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May 19, 1983

Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docket Nos. 50-352
50-353

Subject: Limerick Generating Station, Units 1&2
Request for Additional Information From
NRC Quality Assurance Branch (QAB)

Reference: Meeting Between QAB and Philadelphia Electric Company Held March 29, 1983

File: GOVT 1-1 (NRC)

Dear Mr. Schwencer:

Transmitted herewith are draft revisions to previously submitted NRC Quality Assurance Branch (QAB) Questions 260.1 through 260.55 and related FSAR text changes made in response to concerns expressed by the QAB during its March 29, 1983 meeting with Philadelphia Electric Company.

As an aid to the QAB reviewers, this information is provided in 2 forms:

1. A computer printout similar in format to that distributed at the March 29, 1983 meeting, which provides each draft question and response followed by draft FSAR text changes referenced by that response. New material added in response to the above mentioned QAB concerns is identified by change bars in the left hand margin.

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2. A copy of FSAR Chapter 17, marked to show the same draft text changes contained in the computer printout. Draft figure and table changes are included in this package. Text and figure inserts are grouped behind each major text subdivision. Again, change bars are used to identify new material.

We plan to incorporate this material into the FSAR in June, 1983.

Very truly yours,

Eugene J. Bradley

HDH/gra/2
Enclosure
Copy to: See Attached Service List

cc: Judge Lawrence Brenner (w/o enclosure)
Judge Richard F. Cole "
Judge Peter A. Morris "
Troy B. Conner, Jr., Esq. "
Ann P. Hodgdon "
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Atomic Safety and Licensing Board Panel "
Docket and Service Section "

Question 260.55

In regards to the exceptions and clarifications to quality-related Regulatory Guides addressed in Appendix 17.2A.11 and 17.2B.11 of the SAR, it is requested that additional discussions take place at the recommended meeting to determine the basis and the acceptability of the exceptions and clarifications.

Response

The applicant concurs and will work with the NRC to develop a mutually agreeable meeting date and agenda.

credits; in addition score one (1) credit for a master degree in engineering, physical sciences, business management, or quality assurance from an accredited institution.

2.3.1.2 a) Initial Experience Prior to Assignment (6 credits maximum). Technical experience in engineering, manufacturing, construction, operation, maintenance, or quality assurance related to the aforementioned activities, score one (1) credit for each full year with a maximum of five (5) credits for this aspect of experience.

If two (2) or more years of this experience have been in the nuclear field, score one (1) additional credit.

2.3.1.2 b) Additional Experience (after assignment) (4 credits maximum). Experience in quality assurance, score one (1) credit for each full year (2 credits maximum) or,

Experience in auditing, score two (2) credits for each full year (3 credits maximum) or,

Experience in nuclear quality assurance, score one (1) credit for each full year (3 credits maximum) or,

Experience in nuclear quality assurance auditing, score one (1) credit per every six months (4 credits maximum)

2.3.1.3 Other Credentials of Professional Competence (2 credits maximum). Certification of competency in engineering, science, or quality assurance specialities issued and approved by a State Agency, or National Professional or Technical Society, score two (2) credits.

2.3.1.4 Rights of Management (2 credits maximum). The Lead Auditor's employer may grant up to one (1) credit for other performance factors applicable to auditing which may not be explicitly called out in this standard such as leadership, sound judgement, maturity, analytical ability, tenacity, and past performance, plus one (1) credit for satisfactory completion of Lead Auditor training program.

Appendix 17.2A.II, add Paragraph m, Limerick FSAR:

m. Regulatory Guide 1.146, August 1980, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants" Endorses ANSI/ASME N45.2.23 - 1978.

Philadelphia Electric Company will comply with Regulatory Guide 1.146, August 1980 and ANSI/ASME N45.2.23 - 1978 except for the following alternates:

1. Regulatory Guide 1.146, August 1980, Section C.1 and ANSI/ASME N45.2.23 - 1978, Subsection 1.5 discuss the applicability of documents referenced in the standard. In lieu of the latest revision of Regulatory Guides and ANSI Standards, PECo commitments are contained in the Limerick FSAR, Section 17.2, "Operational Quality Assurance Program."

2. ANSI/ASME N45.2.23 - 1978, Subsection 2.3, states requirements for qualification of auditors. In lieu of the stated requirements, PECo will qualify personnel in accordance with the requirements presented below. These alternate requirements will provide PECo with sufficient flexibility to qualify competent personnel with initial technical experience in a more effective manner. The proration of credits between initial experience requirements and additional experience gained as an assistant to a Lead Auditor assures that highly qualified personnel will be available as audit personnel in a more timely fashion.

Substitute the following for Paragraph 2.3.1 of ANSI/ASME N45.2.23 - 1978.

2.3.1 Education and Experience. The prospective Lead Auditor shall have verifiable evidence that a minimum of ten (10) credits under the following scoring system have been accumulated.

2.3.1.1 Education (4 credits maximum). Associate degrees from an accredited institution score one (1) credit or if the degree is an engineering, physical sciences, mathematics, or quality assurance, score two (2) credits or,

a bachelor degree from an accredited institution score two (2) credits or if the degree is in engineering, physical sciences, mathematics, or quality assurance, score three (3)

Appendix 17.2A.II, Paragraph f, Limerick FSAR:

f. Regulatory Guide 1.58, Rev. 1, "Qualifications of Nuclear Power Plant Inspection, Examination, and Testing Personnel." Endorses ANSI N45.2.6 - 1978.

Philadelphia Electric Company will comply with Regulatory Guide 1.58, Rev. 1 and ANSI N45.2.6 - 1978 except for the following clarification and alternates:

1. Regulatory Guide 1.58, Revision 1, Section C.1, and ANSI N45.2.6-1978, Subsection 1.2, states that the standard applies to "personnel who perform inspections, examinations, and tests." Philadelphia Electric Company personnel who inspect equipment as part of plant maintenance, in other than a quality control function; and plant staff personnel (as defined in the Limerick Technical Specifications), who approve test procedures and tests results and direct or supervise the conduct of individual tests, will be qualified in accordance with ANSI/ANS 3.1-1978 in lieu of ANSI N45.2.6-1978.

2. Regulatory Guide 1.58, Revision 1, Section C.4 and ANSI N45.2.6-1978, Subsection 1.5, discuss the applicability of documents referenced in the standard. In lieu of the latest revision of Regulatory Guides and ANSI Standards, PECo commitments are contained in the Limerick FSAR, Section 17.2, "Operational Quality Assurance Program."

3. ANSI N45.2.6-1978, Subsection 3.5, presents experience recommendations for candidates. Experience in maintenance, modification, and operating activities is considered related experience since such experience provides training in the safety aspects of the facility.

Question 260.54

Upgrade the following Regulatory Guides listed in Section 1.8 of the SAR to reflect the latest applicable revision: change Reg. Guide 1.58 from Rev 0 to Rev. 1, Reg. Guide 1.64 from Rev. 0 to Rev. 2, and Reg. Guide 1.88 from Rev. 0 to Rev. 2. Also include in Section 1.8 your commitment to Reg. Guide 1.146, Rev. 0, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants."

Response

Philadelphia Electric Company is committed to Regulatory Guides 1.64, Rev. 2, and 1.88, Rev. 2, as stated in Section 1.8 and discussed in Appendix 17.2A.II, Paragraphgs g and i, respectively.

I Section 1.8 and Appendix 17.2A.II (Paragraphs f and m) and 17.2B.II, Paragraphs f and p, have been revised to provide the requested information on Regulatory Guides 1.58, Rev. 1 and 1.146, Rev 0, respectively.

Section 17.2B.17.7, Limerick FSAR

PECo Engineering and Research Department commitments to USNRC Regulatory Guides are described in Appendix 17.2B.II.

Section 17.2B.17.4, Limerick FSAR

Procurement documents shall specify the records which are to be provided to PECo and shall specify the time of submittal and whether or not PECo approval is required.

Section 17.2B.17.5, Limerick FSAR

Records retained by PECo shall be identifiable and retrievable and shall be stored in facilities which are constructed, located, and secured to prevent destruction of records by fire, flooding, theft, and deterioration by environmental conditions.

Section 17.2B.17.6, Limerick FSAR

Inspection and test records shall contain the following where applicable:

a. A description of the types of observation, including procedure used and revision level

b. Evidence of completing the operation

c. Date and results

d. Information related to conditions adverse to quality

e. Inspector or data recorder identification

f. Evidence as to the acceptability of the results

Section 17.2B.17, Quality Assurance Records, Limerick FSAR

Section 17.2B.17.1, Limerick FSAR

Sufficient records shall be maintained to provide documentary evidence of the quality of items and the activities affecting quality. Record requirements (such as, required records, responsibilities for transmittals, and processing requirements) shall be as specified in procurement documents, drawings, applicable Codes, E&R Department Procedures, individual Division procedures, the PECo E&R Department QA Plan, QA Instructions, or instructions/procedures for specific work items.

Section 17.2B.17.2, Limerick FSAR

Records shall include those associated with results of reviews, inspections, tests, and material analysis; QA surveillance or audit; qualification of personnel, procedures, and equipment; and other documentation, such as drawings, specifications, procurement documents, calibration procedures and reports, and nonconformance and corrective action reports.

Section 17.2B.17.3, Limerick FSAR

Records shall be maintained by PECo or by vendors. When records are retained by vendors, the storage, maintenance, preservation, and protection requirements shall be specified in the procurement documents and the vendor shall be required to provide PECo with an index of the records not provided with the item.

Section 17.2A.17.6, Limerick FSAR

The QA Division and other organizations responsible for record control are defined in the administrative and implementing procedures.

Section 17.2A.17.1, Limerick FSAR

Sufficient records shall be maintained in accordance with the administrative and implementing procedures to provide documentary evidence that activities affecting quality are performed adequately and in compliance with the Quality Assurance program. The requirements shall include collection, filing, storing, maintenance and disposition of records that are required by the QA Plan and by other codes, standards, specifications, or regulatory requirements. QA Records shall include operating logs, maintenance and modification procedures, and related inspection results, reportable occurrences, and other records required by technical specifications. The procedures to be employed to perform the required activities shall be planned and documented.

Question 260.53

Describe the QA and other organizations responsible for record control and describe those provisions which assure that QA records include operating log, maintenance and modification procedures, and related inspection results, reportable occurrences, and other records required by Technical Specification.

Response

Section 17.2A.17.1, Limerick FSAR, has been revised to provide the requested information.

Section 17.2A.17.6, Limerick FSAR, has been added to provide the requested information.

| Section 17.2B.17, Limerick FSAR, provides this information:

Section 17.2B.16.6, Limerick FSAR

Procedures shall require in-line Quality Assurance Section review and concurrence with the adeuqacy of prescribed corrective action for Nonconformance Reports (NCRs) which have a proposed disposition of "use as is" or "repair". The Quality Assurance Section periodic audits of the NCR Procedure include verification of proper implementation of corrective action.

Section 17.2B.16.5, Limerick FSAR,

Reported corrective actions taken to resolve deficiencies that are documented on Finding Reports issued as a result of Quality Assurance Section Audits or Surveillances, are reviewed for adequacy and when acceptable, approved by the Quality Assurance Section in accordance with established procedures. These procedures specify the steps to be taken in order to obtain a timely close out of the corrective action and provide for verification of proper implementation of the corrective action.

Section 17.2A.16.5, Limerick FSAR

Corrective action performed in response to an item identified by the QA Division Audit and Surveillance Program shall have the documented concurrence of the QA Division of the adequacy of the corrective action

g. Require reaudit for the purpose of verification of corrective action and problem resolution for items affecting quality.

i. Initiate and recommend corrective action or provide solutions through designated channels.

Periodically audits shall be performed by the QA Division to verify that corrective action has occurred as a result of QA Division findings and Noncompliance Reports, NRC IE Inspection Items of Noncompliance, Bulletins, Generic Letters, Information Notices, Circulation letters, Licensee Event Report commitments, INPO findings, and other corrective actions taken by other departments.

Section 17.2A.16.5, Limerick FSAR, has been changed to provide the requested information.

Section 17.2B.16.5, Limerick FSAR, has been added to provide additional information.

Section 17.2B.16.6, Limerick FSAR, has been added to provide additional information.

Question 260.52

Describe those provisions which assure that the QA organization is involved in the documented concurrence of the adequacy of the corrective action and that follow-up action is taken by the QA organization to verify proper implementation of the corrective action and to close out the corrective action in a timely manner.

Response

Section 17.2A.16.1, Limerick FSAR, states in part: Measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Conditions adverse to quality are failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance to specified requirements. The measures established shall include the following:

a. In cases of significant conditions adverse to quality, the cause of the condition shall be determined and documented, and corrective action taken and documented to preclude recurrence.

Section 17.2A.16.4.1, Limerick FSAR, states in part: Dependent upon factors, such as the nature of the deficiency, the cause, and the corrective action taken, QA Division shall follow-up corrective action of deficiencies identified by the QA Division Auditing Program to determine the adequacy and effectiveness of such actions.

Section 17.2.1.2.3.1, Limerick FSAR, states in part: The Superintendent, Quality Assurance Division, has the following responsibilities and authorities:

...

d. Review and approve administrative procedures which implement the EP Quality Assurance Plan.

Section 13.4.5, Limerick FSAR

An Independent Safety Engineering Group (ISEG) will be established prior to initial fuel load of Unit 1 to perform independent reviews of plant operations. The ISEG will function to examine unit operating characteristics, NRC issuances, industry advisories, Licencee Event Reports, and other sources of plant design and operating experience information, including plants of similar design, which may indicate areas for improving plant safety.

The Limerick ISEG will be composed of at least three dedicated, full-time engineers located onsite, each with a bachelor's degree in engineering or related science. The onsite individual in charge of the ISEG will have a minimum of 6 years experience in the nuclear field. The ISEG may also contain additional engineers, other technically oriented personnel, and administrative support personnel.

The ISEG will be responsible for maintaining surveillance of unit activities to provide independent verification that these activities are performed correctly and that human errors are reduced as much as practical. The ISEG will not be responsible for sign-off functions.

The ISEG will be responsible for the review of safety-related structures and equipment nonconformances which are repetative or in the judgement of ISEG are significant. This review shall include examining causes of nonconformances, reviewing adequacy of corrective actions, determining root cause of nonconformances if applicable, and trending of hardware nonconformances.

The Nuclear Safety Section with input from the ISEG will make detailed recommendations for revised procedures, equipment modifications, maintenance activities, operation activities or other means of improving plant safety.

The Corporate Support Group of the Nuclear Safety Section provides backup technical support to the ISEG and initially screens operating experience information so that only pertinent information flows to the ISEG. The Engineer-In-Charge of the Nuclear Safety Section reports to the Superintendent - Nuclear Services on matters of a routine nature and to the Chairman of the Operating and Safety Review Committee on matters of a safety-related nature.

Section 17.2B.15.1, Limerick FSAR

Nonconformances shall be identified, documented, controlled, evaluated, and dispositioned in accordance with written procedures. In addition, affected organizations shall be notified.

These procedures shall provide for analyzing nonconformances for trends, for performing a periodic review and assessment of the trending data; and for reporting the results of such reviews to the appropriate level of Engineering and Research Department management.

Section 17.2A.16.6, Limerick FSAR

Procedures shall be established to assure that safety-related structures and equipment nonconformances are controlled. These procedures shall include the following:

a. Identify those individuals or groups who shall authorize the corrective action

b. Assure that the QC organization who has responsiblity for the job reviewed and approved the planned corrective action

c. Document the cause of the nonconformance if it can be identified

e. The appropriate staff engineer shall review the corrective action and equipment history to determine: equipment performance trends, to identify repetitive failures and to adjust, if applicable, the preventive maintenance program

The QA Division shall verify through their audit and surveillance program that the above controls are adequate.

Section 17.2A.16.6, Limerick FSAR, has been revised to provide additional information.

Section 17.2B.15.1, Limerick FSAR, has been revised to provide additional information.

Section 13.4.5, Limerick FSAR, has been revised to provide additional information.

Question 260.51

Describe those provisions for analyzing nonconformances for trends and identify the upper levels of management responsible for periodic review and assessment of these quality trends.

Response

Section 17.2.1.2.3.1, Limerick FSAR, states in part: The Superintendent, Quality Assurance Division, has the following responsibilities and authorities:

...

f. Determine the on-going status and adequacy of the EP QA Plan through regular review of the QA Auditing Program, identification and investigation of problem areas, and determination of timely and effective steps taken to correct deficiencies.

Section 17.2.1.2.3.2. Limerick FSAR, states in part: The Engineer-QA is responsible for the following:

c. Keep the Superintendent, Quality Assurance Division, informed of status of Quality Assurance effort and of significant problem areas.

Electric Production Staff Meetings are regularly held which assess the status and adequacy of nonconformances, which includes quality trending of audit and surveillance findings, NRC enforcement actions, LERs, and NRC IE inspections, of the QA Program to 10CFR50, Appendix B.

Annual assessment of the status and adequacy of the QA Program is documented and sent to the Vice President, Electric Production, and other cognizant Management and O&SR Commitee.

Measures shall be established for analyzing trends of nonconformances. The Vice President, Electric Production, shall be notified and periodically review and assess these trends.

Section 13.4.5, Limerick FSAR

An Independent Safety Engineering Group (ISEG) will be established prior to initial fuel load of Unit 1 to perform independent reviews of plant operations. The ISEG will function to examine unit operating characteristics, NRC issuances, industry advisories, Licencee Event Reports, and other sources of plant design and operating experience information, including plants of similar design, which may indicate areas for improving plant safety.

The Limerick ISEG will be composed of at least three dedicated, full-time engineers located onsite, each with a bachelor's degree in engineering or related science. The onsite individual in charge of the ISEG will have a minimum of 6 years experience in the nuclear field. The ISEG may also contain additional engineers, other technically oriented personnel, and administrative support personnel.

The ISEG will be responsible for maintaining surveillance of unit activities to provide independent verification that these activities are performed correctly and that human errors are reduced as much as practical. The ISEG will not be responsible for sign-off functions.

The ISEG will be responsible for the review of safety-related structures and equipment nonconformances which are repetative or in the judgement of ISEG are significant. This review shall include examining causes of nonconformances, reviewing adequacy of corrective actions, determining root cause of nonconformances if applicable, and trending of hardware nonconformances.

The Nuclear Safety Section with imput from ISEG will make detailed recommendations for revised procedures, equipment modifications, maintenance activities, operation activities or other means of improving plant safety.

The Corporate Support Group of the Nuclear Safety Section provides backup technical support to the ISEG and initially screens operating experience information so that only pertinent information flows to the ISEG. The Engineer-In-Charge of the Nuclear Safety Section reports to the Superintendent - Nuclear Services on matters of a routine nature and to the Chairman of the Operating and Safety Review Committee on matters of a safety-related nature.

Section 17.2B.15.7, Limerick FSAR

Where rework of a nonconforming item invalidates a previously completed test or inspection, the test or inspection shall be reperformed unless the approved disposition specifies otherwise. The testing and inspection of a repair shall be as given in the approved disposition of the nonconforming item.

Nonconforming items identified by Construction Division during receipt inspection shall be Hold tagged and reported in accordance with written procedures. Engineering is responsible for providing/approving the disposition. Quality Assurance Section approval is required when the proposed disposition is "Use-As-Is" or "Repair".

Section 17.2B.15.5, Limerick FSAR

Nonconfroming items identified during installation activities and post-installation testing activities shall be Hold tagged and reported in accordance with written procedure(s). Engineering is responsible for providing/approving when the proposed disposition is "Use-As-Is" or "Repair" and for obtaining QA Section approval. A copy of the dispositioned report shall be included in the records package for the affected item.

Section 17.2B.15.6, Limerick FSAR

Documentation associated with nonconforming items shall:

a. Identify the item

b. Describe the nonconforming conditions

c. Describe the disposition

d. Provide the Engineering rationale/justification for "Use-As-Is" or "Repair" dispositions

e. Define the repair method and associated inspection and test requirements for "Repair" dispositions

f. Include signature approvals and dates for the disposition

g. Be included or referenced in the records package for affected item

Section 17.2B.15.1, Limerick FSAR

Nonconformances shall be identified, documented, controlled, evaluated, and dispositioned in accordance with written procedures. In addition, affected organizations shall be notified.

These procedures shall provide for analyzing nonconformances for trends, for performing a periodic review and assessment of the trending data; and for reporting the results of such reviews to the appropriate level of Engineering and Research Department management.

Section 17.2B.15.2, Limerick FSAR

Procurement documents shall require that vendors report nonconformances with proposed dispositions of "Use-As-Is" or "Repair" to PECo for approval. The nonconformance report, showing PECo Engineering and Quality Assurance Section approval shall be included in the reocords package for the item. This shall apply to deviations from procurement document requirements and from vendor drawings and procedures which have been approved by PECo.

Section 17.2B.15.3, Limerick FSAR

Nonconforming items identified by PECO during source surveillance/audits shall be reported as described in Section 17.2B.18. Vendor corrective action reports shall be evalusted and approved by PECo Engineering (for "Use-As-Is" and "Repair" dispositions involving technical requirements) and by Quality Assurance Section. For "Use-As-Is" and "Repair" dispositions which affect particular hardware, a copy of the dispositioned report shall be included in the record package for the affected item.

Section 17.2B.15.4, Limerick FSAR

Section 17.2A.15.1, Limerick FSAR

"...Measures established shall include, as appropriate, administrative and/or implementing procedures for the following functions for nonconforming materials, parts or components."

...

d. Notification to station management and other responsible organizations of equipment malfunctions or deviations. ...The notification system shall include provisions for initial and follow-up information until the item is finally dispositioned.

e. The responsibility and authority for the disposition of nonconforming items shall be defined for each responsible organization.

Section 17.2A.16.6, Limerick FSAR

Procedures shall be established to assure that safety-related structures and equipment nonconformances are controlled. These procedures shall include the following:

a. Identify those individuals or groups who shall authorize the corrective action

b. Assure that the QC organization who has responsiblity for the job reviewed and approved the planned corrective action

c. Document the cause of the nonconformance if it can be identified

e. The appropriate staff engineer shall review the corrective action and equipment history to determine: equipment performance trends, to identify repetitive failures and to adjust, if applicable, the preventive maintenance program

The QA Division shall verify through their audit and surveillance program that the above controls are adequate.

Section 17.2A.16.5, Limerick FSAR

Corrective action performed in response to an item identified by the QA Division audit and surveillance program shall have the documented concurrence of the QA Division for adequacy of corrective action.

Section 17.2A.16.5, Limerick FSAR, has been revised to provide additional information.

Section 17.2A.16.6, Linrick FSAR, has been revised to provide additional information.

Section 17.2A.15.1, Limerick FSAR, has been revised to provide additional required information.

Section 17.2B.15, Limerick FSAR, has been revised to provide additional information.

Section 13.4.5, Limerick FSAR, has been revised to provide additional information.

b. Reports to appropriate levels of management of the significant condition adverse to quality and documentation of such reports.

Section 17.2A.16.2, Limerick FSAR, states in part: Administrative Procedures shall require that modification and repair procedures include the reworking of components, systems or structures in accordance with original specifications, instruction manuals, instructions, prints, codes and standards. Appropriate testing and inspection requirements shall be included to verify acceptability of the repairs or modifications.

Section 17.2A.16.3, Limerick FSAR, states in part: The responsibility for the above is assigned to the Limerick staff members responsible for the various activities.

Section 17.2A.16.4, Limerick FSAR, states in part: QA Division through its auditing program may identify conditions which require corrective action. Such conditions shall be reported to responsible management for corrective action in accordance with applicable procedures.

Section 17.2A.16.4.1, Limerick FSAR, states in part: Dependent upon factors, such as the nature of the deficiency, the cause, and the corrective action taken, QA Division shall followup corrective action of deficiencies identified by the QA Division auditing program to determine the adequacy and effectiveness of such action.

Section 17.2A.16.4.2, Limerick FSAR, states in part: The status of nonconformances or noncompliances identified by QA Division as a result of the auditing program shall be reported to the Manager and Vice President of the Electric Production Department periodically.

Question 260.50

Describe those provisions which assure that QA and other organizational responsibilities are described for the definition and implementation of activities related to nonconformance control. This includes identifying those individuals or groups with authority for the disposition of nonconforming items.

Response

The Limerick QA Plan, Volume III (Operations Phase) will incorporate the following statement:

"QA Division shall be notified of nonconforming materials, parts or components as they occur consistent with their importance to safety."

Section 17.2.1.2.3.1, Limerick FSAR, states in part: The Superintendent, Quality Assurance Division, has the following responsibilities and authorities.

...

i. Initiate and recommend corrective action or provide solutions through designated channels.

Section 17.2A.16.1, Limerick FSAR, states in part: Measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Conditions adverse to quality are failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance to specified requirements. The measures established shall include the following:

a. In cases of significant conditions adverse to quality, the cause of the condition shall be determined and documented, and corrective action taken and documented to preclude recurrence.

Section 17.2A.14.1, Limerick FSAR

Procedures shall be established and documented to identify inspection test and operating status. Such procedures shall provide means for assuring that required inspection and tests are performed and that acceptability of items with regard to inspections and tests performed is known throughout procurement, installation, and operation to preclude inadvertant bypassing or altering the sequence of such inspections and tests. (Such actions shall be subject to the same controls as the original review and approval). Nonconforming items shall be clearly identified.

Bypassing of, or deviation from, required inspections, tests, or operations defined in drawings and installation or testing procedures shall be controlled by procedures. In general, approval to bypass or deviate shall require the same approval as the original requirement unless other provisions are specified.

Question 260.49

Describe those provisions which assure that procedures are established to control altering the sequence of required tests. Inspections, and other operations important to safety. Such actions should be subject to the same controls as the original review and approval.

Response

Section 17.2A.14.1, Limerick FSAR, has been revised to provide the required information.

Section 17.2B.14.3, Limerick FSAR, states in part: Bypassing of, or deviation from, required inspections, tests, or operations defined in drawings and installation or testing procedures shall be controlled by procedures. In general, approval to bypass or deviate shall require the same approval as the original requirement unless other provisions are specified.

Section 17.2B.8.6, Limerick FSAR

Measures shall be established to identify and control the use of consumable materials (such as, lubricants and weld filler materials) in safety-related systems. Consumable materials are withdrawn from the plant storeroom on an as needed basis. If special storage considerations (including shelf-life) of these materials by Engineering and Research Department becomes necessary they will be accomplished in accordance with written procedures.

Section 17.2A.8.2, Limerick FSAR

Measures shall be established to identify and control materials (including consumables), parts or components in accordance with written procedures and instructions and shall apply to the fabrication, storage (including shelf life) and installations or use of the materials (including consumables), parts or components.

Consumables, as addressed above, include, but are not limited to, weld filler material, lubricants, chemicals, reagents, and fuels that impact on safety-related equipment.

Question 260.48

Describe those provisions which assure that the QA program provides controls for the storage of chemicals, reagents (including control of shelf life), lubricants, and other comsumable materials. (SRP Section 17.2.12, item 2)

Response

Section 17.2A.S.2, Limerick FSAR, has been revised to provide the requested information.

Section 17.2B.S.6, Limerick FSAR, has been added to provide the requested information.

Section 17.2A.12.3 and 17.2B.12.4, Limerick FSAR

Reference standards used for calibrating measuring and test equipment shall have an accuracy level, acceptable calibration ranges, and precision that are better than those required of the measuring and test equipment.

The accuracies of measuring and test equipment and the reference standards shall be chosen such that the equipment being calibrated can be calibrated and maintained within the required tolerances.

Calibration shall be performed with standards and calibrated test equipment which has known valid relationships to nationally recognized standards or to physical constants.

Records shall be maintained and equipment suitably marked, or otherwise controlled, to indicate calibration status. Such records shall be traceable and retrievable.

Calibration of measuring and test equipment shall be against reference standards that have an accuracy of at least four times the required accuracy of the equipment or, when this is not possible, has an accuracy that assures the equipment being calibrated will be within required tolerance and that the basis of acceptance is documented and authorized by responsible management.

Question 260.47

Describe those provisions which assure that calibration of measuring and test equipment be against reference standards that have an accuracy of a least four times the required accuracy of the equipment being calibrated or when this is not possible, have an accuracy that assures the equipment being calibrated will be within required tolerance and that the basis of acceptance is documented and authorized by responsible management. The management authorized to perform this function is identified.

Response

I Section 17.2A.12.3 and 17.2B.12.4 of the Limerick FSAR, has been revised to provide this information.

Section 17.2A.12.3 and 17.2B.12.4, Limerick FSAR

Reference standards used for calibrating measuring and test equipment shall have an accuracy level, acceptable calibration ranges, and precision that are better than those required of the measuring and test equipment.

The accuracies of measuring and test equipment and the reference standards shall be chosen such that the equipment being calibrated can be calibrated and maintained within the required tolerances.

Calibration shall be performed with standards and calibrated test equipment which has known valid relationships to nationally recognized standards or to physical constants.

Records shall be maintained and equipment suitably marked, or otherwise controlled, to indicate calibration status. Such records shall be traceable and retrievable.

Calibration of measuring and test equipment shall be against reference standards that have an accuracy of at least four times the required accuracy of the equipment or, when this is not possible, has an accuracy that assures the equipment being calibrated will be within required tolerance and that the basis of acceptance is documented and authorized by responsible management.

Question 260.46

Describe those provisions which assure that calibration standards have a greater accuracy than standards being calibrated.

Response

I Section 17.2A.12.3 and 17.2B.12.4, Limerick FSAR, has been revised to provide this information.

Section 17.2B.12.1, Limerick FSAR

The Research and Testing Division is responsible for the calibration Program and performs a calibration service to the Operations, Maintenance, Construction and Engineering organizations. These organizations each have established procedures for implementing their respective programs.

Question 260.45

Describe the QA and other organizations responsible for establishing, implementing and assuring effectiveness of the calibration program.

Response

Section 17.2A.12.2, Limerick FSAR, states in part: The method and interval of calibration for each item shall be defined and shall be based on the type of equipment, stability characteristics, required accuracy, and other conditions affecting measurement control. Special calibration shall be performed when accuracy of the equipment is suspect. When inspection, measuring and testing equipment are found to be out of calibration, an evaluation shall be made and documented of the validity of previous inspection or test results and of the acceptability of items previously inspected or tested. If any inspection, measuring, or test equipment is consistently found to be out of calibration, it shall be repaired or replaced.

Organizations responsible for establishing, implementing and assuring effectiveness of the calibration program are delineated in the Limerick QA Plan, Volume III (Operations Phase). The organizations responsible are: Limerick Generating Station Staff; Research and Testing Division; Electric Production QA Division; and Engineering and Research Quality Assurance Section.

Section 17.2B.12.1, Limerick FSAR, has been revised to provide additional information.

3. Identification of responsibilities to perform the test, including any special personnel qualification requirements

4. Completeness and preparation of the item to be tested

5. Suitable and controlled environmental conditions

6. Provisions for data collection, review and disposition

d. Any mandatory inspection hold points

e. Acceptance/rejection criteria

f. Methods of documenting or recording test data and results

g. Requirements related to evaluation and acceptance of test data

Section 17.2B.11.3, Limerick FSAR, states in part: Test results shall be documented and their evaluation and acceptability determined as defined in the test procedure or in the procurement documents.

Section 17.2B.11.4, Limerick FSAR, states in part: Modifications, repairs, and replacements shall be tested in accordance with the original design and testing requirements or to approved alternatives.

that are better than those required of the measuring and test equipment. . .

Section 17.2A.10.3, Limerick FSAR, states in part: If mandatory inspection hold points, which require witnessing or inspecting and beyond which work shall not proceed are required, the specific hold points shall be indicated in appropriate procedures. Such inspection shall be documented prior to the continuation of work beyond the designated hold point.

The procedures shall include the characteristics to be inspected, a description of the method of inspection, acceptance/rejection criteria, a description of necessary measuring and test equipment, including appropriate accuracy requirements and the identification of the individual or group responsible for inspection.

Section 17.2B.11.1, Limerick FSAR, states in part: Tests to demonstrate that items will perform satisfactorily in service shall be defined in drawings, specifications, Engineering Work Letters, Construction memoranda, the Field Engineering memoranda, the Research and Testing Division memoranda, or installation procedures, as appropriate for the activity. Where appropriate, vendor documents and instructions shall be used as input for determining required tests.

Section 17.2B.11.2, Limerick FSAR, states in part: When such testing is required in regard to installation activities, approved test procedure(s) shall be issued. The test procedures shall incorporte or reference:

a. The requirements and acceptance limits contained in applicable design and procurement documents

b. Instruction steps for performing the test

c. Applicable test prerequisites such as:

    1. Use of calibrated instrumentation

    2. Adequate and appropriate equipment

Question 260.44

Describe those provisions which assure that program procedures provide criteria for determining the accuracy requirements of test equipment, and the criteria for determining when a test is required, providing mandatory inspection hold points as required.

Response

Section 17.2A.11.2, Limerick FSAR, states in part: Test procedures shall include provisions for assuring that prerequisites for the given test have been met, that adequate instrumentation is available and used, and that necessary monitoring is performed. Prerequisites include such items as calibrated instrumentation, appropriate equipment, trained personnel, condition of test equipment and the item to be tested, suitable environmental conditions, and provisions for data acquisition. . .

Section 17.2A.12.1, Limerick FSAR, states in part: Measures shall be established and documented to assure that tools, gages, instruments, and other inspection, measuring, and testing equipment and devices used in activities affecting quality are of the proper range, type, and accuracy to verify conformance to established requirements. . .

Section 17.2A.12.2, Limerick FSAR, states in part: The method and interval of calibration for each items shall be defined and shall be based on the type of equipment, stability characteristics, required accuracy, and other conditions affecting measurement control. . .

Section 17.2A.12.3, Limerick FSAR, states in part: Reference standards used for calibrating, measuring, and test equipment shall have an accuracy level, acceptable calibration ranges, and precision

Section 17.2A.11.1.1, Limerick FSAR

Add:

Measures shall be established such that when an activity involves breaching a pressure retaining item, the quality of the work can be demonstrated through a functional test. The functional test shall be performed by individuals other than those who performed or directly supervised the work, but within the same group.

Limerick is committed to Regulatory Guide 1.58, Revision 1, 1980, which endorses ANSI N45.2.6-1978. This standard provides the qualification criteria for inspection personnel. The Limerick QA Plan, Volume III (Operations Phase) describes the measures, Administrative Procedures, that shall implement these criteria and as stated above, the Administrative Procedures are all reviewed and approved by the Superintendent, QA Division.

Question 260.43

Describe the provisions which assure that when inspections associated with normal operations of the plant (such as routine maintenance, surveillance and tests) are performed by individuals other than those who performed or directly supervised the work, but are within the same group, the following controls are met:

a. The quality of the work can be demonstrated through a functional test when the activity involves breaching a pressure retaining item.

b. The qualification criteria for inspection personnel are reviewed and found acceptable by the QA organization prior to inititating the inspection.

Response

Section 17.2A.11.1.1, Limerick FSAR, has been added to provide the requested information.

Section 17.2A.10.1, Limerick FSAR, states in part: A program for inspection of activities affecting quality shall be established and executed by the organization performing the activity to verify conformance to the documented instructions, procedures, and drawings for accomplishing the activity. Inspection activities to verify the quality of work shall be performed by persons other than those who performed the activity being inspected.

a. Section 17.2A.11.1, Limerick FSAR, states in part: A test program shall be established to assure that all testing required to demonstrate that the item will perform satisfactorily in service is identified and documented, and that the testing is performed in accordance with written test procedures which incorporate or reference the requirements and acceptable limits contained in applicable technical specifications and design documents . . .

b. Section 17.2A.2.10, Limerick FSAR, states in part: The Superintendent, QA Division, shall review and approve all Administrative Procedures that implement the Limerick EP QA Plan.

17.2B.10.2, Limerick FSAR

The inspections to be performed shall be defined in drawings, specifications, Engineering Work Letters or inspection/installation procedures, as appropirate for the activity. The inspections shall be performed in accordance with written procedures or instructions and the results shall be documented, evaluated and their acceptability determined by a responsible individual or group.

Section 17.2B.10.2, Limerick FSAR, has been revised to provide additional information.

Question 260.42

Describe those provisions which assure that inspection results are documented, evaluated and their acceptablility determined by a responsible individual or group.

Response

Section 17.2A.10.1, Limerick FSAR, states in part: A program for inspection of activities affecting quality shall be established and executed by the organization performing the activity to verify conformance to the documented instructions, procedures, and drawings for accomplishing the activity. Inspection activities to verify the quality of work shall be performed by qualified persons other than those who performed the activity being inspected. Such persons shall not report directly to the immediate supervisors who are responsible for the work being inspected . . . A program for the inspection of quality related activities is established through administrative and implementing procedures to verify conformance with applicable procedures, instructions, and drawing requirements.

Section 17.2A.10.3, Limerick FSAR, states in part: Satisfactory completion of inspection points shall be documented by a qualified individual and shall be included in the documentation associated with the performance of the work.

Documented results will be evaluated and their acceptability determined by qualified individuals. Evaluation beyond that given by inspection personnel shall not normally be required for go/no-go and pass/fail type inspection.

If individuals performing inspections are not part of the QA organization, the QA Division will ensure, through audits and surveillances, that the inspection procedures, personnel qualification criteria, and independence from undue pressure, such as cost and schedule, are acceptable.

special calibration and control measures on rulers, tape measures, levels, and such other devices, if normal commercial practices provide adequate accuracy.

The accuracies of measuring and test equipment and the reference standards shall be chosen such that the equipment being calibrated can be calibrated and maintained within the required tolerances.

Records shall be maintained and equipment suitably marked, or otherwise controlled, to indicate calibration status. Such records shall be traceable and retrievable.

The provision which assures verification of conformance is accomplished by members of the Construction Division, Maintenance Division, and Research and Testing Division, and are not part of the QA Division. All QC operations are separated from the Electric Production, Quality Assurance Division.

The QA Division will ensure, through audits and surveillances, that the inspection procedures, personnel qualification criteria, and independence from undue pressure, such as, cost and schedule, are acceptable.

Section 17.2B.10.3, Limerick FSAR, states in part: The inspection procedures or instructions shall:

a. Identify the characteristics and activities to be inspected, including establishment of inspection hold points where appropriate

b. Identify the individuals or groups responsible for performing the inspection operation

c. Define the acceptance/rejection criteria

d. Provide instructions for performing the inspection, including the inspection methods, including the inspection methods, a description of the necessary measuring and test equipment and the appropriate accuracy requirements

e. Require recording evidence of completing/verifying the activity and the results

f. Require identification of the inspector/data recorder and recording the results of the inspection

g. Be reviewed by qualified personnel knowledgeable in QA/QC disciplines to assure inclusion of the items listed above

Question 260.41

Describe those provisions which assure that inspection procedures, instructions, or checklists provide for the following as determined by the QA/QC organization:

a. Specifying necessary measuring and test equipment including accuracy requirements.

Response

Section 17.2A.10, Inspection, Limerick FSAR states in part: A program for inspection of activities affecting quality shall be established and executed by the organization performing the activites to verify conformance to the documented instructions, procedures, and drawings for accomplishing the activity.

A program for the inspection of quality related activities is established through administrative and implementing procedures to verify conformance with applicable procedures, instructions and drawing requirements.

The procedures shall include the characteristics to be inspected, a description of the method of inspection, acceptance/rejection criteria, a description of necessary measuring and test equipment, including appropriate accuracy requirements, and the identification of the individual or group responsible for inspection.

Section 17.2A.12.1, Limerick FSAR, states in part: Measures shall be established and documented to assure that tools, gages, instruments, and other inspection, measuring, and testing equipment and devices used in activities affecting quality, are of the proper range, type, and accuracy to verify conformance to established requirements. To assure accuracy, inspection, measuring, and test equipment shall be controlled, calibrated, adjusted, and maintained at prescribed intervals or prior to use against certified equipment having known valid relationships to nationally recognized standards. If no national standards exist, the basis for calibration shall be documented. This requirement is not intended to imply a need for

Section 17.2.1.3.4.3, Limerick FSAR

The Construction Division Senior Engineer-QC is responsible for establishing and implementing Construction Division's QC inspection program. The Senior Engineer-QC has no responsiblity for scheduling or cost. The qualification requirements for the Senior Engineer-QC include a background in construction practices and procedures, and a working knowledge of applicable codes and specifications. The responsibilities of the Senior Engineer-QC include: preparing, revising, and controlling distribution of Construction Division Procedures, providing QC indoctrination and training for Construction Division personnel, overseeing the activities of the Engineer-QC and Construction Division QC Group; and providing a liaison between the Construction Division and the Quality Assurance Section. The Senior Engineer-QC effects implementation of the QC program through the authority of the Office of the General Superintendent.

The Engineer-QC is the site representative of the Senior Engineer-QC. The Engineer-QC is responsible for directly overseeing the QC inspection activities of the Construction Division Site QC Group, and assisting the Senior Engineer-QC with his responsibilities.

The Construction Division QC Group will be comprised of appropriate disciplines, such as, mechanical, electrical, and structural. The QC Group is responsible for inspection work performed by the field forces, for performing receipt inspections of procured material, for identifying and reporting nonconformances, and for verifying corrective action in accordance with established procedures. The QC Inspectors have the authority to stop unsatisfactory work and to control further processing or installation of nonconforming material. This stop work authorization will be delineated in applicable procedures. Personnel will be assigned to the QC Group on a continual basis and will be qualified in accordance with Regulatory Guide 1.58, as described in Appendix 17.2B.II.

Section 17.2.1.2.5.4.1, Limerick FSAR

The Inservice Inspection Group is responsible for directing, controlling, and coordinating NDE activities performed in accordance with the ASME B&PV Code, Section XI.

This Group is also responsible for performing Nondestructive Testing and has primary responsibility for QC inspection within the Maintenance Division. This group is administratively independent from cost and scheduling.

The Inservice Inspection Group shall review Maintenance and Inspection Procedures for the need for inspection, identification of inspection personnel required and documentation of inspection results and that the necessary inspection requirements, methods and acceptance criteria have been identified.

The QC Inspectors are permanently assigned to the Ins vice Group and are experienced in various disciplines (e.g. electrical, mechanical, structural, etc). If additional QC personnel are needed, qualified personnel can be assigned from the Engineering Group of the Nuclear Branch. These temporarily assigned personnel shall report to the Inservice Inspection Group.

a. Identify the characteristics and activities to be inspected, including establishment of inspection hold points where appropriate

b. Identify the individuals or groups responsible for performing the inspection operation

c. Define the acceptance/rejection criteria

d. Provide instructions for performing the inspection, including the inspection methods, a description of the necessary measuring and test equipment and the appropriate accuracy requirements

e. Require recording evidence of completing/verifying the activity and the results

f. Require identification of the inspector/data recorder and recording the results of the inspection

g. Be reviewed by qualified personnel knowledgeable in QA/QC disciplines to assure inclusion of the items above

Section 17.2A.10.1, Limerick FSAR, states in part: A program for inspection of activities affecting quality shall be established and executed by the organization performing the activity to verify conformance to the documented instructions, procedures, and drawings for accomplishing the activity. Inspection activities to verify the quality of work shall be performed by persons other than those who performed the activity being inspected. Such persons shall not report directly to the immediate supervisors who are responsible for the work being inspected.

The provision which assures verification of conformance is accomplished by members of the Construction Division, Maintenance Division, and Research and Testing Division, and are not part of the QA Division. All QC operations are separated from the Electric Production, Quality Assurance Division.

If individuals performing inspections are not part of the QA organization, the QA Division will ensure thru Audits and Surveillances that the inspection procedures, personnel qualification criteria, and independence from undue pressure, such as cost and schedule, are acceptable.

Question 260.40

Identify the organization responsible for inspection and provide assurance that individuals performing inspections are other than those who performed or directly supervised the activity being inspected and do not report directly to the immediate supervisors who are responsible for the activity being inspected. If the individuals performing inspections are not part of the QA/QC organization, the inspection procedures, personnel qualification criteria, and independence from undue pressure, such as cost and schedule, should be reviewed and found acceptable by the QA organization prior to the initiation of the activity.

Response

Section 17.2.1.2.5.4.1, Limerick FSAR, has been revised to provide additional information.

Section 17.2.1.3.4.3, Limerick FSAR, has been revised to provide additional information.

Section 17.2.1.3.5.3, Limerick FSAR, has been revised to provide additional information.

Section 17.2B.10.1, Limerick FSAR, states in part: Inspection requirements for purchased materials, parts, and components and for installation activities shall be established to verify conformance of quality affecting activities with established requirements. The inspection requirements and inspection results shall be documented.

Section 17.2B.10.3, Limerick FSAR, states in part: The inspection procedures or instructions shall:

Section 17.2B.12.4, Limerick FSAR

Reference standards used for calibration measuring and test equipment shall have an accuracy level, acceptable calibration ranges, and precision that are better than those required of the measuring and test equipment.

The accuracies of measuring and test equipment and the reference standards shall be chosen such that the equipment being calibrated can be calibrated and maintained within the required tolerances.

Calibration shall be performed with standards and calibrated test equipment that has known valid relationships to nationally recognized standards or to physical constants.

Records shall be maintained and equipment suitably marked, or otherwise controlled, to indicate calibration status. Such records shall be traceable and retrievable.

Calibration of measuring and test equipment shall be against reference standards that have an accuracy of at least four times the required accuracy of the equipment or, when this is not possible, has an accuracy that assures the equipment being calibrated will be within required tolerance and that the basis of acceptance is documented and authorized by responsible management.

Section 17.2B.12.8, Limerick FSAR

The method and interval of calibration for each item shall be defined and shall be based on the type of equipment, stability characteristics, required accuracy, and other conditions affecting measurement control. Special calibration shall be performed when accuracy of the equipment is suspect. When inspection, measuring and test equipment are found to be out of calibration, an evaluation shall be made and documented of the validity of previous inspection or test results and of the acceptability of items previously inspected or tested. If any inspection, measuring, or test equipment is consistently found to be out of calibration, it shall be repaired or replaced.

Section 17.2B.12.2, Limerick FSAR

Measures shall be established and documented to assure that tools, gages, instruments, and other inspection, measuring, and testing equipment and devices used in activities affecting quality are of the proper range, type, and accuracy to verify conformance to established requirements. To assure accuracy, inspection, measuring, and test equipment shall be controlled, calibrated, adjusted, and maintained at prescribed intervals or prior to use against certified equipment having known valid relationships to nationally recognized standards. If no national standards exist, the basis for calibration shall be documented. This requirement is not intended to imply a need for special calibration and control measures on rulers, tape measures, levels, and such other devices, if normal commercial practices provide adequate accuracy.

Section 17.2B.12.1, Limerick FSAR

The Research and Testing Division is responsible for the calibration Program and performs a calibration service to the Operations, Maintenance, Construction and Engineering organizations. These organizations each have established procedures for implementing their respective programs.

Section 17.2.1.2.5.4.1, Limerick FSAR

The Inservice Inspection Group is responsible for directing, controlling, and coordinating NDE activities performed in accordance with the ASME B&PV Code, Section XI.

This Group is also responsible for performing Nondestructive Testing and has primary responsibility for QC inspection within the Maintenance Division. This Group is administratively independent from cost and scheduling.

The Inservice Inspection Group shall review Maintenance and Inspection Procedures for the need for inspection, identification of inspection personnel required and documentation of inspection results and that the necessary inspection requirements, methods and acceptance criteria have been identified.

The QC Inspectors are permanently assigned to the Inservice Group and are experienced in various disciplines (e.g. electrical, mechanical, structural, etc). If additional QC personnel are needed, qualified personnel can be assigned from the Nuclear Branch of the Engineering Section. These temporarily assigned personnel shall report to the Inservice Inspection Group.

Section 17.2.1.2.5.4, Limerick FSAR

The Engineering Section, under the supervision of the Engineer-in-Charge, is located at Maintenance Division Headquarters and reports to the Superintendent, Maintenance Division. This Section is administratively independent from plant operations and station maintenance and is responsible for the performance of QC inspections of quality-related maintenance activities and, as delineated in applicable procedures, may stop any maintenance work it judges is being conducted so as to be a serious quality degradation. The QC Personnel will be qualified in accordance with Regulatory Guide 1.58, as described in Appendix 17.2A.II. Inspection personnel have sufficient authority and organizational freedom in order to: Identify quality problems; recommend corrective action through designated channels; and verify implementation of corrective action. One or more members of the Section shall be designated to provide technical assistance and engineering support to Limerick Maintenance personnel.

Section 17.2.1.2.5.4, Limerick FSAR, has been revised to provide this information.

Section 17.2.1.2.5.4.1, Limerick FSAR, has been revised to provide this information.

Section 17.2B.12.1, Limerick FSAR, has been revised to provide this information.

Section 17.2B.12.2, Limerick FSAR, has been revised to provide this information.

Section 17.2B.12.3, Limerick FSAR, has been revised to provide this information.

Section 17.2B.12.4, Limerick FSAR, has been revised to provide this information.

Question 260.39

Describe those provisions which assure that an effective inspection program has been established which provides criteria for determining the accuracy requirements of inspection equipment and criteria for determining when inspections are required. Describe the responsibilities of the QA/QC organizations in the above functions.

Response

The provision which assures verification of quality conformance to established requirements is accomplished by members of the Construction Division, Maintenance Division, and Research and Testing Division, which are not part of the QA Division. All QC functions are separated from the Electric Production Department, Quality Assurance Division.

Section 17.2A.12.1, Limerick FSAR, states in part: Measures shall be established and documented to assure that tools, gages, instruments, and other inspection, measuring, and testing equipment and devices used in activities affecting quality, are of the proper range, type, and accuracy to verify conformance to established requirements. To assure accuracy, inspection, measuring, and test equipment shall be controlled, calibrated, adjusted, and maintained at prescribed intervals or prior to use against certified equipment having known valid relationships to nationally recognized standards. If no national standards exist, the basis for calibration shall be documented. This requirement is not intended to imply a need for special calibration and control measures on rulers, tape measures, levels, and such other devices, if normal commercial practices provide adequate accuracy.

Section 17.2A.12.2, Limerick FSAR, states in part: The method and interval of calibration for each iten shall be defined and shall be based on the type of equipment, stability characteristics, required accuracy, and other conditions affecting measurement control.

Section 17.2A.9.3, Limerick FSAR

Measures shall be established to control special processes, the equipment used, and the personnel implementing them, in accordance with written procedures, instructions and drawings. Review and approval of special process procedures shall be accomplished in accordance with Administrative Procedures.

Special instructions, procedures and drawings shall be furnished in accordance with applicable codes, standards, specifications, criteria, and other supplementary requirements. Special processes may be reviewed by cognizant PECo personnel or outside consultants.

Section 17.2A.9.1, Limerick FSAR

Measures shall be established and documented to assure that special processes, including welding, heat treating, chemical cleaning, coating, and nondestructive examination, are accomplished under controlled conditions in accordance with applicable codes, standards, specifications, criteria and other special requirements, using qualified personnel, equipment and procedures. Special processes are those that require interim inprocess controls in addition to final inspection to assure quality.

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

Section 17.2A.9.2, Limerick FSAR

The Maintenance Division, in conjunction with other departments within the Company, and outside consultants, when necessary, is responsible for development of special processes, such as, welding, heat treating, and nondestructive examination performed under the EP QA Plan. These processes, the equipment used, and the personnel implementing them shall be qualified.

1A, "Recommended Practice for Nondestructive Testing Personnel Qualification and Certification."

Section 17.2A.9.6, Limerick FSAR, states in part: Results of special processes performed shall be documented, in accordance with approved instructions and procedures.

Question 260.38

Describe the responsibilities of the QA/QC organization for the qualification of special processes, equipment and personnel and in assuring that these qualifications have been satisfactorily performed.

Response

The provision which assures verification of conformance to established requirements is accomplished by members of the Maintenance Division and Research and Testing Division, which are not part of the QA Division. All QC operations are separated from the Electric Production Department, Quality Assurance Division, and Engineering and Research Department, Quality Assurance Section.

Audits and Surveillances shall be performed to verify compliance to established procedures related to special processes.

Sections 17.2A.9.1, 17.2A.9.2, and 17.2A.9.3, Limerick FSAR, have been revised to provide the requested information.

Section 17.2A.9.4, Limerick FSAR, states in part: Certification of welders performing activities under the EP QA Plan shall be kept current through records of qualifying tests, recording of welds on current work, retraining and qualifying for specialty work in accordance with Maintenance Division Administrative Procedures.

Section 17.2A.9.5, Limerick FSAR, states in part: The nondestructive examination procedures for the In-Service Inspection shall be written in accordance with applicable codes, standards and specifications.

NDE procedures shall require that personnel performing these examinations be qualified in accordance with the recommendations of the American Society for Nondestructive Testing Practice No. SNT-TC-

Section 17.2B.9.1.1, Limerick FSAR

A special process is a process, the results of which are highly dependent on the control of the process or the skill of the operators, or both, and in which the specified quality cannot be readily determined by inspection or test of the product.

Section 17.2A.9.1, Limerick FSAR:

Measures shall be established and documented to assure that special processes, including welding, heat treating, chemcial cleaning, coating and nondestructive examination, are accomplished under controlled conditions in accordance with applicable codes, standards, specifications, criteria and other special requirements, using qualified personnel, equipment and procedures. Special processes are those that require interim inprocess controls in addition to final inspection to assure quality.

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

Question 260.87

Describe those provisions which assure that criteria are established for determining those processes that are controlled as special processes.

Response

Section 13.5, Limerick FSAR, states in part: Administrative procedures generally include those that establish station management policy, those that control activities that involve interfaces among disciplines or groups supporting plant operations, and those that establish criteria for procedures and activities implemented by the plant staff and support organizations. Administrative procedures shall be prepared in sufficient detail so that tasks are performed in a consistent, efficient manner and to ensure that the necessary reviews and approvals are performed.

The following paragraphs describe the administrative procedures expected to be employed. The numbers of procedures and their specific content may be altered as the procedures are developed and experience is gained in their implementation.

. . . .This procedure shall require that special processes be identified and accomplished under controlled conditions in accordance with applicable codes, standards, specifications, criteria, or other special requirements. The procedure shall require that special processes be accomplished by qualified personnel using qualified procedures and equipment as provided in the specified requirements for the activity. . . .

Section 17.2A.9.1, Limerick FSAR, has been revised to provide the requested information.

Section 17.2B.9.1.1, Limerick FSAR has been added to provide additional information.

Section 17.2B.8.6, Limerick FSAR

Measures shall be established to identify and control the use of consumable materials (such as, lubricants and weld filler materials) in safety-related systems. Consumable materials are withdrawn from the plant storeroom on an as needed basis. If special storage considerations (including shelf-life) of these materials by Engineering and Research Department becomes necessary it will be accomplished in accordance with written procedures.

Section 17.2A.8.2, Limerick FSAR

Measures shall be established to identify and control materials (including comsumables), parts or components in accordance with written procedures and instructions and shall apply to the fabrication, storage (including shelf-life) and installation or use of the materials (including consumables), parts or components.

Consumables, as addressed above, include, but are not limited to, weld filler material, lubricants, chemicals, reagents, and fuels that impact on safety-related equipment.

Question 260.36

Describe those provisions which assure that controls are established to identify and control consumables.

Response

Section 17.2A.8.2, Limerick FSAR, has been revised to provide the requested information.

Section 17.2B.8.6, Limerick FSAR, has been added to provide the requested information.

Appendix 17.2A.II.b, Number 17, Limerick FSAR:

Item (1) - Administrative Procedures shall specify the means for control of procurement of commercially "off-the-shelf" items. The Administrative Procedures shall describe the receipt inspection, storage, and handling prior to installation and operation. "Off-the-Shelf" (catalog) items are evaluated by qualified personnel for their intended use. The Administrative Procedure restricts the use of catalog items for only these evaluated applications. The purchase order shall require the vendor to notify the requisitioning organization of a change in an item described in the catalog.

Question 260.35

Describe those provisions which assure that for commercial "off-the-shelf" items where specific quality assurance controls appropriate for nuclear applications cannot be imposed in a practicable manner, special quality verification requirements will be established and described to provide the necessary assurance of an acceptable item by the purchaser.

Response

Appendix 17.2A.II.b, Number 17, Limerick FSAR, has been revised to provide the required information.

Section 17.2B.4.6, Limerick FSAR

The documents used for procurement shall specify appropriate requirements for:

a. Submittal of drawings, specifications, procedures, and plans to PECo. The time of submittal (e.g., prior to used) and the purpose of submittal (e.g., review, approval, or information) shall be specified.

b. Submittal of records to PECo. The time of submittal (e.g., prior to shipment) and the purpose of submittal (e.g., review, approval, or information) shall be specified.

c. Retention of records by supplier.

d. PECo's right of access to supplier facilities and records for inspection and audit.

e. Reporting and disposition of nonconformances from procurement requirements when the vendor's proposed disposition is "Use-As-Is" or "Repair".

f. Submittal of documentation that identifies the purchased items and the specific procurement requirements (e.g., codes, standards, and specifications) met by the item.

g. Submittal of documentation identifying any procurement requirements that have not been met.

h. Source inspection, as determined by the responsible engineer

The review and acceptance of these documents shall be described in the E&R Department QA Plan.

Section 17.2A.4.1, Limerick FSAR

Measures shall be established and documented to assure that applicable regulatory requirements, design bases, and other requirements which are necessary to assure adequate quality are included or referenced in the documents for procurement of items and services. Changes in procurement documents shall be subject to the same degree of control as was utilized in the preparation of the original document. To the extent necessary, procurement documents shall require vendors to provide a quality assurance program consistent with the pertinent requirements of 10CFR50, Appendix B, or other appropriate measures shall be specified.

Administrative Procedures for procurement shall establish provisions that assure that the supplier furnishes the following records to PECo:

a) Documentation identifying the purchased items and the specific procurement requirements (e.g., codes, standards, specifications) met by the items

b) Documentation identifying any procurement requirements that have not been met

c) A description of those nonconformances from the procurement documents that are proposed for disposition as "accept as is" or "repair"

The review and acceptance of these documents shall be described in the LGS QA Plan.

Procurement documents shall include provisions for the following, as applicable:

a. Supplier Quality Assurance Program

b. Basic Technical Requirements

c. Source Inspection and Audit

d. Documentation Requirements

e. Lower Tier Procurements

Question 260.34

Describe those provisions which assure that the supplier furnishes the following records to the purchaser:

a. Documentation that identifies the purchased items and the specific procurement requirements (e.g., codes, standards, and specifications) met by the item.

b. Documentation identifying any procurement requirements that have not been met.

c. A description of those nonconformances from the procurement requirements dispositioned "accept as is" or "repair."

The review and acceptance of these documents shall be described in the purchaser's QA program.

Response

Section 17.2A.4.1 and 17.2B.4.6, Limerick FSAR, have been revised to provide additional information.

Question 260.33

Describe those provisicns which assure that the results of the selection of suppliers is documented and filed.

Response

Section 17.2B.7.2, Limerick FSAR, states in part: The results of vendor evaluations and audits are documented and maintained on file.

e. Evaluation of objective evidence of quality furnished by the vendor

Question 260.32

Describe the role of the QA organization relative to the verification of suppliers' activities during fabrication, inspection, testing, and shipment of materials, equipment, and components.

Response

Section 17.2A.7.1, Limerick FSAR, states in part: Measures shall be established and documented to assure that purchased items and services conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the vendor, inspection at the source, and examination of items upon delivery.

The role of the Engineering and Research Department, Quality Assura..e Section, relative to the verification of suppliers' activities during fabrication, inspection, testing, and shipment of materials, equipment, and components will be evaluated, determined, and implemented on a per case basis for complex engineered items with E&R QA Section involvement.

Section 17.2B.7.3, Limerick FSAR, states: To assess the effectiveness of the control of quality by vendors and to assure conformance to the purchase order requirements, PECo employs one or more of the following techniques depending upon the quantity, complexity, and importance to safety of the item being supplied:

a. Quality Assurance audits of the vendor

b. Witnessing of selected operations, inspections, or tests which are designated as hold points in the fabrication process

c. Periodic or continuous shop surveillance

d. Receipt inspection which, depending upon the items supplied, may include appropriate testing of the finished product

Section 17.2B.4.6, Limerick FSAR

The documents used for procurement shall specify appropriate requirements for:

a. Submittal of drawings, specifications, procedures, and plans to PECo. The time of submittal (e.g., prior to used) and the purpose of submittal (e.g., review, approval, or information) shall be specified.

b. Submittal of records to PECo. The time of submittal (e.g., prior to shipment) and the purpose of submittal (e.g., review, approval, or information) shall be specified.

c. Retention of records by supplier.

d. PECo's right of access to supplier facilities and records for inspection and audit.

e. Reporting and disposition of nonconformances from procurement requirements when the vendor's proposed disposition is "Use-As-Is" or "Repair".

f. Submittal of documentation that identifies the purchased items and the specific procurement requirements (e.g., codes, standards, and specifications) met by the item.

g. Submittal of documentation identifying any procurement requirements that have not been met.

h. Source inspection, as determined by the responsible engineer

The review and acceptance of these documents shall be described in the E&R Department QA Plan.

accordance with PECo Procurement procedures and policies. The Purchasing Department shall not alter the requisition of any Nuclear Safety-Related item or service without prior approval of the requisitioning source.

QA Division has the authority to stop the issuance of a purchase order until appropriate QA requirements are included.

The original procurement documents for storeroom stock material and minor modifications will be reviewed by site staff prior to purchase. Subsequent requisitions for such material may be based on the original procurement documents and thereby be exempt from the requirements for review provided there is no change to the technical or quality assurance requirements of the original requisition.

Section 17.2A.18.1, Limerick FSAR, states in part: Compliance with the requirements and guidance for establishing and implementing the EP Quality Assurance Program is assured through the auditing program. The operations covered by this QA Division Auditing Program include designing and purchasing of Limerick Q-listed structures, systems and components.

Material receipt inspection shall be performed by the appropriate QC organization in accordance with established procedures.

The acceptability of candidates for the Evaluated Suppliers List is determined by the Quality Assurance Section and other interfacing organizations, in accordance with established procedures.

Question 260.31

Describe in more detail the responsibilities of the QA organization for the control of purchased material, equipment, and services, including interfaces between design, procurement, and QA organizations.

Response

E&R QA personnel shall review procurement documentation for major modifications. EP QA personnel shall review procurement documentation for minor modifications and operations procurement. The responsible Engineer shall determine source inspection requirements.

Section 17.2B.4.6, Limerick FSAR, has been revised to provide additional information.

Section 17.2B.3.5, Limerick FSAR, states in part: the requirements for materials, parts, and equipment, including standard, commercial (off-the-shelf) items are defined for procurement by means of a specification-type document which is subjected to design review prior to use.

Section 17.2B.4.2, Limerick FSAR, states in part: the Quality Assurance Section shall review and approve the documents which define the QA program and quality requirements to assure that such requirements are correctly stated, controllable, inspectable, and that adequate acceptance/rejection criteria are defined. This permits verification that the documents to be used for procurement have been prepared, reviewed and approved in accordance with the QA program.

Section 17.2A.4.4, Limerick FSAR, states in part: The Stores Division and Purchasing Department shall process only approved requisitions in

Section 17.2B.3.7, Limerick FSAR

As-built drawings are controlled in accordance with established procedures which describe a definite method to be followed upon completion of any plant modification. This procedure includes notification of completion by field personnel, mark-up on drawings of any changes from the original design, and approvals of as-built drawings equivalent to that for the original design.

Question 260.30

Describe those provisions which assure that procedures are established to provide for the preparation of as-built drawings and related documentation in a timely manner to accurately reflect the actual plant design.

Response

Section 17.2A.3.1, Limerick FSAR, states in part: ...Changes or deviations from specified design requirements or quality standards shall be identified, documented or controlled.

Section 17.2B.3.6L, Limerick FSAR, states in part: Field changes, requested during site installation, are reviewed and dispositioned in a manner commensurate with the original design. Drawings are revised to agree with approved field changes.

Administrative procedures will be written which require that major and minor modifications be reviewed after completion of the work to determine if the "as-built" installation differs from the original design, and that drawings and documents are revised; if required, to reflect the actual installation.

Section 17.2B.3.7, Limerick FSAR, has been revised to provide additional information.

Section 17.2B.6.1 and 17.2A.6.3, Limerick FSAR

Procedures shall be established for the preparation of documents (such as drawings, specifications, procurement documents, installation and testing procedures) which prescribe activities affecting quality. The procedures shall provide sufficient controls to ensure that prior to issue, these types of documents are:

a. Reviewed and approved by qualified personnel to assure that they are technically adequate and that the applicable quality requirements are stated.

b. Issued in a controlled manner

c. Changed, reviewed, and approved in the same manner as the original or as specified in the procedure

d. Available at the location where the activity will be performed prior to commencing the work

e. Controlled to prevent the inadvertent use of obsolete or superseded documents.

including changes thereto, which prescribe activities affecting quality. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel.

Section 17.2B.6.1, Limerick FSAR, has been revised to provide additional information.

Question 260.29

Describe those provisions which assure that procedures are established for the review, approval, and issuance of documents and changes thereto and that the documents are reviewed for technical adequacy and inclusion of appropriate quality requirements prior to implementation. The QA organization, or an individual other than the person who generated the document but qualified in quality assurance, reviews and concurs with quality affecting documents with regards to QA-related aspects.

Response

Section 17.2A.6.3, Limerick FSAR, has been added to provide additional information..

Section 17.2B.6.1, Limerick FSAR, has been added to provide additional information.

Section 17.2A.5, Limerick FSAR, states in part: 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 and drawings.

Station Administrative Procedures shall be reviewed by the POR Committee or subcommittee appointed by the PORC and approved by the Station Superintendent or his designated alternative and Superintendent Quality Assurance. These administrative procedures shall contain provisions which clearly delineate the sequence of actions for the preparation, review, approval, and control of activity implementing procedures, instructions and drawings.

Section 17.2A.6, Limerick FSAR, states in part: Measures shall be established and documented to control the issuance of documents,

Question 260.28

Describe the extent as-built documents are controlled under the QA program.

Response

As-built Q-Listed documents are controlled by the QA program. Established procedures prescribe a specific method to be followed upon completion of any plant modification. The procedures include notification of completion by field personnel, mark-up on drawings of any changes from the original design, and approval of as-built drawings equivalent to that for the original design.

Section 17.2B.3.6L, Limerick FSAR, states in part: Field changes, requested during site installation, are reviewed and dispositioned in a manner commensurate with the original design. Drawings are revised to agree with approved field changes.

Section 17.2A.3.1, Limerick FSAR, states in part: ... Changes or deviations from specified design requirements or quality standards shall be identified, documented, and controlled.

Section 17.2B.10.3, Limerick FSAR

The inspection procedures or instructions shall:

a. Identify the characteristics and activities to be inspected, including establishment of inspection hold points, where appropriate

b. Identify the individuals or groups responsible for performing the inspection operation

c. Define the acceptance/rejection criteria

d. Provide instructions for performing the inspection, including the inspection methods, a description of the necessary measuring and test equipment and the appropriate accuracy requirements

e. Require recording evidence of completing/verifying the activity and the results

f. Require identification of the inspector/data recorder and recording the results of the inspection

g. Be reviewed by qualified personnel knowledgeable in QA/QC disciplines to assure inclusion of the items listed above

Section 17.2B.10.1, Limerick FSAR

The need for inspection shall be determined and the inspection requirements for purchased materials, parts and components and for installation activities shall be established to verify conformance of quality affecting activities with established requirements. The inspection requirements and inspection results shall be documented.

Section 17.2A.10.3, Limerick FSAR

> The procedures shall include the characteristics to be inspected, a description of the method of inspection, acceptance/rejection criteria, a description of necessary measuring and test equipment including the appropriate accuracy requirements, and the identification of the individual or group responsible for inspection. ...Satisfactory completion of inspection points shall be documented by a qualified individual and shall be included in the documentation associated with the performance of the work.

Section 17.2.1.2.5.4.1, Limerick FSAR

The Inservice Inspection Group is responsible for directing, controlling, and coordinating NDE activities performed in accordance with ASME B&PV Code, Section XI.

This Group is also responsible for performing Nondestructive Testing and has primary responsibility for QC inspection within the Maintenance Division. This group is administratively independent from cost and scheduling.

The Inservice Inspection Group shall review Maintenance and Inspection Procedures for the need for inspection, identification of inspection personnel required and documentation of inspection results and that the necessary inspection requirements, methods and acceptance criterial have been identified.

The QC Inspectors are permanently assigned to the Inservice Inspection Group and are experienced in various disciplines (e.g., electrical, mechanical, structural, etc.). If additional QC personnel are needed, qualified personnel can be assigned from the Nuclear Branch of the Engineering Section. These temporarily assigned personnel shall report to the Inservice Inspection Group.

Limerick FSAR

Section 17.2A.10.1, Limerick FSAR, states in part: A program for inspection of activities affecting quality shall be established and executed... The inspection programs for modifications and non-routine or major maintenance work shall be accomplished by personnel independent of the group performing the work.

Section 17.2A.10.3, Limerick FSAR, has been revised to provide additional information.

Sections 17.2B.10.1 and 17.2B.10.3, Limerick FSAR, have been revised to provide the requested information.

Question 260.27

Describe those provisions which assure that maintenance, modification and inspection procedures are reviewed by qualified personnel knowledgeable in QA disciplines (normally the QA organization) to determine:

a. The need for inspection, identification of inspection personnel, and documentation of inspection results.

b. That the necessary inspection requirements, methods, and acceptance criteria have been identified.

Response

Section 17.2.1.2.5.4.1, Limerick FSAR, has been revised to provide the necessary information.

Section 17.2A.5, Limerick FSAR, states in part: 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 and drawings. ...Quantitative criteria, such as dimensions, tolerances, and operating limits, shall be specified, as appropriate, for determining satisfactory work performance and quality compliance.

... The review and approval of station procedures is described in Section 13.5. In addition, the POR committee, whose members are knowledgeable in quality requirements and administrative controls, review procedures, such as for tests and maintenance, which are developed in the modification process. ...Implementing procedures, instructions and drawings shall include, as appropriate, quantitative and qualitative acceptance criteria signoffs, hold points and witness points, to assure that important activities are satisfactorily accomplished. ...Quality Assurance personnel shall, in the course of the auditing program, selectively review the adequacy, completeness, and effectiveness, of implementing procedures, instructions, and drawings associated with activities performed under the QA Plan.

Section 13.2.2.2.1, Limerick FSAR, states in part:

This program ensures that appropriate revisions to the Operating Technical Specifications, Environmental Technical Specifications, procedures and plant design are reviewed. When determined by the Plant Operations Review Committee, the Operations Engineer or the plant training organization, document revisions and descriptions of plant design changes are attached to a signoff sheet and placed in a review notebook in a timely manner. As indicated on the signoff sheet, shift operators will review the attached document and will acknowledge, by signature and date, their review and understanding of the document. The plant training organization will be responsible for the review notebook and will maintain a file of completed signoff sheets. The administrative mechanisms for this program will take into account changes which would require immediate operator notification.

Changes within the scope of this program may also be reviewed through lectures or other verbal presentation by appropriate personnel. In such cases, records of participation shall be developed and retained.

Question 260.26

Describe those provisions which assure that responsible plant personnel are made aware of design changes/modifications which may affect the performance of their duties.

Response

Procedures shall assure that responsible plant personnel are made aware of design changes/modification which may affect the performance of their duties.

Section 13.2.2.1.3, Limerick FSAR, states in part: This Program ensures that licensed operators and senior licensed operators review revisions to the Operating Technical Specifications and Environmental Technical Specifications, review significant procedure changes and review completed facility design changes which are determined to affect plant operations.

When determined by the Plant Operations Review Committee, the Operations Engineer or the plant training organization that a procedure revision or completed design change affects plant operations, it is included in this review process.

Operating Technical Specification changes, Environmental Technical Specification changes, procedure revisions (or descriptions thereof), and descriptions of completed facility design changes are attached to a signoff sheet and placed in a review notebook in the Control Room in a timely manner. Each license holder will review the notebook and will acknowledge, by signature and date, his review and understanding of the attached document. The plant training organization will be responsible for the review notebook and will maintain a file of the completed signoff sheets. The administrative mechanisms for this program will take into account changes which would require immediate operator notification.

Changes within the scope of this program may also be reviewed through lectures or other verbal presentation by appropriate personnel. In such cases, records of participation shall be developed and retained.

Section 17.2A.2.7, Limerick FSAR

Add:

The development, control, and use of computer code programs, commensurate with its importance to safety, shall be conducted in accordance with a QA program. Software, commensurate with its importance to safety, used in the operational phase of Limerick Generating Station shall be subject to verification by Philadelphia Electric Company or other qualified personnel. Measures shall be established to assure that computer codes are appropriate for their specific applications.

Question 260.25

Describe those provisions which assure that procedures are established to assure that verified computer codes are certified for use and that their use is specified.

Response

Section 17.2A.2.7, Limerick FSAR, has been changed to provide this information.

Section 17.2B.3.3 Limerick FSAR

When the adequacy of design is to be verified by test only, procedures or instructions will be written which include measures to ensure that:

a. Criteria are provided to specify when verification should be by test

b. Where applicable, prototype, component, or feature testing will be performed prior to installation of plant equipment. In those cases where this cannot be met, the testing will be deferred but not beyond the point when the installation would become irreversible.

c. Tests will be performed under conditions that simulate the most adverse design conditions, as determined by analysis.

Question 260.24

Describe those provisions which assure that the following are included if the verification method is only by test:

a. Procedures provide criteria that specify when verification should be by test.

b. Prototype, component or feature testing is performed as early as possible prior to installation of plant equipment, or prior to the point when the installation would become irreversible.

c. Verification by test is performed under conditions that simulate the most adverse design conditions as determined by analysis.

Response

Section 17.2B.3.3, Limerick FSAR, has been added to provide additional information.

interdisciplinary teams, or those which can be reviewed by a single individual.

d. Procedures will identify the responsibilities of the verifiers, the areas and features to be verified, the pertinent considerations to be verified and the extent of documentation.

equipment locations. Specialized reviews should be used when uniqueness or special design considerations warrant.

d. The responsibilities of the verifier, the areas and features to be verified, the pertinent considerations to be verified, and the extent of documentation are identified in procedures.

Response

a. Procedures and/or instructions shall be written which include measures to assure the design verification activities.

Design adequacy shall be verified by an independent design review. Design verification shall be performed by any competent individual or group of individuals other than those who performed the original design. This verification may of necessity be performed by the design originator's immediate supervisor, provided the supervisor did not specify a singular design approach, or rule out certain design considerations, or if the supervisor is the only individual in the organization competent to perform the verification. In such instances, this need shall be individually documented and approved in advance by the supervisor's management. The original design and associated verification measures shall be documented and referenced in the files of subsequent application of the design.

Applicable QA Audits will verify the frequency and effectiveness of use of supervisors as design verifiers.

b. Procedures and/or instructions shall be written which include measures to assure that design verification, other than by qualification testing, will be completed prior to release for use in other design activities. In those cases where this can not be met, the verification will be deferred and documented, but not passed the point where installation would be irreversible. In all cases, the design verification will be completed before fuel load, (or after Limerick is in operation), prior to relying upon the component, system, or structure to perform its safety function.

c. Procedures and/or instructions shall be written which include measures to assure that design documents reflect the commitments of the Limerick FSAR and procedures which differentitate between documents that receive formal design verification by

Question 260.23

Describe those provisions which assure procedures are established for design verification activities which assure the following:

a. The verifier is qualified and is not directly responsible for the design (i.e., neither the performer or his immediate supervisor). In exceptional circumstances, the designer's immediate supevisor can perform the verification provided:

   (1) The supervisor is the only technically qualified individual.

   (2) The need is individually documented and approved in advance by the supervisor's management.

   (3) QA audits cover frequency and effectiveness of use of supervisors as design verifiers to guard against abuse.

b. Design verification, if other than by qualification testing of a prototype or lead production unit, is completed prior to release for procurement, manufacturing, construction or to another organization for use in other design activities. In those cases where this timing cannot be met, the design verificaion may be deferred, providing that the justification for this action is documented and the unverified portion of the design output document and all design output documents, based on the unverified data, are appropriately identified and controlled. Construction site activities associated with a design or design change should not proceed without verification past the point where the installation would become irreversible (i.e., require extensive demolition and rework). In all cases, the design verification should be complete prior to fuel load for a plant under construction, or in the case of an operating plant, prior to relying upon the component, system, or structure to perform its function.

c. Procedural control is established for design documents that reflect the commitments of the SAR; this control differentiates between documents that receive formal design verification by interdisciplinary or multi-organizational teams and those which can be reviewed by a single individual (a signature and date is acceptable documentation for personnel certification). Design documents subject to procedural control include, but are not limited to, specifications, calculations, computer programs, system descriptions, SAR wher used as a design document, and drawings including flow diagrams, electrical single line diagrams, structural systems for major facilities, site arrangements, and

Question 260.22

Describe those provisions which assure guidelines or criteria are established for determining the method of design verification (design review, alternate calculations, or test).

Response

Section 17.2A.3.3, Limerick FSAR, states in part: Design control measures shall be applied to verify or check the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.

Design adequacy of minor modifications shall be an independent design review in accordance with Limerick Administrative Procedures. These reviews shall be performed by cognizant engineers on the plant staff, in the appropriate Division of the E&R Department, or in some cases by the Engineering Section in the Maintenance Division and Services Division of the Electric Production Department. The reviews shall consist of reviewing the design, spot checking the calculations or analysis, and assessing the results against the original design basis and functional requirements.

Section 17.2A.3.4, Limerick FSAR, states in part: Instructions for the design of minor modifications shall be written to require compliance to regulatory requirements as defined in 10CFR50.59, and as defined in the license application in accordance with the design basis of the structures, systems, or components.

Minor modifications are normally of a scale which do not require design interfaces and coordination among different design organizations.

Major modification design control is stated in Section 17.2B.3, Limerick FSAR.

Section 17.2B.3.2, Limerick FSAR

The responsible engineering organizations assure that design drawings and specifications are prepared, reviewed, and approved in accordance with procedures and that these documents contain the necessary quality assurance requirements, such as inspection and test requirements, acceptance requirements, and the extent of documenting inspection and test results.

Question 260.21

In addition to the design controls specified in Section 17.2A and 17.2B, describe those provisions which assure procedures are established requiring that design drawings and specifications be reviewed by the QA organization to assure that the documents are prepared, reviewed, and approved in accordance with company procedures and that the documents contain the necessary quality assurance requirements such as inspection and test requirements, acceptance requirements, and the extent of documenting inspection and test results.

Response

Section 17.2B.3.2, Limerick FSAR, has been revised to provide additional information.

Section 17.2A.3.2.1, Limerick FSAR

The initial determination of whether a particular proposed modification is to be considered Major or Minor shall be the responsibility of the Station Superintendent with the concurrence of PORC prior to the implementation of the modification.

Section 17.2A.3.2.1, Limerick FSAR, has been added to provide additional information.

Question 260.20

Describe those provisions which assure procedures are established requiring a documented check to verify the dimensional accuracy and completeness of design drawing and specifications.

Response

Section 17.2A.3.2 states in part: Plant modifications shall be controlled and administered by Administrative Procedures and shall be categorized as major or minor. Design and design control measures for minor modifications shall be established in Administrative Procedures for plant modifications.

Major modifications shall be defined by the Limerick Administrative Procedures and may be referred to and accomplished by the E&R Department in accordance with Section 17.2B.

In certain cases, major modifications may be implemented by the Electric Production Department, provided such modifications are designed by the original designer (NSSS, A/E or Equipment designer) and reviewed by cognizant PECo personnel.

Section 17.2A.3.3 states in part: Design control measures shall be applied to verify or check the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.

Design adequacy of minor modifications shall be an independent design review in accordance with Limerick Administrative Procedures. These reviews shall be performed by cognizant engineers on the plant staff, in the appropriate Division of the E&R Department, or in some cases by the Engineering Section in the Maintenance Division and Services Division of the Electric Production Department. The reviews shall consist of reviewing the design, spot checking the calculations or analysis, and assessing the results against the original design basis and functional requirements.

Question 260.19

Provide a commitment to continue implementation of the PSAR QA program for the remaining design and construction activities or describe an acceptable alternative.

Response

As indicated in Section 17.1, the PSAR QA Program will continue to be implemented for the remaining design and construction activities.

Question 260.18

Describe those provisions for assuring the QA program for operations is implemented at least 90 days prior to fuel loading.

Response

Section 17.2.1.2.1, Limerick FSAR, states in part: The Electric Production Department is responsible for quality assurance in the Operating Nuclear Plant from the acceptance of each system, from the Architect/Engineering (Start-up Phase, and at least 90 days prior to initiation of fuel loading.

The capabilities of a candidate for certification shall be initially determined by a suitable evaluation of the candidates education, experience, training, tests results or capability demonstration. In lieu of the required education or experience, documented objective evidence (i.e., procedures and records of written test) shall demonstrate that the individual does have comparable or equivalent competence to that which would be gained from having the required education and experience.

The indoctrination and training program is contained in the Limerick FSAR, Section 13.2. Each division involved in safety-related functions will have procedures which will implement the indoctrination and training program.

Philadelphia Electric will comply with Regulatory Guide 1.58, Revision 1, and ANSI N45.2.6-1978, except for the following clarification and alternates:

a. Regulatory Guide 1.58, Revision 1, Section C.1, and ANSI N45.2.6-1978, Subsection 1.2, states that the standard applies to "personnel who perform inspections, examinations, and tests." Philadelphia Electric Company personnel who inspect equipment as part of plant maintenance, in other than a quality control function; and plant staff personnel (as defined in the Limerick Technical Specifications), who approve test procedures and tests results and direct or supervise the conduct of individual tests, will be qualified in accordance with ANSI/ANS 3.1-1978 in lieu of ANSI N45.2.6-1978.

b. Regulatory Guide 1.58, Revision 1, Section C.4 and ANSI N45.2.6-1978, Subsection 1.5, discuss the applicability of documents referenced in the standard. In lieu of the latest revision of Regulatory Guides and ANSI Standards, PECo commitments are contained in the Limerick FSAR, Section 17.2, "Operational Quality Assurance Program."

c. ANSI N45.2.6-1978, Subsection 3.5, presents experience recommendations for candidates. Experience in maintenance, modification, and operating activities is considered related experience since such experience provides training in the safety aspects of the facility.

Question 260.17

Describe those provisions which assure that the indoctrination and training program includes the following:

a. Proficiency tests are given to those personnel performing and verifying activities affecting quality, and acceptance criteria are developed to determine if individuals are properly trained and qualified.

b. Certificate of qualifications clearly delineates (a) the specific functions personnel are qualified to perform and (b) the criteria used to qualify personnel in each function.

Response

The qualification of personnel, qualified under N45.2.6 - 1978, shall be certified in writing and shall include the following information:

1. Employer's name
2. Identification of person being certified
3. Level of capability
4. Activities certified to perform
5. Basis used for certification including:
   a) Records of education, experience and training
   b) Test results where applicable
   c) Results of capability demonstration
6. Results of periodic evaluations
7. Results of physical examinations when required
8. Signature of employer's designated representative
9. Date of certification and date of certification expiration

Section 17.2B.2.7, Limerick FSAR

PECo E&R Department Management (Vice President) regularly reviews the scope, status, adequacy, and implementation of the QA Program through the following mechanisms:

a. Review and approval of the E&R Department QA Plan

b. Review and approval of the E&R Department Procedures

c. Management is frequently apprised of QA Program status through meetings with Engineer-In-Charge, Quality Assurance Section, routine reports (oral and written), and audit reports (Joint Utility Management Audits, INPO Audits, NRC Inspections and Audits and PECo QA Audits).

d. An approximately annual assessment and review of the QA Program is preplanned and documented. This assessment generally addresses the scope, status, adequacy, and degree of implementation of the program. Corrective action, when needed, is identified and tracked.

Question 260.16

Provide a description of how management (above or outside the QA Organization) regularly assesses the scope, status, adequacy, and compliance of the QA program to 10 CFR, Part 50, Appendix B. These measures should include:

a. Frequent contact with program status through reports, meetings, and/or audits.

b. Performance of an annual assessment preplanned and documented. Corrective action is identified and tracked.

Response

Management (EP Vice President or Manager) regularly assesses the scope, status, adequacy, and compliance of the QA program to 10CFR50, Appendix B.

a. Management is apprised of QA program status through frequent contacts in Staff Meetings and audit reports (O&SR, Joint Utility Management Audits, INPO, NRC, PECo QA Audits).

b. An annual assessment and review of the QA program is preplanned and documented. This annual assessment addresses the scope, status, and adequacy of the QA Program, along with the degree of compliance to the program. Corrective action is identified and tracked.

Section 17.2A.2.7, Limerick FSAR, states: "The Office of the Vice President - Electric Production Department is informed on a continuing basis of the status and effectiveness of the quality assurance program through reports at Vice-Presidential Staff Meetings."

Section 17.2B.2.7, Limerick FSAR, has been revised to provide the requested information.

Question 260.15

Provide a description that emphasizes how the docketed QA program description, particularly the Regulatory Guides listed in Appendix 17.2A.1 and 17.2B.1 of the SAR, will be properly carried out.

Response

The President of the Philadelphia Electric Company has issued a policy statement endorsing the QA Program for nuclear activities. Limerick QA Plan, Volume III (Operations Phase), Administrative Procedures, Implementing Procedures and audits shall provide for properly carrying out PECo commitments to Regulatory Guides listed in Appendix 17.2A.II and 17.2B.II.

The Limerick QA Plan, Volume I, revised as necessary for the operations phase, in conjunction with the implementing procedures will provide for properly carrying out our commitments to the Regulatory Guides listed in Appendix 17.2B.II of the FSAR.

Section 17.2B.2.3, Limerick FSAR, states in part,

> ... Standards, and regulations. The QA Plan will require the Regulatory Guides listed in Section 1.8 of the FSAR, General Design Criterion 1 of Appendix A to 10CFR50, and 10CFR50.55a will be met by documented procedures. Approval of the QA ...

Section 17.2A.2.7, Limerick FSAR

The EP QA Program for Limerick Generating Station will be defined in the Limerick QA Plan, Volume III (Operations Phase). The Plan implements the policies and objectives of the Electric Production Department by addressing the managerial and administrative controls in various operational activities such as: Start-up, Training, Health Physics and Chemistry, Fuel Handling, Shift Operations, Surveillance Testing, Maintenance of Instruments, Maintenance-Electrical and Mechanical, In-Service Inspection, Stores and Purchasing, Modifications, and Plans.

For each of these activities, the QA Plan shall address the eighteen (18) criteria of 10CFR50, Appendix B, and describe how each activity is in compliance with the applicable criteria in Appendix B. Procedures are written to implement all aspects of the QA Plan. A matrix of these procedures or documents is presented in Appendix 17.2A.I to demonstrate that 10CFR50, Appendix B, criteria are fully impiemented by documented procedures.

The Superintendent, QA Division, in his review of Administratrive Procedures, shall insure that regulatory guide commitments are included in the appropriate procedures.

All activities performed within Philadelphia Electric Company are subject to formal periodic audits by EP QA Division. These audits verify that organizations performing these activities are complying with and properly implementing their procedures.

Administrative Procedures for the preparation of documents, such as: drawings, specifications, and procedures, assure that the use of appropriate equipment, suitable environmental conditions, and compliance with necessary prerequisites, are considered, as necessary, to perform activities affecting quality under controlled conditions.

Question 260.14

Identify those existing or proposed QA procedures that require that Regulatory Guides listed in Section 1.8 of the SAR, General Design Criterion 1 of Appendix A to 10 CFR Part 50, and 10 CFR Part 50, 50.55a, will be met by documented procedures. In addition, provide assurance that activities conducted under 10 CFR Part 50, 50.55 (e) will conform to the requirement of the QA program.

Response

Section 17.2A.2.7, Limerick FSAR, has been revised to provide the requested information.

Section 17.2B.2.8, Limerick FSAR, has been revised to provide the requested information.

Regulatory Guides listed in Section 1.8 of the SAR, General Design Criterion 1 of Appendix A to 10CFR50, 10CFR50, 50.55a, and each criterion of 10CFR50, Appendix B, shall be met by proposed QA Procedures.

A matrix of Regulatory Guides listed in Section 1.8 of the SAR versus the applicable Limerick Administrative Procedures shall be developed.

10CFR, Part 50, 50.55(e) is not applicable to the Limerick Operations Phase.

Section 17.2A.2.7, Limerick FSAR

The EP QA Program for Limerick Generating Station will be defined in the Limerick QA Plan, Volume III (Operations Phase). The Plan implements the policies and objectives of the Electric Production Department by addressing the managerial and administrative controls in various operational activities such as: Start-up, Training, Health Physics and Chemistry, Fuel Handling, Shift Operations, Surveillance Testing, Maintenance of Instruments, Maintenance-Electrical and Mechanical, In-Service Inspection, Stores and Purchasing, Modifications, and Plans.

For each of these activities, the QA Plan shall address the eighteen (18) criteria of 10CFR50, Appendix B, and describe how each activity is in compliance with the applicable criteria in Appendix B. Procedures are written to implement all aspects of the QA Plan. A matrix of these procedures or documents is presented in Appendix 17.2A.I to demonstrate that 10CFR50, Appendix B, criteria are fully implemented by documented procedures.

Administrative Procedures for the preparation of documents, such as: drawings, specifications, and procedures, assure that the use of appropriate equipment, suitable environmental conditions, and compliance with necessary prerequisites, are considered, as necessary, to perform activities affecting quality under controlled conditions.

Limerick FSAR

Section 13.5, Limerick FSAR, states in part: It is planned that most administrative and operating procedures will be in effect at least six months prior to fuel loading of Unit 1. The procedures will be implemented with sufficient lead time to ensure that operating personnel can become familiar with them. PECo recongnizes the benefits of using the preoperational testing phase to demonstrate the adequacy of operating procedures and, where practicable, this will be accomplished.

Question 260.13

Describe those provisions which assure that the QA organization and the necessary technical organizations participate early in the QA Program definition stage to determine and identify the extent QA controls are to be applied to specific structures, systems, and components.

Response

Limerick is currently staffed with Electric Production Quality Assurance Personnel, including a Lead Auditor and a Quality Engineer. Corporate QA and technical personnel are available for support when needed by the QA and technical site personnel.

The Quality Assurance Plan for the operations phase of Limerick Generating Station will describe how the QA and the necessary technical organizations are involved and to the extent the QA controls are to be applied to specific structures, systems, and components.

Section 17.2A.2.7, Limerick FSAR, has been revised to provide the requested information.

Section 17.2A.2.8, Limerick FSAR, states in part: The Limerick EP QA Plan applies to activities affecting the quality of systems, components, and structures installed to prevent or mitigate the consequences of an accident which could be harmful to the public. These structures, systems and components are identified through the Limerick Project Q-List and the Quality Assurance diagrams. Although the measures discussed apply primarily to Q-listed equipment, they may also be applied in varying degrees to non-Q listed equipment. The application of these quality assurance measures to non-Q listed systems will additionally enhance operational safety.

Question 260.12

Describe those QA Program provisions which assure that PECo will comply with 10 CFR Part 50, 50.55a; will conduct activities under 10 CFR Part 50, 50.55(e) in accordance with the QA program; and will comply with 10 CFR 50, Appendix A, General Design Criterion 1 for the Limerick Station, Units 1 and 2.

Response

Philadelphia Electric Company will comply with 10CFR50, 50.55a and 10CFR50, Appendix A, General Design, Criterion 1, for all safety-related activities for the Limerick Station.

10CFR Part 50, 50.55(e) is not applicable to the Limerick Operations Phase.

Question 260.11

Describe those provisions for notifying NRC of changes (1) for review and acceptance in the accepted description of the QA program as presented or referenced in the SAR prior to implementation, and (2) in organization elements within 30 days after announcement. (Note - editorial changes or personnel reassignments of nonsubstantive nature do not require NRC notification).

Response

Notification of changes in the QA Program as presented or referenced in the FSAR will be in accordance with 10CFR50.54 and 10CFR50.55 as promulgated on January 10, 1983 (48FR1026).

Question 260.10

Describe or reference the QA program that will apply to the fire protection program.

Response

The Limerick QA Plan, Volume III (Operations Phase) and Volume I (Design and Construction Phase) for the operating plant shall describe that portion of the QA Program that is applicable to the Fire Protection Program. The QA Plan: 1) shall discuss each of the applicable eighteen (18) criteria in 10CFR50, Appendix B, as appropriate to the Fire Protection Program; 2) shall assure that 10CFR50, Appendix R, is implemented and; 3) shall be consistent with BTP CMEB 9.5.1 Guidelines for Fire Protection for Nuclear Power Plants, Rev. 2, July 1981.

Section 17.2A.2.7, Limerick FSAR

Add:

The development, control, and use of computer code programs, commensurate with its importance to safety, shall be conducted in accordance with a QA program. Software, commensurate with its importance to safety, used in the operational phase of Limerick Generating Station shall be subject to verification by Philadelphia Electric Company or other qualified personnel. Measures shall be established to assure that computer codes are appropriate for their specific applications.

Question 260.9

Describe those provisions which assure that the development, control and use of computer code programs associated with items important to safety will be conducted in accordance with the QA program and a description of how the QA program will be applied.

Response

Section 17.2A.2.7, Limerick FSAR, has been changed to provide this information.

Noncompliances are tracked by the organization responsible for the activity as delineated in the Limerick QA Plan, Volume III (Operations Phase).

Question 260.8

Identify the position responsible for the onsite QA/QC program and describe those provisions which assure this position has appropriate organizational responsibilities and authority to exercise proper control over the QA program.

Response

The Limerick QA/QC Program has been established by the VP - Electric Production, Superintendent, Nuclear Generation Division and Superintendent, QA Division.

Superintendent, Nuclear Generation Division, the Plant Superintendent and other Organizational Superintendents who may be involved in quality related activities are responsible for implementation of the QA Program.

The Superintendent, QA Division, is responsible verification of
I compliance to the QA Program through Audits and Surveillances. The QA Site Supervisor is responsible for the Auditing and Surveillance Program and the Site QA Engineer is responsible for Planning and Review Functions.

The Limerick QA Site Supervisor and the Limerick QA Site Engineer are responsible for directing and managing the site QA Division program. These individuals will be free from non-QA duties and will give full attention to assuring that the QA program at the Limerick site is being effectively implemented. These positions are indicated in Figure 17.2-3. Both of these positions are dedicated, full time QA Division positions located at the Limerick Site.

Material receipt, radwaste, and security inspection will be under the direction of a Limerick engineering staff. Maintenance QC activities will be under the direction of Maintenance Headquarters Group, Engineering Section. Construction QC Activities will be under the direction of the Engineer - QC, Construction Division which will include material receipt inspection for material procured for the Engineering & Research Department.

I Section 17.2.1.2.3, Limerick FSAR

The Superintendent, QA Division, shall have a Bachelor's Degree or the equivalent in an engineering or science subject and shall have a minimum of ten (10) years of responsible administrative or operating experience in the Electric Production Department of which a minimum of three (3) years shall be in the field of power plant operation, safety, and/or Quality Assurance. A maximum of four (4) years of the remaining seven (7) years of experience may be fulfilled by satisfactory completion of academic or related technical training on a one-for-one time basis."

The Superintendent shall have a knowledge of QA Regulations, policies, practices and standards. The education and experience requirements specified should not be treated as absolute, as management retains the right to evaluate alternate experience and administrative training to qualify for this position.

Question 260.7

Describe the qualification requirements of the QA Manager which includes the following prerequisites:

a. Management experience through assignments to responsible positions

b. Knowledge of QA regulations, policies, practices, and standards.

c. Experience working in QA or related activity in reactor design, construction, operation or in a similar high technological industry.

The qualifications of the QA Manger should be at least equivalent to those described in Section 4.4.5 of ANSI/ANS-3.1-1978, "Selection and Training of Nuclear Power Plant Pesonnel," as endorsed by the regulatory positions in Regulatory Guide 1.8.

Response

Section 17.2.1.2.3, Limerick FSAR, has been revised to provide this information.

Section 17.2A.2.11, Limerick FSAR

Information concerning plant conditions and status should be made available to QA Division personnel to enable responsible QA supervision to determine when surveillances should be performed. This information may be in the form of communications with plant management or staff personnel through daily or periodic meetings. In addition, during the daily inspection, QA Division personnel shall periodically review operating logs, maintenance work schedules, the fuel handling operations schedule, the in-service inspection program, and modification proposals, which assure that QA Division personnel are involved in day-to-day activities that are important to safety.

Question 260.6

Describe those provisions which assure that designated QA/QC individuals are involved in day-to-day plant activities important to safety (i.e., the QA/QC organizations routinely attend and participate in daily plant work schedule and status meetings to assure they are kept abreast of day-to-day work assignment throughout the plant and that there is adequate QA/QC coverage relative to procedural and inspection controls, acceptance criteria, and QA/QC staffing and qualification of personnel to carry out QA assignments).

Response

Section 17.2A.2.11, Limerick FSAR, has been added to provide additional information.

The provision which assures verification of conformance to established requirements is accomplished by members of the Construction Division, Maintenance Division, and Research and Testing Division, which are not part of the QA Division. All QC functions are separated from the Electric Production Department, Quality Assurance Division.

Section 17.2.1.3.5.3, Limerick FSAR

The Research and Testing Division Quality Control Group is comprised of appropriate disciplines and has no responsibility for scheduling and cost. This group is responsible for inspecting work performed by the field forces, and for performing their nonconformance reporting and corrective action responsibilities in accordance with established procedures. The QC Inspectors have the authority to stop unsatisfactory work and to control further processing or installation of nonconforming material. This stop work authority will be delineated in applicable procedures. Personnel will be assigned to the QC group on a continual basis and will be qualified in accordance with Regulatory Guide 1.58, as described in Appendix 17.2B.II.

Section 17.2.1.3.5.2, Limerick FSAR

The responsibilities of the Research and Testing Division include:

a. Planning, scheduling and performing installation and testing

b. Providing installation and testing instructions as appropriate

c. Preparing and implementing installation and testing QC inspection requirements

d. Conducting tests of instrumentation and control equipment, protective relays and devices, transformers, switchgear, generators, voltage regulators and computers

e. Calibrating measuring and test equipment

The Station Tests Section is also responsible for the testing, calibration and maintenance of instrumentation and control equipment. These activities are originated through the LGS operating Staff and are performed under Electric Production QA Programs.

Section 17.2.1.3.5.1, Limerick FSAR

The Metallurgical Group of the Energy Conversion Research Section is responsible for activities performed under the Engineering and Research QA Plan in the areas of metallurgy, nondestructive testing and welding.

Section 17.2.1.3.4.3, Limerick FSAR

The Construction Division Senior Engineer-QC is responsible for establishing and implementing the Construction Division's QC inspection program. The Senior Engineer-QC has no responsiblity for scheduling or cost. The qualification requirements for the Senior Engineer-QC include a background in construction practices and procedures, and a working knowledge of applicable codes and specifications. The responsibilities of the Senior Engineer-QC include: preparing, revising, and controlling distribution of Construction Division Procedures, providing QC indoctrination and training for Construction Division personnel, overseeing the activities of the Engineer-QC and Construction Division QC Group; and providing a liaison between the Construction Division and the Quality Assurance Section. The Senior Engineer-QC effects implementation of the QC program through the authority of the Office of the General Superintendent.

The Engineer-QC is the site representative of the Senior Engineer-QC. The Engineer-QC is responsible for directly overseeing the QC inspection activities of the Construction Division Site QC Group, and assisting the Senior Engineer-QC with his responsibilities.

The Construction Division QC Group will be comprised of appropriate disciplines, such as, mechanical, electrical, and structural. The QC Group is responsible for inspection of work performed by the field forces, for performing receipt inspections of procured material, for identifying and reporting nonconformances, and for verifying corrective action in accordance with established procedures. The QC Inspectors have the authority to stop unsatisfactory work and to control further processing or installation of nonconforming material. This stop work authorization will be delineated in applicable procedures. Personnel will be assigned to the QC Group on a continual basis and will be qualified in accordance with Regulatory Guide 1.58, as described in Appendix 17.2B.II.

Section 17.2.1.3.4.2, Limerick FSAR

The Construction Engineers Branches, headed by the Supervising Engineers, consist of group leaders, Construction Engineers, and Field Assistants who are responsible for planning and scheduling modifications and for following work performed by the field forces or the contractors.

Section 17.2.1.2.5.4.1, Limerick FSAR

The Inservice Inspection Group is responsible for directing, controlling, and coordinating NDE activities performed in accordance with the ASME B&PV Code, Section XI.

This Group is also responsible for performing Nondestructive Testing and has primary responsibility for QC inspection within the Maintenance Division.

The Inservice Inspection Group shall review Maintenance and Inspection Procedures for the need for inspection, identification of inspection personnel required and documentation of inspection results and that the necessary inspection requirements, methods and acceptance criteria have been identified.

The QC Inspectors are permanently assigned to the Inservice Group and are experienced in various disciplines (e.g. electrical, mechanical, structural, etc). If additional QC personnel are needed, qualified personnel can be assigned from the Engineering Group of the Nuclear Branch. These temporarily assigned personnel shall report to the Inservice Inspection Group.

Section 17.2.1.2.5.4, Limerick FSAR

The Engineering Section, under the supervision of the Engineer-in-Charge, is located at Maintenance Division Headquarters, and reports to the Superintendent, Maintenance Division. This section is administratively independent from plant operations and station maintenance and is responsible for the performance of QC inspections of quality-related maintenance activities and, as delineated in applicable procedures, may stop any maintenance work it judges is being conducted so as to be a serious quality degradation. The QC Personnel will be qualified in accordance with Regulatory Guide 1.58 as described in Appendix 17.2A.II. Inspection personnel have sufficient authority and organization freedom in order to: Identify quality problems; recommend corrective action through designated channels; and verify implementation of corrective action. One or more members of the Section shall be designated to provide technical assistance and engineering support to Limerick Maintenance personnel.

QA OPERATIONS

Section 17.2.1.2.3.1, Limerick FSAR, states in part: The Superintendent, Quality Assurance Division, has the following responsibilities and authorities:

...

h. Direct immediate cessation of work when such work is considered by the Superintendent, Quality Assurance Division, to be a serious quality degradation. This work stop authority shall be delineated in applicable procedures.

Research and Testing

Section 17.2.1.3.5.1, Limerick FSAR, has been revised to provide additional information.

Section 17.2.1.3.5.2, Limerick FSAR, has been revised to provide additional information.

Section 17.2.1.3.5.3, Limerick FSAR, has been revised to provide additional information..

Question 260.5

Describe those provisions which assure that designated QA and QC personnel, sufficiently free from direct pressures for cost/schedule, have the responsibility delineated in writing to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming material.

Response

The provisions which assure that verification of conformance to established requirements is accomplished by members of the Construction Division, Maintenance Division, and Research and Testing Division which are not part of the QA Division. All QC operations are separated from the Electric Production Department, Quality Assurance Division.

QC OPERATIONS

Maintenance

Section 17.2.1.2.5.4, Limerick FSAR, has been revised to provide additional information.

Section 17.2.1.2.5.5, Limerick FSAR, has been revised to provide additional information.

Construction

Section 17.2.1.3.4.2, Limerick FSAR, has been revised to provide additional information.

Section 17.2.1.3.4.3, Limerick FSAR, has been revised to provide additional information.

solutions through designated channels, and verify implementation of solutions.

Initiate and recommend corrective action or provide solutions through designated channels.

c. Verify implementation of solutions:

Section 17.2.1.2.3.1.g

Require reaudit for the purpose of verification of corrective action and problem resolution for items affecting quality.

These actions will be carried out by:

Section 17.2.1.2.3.1.j

Apprise the Office of the Vice President of the Electric Production Department periodically of the status of the Quality Assurance aspects of Limerick operation and immediately of significant problems affecting quality.

Section 17.2.1.2.3.1.h

Direct immediate cessation of work when such work is considered by the Superintendent, Quality Assurance Division to be a serious quality degradation. This stop work authority will be delineated in applicable procedures.

d. As described in Section 17.2.1.3.2, the E&R QA Organization has direct access to management levels which will assure the ability to identify quality problems, initiate, recommend, or provide

Question 260.4

Describe those provisions which assure that persons and organizations performing QA functions have direct access to management levels which will assure the ability to:

a. Identify quality problems.

b. Initiate, recommend, or provide solutions through designated channels.

c. Verify implementation of solutions.

Response

The responsibilities and authorities of the Superintendent of the Quality Assurance Division state in part from Section 17.2.1.2.3.1 of Limerick FSAR that will assure the ability to:

a. Identify quality problems:

Section 17.2.1.2.3.1.f

Determine the on-going status and adequacy of the EP QA Plan through regular review of the QA Division auditing program, identification and investigation of problem areas, and determination of timely and effective steps taken to correct deficiencies.

b. Initiate, recommend, or provide solutions through designated channels:

Section 17.2.1.2.3.1.i

Section 13.1.2.19, Limerick FSAR

The position titles, applicable operator licensing requirements, and minimum number of personnel for each shift are described in Table 13.1-2 for the various combinations of units in either the operating or cold shutdown mode. Six shifts provide 24-hours-per-day, 7-days-per-week operating coverage.

In addition to the above, Shift Technical Advisors (STAs) are assigned. The STA is available to report promptly to the control room following notification to perform the accident assessment function during a plant transient. The STA has no duties or responsibilities for manipulation of controls or command of operations during the transient. The STA shall monitor routine plant operation by surveillance of plant systems to insure that system performance or line-up is in accordance with applicable Tech. Specs. During a transient, the STA observes control room instrumentation and, emergency core cooling system (ECCS) operation and availability to determine that the transient is proceeding as predicted. The STA advises the shift superintendent of significant adverse conditions. After a stable condition has been achieved, the STA aids shift personnel in analysis of the transient to determine the cause and technical specification implications.

Section 17.2.1.B.5.3, Limerick FSAR

The Research and Testing Division Quality Control Group is comprised of appropriate disciplines and has no responsibility for scheduling and cost. This group is responsible for inspecting work performed by the field forces, and for performing their nonconformance reporting and corrective action responsibilities in accordance with established procedures. The QC Inspectors have the authority to stop unsatisfactory work and to control further processing or installation of nonconforming material. This stop work authority will be delineated in applicable procedures. Personnel will be assigned to the QC group on a continual basis and will be qualified in accordance with Regulatory Guide 1.58 as described in Appendix 17.2B.II.

Section 17.2.1.3.5.2, Limerick FSAR

The responsibilities of the Research and Testing Division include:

a. Planning, scheduling and performing installation and testing

b. Providing installation and testing instructions as appropriate

c. Preparing and implementing installation and testing QC inspection requirements

d. Conducting tests of instrumentation and control equipment, protective relays and devices, transformers, switchgear, generators, voltage regulators and computers

e. Calibrating measuring and test equipment

The Station Tests Section is also responsible for the testing, calibration and maintenance of instrumentation and control equipment. These activities are originated through the LGS operating Staff and are performed under Electric Production QA Programs.

Section 17.2.1.3.5.1, Limerick FSAR

The Metallurgical Group of the Energy Conversion Research Section is responsible for activities performed under the Engineering and Research QA Plan in the areas of metallurgy, nondestructive testing and welding.

Section 17.2.1.3.4.3, Limerick FSAR

The Construction Division Senior Engineer-QC is responsible for establishing and implementing Construction Division's QC inspection program. The Senior Engineer-QC has no responsiblity for scheduling or cost. The qualification requirements for the Senior Engineer-QC include a background in construction practices and procedures, and a working knowledge of applicable codes and specifications. The responsibilities of the Senior Engineer-QC include: preparing, revising, and controlling distribution of Construction Division Procedures, providing QC indoctrination and training for Construction Division personnel, overseeing the activities of the Engineer-QC and Construction Division QC Group; and providing a liaison between the Construction Division and the Quality Assurance Section. The Senior Engineer-QC effects implementation of the QC program through the authority of the Office of the General Superintendent.

The Engineer-QC is the site representative of the Senior Engineer-QC. The Engineer-QC is responsible for directly overseeing the QC inspection activities of the Construction Division Site QC Group, and assisting the Senior Engineer-QC with his responsibilities.

The Construction Division QC Group will be comprised of appropriate disciplines, such as, mechanical, electrical, and structural. The QC Group is responsible for inspection of work performed by the field forces, for performing receipt inspections of procured material, for identifying and reporting nonconformances, and for verifying corrective action in accordance with established procedures. The QC Inspectors have the authority to stop unsatisfactory work and to control further processing or installation of nonconforming material. This stop work authorization will be delineated in applicable procedures. Personnel will be assigned to the QC Group on a continual basis and will be qualified in accordance with Regulatory Guide 1.58, as described in Appendix 17.2B.II.

Section 17.2.1.3.4.2, Limerick FSAR

The Construction Engineers Branches, headed by the Supervising Engineers, consist of group leaders, Construction Engineers, and Field Assistants who are responsible for planning and scheduling modifications and for following work performed by the field forces or the contractors.

Section 17.2.1.3.4.1, Limerick FSAR

The Office of the General Superintendent, consisting of the General Superintendent and the Assistant General Superintendent, coordinates and supervises the work of the Electrical and Mechanical Sections and the Construction Division's QC Group. The Electrical Section Superintendent and the Mechanical Section Superintendent are responsible for the work of the individual Branches within their respective Sections. The Field Forces Branches, headed by the Supervisors - Field Construction, consist of Supervisors, foremen, subforemen, and skilled craftsmen of various trades who are responsible for the actual installation of Modifications.

Section 17.2.1.2.5.4.2, Limerick FSAR

The Nuclear Branch provides technical assistance when necessary to all sections of the Maintenance Division. This group also is responsible for writing Maintenance Procedures and establishing QC Inspection Hold Points.

When necessary, personnel in this group can be used as QC Inspectors. When used as QC Inspectors, such personnel shall be temporarily assigned to the Inservice Inspection Group.

Section 17.2.1.2.5.4.1, Limerick FSAR

The Inservice Inspection Group is responsible for directing, controlling, and coordinating NDE activities performed in accordance with the ASME B&PV Code, Section XI.

This Group is also responsible for performing Nondestructive Testing and has primary responsibility for QC inspection within the Maintenance Division. This group is administratively independent from cost and scheduling.

The Inservice Inspection Group shall review Maintenance and Inspection Procedures for the need for inspection, identification of inspection personnel required and documentation of inspection results and that the necessary inspection requirements, methods and acceptance criteria have been identified.

The QC Inspectors are permanently assigned to the Inservice Inspection Group and are experienced in various disciplines (e.g. electrical, mechanical, structural, etc). If additional QC personnel are needed, qualified personnel can be assigned from the Nuclear Branch of the Engineering Section. These temporarily assigned personnel shall report to the Inservice Inspection Group.

Section 17.2.1.2.5.4, Limerick FSAR

The Engineering Section, under the supervision of the Engineer-in-Charge, is located at Maintenance Division Headquarters, and reports to the Superintendent, Maintenance Division. This section is administratively independent from plant operations and station maintenance and is responsible for the performance of QC inspections of quality-related maintenance activities and as delineated in applicable procedures, may stop any maintenance work it judges is being conducted so as to be a serious quality degradation. The QC personnel will be qualified in accordance with Regulatory Guide 1.58 as described in Appendix 17.2A.II. Inspection personnel have sufficient authority and organization freedom in order to: Identify quality problems; recommend corrective action through designated channels; and verify implementation of corrective action. One or more members of the Section shall be designated to provide technical assistance and engineering support to Limerick Maintenance personnel.

Research and Testing

Section 17.2.1.3.5.1, 17.2.1.3.5.2 and 17.2.1.3.5.3, Limerick FSAR, have been revised to provide additional information.

LGS Staff

Section 13.1.2.19, Limerick FSAR, has been revised to provide additional information.

Question 260.3

Describe those provisions which assure that verification of conformance to established requirements is accomplished by individuals or groups within the QA organization who do not have direct responsibility for performing the work being verified. If this function is performed by individuals other than the QA organization, then identify the organizational position and the QA/QC qualification of that position.

Response

The provisions which assure that verification of conformance to established requirements is accomplished by members of the Construction Division, Maintenance Division, and Research and Testing Division which are not part of the QA Division. All QC operations are separated from the Electric Production Department, Quality Assurance Division. All QC Inspectors will be qualified to ANSI N45.2.6.

All Auditors are part of the QA Division and are qualified to ANSI N45.2.23.

Maintenance

I Section 17.2.1.2.5.4, 17.2.1.2.5.4.1 and 17.2.1.2.5.4.2, Limerick FSAR, have been revised to provide additional information.

Construction

Section 17.2.1.3.4.1, 17.2.1.3.4.2, and 17.2.1.3.4.3,Limerick FSAR, have been revised to provide additional information.

Question 260.2

Describe the criteria for determining the size of the QA organization including the inspection staff.

Response

The criteria that is being used to determine the size of the Limerick QA organization is the experience obtained from the startup and operations of the Peach Bottom Station.

The Limerick site will have a core group of auditors dedicated to the site and they will be augmented as required by the Corporate Auditors. The site auditors will be directed by a dedicated site supervisor. One of the QA Engineers will also be dedicated to the site.

The QC Inspection Staff for the Construction Division, Maintenance Division and Testing Section will be on the site as required. When needed QC Inspection Staffs will be augmented with qualified vendor personnel. The criteria that is being used to determine the site Radwaste QC Inspection and Receipt Inspection will be based on the experience obtained from the operations of the Peach Bottom Station.

Question 260.1

Identify in more detail on organizational charts all the "on-site" and "off-site" organizational elements which function under the cognizance of the QA program (such as design, engineering, procurement, manufacturing, construction, inspection, test, instrumentation and control, nuclear engineering, operations, and maintenance).

Response

The Operation and Maintenance of Limerick are all part of the Electric Production Department, as shown in Figure 17.2-2 of the Limerick FSAR. One division of the Electric Production Department is the Quality Assurance Division, as shown in Figure 17.2-3. The Maintenance Division is shown on Figure 17.2-4, with the details of the on-site group shown in Figure 17.2-5. The on-site Station Organization is shown on Figure 13.1-2.

The Engineering and Research organization charts (Figures 17.2.11, 17.2.8, 17.2.12) show the branches, "on-site" (S) or "off-site" (O), which function under the E&R QA program. All "on-site" organizations are located at the Limerick Generating Station construction site. "Off-site" organizations are located at PECo's Main Office in Philadelphia, with the exception of the Plymouth Tests Branch (Research and Testing Division) which, is located in Plymouth Meeting, PA.

Figure 17.2-1B is a functional QA/QC Diagram of organizations within the Electric Production Department and the Engineering and Research Department.

Figures 17.2-1B, 17.2-3, 17.2-7, 17.2-10, and 17.2-11 outline the approximate personnel staffing for QA/QC organizations involved in Peach Bottom and Limerick Stations.

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CHAPTER 17

QUALITY ASSURANCE

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CHAPTER 17 QUALITY ASSURANCE

PHILADELPHIA ELECTRIC COMPANY

ENGINEERING AND RESEARCH DEPARTMENT

17.1 Quality Assurance During Design and Construction

Philadelphia Electric Company (PECO) Engineering and Research (E&R) Department has established and implemented a quality assurance program to assure that Limerick Generating Station Units 1 and 2 are designed, fabricated, constructed, inspected, and tested in accordance with applicable codes, specifications, and regulations. The program, which is described in Appendix D and Supplement No. 1 of the Preliminary Safety Analysis Report, begins with the design of the plant and proceeds through the phases of component procurement, manufacture and construction to plant completion including the pre-operational tests and inspections.

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CHAPTER 17

QUALITY ASSURANCE

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CHAPTER 17

QUALITY ASSURANCE

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17.2 QUALITY ASSURANCE DURING THE OPERATIONS PHASE

Philadelphia Electric Company is responsible for assuring that Limerick Generating Station (LGS) is operated, maintained, and modified in accordance with applicable regulatory requirements.

To assure the quality of safety-related activities during the operations phase, Philadelphia Electric Company has established a management control plan which complies with 10CFR50, Appendix B. This plan consists of (1) the Electric Production Department Quality Assurance Program and the Engineering and Research Department Quality Assurance Program which contain Philadelphia Electric Company's quality assurance commitments to the Nuclear Regulatory Commission, (2) Quality Assurance Plans for each of the above departments which contain a description of policies and program elements to implement the commitments to the NRC, and (3) organizational unit procedures necessary for the unit to comply with the requirements of the QA Programs and Plans.

The Electric Production Department Quality Assurance Program and the Engineering and Research Department Quality Assurance Program are described in Section 17.2A and Section 17.2B respectively. These programs comply with the requirements of 10CFR50, Appendix B and are based on the recommendations of QA related NRC Regulatory Guides and associated Industry Standards. Compliance to these regulatory guides and standards is addressed in Appendices to Section 17.2A and Section 17.2B.

17.2.1 ORGANIZATION

The Philadelphia Electric Company corporate structure is shown on the Company Organization Chart (Figure 17.2-1). The 12 departments are directed by their Vice Presidents, who report to the Office of the Chief Executive. The following Departments are involved in LGS Quality Assurance related activities in operations, engineering design, procurement, fabrication, inspecting, testing, and auditing: Electric Production, Engineering and Research, Purchasing & General Services, and Legal.

17.2.1.1 Office of the Chief Executive

The Chairman of the Board of Directors and Chief Executive Officer, and the President and Chief Operating Officer comprise the Office of the Chief Executive. The President of Philadelphia

Electric Company has the ultimate responsibility for the Quality Assurance Program for LGS.

The President delegates to the Vice President - Electric Production Department and the Vice President - Engineering and Research Department, the responsibilities for instituting and maintaining the Quality Assurance Programs. The Senior Vice President-Nuclear Power acts as the direct agent of executive management in implementing company policies relating to nuclear power and in ensuring their accomplishment.

17.2.1.2 Electric Production Department

The organization of the Electric Production (EP) Department is shown in Figure 17.2-2.

17.2.1.2.1 Office of the Vice President - EP Department

The Department is under the direction of the Vice President - Electric Production, assisted by the Manager - Electric Production. They are responsible for the operation, maintenance and modification of the Company's electric generation facilities and establishment and implementation of Electric Production Department Quality Assurance Program, goals, and objectives.

The Electric Production Department is composed of ~~six~~ seven Divisions: Fossil/Hydro Generation, Quality Assurance, Services, Steam Heating, Nuclear Generation, Maintenance, and System Operation.

The Electric Production Department is responsible for Quality Assurance in plant operation from the acceptance of each system from the Architect/Engineer (Start-up Phase) but at least 90 days prior to initiation of fuel loading, through the life of the plant. The Department is responsible for all phases of operation and maintenance. The Department supplied procurement services, engineering design services, and other support functions from other Philadelphia Electric Company Departments. The Department is divided into functional units allowing centralization of expertise and economic operation.

17.2.1.2.2 Generation Division ~~Nuclear~~

The Generation Division ~~Nuclear~~ organization, duties and responsibilities are described in Section 13.1.

17.2.1.2.2.1

The Station Organization, duties and responsibilities are described in Section 13.1.

17.2.1.2.3 Quality Assurance Division

The Quality Assurance Division (Figure 17.2-3) is responsible for the overall Quality Assurance Program of the Electric Production Department within the framework of corporate Quality Assurance Policy as set forth in the Introduction.

The Division is headed by a Superintendent who reports directly to the Office of the Vice President of the Electric Production Department. The Division is composed of: Engineer-QA; Site Engineer; Engineers, Technical Assistants, and Junior Technical Assistants and QA Assistants who report to the Engineer-QA; General Supervisor-QA; Supervisors, Site Supervisors, Senior Auditors, Auditors, and Assistant Auditors, who report to the General Supervisor-QA.

Qualifications for the position of Superintendent, QA Division, are established by the Vice President, Electric Production Department. At the time of appointment, the Superintendent shall have a bachelors degree or the equivalent in an engineering or science subject and shall have a minimum of 10 years of responsible administrative or operating experience in the Electric Production Department of which a minimum of 3 years shall be in the fields of power plant operation ~~or maintenance~~, safety ~~engineering~~ and/or Quality Assurance. A maximum of 4 years of the remaining 7 years of experience may be fulfilled by satisfactory completion of academic or related technical training on a one-for-one time basis.

The Superintendent shall have a knowledge of QA Regulations, policies, pratices and standards.

The education and experience requirements specified should not be treated as absolute, ~~because~~ as Management retains the right to evaluate alternative experience and administrative training to qualify for this position.

The description of responsibilities and functions of the Superintendent, Quality Assurance Division; Engineer-QA; Engineering Staff; General Supervisor-QA; and auditing personnel are as follows:

17.2.1.2.3.1

The Superintendent, Quality Assurance Division has the following responsibilities and authorities:

a. Formulate, develop, and establish Quality Assurance policy in the areas of operations, maintenance, modifications, in-service inspection, health physics and chemistry, security, training, surveillance testing, audits, records, nonconformance and corrective action.

b. Administration and coordination of the EP Quality Assurance Program.

c. Furnish overall direction for implementing the EP Quality Assurance Program.

d. Review and approve Administrative procedures which implement the EP Quality Assurance Plan.

e. Approve all Quality Assurance Division Procedures and Audit Instructions for the implementation of the EP Quality Assurance Plan.

f. Determine the on-going status and adequacy of the EP QA Plan through regular review of the QA Division auditing program, identification and investigation of problem areas, and determination of timely and effective steps taken to correct deficiencies.

g. Require reaudit for the purpose of verification of corrective action and problem resolution for items affecting quality.

h. Direct immediate cessation of work when such work is considered by the Superintendent, Quality Assurance Division to be a serious quality degradation. This stop work authority will be delineated in applicable procedures.

i. Initiate and recommend corrective action or provide solutions through designated channels.

j. Apprise the Office of the Vice President of the Electric Production Department periodically of the status of the Quality Assurance aspects of LGS operation and immediately of significant problems affecting quality.

k. Control contents and revisions of the EP Quality Assurance Plan.

l. Assure that personnel involved in the implemention of the QA Division Procedures are trained and/or qualified.

m. Contract for consulting services as necessary.

17.2.1.2.3.2

The Engineer-QA is responsible for the following:

a. Prepare and maintain the Quality Assurance Plan and QA Division Procedures and Audit Instructions.

b. Implement and document the Quality Assurance Plan, programs and procedures as applicable.

c. Keep the Superintendent, Quality Assurance Division informed of status of Quality Assurance effort and of significant problem areas.

d. Provide the technical direction of Quality Assurance activities of the Quality Assurance Division Engineering Staff.

e. Maintain a liason with the Plant Staff, other PECO organizations, and outside companies in order to advise and direct quality assurance activities during plant operations and maintenance.

f. Control the distribution of the EP Quality Assurance Plan and revisions thereto.

g. Review the EP Quality Assurance Plan and the QA Division Procedures and Instructions Manual to determine if revisions are required.

h. Maintain a controlled filing system of documentation of activities pertaining to the QA Division's implementation of the EP Quality Assurance Plan.

i. Maintain current codes, standards and regulations pertaining to the Quality Assurance Program.

j. Keep the Superintendent, Quality Assurance Division advised on the status of regulations, codes & standards which may effect the content of the EP Quality Assurance Plan.

17.2.1.2.3.3

The Engineering Staff and site engineers shall be under the direction of the Engineer-QA to accomplish the technical and administrative requirements of the QA Division as assigned.

17.2.1.2.3.4

The General Supervisor-QA has the following responsibilities:

a. Provide administrative supervision and technical direction of the activities of the Quality Assurance Division auditing personnel.

b. Direct the performance of the auditing program in accordance with written procedures to assure compliance with the EP Quality Assurance Plan.

c. Oversee the preparation of Quality Assurance audit check lists.

d. Consult with the Superintendent, Quality Assurance and Engineer - QA on significant problems affecting quality.

e. Review and approve auditing program reports.

f. Keep the Engineer-QA advised of deficient areas identified by the auditing program.

g. Assure that items requiring corrective action, identified by the auditing program, are included in rescheduled audits and surveillances.

h. Schedule and direct the planning of auditing program to assure compliance with the EP QA Plan.

i. Recommend to the Superintendent, Quality Assurance, the issuance of Noncompliance Reports as a result of reviews of the QA Division auditing program and other activities.

17.2.1.2.3.5

Under the technical direction and the administrative supervision of the General Supervisor-QA, auditing personnel have the responsibility to:

a. Conduct the auditing program in accordance with the QA Division Procedures and Instructions Manual to assure compliance with the EP Quality Assurance Plan.

b. Provide continuing awareness of plant conditions and status of daily on-site activities in order to inform the General Supervisor-QA of plant activities affecting quality.

c. Prepare audit and surveillance reports.

d. Identify problems adverse to quality through the auditing program and notify management of the audited organization in accordance with applicable procedures. Initiate or recommend corrective action through designated channels.

e. Verify implementation of corrective action of problems adverse to quality.

f. Verify compliance with quality related procedures and instructions.

g. Keep the General Supervisor-QA advised of status of the Quality Assurance Program through the QA Division auditing program.

17.2.1.2.4 Services Division

The Services Division is under the supervision of a Superintendent who reports to the Office of the Vice President - Electric Production. The Division is composed of the Costs Section, the Computer Applications Section, the Chemistry Section, and the fuels section, and has responsibility for administrative and engineering support.

17.2.1.2.4.1

The Chemistry Section, under the direction of the Chief Chemist, who reports to the Superintendent, Services Division, is responsible for assisting the plant staff in the performance of routine and special tests of a chemical nature.

17.2.1.2.5 Maintenance Division

The Maintenance Division (Figure 17.2-4), under the Superintendent who reports to the Office of the Vice President, is responsible for the Maintenance activities at all generating stations, steam plants, and certain substations. The Division is composed of five Sections: Station, Mechanical, Electrical, Engineering, and Administrative. The duties and responsibilities of the Maintenance Division Sections associated with LGS plant maintenance are as follows:

17.2.1.2.5.1

The Station Section, under its Superintendent, is made up of Area Groups each of which is under a Supervisor who is responsible for the coordination of work and labor usage within his area.

A Maintenance group, under an Area Supervisor, is assigned to the Limerick Generating Station. This group consists of sufficient

qualified craftsmen and supervision as necessary to carry out routine maintenance functions at the station.

The Maintenance Foremen, at the Limerick Generating Station, report to an Area Supervisor and are responsible for planning and supervising maintenance programs which are originated through the Engineer-Maintenance and supervise assigned work.

17.2.1.2.5.2

The interface between station maintenance forces, the operating staff and Maintenance headquarters is shown in Figure 17.2-5.

17.2.1.2.5.3

The Mechanical Section and the Electrical Section, each under a Superintendent, consist of the Mobile Groups, Planning Group, and Electrical Groups. These Maintenance forces, made up of supervisors and craftsmen, are administratively headquartered at the Maintenance Division central repair shop and are available for major outage or emergency work at any of the Company facilities including Limerick Generating Station. The central repair shop has facilities for fabricating components for use at LGS and inspecting or repairing components which are shipped from the site.

17.2.1.2.5.4

The Engineering Section, under the supervision of the Engineer-in-Charge, is located at Maintenance Division Headquarters and reports to the Superintendent, Maintenance Division. This Section is administratively independent from plant operations and station maintenance and is responsible for the performance of QC inspections of quality-related maintenance activities and, as delineated in applicable procedures, may stop any maintenance work it judges is being conducted so as to be a serious quality degradation. Inspection personnel have sufficient authority and organizational freedom in order to: Identify quality problems; recommend corrective action through designated channels; and verify implementation of corrective action. One or more members of the Section shall be designated to provide technical assistance and engineering support to LGS Maintenance personnel.

The QC Personnel will be qualified in accordance with Regulatory Guide 1.58 as described in Appendix 17.2A(II).

17.2.1.2.5.~~3~~ 4.1

The In-service Inspection Group is responsible for directing, controlling, and coordinating NDE activities performed in accordance with the ASME B&PV Code, Section XI.

This group is also responsible for performing nondestructive testing, ~~as well as coordinating activities performed under the EP QA Plan in the areas of metallurgy and welding.~~ and has primary responsibility for QC inspection within the Maintenance Division. This group is administratively independent from cost and scheduling.

~~17.2.1.2.5.6~~

insert (A)

The Administrative Section under direction of the Administrative Supervisor consists of the Training and Testing Group, the Clerical Group, and the Safety Group.

a. The Safety Group, under the direction of a Foreman, who reports to the Administrative Assistant, is responsible for the administration of industrial safety, multi-media first aid, cardio-pulmonary resuscitation classes, and the maintenance of safe working conditions and practices for all Maintenance Division employees.

b. The Training and Testing Group, under the direction of a Foreman, who reports to the Administrative Supervisor, provides for training of Helpers and Craftsmen and qualification of Craftsmen in the various crafts. The training is followed by the administration of qualifying examinations. The knowledge and skills required on these tests is typical of the work to be performed by the various Craftsmen.

17.2.1.2.6 Administration Division

17.2.1.2.[redacted] (B) Fossil/Hydro Generation Division

Fossil [redacted] Services

17.2.1.2.6.1

The Training Section, under the direction of the Superintendent, who reports to the Superintendent, ~~Generation Division Fossil/Hydro,~~ is responsible for preparing and conducting various training programs in support of fossil, hydro and nuclear plant operations.

The Section also conducts training programs, as requested, in the areas of General Employee Training (ANSI N18.1) and fire fighting familiarization and techniques. In addition, the Division also administers the examination program for qualification of personnel of the Generation Division.

17.2.1.2.6.2

The Methods Section under the direction of the Superintendent, Fossil Services who reports to the Superintendent, ~~Generation Division, Fossil/Hydro,~~ is responsible for the promulgation of rules and procedures that implement the departmental principles that are necessary to provide adequate safety protection to personnel and equipment in Electric Production Department facilities.

These rules and procedures are directed at the protection of personnel, in, on, or around machines or equipment during repair, maintenance, operation, and associated activities, from injury due to unexpected energization or start-up of the equipment process. These rules are implemented by affixing appropriate lock-out/tag-out devices to the machines or equipment energy isolating devices.

The Methods Section is responsible for the preparation and control of the handbook, Rules for Permits and Blocking.

17.2.1.2.7 Plant Operation Review Committee (PORC)

The organization and responsibility of the PORC are described in Section 13.4 and will be defined by the Technical Specifications and implemented by Administrative procedures.

17.2.1.2.8 Operation and Safety Review Committee (O&SR Committee)

The organization and responsibility of the O&SR Committee are described in Section 13.4 and will be defined by the Technical Specifications.

17.2.1.3 Engineering and Research Department

The Engineering and Research Department (Figure 17.2-6) has an established organization to implement the QA program for Modifications for which the E&R Dept. is responsible.

17.2.1.3.1 Office of the Vice President - E&R Department

The Department is under the supervision of the Office of the Vice-President, Engineering and Research, consisting of the Vice-President, Engineering and Research and the Manager, Engineering and Research. Their principal responsibilities as related to the E&R Department QA program for Limerick Generating Station are:

a. To determine and approve overall policy, which is directed toward implementing all applicable regulatory requirements and, in particular, the Quality Assurance Criteria of 10CFR50, Appendix B.

b. Through execution of their normal management duties to review and act on routine and special reports (oral and written) of quality functions, audits, problems, and progress.

c. To maintain close liaison with the Electric Production Department to assure that the E&R Department and EP Department QA programs continue to be carried out effectively at all times.

17.2.1.3.2 Quality Assurance Section

The Engineer-in-Charge, Quality Assurance Section is responsible for establishing and administering the E&R Department QA program. The Quality Assurance Section (Figure 17.2-7) has sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions. This authority is sufficient to stop work or control further processing, delivery, use or installation. The Quality Assurance Section performs the following:

a. Control and maintenance of the PECO E&R Department QA Plan for Limerick.

b. Review and approval of E&R Department initiated procurement documents for inclusion of appropriate quality requirements.

c. Implementation of the supplier evaluation program.

d. Audits of vendors and E&R Department quality related activities to assure that the applicable QA program is being implemented. PECO groups (outside the E&R Department) which perform activities affecting the quality of Modifications for which the E&R Department is responsible shall also be subject to audit.

The qualification requirements for Engineer-in-Charge, Quality Assurance Section include a broad background and working knowledge of plant engineering and construction. This position is considered by PECO to be a senior one which is subjected to an internal review reserved for management positions at this level.

17.2.1.3.3 Mechanical and Electrical Engineering Divisions

The Mechanical Engineering Division (Figure 17.2-8) and the Electrical Engineering Division (Figure 17.2-9) are under the supervision of the Office of the Chief Mechanical Engineer and the Office of the Chief Electrical Engineer, respectively. Each Division consists of various Sections, Branches, and Groups with responsibility for plant structures, systems and components. In regard to Modifications which are the responsibility of the E&R Department, these Divisions are responsible for:

a. Preparation, independent review, and approval of the design and design changes.

b. Preparation, review, and approval of technical requirements to be included in procurement and construction documents.

c. Review, coordination, and approval of vendor fabrication documents as defined in the purchase order.

d. Providing appropriate installation and testing instructions and/or criteria to the Research and Testing

Division, Electrical Engineering Division Field Engineers, and to Construction Division.

e. Review and approval of field change requests and nonconformances.

17.2.1.3.3.1

The Electrical Engineering Division Field Engineers are responsible for:

a. Providing test instructions to assure that electrical equipment functions as intended and is properly installed.

b. Performance of electrical testing in accordance with the above instructions.

c. Evaluation and acceptance of test results unless another organization is specified.

17.2.1.3.3.2

The Nuclear and Environmental Section of the Mechanical Engineering Division establishes and implements the PECO Nuclear Fuel Fabrication Quality Assurance Program.

17.2.1.3.4 Construction Division

The Construction Division (Figure 17.2-10) is under the supervision of the Office of the General Superintendent and consists of various Sections, Branches, and Groups which are responsible for the following activities associated with modifications for which the E&R Department is responsible:

a. Planning, scheduling, and implementation of modification.

b. Receipt, receipt inspection, and storage of procured materials, parts, and components.

c. P viding installation instructions.

d. Preparing and implementing receipt and installation QC inspection requirements.

17.2.1.3.4.1

The Office of the General Superintendent, consisting of the General Superintendent and the Assistant General Superintendent, coordinates and supervises the work of the Electrical and Mechanical Sections and the Construction Division's QC Group. The Electrical Section Superintendent and the Mechanical Section Superintendent are responsible for the work of the individual Branches within their respective Sections. The Field Forces Branches, headed by the Supervisors-Field Construction, consist of Supervisors, foremen, subforeman, and skilled craftsmen of various trades who are responsible for the actual installation of modifications.

17.2.1.3.4.2

The Construction Engineers Branches, headed by the Supervising Engineers, consist of group leaders, construction engineers, and field assistants who are responsible for planning and scheduling modifications and for following work performed by the field forces or the contractors.

17.2.1.3.4.3

The Construction Division's Senior Engineer - QC is responsible for establishing and implementing the Construction Division's QC inspection program. The Senior Engineer-QC has no responsibility for scheduling or cost. The qualification requirements for Senior Engineer-QC include a ~~broad~~ background in construction practices and procedures and a working knowledge of applicable codes and specifications. The responsibilities of the Senior Engineer-QC include: preparing, revising, and controlling distribution of Construction Division Procedures, providing QC indoctrination and training for ~~responsible~~ Construction Division personnel, overseeing the ~~QC inspection~~ activities of the Construction Division's QC group; and providing a liaison between the Construction Division and the Quality Assurance Engineer-QC and Section. ~~The Construction Division's QC group is responsible for inspecting work performed by the field forces and for performing receipt inspections of procured material.~~ The Senior Engineer - QC effects implementation of the QC program through the authority of the Office of the General Superintendent.

insert (B)

17.2.1.3.5 Research and Testing Division

The Research and Testing Division (Figure 17.2-11) is under the supervision of the Office of the Director, Research and Testing. The Division is involved in Limerick activities as follows:

17.2.1.3.5.1

The Metallurgical Group of the Energy Conversion Research Section is responsible for activities performed under the E&R QA Plan in the areas of metallurgy, nondestructive testing, and welding.

17.2.1.3.5.2

Other sections of the Division are responsible for calibrating measuring and test equipment, and installation, testing, and installation inspection of modifications under their cognizance. Quality Control Inspectors are assigned to the Staff Engineering Group of the Station Tests Section (an off-site organization) while fulfilling their inspection duties. The qualification requirements for the Lead Engineer of the Staff Engineering Group include a broad background and working knowledge of plant engineering and construction in applicable fields. The QC inspectors have the authority to stop work which does not meet quality standards. Corrective action, when needed, shall be initiated by the inspector through the Division field supervisor or the lead Station Tests Section site engineer. The responsibilities of the Station Tests Section include:- Research and Testing Division

a. Planning, scheduling, and performing installation and testing of certain Modifications.

b. Providing installation and testing instructions as appropriate.

c. Preparing and implementing installation and testing QC inspection requirements.

d. Conducting tests of instrumentation and control equipment, protective relays and devices, transformers, switchgear, generators, voltage regulators, and computers.

e. Calibrating measuring and test equipment.

~~17.2.1.3.5.3~~

The Station Test Section is also responsible for the testing, calibration, maintenance ~~(including QC)~~ of instrumentation and control equipment. These activities are orginated through the LGS operating staff and are performed under the EP QA Program.

→ insert (c)

17.2.1.3.6 Engineering Design Division

The Engineering Design Division (Figure 17.2-12) is under the supervision of the Office of the Chief Design Engineer and is responsible for:

a. Performing detailed design work based upon criteria provided by other Divisions of the E&R Department.

b. Preparation of Modification and as-built drawings.

c. Establishing and maintaining the drawing storage and retrieval system.

d. Drawing distribution.

e. Initiating procurement documents when assigned.

17.2.1.3.7 Project Engineer

The activities of the E&R Department are coordinated by the Mechanical Project Engineer and the Electrical Project Engineer. The Project Engineers are responsible for:

a. Assigning responsibilities related to Modifications to the appropriate Divisions, Sections, Branches, and Groups.

b. Acting as the primary interface between PECO and major contractors (such as the original NSSS and A/E) when such contractors are employed.

c. Coordinating plans and schedules.

d. Certain administrative aspects such as document distribution, coordination, and maintenance of the project file.

17.2.1.3.8

The responsibilities of the various E&R Department groups are discussed more fully in the description of the QA program elements in Section 17.2B.

17.2.1.3.9

The PECO E&R Department Quality Assurance Plan for Limerick Generating Station and revisions thereto are approved by the Vice-President or Manager of the E&R Department and by the Engineer-in-Charge, Quality Assurance Section with QA Plan Exhibits and Appendices and revisions thereto approved by the Engineer-in-Charge, Quality Assurance Section.

17.2.1.4 Purchasing and General Services

Purchasing and General Services (Figure 17.2-13) is under the supervision of the Vice President, Purchasing and General Services who reports to the Office of the Chief Executive of the Company. Purchasing and General Services is composed of four sections: Purchasing and Stores Department, Service Operations Department, Real Estate Division, and Insurance Division.

17.2.1.4.1 Purchasing and Stores Department

The Purchasing and Stores Department, under the supervision of a Manager is responsible for the following functions:

a. Purchasing Division, under the supervision of the Purchasing Agent, is responsible for purchasing all

equipment, material, spare parts, and services as requisitioned by the Stores Division or other requisitioning departments.

b. Stores Division, under the supervision of a General Superintendent, is responsible to requisition, receive, document receipt, stow, inventory and issue supplies, spare parts and other materials.

17.2.1.5 Legal Department

The Legal Department (Figure 17.2-14) is directed by the Vice President and General Counsel, assisted by the Associate General Counsel. They have responsibility for the activities of the two groups which comprise the Department; namely - the Legal group and the Claims-Security Division.

17.2.1.5.1 Claims-Security Division

The Claims-Security Division is under the supervision of the Manager, Claims-Security Division who reports to the Office of the Vice-President and General Counsel - Legal Department. The Director of Security, who reports to the Manager, Claims-Security Division, is responsible for the overall security on a company-wide basis.

SECTION 17.2 TEXT INSERTS

insert (A)

The Inservice Inspection Group shall review Maintenance and Inspection Procedures for the need for inspection, identification of inspection personnel required and documentation of inspection results and that the necessary inspection requirements, methods and acceptance criteria have been identified.

The QC Inspectors are permanently assigned to the Inservice Inspection Group and are experienced in various disciplines (e.g. electrical, mechanical, structural, etc.). If additional QC personnel are needed, qualified personnel can be assigned from the Nuclear Branch of the Engineering Section. These temporarily assigned personnel shall report to the Inservice Inspection Group.

17.2.1.2.5.4.2

The Nuclear Branch provides technical assistance when necessary to all sections of the Maintenance Division. This group [redacted] also is responsible for writing Maintenance Procedures and establishing QC Inspection Hold Points.

When necessary, personnel in this group can be used as QC Inspectors. When used as QC Inspectors, such personnel shall be temporarily assigned to the Inservice Inspection Group.

7.2.1.2.5.5

Insert (B)

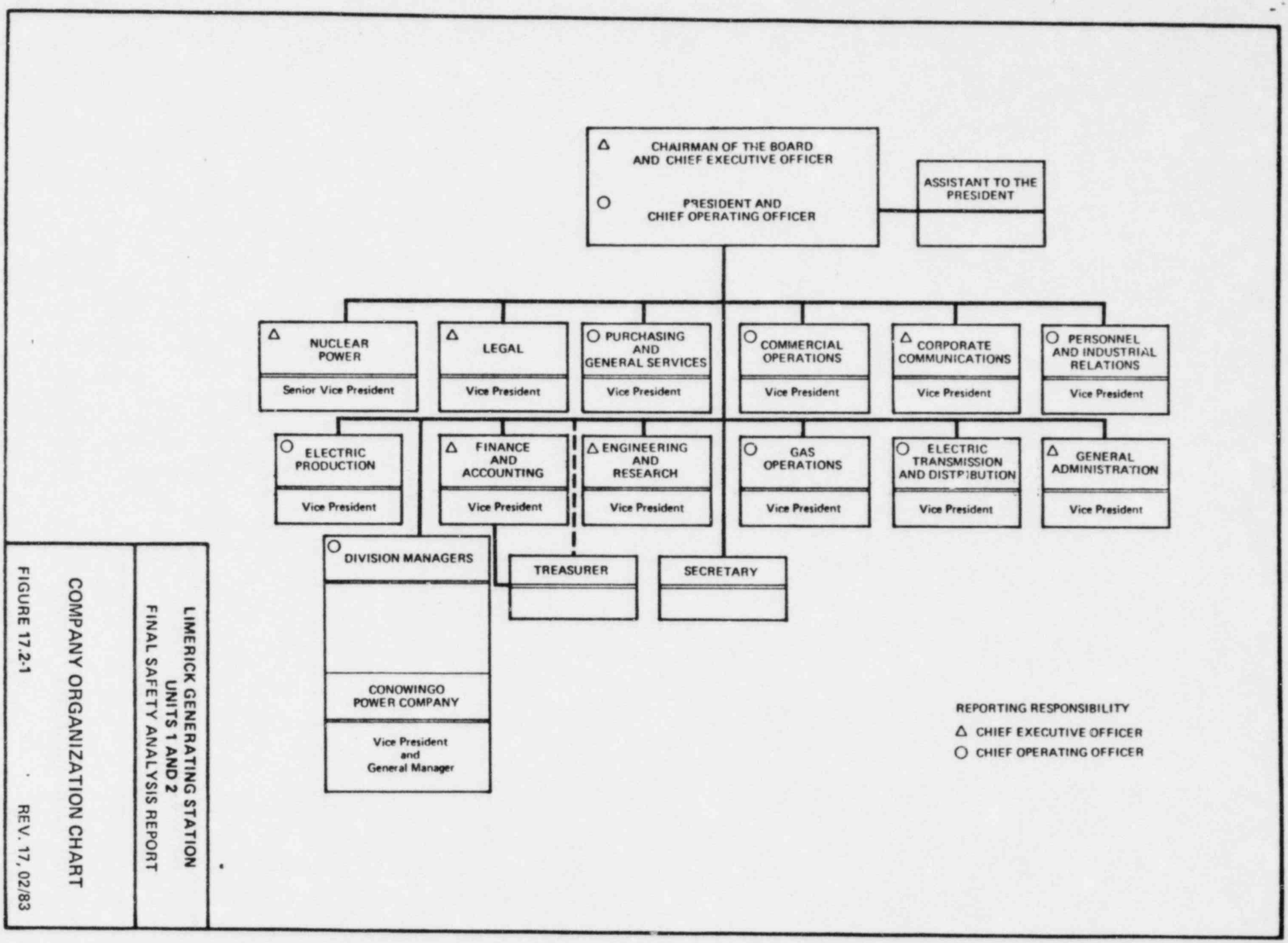
The Engineer-QC is the site representative of the Senior Engineer-QC. The Engineer-QC is responsible for ~~directly~~ directly overseeing the QC inspection activities of the Construction Division Site QC Group, and assisting the Senior Engineer-QC with his responsibilities.

The Construction Division QC Group will be comprised of appropriate disciplines, such as, mechanical, electrical, and structural. The QC Group is responsible for inspection of work performed by the field forces, for performing receipt inspections of procured material, for identifying and reporting nonconformances, and for verifying corrective action in accordance with established procedures. The QC Inspectors have the authority to stop unsatisfactory work and to control further processing or installation of nonconforming material. This stop work authorization will be delineated in applicable procedures. Personnel will be assigned to the QC Group on a continual basis and will be qualified in accordance with Regulatory Guide 1.58, as described in Appendix 17.2B.II.

insert ©

17.2.1.3.5.3

The Research and Testing Division QC Group is comprised of appropriate disciplines and has no responsibility for scheduling and cost. This group is responsible for inspecting work performed by the field forces, and for performing their nonconformance reporting and corrective action responsibilities in accordance with established procedures. The QC Inspectors have the authority to stop unsatisfactory work and to control further processing or installation of nonconforming material. This stop work authority will be delineated in applicable procedures. Personnel will be assigned to the QC group on a continual basis and will be qualified in accordance with Regulatory Guide 1.58, as described in Appendix 17.2B.II.

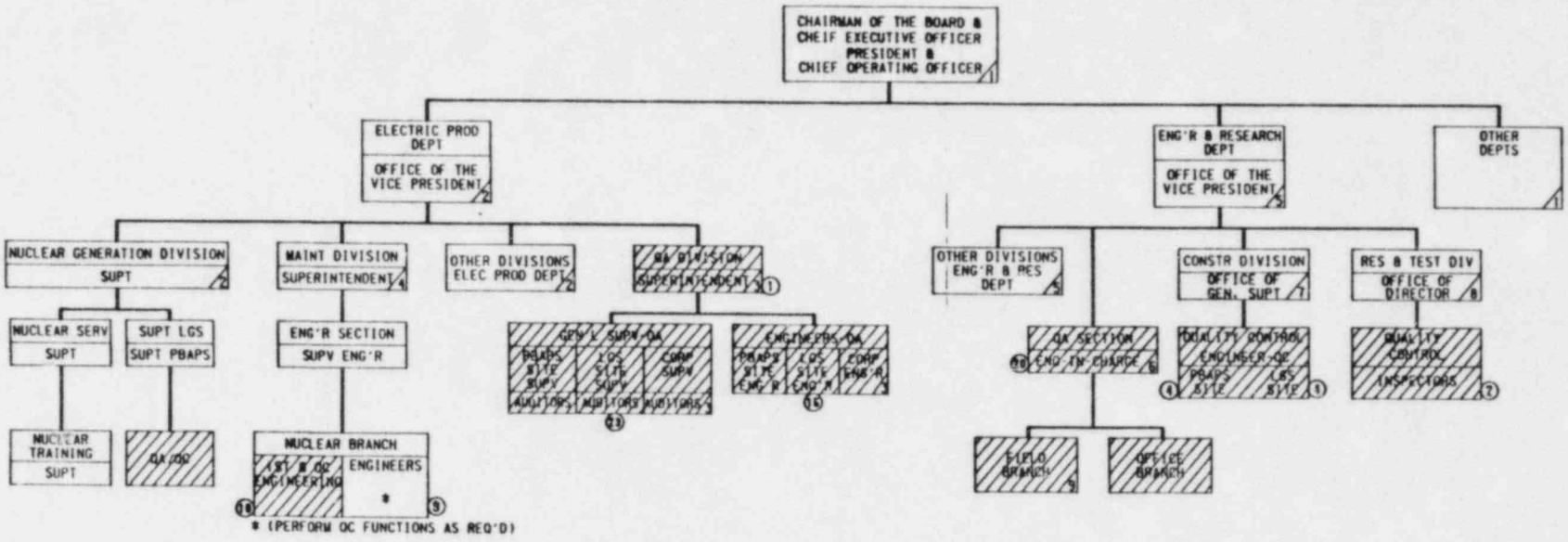


LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

COMPANY ORGANIZATION CHART

FIGURE 17.2-1

REV. 17, 02/83



OPERATIONS AND MINOR MODIFICATIONS

ENGINEERING, CONSTRUCTION AND MAJOR MODIFICATIONS

LEGEND

▨ INDICATES ORGANIZATIONS PERFORMING QA/QC FUNCTIONS

○ APPROXIMATE STAFFING LEVEL

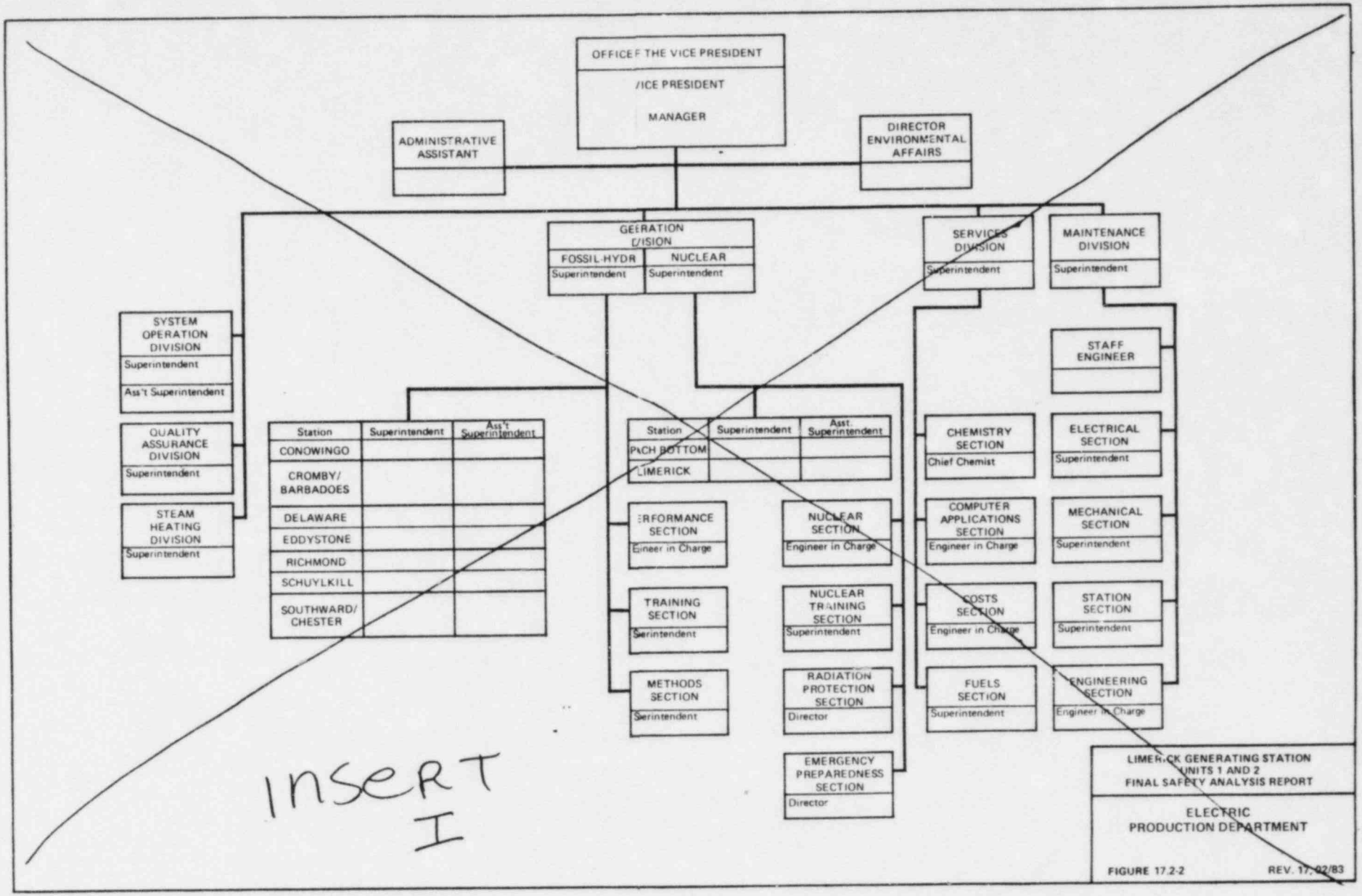
1 SEE FIG. 17.2-1A FOR ADD'L DETAIL
2 SEE FIG. 17.2-2 FOR ADD'L DETAIL
3 SEE FIG. 17.2-3 FOR ADD'L DETAIL
4 SEE FIG. 17.2-4 FOR ADD'L DETAIL
5 SEE FIG. 17.2-6 FOR ADD'L DETAIL
6 SEE FIG. 17.2-7 FOR ADD'L DETAIL
7 SEE FIG. 17.2-10 FOR ADD'L DETAIL
8 SEE FIG. 17.2-11 FOR ADD'L DETAIL
9 FIELD BRANCH EXISTS ONLY DURING ENGINEERING AND CONSTRUCTION

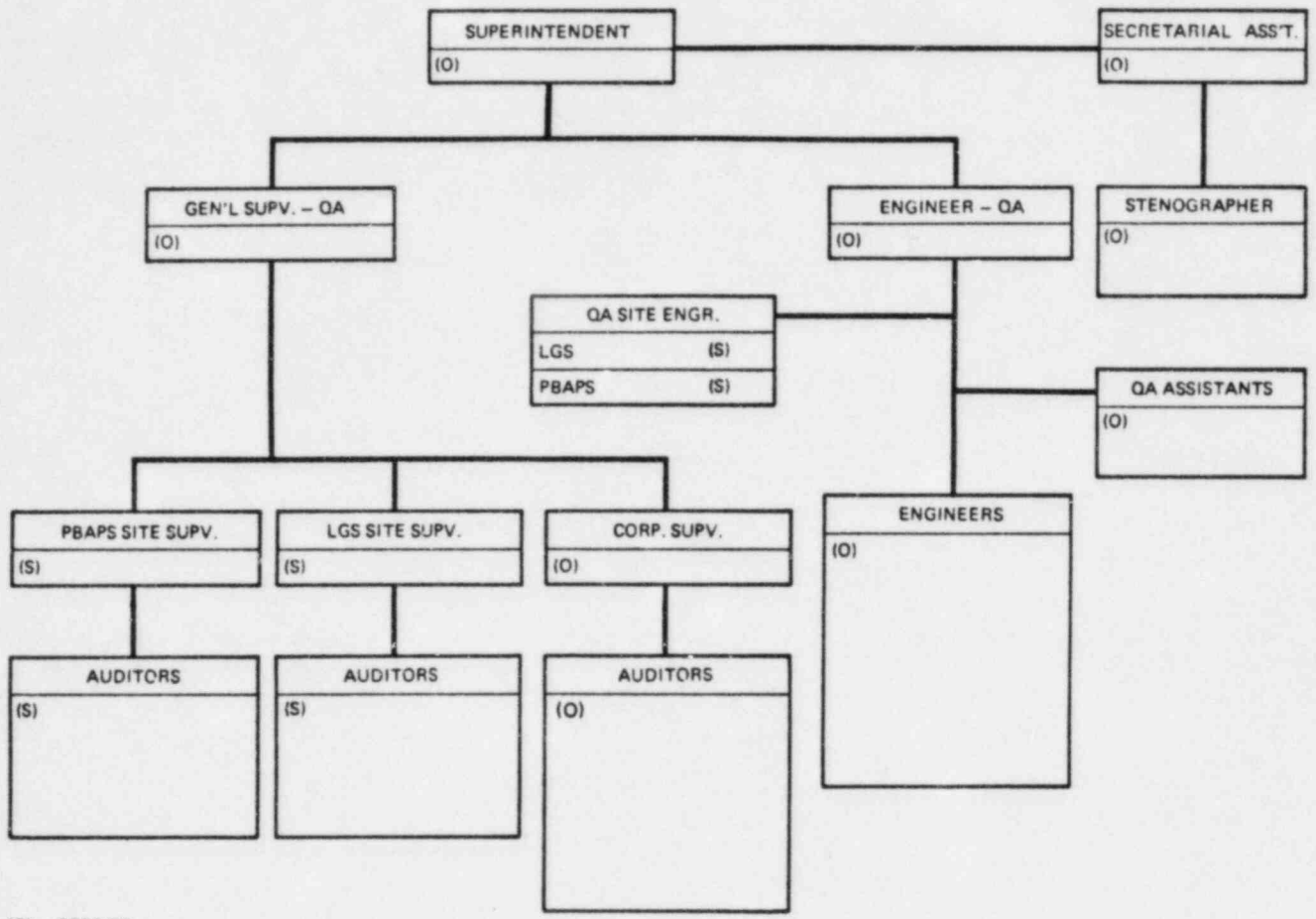
COMPOSITE ORGANIZATION CHART
OF PECO QUALITY ASSURANCE

LIMERICK GENERATING STATION
UNITS 1 & 2
FINAL SAFETY ANALYSIS REPORT

FUNCTIONAL QA/QC DIAGRAM

FIG. 17.2-1B


OFFICE F THE VICE PRESIDENT
/ICE PRESIDENT
MANAGER
ADMINISTRATIVE ASSISTANT
DIRECTOR ENVIRONMENTAL AFFAIRS
GEERATION
/ISION
FOSSIL-HYDR
Superintendent
NUCLEAR
Superintendent
SERVICES DIVISION
Superintendent
MAINTENANCE DIVISION
Superintendent
SYSTEM OPERATION DIVISION
Superintendent
Ass't Superintendent
QUALITY ASSURANCE DIVISION
Superintendent
STEAM HEATING DIVISION
Superintendent
Station
Superintendent
Ass't Superintendent
CONOWINGO
CROMBY/ BARBADOES
DELAWARE
EDDYSTONE
RICHMOND
SCHUYLKILL
SOUTHWARD/ CHESTER
Station
Superintendent
Asst. Superintendent
PeCH BOTTOM
LIMERICK
ERFORMANCE SECTION
Eineer in Charge
TRAINING SECTION
Serintendent
METHODS SECTION
Serintendent
NUCLEAR SECTION
Engineer in Charge
NUCLEAR TRAINING SECTION
Superintendent
RADIATION PROTECTION SECTION
Director
EMERGENCY PREPAREDNESS SECTION
Director
STAFF ENGINEER
CHEMISTRY SECTION
Chief Chemist
COMPUTER APPLICATIONS SECTION
Engineer in Charge
COSTS SECTION
Engineer in Charge
FUELS SECTION
Superintendent
ELECTRICAL SECTION
Superintendent
MECHANICAL SECTION
Superintendent
STATION SECTION
Superintendent
ENGINEERING SECTION
Engineer in Charge
INSERT I
LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT
ELECTRIC
PRODUCTION DEPARTMENT
FIGURE 17.2-2
REV. 17, 02/83

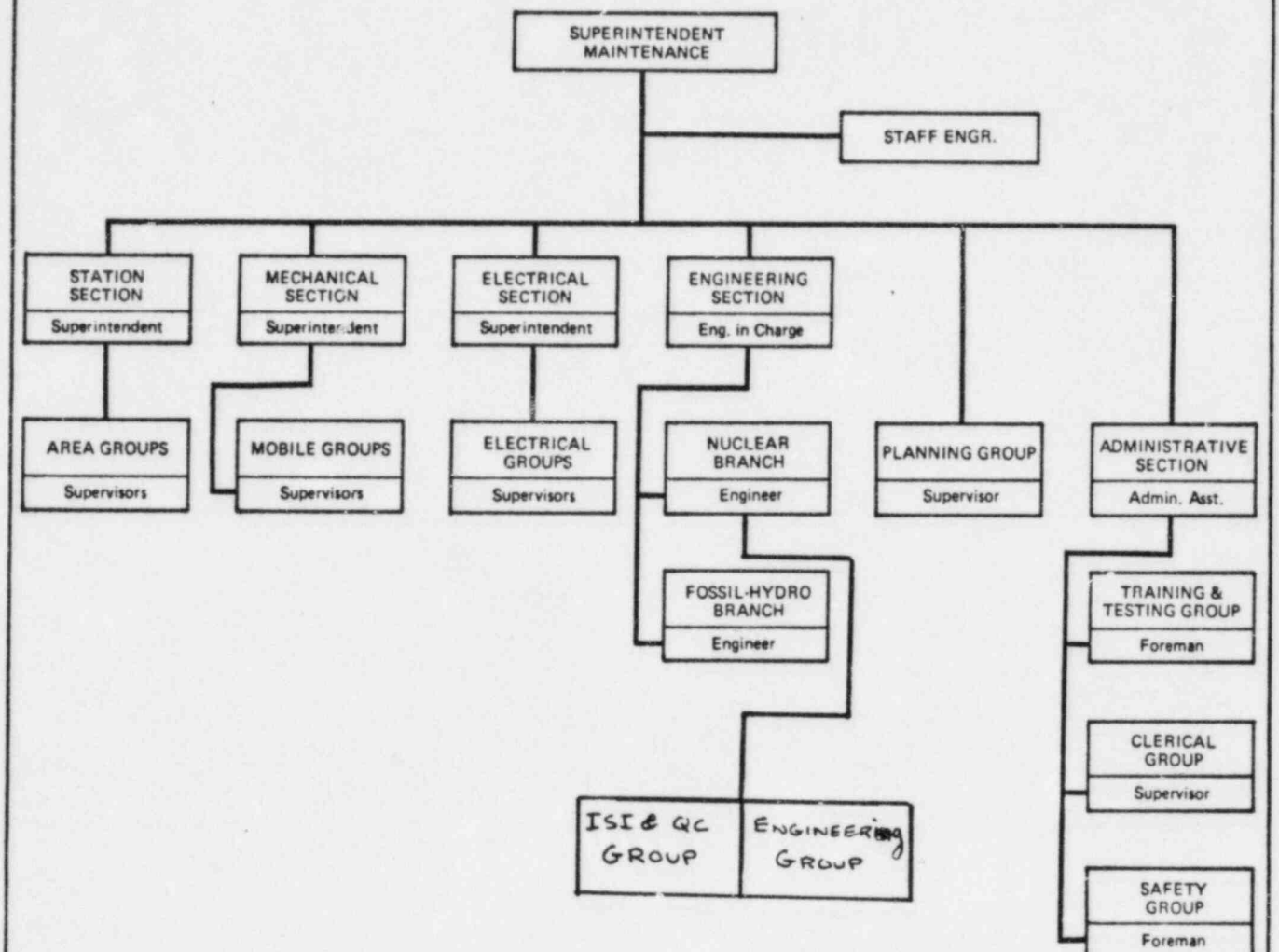


(O) – OFFSITE
(S) – ONSITE

LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

QUALITY ASSURANCE DIVISION
ELECTRIC PRODUCTION DEPARTMENT

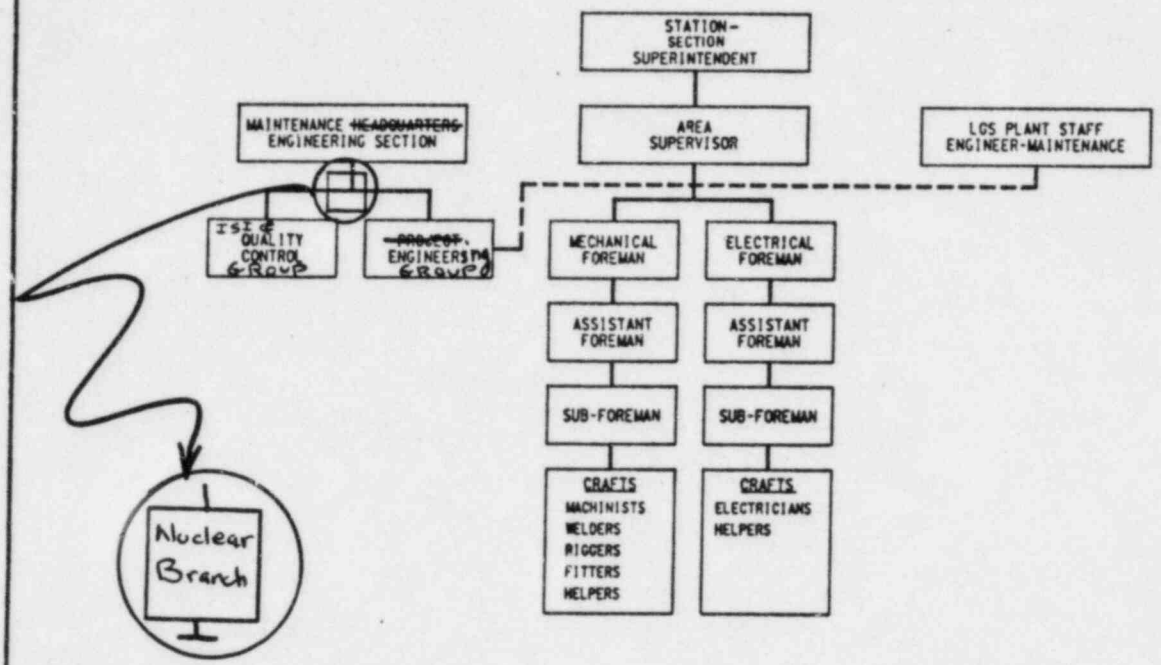
FIGURE 17.2-3 REV. 17, 02/83



LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

MAINTENANCE DIVISION
ELECTRIC PRODUCTION DEPARTMENT

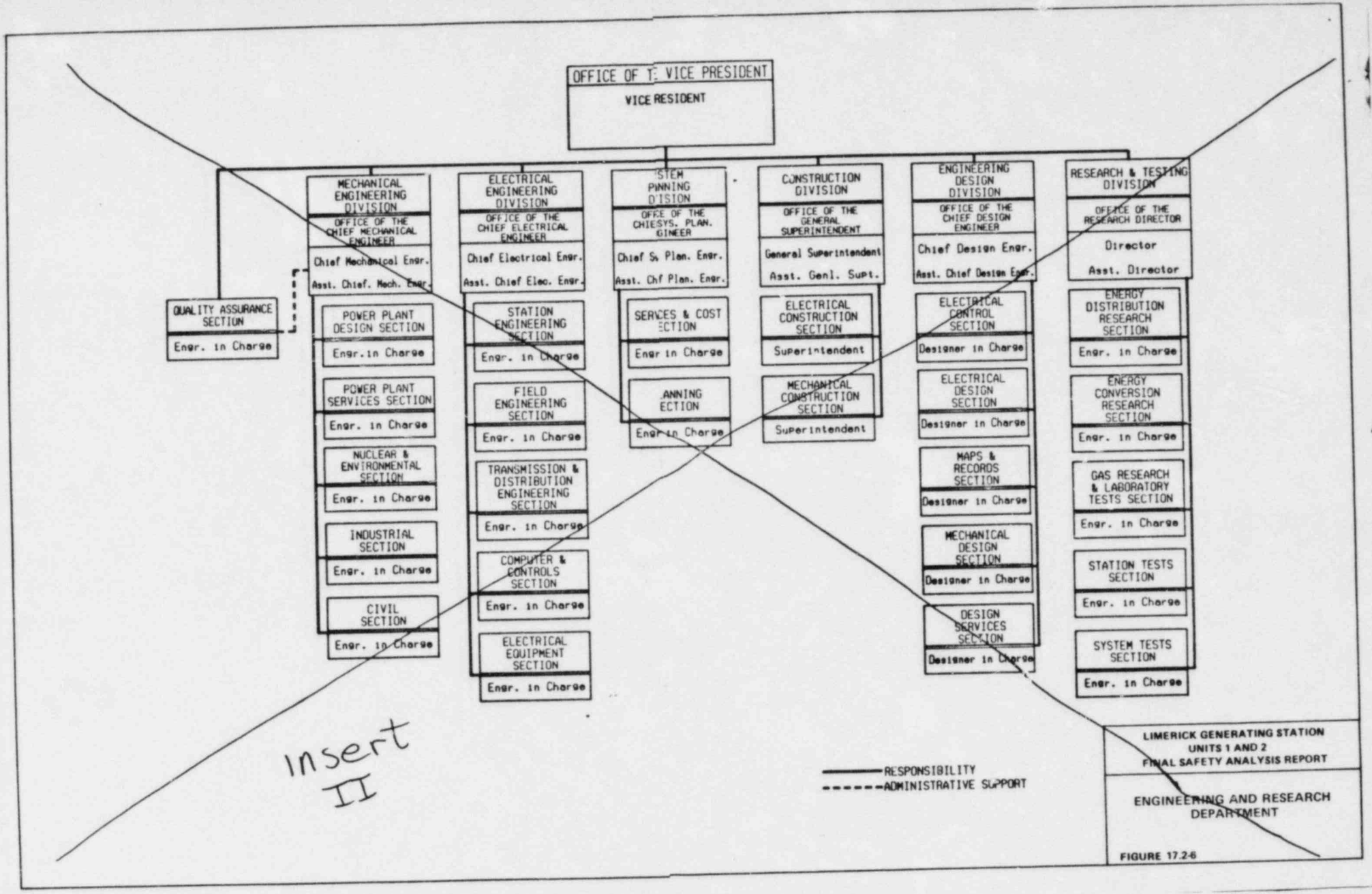
FIGURE 17.2-4 REV. 17. 02/83



LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

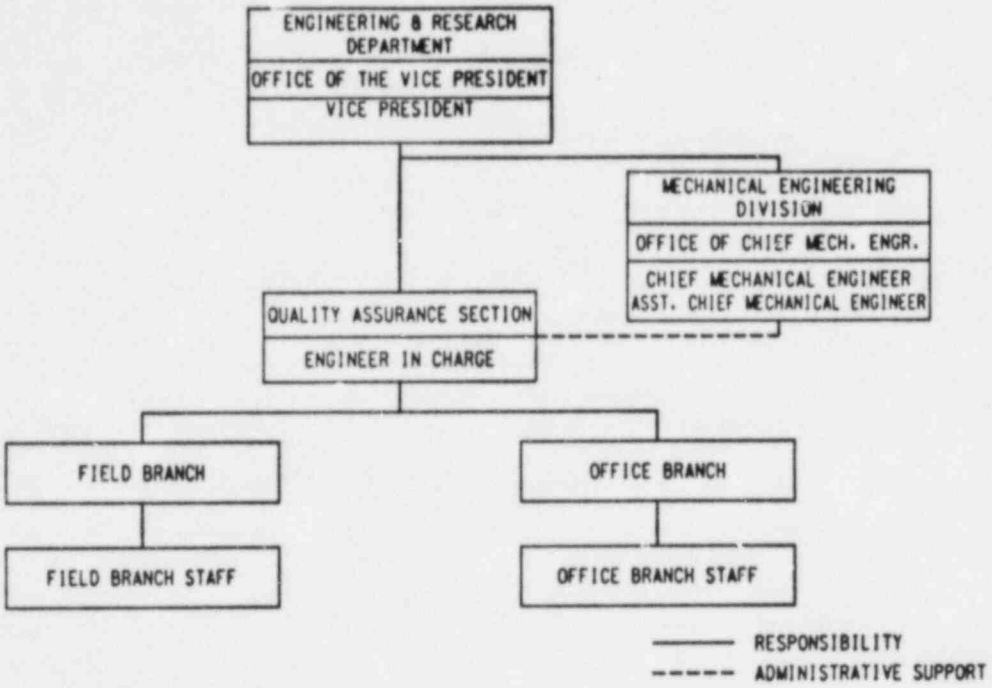
LIMERICK MAINTENANCE GROUP
MAINTENANCE DIVISION
ELECTRIC PRODUCTION DEPARTMENT

FIGURE 17.2-5 **REV. 17, 02/83**



Insert II

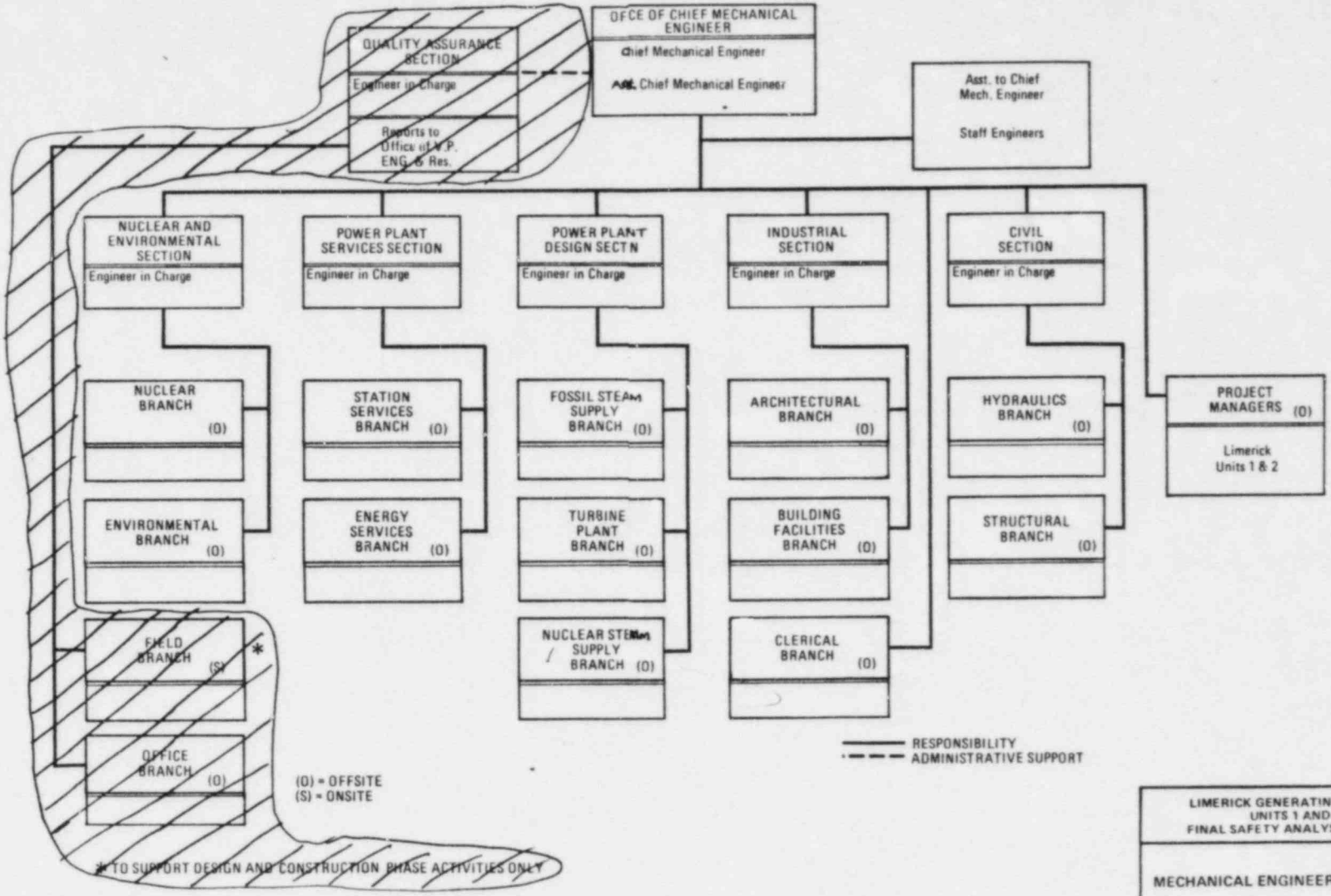
FIGURE 17.2-6



LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

QUALITY ASSURANCE SECTION
ENGINEERING AND RESEARCH
DEPARTMENT

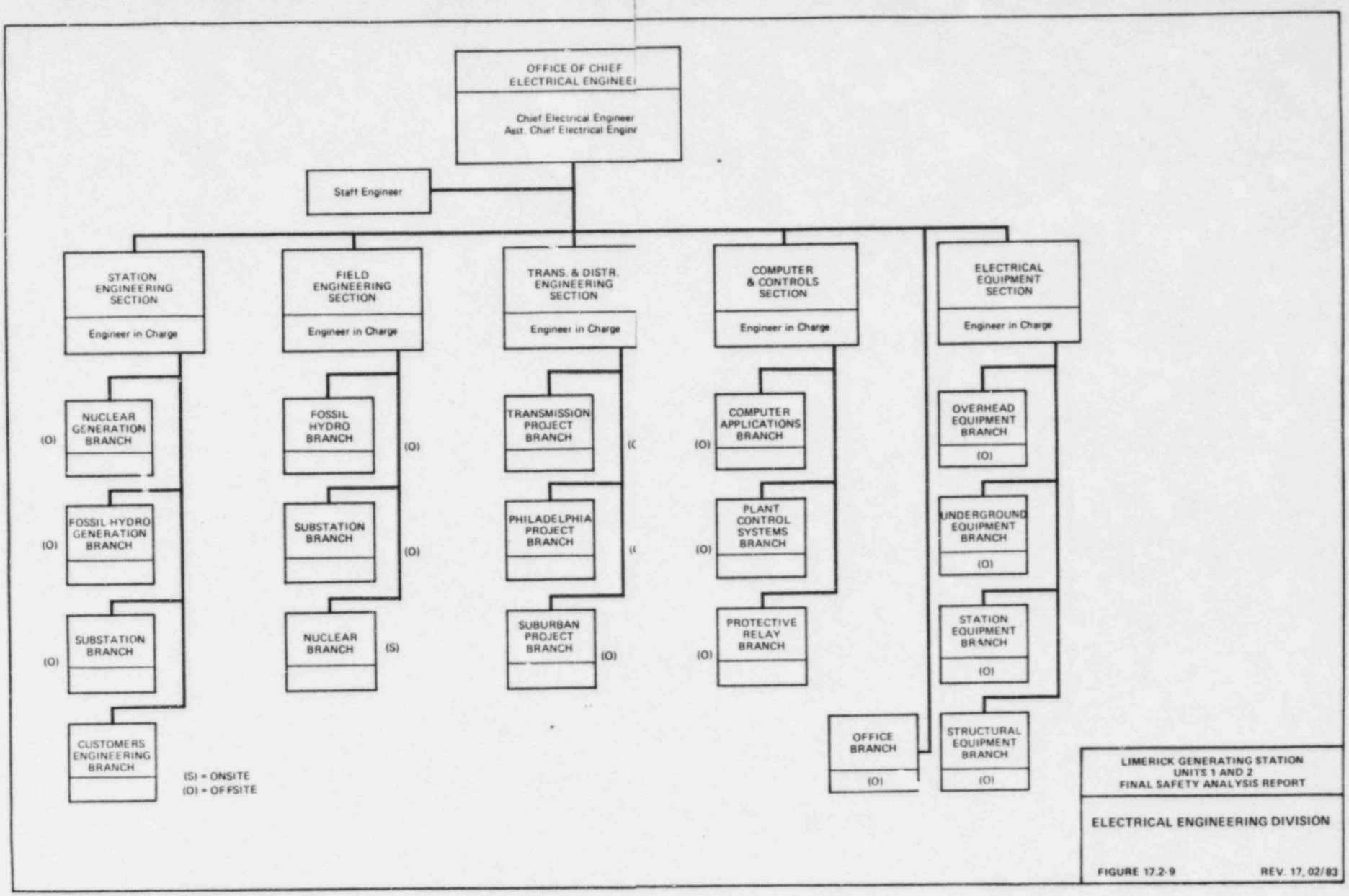
FIGURE 17.2-7



LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

MECHANICAL ENGINEERING DIVISION

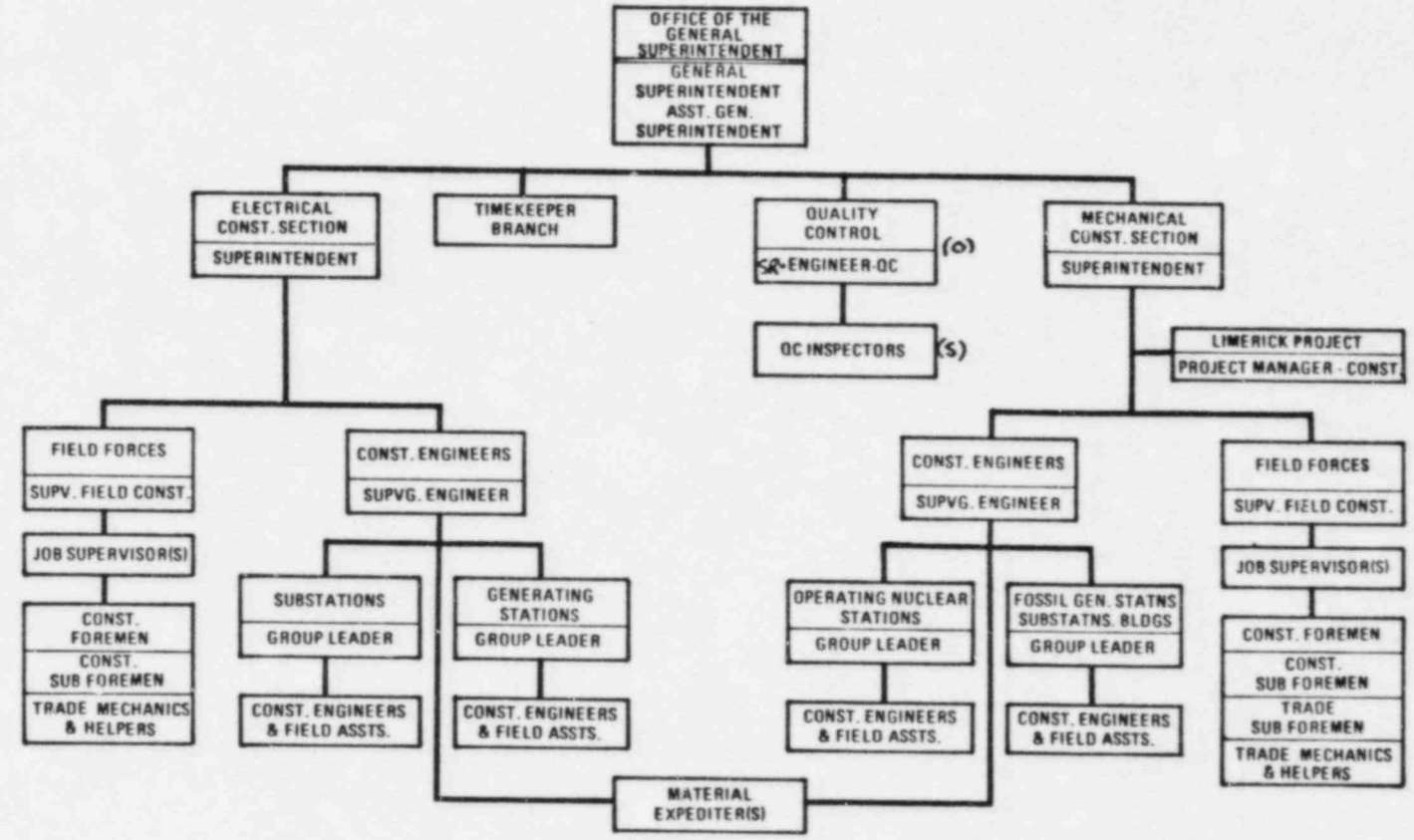
FIGURE 17.2-8 REV. 17, 02/83



LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

ELECTRICAL ENGINEERING DIVISION

FIGURE 17.2-9 REV. 17, 02/83

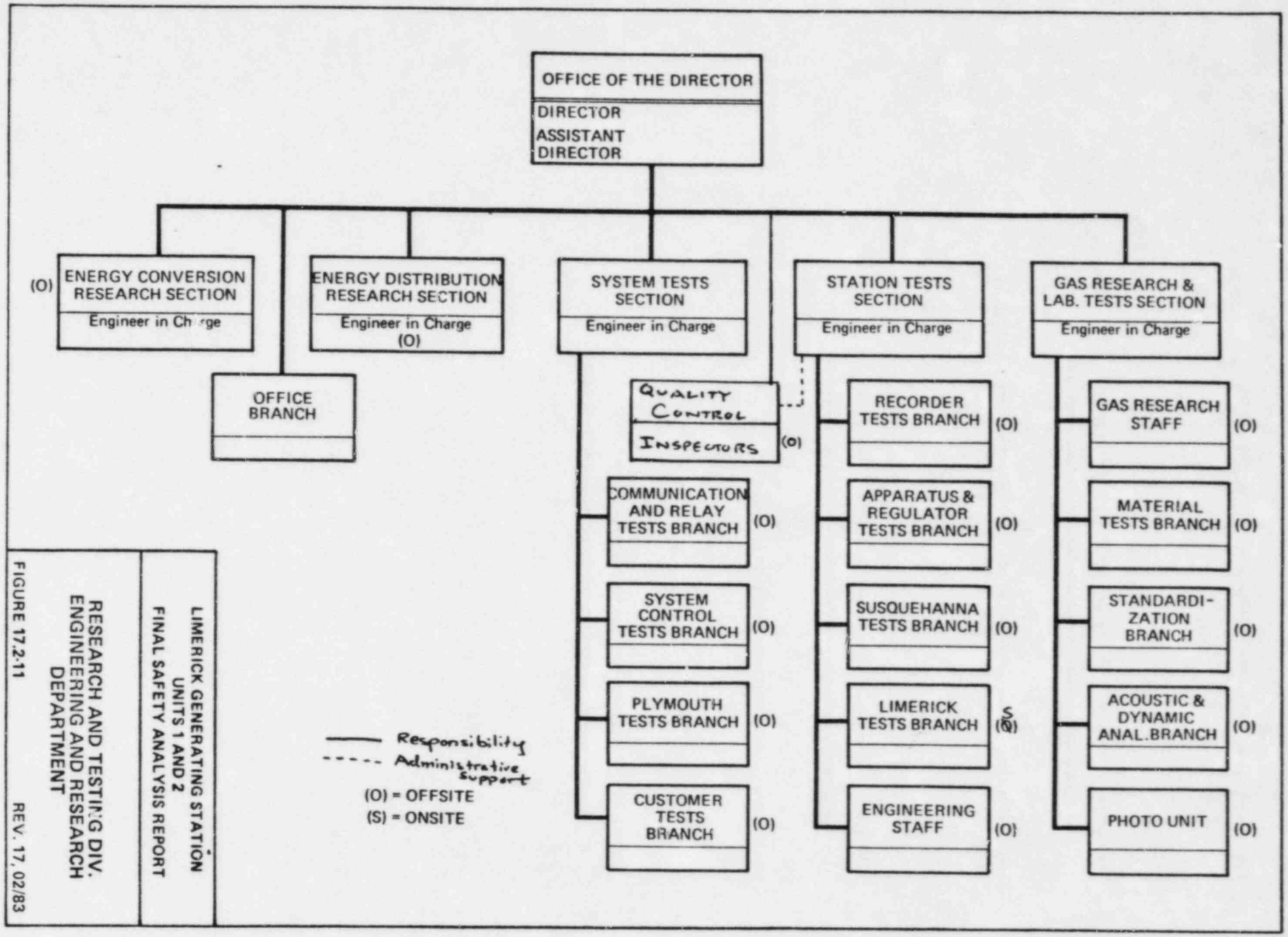


LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

CONSTRUCTION DIVISION
ENGINEERING AND RESEARCH
DEPARTMENT

FIGURE 17.2-10

REV. 17, 02/83

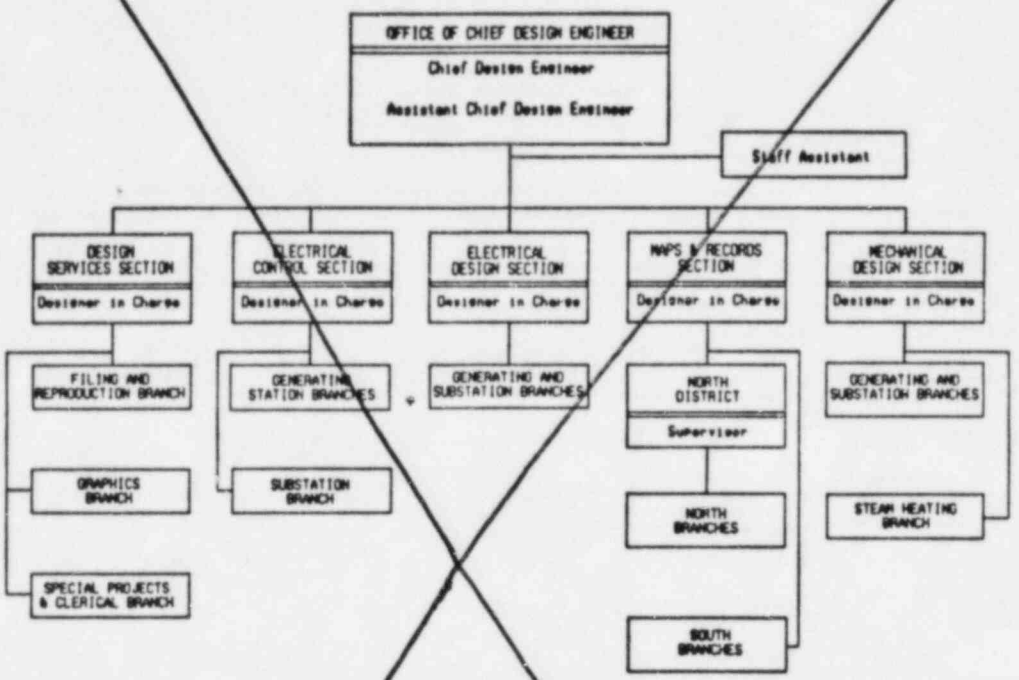


LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

RESEARCH AND TESTING DIV.
ENGINEERING AND RESEARCH
DEPARTMENT

FIGURE 17.2-11

REV. 17, 02/83

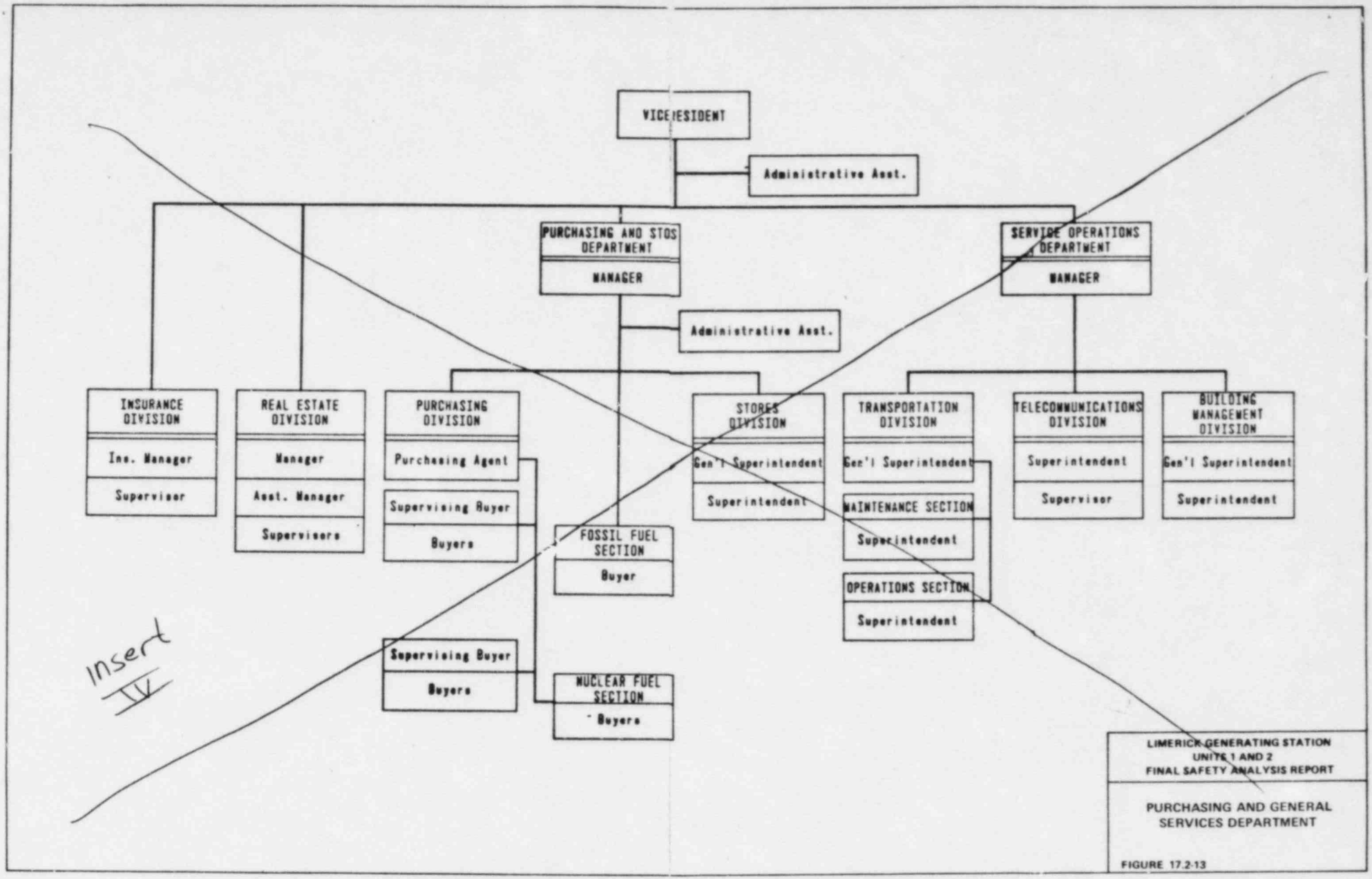


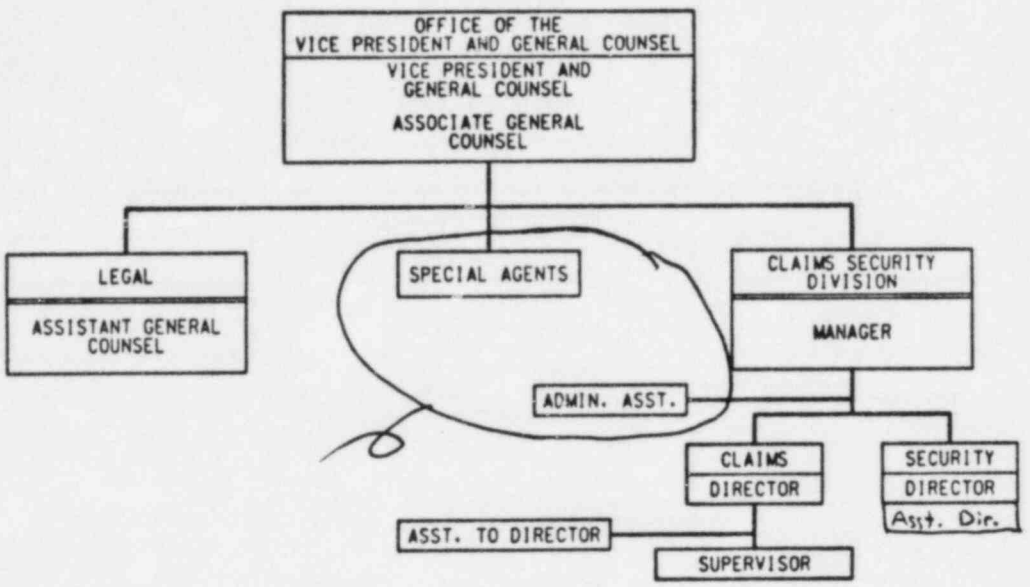
insert III

LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

ENGINEERING DESIGN DIVISION
ENGINEERING AND RESEARCH
DEPARTMENT

FIGURE 17.2-12

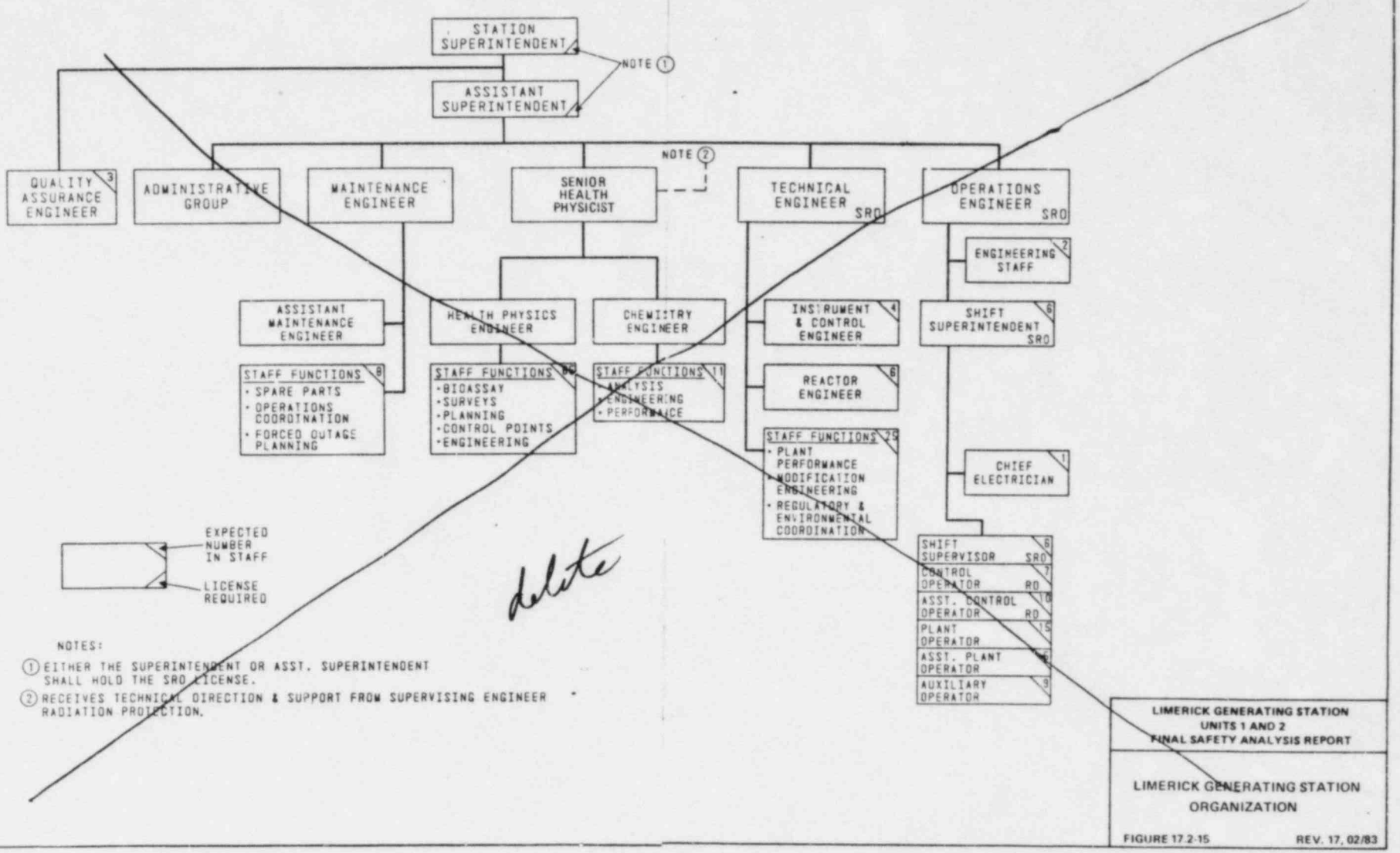

VICE PRESIDENT
Administrative Asst.
PURCHASING AND STOS DEPARTMENT
MANAGER
Administrative Asst.
SERVICE OPERATIONS DEPARTMENT
MANAGER
INSURANCE DIVISION
Ins. Manager
Supervisor
REAL ESTATE DIVISION
Manager
Asst. Manager
Supervisors
PURCHASING DIVISION
Purchasing Agent
Supervising Buyer
Buyers
FOSSIL FUEL SECTION
Buyer
Supervising Buyer
Buyers
NUCLEAR FUEL SECTION
Buyers
STORES DIVISION
Gen'l Superintendent
Superintendent
TRANSPORTATION DIVISION
Gen'l Superintendent
MAINTENANCE SECTION
Superintendent
OPERATIONS SECTION
Superintendent
TELECOMMUNICATIONS DIVISION
Superintendent
Supervisor
BUILDING MANAGEMENT DIVISION
Gen'l Superintendent
Superintendent
Insert IV
LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT
PURCHASING AND GENERAL SERVICES DEPARTMENT
FIGURE 17.2-13



LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

LEGAL DEPARTMENT

FIGURE 17.2-14



NOTES:

(1) EITHER THE SUPERINTENDENT OR ASST. SUPERINTENDENT SHALL HOLD THE SRO LICENSE.

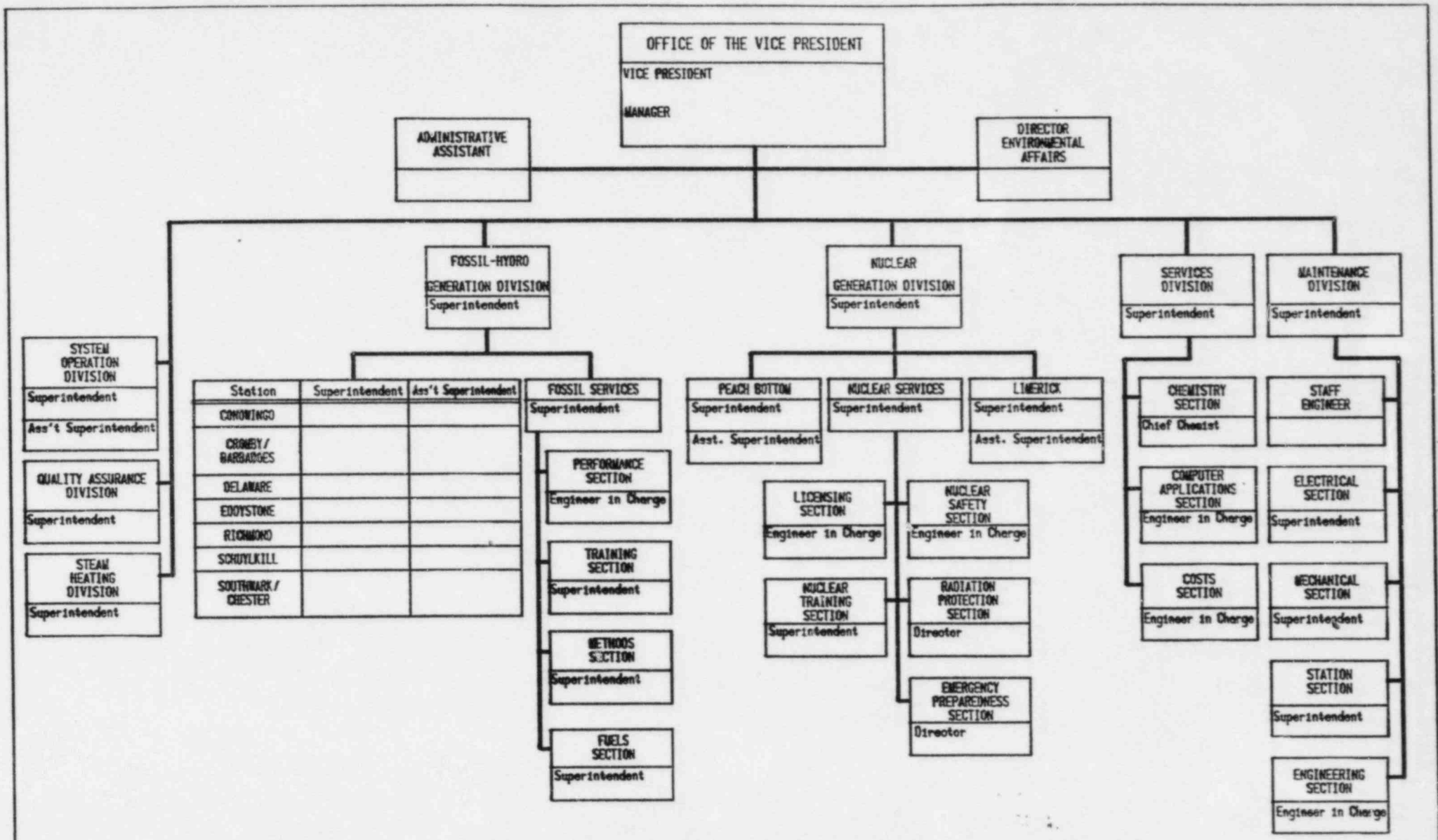
(2) RECEIVES TECHNICAL DIRECTION & SUPPORT FROM SUPERVISING ENGINEER RADIATION PROTECTION.

LIMERICK GENERATING STATION
UNITS 1 AND 2
FINAL SAFETY ANALYSIS REPORT

LIMERICK GENERATING STATION ORGANIZATION

FIGURE 17.2-15 REV. 17, 02/83

Insert I SECTION 17.2 FIGURE INSERTS



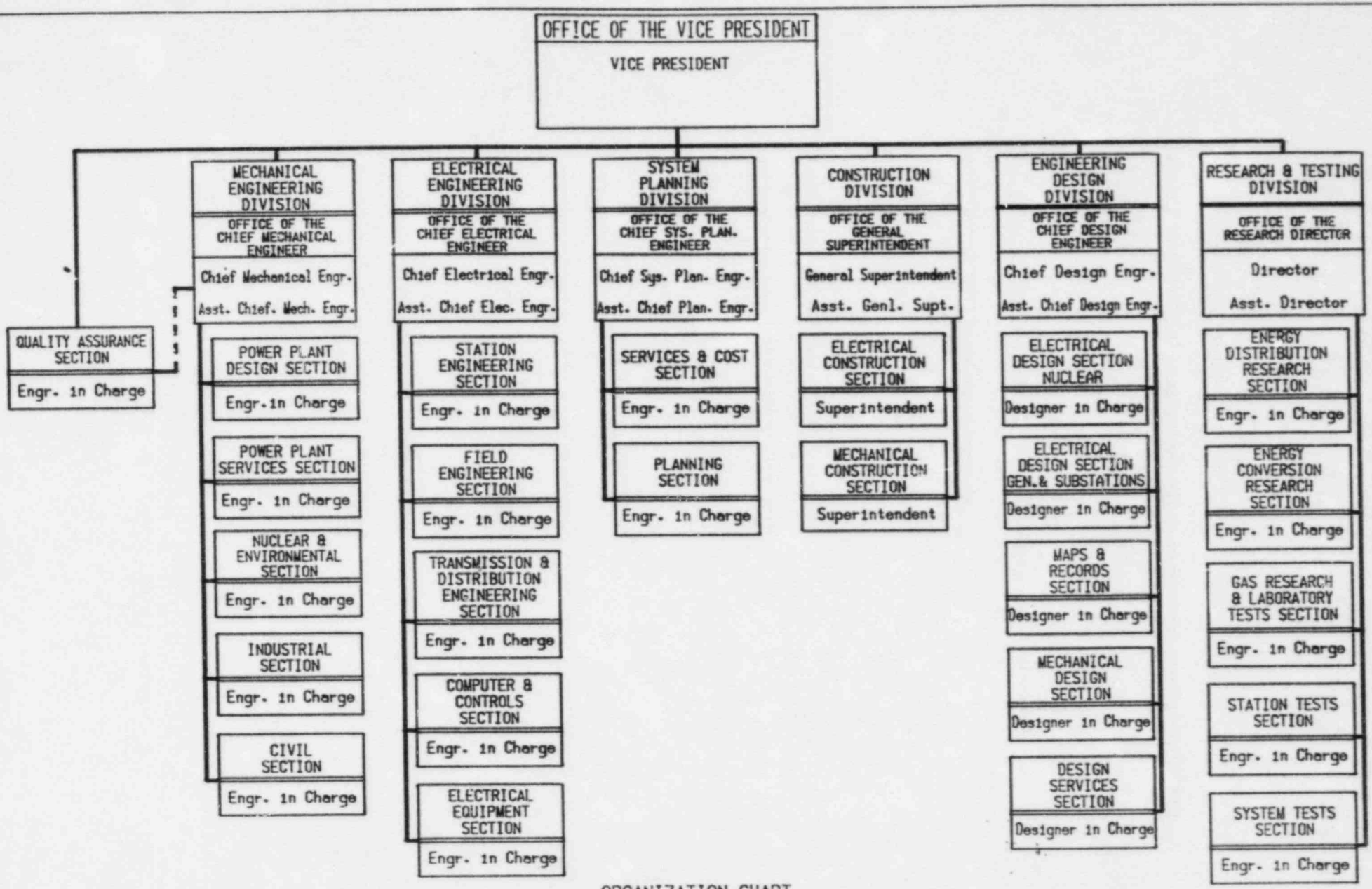
ORGANIZATION CHART

ELECTRIC PRODUCTION DEPARTMENT

PHILADELPHIA ELECTRIC COMPANY

~~EXHIBIT II~~ FIGURE 17.2-2

Insert II



ORGANIZATION CHART

ENGINEERING AND RESEARCH DEPARTMENT

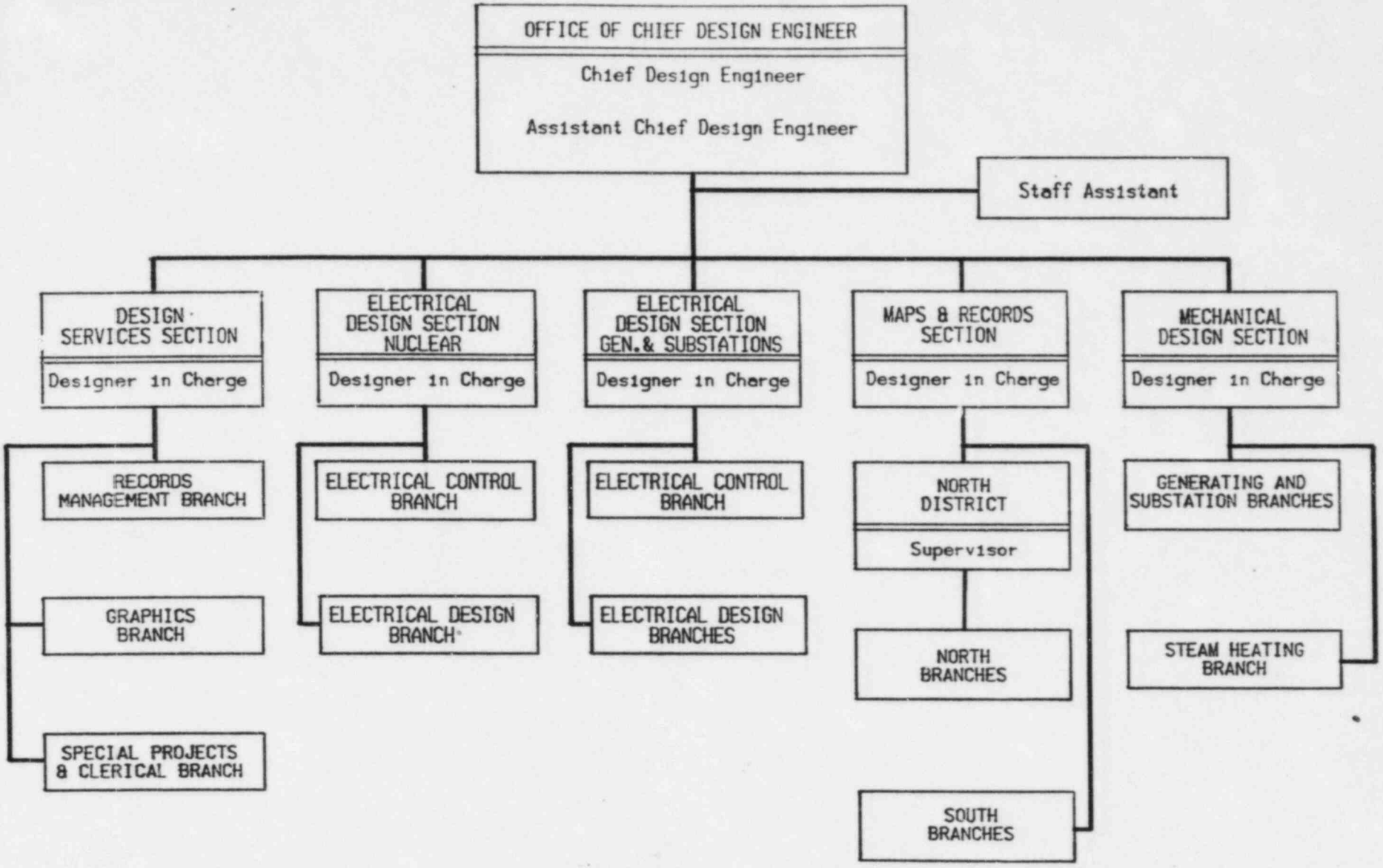
PHILADELPHIA ELECTRIC COMPANY

——— RESPONSIBILITY

- - - - - ADMINISTRATIVE SUPPORT

~~EXHIBIT VII~~ FIGURE 17.2-6

Insert III



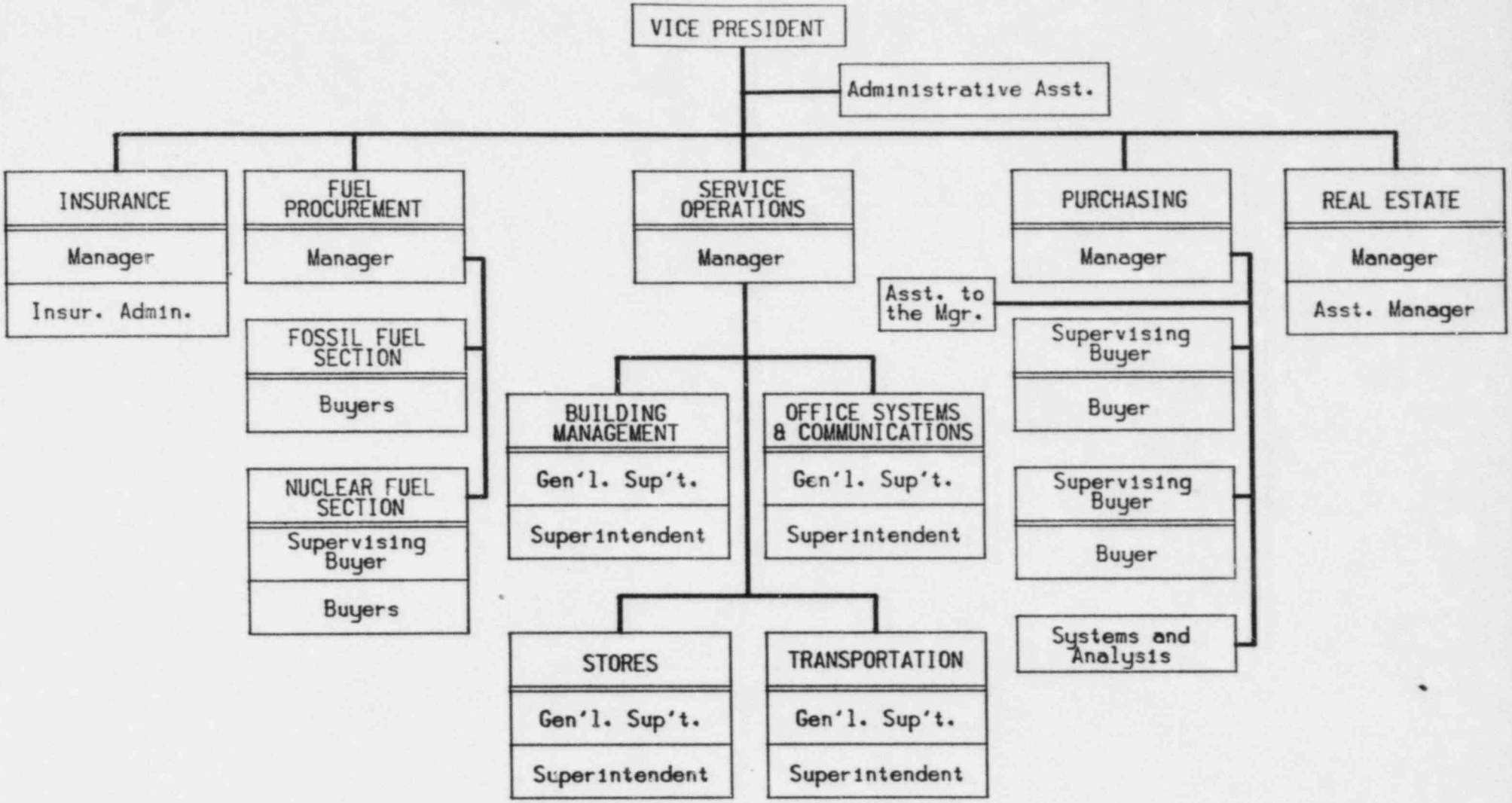
ORGANIZATION CHART

ENGINEERING DESIGN DIVISION

ENGINEERING AND RESEARCH DEPARTMENT
PHILADELPHIA ELECTRIC COMPANY

~~EXHIBIT XI~~ FIGURE 17.2-12

Insert IV



ORGANIZATION CHART

PURCHASING AND GENERAL SERVICES DEPARTMENT

PHILADELPHIA ELECTRIC COMPANY

~~EXHIBIT XIV~~ FIGURE 17.2-13

17.2A ELECTRIC PRODUCTION DEPARTMENT QUALITY ASSURANCE DURING THE OPERATIONS PHASE

This section describes the Quality Assurance Program which will be applied by the Philadelphia Electric Company Electric Production Department to activities affecting the quality of safety-related structures, systems, and components of the Limerick Generating Station during the Operations Phase. Appropriate portions of the Program will also be applied, to the extent consistent with their importance to safety, to packaging of radioactive material.

This Program meets the requirements of 10 CFR, Part 50, Appendix B and is based on compliance with NRC Regulatory Guides and Industry Standards as addressed in Appendix 17.2A-II.

Section 13.5 describes the administrative and implementing procedures which meet the requirements of the Electric Production Quality Assurance Program and which will be implemented by the LGS plant staff.

17.2A.1 ORGANIZATION

See Section 17.2.1.

17.2A.2 QUALITY ASSURANCE PROGRAM

The operating philosophy of the Electric Production Department places emphasis and primary concern on the safety of its employees and the public. Other considerations such as continuity of service, equipment protection, economic operation, and environmental effects are recognized as important but are secondary to human safety.

The Department's many years of experience operating generating stations has evolved a wide spectrum of management measures directed toward efficient and safe operations.

The Electric Production Quality Assurance (EP QA) Program for the operation of LGS recognizes quality assurance as an interdisciplinary function involving many organizational components (i.e. departments, divisions, sections, groups and individuals) and is not regarded as the sole domain of the Quality Assurance (QA) Division. Quality Assurance encompasses many functions and activities and extends to various levels in all participating organizations. First line supervision is responsible for the quality of the work performed under their supervision. Second line supervision may perform inspections or examinations of work functions associated with normal operation of the plant, routine maintenance, and certain technical services routinely assigned to the onsite operating organization where necessary to assure quality. Independent inspections of non-routine maintenance and plant modifications shall be performed, as required, by qualified individuals who are organizationally independent of the individual or group performing the work. The Station Superintendent has overall responsibility for the execution of the administrative controls at the plant and implementation of responsibilities assigned to plant personnel by the QA Plan. An overview of the Program is provided by personnel from the QA Division who are organizationally independent of Generation and Maintenance Divisions. QA Division shall assure, through the auditing program, that activities affecting quality are accomplished in accordance with the requirements of the EP QA Program.

17.2A.2.1

With regard to the operation of the Limerick Generating Station, management recognizes the need to maintain a competent staff and to provide this staff with the support necessary to maintain operational safety. To meet this goal, certain activities

conducted in the plant have been recognized as important to operational safety and specific management control measures have been set up to assure quality in these activities.

Personnel shall be trained and indoctrinated in these activities which are pertinent to their job description and responsibilities, with due regard to the effective implementation of the EP QA Program. Management requires that operations be conducted in accordance with approved procedures and has established review and reporting mechanisms which provide prompt and effective action when exceptions occur.

The staffing of the station is such that certain disciplines (e.g., Chemistry, Testing, Stores and Purchasing, Maintenance) share high level supervision and management with other plants and facilities of the Philadelphia Electric Company. In such cases, the supervision and management reside at company headquarters, or other central facilities, and, by frequent communication and plant visits, monitor the activities of their groups at LGS. This is an important aspect of the staffing which provides a great wealth of experience and knowledge in assuring proper operation of the plant.

The station technical group is composed primarily of graduate engineers who assist plant supervision in areas of operational surveillance, maintenance, plant monitoring, and testing. Additionally, Philadelphia Electric Company's own highly qualified Engineering and Research Department, which is responsible for the design and construction of the plant, is readily available for engineering consultation during operation. First and second line supervisory positions are normally filled by promotion of qualified personnel. This procedure assures knowledgeable and experienced checking and inspection of in-progress work activities and is considered a noteworthy aspect of operational safety.

Shift operation at a power plant is a most important activity that impacts greatly on safety. This activity is concerned with the proper performance of the plant processes both during the shutdown and power phase. It involves surveillance of plant variables and manipulation of controls to maintain these variables at desired levels. Prompt and effective action during plant upsets and equipment malfunctions is required. Management has taken measures in the area of training and staffing which enhances safety of operation and, in addition, requires mechanisms to be established which provide objective evidence that important operations are being performed in accordance with established procedures. Appropriate objective evidence, in the form of check-off lists, log records, and data sheets, is reviewed by appropriate supervision as specified in Administrative Procedures.

Another important aspect of shift operations is communications. Communications between shift personnel and plant supervision, between one shift and succeeding shifts, and between staff group leaders and shift supervisors must be effective to assure safe operation. Viable mechanisms are established, where appropriate, to enhance inter-plant group communications to assure timely and effective communications.

17.2A.2.2

Training and qualification of plant operators is an on-going activity required to ensure safety in operation. Training and retraining efforts are formalized and objective evidence is available for auditing purposes. On-the-job "hands on" type experience is designed into the program to a maximum practical degree. Records of each operator's more important operations are maintained; e.g. reactor start-up and shutdown. Qualified instructors and training material are utilized. Evaluations of students' training progression and retraining status are maintained.

The training program assures competent material selection and instruction. The retraining program is designed to maintain current operator competence and uses current NRC recertification proposals as a guide. Training aids and individual study periods shall be utilized. Formal classroom instruction shall be scheduled. Evaluation of trainee's progress shall be documented.

The training program also includes provisions for non-licensed personnel and general employee indoctrination. As appropriate to the duties and responsibilities of an individual, general employee training includes: quality related plans and procedures appropriate to the specific job related activities; radiological health and safety, industrial safety and first aid; fire protection; quality assurance principles; plant controlled access areas and security; and the use of protective clothing and respiratory equipment. Personnel performing quality related activities shall be trained and qualified in the principles and techniques of the activities being performed. These areas include technical training, on-shift training, qualification or certification requirements, and qualifying tests, as appropriate for the job position. Administrative procedures shall delineate the scope, objectives and methods associated with the training program along with requirements for retraining and documentation of the training accomplished. The qualification requirements for plant personnel are described in Section 13.1.3.

The Electric Production Department has taken predetermined and systematic action to assure that LGS operations are conducted in a safe efficient manner. High employee loyalty evidenced by many years of continuous service and low employee turnover combined

with specialized training programs and other employee benefits is recognized as significant contributors to quality in the operational phase.

17.2A.2.3

Surveillance testing of safety systems and instruments as required by the Technical Specifications is an activity which is an important contribution to the operational safety of LGS. Administrative Procedures require that these tests be conducted by knowledgeable, qualified persons, fully aware of system interaction and in a high quality manner. System tests associated with process operation are conducted by the shift operations group with inspection and checking done by shift supervision, members of the technical group, and are reviewed by a member of the Plant Staff. Approved procedures and documented reports are utilized to assure high quality in this activity.

17.2A.2.4

Work associated with radiation-protection and chemistry is conducted under supervision of the Engineer Health Physics & Chemistry (HP&C). The activities are divided into two types: first, those of a routine and non-complicated nature and second, those of a non-routine or complex nature. Activities of the first type are generally performed by members of the shift operations group. In this way, this group maintains competence in the area of radiation control and chemistry and provides the capability for 24 hour per day radiation and chemistry monitoring. The more complex studies and tests are performed by members assigned to the technical group. The importance of radiation control (ALARA), and chemistry on nuclear plant operation warrants every effort to establish high quality in this activity. Mechanisms such as shift and daily written reports, plots, and log books will be reviewed by appropriate supervision as specified in Administrative Procedures. Inspections and reviews will also be conducted by senior plant supervision as defined in Administrative Procedures.

17.2A.2.5

Mechanical and electrical maintenance at LGS will be performed by the Maintenance Division of the Electric Production Department as a service to the operating organization. The Maintenance Division is organizationally independent of the plant operating staff and reports through its Superintendent to departmental management. The Maintenance Division has an Engineering Section which assigns personnel to the station to provide quality control checking, inspection, and engineering support. The Engineer-Maintenance who is part of the plant staff coordinates and serves as the operating staff - Maintenance Division interfacing agent.

Only qualified craftsmen are utilized to perform maintenance work. First and second level supervision have had specific quality training and are recognized as informal but a most important means of controlling quality. Installation of new components or the physical change in systems of a major nature is considered a modification activity which will normally be implemented by the Engineering and Research Department. Quality assurance measures and organization shall be implemented in a fashion similar to that used during plant design and construction with the additional assurance of review and approval by the Plant Operations Review Committee and, as appropriate, Operations and Safety Review Committee.

17.2A.2.6

The procurement of spare parts, materials, and services for LGS is initiated by cognizant personnel in accordance with approved policies and procedures. The Stores Division is an independent organization functioning as a service group to the Electric Production Department. The ordering, receipt, storage and issuance is accomplished in accordance with Stores Division, Systems Division, and plant procedures which incorporate suitable measures to assure quality. Requisitions for materials or services are transmitted from the Stores Division to the Purchasing Division where buyers and purchasing agents execute the order in accordance with Company purchasing procedures and policies.

17.2A.2.7

The EP QA Program for Limerick Generating Station Volume III (Operation Phase) will be defined in the Limerick QA Plan. The Plan implements the policies and objectives of the Electric Production Department by addressing the managerial and administrative controls in various operational activities such as: Startup, Training, Health Physics and Chemistry, Fuel Handling, Shift Operations, Surveillance Testing, Maintenance of Instruments, Maintenance-Electrical and Mechanical, In-Service Inspection, Stores and Purchasing, Modifications, and Plans.

For each of these activities, the QA Plan shall address the 18 criteria of 10CFR50, Appendix B and describe how each activity is in compliance with the applicable criteria in Appendix B. Procedures are written to implement all aspects of the QA Plan. A matrix of these procedures or documents is presented in Appendix 17.2A.I to demonstrate that 10CFR50, Appendix B criteria are fully implemented by documented procedures.

→ insert - 3

Administrative procedures for the preparation of documents, such as drawings, specifications, and procedures assure that the use of appropriate equipment, suitable environmental conditions, and compliance with necessary prerequisites are considered, as

necessary, to perform activities affecting quality under controlled conditions.

The development, control, and use of computer code programs, commensurate with its importance to safety, shall be conducted in accordance with QA program. Software, commensurate with its importance to safety, used in the operation phase of Limerick Generating Station shall be subject to verification and validation by Philadelphia Electric Company and approval by plant personnel other than the original designers or developers.

The EP QA Program shall be reviewed periodically by the Superintendent-QA Division to determine status and adequacy.

or other qualified personnel. Insert-2

The Office of the Vice President - Electric Production Department is informed on a continuing basis of the status and effectiveness of the quality assurance program through reports at Vice-Presidential Staff Meetings.

17.2A.2.8

The LGS EP QA Plan applies to activities affecting the quality of systems, components, and structures installed to prevent or mitigate the consequences of an accident which could be harmful to the public. These structures, systems and components are identified through the LGS Project Q-List and the Quality Assurance Diagrams. Although the measures discussed apply primarily to Q-listed equipment, they may also be applied in varying degrees to non-Q listed equipment. The application of these quality assurance measures to non-Q listed systems will additionally enhance operational safety.

The LGS QA Plan is approved by the Superintendent, QA Division; Superintendent, Generation Division-Nuclear; and the Vice President or Manager of the Electric Production Department.

Revisions to the Plan will be made by the recommendations of the Superintendent, Generation Division-Nuclear; and Superintendent, QA Division; with mutual approval, and will be approved by the Vice President or Manager of Electric Production prior to issue.

17.2A.2.9

The Quality Assurance Division is staffed with trained and qualified personnel, both on and off site, who are organizationally independent of the Generation Division. The QA Division has the primary responsibility to verify through the review of objective evidence and the performance of observations that the quality assurance program is being accomplished in accordance with the LGS QA Plan. This verification is accomplished by means of planned and periodic audits and surveillances.

The Superintendent, QA Division, is responsible for developing and maintaining a quality assurance indoctrination and training program for Division personnel to establish proficiency in quality assurance and to qualify personnel in accordance with Division requirements and procedures.

QA Division may involve itself in the planning of quality related activities as they deem necessary to assure that quality assurance requirements are provided consistent with importance to safety.

Resolutions of differences of opinion between audited and auditing personnel, regarding deficiencies or noncompliances identified by QA Division shall be made by Department Management.

QA Division personnel are authorized to stop work when such work is considered to be a serious quality degradation.

17.2A.2.10

The quality assurance program for LGS is documented by written policies, procedures and instructions and shall be carried out throughout the life of the plant.

The Superintendent, QA Division, shall review and approve all Administrative Procedures that implement the LGS EP QA Plan.

The administrative and implementing procedures and instructions pertaining to quality-related activities are written to accomplish those activities with appropriate equipment under suitable environmental conditions.

→ insert 1

17.2A.3 DESIGN CONTROL

17.2A.3.1

Measures shall be established and documented to assure that the applicable specified design requirements, such as design bases, regulatory requirements, codes, and standards are correctly translated into specifications, drawings, procedures, or instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents. Changes or deviations from specified design requirements or quality standards shall be identified, documented and controlled. Records of implementation of these design control measures, as defined in the design control procedures, shall be available for review.

Design control measures shall be applied as necessary to identify and control design interfaces and for coordination among participating design organizations. These measures shall include the establishment of procedures among participating design

organizations for the review, approval, release, distribution, and revision of documents involving design interfaces.

Design control measures are applied to items such as the following: reactor physics, stress, thermal, hydraulic, and accident analyses; compatibility of materials; accessibility for in-service inspection, maintenance, and repair; and include a delineation of acceptance criteria for inspections and tests and other design work on Q-listed items or systems.

17.2A.3.2

Plant modifications shall be controlled and administered by Administrative Procedures and shall be categorized as major or minor. Design and design control measures for minor modifications shall be established in Administrative Procedures for plant modifications.

Major modifications shall be defined by the LGS Administrative Procedures and may be referred to and accomplished by the E&R Department in accordance with Section 17.2B.

In certain cases, major modifications may be implemented by the Electric Production Department provided such modifications are designed by the original designer (NSSS, A/E or Equipment designer) and reviewed by cognizant PECO personnel.

→ Insert - 4 & 7

17.2A.3.3

Design control measures shall be applied to verify or check the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.

Design adequacy of minor modifications shall be an independent design review in accordance with LGS Administrative Procedures. These reviews shall be performed by cognizant engineers on the plant staff, in the appropriate Division of the E&R Department, or in some cases by the Engineering Section in the Maintenance Division and Services Division of the Electric Production Department. The reviews shall consist of reviewing the design, spot checking the calculations or analysis, and assessing the results against the original design basis and functional requirements.

17.2A.3.4

Instructions for the design of minor modifications shall be written to require compliance to regulatory requirements as defined in 10 CFR, Part 50.59, and as defined in the license

application in accordance with the design basis of the structures, systems, or components.

Minor modifications are normally of a scale which do not require design interfaces and coordination among different design organizations.

Approval of minor modifications shall be delineated in LGS Administrative Procedures pertaining to Plant Modifications.

Design documents for minor modifications such as proposals, records, procedures and approvals shall be administered, maintained, and controlled in accordance with Administrative Procedures.

17.2A.3.5

Measures shall be established to assure that the modifications meet design, installation, inspection, testing and quality assurance standards. Testing of modifications assures system integrity and provides for evaluation of performance prior to operation.

17.2A.4 PROCUREMENT DOCUMENT CONTROL

17.2A.4.1

Measures shall be established and documented to assure that applicable regulatory requirements, design bases, and other requirements which are necessary to assure adequate quality are included or referenced in the documents for procurement of items and services. Changes in procurement documents shall be subject to the same degree of control as was utilized in the preparation of the original document. To the extent necessary, procurement documents shall require vendors to provide a quality assurance program consistent with the pertinent requirements of 10CFR50 Appendix B or other appropriate measures shall be specified.

→ insert [redacted]8

Procurement documents shall include provisions for the following, as applicable.

a. Supplier Quality Assurance Program

b. Basic Technical Requirements

c. Source Inspection and Audit

d. Documentation Requirements

e. Lower Tier Procurements

17.2A.4.2

Measures shall be established in accordance with Administrative Procedures to control the preparation, review, approval, and issuance of procurement documents.

Administrative Procedures shall require that a cognizant member of the requisitioning organization determine the technical and quality assurance requirements for a Nuclear Safety-related item or service. He shall determine the applicable specifications, drawings, details, code requirements to be applied to the procurement document. He shall also determine any special controls to be applied such as vendor controls, hold points, tests to be performed, along with acceptance or rejection criteria, sub-vendor controls, vendor check points, test data, test results, special labeling, storage instructions, requirements for reporting nonconformances, shipping instructions, and documentation requirements.

Personnel knowledgeable in QA practices shall review all "Nuclear Safety Related" requisitions for adequacy of quality requirements.

17.2A.4.3

Purchase orders shall be issued to suppliers whose quality assurance programs have been evaluated for adequacy or other appropriate measures shall be defined to assure quality.

17.2A.4.4

The Stores Division and Purchasing Department shall process only approved requisitions in accordance with PECO Procurement procedures and policies.

The Purchasing Department shall not alter the requisition of any Nuclear Safety-Related item or service without prior approval of the requisitioning source.

17.2A.4.5

Requisitions for Nuclear Safety-Related items shall clearly indicate that the request is for a "Nuclear Safety-Related" items.

17.2A.4.6

Procurement Documents shall be maintained in accordance with Section 17.2A.17.

17.2A.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

17.2A.5.1

Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative criteria for determining that important activities have been satisfactorily accomplished.

The activity may be prescribed in job specifications, work instructions, shop drawings, job tickets, planning sheets, operating or procedure manuals, test procedures, or any other type of written form, provided that the activity is adequately described. Quantitative criteria, such as dimensions, tolerances, and operating limits, and qualitative criteria, such as comparative workmanship samples, shall be specified, as appropriate, for determining satisfactory work performance and quality compliance.

The review and approval of station procedures is described in Section 13.5. In addition, the POR Committee, whose members are knowledgeable in quality requirements and administrative controls, reviews procedures, such as for tests and maintenance, which are developed in the modification process.

17.2A.5.2

Station Administrative Procedures shall be reviewed by the POR Committee or by a subcommittee appointed by PORC and approved by the Station Superintendent or his desiginated alternates and the Superintendent, QA Division, and shall be distributed to predetermined personnel. These administrative procedures shall contain provisions which clearly delineate the sequence of actions for the preparation, review, approval, and control of activity implementing procedures, instructions and drawings.

17.2A.5.3

Implementing procedures, instructions and drawings shall include, as appropriate, quantitative and qualitative acceptance criteria, signoffs, hold points and witness points to assure that important activities are satisfactorily accomplished.

Appropriate recording documents such as log books, work request forms, check-off lists, or data sheets, shall be used, when appropriate, to assure compliance with the instructions, procedures and drawings.

Procedures may also include applicable reference to vendor equipment manuals, design drawings and specifications, prerequisites, special precautions and the delineation of the work to be accomplished.

Equipment manuals and manufacturers' instructions shall be readily available for use.

17.2A.5.4

Quality Assurance personnel shall, in the course of the auditing program, selectively review the adequacy, completeness, and effectiveness of implementing procedures, instructions, and drawings associated with activities performed under the QA Plan

Administrative type procedures shall be written by other organizations participating in quality related activities supporting operation of LGS under the EP QA Program. These procedures shall contain provisions which clearly delineate the sequence of actions for the conduct of safety-related activities. The Superintendent, QA Division shall review and approve these administrative procedures to assure compliance with the LGS EP QA Plan.

17.2A.6 DOCUMENT CONTROL

17.2A.6.1

Measures shall be established and documented to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto, which prescribe activities affecting quality. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. Changes to documents shall be reviewed and approved by the same organizations that performed the original review and approval unless other organizations are specifically designated. The reviewing organizations shall have access to pertinent background information upon which to base its approval and shall have adequate understanding of the requirements and intent of the original document.

17.2A.6.2

Those participating in an activity shall be made aware of and shall use proper and current instructions, procedures, drawings, for performing the activity. Participating organizations shall have procedures for control of the documents and changes thereto to avoid the misuse of outdated or inappropriate documents.

Document control measures shall provide for:

a. Identification of individuals or organizations responsible for preparing, reviewing, approving, and issuing documents and revisions thereto.

b. Identifying the proper documents to be used in performing the activity.

c. Coordination and control of interface documents.

d. Ascertaining that proper documents are being used.

e. Establishing current and updated distribution lists.

f. A mechanism for temporary and emergency procedural changes.

Procedures will also prescribe the methods (such as training/reading lists) by which those personnel participating in an activity are made aware of modifications and document changes.

→ insert 6

17.2A.6.4

LGS QA Plan and Quality Assurance Division procedures and revisions thereto shall be controlled as per QA Division Procedures and Instructions Manual under the authority of the Superintendent, QA Division.

17.2A.6.5

LGS activity instructions, procedures, and drawings, delineated in the document control requirements of the QA Plan, shall be procedurally controlled and approved in accordance with the Administrative Procedures under the authority of designated, responsible management. These controls establish individual responsibilities for the preparation, review, approval, and distribution that apply to the various quality related activities.

17.2A.6.6

Temporary and emergency procedure change mechanisms shall be provided in the Administrative Procedure Controls.

17.2A.6.7

The control of documents shall apply to those records delineated in Section 17.2A.17.

17.2A.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

17.2A.7.1

Measures shall be established and documented to assure that purchased items and services conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the vendor, inspection at the source, and examination of items upon delivery.

17.2A.7.2

Material, equipment, and services are purchased from vendors, suppliers or contractors having an acceptable quality assurance program which is consistent with applicable regulatory requirements and design basis or other appropriate measures shall be defined to assure quality. The E&R Department Quality Assurance Section is responsible for evaluations of vendors, suppliers or contractors as described in Section 17.2B.7

Procurement of items or services from other than "Evaluated Suppliers" shall be controlled and shall have the concurrence of the Superintendent, QA Division or his alternate for establishment of procurement requirements to assure the quality of the product.

17.2A.7.3

Measures for evaluation and selection of procurement sources include the use of historical quality performance data, source surveys or audits, or source qualification programs.

Procurement documents include, as appropriate, hold points or inspection points to verify compliance with procurement specifications.

Source inspection or audit shall be performed as necessary to assure the required quality of an item. Source inspection or audit may not be necessary when the quality of the item can be verified by review of test reports, inspection upon receipt, or other means.

17.2A.7.4

Where required by code, regulations or specification, documentary evidence that items conform to procurement requirements shall be available at the plant site prior to installation or use of such items. This documentary evidence shall be retained at the plant site and shall be sufficient to identify the specific requirements such as codes, standards, and specifications met by

the purchased item. Where not precluded by other requirements, such documentary evidence may take the form of written certifications of conformance which identify the requirements met by the items, providing means are available to verify the validity of such certificates.

17.2A.7.5

Receipt inspections shall be performed to verify that material components or parts received conform to the purchase order requirements.

Receipt inspection shall be performed by personnel who have access to the pertinent procurement documents and who have an understanding of the technical and quality requirements of the procurement document. Responsibility for receipt inspection shall be delineated in Administrative Procedures.

Receipt inspection shall include, as appropriate, visual examination of physical properties, determination and identification of marking or labeling, review and inspection of quality assurance documentation to verify conformance with the purchase order specifications and requirements.

Control and identification status of the receipted material parts or components shall be accomplished in accordance with Administrative Procedures.

→ insert 7

17.2A.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

17.2A.8.1

Measures shall be established and documented for the identification and control of materials, parts, and components including partially fabricated sub-assemblies. These measures shall provide for assuring that only correct and accepted items are used and installed, and relating an item of production (batch, lot, component, part) at any stage, from initial receipt through fabrication, installation, repair or modification, to an applicable drawing, specification, or other pertinent technical document. Physical identification shall be used to the maximum extent practicable. 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.

When codes, standards or specifications require traceability of materials, parts or components to specific inspection or test records, the procedures shall be designed to provide such traceability.

17.2A.8.2

Measures shall be established to identify and control materials (including consumables), parts or components in accordance with written procedures (including shelf life) and instructions and shall apply to the fabrication, storage, and installation or use of the materials (including consumables), parts or components.

Consumables, as addressed above, include, but are not limited to, weld filler material, lubricants, chemicals, reagents, and fuels that impact on safety-related equipment.

17.2A.8.3

The identification and control of materials, parts or components associated with design change activities shall be delineated in Administrative Procedures and shall cover such items as traceability to specifications, purchase orders, quality assurance documentation, fabrication and installation inspection and functional verification tests prior to use or placement in operation.

17.2A.9 CONTROL OF SPECIAL PROCESSES

17.2A.9.1

Measures shall be established and documented to assure that special processes, including welding, heat treating, chemical cleaning, coating and nondestructive examination, are accomplished under controlled conditions in accordance with applicable codes, standards, specifications, criteria and other special requirements, using qualified personnel, equipment, and procedures. Qualification of personnel, procedures, and equipment shall comply with the requirements of applicable codes and standards. Documentation shall be maintained for currently qualified personnel, processes, or equipment in accordance with the requirements of pertinent codes and standards. For special processes not covered by existing codes or standards, or where item quality requirements exceed the requirements of established

codes or standards, the necessary qualifications of personnel, procedures, or equipment shall be defined.

17.2A.9.2

The Maintenance Division, in conjunction with other departments within the Company, and outside consultants when necessary, is responsible for development of special processes such as welding, heat treating, and nondestructive examination performed under the EP QA Plan. These processes, the equipment used and the personnel implementing them shall be qualified.

17.2A.9.3

Measures shall be established to control special processes, the equipment used, and the personnel implementing them in accordance with written procedures, instructions and drawings. Review and approval of special process procedures shall be accomplished in accordance with Administrative Procedures.

Special instructions, procedures and drawings shall be furnished in accordance with applicable codes, standards, specifications, criteria, and other supplementary requirements. Special processes may be reviewed by cognizant PECO personnel or outside consultants.

17.2A.9.4

Certification of welders performing activities under the EP QA Plan shall be kept current through records of qualifying tests, recording of welds on current work, retraining and qualifying for specialty work in accordance with Maintenance Division Administrative Procedures.

17.2A.9.5

The nondestructive examination procedures for the In-Service Inspection shall be written in accordance with applicable codes, standards and specifications.

NDE procedures shall require that personnel performing these examinations be qualified in accordance with the recommendations of the American Society for Nondestructive Testing Practice No. SNT-TC-1A, "Recommended Practice for Nondestructive Testing Personnel Qualification and Certification".

17.2A.9.6

Results of special processes performed shall be documented, in accordance with approved instructions and procedures.

17.2A.10 INSPECTION

17.2A.10.1

A program for inspection of activities affecting quality shall be established and executed by the organization performing the activity to verify conformance to the documented instructions, procedures, and drawings for accomplishing the activity. Inspection activities to verify the quality of work shall be performed by persons other than those who performed the activity being inspected. Such persons shall not report directly to the immediate supervisors who are responsible for the work being inspected.

The inspection programs for modifications and non-routine or major maintenance work shall be accomplished by personnel independent of the group or individual performing the work.

Examinations, measurements, or tests of items processed shall be performed for each work operation where necessary to assure quality.

A program for the inspection of quality related activities is established through administrative and implementing procedures to verify conformance with applicable procedures, instructions and drawing requirements.

The preparation and control of procedures, instructions and drawings are in accordance with Administrative Procedures.

17.2A.10.2

If inspection of processed items is impossible or disadvantageous, indirect control by monitoring of processing methods, equipment, and personnel shall be provided. Both inspection and process monitoring shall be provided when control is inadequate without both.

17.2A.10.3

If mandatory inspection hold points, which require witnessing or inspecting and beyond which work shall not proceed are required, the specific hold points shall be indicated in appropriate procedures. Such inspection shall be documented prior to the continuation of work beyond the designated hold point.

The procedures shall include the characteristics to be inspected, a description of the method of inspection, acceptance/rejection criteria, a description of necessary measuring and test equipment, and the identification of the individual or group responsible for inspection.

→ including appropriate accuracy requirements

Satisfactory completion of inspection points shall be documented and shall be included in the documentation associated with the performance of the work. → by a qualified individual

Verification of equipment operability following maintenance and modification work shall be accomplished, along with inspection of the work area for safety, cleanliness and health physics practices.

17.2A.10.4

Personnel performing Quality Control inspections shall be qualified in accordance with applicable industry standards and company training programs. Certifications of inspector qualifications shall be maintained in accordance with Administrative Procedures.

17.2A.10.5

The code authorized inspector shall assure that the ASME B&PV Code inspections are performed in accordance with written approved procedures and accomplished by qualified personnel in accordance with ASME Code requirements.

17.2A.10.6

A program for required in-service inspection of completed systems, structures and components shall be planned and executed by or for the organization responsible for operation of the plant.

17.2A.10.7

QA Division shall perform surveillance of selected quality related "work-in-progress" activities commensurate with the importance to safety to verify that certain aspects of the Quality Assurance Program are performed adequately and in compliance with program and procedural requirements.

Procedures shall be selectively reviewed in the course of QA Audits and Surveillances to assure that necessary inspection points are included and that a mechanism is provided for the documentation of inspection results.

17.2A.11 TEST CONTROL

17.2A.11.1

A test program shall be established to assure that all testing required to demonstrate that the item will perform satisfactorily in service is identified and documented, and that the testing is performed in accordance with written test procedures which incorporate or reference the requirements and acceptance limits contained in applicable Technical Specifications and design documents. The test program shall cover all required tests, including, as appropriate, qualifications tests, post maintenance or modification tests, and operational surveillance tests to verify continued satisfactory performance during operation.

The program for the control of testing shall be established in accordance with Administrative procedures.

17.2A.11.1.1

Measures shall be established such that when an activity involves breaching a pressure retaining item, the quality of the work can be demonstrated through a functional test. The functional test shall be performed by individuals other than those who performed or directly supervised the work, but within the same group.

INSERT-9

17.2A.11.2

Test procedures shall include provisions for assuring that prerequisites for the given test have been met, that adequate instrumentation is available and used, and that necessary monitoring is performed. Prerequisites include such items as calibrated instrumentation, appropriate equipment, trained personnel, condition of test equipment and the item to be tested, suitable environmental conditions, and provisions for data acquisition. Test Results shall be documented. Test procedures or instructions shall include or reference requirements for the evaluation of test results when an evaluation is appropriate. Evaluation beyond that given by testing personnel is not normally required for go/no-go and pass/fail type tests.

Unsatisfactorily test results shall be documented as required by procedures and corrective action taken in accordance with Administrative Procedures.

17.2A.11.3

The Technical Specifications establish the requirements for the safe operation of the plant, including provisions for periodic and non-periodic tests and inspections of various structures, systems, and components. Periodic tests are those test delineated in the surveillance testing activity and non-periodic tests are those proof tests performed following modifications or major maintenance.

17.2A.11.4

Overall control of tests shall be accomplished by the Shift Operations personnel in order to assure that testing of components, systems and instruments do not adversely affect the safe operation of the plant.

17.2A.11.5

In addition to the above testing program, an In-Service Inspection Program shall be developed and implemented to assure that plant components perform satisfactorily in service. The program shall include baseline examinations and periodic examinations in accordance with Technical Specifications.

17.2A.12 CONTROL OF MEASURING AND TEST EQUIPMENT

17.2A.12.1

Measures shall be established and documented to assure that tools, gages, instruments, and other inspection, measuring, and testing equipment and devices used in activities affecting quality are of the proper range, type, and accuracy to verify conformance to established requirements. To assure accuracy, inspection, measuring, and test equipment shall be controlled, calibrated, adjusted, and maintained at prescribed intervals or prior to use against certified equipment having known valid relationships to nationally recognized standards. If no national standards exist, the basis for calibration shall be documented. This requirement is not intended to imply a need for special calibration and control measures on rulers, tape measures, levels, and such other devices, if normal commercial practices provide adequate accuracy.

17.2A.12.2

The method and interval of calibration for each item shall be defined and shall be based on the type of equipment, stability characteristics, required accuracy, and other conditions affecting measurement control. Special calibration shall be performed when accuracy of the equipment is suspect. When inspection, measuring and test equipment are found to be out of calibration, an evaluation shall be made and documented of the validity of previous inspection or test results and of the acceptability of items previously inspected or tested. If any inspection, measuring, or test equipment is consistently found to be out of calibration, it shall be repaired or replaced.

17.2A.12.3

Reference standards used for calibrating measuring and test equipment shall have an accuracy level, acceptable calibration ranges, and precision that are ~~equal to or~~ better than those required of the measuring and test equipment.

The accuracies of measuring and test equipment and the reference standards shall be chosen such that the equipment being calibrated can be calibrated and maintained within the required tolerances.

Calibration shall be performed with standards and calibrated test equipment that has known valid relationships to nationally recognized standards or to physical constants.

Records shall be maintained and equipment suitably marked, or otherwise controlled, to indicate calibration status. Such records shall be traceable and retrievable.

Calibration of measuring and test equipment shall be against reference standards that have an accuracy of at least four times the required accuracy of the equipment or, when this is not possible, has an accuracy that assures the equipment being calibrated will be within required tolerance and that the basis of acceptance is documented and authorized by responsible management.

17.2A.13 HANDLING, STORAGE, AND SHIPPING

17.2A.13.1

Measures shall be established and documented to control handling, storage, and shipping, including cleaning, packaging and preservation of material and equipment in accordance with established instructions, procedures, or drawings, to prevent damage, deterioration and loss. When necessary for particular items, special coverings, special equipment, and special protective environments, such as inert gas atmosphere, specific moisture content levels, and temperature levels shall be specified, provided, and their existence verified.

17.2A.13.2

Special handling tools important to nuclear safety shall be inspected and tested in accordance with written procedures and at specified times, to verify that the tools and equipment are adequately maintained.

17.2A.13.3

Packaging requirements shall be delineated, as necessary to avoid deleterious effects of shock, vibration, physical damage and protection against environments.

Shipping requirements shall be delineated, as necessary, to provide adequate protection during loading and transit. Labeling requirements are to be applied in a manner that is clearly visible and remain legible to specify special controls or handling instructions.

17.2A.14 INSPECTION, TEST, AND OPERATING STATUS

17.2A.14.1

Procedures ~~Measures~~ shall be established and documented to identify inspection test and operation status. Such ~~measures~~ Procedures shall provide means for assuring that required inspections and tests are performed and that the acceptability of items with regard to inspections and tests performed is known throughout procurement, installation, and operation to preclude inadvertent bypassing or altering the sequence of such inspections and tests. (Such actions ~~should~~ shall be subject to the same controls as the original review and approval). Nonconforming items shall be clearly identified.

17.2A.14.2

The inspection and test status of items shall be maintained through the use of status indicators such as physical location, tags, markings, shop travelers, stamps, or inspection records. The measures shall provide for assuring that only items that have passed the required inspections and tests are used, installed, or operated. These measures shall include procedures for control of status indicators, including the authority for application and removal of tags, markings, labels, and stamps.

17.2A.14.3

Measures shall also provide for indicating the operating status of systems and components of the nuclear power plant, such as by tagging valves and switches, to prevent inadvertent operation.

The operating status of components under test or inspection shall be indicated and controlled through the use of the handbook for permits and blocking, procedure check lists, or logs to prevent inadvertant use.

17.2A.14.4

Defective material, parts or components shall be promptly identified, tagged and recorded or otherwise controlled to

indicate operating status of such equipment and to prevent its inadvertant use.

17.2A.14.5

Implementation of these measures shall be verified through the QA Division auditing program conducted in accordance with the QA Plan. These activities shall assure that the required inspections and tests are procedurally controlled as required by the QA Plan.

17.2A.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

17.2A.15.1

Measures shall be established and implemented to control materials, parts, or components which do not conform to requirements to prevent their inadvertent use or installation. The measures established shall include, as appropriate, administrative and/or implementing procedures for the following functions for nonconforming materials, parts, or components.

a. Identification. As a guideline, control of nonconforming items by tagging, marking, or other means of identification is acceptable where physical segregation is not practical, although physical segregation and marking are preferred.

b. Segregation where necessary and possible; otherwise, identification will serve this function.

c. Disposition covering:

   1. Restoration to conforming status. Repaired and reworked items shall be reinspected in accordance with applicable procedures, or

   2. Replacement with conforming material, or

   3. Acceptance for interim use until replaced. Such measures shall provide assurance that the item is identified as nonconforming and controlled. The measures shall require documentation verifying the acceptability of nonconforming items which have the disposition of "repair" or "use as is". A description of the change, waiver, or deviation that has been accepted shall be documented to record the change and denote the as-built condition.

d. Notification to station management and other responsible organizations of equipment malfunctions or deviations.

These notifications may be either oral or written form of a suspected Abnormal Occurrence Report or work request form, as appropriate. The notificating system shall include provisions for initial and follow-up information until the item is finally dispositioned.

e. The responsibility and authority for the disposition of nonconforming items shall be defined for each responsible organization.

f. Documentation of each item from first identification to final disposition.

17.2A.15.2

Nonconforming materials, parts, or components identified by QA Division personnel shall be reported to Station Management in accordance with applicable procedures.

17.2A.15.3

PECO shall report abnormal occurrences and unusual events to the USNRC as required by NRC Regulations and LGS Technical Specifications.

17.2A.15.4

It is PECO's policy and intent that nonconforming materials, parts, or components not be installed in LGS. Where technical adequacy is demonstrated to PE's satisfaction, use of some nonconforming materials, parts, or components may be permitted. When this is done a complete record shall be available throughout the life of the material, part or component. In no case will use of nonconforming materials, parts, or components be permitted if a hazard to the health and safety of the public could result from their use. Administrative Procedure shall delineate acceptance and approval mechanisms for permitting use of nonconforming materials, parts, or components.

17.2A.15.5

Vendors supplying materials, parts, or components are required to notify PECO of nonconformance to the procurement documents requirements and to obtain approval from PECO prior to disposition.

17.2A.16 CORRECTIVE ACTION

17.2A.16.1

Measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Conditions adverse to quality are failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance to specified requirements. The measures established shall include the following:

a. In cases of significant conditions adverse to quality, the cause of the condition shall be determined and documented, and corrective action taken and documented to preclude recurrance.

b. Reports to appropriate levels of management of the significant condition adverse to quality and documentation of such reports.

17.2A.16.2

Administrative Procedures shall require that modification and repair procedures include the reworking of components, systems or structures in accordance with original specifications, instruction manuals, instructions, prints, codes and standards. Appropriate testing and inspection requirements shall be included to verify acceptability of the repairs or modifications.

17.2A.16.3

The responsibility for the above is assigned to the LGS staff members responsible for the various activities.

17.2A.16.4

QA Division through its auditing program may identify conditions which require corrective action. Such conditions shall be reported to responsible management for corrective action in accordance with applicable procedures.

17.2A.16.4.1

Dependent upon factors, such as the nature of the deficiency, the cause, and the corrective action taken, QA Division shall follow-up corrective action of deficiencies identified by the QA Division auditing program to determine the adequacy and effectiveness of such action.

17.2A.16.4.2

The status of nonconformances or noncompliances identified by QA Division as a result of the auditing program shall be reported to the Manager and Vice President of the Electric Production Department periodically.

17.2A.16.5

Corrective action taken in response to an item identified by the QA Division ~~auditing~~ program shall ~~be reviewed by~~ QA Division, have the documented concurrence of the adequacy of the corrective action.

17.2A.17 QUALITY ASSURANCE RECORDS

17.2A.17.1

Sufficient records shall be maintained in accordance with the Administrative and implementing procedures to provide documentary evidence that activities affecting quality are performed adequately and in compliance with the Quality Assurance program. The requirements shall include collection, filing, storing, maintenance and disposition of records that are required by the QA Plan and by other codes, standards, specifications, or regulatory requirements. QA records shall include operating logs, maintenance and modification procedures, and related inspection results, reportable occurrences, and other records required by technical specifications. The procedures to be employed to perform the required activities shall be planned and documented.

17.2A.17.2

The significance of the event covered by a record type and the contribution of the record to the ability to reconstruct significant events shall be considered in establishing retention periods. Retention periods shall satisfy applicable statutory requirements.

17.2A.17.3

Storage requirements for the maintenance, preservation and protection of records from the time of entry into the receipt control system until their ultimate disposal shall be established..

The records shall be stored in predetermined locations as necessary to meet the requirements of applicable standards, codes, and regulatory agencies.

17.2A.17.4

Applicable design specifications, procurement documents, test procedures, operational procedures or other documents shall specify the quality records to be generated. All such records shall be legible, filled out to the extent required by procedure and adequately identifiable to the item or activity involved.

The applicable quality records shall be considered valid only if stamped, initialed, signed, or otherwise authenticated and dated by authorized personnel. These records may be either the original or a reproduced copy.

17.2A.17.5

Types of quality records with minimum retention periods are listed in LGS Technical Specifications. It should be recognized that the nomenclature of these records may vary. For records not listed in the Technical Specifications, the type most nearly describing the record in question should be followed with respect to its retention period.

17.2A.17.6

The QA Division and other organizations responsible for record control are defined in the administrative and implementing procedures.

17.2A.18 AUDITS

17.2A.18.1

Compliance with the requirements and guidance for establishing and implementing the Electric Production quality assurance program is assured through the QA Division auditing program. The operation covered by this auditing program include designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, modifying, maintaining LGS Q listed structures, systems and components.

17.2A.18.2

The QA Division auditing program shall consist of:

a. Audits - Documented activities performed in accordance with ANSI N45.2.12 as described in Appendix II.

b. Surveillances - Documented activities identical to Audits except that no formal audit plan and audit checklist are generated and no exit interview is conducted if no noncompliances are identified. Surveillances are normally initiated on short notice based on plant conditions and may include observation of work in process.

17.2A.18.3

The Superintendent, QA Division is responsible for the planning, performance, reporting, and follow-up of the auditing program of

the various aspects of the Quality Assurance Plan to determine compliance with the elements of, and effectiveness of the QA Plan.

17.2A.18.4

Audits and surveillances shall be performed in accordance with written procedures to confirm that the QA Program is implemented in accordance with documented instructions, procedures and drawings.

The results of the auditing program shall be documented by the Superintendent, QA Division and distributed to appropriate levels of management having responsibility in the area audited and Department management

17.2A.18.5

Audits shall be regularly scheduled on the basis of the status and importance of the activities. The following activities of the Quality Assurance program shall be audited at least every two years: Training, Health Physics and Chemistry, Fuel Handling, Shift Operations, Surveillance Testing, Maintenance - Instruments, In-service Inspection, Maintenance - Electrical and Mechanical, Stores and Purchasing, Modifications, and Plans. The Plans activity encompasses the LGS Emergency Plans, Physical Security Plan, and Radiological Environmental Monitoring Program.

Regularly scheduled audits may be supplemented by unannounced or unscheduled audits or surveillances as determined by the Superintendent, QA Division.

17.2A.18.6

Audits and surveillances shall be performed by personnel from the Quality Assurance Division, who are independent of any direct responsibilities for the performance of activities which they will audit. The QA Division may request assistance of personnel from other disciplines who are independent of areas being audited.

The Superintendent, QA Division shall establish the auditing program personnel qualifications and the requirements for the use of technical specialists to accomplish the auditing of the quality assurance program. Personnel shall be selected for quality assurance auditing assignments based on experience or training which establish that their qualifications are commensurate with the complexity or special nature of the activities to be audited. In selecting personnel for auditing assignments, consideration shall be given to special abilities,

specialized technical training, prior pertinent experience, personal characteristics and education.

17.2A.18.7

Audit and Surveillance procedures shall require that nonconformances which are identified be documented in sufficient detail to assure that required corrective action can be effectively carried out by the audited organization. Corrective action may be recommended, as appropriate, by the Superintendent, QA Division.

When corrective action measures are indicated, re-audits of applicable areas shall be conducted to assure implementation and effectiveness of the corrective actions.

17.2A.18.8

Audits performed under the cognizance of the O&SR Committee are discussed in Section 13.4.

17.2A.18.9

The measures implementing the auditing program shall be defined in procedures contained in the Quality Assurance Procedures and Instructions Manual.

17.2A.18.10

The auditing program shall be periodically reviewed and revised as necessary to assure that coverage and schedule reflect current activities.

SECTION 17.2A TEXT INSERTS

Insert 1

17.2A.2.11

Information concerning plant conditions and status should be made available to QA Division personnel to enable responsible QA supervision to determine when surveillances should be performed. This information may be in the form of communications with plant management or staff personnel through daily or periodic meetings. In addition, during the daily inspection, QA Division personnel shall periodically review operating logs, maintenance work schedules, the fuel handling operations schedule, the in-service inspection program, and modification proposals, which assure that QA Division personnel are involved in day-to-day activities that are important to safety.

Insert 2 Measures shall be established to assure that computer codes are appropriate for their specific applications.

Insert 3 The Superintendent, QA Division, in his review of Administrative Procedures, shall insure that regulatory guide commitments are included in the appropriate procedures.

All activities performed within Philadelphia

insert 3(cont.)

Electric Company are subject to formal periodic audits by EP QA Division. These audits verify that organizations performing these activities are complying with and properly implementing their procedures.

insert 4

17.2A.3.2.1

The initial determination of whether a particular proposed modification is to be considered Major or Minor shall be the responsibility of the Station Superintendent with the concurrence of PORC prior to the implementation of the modification.

insert 5

Special processes are those that require interim inprocess controls in addition to final inspection to assure quality.

insert 6

17.2A.6.3

Procedures shall be established for the preparation of documents (such as drawings, specifications, procurement documents, installation and testing procedures) which ~~provide~~ prescribe activities affecting quality. The procedures shall provide sufficient controls to ensure that these type of documents are:

Insert 6 (cont.)

a. Reviewed and approved by authorized personnel to assure that they are technically adequate and that the applicable quality requirements are stated.

b. Issued in a controlled manner.

c. Changed, reviewed, and approved in the same manner as the original or as specified in the procedure.

d. Availabe at the location where the activity will be performed prior to commencing the work.

e. Controlled to prevent the inadvertent use of obsolete or superseded documents.

Insert 7

Administrative Procedures will be written which require that major and minor modifications be reviewed after completion of the work to determine if the "as-built" installation differs from the original design, and that drawings and documents are revised; if required, to reflect the actual installation.

Insert 8

Administrative Procedures for procurement shall establish provisions that assure that the supplier furnishes the following records to PECo:

a) Documentation identifying the purchased items and the specific procurement requirements (e.g., codes, standards, specifications) met by the items.

b) Documentation identifying any procurement requirements that have not been met.

c) A discription of those nonconformances from the procurement documents that are proposed for disposition as "accept-as-is" or "repair".

The review and acceptance of these documents shall be described in the LGS QA [redacted] Plan.

INSERT 9

17.2A.11.1.1

MEASURES SHALL BE ESTABLISHED SUCH THAT WHEN AN ACTIVITY INVOLVES BREACHING A PRESSURE RETAINING ITEM, THE QUALITY OF THE WORK CAN BE DEMONSTRATED THROUGH A FUNCTIONAL TEST. THE FUNCTIONAL TEST SHALL BE PERFORMED BY INDIVIDUALS OTHER THAN THOES WHO PERFORMED OR DIRECTLY SUPERVISED THE WORK, BUT WITHIN THE SAME GROUP.

Insert 10

Bypassing of, or deviation from, required inspections, test, or operations defined in drawings and installation or test procedures shall be controlled by procedures In general, approval to by pass or deviate shall require the same approval as the original requirement unless other provisions are specified.

Insert 11

17.2A.16.6

Procedures shall be established to assure that safety-related structures and equipment nonconformances are controlled. These procedures shall include the following:

a) Identify those individuals or groups who shall authorize the corrective action.

b) Assure that the QC Organization who has responsibility for the job, review and approve the planned corrective action.

c) Documented the cause of the nonconformance, If it can be identified.

d) Identified and documented, if possible, the root cause

e) The appropriate staff engineer shall review the corrective action and equipment history

to determine: Equipment performance trends, to identify repetitive failures and to adjust, if applicable, the preventive maintenance program.

The QA Division shall verify through their Audit and Surveillance Program that the above controls are adequate.

Appendix 17.2A.I

Electric Production Department QA Program Implementation of 10 CFR, Part 50, Appendix B Criteria

This appendix identifies in matrix form, the general scope and/or content of the procedures or documents which will be generated to implement the EP QA Program. The matrix, Table 17.2A.I-1, demonstrates that each criterion of 10 CFR, Part 50, Appendix B is met by procedures or documents. The number and specific content of individual procedures or documents may be altered as the QA program is developed.

TABLE 17.2A.I-1 (Page 1 of 3)

10 CFR, Part 50 APPENDIX B CRITERION MATRIX

Use(1)	Procedures	10 CFR, Part 50 Appendix B Criterion																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L,M,R,S	Preparation and Control of Administrative Procedures		x			x	x											x	(2)
L	Plant Operations Review Committee	x	x	x		x											x	x	(2)
L	Plant and Shift Operations	x	x			x	x				x	x				x	x	x	(2)
L	Release of Safety Related Equipment for maint., mods	x	x			x			x						x			x	(2)
L	Temporary Modifications	x	x	x		x	x				x	x				x	x	x	(2)
L	Control of Plant Modifications	x	x	x	x	x	x	x		x	x	x	x			x	x	x	(2)
L	Control of In-plant Work	x	x			x			x	x	x	x			x	x	x	x	(2)
L	Administration of the Preventive Maintenance Program	x	x	x		x	x				x	x				x	x	x	(2)
L	Administration of the Surveillance Testing Program	x	x			x	x					x	x				x	x	(2)
L	Administration of Plant Records	x	x															x	(2)
L,M,S	Procurement	x	x	x	x	x	x	x	x	x	x			x		x	x	x	(2)
L	Administration of Plant Security Program	x	x			x					x								(2)

TABLE 17.2A.I-1 (Cont'd) (Page 2 of 3)

Use(1)	Procedures	10 CFR, Part 50 Appendix B Criterion 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L,M	Preparation and Control of Maintenance Procedures	x	x			x	x			x	x				x	x	x	x	(2)
L	Preparation and Control of Emergency Procedures	x	x			x	x											x	(2)
L	Preparation and Control of Emergency Plan Procedures	x	x			x	x											x	(2)
L	Preparation and Control of General Plant Procedures	x	x			x	x											x	(2)
L	Preparation and Control of System Procedures	x	x			x	x											x	(2)
L	Preparation and Control of Operational Transient Procedures	x	x			x	x											x	(2)
L	Preparation and Control of Alarm Response Cards	x	x			x	x											x	(2)
L	Preparation and Control of Fuel Handling Procedures	x	x			x	x				x							x	(2)
L	Preparation and Control of Health Physics Procedures	x	x			x	x						x					x	(2)
L	Preparation and Control of Chemistry Procedures	x	x			x	x						x					x	(2)
L	Temporary Changes to Approved Procedures	x	x			x	x											x	(2)

TABLE 17.2A.I-1 (Cont'd) (Page 3 of 3)

Use(1)	Procedures	10 CFR, Part 50 Appendix B Criterion																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L,M,R	Training/Qualification of Personnel	x	x			x	x											x	(2)
M	Control of Maintenance	x	x			x			x	x	x	x				x	x	x	(2)
M,R	Control of Measuring and Test Equipment	x	x			x						x				x	x	x	(2)
M	Handling/Storage of Equipment	x	x			x		x			x			x					(2)
M,R	QC Inspection/Qualification	x	x								x							x	(2)
M	Welding/Welding Procedure Qualification	x	x			x	x											x	(2)
R	Control of Maintenance	x	x			x	x	x	x		x		x	x	x	x	x	x	(2)

(1) L = Limerick Station Procedure
M = Maintenance Division Procedure
R = Research and Testing Division Procedure
S = Stores Division Procedure

(2) QA Division Procedures and Instruction/Manual

Appendix 17.2A.II

ELECTRIC PRODUCTION DEPARTMENT APPLICATION
OF INDUSTRY STANDARDS AND NRC REGULATORY GUIDES

Philadelphia Electric Company Electric Production Department Quality Assurance Program will follow the guidance contained in NRC Regulatory Guides and the requirements of Industry Standards as described below. When a Regulatory Guide endorses an Industry Standard, compliance with the recommendations of a guide indicates compliance with the requirements of the standard, and those guidelines modified by the guide. Documents referenced in an ANSI Standard are excluded unless they are addressed separately.

a. Regulatory Guide 1.30, August 1972, "Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment"
Endorses ANSI N45.2.4 - 1972.

PECO shall comply with Regulatory Guide 1.30, August 1972, and ANSI N45.2.4 - 1972 for those activities occurring during the operational phase that are comparable in nature and extent, as determined by the Station Superintendent or the PECO organization responsible for the activity, to related activities occurring during the initial design and construction phase, except for the following alternates:

1. ANSI N45.2.4, Section 1.1, Scope - PECO's alternate to classification of Class I and IE electric power, instrumentation, and control equipment is to apply the requirements of this standard to PECO "Q-listed" items. (Those instruments, equipment and systems that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.)

2. ANSI N45.2.4, Section 3, Preconstruction Verification - Subsection (3) requires the checking of records of protective measures maintained during storage for conformance to storage requirements. ANSI N45.2.2 - 1978, Section 6.4, Control of Items in Storage requires inspections and examination during the storage period. The responsibility within PECO for these inspections rests with the Stores Division. Compliance with these requirements for checking of records is assured through the auditing program conducted by Quality Assurance Division Personnel along with the monitoring of Stores Division Activities by Stores Division Supervision.

3. ANSI N45.2.4, Section 7, Data Analysis and Evaluation - A program for processing, reviewing, and analyzing electrical equipment and instrumentation inspection and test data for acceptability is provided in the administrative procedures which govern the repair, maintenance, and testing of electrical equipment and instrumentation. Maintenance is controlled through the use of a work request form that has provisions for cognizant personnel sign-off after completion of the work. Functional testing and calibration procedures include provisions for review, analysis of data, and approval by signature of cognizant personnel.

b. Regulatory Guide 1.33, Revision 2, February 1978, "Quality Assurance Program Requirements (Operations)." Endorses ANSI N18.7 - 1976/ANS 3.2.

PECO shall comply with Regulatory Guide 1.33 - Revision 2, February 1978 and ANSI N18.7 - 1976/ANS 3.2 except for the following clarifications or alternates:

1. Regulatory Guide 1.33, Section C.4 and ANSI N18.7 - 1976/ANS 3.2, Section 4.5, Audit Program - The audit program carried out by the Quality Assurance Division shall be performed in such a manner that individual activities of the EP QA Plan are investigated within a period of 2 years. This investigation shall consist of either audits or surveillances. See Section 17.2A.18.

2. Regulatory Guide 1.33, Section C.4.c and ANSI N18.7 - 1976/ANS 3.2, Section 4.5, Audit Program (second paragraph) - The word "performance" means the implementation of the training program, participation in the training program by individuals, and the comparison of documented qualifications with established requirements. Activities and records associated with confidential employee performance reviews and subjective evaluation of personnel capabilities are specifically excluded from the audit program.

3. Regulatory Guide 1.33, Section C.5.c and ANSI N18.7 - 1976/ANS 3.2, Section 5.2.4, Special Orders and Section 5.2.~~9~~ 10, Temporary Procedures - The types of procedures described in these sections are not expected to be used at LGS. Administrative Procedures will specify mechanisms for temporary changes to existing procedures.

4. ANSI N18.7 - 1976/ANS 3.2, Section 4.3, Independent Review Program - The description and activities of the

Operation and Safety Review Committee will be as specified in the LGS Technical Specifications.

5. ANSI N18.7 - 1976/ANS 3.2, Section 4.3.2.2, Meeting Frequency - The "period of initial operation" means "one year after fuel loading of Unit 1".

6. ANSI N18.7 - 1976/ANS 3.2, Section 4.3.4, Subjects Requiring Independent Review - Item (1) - Written safety evaluations which do not involve an unreviewed safety question and which do not involve a change to the Technical Specifications are not reviewed by the O&SR Committee. Depending upon the initiating organization, safety evaluations would be performed by an engineer, subjected to design review, and reviewed by the PORC. Because of such redundant reviews, it is not necessary for O&SR to review these documents and, because of the large number of such safety evaluations, the required effort may detract from more important matters considered by O&SR.

7. ANSI N18.7 - 1976/ANS 3.2, Section 4.4, Review Activities of the Onsite Operating Organization - The word "verify" does not imply review or certification by supervisory personnel of every day-to-day operating activity; rather, the performance of reviews of documents and logs and monitoring activities by supervisory personnel in accordance with station procedures and practices is considered to meet this requirement.

8. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.1, Responsibilities and Authorities of Operating Personnel - Item (4) is changed to read: "The responsibility to respond conservatively to instrument indications including the case in which the credibility of the indication is in doubt". This statement permits the operator to compare Control Room instruments and infer instrument error without proving it such as by calibration checks.

9. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.2, Procedure Adherence - The term "supervisor in charge of the shift" means either the Shift Superintendent or Shift Supervisor.

10. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.6, Equipment Control (6th paragraph, last sentence) and Section 5.2.13.2 (4th paragraph) - In order to allow for action other than obtaining the original specified documentation, "disposition by proper authority" is the

criteria for use of items which have been identified as nonconforming.

11. ANSI N18.7 - 1976/ANS 3.1, Section 5.2.6, Equipment Control

    (a.) Temporary modification (5th paragraph) - The need for independent verification of Temporary Modifications will be determined on an individual basis considering the complexity and impact of the modification.

    (b.) (7th paragraph) requires "operating personnel" to place equipment in operation. Equipment may be placed into operational status by personnel not on the operating staff, such as instrument technicians.

12. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.7, Maintenance and Modifications - The requirement concerning original design bases and requirements, material specifications, and inspection requirements is modified to permit approved alternate requirements which are subject to the design review process.

13. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.7.1, Maintenance Programs

    (a.) Emergency maintenance to Q-Listed equipment (work which must proceed immediately to correct a degraded condition) may be performed concurrent with procedure preparation and documentation of steps actually taken. Such maintenance may be performed with the authorization of designated personnel and subsequent procedure approval by the PORC.

    (b.) The cause of repetitive malfunctions should be determined; however, it is not practical, and may not be possible, to determine the cause of every malfunction.

14. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.10, Housekeeping and Cleanliness Control

    (a.) Control measures to prevent contamination with foreign materials will be specified in Administrative Procedures and will include, as appropriate, access control.

(b.) Second paragraph, first & second sentences are taken to mean: "Where needed to prevent contamination . . .".

15. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.11, Corrective Action - The Plant Operations Review Committee or Station Superintendent determines which items are "significant".

16. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.12, Plants Records Management - Retention periods will satisfy statutory requirements for the record. The significance of the event covered by the record and the contribution of the record to the ability to reconstruct significant events will be considered in establishing retention periods.

17. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.13, Procurement and Material Control - Item (1) - Administrative Procedures shall specify the means for control of procurement of commercially "off the shelf" items. The Administrative Procedures shall describe the receipt inspection, storage, and handling prior to installation and operation. → insert A1

18. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.13.1, Procurement Document Control, (second sentence) - QA program requirements or alternate approved methods will be used to assure quality. Examples of alternates for suppliers without QA programs include: material analysis, sample testing, in-process inspection and monitoring, and design review by PECO.

19. ANSI N18.7 - 1976/ANS 3.2, Section 5.2.15, Review, Approval and Control of Procedures - The frequency of review of plant procedures is discussed in FSAR Section 13.5.

20. ANSI N18.7-1976/ANS 3.2, Section 5.2.17, Inspections - The results of inspections are not always subject to a further evaluation. For example, evaluation beyond that given by inspection - level personnel is not normally required for go/no-go and pass/fail type inspections.

21. ANSI N18.7 - 1976/ANS 3.2, Section 5.3, Preparation of Instructions and Procedures, (last sentence) - The clarification regarding emergency maintenance in item (m), above, applies. → 13

22. ANSI N18.7 - 1976/ANS 3.2, Section 5.3.10, Test and Inspection Procedures, (first paragraph) - The

clarification regarding test result evaluations in item 2.b, above, applies.

23. ANSI N18.7 - 1976/ANS 3.2, Section 5.3.10, Test and Inspection Procedures, (second paragraph, last sentence) - These procedural aspects will be included when appropriate. For example, "as-found condition" is not applicable to all test and inspection procedures.

c. Regulatory Guide 1.37, March 1973, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants."
Endorses ANSI N45.2.1 - 1973.

Decontamination and cleanup of radioactively contaminated systems and components are not included in the scope of this response.

PECO shall comply with Regulatory Guide 1.37 - March 1973 and ANSI N45.2.1 - 1973 for those activities occurring during the operational phase that are comparable in nature and extent, as determined by the Station Superintendent or the PECO organization responsible for the activity, to related activities occurring during the initial design and construction phase except for the following alternate:

1. ANSI N45.2.1, Section 3.2, Water Quality Requirements - PH measurements are not required for conductivity values of ≤ 1 micromho/cm. PECO utilizes PH limits of 5.2 to 8.6 at 25° C, uncorrected for CO_2 and may apply conductivity measurements in place of total dissolved solids.

2. ANSI N45.2.1, Section 3.1.2, Class B - The flushing velocity may be as specified in other approved documents associated with the maintenance or modification, as well as procurement documents.

d. Regulatory Guide 1.38, Revision 2, May 1977, "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants."
Endorses ANSI N45.2.2 - 1972.

See discussion under ANSI/ASME N45.2.2 - 1978.

e. Regulatory Guide 1.39, Revision 2, September 1977, "Housekeeping Requirements for Water-Cooled Nuclear Power Plants."
Endorses ANSI N45.2.3 - 1973.

PECO shall comply with Regulatory Guide 1.39, September 1977 and ANSI N45.2.3 - 1973 for those activities occurring during the operational phase that are comparable in nature and extent, as determined by the Station Superintendent or the PECO organization responsible for the activity, to related activities occurring during the design and construction phase except for the following alternates:

1. ANSI N45.2.3, Section 2.1, Planning - Zone II requirements for clean gloves, shoe covers, and head coverings will be determined by health physics personnel under the radiation protection program and specific requirements listed on the Radiation Work Permit for entry in Zone II areas.

2. ANSI N45.2.3, Section 2.1, Planning - Material accountability for Zones II and III shall be controlled by procedural requirements, periodic inspections and surveillance of areas for acceptable housekeeping practices. Implementing procedures for activities such as maintenance and modifications require housekeeping and cleanliness inspections of areas and equipment to eliminate foreign materials that may have a detrimental effect. Post Maintenance or modification inspections for housekeeping and cleanliness shall be conducted and documented in accordance with administrative controls.

3. ANSI N45.2.3, Section 2.1 Planning - Personnel accountability for Zone III will be controlled as determined by the administrative controls for locked doors and radiation work permit requirements in lieu of specific access registers.

f. Regulatory Guide 1.58, Revision 1, "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel."
Endorses ANSI N45.2.6 - 1978.

Philadelphia Electric Company will comply with Regulatory Guide 1.58, Rev. 1 and ANSI N45.2.6-1978 except for the following clarification and alternates:

1. Regulatory Guide 1.58, Revision 1, section C.1, and ANSI N45.2.6-1978, subsection 1.2, states that the standard applies to "personnel who perform inspections, examinations, and tests." Philadelphia Electric Company

personnel, who inspect equipment as part of ~~routine~~ plant maintenance, in other than a quality control function, and plant staff personnel (as defined in the Limerick Technical Specifications) who approve test procedures and tests results and direct or supervise the conduct of individual tests, will be qualified in accordance with ANSI ~~N18.1-1971~~ ANS 3.1-1978 in lieu of ANSI N45.2.6-1978.

2. Regulatory Guide 1.58, Revision 1, section C.4 and ANSI N45.2.6-1978, subsection 1.5, discuss the applicability of documents referenced in the standard. In lieu of the latest revision of Regulatory Guides and ANSI Standards, PECo commitments are contained in Section 17.2.

3. ANSI N45.2.6-1978, subsection 3.5, presents experience recommendations for candidates. Experience in maintenance, modification, and operating activities is considered related experience because such experience provides training in the safety aspects of the facility.

g. Regulatory Guide 1.64, Revision 2, June 1976, "Quality Assurance Requirement for the Design of Nuclear Power Plants."
Endorses ANSI N45.2.11 - 1974.

PECO shall comply with Regulatory Guide 1.64, June 1976, and ANSI N45.2.11 - 1974 for those Electric Production Department activities occurring during the operational phase that are comparable in nature and extent, as determined by the Station Superintendent or the PECO organization responsible for the activity, to related activities occurring during the initial design phase with the following clarification and alternates:

Clarification -

1. Plant Design changes are categorized into Major and Minor Modifications. Design controls for Major Modifications which are delegated to the Engineering and Research Department are described in Section 17.2B. Major Modifications are defined in LGS Administrative Procedures.

2. Minor Modifications are accomplished under the controls of plant administrative procedures in accordance with the LGS EP Quality Assurance Plan.

Alternate -

Regulatory Guide 1.64, Section C.2 - Due to the nature of Minor Modifications and the size and expertise of LGS staff, when design verification is required, it may be performed by the designer's immediate supervisor if the supervisor is the only technically qualified individual. Additionally, minor modifications are reviewed by the PORC.

h. Regulatory Guide 1.74, Revision 0, February 1974, "Quality Assurance Terms and Definitions."
Endorses ANSI N45.2.10 - 1973.

PECO shall comply with Regulatory Guide 1.74, Revision 0, February 1974 and ANSI N45.2.10 - 1973 except for the following alternate:

The word "examination" also means an exercise to examine progress or status of knowledge or qualification.

i. Regulatory Guide 1.88, Revision 2, October 1976, "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records."
Endorses ANSI N45.2.9 - 1974.

See discussion under ANSI/ASME N45.2.9 - 1979.

j. Regulatory Guide 1.94, Revision 1, April 1976, "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structure Steel During the Construction Phase of Nuclear Power Plants."
Endorses ANSI N45.2.5 - 1974.

PECO shall comply with Regulatory Guide 1.94, April 1976 and ANSI N45.2.5 - 1974 for those activities occurring during the operational phase that are comparable in nature and extent, as determined by the Station Superintendent or the PECO

organization responsible for the activity, to related activities occurring during the initial design and construction phase.

k. Regulatory Guide 1.116, Revision 0, May 1977, "Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems."
Endorses ANSI N45.2.8 - 1975.

PECO shall comply with Regulatory Guide 1.116, May 1977, and ANSI N45.2.8 - 1975 for those activities occurring during the operational phase that are comparable in nature and extent, as determined by the Station Superintendent or the PECO organization responsible for the activity, to related activities occurring during the initial design and construction phase, except for the following alternates:

1. ANSI N45.2.8, Section 2.2, Procedures and Instructions - FSAR Section 13.5 addresses compliance with ANSI N18.7 - 1976/ANS 3.2 and Regulatory Guide 1.33. These requirements provide adequate controls for the Procedures and Instructions addressed in this Section.

2. ANSI N45.2.8, Section 2.3, Results - PECO's commitment to ANSI 18.7 - 1976/ANS 3.2 provides adequate guidance for the documentation and review of the results of inspections and tests.

3. ANSI N45.2.8, Section 3.4, Physical Condition - PECO's response to ANSI N45.2.1, N45.2.2, and N45.2.13 provide adequate guidance and control for the requirement that mechanical items are in accordance with specified requirements and that the quality has been maintained.

l. Regulatory Guide 1.123, Revision 1, July 1977, "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants."
Endorses ANSI N45.2.13 - 1976.

PECO shall comply with Regulatory Guide 1.123, July 1977, and ANSI N45.2.13 - 1976 for those activities occurring during the operational phase that are comparable in nature and extent, as determined by the Station Superintendent or the PECO organization responsible for the activity, to related activities occurring during the initial design and construction phase.

m. Regulatory Guide 1.146, August 1980, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants" Endorses ANSI/ASME N45.2.23-1978.

Philadelphia Electric Company will comply with Regulatory Guide 1.146, August 1980 and ANSI/ASME N45.2.23-1978 except for the following alternates:

1. Regulatory Guide 1.146, August 1980, section C.1 and ANSI/ASME N45.2.23-1978, subsection 1.5, discuss the applicability of documents referenced in the standard. In lieu of the latest revision of Regulatory Guides and ANSI Standards, PECo commitments are contained in Section 17.2.

2. ANSI/ASME N45.2.23-1978, subsection 2.3, states requirements for qualification of auditors. In lieu of the stated requirements, PECo will qualify personnel in accordance with requirements presented below. These alternate requirements will provide PECo with sufficient flexibility to qualify competent personnel with initial technical experience in a more effective manner. The proration of credits between initial experience requirements and additional experience gained as an assistant to a Lead Auditor ensures that highly qualified personnel will be available as audit personnel in a more timely fashion.

   Substitute the following for Paragraph 2.3.1 of ANSI/ASME N45.2.23-1978.

   2.3.1 Education and Experience. The prospective Lead Auditor shall have varifiable evidence that a minimum of ten (10) credits under the following scoring system have been accumulated.

   2.3.1.1 Education (4 credits maximum). Associate degrees from an accredited institution score one (1) credit or if the degree is an engineering, physical sciences, mathematics, or quality assurance, score two (2) credits or,

   a bachelor degree from an accredited institution score two (2) credits or if the degree is in engineering, physical sciences, mathematics, or quality assurance, score three (3) credits; in addition score one (1) credit for a master degree in engineering, physical sciences, business management, or quality assurance from an accredited institution.

2.3.1.1 a) Initial Experience Prior to Assignment (6 credits maximum). Technical experience in engineering, manufacturing, construction, operation, maintenance, or quality assurance related to the aforementioned activities, score one (1) credit for each full year with a maximum of five (5) credits for this aspect of experience.

If two (2) or more years of this experience have been in the nuclear field, score one (1) additional credit.

2.3.1.2 b) Additional Experience (after assignment) (4 credits maximum). Experience in quality assurance, score one (1) credit for each full year (2 credits maximum) or,

Experience in auditing, score two (2) credits for each full year (3 credits maximum) or,

Experience in nuclear quality assurance, score one (1) credit for each full year (3 credits maximum) or,

Experience in nuclear quality assurance auditing, score one (1) credit per every six months (4 credits maximum).

2.3.1.3 Other Credentials of Professional Competence (2 credits maximum). Certification of competency in engineering, science, or quality assurance specialities issued and approved by a State Agency, or National Professional or Technical Society, score two (2) credits.

2.3.1.4 Rights of Management (2 credits maximum). The Lead Auditor's employer may grant up to one (1) credit for other performance factors applicable to auditing which may not be explicitly called out in this standard such as leadership, sound judgment, maturity, analytical ability, tenacity, and past performance, plus one (1) credit for satisfactory completion of Lead Auditor training program.

n. ANSI/ASME N45.2.12 - 1977 "Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants."

PECO shall comply with the requirements of ANSI/ASME N45.2.12 - 1977 with the clarification discussed in Item a. under Regulatory Guide 1.33 and with the following alternate:

ANSI/ASME N45.2.12, Section 4.2.4, Audit Notification and Section 4.3.1, Pre-Audit Conference - Pre-audit notification is given to plant management in an informal manner due to daily contact and communications between Quality Assurance Division personnel and plant personnel.

o. ANSI/ASME N45.2.2 - 1978 "Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants."

PECO shall comply with the requirements of ANSI/ASME N45.2.2 - 1978 except for the following alternates:

1. ANSI/ASME N45.2.2, Section 2.7, Classification of Items - Philadelphia Electric Co. does not classify items into the four (4) levels described in this standard. However, the specific guidance and recommendations which are appropriate to each class are applied to those items packaged, shipped, received, stored, and handled through the use of procedures, original specifications, instructions and drawings as applicable.

2. ANSI/ASME N45.2.2, Section 3, Packaging and Section 4, Shipping - Philadelphia Electric Co. utilizes the packaging and shipping requirements delineated in the original equipment specifications as part of our procurement requirements to suppliers or manufacturers. Those requirements and recommendations of Sections 3 and 4 are included in the original specifications as appropriate for the item being procured. Receipt inspection activities are in accordance with Section 5 of this standard and are sufficient to identify packaging and shipping nonconformities.

3. ANSI/ASME N45.2.2, Section 6, Storage - Philadelphia Electric Co. does not classify items into four (4) levels for storage purposes as delineated in Section 6.1.2. Stored items are placed in limited access controlled areas, and are segregated with respect to the Q-list classification of the item(s). The specific guidance and recommendations which are appropriate to each class are applied to those items stored through the use of procedures, specifications and manufacturers recommendations and instructions.

4. ANSI/ASME N45.2.2, Section 6.4.2 (7), Care of Items - The rotating of certain electrical motors in storage, which must be energized to release a electrical brake, will be stored and maintained in accordance with manufacturers recommendations. Other motors, which can be rotated without energizing, will be maintained in

accordance with the requirements of Section 6.4.2 (7) of the standard.

p. ANSI/ASME N45.2.9 - 1979 "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants"

PECO shall comply with the requirements of ANSI/ASME N45.2.9 - 1979 except for the following alternate:

1. ANSI/ASME N45.2.9, Section 3.2.6, Supplemental Information to Records - Supplements and corrections to records will be in accordance with procedures, but will not necessarily require review or approval by the organization which originated the record.

2. ANSI/ASME N45.2.9, Section 5.3, Storage, Item 3. This item implies the use of a transmittal document. Philadelphia Electric Company will utilize such documents as determined by the type of record being stored.

APPENDIX 17.2A.II TEXT INSERTS

Insert A1

"Off-the-Shelf" (catalog) items are evaluated by qualified personnel for their intended use. The Administrative Procedure restricts the use of catalog items for only these evaluated applications. The purchase order shall require the vendor to notify the requisitioning organization of a change in an item described in the catalog.

17.2B ENGINEERING AND RESEARCH DEPARTMENT QUALITY ASSURANCE DURING THE OPERATIONS PHASE

This section describes the Quality Assurance program which will be applied by the Philadelphia Electric Company (PECO) Engineering and Research Department (E&R Dept.) whenever the Engineering and Research Department is responsible for Modifications* to safety-related structures, systems, or components of the Limerick Generating Station. This Quality Assurance program does not apply to the activities of Engineering and Research Department personnel when such activities are governed by the Electric Production Department QA Program.

The Quality Assurance program elements described herein shall be implemented by written procedures which shall be established prior to performing activities applicable to those elements.

The services of major contractors, such as the Architect/Engineer or NSS Supplier may at times be employed by the E&R Department. Such contractors shall be regarded as vendors in that PECO will impose appropriate QA program requirements and will review and approve the QA programs prior to the contractor performing work. The documents used to obtain such services shall clearly define the scope of work, the QA requirements, and the responsibilities being assigned to the contractors.

The responsibility for the QA program described herein is retained and exercised by the PECO E&R Department including those instances in which PECO elects to delegate specific functions to other organizations. When specific tasks are delegated to organizations outside of PECO, PECO shall maintain control over the functions through means such as imposing QA program requirements, review of documents, and performing audits.

*Modification (Mod) - This is a generic term used to define a specific scope of work for which the Engineering and Research Department is responsible. A Mod may include any or all of the following: designing, procuring, installing, or maintaining a structure, system, or component (or change thereto); performing a test or experiment; or responding to design questions or performing studies initiated by the Electric Production Department or others.

17.2B.1 ORGANIZATION

17.2B.1.1 See Section 17.2.1.3

17.2B.2 QUALITY ASSURANCE PROGRAM

17.2B.2.1

The Quality Assurance program described herein applies to those structures, systems, and components of the Limerick Generating Station that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The specific structures, systems, and components to which the QA program applies are identified through the Project Q-List and the Quality Assurance Diagrams.

17.2B.2.2

The Quality Assurance program elements described herein shall be implemented by written procedures which shall be established at the earliest practical time consistent with the schedule for the activity and in all cases prior to performing activities applicable to those elements.

17.2B.2.3

The PECO E&R Department QA program for the Limerick Generating Station shall be defined in the PECO E&R Department QA Plan. The QA Plan shall contain E&R Department management policies designed to ensure that the requirements of 10 CFR, Part 50, Appendix B are met and that the design, procurement, installation, and testing of Modifications comply with applicable codes, standards, and regulations. Approval of the QA Plan by the Office of the Vice-President, Engineering and Research establishes, that quality policies and implementing procedures are mandatory requirements which must be implemented and enforced by all responsible organizations and individuals within the E&R Department.

Insert 101

17.2B.2.4

The QA policies and definitions of QA/QC responsibilities in the PECO E&R Department QA Plan are implemented by written procedures, such as:

a. QA Plan Appendices.

b. PECO Quality Assurance Instructions.

c. E&R Department Procedures (these procedures are issued under the authority of E&R Department management with concurrence by Division Heads and Quality Assurance).

d. Individual Division procedures (these procedures are issued under the authority of Division Heads to implement activities mandated by or not covered by Department procedures).

Appendix 17.2B.I contains a list of PECO documents which will implement the various criteria of 10 CFR, Part 50, Appendix B. The QA Plan and procedure manuals shall contain procedures which define the controls for preparation, review, approval, and distribution of these documents.

17.2B.2.5

PECO personnel performing activities affecting quality shall be trained in accordance with written procedures to ensure that suitable proficiency is achieved and maintained both in the principles and techniques of the activity being performed and in the purpose, scope, and implementation of governing manuals, policies, and procedures. The qualification and training requirements for QA personnel, who are responsible for assuring effective implementation of the PECO QA program, are defined in written procedures.

17.2B.2.6

PECO procedures for the preparation of documents, such as drawings, specifications, and procedures, assure that the use of appropriate equipment, suitable environmental conditions, and compliance with necessary prerequisites are considered as necessary to perform activities affecting quality under controlled conditions.

17.2B.2.7

(Vice President) regularly

PECO E&R Department management reviews the QA program ~~in the areas of effectiveness and adequacy of scope and implementation~~ scope, status adequacy, and implementation of the through the following mechanisms:

a. Review and approval of the PECO E&R Department QA Plan.

b. Review and approval of E&R Department Procedures.

~~c. Review of routine and special reports (oral and written) of quality assurance functions, problems, and progress status.~~

Insert 102

~~d. Documented reviews with the Engineer-In-Charge, Quality Assurance Section. Management determines the scope of each review and the number and frequency of reviews needed to achieve an objective program assessment.~~

~~e. Reports of PECO QA audits shall be transmitted to E&R Department Management.~~

17.2B.2.8

The services of a contractor, such as the Architect/Engineer or NSS Supplier may at times be employed. PECO QA will review and provide documented approval of both the QA requirements of the purchase documents and the contractor's QA program. Quality Assurance audits of vendors, including contractors, are discussed in Section 17.2B.18.

17.2B.2.9

PECO Engineering and Research Department commitments to USNRC Regulatory Guides are described in Appendix 17.2B.II.

17.2B.3 DESIGN CONTROL

17.2B.3.1

Procedures within the E&R Department shall provide control of design functions. The procedures shall identify responsibilities and activities to ensure that the following are accomplished as appropriate for the particular design:

a. Design bases are translated into design documents such as drawings, specifications, instructions, and procedures.

b. Appropriate quality standards are specified and deviations from these standards are controlled.

c. Design adequacy is checked by means such as design reviews, alternate calculational methods, or testing programs.

d. Design reviews include appropriate attributes such as accessibility for inservice inspection, maintenance, and repair; suitability of application of materials, parts, equipment, and processes; reactor physics, stress, thermal, hydraulic, and accident analysis; and delineation of acceptance criteria for inspections and tests.

17.2B.3.2

The design procedures include provisions to control design interfaces and to allow coordination among the participating engineering disciplines. Similarly, the interfaces between PECO and vendors, and among engineering and field forces are defined in procedures to ensure that the implementation of the design is controlled. Changes to the design, including field initiated changes, are controlled and subjected to design measures commensurate with those applied to the original design. Procedures for controlling design documents (and changes thereto), including documents involving design interfaces, define the responsibilities and sequences for review, approval, distribution, and retention. Where necessary to ensure proper application of design information or changes, a "place-in-effect" statement shall be included in the appropriate procurement or design document.

→ insert 103

17.2B.3.3

→ insert 104

~~When a~~ test program is to be used to verify ~~the adequacy of a~~ design, ~~qualification~~ test ~~procedure(s)~~ shall be established and shall include testing ~~of the~~ test item under sufficiently adverse design conditions ~~to confirm that the design is~~ satisfactory for the ~~intended~~ service. Suitable acceptance criteria shall ~~also be~~ included.

17.2B.3.4

Written procedures shall provide for design reviews which shall be performed by individuals or groups other than the original designer. The design and design review processes shall provide for preparation of documentation to establish that the design process was used and to describe the scope, depth, and results of design reviews.

17.2B.3.5

The requirements for materials, parts, and equipment, including standard, commercial (off-the-shelf) items are defined for procurement by means of a specification-type document which is subjected to design review prior to use.

17.2B.3.6

The following is a general description of the process used to control Modifications. Because Modifications differ in scope and complexity, the activities do not necessarily occur in the sequence listed below and certain activities may not apply to all Modifications.

a. Mod is requested and evaluated and, if the concept is accepted, the following steps are taken.

b. An Engineering Work Letter is issued to define the Modification and responsibilities for its accomplishment.

c. A Safety Evaluation is performed to determine if an unreviewed safety question or change to the Technical Specifications is involved.

d. A design criteria document is developed to establish the design basis for the Mod.

e. Modification drawings are prepared and approved to define the design and the work to be accomplished.

f. Calculations and design analyses are prepared to substantiate the design.

g. Specifications and procurement documents are prepared and issued.

h. Vendor document submittals, as defined in the procurement documents, are reviewed and approved.

i. Receipt inspection requirements for procured items are issued by the Engineering and/or Construction Divisions for use in performing receipt inspection.

j. Installation inspection and testing requirements are developed by Engineering and Research in cases where procedures do not exist or where special instructions are needed.

k. Installations are performed in accordance with written procedures, and inspected to documented requirements.

l. Field changes, requested during site installation, are reviewed and dispositioned in a manner commensurate with the original design. Drawings are revised to agree with approved field changes.

→ Insert 107

17.2B.3.18

PECO Engineering and Research Department commitments to USNRC Regulatory Guides are described in Appendix 17.2B.II.

17.2B.4 PROCUREMENT DOCUMENT CONTROL

17.2B.4.1

Procedures within the E&R Department shall clearly delineate the responsibilities and sequence for the preparation, review, approval, and control of the documents used in procurement. Technical and quality assurance requirements are defined in procurement documents. These requirements are subjected to the design review process and are referenced in procurement documents.

17.2B.4.2

The Quality Assurance Section shall review and approve the documents which define the QA program and quality requirements to assure that such requirements are correctly stated, controllable, and inspectable and that adequate acceptance/rejection criteria are defined. This permits verification that the documents to be used for procurement have been prepared, reviewed, and approved in accordance with the QA program.

17.2B.4.3

The review and approval of the documents discussed above are performed prior to release as a part of a solicitation for bids, prior to purchase order award, and prior to issue of changes.

17.2B.4.4

The documents used for procurement shall require the supplier to comply with appropriate portions of 10 CFR, Part 50, Appendix B or equivalent alternative measures shall be specified to ensure the quality of the product. The program to be implemented by the supplier shall be approved by Quality Assurance Section prior to initiation of the affected activities. Suppliers shall be required to either (a) impose appropriate QA program requirements on their sub-tier suppliers, or (b) implement equivalent alternative measures to assure product quality.

17.2B.4.5

The procedures for review of documents to be used in procurements shall ensure that the following, as a minimum, are included or referenced:

a. Design basis technical requirements, including applicable regulatory requirements.

b. appropriate material and component identification requirements.

c. applicable drawings, specifications, codes, standards, and procedures.

d. appropriate test and inspection requirements.

e. appropriate requirements for fabrication such as special process procedures.

f. appropriate requirements for handling, storage, packaging, and shipping.

17.2B.4.6

The documents used for procurement shall specify appropriate requirements for:

a. Submittal of drawings, specifications, procedures, and plans to PECO. The time of submittal (e.g. prior to use) and the purpose of submittal (e.g. review, approval, or information) shall be specified.

b. Submittal of records to PECO. The time of submittal (e.g. prior to shipment) and the purpose of submittal (e.g. review, approval, or information) shall be specified.

c. Retention of records by supplier.

d. PECO's right of access to supplier facilities and records for inspection and audit.

e. Reporting and disposition of nonconformances from procurement requirements when the vendor's proposed disposition is "Use-As-Is" or "Repair".

→ insert 108

17.2B.4.7

Documents, and revisions thereto, used for procurement, including the procurement of spare or replacement parts as a part of a Modification, are subject to the review and approval process described herein.

17.2B.4.8

PECO Engineering and Research Department commitments to USNRC Regulatory Guides are described in Appendix 17.2B.II.

17.2B.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

17.2B.5.1

Activities affecting quality shall be prescribed and accomplished in accordance with documented instructions, procedures, specifications, and drawings which are prepared, reviewed, approved, and controlled in accordance with the PECO QA program.

17.2B.5.2

The procedures for preparing the documents discussed above shall include consideration of appropriate quantitative and qualitative acceptance criteria to verify that important activities have been satisfactorily accomplished.

17.2B.5.3

Quality Assurance Section shall review and approve following E&R Department procedures and revisions thereto:

a. The PECO QA Plan and Appendices

b. Quality Assurance Instructions

c. E&R Department Procedures

17.2B.5.4

Engineering notification to field forces and other engineering groups for implementation of a Modification are given in one or more Engineering Work Letters. The Engineering Work Letter(s) include the following:

a. Scope of work

b. Engineering, design, and procurement responsibilities

c. Testing requirements

17.2B.5.5

Construction Job Memoranda are issued by Construction Division to define to Construction Division personnel the work operations necessary to perform a modification. The Construction Job Memoranda include or reference the following:

a. Modification drawings

b. Purchase orders for components

c. Major equipment list

d. Receipt inspection instructions for each component

e. Listing of work operations, including instructions for performing the operations, showing, when necessary, which operations are to be performed in sequence or concurrently.

f. Inspection instructions for activities affecting quality.

g. Testing instructions for performing Construction Division tests.

17.2B.5.6

The Electrical Engineering Division Field Engineers shall issue a memorandum for each Modification involving their services. This memorandum shall define the scope of testing and the testing procedures to be implemented by Field Engineering to assure that electrical equipment functions as intended and is properly installed. The memorandum shall include:

a. A list/description of the systems, subsystems, and/or components to be tested by the Field Engineers.

b. The test procedures, or references thereto (including revision level), to be implemented or the responsibility for preparing and approving the test procedure(s).

c. Definition of the organization(s) responsible for evaluating and accepting test results for each test to assure that the test requirements have been satisfied.

d. A list/description of the systems, subsystems, and/or components being assigned by the Field Engineers to the Research and Testing Division for testing.

17.2B.5.7

The Research and Testing Division shall issue a memorandum for each Modification involving their services. This memorandum shall define the scope of installation work and testing to be performed by the Division. The memorandum shall include the information described above for the Construction Job Memoranda and the Field Engineers memorandum as applicable to the Division's scope of activity.

17.2B.6 DOCUMENT CONTROL

17.2B.6.1

Procedures shall be established for the preparation of documents (such as drawings, specifications, procurement documents,

installation and testing procedures) which prescribe activities affecting quality. The procedures shall provide sufficient controls to ensure that these types of documents are:

a. Reviewed and approved to assure that they are adequate and that the applicable requirements are stated.

b. Issued in a controlled manner.

c. Changed, reviewed, and approved in the same manner as the original or as specified in the procedure.

d. Available at the location where the activity will be performed prior to commencing the work.

e. Controlled to prevent the inadvertant use of obsolete or superseded documents.

17.2B.6.2

The current revisions of documents applicable to a particular Modification may be identified as follows:

a. Modification Drawings - Drawing List and Distribution List maintained by Engineering Design Division.

b. Inspection Instructions - Engineering Work Letter, Construction Memoranda, or Research and Testing Division Memorandum.

c. Installation Instructions - Construction or Research and Testing Division Memoranda.

d. Testing Instructions - Field Engineers, Research and Testing Division, or Construction Memoranda.

e. Equipment and Service Specifications - Project File (by Mod number).

f. Procurement Documents - Project File (by Mod number).

g. Vendor Documents - Vendor document register (by purchase order number).

h. Engineering Review Requests - Revisions to Engineering Review Requests are not used. Issuance and status may be determined by a log and by Construction files.

i. Nonconformance Reports - Revisions to Nonconformance Reports are not used. Issuance and status may be determined by logs.

j. Quality Assurance Diagrams - Project Q-List.

17.2B.6.3

The current revisions of the following documents are identified by the Table of Contents and/or revision list maintained within the document:

a. The PECO E&R Department QA Plan

b. Quality Assurance Instructions

c. E&R Department Procedures

d. Individual Division procedures

e. Project Q-List

17.2B.6.4

The following defines the groups responsible for review, approval, and issuance of documents and revisions thereto.

a. Modification Drawings - Prepared and reviewed by Engineering Design Division; reviewed and approved by Engineering or, for certain drawings, by Engineering Design Division; issued by Engineering Design Division.

b. Equipment Specifications - Prepared by Engineering or Engineering Design Division; reviewed and approved for technical adequacy by Engineering; reviewed and approved for quality aspects by QA Section; issued by the preparing organization.

c. Quality Assurance Diagrams - Same as Modification drawings.

d. Engineering Work Letter - Prepared and issued by Engineering.

e. Construction Memoranda - Prepared and issued by Construction Division. Approved by Construction Division Branch Group Leader.

f. Installation Test/Inspection Procedures & Instructions - Prepared, approved, and issued by Construction Division, EE Division Field Engineers, or Research and Testing Division depending upon the organization responsible for the activity.

g. Installation Procedures - Prepared, approved, and issued by Construction Division or Research and Testing Division depending upon the organization responsible for the activity.

17.2B.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

17.2B.7.1

Procedures for the control of purchased material equipment and services shall provide for the following activities to be performed prior to the award of a purchase order or contract:

a. A line organization (such as Engineering Divisions, Construction Division, or Research and Testing Division) shall have proposed or concurred in the selection of prospective vendors for material, equipment, or services.

b. The vendor shall have been evaluated and approved by Quality Assurance using one or more of the following methods:

1. Evaluation of the vendor's capability to comply with the elements of 10 CFR, Part 50, Appendix B that are applicable to the type of material, equipment, or service being procured or to comply with equivalent alternatives.

2. A review of previous records and performance of vendors who have provided similar articles of the type being procured.

3. A survey of the vendor's facilities and QA program to determine his capability to supply a product which meets the design, manufacturing, and quality requirements.

17.2B.7.2

The results of vendor evaluations and audits are documented and maintained on file.

17.2B.7.3

To assess the effectiveness of the control of quality by vendors and to assure conformance to the purchase order requirements, PECO employs one or more of the following techniques depending upon the quantity, complexity, and importance to safety of the item being supplied:

a. Quality Assurance audits of the vendor.

b. Witnessing of selected operations, inspections, or tests which are designated as hold points in the fabrication process.

c. Periodic or continuous shop surveillance.

d. Receipt inspection which, depending upon the item supplied, may include appropriate testing of the finished product.

e. Evaluation of objective evidence of quality furnished by the vendor.

17.2B.7.4

The activities described in 17.2B.7.3 shall be performed in accordance with procedures and/or checklists which define the activities to be accomplished and the required documentation, if any.

17.2B.7.5

The procurement documents shall define or provide for defining the records to be supplied.

17.2B.7.6

Deviations from procurement document requirements, including those requirements in vendor drawings and procedures which are approved by PECO, shall be submitted to PECO for review and approval when the proposed disposition of such deviations is either "accept-as-is" or "repair". PECO approval shall be required prior to the vendor proceding. The final records for the procured item shall contain documentation of such deviations and of PECO's approval.

17.2B.7.7

The processing of vendor document submittals, including final records, shall be controlled in accordance with written procedures which will ensure that the documents are reviewed and, when required by the procurement documents, approved by appropriate personnel.

17.2B.7.8

Receipt inspection of vendor-supplied material and equipment shall be performed in accordance with Construction Division

procedures unless other written instructions are provided by Engineering to Construction Division. As a minimum, the instructions shall require verification that the item is properly identified and corresponds with the identification on the receiving documentation and that the required records have been approved by Engineering. Receipt inspection instructions may also require sample re-inspection or component testing.

17.2B.7.9

Receipt inspection records, showing acceptance of the item, shall be available at the nuclear power plant prior to installation or use of the item. The acceptance status shall be indicated on records traceable to the item or on the item prior to release from receiving to storage or for installation or us e. Nonconforming items are identified, segregated (physically separated and/or conspicuously tagged) and controlled until dispositioned.

17.2B.7.10

The appropriate controls described above apply to safety-related items, including spare or replacement components.

17.2B.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

17.2B.8.1

Appropriate requirements relating to the identification and control of materials, parts, and components shall be specified in one or more of the following document types as applicable to the activity:

a. Drawings

b. Specifications

c. Engineering Work Letters

d. Installation procedures

e. Inspection and testing instructions

f. Purchase Orders

17.2B.8.2

Identification and control methods shall assure that identification is maintained on the item(s), or on records

traceable to the item(s), to preclude the use of incorrect or defective items.

17.2B.8.3

Identification and control methods shall ensure materials and parts important to the function of safety-related structures, systems, and components can be traced to the appropriate documentation such as drawings, specifications, purchase orders, manufacturing, installation, and inspection records, deviation reports, and physical and chemical mill test reports. The extent to which specific items shall be traceable shall be as defined in procurement documents, procedures, or drawings for the item.

17.2B.8.4

The location and method on identification of materials, parts, or components shall not adversely affect the fit, function, or quality of the item(s).

17.2B.8.5

Procedures for installation and inspection shall require that the correct identification of materials, parts, and components is verified and documented prior to release for fabrication, assembling, or installation.

→ insert 109

17.2B.9 CONTROL OF SPECIAL PROCESSES

17.2B.9.1

Procurement documents shall specify the requirements imposed on the vendor for control of special processes, such as welding, heat treating, and nondestructive testing, for materials, parts, and components. Such requirements shall also be imposed on subcontracted services. Included shall be requirements for qualification of procedures, equipment, and personnel. Such special processes shall be performed by qualified personnel in accordance with approved procedures. Records of qualification of procedures, equipment, and personnel shall be established and filed by the vendor and, as required by the procurement documents, shall be submitted to PECO.

→ insert 110

17.2B.9.2

Drawings, specifications, or installation procedures (as appropriate for the activity) shall define the specific requirements for special processes performed by PECO during installation.

17.2B.9.2.1

The qualification of PECO welding procedures and personnel is the responsibility of Construction Division, in conjunction with the Maintenance Division of the Electric Production Department. Such qualifications shall be in accordance with the Codes, Standards, or special provisions applicable to the work being performed.

17.2B.9.2.2

The qualification and certification of PECO nondestructive testing personnel and procedures is the responsibility of the Metallurgical Group of the Research and Testing Division. Qualification and certification on NDT personnel shall be accomplished in accordance with established Research and Testing Division procedures which follow the guidance of ASNT-TC-1A. The qualification of procedures shall be in accordance with the ASME Code, Section V.

17.2B.9.2.3

Records of qualification of procedures, equipment, and personnel associated with special processes shall be established, filed, and kept current. In addition, records shall be developed to document the use of special processes and the results of nondestructive examination.

17.2B.10 INSPECTION

17.2B.10.1

Inspection requirements for purchased materials, parts, and components and for installation activities shall be established to verify conformance of quality affecting activities with established requirements. The inspection requirements and inspection results shall be documented.

→ insert 105

17.2B.10.2

The inspections to be performed shall be defined in drawings, specifications, Engineering Work Letters, or inspection/installation procedures, as appropriate for the activity. The inspections shall be performed in accordance with written procedures or instructions and the results shall be documented, evaluated and their acceptability determined by a responsible individual or group.

17.2B.10.3

The inspection procedures or instructions shall:

a. Identify the characteristics and activities to be inspected, including establishment of inspection hold points where appropriate.

b. Identify the individuals or groups responsible for performing the inspection operation.

c. Define the acceptance/rejection criteria.

d. Provide instructions for performing the inspection, including the inspection methods, a description of the necessary measuring and test equipment and the appropriate accuracy requirements.

e. Require recording evidence of completing/verifying the activity and the results.

f. Require identification of the inspector/data recorder and recording the results of the inspection.

→ insert 106

17.2B.10.4

Inspection personnel are responsible for assuring that the necessary instructions, drawings, or other documents related to the inspection are current and used.

17.2B.10.5

Modifications shall be inspected in accordance with Engineering Divisions, Research and Testing Division, or Construction Division approved requirements.

17.2B.10.6

Inspection points, including hold points if applicable, shall be defined in the installation instructions developed by Research and Testing Division or Construction Division. Where direct inspection can not be used to verify satisfactory completion of quality affecting activities, indirect methods (such as monitoring process methods, equipment, and personnel) may be used. When necessary, both direct and indirect inspection will be specified.

17.2B.10.7

Construction Division inspectors for quality- affecting activities are Electrical Construction Engineers or Field Assistants and Mechanical Construction Engineers or Field Assistants. Construction Engineers inspect work of the Field Forces personnel who perform quality-affecting activities. Construction Engineers have sufficient authority to stop work or to control further installation work. The Construction Engineers are separated from the Field Forces by three levels of supervision.

17.2B.10.8

All Engineering and Research Department inspectors of quality-affecting activities receive periodic QA/QC training from their respective Divisions in order to maintain their proficiency. Inspectors are certified by their respective Divisions to perform inspections at the applicable level of capability as defined in ANSI N45.2.6-1973. Job performance of each inspector is periodically evaluated to ensure that the inspector is performing in accordance with the qualifications specified for the job. Qualification requirements for nondestructive testing personnel are described in Section 17.2B.9.

17.2B.10.9

PECO Engineering and Research Department commitments to USNRC Regulatory Guides are described in Appendix 17.2B.II.

17.2B.11 TEST CONTROL

17.2B.11.1

Tests to demonstrate that items will perform satisfactorily in service shall be defined in drawings, specifications, Engineering Work Letters, Construction Memoranda, the Field Engineering memoranda, the Research and Testing Division memoranda, or installation procedures, as appropriate for the activity. Where appropriate, vendor documents and instructions shall be used as input for determining required tests.

17.2B.11.2

When such testing is required in regard to installation activities, approved test procedure(s) shall be issued. The test procedures shall incorporate or reference:

a. The requirements and acceptance limits contained in applicable design and procurement documents.

b. Instruction steps for performing the test.

c. Applicable test prerequisites such as:

    1. Use of calibrated instrumentation.

    2. Adequate and appropriate equipment.

    3. Identification of responsibilities to perform the test, including any special personnel qualification requirements.

    4. Completeness and preparation of the item to be tested.

5. Suitable and controlled environmental conditions.

6. Provisions for data collection, review, and disposition.

d. Any mandatory inspection hold points

e. Acceptance/rejection criteria

f. Methods of documenting or recording test data and results.

g. Requirements related to evaluation and acceptance of test data.

17.2B.11.3

Test results shall be documented and their evaluation and acceptability determined as defined in the test procedure or in the procurement documents.

17.2B.11.4

Modifications, repairs, and replacements shall be tested in accordance with the original design and testing requirements or to approved alternatives.

17.2B.11.5

PECO Engineering and Research Department commitments to USNRC Regulatory Guides are described in Appendix 17.2B.II.

17.2B.12 CONTROL OF MEASURING AND TEST EQUIPMENT

17.2B.12.1

The Research and Testing Division is responsible for the calibration ~~of all measuring and test equipment used by E&R Department personnel in the measurement, inspection, and monitoring of quality-related activities for safety-related items~~. ~~to~~ the Operations, Maintenance, Construction and Engineering Program and performs a calibration service for implementing their respective programs. These organizations each have established procedures

17.2B.12.2

~~Calibration~~ of measuring and test equipment by the Division ~~shall~~ be performed ~~and~~ controlled in accordance ~~with written~~ procedures which provide for:

a. Calibration methods for ~~each~~ class or type of equipment.

Insert III

Insert III

b. Preparation of equipment calibration records which are traceable to the equipment. Such records shall include:

1. Test equipment identification and number.

2. Calibration period. The frequency shall be based upon factors such as manufacturer's instructions, required accuracy, purpose, degree of usage, past experience, and stability.

3. Date of calibration.

4. Test points for the instrument.

5. Calibration data. "As found" data shall be provided (a check mark may be used in lieu of numerical data to indicate a value is within the required accuracy rating). "As left" data shall be provided if an instrument has been repaired.

6. Identification of person doing calibration.

7. Procedure used, including revision number.

8. Calibration standards used.

c. Calibration to be performed with standards and calibrated test equipment which have known valid relationships to nationally recognized standards or to physical constants.

d. Notification to appropriate organizations when "as found" conditions exceed prescribed tolerances. In such cases, items inspected with the measuring or test equipment while the equipment may have been out of tolerance shall be considered unacceptable until the effect of the condition is investigated, resolved, documented and approved. Resolution may include re-inspection using properly calibrated equipment.

17.2B.12.3

Mesauring and test equipment shall be tagged or labeled to indicate the date of the next calibration.

17.2B.12.4

Calibration standards and equipment shall have an uncertainty (error) requirement as defined in IEEE 498-1975.

17.2B.12.5

Organizations which use measuring and test equipment are responsible for:

a. Identification of the measuring and test equipment included in the calibration control program.

b. Establishment of the frequency of calibration.

c. Definition of the required accuracy.

d. Unique identification of each piece of measuring and test equipment (instrument sets may be identified as a unit).

17.2B.13 HANDLING, STORAGE, AND SHIPPING

17.2B.13.1

Special handling, preservation, storage, cleaning, packaging, and shipping requirements shall be defined in drawings, specifications, Construction Division procedures, or installation procedures (as appropriate for the activity) and implemented by vendors or by PECO.

17.2B.13.2

Construction Division procedures shall be written to control handling, storage, cleaning, and preservation of items to preclude damage, loss or deterioration after receipt. Storage requirements shall be defined by Construction Division unless special instructions are provided by Engineering or provided by the vendor and approved by Engineering.

17.2B.13.3

As required by the procurement documents, vendor procedures shall provide control over cleaning, preservation, packaging, and shipping to ensure that items are delivered in acceptable condition.

17.2B.13.4

PECO Engineering and Research Department commitments to USNRC Regulatory Guides are described in Appendix 17.2B.II.

17.2B.14 INSPECTION, TEST, AND OPERATING STATUS

17.2B.14.1

A documented receipt inspection by Construction Division and physical segregation of items which have not satisfactorily

completed receipt inspection shall be employed to ensure that the status of items can be determined. Items which are found deficient during receipt inspection shall be "Hold tagged" until the deficiency is resolved.

17.2B.14.2

During installation and testing, status shall be determinable through use of the instructions for installation, installation inspection records, and test procedures/records.

17.2B.14.3

Bypassing of, or deviation from, required inspections, tests, or operations defined in drawings and installation or testing procedures shall be controlled by procedures. In general, approval to bypass or deviate shall require the same approval as the original requirement unless other provisions are specified.

17.2B.14.4

Nonconforming items shall be identified to prevent inadvertant use.

17.2B.14.5

The application and removal of inpsection and status indicators, such as tags, markings, labels, and stamps, shall be controlled by procedures for these activities.

17.2B.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

17.2B.15.1

Nonconformances shall be identified, documented, controlled, evaluated, and dispositioned in accordance with written procedures. In addition, affected organizations shall be notified.

insert → 112

17.2B.15.2

Procurement documents shall require that vendors report nonconformances with proposed dispositions of "Use-As-Is" or "Repair" to PECO for approval. The nonconformance report, showing PECO Engineering and Quality Assurance Section approval shall be included in the records package for the item. This shall apply to deviations from procurement document requirements and from vendor drawings and procedures which have been approved by PECO.

17.2B.15.3

Nonconforming items identified by PECO during source surveillance/audits shall be reported as described in Section 17.2B.18. Vendor corrective action reports shall be evaluated and approved by PECO Engineering (for "Use-As-Is" and "Repair" dispositions involving technical requirements) and by Quality Assurance Section. For "Use-As-Is" and "Repair" dispositions which affect particular hardware, a copy of the dispositioned report shall be included in the record package for the affected item.

17.2B.15.4

Nonconforming items identified by Construction Division during receipt inspection shall be Hold tagged and reported in accordance with written procedures. Engineering is responsible for providing/approving the disposition. Quality Assurance Section approval is required when the proposed disposition is "Use-As-Is" or "Repair".

17.2B.15.5 Nonconforming items identified during installation activities and post-installation testing activities shall be Hold tagged and reported in accordance with written procedure(s). Engineering is responsible for providing/approving when the proposed disposition is "Use-As-Is" or "Repair" and for obtaining QA Section approval. A copy of the dispositioned report shall be included in the records package for the affected item.

17.2B.15.6

Documentation associated with nonconforming items shall:

a. Identify the item.

b. Describe the nonconforming conditions.

c. Describe the disposition.

d. Provide the Engineering rationale/justification for "Use-As-Is" or "Repair" dispositions.

e. Define the repair method and associated inspection and test requirements for "Repair" dispositions.

f. Include signature approvals and dates for the disposition.

g. Be included or referenced in the records package for the affected item.

17.2B.15.7

Where rework of a nonconforming item invalidates a previously completed test or inspection, the test or inspection shall be reperformed unless the approved disposition specifies otherwis e. The testing and inspection of a repair shall be as given in the approved disposition of the nonconforming item.

17.2B.16 CORRECTIVE ACTION

17.2B.16.1

Procedures within the E&R Department shall require that conditions adverse to quality be documented and evaluated to determine the necessary corrective action. As a mimimum, in cases of significant conditions adverse to quality, the procedures shall assure that the cause of the condition is determined and that corrective action intended to prevent recurrence is taken.

17.2B.16.2

For significant conditions adverse to quality, the cause of the condition, and the corrective action taken shall be reported to appropriate levels of management.

17.2B.16.3

Follow-up action shall be taken to ensure that corrective action reports are made for identified conditions adverse to quality. Follow-up reviews to verify proper implementation of reported corrective actions shall be documented.

17.2B.16.4

Written procedures shall establish methods for monitoring the prompt resolution and close-out for each of the mechanisms used to report nonconformances.

Insert 113

17.2B.17 QUALITY ASSURANCE RECORDS

17.2B.17.1

Sufficient records shall be maintained to provide documentary evidence of the quality of items and the activities affecting quality. Record requirements (such as required records, responsibilities for transmittals, and processing requirements) shall be as specified in procurement documents, drawings, applicable Codes, E&R Department Procedures, individual Division procedures, the PECO E&R Department QA Plan, QA Instructions, or instructions/procedures for specific work items.

17.2B.17.2

Records shall include those associated with results of reviews, inspections, tests, and material analysis; QA surveillance or audit; qualification of personnel, procedures, and equipment; and other documentation such as drawings, specifications, procurement documents, calibration procedures and reports, and nonconformance and corrective action reports.

17.2B.17.3

Records shall be maintained by PECO or by vendors. When records are retained by vendors, the storage, maintenance, preservation, and protection requirements shall be specified in the procurement documents and the vendor shall be required to provide PECO with an index of the records not provided with the item.

17.2B.17.4

Procurement documents shall specify the records which are to be provided to PECO and shall specify the time of submittal and whether or not PECO approval is required.

17.2B.17.5

Records retained by PECO shall be identifiable and retrievable and shall be stored in facilities which are constructed, located, and secured to prevent destruction of the records by fire, flooding, theft, and deterioration by environmental conditions.

17.2B.17.6

Inspection and test records shall contain the following where applicable:

a. A description of the type of observation, including procedure used and revision level.

b. Evidence of completing the operation.

c. Date and results.

d. Information related to conditions adverse to quality.

e. Inspector or data recorder identification.

f. Evidence as to the acceptability of the results.

17.2B.17.7

PECO Engineering and Research Department commitments to USNRC Regulatory Guides are described in Appendix 17.2B.II.

17.2B.18 AUDITS

17.2B.18.1

Procedures within the E&R Department shall provide for auditing the various activities performed by the E&R Department and for auditing vendors. PECO groups (outside the E&R Department) which perform activities affecting the quality of Modifications for which the E&R Department is responsible shall also be subject to audit. Quality Assurance Section is responsible for scheduling and performing such audits, for documenting the audit results, and for ensuring that corrective actions are taken and reported. Copies of audit reports and accepted corrective actions for audit findings are provided to E&R Department Management for their review and assessment.

17.2B.18.2

Audits shall be performed in accordance with written procedures by trained personnel not having direct responsibilities in the areas being audited.

17.2B.18.3

Audit results shall be documented and provided to appropriate levels of management having direct responsibility in the areas audited, as well as to E&R Department management. Responsible management shall take the necessary action to correct any identified deficiencies and to report the cause of the deficiency and the corrective action to Quality Assurance Section. Unless justified in writing as not appropriate, corrective action intended to prevent recurrence shall also be taken and reported.

17.2B.18.4

Department upon factors such as the nature of the audit finding, the cause, the corrective action report, and the action taken to prevent recurrence, deficient areas may be scheduled for re-audit to verify implementation of reported actions.

17.2B.18.5

Within the scope and purpose of the audit, audits shall include objective evaluations of compliance with quality-related procedures and instructions and the effectiveness of such procedures and instructions and their implementation. Activities, work in-progress, processes, hardware items, documents, and records are subject to objective audit evaluation.

17.2B.18.6

As a part of audit preparation or during the audit, procedures are subject to review for compliance with the PECO QA program or, in the case of vendors, for compliance with procurement documents. Deficiencies shall be reported for corrective action.

17.2B.18.7

The audit schedule, approved by QA Management, shall ensure that sufficient audits are performed in those areas where the requirements of 10 CFR, Part 50, Appendix B apply so that compliance with the PECO QA program is assured. The following areas shall be subject to audit:

a. E&R Department activities related to design, procurement, installation, and testing of Modifications.

b. Preparation, review, approval, and control of specifications, procurement documents, instructions, procedures, and drawings.

c. Receiving and installation inspections.

d. Indoctrination and training programs.

e. Calibration of measuring and test equipment.

f. Vendor activities.

17.2B.18.8

The status and safety importance of activities being performed shall be considered in preparation and approval of the audit schedule.

17.2B.18.9

Audit results shall be analyzed and a statement regarding the effectiveness of the QA program in the areas audited shall be included in the audit report. A copy of the report shall be sent to E&R Department management for review and assessment.

17.2B.18.10

PECO Engineering and Research Department commitments to USNRC Regulatory Guides are described in Appendix 17.2B.II.

SECTION 17.2B TEXT INSERTS

insert 101

The QA Plan will require the Regulatory Guides listed in Section 1.8 of the FSAR, General Design Criterion 1 of Appendix A to 10CFR50, and 10CFR50.55a will be met by documented procedures.

insert 102

c. Management is frequently appraised of QA Program status through meetings with the Engineer-In-Charge, Quality Assurance Section, routine reports (oral and written), and audit reports (Joint Utility Manggement Audits, INPO Audits, NRC Inspections and Audits, and PECo QA Audits).

d. An approximate annual assessment of the QA Program is preplanned and documented. This assessment generally addresses the scope, status, adequacy, and degree of implementation of the program. Corrective action, when needed, is identified and tracked.

insert 103

The responsible engineering organizations assure that design drawings and specifications are prepared, reviewed, and approved in accordance with procedures and that these documents contain the necessary quality assurance requirements, such as inspection and test requirements, acceptance requirements, and the extent of documenting inspection and test results.

Insert 104

When the adequacy of design is to be verified by test only, procedures and instructions will be written which include measures to ensure that:

a. Criteria are provided to specify when verification should be by test.

b. Where applicable, prototype, component, or feature testing will be performed prior to installation of plant equipment. In those cases where this cannot be met, the testing will be deferred but not beyond the point when the installation would become irreversible.

c. Tests will be performed under conditions that simulate the most adverse design conditions, as determined by analysis.

Insert 105

The need for inspection shall be determined and the inspection requirements for purchased materials, parts, and components and for installation activities shall be established to verify conformance of quality affecting activities with established requirements. The inspection requirements and inspection results shall be documented.

Insert 106

g. Be reviewed by qualified personnel knowledgeable in QA/QC disciplines to assure inclusion of the items listed above.

Insert 107

17.2B.3.7

As-built documents are controlled in accordance with established procedures which describe a definite method to be followed upon completion of any plant modification. This procedure includes notification of completion by field personnel, mark-up on drawings of any changes from the original design, and approvals of as-built drawings equivalent to that for the original design.

Insert 108

h. Source inspection, as determined by the responsible engineer.

f. Submittal of documentation identifying any procurement requirements that have not been met.

~~h. The review and acceptance of these documents shall be described in the E&R Department QA Plan.~~

g. Submittal of documentation that identifies the purchased items and the specific procurement requirements (e.g., codes, standards, and specifications) met by the item.

h.

Insert 108 (cont)

The review and acceptance of these documents shall be described in the E&R Department QA Plan.

Insert 109

17.2B.8.6

Measures shall be established to identify and control the use of consumable materials (such as, lubricants and weld filler materials) in safety-related systems. Consumable materials are withdrawn from the plant storeroom on an as needed basis. If special storage considerations (including shelf-life) of these materials by Engineering and Research Department becomes necessary it will be accomplished in accordance with written procedures.

Insert 110

17.2B.9.1.1

A Special process is a process, the results of which are highly dependent on the control of the process or the skill of the operators, or both, and in which the specified quality cannot be readily determined by inspection or test of the product.

Insert 111

17.2B.12.2

Measures shall be established and documented to assure that tools, gages, instruments, and other inspection, measuring, and testing equipment and devices used in activities affecting quality are of the proper range, type, and accuracy to verify conformance to established requirements. To assure accuracy, inspection, measuring, and test equipment shall be controlled, calibrated, adjusted, and maintained at prescribed intervals or prior to use against certified equipment having known valid relationships to nationally recognized standards. If no national standards exist, the basis for calibration shall be documented. This requirement is not intended to imply a need for special calibration and control measures on rulers, tape measures, levels, and such other devices, if normal commercial practices provide adequate accuracy.

17.2B.12.3

The method and interval of calibration for each item shall be defined and shall be based on the type of equipment, stability characteristics, required accuracy, and other conditions affecting measurement control. Special calibration shall be performed when accuracy of the equipment is suspect. When inspection, measuring and test equipment are found to be out of calibration, an evaluation shall be made and documented of the validity of previous inspection or test results and of the acceptability of items previously inspected or tested. If any inspection, measuring, or test equipment is consistently found to be out of calibration, it shall be repaired or replaced.

INSERT 112

THESE PROCEDURES SHALL PROVIDE FOR ANALYZING NONCONFORMANCES FOR TRENDS, FOR PERFORMING A PERIODIC REVIEW FOR ADEQUACY OF THE FOLLOWING DATA, AND FOR REPORTING THE RESULTS OF SUCH REVIEWS TO THE APPROPRIATE LEVEL OF ENGINEERING AND PROGRAM MANAGEMENT.

INSERT 113
SECTION 17.2B.16.5

REPORTED CORRECTIVE ACTIONS TAKEN TO RESOLVE DEFICIENCIES THAT ARE RECOMMENDED ON FINDINGS FROM ISSUED AUDIT REPORTS OF QUALITY ASSURANCE SECTION AUDITS & SURVEILLANCES, ARE REVIEWED FOR ADEQUACY AND WHEN ACCEPTABLE, APPROVED BY THE QUALITY ASSURANCE SECTION IN ACCORDANCE WITH ESTABLISHED PROCEDURES. THESE PROCEDURES SPECIFY THE STEPS TO BE TAKEN IN ORDER TO OBTAIN A TIMELY CLOSE OUT OF THE CORRECTIVE ACTION AND PROVIDE FOR VERIFICATION OF PROPER IMPLEMENTATION OF THE CORRECTIVE ACTIONS.

SECTION 17.2B.16.6

PROCEDURES SHALL REQUIRE IN-LINE

(insert #3 cont)

Quality Assurance Section reviews and concurrence with the adequacy of prescribed corrective action for Nonconformance Reports (NCR's) which have proposed disposition of "use as is" or "Repair". The Quality Assurance Section performs audits of the NCR procedure include verification of proper implementation of corrective action.

Appendix 17.2B.I

Engineering and Research Department QA Program Implementation of 10 CFR, Part 50 Appendix B Criteria

The following is a listing (by the appropriate Criterion of 10 CFR, Part 50, Appendix B) of the documents which will be used to implement the PECO E&R Department QA program. Because FSAR submittal is significantly prior to the earliest date upon which this QA program would be implemented, the listing includes existing documents and documents which are planned for the future. The PECO E&R Department commitment is to issue written procedures, which implement the QA program described in this Section of Chapter 17 of the FSAR, prior to starting activities covered by the applicable program element(s).

Abbreviations:		
	QA Plan	(PECO E&R Department Quality Assurance Plan)
	ERDP	(Engineering & Research Department Procedure)
	QAI	(Quality Assurance Instruction)

Criterion I - Organization

- QA Plan

Criterion II - Quality Assurance Program

- QA Plan
- ERDP-3.2, Procedure for Control of the Project Q-List
- ERDP-2.1, Procedure for Indoctrination and Training of E&R Department Personnel
- ERDP-2.2, Procedure for Preparing Engineering Work Letters and Construction Division, Field Engineering, and Testing Section Memoranda

Criterion III - Design Control

- QA Plan
- ERDP-3.1, Procedure for Handling Q-Listed Modifications
- ERDP-3.2, Procedure for Maintenance and Revision of the Project Q-List.
- ERDP-3.3, Procedure for Performance of Safety Evaluations and Applications for Amendments to Facility Operating Licenses
- ERDP-3.4, Procedure for Design Control
- ERDP-3.6, Procedure for Preparation and Review of Drawings for Nuclear Plant Modifications
- ERDP-3.8, Procedure for Processing Engineering Review Requests
- ERDP-3.9, Procedure for Preparation & Control of Design Calculations
- ERDP-4.4, Procedure for Procurement of Equipment, Materials, Services or Combination thereof for Q-Listed Installations
- ERDP-4.5, Procedure for Procurement of Materials and Equipment Listed by Engineering Design Division
- ERDP-6.2, Procedure for Processing Vendor Drawings

Criterion IV - Procurement Document Control

- QA Plan
- ERDP-4.4, Procedure for Procurement of Equipment, Materials, Services or Combination thereof for Q-Listed Installations
- ERDP-4.5, Procedure for Procurement of Materials and Equipment Listed by Engineering Design Division

Criterion V - Instructions, Procedures, and Drawings

- QA Plan
- ERDP-3.1, Procedure for Handling Q-Listed Modifications
- ERDP-5.1, Procedure for Preparation of ERDP's
- ERDP-3.7, Procedure for Control and Revision of Quality Assurance Diagrams (QAD's)

Criterion VI - Document Control

- QA Plan
- ERDP-6.1, Procedure for Control of ERDP's
- ERDP-6.3, Procedure for Processing of Documents
- ERDP-6.2, Procedure for Processing Vendor Documents
- ERDP-2.2, Procedure for Preparing Engineering Work Letters and Construction Div., Field Engineering, and Testing Section Memoranda

Criterion VII - Control of Purchased Material, Equipment, & Services

- QA Plan
- ERDP-7.1, Procedure for Receipt, Inspection, and Storage of Materials and Equipment

Criterion VIII - Identification and Control of Materials, Parts, & Components

- QA Plan
- E&R Dept. unique division procedures

Criterion IX - Control of Special Processes

- QA Plan
- E&R Dept. unique division procedures

Criterion X - Inspection

- QA Plan
- E&R Dept. unique division procedures

Criterion XI - Test Control

- QA Plan
- E&R Dept. unique division procedures

Criterion XII - Control of Measuring and Test Equipment

- QA Plan, Section 12
- E&R Dept. unique division procedures

Criterion XIII - Handling, Storage, and Shipping

- QA Plan, Section 13
- ERDP-7.1, Procedure for Receipt, Inspection, and Storage of Materials and Equipment

Criterion XIV - Inspection, Test, and Operating Status

- QA Plan
- ERDP-15.1, Procedure for Nonconformances
- ERDP-7.1, Procedure for Receipt, Inspection, and Storage of Materials and Equipment

Criterion XV - Nonconforming Materials, Parts, or Components

- QA Plan, Section 15
- ERDP-15.1, Procedure for Nonconformances
- ERDP-3.5, Procedure for Processing Vendor Initiated Deviation Requests for Q-Listed Installations

Criterion XVI - Corrective Action

- QA Plan
- ERDP-15.1, Procedure for Handling Nonconformances
- ERDP-3.5, Procedure for Processing Vendor Initiated Deviation Requests for Q-Listed Installations

Criterion XVII - Quality Assurance Records

- QA Plan
- ERDP-17.1, Procedure for Records

Criterion XVIII - Audits

- QA Plan
- QAI-18-1, Procedure for Management Review of PECO Quality Assurance Audit Program
- QAI-18-4, Procedure for Formulation of Audit Plans
- QAI-18-5, Procedure for QA Supplier Evaluation
- QAI-18-6, Procedure for Performing Quality Assurance Audits
- QAI-18-9, Procedure for Preparation of QA Major Activities Schedule
- QAI-18-10, Procedure for Preparation of Audit Reports

APPENDIX 17.2B.II

ENGINEERING AND RESEARCH DEPARTMENT APPLICATION OF REGULATORY GUIDES AND USNRC REGULATORY GUIDES

The Engineering and Research Department follows ANSI Standards and USNRC Regulatory Guides as described below:

a. Regulatory Guide 1.28, March, 1978, Quality Assurance Program Requirements (Design and Construction). Endorses ANSI N45.2-1977.

The Engineering and Research Department follows Regulatory Guide 1.28, March 1978, and ANSI N45.2 exclusive of other documents referenced therein.

b. Regulatory Guide 1.30, August 11, 1972, Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment. Endorses ANSI N45.2.4-1972.

The Engineering and Research Department follows Regulatory Guide 1.30, August 11, 1972 and ANSI N45.2.4-1972 exclusive of other documents referenced therein.

c. Regulatory Guide 1.37, March 16, 1973, Quality Assurance Requirements for Cleaning of Fluid Systems and associated Components of Water-Cooled Nuclear Power Plants. Endorses ANSI N45.2.1-1973.

The Engineering and Research Department follows Regulatory Guide 1.37, March 16, 1973 and ANSI N45.2.1-1973 exclusive of other documents referenced therein.

d. Regulatory Guide 1.38, Rev. 2, May 1977, Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants. Endorses N45.2.2-1972.

The Engineering and Research Department follows Regulatory Guide 1.38, Rev. 2, May 1977 and ANSI N45.2.2-1972 exclusive of other documents referenced therein.

One particular of ANSI N45.2.2-1972 is implemented by the Engineering and Research Department through alternate equivalent means described below.

As an equivalent alternative to the four levels of classification established by ANSI N45.2.2(1972), Section

2.7, each component is treated on an individual basis. The Engineering and Research Department requires that each specification contain handling, storage, packaging, and shipping information. This information incorporates the guidance and recommendations which are appropriate to each classification for packaging, shipping, handling, and storage of equipment or materials described in the specification.

e. Regulatory Guide 1.39, Rev. 2, September 1977, Housekeeping Requirements for Water-Cooled Nuclear Power Plants. Endorses ANSI N45.2.3-1973.

The Engineering and Research Department follows Regulatory Guide 1.39, Rev. 2, September 1977 and ANSI N45.2.3-1973 exclusive of other documents referenced therein. This is accomplished by requiring Engineering and Research Department personnel who work at the plant to follow the administrative controls for housekeeping which are established by the Electric Production Department. Therefore, the alternatives to ANSI N45.2.3-1973 described in Appendix 17.2.A.II apply to the Engineering and Research Department at the plant site.

Housekeeping/cleanliness requirements for that material storage and plant modification work which is the responsibility of Engineering and Research Department personnel are included in the Engineering and Research Department procedures governing these activities.

f. Regulatory Guide 1.54, June 1973, Quality Assurance Requirements for Protective Coatings applied to Water-Cooled Nuclear Power Plants. Endorses ANSI N101.4-1972.

The Engineering and Research Department follows Regulatory Guide 1.54, June, 1973 and ANSI N101.4-1972 exclusive of other documents referenced therein. One particular of ANSI N101.4-1972 will be implemented by the Engineering and Research Department through alternate equivalent means described below:

In Para. (5) and (6) will initiate, prior to coating application, a procedure(s) that will ensure satisfactory application and inspection of coatings applied to Nuclear Facilities.

g. Regulatory Guide 1.58, rev. 1, September 1980 ~~August 1973~~, Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel. Endorses ANSI N45.2.6-~~1973.~~ 1978

Philadelphia Electric Company will comply with Regulatory Guide 1.58, Rev. 1 and ANSI N45.2.6-1978 except for the following clarification and alternates:

1. Regulatory Guide 1.58, Revision 1, section C.1, and ANSI N45.2.6-1978, subsection 1.2, states that the standard applies to "personnel who perform inspections, examinations, and tests." Philadelphia Electric Company personnel who inspect equipment as part of ~~routine~~ plant maintenance, in other than a quality control function, and plant staff personnel (as defined in the LGS Technical Specifications), who approve test procedures and tests results and direct or supervise the conduct of individual tests, will be qualified in accordance with ANSI ~~N18.1-1971~~ ANS 3.1-1978 in lieu of ANSI N45.2.6-1978.

2. Regulatory Guide 1.58, Revision 1, section C.4, and ANSI N45.2.6-1978, subsection 1.5, discuss the applicability of documents referenced in the standard. In lieu of the latest revision of Regulatory Guides and ANSI Standards, PECo commitments are contained in Section 17.2.

3. ANSI N45.2.6-1978, subsection 3.5, presents experience recommendations for candidates. Experience in maintenance, modification, and operating activities is considered related experience because such experience provides training in the safety aspects of the facility.

h. Regulatory Guide 1.64, Revision 2, June 1976, Quality Assurance Requirements for the Design of Nuclear Power Plants. Endorses ANSI N45.2.11-1974.

The Engineering and Research Department follows Regulatory Guide 1.64, Rev. 2, June 1976 and ANSI N45.2.11-1974 exclusive of other documents referenced therein.

As an alternative to Regulatory Position C.2(1), design verification may be performed by the designer's immediate supervisor under the following circumstances:

1. When the supervisor is the only technically qualified individual

2. The need is individually documented and approved in advance by the supervisor's management

3. QA audits cover frequency and effectiveness of use of supervisors as design verifiers to guard against abuse.

i. Regulatory Guide 1.74, February 1974, Quality Assurance Terms and Definitions. Endorses ANSI N45.2.10-1973.

The Engineering and Research Department follows Regulatory Guide 1.74, February 1974 and ANSI N45.2.10-1973 exclusive of other documents referenced therein.

j. Regulatory Guide 1.88, Revision 2, October 1976, Collection Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records. Endorses ANSI N45.2.9-1974.

See discussion under ANSI/ASME N45.2.9-1979 in Appendix 17.2A.II.

k. Regulatory Guide 1.94, Revision 1, April 1976, Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel during the Construction Phase of Nuclear Power Plants. Endorses ANSI N45.2.5-1974.

The Engineering and Research Department will follow the requirements of Regulatory Guide 1.94, Revision 1, April 1976, and ANSI N45.2.5-1974 exclusive of other documents referenced therein. ANSI N45.2.5-1974 will be implemented by the Engineering and Research Department by initiating a procedure, prior to any work, that will ensure satisfactory installation, inspection, and testing of structural concrete or structural steel.

l. Regulatory Guide 1.116, June 1976, Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems. Endorses ANSI N45.2.8-1975.

The Engineering and Research Department follows ANSI N45.2.8-1975 exclusive of other documents referenced therein.

m. Branch Technical Position (BTP) ~~ASB~~ CMEB 9.5-1

~~For modification work performed by the Engineering and Research Department during the operations phase, the Engineering and Research Department will implement the requirements outlined in PECO's response to NRC Branch Technical Position APCSB 9.5-1 transmitted by E. G. Bradley - PECO to R. S. Boyd - USNRC November 1, 1977.~~ Insert B1

n. Regulatory Guide 1.123, Revision 1, July 1977, Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants. Endorses ANSI N45.2.13-1976.

The Engineering and Research Department follows Regulatory Guide 1.123, Revision 1, July 1977 and ANSI N45.2.13-1976 exclusive of other documents referenced therein.

o. Regulatory Guide 1.143, July 1978, Design Guidance for Radioactive Waste Management Systems, Structures, and

Components installed in Light-Water-Cooled Nuclear Power Plants.

The Engineering and Research Department follows the guidance of Regulatory Guide 1.143, July 1978, exclusive of other documents referenced therein.

p. Regulatory Guide 1.146, August 1980, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants" Endorses ANSI/ASME N45.2.23-1978.

Philadelphia Electric Company will comply with Regulatory Guide 1.146, August 1980 and ANSI/ASME N45.2.23-1978 except for the following alternates:

1. Regulatory Guide 1.46, August 1980, section C.1, and ANSI/ASME N45.2.23-1978, subsection 1.5, discuss the applicability of documents referenced in the standard. In lieu of the latest revision of Regulatory Guides and ANSI Standards, PECo commitments are contained in Section 17.2.

2. ANSI/ASME N45.2.23-1978, subsection 2.3, states requirements for qualification of auditors. In lieu of the stated requirements, PECo will qualify personnel in accordance with the requirements presented below. These alternate requirements will provide PECo with sufficient flexibility to qualify competent personnel with initial technical experience in a more effective manner. The proration of credits between initial experience requirements and additional experience gained as an assistant to a Lead Auditor ensures that highly qualified personnel will be available as audit personnel in a more timely fashion.

   Substitute the following for Paragraph 2.3.1 of ANSI/ASME N45.2.23-1978.

   2.3.1 Education and Experience. The prospective Lead Auditor shall have varifiable evidence that a minimum of ten (10) credits under the following scoring system have been accumulated.

   2.3.1.1 Education (4 credits maximum). Associate degrees from an accredited institution score one (1) credit or if the degree is in engineering, physical sciences, mathematics, or quality assurance, score two (2) credits or,

   a bachelor degree from an accredited institution score two (2) credits or if the degree is in

engineering, physical sciences, mathematics, or quality assurance, score three (3) credits; in addition score one (1) credit for a master degree in engineering, physical sciences, business management, or quality assurance from an accredited institution.

2.3.1.2 a) Initial Experience Prior to Assignment (6 credits maximum). Technical experience in engineering, manufacturing, construction, operation, maintenance, or quality assurance related to the aforementioned activities, score one (1) credit for each full year with a maximum of five (5) credits for this aspect of experience.

If two (2) or more years of this experience have been in the nuclear field, score one (1) additional credit.

2.3.1.2 b) Additional Experience (after assignment) (4 credits maximum). Experience in quality assurance, score one (1) credit for each full year (2 credits maximum) or,

Experience in auditing, score two (2) credits for each full year (3 credits maximum) or,

Experience in nuclear quality assurance, score one (1) credit for each full year (3 credits maximum) or,

Experience in nuclear quality assurance auditing, score one (1) credit per every six months (4 credits maximum).

2.3.1.3 Other Credentials of Professional Competence (2 credits maximum). Certification of competency in engineering, science, or quality assurance specialities issued and approved by a State Agency, or National Professional or Technical Society, score two (2) credits.

2.3.1.4 Rights of Management (2 credits maximum). The Lead Auditor's employer may grant up to one (1) credit for other performance factors applicable to auditing which may not be explicitly called out in this standard such as leadership, sound judgment, maturity, analytical ability, tenacity, and past performance, plus one (1) credit for satisfactory completion of Lead Auditor training program.

q. ANSI N45.2.12-1977, Requirements for auditing of Quality Assurance Programs for Nuclear Power Plants.

The Engineering and Research Department follows the guidance of ANSI N45.2.12-1977 exclusive of other documents referenced therein.