TABLE 17B-2

NUCLEAR QUALITY ASSURANCE MANUAL AS APPLIED TO THE OPERATIONS PHASE (TYPICAL)

(Sheet 6)

Appendix B Criterion	Nuclear Quality Assurance Manual (Part, Section)	Title
	III, 7.2	Corrective Action
	III, 7.3	Common-Mode Failures, Maintenance-Initiated
XVII	I, 2.17	Quality Assurance Records
	III, 4.1	Quality Assurance Records
	III, 4.2	Transfer of Quality Assurance Records from the Office of Engineering and the Office of Construction
XVIII	I, 2.18	Audits
	III, 5.1	Audits
	II, 1.5	Onsite Independent Review

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TABLE 17B-3

PROCEDURES OF DIVISION OF NUCLEAR ENGINEERING

(Sheet 1)

APPENDIX B CRITERION	DNE PROCEDURE OR DOCUMENT	DESCRIPTION	
I	TVA-TR75-1A	The DNE organization is described in section 17.0.	
II	NEP-5.1, Design Output	This procedure directs the development, review, and approval of all documents issued for the use of organizations outside of DNE. This includes the "Q-List" which is a listing of all structures, systems, and components covered by the quality assurance program.	9
	NEP-1.2, Training	This procedure identifies the minimum requirements for training employees in the procedures which govern their work.	
III	NEP-3.2, Design Input	This procedure directs the development, review, and approval of design criteria which identify the design requirements of structures, systems, and components.	
	NEP-3.1, Calculations	This procedure directs the development, review, and approval of design calculations.	

TABLE 17B-3

PROCEDURES OF DIVISION OF NUCLEAR ENGINEERING

(Sheet 2)

APPENDIX B CRITERION	DNE PROCEDURE OR DOCUMENT	DESCRIPTION
	NEP-5.1, Design Output	This procedure directs the development, review, and approval of documents issued for the use of organizations outside of DNE. This includes identification that design input has been correctly translated into output documents.
	NEP-5.2, Review	This procedure describes the controls established to ensure the transfer of information necessary to accomplish engineering, design, and related services. 9
	NEP-3.3, Internal Interface Control NEP-5.3, External Interface Control	These procedures describe the controls established to ensure the transfer of information necessary to accomplish engineering, design, and related services.
	NEP-6.1, Change Control	This procedure describes how design changes, including field changes, are controlled to ensure the changes receive adequate review prior to issue.
IV	NEP-4.1, Procurement	This procedure directs the procurement activity of: identification of requirements, preparation of specifications and requisitions, evaluation of bids, recommendation of awards, administering the technical requirements of the contract, and surveillance of contractor shop activities.

TABLE 17B-3

PROCEDURES OF DIVISION OF NUCLEAR ENGINEERING

(Sheet 3)

APPENDIX B CRITERION	DNE PROCEDURE OR DOCUMENT	DESCRIPTION
V	NEP-1.1, Control of Nuclear Engineering Procedures	This procedure establishes the function of NEPs and the procedures for preparation, review, approval, and control of NEPs.
	NEP-5.1, Design Output	This procedure directs the development, review, and approval of documents, including drawings, issued for the use of organizations outside of DNE.
VI	NEP-1.1, Control of Nuclear Engineering Procedures	This procedure establishes the function of NEPs and the procedure for preparation, review, approval, and control of NEPs. 9
	NEP-1.3, Design Records Control	This procedure describes the process by which design records are created, issued, released, distributed, stored, retrieved, retained, and disposed.
VII	NEP-4.1, Procurement	This procedure directs the procurement of activities of: identification of requirements, preparation of specifications and requisitions, evaluation of bids, recommendation of awards, administering the technical requirements of the contract, and surveillance of contractor shop activities.

TABLE 17B-3

PROCEDURES OF DIVISION OF NUCLEAR ENGINEERING

(Sheet 4)

APPENDIX B CRITERION	DNE PROCEDURE OR DOCUMENT	DESCRIPTION
VIII	N/A	N/A
IX	NEP-5.1, Design Output	This procedure directs the development, review, and approval of all documents issued for the use of organizations outside of DNE. This includes the preparation of construction specifications and certified design specifications.
X	N/A	N/A
XI	NEP-10.4, Test Scoping Documents and Instructions	This procedure describes DNE's responsibilities and involvement in testing performed by DNC, ONP, contractually required tests, and special tests performed as the need arises.
XII	NEP-10.2, Control of Measuring and Test Equipment	This procedure describes DNE Operations Engineering Services responsibilities for control of M&IE.

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TABLE 17B-3

PROCEDURES OF DIVISION OF NUCLEAR ENGINEERING

(Sheet 5)

APPENDIX B CRITERION	DNE PROCEDURE OR DOCUMENT	DESCRIPTION
XIII	NEP-4.1, Procurement	This procedure directs the procurement activities which requires that handling, storage, and shipping requirements be established.
XIV	N/A	N/A
XV	NEP-9.1, Corrective Action	This procedure describes the process of documenting, evaluating, and resolving conditions adverse to quality in the design of structures, systems, or components.
	NEP-4.1, Procurement	This procedure directs the procurement activities which requires that the supplier establish measures to control material, parts, or components which do not conform to requirements.
XVI	NEP-9.1, Corrective Action	This procedure describes the process of documenting, evaluating, and resolving conditions adverse to quality in the design of structures, systems, or components.
XVII	NEP-1.3, Design Records Control	This procedure describes the process by which design records are created, issued, released, distributed, stored, retrieved, retained, and disposed.
XVIII	TVA-TR-75-1A	The DNE requirements for auditing are described in the Topical Report.

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TABLE 17B-4
PROCEDURES OF NUCLEAR CONSTRUCTION

(Sheet 1)

10CFR50 APPENDIX B CRITERION	PROCEDURE NO.	TITLE	SCOPE STATEMENT	
I	OC-QAPP-1	Organization	This procedure states that the Director of DNC, has the overall responsibility for establishing and maintaining sufficient organizations to accomplish all construction activities including quality assurance and quality control.	9
II	OC-QAPP-2	Quality Assurance Program	This procedure states that a formal quality assurance program, including quality control, shall be planned, documented, and executed within DNC.	9 9
II	OC-QAP-2.5	Control of Rework	This procedure assigns responsibility and defines the sequence of actions to be accomplished for obtaining a release and for documenting satisfactory work completion for drilling, chipping, cutting of, or welding to permanent structures or components when such operations are not shown on DNE or contractor drawings.	9 9
III	OC-QAPP-3	Design Control	This procedure states that a program shall be established, documented, and executed to provide assurance that changes from specified design requirements or quality standards initiated by DNC are identified, documented, and controlled.	9 9

TABLE 17B-4
PROCEDURES OF NUCLEAR CONSTRUCTION

(Sheet 2)

10CFR50 APPENDIX B CRITERION	PROCEDURE NO.	TITLE	SCOPE STATEMENT	
III	QC-QAP-3.1	Field Change Requests	This procedure defines the requirements for preparation, control, and documentation of field change requests to be transmitted to the project engineer.	9 9
III	QC-QAP-3.4	QC Control of Cable Routing Design Information	This procedure describes the methods and responsibilities of DNC relating to cable-pulling information.	9
IV	QC-QAPP-4	Procurement Document Control	This procedure states that a program shall be established, documented, and executed to provide assurance that applicable requirements, including quality assurance program requirements, are included or referenced in documents for procurement of material, equipment, and services.	
IV	QC-QAP-4.1	Procurement Document Control	This procedure establishes the method and assigns responsibilities for DNC in the request for and procurement of permanent and nonpermanent plant safety-related items or services. It also assigns responsibility and defines the requirements for transferring items between construction projects or from another TVA division.	9 9

TABLE 17B-4
PROCEDURES OF NUCLEAR CONSTRUCTION

(Sheet 3)

10CFR50 APPENDIX B CRITERION	PROCEDURE NO.	TITLE	SCOPE STATEMENT	
V	OC-QAPP-5	Instructions, Procedures, and Drawings	This procedure states that a program shall be established, documented, and executed to provide assurance that activities affecting quality are prescribed in a preestablished document network.	9
V	OC-QAP-5.1	OC Quality Assurance Policies and Quality Assurance Procedures	This procedure establishes the method and defines responsibilities for the control of DNC procedures. The procedure addresses methods used for the identification of need for a new or revised procedure, collection and research of source information, drafting of procedures, review and approval, and procedure implementation.	9
V	OC-QAP-5.2	OC QA/QC Procedures Change System	This procedure defines the procedure change system used in DNC to change DNC quality assurance procedures.	
V	OC-QAP-5.3	Tracking of Commitments and Requirements	This procedure establishes methods for identifying and tracking of commitments and regulatory requirements and for ensuring that they are implemented.	
VI	OC-QAPP-6	Document Control	This procedure states that a program shall be established, documented, and executed to provide assurance that documents including revisions thereto which prescribe activities affecting quality are controlled.	

TABLE 17B-4
PROCEDURES OF NUCLEAR CONSTRUCTION

(Sheet 5)

10CFR50 APPENDIX B CRITERION	PROCEDURE NO.	TITLE	SCOPE STATEMENT	
VIII	QC-QAPP-8	Identification and Control of Materials, Parts, and Components	This procedure states that a program shall be established, documented, and executed to provide assurance that materials, parts, and components including partially fabricated assemblies are identified and controlled.	9
IX	QC-QAPP-9	Control of Special Processes	This procedure states that a program shall be established, documented, and executed to provide assurance that special processes including welding, heat treating, nondestructive testing, cleaning, and protective coating are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements.	9
IX	QC-QAP-9.2	Standard Weld Repair Procedure for Surface and Edge Defects in P#1 and P#8 Materials	This procedure establishes the method for repairing surface and edge defects in P#1 and P#8 materials which are discovered during fabrication or erection.	9 8
X	QC-QAPP-10	Inspection	This procedure states that a program shall be established, documented, and executed to provide verification that items/activities affecting quality are in conformance with the documented instructions, procedures, and drawings for accomplishing the activity.	9

TABLE 17B-4
PROCEDURES OF NUCLEAR CONSTRUCTION

(Sheet 6)

10CFR50 APPENDIX B CRITERION	PROCEDURE NO.	TITLE	SCOPE STATEMENT	
XI	OC-QAPP-11	Test Control	This procedure states that a program shall be established, documented, and executed to assure and demonstrate that structures, systems, and components (items) will perform satisfactorily in service. Prerequisites shall be provided in written test procedures for the test program and provisions for documenting and evaluating test results shall be identified.	9
XI	OC-QAP-11.1	Construction Testing	This procedure assigns responsibilities and identifies the DNC QA program requirements for construction testing of safety-related structures, systems, and components (items) of unlicensed nuclear units.	9
XII	OC-QAPP-12	Control of Measuring and Test Equipment	This procedure states that a program shall be established, documented, and executed to provide assurance that tools, gauges, instruments, and other inspection, measuring, and testing equipment and devices used in activities affecting or evaluating quality are of proper range and type with accuracy necessary to verify conformance to established requirements. Control measures shall not be employed for rulers, tape measures, levels, and other such devices if commercial quality equipment provides adequate accuracy.	9

TABLE 17B-4
PROCEDURES OF NUCLEAR CONSTRUCTION

(Sheet 7)

10CFR50 APPENDIX B CRITERION	PROCEDURE NO.	TITLE	SCOPE STATEMENT	
XIII	OC-QAPP-13	Handling, Storage, and Shipping	This procedure states that a program shall be established, documented, and executed to control the handling, storage, and shipping of material and equipment to prevent damage and deterioration.	9
XIV	OC-QAPP-14	Inspection, Test, and Operating Status	This procedure states that a program shall be established, documented, and executed to identify the status of inspections and tests performed on items and the operating status of structures, systems, and components during construction.	9
XV	OC-QAPP-15	Nonconforming Materials, Parts or Components	This procedure delineates the responsibilities and requirements to be contained in procedures to assure that items which do not conform to requirements are prevented from inadvertent use or installation. The identification, segregation, and disposition of non-conforming items is documented and controlled.	9

TABLE 17B-4
PROCEDURES OF NUCLEAR CONSTRUCTION

(Sheet 8)

10CFR50 APPENDIX B CRITERION	PROCEDURE NO.	TITLE	SCOPE STATEMENT	
XV	QC-QAP-15.1	Reporting and Correcting Nonconformances	This procedure assigns the responsibility and defines the sequence of actions for the systematic control (identification, segregation, and disposition) of nonconformances and verification of corrective action to resolve nonconformances. This procedure applies to all activities, services, and items within the scope of the DNC quality assurance program.	9 9
XVI	QC-QAPP-16	Corrective Action	This program procedure delineates the responsibilities and requirements to be contained in procedures to assure that the corrective action program for conditions adverse to quality (CAQ), provides for the evaluation of CAQs for significance and notification to the licensing organization and, where indicated; for root cause, generic implication, and action required to prevent recurrence. This program procedure also delineates the responsibilities and requirements for performing trend analysis.	9 8 9 8

TABLE 17B-4
PROCEDURES OF NUCLEAR CONSTRUCTION

(Sheet 9)

10CFR50 APPENDIX B CRITERION	PROCEDURE NO.	TITLE	SCOPE STATEMENT	
XVI	OC-QAP-16.1	Evaluation of Nonconforming Condition Reports	This procedure is applicable to evaluation of Nonconforming Condition Report (NCR) to determine if they represent a significant condition adverse to quality (CAQ). For those NCRs which do represent asignificant CAQ, the procedure requires the determination of root cause, generic implication, and action required to prevent recurrence. It further has provision for distributing, revising, and closing of NCRs.	9 8
XVI	OC-QAP-16.3	Licensing	This procedure assigns responsibility for furnishing input to Nuclear Safety and Licensing on 10 CFR 50.55(e)/10 CFR 21 reports and NRC requested responses.	9
XVI	OC-QAP-16.5	Trend Analysis	This procedure establishes the requirements for DNC Trend Analysis (TA) Program. The TA program is designed to monitor the quality level of operations and activities which must be performed with a minimum of error to ensure that overall plant quality and safety are maximized and plant construction costs are minimized.	8
XVI	OC-QAP-16.6	Deviation Report Responses	This procedure establishes methods for responding to quality assurance Deviation Reports.	9

TABLE 17B-4
PROCEDURES OF NUCLEAR CONSTRUCTION

9

(Sheet 10)

10CFR50 APPENDIX B CRITERION	PROCEDURE NO.	TITLE	SCOPE STATEMENT	
XVI	OC-QAP-16.7	Quality Bulletins	This procedure assigns responsibilities and establishes methods for informing DNC organizations of identified quality problems that may affect them. The procedure is applicable to determining when and how projects are to be notified of potentially generic problems and what project responses are required.	9
XVI	OC QAP-16.8	Stop Work	This procedure establishes methods for stopping activities that are suspected of having the potential to adversely affect the safe operation of a nuclear facility.	9
XVI	OC-QAP-16.9	Escalation of Responsibility for Resolution of Conditions Adverse to Quality	This procedure establishes methods and defines responsibilities for the escalation to appropriate levels of management of selected quality problems when DNC organizations have been unable to effect either a timely or appropriate response, achieve a satisfactory corrective action, or obtain timely resolution.	9
XVII	OC-QAPP-17	Quality Assurance Records	This procedure states that a program shall be established, documented, and executed to provide for the maintenance of sufficient records that furnish objective evidence to assure that activities affecting quality have been properly completed and the quality assurance requirements have been met. Measures shall be provided for identification, and classification, accumulation, review, storage accountability, and transfer of records.	8

TABLE 17B-4
PROCEDURES OF NUCLEAR CONSTRUCTION

(Sheet 11)

10CFR50 APPENDIX B CRITERION	PROCEDURE NO.	TITLE	SCOPE STATEMENT	
XVII	QC-QAP-17.1	Quality Assurance Records	This procedure assigns responsibilities and defines the requirements for the control of quality assurance records. The procedure addresses the preparation of indexes and assigning of types of records; the classification of records; the collection of records including processing offsite records and handling of revised records, records review including the preparation of checklist; storage control of records; statusing of records in Records Accountability Program; and transfer of records to ONP.	9 8 9
XVII	QC-QAP-17.2	Records Retrieval Instructions	This procedure defines the requirements and assigns responsibilities for development and maintenance of Records Retrieval Instructions.	9 8
XVIII	QC-QAPP-18	Audits	This procedure states that a program shall be established, documented, and executed to provide an audit system to verify compliance with applicable aspects of the Quality Assurance Program.	9

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TABLE 17B-5

Controlled Documents

1. Design Specifications and Drawings
2. Procurement Documents
3. Nuclear Quality Assurance Manual
4. Topical Reports
5. Safety Analysis Reports
6. Program Manuals
7. Plant Instructions
8. Test Procedures
9. Design Change Request
10. Nonconformance Reports
11. Nuclear Fuels QA Manual
12. Materials Management Services Quality Assurance Manual
13. Power Stores Quality Assurance Manual
14. Radiological Protection Plan
15. Division of Power System Operations QA Manual
16. Safety-Related Computer Programs
17. Purchasing QA Manual
18. Nuclear Engineering Procedures Manual
19. Construction QA Manual
20. DNE Site Engineering Project Manuals

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APPENDIX C

TABLE 17C-1
ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR BELLEFONTE NUCLEAR PLANT

(Sheet 1)

Structure, System, or Component	Design Criteria		Preliminary Design			Procurement Specification			Final Design Computations		Final Design Drawings		
	Produce	Design Review	Produce	T-BW Interface Review	Design Review	Produce	T-BW Interface Review	Design Review	Produce	Design Review	Produce	T-BW Interface Review	Design Review
Category I (Seismic structures)	T	T	T	T	T	T	—	T	T	T	T	T	T
Reactor Building													
Secondary Containment including main steam feedwater valve room	T	T	T	—	T	T	—	T	T	T	T	—	T
Containment vessel	T	T	T	T-BW	T	T	—	T	T-V	T	T-V	T	T
Reactor Building Purge System	T	T	T	—	T	T	—	T	T	T	T	—	T
Reactor and Reactor Coolant System													
Reactor pressure vessel	BW	BW	BW	—	BW	BW	T	BW-T	BW	BW	BW	T	BW-T
Reactor vessel internals	BW	BW	BW	—	BW	BW	T	BW-T	BW	BW	BW	T	BW

Note: Key and definitions at end of table.

TABLE 17C-1
ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR BELLEFONTE NUCLEAR PLANT

(Sheet 2)

Structure, System, or Component	Design Criteria		Preliminary Design			Procurement Specification			Final Design Computations		Final Design Drawings		
	Produce	Design Review	Produce	T-BW Interface Review	Design Review	Produce	T-BW Interface Review	Design Review	Produce	Design Review	Produce	T-BW Interface Review	Design Review
Control rod drives and CR assemblies	BW	BW	BW	—	BW	BW	T	BW	BW	BW	BW	T	BW
Reactor coolant pumps	BW	BW	BW	--	BW-T	BW	T	BW-T	BW	BW	BW	T	BW-T
Reactor coolant piping	BW	BW	BW	T	BW	BW	T	BW-T	BW	BW	BW	T	BW
Steam generators	BW	BW	BW	—	BW-T	BW	T	BW-T	BW	BW	BW	T	BW-T
Pressurizer	BW	BW	BW	--	BW-T	BW	T	BW-T	BW	BW	BW	T	BW
Relief valves, safety valves	BW	BW	BW	T	BW-T	BW	T	BW-T	V	BW	V	T	BW
Instrumentation and controls	BW	BW	BW	T	BW-T	BW	—	BW	—	—	V	T	BW-T
Reactor protection and control systems	BW	BW	BW	T	BW-T	BW	—	BW	--	--	V	T	BW-T
Systems involved in emergency core and reactor bldg cooling													
Core Flooding System	BW	BW-T	BW	T	BW-T	BW	T	BW-T	BW-V	BW	BW-V	T	BW-T
Piping	T	T	T	BW	T	T	—	T	T	T	T	BW	T

TABLE 17C-1
ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR BELLEFONTE NUCLEAR PLANT

(Sheet 3)

Structure, System, or Component	Design Criteria		Preliminary Design			Procurement Specification			Final Design Computations		Final Design Drawings		
	Produce	Design Review	Produce	T-BW Interface Review	Design Review	Produce	T-BW Interface Review	Design Review	Produce	Design Review	Produce	T-BW Interface Review	Design Review
Decay Heat Removal System (Low-Pressure Injection System)	BW	BW-T	BW	T	BW-T	BW	T	BW-T	BW-V	BW	BW-V	T	BW-T
Piping	T	T	T	BW	T	T	--	T	T	T	T	BW	T
Makeup (High-Pressure Injection System)	BW	BW-T	BW	T	BW-T	BW	T	BW-T	BW-V	BW	BW-V	T	BW-T
Piping	T	T	T	BW	T	T	--	T	T	T	T	BW	T
Reactor Building Spray System	BW	BW-T	BW	T	BW-T	BW	T	BW-T	BW-V	BW	BW-V	T	BW-T
Piping	T	T	T	BW	T	T	--	T	T	T	T	BW	T
Reactor Bldg Cooling (RBC) System	BW	BW-T	BW	T	BW-T	BW	T	BW-T	BW-V	BW	BW-V	T	BW-T
Piping	T	T	T	BW	T	T	--	T	T	T	T	BW	T
Postaccident Hydrogen Removal System	T-BW	T	BW-T	--	T	T-BW	--	T	T	T	T	--	T

Secondary plant ANS
Safety classed portion

TABLE 17C-1
ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR BELLEFONTE NUCLEAR PLANT

(Sheet 4)

Structure, System, or Component	Design Criteria		Preliminary Design			Procurement Specification			Final Design Computations		Final Design Drawings		
	Produce	Design Review	Produce	T-BW Interface Review	Design Review	Produce	T-BW Interface Review	Design Review	Produce	Design Review	Produce	T-BW Interface Review	Design Review
Main steam from steam generator through isolation valve	T-BW	T	T	BW	T	T	—	T	T	T	T	--	T
Feedwater from steam generator through second isolation valve	T-BW	T	T	BW	T	T	—	T	T	T	T	--	T
Anxiliary and Emergency systems													
Chemical Addition and Boron Recovery System (Seismic Category I parts except piping)	BW	BW-T	BW	T	BW-T	BW	T	BW-T	BW-V	BW	BW-V	T	BW-T
Piping	T	T	T	BW	T	T	--	T	T	T	T-V	BW	T
Component Cooling Water System	BW	BW-T	BW	T	BW-T	BW	T	BW-T	BW-V	BW	BW-V	T	BW-T
Piping	T	T	T	BW	T	T	--	T	T	T	T	BW	T
Essential Raw Cooling Water System	T	T	T	BW	T	T	--	T	T-V	T	T-V	BW	T

TABLE 17C-1
ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR BELLEFONTE NUCLEAR PLANT

(Sheet 5)

Structure, System, or Component	Design Criteria		Preliminary Design			Procurement Specification			Final Design Computations		Final Design Drawings		
	Produce	Design Review	Produce	T-BW Interface Review	Design Review	Produce	T-BW Interface Review	Design Review	Produce	Design Review	Produce	T-BW Interface Review	Design Review
Fire Protection Systems (Seismic Category I Parts)	T	T	T	—	T	T	—	T	T-V	T	T-V	--	T
Auxiliary Feedwater System	BW	BW-T	BW	T	BW-T	BW-T	T	BW-T	BW-V-T	BW-T	BW-V-T	T	BW-T
Piping	T	T	T	BW	T	T	--	T	T	T	T	BW	T
Spent Fuel Cooling System	BW	BW-T	T	BW	T	BW	T	BW	BW-V	BW	BW-V	—	BW-T
Piping	T	T	T	BW	T	T	--	T	T	T	T	BW	T
Control Building Air Conditioning System	T	T	T	—	T	T	--	T	T-V	T	T	—	T
Auxiliary Building Ventilation System	T	T	T	--	T	T	--	T	T-V	T	T	—	T
Waste Disposal System													
Radioactive waste systems (Seismic Class I parts except piping)	BW-T	BW-T	BW	T	BW-T	BW	T	BW-T	BW-V	BW	BW-V	T	BW-T
Piping	T	T	T	BW	T	T	—	T	T	T	T-V	BW	T

TABLE 17C-1
ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR BELLEFONTE NUCLEAR PLANT

(Sheet 6)

Structure, System, or Component	Design Criteria		Preliminary Design			Procurement Specification			Final Design Computations		Final Design Drawings		
	Produce	Design Review	Produce	T-BW Interface Review	Design Review	Produce	T-BW Interface Review	Design Review	Produce	Design Review	Produce	T-BW Interface Review	Design Review
Radiation Monitoring System	T	T	T	T	T	T	—	T	—	—	T-V	BW	T
Electrical and control equipment	BW-T	BW-T	T	BW	T	T	—	T	V	T	V-T	—	T
Power Systems													
Diesel generator system	BW-T	BW-T	T	BW	T	T	—	T	V	T	V-T	BW	T
DC power supply system	BW-T	BW-T	T	—	T	T	—	T	V	T	T	—	T
Power distribution cables and busses	T	T	T	—	T	T	—	T	—	—	V-T	—	T
Transformers	T	T	T	—	T	T	—	T	V	T	V	—	T
Shutdown boards and switchgear	T	T	T	—	T	T	—	T	V	T	V	—	T
Vital AC instrumentation and control supply system	BW-T	BW-T	T	BW	T	T	—	T	V	T	V-T	BW	T

TABLE 17C-1
ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR BELLEFONTE NUCLEAR PLANT

(Sheet 7)

Key: BW – Babcock & Wilcox
T – TVA (no branch or division identified)
V – Vendor of component

DEFINITIONS:

Design Criteria	– The basic criteria and requirements which form the basis for the detailed design, fabrication, and construction. They include such things as functional and general performance requirements, safety relationship and importance, seismic classification, identification of applicable codes, standards, and regulations, preliminary sizing, design temperature and pressure, computational methods and stress criteria, general level of quality, etc. Design criteria may be first defined in studies, reports, letters, system descriptions, specifications, or memoranda. The design criteria as defined herein appear in the PSAR and associated referenced documents.
Preliminary Design	– The initial design, including such things as layout and arrangement drawings, preliminary stress and seismic calculations, preliminary process, flow elementary and control diagrams, definition of component performance requirements, and preliminary design drawings.
Procurement Specification	– The specification which is used to procure parts for components from vendors.
Final Design Computations	– The final computations necessary to assure adequacy of structural or pressure containing parts and components. Includes code required calculations such as design reports and stress analyses and includes specified seismic calculations.
Final Design Drawings	– Those design drawings for systems, parts, and components which are used for fabrication, construction, and erection.

TABLE 17C-1
ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR BELLEFONTE NUCLEAR PLANT

(Sheet 8)

Design Review	- The design review performed as designed in the TVA and Babcock & Wilcox Quality Assurance Program Description.
T-BW Interface Review	- This review is made by the indicated organization (Babcock & Wilcox or TVA) to assure that portions of the design furnished by each organization are compatible with portions of the design being furnished by the other. Does not include any review by TVA, for Babcock & Wilcox, of its own design.

TABLE 17C-2

ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR WATTS BAR NUCLEAR PLANT

(Sheet 1)

	Design Criteria		Preliminary Design		Procurement Specification		Final Design Documents	
Structure, System, or Component	Produce	QA Review	Produce	QA Review	Produce	QA Review	Produce	QA Review
Class I (Seismic) Structures	T	T	T	T	T	T	T	T
Reactor Building	T	T	T	T	T	T	T	T
Shield Building including Steam and Feedwater Compartment	T	T	T	T	T	T	T	T
Containment Vessel	N	T	T	T	T	T	V	T
Ice Condenser	N	N	N	N	N	N	V	N
Emergency Gas Treatment System	T	T	T	T	T	T	T	T
Reactor and Reactor Coolant System								
Reactor Pressure Vessel	N	N	N	N	N	N	V	N
Reactor Vessel Internals	N	N	N	N	N	N	V	N
Control Rod Drives and RCC Assemblies	N	N	N	N	N	N	V	N

TABLE 17C-2

ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR WATTS BAR NUCLEAR PLANT

(Sheet 2)

Structure, System, or Component	Design Criteria		Preliminary Design		Procurement Specification		Final Design Documents	
	Produce	QA Review	Produce	QA Review	Produce	QA Review	Produce	QA Review
Reactor Coolant Pumps	N	N	N	N	N	N	V	N
Reactor Coolant Piping	N	N	N	N	N	N	V	N
Steam Generators	N	N	N	N	N	N	V	N
Pressurizer	N	N	N	N	N	N	V	N
Relief Valves, Safety Valves	N	N	N	N	N	N	V	N
Instrumentation and Controls	N/T	N/T	N/T	N/T	N/T	N/T	V	N/T
Reactor Protection and Control System	N	N	N	N	N	N	V	N
Engineered Safety Features								
Emergency Core Cooling System (except piping)	N	N	N	N	N	N	N	N
Piping System	T	T	T	T	T	T	T	T
Containment Spray System (except piping)	N	N	N	N	N	N	N	N

TABLE 17C-2

ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR WATTS BAR NUCLEAR PLANT

(Sheet 3)

Structure, System, or Component	Design Criteria		Preliminary Design		Procurement Specification		Final Design Documents	
	Produce	QA Review	Produce	QA Review	Produce	QA Review	Produce	QA Review
Piping System	T	T	T	T	T	T	T	T
Containment Air Return System	T	T	T	T	T	T	T	T
Auxiliary and Emergency Systems								
Chemical and Volume Control System (Seismic Class I Parts except piping)	N	N	N	N	N	N	N	N
Piping System	T	T	T	T	T	T	T	T
Component Cooling System (except piping)	T	T	T	T	T	T	T	T
Piping System	T	T	T	T	T	T	T	T
Essential Raw Cooling Water System	T	T	T	T	T	T	T	T
Fire Protection Systems (Seismic Class I Parts)	T	T	T	T	T	T	T	T

TABLE 17C-2

ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR WATTS BAR NUCLEAR PLANT

(Sheet 4)

Structure, System, or Component	Design Criteria		Preliminary Design		Procurement Specification		Final Design Documents	
	Produce	QA Review	Produce	QA Review	Produce	QA Review	Produce	QA Review
Auxiliary Feedwater Systems	T	T	T	T	T	T	T	T
Air Conditioning Systems (Seismic Class I Parts)	T	T	T	T	T	T	T	T
Waste Disposal								
Radioactive Liquid Waste System (Seismic Class I Parts except piping)	N	N	N	N	N	N	V	N
Piping System	T	T	T	T	T	T	T	T
Radiation Monitoring Systems	T	T	T	T	T	T	T	T
Electrical and Control Equipment	T	T	T	T	T	T	T	T
Emergency Power System								
Diesel Generator System	T	T	T	T	T	T	V	T
D.C. Power Supply System	T	T	T	T	T	T	T	T

TABLE 17C-2

ASSIGNMENT OF DESIGN AND PROCUREMENT RESPONSIBILITIES
FOR WATTS BAR NUCLEAR PLANT

(Sheet 5)

Structure, System, or Component	Design Criteria		Preliminary Design		Procurement Specification		Final Design Documents	
	Produce	QA Review	Produce	QA Review	Produce	QA Review	Produce	QA Review
Power Control, Signal Cables, and Busses	T	T	T	T	T	T	T	T
A.C. Auxiliary Power System	T	T	T	T	T	T	V	T
Vital A.C. Instrumentation and Control Supply System	T	T	T	T	T	T	V	T

1. Includes valves in the scope of supply of the NSSS supplier.

2. Includes valves in the scope of supply of TVA.

Key: T- TVA (no branch or division identified)
N- Westinghouse
V- Vendor of component

APPENDIX D

REGULATORY GUIDES AND STANDARDS

TABLE 17D-1

QUALITY ASSURANCE STANDARDS FOR DESIGN AND CONSTRUCTION
(REGULATORY GUIDANCE)
APPLICABLE TO THE BELLEFONTE AND WATTS BAR NUCLEAR PLANTS

(Sheet 1)

TOPIC	CONFORMANCE STATUS AND/OR REMARKS
Regulatory Guide 1.28 (Revision 0), June 7, 1972 - Quality Assurance Program Requirements (Design and Construction) (endorses ANSI N45.2-1971)	Conforms fully.
Regulatory Guide 1.37 (Revision 0), March 16, 1973 - Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants. (endorses N45.2.1-1973)	Conforms fully.
Regulatory Guide 1.38 (Revision 2) May 1977 - Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants, (endorses N45.2.2-1972)	Conforms fully except as noted: In accordance with ASME QA Case 78-N45.2.2-01-0, welding electrodes hermetically sealed in metal containers may be stored under conditions described for level C items unless other storage requirements are specified by the manufacturer. Austenitic stainless steel and nickel alloy items may have markings applied directly to the bare metal surfaces, provided the requirements of TVA internal procedures which control the chemical content of the marking materials, are met.
Regulatory Guide 1.39 (Revision 2), September 1977 - Housekeeping Requirements for Water-Cooled Nuclear Power Plants (endorses N45.2.3-1973)	Conforms fully.

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TABLE 17D-1

QUALITY ASSURANCE STANDARDS FOR DESIGN AND CONSTRUCTION
(REGULATORY GUIDANCE)
APPLICABLE TO THE BELLEFONTE AND WATTS BAR NUCLEAR PLANTS

(Sheet 2)

TOPIC	CONFORMANCE STATUS AND/OR REMARKS
Regulatory Guide 1.30 (Revision 0), August 11, 1972 - Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment (endorses N45.2.4-1972)	Conforms fully except as noted: 1. ANSI N45.2.4 states that the Appendices are not a part of the standard therefore, DNE and DNC do not consider the Appendices to be mandatory.
Regulatory Guide 1.94 (Revision 1), April 1976 - Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants (endorses N45.2.5-1974)	Conforms fully except as noted: 1. Does not conform to qualification levels of inspection. The qualification requirements for QC inspectors are stated in our position on RG 1.58 in this table.