

REF: 2

PHILADELPHIA ELECTRIC COMPANY

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JOHN S. KEMPER
VICE PRESIDENT

September 15, 1983

Regional Administrator
Region 1
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

Subject: Limerick Generating Station, Units 1 and 2
Docket Nos. 50-352 and 50-353

- References:
- 1) E. J. Bradley to Regional Administrator letter dated June 10, 1983
 - 2) Thomas T. Martin to J. S. Kemper letter dated August 10, 1983

Dear Sir:

The reference 1 letter transmitted a document entitled "Limerick Generating Station, Units 1 and 2 - Summary Description of the Quality Assurance Program for Design and Construction" dated June 10, 1983. Subsequent to your staff's review of the reference 1 letter, a discussion was held with our staff on August 4, 1983. The reference 2 letter was sent identifying the sections of the Quality Assurance Program Description (QAPD) which were to be revised as a result of the discussion. Those sections of the QAPD are being provided at this time in order for your staff to complete their review.

Sincerely,

John S. Kemper

LN/gru/D-9

Enclosures

Copy to: See Attached Service List

REF: 2

cc: Judge Lawrence Brenner	(w/ enclosure)
Judge Richard F. Cole	(w/o enclosure)
Judge Peter A. Morris	(w/o enclosure)
Troy B. Conner, Jr., Esq.	(w/ enclosure)
Ann P. Hodgdon, Esq.	(w/o enclosure)
Mr. Frank R. Romano	(w/ enclosure)
Mr. Robert L. Anthony	(w/o enclosure)
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Thomas Y. Au, Esq.	(w/o enclosure)
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Director, Pennsylvania Emergency Management Agency	(w/o enclosure)
Mr. Steven P. Hershey	(w/o enclosure)
Angus Love, Esq.	(w/o enclosure)
Mr. Joseph H. White, III	(w/o enclosure)
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Atomic Safety and Licensing Appeal Board	(w/o enclosure)
Atomic Safety and Licensing Board Panel	(w/o enclosure)
Docket and Service Section	(w/o enclosure)

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D.2 GENERAL

D.2.1 Scope and General Approach

The quality assurance program described herein applies to those structures, systems, and components of reactor facilities which are essential to the prevention of accidents which could affect the public health and safety or to mitigation of their consequences. Those structures, systems, and components which are considered as "essential" are listed in Table D.2.1, in summary. Details are shown in the Project Q-List and the Quality Assurance Diagrams (QAD's).

The quality assurance program starts at the initial design phase with development of specifications and/or associated purchase documents which contain quality control and inspection requirements, and proceeds through the selection of the supplier, manufacture of the components or systems, and erection and installation. Specific quality control requirements cover such areas as material control, welding requirements, nondestructive testing requirements, provisions for comprehensive auditing of manufacturers' or constructors' efforts, the preparation and retention of quality control records, etc., and will be included, as appropriate, in the various specifications and/or associated purchase documents. General Electric-NEBO and Bechtel, as Philadelphia Electric's design contractors, are responsible for seeing that the necessary quality control requirements are included or referenced in the component and construction specifications and/or associated purchase documents for which they are responsible.

Where specifications include interfaces between major contractor responsibilities, quality control requirements will be jointly established.

Specifications and/or associated purchase documents pertaining to the "essential" items receive at least one independent review for evaluation of quality control requirements.

The selection of a component manufacturer or field erection and installation subcontractor is made only after it has been ascertained that his organization has the necessary quality control capability and the qualified personnel to provide the level of integrity required for the equipment or construction involved.

The quality control programs of component manufacturers, subcontractors, and Bechtel Construction are normally under the audit/surveillance of the Philadelphia Electric contractor (GE-NEBO or Bechtel) which is responsible for that portion of plant design. This quality assurance effort by the appropriate Philadelphia Electric contractor is in addition to the quality control and inspection programs of the individual manufacturer or site constructor. The purpose of this effort is to assure that the work of the various manufacturers and constructors is actually proceeding in accordance with the specification or other approved program requirements. A description of the Quality Assurance Programs of General Electric and Bechtel is contained in subsections D.5 and D.6 respectively.

In addition, to assure that the quality assurance program is functioning as desired, Philadelphia Electric conducts quality assurance audits on a spot-check basis, on the quality programs of General Electric-NEBO, Bechtel and their subcontractors.

D.2.2 Organization and Definition of the Philadelphia Electric Quality Assurance Program

Figure D.2.1 is an overall functional Quality Assurance Chart showing the working relationships between Philadelphia Electric and its contractors for the Limerick Generating Station. This Quality Assurance Program is divided into three levels. These levels are indicated on the left hand side of Figure D.2.1. The definitions and functions of the three levels indicated on the organization chart are described in the following subsections.

D.2.2.1 First Level - Quality Control and Inspection

The First Level is defined as the Quality Control and Inspection function. Component manufacturers are required contractually to have a quality control and inspection program. Bechtel Construction performs first level inspection on Bechtel site activities and selected on-site subcontract activities. Subcontractors are required to either provide a quality control and inspection program, or may have first level inspection performed by Bechtel Construction. Each inspecting agent has the responsibility to ensure that the fabrication/construction activities meet specification requirements.

For those cases that Bechtel Corporation Construction Division subcontracts site construction work (e.g. Containment Vessel), the subcontractors are required to either provide a quality control and inspection program, or may have first level inspection performed by Bechtel Construction. Bechtel Construction performs first level inspection on Bechtel site activities and selected on-site subcontract activities. Bechtel Construction performs a second level surveillance function on the subcontractor's Quality Control and Inspection efforts when first level surveillance is performed by the subcontractor. In certain cases where the subcontractor provides first level inspection, Philadelphia Electric Company may elect to retain responsibility for both second level and third level Quality Assurance audit/surveillance activities, where Philadelphia Electric Company has a particular interest in the sub-contractor. In these cases Philadelphia Electric Company will implement more comprehensive Quality Assurance audits than the normal third level activity would require.

D.2.2.2 Second Level - Quality Assurance Surveillance

The Second Level, which is defined as a Quality Assurance Surveillance function (includes auditing and/or surveillance, performed by the Philadelphia Electric contractor (General Electric NEBO or Bechtel) which is responsible for furnishing the requirement specifications for materials, components, construction, and installation which in turn are used by the first level groups.

When Bechtel Corporation Construction Division subcontracts site construction work, the Quality Assurance Surveillance function is normally performed by Bechtel Corporation. In certain cases where the subcontractor provides first level inspection, Philadelphia Electric Company may elect to retain responsibility for both second level and third level Quality Assurance audit/surveillance activities, where Philadelphia Electric Company has a particular interest in the sub-contractor. In these cases Philadelphia Electric Company will implement more comprehensive Quality Assurance audits than the normal third level activity would require.

The Philadelphia Electric contractors which perform this second level function each have quality assurance capability which is used by their respective organizations in assisting in this quality effort. This quality assurance capability includes personnel with technical backgrounds in appropriate disciplines (e.g., electrical, mechanical, civil).

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D.2.2.3 Third Level - Quality Assurance Auditing

The Third Level is defined as the Quality Assurance Auditing function performed by Philadelphia Electric. Selected QA Consultants assist Philadelphia Electric in implementing this program. The purpose of this quality assurance function is to ensure that the overall Quality Assurance Program is functioning as planned. To accomplish this, Philadelphia Electric reviews, prior to order placement, specifications and associated purchase documents furnished by the design contractors (General Electric-NEBG and Bechtel) to ensure that the necessary quality requirements have been incorporated in these documents. In addition, on a spot-check monitoring basis, Philadelphia Electric performs quality assurance audits to ensure that the Quality Programs of the first and second level groups are actually functioning as required.

D.2.2.4 Program Plans

Detailed descriptions of the Philadelphia Electric, General Electric-NEBG, and Bechtel Power Corporation programs which contain guidelines, criteria, organizational responsibilities, and other pertinent information for the implementation of the Philadelphia Electric Quality Assurance program will be contained in the following quality assurance plans.

- a. Philadelphia Electric Quality Assurance plan for Limerick Generating Station Units 1 and 2, Volume I., (Latest Revision)
- b. General Electric-NEBG Boiling Water Reactor Quality Assurance Program Description, NEDO-11209, (Latest Revision)
- c. Bechtel Nuclear Quality Assurance Manual, (Latest Revision)

The foregoing QA plans used to implement the quality assurance program described in the PSAR may be revised to incorporate improvements which evolve as experience is gained. These detailed quality assurance plans will be available to NRC personnel as they perform audits to evaluate the implementation of the Philadelphia Electric Quality Assurance Program.

D.2.2.5 Application of the Quality Assurance Program

The Quality Assurance program has been expanded to include the following systems and/or items of activity.

D.3 PHILADELPHIA ELECTRIC COMPANY QUALITY ASSURANCE PROGRAM

The Philadelphia Electric quality assurance program has been developed with the 18 Criteria of 10CFR50, Appendix B (hereinafter referred to as NRC QA criteria) as its basis. It provides a systematic, controlled method of applying these NRC QA Criteria at all levels of the Limerick project and establishes a means of follow-up and evaluation to ensure that the intent of these criteria are actually met.

More specifically, Philadelphia Electric requires of its contractors, General Electric-NEBO and Bechtel Corporation, that they meet the provisions of the NRC criteria and that the applicable requirements be invoked upon their Vendors. The plant constructor and site subcontractors are required to meet the same type of quality control provisions. This is accomplished as follows:

- a. Quality control provisions are specifically applied to first level vendors, through a generic quality assurance specification (Bechtel Corporation) or specific quality control plans (General Electric) coupled with provisions of applicable specifications, drawings, and purchase documents. The contractors will designate the essential equipment depending upon such considerations as the safety related function to be performed, its importance to the overall system, and whether it is duplicated in redundant installation. Appropriate NRC criteria will be applied to each component.
- b. The quality control requirements to be placed on key vendors, the constructor, and selected site subcontractors will be reviewed by Philadelphia Electric.
- c. The quality control capability of potential vendors will be evaluated by General Electric-NEBO and Bechtel.
- d. The Philadelphia Electric three level quality assurance program identifies a clear line of responsibility for implementing quality requirements and provides a means for ensuring that the quality requirements specified are being met. This, the first level vendors, the constructor, and the site subcontractors are required to have their own inspection and quality control efforts to assure that specifications and other requirement documents are met. The second level quality assurance audit or surveillance functions performed by General Electric-NEBO and Bechtel provides a means for ensuring the work carried out by the vendors, constructor, and subcontractors meet specified requirements. Finally, the third level Philadelphia Electric quality assurance effort provides a separate and independent monitoring of the overall QA program to ensure that it is functioning as planned.
- e. Pertinent inspection, quality control, and quality assurance documentation will be maintained for this project.

General Electric-NEBO and Bechtel will maintain the specified quality control records supplied by their vendors for the equipment they prepare (except for such records that code requirements specify the vendor must retain). It is planned that these records be turned over to Philadelphia Electric.

Pertinent audit and surveillance inspection reports, and the documentation of design reviews will be maintained by General Electric NEBO and Bechtel according to written provisions in their quality control plans.

Bechtel will document site work according to specific requirements contained in applicable specifications and field quality control procedures. These records will be compiled and turned over to Philadelphia Electric at the completion of the project construction.

Philadelphia Electric will document audits and reviews of specifications, drawings and other technical requirements.

The vendor shall have documents which describe his quality control program and organization including administrative policies and procedures affecting quality.

The vendor shall make available, upon request, his quality control program documentation including the applicable procedures, records, and qualifications governing subsections D.4.1 through D.4.13 for review by General Electric or Bechtel (as appropriate). If concurrence with these documents is required by the purchase order, the vendor shall not start work on a specific task governed by a procedure until the procedure has been reviewed and comments resolved satisfactorily.

Manufacturing processing, testing, and inspection operations performed by vendors and their subcontractors shall be subject to quality audit or surveillance with respect to the contract work by General Electric or Bechtel, as appropriate. Philadelphia Electric and/or its agent, working through General Electric or Bechtel, shall be accorded access for audit or witness purposes. In this regard, any quality audit or surveillance by General Electric, Bechtel, or Philadelphia Electric and/or its agent shall not relieve the vendor or subcontractor of any responsibility for meeting contract requirements.

D.4.15 Audit of the QA Program

Surveillance and auditing by the second and third level groups on the first level will be used to assure that the vendors are complying with specifications, including the NRC QA criteria as invoked in the order.

The following is Bechtel's procedure for assuring that vendors are following the NRC QA criteria:

- a. Project Engineering prepares specifications and procurement documents telling the vendor what technical requirements have to be met and requesting that the vendor describe his QA program showing how he will satisfy the NRC QA criteria.

- b. Project Engineering reviews the vendor's program to see that it satisfactorily meets the NRC QA criteria and technical requirements as set forth in the specifications.
- c. The requirements of the vendor's QA program are included in the contractual documents and once the contract is awarded, the vendor accepts responsibility to assure contractual commitments are met including the applicable NRC QA criteria and technical requirements.
- d. To assure the vendor's shop practices are meeting the applicable NRC QA criteria and technical requirements, Bechtel Procurement provides surveillance of the vendors' shops.

The following is General Electric's procedure for assuring that vendors are satisfying the intent of the NRC QA criteria:

- a. General Electric, previously and currently, has been applying appropriate QC plans on vendor supplied equipment. These QC plans embody the appropriate requirements of the NRC QA criteria.
- b. General Electric will provide an audit or surveillance function of its vendors' work to assure that the specified quality requirements are met.
- c. Design control activities are documented in formal General Electric document systems that require vendor compliance with design criteria and submittal of designs, specifications, and designated vendor procedures to General Electric for review and approval.

Philadelphia Electric audits on a spot check basis the General Electric NEBO and Bechtel efforts to ensure vendor compliance with the intent of the NRC QA criteria and similarly audits selected vendors.