APPENDIX A

QUALITY ASSURANCE

LIST OF EFFECTIVE PAGES

Page Numbers	Revision in Effect	Date
Ai through Aii	Revision 2	January, 1984
A-1	Revision 1	January, 1983
A-2 through A-6	Revision 0	January, 1982
A.1-1	Revision 1	January, 1983
A.1-2 through A.1-4	Revision 0	January, 1982
A.2-1	Revision 1	January, 1983
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A.2-15 through A.2-22	Revision 2	January, 1984
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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 1	January, 1983
Figure A.2-4	Revision 1	January, 1983
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

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.

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

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

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.

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.

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.

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.

Construction Department Nuclear

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.

Nuclear Group

The Vice-President of the Nuclear Group 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 Group are documented by policies, directives, procedures, manuals, instructions, etc. of a type appropriate to the circumstance. Audits of the Nuclear Group are in accordance with A.2.2.18.

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, refueling, procurement, station chemistry control, the STA group and the OSC.

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 (appended to this Operations Quality Assurance Program is the Nuclear Fuel 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. Indoctrination 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.

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.

The Nuclear Fuel Program is an appendix to the Operations Quality Assurance Program. The appendix establishes the requirements necessary for the procurement, fabrication, receipt of fuel assemblies, and administrative controls for the Nuclear Fuel Program. In addition, this appendix shall be applied to all activities of Duquesne Light Company's Fuel Contractor as such activities relate to the procurement and fabrication of nuclear fuel assemblies and related components, including control rod assemblies and burnable poison assemblies.

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
5. Accessibility for operation, inservice inspection, maintenance, and repair
6. Acceptance criteria for inspections and tests
7. Applicability of codes and standards.

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.

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