13.0 CONDUCT OF OPERATIONS
TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

13.0 CONDUCT OF OPERATIONS
LIST OF TABLES

Table

TABLE OF CONTENTS (Continued)

13.0 CONDUCT OF OPERATIONS
LIST OF FIGURES

Figure

None.

13.0 CONDUCT OF OPERATIONS

13.1 ORGANIZATIONAL STRUCTURE

13.1.1 Corporate Management and Technical Support Organization

The Exelon Generation Company (EGC) corporate organization and its functions and responsibilities are described in Chapter 1.0 of Quality Assurance (QA) Topical Report NO-AA-10,[1] with revisions on file with the Nuclear Regulatory Commission. [13.1-1]

13.1.1.1 Corporate Organizational Arrangement

The corporate structure and the departments which provide technical support for operation are identified in QA Topical Report NO-AA-10. [13.1-2]

13.1.1.2 Operating Responsibilities

Technical services and backup support for Quad Cities Station are provided throughout the life of the plant from departments within EGC as described in QA Topical Report NO-AA-10, and from groups outside the company through contractual agreements.

13.1.2 Plant Operating Organization

The overall organization of Quad Cities Station is in accordance with Chapter 1.0 of QA Topical Report NO-AA-10.

13.1.2.1 Plant Personnel Responsibilities and Authorities

The functions, responsibilities, and authorities of plant positions are described in QA Topical Report NO-AA-10.

13.1.2.2 Operating Shift Crews

It is the intent of EGC and Quad Cities Station to provide sufficient staffing to maintain adequate shift coverage. Station management and technical support are either present or on call at all times. The onsite Technical Support Center and the onsite Operations Support Center are staffed during emergencies to provide added support. The Operating Department is under the direction of the Shift Operations Supervisor who reports to the Operations Director. The Shift Operations Supervisor works closely with the Radiation Protection, Chemistry, Work Management, and Maintenance Departments. [13.1-7]

The Shift Manager reports to the Shift Operations Supervisor and is responsible for directing and commanding the safe overall operation of the facility under all conditions. In addition, the Shift Manager is responsible for operating the plant in compliance with the station's operating license and the Quad Cities operating procedures. Shift Managers are licensed as Senior Reactor Operators (SROs) and have authority over the Unit Supervisor,

Field Supervisor, Shift Technical Advisor, and the operators. He maintains an overview of plant operations. He is normally present in the control room or in the Shift Manager's office, and when he is not, he is within 10 minutes of the control room, and can be reached immediately. The Shift Manager acts as Emergency Plan Shift Emergency Director during an emergency, until relieved by a designated Station Emergency Director. The Shift Manager has the authority to delegate duties as necessary to the Unit Supervisors. [13.1-3]

Each operating staff normally consists of:

Position	Number
Shift Manager	1
Unit Supervisors	2
Field Supervisor	1
Shift Technical Advisor (STA)	1
Nuclear Station Operators	4
Non-licensed Operators	8
Fuel-Handling Supervisor (Required only when moving fuel or performing core alterations)	1

The shift manning shall meet the requirements specified in 10 CFR 50.54(m)(2)(i). The shift staffing shall also meet the license requirements for fire brigade staffing and safe shutdown requirements.

Operating shifts are provided to ensure the safe operation of Quad Cities Station. The regular duties of each shift include operation and surveillance of all station equipment, including auxiliary systems, and proficient record keeping and operational housekeeping. In addition, the operating shifts interface with Reactor Engineering for reactivity management. A licensed SRO is on duty in the control room whenever a unit is in MODE(s) 1, 2 or 3. Also, an STA, who possesses a technical degree and provides advisory technical support to the Shift Manager during abnormal operations, is always within 10 minutes of the control room. There is one licensed RO or SRO at the controls for each reactor that is not defueled. During periods of core alterations, a licensed SRO is present and directly supervises the core alterations. This SRO may have a limited SRO license. [13.1-7a]

13.1.3 Qualifications of Nuclear Plant Personnel

13.1.3.1 Qualification Requirements

Qualification of the station management and operating staff meet minimum acceptable levels set forth in ANSI N18.1, Selection and Training of Nuclear Power Plant Personnel, dated March 8, 1971 (i.e., ANSI N18.1 – 1971), with the exceptions and clarifications as noted in Section 5 of the Technical Specifications.

A discussion of plant personnel responsibilities and qualifications at the time of and prior to startup is contained in Appendix 13A. This Appendix was put in the FSAR for historical purposes, at the request of the NRC.

13.1.4 References

1. Exelon Nuclear Quality Assurance Topical Report NO-AA-10 (current revision).
2. Deleted.

13.2 TRAINING

13.2.1 Plant Training Programs

The goal of training programs at Quad Cities Station is to assure that personnel have the skills and knowledge necessary to adequately perform the tasks to which they are assigned. [13.2-1]

13.2.1.1 General Training Programs

There are three types of training: [13.2-2]

1. Initial training, which provides indoctrination and training on safety and job skills commensurate with an individual's position;

2. Continuing training, which reinforces or increases knowledge and skills from initial training and on-the-job experience; and

3. Special or task-related training, which acquaints personnel with complex processes, procedures, or equipment not used on a routine basis.

Selected programs are further described in the following subsections.

13.2.1.1.1 General Employee Training

General Employee training is administered to all personnel at Quad Cities Station (except to individuals who received authorized equivalent training in the preceding 12 months) in accordance with the requirements of 10 CFR 19. Requalification training is administered annually. The course includes, but is not limited to, the following subject areas: [13.2-3]

A. Radiation protection,

B. Appropriate emergency plans and procedures,

C. Industrial safety,

D. Location of assembly areas and security zones,

E. Plant security, and

F. Quality Assurance.

When necessary, training in the use of respiratory equipment is provided in conjunction with General Employee training.

13.2.1.1.2 New Employee Orientation Training

This program provides the new employee with a fundamental knowledge of company and station policies. It provides information above and beyond General Employee training in the following areas: [13.2-4]

A. Exelon Standardized Radiological Emergency Plan (E-Plan),

B. Selected station procedures,

C. Industrial safety,

D. Quality Assurance,

E. Fire protection,

F. Industrial relations, and

G. Nuclear power plant orientation and plant familiarization.

Refresher training is provided via the Station Annual Retraining Program, which is administered to all station employees annually. It addresses the following topics: [13.2-5]

A. E-Plan,

B. Selected station procedures (including out-of-service procedure),

C. Industrial safety (including hearing protection),

D. Quality Assurance, and

E. Fire protection.

13.2.1.1.3 Exelon Standardized Radiological Emergency Plan Training

Emergency Plan training ensures that all station personnel are trained as needed for the implementation of the E-Plan. [13.2-6]

Station personnel designated as emergency response personnel receive initial training and annual retraining in accordance with the Emergency Preparedness Training Matrix. Training addresses applicable generic and site-specific portions of the E-Plan and corresponding implementing procedures. Additionally, participation in exercises and/or drills enhance skills which personnel are expected to use in the event of a nuclear emergency.

Station personnel not designated as emergency response personnel receive initial training and annual retraining on the following topics:

A. Assembly areas,

B. Emergency Response Facility assignment,

C. Potential hazards (radiological and nonradiological), and

D. Anticipated actions including:

1. Assembly requirements (clothing, masks, self-contained breathing apparatus, etc.),

2. Emergency exposure limits,

3. Use of thyroid blocking agents, and

4. Accountability requirements.

13.2.1.1.4 Radwaste Shipments Training

Training is provided to selected plant groups on the proper labeling, packaging, inspection, and shipping of radioactive waste. This training is required once every three years for affected employees to satisfy the requirements of NRC IE Bulletin 79-19 and DOT 49CFR172.704 recurrent training requirement. [13.2-7]

13.2.1.1.5 Deleted. [13.2-8]

13.2.1.2 Operations Department Training

13.2.1.2.1 Training Program for Nuclear Regulatory Commission License Applicants

The training program for NRC license applicants complies with the requirements of ANSI N18.1-1971 and implements the training requirements of NUREG-0737. The objective of the program is to thoroughly familiarize Reactor Operator (RO) and Senior Reactor Operator (SRO) applicants with the theory and practices of facility operation. License applicants must meet the prerequisites of NUREG-1021 before entering the program. This program includes the following: [13.2-9]

Core subjects such as: [13.2-10]

1. Mathematics,

2. General science,

3. Nuclear physics,

4. Reactor theory,

5. Health physics,
6. Chemistry,
7. Heat transfer, and
8. Fluid flow,

B. Description and tours of BWR systems,

C. Procedure, FSAR and Technical Specification review,

D. BWR simulator training,

E. Plant, core, and operator performance,

F. Examinations and evaluations,

G. On-the-job-training with licensed operators, and

H. Team building and diagnostics.

The Quad Cities Station training programs for RO and SRO received accreditation by the Institute of Nuclear Power Operations (INPO) in September of 1985. These programs were developed and maintained using the Systematic Approach to Training (SAT) methodology. In accordance with the provisions of Generic Letter 87-07 as it applies to 10 CFR 55.59 (c), CECo notified the NRC on January 22, 1990 of its intention to substitute the previously approved program with the SAT-based license requalification program. [13.2-11]

Retraining for licensed ROs, SROs, and SROs-Limited is conducted at intervals not exceeding 2 years. [13.2-12]

The requalification program includes training on revised Emergency Operating Procedures (EOP). For each revision to an EOP, the EOP Committee determines training requirements. Depending on the scope of the revision, training may consist of required reading, specific classroom training, comprehensive classroom training, simulator training, and/or plant walkdown. [13.2-13]

13.2.1.2.2 Non-licensed Operator Training Program

Non-licensed Operator trainees participate in the training program applicable to training operators to perform job duties safely and in accordance with approved procedures. Much of this training is devoted to electrical systems, related procedures, electrical switching, and other information needed for the operator to perform required duties. Training is accomplished through classroom lectures, plant walk-throughs, and on-the-job training. [13.2-14]

After completing initial training, trainees enter the retraining program. Training material is drawn from initial training lesson plans, modifications, and topics identified by Operations Department management.

Further, Non-licensed Operators may enter license operator training to obtain an NRC license.

13.2.1.2.3 Equipment Attendant Training Program

Deleted. [13.2-15]

13.2.1.2.4 Fuel Handling Personnel Training

Fuel Handling Supervisors have an NRC SRO Limited license. Applicants for the position are given initial training which follows the guidelines of the training program for NRC license applicants. In addition, specific training related directly to fuel handling is provided. As a continuation of initial training, additional training is provided in accordance with the Station Licensed Personnel Requalification Program. [13.2-16]

The training program for the fuel handlers includes classroom lectures, plant walk-throughs, and on-the-job training.

13.2.1.2.5 Unit Supervisor Training

The Unit Supervisor maintains a Senior Reactor Operators license. Applicants for the position are given initial training which follows the guidelines of the training program for NRC license applicants. As a continuation of initial training, retraining is provided in accordance with the Licensed Operator Personnel Requalification Program. If the Unit Supervisor also serves the STA function, then specific training related to accident assessment is provided. [13.2-17]

13.2.1.2.6 Supplemental Training

As needed, Operations Department personnel receive training at offsite locations, from vendors, and through on-the-job training. [13.2-18]

13.2.1.3 Maintenance Department Training

Training is provided to mechanics within the Instrument, Mechanical, and Electrical Maintenance groups through a combination of: [13.2-19]

A. On-the-job training,

B. On-site training,

C. Generic training classes (conducted at the Production Training Center (PTC)),

D. Maintenance Basic Systems Training,

E. Continuing Training Classes, and

F. Vendor Training Classes.

These programs combine to develop and promote craft capability. Specific training needs are identified by the maintenance supervisors.

On-the-job training is utilized as a fundamental means of instructing Maintenance Department personnel in the performance of their duties.

Maintenance Basic Systems Training is provided annually by the Training Department to promote Maintenance Department mechanics' understanding of overall plant operations and systems interactions. Continuing Training is also provided annually, covering selected topics from the initial training plus other pertinent topics.

Vendor training classes are conducted either onsite or offsite, as new equipment needs or new job needs arise.

Training programs conducted at the PTC are addressed in the following subsections for each discipline.

13.2.1.3.1 Instrument Maintenance Training

Quad Cities Station instrument mechanics attend generic courses of instruction at the PTC. These courses develop generic job-related skills using theory, knowledge, and practical shop exercises designed for the Instrument Maintenance group. Course topics include electronics, mathematics, transmitters, and control loops. [13.2-20]

13.2.1.3.2 Mechanical Maintenance Training

Quad Cities mechanics attend generic courses of instruction. The purpose of these courses is to develop generic job-related skills using theory, knowledge, and practical shop exercises designed for Mechanical Maintenance groups. Course topics include theory, basic mechanical skills, use of machine shop tools, lubrication, and welding basics. [13.2-21]

13.2.1.3.3 Electrical Maintenance Training

Quad Cities Station electricians attend generic courses of instruction. The purpose of these courses is to develop generic job-related skills using theory, knowledge, and shop

exercises designed for Electrical Maintenance groups. Course topics include solid state components, troubleshooting techniques, switchgear maintenance, and motor repair. [13.2-22]

13.2.1.4 Technical Services Training

13.2.1.4.1 Engineering Support Personnel Training

The training for Engineering Support personnel is provided to personnel in the following departments: System Engineers, Regulatory Assurance, and Site Engineering. It is designed to produce personnel who will not only perform in their routine jobs, but who will also recognize and solve problems affecting station performance and efficiency. This program is supplemented as necessary by training classes scheduled at various offsite locations which accommodate the needs of various Engineering Support personnel. [13.2-23]

13.2.1.4.2 Qualified Nuclear Engineer Training Program

Training for Qualified Nuclear Engineers consists of several weeks of classroom training during which they study reactor theory and application of that theory. In addition, they receive several months of on-the-job training. Continuing training is provided to keep Quad Cities Qualified Nuclear Engineers abreast of current industry issues.

13.2.1.4.3 Shift Technical Advisor/STA Training

The Shift Technical Advisor shall have a bachelor's degree or equivalent in a scientific or engineering discipline. The Shift Technical Advisor shall also have specific training in plant design, and response and analysis of the plant for transients and accidents.

13.2.1.5 Radiation Protection Technician Training

Radiation Protection Technician training develops comprehensive knowledge and practical skills associated with occupational radiation exposure in an operating nuclear power station. [13.2-24]

The Radiation Protection Technician training program consists of the following: [13.2-25]

A. Satisfactory completion of an academic program. Topics of these courses include:

   1. Mathematics,

   2. Nuclear physics,

   3. Radioactive decay,

   4. Basic chemistry,

5. Plant systems,

6. Radiation exposure,

7. Radiation shielding,

8. Biological effects of radiation exposure,

9. Radiation survey techniques,

10. Personnel monitoring, and

11. Emergency procedures.

B. On-the-job training under the supervision of a qualified Radiation Protection Technician.

Retraining is designed to reinforce and upgrade knowledge and skills obtained during initial training. Training needs are determined through a review of initial lesson plans, procedure revisions, installation of new station equipment, and other topical issues. [13.2-26]

13.2.1.6 Chemistry Technician Training

Chemistry Technician training develops comprehensive knowledge and practical skills associated with operational chemistry in an operating nuclear power station. [13.2-27]

The Chemistry Technician training program consists of the following: [13.2-28]

A. Satisfactory completion of an academic program. Topics of these courses include:

1. Mathematics,

2. Nuclear physics,

3. Radioactive decay,

4. Chemistry,

5. Sampling techniques,

6. Reactor coolant parameters,

7. Plant systems,

8. Basic radiation protection,

9. Laboratory safety, and

10. Emergency procedures.

B. On-the-job training under the supervision of a qualified Chemistry Technician. Retraining is designed to reinforce and upgrade knowledge and skills obtained during

initial training. Training needs are determined through a review of initial lesson plans, procedure revisions, installation of new station equipment, and other topical issues. [13.2-29]

13.2.1.7 Contractor Training

The security force and other contractor personnel are given General Employee training and, when appropriate, respiratory training. [13.2-30]

13.2.1.8 Fire Brigade Training

A training program for the Fire Brigade is maintained under the direction of the Station Fire Marshal. The program meets or exceeds the requirements of Section 27 of the NFPA Code-1975, except that training sessions are conducted quarterly. [13.2-31]

13.2.2 Replacement Training

Retraining and replacement training of station personnel is maintained under the direction of the appropriate on-site manager. Training is in accordance with ANSI N18.1-1971 (Selection and Training of Nuclear Power Plant Personnel) and 10 CFR 55 for appropriate designated positions and includes familiarization with relevant industry operational experience. [13.2-32]

13.2.3 Applicable NRC Documents

Following is a list of documents referenced in preparation of the Quad Cities training program.

A. 10 CFR 50, [13.2-33]

B. 10 CFR 55, [13.2-34]

C. 10 CFR 19, and

D. 10 CFR 20.

13.3 EMERGENCY PLANNING

The Exelon Nuclear Standardized Radiological Emergency Plan (E-Plan) is a written emergency plan that establishes the concepts, evaluation and assessment criteria, and recommended protective actions necessary to limit and mitigate the consequences of potential or actual nuclear power plant emergencies. The E-Plan provides the necessary prearrangements, directions, and organization to ensure nuclear emergencies can be effectively and efficiently resolved in order to safeguard station personnel, property, and the general public. [13.3-1]

The E-Plan has been developed based on the emergency planning and preparedness requirements specified in Appendix E to 10 CFR Part 50 and Regulatory Guide 1.101, Revision 3 of August 1992. The E-Plan has been submitted to and approved by the NRC. It is reviewed annually, any changes or revisions that pertain to regulatory requirements are submitted to the NRC for approval.

The E-Plan includes site-specific Annexes which contain additional information and guidance that are unique to each nuclear generating facility. The site-specific Annexes are not independent of the E-Plan. Emergency Preparedness Procedures implement the E-Plan appropriately.

The E-Plan identifies onsite and offsite facilities and equipment available for emergency assessment, communications, first aid and medical care, and damage control. The Emergency Response Facilities (ERFs) consist of the: Control Room (CR), Technical Support Center (TSC), Operational Support Center (OSC), and Emergency Operations Facility (EOF).

The E-Plan provides for classification of emergencies into five categories (listed in order of increasing severity): *Unusual Event, Alert, Site Emergency, General Emergency, and Recovery. Unusual Event* classifications are events that are in progress or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. *Alert* classifications are events that are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any radioactive material releases are expected to be limited to small fractions of the Environmental Protective Agency (EPA) Protective Action Guideline exposure levels. *Site Emergency* classifications are events that are in progress or have occurred which involve actual or likely major failures of the plant functions needed for protection of the public. Any radioactive material releases are not expected to exceed EPA Protective Action Guideline exposure levels except near the site boundary. *General Emergency* classifications are events that are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels for more than the immediate site area. *Recovery* is that period when the emergency phase is over and actions are being taken to return the situation to a non-emergency state. The plant is under control and no potential for further degradation of the plant or the environment is believed to exist.

The E-Plan includes notification requirements for classified events, including prompt and accurate notifications to federal, state, and local governments.

Training is conducted for all emergency response personnel to ensure their proficiency. The training programs for emergency response personnel are based on the requirements of Appendix E to 10 CFR Part 50.

Evaluated exercises are conducted biennially at each nuclear station to demonstrate the adequacy of timing and content of E-Plan procedures and methods; to test emergency equipment and communication networks; and to ensure that emergency response personnel are familiar with their duties. Each exercise involves participation by federal, state, and/or local personnel as prescribed by regulatory requirements.

The E-Plan Manuals and Station Annexes are distributed on a controlled basis to all stations and emergency facilities requiring them, including appropriate federal, state, and local agencies.

The Technical Support Center (TSC) was designed to meet the requirements of NUREG-0737. The building and HVAC system were designed to meet the habitability requirements specified in the NUREG. The doses to the TSC personnel were calculated and shown to be within the specified guidelines using the assumptions of Reg Guide 1.3 and the dose conversion factors from Reg Guide 1.109. [13.3-2]

13.4 REVIEW AND AUDIT

Review and audit functions for Quad Cities Station are established in accordance with the EGC Quality Assurance Topical Report. [13.4-1]

13.5 PLANT PROCEDURES

Day-to-day operations at Quad Cities are governed by procedure manuals within assigned areas of responsibility which specify employee actions and establish standards for plant operation.

A formalized system of written procedures which contains administrative and operating instructions in conformance with ANSI N18.7-1972, and which acknowledges the safety provisions of the facility license and Technical Specifications, is employed to ensure that all normal and reasonably foreseeable abnormal or emergency activities are conducted in a safe manner. [13.5-1]

13.5.1 Administrative Procedures

Administrative procedures have been established to control various activities at Quad Cities Station. The requirements for procedure review and change are given in the Quality Assurance Topical Report NO-AA-10. The procedures call for suspension of any potentially unsafe operation and investigation by the Station Management of any incident resulting in such an operation. Appropriate authorities will be notified and, if necessary, procedures will be changed or new ones established to prevent a recurrence of the incident or similar incidents. The use of company wide procedures (e.g.) General Procedures, Nuclear Station Work Procedures (NSWPs), Special Processes Procedure Manual (SPPM), and Nuclear Engineering Procedures (NEPs) is administratively controlled within the body of those procedures, as described in Quad Cities administrative procedures or in individual work packages. These procedures govern interactions between the station and other organizations in the company or standardize procedures at all sites. [13.5-2]

Administrative procedures have been developed and implemented to limit the working hours of unit staff who perform safety-related functions; e.g., senior reactor operators, reactor operators, health physicists, auxiliary operators, and key maintenance personnel.

13.5.1.1 Conformance with Federal Guidelines

Quad Cities plant procedures are written to conform to applicable federal guidelines. The contents of the procedure manuals follow Regulatory Guide 1.33 and ANSI N18.7-1972 requirements. [13.5-3]

13.5.1.2 Preparation of Procedures

Quad Cities station procedures are prepared by members of the station management organization. The responsibility for writing and preparing plant procedures is assigned to the appropriate department heads of the station administrative organization as indicated in Table 13.5-1. [13.5-4]

Detailed station procedures (i.e., plant procedures), administrative procedures, and safety-related operating procedures are prepared by members of the station management staff, or their designee. The Technical Specifications provide a list of items for which written procedures are required to be prepared, approved, and implemented. Planned safety-related operations are conducted in accordance with these detailed station procedures. Company wide procedures are under the control of various corporate organizations.

The station Onsite Review Committee reviews all appropriate station procedures as required by the Technical Specifications. [13.5-5]

Review and approval of procedures and procedure changes for operation, fuel handling, maintenance, and plant inspection for Quad Cities Station are carried out per the requirements of the Technical Specification. [13.5-6]

All station procedures described in this section are authorized by appropriate station management personnel before being implemented.

13.5.1.3 Procedures

Quad Cities administrative procedures are written and implemented to describe the station organization, establish station policy and programs, provide station organization responsibilities, supplement the requirements of the Quality Assurance Topical Report, implement the requirement of the Technical Specifications, and supplement the total job management program. The descriptions of station positions, their responsibilities and qualification requirements are given in Section 13.1 of the UFSAR. A brief description of the various station procedures, which control specific tasks, are provided in the following subsections: [13.5-7]

13.5.1.3.1 Shift Orders

Shift Orders: [13.5-8]

A. Are used to provide written communication to the shift crews;

B. Are issued by the Shift Operations Supervisor or Operating Engineers;

C. Are used to convey administrative requirements, special operating evolutions, and surveillances;

D. Are not used to replace permanent procedures;

E. Are valid until the time noted in the order or until the order is withdrawn;

F. Are reviewed periodically for continued applicability by the Shift Operations Supervisor;

G. Are read by the Shift Managers, Unit Supervisors, Shift Supervisor/Field Supervisors, and Work Execution Center personnel.

13.5.1.3.2 Equipment Control

Equipment control procedures are established to provide for the necessary control of equipment, to maintain plant equipment and personnel safety, and to avoid unauthorized operation of equipment. These instructions utilize the control measure of tagging to secure and identify equipment in a controlled status. Independent verification is employed to ensure that tagging has been implemented correctly. [13.5-9]

The use of equipment locks is employed to ensure that the safety of plant equipment and personnel is not jeopardized. Verification and control procedures, NSWPs, SPPM, and the NEPs are utilized when equipment locking is necessary.

13.5.1.3.3 Control of Maintenance and Modifications

Control of maintenance and modifications is provided for in the Quality Assurance Topical Report. Company wide procedures (e.g.) Station Administrative Procedures, NSWPs, SPPM, NSPs, and NEPs have also been developed to control plant maintenance and modification activities. [13.5-10]

13.5.1.3.4 Master Surveillance Testing Schedule

A master surveillance testing schedule is prepared which prescribes the surveillance to be performed, the frequency as outlined in the Technical Specifications and the assigned department. A computerized system for tracking of surveillance tasks has also been developed to augment the existing system. [13.5-11]

13.5.1.3.5 Logbook Usage and Control

Procedures for logbook usage and control are provided to ensure adequate documentation of various unit operations and conditions. [13.5-12]

13.5.1.3.6 Interim Procedures

Interim procedures may be issued to direct specific actions during testing and maintenance, provide guidance in unusual situations not within the scope of the station operating procedures, and ensure orderly and uniform operations for short periods when the plant, a system, or a component is in such a condition that portions of existing procedures do not apply. [13.5-13]

Interim procedures require review and approval according to the station review process and must be authorized by the appropriate management representatives prior to implementation.

13.5.2 Operating and Maintenance Procedures

The various operating and maintenance procedures that have been developed for the Quad Cities Station are described in the following subsections:

13.5.2.1 Operating Procedures

The procedures described in this section are performed primarily by or with the knowledge of or reflect the actions of licensed operators. [13.5-14]

13.5.2.1.1 System Operating Procedures

The system operating procedures cover startup related systems requirements, operation, and shutdown of each auxiliary system or subsystem. Check-off lists, step sign-offs, section sign-offs, and/or attachments where appropriate are included for systems procedures. [13.5-15]

13.5.2.1.2 General Operating Procedures

The general operating procedures cover reactor-turbine-generator normal start up operation, normal shutdown, scram recovery, and hot standby. Each procedure consists of a step-by-step sequence of instructions for the particular operation involved. In addition, the conditions of the systems and equipment prior to the initiation of the procedure are specified, and precautions governing the particular operation are described. [13.5-16]

Check-off lists are included for complex operations. These lists delineate in detail the steps an operator must follow in order to complete an operation. As each step is completed, the operator records its completion on the check-off list. When the procedure has been completed, the operator signs and dates the check-off list and has it approved by the shift engineer. The procedure is then filed per the retention schedule.

13.5.2.1.3 Abnormal Operating Procedures

This procedure category is composed of two subcategories: General Abnormal Operating procedures, which are based upon plant symptoms, and Operating Abnormal Procedures, which are based upon system and subsystem conditions.

13.5.2.1.3.1 General Plant Abnormal Procedures

These procedures are site specific implementation of the BWR Owners Group's emergency procedure guidelines. They are symptoms based procedures that direct operator action to control a wide range of critical plant parameters regardless of the initial transient. [13.5-17]

13.5.2.1.3.2 Operating Abnormal Procedures

These procedures give appropriate operator response to anticipated alarms and off-normal operating conditions. [13.5-18]

13.5.2.1.4 Annunciator Response Procedures

Annunciator procedures are written and implemented for the purpose of detailing setpoints, automatic actions, and operator actions necessary for response to a condition annunciated at an alarm panel. Where the alarm is indicative of an off-normal or emergency condition, annunciator procedures reference the appropriate procedure. [13.5-19]

13.5.2.2 Other Procedures

This section describes how other operating and maintenance procedures are classified, what group within the operating organization has responsibility for following each class of procedure, and the general objectives and character of each class of procedure.

13.5.2.2.1 Plant Radiation Protection Procedures

The station Radiation Protection Procedures have been established to provide necessary control over radiation exposure to personnel at the Quad Cities Station. [13.5-20]

13.5.2.2.2 Emergency Preparedness Procedures

The Quad Cities Emergency Preparedness Procedures describe actions needed for handling station emergencies as described in the Emergency Plan. [13.5-21]

13.5.2.2.3 Instrumentation Procedures

The instrumentation procedures govern the checkout, operation and calibration of plant instrumentation, including nuclear process and radiation monitoring instrumentation. Check-off lists, step sign-offs, section sign-offs, and/or attachments are provided for activities that are complex or that require documentation. Procedures are provided for the following activities: [13.5-22]

A. Care and control of calibration standards and test equipment, including related records;

B. Initiation of instrument repair work, including notifications and authorizations required;

C. Surveillance testing, including schedule, listing of requirements, prerequisites, calibration and test instruments to be used, limits, use of forms for records, and reporting;

D. Calibration and functional test procedures and use of vendor manuals for reference or detailed procedures.

The instrument maintenance department prepares and follows these procedures. [13.5-23]

13.5.2.2.4 Chemical Control Procedures

Chemical Control Procedures state the operating limits for plant chemical and radiochemical control and indicate the actions required if these limits are exceeded. A schedule is included which describes the frequency and location of samples to be taken and type of analysis or other routine to be performed. Report sheets are provided for documentation of samples taken, analysis results, and other routines performed. Requirements for notification of personnel or departmental supervisors are indicated. Step-wise analytical and calibration procedures are identified in these procedures. [13.5-24]

13.5.2.2.5 Radioactive Waste Management Procedures

Radioactive Waste Management Procedures prescribe the methods and modes of operation employed to collect, treat, store, and dispose of liquid and solid radioactive waste materials resulting from plant operations. [13.5-25]

13.5.2.2.6 Maintenance Procedures

The maintenance procedures prescribe the technique, tools and equipment to be used to perform inspection, repair and overhaul of unit major equipment.

Maintenance which can affect the performance of safety-related and nonsafety-related equipment is properly preplanned according to written procedures, is in accordance with documented instructions, procedures, or drawings suitable to the circumstances, and conforms to applicable codes, standards, specifications, and criteria. Reference may be made to appropriate sections of related vendor manuals, instructions, or approved drawings to provide adequate instructions to assure the required quality of work. Maintenance Procedures identify codes, standards, material specifications, and inspection requirements where applicable. Special process procedures are included as required by the code. [13.5-26]

13.5.2.2.7 Material Control Procedures

Material control requirements are identified in Section 8.0 of the Quality Assurance Topical Report. Quad Cities Station has developed procedures for the identification and control of materials, parts and components for use in the station. [13.5-27]

13.5.2.2.8 Plant Security Procedures

The plant security is addressed in the security section of this UFSAR (Section 13.6). Procedures have been developed for Quad Cities Station to provide methods to perform actions associated with plant security. [13.5-28]

13.5.2.2.9 Surveillance Procedures

The surveillance procedures prescribe the procedure by which major components and systems are periodically inspected and tested by the Operations and Maintenance Departments. Surveillance Procedures describe the operations for accomplishment of required surveillance tests to be conducted as required by Technical Specifications. Check-off lists, step sign-offs, section sign-offs, and/or attachments are provided where complex operations are involved and documentation is required. The surveillance procedures also include surveillance of equipment that are not required by the Technical Specifications or instrumentation procedures. [13.5-29]

It is the responsibility of the appropriate department to prepare and implement the surveillance procedures. [13.5-30]

13.5.2.2.10 Systems Engineering Procedures

The systems engineering procedures, NEPs, and NSWPs describe the method used to perform engineering routine duties. [13.5-31]

13.5.2.2.11 Systems Engineering Surveillances

The systems engineering surveillances outline the method used to perform periodic tests and inspections conducted by the System Engineers. [13.5-32]

13.5.2.2.12 Valve Checklists

Valve checklists provide a means for operations to ensure proper valve line-ups. [13.5-33]

13.5.2.2.13 Fuel Handling Procedures

Fuel Handling Procedures section gives methods used by fuel handlers to perform jobs such as core loading, core unloading, fuel receipt, etc. and provide direction for interfacing with operations. [13.5-34]

13.5.2.2.14 Document Maintenance Procedures

Document Maintenance Procedures provide a description of the station record retention and retrieval system. [13.5-35]

13.5.2.2.15 Appendix R Safe Shutdown Procedures

Safe shutdown Appendix R procedures are written and implemented for the purpose of providing guidelines for bringing the reactor to a cold shutdown condition with a minimum number of components during severe fire conditions. [13.5-36]

13.5.2.2.16 Foreign Material Exclusion and Evaluation Procedures

Foreign Materials Exclusion (FME) and Evaluation Procedures provide the necessary requirements to prevent and control introduction of foreign materials into structures, systems, and components. They also provide for notifications and actions when FME integrity is lost or unexpected foreign material is discovered. Guidance is provided for evaluating the impact on systems and reactor fuel when specific foreign materials are suspect in specific plant systems.

Table 13.5-1

RESPONSIBILITY FOR PREPARATION OF
PLANT PROCEDURES

Procedure Group	Responsible Department Heads
Administrative procedures	Cognizant Department Head
Operating/Surveillance procedures	Operations Support Manager
Technical/Surveillance procedures	Systems Engineering Manager
Mechanical Maintenance/Surveillance procedures	Master Mechanical Mechanic
Electrical Maintenance/Surveillance procedures	Master Electrical Mechanic
Instrumentation/Surveillance procedures	Master Instrument Mechanic
Radiation Protection procedures	Health Physics Supervisor
Chemical Control procedures	Chemistry Manager
Emergency procedures	EOP Coordinator

13.6 SECURITY

Quad Cities Station implements and maintains in effect all provisions of the NRC-approved physical security, guard training and qualification, and safeguards contingency plans for Quad Cities Station in accordance with the operating licenses. The plans are specified in the following documents, as revised and filed with the NRC: [13.6-1]

A. "Quad Cities Nuclear Power Station Security Plan,"

B. "Quad Cities Nuclear Power Station Security Personnel Training and Qualification Plan," and

C. "Quad Cities Nuclear Power Station Safeguards Contingency Plan."

These plans meet the requirements of 10 CFR 73.55, Appendices B and C to 10 CFR 73, and ANSI N18.17 – 1973.

Procedures to implement the Quad Cities Station Security Plan were developed to establish administrative requirements and responsibilities for the plant security program and to supplement features and physical barriers designed to control access to the plant and, as appropriate, to vital areas within the plant. These procedures were written and remain under the cognizance of the Manager, Nuclear Security and the procedures that contain Safeguards Information shall be withheld from public disclosure.

The Security Plan documents Safeguards Information protected under 10 CFR 73.21 and are, therefore, withheld from public disclosure.

The following is a general outline of the security program.

A. The basic protective equipment and measures used are as follows:

1. The main entrance gate to the owner-controlled area of the plant may be closed during weekends and backshift hours. Voice identification may be used to gain access to the owner-controlled area. [13.6-2]

2. The gatehouse and main gate to the protected area of the plant are staffed by a security force on a 24 hour basis.

3. Multiple layers of protection, including isolation zones, protected area barriers, intrusion detection systems, vital area barriers with alarms, and security force patrols have been established to provide protection to vital equipment in the station.

4. Monitoring of protected and vital areas is accomplished by electronic sensors, closed circuit TV, and by members of the security force.

5. All plant buildings, the cooling water intake, and the 310-foot chimney are located within protected area barriers.

6. An armed security force has been established to control access into the protected and vital areas of the plant, and to respond to security contingencies.

7. All personnel granted unescorted access to the plant are directed to verbally challenge an unauthorized person encountered inside the protected area.

B. The procedures used to admit and monitor normal visits to the site and plant are as follows:

1. General public — The general public, either individuals or groups, is admitted to the plant only through prior arrangements. All members of the general public must provide proper identification and submit to standard search procedures prior to entry into the protected area. Visitors are taken only to specific areas in the service building and plant by preassigned tour guides. A guide remains with the visitors continually, verifies that all visitors stay in their proper groups, and returns the groups to the main gate.

2. Nonplant utility personnel — Utility personnel that are not part of the plant staff are authorized for unescorted access by cognizant station personnel.

3. Other personnel — Contractors, and other service personnel authorized to perform onsite activities without escort, are required to be screened for unescorted access to the plant prior to being issued a photo identification badge. Status assignments of photo identification badge key cards limit access to only areas in which the individual has a need to be due to work requirements.

C. The following provisions reduce the vulnerability of critical equipment necessary for safe operation to acts of industrial sabotage:

1. Through station security plan commitments, all vital area doors are locked, have alarms or are guarded. Only screened and cleared individuals with the proper status are granted vital area access through these doors by utilizing a photo identification key card.

2. Patrols by members of the security force and scheduled rounds by operators are conducted within vital areas of the plant on a regular basis.

3. Certain valves on safety-related systems are chain locked.

13.7 RECORDS

Records are retained to furnish evidence of activities affecting quality. These records are stored from the time of their creation or receipt until their ultimate disposal in a manner which meets the requirements of applicable standards, codes, and regulatory agencies with regard to maintenance, preservation, and protection of files. [13.7-1]

Table 13.7-1 lists types of records retained for Quad Cities Station. It also describes specific records within each type and specifies the minimum required retention period. Record types are briefly discussed in the following subsections.

13.7.1 Control Room Records

Control room records are divided into subgroups. The reactor related records pertain to the reactor vessel or the reactor core. The steam plant records provide information related to the steam turbine and its auxiliary systems. The electrical plant records pertain to the emergency diesel generator. [13.7-2]

The information is recorded automatically by control room recorders. The Shift Engineer is responsible for control room record keeping.

The retention period for these records is specified on Record Retention Schedule forms for each record. These record retention schedules are set according to guidelines established by NRC orders, Federal Power Commission regulations, and Illinois Commerce Commission regulations.

13.7.2 Computer Records

Computer records provide documentation of alarms associated with plant process variables, sequences of plant events, and calculations related to plant operations and performance.

The information provided by the process computer is recorded in several ways. Alarms associated with plant process variables are displayed on output devices and retained in computer files as they occur. Chronological order of plant operating events are displayed on output devices and retained in computer files as the events take place. Information including averages of plant variables, totals of plant variables, and calculations related to various phases of plant operation and performance, are displayed on output devices and retained in computer files for particular time intervals at the end of the day. Some information is recorded on recorders.

The Shift Engineer is responsible for assuring that the process computer and associated equipment are functional to enable computer record keeping. [13.7-3]

13.7.3 Logs

Written logs are maintained by designated station personnel to record specific information and activities. Check off lists of complex systems are also maintained. The information recorded includes the status of unit equipment, malfunctions, scrams, changes in operating conditions, tests and measurements performed by the operators, daily operating orders to the shift engineer, fuel handling transactions, R-key usages, and computer program changes. The Shift Engineer is responsible for these records. [13.7-4]

13.7.4 Plant Operations Records

Plant operations records provide pertinent information on the history of unit power production, operational excursions, and related quality activities. For example, records of normal plant operation include notation of power levels and periods of operation at each power level. [13.7-5]

13.7.5 Review Committee Transactions

These records include minutes of meetings and results of reviews and audits performed by the Offsite and Onsite Review Committees. [13.7-6]

13.7.6 Reports

Reports document descriptions, results, conclusions, and comments regarding tests and inspections carried out in conjunction with plant operations and performance. Other reports are written at regular intervals to summarize plant operation and performance. Reports are written under the supervision of the Systems Engineering Manager. [13.7-7]

13.7.7 Radiological and Chemical Records

Included in this category of records is the current occupational radiation exposure for all plant personnel, including contractors and plant visitors, in accordance with 10 CFR 20, as well as radiation surveys, meteorological reports, reports of environs monitoring, and others as noted in Table 13.7-1. [13.7-8]

The Radiation Protection Technical Supervisor and Chemistry Manager are responsible for keeping all radiological and chemical records, respectively.

13.7.8 Maintenance Records

This category includes records of maintenance and activities (substitution, inspection, repair) for principal equipment pertaining to nuclear safety, and the reasons for the maintenance. It also includes records of periodic checks, inspections, calibrations, and/or

corrective actions (if any) performed in accordance with Technical Specification surveillance requirements. [13.7-9]

These records are the responsibility of the Site Maintenance Director.

13.7.9 Records of Facility Description and Evaluation

This set of records includes drawings, descriptions of plant changes, evaluations performed in accordance with 10 CFR 50.59, and records of Environmental Qualification. [13.7-10]

13.7.10 Personnel Records

These records address the qualification, experience, and training of individual staff members. It will include medical and company history information. [13.7-11]

Table 13.7-1

REQUIREMENTS FOR RECORD RETENTION

Record Type	Record Description	Minimum Retention Period
Control room records [13.7-12]	Reactor related recorder data	Life of plant
	Steam plant recorder data	Life of plant
	Electrical Plant recorder data	Life of plant
Computer records [13.7-13]	Alarm/Trend typer sheets	6 months
	Demand typer sheets	6 months
	Periodic log sheets	Life of plant
	Trend recorder charts	Life of plant
Logs [13.7-14,. 13.7-15]	Shift Manager's log	Life of plant
	Reactor Operators' log	Life of plant
	Control Room log	Life of plant
	Radwaste log	5 years
	Make up demineralizer log	5 years
	Fuel handling log	5 years
	R key log	1 year
Plant operations records [13.7-16, 13.7-17]	Normal Plant Operation	5 years
	Reportable events	5 years
	Safety limit occurrences	5 years
	Reactor coolant system in-service inspection [13.7-18]	Life of plant
	Transient or operational cycling of life limited components [13.47-19]	Life of plant

Table 13.7-1

REQUIREMENTS FOR RECORD RETENTION

Record Type	Record Description	Minimum Retention Period
	Physic tests and tests pertaining to nuclear safety [13.7-20]	5 years
	Changes to operating procedures [13.7-21]	5 years
Review committee Transactions [13.7-22]	Reviews by Offsite Review Committee	Life of plant
	Reviews by Onsite Review Committee	Life of plant
Reports [13.7-23]	Monthly performance reports	Life of plant
	Reports to the NRC	Life of plant
	Reports of special tests	Life of plant
Radiological and chemical records [13.7-24]	Personnel exposure records	Life of plant
	Releases to atmosphere from chimney [13.7-25]	Life of plant
	Liquid discharges to discharge flume and blowdown	Life of plant
	Meteorological reports [13.7-26]	Life of plant
	Environs monitoring report [13.7-27]	Life of plant
	Station radiation surveys [13.7-28]	Life of plant
	Radioactive material shipping and receiving [13.7-29]	Life of plant
	Source smear surveys [13.7-30]	Life of plant
	Chemical analyses	Life of plant
	Byproduct material inventory [13.7-31]	5 years

Table 13.7-1

REQUIREMENTS FOR RECORD RETENTION

	Source leak test results	5 years
	New and spent fuel inventory [13.7-32]	Life of plant
	New and spent fuel assembly histories	Life of plant
Maintenance records [13.7-33]	Substitutions	Life of plant
	Replacements	Life of plant
	Repairs [13.7-34]	Life of plant
	Lubrication [13.7-35]	Life of plant
	Instrument calibration	5 years
	Implementation of Technical Specification surveillance requirements [13.7-36]	5 years
	Maintenance of principal equipment pertaining to nuclear safety [13.7-37]	5 years
Records of facility description and evaluation [13.7-38]	Evaluations per 10 CFR 50.59 pertaining to tests and experiments	5 years
	Changes to the plant (i.e., equipment changes) as it is described in the SAR including associated Evaluations per 10 CFR 50.59 [13.7-39]	Life of plant
	Drawings (updated, corrected, and as-built) [13.7-40]	Life of plant
	Environmental Qualification [13.7-40]	Life of plant
Personnel records	Personnel qualifications, training, retraining, and experience [13.7-42]	Life of plant

Table 13.7-1

REQUIREMENTS FOR RECORD RETENTION

Record Type	Record Description	Minimum Retention Period
	Personnel status with respect to Reactor Operator's licenses [13.7-43]	Life of plant
	Company history	While on site

APPENDIX 13A – TABLE OF CONTENTS

APPENDIX 13A – TABLE OF CONTENTS

APPENDIX 13A – List of Tables

APPENDIX 13A – List of Figures

APPENDIX 13A

13A.1 INTRODUCTION

This appendix discusses training, the plant organization, and plant personnel at the time of and prior to startup. The material in this section was written at different times during the preoperational period, which is why the discussions are written in the present and future verbal tenses. All of the training was completed as described. This appendix was put in the FSAR for historical purposes at the request of the NRC.

13A.2 PREOPERATIONAL TRAINING

The preoperational training has been given for personnel as indicated in Table 13A.2-1.

13A.2.1 Fundamental Courses / or Equivalent Experience

Power Plant Steam and Mechanical Fundamentals
Power Plant Electrical Fundamentals
Introduction to Nuclear Power
Radiation Protection
Math Review

These courses were offered to new operators and those who have had these courses.

13A.2.2 Boiling Water Reactor Technology Course

The boiling water reactor technology program is a four-week course for technical personnel given by GE design engineers.

13A.2.3 Equipment Description Course

The equipment description course will be for all personnel and given in a classroom discussion type training. The training material will be adjusted for various groups relating to their interests such as fuel department, maintenance, etc.

13A.2.4 Operating Procedures Course

The operating procedures course, for all operating personnel, will consist of classroom lectures and training on the simulator and on the job.

13A.2.5 Simulator Training Course

The simulator training course, for selected operating people, will consist of a 12-week period at the GE Nuclear Power Plant Training Center. This course includes lectures, tests and over 100 hours of simulator operation.

13A.2.6 Dresden

On-the-job training and experience on Dresden Unit 1 has been proceeding since startup in 1959 and is continuing.

13A.2.7 Quad Cities Units 1 and 2 On-Site Training

This part of the program will take place during the equipment description course, preoperational testing and startup of Units 1 and 2.

TABLE 13A.2-1

QUAD CITIES UNIT 1 PERSONNEL TRAINING

TITLE	No of People	ACTIVITY F	BWRT	ED	OP	ST	OJ	OS
PLANT SUPERINTENDENT	1		X	X	X		X	
ASSISTANT SUPERINTENDENT	1		X	X	X	X	X	X
OPERATING ENGINEER	2		X	X	X	X	X	X
SHIFT ENGINEER AND TRAINING SUPERVISOR	6	X	X	X	X	X	X	X
STARTUP AND SHIFT FOREMEN	10	X	X	X	X	X	X	X
NUCLEAR STATION OPERATOR	15	X		X	X	X	X	X
EQUIPMENT OPERATOR	5	X		X	X	X	X	X
EQUIPMENT ATTENDANT	10	X		X	X		X	X
TECHNICAL STAFF SUPERVISOR	1		X	X	X	X		X
NUCLEAR ENGINEER	1		X	X	X			X
THERMAL ENGINEER	1		X	X	X			X
ASSISTANT THERMAL ENGINEER	1			X	X	X		
INSTRUMENTATION ENGINEER	1		X	X	X	X		X
RADIATION CHEMISTRY SUPERVISOR	1		X	X	X			X
MAINTENANCE ENGINEER AND MASTER MECHANIC	2		X	X	X			X
MAINTENANCE FOREMAN	3		X	X	X			X
FUEL FOREMAN	2	X	X	X	X			X
OTHER PLANT PERSONNEL		X		X			X	X

F – Fundamental Courses; **BWRT** – Boiling Water Reactor Technology Course;
ED – Equipment Description Course; **OP** – Operating Procedure Course;
ST – Simulator Training; **OJ** – On the Job BWR Training; **OS** – On-Site Training

13A.3 OPERATIONAL TRAINING

Commonwealth has continuing responsibility to provide sufficiently qualified personnel to assure safe and efficient operation of the separate units and the entire Station. Normally, a vacancy in any grade will be filled by the candidate next in line who qualifies technically and demonstrates satisfactory performance on the job. This philosophy of personnel replacement creates incentive for personnel in lower job classifications to expand their ability to perform work in higher classifications. Personnel in higher job classifications have a continuing responsibility to train men in the lower classifications.

The Operating Engineers, Shift Engineers, Shift Foremen, Technical Staff Supervisor, Training Supervisor and Maintenance Engineer have overall responsibility for the training and maintenance of proficiency of the personnel in their respective groups. This training and maintenance of proficiency will be accomplished by lectures, demonstrations and drills and on-the-job training by supervisors and foremen of the various shifts or other working groups. A rotating work schedule has been established under which each shift will normally be relieved of operating responsibilities on specified days and will devote part of this time to Unit 1 and 2 training.

13A.4 EMERGENCY DRILLS

Commonwealth Edison Company has a Generating Station Emergency Plan (GSEP) which is part of the Station's Abnormal and Emergency Procedures. Quad Cities Station will prepare emergency procedures to implement the GSEP. This plan is filed under Dresden 2/3, Dockets 50-237 and 50-249, Amendment 12/13.

13A.5 PERSONNEL

13A.5.1 Responsibilities

13A.5.1.1 Administration Position Descriptions

The Station Superintendent has the full responsibility for the operation of the station. The Superintendent's function is primarily administrative and managerial. If the Station Superintendent is unavailable or becomes incapacitated, the Assistant Superintendent assumes the Superintendent's responsibilities. The Station Superintendent is Chairman of the Station Review Board.

The Assistant Superintendent directs and is responsible for the activities of the electrical and mechanical maintenance, operating and technical groups at the station. The Assistant Superintendent will be licensed as Senior Reactor Operator. The Station Superintendent sometimes assumes the responsibilities of the Assistant Superintendent when he is unavailable. The Assistant Superintendent may delegate his responsibilities to one of the Operating Engineers. The Assistant Superintendent is a member of the Station Review Board.

The Operating Engineers are responsible for the operating, training, and instrument maintenance activities at the station. They will be licensed as Senior Reactor Operators. The Operating Engineers are responsible for the scheduling of the operators and compliance with all aspects of the Technical Specifications.

When both Operating Engineers are available, one man is assigned to be responsible for carrying out the job duties.

When one Operating Engineer is unavailable, the other assumes his responsibilities. If both Operating Engineers are unavailable, the Assistant Superintendent takes over. The Operating Engineers are members of the Station Review Board.

The Shift Engineers are responsible for the plant operation within operating limits and the Technical Specifications while they are on shift. The Shift Engineers will be licensed as Senior Reactor Operators. The duties and responsibilities of the Shift Engineers are assumed by the Shift Foreman or by another Shift Engineer if the regularly assigned Shift Engineer is unavailable. The Shift Engineer acts as Station GSEP Director during an emergency when he is the highest ranking management man on site.

The Shift Foreman has the same responsibility as the Shift Engineer when the Shift Engineer is unavailable. When the Shift Foreman is on shift with a Shift Engineer, he assists the Shift Engineer. The Shift Foreman will be licensed as a Senior Reactor Operator. When the Shift Foreman is unavailable, the Shift Engineer assumes his responsibilities or another Shift Foreman is scheduled in.

The Instrument Engineer is responsible for instrument calibration and maintenance at the station. The Instrument Engineer functions as the technical expert on all instrumentation at the station and directs the activities of the Control Systems Technicians and Instrument Mechanics. When the Instrument Engineer is unavailable, the Instrument Foreman assumes his responsibilities.

The Instrument Foreman assists the Instrument Engineer in all plant instrumentation work. The function of the Instrument Foreman is to train and direct the Control System Technicians and Instrument Mechanics as directed by the Instrument Engineer. If the Instrument Foreman is unavailable, the Instrument Engineer assumes his responsibilities.

The Maintenance Engineer is responsible for all plant maintenance except instrumentation. He is responsible for training, obtaining tools, spare parts and maintenance procedures. The Maintenance Engineer’s function is administrative and when he is unavailable, the Master Mechanic assumes his responsibilities. The Maintenance Engineer is a member of the Station Review Board.

The Master Mechanic assists the Maintenance Engineer. He is responsible for safe work practices, maintenance procedures, record keeping and training. The Master Mechanic schedules the maintenance jobs and properly places the work with the other work groups. When the Master Mechanic in unavailable, the Maintenance Engineer assumes his responsibilities. The Maintenance Foreman is responsible for directly supervising the training and work activities of the maintenance work force and maintaining records of equipment maintenance.

13A.5.1.2 Technical Staff Position Descriptions

The Technical Staff Supervisor supervises and co-ordinates the efforts of the technical staff personnel. The technical staff functions as a support group to the operating and maintenance departments. He is a member of the Station Review Board.

The Radiation Protection Supervisor functions as the technical expert on all chemical and radiation protection matters at the Station and directs the overall activities of the Foremen and Radiation Protection Men. He fills in for the Foreman if he is unavailable.

The Radiation Protection Foreman working for the Radiation Protection Supervisor directs the training and job assignments of the Radiation Protection Men. If the Radiation Protection Supervisor is unavailable, he assumes his responsibilities.

The Nuclear Engineer functions as the technical expert on all nuclear related matters at the Station and is responsible for fuel management. He has two assistants in this work that are capable of filling his position if he is unavailable.

The Thermal Engineer is responsible for the efficient operation of the plant systems and computers and works with the Nuclear Engineer to obtain maximum plant operating efficiency. He directs periodic testing of plant equipment to assure that it is operating efficiently and maintains records and reports such tests. He has two assistants that are capable of filling his position when he is unavailable.

Engineering assistants are used to assist engineers with reports, data taking, record keeping and special job assignments in support of the department’s work.

13A.5.1.3 Fuel Handling

Supervision of the fuel handling group is under the direction of the Operating Engineer who is responsible through a Fuel Handling Foreman for fuel preparation, loading, unloading, in-plant transporting and shipping.

The Fuel Handling Foreman will have a Limited Senior Operating License and is responsible for directing the training and work activities of the Fuel Handlers. Three men will be licensed as Fuel Handling Foremen such that job coverage will always be maintained.

13A.5.1.4 Training Supervisor

The Training Supervisor is responsible for the training of new operating personnel and the retraining program for all operating personnel.

In the performance of this work he schedules training, prepares course material, formulates quizzes, gives lectures and plant tours, arranges for special training lectures by other staff personnel and maintains records of each employee's training.

13A.5.2 Commonwealth Edison – General Electric Administrative Relationships

The station startup organization and interrelationships between Commonwealth Edison Company and the General Electric Company are shown in Figure 13A.5-1. Sargent and Lundy, Inc., and United Engineers and Constructors, Inc., (UE&C), are not a part of the station startup organization. One United Engineers and Constructors engineer is being used as Radioactive Waste Disposal Supervisor and his résumé is included in this appendix.

The normal Commonwealth Edison Company Operating Force will be in place prior to fuel loading. The General Electric Shift Supervisor will be assigned to shift at the same time and will be phased out at the end of the 100 hour warranty run.

13A.5.3 Qualifications

The bases used for the experience qualifications of plant operating personnel meet or exceed the requirements set forth in ANS-3 Draft Number 9, dated 7/3/69.

It should be recognized the ANS-3 Draft Number 9 addresses itself to our organization having three levels (Plant Manager, Operations Manager and Supervisors) of line management. Quad Cities has four levels of line management (Station Superintendent, Assistant Station Superintendent, Operating Engineer and Shift Engineer / Shift Foreman). The duties of the Operations Manager as conceived by Draft Number 9 are essentially similar to those of the Quad Cities Assistant Superintendent. Quad Cities Operating Engineers are in effect an additional level of supervision and our proposed personnel qualification requirements reflect this fact. In the aggregate, the Quad Cities organization, reflecting the personnel qualifications requirements set forth in the proposed Technical Specifications, will result in greater depth and experience than called for in Draft Number 9.

13A.5.3.1 Shift Personnel Qualifications (Operations)

13A.5.3.1.1 Shift Foreman

The shift foreman shall have a minimum of a high school diploma or equivalent, and four years of power plant experience of which a minimum of one year shall be nuclear power plant experience. The shift foreman is qualified to operate the Quad Cities Station reactor-turbine-generator unit. He is qualified to instruct, train and assign work to operators on their shift. He shall be licensed as a Senior Reactor Operator for both units.

13A.5.3.1.2 Nuclear Station Operators

The Nuclear Station Operators shall have education equivalent to graduation from high school. They shall have a minimum of two years of power plant experience of which a minimum of one year shall be nuclear power plant experience. He shall be qualified to startup, operate and shutdown the Quad Cities Station reactor-turbine-generator unit. The Nuclear Station Operator must have and maintain an AEC Reactor Operator's License for both units.

13A.5.3.1.3 Equipment Operator

The Equipment Operator is qualified to assist in controlling the operation of the Quad Cities Station reactor-turbine-generator units. The Equipment Operator is qualified to perform electrical operating and switching outside the main control room. The Equipment Operator shall have the ability to pass the AEC Reactor Operators license examination. His education is equivalent to graduation from high school supplemented by specialized training in power plant operation.

13A.5.3.1.4 Equipment Attendant

The Equipment Attendant is qualified to check valve line-ups, startup, shutdown, and operate all plant systems acting under approved procedures. The Equipment Attendant's education is equivalent to graduation from high school supplemented by specialized training in power plant operation. The Equipment Attendant shall have the ability to pass the AEC Reactor Operators license examination.

13A.5.3.1.5 Radiation Protection Man

The Radiation Protection Man shall be qualified to perform radiation surveys in all plant areas, to keep records of radiation levels, to service radiation protection equipment, and to perform laboratory testing work under prescribed and approved procedures. His education is equivalent to graduation from high school.

13A.5.3.2 General Electric Personnel Qualifications

13A.5.3.2.1 Lead Test Design and Analysis Engineer

13A.5.3.2.1.1 Qualification Requirements

13A.5.3.2.1.1.1 Formal Education

MS in Nuclear Engineering or Physics or advanced degree in other engineering or scientific field with demonstrated competence in reactor physics.

13A.5.3.2.1.1.2 Experience

Minimum of seven years experience in nuclear energy field with at least five years in the power reactor area. The responsibility for designing and conducting tests on nuclear power plants requires several years of experience associated with reactor operation either as direct operation, plant assistance or process development functions. Must be strong in reactor physics and thermal hydraulic fields with sufficient depth in these and one or two other areas to provide consultant level service to startup and operation personnel.

13A.5.3.2.2 Test Design and Analysis Engineer I & II

13A.5.3.2.2.1 Qualification Requirements

13A.5.3.2.2.1.1 Formal Education – (I & II)

BS or MS in Mechanical, Electrical, Chemical, Nuclear Engineering or Physics

13A.5.3.2.2.1.2 Experience – (TD&A Engineer I)

Minimum of seven years experience in nuclear energy field with at least five years in the power reactor area. Must be strong in his specialty area and with sufficient depth to provide consultant level service to startup and operating personnel. He must have a demonstrated competence in reactor nuclear and thermal hydraulic behavior.

13A.5.3.2.2.1.3 Experience (TD&A Engineer II)

Normally a minimum of three years experience in nuclear energy field beyond BS degree and at least two years in the power reactor area. Must be strong in his specialty area with sufficient depth to provide reliable soundly-based advice to startup and operating personnel. Must have a demonstrated knowledge of BWR nuclear and thermal hydraulic behavior.

13A.5.3.2.3 Automatic Control Systems Engineer

13A.5.3.2.3.1 Qualifications

13A.5.3.2.3.1.1 Formal Education

MS or BS with specialized courses in Control System and Servo-Mechanism Theory

13A.5.3.2.3.1.2 Experience

Minimum of seven years experience in Control system design and application. Must be strong in his specialty area and with sufficient depth to provide consultant level service to startup and operating personnel. He must have a demonstrated competence to work alone on a field assignment and to work with a variety of people at all levels under conditions of stress and pressure.

13A.5.4 Start-up Personnel Résumés

13A.5.4.1 General Electric Résumés

Résumés are attached for the following personnel assigned to the General Electric Company Start-Up Group:

Name	Company	Position	AEC License
Ronald H. Leasburg	GE	Operations Manager	No
Albert J. Miller	GE	Operations Supt	Yes
Denzell R. Shiflett	GE	Preop Engineer	Yes
James L. Anderson	GE	Shift Supervisor	Yes
David L. Scott	GE	Shift Supervisor	Yes
Ralph W. Cote	GE	Shift Supervisor	Yes
Dennis J. Turner	GE	Shift Supervisor	Yes
Anthony L. Vest	GE	Start-up ENGR. (Trainee)	No
William L. Selbe	GE	Plant Test ENGR. (Trainee)	No
Joseph F. Vought	UE&C	Rad Waste Supvr	No

Approximately two months prior to fuel loading, General Electric Company will assign a Lead Test, Design and Analysis Engineer to the site. At one month prior to loading, three Test Design and Analysis Engineers will be assigned. These persons are primarily responsible for the start-up test program. Résumés for these personnel are given in this section.

A Control Specialist, Recirculation, EHC, Feedwater, etc., will be assigned about one month prior to loading.

Chemical personnel will be assigned periodically to monitor plant start-up.

NAME: Ronald H. Leasburg

Quad Cities Position: General Electric Company Operations Manager

Age: 37

Formal Education: B.S. Chemistry, Youngstown University
Youngstown, OH

Related Training:

(a) "Radiation Safety in Industry", four week course conducted by Pennsylvania State Department of Labor and Industry at Midland, PA, 1960.

(b) Four month course at Shippingport Atomic Power Station, Reactor Physics, Chemistry, Health Physics, Systems, Casualty and Operating Procedures, Radioactive Waste Disposal and First Aid course conducted in summer of 1960.

(c) 120 hour review course conducted at Shippingport Atomic Power Station, Reactor Physics, Emergency Procedures, Reactor Operations and Electrical and Control Systems.

(d) January and February 1968, attended five week course in Basic BWR Theory at General Electric, San Jose, CA.

(e) February and March 1968, attended five week course at Vallecitos, General Electric, in Health Physics.

(f) March and April 1968, attended five week course at General Electric, San Jose, CA, in BWR Technology.

(g) Tsuruga Nuclear Power Station, Tsuruga, Japan, attended 120 hour review course leading to licensing exam on plant, given by General Electric Boiling Water Reactor Training Center Staff.

Experience of R.H. Leasburg

(1) July 1970 to present, General Electric Operations Manager at Quad Cities NPS.

(2) Consultant at Fukushima Nuclear Power Station, Japan, with primary responsibility to coordinate the transfer from a construction oriented to an operations oriented station.

(3) March 1969 through March 1970, Operations Superintendent at Tsuruga Nuclear Power Station, a 321 MWe BWR at Tsuruga, Japan. Responsible for the supervision of the General Electric Start-Up Organization through the Preoperational and Plant Start-up period. Completed a license exam given by the General Electric Boiling Water Reactor Training Center Personnel equivalent to the AEC Senior Level.

(4) May 1968 to March 1969, Instructor at the General Electric Company Boiling Water Reactor Training Center.

(5) January 1968 to May 1968, attended training courses at General Electric Company, San Jose, CA. Prepared Preoperational Test Procedures.

(6) June 1967 to January 1968, Efficiency Engineer at Duquesne Light Company, Shippingport Atomic Power Station. Primarily responsible for conducting training program for Operators and Supervisors leading to certification by Naval Reactors.

(7) July 1965 to January 1968, Station Operating Engineer, Duquesne Light Company, Shippingport Atomic Power Station. Responsible for shift operation of the station. This position required certification as “Supervisor-in-charge” by Naval Reactors.

(8) January 1963 to July 1965, Reactor Engineer, Duquesne Light Company, Shippingport Atomic Power Station. Responsible to the Station Operating Engineer for the safe operation of the reactor. Responsible for conducting all reactor testing. This position required certification as “Supervisor-in-charge” by Naval Reactors.

EXPERIENCE (Cont'd)

(9) June 1962 to January 1963, Radioactive Waste Disposal Foreman, Duquesne Light Company, Shippingport Atomic Power Station. Responsible for Operation of the Waste Disposal Plant and controlling the release of radioactive effluents to the environment.

(10) May 1960 to June 1962, Radiation Control Foreman, Duquesne Light Company, Shippingport Atomic Power Station. Responsible for the Plant Radiation Safety Program. During this period, two refueling operations occurred. Set up emergency procedures with local fire, civil defense and hospital officials. Conducted a four week training program at a local hospital for doctors and nurses in Radiation Safety and Contamination Control.

(11) September 1956 to May 1960, Reactor Control Chemist, Duquesne Light Company, Shippingport Atomic Power Station; routine secondary plant chemistry control and reactor plant analysis. Developed new procedures for isotope separations. Prescribed chemical additions for control purposes.

NAME: Albert J. Miller

Quad Cities Position: General Electric Company Operation Superintendent

Age: 36

Formal Education: B.S. Physics – June 1961
Rensselaer Polytechnic Institute
Nuclear Engineering Graduate Work – 26 Hours

EXPERIENCE OF A. J. MILLER

August 1969 to Present

General Electric Company, Atomic Power Equipment Department, Cordova, IL.
Hold position of Operations Superintendent at the Quad Cities Facility. Responsible for day-to-day plant operations and detailed planning and scheduling of start-up activities. Wrote several of the nuclear systems pre-operational tests and scheduled the pre-operational test and program for this facility.

November 1968 to August 1969

General Electric Company, APED, Morris, IL.
Instructor at BWRTC. As classroom instructor, gave lectures on systems theory and construction and the basic sciences necessary to understand plant operation. As control room instructor, taught the details of all phases of plant operation, including normal start-up and shutdown, emergency procedures and plant responses to induced transients.

August 1968 to November 1968

General Electric Company, APED, Morris, IL.
Participated in and successfully completed the standard twelve-week operators training course at the BWRTC. Passed certification test on Dresden II simulator.

November 1967 to August 1968

Participated in Pressure Vessel Head Refurbishment; Engine Room Component repair, replacement and subsequent test; Acceptance Test Program; Joint Test Group.

EXPERIENCE (Cont'd)

February 1996 to November 1967

General Electric Company, KAPL, West Milton, NY.
Plant Engineer on DIG, the U.S.S. Bainbridge prototype at West Milton, NY. This required certification as Engineering Officer of the Watch by Naval Reactors. The Plant Engineer is responsible on shift for all phases of plant operation and the training of all Naval Personnel assigned to his shift. The training of Naval personnel included lectures on plant operation consulting and outlining remedial programs for slow students and serving as chairman on oral qualification boards.

February 1965 to February 1966

General Electric Company, KAPL, West Milton, NY.
Operations Engineer on the DIG Plant at West Milton. The Operations Engineer assists the Plant Engineer in all phases of plant operation. In thirty-three months as a qualified Engineering Officer of the Watch (8/64 – 11/67) I directly supervised, on the average, at least two complete reactor and steam plant start-ups and shutdowns per week.

August 1964 to February 1965

General Electric Company, KAPL, West Milton, NY.
Participated in and successfully completed the six month Engineering Officer of the Watch training program at the DIG prototype located at West Milton, NY.

EXPERIENCE (Cont'd)

June 1962 to August 1964

General Electric Company, KAPL, Wets Milton, NY.
Assigned as a physicist in the DIG Nuclear Test and Analysis group. Responsibilities consisted of carrying out the physics test programs on the DIG Reactor and giving periodic basic comprehensive physics lectures to the Naval Officers in the qualification program. The physics tests consisted of writing, performing, data reduction and subsequent report preparation. This involved extensive work on the IBM 1620 computer.

NAME: Denzell R. Shiflett

Quad Cities Position: General Electric Company Plant Test Engineer

Age: 34

Formal Education: B.S. Chemical Engineering
University of Idaho, June 1963

Previous License No. SOP-1214 Expires July 31, 1971

Currently hold License No. SOP-1214 Docket No. 55-3079

Experience of D. R. Shiflett

August 1970 to Present

General Electric Company, Atomic Power Equipment Department, Cordova, IL.
Assigned as Preoperational Test Engineer at the Quad Cities facility. Primarily responsible for preparation and direction of all preoperational test activities and initial activation and testing of systems. Also participating in general Start-up activities and operations.

August 1968 to August 1970

General Electric Company, APED, Morris, IL.
Participated in the preparation of preoperational test procedures, direction and operation of plant systems and general pre-start-up activities. Licensed as a Senior Operator on the Dresden Unit II Facility. As a licensed operator, participated in initial fuel loading and all start-up and power testing activities as a Shift Superintendent.

EXPERIENCE (Cont'd)

June 1968 to August 1968

General Electric Company, APED, Morris, IL.
Participated in standard twelve-week operators training course at the General Electric Boiling Water Reactor Training Center. Passed certification tests on the Dresden II simulator.

April 1966 to June 1968

Westinghouse Electric Company, Naval Reactors Facility, Idaho Falls, ID.
Plant Operations Crew Supervisor with shift-wide responsibility for reactor and plant operations, coordination of physics testing and training of Naval and Westinghouse personnel in the operation and maintenance of the nuclear plant and propulsion systems. Directly responsible for operating duties, including start-up checkout, console operation during start-up, on-line operation and shutdown and scram recoveries.

August 1965 to April 1966

Westinghouse Electric Company, Naval Reactors Facility, Idaho Falls, ID.
In training on the nuclear plant and auxiliary, associated systems on the A1W prototype reactors. Passed Naval Qualification Tests as Nuclear Plant Engineer and Engineering Officer of the Watch on the A1W plants.

NAME: James L. Anderson

Quad Cities Position: General Electric Company Plant Test Engineer

Age: 43

Formal Education:

(a) Two years toward a degree in Chemistry at Southwest Missouri State College.

(b) Two semesters of Mathematics; two semesters Personnel Management; two semesters Business Law (Night courses for credit) at Washington State College.

(c) Four quarters (night courses) Nuclear Physics of Reactor Operators University of California credit

Previous License Numbers: 550-1, 550-2 and 550-3
Docket Number: 55-527
Expired Date: 7/25/67

License Numbers: 50-183 and SOP 470 and SOP 470-1
Expired Date 4/6/68

Currently hold License Number: ___*___ Docket Number 55-527

*(Telephone conversation from AEC Licensing Branch that I had passed the Senior License Examination for Dresden II Station while acting as an instructor at the BWR Training Center near Dresden. I have not received the formal license as yet. The exam was given during the week of September 21, 1970).

EXPERIENCE OF J.L. ANDERSON

October 1970 to Present

General Electric Company Atomic Power Equipment Department, APED, Cordova, IL., as a Plant Test Engineer at the Quad Cities Nuclear Power Station. Participating in preoperational test activity.

September 1969 to October 1970

General Electric Company, APED, Morris, IL.
Participated in standard twelve-week course at the BWR Training Center and passed the certification tests at the operator and senior level. Acted as lead instructor at the training center through October 2, 1970. Took formal AEC Operator and Senior Exam on Dresden II Reactor during week of September 21, 1970. Per phone conversation, passed both exams.

March 1967 through August 1969

General Electric Company, APED, c/o International General Electric Company in Bombay, India, as a Plant Test Engineer and Shift Supervisor on Units I and II on the Tarapur Atomic Power Station. Participated in the final construction, construction testing, preoperational testing, start-up and operation through turnover to the customer.

1963 to 1967

General Electric Company, Vallecitos. I was a Senior Operator on the EVESR for the start-up to completion of the reactor operation.

1958 to 1963

General Electric Company, Vallecitos. I was a lead operator at the GETR for the initial start-up and first four years of operation. I was qualified on all experiments and test loops.

EXPERIENCE (Cont'd)

1949 to 1958

General Electric Company at Richland, WA.
I was radiation monitor for time spent at Hanford. I worked Research Labs, separation plants and Hanford Reactor areas. I participated in start-up of two separation plants and one reactor.

NAME: D.L. Scott

Quad Cities Position: General Electric Company Plant Test Engineer

Age: 44

Formal Education: High School
Ninety Six High School
Ninety Six, SC

Previous License Number: OP-1502 Expired: May 10, 1965

Docket Number: 55-1412

EXPERIENCE OF D.L. SCOTT

November 1969 to Present

General Electric Company, Atomic Power Equipment Department, Cordova, IL.
Assigned as Plant Test Engineer. Participate in preparation of preoperational test procedures, direction and operation of plant systems and general pre start-up activities.

July 1970 to September 1970

General Electric Company, APED, Morris, IL.
Participated in standard twelve-week operators training course at the General Electric Boiling Water Reactor Training Center. Passed Senior Operators Certification Test on the Dresden II simulator.

October 1968 to November 1969

General Electric Company, APED, San Jose, CA.
Assigned as Plant Test Engineer. Participated in the preparation of preoperational tests for various plants including Quad Cities Nuclear Power Station, Unit I.

EXPERIENCE (Cont'd)

September 1963 to October 1968

Westinghouse Electric Corporation, Astronuclear Division.
Assigned as a Test Engineer to Test Planning Group at Jackass Flats, NV in the NERVA Project. Participated in the preparation of experimental plans for the NERVA nuclear rocket engine. Also took part in preliminary data reduction and evaluation of data obtained during the conduct of tests.

July 1961 to September 1963

Carolinas-Virginia Nuclear Power Associates, Columbia, SC.
Assigned as a reactor technician. Participated in preparation of plant test procedures including construction tests. Prepared normal and emergency operating procedures. Received Operators License #OP-1502.

March 1954 to July 1961

General Electric Company, Hanford Atomic Products Operation, Richland, WA.
Assigned to Physics and Instrumentation Research and Development group where my duties were reactor technician at the Physical Constants Test Reactor and Thermal Test Reactor.

NAME: Ralph W. Cote

Quad Cities Position: General Electric Company Plant Test Engineer

Age: 44

Formal Education: B.S. Mining Engineering
New Mexico Institute of Mining and Technology, 1952

Previous License Number: SOP 534 Expired: Original Exp. 7/6/66
Renewal Exp. 7/6/68

EXPERIENCE OF RALPH W. COTE

HPCI & RCIC	One Hour
Standby Liquid Control	One Hour
Residual Heat Removal	One Hour
Auto Blowdown	One Hour
Core Spray	One Hour
Reactor Protection System	One Hour
10CFR20	One Hour
Shielding	One Hour
Off-Gas System	One Hour
Standby Gas Treatment	One Hour
Radwaste	Two Hours
Reactor Physics	Four Hours
Fuel, Control Rod and Core Design	One Hour
MCHFR, Peaking Factors and Thermo-Hydraulics	One Hour
Fuel Loading Procedures, Including Initial Fuel Loading	One Hour
Normal and Special Nuclear Detectors and Sources	One Hour
Shutdown Margin, Fuel Loading Checks, Expected Instrument Response During Loading	One Hour
Lecture on Dresden II Blowdown Incident	Two Hours
Recirculation System Flow Control	One Hour
Reactor Water Level Control	One Hour
Reactor Instrumentation	One Hour
Rod Block Monitor and Rod Worth Minimizer	One Hour
Electro-Hydraulic Pressure Control	Two Hours
Neutron detectors	Two Hours
4160V – 480V Power Distribution	Two Hours
120/240V DC and Emergency Power	Two Hours
Containment Group Isolation	Two Hours
Process and Area Radiation Monitors	Two Hours
Thermal Hydraulic Limits	Two Hours
Design Basis Accidents	One Hour
Site Emergency Plan	One Hour
Technical Specifications	Fourteen Hours
Total	Fifty-Seven Hours

BWR Training Center – Control Room Operation Five Days

EXPERIENCE (Cont'd)

April 1970 to September 1970

General Electric Company, APED, Tsuruga, Japan.
Assigned as Nuclear Operations Technical Advisor to Japan Atomic Power Company JAPC-II BWR, a 357 MWe unit. Acted as Nuclear Operations and Maintenance Consultant to the Customer, monitoring the day-to-day operation and recommending changes and improvements. Occupied the Control Room during start-ups and shutdowns to aid, assist and advise as necessary.

September 1969 to April 1970

General Electric Company, APED, Tsuruga, Japan. Assigned to Plant Test Engineer, Day-Shift Superintendent at the JAPC-II facility. Participated in the preparation of test procedures, pre-op tests, initial activation and operation of systems and general plant start-up activities. Directly supervised initial fuel loading from both the Control Room and the refueling floor alternately.

Directly supervised the initial criticality pulls and the initial critical. Directly supervised or assisted in approximately 90% of the start-up tests, participating in approximately 50 start-ups and shutdowns. Present in the Control Room, directly supervising or assisting, during approximately 1200 hours of reactor operation.

EXPERIENCE (Cont'd)

April 1967 to September 1969

General Electric Company, APED, Tarapur, India, 434 MWe BWR Station.
Assigned as Plant Test Engineer, Shift Superintendent at the Tarapur facility, Units 1 and 2. Participated in preparation of system flushing and chemical cleaning procedures and operations, preparation of test procedures, conducting construction testing, per-op testing, initial activation and operation of systems and general plant pre-start-up and start-up activities. Acted as Lead Shift Superintendent with a second General Electric Shift Superintendent to assist in this two-unit plant. All comments herein refer to both units. Participated in training sessions and passed AEC equivalent Certification Tests on the Tarapur facility. Directly supervised initial fuel loading from both the Control Room and the refueling floor alternately on both reactors. Directly supervised the initial criticality pulls and supervised or assisted in approximately 50% of the start-up tests for each unit, usually different tests on each unit. Participated in approximately 100 start-ups and shutdowns, many time (about 100 hours) personally manipulating the controls. Directly supervised both units concurrently from the common Control Room during approximately 2000 hours of reactor operation (1000 hours each unit).

EXPERIENCE (Cont'd)

June 1966 to April 1967

General Electric Company, Vallecitos Nuclear Center, CA.
Assigned as Manager of Maintenance at the ESADA Vallecitos Experimental Super Heat Reactor (EVESR). Duties included direct responsibility for all reactor and turbine plant maintenance; mechanical, electrical and instrumentation. Upon retirement of the Plant in January 1967, responsible for all shutdown activities and planning, including fuel shipping and disposal, plant operations and lay-up.

January 1964 to June 1966

General Electric Company, Vallecitos Nuclear Center, CA.
Assigned as Shift Superintendent at the General Electric Test Reactor (GETR) with shift-wide responsibility for reactor plant operation during start-up, operation, scram recoveries and shutdown. Participated in classroom training covering all phases of reactor operation and radiation protection. Passed AEC Senior Operator's License Exam in 1964 and obtained a renewal in 1966. Participated in approximately 80 start-ups and shutdowns during approximately 4000 hours of reactor operation, during which time I often personally manipulated the reactor controls.

October 1963 to January 1964

General Electric Company, Vallecitos Nuclear Center, CA.
Assigned as Supervisor in training for AEC Senior Operator License on Vallecitos Boiling Water Reactor Plant (VBWR) . Participated in reactor refueling, start-up, operation, scram recovery and shutdown, and many training sessions. Unfortunately, the reactor was retired prior to my having an opportunity to apply for the AEC Senior Operators License.

EXPERIENCE (Cont'd)

August 1961 to October 1963

General Electric Company, Richland, WA.
Assigned as Shift Supervisor at the KW Plutonium Production Reactor at Hanford Works with shift-wide responsibility for reactor refueling, start-up, operation, scram recovery and shutdown. Participated in many hours of classroom instruction on the job. Completed a Reactor Operators Refresher Course and personally manipulated the controls many times during all conceivable conditions.

May 1961 to August 1961

General Electric Company, Richland, WA.
Assigned as Supervisor in training at the KW Production reactor. Participated the entire time in training on the job and in classroom instruction. Participated in reactor refueling, start-up, operation, scram recovery and shutdown during which time I personally manipulated the reactor controls.

December 1960 to May 1961

General Electric Company, Richland, WA.
Assigned as refueling Crew Supervisor with responsibility for supervision of one shift of the refueling crew. As such, participated in refueling activities at B, C, D, DR, H, F, KE and KW Plutonium Production Reactors. In this capacity, I was fortunate to have the opportunity to observe numerous start-ups at each one of the above reactors.

August 1960 to December 1960

General Electric Company, Richland, WA.
Assigned as Construction Inspector during construction of the new Production Reactor (N Reactor) – Hanford, while awaiting AEC "Q" Clearance.

EXPERIENCE (Cont'd)

June 1952 to August 1960

The Bunker Hill Company, Kellogg, ID., the Union Carbide Company, Grand Junction, CO. and the American Smelting and Refining Company, Wallace, ID.
During this period, worked at various underground mines in the Western U.S., including lead, zinc and uranium mines. Eventually attained the position of General Mine Foreman with the Bunker Hill Company, with direct responsibility for exploration, production, ventilation, transportation, etc., of about one-third of the largest underground lead-zinc mine in the world. Directly supervised Assistant Mine Foreman, Shift Bosses, Engineers and Geologists, with responsibility for approximately 200 men.

NAME: Dennis J. Turner

Quad Cities Position: General Electric Company Plant Test Manager

Age: 28

Formal Education: B.S. Mechanical Engineering
California Maritime Academy, July 1965

Previous License Number: OP-2244 Expired: 5/19/69

EXPERIENCE OF D. J. TURNER

July 1970 to Present

General Electric Company, Atomic Power Equipment Department, Cordova, IL.
Assigned as Plant Test Engineer at Quad Cities I Facility. Participating in preparation of test procedures, initial activation and testing of systems and general pre-start-up activities. Attending a 180 hour BWR-Technology course at plant site. Attended BWR Simulator School at Morris, IL for two weeks reviewing reactor physics and control room operators.

April 1969 to July 1970

Ingalls Ship Building Corporation, Nuclear Power Department, Division of Litton Industries, Pascagoula, MS.
Assigned as Nuclear Engineer and Nuclear Test Engineer on United States Navy's SS (N) 637 Class Attack Submarines (S5W Nuclear Power Plant). Participated in all phases of construction and testing of submarine nuclear power plants.

EXPERIENCE (Cont'd)

September11, 1966 to April 1969

"NS SAVANNAH" First Atomic Ship Transport, Inc., American Export-Isbrandtsen Lines, Hoboken, NJ.
Attended Nuclear Power Training Classes at U.S. Merchant Marine Academy from 9/11/66 until 2/10/67. Assigned to "NS SAVANNAH" as trainee on 2/10/67 and was licensed as a Reactor Operator on May 19, 1967 (License No. OP-2244, Docket No. 55-2616, "NS SAVANNAH", Facility License No. NS-1). I sailed on "NS SAVANNAH" until April 1969 and participated in refueling outage in Galveston, TX in August of 1968.

NAME: Anthony L. Vest

Quad Cities Position: General Electric Company
GE Start-Up Engineer

Age: 23

Formal Education: B.S. Mechanical Engineering
University of Tennessee
Knoxville, TN

Related Training: GE / BWR Lecture Series; I&SE Field Engineering Program

Nuclear Experience: Tech. Director at Brown's Ferry Nuclear Plant (TVA); Nuclear Requisition Engineer for Brown's Ferry Nuclear Plant (TVA); Pre-op Test Engineer at Quad Cities Nuclear Plant (CECo)

Non-Nuclear Experience: Large steam turbine maintenance and inspection at Gorgas, Atlanta; Gas Turbine installation at Gladeville, TN

NAME: William Leigh Selbe

Quad Cities Position: General Electric Company Plant Test Engineer

Age: 26

Formal Education:	B.S. Nuclear Engineering Kansas State University
Related Training:	Elements of Nuclear Engineering #1 (General Electric course – San Jose)
Nuclear Experience:	Limited to Triga Mark III Swimming Pool Reactor at Kansas State University used for standby and experiments and subcritical pile; also at KSU used for standby and experiments.

Non-Nuclear Experience: Worked at Monticello Nuclear Generating Plant from June 1967 to July 1968 as Assistant Construction Engineer mainly in the mechanical field, with some experience in the civil portions. Involved reviewing plant status in relationship to schedules and assuring conformity with plant specifications.

Worked in San Jose as Liaison Engineer between GE and Bechtel from July 1968 to September 1969. Involved reviewing A.E. documents to assure conformity with plant specifications, conformity with contract, and completeness. Mainly these documents were construction tests and preop tests.

Worked in San Jose from September 1969 to January 1970 as Plant Test Engineer writing preoperational test procedures.

EXPERIENCE (Cont'd)

Worked at Monticello Nuclear Generating Plant as Plant Test Engineer from January 1970 to May 1970 directing the Control Rod Drive Hydraulic Preoperational Test.

Worked at Nuclenor Nuclear Generating Plant as Plant Test Engineer from June 1970 to October 1970 directing the Control Rod Drive Hydraulic and Control Rod Drive Manual Control Preoperational Tests.

NAME: Joseph F. Vought

Quad Cities Position: United Engineers & Constructors Start-Up Engineer

Age: 28

Formal Education:	Three Semesters College University of Florida
Related Training:	Naval Nuclear Power School; two years Instructor at NRF, Idaho
Nuclear Experience:	Approximately six years Reactor Operator; approximately two years Machinery Watch Supervisor. Instructor and Lead Reactor Operator at NRF Idaho. Approximately six months start-up Dresden; approximately one year start-up Quad Cities.
AEC or related Nuclear Licenses:	3353 Reactor Operator (NR) Machinery Watch Supervisor (NR)

LEAD STD&A ENGINEER

NAME: Eric J. Dean

BIRTHDATE: March 27, 1941

EDUCATION:	Degree	Institution	Year
	B.S. of Engineering Physics	Cornell University	1963

EXPERIENCE:

1963-1965: Westinghouse Electric Company, Astronuclear Division, Pittsburgh, PA

Worked on design of NERVA Reactor, both Nuclear and thermo-hydraulic design of reactor core. Also worked on the design and testing of computer codes for use in core design.

1965-1967: Westinghouse Electric Company, Astronuclear Division, Jackass Flats, Nevada

Worked on the design of pre-operational and power tests for NERVA Reactor and performed analysis of test results. Also worked on test instrumentation and design of real time computer codes for data reduction.

Jan 1968-1971 General Electric Company, APED, in test design and Analysis Unit.

1968: Prepared Start-up Test Calculations and Instructions, participated in design and testing of process computer.

EXPERIENCE (Cont'd)

1969 at Tarapur Station for start-up of two units as TD&A Shift Engineer.

1969-1970 at Tsuruga Station for start-up as TD&A Shift Engineer and returned for Stretch Testing in the position of a Lead Engineer.

1970-1971: Prepared Start-up Test Specifications, Calculations and Instructions. Taught course for Customer Station Nuclear Engineers. Continued testing of process computer.

TD&A Engineer

NAME: William N. Melver

BIRTHDATE: 1941

EDUCATION:

Degree	Institution	Year
B.S. Mechanical Engineering	University of Texas at El Paso,	1966
M.S. Mechanical Engineering	University of Texas at El Paso,	1970

EXPERIENCE:

1966-1969: Knolls Atomic Power Laboratory. As an engineer in Thermal and Hydraulic Analysis, performed extensive work in thermal design of primary coolant system of Naval reactors; designed tests in the hydraulic test and development area of these reactors.

1969-1970: University of Texas at El Paso; Teaching Assistant in Mechanical Engineering Department.

1970 – Present: General Electric Company, APED. Engineer in the Test Design and Analysis Unit. Prepared Specifications and Instructions and performed Analysis in preparation for several GE-BWRs.

TD&A Engineer

NAME: Daniel Mangan

BIRTHDATE: October 23, 1935

EDUCATION:	Degree	Institution	Year
	B.S. Math and Physics	Glasgow University,	1958
	M.S. Physics	Washington State University	1963

EXPERIENCE:

1958-1960: UKAEA – Reactor physics work on Calder Hall and AGR type reactors.

1958-1959: Attended Harwell Reactor School.

1960-1962: Canadian General Electric – worked in physics of organic cooled H_20 moderated reactors. (See OTR design report).

1963-1967: General Atomics – Physics Design and Methods Development work on HTGR reactors.

1967-1969: Westinghouse – Astronuclear Laboratory – Design of NERVA (R-1) and critical facility testing of R-1 Mock-up.

September 1969 – General Electric Company, APED, Joined Test Design and Analysis to present Unit. Prepared startup test procedures and performing startup pre-analyses. Participated in reactor simulator training course. Currently at the Millstone site as TD&A Engineer. Planned participation at Nuclenor site prior to assignment at QC-1.

TD&A Engineer

NAME: James H. Cox, Jr.

BIRTHDATE: July 16, 1935

EDUCATION:	Degree	Institution	Year
	B.S. Chemical Engineering	Gonzaga University	1961
	M.S. Nuclear Engineering	University of Washington	1967

EXPERIENCE:

1961-1964: General Electric Company, Hanford – Participated in various inreactor experiments including analysis of data and reporting of conclusions and recommendations.

1964 – June 1970: Batelle – Northwest: Investigated the property changes of graphite due to exposure to neutron irradiation and published the results of these investigations. Responsible for the program to establish the Fast Flux Test Facility surveillance and in-service inspection systems. Included in this program were the determination of requirements and methods and the direction of appropriate development programs.

June 1970 – Present: GE-APED – In the test Design and Analysis unit prepared GE-BWR Startup Test Specifications and Instructions. Currently at Monticello site.

Automatic Control Systems Engineer

NAME: Brian F. Corcoran

BIRTHDATE: July 27, 1938

EDUCATION:	Degree	Institution	Year
	B.S. Aeronautical Engr	Rensselaer Polytechnic	1960
	M.S. Mechanical Engr	University of Washington	1969

EXPERIENCE:

1960-1970: The Boeing Company, Seattle, WA. As a control systems engineer was responsible for the application of various computer techniques to the study of aircraft control. Was involved in the study of many types of electronic and hydraulic hardware in test laboratories.

1970 – Present: General Electric, APED – Worked in the Test Design and Analysis Unit as a Control Systems Specialist. In the position, participated in the development of the standard test instructions for control system testing. Responsible for the development and assembly of special electronic test hardware. Currently at the Monticello site as Automatic Control Systems Engineer.

13A.5.4.2 Commonwealth Edison Resumes

PERSONAL BACKGROUND RESUME

NAME: Reginald C. Basham

BIRTHDATE & PLACE: June 1, 1936
Lockport, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Laboratory Foreman – Quad Cities Station

TRAINING: Similar to Rad-Chem. Supervisor SAR Volume II 13.2

U.S.P.H.S. COURSES

Basic Radiological Health
Occupational Radiation Protection
Radionuclide Analysis by Gamma Spectroscopy

EXPERIENCE:

9/1970 – Present: Laboratory Foreman Responsible for the direct supervision of the radiation protection personnel.

5/1969 – 9/1970: Engineering Assistant – Quad Cities Station - assisted in the work function of the engineers in the technical staff.

EXPERIENCE (Cont'd)

7/1962 – 5/1969	Radiation Protection Man – Dresden Station
8/1959 – 7/1962	Laboratory Man – Dresden Station
9/1956 – 8/1955	Operating – Joliet Station

PERSONAL BACKGROUND RÉSUMÉ

NAME: Henry T. Berg

BIRTHDATE & PLACE: November 9, 1922
Chicago, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Fuel Handling Foreman

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

7/1970 – Present: Fuel Handling Foreman – Quad Cities Station
Responsible for direct supervision of the movement of new and spent fuel on the site.

6/1969 – 7/1970: Control Operator
In training for Nuclear Station Operator

1/1949 – 6/1969: Various Operating jobs at Fisk and Ridgeland Stations, including Control Room operations.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Reino O. Bergstrom

BIRTHDATE & PLACE: July 23, 1916
Chicago, Illinois

COLLEGE: None

DEGREE: None
AEC License –Dresden Station: RO for Unit 1 Year: 1960

PRESENT ASSIGNMENT: Training Supervisor

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

4/70 to Present:	Training Supervisor – Quad Cities Station Responsible for training operating personnel at Quad Cities Station.
12/69 – 4/70:	Shift Engineer In charge and responsible for an assigned work shift and shift personnel training.
3/66 – 12/67:	Shift Foreman – Kincaid Station Responsible and in charge in the absence of the Shift Engineer of the station operation during an assigned work shift.

EXPERIENCE (Cont'd)

10/61 – 3/66:	Licensed Operator – Dresden Station
3/39 – 10-61:	Operating, including Control Room operation at Northwest and Ridgeland Stations.
1/35 – 3/39:	Commonwealth Edison Company Division Office

PERSONAL BACKGROUND RÉSUMÉ

NAME: W. Robert Blythe

BIRTHDATE & PLACE: May 6, 1929
Eureka, Pennsylvania

COLLEGE: Associate Degree in Science from Rockford College in 1966.

DEGREE: Associate Degree

PRESENT ASSIGNMENT: Shift Engineer – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

12/67 to Present:	Shift Engineer – Quad Cities Station In charge and responsible for an assigned work shift and shift personnel training.
2/62 – 12/67:	Shift Supervisor - Sabrooke Station Responsible and in charge of the station during an assigned work shift.
7/47 – 2/62:	Operating – Fordam Station

PERSONAL BACKGROUND RÉSUMÉ

NAME: Ralph W. Bohn

BIRTHDATE & PLACE: August 6, 1920
Lee Center, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating Fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed)* - Quad Cities Station.
Operating in Control Room on shift since 11/4/69.

10/45 – 6/69: Operating jobs, including Turbine Operator at Dixon Station.

*He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Boyd W. Brickman

BIRTHDATE & PLACE: July 14, 1925
Joliet, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed*) – Quad Cities Station
Operating in Control Room on shift since 11/4/69.

11/45 to 6/69: Operating, including switchboard operation – Will County and Joliet Stations.

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Glenn E. Conschack

BIRTHDATE & PLACE: November 27, 1925
Dwight, Illinois

COLLEGE: None

DEGREE: None
AEC License – Dresden Station: RO for Unit 1 Year: 1960

PRESENT ASSIGNMENT: Shift Engineer – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

12/67 to Present:	Shift Engineer - Quad Cities Station In charge and responsible for an assigned work shift and shift personnel training.
3/64 to 12/67:	Shift Engineer and Shift Foreman – Joliet Station
3/59 to 3/64:	Licensed Operator – Dresden Station
4/47 to 3/59:	Operating – Joliet Station

PERSONAL BACKGROUND RÉSUMÉ

NAME: Joseph R. Cygan

BIRTHDATE & PLACE: January 23, 1930
Chicago, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed*) – Quad Cities Station
Operating in the Control Room on shift since 11/4/69.

7/52 to 6/65: Operating – Will County and Fisk Stations.

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Tulon F. Davis

BIRTHDATE & PLACE: March 15, 1929
Poplar Creek, Mississippi

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Shift Foreman – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

5/70 to Present:	Shift Foreman – Quad Cities Station Responsible and in charge in the absence of the Shift Engineer for the station during an assigned work shift.
6/69 to 5/70:	Operating – Quad Cities Station Operating in the Control Room on shift since 11/4/69.
6/51 to 6/69:	Operating, including Control Room operations – Waukegan Station and Kincaid Station.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Gus J. Demos

BIRTHDATE & PLACE: December 18, 1920
Chicago, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed)* - Quad Cities Station
Operating in the Control Room on shift since 11/4/69.

11/50 – 6/69: Operating – Ridgeland and Fisk Stations.

* He will receive this title when he receives his AEC Operating License for Unit 1

PERSONAL BACKGROUND RÉSUMÉ

NAME: Irwin Frishkorn

BIRTHDATE & PLACE: December 13, 1924
Chicago, Illinois

COLLEGE: None

DEGREE: None
AEC License – Dresden Station: RO for Unit 1 Year: 1960

PRESENT ASSIGNMENT: Shift Engineer – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

4/70 to Present:	Shift Engineer – Quad Cities Station In charge and responsible for an assigned work shift and shift personnel training.
12/67 to 4/70:	Shift Foreman – Quad Cities Station Responsible and in charge in the absence of Shift Engineer for the station during an assigned work shift.
8/59 to 12/67:	Operating – Licensed Operator – Dresden Station.
9/42 to 8/59:	Operating – Calumet Station

PERSONAL BACKGROUND RÉSUMÉ

NAME: Harold E. Gnoske

BIRTHDATE & PLACE: April 6, 1931
Chicago, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed)* - Quad Cities Station
Operating in the Control Room on shift since 11/4/69.

11/52 to 6/69: Operating – Waukegan Station

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Kenneth L. Graesser

BIRTHDATE & PLACE: August 11, 1938
Moline, Illinois

COLLEGE: Michigan College Mining & Tech

DEGREE: BSME Year: 1960
Professional Engineering License, State of Illinois – 1965

PRESENT ASSIGNMENT: Master Mechanic – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

4/69 to Present:	Master Mechanic Supervise the activities of the Maintenance Department, both Electrical and Mechanical.
8/64 to 4/69:	Mechanical Engineer – Sabrooke Station Supervised Maintenance Department
6/60 to 8/64:	Assistant Engineer – Engineering Department Worked on miscellaneous mechanical engineering project.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Anthony A. Griffiths

BIRTHDATE & PLACE: June 21, 1926
Berwyn, Illinois

COLLEGE: Three semester hours, Illinois Institute of Technology

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed)* - Quad Cities Station
Operating in the Control Room on shift since 11/4/69

5/51 to 6/69: Operating – Ridgeland and Will County Stations.

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: John F. Gudac

BIRTHDATE & PLACE: August 20, 1933
Joliet, Illinois

COLLEGE: University of Notre Dame

DEGREE: BSME

PRESENT ASSIGNMENT: Tech Staff Supervisor

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

4/70 to Present: Tech Staff Supervisor – Quad Cities Station
Responsible for nuclear engineering, thermal and mechanical engineering, radiation protection and surveillance, chemical surveillance and other engineering matters.

12/67 to 4/70: Shift Engineer
In charge and responsible for operation and training on an assigned work shift.

11/63 to 12/67: Engineer-Tech Staff – Joliet Station
Supervised the instrument mechanics on U 1-6 side.
Performed equipment efficiency tests.

EXPERIENCE (Cont'd)

4/63 to 11/63:	Engineer-Tech Staff – Ridgeland Station Participated in performance tests on boiler, turbines and other auxiliary equipment.
3/59 to 4/63:	Engineer-Tech Staff – Dresden Station Participated in performance tests on the turbines, feedwater heater and other auxiliary equipment. Participated in the original fuel loading of Dresden Unit 1 core. Followed the fuel inspection on all new fuel received at the site.
2/56 to 3/59:	Engineer – Company Training Program Brief assignments in various company departments.

PERSONAL BACKGROUND RÉSUMÉ

NAME: George R. Hacke

BIRTHDATE & PLACE: April 5, 1932
Joliet, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed)* - Quad Cities Station
Operating in the Control Room on shift since 11/4/69.

5/53 to 6/69: Operating, including position of Boiler Operation – Joliet Station

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: John B. Heilman, Jr.

BIRTHDATE & PLACE: June 4, 1928
McKeesport, Pennsylvania

COLLEGE: Purdue University

DEGREE: BSME

PRESENT ASSIGNMENT: Operating Engineer – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

12/67 to Present:	Operating Engineer – Quad Cities Station Supervise and be responsible for operation of all the station's mechanical and electrical equipment.
8/67 to 12/67:	Station Efficiency Engineer – State Line Station Supervised the activities of the efficiency department.
2/66 to 8/67:	Assistant Operating Engineer – Mechanical – State Line Station Assisted the Operating Engineer in the supervision of the operation of all the station's mechanical equipment.

EXPERIENCE (Cont'd)

3/65 to 2/66:	Shift Engineer and Shift Foreman – State Line Station In charge and responsible for station during an assigned work shift.
11/63 to 3/65:	Engineer – State Line Station Participated in performance tests on the boiler, turbine and other auxiliary equipment.
3/59 to 11/63:	Engineer – Fisk Station Participated in performance tests on the boiler, turbines and other auxiliary equipment.
6/58 to 3/59:	Generating Station Efficiency Staff Performed heat rate checks on the turbines.
9/57 to 6/58:	Engineer – Company Training Program Brief assignments in various company departments.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Donald W. Hoffman

BIRTHDATE & PLACE: April 6, 1923
Chicago, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present:	Nuclear Station Operator (proposed)* - Quad Cities Station Operating in the Control Room on shift since 11/4/69.
1/49 to 6/69:	Operating, including Control Operator position – Crawford Station

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Robert L. Holman

BIRTHDATE & PLACE: April 7, 1939
Bad Axe, Michigan

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present:	Nuclear Station Operator (proposed)* - Quad Cities Station Operating in the Control Room on shift since 11/4/69.
8/59 to 6/69:	Operating, including switchboard operation – Joliet Station
12/57 to 8/59:	Clerical Department, Chicago

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: David A. Johnson

BIRTHDATE & PLACE: August 10, 1925
Joliet, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Shift Foreman – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

12/67 to Present:	Shift Foreman – Quad Cities Station Responsible and in charge in the absence of the Shift Engineer for the station during an assigned work shift.
7/52 to 12/67:	Operating, including switchboard operation – Will County and Joliet Stations.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Nicholas J. Kalivianakis

BIRTHDATE & PLACE: October 15, 1931
In Greece (Isle of Crete)

COLLEGE: 1 year at Wilson Junior College
3 years at Illinois Institute of Technology

DEGREE: BSEE Year: 1957

PRESENT ASSIGNMENT: Operating Engineer – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

12/67 to Present: Operating Engineer – Quad Cities Station
Supervise and be responsible for operation and maintenance of all the station's mechanical and electrical equipment.

1/63 to 12/67: Engineer – Central Efficiency Office.
Worked on the boiler, turbine and auxiliary electrical systems and check out during the start-up of 9 units.

2/58 to 1/63: Engineer – Testing Engineer
Worked on generator, transformer and electrical systems.

EXPERIENCE Cont'd)

6/56 to 2/58:	Engineer – Company Training Program. Brief assignments in various company departments.
6/50 to 6/56:	Engineer – Testing Department Worked on generator, transformer and electrical systems.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Robert E. Kelly

BIRTHDATE & PLACE: March 24, 1928
Cleveland, Ohio

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Shift Foreman – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

12/67 to Present: Shift Foreman – Quad Cities Station
Responsible and in charge in the absence of the Shift Engineer for the station during an assigned work shift.

7/52 to 12/67: Operating – Sabrooke Station

PERSONAL BACKGROUND RÉSUMÉ

NAME: Charles E. Kepler, Jr.

BIRTHDATE & PLACE: November 5, 1926
Philadelphia, Pennsylvania

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed)* - Quad Cities Station
Operating in the Control Room on shift since 11/4/69.

7/48 to 6/69: Operating – Sabrooke Station.

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Paul D. Krippner

BIRTHDATE & PLACE: October 15, 1935
Eau Claire, Wisconsin

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed)* - Quad Cities Station
Operating on shift since 11/4/69.

3/67 to 6/69: Operating – Waukegan Station

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Donald C. McCarthy

BIRTHDATE & PLACE: April 23, 1937
Joliet, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating Fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present:	Nuclear Station Operator (proposed)* - Quad Cities Station Operating on shift since 11/4/69.
5/67 to 6/69:	Instrument Mechanic “B” – Will County Station
11/56 to 5/67:	Operating – Will County Station

* He will receive his title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Walter E. Meehan

BIRTHDATE & PLACE: July 7, 1920
Muskegon, Michigan

COLLEGE: 3 years at Illinois Institute of Technology

DEGREE: None

PRESENT ASSIGNMENT: Shift Engineer – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

12/67 to Present:	Shift Engineer – Quad Cities Station In charge and responsible for an assigned work shift and shift personnel training.
4/61 to 12/67:	Shift Foreman – Ridgeland Station Responsible and in charge during the absence of the Shift Engineer for the station during an assigned work shift.
9/41 to 4/61:	Operating – Ridgeland and Northwest Stations.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Larry G. Monroe

BIRTHDATE & PLACE: May 8, 1943
Waukegan, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed)* - Quad Cities Station
Operating on shift since 11/4/69.

10/65 to 6/69: Operating – Waukegan Station

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Michael Naughton

BIRTHDATE & PLACE: August 26, 1935
St. Paul, Minnesota

COLLEGE: St. Thomas College, St. Paul, Minnesota

DEGREE: BS in Chemistry Year: 1958

PRESENT ASSIGNMENT: Radiation Protection Supervisor

TRAINING: Reference SAR Volume II 13.2
Basic Radiation Health Course, U.S.P.H.S.
Occupational Radiation Protection, U.S.P.H.S.
Radionuclide Analysis by Gamma Spectroscopy, U.S.P.H.S.
Management of Radiation Accidents, U.S.P.H.S.
Nuclear Fuel Management – 24 sessions (Commonwealth-Purdue)
BWR Reactor Chemistry – Three months (GE)
Dresden Site Training (Three Weeks)

EXPERIENCE:

5/69 to Present: Radiation Protection Supervisor
Responsible for the supervision and operation of the department, training of new radiation men, evaluation of chemistry results and radiation surveys.

1/65 to 5/69: Power Plant Chemical Engineer – Riverside Station.
Conducted laboratory analysis of power plant chemistry.
Supervised the tech staff department.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Frank A. Palmer

BIRTHDATE & PLACE: October 8, 1922
Waukegan, Illinois

COLLEGE: Ohio Northern University

DEGREE: BSME Year: 1949
AEC License – Dresden Unit 1: RO-805, 1960
SOP-324, 1964

PRESENT ASSIGNMENT: Station Superintendent

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

8/67 to Present: Superintendent of Quad Cities Nuclear Power Station
Supervise and be responsible for the operation and maintenance of the Station; the primary functions are administrative.

12/66 to 8/67: Assistant Superintendent – Joliet Station
Overall supervision of the operation and maintenance for Joliet Station Units 7-8.

8/65 to 12/66: Operating Engineer – Mechanical – Dresden Station
Supervise and be responsible for operation and maintenance of all station mechanical equipment.

EXPERIENCE (Cont'd)

11-63 to 8/65:	Technical Staff Supervisor – Dresden Station Responsible for nuclear engineering, thermal and mechanical engineering, radiation protection and surveillance, chemical surveillance and other engineering matters.
1/63 to 11/63:	Tech Staff Engineering – Dresden Station Responsible for the nuclear engineering and physics tests on the reactor. Conducted special tests to determine maintenance requirements of major plant equipment.
7/60 to 1/63:	Shift Engineer – Dresden Station In charge and responsible for station during an assigned work shift.
7/58 to 7/60:	Thermal Engineer – Dresden Station Supervision of equipment testing, thermal cycle efficiency and preparation of operating procedures for safe and efficient plant operation.
2/58 to 7/58:	Engineer – Joliet Station Conducted performance tests on station auxiliary equipment. Prepared station performance reports.
10/56 to 2/58:	Engineer – Generating Station Office Assisted in comments on designs of future coal plants.

EXPERIENCE (Cont'd)

10/53 to 10/56:	Engineer – Waukegan Station Conducted performance tests on station auxiliary equipment. Prepared station performance reports.
1/53 to 10/53:	Engineer – Company Training Program Brief assignments in various company departments.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Ramon H. Raguse

BIRTHDATE & PLACE: January 6, 1934
Peotone, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed)* - Quad Cities Station
Operating on shift since 11/4/69.

8/53 to 6/69: Operating – Joliet Station

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Gerald W. Reardanz

BIRTHDATE & PLACE: April 8, 1944
Wilmington, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Fuel Handling Foreman

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

7/70 to Present:	Fuel Handling Foreman – Quad Cities Station Responsible for the supervision of the movement of new and spent fuel on the site.
10/69 to 7/70:	Nuclear Fuel Handler “A” – Dresden Station
5/67 to 10/69:	Operating – Dresden Station

PERSONAL BACKGROUND RÉSUMÉ

NAME: Al Roberts

BIRTHDATE & PLACE: May 19, 1928
Winter, Wisconsin

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Shift Engineer – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

4/70 to Present:	Shift Engineer – Quad Cities Station In charge and responsible for an assigned work shift and shift personnel training.
12/67 to 4/70:	Shift Foreman – Quad Cities Station Responsible and in charge in the absence of the Shift Engineer for the station during an assigned work shift.
5/49 to 12/67:	Operating, including Control Room operation – Kincaid and Ridgeland Stations.
1/48 to 5/49:	Meter Department

PERSONAL BACKGROUND RÉSUMÉ

NAME: George Roth

BIRTHDATE & PLACE: July 4, 1922
Chicago, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Shift Foreman – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

5/70 to Present:	Shift Foreman – Quad Cities Station Responsible and in charge in absence of the Shift Engineer for the station during an assigned work shift.
6/69 to 5/70:	Operating – Quad Cities Station Operating in the Control Room since 11/4/69.
11/47 to 6/69:	Operating, including Control Room operation – Ridgeland and Calumet Stations.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Charles W. Schroeder

BIRTHDATE & PLACE: May 28, 1948
South Bend, Indiana

COLLEGE: Augustana College and University of Illinois

DEGREE: AB in Math and Physics Year: 1968
MS in Nuclear Engineering Year: 1970

PRESENT ASSIGNMENT: Assistant Radiation Protection Supervisor

TRAINING: AEC Special Fellowship in Health Physics
1970 Summer Program in Health Physics, Lawrence Radiation Laboratory.

EXPERIENCE:

9/70 to Present: Assistant Radiation Protection Supervisor – Quad Cities Station
Responsible for writing monthly and yearly reports, training new radiation men, evaluation of chemistry results and radiation surveys.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Vernon I. Schlosser

BIRTHDATE & PLACE: August 2, 1922
Burlington, Colorado

COLLEGE: Chicago Tech College

DEGREE: BSME Year: 1948

PRESENT ASSIGNMENT: Maintenance Engineer

TRAINING: Reference SAR Volume II 13.2 – also two months maintenance observation at Hanford.

EXPERIENCE:

4/69 to Present:	Maintenance Engineer – Quad Cities Station In charge of all maintenance, mainly concerned with scheduling and planning maintenance and training personnel.
3/63 to 4/69:	Supervisory Engineer in Construction Supervised construction of many new plants in the Edison system including Quad Cities Station from 3/66 to 4/69.
10/52 to 3/63:	Engineer – Construction Supervised construction of the new plants in the Edison system.
3/49 to 10/52:	Engineer – Construction – Structural and Mechanical.

EXPERIENCE (Cont'd)

6/48 to 3/49: Engineer – Sales Division.

PERSONAL BACKGROUND RÉSUMÉ

NAME: George V. Sporer

BIRTHDATE & PLACE: November 30, 1941
Milwaukee, Wisconsin

COLLEGE: 1 year at the University of Wisconsin in Milwaukee
1 year at night school courses in Iowa Junior College system

DEGREE: None

PRESENT ASSIGNMENT: Maintenance Foreman (Instrument)

TRAINING: Reference SAR Volume II 13.2.

EXPERIENCE:

1/70 to Present: Maintenance Foreman (Instrument) – Quad Cities Station
Responsible for direct supervision of instrument mechanics.

2/67 to 1/70: Engineering Assistant – Dresden Station
Assisted in the work function of the engineer in the technical staff.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Bennie B. Stephenson

BIRTHDATE & PLACE: June 27, 1927
Sycamore, Illinois

COLLEGE: Iowa State

DEGREE: BSEE — Year: 1950
AEC License – Dresden Unit 1: RO for Unit 1 – OP 1355
SRO for Unit 1 – SOP 477-1

PRESENT ASSIGNMENT: Assistant Superintendent – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

8/67 to Present: Assistant Superintendent – Quad Cities Station
Overall supervision of operation and maintenance for Quad Cities Station.

12/66 to 8/67: Operating Engineer – Dresden Station
Supervise and be responsible for operation and maintenance of all Station mechanical equipment.

8/65 to 12/66: Technical Staff Supervisor – Dresden Station
Responsible for nuclear engineering, thermal and mechanical engineering, radiation protection and surveillance, chemical surveillance and other engineering matters.

EXPERIENCE (Cont'd)

10/62 to 8/65:	Shift Engineer – Dresden Station In charge and responsible for the shift during assigned work shift and shift training.
7/58 to 10/62:	Instrument Engineer – Dresden Station Supervised instrument mechanics and was responsible for calibration and maintenance of all station instruments and control systems.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Thomas K. Tamlyn

BIRTHDATE & PLACE: July 19, 1941
Evanston, Illinois

COLLEGE: Iowa State University

DEGREE: BSEE Year: 1964

PRESENT ASSIGNMENT: Instrument Engineer – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2 GE Computer maintenance Course

EXPERIENCE:

3/68 to Present:	Instrument Engineer – Quad Cities Station Directs and is responsible for calibration and maintenance of all station instruments and control systems.
6/65 to 3/68:	Engineer - Testing Department Worked on generator, transformer and electrical systems. Worked on maintenance of the computer at Kincaid Station.
8/64 to 6/65:	Engineer – Company Training Program Brief assignments in various company departments.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Donald E. Warren

BIRTHDATE & PLACE: June 19, 1929
Drumright, Oklahoma

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Shift Foreman – Quad Cities Station

TRAINING: Reference SAR Volume II 13.2

EXPERIENCE:

5/70 to Present:	Shift Foreman – Quad Cities Station Responsible and in charge in the absence of the Shift Engineer of the station during an assigned work shift.
6/69 to 5/70:	Operator – Quad Cities Station Operating in Control Room on shift since 11/4/70.
8/50 to 6/69:	Operator – Waukegan and Kincaid Stations.

PERSONAL BACKGROUND RÉSUMÉ

NAME: Kenneth M. Wogronic

BIRTHDATE & PLACE: February 28, 1945
Chicago, Illinois

COLLEGE: None

DEGREE: None

PRESENT ASSIGNMENT: Nuclear Station Operator (proposed)*

TRAINING: Fundamentals in Atomic Energy
Fundamentals in Radiation Protection
Operating fundamentals of a nuclear power plant
16-week system description course
12 weeks at the General Electric BWR Training School
1-week refresher course at the GE BWR Training School
On-the-job training and field training guides on the equipment at the station.

EXPERIENCE:

6/69 to Present: Nuclear Station Operator (proposed)* - Quad Cities Station
Operating on shift since 11/4/69.

2/67 to 6/69: Operating – Ridgeland Station.

* He will receive this title when he receives his AEC Operating License for Unit 1.

PERSONAL BACKGROUND RÉSUMÉ

NAME: J. David Woodward

BIRTHDATE & PLACE: June 22, 1937
Springfield, Missouri

COLLEGE: U.S. Naval Academy

DEGREE: BS Year: 1960

PRESENT ASSIGNMENT: Technical Staff Engineer – Quad Cities Station.

TRAINING: Reference SAR Volume II 13.2 of Assist. Thermal Engineer

EXPERIENCE:

6/69 to Present: Technical Staff Engineer – Quad Cities Station
Major responsibilities are in the preoperational testing program. This includes the test procedures, analysis of test data and coordination of the Tech Staff portion of the test program.

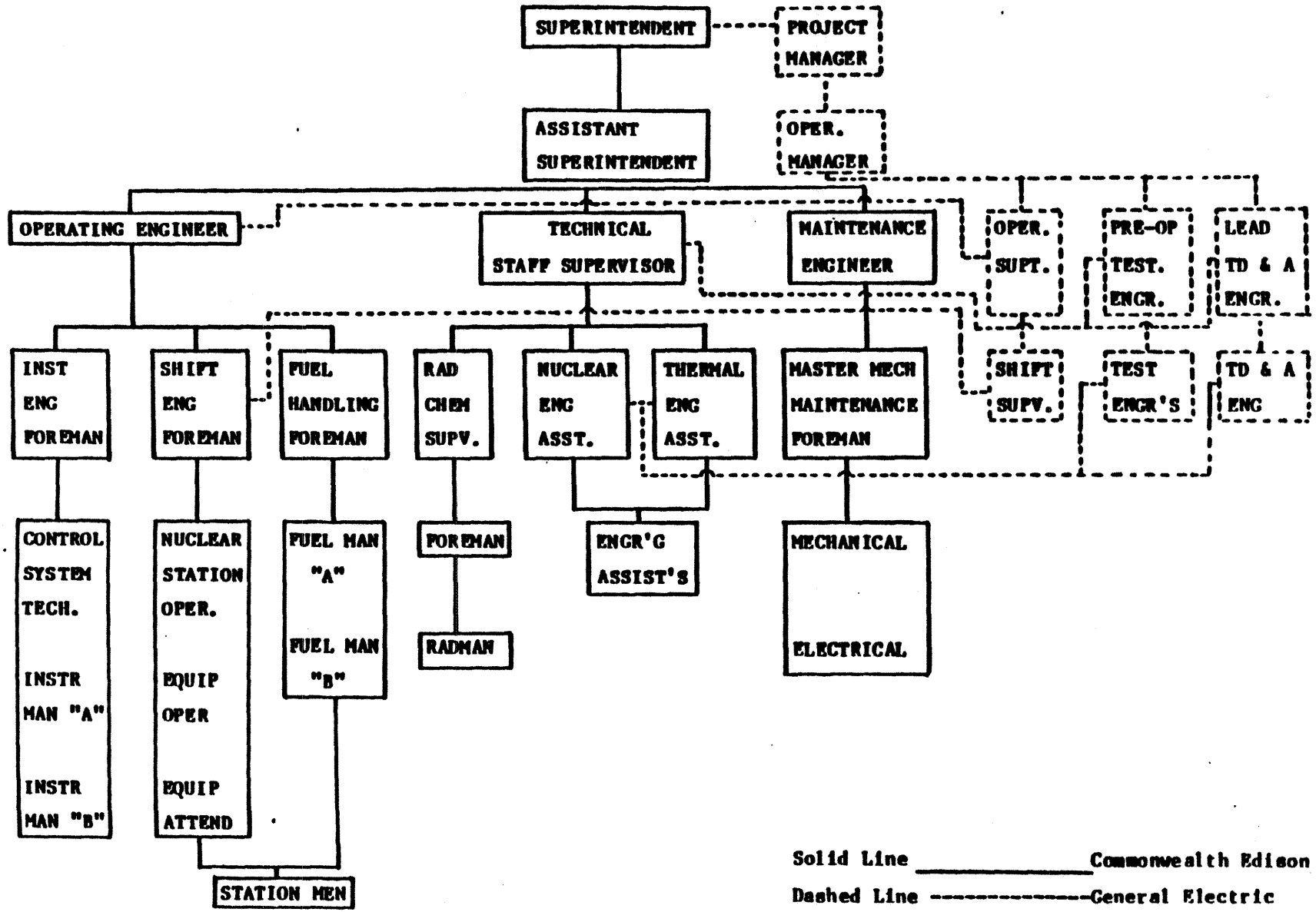

FIGURE 13A.5-1