replaced to ensure it will be capable of meeting its licensing/design function. Replacement items will be procured using current design criteria. If no refurbishment is determined to be required for safety-related and quality-related components, then the basis for that decision will be documented.

Separately, Engineering will evaluate commodities / features that do not have UNIDs and will recommend accept-as-is, refurbishment, or replacement, as appropriate, based on engineering evaluations performed for the commodity group. The inspections performed to support refurbishment / replacement for quality-related seismic II / I commodities will consider pre-service degradation mechanisms related to the seismic II / I characteristics of the commodity. The commodity evaluations will be performed and documented in accordance with program implementation procedures.
If an unexpected degradation mechanism is identified during refurbishment, this will be identified and further evaluated via the CAP. Complete component replacement (like for like or design issued) will not require engineering or program owner approval when specified in lieu of refurbishment.

Component / System Testing

Prior to Unit 1 operation, industry standard or special component tests will be performed consisting of actions such as motor bumps for rotation, instrument calibrations, flushing, and functional testing of individual components (i.e., air operated valves, motor operated valves, electrical motors, logic scheme checks, etc). The tests are intended to demonstrate compliance with component specific specifications and requirements. Portions of the Preoperational Test program, such as system flushes, system hydros, and other system preoperational test performed in accordance with NRC Regulatory Guide 1.68 further serve as the confirmation of the component's capability to meet its licensing/design specification requirements.

Component / System Status Control

Earlier versions of the TVA NQAP allowed preventive maintenance to be terminated on selected equipment and to allow that equipment to be entered into the CAP as "deferred equipment." TVA procedure controls prohibited and will continue to prohibit "deferred equipment" from being used in nuclear safety-related applications without further evaluation and having been fully restored or replaced. SSCs that have been affected by IR activities will likewise be entered into the CAP and prohibited from being returned to service without evaluation and having been restored or replaced. Upon completion of the equipment inspections and evaluations and associated refurbishments, equipment

will be maintained in a controlled lay-up and in a preventative maintenance program that is integrated with the overall construction completion activities.

ASME Section III Special Requirements

Repair or replacement of ASME Section III components, items, material and supports (hereafter referred to as "components") will require reference to the original Code Data Report (ASME Form N-5, partial N-5, NPV-1, or N-1 or others as applicable). For ASME Section III components, the scope of work must be reviewed to determine whether the work includes ASME Section III activities. ASME Section III activities are generally limited to repair by welding or replacement of pressure boundary components. Refurbishment of pressure boundary components will require Quality C (QC) review. Only the ASME Section III work will require Authorized Nuclear Inspector review. Mechanical disassembly and reassembly to replace gaskets, seals, and bearings are not considered ASME Section III activities. Although refurbishment of ASME Section III components will require QC review, only the ASME Section III work requires Authorized Nuclear Inspector review. Generally, component disassembly for inspection and restoration activities must be at the component designed disassembly points (i.e., bolted or flanged surfaces). The ASME Section III repair/replacement work shall be documented on an ASME Data Report by the ASME Certificate Holder. For components with OEM Data Reports a supplement to the Data Report may be prepared.
TVA intends to utilize the following ASME Section III Codes of Record for completion of BLN Unit 1:

1. Code of Record for ASME piping systems other than NSSS is ASME Section III 1974 Edition through Summer 1974 Addenda
2. Code of Record for NSSS Components and Piping Supplied by Babcock and Wilcox is ASME Section III 1971 Edition through Summer 1973 Addenda
3. Code of record for Supports is ASME Section III 1974 Edition through Winter 1975 Addenda (NF).

In addition, it is anticipated that Code Case N-520-3 section {f } will be utilized as the basis for reclamation of the Owner's Certificate and development of the owner's ASME QA manual. These codes will be used as the basis for design and component validation, as well as the verification of as-installed components. All aspects of the ASME Section III Code will be followed to obtain applicable N-Stamping of the facility.

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
Civil							
Supports	Passive	Structural Steel	N/A	N/A	Inspect	1) Visual Inspection	1) Physical Damage, Arc Strikes, Corrosion (pitting, rust)
		Welds	N/A	N/A	Inspect	1) Visual Inspection	1) Physical Welds Damage, Arc Strikes, Corrosion (pitting, rust)
		Anchor Bolts	N/A	N/A	Inspect	1) Visual Inspection	1) Physical damage or corrosion
		Concrete	N/A	N/A	Inspect	1) Visual Inspection	1) Physical damage (spalling or cracking)
		Grout	N/A	N/A	Inspect	1) Visual Inspection	1) Physical damage (spalling or missing)
		Unistrut	N/A	N/A	Inspect	1) Visual Inspection	1) Physical Damage, Arc Strikes, Corrosion (pitting, rust)
		Base Plate	N/A	N/A	Inspect	1) Visual Inspection	1) Physical Damage, Arc Strikes, Corrosion (pitting, rust)
		Manufactured component (i.e. Springs, pipe clamps, struts, spring cans)	N/A	N/A	Inspect	1) Visual Inspection	1) Physical Damage, Arc Strikes, Corrosion (pitting, rust)
Snubbers	Active	N/A		N/A	Refurbish / Replace		
Structural Steel	Passive	Platforms	N/A	N/A	Inspect	1) Visual Inspection	1) Physical Damage, Arc Strikes, Corrosion (pitting, rust)
		Building Steel	N/A	N/A	Inspect	1) Visual Inspection	1) Physical Damage, Arc Strikes, Corrosion (pitting, rust)
		Miscellaneous Steel	N/A	N/A	Inspect	1) Visual Inspection	1) Physical Damage, Arc Strikes, Corrosion (pitting, rust)

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Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
		Welds	N/A	N/A	Inspect	1) Visual Inspection	1) Physical Damage, Corrosion (pitting, rust)
		Bolting	N/A	N/A	Inspect	1) Visual Inspection	1) Physical damage or corrosion
Concrete	Passive	Floor Slabs	N/A	N/A	Inspect	1) Visual Inspection	1) Physical damage, cracks, or spalling
		Walls	N/A	N/A	Inspect	1) Visual Inspection	1) Physical damage, cracks, or spalling
		Concrete Structures	N/A	N/A	Inspect	1) Visual Inspection	1) Physical damage, cracks, or spalling
		Pads	N/A	N/A	Inspect	1) Visual Inspection	1) Physical damage, cracks, or spalling
		Rebar	N/A	N/A	Inspect	1) Visual Inspection	1) Physical damage, or corrosion
		Foundations	N/A	N/A	Inspect	1) Visual Inspection	1) Physical damage or spalling
Doors & Hatches	Active	Doors (manual opening)	N/A	N/A	Inspect	1) Visual Inspection	1) Damaged or corroded
		Doors (Solenoid Operated, Motor Operated)	N/A	N/A	Refurbish / Replace	1) Visual Inspection	1) Damaged or corroded
		Hatches	N/A	N/A	Refurbish /Replace	1) Visual Inspection	1) Damaged or corroded
		Blowout Panels	N/A	N/A	Refurbish /Replace	1) Visual Inspection	1) Damaged or corroded
		RR Bay Hatches	N/A	N/A	Refurbish /Replace	[redacted]	
		Roll-up Doors	N/A	N/A	Refurbish /Replace		
		Gates	N/A	N/A	Refurbish /Replace		

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
Seals	Passive	Blowout Door Seals	N/A	N/A	Refurbish / Replace	1) Visual Inspection 2) Hardness inspection	1) Physical damage 2) Organic material aging
		Expansion Joints	N/A	N/A	Refurbish / Replace	1) Visual Inspection 2) Hardness inspection	1) Physical damage 2) Organic material aging
		Door Seals	N/A	N/A	Refurbish / Replace	1) Visual Inspection 2) Hardness inspection	1) Physical damage 2) Organic material aging
Cranes	Active	N/A	N/A	N/A	Refurbish /Replace		
Tendons	Passive	Tendons	Dry	N/A	Inspect	1) Visual Inspection	1) Damaged or corroded
			Subject to Wetting	N/A	Inspect	1) Visual Inspection 2) UT or MT	1) Damaged or corroded 2) Stress corrosion cracking
Electrical							
Battery	Active	N/A		N/A	Replace		
Breaker	Active	Molded Case	N/A	N/A	Replace		
		Switch Gear	N/A	N/A	Refurbish / Replace		
Cable	Passive	Cable	ERCW Duct	Replace	Replace		

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
			Above Ground	Cable Program	Cable Program		
		Cable (Low Voltage Control and Power)	N/A	Cable Program	Cable Program		
		Cable (Shielded Instrument)	N/A	Cable Program	Cable Program		
		Cable (Multi Axial)	N/A	Cable Program	Cable Program		
Charger, Battery	Active	N/A		N/A	Refurbish / Replace		
Blocking Diode (Relaying)	Active	Diode	N/A	N/A	Replace		
Contactor	Active	MCC Bucket		N/A	Refurbish / Replace		
		Miscellaneous		N/A	Refurbish / Replace		
Disconnect	Passive	N/A		N/A	Inspect / Refurbish / Replace		
Fuse	Passive	N/A		N/A	Replace		
Fuse Block	Passive	N/A		N/A	Replace		
Hand Switch	Active	N/A		Refurbish / Replace	Refurbish / Replace		

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
Heater	Active	N/A		N/A	Inspect / Replace	1) Inspect for physical damage broken insulators, element insulation/corrosion	1) Physical damage
Motor	Active	Medium Voltage	N/A	Refurbish / Replace	Refurbish / Replace		
		Low 480V	Other	Refurbish / Replace	Refurbish / Replace		
		Low 120V	N/A	Refurbish / Replace	Refurbish / Replace		
Penetration (Electrical)	Passive	N/A		Inspect / Refurbish / Replace		1) Physical damage	1) Physical damage
						2) Inspect for external corrosion	2) Corrosion
						3) Perform internal inspection for corrosion	3) Moisture corrosion.
						4) Perform dielectric test	4) Physical damage
						5) Perform OEM Recommendations	5) N/A
						6) Leak Test	6) Physical damage. Organic material aging.
Relay	Active	Time Delay	Pneumatic	N/A	Replace		
			Electronic	N/A	Replace		
			Electro Mechanical	N/A	Refurbish / Replace		

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
		Protective Relays	Electro Mechanical	N/A	Refurbish / Replace		
			Electronic	N/A	Replace		
		Auxiliary	Electro Mechanical	N/A	Replace		
			Electronic	N/A	Replace		
Seal	Passive	N/A		Replace	Inspect	1) Inspect for physical damage	1) Physical damage
Solenoid	Active	N/A		N/A	Refurbish / Replace		
Solenoid Valve	Active	N/A		Replace			
Splice	Passive	Subject To Submergence	N/A	Replace	Replace		
		Not Subject to Submergence	N/A	Replace	Replace		
Switch Gear Primary Bus	Active	N/A		N/A	Inspect / Refurbish	1) Inspect bus connections for physical damage	1) Physical damage.
						2) Perform micro ohm test from bus to stabs	2) Connection creep. Fastener cracking.
						3) Switches, linkages, contacts, etc. are refurbished per manufacturer	3) N/A
Switchgear Distribution (compartment)	Active	N/A		N/A	Refurbish /Replace	1) Inspect bus for physical damage	1) Physical damage.
						2) Perform micro ohm	2) Connection creep. Fastener cracking.

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
						test from bus to stabs	
						3) Switches, linkages, contacts, etc. are refurbished per manufacturer	3) N/A
Terminal Block	Passive	N/A		Replace	Inspect / Replace	1) Inspect for physical damage	1) Physical damage or corrosion.
						2) Inspect for physical damage.	2) Organic material aging
Transformer	Active	Dry	MCC Control	N/A	Replace		
			Control (Potential)	Inspect / Replace	Replace	1) Inspect for physical damage 2) check for accuracy	1) physical Damage 2) Environmental degradation
			Control (Current)	Inspect / Replace	Replace		
			Large Power	N/A	Refurbish / Replace	1) Inspect for physical damage	1) Physical damage
						2) Perform dielectric, bridge, etc. testing	2) Winding integrity
		Oil Filled	Large Power	N/A	Refurbish / Replace		
Inverter	Active	N/A		N/A	Replace		

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
Instrumentation and Controls							
Circuit Card/ Electronic Module	Active	RPS, ESFAS, ECI, PAM, SRMs/IRMs, Process Instrumentation, Loose Parts, Radiation Monitors, Incore Probes, RPI, Annunciators, Process Computer, Hydrogen Analyzer		New / Replace	Replace	[redacted]	
		Power Range Nuclear Instrumentation, Valve Monitor, AFW Turbine Speed Controller		N/A	Replace		
Condensing Pot	Passive	N/A		N/A	Inspect	1) Inspect for physical damage and presence of foreign material on external.	1) Physical damage
						2) Perform random swipes to verify no chemical contamination.	2) Chemical contamination
Controller	Active	Electronic		N/A	Replace	[redacted]	
		Pneumatic		N/A	Replace / Refurbish		
Fiber Optic Component	Active	N/A		N/A	Replace		

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
Diesel Generator	Active	N/A		N/A	Refurbish		
Indicator	Active	Electro Mechanical	N/A	N/A	Replace	1) Inspect for physical damage, bent needles, damaged case, other.	1) Physical damage
						2) Perform calibration, including hysteresis check.	2) Damaged linkages, open coils, damaged bearings, or corrosion on mechanical parts.
						3) Perform OEM recommendations	3) If applicable - lubrication, etc.
		Electronic	N/A	N/A	Replace		
		Mechanical	N/A	N/A	Replace	1) Inspect for physical damage, bent needles, damaged case, and loss of fill fluid, loss of dampening fluid.	1) Physical damage
						2) Perform calibration, including hysteresis check. (If indication is a QA function)	2) Damaged linkages, damaged bearings, corrosion on mechanical parts.
						3) Perform OEM recommendations	3) If applicable - lubrication, etc.
Power Supply	Active	N/A		N/A	Refurbish / Replace		
Radiation Monitor	Active	N/A		Replace	Replace		
Recorder	Active	N/A		N/A	Replace		

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
Sample Pump	Active	Miscellaneous	N/A	N/A	Refurbish / Replace	[redacted]	
		Radiation Monitor	N/A	N/A	Replace		
Sensors (Bellows, Diaphragms)	Active	N/A		N/A	Refurbish / Replace		
Instrument Switch	Active	Electro Mechanical	N/A	Replace	Refurbish / Replace		
		Electronic	N/A	Replace	Refurbish / Replace		
Limit Switch	Active	N/A		Replace	Refurbish / Replace		
Transmitter	Active	N/A		Replace	Replace		
Instrument Air Tubing	Passive	N/A		N/A	Inspect/ Replace	1) Inspect for physical damage and presence of foreign material on external.	1) Physical damage
						2) Perform swipes to verify no chemical contamination.	2.) Chemical contamination

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
Instrument Sensing Line	Passive	N/A		N/A	Inspect/ Replace	1) Inspect for physical damage and presence of foreign material on external.	1) Physical damage
						2) Perform swipes to verify no chemical contamination.	2.) Chemical contamination
Temperature Element	Active	RTD	N/A	New	Replace		
		TC	N/A	N/A	Replace		
Pressure Regulator	Active	N/A		Replace	Replace		
Mechanical							
Fan	Active	N/A		N/A	Refurbish / Replace		
Cooling Coil	Passive	Dry	N/A	N/A	Inspect/ Replace	1) Inspect for external physical damage.	1) Physical damage. Corrosion.
						2) Perform swipes, if stainless.	2) Chemical contamination.
		Wet	N/A	N/A	Inspect/ Replace	1) Inspect for external physical damage.	1) Physical damage. Corrosion.
						2) Inspect for internal physical damage.	2) Physical damage. Corrosion.
						3) Perform swipes, if stainless.	3) Chemical contamination.
Chiller	Active	N/A		N/A	Refurbish / Replace		
Coating (Protective)	Passive	N/A		N/A	Replace		

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
Compressor	Active	N/A		N/A	Refurbish / Replace		
Control Rod Drive Mechanism	Active	N/A		N/A	Replace		
Damper	Active	N/A		N/A	Refurbish / Replace		
Duct	Passive	N/A		N/A	Inspect	1) Perform inspection	1) Physical damage. Corrosion.
						2) Perform swipes, if stainless.	2) Chemical contamination.
Pipe	Passive	Dry	N/A	N/A	Inspect	1) Perform inspection	1) Physical damage. Corrosion.
						2) Perform swipes, if stainless.	2) Chemical contamination.
						3) For piping external to the building, remove insulation and inspect for external corrosion.	3) Corrosion.
		Wetted	N/A	N/A	Inspect	1) Open piping to inspect to determine extent of wetting and for cleaning.	1) Physical damage. Corrosion.
						2) Perform UT of the piping to determine wall thickness degradation.	2) Physical damage. Corrosion.
						3) Perform chemical swipes of internal and external portions of	3) Chemical contamination.

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
						pipe, if stainless steel.	
Orifice	Passive	Dry	N/A	N/A	Inspect	1) Inspect for size, serial number, and orientation.	1) N/A
		Wetted	N/A	N/A	Inspect	1) Perform inspection	1) Physical damage. Corrosion. MIC
						2) Inspect for size, serial number, and orientation.	2) N/A
Filter	Passive	N/A		N/A	Replace		
Gear Box	Active	N/A		N/A	Refurbish /Replace		
Heat Exchanger	Passive	Dry	N/A	N/A	Inspect	1) Inspect for external physical damage.	1) Physical damage. Corrosion.
						2) Perform swipes, if stainless.	2) Chemical contamination.
		Wetted	N/A	N/A	Inspect	1) Inspect for external physical damage.	1) Physical damage. Corrosion.
						2) Inspect for internal physical damage.	2) Physical damage. Corrosion.
						3) Perform swipes, if stainless.	3) Chemical contamination.
Valve Operator	Active	Motor	N/A	Replace	Replace		
		Air	N/A	N/A	Refurbish /Replace		
		Hydraulic	N/A	N/A	Refurbish /Replace		
Pressure Regulator	Active	N/A	N/A	N/A	Refurbish / Replace		

Table 1: Equipment/Component Categories and Safety-Related/Quality-Related Inspection Matrix

Category	Active / Passive	Sub Description	Sub Sub Description	Action Required		Pre-service Inspection	Pre-service Degradation Mechanism
				EQ	SR/QR		
Seal	Passive	N/A	N/A	Inspect/ Replace	Inspect / Replace	1) Inspect for physical damage.	1) Physical damage.
Tank	Passive	Stainless	N/A	N/A	Inspect	1) Inspect for physical damage, corrosion, and chemical attack.	1) Physical damage. Corrosion. Chemical attack.
						2) Perform swipes, if stainless.	2) Chemical contamination.
		Coated	N/A	N/A	Inspect	1) Inspect for physical damage and corrosion. Pull tests.	1) Physical damage. Corrosion. Failed coatings.
Pump	Active	N/A	N/A	N/A	Refurbish / Replace	[redacted]	
Turbine	Active	N/A	N/A	N/A	Refurbish / Replace		
Valve	Active	Unisolatable, Radioactive Fluid, High Pressure, High Temperature (High risk)		N/A	Refurbish / Replace		
		Other Valves (Low risk)	N/A	N/A	Refurbish / Replace	1) Inspect for physical damage.	1) Physical damage. Corrosion.
						2) Check for binding	2) Physical damage. Hardened organic components.
						3) Leak check	3) Hardened packing and organic components.

Enclosure 2

TVA request for a Code Interpretaion related to Code Case N-520-3

Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

Febraury 28, 2011

Matthew L. Vazquez
Secretary, Standards Committee III
ASME Boiler and Pressure Vessel Committee
Three Park Avenue
New York, NY 10016-5990
Phone: (212) 591-8522
E-mail: *Vazquezm@asme.org*

Dear Mr. Vazques:

Outlined below is a request for a Code Interpretaion related to Code Case N-520-3.

Attachment: Code Case N-520-3, Alternative Rules for Renewal of Active or Expired N-type Certificates for Plants Not in Active Construction Section III, Division 1

Purpose. - Code Case Interpretaion

Background. - When trying to apply the alternative requirements contained in paragraph (f) of Code Case N-520-3, it is not clear that the requirements of paragraphs (c) and (e) do not apply. Because of this situation the following Inquiry is being submitted for review and consideration by the Committee.

Proposed Interpretation: III-1-11-XX

Subject: Section III, Division 1, Code Case N-520-3 Alternative Rules for Renewal of Active or Expired N-type Certificates for Plants Not in Active Construction

Question: When applying the requirements in paragraph (f) of the reply is it a requirement of Code Case N-520-3 to meet the requirements of paragraphs (c) and (e)?

Proposed Reply: No

Sincerely,

Raymond (Ray) A. West
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Enclosure 3

List of TVA Commitments

Commitments:

1. TVA will implement a Quality Verification Program at Bellefonte to address the temporary cessation of the TVA Nuclear Quality Assurance Plan for BLN Unit 1.

2. TVA will control Bellefonte Quality Verification Program activities undertaken during construction deferral to ensure compliance with NRC Generic Letter 87-15 and the TVA Nuclear Quality Assurance Plan.

3. TVA will implement a Cable Program at BLN to address potential cable degradation.