

DONALD C. COOK NUCLEAR PLANT
UNIT NUMBERS 1 AND 2
DOCKET NOS. 50-315 AND 50-316
LICENSE NOS. DPR-58 AND DPR-74

**Updated Quality Assurance
Program Description for the
Donald C. Cook Nuclear Plant**

July, 1985

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UPDATED QUALITY ASSURANCE PROGRAM DESCRIPTION
FOR THE
DONALD C. COOK NUCLEAR PLANT
JULY, 1985

Prepared by the AEPSC Quality Assurance Department

APPROVED BY: *W. H. Hoyer* 6/25/85
AEPSC Manager of Quality Assurance

QUALITY ASSURANCE PROGRAM DESCRIPTION
FOR
THE DONALD C. COOK NUCLEAR POWER PLANT

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and
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**STATEMENT OF POLICY
FOR THE DONALD C. COOK NUCLEAR PLANT
QUALITY ASSURANCE PROGRAM**

POLICY

American Electric Power Company, Inc., recognizes the fundamental importance of controlling the design, modification and operation of Indiana & Michigan Electric Company's Donald C. Cook Nuclear Plant (Cook Plant) by implementing a planned and documented Quality Assurance Program, including Quality Control, that complies with applicable regulations, codes and standards.

The Quality Assurance Program has been established for safety-related activities performed during the operations of, or in support of the Cook Plant. The Quality Assurance Program supports the goals of maintaining the safety and reliability of the Cook Plant at the highest level, and conducting safety-related activities in compliance with applicable regulations, codes, standards and established corporate policies and practices.

As Chairman of the Board and Chief Executive Officer of American Electric Power Company, Inc., I maintain the ultimate responsibility for the Quality Assurance Program associated with the Cook Plant. I have delegated functional responsibility for the Quality Assurance Program to the American Electric Power Service Corporation (AEPSC) Vice Chairman - Engineering and Construction. He has, with my approval, delegated further responsibilities as outlined in this statement.

IMPLEMENTATION

The AEPSC Manager of Quality Assurance, under the direction of the AEPSC Vice Chairman - Engineering and Construction, has been assigned the overall responsibility for specifying the Quality Assurance Program requirements for the Cook Plant and verifying their implementation. The AEPSC Vice Chairman - Engineering and Construction has given the AEPSC Manager of Quality Assurance authority to stop work on any quality-related activity that does not meet applicable administrative, technical and/or regulatory requirements. The AEPSC Manager of Quality Assurance does not have the authority to stop unit operations, but shall notify appropriate plant and/or corporate management of conditions not meeting the aforementioned criteria, and recommend that unit operations be terminated.

The Vice President - Nuclear Operations and the Executive Vice President and Chief Engineer, under the direction of the AEPSC Vice Chairman - Engineering and Construction, have been delegated responsibility for effectively implementing the Quality Assurance Program.

The Donald C. Cook Plant Manager, under the direction of the AEPSC Vice President - Nuclear Operations, is delegated the responsibility for establishing Cook Plant Quality Control and implementing the Quality Assurance Program at the Cook Plant.

The AEPSC Manager of Quality Assurance is responsible for providing technical direction to the Plant Manager for matters relating to the Quality Assurance Program at the Cook Plant. The AEPSC Manager of Quality Assurance is also responsible for maintaining a Quality Assurance Section at the Cook Plant to perform required reviews and audits, and to provide technical liaison services to the Plant Manager.

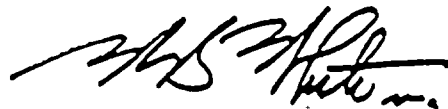
The implementation of the Quality Assurance Program is described in the AEPSC General Procedures and subtier department/division procedures, D. C. Cook Plant Manager's Instructions (PMI) and subtier Department Head Instructions and Procedures, which in total, document the requirements for implementation of the Program.

Each AEPSC and Cook Plant organization that is, or becomes, involved in safety-related activities for the Cook Plant has the responsibility to implement the policies and requirements of the Quality Assurance Program that are applicable to their respective area(s) of responsibility. AEPSC and Cook Plant personnel involved in safety-related activities shall be familiar with, and comply with, the requirements of the applicable Quality Assurance Program requirements.

COMPLIANCE

The AEPSC Manager of Quality Assurance shall monitor the compliance with the established Quality Assurance Program. Audit programs shall be established to ensure that AEPSC and Cook Plant activities comply with established program requirements, identify deficiencies or noncompliances, and obtain effective and timely corrective actions.

Any employee engaged in safety-related activities who believes that the Quality Assurance Program is not being complied with, or that a deficiency in quality exists, should notify his or her supervisor, the AEPSC Manager of Quality Assurance and/or the Plant Manager. If the notification does not in the employee's opinion receive prompt attention, the employee should contact successively higher levels of management. Employees reporting such conditions shall not be discriminated against by companies of the American Electric Power System. Discrimination includes discharge or other actions relative to compensation, terms, conditions or privileges of employment.



W. S. White, Jr.
Chairman of the Board
American Electric Power Company, Inc.

1.7.1 ORGANIZATION

1.7.1.1 SCOPE

American Electric Power Service Corporation (AEPSC) is responsible for establishing and implementing the Quality Assurance Program for the operational phase of the D.C. Cook Nuclear Plant (Cook Plant). Although authority for development and execution of various portions of the program may be delegated to others, such as contractors, agents or consultants, AEPSC retains overall responsibility. AEPSC shall evaluate work delegated to such organizations. Evaluations shall be based on the status of safety importance of the activity being performed and shall be initiated early enough to assure effective quality assurance during the performance of the delegated activity and annually thereafter as a minimum.

This section of the Quality Assurance Program Description identifies the AEPSC organizational responsibilities for activities affecting the quality of safety-related nuclear power plant structures, systems, and components, and describes the authority and duties assigned to them. It addresses responsibilities for both attaining quality objectives and for the functions of establishing the Quality Assurance Program, and verifying that activities affecting the quality of safety-related items are performed in accordance with QA Program requirements.

1.7.1.2 IMPLEMENTATION

1.7.1.2.1 Source of Authority

The Chairman of the Board and Chief Executive Officer of American Electric Power Company, Inc. (AEP) and AEPSC is responsible for safe operation of the Donald C. Cook Nuclear Plant. Authority and responsibility for effectively implementing the QA Program for plant modifications, operations and maintenance are delegated through the AEPSC Vice Chairman - Engineering and Construction, to the AEPSC Vice President - Nuclear Operations (Manager of Nuclear Operations) and the AEPSC Executive Vice President and Chief Engineer (reference John E. Dolan

letter dated November 1, 1984; Subject: "Support Organization for Donald C. Cook Nuclear Plant).

In the operation of a nuclear power plant the licensee is required to establish clear and direct lines of responsibility, authority and accountability. This requirement is applicable to the organization providing support to the plant, as well as to the plant staff. While the AEPSC organization changes effective on September 1, 1984, have not affected the responsibility and authority of the Manager of Nuclear Operations, these changes in the AEPSC engineering organization require a new directive for the support of the Cook Plant.

The AEPSC corporate support of the Cook Plant is the responsibility of the entire organization under the direction of the Manager of Nuclear Operations who maintains primary responsibility for the Cook Plant within the corporate organization. The AEPSC Vice President - Nuclear Operations is the Manager of Nuclear Operations. All other AEPSC divisions and departments, other than the Quality Assurance Department, having a supporting role for the Cook Plant are functionally responsible to the Manager of Nuclear Operations (reference Figure 1.7-1).

In order to facilitate a more thorough understanding of the support functions, some of the responsibilities, authorities, and accountabilities within the organization are as follows:

- 1) The responsibilities of the Manager of Nuclear Operations shall be dedicated to the area of nuclear plant operations and support.
- 2) The Manager of Nuclear Operations shall be responsible for, and has the authority to direct all nuclear operational and support matters within the corporation and shall make or concur in all final decisions regarding significant nuclear safety matters.
- 3) AEPSC division and department managers responsible for nuclear matters shall be familiar with activities within their scope of responsibility that affect plant safety and reliability. They shall

be cognizant of and sensitive to internal and external factors that might affect the operations of the Cook Plant.

- 4) AEPSC division and department managers responsible for nuclear matters have a commitment to seek and identify problem areas and take corrective action to eliminate unsafe conditions, or to improve trends that will upgrade plant safety and reliability.
- 5) The Manager of Nuclear Operations shall ensure that plant personnel are not requested to perform inappropriate work or tasks by corporate personnel and shall control assignments and requests that have the potential for diverting the attention of the Plant Manager from the primary responsibility for safe and reliable plant operation.
- 6) AEPSC division and department managers having nuclear support responsibilities as well as the Plant Manager and plant department managers shall be familiar with the policy statements from higher management concerning nuclear safety and operational priorities. They shall be responsible for ensuring that activities under their direction are performed in accordance with these policies and the referenced subject letter.

1.7.1.2.2 Responsibility for Attaining Quality Objectives in AEPSC Nuclear Operations

The American Electric Power Company, Inc., (AEP) Chairman of the Board and Chief Executive Officer has delegated the functional responsibility of the Quality Assurance Program to the American Electric Power Service Corporation (AEPSC) Vice Chairman - Engineering and Construction.

The AEPSC Manager of Quality Assurance, under the direction of the AEPSC Vice Chairman - Engineering and Construction, is responsible for specifying Quality Assurance Program requirements and verifying their implementation.

The AEPSC Vice President - Nuclear Operations and AEPSC Executive Vice President and Chief Engineer, under the direction of the AEPSC Vice Chairman - Engineering and Construction, are responsible for effectively implementing the Quality Assurance Program.

The Plant Manager, under the direction of the AEPSC Vice President - Nuclear Operations, is responsible for establishing Cook Plant Quality Control and implementing the Quality Assurance Program at the Cook Plant.

Management/supervisory personnel receive functional training to the level necessary to plan, coordinate, and administrate those day-to-day verification activities of the QA Program for which they are responsible.

AEPSC has established an independent off-site Nuclear Safety and Design Review Committee (NSDRC) which has been established pursuant to the requirements of the Technical Specifications for the Cook Plant. The function of the NSDRC is to oversee the engineering, design, operation, and maintenance of the Cook Plant by performing audits and independent reviews of activities which are specified in the Facility Operating Licenses.

The Cook Plant on-site review group is the Indiana & Michigan Electric Company (I&MECo) Plant Nuclear Safety Review Committee (PNSRC). This committee has been established pursuant to the requirements of the Cook Plant Technical Specifications. The function of the PNSRC is to review plant operations on a continuing basis and advise the Plant Manager on matters related to nuclear safety.

1.7.1.2.3 Corporate Organization

American Electric Power Company

AEP, the parent holding company, wholly owns the common stock of all AEP System subsidiary (operating) companies. The major operating companies and generation subsidiaries are shown in Figure 1.7-2. The Chairman of the Board of AEP is the Chief Executive Officer of all operating

companies. The responsibility for the functional management of the major operating companies is vested in the President of each operating company reporting to the AEPSC President and Chief Operating Officer who reports to the AEPSC Chairman of the Board and Chief Executive Officer.

American Electric Power Service Corporation

The responsibility for administrative and technical direction of the AEP System and its facilities is delegated to the American Electric Power Service Corporation (AEPSC). AEPSC provides management and technological services to the various AEP System Companies.

Operating Companies

The operating facilities of the AEP System are owned and operated by the respective operating companies. The responsibility for executing the engineering, design, construction, specialized technical training, and certain operations supervision is vested in AEPSC while all or part of the administrative function responsibility is assigned to the operating companies. In the case of Cook Plant, I&MECo provides only public affairs, accounting and industrial safety direction.

The Donald C. Cook Nuclear Plant is owned and operated by Indiana & Michigan Electric Company (I&MECo) which is part of the AEP system.

1.7.1.2.4 Quality Assurance Responsibility of AEPSC

- 1) AEPSC provides the technical direction of the Cook Plant, and as such makes the final decisions pertinent to safety-related changes in plant design. Further, AEPSC reviews NRC letters, bulletins, notices, etc., for impact on plant design, and the need for design changes or modifications.
- 2) AEPSC furnishes licensing, NRC correspondence, fuel management and radiological support activities.

- 3) AEPSC provides additional service in matters such as supplier qualification, and spare and replacement part procurement, to the extent established by AEPSC and plant procedures.
- 4) The AEPSC QA Department provides technical direction in quality assurance matters to AEPSC and the Cook Plant, and oversees the adequacy and implementation of the QA Programs through review and audit activities.

Quality Assurance Responsibility of I&MECo - D.C. Cook Plant

As owner and operator, I&MECo operates the Cook Plant per licensing requirements, including the Technical Specifications and such other commitments as established by the operating licenses. The Plant Manager Instruction (PMI) system and subtier instructions and procedures describe the means by which compliance is achieved and responsibilities are assigned, including interfaces with AEPSC. Figure 1.7-3 indicates the organizational relationships within the AEP System pertaining to the operation and support of the Cook Plant.

1.7.1.2.5 Organization (AEPSC)

The Chairman of the Board and Chief Executive Officer is ultimately responsible for the Quality Assurance Program associated with the Cook Plant. This responsibility has been functionally delegated to the AEPSC Vice Chairman - Engineering and Construction. The AEPSC Vice Chairman - Engineering and Construction has further delegated responsibilities which are administered through the following division and department management personnel:

- AEPSC Manager of Quality Assurance
- AEPSC Vice President - Nuclear Operations
- AEPSC Executive Vice President and Chief Engineer

Quality Assurance Department

The AEPSC Manager of Quality Assurance reports to the AEPSC Vice Chairman - Engineering and Construction and is responsible for the Quality Assurance Department. The Quality Assurance Department consists of the following positions and sections (Figure 1.7-4):

- Quality Assurance Engineering Section
- Audits and Procurement Section
- Training and Procedures Specialist
- Quality Assurance Staff Specialist
- D.C. Cook Plant Site Quality Assurance Section

The Quality Assurance Department is organizationally independent and is responsible to perform the following:

- Identify quality problems.
- Initiate, recommend, or provide solutions through designated channels.
- Verify implementation of solutions.
- Prepare issue and maintain Quality Assurance Program documents, as required.
- Verify the implementation of the Quality Assurance Program through scheduled audits and surveillances.
- Review engineering, design, procurement, construction and operational documents for incorporation of, and compliance with applicable quality assurance requirements to the extent specified by the AEPSC management approved QA Program.
- Organize and conduct the QA orientation, training, certification and qualification of AEPSC personnel.
- Provide general guidance, when requested, for the collection, storage, maintenance, and retention of quality assurance records.
- Establish and maintain a Qualified Suppliers List (QSL) of nuclear (N) items and services.
- Identify noncompliances of the established QA Program to the responsible organizations for corrective actions and report significant occurrences that jeopardize quality to senior AEPSC management .

- Follow up on corrective actions identified by QA during and after disposition implementation.
- Assure that conditions adverse to quality are dispositioned to preclude recurrence.
- Conduct in-process QA surveillance at supplier's facilities, as required.
- Assist and advise other AEP/AEPSC groups in matters related to the Quality Assurance Program.
- Maintain a list of nuclear grade items (N-List) for the D.C. Cook Plant.
- Establish a mechanism for identifying, tracking and closing out quality-related commitments.
- Conduct audits as directed by the Nuclear Safety and Design Review Committee (NSDRC).
- Review AEPSC originated nonconformances, noncompliances and associated corrective action recommendations.
- Maintain cognizance of industry and governmental quality assurance requirements such that the Quality Assurance Program is compatible with requirements, as necessary.
- Recommend for revision to, or improvements in the established QA Program to senior AEPSC management.
- Issue "Stop Work" orders when significant conditions adverse to quality are identified to prevent unsafe conditions from occurring and/or continuing.
- Provide AEPSC management with periodic reports concerning the status, adequacy and implementation of the QA Program.
- Prepare and conduct special verification and/or surveillance programs on in-house activities, as required or requested.
- Routine attendance and participation in daily plant work schedule and status meetings.
- Provide adequate QA coverage relative to procedural and inspection controls, acceptance criteria, and QA staffing and qualification of personnel to carry out QA assignments.

Amplification of Specific Responsibilities

- Qualification of the AEPSC Manager of Quality Assurance

The AEPSC Manager of Quality Assurance shall possess the following position requirements:

- Bachelor's degree in engineering, scientific or related discipline.
- Ten (10) years experience in one or a combination of the following areas: engineering, design, construction, operations, maintenance of fossil or nuclear power generation facilities or utility facilities; Quality Assurance; of which at least four (4) years must be experience in quality assurance related activities.
- Knowledge of QA regulations, policies, practices and standards.
- The same or higher organization reporting level as the highest line manager directly responsible for performing activities affecting quality such as engineering, procurement, construction and operation, and is sufficiently independent from cost and schedule.
- Effective communication channels with other senior management positions.
- Responsibility for approval of QA Manual(s).
- Performance of no other duties or responsibilities unrelated to QA that would prevent full attention to QA matters.

- Stop Work Orders

The AEPSC Quality Assurance Department is responsible for ensuring that quality related activities are performed in a manner that meets applicable administrative, technical, and regulatory requirements. In order to carry out this responsibility, the AEPSC Vice Chairman - Engineering and Construction has given the AEPSC Manager of Quality Assurance, the authority to stop work on any quality related activity that

" does not meet the aforementioned requirements. Stop work authority has been further delegated by the AEPSC Manager of Quality Assurance to the Supervisor - Quality Assurance (site).

The AEPSC Manager of Quality Assurance and the Supervisor - Quality Assurance do not have the authority to stop unit operations, but will notify appropriate plant and/or corporate management of conditions which do not meet the aforementioned criteria, and recommend that unit operations be terminated.

- QA Orientation, Training, Qualification and Certification Program

- a) AEPSC QA shall, if directed by AEPSC management, be responsible for establishing, maintaining and conducting a general QA orientation and training program for AEPSC personnel engaged in safety-related activities. This program includes the AEPSC QA philosophy and such facility specific programs as may be required by facility or regulatory requirements.
- b) AEPSC has established and maintains a QA Auditor training and certification program for all AEPSC QA Auditors.

- Problem Identification, Reporting and Escalation

- AEPSC QA has established mechanisms for the identification and reporting and escalating safety-related problems to a level of management whereby satisfactory resolutions can be obtained.

Nuclear Operations Division

The AEPSC Vice President - Nuclear Operations (Manager of Nuclear Operations) reports to the AEPSC Vice Chairman - Engineering and Construction and is responsible for the Nuclear Operations Division. Reporting to the AEPSC Vice President - Nuclear Operations are the following:

- Donald C. Cook Plant Manager
- Assistant Division Manager - Nuclear Engineering (not charted)
- Assistant Division Manager - Nuclear Operations (not charted)
- Consulting Nuclear Engineer - Nuclear Operations (not charted)
- Staff Engineer - Nuclear Operations (not charted).

The organization and responsibilities of the Donald C. Cook Plant Manager are defined further within this section under 1.7.1.2.6 Organization (Cook Plant).

The AEPSC Assistant Division Manager - Nuclear Engineering is responsible for two of the four sections within the Nuclear Operations Division, as follows (not charted):

- Nuclear Safety and Licensing (NS&L) Section
- Nuclear Material and Fuels Management (NMFM) Section

The AEPSC Assistant Division Manager - Nuclear Operations is responsible for the remaining two sections, as follows (not charted):

- Nuclear Operations Support (NOS) Section
- Radiological Support (RS) Section

The Nuclear Operations Division is responsible for the following:

- Assist and make recommendations on the formulation of policies and practices relative to safety and licensing, operation, maintenance, fuel management and radiological support activities for the Cook Plant.
- Provide the D.C. Cook Plant Manager with technical and managerial guidance, direction, and support to ensure safe operation of the plant.
- Coordinate and correlate division activities between AEPSC and I&MECo organizations with respect to nuclear projects.
- Provide direction to all other AEPSC engineering divisions on engineering matters pertaining to the Cook Plant.
- Provide special nuclear training for American Electric Power System personnel and maintain contacts with facilities where specialized training is available.

- Maintain liaison with the AEPSC Manager of Quality Assurance and other sources to become apprised of the latest safety, licensing and regulatory requirements, codes, standards and federal regulations applicable to the operation of the Cook Plant.
- Ensure that areas of responsibility are performed in accordance with the requirements of the QA Program.
- Provide membership on the Nuclear Safety and Design Review Committee (NSDRC).
- Provide membership on the Change Control Board (CCB) for Cook Plant.
- Provide training to the AEPSC members of the emergency response organization.
- Participate in emergency response organization activities for Cook Plant.
- Ensure that nuclear fuel material and associated nuclear material specifications, fabrication, procurement and delivery comply with established criteria, designs, and program.
- Negotiate contracts with suppliers of nuclear fuel materials and associated nuclear fuel services and provide technical support on contract.
- Ensure that the operating license for the Cook Plant is maintained.
- Supervise the review and evaluation of responses to NRC requests for information, notifications, or other NRC correspondence.
- Coordinate all activities related to public hearings and meeting with the NRC and the Advisory Committee on Reactor Safeguards (ACRS).
- Participate in, and the overall coordination of the annual FSAR update and submittal.

The basic functional areas for which each section responsibilities are as follows:

A. Nuclear Materials and Fuel Management:

- a) Reactor Physics
- b) Reload Engineering
- c) Reload Supplier Evaluation
- d) Supply of Enrichment Services

- e) Technical Specifications (Core-related)
- f) Liaison with Plant Nuclear Engineer
- g) Core Physics Documents
- h) Nuclear Fuel Supply Contracts
- i) Radwaste Handling
- j) Special Nuclear Material
- k) Nuclear Fuel Cash Flow, Budgets
- l) Nuclear Fuel Quality Assurance
- m) Radwaste Disposal
- n) Supply of Conversion Services
- o) Fuel Cycle Cost Analysis
- p) Purchase of Uranium
- q) Spent Nuclear Fuel Transportation
- r) Fuel Handling Cognizant Engineer

B. Nuclear Safety and Licensing:

- a) Safety Reviews
- b) Reviews of Proposed Changes
- c) Accident Analysis
- d) Seismic Coordination
- e) Plant Transient Analysis
- f) NRC Licensing Letters
- g) Generic Licensing Issuers
- h) Structural Mechanics
- i) Probabilistic Risk Analysis
- j) Technical Specifications
- k) Failure Modes Analysis
- l) Participation in the NSDRC

C. Nuclear Operations:

- a) Five-year Planning Program
- b) Outage Planning
- c) Shift Technical Advisor Program
- d) Reliability Assessment and Nuclear Plant Reliability Data System (NPRDS)
- e) Availability Improvements

- f) Operator Training
- g) Annual Operating Report
- h) Licensee Event Report Evaluation
- i) Communications
- j) Industry Surveys
- k) Nuclear Network
- l) Paperwork Reduction
- m) Human Factors Engineering
- n) Simulator
- o) O&M Budgets
- p) Design Changes and Plant Modifications
- q) Regulatory Performance Improvement Program (RPIP)

D. Radiological Support:

- a) Emergency Plan
- b) REM System
- c) ALARA
- d) Meteorology
- e) Environmental Radiation Monitoring
- f) Radiation Monitoring
- g) Health Physics Support
- h) Generic Radiation Issues
- i) Decommissioning
- j) Respiratory Protection Program
- k) Environmental Technical Specifications
- l) Radiochemistry
- m) Shielding
- n) Radiation Dose Calculations
- o) Personnel Radiation Exposure - Plant and Contractors
- p) Liaison with Plant Radiation Protection
- q) Radioactive Sampling
- r) Plant Security
- s) Radiation Training

Environmental Engineering Division

The AEPSC Executive Vice President and Chief Engineer, reporting to the AEPSC Vice Chairman - Engineering and Construction, is responsible for the Environmental Engineering Division through the AEPSC Assistant Vice President - Environmental Engineering. The Environmental Engineering Division provides a nonsafety-related function for the Cook Plant with exception of its participation on the Nuclear Safety and Design Review Committee (NSDRC).

Engineering Administration

The AEPSC Executive Vice President and Chief Engineer, reporting to the AEPSC Vice Chairman - Engineering and Construction, is responsible for Engineering Administration through the AEPSC Vice President - Engineering Administration. The AEPSC Vice President - Engineering Administration is responsible for the following divisions:

- Civil Engineering Division
- Design Division
- Materials Handling Division

Civil Engineering Division

The AEPSC Division Manager - Civil Engineering, reporting to the AEPSC Vice President - Engineering Administration, is responsible for the Civil Engineering Division. The Civil Engineering Division consists of the following sections (not charted):

- Structural Engineering Section
- Civil Engineering Laboratory Section
- Soils, Foundation and Hydro Section
- Survey and Mapping Section

The Civil Engineering Division is responsible for the following:

- Make recommendations and assist in the formulation of policies and practices relating to the structural design and engineering of

nuclear power plants, office and service buildings, and miscellaneous structures, and provide the general supervision of the structural engineering of such facilities and structures.

- Establish and maintain files of design, testing and construction documents for record purposes.
- Arrange for outside engineering and consulting assistance as required.
- Approve improvement requisitions for capital expenditures.
- Approve invoices for outside services.
- Approve purchase requisitions and contracts as authorized.
- Approve Requests for Change (RFC) pertaining to nuclear generating plants.
- Assist in overall coordination of the work of the division with other engineering divisions and interfacing organizations.
- Initiate and maintain a program of development and training for personnel in the division.
- Prepare specifications, procurement of civil/structural items and modifications to same relative to the Civil Engineering Division.
- Direct and coordinate the preparation of specifications and instructions to bidders for general construction and structural features of power plants and buildings and evaluate proposals received; make recommendations for the award of contracts.
- Direct and coordinate the preparation of contracts for the structural phases of power plant and building design and construction.
- Direct and coordinate the preparation of specifications and instructions to bidders for general construction and structural features of power plants and buildings and evaluate proposals received; make recommendations for the award of contracts.
- Provide services to the field organizations, including the assignment of personnel to the field during construction, normal or emergency outages, or as requested.
- Assist in planning and execution of maintenance work on buildings and other structures.
- Prepare site studies.

- Arbitrate disputes which arise between construction forces and outside suppliers of materials and services.
- Coordinate structural consultant's reports with design.
- Participate in periodic inspections of contractors' work.
- Check of structural drawings submitted for review.
- Direct the inspection of coating (painting) operations performed by contractors.
- Review and recommend concrete mix formulations for all new construction.
- Supervise maintenance and repairs of all masonry and concrete work in the AEP System, including supplying trained inspection personnel.
- Direct testing of materials used in concrete and testing of soils to be used in work throughout the AEP System.

Design Division

The AEPSC Division Manager - Design, reporting to the AEPSC Vice President - Engineering Administration, is responsible for the Design Division. There are two Assistant Division Managers reporting to the AEPSC Design Division Manager who are responsible for various sections as follows (not charted):

Assistant Division Manager

- Architectural Design Section
- Mechanical Design Section
- Structural Design Section

Assistant Division Manager

- Electrical Plant Design Section
- Control Services Group

The Design Division is responsible for the following:

- Formulate, administer, and implement policies and practices relating to the design of power plants and miscellaneous structures.

- Direct the development, maintenance, procedural review and implementation by which the Design Division adheres to the QA Program elements as established by the AEPSC General Procedures Manual.
- Conduct periodic management reviews and surveillances of division activities to ensure compliance with QA Program objectives, and external surveillances as necessary, of consultants outside organizations and vendors for which the division is cognizant.
- Conduct functions of the division so as to be in conformance with the operating licenses of the Cook Plant.
- Coordinate the review and/or answering of corrective actions issued and assigned to the Design Division.
- Coordinate special projects and studies, as required.
- Establish and maintain files of design documents for record purposes.
- Initiate and/or implement and control design changes and modifications.
- Coordinate the development and maintenance of the computerized Design Drawing Control (DDC) and the Vendor Drawing Control (VDC) programs which include coordinating the programs with interfacing divisions/departments.
- Control the issuance and distribution of drawings for the Cook Plant including monitoring of the Aperture Card Microfilm Program.
- Maintain the temporary QA record storage facility.
- Supervise and control the work of consultants, Architect/Engineers and outside design agencies supplying services to AEP in their discipline and process notification of defects in accordance with company requirements. Also perform detailed reviews of design work submitted by outside agencies.
- Supervise the identification of critical design decisions and ensure appropriate analyses and reviews are provided. Review, approve and/or sign off all design drawings prior to issuance.
- Provide to the field organizations such services as required during construction, normal or emergency outages or as requested, including assigning design personnel to the field.
- Maintain an up-to-date list of all major approved materials and specifications used within the division's scope of responsibility.

- Initiate and/or aid in the responses of reportable items as described in the AEPSC General Procedures and division procedures.
- Schedule, develop, coordinate and control design studies calculations/analysis, drawings, purchase documents, specifications and other design activities, as assigned for system, components or structures within the division's responsibility.
- Review and update, as required, the Cook Plant Final Safety Analysis Report (FSAR).
- Perform functions related to the Cook Plant as required in response to NRC requirements.
- Participate on committees that review nuclear activities as appointed or assigned.
- Coordinate and resolve design comments made by interfacing departments/divisions.
- Prepare, review approve and administer design specifications and purchase documents for design services and/or materials.
- Initiate and/or aid in the responses of reportable items as described in the AEPSC General Procedures and division procedures.
- Participate in the Initial Assessment Group (IAG) and provide assistance to on-site personnel and other divisions.
- Identify and report deficiencies in the division's functions, duties, and responsibilities.
- Coordinate the implementation of division commitments.

Materials Handling Division

The AEPSC Division Manager - Materials Handling, reporting to the AEPSC Vice President - Engineering Administration, is responsible for the Materials Handling Division. The Materials Handling Division contains one section that performs safety-related work as follows (not charted):

- Coal and Materials Handling Section

The Material Handling Division is responsible for the following:

- Develop policies and practices relating to the engineering of materials handling installations for Donald C. Cook Nuclear Plant.
- Review the activities of materials handling systems for the Cook Plant and approve, as required, all design changes and modifications

including the preparation of specifications, procurement of equipment and modifications to equipment.

- Arrange for outside engineering and consulting services, as required.
- Provide training and development programs necessary for personnel of the division (including the company's safety and health program), which are consistent with the written policy of American Electric Power company and American Electric Power Service Corporation.
- Prepare and administer erection and service contracts.
- Review and evaluate proposals and make recommendations for awards of purchase orders and contracts.
- Prepare, review and approve specifications, purchase and change documents, sketches, drawings, design input, design verifications and calculations, as required.
- Initiate and/or review approval and control of laboratory and field investigations, feasibility studies, improvement requisitions, reports and cost estimates pertaining to the Cook Plant.
- Provide field services to the Cook Plant including the assigning of personnel as are required during construction, normal or emergency outages, or as requested.
- Direct the review of, and response to corrective actions assigned to the Material Handling Division.
- Identify critical engineering and design input and ensure that appropriate analysis and reviews are conducted.
- Implement a corrective action system with regard to all safety-related activities of the division that will control and document all items, services, or activities which do not conform to requirements.
- Maintain a surveillance program in support of the Quality Assurance Program and review and approve the activities of this program which can be separated into the following two areas:
 - Internal management review of the Materials Handling Division.
 - External technical surveillance of consultants, outside materials handling organizations and vendors over which the division is cognizant.

- Assist in planning and execution of maintenance work on equipment and facilities.
- Review and approve manufacturer's equipment drawings prior to fabrication.
- Prepare design criteria, engineering standards conceptual layouts, studies and procedures in conjunction with materials handling equipment at the Cook Plant.
- Assist in the preparation of applications for federal, state and local permits relative to installations being made which require such permits.
- Perform shop and field inspections on equipment being fabricated or installed which is within the scope of the division's responsibility.
- Provide input for special studies and reports which may be requested by other divisions or governmental agencies such as the Nuclear Regulatory Commission.
- Provide technical guidance when requested in support of maintenance and operations activities at the Cook Plant.
- Conduct periodic management reviews of the activities of the division to ensure compliance with the objectives of the Quality Assurance Program, and external technical surveillance, as necessary, of consultants, outside materials handling organizations and vendors over which the division is cognizant.
- Establish and maintain a permanent file for QA records.
- Process RFCs in accordance with AEPSC General Procedures and division procedures.

Electrical Engineering Department

The AEPSC Executive Vice President and Chief Engineer, reporting to the AEPSC Vice Chairman - Engineering and Construction, is responsible for the Electrical Engineering Department through the AEPSC Senior Vice President - Electrical Engineering and Deputy Chief Engineer. Reporting to AEPSC Senior Vice President - Electrical Engineering and Deputy Chief Engineer is the AEPSC Manager - Generation and Telecommunications Engineering Division. The Generation and Telecommunications Engineering

Division (not charted) is the only division within the Electrical Engineering Department that is responsible for performance of electrical oriented safety-related activities. The AEPSC Assistant Manager -

Generation and Telecommunications Engineering Division reports to the AEPSC Manager - Generation and Telecommunications Engineering Division and is responsible for the section within the Electrical Engineering Department that is responsible for safety-related activities as follows (not charted):

- Electrical Generation Section

The Electrical Generation Section is responsible for the following:

- Review and recommend for approval, improvement requisitions for all capital expenditures pertaining to electrical facilities.
- Approve purchase requisitions and contract vouchers for electrical facilities.
- Perform and evaluate economic studies, investigations, analysis and reports for electrical facilities pertaining to the design, operation and maintenance of the generating plants.
- Provide guidance and advice to AEP System Companies on engineering matters.
- Maintain a constant awareness for improvements and more economic design of equipment, electric facilities, maintenance and operating methods or procedures.
- Assign membership to the Nuclear Safety and Design Review Committee (NSDRC) audit subcommittees, participating in matters covered in the committee's charter.
- Participate in the evaluation and remedy of any situation requiring activation of the emergency response organization.
- Determine general layout and design of electrical facilities.
- Prepare, review and approve one-line and elementary diagrams.
- Coordinate plant and system electrical facilities.
- Prepare and/or approve specifications and purchase requisitions, and perform drawing review of electrical equipment, including control and protective relays.

- Assist field personnel in installation, start-up and the subsequent locating of problems in protective, control, or electrical equipment and in determining proper operation of equipment during normal or after emergency operations.
- Establish relay and control standards.
- Assist field personnel in making changes in equipment or control to improve operating conditions or to reduce maintenance or operating staff.
- Supervise the Electrical Engineering Cook Plant Support Team to ensure that all corporate policies and procedures are implemented.
- Maintain a constant awareness of the activities of the Cook Plant Support Team to insure compliance with all applicable procedures initiating, when required, training or retraining programs.
- Review and approve all procedures, purchase requisitions, correspondence, elementary diagrams, requests for design changes or modifications as appropriate.
- Review and approve responses to NRC correspondence as required.
- Closely follow manufacturers' engineering and designs to assure provision of adequate and reliable equipment and circuitry in the areas of turbine-generator protective controls, switchgear, electrical auxiliaries, and protective devices upon which depend the safety, reliability, economy and performance of the unit and plant.
- Coordinate work with plant resident electrical engineer in scheduling electrical engineering, design, purchase and construction activities.
- Direct calculations for proper application and settings of protective relays.
- Coordinate with the Mechanical Engineering Division to insure that all electrical devices purchased with mechanical equipment conform to accepted standards and fulfill the desired function.
- Prepare cable specifications, develop application criteria, establish and maintain system cable stock and write purchase orders for system and plant requirements for control, communication and instrumentation cables and plant requirements for power cables.

Mechanical Engineering Division -

The AEPSC Executive Vice President and Chief Engineer, reporting to the AEPSC Vice Chairman - Engineering and Construction, is responsible for

the Mechanical Engineering Division through the AEPSC Assistant Vice President - Mechanical Engineering. Reporting to the AEPSC Assistant Vice President - Mechanical Engineering, are the following (not charted):

- AEPSC Assistant Division Manager(s)
- Consulting Mechanical Engineer - Nuclear
- Staff Engineer - Chief Metallurgist

Further, the AEPSC Assistant Division Manager - Nuclear is responsible for the following positions and sections (not charted):

- Nuclear Project Engineer(s)
- Turbine and Cycle Evaluation Section
- Chemical Engineering Section
- Heat Exchangers and Pumps Section
- Piping and Valves Section
- Instrumentation and Control Section
- Fire Protection and HVAC Section
- Analytical and R&D Section

The Mechanical Engineering Division is responsible for the following:

- Provide technical engineering support in areas of operation and maintenance, including: the Inservice Inspection (ISI) Program; the Quality Assurance Program; the AEP ALARA Program covering radiation protection, and; the corporate and plant Industrial Safety Program.
- Provide engineering support for the other AEPSC engineering divisions, as well as for the manufacturers, suppliers, or constructors of equipment and systems.
- Provide engineering support to the AEPSC Nuclear Operations Division.
- Preparation of equipment specifications and purchase requisitions for plant equipment, major spare parts and services related to specific areas of responsibility of MED.

- Provide technical direction and assistance to the AEPSC Design Division in the layout and arrangement of equipment, piping, systems, controls, etc., for the development of drawings.
- Develop system flow diagrams and progressive reviews to determine the adequacy of system designs.
- Provide technical assistance to the Cook Plant for use and control of special processes, including welding, heat treating, nondestructive examination, etc.
- Initiate and develop design changes in areas of responsibility of the Mechanical Engineering Division.
- Develop System Descriptions and Descriptive Articles.
- Provide support personnel for the emergency response organization.
- Provide analytical support in engineering disciplines (e.g., heat transfer, thermodynamics, fluid dynamics).
- Review and approval of mechanical design drawings.
- Provide Engineering evaluations for Condition Reports, LERs, INPO-SOERs and NRC Bulletins.

Plant Construction Division

The AEPSC Assistant Vice President - Plant Construction Division reports to the AEPSC Vice Chairman - Engineering and Construction, and is responsible for the Plant Construction Division. The Plant Construction Division consists of the following sections (not charted):

- Administrative Section
- Construction Contracts Section

The Plant Construction Division is responsible for the following:

- Provide a Construction Manager, reporting administratively to the AEPSC Assistant Vice President - Plant Construction Division and functionally to the Cook Plant Manager, to perform major modifications and maintenance work.
- Scope, bid and make recommendations relative to construction contracts.
- Administer contracts throughout the construction period.

Purchasing and Stores Department (not charted)

The AEPSC Executive Vice President - Operations reporting to the AEPSC President and Chief Operating Officer is responsible for the Purchasing and Stores Department through the AEPSC Vice President - Purchasing and Stores.

The Purchasing and Stores Department is responsible for the following:

- Purchasing "N" items only from suppliers appearing on the Qualified Suppliers List (QSL).
- Coordinate procurement activities with AEPSC Nuclear Operations and Engineering Divisions, the AEPSC Quality Assurance Department and Cook Plant personnel.
- Prepare and issue requests for quotations, contracts, service orders and purchase orders for "N" items.
- Establish a system to implement corrective action as described in the AEPSC General Procedures for the Cook Plant.
- Establish a system of records keeping, document transmittal, and document retention. QA records are maintained in accordance with the requirements of ANSI N45.2.9-1974 for the life of the plant.
- Establish a system of document control for controlled procedures, instructions, and purchasing documents for "N" items.
- Conduct training sessions involving purchasing personnel and others on an annual basis or more frequently, as required, and ascertain that training sessions include complete responsibilities associated with the purchase of safety-related items.
- Notify suppliers of their status regarding the QSL, e.g., inclusion, exclusion, conditional approval, etc.
- Notify the Indiana & Michigan Electric company Purchasing Department and the Cook Plant Stores of changes in the QSL.
- Receipt inspection, handling, storage and control of stores items.

1.7.1.2.6 Organization (Cook Plant)

The Plant Manager reports functionally and administratively to the AEPSC Vice President - Nuclear Operations Division (Manager of Nuclear Opera-

tions) and is responsible for the Cook Plant activities. Reporting to the Plant Manager are the following (Figure 1.7-5):

- Assistant Plant Manager - Maintenance
- Assistant Plant Manager - Operations
- Administrative Superintendent
- Quality Control Superintendent (reports functionally to the Plant Manager)

The Cook Plant organization, under the Plant Manager is responsible for the following:

- Ensure the safety of all facility employees and the general public relative to general plant safety, as well as radiological safety by maintaining strict compliance with plant Technical Specifications, procedures and instructions.
- Recommend facility engineering modification and initiate and approve plant improvement requisitions.
- Ensure that work practices in all plant departments are consistent with regulatory standards, safety, approved procedures, and plant Technical Specifications.
- Provide membership, as required, on the Plant Nuclear Safety Review Committee.
- Maintain close working relationships with the NRC as well as local, state, and federal government regulating officials regarding conditions which could affect, or are affected by Cook Plant activities.
- Set up plant load schedules and arrange for equipment outages.
- Develop and efficiently implement all site centralized training activities.
- Direct all facility personnel and safety programs.
- Administer the centralized facility training complex, simulator, and programs ensuring that program development is consistent with the systematic approach to training, INPO, regulatory and corporate requirements.
- Ensure that human resource activities include employee support programs consistent with INPO/NUMARC guidelines, company policies, and regulatory requirements and standards.

- Administer the NRC approved physical Security Program in compliance with regulatory standards, Modified Amended Security Plan, and company policy.
- Supervise, plan, and direct the activities related to the maintenance and installation of all power plant equipment, structures, grounds, and yards.
- Prepare plant maintenance budgets, construction budgets, improvement requisitions, and work orders.
- Prepare and maintain records and reports pertinent to equipment maintenance, cost histories, regulatory agency requirements.
- Administer contracts and schedule outside contractors' work forces.
- Enforce and coordinate plant regulations, procedures, policies, and objectives to assure safety, efficiency, and continuity in the operation of the Cook Plant within the limits of the operating license and the Technical Specifications and formulation of related policies and procedures.
- Plan, schedule, and direct the activities relating to the operation of the Cook Plant and associated switchyards; cooperate in planning and scheduling of work and procedures for refueling and maintenance of the Cook Plant; direct and coordinate fuel loading operations.
- Review reports and records and direct general inspection of operating conditions of plant equipment and investigate any abnormal conditions, making recommendations for repairs. Establish and administer equipment clearance procedures consistent with company, plant, and radiation protection standards; authorize and arrange for equipment outages to meet normal or emergency conditions. Provide the shift operating crews with appropriate procedures and instructions to assist them in operating the plant safely and efficiently.
- Approve operator training programs administered by the Cook Plant Training Department designed to provide operating personnel with the knowledge and skill required for safe operation of the facility and for obtaining and holding NRC operator licenses. Coordinate training programs in plant safety and emergency procedures for Cook Plant Operating Department personnel to ensure that each shift group

will function properly in the event of injury of personnel, fire, nuclear incident, or civil disorder.

- Advance planning and overall conduct of scheduled and forced outages, including the scheduling and coordination of all plant activities associated with refueling, preventive maintenance, corrective maintenance, equipment overhaul, Technical Specification surveillances, and design change installations.
- Coordinate all plant activities associated with the initiation, review, approval, engineering, design, production, examination, inspection, test, turnover, and close out of design changes.
- Develop and implement an effective Quality Control Program. This encompasses, but is not limited to, the planning and directing of quality control activities to assure that industry codes, Nuclear Regulatory regulations, and company instructions and policies regarding quality control for the nuclear generating station are enforced, and that these activities are properly documented.
- Prepare reports of reportable occurrences which are mandated by the NRC and the Technical Specifications.
- Direct the activities of contractor QC/NDE personnel assigned to the QC Department and provide inspections of work performed.
- Prepare statistical reports utilized in Nuclear Regulatory Appraisal Meetings and Enforcement Conference.
- Coordinate the efforts of outside agencies such as American Nuclear Insurers (ANI), Institute of Nuclear Power Operations (INPO), and Third Party Inspector Programs.
- Maintain knowledge of developments and changes in NRC requirements, industry standards and codes, regulatory compliance activities, and quality control disciplines and techniques.
- Stop plant operation in the event that conditions are found which are in violation of the Technical Specifications or adverse to quality.
- Qualification and certification of Quality Control ensuring compliance to ANSI N45.2.6 and SNT-TC-1A criteria, as applicable.

- Conduct of the Quality Control Program, including recommendations for improvement.
- Procurement, receiving, quality control receipt inspection, storage, handling, issue, stock level maintenance, sale, and overall control of stores nuclear and standard grade material, components, and equipment.
- Provide material service and support in accordance with policies and procedures required by AEP Purchasing and Stores, AEPSC Quality Assurance, and the Nuclear Regulatory Commission (NRC), which are administered and enforced in a total effort to ensure safety and plant reliability.
- Plan and direct engineering and technical studies, nuclear fuel management, equipment performance, instrument and control maintenance, on-site computer systems, Shift Technical Advisors, and emergency planning for the Cook Plant. These activities support daily on-site operations in a safe, reliable, and efficient manner in accordance with all corporate policies, applicable laws, regulations, licenses, and Technical Specification requirements.
- Implement station performance testing and monitor programs to ensure optimum plant efficiency.
- Direct programs related to on-site fuel management and reactor core physics testing and ensure satisfactory completion.
- Establish testing and preventive maintenance programs related to station instrumentation, electrical systems, and computers.
- Recommend alternatives to plant operation, technical or emergency procedures, and design of equipment to improve safety of operations and overall plant efficiency.
- Implement the corporate Emergency Plan as it pertains to the D.C. Cook Plant site.
- Provide technical and engineering services in the fields of chemistry, radiation protection, ALARA, and environmental in support of the safe operation of the plant and the health and safety of the employees and the public.
- Plan and schedule the activities of the Physical Sciences Sections of the plant in support of operations and maintenance.

- Establish chemistry, radiochemistry, and health physics criteria which ensure maximum equipment life and the protection of the health and safety of the workers and the public.
- Establish sampling and analysis programs which ensure the chemistry, radiochemistry, and health physics criteria are within the established criteria.
- Establish and direct investigations, responses, and corrective actions when outside the established criteria.
- Administer and direct the plant's radioactive waste programs, including volume reduction, packaging and shipping.

1.7.2 QUALITY ASSURANCE PROGRAM

1.7.2.1 SCOPE

Policies that define and establish the D.C. Cook Nuclear Plant Quality Assurance Program are summarized in the individual sections of this document. The program is implemented through procedures and instructions responsive to provisions of the QAPD, and will be carried out for the life of the plant.

Quality assurance controls apply to activities affecting the quality of safety-related structures, systems and components, to an extent based on the importance of those structures, systems, or components to safety. Such activities are performed under controlled conditions, including the use of appropriate equipment, environmental conditions, assignment of qualified personnel, and assurance that all applicable prerequisites have been met.

Safety related structures, systems or components are defined as items:

- which are associated with the safe shutdown (hot) of the reactor; or isolation of the reactor; or maintenance of the integrity of the reactor coolant system pressure boundary.

or

- whose failure might cause or increase the severity of a design basis accident as described in the FSAR; or lead to a release of radioactivity in excess of 10 CFR100 limits.

In general, items are safety related if they are: classified as Seismic Class I, or Electrical Class IE; or associated with the Engineered Safety Features Actuation System; or associated with the Reactor Protection System.

A special QA program has been implemented for Fire Protection items (Section 1.7.19 herein).

Quality Assurance Program status, scope, adequacy, and compliance with 10CFR50, Appendix B, are regularly reviewed by AEPSC management through reports, meetings, and review of audit results.

The implementation of the Quality Assurance Program may be accomplished by AEPSC and/or Indiana & Michigan Electric Company or delegated in whole or in part to other AEP System companies or outside parties. However, AEPSC and/or Indiana & Michigan Electric Company retain full responsibility for all quality-related activities. The performance of the delegated organization is evaluated by audit or surveillances on a frequency commensurate with their scope and importance of assigned work.

1.7.2.2 IMPLEMENTATION

1.7.2.2.1

The Chairman of the Board of AEPSC, as Chief Executive Officer, has stated in a formal "Statement of Policy", signed by him, that it is corporate policy to comply with the provisions of applicable codes, standards and regulations pertaining to quality assurance for nuclear power plants as required by the Donald C. Cook Nuclear Plant operating licenses. The statement makes this QAPD and the associated implementing procedures and instructions mandatory, and requires compliance by all responsible organizations and individuals. It identifies the management

positions within the companies vested with responsibility and authority for implementing the program and assuring its effectiveness.

1.7.2.2.2

The Quality Assurance Program at AEPSC and the plant consist of controls exercised by organizations responsible for attaining quality objectives, and by organizations responsible for assurance functions.

The QA Program effectiveness is continually assessed through management review of various reports, NSDRC review of the QA audit program and periodically by independent outside parties.

The QA program described in this QAPD is intended to apply for the life of the D.C. Cook Nuclear Plant.

The QA program applies to activities affecting the quality of safety-related structures, systems, components, and related consumables during plant operation, maintenance, testing, and all modifications. Safety-related structures, systems and components are identified in Nuclear (N) Lists and other documents which are developed and maintained for the plant.

1.7.2.2.3

This QAPD, organized to present the Quality Assurance Program for the D.C. Cook Nuclear Plant in the order of the 18 criteria of 10CFR50, Appendix B, states AEPSC policy for each of the criteria, and describes how the controls pertinent to each are carried out. Any changes made to this QAPD that do not reduce the commitments previously accepted by the NRC must be submitted to the NRC at least annually. Any changes made to this QAPD that do reduce the commitments previously accepted by the NRC must be submitted to the NRC and receive NRC approval prior to implementation. The submittal of the changes described above shall be made in accordance with the requirements of 10CFR50.54.

The program described in this QAPD will not be changed in any way that would prevent it from meeting the criteria of 10CFR50, Appendix B and other applicable operating license requirements.

1.7.2.2.4

Documents used for implementing the provisions of this QAPD include the following:

Plant Manager Instructions (PMIs) establish the policy for compliance with quality-related criteria, and assign responsibility to the various departments, as required, for implementation. Department Head

Instructions (DHIs) have been prepared, when required, to implement those activities for each department. Department Head Procedures (DHPs) have been prepared to describe the detailed activities required to support safe and effective plant operation.

The PMIs are reviewed by the AEPSC Site Quality Assurance Supervisor for concurrence that they will satisfactorily implement regulatory requirements and commitments. They are then reviewed by the Plant Nuclear Safety Review Committee (PNSRC) prior to approval by the Plant Manager.

Safety related DHIs and DHPs are reviewed by the department head of origination, AEPSC Site Quality Assurance Supervisor, PNSRC and Plant Manager prior to use.

AEPSC General Procedures (GPs) are utilized to define corporate policies and requirements for quality assurance, and to implement applicable quality assurance requirements within AEPSC.

GPs may also be used to define policies which are nonprocedural in nature.

When contractors perform work on-site under their own quality assurance programs, the programs are reviewed for compliance and consistency with the applicable requirements of the Plant's Quality Assurance Program and

the contract, and are approved by the AEPSC Site Quality Assurance Supervisor, PNSRC and Plant Manager prior to the start of work.

1.7.2.2.5

Provisions of the Quality Assurance Program for the D.C. Cook Nuclear Plant apply to activities affecting the quality of safety-related structures, systems, and components. Appendix A to this QAPD lists the ANSI Standards and Regulatory Guides that identify AEPSC's commitment. Appendix B describes necessary exceptions and clarifications to the requirements of those documents. The scope of the program and the extent to which its controls are applied, are established as follows:

- a) AEPSC uses the criteria specified in the D.C. Cook Plant Final Safety Analysis Report (FSAR) for identifying structures, systems and components to which the Quality Assurance Program applies.
- b) This identification process results in the N-List for the D.C. Cook Nuclear Plant. This N-List is a controlled document, issued to designated personnel. N-List items are determined by engineering analysis of the function(s) of plant structures, systems and components in relation to safe operation and shutdown.
- c) The extent to which controls specified in the Quality Assurance Program are applied to N-list items is determined for each item considering its relative importance to safety. Such determinations are based on data in such documents as the plant Technical Specifications and the FSAR.

1.7.2.2.6

Activities affecting safety are accomplished under controlled conditions. Preparations for such activities include consideration of the following:

- a) Assigned personnel are qualified.
- b) Work has been planned to applicable engineering and/or Technical Specifications.
- c) Specified equipment and/or tools are available.
- d) Materials and items are in an acceptable status.
- e) Systems or structures on which work is to be performed are in the proper condition for the task.
- f) Proper instructions/procedures for the work are available for use.
- g) Items and facilities that could be damaged by the work have been protected, as required.
- h) Provisions have been made for special controls, processes, tests and verification methods.

1.7.2.2.7

Responsibility and authority for planning and implementing indoctrination and training are specifically designated, as follows:

- a) The Training and Indoctrination Program provides for on-going training and periodic refamiliarization with the Quality Assurance Program for the D.C. Cook Nuclear Plant.
- b) Personnel who perform inspection and examination functions are qualified in accordance with requirements of Regulatory Guide 1.58, SNT TC-1A, or the ASME Code, as applicable and with exceptions as noted in Appendix B hereto.
- c) Personnel who participate in Quality Assurance Audits are qualified in accordance with Regulatory Guide 1.146.
- d) Personnel assigned duties such as special cleaning processes, welding, etc., are qualified in accordance with applicable codes, standards and regulatory guides.

- e) The Training/Qualification Program includes, as applicable, provisions for retraining, reexamination and recertification to ensure that proficiency is maintained.
- f) Training and qualification records including documentation of objectives, content of program, attendees and dates of attendance are maintained at least as long as the personnel involved are performing activities to which the training/qualification is relevant.
- g) Personnel responsible for performing activities that affect quality are instructed as to the purpose, scope and implementation of the applicable quality related manuals, instructions and procedures.

Management/supervisory personnel receive functional training to the level necessary to plan, coordinate and administer the day-to-day verification activities of the QA program for which they are responsible.

Training of AEPSC and plant personnel is performed employing two techniques, as applicable: 1) on the job and formal training administered by the department or section the individual works for; and 2) formal training conducted by NRC licensed instructors from the Training Department or other entities (internal and external to the AEP System). Records of training sessions for such training are maintained. Where personnel qualifications or certifications are required, these certifications are performed on a scheduled basis (consistent with the appropriate code or standard).

Plant employees receive introductory training in quality assurance usually within the first two weeks of employment. In addition, AEPSC personnel receive training prior to being allowed unescorted access to the plant. This training includes management's policy for implementation of the Quality Assurance Program through Plant Manager and Department Head Instructions and Procedures. These instructions also include a description of the Quality Assurance Program, the use of instructions and

procedures, personnel requirements for procedure compliance and the systems and components controlled by the Quality Assurance Program.

1.7.2.2.8

The AEPSC Information System Department (not charted) has established a Computer Software Quality Assurance Section. Procedures are being developed to establish QA requirements for safety-related computer software. The Computer Software QA Section will be subject to periodic audit by the AEPSC QA Department.

1.7.3 DESIGN CONTROL

1.7.3.1 SCOPE

Modifications to structures, systems and components are accomplished in accordance with approved design. Activities to develop such designs are controlled. Depending on the type of modification, these activities include design and field engineering; the performance of physics; seismic, stress, thermal, hydraulic, radiation and Safety Analysis Report (SAR); accident analyses; the development and control of associated computer programs; studies of material compatibility; accessibility for inservice inspection and maintenance; and determination of quality standards. The controls apply to preparation and review of design documents, including the correct translation of applicable regulatory requirements and design bases into design, procurement and procedural documents.

1.7.3.2 IMPLEMENTATION

1.7.3.2.1

Modifications to the plant are controlled by instructions and procedures. All modifications are reviewed as required by 10CFR50.59.

1.7.3.2.2

A Change Control Board has been established within AEPSC to perform the review and authorization for safety-related design changes [Request for Change (RFCs)]. The Change Control Board is made up of members of the Engineering and Design Divisions within AEPSC.

1.7.3.2.3

Plant originated RFCs are reviewed by the Plant Nuclear Safety Review Committee (PNSRC) and approved by the Plant Manager prior to submission to the Change Control Board. The cognizant member of the Change Control Board assigns a lead engineer for each RFC. The lead engineer is responsible for coordinating the RFC activities within AEPSC. The AEPSC Nuclear Safety and Licensing Section reviews RFCs to determine their impact on nuclear safety and to determine if the proposed changes involve an unreviewed safety question as defined by 10CFR50.59. RFCs are then returned to the PNSRC for subsequent review prior to submission to the Change Control Board. If an RFC were to involve an unreviewed safety question, it would not be approved by the Nuclear Safety and Licensing Section until the required approval was received from the NRC.

1.7.3.2.4

Proposed design changes which require emergency processing are originated at the plant, reviewed by the PNSRC and approved by the Plant Manager. Plant management then contacts the AEPSC Nuclear Operations Division, and other AEPSC management, as required, describes the change requested and implements the change only after receiving verbal AEPSC management authorization to proceed. These reviews and approvals are documented and become a part of the RFC package.

1.7.3.2.5

When RFCs involve design interfaces between internal or external design organizations, or across technical disciplines, these interfaces are

controlled. Procedures are used for the review, approval, release, distribution and revision of documents involving design interfaces to ensure that structures, systems and components are compatible geometrically, functionally, with processes and the environment. Lines of communication are established for controlling the flow of needed design information across design interfaces, including changes to the information as work progresses. Decisions and problem resolutions involving design interfaces are made by the AEPSC organization having responsibility for engineering direction of the design effort.

1.7.3.2.6

Checks are performed and documented to verify the dimensional accuracy and completeness of design drawings and specifications.

1.7.3.2.7

RFC design document packages are reviewed by AEPSC QA to assure that the documents have been prepared, verified, reviewed and approved in accordance with company procedures.

1.7.3.2.8

The extent of and methods for design verification are documented. The extent of design verification performed is a function of the importance of the item to safety, design complexity, degree of standardization, the state-of-the-art, and similarity with previously proven designs. Methods for design verification include evaluation of the applicability of standardized or previously proven designs, alternate calculations, qualification testing and design reviews. These methods may be used singly or in combination, depending on the needs for the design under consideration.

When design verification is done by evaluating standardized or previously proven designs, the applicability of such designs is confirmed. Any

differences from the proven design are documented and evaluated for the intended application.

Qualification testing of prototypes, components, or features is used when the ability of an item to perform an essential safety function cannot otherwise be adequately substantiated. This testing is performed before plant equipment installation where possible, but always before reliance upon the item to perform a safety-related function. Qualification testing is performed under conditions that simulate the most adverse design conditions, considering all relevant operating modes. Test requirements, procedures and results are documented. Results are evaluated to assure that test requirements have been satisfied. Modifications shown to be necessary through testing are made, and any necessary retesting or other verification is performed. Test configurations are clearly documented.

Design reviews are performed by multi-organizational or interdisciplinary groups, or by single individuals. Criteria are established to determine when a formal group review is required, and when review by an individual is sufficient.

1.7.3.2.9

Persons representing applicable technical disciplines are assigned to perform design verifications. These persons are qualified by appropriate education or experience but are not directly responsible for the design. The designer's immediate supervisor may perform the verification, provided that:

- 1) The supervisor is the only technically qualified individual.
- 2) The supervisor has not specified a singular design approach, ruled out design considerations, nor established the design inputs.

- 3) The need is individually documented and approved in advance by the supervisor's management.
- 4) Regularly scheduled QA audits verify conformance to items 1 through 3 above.

Design verification on safety-related design verification shall be completed prior to declaring a design change operational.

1.7.3.2.10

Plant implementation of the RFC is accomplished by the Plant Manager assigning a specific plant department the responsibility for coordinating the design change. Material to perform the design change must meet the specifications established for the original system or as specified by the lead engineer. For those design changes where testing after completion is required, the testing documentation is reviewed by the organization performing the test and, when specified, by the AEPSC lead engineer or cognizant engineer. Further, completed RFCs are reviewed by AEPSC QA (Site) following installation and testing.

1.7.3.2.11

Changes to design documents, including field changes, are reviewed, approved and controlled in a manner commensurate with that used for the original design. Such changes are evaluated for impact. Information on approved changes is transmitted to all affected organizations.

1.7.3.2.12

Error and deficiencies in, and deviations from approved design documents are identified and dispositioned in accordance with established design control and/or corrective action procedures.

1.7.3.2.13

This mechanism provides for: 1) controlled submission of design changes, 2) engineering evaluation, 3) review for impact on nuclear safety, 4) review by AEPSC QA, 5) design modification, 6) AEPSC managerial review, and 7) approval and record keeping for the implemented design change.

1.7.4 PROCUREMENT DOCUMENT CONTROL

1.7.4.1 SCOPE

Procurement documents define the characteristics of item(s) to be procured, identify applicable regulatory and industry codes/standards requirements and specify supplier Quality Assurance Program requirements to the extent necessary to assure adequate quality.

1.7.4.2 IMPLEMENTATION

1.7.4.2.1

Procurement documents for safety-related materials/services originating at the plant, except as denoted below, are processed through AEPSC for review and approval. The plant may request the assistance of AEPSC cognizant engineers in any procurement activity.

Procurement control is established by instructions and procedures. These documents require that purchase documents be sufficiently detailed to ensure that purchased materials, components and services associated with safety-related structures or systems are: 1) purchased to specification and code requirements equivalent to those of the original equipment or service, 2) properly documented to show compliance with the applicable specifications, codes and standards, and 3) purchased from vendors or contractors who have been evaluated and deemed qualified.

Procedures establish the review of procurement documents to determine that: quality requirements are correctly stated, inspectable and controllable; there are adequate acceptance criteria; procurement

documents have been prepared, reviewed and approved in accordance with established requirements.

Each involved manager is responsible for procurement planning, bid solicitation and bid evaluation.

1.7.4.2.2

The N-List, in conjunction with other sources, is used to determine equipment classification. Donald C. Cook Nuclear Plant Specifications (DCC Specifications) are used to determine material and documentation requirements, codes or standards that materials must fulfill, and define the documentation that must accompany the material to the plant.

Department heads cognizant of the equipment and its quality assurance requirements review all procurement documents to assure that correct classification is made; that the appropriate plant specifications which identify quality requirements, are referenced or attached; and that the documentation requirements are properly stated. Purchase requisitions for new safety-related equipment are initiated by the AEPSC cognizant engineers who establish the initial equipment quality assurance requirements. Replacement or spare equipment is procured via the original purchase requirements. In instances where these requirements have been superseded by a revised specification, the replacement/spare part is procured to the revised requirements.

1.7.4.2.3

The contents of procurement documents vary according to the item(s) being purchased and its function(s) in the plant. Provisions of this QAPD are considered for application to service contractors also. As applicable, procurement documents include:

- a) Scope of work to be performed.

- b) Technical requirements, with applicable drawings, specifications, codes and standards identified by title, document number, revision and date, with any required procedures such as special process instructions identified in such a way as to indicate source and need.
- c) Regulatory, administrative and reporting requirements.
- d) Quality requirements appropriate to the complexity and scope of the work, including necessary tests and inspections.
- e) A requirement for a documented QA Program, subject to QA review and written concurrence prior to the start of work.
- f) A requirement for the supplier to invoke applicable quality requirements on subtier suppliers.
- g) Provisions for access to supplier and subtier suppliers' facilities and records for inspections, surveillances and audits.
- h) Identification of documentation to be provided by the supplier, the schedule of submittals and documents requiring AEPSC approval.

1.7.4.2.4

The AEPSC QA Department performs off-line reviews of procurement documents to assure that the procurement documents have been prepared, reviewed and approved per the QA program requirements.

1.7.4.2.5

Changes to procurement documents are controlled in a manner commensurate with that used for the original documents.

1.7.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

1.7.5.1 SCOPE

Activities affecting the quality of safety-related structures, systems and components are accomplished using instructions, procedures and drawings appropriate to the circumstances, including acceptance criteria for determining if an activity has been satisfactorily completed.

1.7.5.2 IMPLEMENTATION

1.7.5.2.1

Instructions and procedures incorporate: 1) a description of the activity to be accomplished, and 2) appropriate quantitative (such as tolerances and operating limits) and qualitative (such as workmanship and standards) acceptance criteria sufficient to determine that the activity has been satisfactorily accomplished. Hold points for inspection are established when required.

Instructions and procedures pertaining to the specification of and/or implementation of the QA Program receive multiple reviews for technical adequacy and inclusion of appropriate quality requirements. Top tier instructions and procedures are reviewed and approved by AEPSC QA. Lower tier documents are reviewed and approved, as a minimum by management/supervisory personnel trained to the level necessary to plan, coordinate and administer those day-to-day verification activities of the QA Program for which they are responsible.

Temporary procedures may be issued for activities which have short-term applicability.

1.7.5.2.2

AEPSC activities relative to the D.C. Cook Nuclear Plant are outlined by procedures which provide the controls for the implementation of these activities. AEPSC has two categories of QA program procedures:

- 1) General Procedures which are applicable to all divisions of the corporation.
- 2) Division/Section Procedures which apply to the specific division or section involved.

1.7.5.2.3

The Plant Manager Instructions have been classified into the following series:

- 1000 Organization
- 2000 Administration
- 3000 Procurement, Receiving, Shipping and Storage
- 4000 Operations, Fuel Handling, Surveillance Testing
- 5000 Maintenance, Repair and Modification
- 6000 Technical Services - Chemistry, Radiological Controls, Engineering and Instrument Maintenance and Calibration
- 7000 Quality Services - Review and Audit, Equipment Classification, Indoctrination and Training, Inspections, etc.

Instructions and procedures identify the regulatory requirements and commitments which pertain to the subject that it will control and establish responsibilities for implementation. Instructions and procedures may either provide the guidance necessary for the development of supplemental instructions and/or procedures to implement their requirements, or provide comprehensive guidance based on the subject matter.

1.7.5.2.4

Plant drawings are produced, controlled and distributed under the control of AEPSC and the plant. AEPSC design drawings are produced by the AEPSC Design Division under a set of procedures which direct their development and review. These procedures specify requirements for inclusion of quantitative and qualitative acceptance criteria. Specific drawings are reviewed and approved by the cognizant Engineering Divisions.

AEPSC has stationed an on-site design staff to provide for the revision of certain types of design drawings to reflect as-built conditions.

1.7.5.2.5

Complex plant procedures are designated as "In Hand" procedures. Examples of "In Hand" procedures are those developed for extensive or complex jobs where reliance on memory cannot be trusted. Further, those procedures which describe a sequence which cannot be altered or require the documentation of data during the course of the procedure, are considered. "In Hand" procedures are designed as such by double asterisks (**) which precede the procedure number on the cover sheet, all pages and attachments of a procedure and the corresponding index.

1.7.6 DOCUMENT CONTROL

1.7.6.1 SCOPE

Documents controlling activities within the scope defined in Section 2.0, "Quality Assurance Program" are issued and changed according to established procedures. Documents such as instructions, procedures and drawings, including changes thereto, are reviewed for adequacy, approved for release by authorized personnel and are distributed and used at the location where a prescribed activity is performed.

Changes to controlled documents are reviewed and approved by the same organizations that performed the original review and approval, or by other qualified, responsible organizations specifically designated in accordance with the procedures governing these documents. Obsolete or superseded documents are controlled to prevent inadvertent use.

1.7.6.2 IMPLEMENTATION

1.7.6.2.1

Controls are established for approval, issue and change of documents in the following categories:

- a) Design documents (e.g., calculations, specifications, analyses).
- b) Drawings and related documents.
- c) Procurement documents.
- d) Instructions and procedures.
- e) Final Safety Analysis Report (FSAR).
- f) Nuclear Regulatory Commission submittals.
- g) Plant Technical Specifications.
- h) Safeguards documents.

1.7.6.2.2

The review, approval, issuance and change of documents are controlled by:

- a) Establishment of criteria to ensure that adequate technical and quality requirements are incorporated.
- b) Identification of the organization responsible for review, approval, issue and maintenance.
- c) Review of changes to documents by the organization that performed the initial review and approval, or by the organization designated in accordance with the procedure governing the review and approval of specific types of documents.

Maintenance, modification and inspection procedures are reviewed by AEPSC QA for compliance with established inspection requirements.

1.7.6.2.3

Documents are issued and controlled so that:

- a) The documents are available prior to commencing work.
- b) Obsolete documents are replaced by current documents in a timely manner.

1.7.6.2.4

Master lists or equivalent controls are used to identify the current revision of instructions, procedures, specifications and drawings. These control documents are updated and distributed to designated personnel who are responsible for maintaining current copies of the applicable documents. The distribution of controlled documents is performed under procedures requiring receipt acknowledgement and in accordance with established distribution lists.

1.7.6.2.5

In the event a drawing is developed on-site to reflect an as-built configuration, the marked-up drawing is maintained in the Master Plant File and all holders of the drawing are issued appropriate notification to inform them the revision they hold is not current, cannot be used and, if required; reference must be made to the Master Plant File drawing.

1.7.6.2.6

Documents prepared for use in training or for interested parties are appropriately marked to indicate that they are for information use only, and cannot be used to operate or maintain the facility, or to conduct quality-related activities.

1.7.6.2.7

A mechanism has been established which controls responses to NRC documents (I.E. Bulletins, I.E. Inspection Reports, Generic Letters, etc.). These responses, which are uniquely identified by an individual number, require several levels of review and approval.

1.7.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

1.7.7.1 SCOPE

Activities that implement approved procurement requests for material, equipment and services are controlled to assure conformance with procurement document requirements. Controls include a system of supplier evaluation and selection, source inspection, audit and acceptance of items and documents upon delivery and periodic assessment of supplier performance. Objective evidence of quality that demonstrates conformance with specified procurement document requirements is available to the nuclear power plant site prior to use of equipment, material, or services.

1.7.7.2 IMPLEMENTATION

1.7.7.2.1

AEPSC qualifies suppliers by performing a documented evaluation of their capability to provide items or services specified by procurement documents. All material, equipment and services, designated safety-related, are purchased from suppliers whose QA programs have been accepted in accordance with AEPSC requirements. Qualification of such suppliers and maintenance of a Qualified Supplier List (QSL) is accomplished by the AEPSC QA Department. In the discharge of this responsibility, the AEPSC QA Department utilizes information generated by others (such as the CASE Association and ASME) to aid in the supplier qualification process. Distinction is made between suppliers, stocking distributors (warehouses) and sales offices. The supplier or distributor must be on the QSL before procurement can be completed.

AEPSC is a member of CASE and performs audits for submittal to the CASE Register as well as the plant's Qualified Supplier List. The CASE Register provides a prescreened list of potential suppliers with QA programs. An evaluation is made if there is an interest in a CASE listed supplier to consider the scope of the qualification audit and the identity of the auditor which are stated in the Register. Additional program surveys will be conducted, as necessary, to meet requirements.

Acceptance is not complete until it has been determined that the supplier can meet the basic QA and technical requirements of the product or service that is required.

1.7.7.2.2

For commercial "off-the-shelf" items where the requirements for a specific Quality Assurance Program appropriate for nuclear applications cannot be imposed in a practical manner, source verification is used to provide adequate assurance of acceptability.

1.7.7.2.3

In-process surveillance of suppliers' activities during fabrication, inspection; testing and shipment of items is performed when deemed necessary, depending upon supplier qualification status, complexity and importance to safety of the item being furnished, and/or previous supplier history. This surveillance is performed by the cognizant engineering department, responsible plant department, or AEPSC QA, or any combination thereof.

1.7.7.2.4

Spare and replacement parts are procured in such a manner that their performance and quality are at least equivalent to those of the parts that will be replaced.

- a) Specifications and codes referenced in procurement documents for spare or replacement items are at least equivalent to those for the original items or to properly reviewed and approved revisions.
- b) Parts intended as spares or replacement for "off-the-shelf" items, or other items for which quality requirements were not originally specified, are evaluated for performance at least equivalent to the original.

- c) Where quality requirements for the original items cannot be determined, requirements and controls are established by engineering evaluation performed by qualified individuals. The evaluation assures there is no adverse effect on interfaces, interchangeability, safety, fit, form, function, or compliance with applicable regulatory or code requirements. Evaluation results are documented.
- d) Any additional or modified design criteria, imposed after previous procurement of the item(s), are identified and incorporated.

1.7.7.2.5

Instructions and procedures address requirements for supplier selection and control as well as procurement document control. The PMI on receipt inspection of safety-related materials addresses the program for inspection of incoming materials including a review of the documentation required under the procurement. Receipt inspection provisions apply regardless of whether procurement originates at the plant or at AEPSC. Additional inspections may apply if required by the procurement document.

Where materials and/or services are safety-related and procurement is accomplished without assistance of AEPSC, supplier selection is limited to those companies identified on the Qualified Suppliers List (QSL).

1.7.7.2.6

Materials received at the site are tagged with a "Hold" tag and placed in a designated, controlled area until receipt inspected. During receipt inspection, designated material characteristics and attributes are checked, and documentation is checked against the procurement documents. If found acceptable, the "Hold" tag is removed and replaced with an "Accepted" tag and the material is placed in a designated area of the storeroom. Material traceability to procurement documents and to end use is maintained through recording of Hold Tag and Acceptance Tag number on applicable documents.

Nonconforming materials, or missing or questionable documentation results in materials being kept on hold and placed in a designated, controlled area of the storeroom. If the nonconformance cannot be cleared, the material is either scrapped, returned to manufacturer, or dispositioned through engineering analysis.

1.7.7.2.7

Contractors providing services (on-site) for safety-related components, are required to have either a formal quality assurance program and procedures, or they must abide by the plant quality assurance program and procedures. Prior to their working at the plant, contractor quality assurance programs and procedures must be reviewed and approved by the AEPSC Site Quality Assurance Supervisor, PNSRC and the Plant Manager. Further, periodic audits of site contractor activities are conducted under the direction of the AEPSC Site Quality Assurance Supervisor.

1.7.7.2.8

Suppliers are required to furnish the following records:

- a) Applicable drawings and related engineering documentation that identify the purchased item 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".
- d) Quality records as specified in the procurement requirements.

1.7.7.2.9

The validity of supplier certificates of conformance is evaluated at the time of supplier resurvey and requalification.

1.7.8 IDENTIFICATION AND CONTROL OF ITEMS

1.7.8.1 SCOPE

Materials, parts and components (items) are identified and controlled to prevent their inadvertent use. Identification of items is maintained either on the items, their storage areas or containers, or on records traceable to the items.

1.7.8.2 IMPLEMENTATION

1.7.8.2.1

Controls are established that provide for the identification and control of materials, parts and components (including partially fabricated assemblies).

1.7.8.2.2

Items are identified by physically marking the item or its container, and by maintaining records traceable to the item. The method of identification is such that the quality of the item is not degraded.

1.7.8.2.3

Items are traceable to applicable drawings, specifications or other pertinent documents to ensure that only correct and acceptable items are used. Verification of traceability is performed and documented prior to release for fabrication, assembly, or installation.

1.7.8.2.4

Requirements for the identification by use of heat number, part number, or serial number are included in the specifications and/or purchase order.

1.7.8.2.5

Separate storage is provided for incorrect or defective materials that are on hold, and material which has been accepted for use. All safety-related materials are appropriately tagged or identified (stamping, etc.) to provide easy identification as to the materials usage status. Records are maintained for the issue of materials, to provide traceability from storage to end use in the plant.

1.7.8.2.6

When materials are subdivided, appropriate identification numbers are transferred to each section of the material, or traceability is maintained through documentation.

1.7.9 CONTROL OF SPECIAL PROCESSES

1.7.9.1 SCOPE

Special processes are controlled and are accomplished by qualified personnel using approved procedures and equipment in accordance with applicable codes, standards, specifications, criteria and other special requirements.

1.7.9.2 IMPLEMENTATION

1.7.9.2.1

Processes subject to special process controls are those for which full verification or characterization by direct inspection is impossible or impractical. Such processes include welding, heat treating, chemical

cleaning, application of protective coatings, concrete placement and nondestructive examination.

1.7.9.2.2

Special process requirements for chemical cleaning, application of protective coatings and concrete placement are set forth in AEPSC Specifications and/or directives prepared by the responsible AEPSC Cognizant Engineer. These documents are reviewed and approved by other personnel with the necessary technical competence. AEPSC Specifications are reviewed by the AEPSC QA Department.

Special process requirements for welding, heat treating and nondestructive examination (NDE) are set forth in AEPSC Specifications and the AEPSC Welding and NDE Manuals. These specifications and manuals are prepared by the AEPSC Staff Metallurgist (Corporate Level III NDE Administrator) and are reviewed and approved by other personnel with the necessary technical competence. The AEPSC NDE Manual is reviewed by the AEPSC QA Department.

Special process procedures with the exception of welding and heat treating are prepared by plant personnel with technical knowledge in the discipline involved. These procedures are reviewed by other personnel with the necessary technical competence and are qualified by testing.

Welding is performed in accordance with the procedure contained in the AEPSC Welding Manual. These procedures are qualified by the plant in accordance with applicable codes and standards, and Procedures Qualification Records are prepared. The weld procedure qualification documentation is reviewed and approved by the Plant Maintenance Superintendent or a designated plant engineer, or an AEP System welding representative. This documentation is also reviewed by either the AEPSC Staff Metallurgist, Mechanical Engineering Division or Plant Engineering Division. Weld qualification documentation is retained in the AEPSC Welding Manual.

Contractor welding procedures are qualified by the contractor. These procedures and the qualification documentation is reviewed and approved by the plant and the AEPSC Staff Metallurgists, Mechanical Engineering Division. This documentation is retained by the contractor.

1.7.9.2.3

Special process personnel qualification and certification, except for welders, is by either a designated Corporate Level III NDE Administrator or by a Plant Level III Inspector who has been qualified and certified by the designated Corporate Level III NDE Administrator. Certification is based on examination results. Personnel qualification is kept current by performance of the special process(es) and/or reexamination at time intervals specified by applicable codes, specifications and standards. Unsatisfactory performance or, where applicable, failure to perform within the designated time intervals, requires recertification.

Plant welders are qualified by the maintenance and QC Departments utilizing the procedures in the AEPSC Welding Manual. Plant welder qualification records are maintained for each welder by the Maintenance Department. Contractor and craft welders are qualified by the contractor utilizing procedures approved by the plant and the AEPSC Staff Metallurgist, Mechanical Engineering Division. Contractor and craft welder qualification records are maintained by the contractor.

1.7.9.2.4

Quality Control Technicians assigned to the Quality Control Department perform nondestructive testing for work performed by plant and contractor personnel. These individuals are qualified by SNT-TC-1A and records of the qualifications are maintained at the plant.

1.7.9.2.5

For special processes that require qualified equipment, such equipment is qualified in accordance with applicable codes, standards and specifications.

1.7.9.2.6

Qualification records are maintained in accordance with Section 17, "Quality Assurance Records".

1.7.9.2.7

The documentation resulting from welding and nondestructive testing is reviewed by appropriate management personnel.

1.7.10 INSPECTION

1.7.10.1 SCOPE

Activities affecting the quality of safety-related structures, systems and components are inspected to verify their conformance with requirements. These inspections are performed by personnel other than those who perform the activity. Inspections are performed by qualified personnel utilizing written procedures which establish prerequisites and provide documentation for evaluating test and inspection results. Direct inspection, process monitoring, or both, are used as necessary. When applicable, hold points are used to ensure that inspections are accomplished at the correct points in the sequence of activities.

1.7.10.2 IMPLEMENTATION

1.7.10.2.1

Inspections are applied to appropriate activities to assure conformance to specified requirements.

Hold points are provided in the sequence of procedures to allow for the inspection, witnessing, examination, measurement, or review necessary to assure that the critical or irreversible elements of an activity are being performed as required. Note that hold points may not apply to all procedures but each must be reviewed for this attribute.

Hold points specify exactly what is to be done (e.g., type of inspection or examination, etc.), acceptance criteria, or reference to another procedure, and the individual(s) by job title who must perform or attest to the satisfactory completion of the hold point.

When included in the sequence of a procedure, the activities required by hold points are completed prior to continuing work beyond that point.

Process monitoring is used in whole or in part where direct inspection alone is impractical or inadequate.

1.7.10.2.2

Training and Qualification Programs for personnel who perform inspections are established, implemented and documented in accordance with Section 1.7.2, "Quality Assurance Program".

1.7.10.2.3

Inspection requirements are specified in procedures, instructions, drawings, or checklists as applicable. They provide for the following as appropriate:

- a) Identification of applicable revisions of required instructions, drawings and specifications.
- b) Identification of characteristics and activities to be inspected.
- c) Inspection methods.

- d) Specification of measuring and test equipment having the necessary accuracy.
- e) Identification of personnel responsible for performing the inspection.
- f) Acceptance and rejection criteria.
- g) Recording of the inspection results and the identification of the inspector.

1.7.10.2.4

The Plant Quality Control Department has been assigned the responsibility for establishing and executing the following programs:

- a) In-process verifications and inspections.
- b) Inservice inspections.

To ensure the quality of the maintenance, operation, technical, administrative, planning and construction activities at the D.C. Cook Nuclear Plant, the Plant Quality Control Department will inspect, monitor and verify key attributes that have been deemed necessary to assure the acceptability of:

- a) Equipment
- b) Tests
- c) Processes
- d) Materials
- e) Parts
- f) Components
- g) System checks

The performance of these inspections, verifications and monitoring will be defined by instructions/procedures written by the responsible plant departments.

1.7.10.2.5

Inspections are performed, documented, and the results evaluated by designated personnel in order to ensure that the results substantiate the acceptability of the item or work. Evaluation and review results are documented.

1.7.10.2.6

Inspection of work associated with normal operation of the plant, such as surveillance tests and verification of routine maintenance, may be performed by individuals in the same group as that which performed the work, but not by personnel who directly performed or supervised the work. The qualification of these personnel is described in Appendix B hereto, item no. 9.

1.7.11 TEST CONTROL

1.7.11.1 SCOPE

Testing is performed in accordance with established programs to demonstrate that structures, systems and components will perform satisfactorily in service. The testing is performed by qualified personnel in accordance with written procedures that incorporate specified requirements and acceptance criteria. Types of tests are:

Scheduled

Surveillance, preventive maintenance, post-design, qualification.

Unscheduled

Pre- and post-maintenance.

Test parameters, including any prerequisites, instrumentation requirements and environmental conditions, are specified in test procedures. Test results are documented and evaluated.

1.7.11.2 IMPLEMENTATION

1.7.11.2.1

Tests are performed in accordance with programs, procedures and criteria that designate when tests are required and how they are to be performed. Such testing includes the following:

- a) Qualification tests, as applicable, to verify design adequacy.
- b) Acceptance tests of equipment and components to assure their operation prior to delivery or installation.
- c) Post-design tests to assure proper and safe operation of systems and equipment prior to unrestricted operation.
- d) Surveillance tests to assure continuing proper and safe operation of systems and equipment. The PMI on surveillance testing controls the periodic testing of equipment and systems to fulfill the surveillance requirements established by the Technical Specifications. The scheduling of these activities is reviewed by an Assistant Plant Manager. Controls have been established to identify uncompleted surveillance testing to assure it is rescheduled for completion to meet Technical Specification frequency requirements. Data taken during surveillance testing is reviewed by appropriate management personnel to assure that acceptance criteria is fulfilled, or corrective action is taken to correct deficiencies.
- e) Maintenance tests after preventive or corrective maintenance.

1.7.11.2.2

Test procedures, as required, provide mandatory hold points for witness, or review.

1.7.11.2.3

Testing is accomplished after installation, maintenance, or repair, by surveillance test procedures or performance tests which must be satisfactorily completed prior to determining the equipment is in an operable status. All data resulting from these tests is retained at the plant after review by appropriate management personnel.

1.7.12 CONTROL OF MEASURING AND TEST EQUIPMENT

1.7.12.1 SCOPE

Measuring and testing equipment used in activities affecting the quality of safety-related systems, components and structures are properly identified, controlled, calibrated and adjusted at specified intervals to maintain accuracy within necessary limits.

1.7.12.2 IMPLEMENTATION

1.7.12.2.1

Each involved plant department has established procedures for calibration and control of measuring and test equipment utilized in the measurement, inspection and monitoring of structures, systems and components. These procedures describe calibration techniques and frequencies, and maintenance and control of the equipment.

The AEPSC Site Quality Assurance Section periodically assesses the effectiveness of the calibration program via the QA audit program.

1.7.12.2.2

Measuring and test equipment is uniquely identified and is traceable to its calibration source.

1.7.12.2.3

A system has been established utilizing labels which are to be attached to measuring and test equipment to display the date calibrated and the next calibration due date. Where labels cannot be attached, a control system is used that identifies to potential users any equipment beyond the calibration due date.

1.7.12.2.4

Measuring and test equipment is calibrated at specified intervals. These intervals are based on the frequency of use, stability characteristics and other conditions that could adversely affect the required measurement accuracy. Calibration standards are traceable to nationally recognized standards where they exist. Where national standards do not exist, provisions are established to document the basis for calibration.

The primary standards used to calibrate secondary standards have, except in certain instances, an accuracy of at least four (4) times the required accuracy of the secondary standard. In those cases where the four (4) times accuracy cannot be achieved, the basis for acceptance is documented and is authorized by the responsible manager. The secondary standards have an accuracy that assures that the equipment being calibrated will be within the required tolerances and the basis for acceptance is documented and authorized by the responsible manager.

1.7.12.2.5

A series of PMIs define the requirements for the control of standards, test equipment and process equipment.

1.7.12.2.6

When measuring and testing equipment used for inspection and testing is found to be outside of required accuracy limits at the time of calibration, evaluations are conducted to determine the validity of the results obtained since the most recent calibration. Retests or reinspections are performed on suspect items. The results of evaluations are documented.

1.7.13 HANDLING, STORAGE, AND SHIPPING

1.7.13.1 SCOPE

Activities with the potential for causing contamination or deterioration, by environmental conditions such as temperature or humidity that could adversely affect the ability of an item to perform its safety-related functions and activities necessary to prevent damage or loss are identified and controlled. These activities are cleaning, packaging, preserving, handling, shipping and storing. Controls are effected through the use of appropriate procedures and instructions.

1.7.13.2 IMPLEMENTATION

1.7.13.2.1

Procedures are used to control the cleaning, handling, storing, packaging, preserving and shipping of materials, components and systems in accordance with designated procurement requirements. These procedures include, but are not limited to, the following functions:

- a) Cleaning - to assure that required cleanliness levels are achieved and maintained.
- b) Packaging and preservation - to provide adequate protection against damage or deterioration. When necessary, these procedures provide for special environments such as inert gas atmosphere, specific moisture content levels and temperature levels.

- c) Handling - to preclude damage or safety hazards.
- d) Storing - to minimize the possibility of loss, damage, or deterioration of items in storage, including consumables such as chemicals, reagents and lubricants. Storage procedures also provide methods to assure that specified shelf lives are not exceeded.

1.7.13.2.2

Controls have been established for limited shelf life items such as "O" rings, epoxy, lubricants, solvents and chemicals to assure they are correctly identified, stored and controlled to prevent shelf life expired materials from being used in the plant. Controls are established in PMIs.

1.7.13.2.3

Packaging and shipping requirements are provided to vendors with the DCC Specifications which are a part of the purchase order. Controls for receipt inspection, damaged items and special handling requirements at the plant are established by a PMI. Special controls are provided to assure that stainless steel components and materials are handled with approved lifting slings.

1.7.13.2.4

Storage and surveillance requirements have been established to assure segregation of storage. Special controls have been implemented for critical, high value, or perishable items. Routine surveillance is conducted on stored material to provide inspection for damage, rotation of stored pumps and motors; inspection for protection of exposed surfaces and cleanliness of the storage area.

1.7.13.2.5

Special handling procedures have been implemented for the processing of nuclear fuel during refueling outages. These procedures minimize the risk of damage to the new and spent fuel and the possible release of radioactive material when placing the spent fuel into the spent fuel pool.

1.7.14 INSPECTION, TEST, AND OPERATING STATUS

1.7.14.1 SCOPE

Operating status of structures, systems and components is indicated by tagging of valves and switches, or by other specified means, in such a manner as to prevent inadvertent operation. The status of inspections and tests performed on individual items is clearly indicated by markings and/or logging under strict procedural controls to prevent inadvertent bypassing of such inspections and tests.

1.7.14.2 IMPLEMENTATION

1.7.14.2.1

For RFC (Design Change) activities, including item fabrication, installation and test, a PMI exists which specifies the degree of control required for the identification of inspection and test status of structures, systems and components.

Physical identification is used to the extent practical, to indicate the status of items requiring inspections, tests, or examinations. Procedures exist which provide for the use of calibration and rejection stickers, tags, stamps and other forms of identification to indicate test and inspection status. The Clearance Permit System uses various tags to identify equipment and system operability status. Another PMI establishes a tagging system for bypassed safety functions. For those items requiring calibration, a PMI exists which requires physical indication of calibration status by calibration stickers.

1.7.14.2.2

Application and removal of inspection and welding stamps, and of such status indicators as tags, marking, labels, etc., are controlled by plant procedures.

The inspection status of materials received at the plant is identified in accordance with instructions established in a PMI. The status is identified as Hold, Hold for Quality Control Clearance, Reject, or Accept.

The inspection status of work in progress is controlled by the use of hold points in procedures. Plant Quality Control or departmental supervisory personnel inspect an activity at various stages and sign off the procedural steps covered by the inspection.

The status of welding is controlled through the use of a weld data block which identifies the inspection and nondestructive test status of each weld.

1.7.14.2.3

Required surveillance test procedures are defined in a PMI. This instruction provides for documenting bypassed tests, and for rescheduling of the test. An Assistant Plant Manager reviews the completed and signed off Weekly Surveillance Test Schedule to assure compliance.

The status of testing after minor maintenance is recorded as part of the job order. The status of testing after major maintenance is included as part of the procedure, and includes the performance of functional testing and approval of data by supervisory personnel.

Testing, inspection and other operations important to safety are conducted in accordance with properly reviewed and approved procedures. The PMI for plant procedures requires that procedures be followed as written. Alteration to the sequence of a procedure can only be

accomplished by a procedure change which is subject to the same controls as the original review and approval.

1.7.14.2.4

Nonconforming, inoperable, or malfunctioning structures, systems and components are clearly identified by tags, stickers, stamps, etc., and documented to prevent inadvertent use.

1.7.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

1.7.15.2 SCOPE

Materials, parts, or components that do not conform to requirements are controlled in order to prevent their inadvertent use. Nonconforming items are identified, documented, segregated when practical and dispositioned. Affected organizations are notified of nonconformances.

1.7.15.2 IMPLEMENTATION

1.7.15.2.1

Items, services, or activities that are deficient in characteristic, documentation, or procedure, which render the quality unacceptable or indeterminate, are identified as nonconforming, and any further use is controlled. Nonconformances are documented and dispositioned, and notification is made to affected organizations. Personnel authorized to disposition, conditionally release and close out nonconformances are designated.

The Job Order System and/or the Condition Report System (refer to Section 16.0) are used at D.C. Cook Nuclear Plant to identify nonconforming items and initiate corrective action. Systems, components, or materials which require repair or inspection are controlled under the Job Order System. In addition, the various procedures identified in Section 14 provide for identification, segregation and documentation of nonconforming items.

1.7.15.2.2

Nonconforming items are identified by marking, tagging, segregating, or by documented administrative controls. Documentation describes the nonconformance, the disposition of the nonconformance and the inspection requirements. It also includes signature approval of the disposition.

Completed Job Orders are reviewed by the supervisor responsible for accomplishing the work and the supervisor of the department/section that originated the Job Order. The QA Department periodically audits the Job Order System, and on a sample basis, Job Orders.

1.7.15.2.3

Items that have been repaired or reworked are inspected and tested in accordance with the original inspection and test requirements or alternatives that have been documented.

Items that have the disposition of "repair" or "use as is" require documentation justifying acceptability. The changes are recorded to denote the as-built condition.

When required by established procedures, surveillance or operability tests are conducted on an item after rework, repair or replacement.

1.7.15.2.4

Disposition of conditionally released items are closed out before the items are relied upon to perform safety-related functions.

1.7.16 CORRECTIVE ACTION

1.7.16.1 SCOPE

Conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment and nonconformances, are identified promptly and corrected as soon as practical.

For significant conditions adverse to quality, the cause of the condition is determined, and corrective action is taken to preclude repetition. In these cases, the condition, cause and corrective action taken is documented and reported to appropriate levels of management.

1.7.16.2 IMPLEMENTATION

1.7.16.2.1

Procedures are established that describe the plant and AEPSC corrective action programs. These procedures are reviewed and concurred with by the AEPSC QA Department.

AEPSC accomplishes corrective action in the following manner:

- a) Audit reports which require action as a result of a corrective action request.
- b) In accordance with established procedures for Condition Reports, Nonconformance Reports, Inspection Reports and Audit Reports.
- c) As required by NRC Letters, I.E. Bulletins and Inspection Reports.
- d) As required by 10CFR, Part 21 identified deficiencies.

1.7.16.2.2

Condition Reports provide the mechanism for plant personnel to notify management of conditions adverse to quality. Investigations of reported conditions adverse to quality are assigned by management. The investigation report is used to identify the need for changes to instructions or procedures, the initiation of a design change to correct system or equipment deficiencies, or the initiation of job orders to correct minor

deficiencies. Further, Condition Reports are used to identify those actions necessary to prevent recurrence of the reported condition. Condition Reports are also used to report violations to codes, regulations and the Technical Specifications. Condition Reports are reviewed by the PNSRC for evaluation of actions taken to correct the deficiency and prevent recurrence.

Noncompliance Reports (NCRs) provide the mechanism for AEPSC personnel to identify noncompliances. Investigation of reported conditions are assigned to the responsible individual. NCR investigation requires the determination of the cause of the condition and identification of immediate action and action taken to prevent recurrence.

The AEPSC Nuclear Operations Division receives copies of Condition Reports for distribution, on a selected basis, to cognizant engineering departments for review.

The AEPSC Nuclear Safety and Design Review Committee reviews Condition Reports, NCRs, NRC Inspection Report Responses, 10CFR21 items and QA and NSDRC audits for independent evaluation of the reported conditions and corrective actions.

The QA Department periodically audits the corrective action systems for compliance and effectiveness.

1.7.17 QUALITY ASSURANCE RECORDS

1.7.17.1 SCOPE

Records that furnish evidence of activities affecting the quality of safety-related structures, systems and components are maintained. They are accurate, complete, legible and are protected against damage, deterioration, or loss. They are identifiable and retrievable.

1.7.17.2 IMPLEMENTATION

1.7.17.2.1

Documents that furnish evidence of activities affecting quality are generated and controlled in accordance with the procedure that governs those activities. Upon completion, these documents are considered records. These records include:

- a) Results of reviews, inspections, surveillances, tests, audits and material analyses.
- b) Qualification of personnel, procedures and equipment.
- c) Operation logs.
- d) Maintenance and modification procedures and related inspection results.
- e) Reportable occurrences.
- f) Records required by the plant Technical Specifications.
- g) Nonconformance reports.
- h) Corrective action reports.
- i) Other documentation such as drawings, specifications, procurement documents, calibration procedures and reports.

1.7.17.2.2

Instructions and procedures establish the requirements for the identification and preparation of records for systems and equipment under the Quality Assurance Program, and provides the controls for retention of these records.

Criteria for the storage location of quality related records and a retention schedule for these records has been established.

File Indexes have been established to provide direction for filing and to provide for the retrievability of the records.

Controls have been established for limiting access to the Plant Master File to prevent unauthorized entry, unauthorized removal and for use of

the records under emergency conditions. The Accounting Supervisor is responsible for the control and operation of the plant master file room.

1.7.17.2.3

Within AEPSC, each department/division manager is responsible for establishing procedures for the identification, collection, maintenance and storage of records generated by his department/division. These procedures shall ensure the maintenance of records sufficient to furnish objective evidence that activities affecting quality are in compliance with the established QA Program.

1.7.17.2.4

When a document becomes a record, it is designated as permanent or nonpermanent and then transmitted to file. Nonpermanent records have specified retention times. Permanent records are maintained for the life of the plant.

1.7.17.2.5

Only authorized personnel may issue corrections or supplements to records.

1.7.17.2.6

Traceability between the record and the item or activity to which it applies is provided.

1.7.17.2.7

Except for records that can only be stored as originals, such as radiographs and some strip charts, records are stored in remote, dual facilities to prevent damage, deterioration, or loss due to natural or unnatural causes. When only the single original can be retained, special fire-rated facilities are used.

1.7.18 AUDITS

1.7.18.1 SCOPE

A comprehensive system of audits is carried out to provide independent evaluation of compliance with, and the effectiveness of the Quality Assurance Program, including those elements of the program implemented by suppliers and contractors. Audits are performed in accordance with written procedures or checklists by qualified personnel not having direct responsibility in the areas audited. Audit results are documented and are reviewed by management. Follow-up action is taken where indicated.

1.7.18.2 IMPLEMENTATION

1.7.18.2.1 AEPSC QA Department Responsibilities

The basic responsibility for the assessment of the Quality Assurance Programs is vested in the AEPSC QA Department. They are primarily responsible for ensuring that proper QA programs are established and implemented. These responsibilities are discharged in cooperation with the AEPSC and plant management, and their staffs.

Stop Work Authority - Refer to Section 1.7.1.2.4 herein.

1.7.18.2.2

Internal audits are performed in accordance with established schedules that reflect the status and importance of safety to the activities being performed. All areas where the requirements of 10CFR50, Appendix B apply are audited within a period of two years.

1.7.18.2.3

The AEPSC Quality Assurance Department conducts audits to verify the adequacy and implementation of the QA Program at the plant and within AEPSC. QA audit reports are distributed to the Plant Manager and PNSRC (site audits) and the NSDRC (all audits).

1.7.18.2.4

The independent off-site review and audit organization is the AEPSC Nuclear Safety and Design Review Committee (NSDRC). This committee is composed of AEPSC, I&M and plant management members. A Charter and Procedures Manual has been developed for this committee. The NSDRC conducts periodic audits of plant operations pursuant to established criteria (Technical Specifications, etc.).

NSDRC Audit Reports are submitted for review to the Chairman of the NSDRC and to the Vice Chairman Engineering and Construction. Corrective Action Requests provide for the recording of actions taken to correct deficiencies found during these audits.

1.7.18.2.5

The plant on-site review group is the Plant Nuclear Safety Review Committee (PNSRC). This committee reviews plant operations as a routine evaluation and serves to advise the Plant Manager on matters related to nuclear safety. The composition of the committee is defined in the Technical Specifications.

The PNSRC also reviews instructions and procedures for safety-related systems prior to approval by the Plant Manager. In addition, this committee serves to conduct investigations of violations to Technical Specifications, reviews Condition Reports to determine if appropriate action has been taken and reviews all design changes.

1.7.18.2.6

Audits of suppliers and contractors are scheduled based on the status of safety importance of the activities being performed, and are initiated early enough to assure effective quality assurance during design, procurement, manufacturing, construction, installation, inspection and testing.

Principal contractors are required to audit their suppliers systematically in accordance with the foregoing scheduling criteria.

1.7.18.2.7

Regularly scheduled audits are supplemented by special audits when significant changes are made in the Quality Assurance Program, when it is suspected that quality is in jeopardy, or when an independent assessment of program effectiveness is considered necessary.

1.7.18.2.8

Audits include an objective evaluation of quality related practices, procedures, instructions, activities and items; and review of documents and records to confirm that the QA program is effective and properly implemented.

1.7.18.2.9

Audit procedures and the scope, plans, checklists and results of individual audits are documented.

1.7.18.2.10

Personnel selected for auditing assignments have experience or are given training commensurate with the needs of the audit and have no direct responsibilities in the areas audited.

1.7.18.2.11

Management of the audited organization identifies and takes appropriate action to correct observed deficiencies and to prevent recurrence. Follow-up is performed by the auditing organization to ensure that the appropriate actions were taken. Such follow-up includes reaudits when necessary.

1.7.18.2.12

The adequacy of the Quality Assurance Program is regularly assessed by AEPSC management. The following activities constitute formal elements of that assessment:

- a) Audit reports, including follow-up on corrective action accomplishment and effectiveness, are distributed to appropriate levels of management.
- b) Individuals independent from the Quality Assurance Organization, but knowledgeable in auditing and quality assurance, periodically review the effectiveness of the Quality Assurance Programs. Conclusions and recommendations are reported to the AEPSC Vice President - Nuclear Operations.

1.7.19 FIRE PROTECTION QA PROGRAM

1.7.19.1 Introduction

The D.C. Cook Nuclear Plant Fire Protection QA Program has been developed using the guidance of the NRC Branch Technical Position 9.5-1, Appendix "A".

This QA Program is applicable to:

- 1) Fire protection areas and equipment designed and/or procured after January 31, 1977 that protects safety-related items which appear in the Fire Protection Technical Specifications; and,
- 2) The balance of plant fire protection areas and equipment designed and/or procured after January 31, 1977.

Implementation of the Fire Protection QA Program is the responsibility of each involved AEP organization.

The QA Program for the Fire Protection Program at D.C. Cook Plant applies to the following activities: design, procurement, fabrication, construction, operation, maintenance and modification.

1.7.19.2 Organization

The QA program for fire protection is under the management control of AEPSC. This control consists of:

- 1) Formulating and verifying that the Fire Protection QA Program incorporates suitable requirements and is acceptable to the management responsible for fire protection; and,
- 2) Verifying the effectiveness of the QA program for fire protection through review, surveillance and audits. The QA program for fire protection is part of the overall plant QA program. These QA criteria apply to those items within the scope of the Fire Protection Program, such as fire protection systems, emergency lighting, communication and emergency breathing apparatus, as well as the fire protection requirements of applicable safety-related equipment.

AEPSC and plant management has direct functional responsibility for the formulation, implementation and assessment of the D.C. Cook Fire Protection Program.

The AEPSC Fire Protection Supervisor is responsible to the Manager - Plant Engineering Division, for aspects of the Fire Protection Program at the D.C. Cook Plant. These responsibilities provide for planning annual inspection schedules for fire and explosion hazards and training, including annual fire fighting instruction to plant personnel, fire brigades and responding fire departments.

The Fire Protection/HVAC Section Manager and the Fire Protection Engineer have coordinated the building layout, the fire suppression and fire detection systems, commensurate with fire areas within the plant. They

have established the design of the overall fire detection/ suppression system and the incremental parts of the system. Maintenance information has been provided to the plant in the form of system descriptions and equipment supplier instruction material.

The Plant Manager has delegated responsibility to various plant departments for the following fire protection activities:

- a) Maintenance of fire protection system,
- b) Testing of fire protection equipment,
- c) Fire safety inspections,
- d) Fire fighting procedures, and
- e) Fire drills.

The Shift Supervisor on duty is designated as the Fire Chief and coordinates the fire fighting efforts of shift personnel and the fire brigade.

1.7.19.3 Design Control and Procurement Document Control

Quality standards are specified in the design documents such as appropriate fire protection codes and standards, and deviations and changes from these quality standards are controlled.

The plant design was reviewed by qualified personnel to assure inclusion of appropriate fire protection requirements. These reviews include items such as:

- 1) Reviews to verify adequacy of wiring isolation and cable separation criteria.
- 2) Reviews to verify appropriate requirements for room isolation (sealing penetrations, floors and other fire barriers).
- 3) Reviews to determine increase in fire loadings.

- 4) Reviews to determine the need for additional fire detection and suppression equipment.

A review and concurrence of the adequacy of fire protection requirements and quality requirements stated in procurement documents is performed.

This review determines that fire protection requirements and quality requirements are correctly stated, verifiable and controllable; there are adequate acceptance and rejection criteria; and the procurement document has been prepared, reviewed and approved in accordance with QA program requirements.

Design and procurement document changes, including field changes and design deviations are subject to the same level of controls, reviews and approvals that were applicable to the original document.

1.7.19.4 Instructions, Procedures and Drawings

Inspections, tests, administrative controls, fire drills and training that govern the Fire Protection Program are prescribed by documented instructions, procedures, or drawings, and are accomplished in accordance with these documents.

Indoctrination and training programs for fire prevention and fire fighting are implemented in accordance with documented procedures. Activities of the fire protection system are prescribed and accomplished in accordance with documented instructions, procedures and drawings.

Instructions and procedures for design installation, inspection, test, maintenance, modification and administrative controls are reviewed to assure that proper fire protection requirements are included.

1.7.19.5 Control of Purchased Material, Equipment and Services

Measures are established to assure that purchased material, equipment and services conform to the procurement documents. These measures include

provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor, inspections at suppliers, or receiving inspections.

Source or receiving inspection is provided, as a minimum, for those items whose quality cannot be verified after installation.

1.7.19.6 Inspection

A program for independent inspection of the fire protection activities has been established and implemented.

These inspections are performed by personnel other than those responsible for implementation of the activity.

The inspections include:

- a) Inspection of: 1) installation, maintenance and modification of fire protection systems; and, 2) emergency lighting and communication equipment.
- b) Inspections of penetration seals and fire retardant coating installations to verify the activity is satisfactorily completed.
- c) Inspections of cable routing to verify conformance with design requirements.
- d) Inspections to verify that appropriate requirements for room isolation are accomplished following construction or modification activities.
- e) Measures to assure that inspection personnel are independent from the individuals performing the activity being inspected, and are knowledgeable in the design and installation requirements for fire protection.

- f) Inspection procedures, instructions and/or check lists are provided for inspections.
- g) Periodic inspections of fire protection systems, emergency breathing and auxiliary equipment, emergency lighting and communication equipment.
- h) Periodic inspections of materials subject to degradation such as fire stops, seals and fire retardant coating.

1.7.19.7 Test and Test Control

- a) Installation testing - Following installation, modification, repair, or replacement, sufficient testing is performed to demonstrate that the fire protection systems, emergency lighting and communication equipment will perform satisfactorily. Written test procedures for installation tests incorporate the requirements and acceptance limits contained in applicable design documents.
- b) Periodic testing - Periodic testing schedules and methods have been implemented and the results documented. Fire protection equipment, emergency lighting and communication equipment are tested periodically to assure that the equipment functions properly.
- c) Programs have been established to verify the testing of fire protection systems and to verify that test personnel are effectively trained.
- d) Test results are documented, evaluated, and their acceptability determined by a qualified responsible individual or group.

1.7.19.8 Inspection, Test and Operating Status

The inspection, test and operating status for the Fire Protection System are performed as described in Section 1.7.14.

1.7.19.9 Nonconforming Items

Nonconforming items for the fire protection components are identified and dispositioned as described in Section 1.7.15.

1.7.19.10 Corrective Action

The corrective action mechanism described in Section 1.7.16 applies to the fire protection system.

1.7.19.11 Records

Records generated to support the fire protection system and its components are controlled as described in Section 1.7.17.

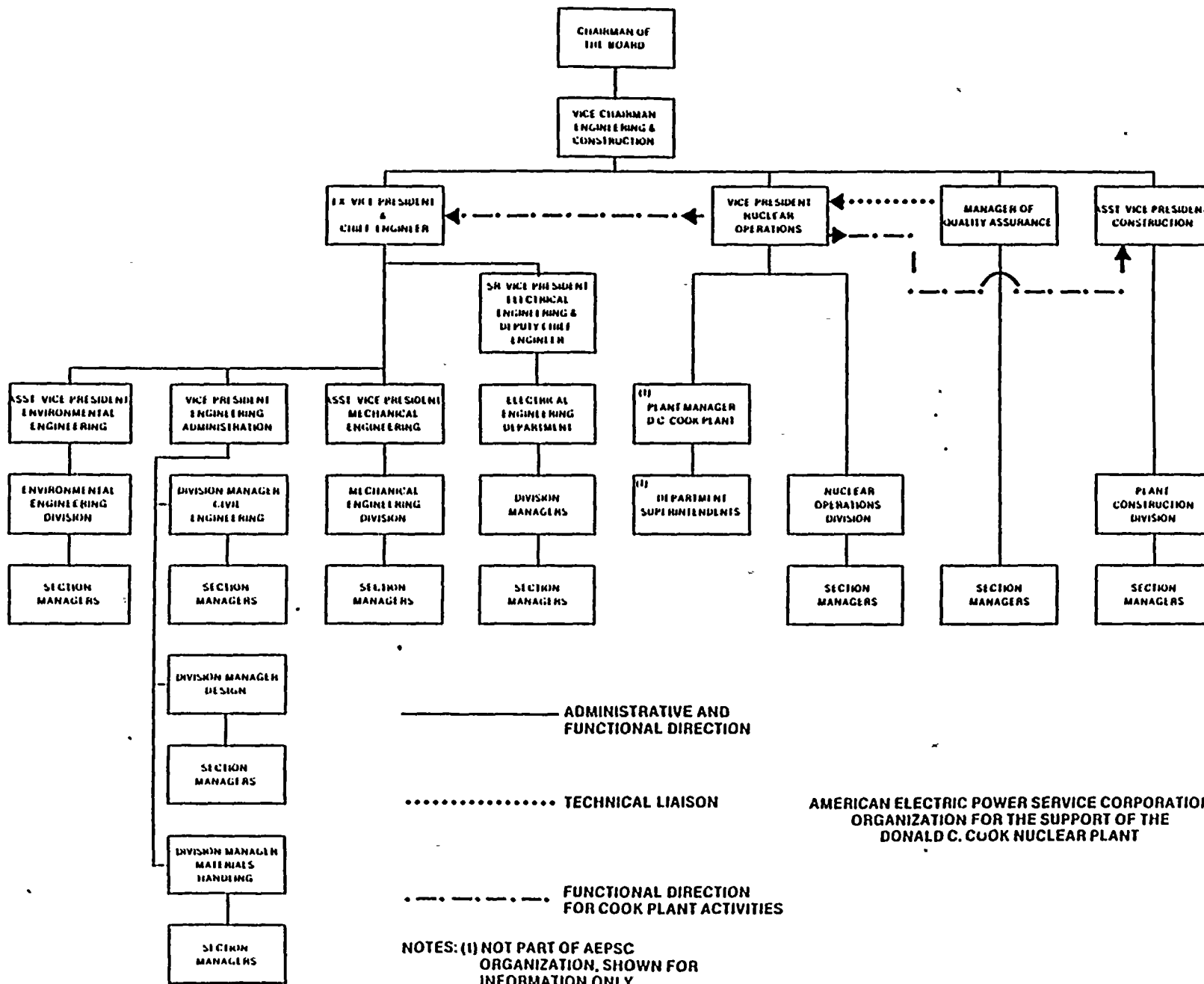
1.7.19.12 Audits

Audits are conducted and documented to verify compliance with the Fire Protection Program as described in Section 1.7.18.

Audits are periodically performed to verify compliance with the administrative controls and implementation of quality assurance criteria. The audits are performed in accordance with preestablished written procedures or check lists. Audit results are documented and reviewed by management having responsibility in the area audited. Follow-up action is taken by responsible management to correct the deficiencies revealed by the audit.

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AMERICAN ELECTRIC POWER SERVICE CORPORATION
ORGANIZATION FOR THE SUPPORT OF THE
DONALD C. COOK NUCLEAR PLANT

Figure 1.7-1

1.7-89

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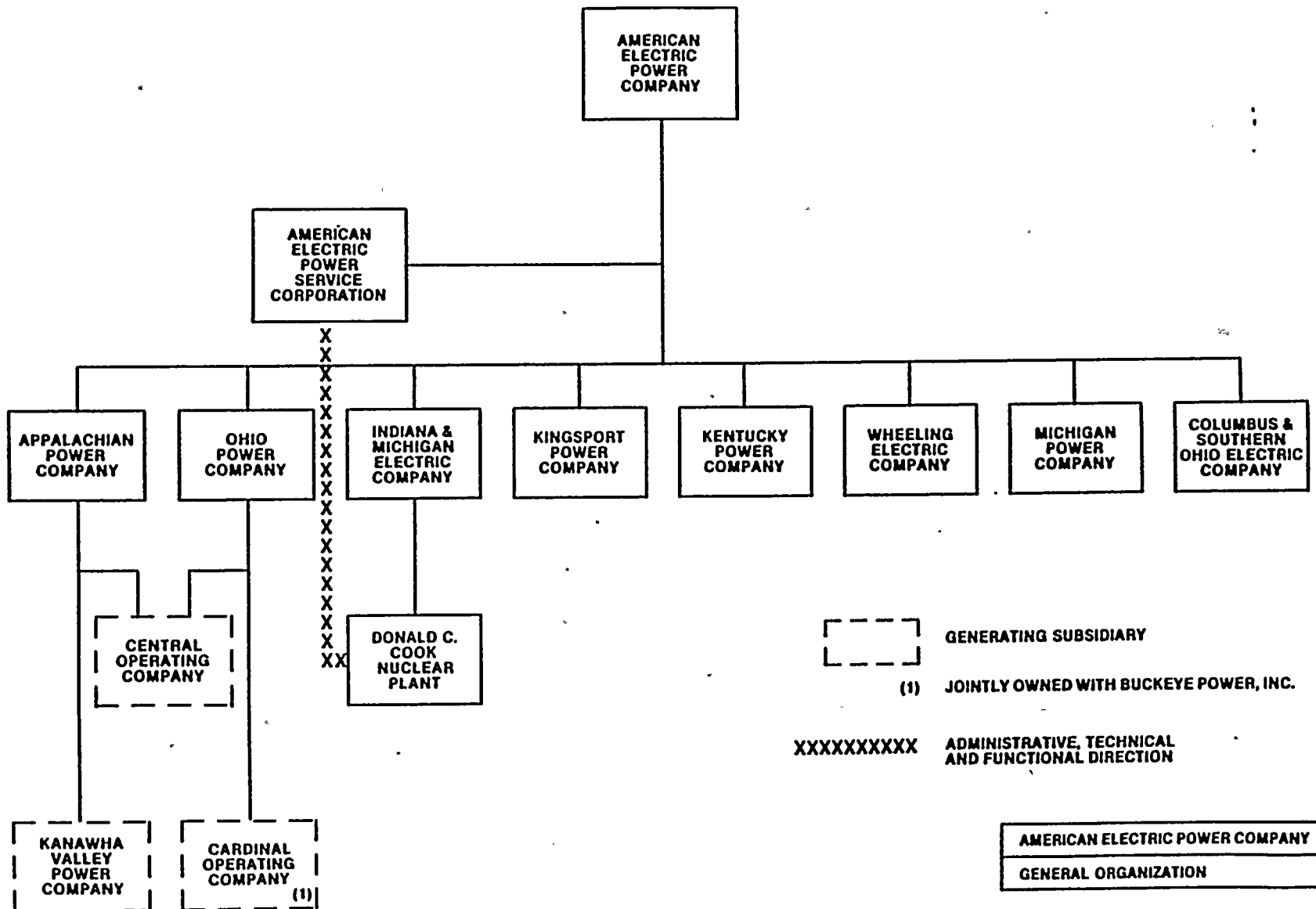
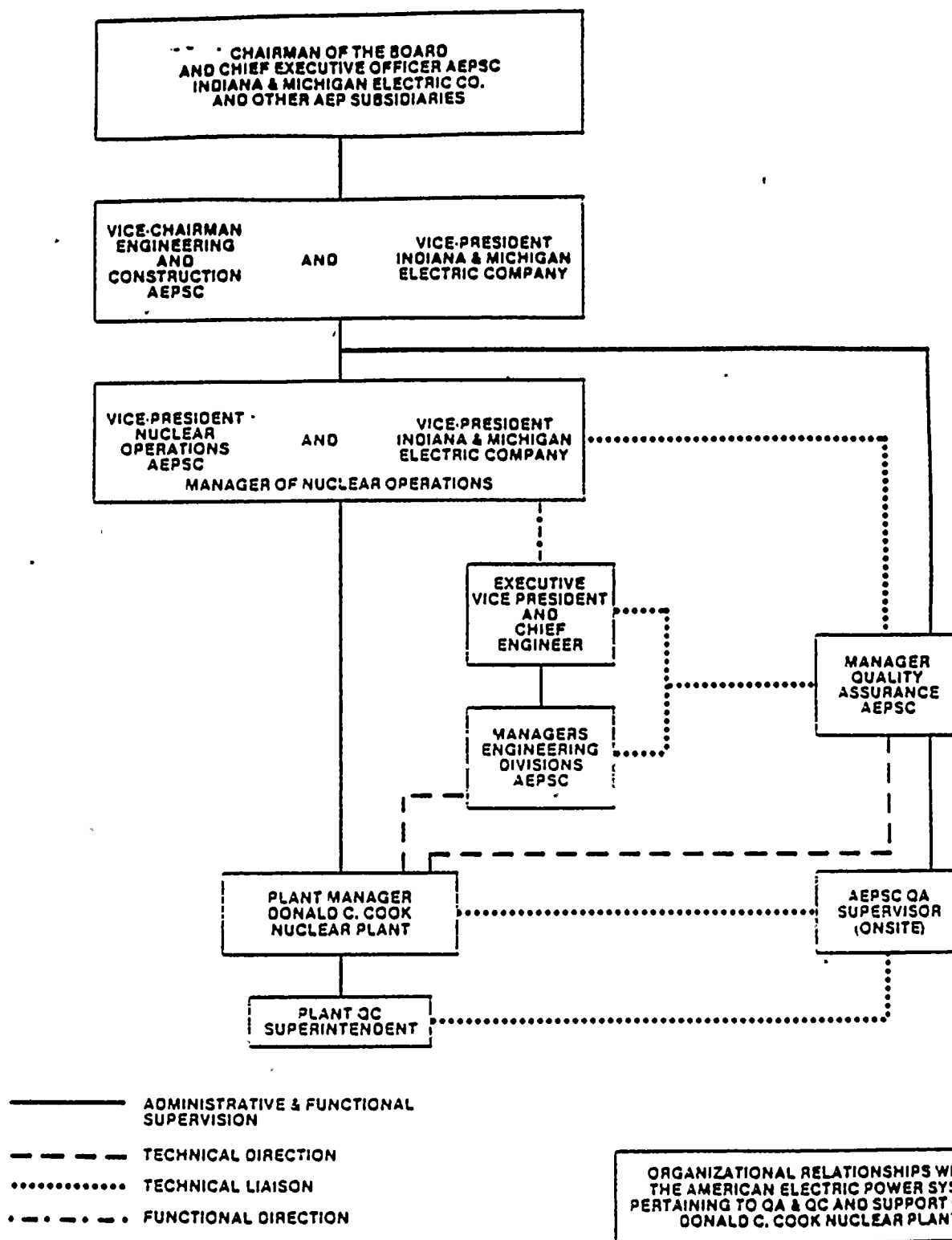
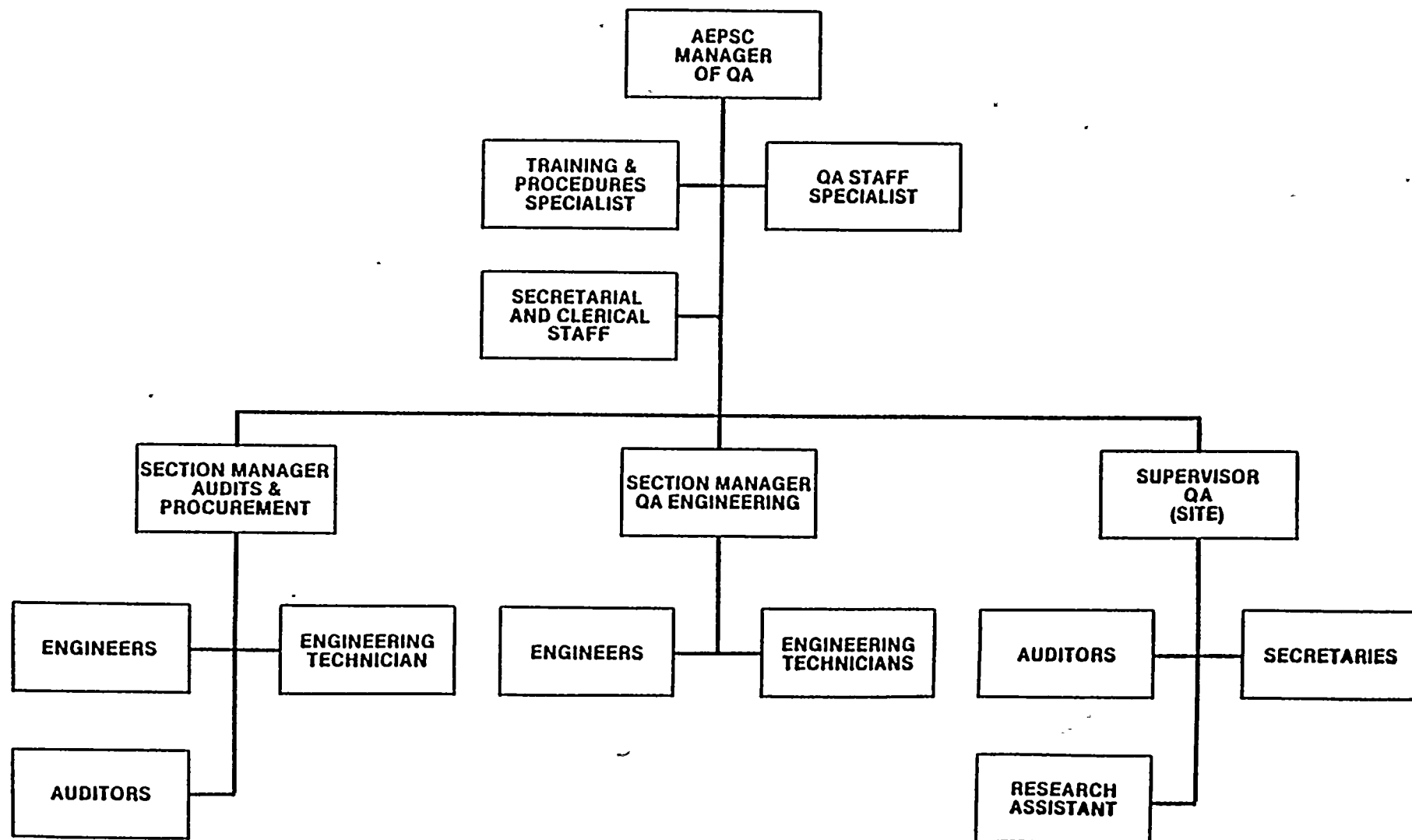


Figure 1.7-2



QA ORGANIZATION

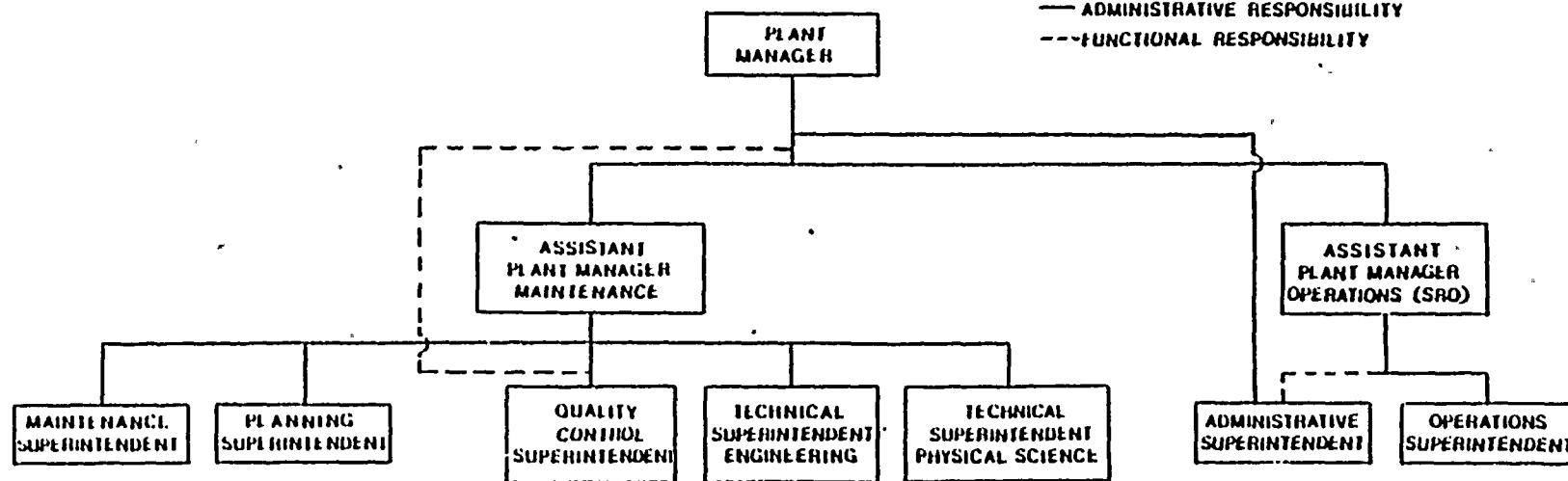


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Figure 1.7-4

— ADMINISTRATIVE RESPONSIBILITY
--- FUNCTIONAL RESPONSIBILITY



INDIANA & MICHIGAN ELECTRIC COMPANY
ORGANIZATION
FOR THE
DONALD C. COOK NUCLEAR PLANT

Figure 1.7-5

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REGULATORY AND SAFETY GUIDES/ANSI STANDARDS

- | | | | |
|----|--|---|--|
| 1. | Reg. Guide 1.8.(9/75) | - | Personnel Selection and Training |
| | ANSI N18.1 (1971) | - | Selection and Training of Nuclear Power Plant Personnel |
| 2. | Reg. Guide 1.14 (8/75) | - | Reactor Coolant Pump Flywheel Integrity |
| 3. | Reg. Guide 1.16 (8/75) | - | Reporting of Operating Information,
Appendix A - Technical Specifications |
| 4. | Safety Guide 30 (8/72) | - | Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment |
| | ANSI N45.2.4 (1972) | - | Installation, Inspection, and Testing Requirements for Instrumentation and Electric Equipment During the Construction of Nuclear Power Generating Stations |
| 5. | Safety Guide 33,
Appendix A (11/72) | - | Quality Assurance Program Requirements (Operation) |
| | ANSI N18-7, (1976)
(ANS 3.2 1976) | - | Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants |
| | ANSI N45.2 (1977) | - | Quality Assurance Program Requirements for Nuclear Facilities |
| 6. | Reg. Guide 1.37 (3/73) | - | Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants |
| | ANSI N45.2.1 (1973) | - | Cleaning of Fluid Systems and Associated Components During Construction Phase of Nuclear Power Plants |

- | | | | |
|-----|-------------------------|---|--|
| 7. | Reg. Guide 1.38 (10/76) | - | Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water-Cooled Nuclear Power Plants |
| | ANSI N 45.2.2 (1972) | - | Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants (During the Construction Phase) |
| 8. | Reg. Guide 1.39 (10/76) | - | Housekeeping Requirements for Water-Cooled Nuclear Power Plants |
| | ANSI N45.2.3 (1973) | - | Housekeeping During the Construction Phase of Nuclear Power Plants |
| 9. | Reg. Guide 1.54 (6/73) | - | Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants |
| | ANSI N101.4 (1972) | - | Quality Assurance for Protective Coatings Applied to Nuclear Facilities |
| 10. | Reg. Guide 1.58 (9/80) | - | Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel |
| | ANSI N45.2.6 (1978) | - | Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants |
| 11. | Reg. Guide 1.63 (7/78) | - | Electric Penetration Assemblies in Containment Structures for Light-Water-Cooled Nuclear Power Plants |
| 12. | Reg. Guide 1.64 (10/73) | - | Quality Assurance Requirements for the Design of Nuclear Power Plants |
| | ANSI N45.2.11 (1974) | - | Quality Assurance Requirements for the Design of Nuclear Power Plants |

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|-----|-------------------------|---|--|
| 13. | Reg. Guide 1.74 (2/74) | - | Quality Assurance Terms and Definitions |
| | ANSI N45.2.10 (1973) | - | Quality Assurance Terms and Definitions |
| 14. | Reg. Guide 1.88 (10/76) | - | Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records |
| | ANSI N45.2.9 (1974) | - | Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants |
| 15. | Reg. Guide 1.94 (4/76) | - | Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants |
| | ANSI N45.2.5 (1974) | - | Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants |
| 16. | Reg. Guide 1.108 (8/77) | - | Periodic Testing of Diesel Generator Units used as Onsite Electric Power Systems at Nuclear Power Plants |
| 17. | Reg. Guide 1.123 (7/77) | - | Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants |
| | ANSI N45.2.13 (1976) | - | Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants |

- 18. Reg. Guide 1.144 (1/79) - Auditing of Quality Assurance Programs for Nuclear Power Plants
- ANSI N45.2.12 (1977) - Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants
- 19. Reg. Guide 1.146 (8/80) - Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants
- ANSI N45.2.23 (1978) - Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants
- 20. ANSI N45.2.8 (1975) - Supplementary Quality Assurance Requirements for Installation, Inspection and Testing of Mechanical Equipment and Systems for the Construction Phase of Nuclear Power Plants
- 21. ANSI N45.4 (1972) - Leakage-Rate Testing of Containment Structures for Nuclear Reactors
- 22. ANSI N510 (1975) - Testing of Nuclear Air-Cleaning Systems

AEpsc/I&MECO EXCEPTIONS TO OPERATING PHASE
STANDARDS AND REGULATORY GUIDES

1. GENERAL

Requirement

Certain Regulatory Guides invoke or imply Regulatory Guides and standards in addition to the standard each primarily endorses.

Certain ANSI Standards invoke or imply additional standards.

Exception/Interpretation

The AEPSC/I&MECo commitment refers to the Regulatory Guides and ANSI Standards specifically identified in Appendix A. Additional Regulatory Guides, ANSI Standards and similar documents implied or referenced in those specifically identified are not part of this commitment.

2. N18.7, General

Exception/Interpretation

AEPSC and I&MECo have established both an on-site and off-site standing committee for independent review activities. Together they form the independent review body.

The standard numeric and qualification requirement may not be met by each group individually. Procedures will be established to specify how each group will be involved in review activities. This exception/interpretation is consistent with the plant's Technical Specifications.

2a. Sec. 4.3.1

Requirement

"Personnel assigned responsibility for independent reviews shall be specified in both number and technical disciplines, and shall collectively have the experience and competence required to review problems in the following areas:"

Exception/Interpretation

AEPSC Nuclear Safety and Design Review Committee (NSDRC) and Plant Nuclear Safety Review Committee (PNSRC) will not have members specified by number nor by technical disciplines, and its members may not have the experience and competence required to review problems in all areas listed in this section. This exception/interpretation is consistent with the plant's Technical Specifications.

The NSDRC and PNSRC will not specifically include a member qualified in nondestructive testing but will use qualified technical consultants to perform this and other functions as determined necessary by the respective committee chairman.

2b. Sec. 4.3.2.1

Requirement

"When a standing committee is responsible for the independent review program, it shall be composed of no less than five persons of whom no more than a minority are members of the on-site operating organization. Competent alternatives are permitted if designated in advance. The use of alternates shall be restricted to legitimate absences of principals."

Exception/Interpretation

See Item 2a.

2c. Sec. 4.3.3.1

Requirement

". . . recommendations . . . shall be disseminated promptly to appropriate members of management having responsibility in the area reviewed."

Exception/Interpretation

Recommendations made as a result of review will generally be conveyed to the on-site or off-site standing committee. Procedures will be maintained specifying how recommendations are to be considered.

2d. Sec. 4.3.4

Requirement

"The following subjects shall be reviewed by the independent review body:"

Exception/Interpretation

Subjects requiring review will be as specified in the plant Technical Specifications.

2e. Sec. 4.3.4(3)

Requirement

"Changes in the Technical Specifications or License Amendments relating to nuclear safety are to be reviewed by the independent review body prior to implementation, except in those cases where the change is identical to a previously reviewed proposed change."

Exception/Interpretation

The NSDRC and PNSRC will not review Technical Specification changes after NRC approval prior to implementation. The basis for this position is the NSDRC and PNSRC review Technical Specification changes prior to submittal to the NRC.

2f. Sec. 4.4

Requirement

"The on-site operating organization shall provide, as part of the normal duties of plant supervisory personnel"

Exception/Interpretation

Some of the responsibilities of the on-site operating organization described in Section 4.4 may be carried out by the PNSRC and/or NSDRC as described in plant Technical Specifications.

2g. Sec. 5.2.2

Requirement

"Temporary changes, which clearly do not change the intent of the approved procedure, shall as a minimum be approved by two members of the plant staff knowledgeable in the areas affected by the procedures. At least one of these individuals shall be the supervisor in charge of the shift and hold a senior operator's license on the unit affected."

Exception/Interpretation

I&MECo considers that this requirement applies only to procedures identified in plant Technical Specifications. Temporary changes to these procedures shall be approved as described in plant Technical Specifications.

2h. Sec. 5.2.6

Requirement

"In cases where required documentary evidence is not available, the associated equipment or materials must be considered nonconforming in accordance with Section 5.2.14. Until suitable documentary evidence is available to show the equipment or material is in conformance, affected systems shall be considered to be inoperable and reliance shall not be placed on such systems to fulfill their intended safety functions."

Exception/Interpretation

I&MECo initiates appropriate corrective action when it is discovered that documentary evidence does not exist for a test or inspection which is a requirement to verify equipment acceptability. This action includes a technical evaluation of the equipment's operability status.

2i. Sec. 5.2.8

Requirement

"A surveillance testing and inspection program . . . shall include the establishment of a master surveillance schedule reflecting the status of all planned in-plant surveillances tests and inspections."

Exception/Interpretation

Separate master schedules may exist for different programs such as ISI, pump and valve testing and Technical Specification surveillance testing.

2j. Sec. 5.2.13.1

Requirement

"To the extent necessary, procurement documents shall require suppliers to provide a Quality Assurance Program consistent with the pertinent requirements of ANSI N45.2 - 1971."

Exception/Interpretation

To the extent necessary, procurement documents require that the supplier has a documented Quality Assurance Program consistent with the pertinent requirements of 10CFR50, Appendix B; ANSI N45.2; or other nationally recognized codes and standards.

2k. Sec. 5.2.13.2

Requirement

ANSI N18.7 and N45.2.13 specify that where required by code, regulation, or contract, documentary evidence that items conform to procurement requirements shall be available at the nuclear power plant site prior to installation or use of such items.

Exception/Interpretation

The required documentary evidence is available at the site prior to use, but not necessarily prior to installation. This allows installation to proceed while any missing documents are being obtained, but precludes dependence on the item for safety purposes.

21. Sec. 5.2.16

Requirement

Records shall be made and equipment suitably marked to indicate calibration status.

Exception/Interpretation

See Item 6b.

2m. Sec. 5.3.5(4)

Requirement

This section requires that where sections of documents such as vendor manuals, operating and maintenance instructions or drawings are incorporated directly or by reference into a maintenance procedure, they shall receive the same level of review and approval as operating procedures.

Exception/Interpretation

Such documents are reviewed by appropriately qualified personnel prior to use to ensure that, when used as instructions, they provide proper and adequate information to ensure the required quality of work. Maintenance procedures which reference these documents receive the same level of review and approval as operating procedures.

3. N45.2.1,

3a. Sec. 2

Requirement

N45.2.1 establishes criteria for classifying items into "cleanness levels", and requires that items be so classified.

Exception/Interpretation

Instead of using the cleanliness level classification system of N45.2.1, the required cleanliness for specific items and activities is addressed on a case-by-case basis.

Cleanliness is maintained, consistent with the work being performed, so as to prevent the introduction of foreign material. As a minimum, cleanliness inspections are performed prior to closure of "nuclear" systems and equipment. Such inspections are documented.

3b. Sec. 5

Requirement

"Fitting and tack-welded joints (which will not be immediately sealed by welding) shall be wrapped with polyethylene or other nonhalogenated plastic film until the welds can be completed."

Exception/Interpretation

I&MECo sometimes uses other nonhalogenated material, compatible with the parent material, since plastic film is subject to damage and does not always provide adequate protection.

4. N45.2.2, GeneralRequirement

N45.2.2 establishes requirements and criteria for classifying safety related items into protection levels.

Exception/Interpretation

Instead of classifying safety related items into protection levels, controls over the packaging, shipping, handling and storage of such items

are established on a case-by-case basis with due regard for the item's complexity, use and sensitivity to damage. Prior to installation or use, the items are inspected and serviced as necessary to assure that no damage or deterioration exists which could affect their function.

4a. Sec. 3.9 and Appendix A3.9

Requirement

"The item and the outside of containers shall be marked."

(Further criteria for marking and tagging are given in the Appendix.)

Exception/Interpretation

These requirements were originally written for items packaged and shipped to construction projects. Full compliance is not always necessary in the case of items shipped to operating plants and may, in some cases, increase the probability of damage to the item. The requirements are implemented to the extent necessary to assure traceability and integrity of the item.

4b. Sec. 5.2.2

Requirement

"Receiving inspections shall be performed in an area equivalent to the level of storage."

Exception/Interpretation

Receiving inspection area environmental controls may be less stringent than storage environmental requirements for an item. However, such inspections are performed in a manner and in an environment which do not endanger the required quality of the item.

4c. Sec. 6.2.4

Requirement

"The use or storage of food, drinks and salt tablet dispensers in any storage area shall not be permitted."

Exception/Interpretation

Packaged food for emergency or extended overtime use may be stored in material stock rooms. The packaging assures that materials are not contaminated. Food will not be "used" in these areas.

4d. Sec. 6.3.4

Requirement

"All items and their containers shall be plainly marked so that they are easily identified without excessive handling or unnecessary opening of crates and boxes."

Exception/Interpretation

See N45.2.2, Section 3.9 (Exception 4b.).

4e. Sec. 6.4.1

Requirement

"Inspections and examinations shall be performed and documented on a periodic basis to assure that the integrity of the item and its container . . . is being maintained."

Exception/Interpretation

The requirement implies that all inspections and examinations of items in storage are to be performed on the same schedule. Instead, the inspections and examinations are performed in accordance with material storage procedures which identify the characteristics to be inspected and include the required frequencies. These procedures are based on technical considerations which recognize that inspections and frequencies needed vary from item to item.

5. N45.2.3,

5a. Sec. 2.1

Requirement

Cleanliness requirements for housekeeping activities shall be established on the basis of five zone designations.

Exception/Interpretation

Instead of the five-level zone designation system referenced in ANSI N45.2.3, I&MECo bases its controls over housekeeping activities on a consideration of what is necessary and appropriate for the activity involved. The controls are effected through procedures or instructions. Factors considered in developing the procedures and instructions include cleanliness control, personnel safety, fire prevention and protection, radiation control and security. The procedures and instructions make use of standard janitorial and work practices to the extent possible. However, in preparing these procedures, consideration is also given to the recommendations of Section 2.1 of ANSI N45.2.3.

6. N45.2.4,

6a. Sec. 2.2

Requirement

Section 2.2 establishes prerequisites which must be met before the installation, inspections and testing of instrumentation and electrical equipment may proceed. These prerequisites include personnel qualification, control of design, conforming and protected materials and availability of specified documents.

Exception/Interpretation

During the operations phase, this requirement is considered to be applicable to modifications and initial start-up of electrical equipment. For routine or periodic inspection and testing, the prerequisite conditions will be achieved as necessary.

6b. Sec. 6.2.1

Requirement

"Items requiring calibration shall be tagged or labeled on completion, indicating date of calibration and identity of person that performed calibration."

Exception/Interpretation

Frequently, physical size and/or location of installed plant instrumentation precludes attachment of calibration labels or tags. Instead, each instrument is uniquely identified and is traceable to its calibration record.

A scheduled calibration program assures that each instrument's calibration is current.

7. N45.2.5,

7a. Sec. 2.5.2

Requirement

"When discrepancies, malfunctions or inaccuracies in inspection and testing equipment are found during calibration, all items inspected with that equipment since the last previous calibration shall be considered unacceptable until an evaluation has been made by the responsible authority and appropriate action taken.

Exception/Interpretation

I&MECo uses the requirements of N18.7, Section 5.2.16, rather than N45.2.5, Section 2.5.2. The N18.7 requirements are more applicable to an operating plant.

7b. Sec. 5.4

Requirement

"Hand torque wrenches used for inspection shall be controlled and must be calibrated at least weekly and more often if deemed necessary. Impact torque wrenches used for inspection must be calibrated at least twice daily."

Exception/Interpretation

Torque wrenches are controlled as measuring and test equipment in accordance with ANSI N18.7, Section 5.2.16. Calibration intervals are based on use and calibration history rather than as per N45.2.5.

8. N45.2.6, Sec. 1.2Requirement

"The requirements of this standard apply to personnel who perform inspections, examinations and tests during fabrication prior to or during receipt of items at the construction site, during construction, during preoperational and start-up testing and during operational phases of nuclear power plants."

Exception/Interpretation

Personnel participating in testing who take data or make observations, where special training is not required to perform this function, need not be qualified in accordance with ANSI N45.2.6 but need only be trained to the extent necessary to perform the assigned function.

9. Reg. Guide 1.58 - GeneralRequirement

Qualification of nuclear power plant inspection, examination and testing personnel.

9a. C.2.6Requirement

Regulatory Guide 1.58 endorses the guidelines of SNT-TC-1A as an acceptable method of training and certifying personnel conducting leak tests.

Exception/Interpretation

I&MECo takes the position that the "Level" designation guidelines as recommended in SNT-TC-1A, paragraph 4 do not necessarily assure adequate leak test capability. I&MECo maintains that departmental supervisors are

best able to judge whether engineers and other personnel are qualified to direct and/or perform leak tests. Therefore, I&MECo does not implement the recommended "Level" designation guidelines.

It is I&MECo's opinion that the training guidelines of SNT-TC-1A (1975), Table I-G, paragraph 5.2 specifically are oriented towards the basic physics involved in leak testing, and further, towards individuals who are not graduate engineers. I&MECo maintains that it meets the essence of these training guidelines. The preparation of leak test procedures and the conduct of leak tests at Cook Plant is under the direct supervisor of Performance Engineers who hold engineering degrees from accredited engineering schools. The basic physics of leak testing have been incorporated into the applicable test procedures. The review and approval of the data obtained from leak tests is performed by department supervisors who are also graduate engineers.

I&MECo does recognize the need to assure that individuals involved in leak tests are fully cognizant of leak test procedural requirements and thoroughly familiar with the test equipment involved. Plant performance engineers receive routing, informal orientation on testing programs, to ensure that these individuals fully understand the requirements of performing a leak test.

9b. C5, C6, C7, C8, C10

Exception/Interpretation

I&MECo takes the position that the classification of inspection, examination and test personnel (inspection personnel) into "Levels" based on the requirements stated in Section 3.0 of ANSI N45.2.6 does not necessarily assure adequate inspection capability. I&MECo maintains that departmental and first line supervisors are best able to judge the inspection capability of the personnel under their supervision, and that "level" classification would require an overly burdensome administrative work load, could inhibit inspection activities and provides no assurance of inspection capabilities. Therefore, I&MECo does not implement the

"level classification" concept for inspection, examination and test personnel.

The methodology under which inspections, examinations and tests are conducted at the Donald C. Cook Nuclear Plant requires the involvement of first line supervisors, engineering personnel, departmental supervisors and plant management. In essence, the last seven (7) project functions shown in Table 1 to ANSI N45.2.6 are assigned to supervisory and engineering personnel and not to personnel of the inspector category. These management supervisory and engineering personnel, as a minimum, meet the educational and experience requirements of "Level II and Level III" personnel, as required, to meet the criteria of ANSI 18.1 which exceeds those of ANSI N45.2.6. In I&MECo's opinion, no useful purpose is served by classification of management, supervisory and engineering personnel into "Levels."

Therefore, I&MECo takes the following positions relative to regulatory positions C5, 6, 7, 8 and 10 of Regulatory Guide 1.58.

C-5 Based on the discussion in B.1 above, this position is not applicable to the Donald C. Cook Nuclear Plant.

C-6 Replacement personnel for Donald C. Cook Nuclear Plant management, supervisory and engineering positions subject to ANSI 18.1 will meet the educational and experience requirements of ANSI 18.1 and therefore those of ANSI N45.2.6.

Replacement inspection personnel will, as a minimum, meet the educational and experience requirements of ANSI N45.2.6, Section 3.5.1 - "Level I".

C-7 I&MECo, as a general practice, complies with the training recommendations as set forth in this regulatory position.

C-8 All I&MECo inspection, examination and test personnel are instructed in the normal course of employee training in radiation protection and the means to minimize radiation dose exposure.

C-10 I&MECo maintains documentation to show that inspection personnel meet the minimum requirements of "Level I" and that management, supervisory and engineering personnel meet the minimum requirements of ANSI 18.1.

10. General

Imposition of these Regulatory Guides on AEPSC/I&MECo suppliers and subtier suppliers will be on a case-by-case basis depending upon the item or service to be procured.

11. N45.2.8,

11a. Sec. 2.9e

Requirement

Section 2.9e of N45.2.8 lists documents relating to the specific stage of installation activity which are to be available at the construction site.

Exception/Interpretation

All of the documents listed are not necessarily required at the construction site for installation and testing. AEPSC and I&MECo assure that they are available to the site as necessary.

11b. Sec. 2.9e

Requirement

Evidence that engineering or design changes are documented and approved shall be available at the construction site prior to installation.

Exception/Interpretation

Equipment may be installed before final approval of engineering or design changes. However, the system is not placed into service until such changes are documented and approved.

11c. Sec. 4.5.1

Requirement

"Installed systems and components shall be cleaned, flushed and conditioned according to the requirements of ANSI N45.2.1. Special consideration shall be given to the following requirements:"

(Requirements are given for chemical conditioning, flushing and process controls.)

Exception/Interpretation

Systems and components are cleaned, flushed and conditioned as determined on a case-by-case basis. Measures are taken to help preclude the need for cleaning, flushing and conditioning through good practices during maintenance or modification activities.

12. N45.2.9

12a. Sec. 5.4, Item 2

Requirement

Records shall not be stored loosely. "They shall be firmly attached in binders or placed in folders or envelopes for storage on shelving in containers." Steel file cabinets are preferred.

Exception/Interpretation

Records are suitably stored in steel file cabinets or on shelving in containers. Methods other than binders, folders, or envelopes (for example, dividers) may be used to organize the records for storage.

12b. Sec. 6.2

Requirement

"A list shall be maintained designating those personnel who shall have access to the files".

Exception/Interpretation

Rules are established governing access to and control of files as provided for in ANSI N45.2.9, Section 5.3, Item 5. These rules do not always include a requirement for a list of personnel who are authorized access. It should be noted that duplicate files and/or microforms may exist for general use.

12c. Sec. 5.6

Requirement

When a single records storage facility is maintained, at least the following features should be considered in its construction: etc.

Exception/Interpretation

The Donald C. Cook Nuclear Plant Master File Room complies with the requirements of NUREG-0800 (7/81), Section 17.1.17.4.

13. Reg. Guide 1.144,

13a. Sec C3a(2)

Requirement

Applicable elements of an organization's Quality Assurance Program for "design and construction phase activities should be audited at least annually or at least once within the life of the activity, whichever is shorter."

Exception/Interpretation

Since most modifications are straight forward, they are not audited individually. Instead, selected controls over modifications are audited periodically.

13b. Sec. C3b(1)

Requirement

This section identifies procurement contracts which are exempted from being audited.

Exception/Interpretation

In addition to the exemptions of Reg. Guide 1.144, AEPSC/I&MECo considers that the National Bureau of Standards or other State and Federal Agencies which may provide services to AEPSC/I&MECo are not required to be audited.

14. N45.2.13,

14a. Sec. 3.2.2

Requirement

N45.2.13 requires that technical requirements be specified in procurement documents by reference to technical requirement documents. Technical requirement documents are to be prepared, reviewed and released under the requirements established by ANSI N45.2.11.

Exception/Interpretation

For replacement parts and materials, AEPSC/I&MECo follow ANSI N18.7, Section 5.2.13, Subitem 1, which states: "Where the original item or part is found to be commercially 'off the shelf' or without specifically identified QA requirements, spare and replacement parts may be similarly procured; but care shall be exercised to ensure at least equivalent performance."

14b. Sec. 3.3.2

Requirement

"Procurement documents shall require that the supplier have a documented Quality Assurance Program that implements parts or all of ANSI N45.2 as well as applicable Quality Assurance Program requirements of other nationally recognized codes and standards."

Exception/Interpretation

Refer to Item 2j.

14c. Sec. 3.3(a)

Requirement

Reviews of procurement documents shall be performed prior to release for bid and contract award.

Exception/Interpretation

Documents may be released for bid or contract award before completing the necessary reviews. However, these reviews are completed before the item or service is put into service, or before work has progressed beyond the point where it would be impractical to reverse the action taken.

14d. Sec. 3.3(b)

Requirement

Review of changes to procurement documents shall be performed prior to release for bid and contract award.

Exception/Interpretation

This requirement applies only to quality related changes (i.e., changes to the procurement document provisions identified in ANSI N18.7, Section 5.2.13.1, Subitems 1 through 5). The timing of reviews will be the same as for review of the original procurement documents.

14e. Sec. 10.1

Requirement

"Where required by code, regulation, or contract requirement, documentary evidence that items conform to procurement documents shall be available at the nuclear power plant site prior to installation or use of such items, regardless of acceptance methods."

Exception/Interpretation

Refer to Item 2j.

Requirement

"Post-installation test requirements and acceptance documentation shall be mutually established by the purchaser and supplier."

Exception/Interpretation

In exercising its ultimate responsibility for its Quality Assurance Program, AEPSC/I&MECo establishes post-installation test requirements giving due consideration to supplier recommendations.

15. RG 1.58/ANSI N45.2.23 and ANSI N45.2.2.1215a. ANSI N45.2.23, Sec. 1.1Requirement

This standard provides requirements and guidance for the qualification of audit team leaders, henceforth identified as "Lead Auditors".

15b. ANSI N45.2.12, Sec. 4.2.2

Requirement

A Lead Auditor shall be appointed team leader.

Exception/Interpretation

The AEPSC audit program is directed by the AEPSC Manager of QA who is a qualified lead auditor; and is administered by designated QA Department Section Managers who are also qualified lead auditors.

Audits are, in most cases, conducted by individual auditors, not by "audit teams". These auditors are qualified by established procedures and are assigned by the responsible QA Section Manager based on their demonstrated audit capability and general knowledge of the audit subject. In certain cases, this results in an individual other than a "lead auditor" conducting the actual audit function.

Established AEPSC audit procedures require that, in all cases, the audit functions of preparation/organization, reporting of audit findings and evaluation of corrective actions be reviewed by QA Department Section Managers, thereby meeting the requirements of ANSI N45.2.23 relative to "Lead Auditors", and "Audit Team Leaders".