Revision 0 Date 7/21/86 PROGRAM DESCRIPTION FOR WATTS BAR DESIGN BASELINE AND LICENSING VERIFICATION PROGRAM Approved by: WBN Project Engineer WBN Site Licensing Manager WBN Plant Manager 9 WBN Site Quality Manager Concurred by: ering Manager of ect Director Nucl gineeking of Director Nuc1 of ear Assurànce Many neering Assurance iote D fector Manager of Nuclear Licensing & Safety 8608260010 860819 PDR ADDCK 05000370 PDR

PROGRAM DESCRIPTION FOR WATTS BAR DESIGN BASELINE AND LICENSING VERIFICATION PROGRAM

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1.0 INTRODUCTION

Implementation of the Watts Bar Design Baseline and Licensing Verification Program confirms that Unit 1 licensing, design, and construction appropriately implements requirements and that WBN Unit 1 is ready for power operation. Results of this program will be evaluated to determine whether a similar program need be developed for Unit 2.

The program has been developed to address identified shortcomings and reconcile design control and licensing verification issues including those raised by:

- o TVA self evaluations
- o Industry experience and reviews
- o Conditions Adverse to Quality (CAQs)
- o Employee concerns
- o Regulatory reviews

The implementation of this program will be structured such that activities required to assure the safe operation of Unit 1 are accomplished <u>prior</u> to fuel loading. Applicable corrective actions from the program will be implemented prior to Unit 1 fuel load.

This program will be implemented by a verification in five major areas.

- Licensing
- Design Bases
- Design
- Construction
- Configuration

To assure the validity of the results of this program it will be performed in accordance with the TVA Quality Assurance Program. This will include documented procedures and substantial overviews provided by Quality Assurance. A dedicated team of Engineering Assurance and Quality Assurance will monitor program development and implementation. In addition, Engineering Assurance will conduct a technical review of two systems which will audit all aspects of the program.



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The objective of the program is to verify that WBN Unit 1 construction satisfies licensing commitments. The program will provide verification that the design has implemented licensing commitments and other appropriate design requirements and the physical plant reflects critical requirements.

The program establishes licensing and design baselines as well as procedures for maintaining these baselines throughout the life of the plant.

The specific objectives for each area of the program are:

Licensing Verification

- o Identify all licensing commitments
- Verify commitments to NRC in docketed correspondence are implemented in TVA documents
- o Adjust WBN licensing documents to reconcile verification results.
- O Enhance methods to maintain licensing documentation compatability to accommodate changes resulting from operations, maintenance, and modifications.

Design Bases Verification

- Verify that design bases documents contain licensing commitments and design requirements.
- o Enhance the use of design bases documentation within the design control process.
- o Adjust design bases documentation to reconcile verification results.

Design Verification

- O Verify that the plant design has implemented design bases requirements.
- Adjust design documentation to reconcile verification results.

Construction Verification

• Verify that the constructed plant has been built in accordance with the plant design.

Configuration

o Establish baseline documents from current plant documentation.



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Verify baseline documents.

o Adjust baseline documents to reconcile verification results.

o Implement and maintain an improved change control system.

3.0 SCOPE

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The program applies to Unit 1 and common facilities.

The licensing verification includes all docketed licensing commitments for WBN. The program will verify that licensing commitments are included in TVA documents used for design, construction, operations, and maintenance that implement the licensing commitments.

The Design Bases verification will encompass all nuclear safety related systems and those portions of nonsafety related systems that could compromise safety related system functions. A listing of those systems will be included in a project procedure.

The Design and Construction Verifications will apply to all nuclear safety related systems and will include a representative sample of all necessary attributes to ensure system/component function. Samples will be prejudiced toward known areas of industry importance as well as identified WBN issues. Samples will also include a representative grouping of areas where no current identified issues exist.

The configuration effort will baseline the functional drawings for all nuclear safety related systems and those portions of nonsafety related systems that could compromise safety related system functions. Verification of configuration will be performed on the baseline drawings. The functional drawings will include the logic diagram, flow and control diagrams, single line drawings, and other schematics affecting system function. A list of these functional drawings will be include consideration from the Q-List. Another group of drawings to be baselined will be identified by engineering and operations and listed in a project specific procedure.

DESCRIPTION OF PROGRAM AREAS

4.0

The program will provide a basis for additional confidence that the construction of WBN unit 1 satisfies licensing commitments. It supplements and confirms the effectiveness of the current licensing, design and construction processes and their resolution of specific technical and programmatic issues. These processes are routinely dispositioning issues raised through self evauations, industry experience and reviews, conditions adverse to quality, employee concerns, and regulatory reviews.

The confidence gained by the Design Baseline and Licensing Verification Program will be confirmed by the close participation of Engineering Assurance/Quality Assurance in an oversight capacity.

An overview of the program activities is provided in Attachment A.

4.1 Licensing Verification

This process will verify that licensing commitments have been incorporated into WBN documents. Discrepancies will be reconciled and reviewed for reportability. This verification will apply to all docketed commitments made by TVA and will include commitments which require implementation by the various elements of the organization. The verification will identify all docketed licensing commitments and determine the TVA document that implements the commitment. A matrix cross referencing the commitment to its implementing document will be established. This matrix will be used as a maintenance tool to ensure consistency between licensing commitments and implementing documents when future licensing or plant changes are made. A computerized FSAR will also be developed as a future enhancement. Implementation would be based upon the availability of an acceptable computer program and not considered a requirement for Unit 1 operation. This will facilitate identifying all pertinent sections of the FSAR when a proposed change to a WBN document is considered.

4.2 Design Bases Verification

A verification of the design criteria/system description will be performed along with the licensing verification. The review of the existing criteria contained in either design criteria documents or system descriptions will determine if these documents contain the licensing commitments, engineering requirements, and operational limitations that make up the design bases of WBN. The criteria will be revised or issued as required to ensure that the design bases for WBN is correct, complete and in accordance with licensing commitments and engineering requirements. Discrepancies will be reconciled and reviewed for reportability. Design control enhancements will ensure that design bases are issued and maintained and will be utilized in the design process.

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4.3 Design Verification

Procedures will be developed to verify the adequacy of design documents (drawings, construction specifications, calculations, and procurement specifications, etc.) for correct implementation of design requirements and commitments contained in the design bases documents. Systems will be identified and design elements will be defined by each discipline using senior technical personnel. The design elements will be selected to address the critical design requirements contained in criteria to ensure that the design intent is met by the design output documents. A sampling procedure will be developed to identify a representative sample of these design elements that will be evaluated across the systems. Discrepancies will be reconciled and reviewed for reportability.

4.4 Construction Verification

Procedures will be developed to verify the adequacy of construction activities that have implemented design requirements. Systems and construction elements will be identified by each discipline using senior technical personnel. The construction elements will be selected to address the critical design requirements that were issued to construction to ensure that the system/component function would meet the design intent. A sampling procedure will be developed to identify a representative sample of these construction elements that will be evaluated across the systems. Discrepancies will be reconciled and reviewed for reportability.

4.5 Configuration

To confirm plant configuration a series of baseline drawings will be developed. These baseline drawings will combine the former "as-design" and " as-constructed" drawings. An engineering evaluation will be performed on all differences identified between "as-designed" and "as-constructed" drawings. Differences will be reconciled and reviewed for reportability. One safety related system will be selected by the project to be walked-down to verify the accuracy of the baseline drawings. A procedure will be prepared and issued for the walkdown which will require the field verification of all the design information that is required to obtain. This will include fluid system functional verification, nameplate data on all equipment, representative dimensional data, and verification of electrical and control device functions.

A new design change process will utilize the Plant Modification Package for changes to baseline drawings. This will ensure continued design and configuration control.

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4.6 Engineering Assurance/Quality Assurance

Two types of quality reviews will be performed during this program. First, on-going surveillance of program activities will be performed by a team of Engineering Assurance and Quality Assurance personnel under the direction of the Site Quality Manager. Second, Engineering Assurance will perform an independent technical review of engineering activities and documentation developed during the program. This independent technical review will commence when the program is approximately 50 percent complete. The review will be performed by taking a vertical slice through two systems.

PROGRAM IMPLEMENTATION 5.0

It is recognized that the success of the program is predicated upon establishment of a strong organization and proceduralized controls under the responsibility of the Project Engineer.

5.1 Organization

The Design Baseline and Licensing Verification Program will be conducted by the project depicted in Attachment B.

5.2 Program Procedures

Procedures which define program requirements will be issued prior to the initiation of the activity. They are listed on Attachment C.

5.3 Conclusions

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The results and conclusions of this program including supporting information will be documented. This documentation will consider. trending of deficiencies found during the implementation of the program in order to consider other corrective actions needed based on generic implications. The conclusions will provide information that the stated objectives of the program have been met.





The program manager and his organization will interface with the existing organizations to accomplish the work required by this program.

Attachment C

PROGRAM PROCEDURES

Responsible Organization/ Procedure No	
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Site Director/SDP-1	o Change Control Board Policy
DNE/WBEP-EP 43.42	o Licensing Verification Procedure
DNE/WBEP-EP 43.43	o Design Bases Verification Procedure
DNE/WBEP-EP 43.44	o Maintenance of Design Criteria and System Descriptions.
DNE/WBEP-EP 43.45	o Procedure for Identifying Commitment and Requirements as Source Information for Watts Bar Design Criteria Development
DNE/WBEP-EP 43.46	o Review of C/R Sheet against Criteria/System Description
DNE/WBEP-EP 43.47	o DNE Change Control Procedure
DNE/WBEP-EP 43.48	o Development of the Baseline Drawing
DNE/WBEP-EP 43.49	o Identification of Functional Drawings
DNC/WBEP-EP 43.50	o Packaging and Control of System Walkdown
DNE/WBEP-EP 43.51	o Design Verification Procedure
DNE/WBEP-EP 43.52 .	o Construction Verification Procedure
DNE/WBEP-EP 43.53	o Identification of Nuclear Safety Related Systems and Other Applicable Systems
DNE/WBEP EP 43.54	o Trend Reports & Handling of Discrepancies
DNE/WBEP EP 43.55	o Training Requirements
DNE/WBEP EP 43.56	o System Evaluation
EA/	o Engineering Assurance Technical Review
QA/	o Engineering Assurance/QA Surveillance Procedure
Westinghouse	o Identification of NSSS Requirements
Impel1	o Identification of Licensing Commitments
Impel1	o Unitization of Licensing Commitments
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