



Duquesne Light

Nuclear Construction Division
Robinson Plaza, Building 2, Suite 210
Pittsburgh, PA 15205

2NRC-3-037
(412) 787-5141
(412) 923-1960
Telecopy (412) 787-2629
June 10, 1983

United States Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

ATTENTION: Mr. Richard W. Starostecki
Division of Project and Resident Programs

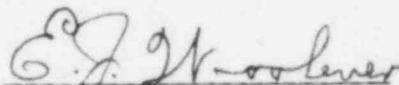
SUBJECT: 10CFR50.55(f)(1) SAR QA Program

Gentlemen:

This letter is in response to the final rule, as stated in the Federal Register, pages 1026 through 1029, dated Monday, January 10, 1983, titled "Reporting of Changes to the Quality Assurance Program" affecting 10CFR Part 50.55 by the addition of paragraph (f). This rule requires construction permit holders to submit to their appropriate NRC Regional Office the current description of the quality assurance program it is implementing for inclusion in their Safety Analysis Report. Enclosure 1 describes Duquesne Light Company quality assurance program changes affecting the description provided in the Beaver Valley Power Station Unit 2 PSAR. Enclosure 2 describes Stone & Webster Engineering Corporation changes to Section 17.1B. Enclosure 3 includes the pages affected by the changes described in Enclosures 1 and 2.

Since the Quality Assurance Program used by Westinghouse for Beaver Valley Power Station Unit 2 was submitted to the Commission as a topical report, please refer to Westinghouse letter NS-EPR-2765, dated May 12, 1983, submitted to the NRC Region II, addressed to Mr. C. Hale, NRC Vendor Program Branch from Mr. E. P. Rahae, Jr., Manager Nuclear Safety.

DUQUESNE LIGHT COMPANY

By 
E. J. Woolever
Vice President

SDH/wjs
Enclosures

cc: Mr. G. Walton, NRC Resident Inspector (w/enclosures)
Ms. L. Lazo, Project Manager (w/enclosures)
NRC Document Control Desk (w/enclosures)
United States Regulatory Commission
Washington, DC 20555

8308230389 830610
PDR ADOCK 05000412
A PDR

Q001
ADD: WALTER HAAS
11

bcc: C. E. Ewing (w/enclosures)
P. RaySircar (3) "
J. Sutton (S&W) "
NCD File "
J. F. Zagorski "
H. M. Siegel "
C. R. Bishop (w/o enclosures)
T. D. Jones "
R. J. Swiderski "
MCE "

REFERENCES: (1) Federal Register, pages 1026 through 1029, dated January 10, 1983

(2) DMW-D-3460, dated May 20, 1983

(3) DLCQA-3910, dated June 6, 1983

DUQUESNE LIGHT COMPANY CHANGES

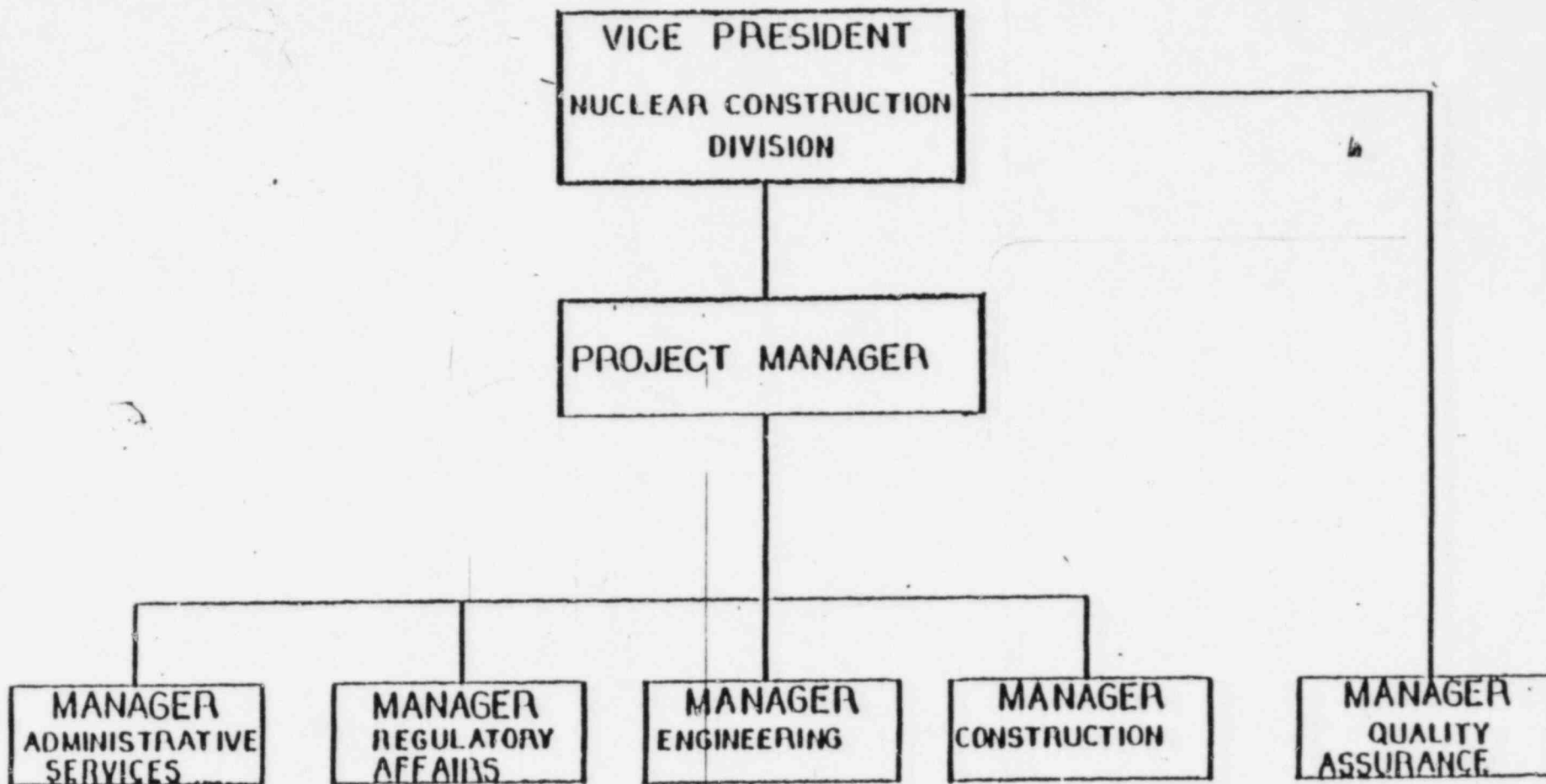
1. The referenced table of Nuclear Fuel QA Procedures is no longer applicable. The revised Nuclear Fuel QA Program is presently contained within Appendix D of the Operations Quality Assurance Manual.
2. The Listing referred to is not provided. Quality Assurance Terms and Definitions are comparable to those being used in the applicable ANSI Standards.
3. The Quality Assurance Manager now reports directly to the Vice President, Nuclear Construction Division. The organization charts (Attachments 1-3) show the current structure and titles associated in the design, construction, and operation of BVPS-2. The efforts of the QA Manager remain solely directed towards QA-related responsibilities.
4. This organization chart has been changed such that responsibility for Stone & Webster and Westinghouse is now through the Project Manager under the Vice President, Nuclear Construction Division. Lines of communication exist between the NCD Managers, S&W, and Westinghouse.
5. The Supervisor of Technical Services, the Supervisor of Quality Engineering, and the Supervisor of Administrative Services positions are no longer applicable. They have been grouped together and are known as Site Quality Control (SQC). SQC responsibilities encompass those of the individual positions it superseded. Organizationally, SQC and Vendor Surveillance report to the Director of Quality Control (formerly the Director of Site Quality Control).
6. These two groups are now contained within the recently organized Nuclear Construction Division (Attachment 2). The Project Manager is in charge of the Manager of Administrative Services, Regulatory Affairs, Engineering, and Construction. The QA Manager reports directly to the NCD Vice President. Meetings are now held monthly rather than bimonthly.
7. As shown on the organization chart in Attachment 1, the structure is different from the one described. The responsibilities stated have been reassigned but not deleted. Fundamentally, the organization is stronger with the creation of the Nuclear Construction Division.
8. Some Quality Assurance titles have been changed although the responsibilities are basically the same. This is shown in the organization chart on Attachment 3.
9. Up-to-date organization charts are attached. Although some titles and responsibilities have changed, nevertheless none of the commitments stated in the BVPS-2 PSAR have been changed to the detriment of the design, construction, and operation of the plant.
10. See SWEC Program for title changes.

STONE & WEBSTER ENGINEERING CORPORATION (SWEC) CHANGES

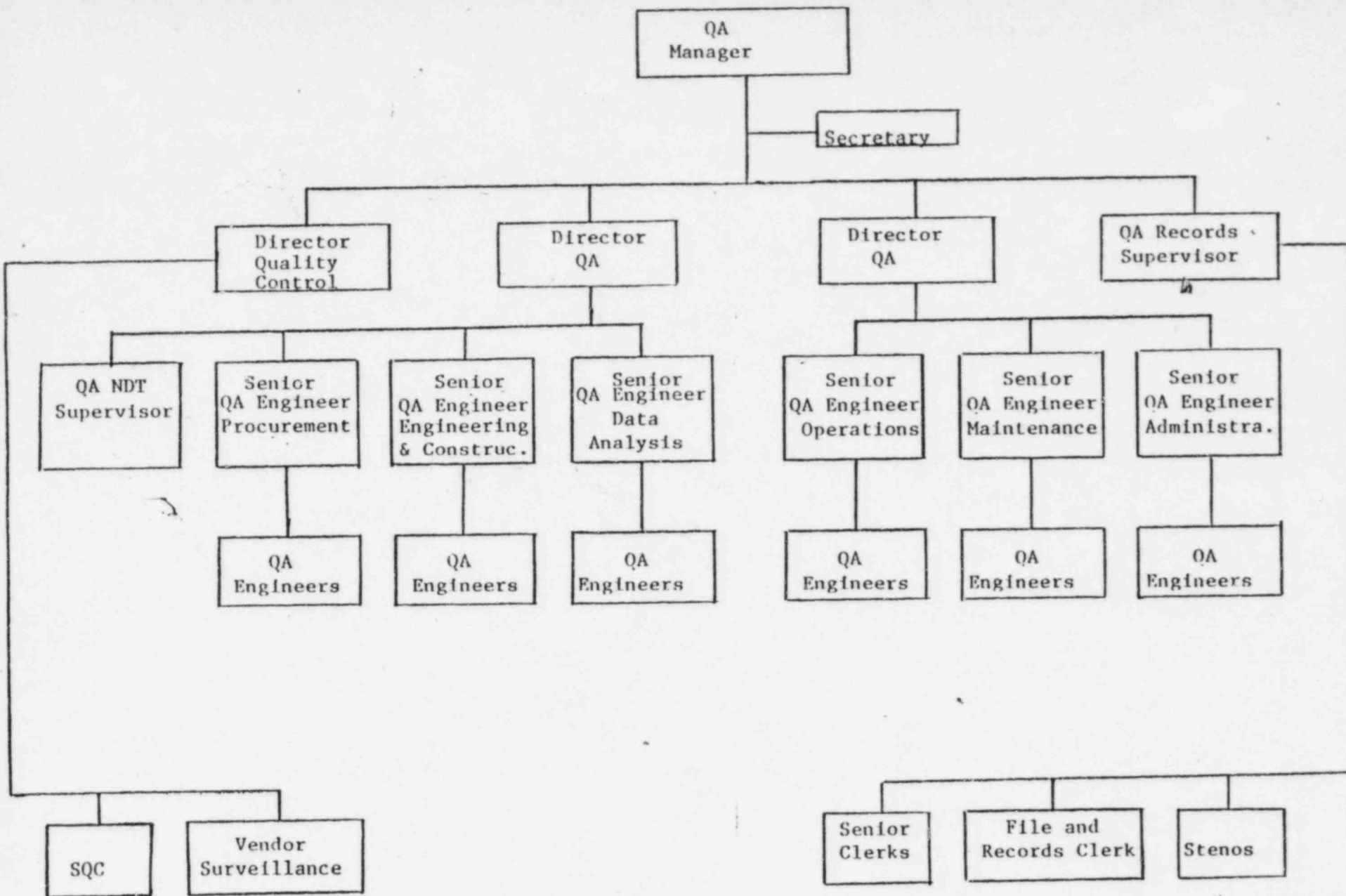
Changes to Section 17.1B, Stone & Webster Engineering Corporation (which involve the SWEC organization structure, document and procedure titles, and minimum education standards) are identified as follows:

- a. The item changed is underlined in the text.
- b. A side bar is shown in the right margin adjacent to the change.
- c. The way the item should read is identified next to the side bar.

Current SWEC organizational charts are provided in the text.



Attachment 2



QUALITY REPORTING FOR CORRECTIVE ACTION RESPONSIBILITY



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SECTION 17

QUALITY ASSURANCE

17.1 QUALITY ASSURANCE DURING DESIGN AND CONSTRUCTION

Three inputs to Section 17.1 are provided. Section 17.1A is a description of the DLC Quality Assurance (QA) Program. Sections 17.1B and 17.1C describe Stone & Webster (S&W) and Westinghouse (W) QA Programs respectively.

The three QA categories are defined as follows:

Category I - Plant systems, or portions of systems, structures, and equipment whose failure or malfunction could cause a release of radioactivity that would endanger public safety. This category also includes equipment which is vital to a safe shutdown of the station and the removal of decay and sensible heat, or equipment which is necessary to mitigate consequences to the public of a postulated accident.

Category II - Plant systems, portions of systems, structures and equipment are essential for the reliable generation of power but which are not essential for a safe shutdown. Failure of this equipment could result in loss of generation but would not endanger public safety.

Category III - Plant systems, portions of systems, structures, and equipment which are not essential for the reliable generation of electricity and which do not contain radioactive material or whose failure could not result in the release of radioactive material.

The term "essential for the reliable generation of electric power" in the definition of Category II is interpreted to mean structures, systems and components, whose failure would result in a halt of electric power generation in about 8 hr or less.

The term "not essential for the reliable generation of electricity" in the definition of Category III is interpreted to mean structures, systems and components, whose failure would not result in the halt of electric power generation in about 8 hr or less.

17.1A QUALITY ASSURANCE PROGRAM (DLC)17.1.1A Quality Assurance Program - Overall Description

Duquesne Light Company has established a quality assurance program for Beaver Valley Power Station that establishes general quality criteria for the company and its architect-engineer, contractors, and vendors. The program has been written to conform to 10CFR50, Appendix B, "QA Criteria for Nuclear Power

Plants." The guidance contained in WASH 1284, dated October 26, 1973, WASH 1309, dated May 10, 1974, and WASH 1283, dated May 24, 1974 is utilized with the exception that A; an alternate set of Quality Assurance Terms and Definitions has been developed, and these terms and definitions will be included as a Listing to the Duquesne Light QA Program Manual, and B; exceptions taken to specific Regulatory Guides are as follows:

Regulatory Guide 1.37: Quality Assurance Requirements for
Cleaning of Fluid Systems and Associated
Components of Water-Cooled Nuclear
Power Plants

Quality assurance requirements for cleaning of fluid systems and associated components comply with Regulatory Guide 1.37, issued March 1973, with the following exceptions and modifications:

Regulatory Position C.3 - The water quality for final flushes of fluid systems and associated components is at least equivalent to the quality of the operating system water, except for the oxygen content.

Dissolved oxygen content of the water cannot be maintained at reactor quality during flushing of open systems.

Regulatory Position C.4 - Expendable material, i.e., inks and related products, temperature indicating sticks, tapes, gummed labels, wrapping materials (other than polyethylene), water soluble dam materials, lubricants, NDT penetrant materials, and couplants which contact stainless steel or nickel alloy surfaces are in accordance with the following:

1. They do not contain the following as a basic and essential chemical constituent: lead, zinc, copper, mercury, cadmium, and other low melting point metals, their alloys, and/or compounds.
2. Prescribed maximum levels of water leachable chlorides, total halogens, and sulfur and its compounds are imposed on expendable products.

Contamination levels in expendable products are based upon safe practices and industrial availability. Contaminant levels are controlled such that subsequent removal by standard cleaning methods will result in the achievement of final acceptable levels which are not detrimental to the materials.

Regulatory Guide 1.38: Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants

Quality assurance requirements for packaging, shipping, receiving, storage and handling comply with Regulatory Guide 1.38, issued March 1973, with the following exceptions:

Regulatory Position C.3 - Tapes, desiccants, and desiccant bags do not contain the following as a basic and essential chemical constituent: lead, zinc, copper, mercury, cadmium, and other low melting point metals, their alloys, and/or compounds.

Prescribed maximum levels of water leachable chlorides, total halogens, and sulfur and their compounds are imposed upon tapes.

Desiccants and desiccant bags contain nonhalogenated and nonsulfur bearing materials.

Contamination levels for tapes, desiccants, and desiccant bags are based upon safe practices and industrial availability.

Regulatory Guide 1.54: Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants

Quality assurance requirements for protective coatings comply with Regulatory Guide 1.54 issued June, 1973 with the following exception:

In lieu of the inspection defined in Section 6.2.4 of ANSI N101.4-1972, inspection is in accordance with ANSI N5.12-1974 Section 10, Inspection For Shop and Field Work.

The following offers a clarification of paragraph 1.2.4 of ANSI N101.4-72 regarding the extent of coverage:

1. Surfaces within the primary containment liner boundary:
 - a. For large surface area components, the documents are submitted to Stone & Webster as required by ANSI N101.4-72. These components include such items as the polar crane, containment liner, structural steel (including miscellaneous steel and handrails), concrete, ductwork, uninsulated pipe, reactor vessel support shield tank, exterior of uninsulated tanks and vessels, and major equipment supports.

b. For manufactured equipment such as pumps, motors, pipe hangers, and supports, the documentation required by ANSI N101.4-72 is maintained in the Seller's files for the complete duration of the contract warranty/guarantee period. A certificate of compliance signed by responsible management personnel is furnished by the Seller.

2. Other surfaces where coating failure could compromise the design function of equipment or components intended to prevent or mitigate the consequences of postulated accidents which could affect the public health and safety.

Though a certificate of compliance is accepted from Vendors of manufactured equipment rather than requiring all necessary documentation to be submitted to the Engineers, the vendor's files are audited periodically to verify that complete documentation is being maintained.

Because of the impracticability of imposing the Regulatory Guide requirements (ANSI N101.4) on the standard shop process used in painting valve bodies, handwheels, electrical cabinetry and control panels, loudspeakers, emergency light cases, and similar components, the Regulatory Guide requirements are not invoked for these items since the total surface of such items is relatively small when compared to the total surface area for which the requirements are imposed. The total surface area and estimated volume covered by unknown paint which is not applied in accordance with the requirements of the Regulatory Guide (ANSI N101.4) are recorded. An analysis will be conducted, taking into account the quantity and physical distribution throughout the containment of miscellaneous surfaces which are not coated in accordance with the Regulatory Guide requirements. The analysis, based on the flow paths and the available surface area which could be obstructed by nonintegral coatings, will verify that even in the event that the uncontrolled coatings were removed by a LOCA, the effectiveness of any engineered safety system would not be compromised thereby.

The reference substitution of ANSI N5.12 as the basis for inspection, rather than ANSI N5.9, reflects a revision to a standard referenced in the base document, ANSI N101.4.

Regulatory Guide 1.64: Quality Assurance Requirements
for the Design of Nuclear
Power Plants

Quality Assurance programs in effect at the time of systems design were followed in the design of BVPS Unit No. 2.

The Duquesne Light Company Quality Assurance Program shall be applied to all safety-related structures, systems and components throughout all phases of the nuclear power plant. The safety-related structures, systems and components for which the Duquesne Light Company Quality Assurance Program shall be applied in its entirety are identified as Category I and are listed as such in the BVPS Unit No. 2 Preliminary Safety Analysis Report Appendix B. Quality Assurance by the definition contained in 10CFR50, Appendix B comprises all those planned and systematic actions necessary to provide adequate confidence that a structure, system or component will perform satisfactorily in service. Pertinent requirements of the manual will be applied to all phases of the plant from its inception throughout its lifetime.

It is intended that this program shall apply to any activity at or pertaining to the Beaver Valley Power Station. This shall include Duquesne Light Company, their designated architect-engineer, and all vendors, contractors, and subcontractors at their general offices, shops, testing facilities, and the nuclear power plant site.

The program will apply through the design, procurement, construction, testing, and operation phases of the Beaver Valley Power Station.

The quality assurance program implementation is the responsibility of the Quality Assurance Manager who reports directly to the Vice President, Engineering and Construction Division. | 3

All organizations with direct contractual obligations to Duquesne Light Company and internal Duquesne Light Company divisions and departments are transmitted policies and programs that commit them to the provisions of the Duquesne Light Company Quality Assurance Program.

The Quality Assurance Manager is responsible for the preparation and controlled distribution of a Quality Assurance Program Manual encompassing the detailed requirements for the implementation of the program.

The Duquesne Light Company organization is described in Section 17.2.1A.

Figure 17.1-1A shows the Duquesne Light Company organization for quality assurance. Figure 17.1-2A shows the Duquesne Light Company Quality Assurance Department. Figure 17.1-3A shows the Duquesne Light Company Engineering and Construction Division Organization. | 3

Portions of the Quality Assurance program have been delegated to Stone & Webster Engineering Corporation (S&W) and to Westinghouse Electric Corporation. The Quality Assurance organization chart (Figure 17-1A) shows the relationship for implementing the Quality Assurance program. | 4

The Stone & Webster Quality Assurance program is described in Section 17.1B. Figure 17.1.1B-1 shows the Stone & Webster organization for Quality Assurance. The Westinghouse Quality Assurance plan is described in Section 17.1C.

Duquesne Light Company Quality Assurance Department will, through the audit process, verify that other organizations delegated portions of the Duquesne Light Company Quality Assurance Program are regularly reviewing the status and adequacy of their Quality Assurance Programs. Duquesne Light Company corporate management or a delegated outside agency shall, on a yearly basis, review the status and adequacy of the Duquesne Light Company Quality Assurance Program.

Education and training programs shall be provided for personnel performing activities affecting quality. The objective of such activity shall be to relate the Quality Assurance requirements to the activities being performed by those personnel to assure that a suitable level of proficiency is achieved and maintained.

Indoctrination training of the Duquesne Light Company Quality Assurance Department is accomplished by seminars, classroom courses, and in-plant training. The Duquesne Light Company

Quality Assurance Department will verify that other organizations meet the Quality Assurance Program requirements for training. This training shall apply but not be limited to the design, procurement, auditing, construction, operations, maintenance, and review and retention of records.

Where required by applicable codes, individuals shall be qualified by subjecting them to examinations in the particular inspection or test method involved. Records shall be available that attest to the successful completion of such training.

17.2A DUQUESNE LIGHT COMPANY

17.2.1A Introduction

Duquesne Light Company (DLC), the applicant, has established a Quality Assurance (QA) organization (Figure 17.1-1A and Figure 17.1-2A) to ensure that all the systems, components, and structures affecting the safety of the station are specified, fabricated, shipped, stored, installed, inspected, tested, operated, maintained, repaired, fueled, and modified in accordance with sound engineering principles. This includes the utilization of applicable codes, standards, specifications, procedures, and regulatory requirements. The Quality Assurance program is intended to fulfill the intent of Appendix B to 10CFR50.

This document summarizes the activities pertinent to Quality Assurance of the Beaver Valley Power Station (BVPS). More details are included in the pertinent Duquesne Light Company, Stone & Webster (S&W), and Westinghouse manuals.

17.2.1.1A Organization

The Duquesne Light Company Quality Assurance organization consists of a Quality Assurance Department directed by the Quality Assurance Manager. Sufficient personnel are available to implement the Quality Assurance program. All items pertinent to Quality Assurance are under his supervision.

The Quality Assurance Manager reports directly to the Duquesne Light Company Vice President, Engineering and Construction Division. The effort of the Quality Assurance Manager is directed solely to Quality Assurance. He purposely has no responsibilities for project costs or project schedule considerations. This eliminates the possibility of such factors influencing his performance in Quality Assurance.

The Duquesne Light Company Quality Assurance program provides written policies, procedures, and instructions governing the Quality Assurance activity. These are identified in the Duquesne Light Company Quality Assurance Program Manual. This manual

details specific responsibilities for implementation of the program.

Duquesne Light Company personnel supporting the Quality Assurance effort include the Engineering and Construction Division and Operations Division. Engineers and others in these divisions or sections participating in the program perform their duties in accordance with administrative procedures or work instructions previously reviewed and approved by the Quality Assurance Manager.

The Duquesne Light Company Quality Assurance Department, under the direction of the Quality Assurance Manager, is divided into five major sections (the Quality Assurance Department Organization is shown in Figure 17.1-2A). These sections are:

1. Design, Procurement and Construction - headed by the Quality Assurance Supervisor - Engineering/Construction | 3
2. Operations - headed by the Quality Assurance Supervisor- Operations | 3
3. Records - headed by the Quality Assurance Records Supervisor
4. Site Quality Control - headed by the Site Quality Control Director | 3
5. Vendor Surveillance - headed by the Vendor Surveillance Supervisor | 3

The Quality Assurance Manager reports to the Vice-President of Engineering and Construction. He is responsible for the development and implementation of a Quality Assurance Program for the Design, Procurement, Construction, Operation, and modification of Nuclear Power Stations. | 3

The Quality Assurance Supervisor for Design, Procurement, and Construction is responsible to the Quality Assurance Manager for establishing and implementing an audit and surveillance program for Engineering, Procurement, and Construction activities at Nuclear Power Stations. | 3

The Quality Assurance Supervisor for Operations is responsible to the Quality Assurance Manager for establishing and implementing an audit and surveillance program for the Operating Nuclear Power Stations. | 3

The Quality Assurance Records Supervisor is responsible to the Quality Assurance Manager for development and implementation of Record Management Systems during the Design, Procurement, Construction, and Operation of Nuclear Power Stations.

The Director of Site Quality Control is responsible to the QA Manager for the existence and implementation of the Construction Quality Control Programs. | 3

The Supervisor of Technical Services is responsible to the Director of Quality Control for the establishment and implementation of:

1. a NDE Program in accordance with SNT-TC-1A.
2. a program for the testing of structural materials
3. a program for the maintenance and calibration of construction test equipment
4. establishing and maintaining the qualification of welders at the site

The Supervisor of Quality Engineering is responsible to the Director of Quality Control for:

1. formulation of inspection plans based on engineering requirements
2. providing inspection plans to inspection forces
3. the review and evaluation of inspection results and inspection effectiveness
4. the adjustment of inspection programs to increase effectiveness
5. monitoring the implementation of any organization utilizing a corporate QA/QC program

The Supervisor of Administrative Services is responsible to the Director of Quality Control for the establishment and implementation of:

1. a training program for Quality Engineers, Contractor and SQC Inspectors, or assuring the existence of an equivalent program in a Contractor's Program
2. a program for the control of documents within the site Quality Control section
3. a program for receiving inspection
4. a program for the maintenance of permanent plant equipment and material prior to its initial operation
5. a program for the compilation and processing of quality data

The Supervisor of Vendor Surveillance is responsible to the Quality Assurance Manager for coordinating and conducting Duquesne Light Company inspections at the vendor plants. | 5

Site contractors shall have either a Quality Control Program or a Quality Inspection Program that meets the requirements of the Duquesne Light Company Quality Assurance Program. These programs are reviewed and approved by the Quality Assurance Department to assure compliance to the Duquesne Light Company Program including the requirement of organizational independence of Quality Control and/or Inspection personnel.

The Duquesne Light Company Project Management Committee is chaired by the Duquesne Light Company Vice President, Engineering and Construction Division. Members of the committee include department heads from all engineering departments, and construction department, the purchasing department, plus the General Superintendent of Power Stations. The Quality Assurance Manager is a member of the committee and by charter is further designated as the secretary. Through this mechanism Duquesne Light Company management is cognizant of all Quality Assurance matters. The committee is also chartered to resolve impasses which may occur in quality matters. Meetings are conducted bi-monthly or at the specific request of any member, as necessary. Minutes of the meetings are recorded and distributed to all members. | 6

The Duquesne Light Company Project Team consists of the Project Manager and a representative from each of the Engineering disciplines assigned full-time to the Project Team Office. All activities of the Project Team are governed by written procedures or directives. Those procedures that are administrative in nature are reviewed by the QA Manager.

The Duquesne Light Company Engineering Departments will review and/or approve general design concepts, calculations, materials adequacy, specifications, bid evaluations, purchase requisitions, drawings, and correspondence in accordance with approved procedures. All activities of the Engineering Departments are governed by written procedures or directives. Those procedures that are administrative in nature are reviewed by the QA Manager. | 7

General Purchasing Department

Following initial operation, all replacement parts and contracts for outside company services shall be made through the Purchasing Department. All activities of the General Purchasing Department are governed by written procedures or directives. Procedures that are administrative in nature are reviewed by the QA Manager.

Power Stations Department

The General Superintendent of the Power Stations Department is responsible for the safe operation of Beaver Valley Power Station. Reporting directly and independently to the General Superintendent are the Plant Superintendent and the Superintendent of Nuclear Services. The Plant Superintendent is responsible for the testing, fueling, operating, maintenance, modification, and repair of Beaver Valley Power Station.

The Superintendent of Nuclear Services is responsible for the development and implementation of the Quality Control Program of Beaver Valley Power Station during the operational phases. This Quality Control Program will be reviewed by the QA Manager.

Stores Department

The General Superintendent of the Stores Department is responsible for developing and implementing procedures for the receiving, storing, and distribution of replacement parts and materials. Procedures that are administrative in nature are reviewed by the QA Manager.

Sub-Stations and Shops

The General Superintendent of Sub-Stations and Shops has the responsibility for the performance of electrical equipment tests, and the development of procedures governing their activities. Procedures that are administrative in nature are reviewed by the QA Manager.

Stone & Webster

The Duquesne Light Company Quality Assurance Manager through the Stone & Webster Quality Assurance Coordinator has contact with both the Stone & Webster Manager of Quality Assurance and Chief Engineer of Engineering Assurance regarding the contents and implementation of that portion of the Duquesne Light Company Quality Assurance program delegated to Stone & Webster Engineering Corporation. The Duquesne Light Company Quality Assurance Manager reviews and concurs with the contents of the Stone & Webster Quality Assurance Program.

Westinghouse

The Duquesne Light Company Quality Assurance Manager through the Westinghouse Project Manager has contact with the Westinghouse Quality Assurance Organization regarding the contents and implementation of that portion of the Duquesne Light Company Quality Assurance program delegated to Westinghouse. The Duquesne Light Company Quality Assurance Manager reviews and concurs with the contents of the Westinghouse Quality Assurance Program.

Stop Work Action

The Quality Assurance Manager has the authority to initiate stop work action when he has determined that conditions exist that, should they continue uncorrected, would be detrimental to the quality or safety of the plant. The Quality Assurance Manager has delegated the responsibility and authority to stop work under prescribed conditions to the Director of Site Quality Control for activities at the Construction Site. Additionally, Stone & Webster and Westinghouse have been delegated the authority to stop work under prescribed conditions as defined in Section 17.1.B and 17.1.C respectively.

17.2.1.2A Quality Assurance Program

Duquesne Light Company Quality Assurance Program encompasses the engineering, design, procurement, fabrication, erection, operation, and maintenance of the Beaver Valley Power Station. This program is documented by written policies, procedures or instructions which are carried out through the plant life in accordance with these policies, procedures and instructions.

The Duquesne Light Company Quality Assurance Program is defined in the Duquesne Light Company Quality Assurance Program Manual. This manual provides the overall Quality Assurance Policy developed for Duquesne Light Company and is approved by the President. Additionally, this manual provides the Quality Assurance Procedures which define the programs that have been established for (a) the design and construction phase, (b) the operations phase, and (c) the nuclear fuel design and fabrication phase. The Duquesne Light Company Quality Assurance Program Manual endorses the requirements of the Safety Analysis Report that apply to Quality Assurance and is the basis for the development of all other quality related programs and procedures for the project. Lists of the Quality Assurance Procedures developed for design/construction, operations and nuclear fuel phases and the identification of the criteria of Appendix E to 10CFR50, being implemented by each procedure, are provided in Tables 17.1.1A, 17.1.2A, and 17.1.3A respectively.

The Quality Assurance Sections of the Quality Assurance Department have developed the Quality Assurance Instruction Manual to define the means and methods by which members of these sections implement the requirements of the SAR and the Duquesne Light Company Quality Assurance Procedures.

The Director of Site Quality Control has developed a Site Quality Control Manual to define the means and methods by which the Site Quality Control members of the Quality Assurance Department implement the requirements of the SAR and the Duquesne Light Company Quality Assurance Procedures.

The Supervisor of Vendor Surveillance has developed a Vendor Surveillance Manual to define the means and methods by which the vendor surveillance section implements the requirements of the SAR and Duquesne Light Company Quality Assurance Procedures. | 5

Portions of the Quality Assurance Program have been delegated to Stone & Webster and Westinghouse as the Architect-Engineer and Nuclear Steam System Supplier respectively. Their responsibilities have been documented in appropriate manuals and procedures and have been subjected to review and approval/concurrence by the Duquesne Light Company Quality Assurance Manager.

All activities affecting quality shall be accomplished under controlled conditions utilizing appropriate equipment, suitable environmental conditions, and with assurance that all prerequisites for the given activity have been satisfied.

Duquesne Light Company retains the ultimate responsibility for Quality Assurance and verifies implementation through audits and reviews. These audits are performed by the Duquesne Light Company Quality Assurance Department or by other delegated Quality Assurance organizations (Stone & Webster and Westinghouse). Areas included in this audit and review program include conceptual design, detailed engineering and design, equipment specifications, engineering drawings, vendor selection, surveillance of vendor shops, witnessing of key shop tests, installation specifications and instructions, field inspections and quality related records and documentation, operation and maintenance procedures, fuel fabrication and receipt procedures, modification and repair procedures, and fueling procedures. All audit activity within this program is governed by the applicable manuals within Duquesne Light Company, Stone & Webster, and Westinghouse.

Formal training of all members of the Duquesne Light Company Quality Assurance Department is accomplished in accordance with written Indoctrination and Training Procedures. The purpose of the Indoctrination and Training is to assure that personnel performing activities affecting quality achieve and maintain suitable proficiency in the principles and techniques of the activities being performed. The Indoctrination and Training Program includes instructions as to the purpose, scope, and implementation of the governing manuals and procedures. Results of all such Indoctrination and Training are recorded and filed in accordance with written procedures.

The quality assurance programs of other organizations participating in the design construction and operation maintenance of nuclear power plants are reviewed by Duquesne Light Company. This review includes the subject of indoctrination and training and shall be to assure that other

organizations adequately provide for indoctrination and training of their personnel who perform activities affecting quality.

The following qualification and experience levels have been established for the Quality Assurance Department.

<u>Title</u>	<u>Min. Req'd Degree</u>	<u>Min. Years Experience</u>	<u>Experience</u>	
QA Manager, Director Site Quality Control	BS*	10	At least ten years in charge of responsible assignments in the design, construction, or operation of a power plant.	3
Supervisor QA or QC Group, QA or QC Senior Engineer, QC Administrator	BS*	5	At least five years in quality related work or responsible assignments in the design, construction, or operation of a power plant.	8
QA or QC Engineer, QA NDE Specialist	BS*	2	At least two years quality related work or equivalent experience in the design, construction, or operation of a power plant.	
QC Test Lab. Technician	Assoc. Degree or Equiv 2 yr college credit*	0	Education or training in a technical discipline.	

*Equivalent qualifications in related physical science or two years of equivalent experience in the design, construction or operation of a power plant per year of college education.

17.2.1.3A Design Control

The Duquesne Light Company Quality Assurance Program provides that measures to assure that applicable regulatory requirements are translated into specifications, drawings, procedures, and instructions. These measures are established for the identification and control of design interfaces and for the coordination among the participating design organizations. The design control measures shall provide the verifying and checking of the adequacy of design, such as by performance of design reviews, by the use of alternate methods, or by the performance of a suitable testing program. Adequacy of design and adherence to the design criteria documents shall be assured through formal review processes. These processes shall include review by individuals technically competent in the design area other than those who perform the original design. A design review board may

be utilized for this function consisting of personnel representing the design effort or system being reviewed, those representing the interface activity involved and representatives of the Engineering and Quality Assurance Departments. All such design reviews shall document comments, approvals, and releases. Areas that will be systematically evaluated shall include:

1. Stress, thermal, hydraulic, and accident analyses.
2. Compatibility of materials.
3. Suitability of application of materials, parts, equipment, and processing.
4. Accessibility for inservice inspection, maintenance, and repair.
5. Acceptance criteria for inspections and tests.
6. Applicability of codes and standards.

The results of all such design reviews shall be maintained, including all reports or comments generated by the reviewers. Design changes including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless Duquesne Light Company designates another responsible organization.

Design documents and specifications contain quality requirements. Deviations from these requirements are resolved and documented.

The program requires that design changes be incorporated into revised documents or specifications. These revisions will be distributed to responsible authorities in a controlled manner and obsolete documents will be removed and disposed of in a similarly controlled manner.

The responsibility for design control during the engineering and construction phase is delegated to Stone & Webster as agents for Duquesne Light Company (Section 17.1B) and to Westinghouse as supplier of the NSSS (Section 17.1C). Auditing progress of the design control are provided within the quality programs of both Stone & Webster and Westinghouse. In addition to the audit programs of Stone & Webster and Westinghouse, Duquesne Light Company will perform audits of the implementation of the programs of both agencies on a periodic basis. Duquesne Light Company Engineers review on a selective basis the design of certain components, systems, or structures. These reviews are documented in accordance with established procedures. Similar reviews are made of significant design changes which occur during the construction of the station. Implementation of these procedures

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by the Duquesne Light Company Engineering Departments is audited by Duquesne Light Company Quality Assurance Department.

Procedures will be established to assure that design control measures are applied when plant modifications are required after initial operation has commenced. The design required may be performed by Duquesne Light Company Engineering or by a responsible outside organization. When design changes or modifications are required, Duquesne Light Company Quality Assurance Department will determine that the design control program is evaluated and accepted prior to the commencement of design. The implementation of the program will be verified through audits by the Duquesne Light Company Quality Assurance Department.

17.2.1.4A Procurement Document Control

The Duquesne Light Company Quality Assurance Program establishes measures to assure that applicable regulatory requirements, design bases, and other requirements which are necessary to assure adequate quality are suitably included or referenced in the documents for procurement of material, equipment and services, whether purchased by the Duquesne Light Company or by its contractors or subcontractors.

The procurement documents will require that the supplier submit his QA Program Manual for review. The program will be reviewed to verify that all applicable criteria from Appendix B to 10CFR50 have been adequately addressed. Concurrence with the program will be given before the order is placed.

Procurement documents shall contain basic technical requirements as applicable for activities including fabrication, cleaning, erecting, packaging, handling, shipping, storing, and inspecting. Technical requirements shall include component identification, drawings, specifications, codes, and industrial standards; also test and inspection requirements and special process instructions.

Procurement documents shall contain provisions which allow access to vendor facilities and records for the purpose of auditing and inspection. The procurement document will also define the requirement for the retention, control, and maintenance of records.

Procurement documents will be subjected to a review to assure that quality requirements are clearly stated. The review will be performed by a group which is independent of those having direct responsibility for the preparation of the procurement document. The review will determine that the procurement document has been prepared in accordance with established procedures, and that the document contains adequate acceptance and rejection criteria for any tests or inspections that may be performed as part of the

quality requirements. Revisions or changes to procurement documents will be subjected to the same review requirements as the original document. In either case, the review and approval of procurement documents will be documented and such evidence will be maintained and available for verification.

All vendors will be qualified in accordance with the provisions of 17.2.1.7.

The Duquesne Light Company Quality Assurance Department, in accordance with established instructions, reviews selected purchase documents to assure that quality requirements have been adequately addressed.

All safety-related field purchase requisitions are reviewed and approved by the Duquesne Light Company Director of Quality Control in accordance with written procedures.

Stone & Webster, as agent for Duquesne Light Company, has been delegated the responsibility for the preparation of procurement documents during the engineering and construction phase as described in Section 17.1B. Similarly Westinghouse is delegated the responsibility for the control of procurement documents for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to procurement document control. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase, measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized for the replacement of existing material or equipment. The implementation of these procedures or instructions will be audited by the Duquesne Light Company Quality Assurance Department. Procurement documents will be reviewed and approved by DLC Surveillance Quality Control Section before forwarding to field purchasing.

17.2.1.5A Instructions, Procedures, and Drawings

The Duquesne Light Company Quality Assurance Program requires that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Duquesne Light Company is responsible for the preparation of instructions, procedures, and drawings affecting quality, for those activities not delegated to S&W or the NSSS Supplier, during the design and construction phase.

S&W has been delegated responsibility, in certain areas, for the preparation of instructions, procedures, and drawings affecting quality during the design and construction phase. The extent of this S&W responsibility is described in Section 17.1B.

The responsibility for the preparation of instructions, procedures, and drawings for the NSSS is delegated to Westinghouse as described in Section 17.1C.

Auditing programs for the preparation of instructions, procedures, and drawings are provided within the quality programs of both Stone & Webster and Westinghouse. In addition to these audit programs, Duquesne Light Company Quality Assurance Department will perform periodic audits to evaluate the adequacy of the programs.

During the operations phase, measures established in accordance with the Duquesne Light Company Quality Assurance Program will be utilized for the preparation of instructions, procedures, and drawings. The implementation of the established procedures will be audited by the Duquesne Light Company Quality Assurance Department.

17.2.1.6A Document Control

The Duquesne Light Company Quality Assurance Program establishes measures to control the issuance of documents affecting the quality of safety-related systems. These documents include design specifications, design, manufacturing, construction and installation drawings, Quality Assurance Manuals and Procedures, manufacturing inspection and testing instructions, and procurement documents. The measures assure that documents, including changes, are reviewed for adequacy and approved by authorized personnel. Unless otherwise specified by the Duquesne Light Company, reviews of changes shall be conducted by the same organizations that performed the original review. Reviewers shall have access to pertinent background information and possess an understanding of the requirements and intent of the original document. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed prior to the onset of work. Changes to documents shall be reviewed and approved by the same organizations that performed the original review and approval unless DLC designates another responsible organization. Participating organizations shall have procedures for the control of documents and changes thereto to preclude the possibility of the use of outdated or inappropriate documents

including such measures as the use of current and updated distribution lists.

During the engineering and construction phase, certain responsibilities for the control of documents have been delegated to Stone & Webster as agent for Duquesne Light Company as described in Section 17.1B. The responsibility for the control of documents regarding the NSSS is delegated to Westinghouse as described in Section 17.1C. Auditing programs of the control of documents are provided within the quality programs of both Stone & Webster and Westinghouse. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase, measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program Manual will be utilized to control documents concerning activities affecting quality. The implementation of these procedures and instructions will be audited by Duquesne Light Company Quality Assurance Department.

17.2.1.7A Control of Purchased Material, Equipment, and Services

The Duquesne Light Company Quality Assurance Program requires that measures be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, source inspection, receipt inspection, examination of tests and/or inspection reports from the supplier, examination of objective evidence from the supplier, such as certification of material analysis or any other combination of these. The extent and frequency of source evaluations shall be governed by the importance, complexity and quantity of items involved and the level of confidence in the supplier established by past performance, his ability to meet the applicable requirements of 10CFR50, and a periodic comprehensive audit of this QA Program and implementation.

Source inspections and/or audits shall be conducted by qualified personnel to ensure conformance to requirements of the procurement documents, specifications, approved shop drawings, and applicable codes and standards. Such inspection shall be determined in advance and performed in accordance with written instructions.

Receipt inspection shall include examination of material and equipment to assure that the quality was not impaired during transit and that all quality records or a certification of compliance are at the site prior to the use or installation of the material or equipment. When the verification is by submittal

of certification from the supplier, it shall be acceptable only if it includes the identification of the codes and standards to which the items were subjected and the accepting authority is satisfied that the submitted data is true, correct, complete and conforms to the requirements of the procurement documents.

This documentary evidence shall be retained at the power plant site and shall be sufficient to identify the specific requirements, such as codes, standards, or specifications, met by the purchased material and equipment. The program requires that the effectiveness of the control of quality by contractors and subcontractors shall be assessed by Duquesne Light Company or its designee at intervals consistent with the importance, complexity, and quantity of the product or services.

Duquesne Light Company, SQC Section, has the responsibility for reviewing and evaluating the completeness of all specified procurement/shipping documents and for performing the receipt inspection for all safety-related material and equipment received at the site. Appropriate procedures shall be prepared and implemented to carry out these responsibilities.

Stone & Webster, as agents for Duquesne Light Company, has been delegated certain responsibilities in the selection of purchased material and services during the engineering and construction phase as described in Section 17.1B. Similarly Westinghouse is delegated the responsibility for the control of purchased material and services for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to control of purchased materials and services. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs as well as selected contractors and subcontractors.

The Duquesne Light Company Quality Assurance Department, with any necessary outside assistance, will review and concur with the requirements of the Quality Assurance program of the Fuel Fabricator and will during its fabrication conduct audits of the program's implementation.

During the operational phase, written procedures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized by participating Duquesne Light Company Divisions and Departments in the acquisition of purchased material, equipment, and services. The implementation of these written procedures as well as the Quality Assurance programs of contractors and subcontractors will be reviewed and audited for content and implementation by the Duquesne Light Company Quality Assurance Department.

17.2.1.8A Identification and Control of Materials, Parts, and Components

The Duquesne Light Company Quality Assurance Program requires that measures be established for the identification and control of materials, parts, and components, including partially fabricated assemblies. These measures shall assure that identification of the item is maintained by heat number, part number, serial number, or other appropriate means, either on the item or on records traceable to the item, as required throughout fabrication, erection, installation, and use of the item. Physical identification shall be used to the maximum extent possible. Where physical identification is either impractical or insufficient, physical separation, procedural control, or other appropriate means shall be employed. Identification may be either on the item or on records traceable to the item, as appropriate.

Where identification marking is employed, the marking shall be clear, unambiguous and indelible, and shall be applied in such a manner as not to affect the function of the item. Markings shall be transferred to each part of an item when subdivided and shall not be obliterated or hidden by surface treatment or coatings unless other means of identification are substituted. Traceability shall be identified in procurement documents and by reference to the requirements of applicable codes and standards. These identification and control measures shall be designed to prevent the use of incorrect or defective material, parts, and components.

The Duquesne Light Company SQC Section is responsible for assuring, through inspections, the identification, classification, and segregation of all Category I materials, parts, and components during the construction phase. On-site contractors are responsible for establishing appropriate identification, classification, and segregation practices to control the use of materials and items within their scope of work.

Stone & Webster, as agent for Duquesne Light Company, has been delegated certain responsibilities for the identification and control of materials, parts, and components during the engineering and construction phase as described in Section 17.1C. Similarly Westinghouse is delegated the responsibility for the identification and control of material, parts, and components for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to identification and control of materials, parts, and components. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized for the identification and control of materials, parts, and components. The implementation of these procedures or instructions will be audited by the Duquesne Light Company Quality Assurance Department.

17.2.1.9A Control of Special Processes

The Duquesne Light Company Quality Assurance Program establishes measures to assure that special processes, including welding, heat treating, and nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements.

The Duquesne Light Company SQC Section is responsible for the establishment and implementation of the program for the qualification and maintenance of welders at the Construction Site. As such, the Director of SQC has the authority to require a retest of any welder or welding operator. Welders' and Welding Operators' certifications are issued and maintained by the SQC Section. The Duquesne Light Company SQC Section is responsible for the development and implementation of a Nondestructive Examination Program for the Construction Site. This will include the development of NDE Procedures and the qualification of personnel. 13

Stone & Webster, as agent for Duquesne Light Company, has been delegated responsibilities for the control of special processes during the engineering and construction phase as described in Section 17.1B. Similarly Westinghouse is delegated the responsibility for the control of special processes for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality program, have established provisions for auditing the implementation of their own activities in regard to the control of special processes. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized for the control of special processes. The implementation of these established procedures and instructions will be audited by the Duquesne Light Company Quality Assurance Department.

17.2.1.10A Inspection

The Duquesne Light Company Quality Assurance Program requires that measures for inspection of activities affecting quality shall be established and executed by or for the organization performing the activity to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity. Such inspection shall be performed by individuals other than those who performed the activity being inspected. Examinations, measurements, or tests of materials or products processed shall be performed for each work operation where necessary to assure quality. If inspection of processed material or products is impossible or disadvantageous, indirect control by monitoring processing methods, equipment, and personnel shall be provided. Both inspection and process monitoring shall be provided when control is inadequate without both. If mandatory inspection hold points, which require witnessing or inspecting by a designated representative and beyond which work shall not proceed without the consent of its designated representative are required, the specific hold points shall be indicated in appropriate documents.

Where required by governing codes and standards, inspectors shall be qualified in accordance with the requirements of those codes and standards and shall conduct examinations in accordance with the procedures as required by such codes and standards. These inspection procedures shall be available for use by the inspector prior to the performance of the inspection. Measures shall be established to maintain and record the current status of inspector qualifications.

Inspection acceptance criteria shall be commensurate with the type of repairs, replacements, or modifications, and where applicable shall be equal to those contained in the original instructions, procedures, and drawings.

The Duquesne Light Company Site Quality Control Section is responsible for the receipt inspection of material and components at the construction site. Duquesne Light Company Site Quality Control personnel perform inspections of material and components during receiving, storage, handling, installation, and preparation for operation. The activities inspected and the criteria for acceptance are shown on approved drawings, specifications, manufacturer's special instructions, and in supporting Quality Assurance procedures and instructions. Inspections and nondestructive tests are specified and performed where necessary to assure quality. Specific hold points are included in the specification or are established by Site Quality Control.

The Director of Site Quality Control is responsible for assuring that the field inspection requirements have been met in the following construction activities:

1. Soils identification and control of moisture and compaction.
2. Inspection of concrete forms, reinforcing steel, electrical, mechanical, and structural embedments prior to concrete placement.
3. Verification of proper proportioning, mixing, and delivery of concrete.
4. Inspection of structural steel erection and bearing pile installation, if applicable.
5. Nondestructive examination of welding.
6. Inspection for proper assembly of piping systems and components.
7. Alignment and clearance of mechanical equipment.
8. Verification of electrical cable routing, termination, and equipment installation.

Field piping fabrication and erection operations on Category I systems and equipment receive in-process and final Quality Control inspections for assurance that the requirements of specifications and approved drawings are met. The inspections specified are documented and maintained at the construction site in the site Quality Assurance file.

Stone & Webster, as agent for Duquesne Light Company, has been delegated responsibilities for the inspection of activities affecting quality during the engineering and construction phase as described in Section 17.1B. Similarly, Westinghouse is delegated the responsibility for the inspection of activities affecting quality for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to the inspection of activities affecting quality. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized for the inspection of activities affecting quality.

The Duquesne Light Quality Assurance Department will review, approve, and audit the implementation of these written procedures and instructions.

17.2.1.11A Test Control

The Duquesne Light Company Quality Assurance Program will establish a test program to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. The test program shall include, as appropriate, proof tests prior to installation, preoperational tests, and operational tests during nuclear power plant operation, of structures, systems, and components. Test procedures shall include provisions for assuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions. Test results shall be documented and evaluated to assure that test requirements have been satisfied.

The Director of SQC is responsible for assuring that all quality control tests specified are performed under proper environmental conditions, with adequate test instrumentation and by qualified personnel. | 3

Stone & Webster, as agent for Duquesne Light Company, has been delegated the responsibilities for the establishment and implementation of a test program during the engineering and construction phase as described in Section 17.1B. Similarly, Westinghouse is delegated the responsibility for the establishment and implementation of a test program for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to the test program. In addition to the audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized for the establishment of a test program. The commitments established in the test program will be audited periodically by the Duquesne Light Company Quality Assurance Department to assure compliance with the commitments.

17.2.1.12A Control of Measuring and Test Equipment

The Duquesne Light Company Quality Assurance Program establishes measures to assure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within necessary limits. These measures shall include a system for the initial

calibration, recall of measuring, and testing devices when they are due for recalibration and for the tagging of instrument gages to positively indicate their status.

The laboratory standards against which calibrations or recalibration of measuring and testing devices are measured shall be maintained, calibrated and used in an environment compatible with the required accuracy and operating characteristics. The requirement includes control of temperature, humidity, and contamination. All items which have been measured by equipment found to be out of calibration shall be suspect, and an evaluation shall be made to determine what action is necessary to assure compliance of the item to its applicable specification.

The measures will require that all measuring and testing devices are calibrated against certified equipment having known valid relationships to nationally recognized standards (for example the U.S. National Bureau of Standards). Calibrating Standards shall have an uncertainty (error) requirement of no more than 1/4 of the tolerance of the equipment being calibrated unless limited by the "State of the Art."

The Duquesne Light Company SQC Section is responsible for establishing the program for control of measuring and test equipment and for maintaining a staffed calibration facility during the engineering and construction phase. The contractors are responsible for issuing and retrieving measuring and test equipment, forwarding this equipment for calibration and maintaining records for equipment use.

Stone & Webster, as agent for Duquesne Light Company, has been delegated the responsibilities for the control of measuring and test equipment during the engineering and construction phase as described in Section 17.1B. Similarly Westinghouse is delegated the responsibility for the control of measuring and test equipment for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to the control of measuring and test equipment. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized for the control of measuring and test equipment. The implementation of the established procedures and instructions will be audited periodically by the Duquesne Light Company Quality Assurance Department.

17.2.1.13A Handling, Storage, and Shipping

The Duquesne Light Company Quality Assurance Program establishes measures to control the handling, storage, shipping, cleaning, and preservation of material and equipment in accordance with work and inspection instructions to prevent damage or deterioration. When necessary for particular products, special protective environments, such as inert gas atmosphere, specific moisture content levels, and temperature levels, shall be specified and provided, and methods for verification of the existence of these environments during handling, storage, or shipping shall be specified.

Duquesne Light Company SQC Section has the responsibility for implementing approved procedures for handling and storing of all material and equipment. These procedures shall include: unloading, performing item inspection, storing, maintenance while in storage, location control, and the documentation of same.

Stone & Webster, as agent for Duquesne Light Company, has been delegated certain responsibilities for the adequate handling, storing, shipping of material and equipment during the engineering and construction phase as described in Section 17.1B. Similarly Westinghouse is delegated the responsibility for the adequate handling, storing, and shipment of material and equipment for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to the handling, storage, and shipment of material and equipment. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized for the handling, storage, shipping, cleaning, and preservation of material and equipment. The implementation of the established procedures or instructions will be verified through periodic audits which will be performed by the Duquesne Light Company Quality Assurance Department.

17.2.1.14A Inspection, Test, and Operation Status

The Duquesne Light Company Quality Assurance Program requires that measures shall be established to indicate, by the use of markings such as stamps, tags, labels, routing cards, or other suitable means, the status of inspections and tests performed upon individual items of the nuclear power plant. These measures shall provide for the identification of items which have satisfactorily passed required inspections and tests, where necessary to preclude inadvertent bypassing of such inspections and tests. Measures shall also be established for indicating the

operating status of structures, systems, and components of the nuclear power plant, such as by tagging valves and switches, to prevent inadvertent operation. These measures shall include procedures for the control of status indicators, including the authority for application and removal of tags, markings, labels, and stamps.

The Duquesne Light Company SQC Section will maintain the status of plant structures, systems, and components during the preoperational test period. Records, checklists, and an operational status tagging system are maintained during the period to indicate status and availability to operate.

Stone & Webster, as agent for Duquesne Light Company, has been delegated responsibilities for identifying status during the engineering and construction phase as described in Section 17.1B. Similarly Westinghouse is delegated the responsibility for identifying status for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to identifying status. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the pre-operational and operational phases, procedures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized by both Stone & Webster and Duquesne Light to indicate the test and operating status of structures, systems, and components. These procedures will be reviewed by the Duquesne Light Company Quality Assurance Department and audits will be performed to determine their implementation.

17.2.1.15A Nonconforming Material, Parts, or Components

The Duquesne Light Company Quality Assurance Program establishes measures to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. These measures shall include, as appropriate, procedures for identification, documentation, segregation, disposition, and notification to affected organization. Nonconforming items shall be reviewed and accepted, rejected, repaired, or reworked in accordance with documented procedures. Nonconforming items shall be physically separated, whenever practical, into hold areas. The access to such hold areas, including the authority for removal of items, shall be specified.

The responsibility and authority for the disposition of nonconforming items shall be defined and a method of notification to affected organizations shall be documented.

Inspection acceptance criteria shall be commensurate with the type of repairs, replacements, or modifications, and where applicable shall be equal to those contained in the original instructions, procedures, and drawings.

Duquesne Light Company Site Quality Control Section has the responsibility for implementing approved procedures for identifying and reporting nonconforming items during the construction phase of the work. Site Quality Control reports the nonconformance to the Stone & Webster Project Engineer who shall review the matter and provide a directive on dispositioning the nonconformance.

Stone & Webster, as agents for Duquesne Light Company, has been delegated the responsibility for the control of nonconforming materials, parts, and components during the engineering and construction phase as described in Section 17.1B. Similarly, Westinghouse is delegated the responsibility for the control of nonconforming materials, parts, and components for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to nonconforming materials, parts, and components. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized for the control of nonconforming materials, parts, and components. The implementation of these established procedures of instructions will be verified through periodic audits performed by the Duquesne Light Company Quality Assurance Department.

17.2.1.16A Corrective Action

The Duquesne Light Company Quality Assurance Program requires that measures shall be established to assure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of managements. Documents shall be maintained which provide objective evidence that conditions adverse to quality have been identified and corrective action has been taken.

Duquesne Light Company Site Quality Control Section has the responsibility for implementing approved procedures and for reviewing and analyzing all Nonconformance and Disposition Reports (N&D's) as an effort to determine patterns and trends. Such information may result in a lower frequency of occurrences of nonconformances, as a result of feedback.

Stone & Webster, as agent for Duquesne Light Company, has been delegated certain responsibilities for Corrective Action during the engineering and construction phase as described in Section 17.1B. Similarly Westinghouse is delegated the responsibility for Corrective Action for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to Corrective Action. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized for the detection of conditions adverse to quality, and that the cause of the condition is identified and documented to the proper level of management.

These procedures or instructions shall be reviewed and approved by the Duquesne Light Company Quality Assurance Manager and audits will be performed to determine their implementation.

The Duquesne Light Company Quality Assurance Manager has the authority to prepare written notices to any participant in the Quality Assurance program requesting changes and/or revisions to any program or procedure which may have resulted in the generation of repeated non-conformances. The Quality Assurance Manager, in addition, may direct the stopping of all work pending Corrective Action.

17.2.1.17A Quality Assurance Records

The Duquesne Light Company Quality Assurance Program requires that sufficient records be maintained to furnish evidence of activities affecting quality. The records shall include at least the following: Operating logs and results of reviews, inspections, tests, audits, monitoring of work performance, and materials analyses. The records shall also include closely related data such as qualifications of personnel, procedures, and equipment. Inspection and test records shall, as a minimum, identify the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted. Records shall be identifiable and retrievable. Consistent with applicable

regulatory requirement, Duquesne Light Company shall establish requirements concerning record retention, such as duration, location, and assigned responsibility. Provisions include onsite facilities for permanent records retention, including steps taken to assure preservation, protection, controlled access, and all other applicable requirements.

Stone & Webster, as agent for Duquesne Light Company, has been delegated the responsibility for the maintenance of Quality Assurance records for the NSSS as described in Section 17.1C. Both Stone & Webster and Westinghouse, within their own quality programs, have established provisions for auditing the implementation of their own activities in regard to the maintenance of Quality Assurance records. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse programs.

During the operational phase measures established in accordance with the requirements of the Duquesne Light Company Quality Assurance Program will be utilized for the maintenance of Quality Assurance Records. The implementation of these established procedures and instructions for the maintenance of Quality Assurance records will be verified through periodic audits performed by the Duquesne Light Company Quality Assurance Department.

17.2.1.18A Audits

The Duquesne Light Company Quality Assurance Program requires that a comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. The audits shall be performed in accordance with the written procedures or check lists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audit results shall be documented and reviewed by management having responsibility in the area audited. Follow-up action, including reaudit of deficient areas, shall be taken where indicated. Audits should include, but not be limited to, an objective evaluation of QA program contents, such as practices, procedures and instructions, and their implementation as well as an evaluation of work areas, activities, processes and items and should include a review of documents and records pertaining to the subject work including implementation of corrective action.

Stone & Webster, as agent for Duquesne Light Company, has been delegated the responsibility for auditing to the provisions of the Stone & Webster Quality Assurance Program during the engineering and construction phase as described in Section 17.1B. Similarly Westinghouse is delegated the responsibility for auditing to the provisions of the Westinghouse Quality Assurance

Program for the NSSS as described in Section 17.1C. In addition to these audits, Duquesne Light Company Quality Assurance Department will perform its own periodic audits to assess the adequacy of the Stone & Webster and Westinghouse Programs, as well as certain selected contractors or subcontractors of both Companies.

The Duquesne Light Quality Assurance Manager is also responsible for the auditing of all company divisions or departments, as well as company contractors or subcontractors participating in the Duquesne Light Company Quality Assurance Program.

These audits will be performed at a frequency commensurate with their importance as well as the quality record of the group involved.

Copies of all audit findings and recommendations are transmitted to the appropriate management level of the organization involved as well as to the Vice President of the Duquesne Light's Engineering and Construction Division.

3

17.1B STONE & WEBSTER ENGINEERING CORPORATION QUALITY ASSURANCE PROGRAM

A Quality Assurance Program has been established by Stone & Webster Engineering Corporation (S&W) which ensures compliance with the provisions of the Code of Federal Regulations, 10CFR50 - Appendix B, "Quality Assurance Criteria for Nuclear Power Plants," dated June 27, 1970 for those activities delegated as Stone & Webster Quality Assurance responsibility by Duquesne Light Company (DLC). SWEC
1-20-76

This section summarizes the quality assurance measures established by S&W for application to QA Category I items*.

QA Category I items are listed in Appendix B to Section 17.

17.1.1B Organization

17.1.1.1B General Description

Fig 17.1.1B-1, "Company Organization for Quality Assurance" shows the lines of authority, responsibility, and communication for quality matters within S&W.

Fig 17.1.2B, "Quality Assurance Department Organization" shows the lines of authority and responsibility within the Quality Assurance Department in Boston and at procurement inspection locations for activities delegated as S&W responsibility.

Fig 17.1.3B, "Quality Assurance Interrelationships" shows the lines of authority, communications, and responsibilities within the Quality Assurance Department in Boston, and with Procurement Inspection locations for activities delegated as S&W responsibility.

17.1.1.2B Establishment and Management of QA Program

The Vice President, Quality Assurance, is responsible for:

1. Establishing the policy and program for S&W quality assurance and quality control activities except engineering and design.
2. Coordinating designated S&W quality assurance and quality control activities.

*QA Category I includes those structures, plant systems, or portions of systems, and components whose failure or malfunction could cause a release of radioactivity that would endanger safety. This category also includes equipment which is vital to a safe shutdown of the plant and the removal of decay and sensible heat, or equipment which is necessary to mitigate consequences to the public of a postulated accident.

3. Directing quality assurance and quality control (QC) for designated S&W procurement activities.

The Engineering Manager is a Vice President and is responsible for:

1. Establishing the policy for quality assurance activities for engineering and design (hereafter referred to as engineering assurance activities).
2. Directing engineering assurance activities.
3. Delineating applicable quality standards in SARs, specifications, and drawings.

The Senior Construction Manager is responsible for compliance to quality requirements by construction activities for those areas designated as S&W responsibility. In those areas where site contractor programs have been reviewed and approved by DLC QA, DLC construction is responsible for compliance to quality requirements.

The Manager of Projects is a Vice President and has the prime responsibility for project costs and schedules.

The above mentioned Vice Presidents with quality assurance responsibilities report directly to the President and have authority delegated to them consistent with their area of management.

This organizational structure assures that the Vice President, Quality Assurance (QA), and the Engineering Manager are sufficiently independent of production pressures to properly carry out their responsibilities for directing and managing the QA program.

17.1.1.3B Management of QA Activities

The Manager, Quality Assurance, is responsible for the administration and management of the S&W quality assurance program, with the exception of engineering assurance activities. He reports directly to the Vice President - Quality Assurance.

The Chief Engineer, Engineering Assurance Division, is responsible for assuring the implementation and proper functioning of engineering assurance activities. He derives his authority from the Engineering Manager.

17.1.1.4B Implementing Organization

Quality requirements are established by the Engineering Department for materials, equipment, and construction activities, and are then included in specifications for their implementation.

VICE PRES AND
QA MANGER
ARE SAME
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PRESENT
ORGANIZATION

The Construction Department reviews and approves specifications. The QA and QC requirements in the specifications are reviewed and approved by the QA Department.

Engineering assurance policy, established by the Engineering Manager, is documented in Engineering Assurance Procedures (EAPs). Those EAPs which interface with QC procedures are reviewed for concurrence by the Manager, Quality Assurance.

Quality assurance and quality control policy, established by the Vice President - Quality Assurance, is documented in several manuals under the administration of the Manager - Quality Assurance. These manuals and the persons assigned direct responsibility for their preparation are:

1. Project QA Program Manual - QA Coordinator | QAPA
2. Company Quality Assurance and Control Manual -ASME Section III - Chief Engineer, Quality Systems Division
3. Quality Standards Manual - Chief Engineer, Quality Systems Division.
4. Quality Assurance Directives - Chief Engineer, Quality Systems Division
5. Quality Control Instructions - Manager, Procurement Quality Control Division. | ASSURANCE
6. Company Quality Assurance Nondestructive Test Manual - Chief Engineer, QA NDT Division.

Only those portions of these manuals which govern work delegated to S&W by DLC are applicable to Beaver Valley Unit No. 2.

The major areas of QA activity within S&W are those related to the preparation of engineering and design documents and the procurement of selected components.

Engineering Assurance

The Engineering Assurance Division (EA) is responsible for assuring the implementation and evaluation of the engineering assurance program, which consists of management systems for (1) control of technical work in engineering and design divisions, and (2) assurance of quality of that work. Engineering Assurance also assures that completed engineering and design work conform to S&W procedures.

To fulfill these responsibilities, Engineering Assurance issues appropriate EAPs, provides continuing education in the engineering assurance program, audits engineering and design work, reports to management on the performance of engineering and

design, and verifies the satisfactory completion of any required corrective actions.

Quality Assurance

The Quality Assurance Department (QA), under the direction of the Manager - Quality Assurance, is responsible for implementing the policy and program, as established by the Vice President-Quality Assurance. The QA functions are carried out as follows:

Procurement Quality Control

ASSURANCE

The Procurement Quality Control Division (PQC) assures that suppliers conform to procurement specifications and drawings for the following purchase orders and other purchaser orders formally designated by DLC in correspondence controlling placement of orders.

2BV-9	2BV-203	THIS NUMBER REDUCED DUE TO COMPLETED ORDERS.
2BV-15	2BV-204	
2BV-22	2BV-206	
2BV-23	2BV-213	
2BV-43	2BV-216	
2BV-405	2BV-221	
2BV-407	2BV-222	
2BV-408	2BV-226	
2BV-21	2BV-229	
2BV-21A	2BV-236	
2BV-32	2BV-247	
2BV-51	2BV-248	
2BV-202	2BV-625	

The Procurement Quality Control Division will perform vendor pre-award qualification and maintain the S&W vendor rating list.

Field Quality Control

No Field Quality Control activities have been assigned to S&W.

QA Nondestructive Testing

The QA Nondestructive Test Division (NDT) provides assistance to the Procurement Quality Control Division for Nondestructive Testing for those purchase orders designated as S&W responsibility and reviews non-field related vendor procedure for NDT requirements. INDTD

The QA NDT Division consists of a Chief Engineer, and a staff of qualified NDT engineers and specialists.

Quality Systems Division

The Quality Systems Division (QSD) provides quality engineering support for the QA Department activities, and is responsible for the establishment and control of standardized quality systems. The QSD consists of a Chief Engineer and a staff of Engineers and Specialists.

Quality Assurance CoordinationPROGRAM
ADMINISTRATOR

A QA Coordinator is assigned to the Project, and is responsible for integrating all designated phases of the QA program. Under the direction of the Manager - Quality Assurance, he assists the project in implementing S&W QA policies and programs. He acts as the QA Department spokesman for his assigned project, and assists the utility in QA matters, when requested. He is responsible for coordinating quality related interfaces between DLC and S&W, and for coordinating the QA Sections of Safety Analysis Reports and their revisions. He reports to the Project Manager regarding quality assurance activities.

Department Services GroupQUALITY ASSURANCE COST
AND AUDIT DIVISION (QACA)

The Department Services Group is assigned the responsibility for quality program evaluations, management audits, cost control, and support services within the quality assurance discipline for those activities assigned to S&W. The group also provides such assistance as is required to other departments.

17.1.1.5B Qualification and Experience Levels

Qualification and experience levels of management personnel carrying out the QA Program are summarized on Table 17.1-1.

17.1.2B Quality Assurance Program17.1.2.1B General Description

The quality assurance program provides control of the S&W assigned activities throughout the following phases of the project.

1. Conceptual design
2. Detailed engineering and design
3. Procurement of Engineering services
4. Preparation of Procurement specifications
5. Equipment procurement
 - a. Supplier selection

- b. Surveillance of suppliers (for those orders listed in Section 17.1.1.4B under the heading "Procurement Quality Control.")
- c. Witnessing key shop tests (for those orders listed in Section 17.1.1.4B under the heading "Procurement Quality Control.")

| ASSURANCE

| ASSURANCE

17.1.2.2B QA Program Documentation

The S&W QA program policies, procedures, and instructions are documented in the manuals listed below. These manuals are reviewed and approved by appropriate S&W management. All manuals and manual revisions are distributed as controlled documents to the key S&W personnel participating in project activities, and as requested by DLC.

1. Project QA Program Manuals
2. Engineering Assurance Manual
3. Quality Standards Manual
4. Quality Assurance Directives
5. Company Quality Assurance and Control Manual - ASME Section III
- ~~6. Company QA Nondestructive Test Manual~~

THIS MANUAL DELETED IN 1977,
REPLACED BY QUALITY ASSURANCE
DIRECTIVES (QAD's).

Only those portions of these manuals which govern work delegated to S&W by DLC are applicable to Beaver Valley Unit No. 2.

17.1.2.3B Indoctrination and Continuing Education

Continuing education and qualification of personnel performing quality related activities are requirements of the QA program. Quality Assurance Department personnel responsible for nondestructive testing are trained and qualified in accordance with the applicable requirements of SNT-TC-1A, "Recommended Practice for Nondestructive Test Personnel Qualification and Certification" of the American Society of Nondestructive Testing. This program is administered by instructors from the QA-NDT Division and Quality Systems Division.

Procurement Quality Control Personnel performing S&W assigned PQC inspection activities are qualified in accordance with S&W procedures.

17.1.2.4B Periodic Review of QA Program

The status and adequacy of the QA manuals are regularly reviewed and assessed. Periodic management level audits are conducted to assure the implementation of QA program requirements, and to upgrade the program to reflect changing Code, Standard, and regulatory requirements.

17.1.3B Design Control

17.1.3.1B General Description

Measures are established to assure that applicable regulatory requirements and nuclear power plant design bases are correctly translated into S&W specifications, drawings, procedures, and instructions.

The essential elements required for design control, and to validate the adequacy of the control are:

1. The establishment of basic methods of scoping, accomplishing, and accounting for the completeness of essential engineering and design tasks.
2. A system of thorough review and checking of designs, calculations, specifications, and drawings by competent technical personnel.
3. An engineering assurance program to assure compliance through assessment of conformance to procedures, and documented by objective evidence.

17.1.3.2B Design Standards

Design documents and specifications for QA Category I structures, plant systems or portions of systems, and components are prepared and reviewed for the following:

1. Engineering requirements
2. NRC General & Design Criteria conformance
3. NRC Regulatory Guides and/or Information Guides applicability
4. Industry Codes and Standards
5. Topical Reports
6. SAR conformance
7. QA requirements and adequacy

8. Interface requirements between S&W and Westinghouse.

Deviations from the above are investigated and resolved and any accepted deviations are documented.

17.1.3.3B Design Reviews

Numerous internal design reviews are conducted through the engineering and design phase by qualified technical personnel, e.g., Project Engineer, engineering specialists, and project lead discipline engineers.

Design reviews are made during the conceptual phase of the project, and when significant changes or modifications are being considered. These reviews are made in accordance with established Engineering Department procedures and include the review of all affected drawings for design adequacy, and to ensure that practical alternatives have been considered.

QA Department personnel participate only in those design reviews involving QA matters. Engineering Assurance exercises surveillance of the design review process.

17.1.3.4B Design Control and Change Control

Design developments are subjected to engineering reviews and checks as follow:

1. Design

Established procedures require the review and signatures of at least one other engineer, in addition to the individual primarily responsible, for engineer/design documents. Engineering reviews are conducted and include both the original document and any subsequent revisions.

2. Design Criteria Documents

Design criteria documents (as an example but not limited to design memoranda and reports) are reviewed and approved by cognizant engineers and the Project Engineer. The following items are considered in these reviews:

Accident analysis

Compatibility of materials

Compatibility of design interfaces with the NSSS and others

Accessibility for inservice inspection, maintenance, and repair

Acceptance criteria for tests and inspection

Quality requirements

3. Engineering Calculations

All manual calculations are reviewed and signed by a qualified person, in addition to the preparer. The review consists of a check of original assumptions, correct methods, accuracy, and final conclusions.

Machine calculations are prepared with a summary sheet, including all pertinent design criteria and other design input and results, e.g., curves, tables, etc. Machine calculation input data, summary sheets, and data printout sheets are reviewed by a qualified person in addition to the originator, and are signed by the originator and reviewer. The Engineering Assurance Manual establishes the requirements for the preparation, review, and filing of all engineering calculations.

Calculations may be checked by an alternate or simplified calculational method as appropriate.

4. Specifications

The methods and procedures for controlling quality of specifications are described in Section 17.1.4B.

5. Drawings

After a drawing is produced, it is thoroughly reviewed by a designer other than the preparer. The review of the initial and all subsequent issues is for adherence to standards, supporting calculations, engineering instructions, compatibility with other drawings, and correctness of dimensions. The drawing is then examined and initialed by other design disciplines having as an interface the design supervisor, the responsible engineer, the Project Engineer or his designee, and, when required by Code, Regulation, or law, it is signed and, as required, stamped by a registered professional engineer.

6. Design Interfaces

Design interfaces include those between contractors and between engineering disciplines. Interface review is a specific check in the specification and drawing review and approval cycle (see above).

Specific procedures in the Engineering Assurance Manual provide written instructions governing the review, approval, release, distribution, and revision of documents involving design interfaces with the participating design organizations, including those with Westinghouse.

7. Design Audits

Audits are conducted by the Engineering Assurance Division to measure performance and compliance with established procedures and instructions. Formal reports are issued to management for each audit, noting any required corrective action. The Engineering Assurance Manual includes procedures for the audit program on design.

8. Prototype Testing Control

If prototype testing is required to confirm design adequacy, the testing, acceptance criteria, and documentation requirements are contained in the procurement specifications or other applicable documents.

9. Design Change Control

All technical changes to approved procedures, instructions, calculations, drawings, and specifications are permitted only after review by the same organization and in the same manner as the original document. Engineering Assurance Procedures prescribe the method of authorizing shop or field work which is assigned as S&W responsibility resulting from an engineering or design change which must precede revision of the approved parent drawing or specification.

17.1.3.5B As-built Specifications and Drawings

Engineering and design changes are reflected in accurate "as-built" drawings and specifications records packages for QA Category I items and systems.

17.1.4B Procurement Document Control

17.1.4.1B General Description

Engineering, design, quality, and regulatory requirements and any other requirements necessary to assure proper item performance are specified in the specifications for materials, equipment, and services. Control of incorporation, review, and approval of QA and QC requirements in procurement specifications is maintained by using procedures in the various S&W QA Manuals.

17.1.4.2B Boston Purchased Items

QA and QC requirements are included as part of the procurement document. S&W written procedures require review of QA Category I procurement and erection specifications by the QA Department. This review and concurrence is done by the Technical Support Section of the Quality Systems Division, which reviews for consideration and applicability of: ENGINEERING

1. Codes and Standards, including proper identification
2. QA Program requirements
3. Test requirements by suppliers and erectors
4. Inspection requirements by suppliers and erectors, and inspection requirements and rights of entry by S&W inspectors and/or DLC inspectors.
5. Nondestructive testing requirements
6. Records and documentation requirements

After a satisfactory review, the Quality Systems Division reviewing engineer signs on the cover of the specification.

Revisions and addenda to QA Category I specifications are reviewed by the QA Department in the same manner as the original documents.

Suppliers who perform work on QA Category I items are required to submit their QA Program for review and evaluation by S&W to assure that the program conforms to the pertinent provisions of 10CFR50, Appendix B. Review of the site contractor's QA Programs is accomplished by DLC.

Specifications for QA Category I items require that all essential quality requirements be passed on to contractors and subcontractors furnishing materials, components, and services.

17.1.4.3B Field Purchase Items

QA and QC requirements are included as part of the procurement requisition. Requisitions are processed to DLC for approval of quality requirements.

17.1.4.4B Code and Regulatory Requirements

Procurement documents identify codes and regulations by their complete title and include the name of the sponsoring organization and identification of the applicable edition. All QA Category I procurement specifications invoke the applicable Codes and Standards prescribed in 10CFR50, Paragraph 50.55a.

17.1.5B Instructions, Procedures, and Drawings17.1.5.1B General Description

The QA program manuals document the policy, procedures, and instructions for the technical, administrative, and quality related inputs to documents affecting the quality of QA Category I structures, systems or portions of systems, and components. Appropriate quantitative and qualitative acceptance criteria for determining that quality-related activities have been satisfactorily accomplished are contained in instructions, procedures, specifications, drawings, or other appropriate documents.

17.1.5.2B Procedures and Manuals

The Stone & Webster QA program is documented by written procedures contained in the supporting QA Manuals referenced in Section 17.1.2B. Only those portions of these manuals which govern work delegated to S&W by DLC are applicable to Beaver Valley Unit No. 2.

17.1.5.3B Codes and Standards

Methods and procedures for determining the effective dates of Codes and Standards are outlined in the Engineering Assurance Manual and are in conformance with NRC Code of Federal Regulations 10CFR50.55a.

17.1.5.4B Reporting Significant Deficiencies

The policy and methods for complying with NRC Code of Federal Regulations 10CFR50.55(e) in Reporting of Significant Deficiencies to the NRC are contained in the Engineering Assurance Manual.

17.1.5.5B Authorized Engineering and Design Changes

The Engineering Assurance Manual outlines authorized methods to change specifications or drawings. They are:

1. Revisions of the drawing or specifications or by issue of an addendum to a specification
2. An approved disposition to Nonconformity and Disposition Reports (N&DR)
- c. Authorization for change by an Engineering and Design Coordination Report (ESDCR).

NONCONFORMITY
MANANCE
(N+D)

17.1.6B Document Control

17.1.6.1B General Description

Procedures for implementing document control measures are contained in the S&W QA Program Manuals. These procedures control the issue of documents such as specifications and drawings, including authorized changes thereto, and assure that the documents and revisions are reviewed for adequacy and approved for release by authorized personnel.

17.1.6.2B Review and Approval of Documents

Stone & Webster specifications and drawings, including revisions thereto, are prepared, reviewed, and approved according to procedures outlined in the Engineering Assurance Manual. Similar procedures govern the review of supplier's drawings, and revisions thereto, to assure compliance with specification requirements, if review is required by the specification.

17.1.6.3B Controlled Distribution and Use

Specifications and drawings are issued in a controlled manner.

17.1.7B Control of Boston Purchased Material, Equipment, and Services

17.1.7.1B General Description

The quality of QA Category I purchased material, equipment, and/or services is controlled via source evaluation and selection, review of submitted vendor QA programs, data and drawings and for those purchase orders listed in Section 17.1.1.4B under the heading Procurement Quality Control, by inspection at vendor's shops, witnessing of shop tests and audits of QA/QC systems and documentation.

17.1.7.2B Control Methods

When required, vendors' QA capabilities are assessed by the PQC Division to determine their suitability to bid on QA Category I items. The assessment is based on evaluation of past performance, surveys at the vendors' facilities, surveillance, and audits, as appropriate to the complexity of the item. A PQC Survey Form and Supplement are used for bidder surveys and to document survey findings.

Engineering Assurance surveys and evaluates bidders for Category I engineering services contracts in such areas as meteorology, hydrology, geology, photogrammetry, etc.

17.1.7.3B Source Evaluation and Selection

The principal method of collecting information on prospective suppliers of specified items of materials and equipment is the "Vendor Rating System." Provisions of this system, as outlined in the Quality Standards, provide source evaluation information for use by the QA, Engineering, and Purchasing Departments.

Bids are compared on a technical and commercial basis to determine compliance with specifications and intended use. Comparisons of bids for major items are reviewed by the Project Group and the Purchasing Department before recommendation of award of a purchase order or contract is made.

Bidders QA Programs for QA Category I items are reviewed and evaluated by the PQA Division in parallel with the technical and commercial comparison of bids. Review of site contractor's QA Programs is accomplished by DLC.

17.1.7.4B Inspections at Vendors, Designated as S&W Responsibility

Inspections and/or audits are performed at manufacturer's facilities by properly qualified S&W personnel to assure that the requirements of the purchase order, specifications, and approved shop drawings are met. Specific instructions regarding inspection activities and a summary of these activities are given in the specification. The S&W "Vendor Shop QC Inspection System" and the specific "Duties and Responsibilities of Inspectors" are given in the Quality Standards manual.

Procedures in the Company Quality Assurance and Control Manual ASME Section III govern the control of items designed and manufactured in accordance with ASME, Section III.

17.1.8B Identification and Control of Materials, Parts, and Components

17.1.8.1B General Description

Traceability requirements of QA Category I items to their original chemical and physical characteristics are identified in the procurement specification and by reference to the requirements of applicable Codes and Standards. For those purchase orders delegated as S&W inspection responsibility and if required by specifications, traceability is verified during shop inspection.

17.1.9B Control of Special Processes

17.1.9.1B General Description

Requirements of special processes are established in Erection and Procurement Specifications. For those purchase orders delegated as S&W responsibility, compliance with specification requirements is verified during shop inspection.

17.1.10B Inspection

17.1.10.1B General Description

Requirement for material and equipment pre-shipment inspection is contained in the procurement specification. For those purchase orders delegated as S&W responsibility, performance of the required inspections is verified by S&W PQC inspectors prior to release for shipment. Responsibility for Field Quality Control and the related inspections has been assumed by DLC.

17.1.11B Test Control

17.1.11.1B General Description

Stone & Webster requires that shop, field installation, and preoperational tests be specified and performed to ensure that structures, systems, or portions of systems, and components perform satisfactorily in service.

17.1.11.2B Test Requirements

Test requirements are set forth in procurement and erection specifications in conformance with engineering practices and Code requirements.

17.1.11.3B Shop and Field Test Control

For those purchase orders delegated as S&W responsibility, performance of the required inspection is verified by S&W PQC inspection prior to the release for shipment.

17.1.12B Control of Measuring and Testing Equipment

17.1.12.1B General Description

Stone & Webster specifications require that manufacturers and material suppliers control the calibration of tools, gages, instruments, and other measuring and testing devices used in product acceptance. Verification of such control is made by the S&W Procurement Inspector on those purchase orders designated as S&W responsibility.

17.1.13B Handling, Storage, and Shipping

17.1.13.1B General Description

The procurement specification details special requirements for handling, storage, and shipping, when required. Inspection of packaging and preparation for shipment at the manufacturer's shop are performed as appropriate for purchase orders delegated as S&W responsibility.

17.1.14B Inspection Test and Operating Status

Responsibility for inspection tests and operating status has been assumed by DLC.

17.1.15B Nonconforming Materials, Parts, and Components

On purchase orders designated as S&W inspection responsibility, any nonconformity discovered in a vendors' shop by a PQC Inspector is reported on his Inspection Report and recorded on a Nonconformity and Disposition Report. These reports are sent to the PQC division and the Project Engineer in accordance with the Quality Standards Manual for evaluation and resolution.

Any nonconformities emanating from the site which cannot be resolved with the specification or design requirements is evaluated and dispositioned by the S&W Project Engineer or his designee. Processing of nonconformities within the engineering department will be in accordance with written procedures.

17.1.16B Corrective Action

17.1.16.1B General Description

For those purchase orders designated as S&W inspection responsibility PQC verifies the accomplishment of corrective action required by the disposition to the nonconformance if the corrective action is corrected in the Vendor shop. Verification of corrective action involving site activities has been assumed by DLC.

17.1.17B Quality Assurance Records

17.1.17.1B QA Records Requirements

Specific records requirements are identified in procurement and erection specifications, and include records of the results of reviews, inspections, tests, audits, monitoring of work performance, and qualification of procedures. For those purchase orders designated as S&W inspection responsibility compliance with specification requirements for records is verified.

17.1.17.2B Engineering and Design Records

Engineering and design records consist basically of engineering studies, calculations, designs, specifications, and drawings. Documents generated during the engineering and design phases of the project are generally retained in the project files and at designated work locations at headquarters in Boston until job completion.

Engineering and design records which become part of the lifetime or permanent records retention system for the plant are properly identified and forwarded to DLC for entry into the records retention system at a mutually agreed upon time toward the end of project.

17.1.18B Audits

17.1.18.1B General Description

An audit program will be established for those areas which have been assigned as S&W responsibility to ensure that those quality activities are in compliance with the designated requirements and related procedures.

The frequency of QA audits is based on the results of previous audits, significance of reported nonconformances, and schedules of work accomplishment.

Audits are performed in accordance with written procedures and audit plans by Engineering Assurance and QA personnel who, by the nature of their position, are independent from the work functions being audited.

17.1.18.2B Audit Results and Reports

Audit results are documented and reviewed by management having responsibility in the area audited.

17.1C QUALITY ASSURANCE DURING DESIGN AND CONSTRUCTION (W)

Westinghouse QA is described in RESAR 3, Section 17. The following comments should supplement Amendment 6 of that document.

Page 17.1-1, Section 17.1.1, substitute the following for the first paragraph:

NES is comprised of a number of operating divisions under an executive vice president, as shown in Figure 17-1. The authority and responsibility of each activity shown on this chart and subsequent charts is established by the division managers and set forth in an approved, written statement of group responsibility. The solid lines on the divisional organization charts (Figures 17-3 through 17-8) delineate both technical direction and administrative control. Administrative control includes responsibility for personnel indoctrination and training, wage and salary administration, and the decision for hiring or discharge of personnel.

Written position descriptions are prepared for each management and professional position and are approved by two levels of management. These descriptions specify the educational and experience qualifications of the position, and define the task responsibilities for the position.

Page 17.1-6, Section 17.1.1.3, substitute the following for the 8th paragraph of the section, and add another paragraph as shown:

This organization is responsible for the design and implementation of Inspection Point Programs including non-destructive examination incorporated into manufacturing work instructions, qualification of non-destructive examination personnel, and audits. Quality Control Records of Quality Assurance Engineering compiles documentation maintained as objective evidence of inspections performed, and Material Review section of Quality Assurance Engineering performs analyses of data, review of manufacturing discrepancies, and initiates preventive actions to eliminate problem areas.

The Inspection Section of Quality Assurance is responsible for performing inspections and examinations listed in manufacturing work instructions as prescribed by Quality Assurance Engineering procedures and instructions, recording results, and determining product acceptability to specified criteria.

Page 17.1-7, Section 17.1.1.4, Insert after 7th paragraph as:

...reports and documentation required.

The Inspection Point Program is then implemented by technicians in the Quality Control section of the Quality Assurance Department. The Quality Assurance Engineering section of the Quality Assurance Department is also responsible for planning and implementation of non-destructive examination and for qualification of non-destructive examination personnel. They are also responsible for final release of nuclear products.

Page 17.1-8, Section 17.1.1.5, substitute for 2nd paragraph:

The Pensacola Quality Assurance organization provides measures to control the design, manufacture, purchase, inspection, test, packaging, shipment and site installation of reactor internals. Quality Assurance functions for control of purchased materials include source surveillance and audits of suppliers which are performed by Quality Assurance Engineering. This section is also responsible for coordinating the internal audit program for the Pensacola Division, by a Quality Assurance Engineering Audit Coordinator.

The Inspection section of Quality Assurance performs inspections and examinations defined by Quality Assurance Engineering instructions and procedures, records results, and determines product acceptability to prescribed acceptance criteria and standards. Records section of Inspection performs release of product.

The Site Quality Assurance Services section of Quality Assurance provides support for installation of reactor internals at construction sites.

Page 17.1-17, Section 17.1.3.3, substitute for 1st paragraph:

Tampa Division is responsible for the design of steam generators and pressurizers. The design effort is based upon an equipment specification from PWR Systems Division. The Design group is responsible for heat transfer, material selection, hydraulic analysis and the operation. The Structural Analysis group is responsible for vibration and shock analysis, experimental stress analysis, general stress analysis, and materials behavior. Design verification activities are performed by individuals within the Tampa Engineering Department other than those who performed the original design.

4/12/74

Page 17.1-19, Section 17.1.3.4, substitute 4th paragraph:

Operation of the Pensacola Division Design Engineering Department is in accordance with detailed internal procedures which comply with ANSI N46.2.11. This includes provision for independent review of designs by individuals other than those who performed the original design. Compliance of Design Engineering with operating procedures is verified by internal audit.

Page 17.1-24, Section 17.1.4.3, substitute the following paragraph:

Quality Assurance has developed an inspection code which is used in the determination of the supplier inspection requirement level for all purchased materials. The inspection code, Code 1 thru 5, is used on all purchase orders with Code 4 being applied to items such as light bulbs, stationery, etc. All purchase orders for materials or parts having Code 1, Code 2, Code 3, or Code 5 requirements are reviewed by Quality Assurance to determine that proper and essential quality requirements are specified.

Page 17.1-37, Section 17.1.7.4, substitute 2nd paragraph:

New suppliers are evaluated at their facility (utilizing formal audit checklists) prior to placement on the approved supplier list. Continued surveillance of suppliers already listed is maintained through monitoring of Receiving Inspection rejection rates, source surveillance by Quality Assurance Engineering and re-appraisal of supplier. Suppliers who fail to perform adequately are removed from the approved list.

Page 17.1-49, Section 17.1.10.3, substitute 2nd paragraph:
17.1-50,

The Inspection Point Programs are distributed to the Quality Control technician of the Quality Assurance section in the applicable manufacturing areas for the specific component. The Quality Control technician initials or stamps the inspection points upon completion of inspection, signifying acceptance. All operations within a manufacturing section are detailed and accepted on the Inspection Point Program which serves as the inspection checklist. Quality Control technicians verify the completeness of the Inspection Point Program to assure that all operations are complete within the section. Any deviation from the specified routing between manufacturing groups requires documentation and Quality Assurance concurrence. The authorized code inspector utilizes the Inspection Point Program prior to start of manufacturing to designate code hold points. The program and its applicable data forms, charts, and logs become a

permanent Quality Control record to provide objective evidence of the inspection operations.

Page 17.1-9, Section 17.1.1.6, substitute the following for the last paragraph of this section:

Quality Control and Inspection has direct control of the division gage calibration system, non-destructive examination, and quality engineering functions. Review of raw material acceptability is also a function of this group, performed by audit, receiving inspection and analysis of incoming material reports, including review of a sample of chemistry re-analyses made by Quality Services. These combined actions are effective in obtaining specification quality raw materials, and source surveillance is not applied. Quality Control and Inspection has the responsibility for the training and qualification of inspectors, for in-process inspection, and for final inspection. Quality Services has responsibility for product verification and certification. Instrument service is performed by the Maintenance Department of Works Engineering according to a schedule specified by Quality Control and Inspection.

Page 17.1-19, Section 17.1.3.5, substitute the following for this section:

Product is provided to Tampa Division and Electro-Mechanical Division in accordance to detailed specification requirements. No product design is performed by Specialty Metals Division.

Page 17.1-80, Section 17.1.18.7, substitute the following paragraph for the first paragraph of this section. Also insert a new paragraph at the bottom of the page:

Internal quality audits are performed as a quality engineering function by Quality Control and Inspection. In addition, Quality Control and Inspection and Quality Services perform cross-check audits on each section. Audits are performed to determine the adequacy of established procedures for controlling quality and to evaluate the degree of compliance with the procedures.

Audits of raw material subcontractors are performed by Quality Control and Inspection, to determine adequacy of the subcontractor quality assurance effort and compliance with procedures.

Table 17.1.1ADESIGN AND CONSTRUCTION QA PROCEDURES VS. APPENDIX B TO 10CFR50

<u>Procedure No.</u>	<u>10CFR50 Appendix B</u>
DC-1 Organization	I
DC-2 Quality Assurance Program	II
DC-3 Design Control	III
DC-4 Procurement Document Control	IV
DC-5 Instructions, Procedures and Drawings	V
DC-6 Document Control	VI
DC-7 Control of Purchased Material, Equipment and Services	VII
DC-8 Identification and Control of Materials, Parts and Components	VIII
DC-9 Control of Special Processes	IX
DC-10 Inspection	X
DC-11 Test Control	XI
DC-12 Control of Measuring and Test Equipment	XII
DC-13 Handling, Storage, Shipping	XIII
DC-14 Inspection, Test and Operating Status	XIV
DC-15 Nonconforming Materials, Parts and Components	XV
DC-16 Corrective Action	XVI
DC-17 Quality Assurance Records	XVII
DC-18 Audits	XVIII

Table 17.1.2AOPERATIONS QA PROCEDURES VS. APPENDIX B TO 10CFR50

<u>Procedure No.</u>	<u>10CFR50 Appendix B</u>
OP-1 Operations QA Program	I, II
OP-2 Organization and Responsibilities	I, II
OP-3 Administrative Controls	II, V
OP-4 Station Design Control	III, XVII
OP-5 Procurement Control	IV, VII, VIII
OP-6 Material Control	VII, VIII, XIII, XV
OP-7 Test Program prior to Operations	XI, XII
OP-8 Document Control	V, VI
OP-9 Technical Procedure Control for Operations and Maintenance	II, V
OP-10 Maintenance and Modification Planning	V, IX, X
OP-11 Control of Maintenance and Modification	V, IX, X, XI, XIV
OP-12 Control of Measuring and Test Equipment	XII
OP-13 Control of Nonconforming Items	VIII, XV, XVI
OP-14 Indoctrination and Training	II, IX
OP-15 Quality Assurance Records	XVII
OP-16 Audits	II, XVI, XVIII

Table 17.1.3ANUCLEAR FUEL QA PROCEDURES VS. APPENDIX B TO 10CFR50

<u>Procedure No.</u>	<u>10CFR50 Appendix B</u>
F-1 Organization	I
F-2 Quality Assurance Program	II
F-3 Design Control	III
F-4 Procurement Document Control	IV
F-5 Instructions, Procedures and Drawings	V
F-6 Document Control	VI
F-7 Control of Purchased Material, Equipment and Services	VII
F-8 Identification and Control of Materials, Parts and Components	VIII
F-9 Control of Special Processes	IX
F-10 Inspection	X
F-11 Test Control	XI
F-12 Control of Measuring and Test Equipment	XII
F-13 Handling, Storage, Shipping	XIII
F-14 Inspection, Test and Operating Status	XIV
F-15 Nonconforming Materials, Parts and Components	XV
F-16 Corrective Action	XVI
F-17 Quality Assurance Records	XVII
F-18 Audits	XVIII

TABLE 17.1.1B-1QUALIFICATION AND EXPERIENCE REQUIREMENTS
S&W QUALITY ASSURANCE PERSONNEL

<u>Title</u>	<u>Education*</u>	<u>Background Experience</u>
VP, Quality Assurance	BS/BA	Minimum of 10 years in responsible assignments in heavy construction management, engineering, or quality assurance. At least 2 years of this time should be in the nuclear field with emphasis on project/division management.
Manager, Quality Assurance	BS/BA	Minimum of 10 years in responsible assignments in engineering and design, quality assurance and control, power station construction, and/or operation.
Chief Engineer, Engineering Assurance	BS/BA	Minimum of 5 years in responsible assignments in engineering, quality assurance and control, inspection, and/or auditing.
Chief Engineer, Quality Systems	BS/BA	Minimum of 5 years in responsible assignments in quality assurance and control, and/or construction of a power station.
Manager, Procurement Quality Control	BS/BA	Minimum of 5 years in responsible assignments in quality assurance and control, and/or shop inspection. ASSURANCE
Chief Engineer, QA-NDT Group	BS/BA	Minimum of 5 years in responsible assignments in nondestructive testing of materials and/or metallurgy. DIVISION
Project Quality Assurance Coordinator	BS/BA	Minimum of 5 years in quality assurance and related fields including manufacturing, construction, and/or installation activities. At least 2 years should be associated with the nuclear field. PROGRAM ADMINISTRATOR

TABLE 17.1.1B-1 (CONT'D)QUALIFICATION AND EXPERIENCE REQUIREMENTS
S&W QUALITY ASSURANCE PERSONNEL

<u>Title</u>	<u>Education*</u>	<u>Background Experience</u>
Assistant Division Manager,	BS or High School	A degree plus 5 years experience in quality assurance and related fields, including testing or inspection (or both) of manufacturing, construction, and installation activities. At least 2 years should be associated with a nuclear facility.
OR		
		High school graduate plus 10 years of experience in general quality assurance or equivalent engineering, manufacturing, construction, and installation activities. Five years of total experience is required in quality assurance, including testing or inspection (or both) of equivalent manufacturing, construction, and installation activities. At least 2 years should be associated with a nuclear facility.
QC Engineer	BS or High School	A degree and 0-2 years of experience in quality assurance including testing and/or inspection of equivalent construction and installation activities.
Assistant QC Engineer	BS or High School	A degree. No experience is required.
OR		
		High school graduate and 4 years of experience in testing and/or inspection of power and/or nuclear stations, heavy industrial, or other similar equipment or facilities.

DELETED
DEGREE
REQUIRED

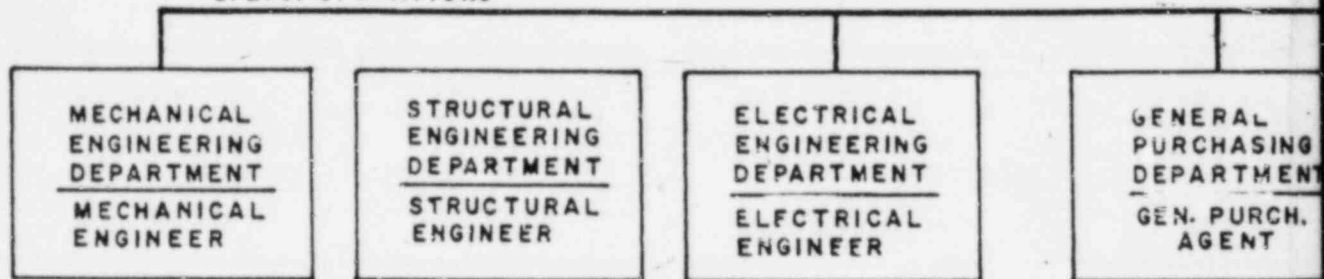
TABLE 17.1.1B-1 (CONT'D)QUALIFICATION AND EXPERIENCE REQUIREMENTS
S&W QUALITY ASSURANCE PERSONNEL

<u>Title</u>	<u>Education*</u>	<u>Background Experience</u>
Sr QC Inspector	High School	High school graduate and 2 years of experience in quality assurance, including testing and/or inspection of equipment, construction, and installation activities.
QC Inspector	High School	High school graduate and 1 year of experience in quality assurance, including testing and/or inspection of equipment, construction, and installation activities.
QC Technician	High School	High school graduate, preferably with some knowledge of quality assurance concepts such as testing or inspection.
Assistant QC Technician	High School	High school graduate; no experience is required.

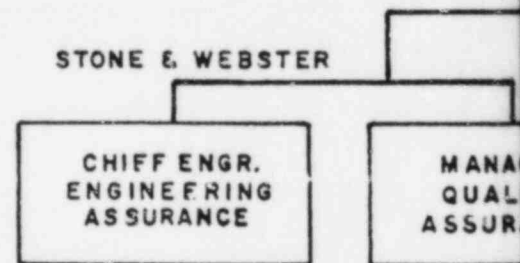
*Equivalent qualification may be substituted based on other education accomplishments, experience in related fields, and technical achievements, such as holding a license as a Professional Engineer or Certification as a Quality or Reliability Engineer by the American Society for Quality Control.

MA
CO

D. L. C. OPERATIONS



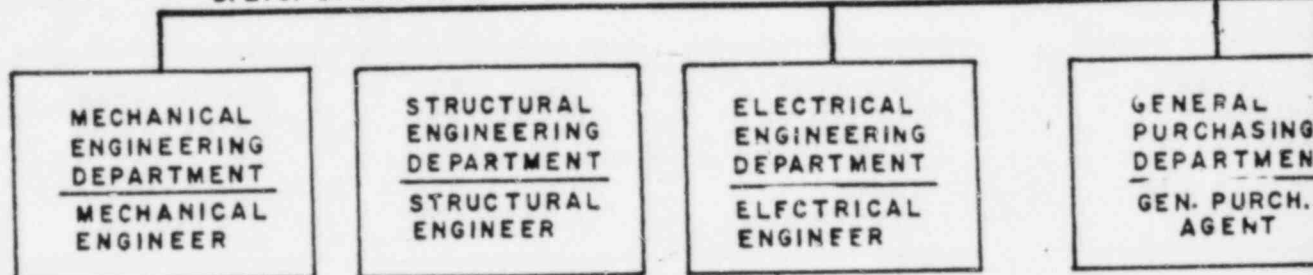
STONE & WEBSTER



PRC
APERTURE
CARD

MA
C

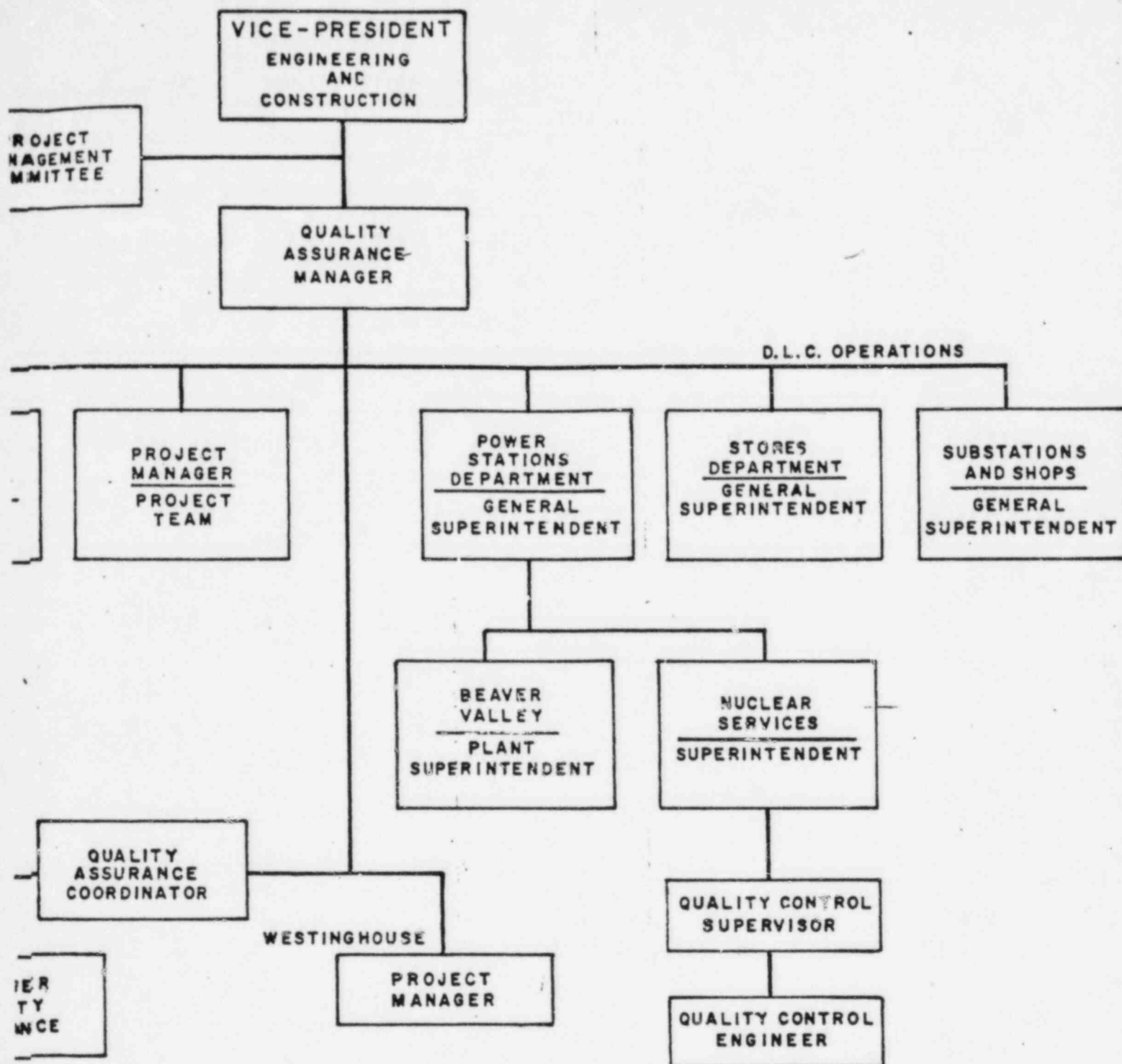
D. L. C. OPERATIONS



STONE & WEBSTER

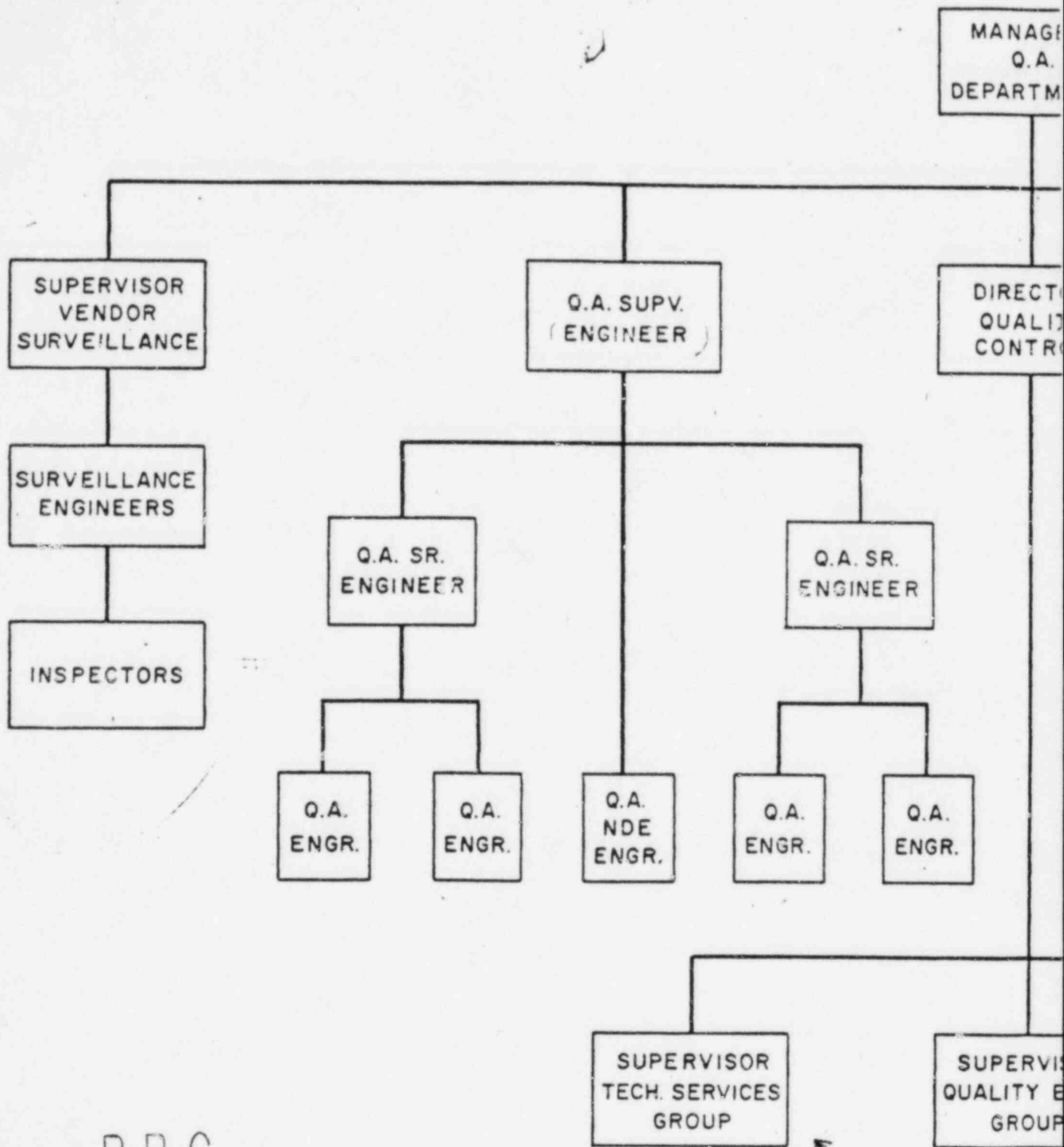


PRC
APERTURE
CARD



Also Available On
Aperture Card

FIGURE 17.1 - 1A
DUQUESNE LIGHT COMPANY
ORGANIZATION FOR QUALITY ASSURANCE
BEAVER VALLEY POWER STATION - UNIT 2
PRELIMINARY SAFETY ANALYSIS REPORT

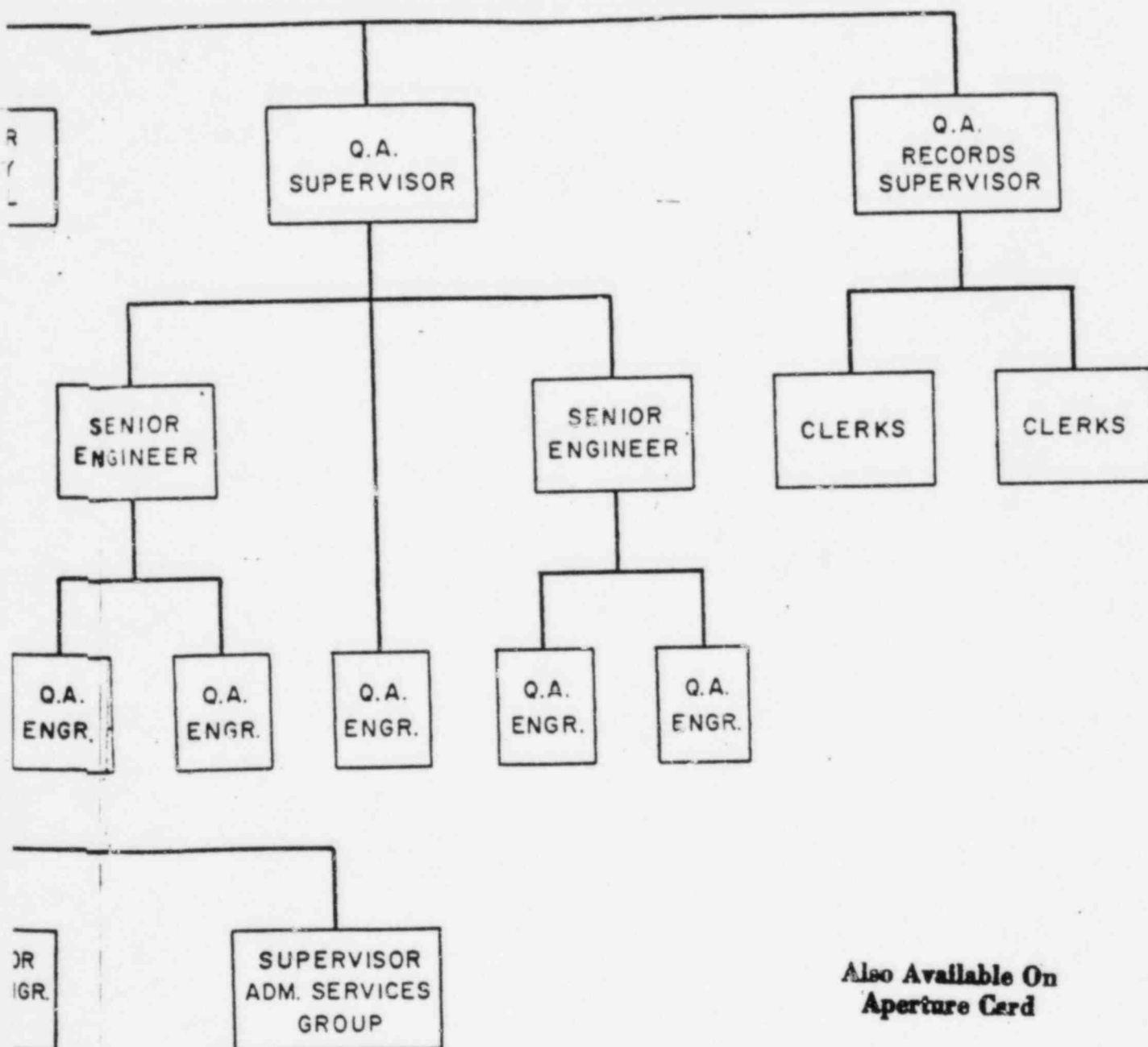


PRC
APERTURE
CARD

NT

R
Y

OR
IGR.



Also Available On
Aperture Card

FIG. 17.1-2A
DUQUESNE LIGHT COMPANY
QUALITY ASSURANCE DEPARTMENT
BEAVER VALLEY POWER STATION - UNIT 2
PRELIMINARY SAFETY ANALYSIS REPORT

VICE-PRES

B.V.P.S.
PROJECT
MANAGER

ELECTRICAL
ENG. DEPT.
ELECTRICAL
ENGINEER

STRUCTURAL
ENG. DEPT.
STRUCTURAL
ENGINEER

MECHANICAL
ENG. DEPT.
MECHANICAL
ENGINEER

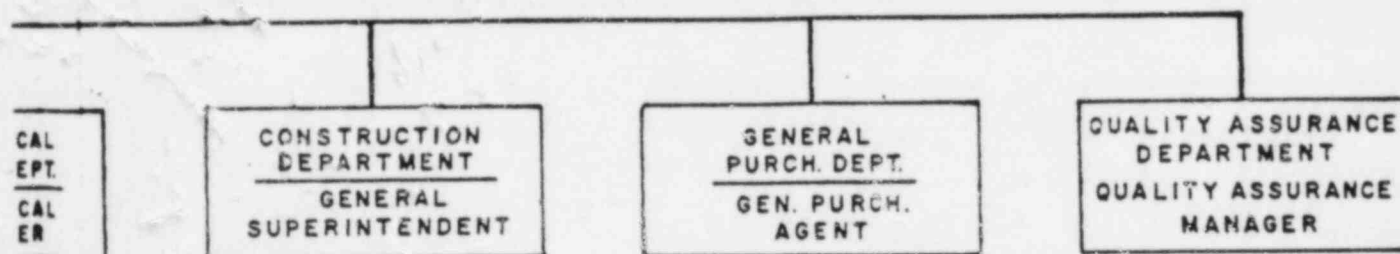
PRC
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IDEN'

SECRETARY

9

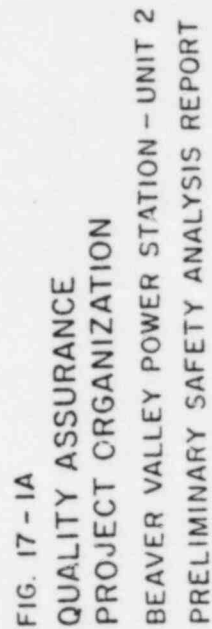


Also Available On
Aperture Card

FIGURE 17.1-3A

DUQUESNE LIGHT COMPANY
ENGINEERING & CONSTRUCTION DIVISION
BEAVER VALLEY POWER STATION - UNIT 2
PRELIMINARY SAFETY ANALYSIS REPORT

8308230389-03



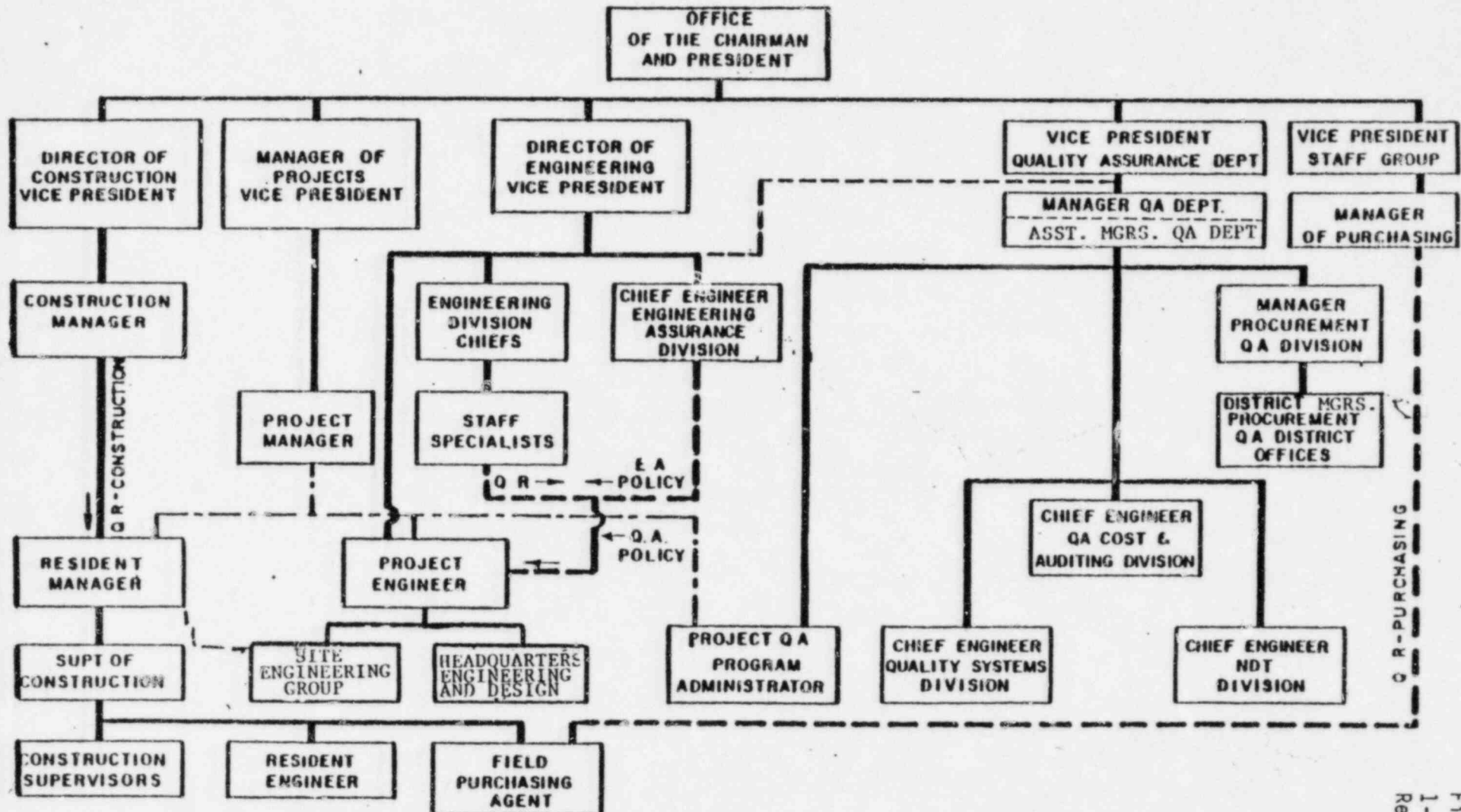
LEGEND:

COMMUNICATION :	---
RESPONSIBILITY :	_____

BEAVER VALLEY POWER STATION - UNIT NO. 2

COMPANY ORGANIZATION FOR QUALITY ASSURANCE

STONE & WEBSTER ENGINEERING CORPORATION



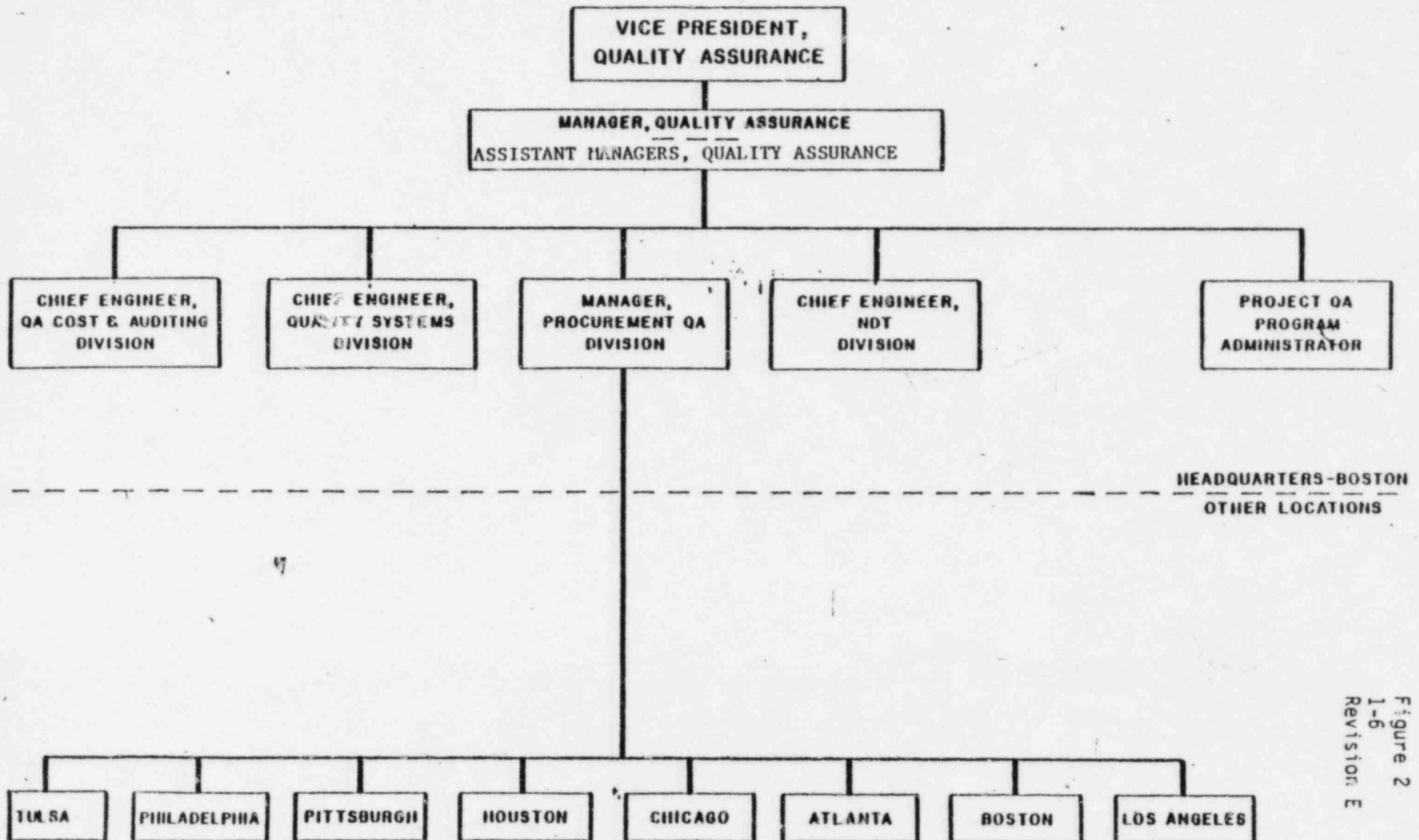
CURRENT

LEGEND

- Q R - QUALITY REQUIREMENTS
- Q A - QUALITY ASSURANCE
- E A - ENGINEERING ASSURANCE
- FUNCTIONAL AND ADMINISTRATIVE DIRECTION
- - - COMMUNICATION
- - - PROJECT DIRECTION

Figure 1
1-5
Revision E

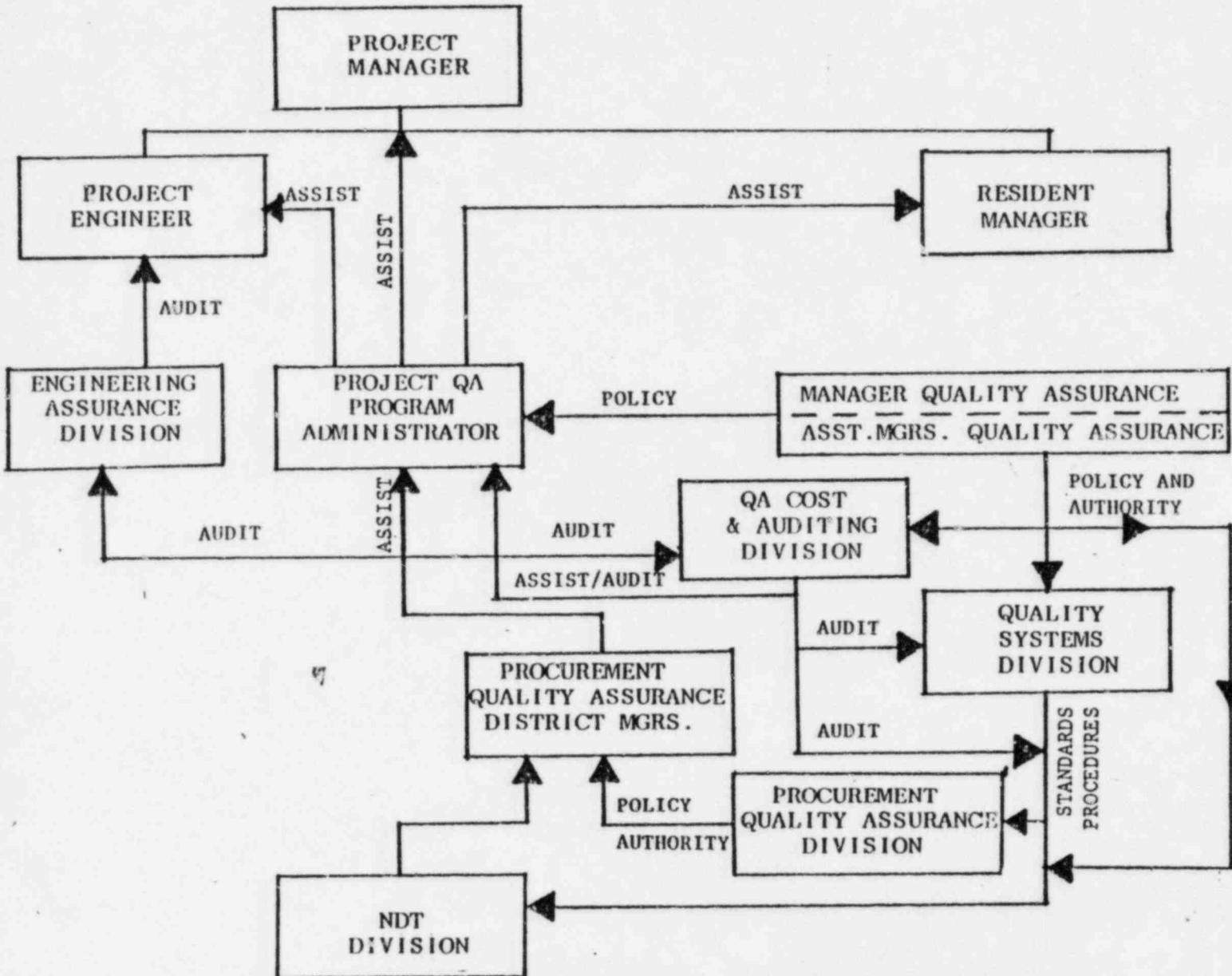
BEAVER VALLEY POWER STATION - UNIT NO. 2
QUALITY ASSURANCE DEPARTMENT ORGANIZATION
STONE & WEBSTER ENGINEERING CORPORATION



CURRENT

BEAVER VALLEY POWER STATION - UNIT NO. 2
 QUALITY ASSURANCE INTERRELATIONSHIPS
 STONE & WEBSTER ENGINEERING CORPORATION

CURRENT



QUALITY ASSURANCE
CLIENT CONTACT
 VICE PRESIDENT, QA
 MANAGER, QA/ASST. MGRS., QA
 PROJECT QA PROGRAM
 ADMINISTRATOR
 PROJECT MANAGER
 PROJECT ENGINEER

Figure 4
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 Revision E

APPENDIX B
CODES AND CLASSIFICATIONS
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INTRODUCTION

B.1-1

APPENDIX BLIST OF TABLESTableTitle

B-1

Structures and Equipment Codes
and Classifications

APPENDIX B
CODES AND CLASSIFICATIONS

INTRODUCTION

This appendix provides a concise compilation of the appropriate safety classes, codes, and design classifications of the structures and equipment that are Quality Assurance Category I. These items are indicated in Table B-1. Quality Assurance Categories are defined in Section 17 - Quality Assurance Program. The safety and code class of piping and valves is given on the individual system flow diagrams. The safety and code classes are indicated as part of the line designation numbers and at interfaces where they change as indicated in Fig. 1.3-4 and 1.3-1, respectively.

Seismic Category I structures, systems, and components are those necessary to ensure:

1. The integrity of the reactor coolant pressure boundary.
2. The capability to shut down the reactor and maintain it in a safe shutdown condition.
3. The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the guideline exposure of 10CFR50.

Seismic Category I structures, systems, and components are designed in accordance with the seismic design criteria of Section 15.2.4.

Even though the definition of Quality Assurance Category I and Seismic Category I are somewhat different, structures, systems, and components falling in one classification also generally fall in the other. Pressure boundary components of Quality Assurance Category I fluid systems are further subdivided into ANS Safety Class 1, 2, or 3 (SC-1, 2, or 3). In addition, the containment structure is classified as SC-2. The following are definitions of SC-1, 2, and 3:

Safety Class 1 (SC-1): Applies to components whose failure could cause a Condition III or Condition IV loss-of-reactor coolant.

Safety Class 2 (SC-2): Applies to the containment structure and to those components:

1. of the reactor coolant system not in Safety Class 1,
2. that are required to shut down the reactor, remove residual heat directly from the reactor, circulate

reactor coolant for any safety system, control radioactivity release in an accident, or control hydrogen in the containment.

Safety Class 3 (SC-3): Applies to those components not in SC-1 or SC-2 that are necessary:

1. to provide cooling water for residual heat removal or a safety system,
2. to remove decay heat from spent fuel,
3. to provide boric acid for reactor cooldown, and
4. to control the release to the environment of gaseous radioactivity normally held up.

Condition III occurrences are faults which may occur very infrequently during the life of a particular plant. Condition IV occurrences are faults that are not expected to occur, but are postulated because their consequences would include the potential for the release of significant amounts of radioactive material. Condition IV faults are the most drastic which must be designed against, and thus represent the limiting design case.

A safety system (in this context) is any system that functions to shut down the reactor, cool the core or cool another safety system or (after an accident) the reactor containment, or that contains, controls, or reduces radioactivity released in an accident. Only those portions of the secondary system are included (a) that are designed primarily to accomplish one of the above functions or (b) whose failure could prevent accomplishing one of the above functions.

A support is in the same safety class as the component for which it provides support, if failure could cause a loss of a safety function associated with the supported component.

Components and containment structure, classified as Quality Assurance Category I and Seismic I, may be further classified as SC-1, 2 and 3 as defined above. Since the safety classes apply only to pressure boundary components of fluid systems and the containment structure, safety related structures other than the containment, electrical equipment, instrumentation, etc., do not have a safety class, but are Quality Assurance Category I and Seismic Category I.

With regard to components such as pressure vessels, pumps, piping, valves and tanks, there is a direct one-to-one relationship between safety class and ASME Section III code class. Such SC-1, 2, and 3 components are designed according to Code Class 1, 2, and 3, respectively. Metal containment system

portions of the containment structure are classified as Code Class MC.

Components not covered by SC-1, 2, or 3, but which are normally built to a code (such as ASME Section VIII, ANSI B3.1.10, API 650, etc.), are classified as Non-Nuclear Safety (NNS).

In the line designation numbers and at interfaces on flow diagrams, the numeral 4 refers to NNS. Such components fall in Quality Assurance Category II or III and are not seismically designed.

Table B-1 gives the Safety Class, applicable code, and Code Class of Quality Assurance Category I and Seismic Category I structures and equipment. Also indicated are structures, and equipment which are designed for tornado resistance or are protected from tornado effects.

SYMBOLS USED IN TABLE B-1

- NA - Not applicable
- P - Protected from tornado effects by a tornado designed structure or by some other method (such as being below grade)
- D - Designed to withstand a tornado

November 1976

REFERENCES IN APPENDIX B

1. ANS draft N18.2, "Nuclear Safety Criteria for the Design of Stationery Pressurized Water Reactor Plants"
2. ASME III - "ASME Boiler and Pressure Vessel Code Section III,"
3. API-650 - Welded steel tanks for oil storage (June, 1970)
4. IEEE-279 - "Criteria for Nuclear Power Plant Protection Systems" (1968)
5. IEEE-308 - "Proposed IEEE Criteria for Category IE Electrical Systems for Nuclear Power Generating Stations" (1970)

TABLE B-1

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONS

	<u>Safety</u> <u>Class</u>	<u>Code</u>	<u>Code</u> <u>Class</u>	<u>Tornado</u> <u>Criterion</u>	<u>Notes</u>
<u>STRUCTURES</u>					
<u>Containment Structure</u>					
Reinforced Concrete Substructure	2	*	NA	P	
Reinforced Concrete Superstructure	2	*	NA	D	
Reinforced Concrete Interior Shields and Walls	2	*	NA	P	
Steel Plate Liner	2	ASME III	MC	P	
Piping, Duct, and Electrical Penetrations	2	ASME III	MC	P	
Personnel Access Hatch	2	ASME III	MC	P	
Equipment Access Hatch	2	ASME III	MC	P	
<u>Cable Vault and Cable Tunnel</u>	NA	*	NA	D	
<u>Pipe Tunnel to Containment Structure from Auxiliary Building</u>	NA	*	NA	D	
<u>Main Steam Valve Area</u>	NA	*	NA	D	
<u>Safeguards Area and Pump Room</u>	NA	*	NA	D	
<u>Auxiliary Building</u>					
Reinforced Concrete Structure	NA	*	NA	D	

*See Section 15 for applicable codes

- PA CAT. I -

TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONSSTRUCTURES (CONT'D)

	<u>Safety Class</u>	<u>Code</u>	<u>Code Class</u>	<u>Tornado Criterion</u>	<u>Notes</u>
<u>Fuel and Decontamination Building</u>					
Reinforced Concrete Structure	NA	*	NA	D	
Spent Fuel Storage Racks	NA	NA	NA	P	Protected from horizontal missiles only
Fuel Handling Trolley Support Structure	NA	NA	NA	P	Structure will not structurally fail with unloaded crane during DBE
<u>Intake Structure</u>	NA	*	NA	D	Service water pump cubicles only
<u>Extension of Unit 1 Control Room</u>					
Main Control Room	NA	*	NA	D	
Air-Conditioning Equipment Room	NA	*	NA	D	For control building only
<u>Service Building</u>					
Emergency Switchgear and Relay Rooms	NA	*	NA	D	
Battery Rooms	NA	*	NA	D	
Cable Tray Area	NA	*	NA	D	

*See Section 15 for applicable codes

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TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONS

STRUCTURES (CONT'D)

	<u>Safety</u> <u>Class</u>	<u>Code</u>	<u>Code</u> <u>Class</u>	<u>Tornado</u> <u>Criterion</u>	<u>Notes</u>
<u>Diesel Generator Building</u>					
Reinforced Concrete Floor, Walls, and Roof	NA	*	NA	D	
Fuel Oil Transfer Pump Vault	NA	*	NA	D	
Duct Lines and Manholes to Intake Structure and Diesel Generator Building	NA	*	NA	P	
Waste Handling Building (Incl. Coolant Recovery Tank)	NA	*	NA	D	For horizontal missiles only

*See Section 15 for applicable codes

TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONS

	<u>Safety</u> <u>Class</u>	<u>Code</u>	<u>Code</u> <u>Class</u>	<u>Tornado</u> <u>Criterion</u>	<u>Notes</u>
<u>SYSTEMS</u>					
<u>Reactor Coolant System</u>					
Steam Generators					
Tube Side	1	ASME III	1	P	
Shell Side	2	ASME III	2	P	
Reactor Coolant Pumps	1	ASME III	1	P	
Reactor Coolant Pump Motors	2	Nema MG1	1	P	
Upper Oil Cooler	2	ASME III	2	P	
Lower Oil Cooler	2	ASME III	2	P	
Pressurizer	1	ASME III	1	P	
CRDM Housings	1	ASME III	1	P	
CRDM Head Adapter Plug	1	ASME III	1	P	
Bypass Manifold	1	ASME III	1	P	
Reactor Vessel	1	ASME III	1	P	
Reactor Coolant System Isolation Valves	1	ASME III	1	P	
Control Rod Drive Mechanisms	NA	NA	NA	P	
Reactor Coolant Piping Fittings and Fabrication	1	ASME III	1	P	
Surge Pipe, Fittings and Fabrication	1	ASME III	1	P	
Reactor Coolant Thermowells	1	ASME III	1	P	
Valves to Reactor Coolant System Boundary	1	ASME III	1	P	
Pressurizer Relief Tank	NNS	ASME VIII	1	P	

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TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONSSYSTEMS (CONT'D)

	<u>Safety</u> <u>Class</u>	<u>Code</u>	<u>Code</u> <u>Class</u>	<u>Tornado</u> <u>Criterion</u>	<u>Notes</u>
Reactor Coolant Pump Standpipe Orifice	NNS	ASME III	1	P	
Pressurizer Safety and Relief Valves	1	ASME III	1	P	
Pressurizer Power Actuated Valve	1	ASME III	1	P	
RV Head and Shell Insulation	NA	NA	NA	P	
Irradiation Sample Holder	2	NA	NA	P	
RV Upper and Lower Internals	2	NA	NA	P	
Control Rod Guide Tubes	2	NA	NA	P	
Full and Part Length Control Rod Clusters	2	NA	NA	P	
RCC Thimble Plug (dummy insert)	2	NA	NA	P	
<u>Chemical and Volume Control System</u>					
Charging Pumps, Centrifugal	2	ASME III	2	P	
Nonregenerative Heat Exchanger Tube Side	2	ASME III	2	P	
Shell Side	3	ASME III	3	P	
Seal Water Heat Exchangers Tube Side	2	ASME III	2	P	
Shell Side	3	ASME III	3	P	
Volume Control Tank	2	ASME III	2	P	
Reactor Coolant Filters	2	ASME III	2	P	
Regenerative Heat Exchanger	2	ASME III	2	P	
Seal Injection Filters	2	ASME III	2	P	
Seal Water Filter	2	ASME III	2	P	

TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONSSYSTEMS (CONT'D)

	<u>Safety</u> <u>Class</u>	<u>Code</u>	<u>Code</u> <u>Class</u>	<u>Tornado</u> <u>Criterion</u>	<u>Notes</u>
Excess Letdown Heat Exchanger					
Shell Side	3	ASME III	3	P	
Tube Side	2	ASME III	2	P	
Boric Acid Transfer Pumps	3	ASME III	3	P	
Boric Acid Filter	3	ASME III	3	P	
Boric Acid Blender	2	ASME III	2	P	
Letdown Orifice	2	ASME III	2	P	
Letdown Heat Exchanger					
Tube Side	2	ASME III	2	P	
Shell Side	3	ASME III	3	P	
Boric Acid Batching Tank	NNS	ASME VIII	UW	P	
Chemical Mixing Tank	NNS	ASME VIII	UW	P	
<u>Residual Heat Removal System</u>					
Residual Heat Removal Pumps	2	ASME III	2	P	
Residual Heat Removal Heat Exchangers					
Tube Side	2	ASME III	2	P	
Shell Side	3	ASME III	3	P	
<u>Emergency Core Cooling System</u>					
Accumulators	2	ASME III	2	P	
Low Head Safety Injection Pump	2	ASME III	2	P	
Boron Injection Tank (Discharge)	2	ASME III	2	P	
Accumulator Check Valves	1	ASME III	1	P	

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TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONSSYSTEMS (CONT'D)

	<u>Safety</u> <u>Class</u>	<u>Code</u>	<u>Code</u> <u>Class</u>	<u>Tornado</u> <u>Criterion</u>	<u>Notes</u>
<u>Containment Depressurization System</u>					
<u>Quench Spray Subsystem</u>					
Refueling Water Storage Tank	2	ASME III	2	NA	
Boron Injection Tank Recirculation Pump	3	ASME III	3	P	
Boron Injection Surge Tank	3	ASME III	3	P	
Hydro Test Pump	NNS	ASME III	3	P	
<u>Neutron Shield Tank Cooling System</u>					
Neutron Shield Tank Cooler	3	ASME III	3	P	
Quench Spray Pumps	2	ASME III	2	P	
Chemical Addition Tank	2	ASME III	2	NA	
<u>Recirculation Spray Subsystem</u>					
Recirculation Pumps	2	ASME III	2	P	
Recirculation Heat Exchangers Tube Side	2	ASME III	2	P	
Shell Side	2	ASME III	2	P	

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TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONS

SYSTEMS (CONT'D)

	<u>Safety Class</u>	<u>Code</u>	<u>Code Class</u>	<u>Tornado Criterion</u>	<u>Notes</u>
<u>Boron Recovery System</u>					
Degasifier	3	ASME III	3	P	
Degasifier Vent Condenser	3	ASME III	3	P	
Degasifier Vent Chiller	3	ASME III	3	P	
<u>Component Cooling Water System</u>					
Component Cooling Water Heat Exchangers	3	ASME III	3	P	
Component Cooling Water Pumps	3	ASME III	3	P	
Component Cooling Water Chemical Addition Tanks	3	ASME III	3	P	
Component Cooling Water Surge Tank	3	ASME III	3	P	
<u>Fuel Pool Cooling and Purification System</u>					
Fuel Pool Cooling Pumps	3	ASME III	3		Only piping and components associated with Fuel Pool Cooling are considered QA Category I
Fuel Pool Heat Exchangers	3	ASME III	3		
<u>Containment Vacuum System</u>					
Air Activity Monitor	NA	NA	NA	P	Entire monitor is QA Category I, pressure boundary is SC-3

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TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONS

SYSTEMS (CONT'D)

	<u>Safety</u> <u>Class</u>	<u>Code</u>	<u>Code</u> <u>Class</u>	<u>Tornado</u> <u>Criterion</u>	<u>Notes</u>
<u>Service Water System</u>					
Service Water Pumps	3	ASME III	3	P	
Service Water S & R	3	ASME III	3	P	
Service Water Booster Pumps	3	ASME III	3	P	
<u>Fuel Handling System</u>					
Manipulator Crane in Containment	NA	NA	NA	P	Unloaded crane will not structurally fail during DBE
Movable Platform with Hoist in Fuel Building	NA	NA	NA	NA	Unloaded crane will not structurally fail during DBE
Fuel Handling Trolley in Fuel Building	NA	NA	NA	NA	Unloaded crane will not structurally fail during DBE
Fuel Transfer Tube with Isolation Valve and Blind Flange	2	ASME III	2	P	
Fuel Transfer System	NA	NA	NA	NA	
RCC Charging Fixture	NA	NA	NA	P	
Spent Fuel Assembly Handling Tool	NA	NA	NA	NA	
<u>Main Steam System</u>					
Safety Valves	2	ASME III	2	P	

TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONSSYSTEMS (CONT'D)

	<u>Safety Class</u>	<u>Code</u>	<u>Code Class</u>	<u>Tornado Criterion</u>	<u>Notes</u>
Pipings, Fittings and Fabrication	2	III	2	P	Up to main steam isolation valves
Main Steam Atmospheric Dump Valves	2	III	2	P	
Flow Restrictor	2	III	2	P	Inside containment
Relief Valve Steam Header	2	III	2	P	
Main Steam Trip and Non-return Valves	2	III	2	P	
Auxiliary Feedpump Inlet Steam Piping, Fittings and Fabrication	2	III	2	P	
Air-Operated Steam Inlet Valve	2	III	2	P	
Turbine Drive for Steam Generator Auxiliary Feedpump	NA	NA	NA	P	Seismic Category I
Residual Heat Release Valve	2	III	2	P	
Residual Heat Release Piping, Fittings and Fabrication	2	III	2	P	Up to residual heat release valve
<u>Condensate and Feedwater Systems</u>					
Primary Plant Demineralized Water Storage Tank	3	ASME III	3	P	
Steam Generator Auxiliary Feedpumps	3	ASME III	3	P	
Feedwater Piping, Fittings and Fabrication	2	III	2	P	Up to main feedwater isolation valve
Main Feedwater Isolation Valve	2	III	2	P	

TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONSSYSTEMS (CONT'D)

	<u>Safety Class</u>	<u>Code</u>	<u>Code Class</u>	<u>Tornado Criterion</u>	<u>Notes</u>
Auxiliary Feed Isolation Valve	2	III	2	P	
Auxiliary Feed Piping, Fittings and Fabrication	3	III	3	P	Auxiliary feed isolation valve downstream up to primary demineralizer tank
Auxiliary Feed Line MOV's Check and Other Valves	3	III	3	P	
<u>Post-DBA Hydrogen Control System</u>					
Hydrogen Control Ejector	2	ASME III	2	P	
Hydrogen Control Heater	2	ASME III	2	P	
Catalytic Recombiner	2	ASME III	2	P	
Hydrogen Control Separators	2	ASME III	2	P	
<u>Gaseous Waste Disposal System</u>					
Overhead Gas Compressors	3	ASME III	3	P	
Surge Tank	3	ASME III	3	P	
Charcoal Beds	3	ASME III	3	P	
Overhead Gas Compressors	3	ASME III	3	P	
Pre Filters	3	ASME III	3	P	
Process Vent Filters	3	ASME III	3	P	
<u>Process Radiation Monitoring System</u>					
Recirculation Coolers	NA	NA	NA	P	
Service Water Monitors	NA	NA	NA	P	

TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONSArea Radiation Monitoring System

Main Control Room Monitor	NA	NA	NA	P
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Ventilation Systems

Supplementary Leak Collection and Release System	3	NA	NA	NA
Air-Conditioning Equipment for Control Room Area and for Control Building	3	NA	NA	P
Safeguards Area Cooling System	3	NA	NA	P
Containment Isolation Valves and Ductwork between isolation valves	2	NA	NA	P
Diesel Generator Building Ventilation System	3	NA	NA	P
Service Water Pump Area Ventilation System	3	NA	NA	P
Emergency Switchgear Rooms	3	NA	NA	P

Electrical Systems

Engine-Driven Emergency Diesel Generators	NA	IEEE 308	NA	P
Fuel Oil Day Tanks	3	ASME III	3	P
Fuel Oil Transfer Pumps	3	ASME III	3	P
Underground Fuel Oil Storage Tanks	3	ASME III	3	P
Emergency Diesel Generator Fuel Oil System Piping and Valves, except Fill Lines for underground Fuel Oil Storage Tanks	3	ASME III	3	P
Unit Batteries and Chargers	NA	IEEE 308	NA	P

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TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONSSYSTEMS (CONT'D)

	<u>Safety</u> <u>Class</u>	<u>Code</u>	<u>Code</u> <u>Class</u>	<u>Tornado</u> <u>Criterion</u>	<u>Notes</u>
Vital Bus and Inverters	NA	IEEE 308	NA	P	
Emergency Station Service Transformers	NA	IEEE 308	NA	P	
Emergency Station Service Switchgear	NA	IEEE 308	NA	P	
Control Panelboards:	NA	IEEE 308	NA	P	
Main Control Board					
Engine-Driven Emergency Diesel Generators Panel					
Radiation Monitor Panel					
Emergency Shutdown Panel					
Air Conditioning Control Panel					
Auxiliary Station Service Panel					

Nuclear Instrumentation

All portions of the nuclear instrumentation system which must operate to control and safely shutdown the reactor to a hot subcritical condition

NA	IEEE 279	NA	P
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Reactor Protection

All portions of the reactor protection system which must operate to control and safely shutdown the reactor to a hot subcritical condition

NA	IEEE 279	NA	P
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In-core Instrumentation System

Instrumentation port, male and female flange

1	NA	NA	P
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Thermocouple seal assembly

1	NA	NA	P
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Thermocouple conduit tubing and guides

2	NA	NA	P
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TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONS

Support column and conduit assembly	2	NA	NA	P	
Flux Monitoring Instrument Guides	2	NA	NA	P	
Secondary core support	2	NA	NA	P	
Instrument conduit and coupling to seal table assembly	1	NA	NA	P	
Flux thimble tubing and fittings	2	NA	NA	P	
<u>Non-nuclear instrumentation</u>					
All components that input to the reactor protection system	NA	IEEE 279	NA	P	
All components that input to the engineered safety features actuation system	NA	IEEE 279	NA	P	
All components that input to the reactor coolant isolation valve interlock system	NA	IEEE 279	NA	P	
Engineered Safety Features Actuation System	NA	IEEE 279	NA	P	
<u>Miscellaneous</u>					
Reactor Containment Crane	NA	NA	NA	P	Unloaded crane will not structurally fail during DBE
Vessel Head Lifting Device	26 NNE	NA	NA	P	Only portions that furnish support to CRDM are SC-2

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TABLE B-1 (CONT'D)

STRUCTURES AND EQUIPMENT CODES AND CLASSIFICATIONS

SYSTEMS (CONT'D)

Miscellaneous

Reactor Containment Crane	N	NA	NA	P	
					Unloaded crane will not structurally fail during DBE
Vessel Head Lifting Device	26 NNS	NA	NA	P	
					Only portions that furnish support to CRDM are SC-2