



Duquesne Light

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June 9, 1983

U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
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Region 1
631 Park Avenue
King of Prussia, Pennsylvania 19406

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
Current Description of the Operations Quality Assurance
Program

Gentlemen:

The final rule, 10 CFR 50.54(a), addressing the reporting of changes to the Quality Assurance Program, as published in the Federal Register (48FR 1026), requested Licensees to submit by June 10, 1983 the current description of their Quality Assurance Program identifying changes made since the description was submitted to the NRC. Included as an attachment is the current Operations Quality Assurance Program. This program has been side barred and numbered to identify changes to this program since last submitted to the NRC in December, 1973. The comment sheet provides a numerical correlation stating the reason for the program changes.

Subsequent changes to the Operations Quality Assurance Program description which do not reduce the commitments in the program will be submitted to the NRC annually as part of the annual update of the Final Safety Analysis Report in accordance with 10 CFR 50.71.

Very truly yours,

J. J. Carey

J. J. Carey
Vice President, Nuclear

cc: Mr. W. M. Troskoski, Resident Inspector
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Comment Sheet for Noted Changes to Appendix Since FSAR dated December, 1973

1. This was added since this section deals only with the construction phase.
2. Added for information purposes.
3. Revised from "AEC".
4. Table removed from FSAR.
5. Revised to include more information.
6. Added.
7. Reference to WASH documents moved to Section A.2.
8. Organization structure change.
9. Reference to qualification levels in the test were moved to Table A.2-2.
10. Changed from annual.
11. Procurement Quality Committee functioning deleted.
12. Specific edition and addenda references deleted.
13. Title is expanded.
14. Fuel program deleted.
15. Reflects actual practice.
16. Updated.

APPENDIX AQUALITY ASSURANCELIST OF EFFECTIVE PAGES

<u>Page Numbers</u>	<u>Revision in Effect</u>	<u>Date</u>
Ai through Aii	Revision 0	January, 1982
A-1 through A-6	Revision 0	January, 1982
A.1-1 through A.1-4	Revision 0	January, 1982
A.2-1 through A.2-31	Revision 0	January, 1982
AA.1 through AA.2	Revision 0	January, 1982
A.3-1 through A.3-27	Revision 0	January, 1982
A.4-1 through A.4-18	Revision 0	January, 1982
A.5-1 through A.5-4	Revision 0	January, 1982
Table A.1-1 (1 of 1)	Revision 0	January, 1982
Table A.2-1 (1 of 1)	Revision 0	January, 1982
Table A.2-2 (1 of 1)	Revision 0	January, 1982
Table A.3-1 (1 of 2)	Revision 0	January, 1982
Table A.3-1 (2 of 2)	Revision 0	January, 1982
Table A.3-2 (1 of 4)	Revision 0	January, 1982
Table A.3-2 (2 of 4)	Revision 0	January, 1982
Table A.3-2 (3 of 4)	Revision 0	January, 1982
Table A.3-2 (4 of 4)	Revision 0	January, 1982
Table A.4-1 (1 of 4)	Revision 0	January, 1982
Table A.4-1 (2 of 4)	Revision 0	January, 1982
Table A.4-1 (3 of 4)	Revision 0	January, 1982
Table A.4-1 (4 of 4)	Revision 0	January, 1982
Table A.4-2 (1 of 7)	Revision 0	January, 1982
Table A.4-2 (2 of 7)	Revision 0	January, 1982
Table A.4-2 (3 of 7)	Revision 0	January, 1982
Table A.4-2 (4 of 7)	Revision 0	January, 1982
Table A.4-2 (5 of 7)	Revision 0	January, 1982
Table A.4-2 (6 of 7)	Revision 0	January, 1982
Table A.4-2 (7 of 7)	Revision 0	January, 1982
Table A.4-3 (1 of 1)	Revision 0	January, 1982
Figure A.1-1	Revision 0	January, 1982
Figure A.2-1	Revision 0	January, 1982
Figure A.2-2	Revision 0	January, 1982
Figure A.2-3	Revision 0	January, 1982
Figure A.2-4	Revision C	January, 1982

LIST OF EFFECTIVE PAGES (CONT'D)

<u>Page Numbers</u>	<u>Revision in Effect</u>	<u>Date</u>
Figure A.3-1	Revision 0	January, 1982
Figure A.3-2	Revision 0	January, 1982
Figure A.3-3	Revision 0	January, 1982
Figure A.4-1	Revision 0	January, 1982
Figure A.4-2	Revision 0	January, 1982
Figure A.4-3	Revision 0	January, 1982

APPENDIX AQUALITY ASSURANCETABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
A.1	QUALITY ASSURANCE PROGRAM	A.1-1
A.1.1	<u>Quality Assurance Program - Overall</u>	
	<u>Description</u>	A.1-1
A.1.2	<u>Quality Assurance Categories</u>	A.1-2
A.2	DUQUESNE LIGHT COMPANY	A.2-1
A.2.1	<u>Design and Construction Quality Assurance</u>	
	<u>Program</u>	A.2-1
A.2.1.1	Organization	A.2-1
A.2.1.2	Quality Assurance Program	A.2-3
A.2.1.3	Design Control	A.2-3
A.2.1.4	Procurement Document Control	A.2-3
A.2.1.5	Instructions, Procedures, and Drawings	A.2-4
A.2.1.6	Document Control	A.2-4
A.2.1.7	Control of Purchased Material, Equipment, and Services	A.2-4
A.2.1.8	Identification and Control of Materials, Parts, and Components	A.2-5
A.2.1.9	Control of Special Processes	A.2-5
A.2.1.10	Inspection	A.2-5
A.2.1.11	(Deleted)	A.2-7
A.2.1.12	Control of Measuring and Test Equipment	A.2-7
A.2.1.13	Handling, Storage, and Shipping	A.2-7
A.2.1.14	Inspection, Test and Operation Status	A.2-7
A.2.1.15	Nonconforming Materials, Parts, and Components	A.2-8
A.2.1.16	Corrective Action	A.2-8
A.2.1.17	Quality Assurance Records	A.2-9
A.2.1.18	Audits	A.2-9
A.2.2	<u>Operations Quality Assurance Program</u>	A.2-10
A.2.2.1	Organization	A.2-10
A.2.2.2	Quality Assurance Program	A.2-15
A.2.2.3	Design Control	A.2-16
A.2.2.4	Procurement Document Control	A.2-18
A.2.2.5	Instructions, Procedures, and Drawings	A.2-20
A.2.2.6	Document Control	A.2-21
A.2.2.7	Control of Purchased Material, Equipment, and Services	A.2-21
A.2.2.8	Identification and Control of Materials, Parts, and Components	A.2-23
A.2.2.9	Control of Special Processes	A.2-24
A.2.2.10	Inspection	A.2-24
A.2.2.11	Test Control	A.2-25
A.2.2.12	Control of Measuring and Test Equipment	A.2-26

TABLE OF CONTENTS (CONT'D)

<u>Section</u>	<u>Title</u>	<u>Page</u>
A.2.2.13	Handling, Storage, and Shipping	A.2-27
A.2.2.14	Inspection, Test, and Operating Status	A.2-28
A.2.2.15	Nonconforming Materials, Parts or Components	A.2-28
A.2.2.16	Corrective Action	A.2-29
A.2.2.17	Quality Assurance Records	A.2-29
A.2.2.18	Audits	A.2-30
	ATTACHMENT TO A.2 - GUIDELINES USED FOR THE DUQUESNE LIGHT COMPANY OPERATIONS QUALITY ASSURANCE PROGRAM	AA.1
A.3	STONE & WEBSTER ENGINEERING CORPORATION QUALITY ASSURANCE PROGRAM (Design & Construction Phase)	A.3-1
A.3.1	<u>Organization</u>	A.3-1
A.3.1.1	General Description	A.3-1
A.3.1.2	Establishment and Management of Quality Assurance Program	A.3-1
A.3.1.3	Management of Quality Assurance Activities	A.3-2
A.3.1.4	Implementing Organization	A.3-3
A.3.1.5	System and Authority for Stop-Work Action	A.3-6
A.3.1.6	Qualification and Experience Levels	A.3-6
A.3.2	<u>Quality Assurance Program</u>	A.3-6
A.3.2.1	General Description	A.3-6
A.3.2.2	Quality Assurance Program Documentation	A.3-7
A.3.2.3	Program Applicability	A.3-8
A.3.2.4	Indoctrination and Continuing Education	A.3-8
A.3.2.5	Periodic Review of Quality Assurance Program	A.3-8
A.3.3	<u>Design Control</u>	A.3-8
A.3.3.1	General Description	A.3-8
A.3.3.2	Design Standards	A.3-9
A.3.3.3	Design Reviews	A.3-9
A.3.3.4	Design Control and Change Control	A.3-9
A.3.4	<u>Procurement Document Control</u>	A.3-11
A.3.4.1	General Description	A.3-11
A.3.4.2	Headquarters Purchased Items	A.3-12
A.3.4.3	Field Purchase Items	A.3-12
A.3.5	<u>Instructions, Procedures, and Drawings</u>	A.3-12
A.3.5.1	General Description	A.3-12
A.3.5.2	Procedures and Manuals	A.3-13
A.3.5.3	Codes and Standards	A.3-13
A.3.5.4	Reporting Significant Deficiencies	A.3-13
A.3.5.5	Authorized Engineering and Design Changes	A.3-13
A.3.6	<u>Document Control</u>	A.3-13
A.3.6.1	General Description	A.3-13
A.3.6.2	Review and Approval of Documents	A.3-13
A.3.6.3	Controlled Distribution and Use	A.3-14

6

TABLE OF CONTENTS (CONT'D)

<u>Section</u>	<u>Title</u>	<u>Page</u>
A.3.7	<u>Control of Purchased Materials and Equipment</u>	A.3-14
A.3.7.1	General Description	A.3-14
A.3.7.2	Control Methods	A.3-14
A.3.7.3	Source Evaluation and Selection	A.3-14
A.3.7.4	Inspections at Vendors	A.3-15
A.3.7.5	Site Receiving Inspection	A.3-15
A.3.7.6	Quality Documentary Evidence	A.3-15
A.3.8	<u>Identification and Control of Materials, Parts, and Components</u>	A.3-15
A.3.8.1	General Description	A.3-15
A.3.8.2	Materials, Parts, and Components	A.3-16
A.3.8.3	Identification and Control at Site	A.3-16
A.3.9	<u>Control of Special Processes</u>	A.3-16
A.3.9.1	General Description	A.3-16
A.3.9.2	Welding	A.3-17
A.3.9.3	Nondestructive Testing	A.3-17
A.3.9.4	Cleaning and Flushing of Components and Systems	A.3-18
A.3.10	<u>Inspection</u>	A.3-18
A.3.10.1	General Description	A.3-18
A.3.10.2	Procurement Quality Control Inspection	A.3-18
A.3.10.3	Field Quality Control Inspection	A.3-18
A.3.11	<u>Test Control</u>	A.3-19
A.3.11.1	General Description	A.3-19
A.3.11.2	Test Requirements	A.3-20
A.3.11.3	Shop and Field Test Control	A.3-20
A.3.12	<u>Control of Measuring and Testing Equipment</u>	A.3-20
A.3.12.1	General Description	A.3-20
A.3.12.2	Calibration Standards	A.3-21
A.3.13	Handling, Storage, and Shipping	A.3-21
A.3.13.1	General Description	A.3-21
A.3.13.2	Instructions and Procedures	A.3-21
A.3.14	<u>Inspection, Test, and Operating Status</u>	A.3-22
A.3.14.1	General Description	A.3-22
A.3.14.2	Inspection and Test Status System	A.3-22
A.3.14.3	Preoperational and Operating Status	A.3-22
A.3.15	<u>Nonconforming Materials, Parts, and Components</u>	A.3-23
A.3.15.1	Nonconformities at Vendor Shops	A.3-23
A.3.15.2	Nonconformities at Construction Site	A.3-23
A.3.16	<u>Corrective Action</u>	A.3-24
A.3.16.1	General Description	A.3-24
A.3.16.2	Recurrence Preventive Action	A.3-24
A.3.16.3	Reporting Significant Deficiencies	A.3-24
A.3.17	<u>Quality Assurance Records</u>	A.3-25
A.3.17.1	General Description	A.3-25
A.3.17.2	Quality Assurance Records Requirements	A.3-25
A.3.17.3	Engineering and Design Records	A.3-25

TABLE OF CONTENTS (CONT'D)

<u>Section</u>	<u>Title</u>	<u>Page</u>
A.3.17.4	Installation and Construction Records	A.3-26
A.3.17.5	Collection, Storage, and Maintenance of Quality Assurance Records	A.3-26
A.3.18	<u>Audits</u>	A.3-26
A.3.18.1	General Description	A.3-26
A.3.18.2	Quality Assurance Program Audits	A.3-27
A.3.18.3	Audit Results and Reports	A.3-27
A.4	WESTINGHOUSE PRESSURIZED WATER REACTOR SYSTEMS DIVISION QUALITY ASSURANCE PLAN (Design & Construction Phase)	A.4-1
A.4.1	<u>Purpose</u>	A.4-1
A.4.2	<u>Philosophy and Overview</u>	A.4-1
A.4.3	<u>Quality Assurance During Design and Construction</u>	A.4-2
A.4.3.1	Organization	A.4-2
A.4.3.2	Quality Assurance Program	A.4-4
A.4.3.3	Design Control	A.4-4
A.4.3.4	Procurement Document Control	A.4-6
A.4.3.5	Instructions, Procedures, and Drawings	A.4-8
A.4.3.6	Document Control	A.4-10
A.4.3.7	Control of Purchased Material, Equipment and Services	A.4-10
A.4.3.8	Identification and Control of Material, Parts, and Components	A.4-12
A.4.3.9	Control of Special Processes	A.4-13
A.4.3.10	Inspection	A.4-13
A.4.3.11	Test Control	A.4-13
A.4.3.12	Control of Measuring and Test Equipment	A.4-13
A.4.3.13	Handling, Storage and Shipping	A.4-13
A.4.3.14	Inspection, Test, and Operating Status	A.4-14
A.4.3.15	Nonconforming Material, Parts or Components	A.4-14
A.4.3.16	Corrective Action	A.4-15
A.4.3.17	Quality Assurance Records	A.4-15
A.4.3.18	<u>Audits</u>	A.4-16
A.4.3.18.1	Westinghouse Corporate Audits	A.4-16
A.4.3.18.2	NES Quality Assurance Committee Audits	A.4-17
A.4.3.18.3	PWR-SD	A.4-18
A.4.3.18.3.1	Supplier's Plants	A.4-18
A.4.3.18.3.2	Construction Site	A.4-18
A.4.3.18.3.3	Internal	A.4-18
A.5	WESTINGHOUSE NUCLEAR FUEL DIVISION RELIABILITY AND QUALITY ASSURANCE PROGRAM	A.5-1
A.5.1	<u>Quality Assurance Program</u>	A.5-1
A.5.2	<u>Manufacturing</u>	A.5-1
A.5.3	<u>Operating Experience</u>	A.5-4

LIST OF TABLES

<u>Table</u>	<u>Title</u>	
A.1-1	(Deleted by Revision 0, January 22, 1982)	4
A.2-1	Duquesne Light Company Operations Quality Assurance Procedures vs. Appendix B to 10CFR50	
A.2-2	Qualification and Experience Requirements of Duquesne Light Company Quality Assurance Personnel	6
A.3-1	Stone & Webster Cross Reference Matrix of Implementing Documents	
A.3-2	Qualification and Experience Requirements, Stone & Webster Quality Assurance Personnel	
A.4-1	Westinghouse Pressurized Water Reactor Division Quality Assurance Interface Relationships (for Pressurized Water Reactor Systems Division Scope)	
A.4-2	Westinghouse Nuclear Steam Supply System (NSSS) Functional Responsibilities	
A.4-3	Scope of Nuclear Energy Systems (NES) Procedures and Instructions	

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>
A.1-1	Duquesne Light Company Quality Assurance Project Organization - Design & Construction Phase
A.2-1	Duquesne Light Company Quality Assurance Organization - Design and Construction Phase
A.2-2	Duquesne Light Company Quality Assurance Department - Design & Construction Phase
A.2-3	Duquesne Light Company Quality Assurance Organization - Operations Phase
A.2-4	Duquesne Light Company Quality Assurance Department - Operations Phase
A.3-1	Stone & Webster Quality Assurance Organization - Design & Construction Phase
A.3-2	Stone & Webster Quality Assurance Department - Design & Construction Phase
A.3-3	Stone & Webster Quality Assurance Interrelationships - Design & Construction Phase
A.4-1	Westinghouse Power System Division, Nuclear Energy Systems Department Quality Assurance Organization - Design & Construction Phase
A.4-2	Westinghouse Nuclear Steam Supply System Functional Relationship Chart - Design & Construction Phase
A.4-3	Westinghouse Pressurized Water Reactor Systems Division Quality Assurance Organization - Design & Construction Phase

APPENDIX AQUALITY ASSURANCE

A.1 QUALITY ASSURANCE PROGRAM

A.1.1 Quality Assurance Program - Overall Description

A project Quality Assurance Program is in effect for the design, procurement, fabrication, erection and testing of components and systems, operations and maintenance of the Beaver Valley Power Station Unit No. 1 (BVPS-1). Ultimate responsibility for the Quality Assurance (QA) Program rests with the Applicant, Duquesne Light Company (DLC). The program entails quality assurance throughout all phases of this project as follows:

1. Conceptual design
2. Detailed engineering and design
3. Assembly and maintenance of quality control documentation for shop and field
4. Vendor selection
5. Surveillance of Vendor's shop inspection
6. Witnessing of key shop tests
7. Field inspection and quality control of erection
8. Equipment, installation, and testing specifications
9. Checkout of mechanical, fluid, and electrical systems
10. Startup testing
11. Periodic inservice performance tests.

The detailed working implementation of the Quality Assurance Program during the design and construction phase was delegated to Stone & Webster Engineering Corporation (S&W), as agents for Duquesne Light Company, and to Westinghouse Electric Corporation, contractor for the Nuclear Steam Supply System. The Quality Assurance Organization shown in Figure A.1-1 describes the relationships which implemented the Duquesne Light Company Quality Assurance Program during the design and construction phase of BVPS-1. | 1

Specific Duquesne Light Company responsibility for auditing the Quality Assurance Program rests with the Quality Assurance Manager, who reports directly to the Vice-President, Nuclear Construction Division. | 8

Figures A.2-1 and A.2-2 show the Duquesne Light Company organization for quality assurance during the design and construction phase of BVPS-1. Figures A.2-3 and A.2-4 show the Duquesne Light Company organization for quality assurance for the operations phase of BVPS-1. Figures A.3-1, A.3-2, and A.3-3 show the S&W quality assurance organization. Figures A.4-1, A.4-2, and A.4-3 depict the quality assurance organization of Westinghouse, the supplier of the Nuclear Steam Supply System. The S&W Quality Assurance Coordinator had direct contact with the Duquesne Light Company Quality Assurance Manager for quality assurance matters, as well as with the Westinghouse Project Manager during the design and construction phase.

Appendix A is organized as follows:

- A.2 - Duquesne Light Company Quality Assurance Program
 - A.2.1 - Duquesne Light Company Design and Construction Quality Assurance Program applicable at the latest revision of the original FSAR (Amendment 18 dated November 1975), BVPS-1
 - A.2.2 - Present Duquesne Light Company Operations Quality Assurance Program, BVPS-1
- A.3 - Stone & Webster Engineering Corporation Quality Assurance Program used during the Design and Construction Phase, BVPS-1
- A.4 - Westinghouse Power Systems Division Quality Assurance Plan used during the Design and Construction Phase, BVPS-1
- A.5 - Westinghouse Nuclear Fuels Division Reliability and Quality Assurance Program, BVPS-1

A.1.2 Quality Assurance Categories

Equipment and structures, whether safety related or not, are subject to engineering review, and shop and field inspection to a degree proportional to the value of the equipment and to its contribution to safety, accessibility, reliability and operability.

The three quality assurance categories defined below are not levels of quality per se, but rather denote differences in application of the Quality Assurance Program. Category I and only Category I is intended to include activities affecting structures, systems, portions of systems, and equipment to which the 10CFR50, Appendix B criteria apply, i.e., structures, systems, portions of systems, and components which are safety related. Within that category, there may be differences in the quality specified, depending upon the nature of the component and upon its contribution to public safety (e.g., the rebars in

the intake structure differ in this respect from the material in the reactor vessel), but the formal Quality Assurance Program incorporating the intent of the eighteen criteria in Appendix B to 10CFR50 applies without exception to all items classified as Category I.

The equipment and structures in Categories II and III are not safety related when considered in the above context. Hence, the applicability of the Quality Assurance Program for these categories is not determined by the eighteen criteria in Appendix B to 10CFR50 but rather by the Applicant's policy and is a matter of agreement between the Applicant and his agents and suppliers. Costly and critical power generation equipment in Category II normally are specified and inspected to a degree comparable to that afforded important safety-related equipment in Category I, but procedural aspects of quality assurance may be somewhat less stringent if so agreed to by the Applicant. 13

The various "classes" such as "piping class", Seismic Category I, etc., should not be confused with the quality assurance categories nor considered as subdivisions of the three categories.

The three quality assurance categories are defined as follows:

1. 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 plant and the removal of decay and sensible heat, or equipment which is necessary to mitigate consequences to the public of a postulated accident.
2. Category II - Plant systems, portions of systems, structures and equipment that 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.
3. 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 hours 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 hours or less.

The various structures, systems and components in the BVPS-1 which are Category I are listed in the Duquesne Light Company Operations Quality Assurance Program.

4

A.2 DUQUESNE LIGHT COMPANY

Sections A.2.1 through A.2.1.18 describe the Duquesne Light Company Quality Assurance Program applicable during the design and construction of BVPS-1. For convenience, these sections are retained in the Updated FSAR as a history of the Quality Assurance Program. Therefore, they are substantially the same as the corresponding sections of the original FSAR. Sections A.2.2 through A.2.2.18 describe the present Duquesne Light Company Operations Quality Assurance Program for BVPS-1. Descriptions of the present Design and Construction Quality Assurance Program are not included in this Updated FSAR, as they are only applicable to Beaver Valley Power Station Unit No. 2 (BVPS-2).

A.2.1 Design and Construction Quality Assurance Program

Duquesne Light Company, the applicant, has established a quality assurance organization (Figures A.2-1 and A.2-2) to insure all the systems, components, and structures affecting the safety of the station are specified, fabricated, shipped, stored, installed, inspected, and tested in accordance with sound engineering principles. This includes the utilization of applicable codes, standards, specifications, procedures, and regulatory requirements. The Quality Assurance Program fulfills the requirements of Appendix B to 10CFR50.

This document summarizes the activities pertinent to quality assurance during the design, procurement, and construction phases of BVPS-1.

A.2.1.1 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 Vice-President, Nuclear Construction Division. The effort of the Quality Assurance Manager is directed solely to quality assurance. He purposely has no responsibility 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 Power Stations Department. Engineers and others in these departments or sections fulfilling quality assurance responsibilities are directed by the Quality Assurance Manager.

The Quality Assurance Department is shown in Figure A.2-2.

The Quality Assurance Department personnel are aware of all quality matters pertaining to the project and assist with implementation of the total program. Their specific duties and responsibilities are delineated in the Duquesne Light Company Quality Assurance Program Manual.

The Duquesne Light Company Project Management Committee is chaired by the Vice-President, Engineering and Construction Division. Members of the committee include department heads from all engineering departments, the 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 bimonthly or at the specific request of any member, as necessary. Minutes of the meetings are recorded and distributed to all members.

The Duquesne Light Company Project Team consists of a representative from each of the engineering disciplines assigned full-time to the project team office. They coordinate quality assurance activity between the field and their respective departments. This includes responsibility for making necessary contacts upon receipt of shop test notification, and to inform the quality assurance office of the decision to witness or waive a shop test. Further, project team members are responsible for the preparation and/or review of reports in accordance with the Duquesne Light Company Quality Assurance Program Manual.

The Duquesne Light Company Engineering Departments review and/or approve general design concepts, calculations, materials adequacy, specifications, bid evaluations, purchase requisitions, drawings, and correspondence in accordance with the procedures established as a result of the commitments in the Duquesne Light Company Quality Assurance Program Manual. They also assist in the implementation of the shop test program established as a result of the Duquesne Light Company Quality Assurance Manual and may upon request provide technical assistance in the audit program.

The Duquesne Light Company Construction Department maintains a full-time surveillance group at the site. Their activities are directed by the Chief Construction Inspector in accordance with a

prescribed site surveillance plan. Any deviations or nonconformances discovered during the implementation of the Quality Assurance Program are transmitted to the Quality Assurance Manager for resolution. As a part of this site surveillance plan, the inspectors participate in the implementation of the Duquesne Light Company equipment clearance and tagging program and in conjunction with the Operations Department, inspect equipment and systems prior to final acceptance. Assistance is rendered in these activities by representatives from the Duquesne Light Company Engineering Departments who make frequent trips to the jobsite. Activities of the construction inspectors with regard to the Quality Assurance Program are identified in the Duquesne Light Company Quality Assurance Program Manual. In addition, a site surveillance program has been prepared which guides the overall activity of the construction inspectors at BVPS-1.

A.2.1.2 Quality Assurance Program

The Duquesne Light Company Quality Assurance Program conforms to the requirements of 10CFR50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants. The Duquesne Light Company Quality Assurance Program Manual has been prepared and governs all quality assurance activities relating to this project. Implementation and assessment of this program is the responsibility of the Duquesne Light Company Quality Assurance Manager. Program implementation is discussed in Sections A.2.1.3 through A.2.1.18.

A.2.1.3 Design Control

The responsibility for the design control of BVPS-1 is delegated to S&W as agents for the Duquesne Light Company. This responsibility includes the review of interface design areas with the nuclear steam supply system to verify the adequacy. Similarly, Westinghouse Electric Corporation is responsible for the review of S&W design in the balance of plant to verify interface agreement with the nuclear steam supply system.

The Duquesne Light Company engineers review, on a selective basis, the design of certain components, systems, or structures. These reviews are documented on quality assurance checklists. Similar reviews are made of significant design changes which may occur during construction of the station.

Activities relating to design control are audited and documented in accordance with the provisions of the Duquesne Light Company Quality Assurance Program Manual.

A.2.1.4 Procurement Document Control

The procurement responsibility is delegated to S&W as the agent for the Duquesne Light Company. The Duquesne Light Company retains the right of approval for all vendors.

Approved vendors list developed on the basis of qualifications, previous experience, and/or evaluation surveys is maintained by S&W. This list is constantly updated. It is reviewed by the Duquesne Light Company to verify only qualified vendors being utilized in the procurement of components for BVPS-1.

In a similar manner Westinghouse maintains a qualified vendor list which is periodically reviewed by the Duquesne Light Company.

The Duquesne Light Company reviews and approves orders being placed with vendors. This review includes the specification, the purchase order, bid evaluation, and other documents pertaining to this activity. Categorization of components has been established by S&W identifying quality assurance levels to be specified. The quality assurance levels require review by the Duquesne Light Company and are audited periodically.

A.2.1.5 Instructions, Procedures, and Drawings

S&W is delegated the responsibility for preparation and distribution of specifications, drawings, instructions, and procedures in accordance with their manuals, instructions, and procedures. The Duquesne Light Company reviews such documents to assure safety, reliability, technical adequacy, and adherence to regulatory requirements and applicable codes. Reviews for safety-related equipment are documented on the appropriate quality assurance checklists. Instructions are contained in procedures established within Duquesne Light Company to prepare and report such reviews.

A.2.1.6 Document Control

Documents including drawings, instructions, procedures, specifications, correspondence, etc., are controlled in accordance with the manuals of S&W and the Duquesne Light Company. Correspondence and other transmittals are maintained in document logs or by signed document receipts. The procedures establishing control and distribution of such documents are audited by S&W on a regular basis. In addition, the Duquesne Light Company provides for the audit of such documentation in accordance with the Quality Assurance Program requirements.

The manuals and procedures governing this activity also provide for review, and necessary revisions and/or additions to existing manuals or procedures.

A.2.1.7 Control of Purchased Material, Equipment, and Services

S&W, as agents for the Duquesne Light Company, are delegated the responsibility for the control of purchased material, equipment, and services. This is accomplished through source selection, progressive shop inspection, audits, witnessing of shop tests, and jobsite receipt inspection. The vendor requirements for control of material and equipment are verified for adherence to

procurement requirements by the S&W Procurement Quality Control Inspectors. The Duquesne Light Company maintains control of these activities through audits of S&W and the vendor shops as necessary.

Periodic inspection and status reports are prepared by S&W Procurement Quality Control Inspectors and maintained by the Duquesne Light Company. Such information is utilized in the preparation of audit plans or to monitor continuing adherence to established procedures.

A.2.1.8 Identification and Control of Materials, Parts and Components

S&W, as agents for the Duquesne Light Company, are delegated the responsibility for the identification and control of materials, parts, and components. This includes activities in the vendor shops as well as site activities. The procedures governing S&W personnel in this activity assures that only specified materials are used. Reviews of vendors quality control programs and/or procedures are made to determine their (the vendors) exercise of control over materials, parts, and components, including partially fabricated assemblies. Such verification would include mill test certifications, review of the certifications against the specified codes, marking or otherwise identifying components, personnel qualifications, and similar requirements. Compliance with the activities required by this section are monitored at the site by the Duquesne Light Company and verified at the vendor shops or the S&W headquarters through the audit mechanism.

A.2.1.9 Control of Special Processes

S&W is delegated the responsibility for review and approval of welding, heat treating, nondestructive testing procedures, and other special processes utilized during the fabrication and erection of materials, parts, and components for BVPS-1. In addition, S&W maintains a welding procedure manual and similar documentation for the control of these processes at the construction site. Procedures from S&W and/or the vendors are reviewed for compliance with the applicable codes and the content of the specifications. S&W has established field quality control procedures to assure compliance with these provisions.

Qualifications of persons performing welding, nondestructive testing, and similar special processes where required by the specification are maintained by appropriate S&W personnel. These records are monitored and/or audited at the site by the Duquesne Light Company. Records in the vendor shops are included as part of the Duquesne Light Company audit program.

A.2.1.10 Inspection

The Duquesne Light Company has delegated the responsibility for implementation of an inspection program to S&W. This program

assures that manufacturing, shipping, construction, installation, and testing activities are in accordance with the codes, specifications, drawings, and other governing documents. In the implementation of this program, S&W has established a Procurement Quality Control and Field Quality Control Division.

The Procurement Quality Control Inspectors are governed by the provisions of their manual, the specification, and drawings pertinent to the component. The inspector periodically visits the shop to verify compliance with the vendor's procedures and his adherence to the specifications. Equipment being procured from a vendor's shop is not released until the entire inspection program has been completed and documented. A shipping release tag system is provided to assure that all requirements have been met.

Material and components received at the site receive a similar inspection by the S&W Field Quality Control personnel. The instructions governing this inspection include receiving, storing, handling, installing, and preparing for operation. Acceptance criteria are identified in the drawing, the specification, the manufacturer's instructions, the codes, or in the field quality control manual.

The activities which may be in noncompliance with the prescribed activities at the site may be stopped by authorized personnel within the Duquesne Light Company and/or S&W Field Quality Control. In-process activity at the site provides specific instructions identifying hold points, visual examinations, nondestructive testing, welding procedure, and similar information. These activities are maintained in documented form in accordance with the governing manual.

Activity relating to inspection is audited by the Duquesne Light Company. In addition, certain selected shop tests are witnessed by the Duquesne Light Company engineers. Activities pertinent to witnessing of shop tests and/or audits are documented and maintained at the Quality Assurance Department office.

In a similar fashion the activities of the Duquesne Light Company Construction Inspection Department are documented and maintained at the site.

The Duquesne Light Company had delegated the responsibility for verification that all nondestructive testing, performance testing, installation testing, have been completed in accordance with specifications, procedures, and/or instructions. This responsibility includes provisions for assurance that the testing has been performed by qualified personnel and that documentation pertaining to the manner of testing, results of testing, and qualifications of personnel involved in testing are documented and maintained in the file.

A.2.1.11 (Deleted)

A.2.1.12 Control of Measuring and Test Equipment

During construction, the Duquesne Light Company has delegated the responsibility for the control of measuring and testing equipment to S&W. The specifications for BVPS-1 require manufacturer and material supplier control of calibration of tools, gages, instruments, and other measuring and testing devices. Compliance with these programs is verified by the S&W Procurement Quality Control Inspectors.

The above activities are audited by the Duquesne Light Company Quality Assurance Department.

Activity in the control of measuring and testing equipment including calibration records, calibration frequency, standards used for calibration, and other related information are included as part of the Duquesne Light Company audit and/or surveillance program both in the vendor shops and at the construction site.

A.2.1.13 Handling, Storage, and Shipping

S&W is delegated the responsibility for control of handling, storing, shipping, cleaning, and preservation of material and equipment. In accordance with the engineering instructions, specifications, and drawings, and governed by the provisions of the applicable manuals, the Procurement Quality Control and Field Quality Control groups assure compliance with the requirements.

Records of these inspections are maintained by the appropriate responsible organizations. Receiving inspection performed at the construction site is governed by written procedures and instructions. A tagging system is provided allowing for rapid and positive identification of material status. Environmental requirements as determined by the applicable documents are addressed as provisions made to assure compliance. Equipment and material placed in environmentally controlled storage is constantly monitored and recorded on equipment storage history cards. This program provides address to the requirements of this section through time of installation of the equipment.

The Duquesne Light Company maintains a constant surveillance of equipment and material in storage as well as a review of the documents pertaining to this program. The Duquesne Light Company audits address these characteristics in both vendor and site audits.

A.2.1.14 Inspection, Test, and Operation Status

During the procurement and construction phases, the responsibility for identifying status is delegated to S&W. This system includes utilization of stickers, tags, record cards, and checkoff lists as required. Tags indicating accept reject, or

hold are utilized to identify the status of the material. Mandatory hold points during fabrication are identified in appropriate procurement documents. The S&W Procurement Quality Control Inspectors, in accordance with established written procedures, verify the hold points.

During the procurement and construction phases, notifications regarding testing are identified to the Duquesne Light Company. Cognizant engineering personnel may elect to witness a test or waive a particular test. A log is maintained identifying this decision. Where tests are witnessed, a report is prepared by the cognizant engineers in accordance with the provisions of the Duquesne Light Company Quality Assurance Program Manual.

A.2.1.15 Nonconforming Materials, Parts, and Components

Nonconforming materials, parts, and components are controlled by procedures established by the Duquesne Light Company and S&W. These include controls in the vendor shops as well as at the construction site.

Nonconformance occurring during any activity attendant with the design, procurement, and construction phase requires review and disposition which may include rejection, repair, rework, or scrap, depending on the instructions contained in the documented procedure. Engineering personnel are included in the determination of disposition of such nonconforming material, parts, or equipment.

Vendors are required to maintain segregated areas for material identified as being nonconforming. At the jobsite, segregation areas are also provided to assure that nonconforming materials, parts, or components are not used pending final disposition.

The Duquesne Light Company maintains control of this activity through a surveillance and audit program. In addition to reviewing nonconformances reported by others, the Duquesne Light Company may generate nonconformance reports as provided for in the Duquesne Light Company Quality Assurance Program Manual.

A.2.1.16 Corrective Action

The Duquesne Light Company quality assurance requirements for corrective action are documented in written procedures. The Quality Assurance Manager or his designated representative may direct the stopping of all work pending corrective action. The Duquesne Light Company is also responsible for verification of a resolution of nonconformances or deviations. 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 a program which may have resulted in the generation of repeated nonconformances.

Conditions which may affect quality are documented and the corrective action is verified through the mechanisms provided in the Duquesne Light Company, S&W, and Westinghouse Manuals.

A.2.1.17 Quality Assurance Records

The official quality file for the BVPS-1 is maintained at the S&W Field Quality Control office. This file is monitored and audited by the Duquesne Light Company.

Included in the records maintained are purchase orders, drawings, specifications, correspondence, procedures, audit reports, minutes of meetings, quality assurance checklists, codes and standards, and similar material.

A file system has been established to assure retrievability of such records. In the case where records are not stored at the site, locations for storage are reviewed and/or approved by the Duquesne Light Company. Vendors retaining records for certain periods of time are instructed that such records must be submitted to the applicant at the conclusion of his (the vendor) storage responsibility.

A.2.1.18 Audits

The Duquesne Light Company retains the ultimate responsibility for Quality Assurance for BVPS-1. This responsibility is exercised mainly through an audit program. These audits are performed against the S&W and Westinghouse commitments. These include quality assurance/quality control procedures, specifications, drawings, instructions, and similar information. Internal audits of the Duquesne Light Company are also documented and maintained in the file.

As agents for the Duquesne Light Company, S&W also performs audits at the vendor shops through their Procurement Quality Control Division and audits at the site through the Field Quality Control Division. Both divisions are audited periodically by the Duquesne Light Company.

Audit reports are utilized to assess the adequacy of the Duquesne Light Company Quality Assurance Program. A record of all audits is maintained and periodically reviewed to assure necessary follow-up action. Audits are reported at each Project Management Committee Meeting to assure that the necessary level of management is involved and has an awareness of the audit program.

All audits are performed utilizing a preplanned checklist. The checklist will include address to the specific criteria of Appendix B of 10CFR50, results of previous audits, inspection reports, nonconformance reports, adherence to specifications, and other items as identified in the respective organization quality assurance manuals.

A.2.2 Operations Quality Assurance Program

An Operations Quality Assurance Program is established by Duquesne Light Company for the operations phase of BVPS-1. The program is written to conform to the requirements of 10CFR50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants," and NRC Regulatory Guide 1.33 "Quality Assurance Requirements (Operations)." The NRC Regulatory Guides and American National Standards Institute (ANSI) Standards are utilized as indicated in the Attachment to Section A.2. The following exception should be noted: An alternate set of Quality Assurance Terms and Definitions has been developed, and is included as Appendix A to the Duquesne Light Company Quality Assurance Program Manual. The purpose of the Operations Quality Assurance Program is to assure that the installed quality of BVPS-1 is maintained throughout the life of the plant. 7

The Operations Quality Assurance Program applies to all safety-related (Category I) structures, systems, and components, throughout the life of the plant. The Category I structures, systems, and components are identified in the Operations Quality Assurance Program.

A.2.2.1 Organization

The organizations which have responsibilities for performing activities affecting quality during the operations phase of BVPS-1 are shown in the organization chart of Figures A.2-3 and A.2-4. The Operations Quality Assurance Program identifies in detail the functional responsibilities of the organizations within the Duquesne Light Company which participate in quality-related activities.

The Operations Quality Assurance Program is established and managed by the Quality Assurance Manager, who reports to the Vice-President, Nuclear Construction Division. The Quality Assurance Manager has the authority to report quality matters to any level necessary within the Duquesne Light Company, including: the President; the Vice-President, Operations Division; the Vice-President, Nuclear Division; the Vice-President, Nuclear Construction Division; the Vice-President, Engineering and Construction Division; and the Vice-President, General Services Division, in order to establish effective corrective action. The Duquesne Light Company President, the Vice-President, Operations Division; the Vice-President, General Services Division; the Vice-President, Engineering and Construction Division; and the Vice-President, Nuclear Division, comprise the Executive Management Group. 8

The effort of the Quality Assurance Manager is directed solely to quality assurance. He purposely has no responsibilities for station costs or schedule considerations.

Sufficient personnel are made available to implement the Duquesne Light Company Quality Assurance Program. The Duquesne Light Company Quality Assurance Program provides written policies, procedures, and instructions governing the Quality Assurance activity.

In addition to the Duquesne Light Company Quality Assurance Program, a quality control program is established which describes the activities performed (at BVPS-1) by the Director, Operations Quality Control and his staff. The Director, Operations Quality Control reports to the Manager, Nuclear Safety and Licensing. | 8

The Operations Quality Control Section is independent of station operations and maintenance activities. | 8

The Quality Assurance Department and the Director, Operations Quality Control and his staff have sufficient authority and organizational freedom to: | 8

1. Identify quality problems
2. Initiate, recommend, or provide solutions to quality problems through designated channels
3. Verify implementation of solutions to quality problems
4. Control further processing, delivery, or installation of a nonconforming item, deficiency, or unsatisfactory condition until proper dispositioning has occurred.

The Operations Quality Assurance Program delineates in writing the responsibility and authority of the Quality Assurance Department and the Director, Operations Quality Control and his staff to stop unsatisfactory work pending resolutions of quality matters. | 8

It is the policy of the Duquesne Light Company Quality Assurance Program that the individual group assigned the responsibility for checking auditing, inspecting, or otherwise verifying that any activity has been correctly performed, shall be independent of the individual or group directly responsible for the performance of that activity.

The qualification and experience levels established for the Quality Assurance personnel are presented in Table A.2-2. | 9

The Duquesne Light Company personnel supporting the quality assurance effort includes those from the Nuclear Division, the Engineering and Construction Division, the Operations Division, the General Services Division, and the Nuclear Construction Division. Engineers and others in these divisions or sections participating in the program perform their duties in accordance with administrative procedures previously reviewed by the Quality Assurance Department. | 15

General Purchasing Department

The General Purchasing Department is responsible for the purchase of materials, equipment and services following initial operation. The quality-related activities of the General Purchasing Department are documented in written procedures or directives which are issued by the General Purchasing Department with guidance, as necessary, from the Quality Assurance Department. The General Purchasing Department is not authorized to change technical or quality requirements without authorization from the appropriate technical or quality organizations. The Quality Assurance Department reviews such procedures or directives and conducts periodic audits to assure that they are being effectively implemented. 15

Construction Department Nuclear 8

The Construction Department Nuclear is responsible for the administration of construction contracts which may be associated with major modifications at BVPS-1. The quality-related activities of the Construction Department Nuclear are documented in written procedures or directives which are issued by the Manager, Construction Department Nuclear, with guidance as necessary from the Quality Assurance Department. The Quality Assurance Department reviews such procedures or directives and conducts periodic audits to assure that they are being effectively implemented. 8 8 15

Nuclear Division

The Vice-President of the Nuclear Division has the overall responsibility for nuclear power production. Reporting directly and independently to the Vice-President are the Manager of Nuclear Operations, the Manager of Nuclear Safety and Licensing, Manager of Nuclear Support Services, Manager of Nuclear Engineering, and Director of Personnel Administration. All quality-related activities of the Nuclear Division are documented by policies, directives, procedures, manuals, instructions, etc. of a type appropriate to the circumstance. Audits of the Nuclear Division are in accordance with A.2.2.18. 8

The Nuclear Station Superintendent BVPS-1 is responsible for the safe and efficient operation of BVPS-1 in accordance with the guidelines and requirements of the Operating License, Technical Specifications and Station Manuals. His responsibilities include the testing, operation, maintenance, modification, and repair of BVPS-1.

The Superintendent of Technical Services is responsible for supporting the Station Superintendent in areas of: procedure preparation to support operations and maintenance groups, design control, refueling, procurement, station chemistry control, the STA group and the OSC.

The Manager of Nuclear Safety and Licensing is responsible for the development and implementation of the Quality Control Program. The Beaver Valley Power Station Quality Control Program is reviewed by the Quality Assurance Department. The Quality Assurance Department conducts planned and periodic audits of the Quality Control Program to assure that it is being effectively implemented.

The Nuclear Engineering Department is responsible for design work associated with modification or repair at BVPS-1, and for generating and maintaining as-built drawings for the station. The quality-related activities of the engineering department are documented in written procedures or directives which are issued by the Manager of Nuclear Engineering, with guidance as necessary from the Quality Assurance Department. The Quality Assurance Department reviews such procedures or directives and conducts periodic audits to assure that they are being effectively implemented.

Substations and Shops (Operations Division)

The General Superintendent of Substations and Shops has the responsibility for the performance of limited designated electrical equipment tests at the direction of the Superintendent of Beaver Valley Power Station Unit No. 1 and is responsible for performing electrical equipment tests, and developing procedures governing their activities. The quality-related activities of Substations and Shops are documented in written procedures or directives which are issued by the General Superintendent or his designee, with guidance as necessary from the Quality Assurance Department. The Quality Assurance Department reviews such procedures or directives and conducts periodic audits to assure that they are being effectively implemented.

The Superintendent of Stores reports to the General Superintendent of Substations and Shops and 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 Quality Assurance Department.

Onsite Safety Committee (OSC)

The Onsite Safety Committee, as required by Technical Specifications, is a special committee composed of experienced and highly skilled plant members. The Onsite Safety Committee meets monthly (and when called by the Chief Engineer) to evaluate the status of the plant safety and to review and make recommendations on proposed hardware or software changes for the plant.

Offsite Review Committee (ORC)

The Offsite Review Committee, as required by Technical Specifications, functions as an independent technical advisory

group to senior management of Duquesne Light Company on all matters concerning safe performance and operation of the nuclear power station. It has the authority to perform periodic nuclear safety audits of plant operations. The Offsite Review Committee is composed primarily of personnel outside of the station operating organization, each with experience in a field pertinent to nuclear safety. 6

Contractors

Contractors which perform work on safety-related items shall document and implement a Quality Assurance Program that addresses all the safety-related activities assigned to the contractor. The Duquesne Light Company Quality Assurance Department shall review and concur with the contractor's Quality Assurance Program. The contractor's Quality Assurance Program shall be in effect when the safety-related work is started.

Vendors

Vendors supplying safety-related items shall document and implement a Quality Assurance Program that addresses safety-related activities performed by the vendor. The Duquesne Light Company Quality Assurance Department shall review and concur with the vendor's Quality Assurance Program. The vendor's Quality Assurance Program shall be in effect when the safety-related work is started.

A.2.2.2 Quality Assurance Program

The Operations Quality Assurance Program:

1. Identifies quality-related functions for the licensed plant and designated responsibilities within Duquesne Light Company for performing those functions, and delegates the authority necessary to meet the assigned responsibilities.
2. Specifies control measures for quality-related documents.
3. Prescribes administrative controls to assure that adequate training and planning are provided and prerequisites are met prior to performance of critical quality achievement, quality effective, and quality verification tasks.
4. Provides for testing, inspection, surveillance, and auditing to prevent, or detect and correct deviations and deficiencies that would degrade the installed plant quality.

5. Provides for accumulation and retention of records that define or attest to the quality of plant structures, systems, and components.
6. Identifies the safety-related elements of the station.

The Duquesne Light Company Quality Assurance Program is comprised of the Quality Assurance Policy, The Design and Construction Quality Assurance Program and the Operations Quality Assurance Program. The Quality Assurance Policy is prepared by the Quality Assurance Manager and approved by the President of Duquesne Light Company. The Design and Construction Quality Assurance Program and the Operations Quality Assurance Program are prepared by the Quality Assurance Department and approved by the Quality Assurance Manager. The Quality Assurance Manager is responsible for the controlled distribution of quality assurance policies, procedures, and manuals. Table A.2-1 is a matrix which cross references the procedures contained in the Operations Quality Assurance Program with the 18 Criteria of Appendix B to 10CFR50. Indoctination and training measures assure that all responsible organizations and individuals are aware of quality policies, procedures, and manuals, and have an adequate understanding of these requirements, the methods of meeting such requirements, and the methods of enforcement.

The Duquesne Light Company Quality Assurance Program requires that a management review of the status and adequacy of the

Quality Assurance Program be conducted on a biennial basis by the Vice-President, Nuclear Division, or his designee. | 10

The Operations Quality Assurance Program applies to plant operations, maintenance, and modifications associated with safety-related (Category I) structures, systems, and components. The Operations Quality Assurance Program is implemented system by system, at the time of system turnover by S&W to the Nuclear Operations Department, for preoperational testing.

Formal training of all members of the Duquesne Light Company Quality Assurance Department is accomplished in part by seminars and classroom courses. Additionally, staff members are encouraged to increase their proficiency through courses offered by local and state universities or other industry courses. At various times the Quality Assurance Manager may conduct in-plant indoctrination and training in those areas where he feels it will be of benefit to his staff, or to other Duquesne Light Company organizations engaged in the performance of activities affecting quality.

The quality assurance programs of outside organizations participating in the maintenance, repair, or modification are reviewed by the Duquesne Light Company Quality Assurance Department. 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.

Activities affecting quality shall be accomplished under suitably controlled conditions including:

1. The use of special processes, tools, test equipment, skilled personnel
2. Proper environmental conditions, such as adequate cleanliness
3. Satisfactory evidence of all prerequisites having been met
4. Adequate testing and inspections performed.

A.2.2.3 Design Control

Design changes which may be necessary during the operating life of BVPS-1 shall be accomplished in accordance with design control measures as described in the Operations Quality Assurance Program.

The Operations Quality Assurance Program provides measures to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. The Operations Quality Assurance

Program includes provisions for assuring that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled.

The design control measures applied to design changes include provisions for the selection and review for suitability of the application of materials, parts, equipment, and processes that are essential to the safety-related functions of structures, systems, and components.

The Operations Quality Assurance Program establishes measures for the identification and control of design interfaces and for coordination among participating design organizations. These measures require the establishment of procedures among participating design organizations for the review, approval, release, distribution, and revision of documents involving design interfaces.

The adequacy of design changes is verified or checked by appropriate methods such as:

1. Performance of design reviews
2. Use of alternate or simplified calculational methods
3. Performance of a suitable testing program.

If a testing program is used in lieu of other verifying or checking processes, to verify the adequacy of a design feature, the test program will include suitable qualification testing of a prototype unit under the most adverse design conditions.

The Operations Quality Assurance Program requires that the verifying or checking process be performed by individuals or groups other than those who performed the original design, but who may be from the same organization.

Design changes at BVPS-1 after release and acceptance of design documents are subject to design control measures commensurate with those originally applied to the design. The Operations Quality Assurance Program requires that whenever practical, changes should be reviewed and approved by the individuals or organizations that originally performed the review and approval of the design. In the event that it is not practical for the original individuals or organizations to perform the required review and approval, other responsible individuals or organizations (such as the Nuclear Division, Engineering departments, an architect-engineer, or other outside design organization) will be designated, provided the designated organizations have access to pertinent background information, have competence in the specific design area of interest, and have adequate understanding of the requirements and intent of the original design.

Design control measures will provide for but are not limited to the following:

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

The Operations Quality Assurance Program requires that design changes be incorporated into revised design documents, including specifications, procedures, and as-built drawings. The revised design documents will be distributed to responsible individuals and organizations in a controlled manner and obsolete documents will be removed and disposed of in a similarly controlled manner.

The Operations Quality Assurance Program provides measures to assure that changes or deviations from specified design requirements or quality standards are identified, documented, and controlled.

The Quality Assurance Department has established a comprehensive system of planned and periodic audits of the design organization, whether the design work is performed internally by Duquesne Light Company or externally by an architect-engineer or consultant.

Design documentation, including design review reports, specifications, drawings, and revisions thereto shall be collected, filed, stored, and maintained in a systematic manner.

The Operations Quality Assurance Program requires that all design changes of safety-related items shall be reviewed by the Onsite Safety Committee, and the Offsite Review Committee in accordance with the Technical Specifications, and the requirements of the Operations Quality Assurance Program. Safety analyses are conducted, as appropriate to determine 10CFR50.59 requirements.

A.2.2.4 Procurement Document Control

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

For items classified as Quality Assurance Category I, Level A (those items designed and fabricated specifically as safety-related products), the supplier's and contractor's Quality Assurance Programs will be reviewed for compliance with the pertinent provisions of 10CFR50, Appendix B, by the Duquesne Light Company Quality Assurance Department. The General Purchasing Department or its designee shall not issue the purchase order for Quality Assurance Category I, Level A items unless the suppliers are on the Duquesne Light Company Qualified Suppliers List.

Off-the-shelf type items used in Category I Systems are classified as Category I, Level C. These items may be purchased from any available supplier. Category I items are receipt inspected and functionally tested after installation.

The Operations Quality Assurance Program requires that procedures be established which describe the sequence of preparation, review, approval, and control of procurement documents and will identify the responsibilities of the individuals and organizations which are associated with those activities.

The Operations Quality Assurance Program includes provisions for extending applicable requirements of procurement documents to lower tier subcontractors and suppliers, including purchaser's access to facilities and records.

The procurement documents shall be reviewed to determine that all quality requirements are correctly stated, and to assure that the procurement document has been prepared in accordance with the requirements of the Operations Quality Assurance Program. The review of procurement documents shall be performed by an individual or organization other than the one responsible for preparing the procurement documents, in accordance with the provisions of the Operations Quality Assurance Program.

When applicable, procurement documents shall contain basic technical requirements including component identification, drawings, specifications, codes and industrial standards, including their revision status, tests and inspection requirements and special process instructions, for activities such as fabrication, cleaning, erecting, packaging, handling, shipping, storing, and inspecting.

The procurement documents shall contain provisions which allow access to vendor facilities and records for the purpose of audits and inspections. The procurement document will define the requirements for the retention, control, submittal, and maintenance of records such as drawings, specifications, procedures, qualifications, material, chemical and physical test results.

Revisions or changes to procurement documents will be subjected to the same review requirements as the original document. The review and approval of procurement documents, including any

revisions or changes thereto, shall be documented, and such evidence will be maintained and available for verification.

Category I, Level A items may be purchased only from suppliers on an approved suppliers list. The evaluation and selection of suppliers for the approved suppliers list, is performed in accordance with the provisions of the Operations Quality Assurance Program. The evaluation and selection shall be based on factors such as:

1. The ability to meet the established technical and quality requirements set forth in the procurement documents
2. Previous performance of the supplier and experience in supplying similar items of the type being procured
3. Surveys and evaluations of the supplier's Quality Assurance Program.

A.2.2.5 Instructions, Procedures, and Drawings

The Operations 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. The instructions, procedures, or drawings, shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

The Beaver Valley Power Station Manual of Operating Procedures includes instructions and procedures covering the requirements of NRC Regulatory Guide 1.33 "Quality Assurance Requirements (Operations)", Appendix A, as they apply to Pressurized Water Reactors. The Manual of Operating Procedures is implemented, enforced, and maintained by the Station Superintendent, the Superintendent of Technical Services, and their staffs. These procedures and/or instructions include step-by-step procedures for starting, operating, and securing the various systems; actions to be taken in the event of abnormal or emergency conditions and precautions to preclude exceeding system or equipment design. The applicable requirements of ANSI N18.7 - 1972 "Administrative Control for Nuclear Power Plants" were used as guidance in the development of startup, operating, emergency, maintenance, and testing procedures.

Maintenance, repair, modifications, testing, and refueling activities which affect the quality or safety of Category I items are prescribed by documented instructions, procedures, or drawings. These instructions, procedures, or drawings include, as appropriate, the requirements for special tools, test equipment, processes, controls, or skills, in order to attain the required level of quality.

A.2.2.6 Document Control

The Operations Quality Assurance Program establishes measures to control the issuance of documents, such as instructions, procedures, and drawings, affecting the quality of safety-related structures, systems, and components. The measures assure that documents including changes are reviewed for adequacy and approved by authorized personnel.

The Operations Quality Assurance Program includes provisions for assuring 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 approved and released documents shall be reviewed and approved by the same individuals or organizations which performed the original review and approval, whenever practical. In the event that it is not practical for the original individuals or organizations to perform the required review and approval, other responsible individuals or organizations will be designated, provided the designated individuals or organizations have access to pertinent background information, have competence in the particular area of interest, and have adequate understanding of the requirements and intent of the original documents.

The Quality Assurance Department conducts planned and periodic audits of the document control measures, in accordance with the Operations Quality Assurance Program to assure that the measures are being effectively implemented.

A.2.2.7 Control of Purchased Material, Equipment, and Services

The Operations Quality Assurance Program establishes measures to assure that purchased material, equipment, and services whether purchased directly or through contractors and subcontractors, conform to the procurement documents. The measures include provisions, as appropriate, for source evaluation and selection, source inspection, receipt inspection, examination of tests and/or inspection reports from the supplier, and examination of objective evidence from the supplier, such as certification of material analysis or any combination of these. The extent and frequency of source evaluations shall be governed by factors such as 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 his Quality Assurance Program and implementation.

The Operations Quality Assurance Program includes measures to assure that source inspections or audits are conducted by qualified personnel to determine conformance to the requirements of procurement documents, specifications, drawings, and applicable codes and standards. Such inspections and/or audits

are determined in advance and performed in accordance with written instructions.

Receipt inspection shall be performed by designated individuals, using written predetermined instructions and/or checklists in accordance with the provisions of the Operations Quality Assurance Program. The receipt inspection shall include examination of material and equipment to assure that the quality was not impaired during transit, that the correct count was received, and that all required quality records are at the site prior to use or installation of the material or equipment.

Documentary evidence that material and equipment conform to the procurement requirements shall be available at the Beaver Valley Site prior to installation or use of such material or equipment.

The Operations Quality Assurance Program requires that the effectiveness of the control of quality by contractors and suppliers shall be assessed by Duquesne Light Company, or its designee at intervals consistent with the importance, complexity, and quantity of the product or service.

(Deleted)

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(Deleted)

A.2.2.8 Identification and Control of Materials, Parts, and Components

The Operations 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. Materials and equipment received at BVPS-1 shall be properly identified to correspond with the receiving documentation and quality records.

Identification of installed items shall be retained in order to provide traceability to associated quality documentation.

These requirements shall be incorporated in written instructions and procedures of various Duquesne Light Company divisions and departments as applicable. In addition, vendors and contractors supplying material, equipment and services for Category I systems shall be required to address the applicable portions of these requirements in written instructions and procedures.

A.2.2.9 Control of Special Processes

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

Documentation shall be maintained for currently qualified personnel, processes, and equipment in accordance with the requirements of governing codes and standards. For special processes not covered by existing codes and standards, or where the item quality requirements exceed the requirements of established codes and standards, the necessary qualification of personnel, processes, or equipment shall be defined.

These requirements for special processes shall be incorporated in written instructions and procedures prepared by various Duquesne Light Company divisions and departments as applicable.

In addition, vendors and constructors supplying material, equipment or services for Category I systems shall be required to address the applicable portions of these requirements in written instructions and procedures. Outside service organizations performing special processes at BVPS-1 shall use procedures which are reviewed and approved by Duquesne Light Company.

A.2.2.10 Inspection

The Operations Quality Assurance Program requires that measures for the inspection of activities affecting quality be established 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 method, 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 of the Duquesne Light Company and beyond which

work shall not proceed without the consent of its designated representative are required, the specific hold point shall be indicated in appropriate documents.

When required by governing codes and standards, inspectors shall be qualified in accordance with those codes and standards. In these cases documentation demonstrating the current qualifications of the inspectors shall be maintained. Also inspection procedures shall be made available for use by the inspector prior to the performance of the inspection. Such procedures shall include accept/reject criteria, a description of the method of inspection and a directive for the reporting of results including nonconformance.

Measures shall include provisions which require items that have been reworked or repaired following the original inspection to be subjected to a reinspection. Acceptance criteria for the reinspection shall be, as a minimum, equal to that which was specified for the original inspection.

During the operational phase, the Operations Quality Control Section of the Nuclear Safety and Licensing Department will be responsible for performing the inspection requirements. The Quality Assurance Department will review the implementing procedures of the Operations Quality Control Section and will audit safety-related activities of the Operations Quality Control Section periodically. 6

A program for inservice inspection of completed structures, systems, and components shall be established by the Duquesne Light Company in accordance with the requirements of Section XI of the ASME Boiler & Pressure Vessel Code. 12

The Operations Quality Control Section will be responsible for coordinating, reviewing, and periodically updating the Inservice Inspection Program. If the services of an outside contractor are utilized for the Inservice Inspection Program, the vendor must be evaluated in accordance with the requirements of Section A.2.2.7 and his activities shall be monitored by the Director, Operations Quality Control.

These requirements shall be incorporated in written instructions and procedures of various Duquesne Light Company divisions and departments as applicable. In addition, vendors and contractors supplying material, equipment and services for Category I systems shall be required to address the applicable portions of these requirements in written instructions and procedures.

A.2.2.11 Test Control

The Operations Quality Assurance Program requires that a test program be established to assure that all testing demonstrates that structures, systems, and components will perform satisfactorily in service. Testing shall be 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 of structures, systems, and components.

Test procedures shall include:

1. Detailed instructions regarding the method by which the test shall be performed
2. Identification of requirements for any special processes to be used during testing
3. Identification of hold points for witnessing by a specified inspector
4. Definite acceptance and rejection limits
5. Means for recording and maintaining test data and results.

Test procedures shall also identify prerequisites which shall include, but not be limited to, the use of calibrated equipment by trained, qualified, and, as appropriate, licensed or certified personnel. Prerequisites shall also include the preparation, condition and completeness of the item to be tested and the environmental conditions necessary. Test results shall be documented and evaluated by qualified personnel to assure that test requirements have been satisfied.

Applicable portions of these requirements shall be incorporated in written instructions and procedures prepared by various Duquesne Light Company divisions and departments. In addition, vendors and contractors supplying material, equipment or services for Category I systems shall be required to address these requirements in written instructions and procedures as appropriate.

A.2.2.12 Control of Measuring and Test Equipment

The Operations 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 or prior to use to maintain accuracy within necessary limits. Specific procedures shall include the identification of the calibration technique, the calibration frequency, and the method established for the tagging of measuring devices to positively indicate their status. The criteria used to establish the method and interval of calibration shall be based on the type of equipment, stability characteristics, required accuracy, and other conditions affecting the measurement. Provisions shall

include the requirement for the maintenance of documentation which shall indicate the status of equipment, including the last and future calibration dates and the results of previous calibration tests. Provisions shall require that a piece of measuring or test equipment that is found to be consistently out of calibration shall be repaired or replaced.

The laboratory standards against which calibrations or recalibration of measuring and testing devices are measured are 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 measured by equipment out of calibration are suspect, and an evaluation is made to determine what is necessary to assure compliance of the item to its applicable specification.

The Operations Quality Assurance Program requires that all measuring and testing devices are calibrated against certified equipment having known valid relationships to nationally recognized standards (e.g., the U.S. National Bureau of Standards). Reference standards are calibrated against equipment of a higher level and a closer tolerance than the reference standard being calibrated. Measuring and test equipment is calibrated against working standards having tolerances not greater than one-fourth of the tolerance of the equipment being calibrated unless limited by the "state-of-the-art."

These requirements shall be incorporated in written procedures or instructions prepared by the Duquesne Light Company Nuclear Division. When applicable, vendors and contractors supplying material, equipment or services for Category I systems will be required to address these requirements in written instructions and procedures.

A.2.2.13 Handling, Storage, and Shipping

The Operations 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 in accordance with design and construction requirements. 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. Also the methods of verification of the existence of these environments during handling, storage, and shipping shall be specified.

The Stores Section of the Substations and Shops Department will be responsible for the receipt and storage of material and equipment. The safety-related activities of the Stores Section will be conducted in accordance with approved procedures, and may be audited periodically by the Quality Assurance Department.

These requirements shall be incorporated in written instructions and procedures of various Duquesne Light Company divisions and departments as applicable. In addition, vendors and contractors supplying material, equipment or services for Category I systems shall be required to address the applicable portions of these requirements in written procedures and instructions.

A.2.2.14 Inspection, Test, and Operating Status

The Operations Quality Assurance Program requires that measures 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 the inadvertent by-passing of such inspections and tests. These measures shall include provisions for the control of issuance and use of status indicators including the authority for application and removal of tags, labels, markings, and stamps. 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 requirements shall be incorporated in the written instructions and procedures of various Duquesne Light Company divisions and departments as applicable. In addition, vendors and contractors supplying material, equipment or services for Category I systems shall be required to address the applicable portions of these requirements in written procedures and instructions.

A.2.2.15 Nonconforming Materials, Parts or Components

The Operations 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 include as appropriate procedures for identification, documentation, segregation, disposition, and notification to the affected organization. The responsibility and authority for the disposition of nonconforming items shall be defined and a method of notification to affected organizations shall be documented in instructions and procedures. Inspection requirements and the acceptance criteria for repairs, replacements or modifications shall be, as a minimum, equal to those imposed originally. Nonconforming items shall be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures. Nonconforming items will be positively identified and, whenever practical, physically separated into hold areas. Access to such hold areas, including the authority for the removal of such items, shall be specified.

Outside contractors who identify nonconformances while performing safety-related work will be required to obtain Duquesne Light Company approval of corrective action waivers or to modify a requirement which was specified or approved by the Duquesne Light Company. 6

These requirements shall be incorporated in the written instructions and procedures of various Duquesne Light Company divisions and departments as applicable. In addition, vendors and contractors supplying material, equipment or services for Category I systems shall be required to address these requirements in written instructions and procedures.

A.2.2.16 Corrective Action

The Operations Quality Assurance Program requires that measures 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 management. Provisions shall be established for the maintenance of documents providing objective evidence that conditions adverse to quality have been identified and corrective action has been taken.

These requirements shall be incorporated in the written instructions and procedures of various Duquesne Light Company divisions and departments as applicable. In addition, vendors and contractors supplying material, equipment or services for Category I systems shall be required to address these requirements in written procedures or instructions.

The Duquesne Light Company Quality Assurance Manager has the authority to prepare written notices to the appropriate level of management requesting changes and/or revisions to any program or procedure which may have resulted in the generation of repeated nonconformances. In addition, the Quality Assurance Manager may direct the stopping of all work pending corrective action.

A.2.2.17 Quality Assurance Records

The Operations 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 material analyses. The records shall also include closely related data such as qualifications of personnel, procedures and equipment. ANSI N45.2.9, "Requirements for Collection, Storage and 13

Maintenance of Quality Assurance Records for Nuclear Power Plants", will be used as a general guide for the retention period of records generated during the operation of the plant. 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, the 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. 13

The Duquesne Light Company Quality Assurance Department shall be responsible for the retention of records generated during the design and construction of the station. The Nuclear Support Services Department, Records Management Section, will be responsible for the retention of records generated by plant operations. Operational records which are designated to be retained in archives shall be transferred to the Quality Assurance Department. The Director, Operations Quality Control, shall be responsible for the generation of inspection quality records and the transferring of such quality records to the Nuclear Support Services' Records Management Section for permanent lifetime retention. 8 8

The Duquesne Light Company Quality Assurance Department shall be responsible for the generation and maintenance of a document listing the location and type of all pertinent documents which will be stored offsite.

A.2.2.18 Audits

The Operations Quality Assurance Program requires that a comprehensive system of planned and periodic audits be carried out to verify all aspects of the quality assurance program and to determine the effectiveness of the program. Audits shall be performed in accordance with written procedures or checklists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audit results shall be documented and reported to management having direct responsibility in the area audited. Responsible management will take the necessary action to respond to any deficiencies or nonconformances identified in the audit report. Follow-up action, including re-audit of deficient areas, will be taken as necessary to assure that all deficiencies or nonconformances noted have been corrected.

The Duquesne Light Company Quality Assurance Department is 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 include, but are not limited to:

1. Audits to provide an objective evaluation of quality-related procedures, instructions, and practices
2. Audits to evaluate the effectiveness of the implementation of these procedures, instructions, and practices
3. Audits to determine the adequacy of work areas, activities, and processes
4. Audits to verify that required documentation and records are complete and are adequately controlled and maintained

These audits will be performed at a frequency commensurate with their importance as well as the quality record of the group involved. Audits will be performed with pre-planned audit checklists. Audits may be announced or unannounced. Audit reports will be prepared on a timely basis by the person(s) performing the audit. The audit report will clearly identify any nonconformances or deficiencies and will assign the responsibility for disposition. 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 Nuclear Construction Division. The audit program shall include vendor surveys necessary to prepare and maintain an approved vendors' list as described in Section A.2.2.4. 18

The audit program is supplemented by the Offsite Review Committee which performs audits within the Operations Division to assess the technical adequacy of procedures as well as their implementation. The Offsite Review Committee, as determined by the Technical Specifications, audits the station operations including the performance of both equipment and operating personnel. The Offsite Review Committee may delegate the responsibility for the actual auditing to a separate group but reviews the results of any such audits and initiates action to correct deficiencies as a result of the audit. 6

In addition, the Operations Quality Control Section performs the necessary checks, records reviews, and inspections to verify that safety-related activities were performed in accordance with applicable codes and standards and were done by qualified personnel using written procedures, and that appropriate data was obtained, evaluated, results disseminated, and that required records were maintained. 6

The Duquesne Light Company Quality Assurance Program will be audited on a biennial basis by the Vice-President of the Nuclear Division or his designee to assess the status and adequacy of the program. 10 8

ATTACHMENT TO A.2Guidelines Used for the Duquesne
Light Company Operations
Quality Assurance ProgramRegulatory Guides

REGULATORY GUIDE 1.33, NOVEMBER 3, 1972: QUALITY ASSURANCE PROGRAM REQUIREMENTS (OPERATIONS)

The Duquesne Light Company Operations Quality Assurance Program requirements follows the guidance of Regulatory Guide 1.33, November 3, 1972 [including referenced standards ANSI N45.2, 1971 and ANSI N18.7, 1972 (formerly ANS 3.2)].

REGULATORY GUIDE 1.37, MARCH 16, 1973: QUALITY ASSURANCE REQUIREMENTS FOR CLEANING OF FLUID SYSTEMS AND ASSOCIATED COMPONENTS OF WATER-COOLED NUCLEAR POWER PLANTS

The Duquesne Light Company Operations Quality Assurance Program requirements follows the guidance of Regulatory Guide 1.37. Procedures and/or specifications were developed prior to, and implemented concurrent with the start of the operations phase.

REGULATORY GUIDE 1.38, MARCH 16, 1973: QUALITY ASSURANCE REQUIREMENTS FOR PACKAGING, SHIPPING, RECEIVING, STORAGE, AND HANDLING OF ITEMS FOR WATER-COOLED NUCLEAR POWER PLANTS

The Duquesne Light Company Operations Quality Assurance Program requirements follows the guidance of Regulatory Guide 1.38. Procedures and/or specifications were developed prior to, and implemented concurrent with the start of the operations phase.

REGULATORY GUIDE 1.39, MARCH 16, 1973: HOUSEKEEPING REQUIREMENTS FOR WATER-COOLED NUCLEAR POWER PLANTS

The Duquesne Light Company Operations Quality Assurance Program requirements follows the guidance of Regulatory Guide 1.39. Procedures and/or specifications were developed prior to, and implemented concurrent with the start of the operations phase.

REGULATORY GUIDE 1.54, JUNE, 1973: QUALITY ASSURANCE REQUIREMENTS FOR PROTECTIVE COATINGS APPLIED TO WATER-COOLED NUCLEAR POWER PLANTS

The Duquesne Light Company Operations Quality Assurance Program requirements follows the guidance of Regulatory Guide 1.54. Procedures and/or specifications were developed prior to, and implemented concurrent with the start of the operations phase.

REGULATORY GUIDE 1.58, REVISION 1, SEPTEMBER, 1980:
QUALIFICATION OF NUCLEAR POWER PLANT INSPECTION, EXAMINATION AND
TESTING PERSONNEL

The Duquesne Light Company Operations Quality Assurance Program requirements follow the guidance of Regulatory Guide 1.58.

REGULATORY GUIDE 1.64: QUALITY ASSURANCE REQUIREMENTS FOR DESIGN OF NUCLEAR POWER PLANTS

The Duquesne Light Company Operations Quality Assurance Program requirements follow the guidance of Regulatory Guide 1.64.

REGULATORY GUIDE 1.68, DRAFT 4, OCTOBER 2, 1973: PRE-OPERATIONAL AND INITIAL START-UP TEST PROGRAM FOR WATER-COOLED POWER REACTORS

The Duquesne Light Company Operations Quality Assurance Program follows the guidance of Regulatory Guide 1.68.

REGULATORY GUIDE 1.70.11: INFORMATION FOR SAFETY ANALYSIS REPORTS QUALITY ASSURANCE SAFETY OPERATIONS PHASE

The Duquesne Light Company Operations Quality Assurance Program requirements follow the guidance of Regulatory Guide 1.70.11.

REGULATORY GUIDE 1.88, AUGUST, 1974: COLLECTION, STORAGE, AND MAINTENANCE OF NUCLEAR POWER PLANT QUALITY ASSURANCE RECORDS

The Duquesne Light Company Operations Quality Assurance Program follows the guidance of Regulatory Guide 1.88.

American National Standards Institute (ANSI) Standards

N45.2.5: DRAFT 3, REVISION 1, JANUARY 1974, "SUPPLEMENTARY QUALITY ASSURANCE REQUIREMENTS FOR INSTALLATION, INSPECTION AND TESTING OF STRUCTURAL CONCRETE AND STRUCTURAL STEEL DURING THE CONSTRUCTION PHASE OF NUCLEAR POWER PLANTS."

The Duquesne Light Company follows the guidance of ANSI N45.2.5, Draft 3, Revision 1, January 1974. Procedures and/or specifications were developed prior to, and implemented concurrent with the start of the operations phase.

N45.2.8: DRAFT 3, REVISION 2, SEPTEMBER 1973, "SUPPLEMENTARY QUALITY ASSURANCE REQUIREMENTS FOR INSTALLATION, INSPECTION, AND TESTING OF MECHANICAL EQUIPMENT AND SYSTEMS FOR THE CONSTRUCTION PHASE OF NUCLEAR POWER PLANTS".

The Duquesne Light Company follows the guidance of ANSI N45.2.8, Draft 3, Revision 2, September 1973. Procedures and/or specifications were developed prior to, and implemented concurrent with the start of the operations phase.

TABLE A.2-1

DUQUESNE LIGHT COMPANY
OPERATIONS QUALITY ASSURANCE PROCEDURES VS. APPENDIX B TO 10CFR50

<u>Procedure Number & Description</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	Design Change 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 Procedures 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

16

TABLE A.2-2

QUALIFICATION AND EXPERIENCE REQUIREMENTS OF
DUQUESNE LIGHT COMPANY QUALITY ASSURANCE PERSONNEL

<u>Title</u>	<u>Minimum Required Degree(*)</u>	<u>Minimum Years Experience</u>	<u>Experience</u>
Quality Assurance Manager, Director of Operations Quality Control	BS	10	At least 10 years in charge of responsible assignments in the design, construction, or operation of a power plant.
Director, Quality Assurance	BS	5	At least 5 years in quality re- lated work or responsible assignments in the design, con- struction, or operation of a power plant.
Quality Assurance or Quality Control Engineer, Quality Assurance NDE Specialist	BS	2	At least 2 years quality related work or equiva- lent experience in the design, construction or operation of a power plant.

NOTE:

- * Equivalent qualifications in related physical science or 2 years of experience in the design, construction, or operation of a power plant per year of college education.

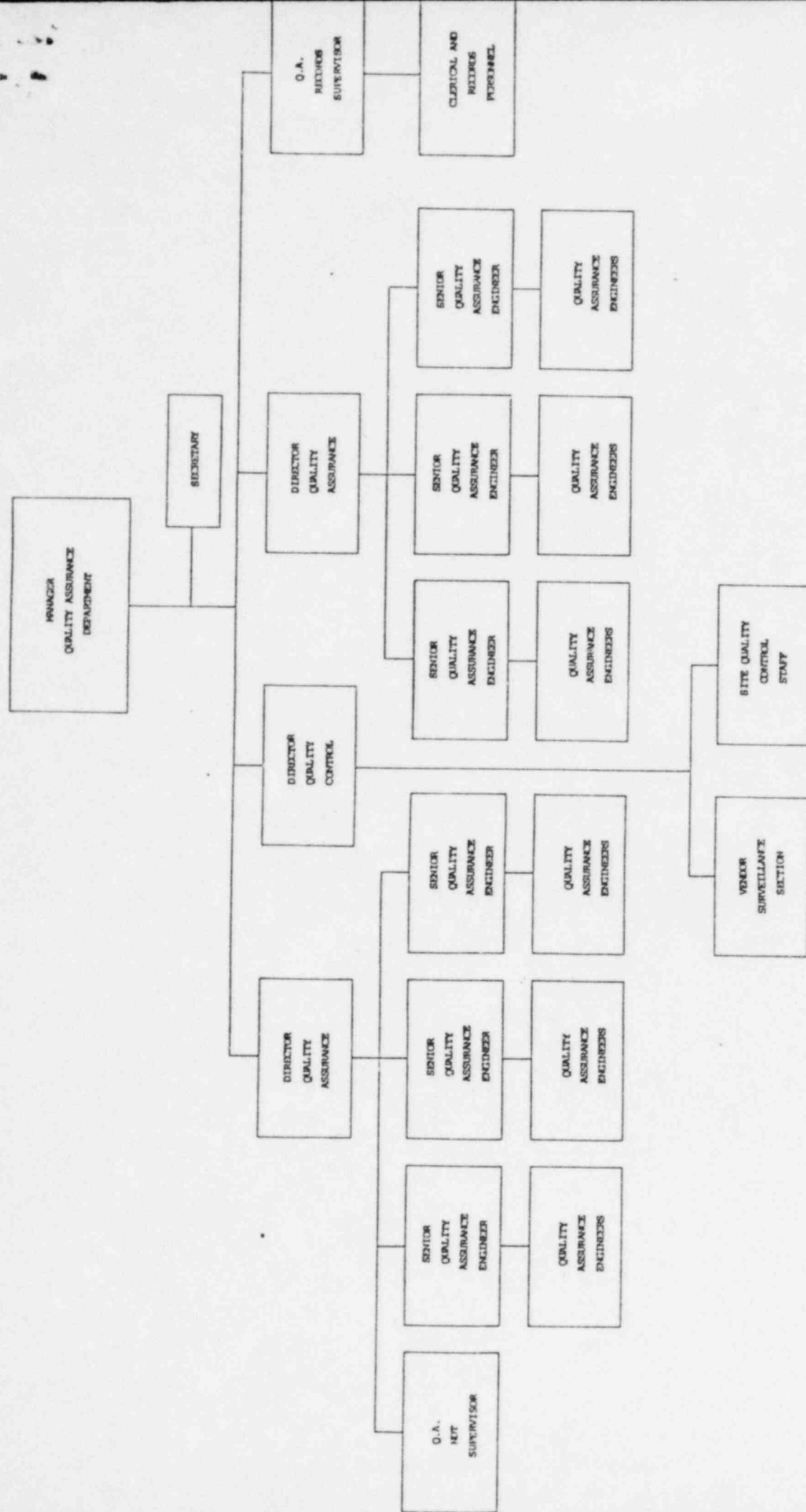


Fig. A.2-3

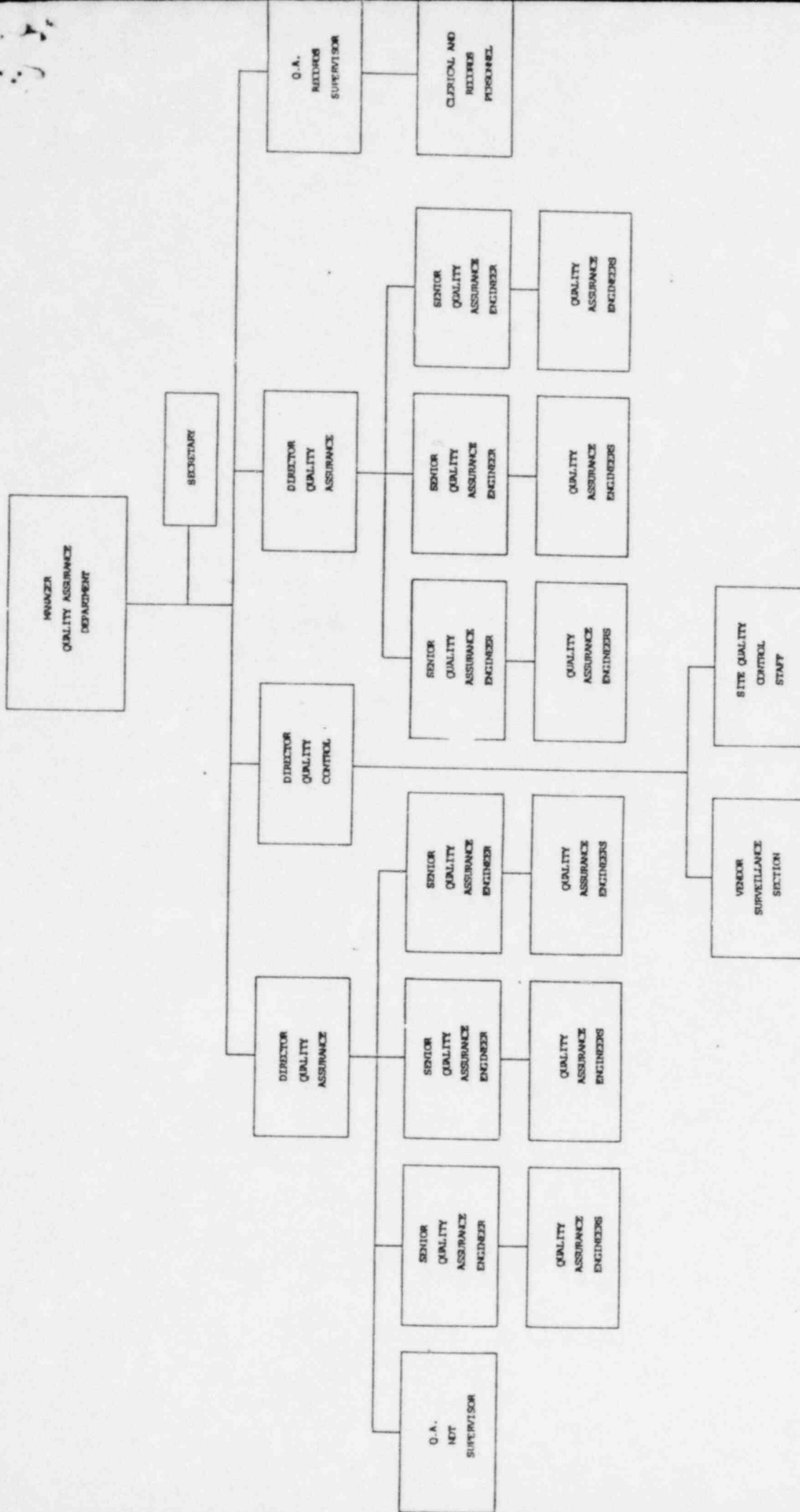


Fig. A.2-4