

DONALD C. COOK NUCLEAR PLANT (COOK NUCLEAR PLANT)

UNIT NUMBERS 1 AND 2

DOCKET NOS. 50-315 AND 50-316

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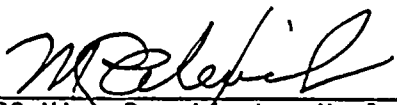
UPDATED QUALITY ASSURANCE PROGRAM DESCRIPTION

FOR THE

COOK NUCLEAR PLANT

JULY, 1990


Concurred by:

  
AEPS Vice President - Nuclear Operations

Date:

4/6/90

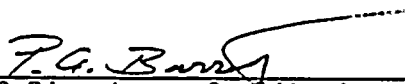
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Chief Engineer

Date:

4/6/90

Approved by :

  
AEPS Director - Quality Assurance

Date:

4/9/90

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QUALITY ASSURANCE PROGRAM DESCRIPTION  
FOR THE  
COOK NUCLEAR PLANT

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American Electric Power  
Company, Inc.  
1 Riverside Plaza  
Columbus, OH 43215



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

POLICY

W. S. White, Jr.  
Chairman of the Board and  
Chief Executive Officer  
614 223 1500

American Electric Power Company, Inc., recognizes the fundamental importance of controlling the design, modification, and operation of Indiana Michigan Power Company's Donald C. Cook Nuclear Plant (Cook Nuclear 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 to control activities affecting safety-related functions of structures, systems, and components in the Cook Nuclear Plant. The Quality Assurance Program supports the goal of maintaining the safety and reliability of the Cook Nuclear Plant at the highest level through a systematic program designed to assure that safety-related items are conducted in compliance with the 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 Nuclear Plant. I have delegated functional responsibility for the Quality Assurance Program to the American Electric Power Service Corporation (AEPSC) Senior Executive Vice President-Engineering and Construction. He has, with my approval, delegated further responsibilities as outlined in this statement.

IMPLEMENTATION

The AEPSC Director-Quality Assurance, under the direction of the AEPSC Senior Executive Vice President-Engineering and Construction, has been assigned the overall responsibility for specifying the Quality Assurance Program requirements for the Cook Nuclear Plant and verifying their implementation. The AEPSC Senior Executive Vice President-Engineering and Construction has given the AEPSC Director-Quality Assurance authority to stop work on any activity affecting safety-related items that does not







**Statement of Policy for the  
Donald C. Cook Nuclear Plant  
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meet applicable administrative, technical, and/or regulatory requirements. The AEPSC Director-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 AEPSC Vice President-Nuclear Operations, under the direction of the AEPSC Senior Executive Vice President-Engineering and Construction, has been delegated responsibility for effectively implementing the Quality Assurance Program. The AEPSC Vice President-Nuclear Operations is the Manager of Nuclear Operations. All other AEPSC divisions and departments, except Quality Assurance, having a supporting role for the Cook Nuclear Plant are functionally responsible to the Manager of Nuclear Operations.

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

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

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

Each AEPSC and Cook Nuclear Plant organization involved in activities affecting safety-related functions of structures, systems, and components in the Cook Nuclear Plant has the responsibility to implement the applicable policies and requirements of the Quality Assurance Program. This responsibility includes being familiar with, and complying with, the requirements of the applicable Quality Assurance Program requirements.

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COMPLIANCE

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

Employees engaged in activities affecting safety-related functions of structures, systems, and components in the Cook Nuclear Plant who believe that the Quality Assurance Program is not being complied with, or that a deficiency in quality exists, should notify their supervisor, the AEPSC Director-Quality Assurance, and/or the Plant Manager. If the notification does not in the employee's opinion receive prompt or appropriate 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 and  
Chief Executive Officer  
American Electric Power Company, Inc.

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## 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 Donald C. Cook Nuclear Plant (Cook Nuclear 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.

This section of the Quality Assurance Program Description (QAPD) 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 effectively 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 Cook Nuclear Plant. Authority and responsibility for effectively implementing the QA Program for plant modifications, operations and maintenance are delegated through the AEPSC Senior Executive Vice President - Engineering and Construction, to the AEPSC Vice President - Nuclear Operations (Manager of Nuclear Operations).







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.

The AEPSC corporate support of the Cook Nuclear Plant is the responsibility of the entire organization under the direction of the Manager of Nuclear Operations who maintains primary responsibility for the Cook Nuclear 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 Division, having a supporting role for the Cook Nuclear 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 Cook Nuclear Plant operations and support.
- 2) The Manager of Nuclear Operations shall be responsible for, and has the authority to direct all Cook Nuclear Plant operational and support matters within the corporation and shall make or concur in all final decisions regarding significant nuclear safety matters.
- 3) AEPSC organization managers responsible for Cook Nuclear Plant 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 Cook Nuclear Plant.
- 4) AEPSC organization managers responsible for Cook Nuclear Plant 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 Cook Nuclear Plant support responsibilities as well as the Plant Manager and plant organization 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.

#### 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 AEPSC Senior Executive Vice President - Engineering and Construction.

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

The AEPSC Vice President - Nuclear Operations, under the direction of the AEPSC Senior Executive Vice President - Engineering and Construction, is 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 Nuclear Plant Quality Control and implementing the Quality Assurance Program at the Cook Nuclear 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 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 Nuclear Plant. The function of the NSDRC is to oversee the engineering, design, operation, and maintenance of the Cook Nuclear Plant by performing audits and independent reviews of activities which are specified in the Facility Operating Licenses.

The Cook Nuclear Plant on-site review group is the Indiana Michigan Power Company (I&M) Plant Nuclear Safety Review Committee (PNSRC). This committee has also been established pursuant to the requirements of the Cook Nuclear 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 Chairman of the Board of AEPSC and is the Chief Executive Officer of AEPSC and 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.

#### 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 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 functional responsibility is assigned to the operating companies. In the case of Cook Nuclear Plant, I&M general office staff (headquarters) provides public affairs, accounting, industrial safety direction and procurement support.

The Cook Nuclear Plant is owned and operated by I&M which is part of the AEP System.

#### 1.7.1.2.4 Quality Assurance Responsibility of AEPSC

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







- 3) AEPSC provides additional service in matters such as supplier qualification, procurement of original equipment and replacement parts and the process of dedicating commercial grade items or services to safety-related applications.
- 4) The AEPSC QA Division provides technical direction in quality assurance matters to AEPSC and the Cook Nuclear Plant, and oversees the adequacy, effectiveness and implementation of the QA Program through review and audit activities.
- 5) Cognizant Engineer - (e.g., System Engineer, Equipment Engineer, Lead Engineer, Responsible Engineer, etc.) - The cognizant engineer, and/or engineer with the other titles noted, is that AEPSC individual who provides the engineering/design expertise for a particular area of responsibility. This responsibility includes the implementation of the quality assurance and quality control measures for systems, equipment, structures, or functional areas included in that individual's responsibility. The various titles used for the identification of an individual's responsibility and assignment shall be understood to mean the same as cognizant engineer in the respective areas of responsibility.

#### Quality Assurance Responsibility of I&M - Cook Nuclear Plant

I&M's plant staff operates the Cook Nuclear Plant in accordance with 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 Nuclear 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 Nuclear Plant. This responsibility has been functionally delegated to the AEPSC Senior Executive Vice President - Engineering and Construction. The AEPSC Senior Executive Vice President - Engineering and Construction has further delegated responsibilities which are administered through the following division and department management personnel:

- AEPSC Director - Quality Assurance
- AEPSC Vice President - Nuclear Operations
- AEPSC Senior Vice President and Chief Engineer
- AEPSC Vice President Project Management and Construction

#### Quality Assurance Division

The AEPSC Director - Quality Assurance, reporting to the AEPSC Senior Executive Vice President - Engineering and Construction, is responsible for the Quality Assurance Division. The Quality Assurance Division consists of the following sections (Figure 1.7-4):

- Quality Assurance Engineering Section
- Nuclear Software Quality Assurance Section
- Audits and Procurement Section
- Quality Assurance Support Section
- Quality Assurance Section (Site)

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

- Specify QA Program requirements.
- Identify quality problems.
- Initiate, recommend, or provide solutions through designated channels.
- Verify implementation of solutions, as appropriate.
- Prepare, issue and maintain Quality Assurance Program documents, as required.
- Verify the implementation of the Quality Assurance Program through scheduled audits and surveillances.







- Verify the implementation of computer software quality assurance through reviews, surveillances and audits.
- 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 auditor orientation, training, certification and qualification of AEPSC audit personnel.
- Provide direction for the collection, storage, maintenance, and retention of quality assurance records.
- Maintain, on data base, a list of suppliers of nuclear (N) items and services, plus other selected categories of suppliers.
- 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.
- Review the disposition of conditions adverse to quality to assure that action taken will 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.
- Conduct audits as directed by the Nuclear Safety and Design Review Committee (NSDRC).
- Review AEPSC investigated Problem Reports and associated corrective and preventative 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.
- Review dedication plans for commercial grade items and services.
- Issue "Stop Work" orders when significant conditions adverse to safety-related items 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.
- Routinely attend and participate 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.
- Establish and maintain a central file for equipment environmental qualification documentation.

#### Amplification of Specific Responsibilities

##### - Qualification of the AEPSC Director - Quality Assurance

The AEPSC Director - 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 nuclear 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 the quality of safety-related items 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 Division (QAD) is responsible for ensuring that activities affecting the quality of safety-related items are performed in a manner that meets applicable administrative, technical, and regulatory requirements. In order to carry out this responsibility, the AEPSC Senior Executive Vice President - Engineering and Construction has given the AEPSC Director - Quality Assurance, the authority to stop work on any activity affecting the quality of safety-related items that does not meet the aforementioned requirements. Stop work authority has been further delegated by the AEPSC Director - Quality Assurance to the AEPSC Quality Assurance Superintendent (site).

The AEPSC Director - Quality Assurance and the AEPSC Quality Assurance Superintendent 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 be responsible for establishing, maintaining and making available to AEPSC management a general QA orientation and training program for AEPSC personnel engaged in activities affecting the quality of safety-related items. This program includes the AEPSC QA philosophy and any 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 has established mechanisms for the identification, reporting and escalation of problems affecting the quality of safety-related items to a level of management whereby satisfactory resolutions can be obtained.

Nuclear Operations Division

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

- Plant Manager
- Assistant Division Manager - Nuclear Engineering (not charted)
- Assistant Division Manager - Nuclear Operations (not charted)
- Consulting Engineer(s) (not charted)
- Licensing Consultant (not charted).

The organization and responsibilities of the Plant Manager are defined further within this section under 1.7.1.2.6 Organization (Cook Nuclear 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 Fuel and Analyses (NF&A) 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 (NOD) is responsible for the following:

- Formulate policies and practices relative to safety, licensing, operation, maintenance, fuel management, and radiological support.
- Provide the Plant Manager with the technical and managerial guidance, direction and support to ensure the safe operation of the plant.
- Provide direction to all other AEPSC engineering and design organizations on engineering and design matters pertaining to the Cook Nuclear Plant.
- Maintain liaison with the AEPSC Director - Quality Assurance.
- Implement the requirements of the AEPSC Quality Assurance Program.
- Maintain knowledge of the latest safety, licensing, and regulatory requirements, codes, standards and federal regulations applicable to the operation of Cook Nuclear Plant.
- Accomplish the procurement, economic, technical, licensing and quality assurance activities dealing with the reactor core and its related fuel assemblies and components.
- Prepare bid specifications, evaluate bids, and negotiate and administer contracts for the procurement of all nuclear fuel and related components and services.
- Maintain a special nuclear material accountability system.
- Provide analyses to support nuclear steam supply system operation including reactor physics, fuel economics, fuel mechanical behavior, core thermal hydraulic and LOCA and non-LOCA transient safety analysis and other analysis activities as requested, furnish plant Technical Specification changes and other licensing work, and participate in NRC and NSDRC meetings as required by these analyses.
- Perform reactor core operation follow-up activities and other reactor core technical support activities as requested, and arrange for support from the fuel fabricator when needed.
- Contract for, and provide technical support for, disposal of both high level and low level radioactive waste.
- Coordinate the development of neutronics and thermal hydraulic safety codes and conduct safety analyses.







- Conduct studies of the Cook Nuclear Plant licensing bases to determine the optimal changes to support unit operations at a lower primary pressure and temperature.
- Coordinate NOD computer code development and provide the interface control for NOD with the AEPSC Information System Department and Cook Nuclear Plant.
- Obtaining and maintaining the NRC Operating License and Technical Specifications for the Cook Nuclear Plant.
- Act as the communication link between the NRC, AEPSC, and the plant staff.
- Perform and coordinate efforts involved in gathering information, performing calculations and generic studies, prepare criteria, reports, and responses, reviewing items affecting safety, and interpreting regulations.
- Review, coordinate, and resolve all matters pertaining to nuclear safety between Cook Nuclear Plant and AEPSC. This includes, but is not limited to: the review of certain plant design changes to ensure that the requirements of 10CFR50.59 are met; the preparation of safety evaluations or reviews for any designated subject; the preparation of changes to, and appropriate interpretation of, the plant Technical Specification submittals of license amendments; and the analysis of plant compliance with regulatory requirements.
- Primary corporate contact for most oral and written communication with the NRC.
- Provide support in key areas of expertise such as nuclear engineering, probabilistic analysis, thermohydraulic analysis, chemical engineering, mechanical engineering, electrical engineering, and technical writing.
- Interface with vendors and other outside organizations on matters connected with the nuclear steam supply system and other areas affecting the safe design and operation of nuclear plants.
- Participate as appropriate in the review of nuclear plant operating experiences, and relate those experiences to the design and safe operation of Cook Nuclear Plant.







- Review, evaluate, and respond to NRC requests for information and NRC notifications of regulatory changes resulting in plant modifications or new facilities. Such responses are generated in accordance with appropriate AEPSC Administrative Procedures.
- Develop, specify, and/or review conceptual nuclear safety criteria for Cook Nuclear Plant, in accordance with established regulations. This includes all information contained in the FSAR, as well as specialized information such as environmental qualification and seismic criteria.
- Review and evaluate performance requirements for systems, equipment and materials for compliance with specified safety criteria.
- Review, on a conceptual basis, plant reports and proposed plant safety-related design changes, to the extent that they are related to the ultimate safe operation of the plant, for compliance with safety regulations, plant Technical Specifications, the FSAR design basis, and with any other requirements under the Operating License and to determine if there are any unreviewed safety questions as defined in 10CFR50.59.
- Perform reviews of Problem Reports and 10CFR21 reviews in accordance with corporate requirements.
- Operate the Action Item Tracking System (AIT) for AEPSC internal commitment tracking.
- Coordinate design changes for the Cook Nuclear Plant acting as a focal point within AEPSC. This program primarily involves project management responsibilities for scheduling and implementing Request for Changes (RFCs) and includes extensive interfacing with engineering, design, construction, and Cook Nuclear Plant.
- Provide working level coordination with the Institute of Nuclear Power Operations (INPO). This effort includes providing AEPSC access to INPO resources such as NUCLEAR NETWORK and Nuclear Plant Reliability Data System (NPRDS), and effectively integrating AEPSC and Cook Nuclear Plant efforts towards utilizing INPO recommendations contained in operating experience reports to improve Cook Nuclear Plant performance.







- Coordinate daily communication with the Cook Nuclear Plant, provide AEPSC management with a daily plant status report, and make presentations to senior management at regularly scheduled construction staff meetings.
- Process incoming vendor information.
- Coordinate operations within AEPSC that support the Cook Nuclear Plant Facility Data Base (FDB).
- Contributing to the annual FSAR updates through reviews of Licensee Event Reports, design changes and the Annual Operating Report.
- Radiological, emergency and security planning.
- Corporate support of the Cook Nuclear Plant's radiation protection and health physics program, technical service and advice on the radiological aspects of design changes, modifications or capital improvements, the ALARA program, the radiation monitoring system, the environmental radiological monitoring and sampling program, dose and shielding analysis, radiochemistry review, and meteorological monitoring.
- Cook Nuclear Plant and corporate emergency planning including procedure development, exercise scheduling, facility procurement and maintenance, and the liaison with off-site emergency planning groups such as FEMA and the Michigan State Police.
- Review federal codes and regulations as they relate to the development, implementation, revision and distribution of the Modified Amended Security Plan (MASP).
- Interface with the plant's security department providing support for the security plan, reviewing security facilities, maintaining security document files, and developing the employee fitness for duty/background screening program.
- Provide Nuclear General Employee Training (NGET) for AEPSC personnel.
- Participate on ALARA subcommittees.
- Prepare responses to the NRC on radiological, emergency planning and security issues.
- Serve as technical advisors on plant audits.
- Remain cognizant of current decommissioning practices and developments.







## AEPSC Engineering and Design

The AEPSC Senior Vice President and Chief Engineer, reporting to the AEPSC Senior Executive Vice President - Engineering and Construction, is responsible for certain engineering and design functions through the AEPSC Assistant Vice President - Civil Engineering, the AEPSC Assistant Vice President - Design and the AEPSC Assistant Vice President - Nuclear Engineering..

## Civil Engineering Department

The AEPSC Assistant Vice President - Civil Engineering, reporting to the AEPSC Senior Vice President and Chief Engineer, is responsible for the Civil Engineering Department. There are two (2) Group Managers (not charted) reporting to the AEPSC Assistant Vice President - Civil Engineering who are responsible for the various sections as follows (not charted):

### AEPSC Group Manager

- Structural Engineering Section
- Civil Engineering Laboratory Section
- Geotechnical Engineering Section

### AEPSC Group Manager

- Materials Handling Section

The Civil Engineering Department (CED) is responsible for the following:

- Make recommendations and assist in the formulation of policies and practices relating to the design and engineering of office and service buildings, miscellaneous structures and material handling equipment, and provide the general supervision of the engineering of such facilities, structures and equipment.
- Review the activities of equipment, facilities, buildings and other structures at the Cook Nuclear Plant and approve, as required, all design changes and modifications including the preparation of specifications, procurement of equipment and modifications to equipment.







- Provide training and development programs necessary for personnel of the department, (including the company's safety and health program), which are consistent with the written policies of the American Electric Power Service Corporation.
- Prepare design criteria, engineering standards, conceptual layouts, studies and procedures in conjunction with equipment, facilities, buildings and other structures at the Cook Nuclear Plant.
- Identify critical engineering and design input and ensure that appropriate analysis and reviews are conducted.
- Prepare, review and approve specifications, sketches, drawings, design verifications and calculations, as required.
- Provide input for special studies and reports which may be requested by other organizations or governmental agencies such as the Nuclear Regulatory Commission.
- Initiate and/or review, approve and control laboratory and field investigations and feasibility studies.
- Prepare and review improvement requisitions for capital and lease expenditures.
- Review and evaluate proposals and make recommendations for the award of purchase orders and contracts.
- Prepare and administer equipment, labor and service contracts.
- Provide technical guidance when requested in support of activities at the Cook Nuclear Plant under the Department's responsibilities.
- Prepare and approve design changes pertaining to Cook Nuclear Plant in accordance with the GPs.
- Arrange for outside engineering and consulting assistance as required.
- Arbitrate disputes which arise between construction forces and outside suppliers of materials and services.
- Coordinate consultant's reports with other interfacing engineering organizations.
- Perform shop and field inspections on equipment being fabricated or installed which is within the scope of the department's responsibility.
- Approve invoices for outside services.







- Provide field services to the Cook Nuclear Plant including the assigning of personnel as are required during construction, normal or emergency outages, or as requested.
- Assist in the planning and execution of maintenance work on equipment, facilities, buildings and other structures.
- Supervise maintenance and repairs of all masonry and concrete work at Cook Nuclear Plant, including supplying trained inspection personnel.
- Direct testing of materials used in concrete and testing of soils to be used in work at the Cook Nuclear Plant.
- Review and recommend concrete mix formulations for all new construction.
- Prepare site studies.
- Implement a corrective action system, with regard to all activities of the department affecting quality of safety-related items, that will control and document all items, services or activities which do not conform to requirements.
- Direct the review of, and response to, assigned corrective actions.
- Assist in the preparation of applications for federal, state and local permits relative to installations being made which require such permits.
- Conduct periodic management reviews of the activities of the department to ensure compliance with the objectives of the Quality Assurance Program, and external technical surveillance, as necessary, of consultants, outside organizations and vendors over which the department is cognizant.
- Establish and maintain a permanent file for QA records.

#### Design Department

The AEPSC Assistant Vice President - Design, reporting to the AEPSC Senior Vice President and Chief Engineer is responsible for the Design Department. The Group Managers (not charted) reporting to the AEPSC Assistant Vice







President - Design who is responsible for the Nuclear Design sections as follows (not charted):

AEPSC Group Manager - Nuclear Design

- Electrical Design Nuclear Section
- Mechanical Design Nuclear Section
- Structural and Analytical Design Nuclear Section
- Cook Nuclear Plant (Site) Design Section

Additional support is provided from the other sections of the Design Department when required. The Control Services section administratively reports to another Design Department Group Manager (not charted) but takes functional direction in matters pertaining to Cook Nuclear Plant from the Group Manager - Nuclear Design.

The Design Department is responsible for the following:

- Develop, review and approve designs and drawings for mechanical, electrical and structural systems, equipment and facilities of the Cook Nuclear Plant.
- Initiate, develop, approve and maintain design procedures, specifications, standards, criteria and guidelines.
- Perform required calculations and analyses including pipe stress, pipe support design, cable sizing, conduit and cable tray support and structural steel and concrete.
- Initiate and develop design changes in the areas of responsibility of the Design Department.
- Provide NRC responses as required.
- Assist field personnel in the resolution of problems stemming from the installation of design changes or from as-found plant conditions, including assigning design personnel to the field.
- Assign membership to the Nuclear Safety and Design Review Committee and Subcommittee on Proposed Changes, participating in matters covered in the charter.
- Participate in the evaluation and remedy of any situation requiring activation of the emergency response organization including resource allocation.







- Formulate, administer, and implement policies and practices relating to the design of the Cook Nuclear Plant.
- Direct the development, maintenance, procedural review and implementation by which the Design Department adheres to the QA Program elements as established by AEPSC General Procedures.
- Conduct functions of the department so as to be in conformance with the operating licenses of the Cook Nuclear Plant.
- Investigate and evaluate problems.
- Coordinate special projects and studies, as required.
- Establish and maintain files of design documents for record purposes.
- 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 Nuclear Plant, including monitoring of the Aperture Card Microfilm Program.
- Supervise and control the work of consultants, Architect/Engineers and outside design agencies supplying services to AEPSC in their discipline and process notification of defects in accordance with company requirements. Also perform detailed reviews of design work submitted by outside agencies.
- Provide input to the list of major approved materials and maintain current specifications used within the group's scope of responsibility.
- Provide engineering and design support to the Nuclear Operations Division.
- Review and update applicable sections of Cook Nuclear Plant FSAR as assigned.
- Participate on committees that review nuclear activities as members when 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.

#### Nuclear Engineering Department

The AEPSC Assistant Vice President - Nuclear Engineering, reporting to the AEPSC Senior Vice President and Chief Engineer, is responsible for the Nuclear Engineering Department. Reporting to the AEPSC Assistant Vice President - Nuclear Engineering are the following:

- AEPSC Division Manager - Nuclear Plant Engineering (not charted)
- AEPSC Division Manager - Electrical Systems (not charted)

The AEPSC Division Manager - Nuclear Plant Engineering is responsible for the following (not charted):

- AEPSC Group Manager - Mechanical Systems
- Technical Support Section

Further, the AEPSC Group Manager - Mechanical Systems is responsible for the following (not charted):

- Chemical Engineering and Performance Section
- Heat Exchangers, Pumps, and Turbines Section
- Piping, Valves, HVAC, and Fire Protection Section

The AEPSC Division Manager - Electrical Systems is responsible for the following (not charted):

- Instrumentation and Controls Section
- Power Systems and Human Factors Section

The Nuclear Engineering Department (NED) is responsible for the following:

- Provide planning and engineering, in conjunction with other specialists, sections, and divisions, electrical facilities inside







Cook Nuclear Plant up to the high voltage (HV) bushings of the main generator transformers and mechanical facilities inside Cook Nuclear Plant including:

- \* determination of general layout and design;
  - \* selection of equipment;
  - \* preparation of one-line and flow diagrams; and,
  - \* coordination of inside and outside plant facilities.
- 
- Provide engineering and design of all controls for operation and protection of steam generator, turbine generator, and auxiliary equipment and general plant protection, including checking and approving elementary, one line, and flow drawings.
  - Interface with other organizations to ensure that all purchased equipment conforms to accepted standards and fulfills the desired function.
  - Closely following manufacturer's engineering and design processes to assure provision of adequate and reliable equipment upon which depend the safety, reliability, economy, and performance of the unit and plant.
  - Prepare cost estimates and improvement requisitions for plant facilities, including review of improvement requisitions and cost estimates prepared by others.
  - Prepare and/or approve specifications and purchase requisitions, and performing drawing review of equipment, as appropriate.
  - Review and approve procedures, correspondence, requests for design changes or modifications as appropriate.
  - Obtain review and perform engineering evaluations including environmental equipment qualification (EQ).
  - Perform calculations for proper application of equipment.
  - Perform and evaluate economic studies, investigations, analyses and reports for facilities pertaining to the design, operation and maintenance of the Cook Nuclear Plant.
  - Assist field personnel in installation, start-up, and subsequent locating of problems in equipment and in determining proper operation of equipment during normal or after emergency operations.







- Maintain a constant awareness for improvements and more reliable design of equipment and facilities, maintenance and operating methods or procedures.
- Maintain a constant awareness of activities to ensure compliance with all applicable policies and procedures initiating, when required, training or retraining programs.
- Participate, as assigned, on the Nuclear Safety and Design Review Committee (NSDRC) and NSDRC subcommittees, participating in matters covered in the committee's charter.
- Provide responses to NRC correspondence as required.
- Participate in the evaluation and remedy of any situation requiring activation of the emergency response organization.
- Provide technical engineering support in areas of operation and maintenance, including: the Inservice Inspection (ISI) Program; the Quality Assurance Program; the Fire Protection QA Program; the AEP ALARA Program covering radiation protection; and, the corporate and plant Industrial Safety program.
- Provide engineering support to the AEPSC Nuclear Operations Division.
- 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.
- Initiate and develop design changes in areas of responsibility of the Nuclear Engineering Department.
- Develop System Descriptions.
- Provide support personnel for the emergency response organization.
- Provide analytical support in engineering disciplines (e.g., heat transfer, thermodynamics, fluid dynamics).
- Provide engineering evaluations for PRs, LERs, INPO SOERs, and NRC Bulletins.
- Participate, as assigned, on the AEPSC Problem Assessment Group (PAG).

#### Project Management and Construction Department

The AEPSC Vice President - Project Management and Construction, reporting to the AEPSC Senior Executive Vice President - Engineering and







Construction, is responsible for the Project Management and Construction Department.

Reporting to the AEPSC Vice President - Project Management and Construction are the following:

- Site Construction Manager reporting administratively to the AEPSC Vice President - Project Management and Construction and functionally to the Cook Nuclear Plant, Plant Manager.  
Reporting to the Site Construction Manager are:
  - Construction Chief - Electrical
  - Construction Chief - Mechanical
  - Construction Chief - Civil
  - Construction Safety Supervisor
  - Compliance Auditor
- Labor Relations Director - Construction
- Human Resources Supervisor - Construction
- Project Manager (as required)

The Project Management and Construction Department is responsible for the following:

- Administering and implementing construction job orders issued by the Cook Nuclear Plant Organization for major modifications, replacement and maintenance work with outside contractors.
- Administering and monitoring contractor's industrial safety programs and performance.
- Administering human resources functions for site construction organization.
- Managing construction labor relations with the International Building and Construction Trades Unions.
- Scoping, bidding, recommending awards and administering construction labor and services contracts.







- Planning, organizing and controlling major construction projects as assigned by the AEPSC Senior Executive Vice President - Engineering and Construction.
- Maintaining cognizance on matters pertaining to the Cook Nuclear Plant and corporate emergency response organization.
- Preparation of construction labor estimates.
- Providing constructability guidance when requested in support of engineering and design changes.

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 Materials Management.

The Purchasing and Stores Department is responsible for the following:

- Procurement of "N" items from only qualified and approved suppliers.
- Provide ordering and stocking descriptions of "N" items and include these descriptions in the Cook Nuclear Plant inventory catalog including necessary communications with suppliers, cognizant engineers, the Cook Nuclear Plant Stores Supervisor and other appropriate personnel.
- Coordinate procurement activities with AEPSC Nuclear Operations, AEPSC engineering and design divisions/departments, I&M Purchasing Department, the AEPSC Quality Assurance Division and Cook Nuclear 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 Nuclear Plant.
- Establish a system of document keeping, and transmittal.
- 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 their acceptability to provide items or services to Cook Nuclear Plant.
- Notify the I&M Purchasing Department and the Cook Nuclear Plant Stores Supervisor of changes to supplier qualifications to provide items or services.

#### 1.7.1.2.6 Organization (Cook Nuclear Plant)

The Plant Manager reports functionally and administratively to the AEPSC Vice President - Nuclear Operations (Manager of Nuclear Operations) and is responsible for the Cook Nuclear Plant activities.

Reporting to the Plant Manager are the following (Figure 1.7-5):

- Assistant Plant Manager - Production
- Assistant Plant Manager - Technical Support
- Assistant Plant Manager - Projects
- Licensing Activity Coordinator
- Safety and Assessment Superintendent
- Radiation Protection Manager (reports functionally to the Plant Manager)
- Nuclear Security Manager (reports functionally to the Plant Manager)

The Cook Nuclear 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 (PNSRC).
- 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 Nuclear Plant activities.
- Set up plant load schedules and arrange for equipment outages.
- Develop and efficiently implement all site centralized training activities.
- Administer the centralized facility training complex, simulator, and programs ensuring that program development is consistent with the systematic approach to training, maintain INPO accreditations, regulatory and corporate requirements.
- Ensure that human resource activities include employee support programs (i.e., fitness for duty) 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 (MASP), and company policy.
- Supervise, plan, and direct the activities related to the maintenance and installation of all plant equipment, structures, grounds, and yards.
- Prepare and maintain records and reports pertinent to equipment maintenance and 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 Nuclear 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 Nuclear Plant and associated switchyards; cooperate in planning and scheduling of work and procedures for refueling and maintenance of the Cook Nuclear 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 Nuclear 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 Nuclear 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, NRC regulations, and company instructions and policies regarding quality control for Cook Nuclear Plant are implemented, qualified personnel perform work, and that these activities are properly documented.
- Prepare reports of reportable events which are mandated by the NRC and the Technical Specifications.







- Direct the activities of contractor QC/NDE personnel assigned to the Safety and Assessment Department and provide inspections of work performed.
- Prepare statistical reports utilized in NRC Appraisal Meetings and Enforcement Conference.
- Coordinate the efforts of outside agencies such as American Nuclear Insurers (ANI), 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.
- Maintain and renew accreditation of training programs.
- Qualification and certification of I&M personnel performing inspections or tests of major modifications and nonroutine maintenance to the requirements of Regulatory Guide 1.58 and ANSI N45.2.6, except as noted in Appendix B hereto, item 9.
- Qualification and certification of I&M nondestructive examination (NDE) personnel to the requirements of the AEP NDE Manual.
- Qualification of I&M personnel performing inspection of normal operating activities to ANSI N18.1.
- Proper certification of contractor inspection, test and examination personnel in accordance with Regulatory Guide 1.58, ANSI N45.2.6, ASME B&PV Code and/or SNT-TC-1A, as applicable.
- Perform peer inspections of work completed by I&M personnel by independent persons qualified to ANSI N18.7.
- Conduct of the Inservice Inspection (ISI) Program.
- Procurement, receiving, quality control receipt inspection, storage, handling, issue, stock level maintenance, and overall control of stores items.
- Provide material service and support in accordance with policies and procedures required by AEP Purchasing and Stores, AEPSC Quality Assurance, and the 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 Nuclear 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 Cook Nuclear 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 Technical Physical Science 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.
- Administration of the QA Records Program.
- Maintain the Cook Nuclear Plant Facility Data Base.







## 1.7.2 QUALITY ASSURANCE PROGRAM

### 1.7.2.1 SCOPE

Policies that define and establish the 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, components, etc., (items) 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 items 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 10CFR100 guidelines.

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







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

The Quality Assurance Program also includes provision for Radwaste QA in accordance with the requirements of 10CFR71, part H.

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 Power Company or delegated in whole or in part to other AEP System companies or outside parties. However, AEPSC and/or Indiana Michigan Power Company retain full responsibility for all activities affecting safety-related items. 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 signed, formal "Statement of Policy", that it is the 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 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. The statement also 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 shall also be periodically reviewed by independent outside parties as deemed necessary by management.

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

The QA Program applies to activities affecting the quality of safety-related structures, components, and related consumables during plant operation, maintenance, testing, and all design changes. Safety-related structures, systems and components are identified in the Facility Data Base and other documents which are developed and maintained for the plant.

As deemed necessary by the AEPSC Director - Quality Assurance, or the Plant Manager, applicable portions of the QA Program controls will be applied to nonsafety-related activities associated with the implementation of the QA Program to ensure that commitments are met (e.g., off-site records storage, training services, etc.).

#### 1.7.2.2.3

This QAPD, organized to present the Quality Assurance Program for the 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 intentionally 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 at the plant for compliance with specified criteria, and assign responsibility to the various departments, as required, for implementation. When necessary, Department Head Procedures (DHPs), and in some cases Department Head Instructions (DHIs), have been prepared to describe the detailed activities required to support safe and effective plant operation as per the PMIs.

The PMIs are reviewed by the AEPSC Quality Assurance Superintendent 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 DHPs and DHIs are reviewed by the department head of origination, AEPSC Quality Assurance Superintendent, 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 certain corporate Quality Assurance Program requirements. AEPSC division/department and/or section procedures are also used to implement Quality Assurance Program requirements.







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 Quality Assurance Superintendent prior to the start of work and maintaining close interface with the Cook Nuclear Plant Project Engineers.

#### 1.7.2.2.5

Provisions of the Quality Assurance Program for the Cook Nuclear Plant apply to activities affecting the quality of safety-related items. Appendix A to this QAPD lists the Regulatory/Safety Guides and ANSI Standards that identify AEPSC's commitment. Imposition of these guides/standards on AEPSC/I&M suppliers and subtier suppliers will be on a case-by-case basis depending upon the item or service to be supplied. 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 Cook Nuclear 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 Facility Data Base for the Cook Nuclear Plant. This Facility Data Base is controlled by authorized personnel. Facility Data Base items are determined by engineering analysis of the function(s) of plant items in relation to safe operation and shutdown.
- c) The extent to which controls specified in the Quality Assurance Program are applied to Facility Data Base 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-related items 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) Items are in an acceptable status.
- e) Items 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 of AEPSC and plant staff personnel 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 Cook Nuclear Plant.
- b) Personnel who perform inspection and examination functions are qualified in accordance with requirements of Regulatory Guide 1.8, ANSI N18.1, Regulatory Guide 1.58, ANSI N45.2.6, the ASME B&PV Code, or SNT-TC-1A, as applicable and with exceptions as noted in Appendix B hereto







- c) AEPSC Quality Assurance Division auditors are qualified in accordance with Regulatory Guide 1.146 and ANSI N45.2.23.
- d) Personnel assigned duties such as special cleaning processes, welding, etc., are qualified in accordance with applicable codes, standards, regulatory guides and/or plant procedures.
- e) The training, qualification and certification program includes, as applicable, provisions for retraining, reexamination and recertification to ensure that proficiency is maintained.
- f) Training, qualification, and certification records including documentation of objectives, waivers/exceptions, attendees and dates of attendance are maintained at least as long as the personnel involved are performing activities to which the training, qualification and certification is relevant.
- g) Personnel responsible for performing activities that affect safety-related items are instructed as to the purpose, scope and implementation of the applicable 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 the following techniques, as applicable: 1) on the job and formal training administered by the department or section the individual works for; 2) formal training conducted by qualified instructors from the plant Training Department or other entities (internal and external to the AEP System); and 3) formal, INPO accredited training conducted by the plant Training Department. 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.

### 1.7.3 DESIGN CONTROL

#### 1.7.3.1 SCOPE

Design changes are accomplished in accordance with approved design. Activities to develop such designs are controlled. Depending on the type of design change, these activities include design and field engineering; the performance of physics, seismic, stress, thermal, hydraulic and radiation evaluations; update of the FSAR; review of accident analyses; the development and control of associated computer programs; studies of material compatibility; accessibility for inservice inspection and maintenance; determination of quality standards; and requirement for equipment qualification. 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

Design changes are controlled by procedures and instructions and are reviewed as required by 10CFR50.59.







Safety-related design changes are accomplished by one of two separate processes, the Minor Modification (MM) or the Request for Change (RFC). Those that do not alter the intended function of the item and can be determined by judgement to have a minimal overall impact on the item being modified may be implemented via the MM process.

All other safety-related design changes that are not appropriate for MM processing, are implemented via the RFC process.

#### 1.7.3.2.2

RFCs (except for those requiring emergency processing) and MMs are reviewed and approved prior to implementation, as a minimum, by the cognizant AEPSC engineering section, PNSRC, and Plant Manager.

RFCs and MMs are reviewed to determine their impact on nuclear safety and to determine if the proposed changes involve an unreviewed safety question as defined by 10CFR50.59. If a design change were to involve an unreviewed safety question, it would not be approved for implementation until the required NRC approval was received.

#### 1.7.3.2.3

For RFCs, the Change Control Board, established within AEPSC, provides an additional review and approval level. The Change Control Board is comprised of members of the Engineering, Design, Nuclear Operations and Quality Assurance organizations within AEPSC and is supplemented by other AEPSC organizations or individuals as required.

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 and maintaining close interface with the Cook Nuclear Plant Project Engineers.







#### 1.7.3.2.4

Proposed RFCs 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 Packet.

#### 1.7.3.2.5

When RFCs or MMs 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.







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. Design changes 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.



Procedures require that minor design changes accomplished by the MM process also receive formal design verification. Applicable design verification activities shall be completed prior to declaring the design change or portion thereof operational.

#### 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.

or

- 2) The supervisor has not specified a singular design approach, ruled out design considerations, nor established the design inputs.

and

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

and

- 4) Regularly scheduled QA audits verify conformance to previous items 1 through 3.

Design verification on safety-related design changes shall be completed prior to declaring a design change, or portions thereof operational.







#### 1.7.3.2.10

Plant implementation of design changes is accomplished by the plant Project Engineering Department. 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 other cognizant engineer(s). Further, completed design changes 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 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 (except when the Code of Federal Regulations requires upgrading), 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 assuring that the applicable QA requirements are set forth in the procurement documents.

The plant may request assistance of AEPSC cognizant engineers in any procurement activity.



#### 1.7.4.2.2

The Facility Data Base, in conjunction with other sources, is used as the source document for equipment safety classification and procurement grade. AEPSC Specifications for the Cook Nuclear Plant (DCC Specifications) are used to determine item and documentation requirements, codes or standards that items must fulfill, and define the documentation that must accompany the item to the plant.

Organizational management cognizant of the equipment and its quality assurance requirements review procurement documents, as required, to ensure that: correct classification is made; 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, and when applicable 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 Division performs reviews of procurement documents to assure that QA Program requirements have been met. These reviews are conducted in accordance with AEPSC QA Division procedures.

#### 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/or 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.

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

##### 1.7.5.2.2

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

- 1) General Procedures (GPs) which are applicable to all AEPSC divisions and departments involved with Cook Nuclear Plant.
- 2) Division/department/section procedures which apply to the specific division, department or section involved.







#### 1.7.5.2.3

Activities at the Cook Nuclear Plant are controlled using plant procedures.

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

- 1000 Organization and Responsibilities
- 2000 Administration - Document Control, Security, Training, Records, Radiation Protection and Fire Protection
- 3000 Procurement, Receiving, Shipping and Storage
- 4000 Operations, Fuel Handling, Surveillance Testing
- 5000 Maintenance, Repair, Modification, Special Processes, EQ and ISI
- 6000 Technical - Chemistry, Radiological Controls, Performance/Engineering Testing, and Instrument and Control Maintenance and Calibration
- 7000 Quality Assurance, Quality Control Program and Condition/Problem Reporting

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 or under the control of the AEPSC Nuclear Design Group 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/department.



AEPS 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 designated 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 1.7.2 herein 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) Plant Technical Specifications.
- g) 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 activities affecting the quality of safety-related items. At Cook Nuclear Plant, unless a document is identified as "controlled" it is automatically assumed the document is for informational use only.

### 1.7.7 CONTROL OF PURCHASED ITEMS AND SERVICES

#### 1.7.7.1 SCOPE

Activities that implement approved procurement requests for items and services are controlled to assure conformance with procurement document requirements. Controls include a system of supplier evaluation and selection audits, acceptance of items and documentation upon delivery, and periodic assessment of supplier performance.







Objective evidence of quality that demonstrates conformance with specified procurement document requirements is available to the Cook Nuclear Plant site prior to use of equipment, material, or services.

#### 1.7.7.2 IMPLEMENTATION

##### 1.7.7.2.1

AEPSC qualifies suppliers and distributors by performing a documented evaluation of their capability to provide items or services specified by procurement documents. Items and services designated as safety-related are purchased from suppliers whose QA programs have been accepted in accordance with AEPSC requirements or from commercial grade suppliers through the AEPSC dedication program. Suppliers of other items/services, such as fire protection, records storage, etc., are also evaluated using different criteria for acceptance.

Qualification of such suppliers is determined by the AEPSC QA Division. In the discharge of this responsibility, the AEPSC QA Division utilizes information generated by other utilities. The supplier or distributor must be approved before procurement can be completed. AEPSC is a member of the Nuclear Procurement Issues Council (NUPIC) and participates in joint supplier audits and shares audit information consistent with NUPIC requirements. The supplier or distributor must be acceptable, or acceptable subject to follow-up before a procurement can be approved and processed. Additional audits 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 item or service that is required.

##### 1.7.7.2.2

For items that are not unique to a nuclear power plant ("Commercial Grade") where requirements cannot be imposed in a practical manner at time of procurement, programs for dedication and upgrading to safety-







related standards are established and accomplished by the AEPSC cognizant engineer prior to the item being accepted for safety-related use.

#### 1.7.7.2.3

In-process audits of suppliers' activities during fabrication, inspection, testing and shipment of items are performed when deemed necessary, depending upon supplier qualification status, complexity and importance to safety of the item being furnished, and/or previous supplier history. These audits are performed by AEPSC QA. The cognizant engineer and/or responsible plant personnel also participate, if deemed necessary.

#### 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, safety, interchangeability, 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 items addresses the program for inspection of incoming items including a review of the documentation required under the procurement. Receipt inspection personnel are qualified and certified in accordance with the requirements of ANSI N45.2.6. Provisions for receipt inspection apply regardless of where the procurement originates. Additional inspections may apply if required by the procurement document.

Where items and/or services are safety-related and procurement is accomplished without assistance of AEPSC, supplier selection is limited to those companies identified as being qualified.

#### 1.7.7.2.6

Items 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 item is placed in a designated area of the storeroom. Item traceability to procurement documents and to end use is maintained through recording of "HOLD" and "ACCEPTED" tag number on applicable documents.

Nonconforming items, or missing or questionable documentation results in items being placed on "hold" and maintained in a designated, controlled area of the storeroom. If the nonconformance cannot be cleared, the item 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 must be reviewed and approved by the AEPSC Quality Assurance Superintendent. Contractor procedures must be reviewed and approved by the originating/sponsoring department supervisor, AEPSC Quality Assurance Superintendent, PNSRC and the Plant Manager. Further, periodic audits of site contractor activities are conducted under the direction of the AEPSC Quality Assurance Superintendent.

#### 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 "use-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, and is based on the continual implementation of the supplier's QA program.







## 1.7.8 IDENTIFICATION AND CONTROL OF ITEMS

### 1.7.8.1 SCOPE

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 items (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, serial number, etc., are included in AEPSC Specifications (DCCs) and/or the procurement document.







#### 1.7.8.2.5

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







Special process requirements for chemical cleaning, application of protective coatings and concrete placement are set forth in AEPSC Specifications (DCCs) 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 Division.

Special process requirements for welding, heat treating and nondestructive examination (NDE) are set forth in AEPSC Specifications, the AEP Welding and NDE Manuals and plant procedures. These specifications and manuals are prepared by or are reviewed and approved by the AEPSC Staff Engineer - Chief Metallurgist (NDE Administrator). The administrative controls portion of the NDE Manual is reviewed by the AEPSC Director - Quality Assurance or designee.

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 which are also reviewed by other personnel with the necessary technical competence are qualified by testing.

Welding is performed in accordance with procedures contained in the AEP Welding Manual. These procedures are qualified in accordance with applicable codes, and Procedure Qualification Records are prepared. Weld Procedure Qualification Records are reviewed and approved by the AEPSC Staff Engineer - Chief Metallurgist. Weld qualification documentation is retained in the AEP Welding Manual.

Contractor welding procedures are qualified by the contractor. These procedures and the qualification documentation are reviewed and approved by the AEPSC Staff Engineer - Chief Metallurgist. This documentation is retained by the contractor.







#### 1.7.9.2.3

Nondestructive examination personnel are qualified and certified by either the designated NDE Administrator or by a Cook Nuclear Plant NDE Level III who has been qualified and certified by the designated NDE Administrator. Certification is by examination. Personnel qualification is kept current by reexamination at time intervals specified by the AEP NDE Manual, and in accordance with the ASME Code.

Plant welders are qualified by the Maintenance Department utilizing the procedures in the AEP Welding Manual. Supervision of plant welder qualifications is performed by the Maintenance Department. Examination of specimens is performed under the supervision of the Safety and Assessment Department in accordance with the AEPSC Specification covering welder qualification. 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 AEPSC Staff Engineer - Chief Metallurgist. Contractor and craft welder qualification records are maintained by the contractor.

#### 1.7.9.2.4

Quality Control/NDE Technicians assigned to the Safety and Assessment Department perform nondestructive testing for work performed by plant and contractor personnel. These individuals are qualified to either SNT-TC-1A or ANSI N45.2.6 and records of the qualifications/certifications 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

Special process qualifications are reviewed during regularly scheduled QA audits. Qualification records are maintained in accordance with 1.7.17 herein.

#### 1.7.9.2.7

The documentation resulting from welding and nondestructive testing is reviewed by appropriate 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, etc., for 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, qualification and certification programs for personnel who perform inspections are established, implemented and documented in accordance with 1.7.2 herein and as described in Appendix B hereto, item 9b, with exceptions as noted therein.

#### 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

Inspections are conducted using the following programs:

- a) Work Activities Performed by I&M Personnel Work functions associated with normal operation of the plant, routine maintenance, calibrations, etc., are routinely assigned to plant personnel. I&M personnel who inspect this work are qualified in accordance with Regulatory Guide 1.8 and ANSI N18.1, and are periodically trained in their skill area using INPO "accredited" training. As a result of the qualifications and training which I&M personnel receive, a peer inspection system is used. Peer inspection personnel are independent in that they do not perform or directly supervise the work being inspected, but may be from the same work group. Cook Nuclear Plant Safety and Assessment Department personnel qualified in accordance with Regulatory Guide 1.8 and ANSI N18.1 will ensure (through surveillance) that inspections have been correctly implemented and make routine reports to management.
- b) Work Activities Performed by Contractors Major modifications, non-routine maintenance, and/or other services on safety-related items are generally performed by contractors, who are required to comply with the applicable requirements of Regulatory Guide 1.33 and ANSI N45.2. Inspections of these work activities are performed by .







inspectors qualified and certified in accordance with Regulatory Guide 1.58 and ANSI N45.2.6. A peer inspection program is not used for work activities performed by these personnel. Contractor inspection personnel are required to be qualified and certified in accordance with Regulatory Guide 1.58 and ANSI N45.2.6. I&M Cook Nuclear Plant Quality Control personnel who are also qualified and certified in accordance with Regulatory Guide 1.58 and ANSI N45.2.6 may perform inspections and/or surveillances of these activities.

#### 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.

#### 1.7.11 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. 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

Established procedures and instructions are used for calibration and control of measuring and test equipment utilized in the measurement, inspection and monitoring of structures, systems and components. These procedures and instructions describe calibration techniques and frequencies, and maintenance and control of the equipment.

AEPSC Quality Assurance 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 for attaching or affixing labels to measuring and test equipment to display the date calibrated and the next calibration due date or 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, or where such 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 equipment being calibrated will be within required tolerances. The basis for acceptance is documented and authorized by the responsible manager.

#### 1.7.12.2.5

Plant procedures 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.



#### 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 plant procedures.

#### 1.7.13.2.3

Packaging and shipping requirements are provided to vendors with the AEPSC Specifications (DCCs) which are a part of the purchase order. Controls for receipt inspection, damaged items and special handling requirements at the plant are established by plant procedures. 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 design change activities, including item fabrication, installation and test, a program 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 program establishes a tagging system for lifted loads, etc. For those items requiring calibration, the program provides for physical indication of calibration status by calibration stickers or a control system is used.

#### 1.7.14.2.2

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







The inspection status of materials received at the plant is identified in accordance with established instructions. 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 ANSI N18.1 qualified personnel (reference 1.7.10.2.4 herein) inspect an activity at various stages and sign off the procedural inspection steps.

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

#### 1.7.14.2.3

Required surveillance test procedures are defined in PMIs. These instructions provide for documenting bypassed tests, and rescheduling of the test.

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. When an immediate procedure change is required to continue in-process work or testing and the required complete review and approval process can not be accomplished, an "On The Spot" change is processed in accordance with the PMI on plant procedures.



#### 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 ITEMS

#### 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/Problem Reports (refer to 1.7.16 herein) are used at Cook Nuclear Plant to identify nonconforming items and initiate corrective action for items which are installed or have been released to the plant. Systems, components, or materials which require repair or inspection are controlled under the Job Order System. In addition, the various procedures identified in 1.7.14 herein 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 Division 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, corrective action is taken to correct the immediate problem, and preventive action is implemented to prevent recurrence. 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 Division.

##### 1.7.16.2.2

Condition/Problem Reports provide the mechanism for plant and AEPSC personnel to notify management of conditions adverse to quality. Condition/Problem Reports are also used to report violations to codes, regulations and the Technical Specifications. Investigations of reported conditions adverse to quality are assigned by management. The Condition/Problem Report is used to document the investigation of a problem; and to identify the need for a design change to correct system or equipment deficiencies, or to identify the need for the initiation of Job Orders to correct minor deficiencies. Further, Condition/Problem Reports are used to identify those actions necessary to prevent recurrence of the reported condition.

Significant problems, which are so designated on Condition/Problem Reports, are reviewed by the Cook Nuclear Plant Nuclear Safety Review Committee (PNSRC) for evaluation of actions taken or being taken to correct the deficiency and prevent recurrence.

The AEPSC Nuclear Safety and Design Review Committee (NSDRC) is responsible for assuring that independent reviews of violations (as specified in the Technical Specifications) are performed. These violations are considered







significant problems which are documented on Condition/Problem Reports. The reviews will provide an independent evaluation of the reported problems and corrective actions.

The AEPSC QA Division 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 the quality of safety-related items 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) Problem Reports.
- h) Other documentation such as drawings, specifications, procurement documents, calibration procedures and reports.







i) Radiographs (which are also classified as safety-related items).

#### 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 the identification, collection, maintenance and storage of records generated by their department/division. Procedures 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 or equipment, as applicable.







#### 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 radio-graphs and some strip charts, records, or micrographs thereof, 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 Division Responsibilities

The basic responsibility for the assessment of the Quality Assurance Program is vested in the AEPSC QA Division. The AEPSC Quality Assurance Division is primarily responsible for ensuring that proper QA







programs are established and for verification of their implementation. These responsibilities are discharged in cooperation with the AEPSC and plant management, and their staffs.

#### 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 one to two years.

#### 1.7.18.2.3

The AEPSC Quality Assurance Division conducts audits to verify the adequacy and implementation of the Quality Assurance Program at the plant and within the AEP System. QA audit reports are distributed to: plant management and the 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. An NSDRC Manual has been developed for this committee which contains the NSDRC Charter and procedures. 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 AEPSC Senior Executive Vice President - Engineering and Construction. Problem Reports 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, and design changes for safety-related systems prior to approval by the Plant Manager. In addition, this committee serves to conduct investigations of violations to Technical Specifications, and reviews significant Problem Reports to determine if appropriate action has been taken.

#### 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 criteria established within their quality assurance programs.

#### 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 practices, procedures, instructions, activities and items related to quality; and review of documents and records to confirm that the Quality Assurance 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 Cook Nuclear Plant Fire Protection QA Program has been developed using the guidance of NRC Branch Technical Position (APCSB) 9.5-1, Appendix A, Section C, "Quality Assurance Program," and NRC clarification "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls, and Quality Assurance," dated June 14, 1977. As such, the Fire Protection QA Program is part of the overall QA Program for the plant. The Fire Protection QA Program encompasses design, procurement, fabrication, construction, surveillance, inspection, operation, maintenance, modification, and audits.

Implementation and assessment of the Fire Protection QA Program is the responsibility of each involved AEPSC and Indiana Michigan Power Company organization.

### 1.7.19.2 Organization

The Fire Protection QA Program is under the management control of AEPSC. This control consists of:

- 1) verifying the effectiveness of the Fire Protection QA Program through review, surveillance, and audits.
- 2) directing formulation, implementation, and assessment of the Fire Protection QA Program by procedural controls and,
- 3) assuring the QA program is acceptable to the management responsible for fire protection.

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

- a) Maintenance of fire protection systems,
- b) Testing of fire protection equipment,



- c) Fire safety inspections,
- d) Fire fighting procedures,
- e) Fire drills,
- f) Emergency remote shutdown procedures, and
- g) Emergency repair procedures (10CFR50, Appendix R).

The Fire Protection QA Program at the Cook Nuclear Plant also provides for inspection of fire hazards, explosion hazards, and training of fire brigade and responding fire departments.

The Assistant Shift Supervisor on duty, or designee, is designated as the Fire Brigade Leader 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 as necessary deviations and changes from these quality standards are controlled.

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

- 1) Verification as to the adequacy of electrical isolation and cable separation criteria.
- 2) Verification of appropriate requirements for room isolation (sealing penetrations, floors and other fire barriers).
- 3) Determination for increase in fire loadings.
- 4) Determination for the need of additional fire detection and suppression equipment.



Procurement of fire protection equipment and related items are subject to the requirements of the fire protection procurement documents. A review of these documents is performed to assure fire protection requirements and quality requirements are correctly stated, verifiable, and controllable, and that there is adequate acceptance and rejection criteria. Procurement documents must be prepared, reviewed, and approved according to QA Program requirements.

Design and procurement document changes, including field changes and design deviations are controlled by procedure.

#### 1.7.19.4 Instructions, Procedures and Drawings

Inspections, tests, administrative controls, fire drills and training that assist in implementing the fire protection program are prescribed by approved instructions or procedures.

Indoctrination and training programs for fire prevention and fire fighting are implemented in accordance with approved procedures. Activities associated with the fire protection systems and fire protection related systems are prescribed and accomplished in accordance with documented instructions, procedures, and drawings. Instructions and procedures for design, installation, inspection, tests, maintenance, modification and administrative controls are reviewed through audit to assure that the fire protection program is maintained.

Operation and maintenance information has been provided to the plant in the form of System Descriptions and equipment supplier information.

#### 1.7.19.5 Control of Purchased Items and Services

Measures are established to assure that purchased items and services conform to 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 receipt inspection.







Source or receipt inspection is provided, as a minimum, for those items where 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 installation, maintenance and modification of fire protection systems and equipment.
- b) Inspections of penetration seals and fire retardant coating installations to verify the activity is satisfactorily completed in accordance with installation specifications.
- c) Inspections of cable routing to verify conformance with design requirements as specified in AEPSC Specifications and/or plant procedures.
- d) Inspections to verify that appropriate requirements for fire barriers are satisfied following installation, modification, repair or replacement 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 or checklists for required inspections.







- g) Periodic inspections of fire protection systems, emergency breathing and auxiliary equipment.
- h) Periodic inspections of materials subject to degradation such as fire stops, seals and fire retardant coating as required by Technical Specifications or manufacturer's recommendations.

#### 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 and 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 occurs to document that fire protection equipment, functions in accordance with its design.
- 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 plant Technical Specification fire protection systems are performed as described in 1.7.14 herein.

#### 1.7.19.9 Nonconforming Items

Technical Specification fire protection equipment nonconformances are identified and dispositioned as described in 1.7.15 herein.







#### 1.7.19.10 Corrective Action

The corrective action mechanism described in 1.7.16 herein applies to the Technical Specification fire protection equipment.

#### 1.7.19.11 Records

Records generated to support the fire protection program are controlled as described in 1.7.17 herein.

#### 1.7.19.12 Audits

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

Audits are periodically performed to verify compliance with the administrative controls and implementation of fire protection quality assurance criteria. The audits are performed in accordance with preestablished written procedures or checklists. 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.







American Electric Power Service Corporation  
Support Organization for the Cook Nuclear Plant

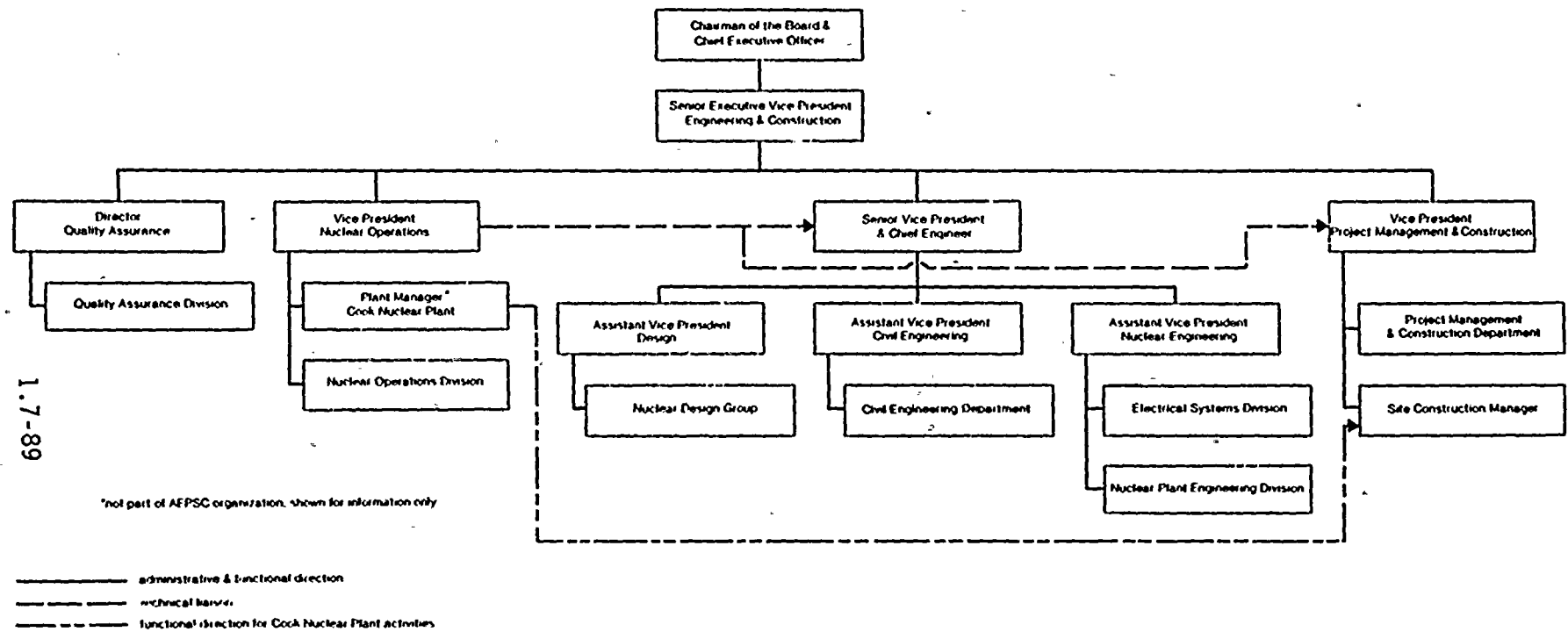


Figure No. 1.7-1

July, 1990



# American Electric Power Company

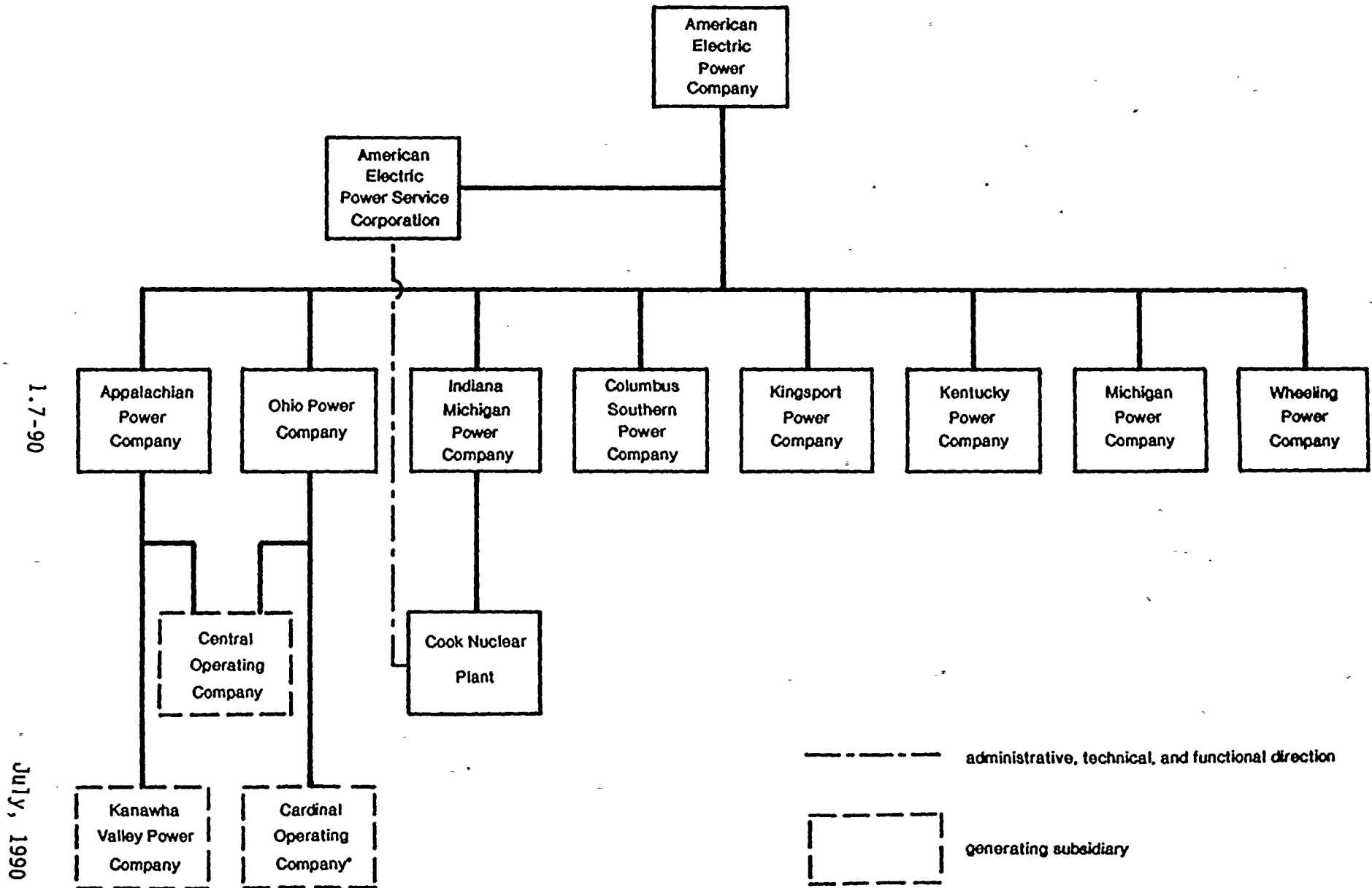


Figure No. 1.7-2

\*jointly owned with Buckeye Power, Inc.

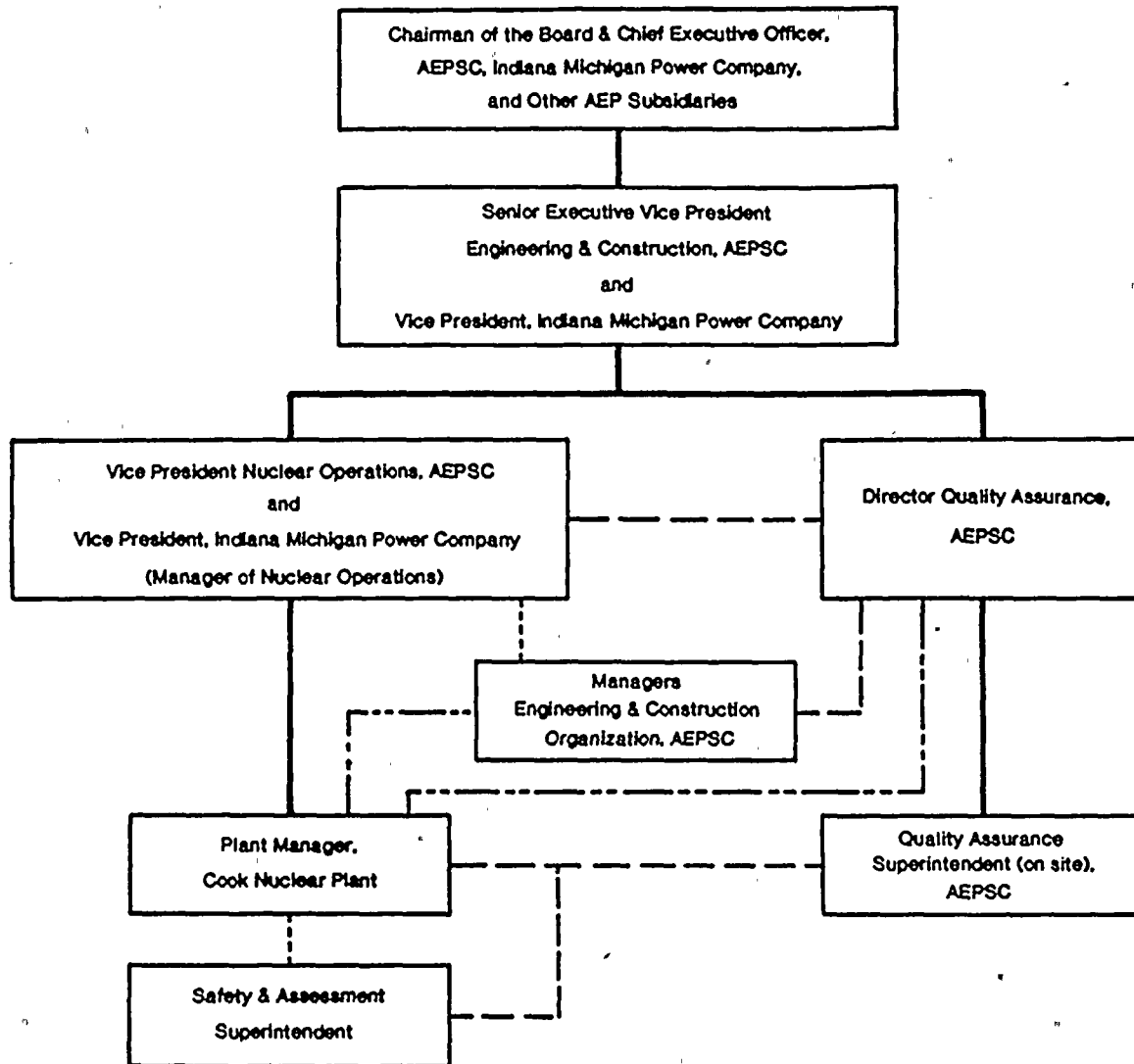






Figure No. 1.7-3

**Organizational Relationships**  
**Within the American Electric Power System**  
**Pertaining to Quality Assurance & Quality Control Support**  
**of the Cook Nuclear Plant**



- administrative & functional direction
- - - - - technical direction
- - - - - technical liaison
- - - - - functional direction for Cook Nuclear Plant activities







# AEPSC Quality Assurance Division Organization

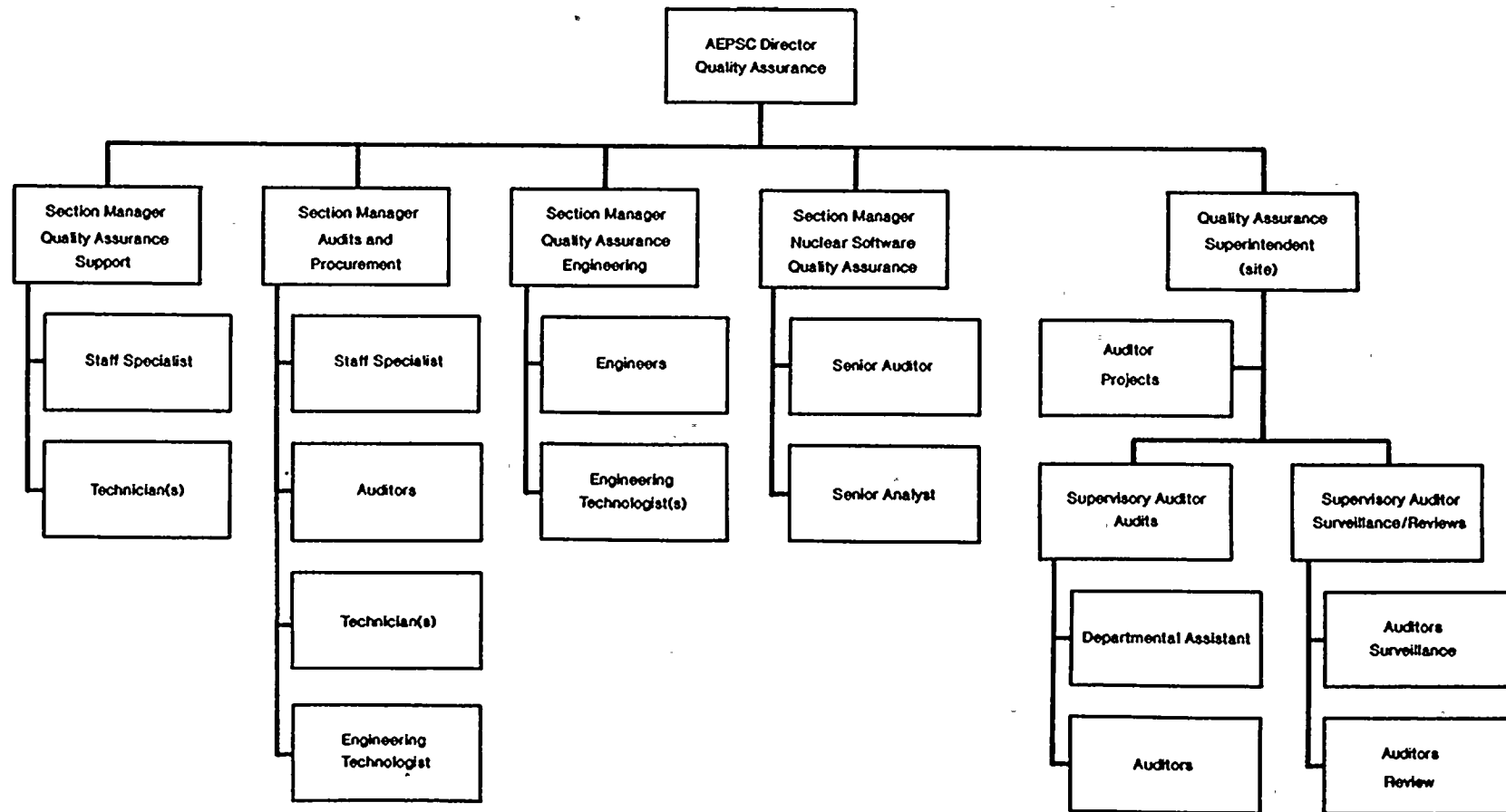


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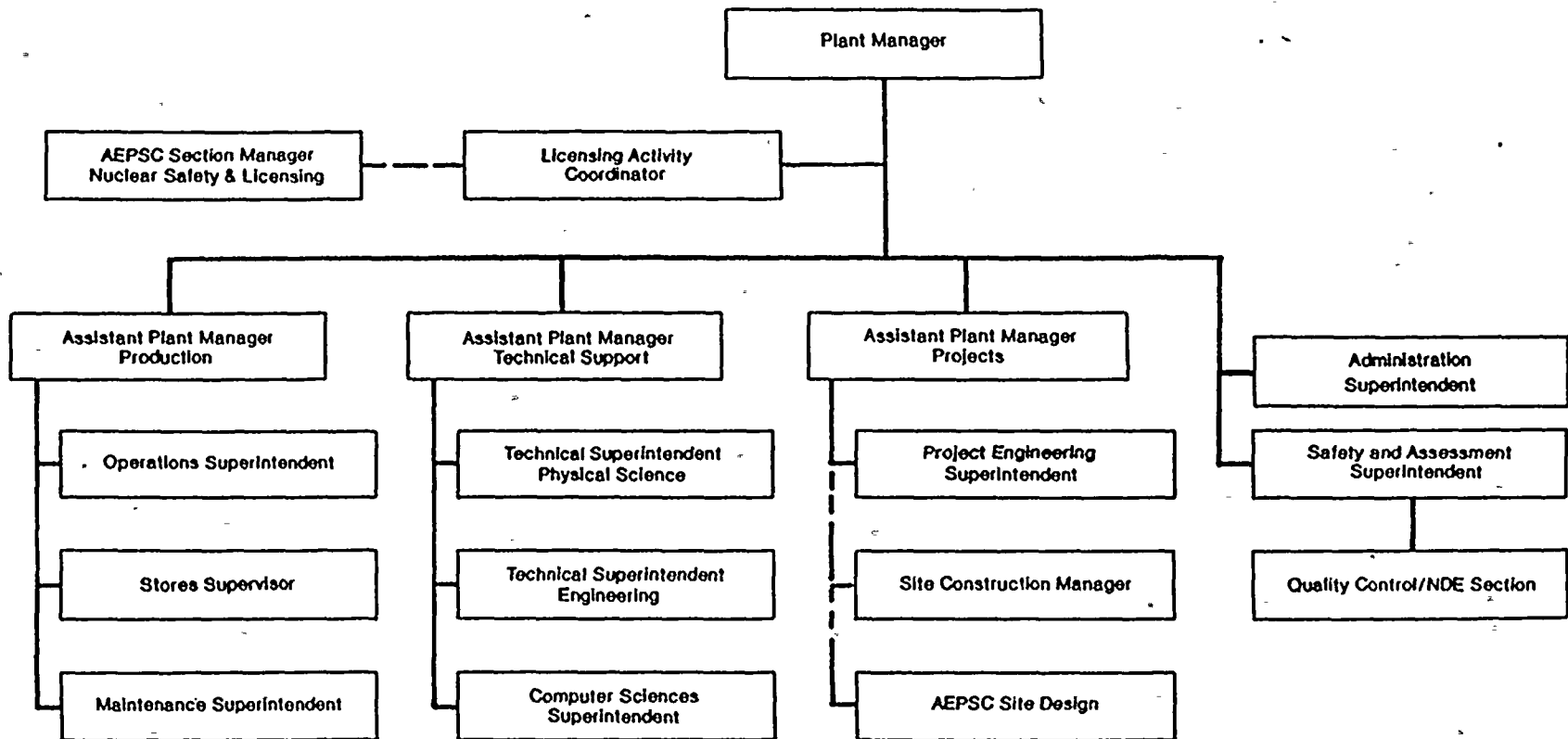
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# Indiana Michigan Power Company Organization for the Cook Nuclear Plant



\_\_\_\_\_ administrative responsibility  
 - - - - - technical liaison  
 - - - - - functional responsibility

Figure No. 1.7-5

1.7-93

July, 1990



## APPENDIX A

### REGULATORY AND SAFETY GUIDES/ANSI STANDARDS

- |    |   |  |
|----|---|--|
| 1. | Reg. Guide 1.8 (9/75)<br>ANSI N18.1 (1971)  | - Personnel Selection and Training<br>- Selection and Training of Nuclear<br>Power Plant Personnel   |
| 2. | Reg. Guide 1.14 (8/75)  | - Reactor Coolant Pump Flywheel<br>Integrity   |
| 3. | Reg. Guide 1.16 (8/75)  | - Reporting of Operating Information,<br>Appendix A - Technical<br>Specifications  |
| 4. | Safety Guide 30 (8/72)<br><br>ANSI N45.2.4 (1972)   | - Quality Assurance Requirements for<br>the Installation, Inspection, and<br>Testing of Instrumentation and<br>Electric Equipment<br>- Installation, Inspection, and<br>Testing Requirements for<br>Instrumentation and Electric<br>Equipment During the Construction<br>of Nuclear Power Generating<br>Stations |
| 5. | Reg. Guide 1.33 (02/78)<br><br>ANSI N18.7 (1976)<br>(ANS 3.2 1976)<br><br>ANSI N45.2 (1977) | - Quality Assurance Program<br>Requirements<br>(Operation)<br>- Administrative Controls and Quality<br>Assurance for the Operational Phase<br>of Nuclear Power Plants<br>- Quality Assurance Program<br>Requirements for Nuclear Facilities  |







6. Reg. Guide 1.37 (3/73)

ANSI N45.2.1 (1973)

7. Reg. Guide 1.38 (10/76)

ANSI N45.2.2 (1972)

8. Reg. Guide 1.39 (10/76)

ANSI N45.2.3 (1973)

9. Reg. Guide 1.54 (6/73)

ANSI N101.4 (1972)

10. Reg. Guide 1.58 (9/80)

ANSI N45.2.6 (1978)

- Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants
- Cleaning of Fluid Systems and Associated Components During Construction Phase of Nuclear Power Plants
- Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water-Cooled Nuclear Power Plants
- Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants (During the Construction Phase)
- Housekeeping Requirements for Water-Cooled Nuclear Power Plants
- Housekeeping During the Construction Phase of Nuclear Power Plants
- Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants
- Quality Assurance for Protective Coatings Applied to Nuclear Facilities
- Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel
- 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)<br>ANSI N45.2.11 (1974) | - Quality Assurance Requirements for the Design of Nuclear Power Plants<br>- Quality Assurance Requirements for the Design of Nuclear Power Plants   |
| 13. Reg. Guide 1.74 (2/74)<br>ANSI N45.2.10 (1973)  | - Quality Assurance Terms and Definitions<br>- Quality Assurance Terms and Definitions   |
| 14. Reg. Guide 1.88 (10/76)<br>ANSI N45.2.9 (1974)  | - Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records<br>- Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants   |
| 15. Reg. Guide 1.94 (4/76)<br>ANSI N45.2.5 (1974)   | - Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants<br>- 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)

ANSI N45.2.13 (1976)

- Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants
- Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants

18. Reg. Guide 1.144 (1/79)

ANSI N45.2.12 (1977)

- Auditing of Quality Assurance Programs for Nuclear Power Plants
- Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants

19. Reg. Guide 1.146 (8/80)

ANSI N45.2.23 (1978)

- Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants
- 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







## APPENDIX B

### AEPSC/I&M 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&M 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&M 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 alternates 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

Although the usual practice is to meet this requirement, exceptions are made to NSDRC review and approval prior to implementation in rare cases with the permission of the NSDRC Chairman and Secretary. PNSRC review and approval is always done prior to implementation of Technical Specification changes.

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&M 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&M 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 - 1977."

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.

2l. Sec. 5.2.15

Requirement

"Plant procedures shall be reviewed by an individual knowledgeable in the area affected by the procedure no less frequently than every two years to determine if changes are necessary or desirable."







Exception/Interpretation

Biennial reviews are not performed in that I&M has programmatic control requirements in place that make the biennial review process redundant from a regulatory perspective. These programmatic controls were effected in an effort to ensure that plant instructions and procedures are reviewed for possible revision when pertinent source material is revised, therefore maintaining the procedures current. We believe that this approach in addition to an annual random sampling of procedures, better addresses the intent of the biennial review process and is more acceptable from both a technical and practical perspective than a static two-year review process.

2m. Sec. 5.2.16

Requirement

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

Exception/Interpretation

See Item 6b.

2n. 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. 3

Requirement

N45.2.1 establishes criteria for classifying items into "cleanliness 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&M 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, General

Requirement

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&M 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&M 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. 1.2

Requirement

"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 - General

Requirement

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

9a. C.2.a(7)

Requirement

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&M 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&M 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&M does not implement the recommended "Level" designation guidelines.

It is I&M's opinion that the training guidelines of SNT-TC-1A, 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&M maintains that it meets the essence of these training guidelines. The preparation of leak test procedures and the conduct of leak tests at Cook Nuclear Plant is under the direct supervision 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&M 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 routine, 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&M 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&M 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&M 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 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&M's opinion, no useful purpose is served by classification of management, supervisory and engineering personnel into "Levels."

Therefore, I&M 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 9b, this position is not applicable to the Cook Nuclear Plant. |

C-6 Replacement personnel for 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&M, as a general practice, complies with the training recommendations as set forth in this regulatory position.

C-8 All I&M 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&M 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. N45.2.8,

10a. 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&M assure that they are available to the site as necessary.

10b. 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.

10c. 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.







11. N45.2.9

11a. 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.

11b. 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.

11c. 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 Cook Nuclear Plant Master File Room and other off-site record storage facilities comply with the requirements of NUREG-0800 (7/81), Section 17.1.17.4.







12. Reg. Guide 1.144,

12a. 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.

12b. 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&M considers that the National Bureau of Standards or other State and Federal Agencies which may provide services to AEPSC/I&M are not required to be audited.

13. N45.2.13,

13a. 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&M 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."

13b. Sec. 3.2.3

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.

13c. 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.

13d. 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.







13e. 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&M establishes post-installation test requirements giving due consideration to supplier recommendations.

14. Reg. Guide 1.146/ANSI N45.2.23 and ANSI N45.2.2.12

14a. ANSI N45.2.23, Sec. 1.1

Requirement

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

14b. 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 Director - Quality Assurance and is administered by designated QA Division section managers/supervisor who are certified lead auditors.







Audits are, in most cases, conducted by individual auditors, not by "audit teams". These auditors are certified in accordance with established procedures and are assigned by the responsible QA section manager/supervisor 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 Division section managers/supervisor, thereby meeting the requirements of ANSI N45.2.23 relative to "lead auditors", and "audit team leaders".



