



PSE&G Public Service
Electric and Gas
Company

80 Park Plaza, Newark, NJ 07101 / 201 430-8217 MAILING ADDRESS / P.O. Box 570, Newark, NJ 07101

Robert L. Mittl General Manager
Nuclear Assurance and Regulation

August 15, 1984

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, MD 20814

Attention: Mr. Albert Schwencer, Chief
Licensing Branch 2
Division of Licensing

Gentlemen:

HOPE CREEK GENERATING STATION
DOCKET NO. 50-354
FSAR CHANGES RESULTING FROM LICENSEE QUALIFICATIONS BRANCH
MEETING JULY 23, 24, AND 25, 1984

Attached are copies of the modifications to FSAR Chapter 13
and Section 1.10, listed below, which were discussed at the
NRC/PSE&G Licensee Qualifications Branch meeting held
July 23, 24, and 25, 1984:

- 1) FSAR Section 13.4 - Review and Audit.
- 2) FSAR Table 13.1-4 - Resumes of Managerial and
Supervisory Staff Hope Creek Operations.
- 3) FSAR Page 1.10-3 - Replaces page 1.10-3 to
Attachment II of letter from R. L. Mittl, PSE&G, to
A. Schwencer, NRC, dated August 3, 1984, per telecon
with F. Allenspach, NRC Licensee Qualifications
Branch.
- 4) Minor revisions and one (1) additional resume for
FSAR Table 13.1-1a, submitted previously (letter
from R. L. Mittl, PSE&G, to A. Schwencer, NRC, dated
August 3, 1984).
- 5) Correction to FSAR Figure 13.1-6a submitted
previously (letter from R. L. Mittl, PSE&G, to
A. Schwencer, NRC, dated August 3, 1984).

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The Energy People

Boo!
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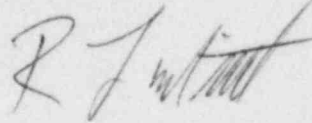
Mr. Albert Schwencer, Chief 2

8/15/84

A signed original of the required affidavit is provided to document the submittal of this material.

This information will be included in a future amendment to the HCGS FSAR. Should you have any questions in this regard, please contact us.

Very truly yours,



C D. H. Wagner (w/attach.)
USNRC Licensing Project Manager

Mr. W. H. Bateman (w/attach.)
USNRC Senior Resident Inspector

F. Allenspach (w/attach.)
USNRC Licensee Qualifications Branch

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
DOCKET NO. 50-354

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

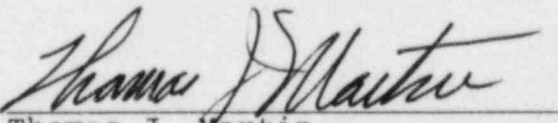
Public Service Electric and Gas Company hereby submits the enclosed Hope Creek Generating Station Final Safety Analysis Report changes resulting from the NRC Licensee Qualifications Branch meeting held on July 23, 24 and 25, 1984.

The matters set forth in this submittal are true to the best of my knowledge, information, and belief.

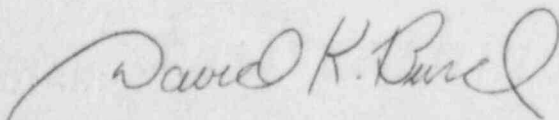
Respectfully submitted,

Public Service Electric
and Gas Company

By:


Thomas J. Martin
Vice President -
Engineering and Construction

Sworn to and subscribed
before me, a Notary Public
of New Jersey, this 15th day
of August 1984.



DAVID K. BURD
NOTARY PUBLIC OF NEW JERSEY
My Comm. Expires 10-23-85

Attachment

FSAR changes resulting from Licensee Qualifications Branch Meeting - July 23, 24 and 25, 1984.

- (1) FSAR Section 13.4 - Review and Audit
- (2) FSAR Table 13.1-4 - Resumes of Managerial and Supervisory Staff Hope Creek Operations
- (3) FSAR page 1.10-3
- (4) Minor revisions and one additional resume for FSAR Table 13.1-1a
- (5) Correction to FSAR Figure 13.1-6a

DJD:sal
8/15/84

13.4

REVIEW AND AUDIT

The independent review and audit functions of ANSI-N-18.7 will be performed by the Station Operations Review Committee which reports to the General Manager - Hope Creek Operations, and the General Manager - Nuclear Safety Review who reports to the Vice President - Nuclear. Reporting to the General Manager - Nuclear Safety Review are two groups, namely the On-Site Safety Review Group (SRG) and the Off-Site Review Group (OSR). Since the Nuclear department is located on Artificial Island site the terms on-site and off-site are intended to convey the distinction between inside the plant fence and outside the plant fence. The Nuclear Safety Review (NSR) Department organization is indicated on Figure 13.1-6a. The equivalency to review groups identified in standard technical specifications is indicated below:

<u>PSE&G</u>	Equivalent Commonly Used Standard Technical Specification Terms
Station Operations Review Committee (SORC)	SORC or PORC or PRC or Unit Review Group (URG)
On-Site Safety Review Group (SRG)	ISEG
Off-Site Review Group (OSR)	Nuclear Review Board (NRB) or Off-Site Safety Review Committee or Safety Review and Audit Board or Company Nuclear Review and Audit Group (CNRAG)

The nuclear safety review process will be further strengthened in the organization by the establishment of an advisory board called the Nuclear Safety Advisory Board reporting to the Vice President - Nuclear.

The Nuclear Safety Advisory Board (NSAB) fulfills the role of senior management oversight committee from the standpoint of nuclear safety with participation by outside members. The NSAB will be an advisory board to the Vice President - Nuclear and will not be governed by any Technical Specification requirements. It's primary responsibility will be to consider potentially significant nuclear and radiation safety issues and related management matters from a programmatic and policy level viewpoint and advise the Vice President - Nuclear.

13.4.1 STATION OPERATIONS REVIEW COMMITTEE

The Station Operations Review Committee (SORC) will be established and functional before the initial fuel loading. Its purpose, throughout the life of the plant, is to advise the General Manager - Hope Creek Operations on all matters related to nuclear safety by reviewing plant operations, procedures, and tests that have nuclear safety significance.

13.4.1.1 Organization

Membership of the SORC will consist of, but not be limited to, the following:

- a. Chairman - the General Manager - Hope Creek Operations
- b. Vice Chairman - the Assistant General Manager - Hope Creek Operations or Technical Manager

c. Members:

1. Technical Manager
2. Operations Manager
3. Maintenance Manager
4. Operating Engineer
5. Maintenance Engineer
6. Instrument and Control Engineer
7. Chemistry Engineer
8. Technical Engineer
9. Radiation Protection Engineer
10. Senior Shift Supervisor
11. Manager, On-Site Safety Review Group or his designee

13.4.1.1.1 Alternates

All alternate members shall be appointed in writing by the Chairman.

13.4.1.1.2 Quorum

A quorum of the SORC shall consist of the Chairman or Vice Chairman and four members including alternates. However, no more than two alternates shall participate as voting members in SORC activities at any one time.

13.4.1.2 Meetings

The SORC will meet at least once per calendar month and as convened by the Chairman or Vice Chairman. Minutes of all formal meetings shall be maintained. Copies of minutes from SORC meetings are sent to the Manager - Off-Site Review and the General Manager - Nuclear Safety Review.

13.4.1.3 Responsibility

The SORC is responsible for:

- a. Review of procedures required by Regulatory Guide 1.33, changes thereto, and other procedures determined by the General Manager - Hope Creek Operations as affecting nuclear safety
- b. Review of all proposed tests and experiments that affect nuclear safety before implementation
- c. Review of all proposed changes to Appendix A, Technical Specifications.
- d. Review of proposed changes or modifications to plant systems or equipment that affect nuclear safety
- e. Review of power ascension program procedures test results
- f. Review of all violations of the Technical Specifications, including the preparation and forwarding of reports covering evaluation and recommendations to prevent recurrence, to the General Manager - Hope Creek Operations and to the General Manager - Nuclear Safety Review
- g. Review of those events requiring 24-hour notification to the NRC
- h. Review of facility operations to detect potential nuclear safety hazards

- i. Performance of special reviews, investigations, or analyses and reporting thereon, as requested, by the General Manager - Nuclear Safety Review
- j. Review of the Emergency Plan and implementing procedures including revisions
- k. Review of the Security Plan and implementing procedures including revisions.

13.4.1.4 SORC Review Process

A technical review and control system will be established to perform the reviews generally required by SORC in accordance with standard technical specification. This system will focus the SORC effort on those areas where the collective expertise of the committee members can have the most substantial contribution to the safety review effort. Important elements of such system would include:

1. Routine periodic review of procedures and changes thereto will be performed within the station organization, and only those items that have a safety significance will be referred to SORC for review.
2. SORC reviews will concentrate on consideration of safe and reliable operation of the station. Independent reviews for determination or verification of USO will be performed by NSR and the results of NSR reviews will be provided to SORC.
3. A system of qualified reviewers within the station organization will be established to assist SORC review effort.

Reviews and approval of temporary changes to procedures is described in Section 13.5.

The SORC will review all events that require 24-hour notification to the NRC, violations of Technical Specifications, and any other unplanned events that may have nuclear safety significance. A report will be submitted to the SORC by a designated staff member. The conclusions and recommendations reached by the SORC will be recorded in the minutes of the meeting and forwarded to the General Manager - Hope Creek Operations and the General Manager - Nuclear Safety Review. Any unreviewed safety questions will be reported to the General Manager - Nuclear Safety Review for further action.

13.4.1.5 Authority

The SORC shall:

- a. Recommend to the General Manager - Hope Creek Operations written approval or disapproval of items a. through e. under Section 13.4.1.3.
- b. Recommend to the General Manager - Nuclear Safety Review written approval or disapproval of items b. through d. under Section 13.4.1.3.
- c. Provide written notification within 24 hours to the General Manager - Nuclear Safety Review of any disagreement between the SORC and the General Manager - Hope Creek Operations; The General Manager - Hope Creek Operations will have the responsibility for resolutions of such disagreements.

13.4.2 NUCLEAR SAFETY REVIEW

The Nuclear Safety Review Department (NSR) will be responsible for the independent safety review program consisting of the ISEG functions and the standard technical specification functions that are generally performed by a company nuclear review board. NSR consists of a General Manager, a Manager of the On-Site Safety Review Group (SRG) supported by at least four dedicated, full-time engineers located on-site at Hope Creek, and a Manager of the Off-Site Review Group (OSR) supported by at least four dedicated, full-time engineers located off-site. The SRG will be primarily responsible for ISEG functions and the OSR will be primarily responsible for functions that are generally performed by a nuclear review board. However, depending on the need the resources of both SRG and OSR will be utilized, without organizational restrictions, in discharging overall review responsibilities of NSR. The staff will possess experience and competence in the general areas listed in Section 13.4.2.1.

NSR shall establish a system of qualified reviewers from other technical organizations to augment its expertise in the disciplines of Section 13.4.2.1. Such qualified reviewers will meet the same qualification requirements as the NSR members; and will not have been involved with performance of the original work.

Establishment of the Manager, Off-Site Review and Staff is guided by the provisions for independent review of Section 4.3 of ANSI N18.7 (ANS-3.2), and the qualification requirements for the review staff will meet or exceed those described in Section 4.7 of ANS-3.1.

13.4.2.1 OFFSITE REVIEW GROUP

The Offsite Review Group (OSR) will become effective upon the initial fuel loading of the unit and will function to provide independent review and audit of designated activities in the areas of:

- a. Nuclear power plant operations
- b. Nuclear engineering
- c. Chemistry and radiochemistry

- e. Violations of codes, regulations, orders, Technical Specifications, license requirements, or internal procedures or instructions having nuclear safety significance
- f. Significant operating abnormalities or deviations from normal and expected performance of plant equipment that affect nuclear safety
- g. Events requiring 24-hour written notification to the Commission
- h. All recognized indications of an unanticipated deficiency in some aspects of design or operation of safety-related structures, systems, or components
- i. Reports and meeting minutes of the SORC.

13.4.2.1.2 Audits

Audits of facility activities that generally are required to be performed under the cognizance of OSR, in accordance with the Standard Technical Specifications are listed below:

- a. The conformance of facility operations to provisions contained within the Technical Specifications and applicable license conditions at least once per 12 months
- b. The performance, training, and qualifications of the entire facility staff at least once per 12 months
- c. The results of actions taken to correct deficiencies occurring in facility equipment, structures, systems, or method of operation that affect nuclear safety at least once per 6 months
- d. The performance of activities required by the Operational Quality Assurance Program to meet the criteria of Appendix B, 10CFR50, at least once per 24 months

- e. The Facility Emergency Plan and implementing Procedures at least once per 12 months
- f. The Facility Security Plan and implementing procedures at least once per 12 months
- g. Any other area of facility operation considered appropriate by the OSR or the General Manager - Nuclear Safety Review.
- h. The facility Fire Protection Program and implementing procedures at least once per 24 months
- i. An independent fire protection and loss prevention program inspection and audit shall be performed at least once per 12 months utilizing either qualified offsite licensee personnel or an outside fire protection firm
- j. An inspection and audit of the fire protection and loss prevention program shall be performed by a qualified outside fire consultant at least once per 36 months.

The above audits will be conducted by the Quality Assurance Department. Audit results and recommendations will be reviewed by NSR. In addition, an annual effectiveness audit of the QA program will be conducted under the cognizance of NSR.

13.4.2.1.3 Consultants

Consultants may be used as determined by the General Manager - NSR to provide expert advice to the NSR. Other support groups within the Nuclear Department will also be available to provide technical expertise.

13.4.2.1.4 Authority

NSR will report to and advise the Vice President - Nuclear on those areas of responsibility specified in Sections 13.4.2.1.1 and 13.4.2.1.2

13.4.2.1.5 Records

Records of NSR activities will be prepared and maintained. Reports of reviews and audits will be distributed as follows:

- a. Reports of reviews encompassed by Section 13.4.2.1.1 above, will be forwarded to the Vice President - Nuclear within 30 days following completion of the review
- b. Recommendations resulting from NSR review of reports encompassed by Section 13.4.2.1.2 above will be forwarded to the Vice President - Nuclear and to the management positions responsible for the areas audited within 30 days after completion of the review.

13.4.2.2 ON-SITE SAFETY REVIEW GROUP

The On-Site Safety Review Group (SRG) will be established and functioning prior to initial fuel load. The functions of the SRG include: the review of plant design and operating experience for potential opportunities for improving plant safety; the evaluation of plant operations and maintenance activities; and advice to management on the overall quality and safety of plant operations.

13.4.2.2.1 Organization

The SRG will consist of the Manager - On-Site Safety Review Group and dedicated, full-time engineers, located on site. Four such dedicated engineers will be at the Hope Creek site.

13.4.2.2.2 Qualifications

SRG members will meet or exceed the qualifications described in Section 4.4 of ANS 3.1 with a bachelor's degree in engineering and 2-4 years' experience in their field, including 1-2 years' nuclear experience.

13.4.2.2.3 Responsibility

The SRG will be responsible for:

- a. Review of selected plant operating characteristics, NRC issuances, industry advisories, and other appropriate sources of plant design and operating experience information that may indicate areas for improving plant safety
- b. Review of selected facility features, equipment, and systems
- c. Review of selected procedures and plant activities including maintenance, modifications, operational problems, and operational analysis.

13.4.2.2.4 Authority

The SRG will make recommendations for revised procedures, equipment modifications, or other means of improving plant safety to appropriate station/corporate management.

TABLE 13.1-4

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RESUMES OF MANAGERIAL AND SUPERVISORY STAFF

HOPE CREEK OPERATIONS

Title

General manager
Assistant general manager
Technical manager
Operations manager
Maintenance manager
Operating engineer
Maintenance engineer
Technical engineer
Chemistry engineer
Radiation protection engineer
I&C engineer
Senior operating supervisor
Senior operating support supervisor
Senior operating technical supervisor
Senior nuclear shift supervisor
Nuclear shift supervisors
Senior nuclear maintenance supervisors
Senior I&C supervisor
Senior engineer - I&C
Senior reactor supervisor
Senior chemistry supervisor
Senior radiation protection supervisors
Senior radiological engineer
Senior engineer - technical

GENERAL MANAGER - HOPE CREEK OPERATIONS

NAME: R. S. Salvesen

LICENSES AND CERTIFICATES:

1969 Certified as an RO at Saxton Generating Station (Nuclear/Coal)

EDUCATION AND TRAINING:

1948 - 1952	Rensselaer Polytechnic Institute, BS, Mechanical Engineering
1969	Westinghouse, Reactor Operator Training Program

EXPERIENCE:

1981 - Present	General manager - Hope Creek Operations
1978 - 1981	Manager - Hope Creek: Involved with the design review of Hope Creek for operability and maintainability and the development and implementation of a selection and training plan for station personnel
1971 - 1978	Manager - nuclear operations (offsite technical support): Directed production department support of plants in operation, construction and design stages in the areas of licensing, operational quality assurance, security, radiation protection, fuel cycle strategy, operator training, and design review As manager - nuclear operations, had day-to-day involvement with Salem operations from preoperational testing through the initial refueling. Accumulated over 2 months onsite time during that period, participating in the management decision process related to plant operations. Also spent 1 month onsite during preoperational testing to coordinate license testing commitments. Spent 2 weeks at Peach Bottom Station during a routine refueling outage assigned to the operations department

TABLE 13.1-4 (cont)

Page 3 of 52

1968 - 1971

Chief engineer (operations manager) for Salem Nuclear Generating Station: Participated in a reactor operator training program; directed the development of department training programs and operating procedures

1952 - 1968

Over 12 years experience at five different Public Service Electric and Gas Company fossil generating stations as supervisor or department head in maintenance and technical departments

TABLE 13.1-4 (cont)

ASSISTANT GENERAL MANAGER

NAME: Stanley LaBruna

LICENSES AND CERTIFICATES:

New Jersey Stationary Engineer Red Seal License

New Jersey Public Sewage Treatment Operator

SRO License SOP-3889 - Salem Nuclear Generating Station
Units 1 & 2, PWR

EDUCATION

1960 - 1964	Fairleigh Dickinson University, BS, Electrical Engineering
1965 - 1966	New Jersey Institute of Technology, Master-level courses in Math and Engineering
1967	Bailey Meter Instrument and Control School
1968	L&N Instrument School
1969	Pratt and Whitney Fuel Control School
1969	Westinghouse Hagan Instrument and Control School
1969	PSE&G, Supervisor Training Course
1976	Rutgers University Supervisor Training
1978	Westinghouse, Fundamentals of Reactor Theory and Kinetics
1979	Westinghouse, PWR Information Course
1980	STA/SRO Training Course Zion Simulator Startup Certification and Accident and Transient Analysis
1981	SRO License Requalification Simulator Certification SNUPP II

TABLE 13.1-4 (cont)

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1981	NUS BWR Information Course
1984	Hope Creek Systems Course - 8 weeks
1984	SSES Simulator Training - 2 weeks
1984	Hope Creek BWR Cycle (Requal) Training

EXPERIENCE:

1964 - Present	Public Service Electric and Gas Company
12/81 - Present	Assistant general manager - Hope Creek Operations: Assists the general manager in providing the management control for activities associated with plant operation, maintenance, technical, radiation protection and planning departments. Ensures plant compliance with operating license and government regulations
1977 - 1981	Maintenance engineer - Salem Nuclear Generating Station: Overall responsibility of plant maintenance including personnel qualification, spare parts program, budgeting, maintenance of a quality program, implementation of ALARA program, outage planning, and direction of activities of general resident agreement site contractor
1973 - 1977	Maintenance engineer for Hudson Generating Station: Overall responsibility of plant mechanical and electrical maintenance
1972 - 1973	Performance engineer for Hudson Generating Station: Responsible for operation of water treatment plant, plant performance monitoring, and maintenance and optimization of instrument and control
1971 - 1972	Operating engineer for Linden Generating Station: Responsible for the daily plant operation and startup on Unit 4
	Operating engineer for Hudson Generating Station: Responsible for the daily plant operation

TABLE 13.1-4 (cont)

1968 - 1970	Performance supervisor for Kearny Generating Station: Responsible for instrument and control maintenance, water chemistry, and plant performance monitoring and testing
1966 - 1968	Maintenance foreman for Kearny Generating Station: Supervised activities of electricians, boiler repairmen, and machinists in the varied aspects of plant maintenance
1965 - 1966	Assignment in the operating and maintenance department
1964 - 1965	Cadet engineer - training program: Assignment for familiarization with the company functions

TABLE 13.1-4 (cont)

TECHNICAL MANAGER

NAME: John A. Nichols

LICENSES AND CERTIFICATES:

Senior Reactor Operator - Salem Unit 1

Stationary Engineer, New Jersey Blue Seal

EDUCATION AND TRAINING:

1967	Fairleigh Dickinson University BS, Electrical Engineering
1970	Westinghouse, Reactor Operator Training Program (10 months), RO equivalency license
1972	Westinghouse, Reactor Engineering Training Program (13 weeks)
1974	Nuclear Associates International, Core Design and Analysis (equivalent to 1 year)
1983	INPO Technical Managers Workshop
1984	Hope Creek Systems Course - 8 weeks
1984	HWR Simulator Familiarization - 2 weeks Hope Creek HWR Cycle Training

EXPERIENCE

1982 - Present	Technical manager - Hope Creek. Directs and controls the performance of technical department activities in the areas of chemistry, I&C, reactor engineering, technical reports and procedures, thermal performance, equipment reliability and document control
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TABLE 13.1-4 (cont)

1981 - 1982	Nuclear plant engineer: On loan for 1 year to the Institute of Nuclear Power Operation (INPO) as an evaluation specialist in the area of technical support
1979 - 1981	Member of Preoperational Review Committee for Salem Unit 2: Responsible for the overall coordination, planning, and implementation of the Phase III (core load, initial criticality, natural circulation and power ascension testing program for Salem Generating Station Unit 2
1976	Reactor engineer: Responsible for the overall coordination, planning and implementation of the Phase III (core load, initial criticality) startup testing program for Salem Generating Station Unit 1 Responsible for the reactor engineering functions including core performance monitoring, nuclear fuel controls, fuel reload planning and implementation, and reload startup testing. Named as station emergency duty officer and member of Station Operating Review Committee
1974 - 1976	Reactor engineer: On loan to Westinghouse's nuclear operation group as shift test engineer for Prairie Island Unit 1 core loading
1973 - 1974	Reactor supervisor: On loan to Westinghouse's nuclear operations group as shift test engineer for Surry Unit 2 initial criticality and power ascension testing
1971 - 1974	Assistant engineer operations for Salem Generating Station: Responsible for gas turbine startup
1968 - 1971	Maintenance foreman for Hurlington Generating Station (fossil): Supervisor for mechanical and electrical craft personnel on 1000 MWC station
1967 - 1968	Assistant engineer - electric engineering department: Electric-motor application review, 500-kV switchyard design Load dispatcher office: Mathematical modeling of daily electric load predictions

TABLE 13.1-4 (cont)

OPERATIONS MANAGER

NAME: George C. Connor

LICENSES AND CERTIFICATES:

1963	Qualified on SIC Prototype, PWR
1976	SRO License 2734 Salem Unit 1, PWR
1976	Certified QA Level II Verifier
1978	New Jersey Gold Seal License, Stationary Engineer
1979	SRO License 2734-2 Salem Units 1 and 2, PWR

EDUCATION

1962	U.S. Navy Electrician School in San Diego, California
1962 - 1963	U.S. Navy Nuclear Power School in Bainbridge, Maryland
1963	U.S. Navy Nuclear Power Training Unit SIC Prototype, Windsor Locks, Connecticut
1963 - 1968	Various U.S. Navy schools, courses in Vibration Analysis, Voltage Regulators, Motor-Generator Sets, Power Generation, and Distribution and Damage Control
1970	Westinghouse, Design Lecture Series
1970 - 1972	Cumberland County College - Vineland, New Jersey Associate of Science, Math and Science
1972	Westinghouse, Gas Circuit Breaker School
1972	PSE&G, Supervisory Training Course
1972 - 1976	Widener University, Chester, Pennsylvania, BS, Engineering

TABLE 13.1-4 (cont)

1974	Westinghouse, Simulator Training Phase II PSE&G, QA Indoctrination Course PSE&G, QA NDE Course PSE&G, QA Level II Verifier Course
1976 - 1981	Wilmington College, Wilmington, Delaware, MBA courses in Accounting, Economics, and Finance and Behavioral Science in Management Salem Generating Station (PWR) requalification program including qualification at the following simulators: Zion, Indian Point, Surry and Westinghouse SNUPPS II
1977	PSE&G, Nuclear Plant Reliability Data System Seminar Engineering Economics
1980	Loft/NRC Technology Transfer Seminar Idaho Falls, Idaho
1981	ASME/EPRI, Radwaste Workshop Atlanta, Georgia NUS, BWR Technology Course
1982	INPO, Operations Manager Workshop Atlanta, Georgia Rutgers University, New Brunswick, New Jersey, Advanced Management Training

EXPERIENCE:

1982 - Present

Operations manager for Hope Creek Generating Station, BWR: Responsible to the assistant general manager - Hope Creek Operations for all activities of the operations department through the operating engineer. The operations department directs the overall operation of the nuclear steam supply system, turbine generator and auxiliary systems, waste systems, fire protection system, and other support systems. Responsibilities include:

- a) Ensure that plant operations are conducted in accordance with the requirements of the operating license and technical specifications by properly trained and qualified personnel
- b) Approve of all operating, emergency, and departmental administrative procedures
- c) Review incident reports, reportable occurrences, departmental accident reports, and other departmental correspondence
- d) Assume the duties of the emergency duty officer, if required
- e) Monitor the training and requalification of all licensed personnel to ensure compliance with current regulatory requirements
- f) Act as vice chairman of the Station Operations Review Committee
- g) Provide direction for long-range operations planning and surveillance and provide detailed plans and estimates to the station planning engineer for outages

TABLE 13.1-4 (cont)

1978 - 1982

Station planning engineer for Salem Generating Station: Responsible to the station manager for the activities of the planning department. This involved all aspects of planning for forced and scheduled outages, analyzing work packages, review and implementation of design change packages, and conducting preplanning and plan-of-the-day meetings. Also coordinated all outage-related departmental efforts to minimize conflicts and implement the ALARA program

As a backup licenseholder, stood watch on the operating unit a minimum of 8 hours per month and was scheduled as emergency duty officer an average of 1 week per month

During the period 4/80 to 11/80, stood watch full time as the senior shift supervisor for Salem Units 1 and 2. This duty was necessitated by an accelerated requalification program resulting in a shortage of operating personnel. Directed hands-on initial core loading of Salem 2 and reloading of Salem 1 during this period

1977 - 1978

Senior planning supervisor for Salem Generating Station

1974 - 1977

Maintenance supervisor for Salem Generating Station: Supervised the maintenance department. Provided startup technical support, developed and implemented preventative and corrective maintenance programs, coordinated maintenance functions at planning meetings, and stood watches as shift supervisor/senior reactor operator. Supervised maintenance functions for initial core load

1973 - 1974

Maintenance foreman for Salem Generating Station: Supervised a work force of electricians, machinists, boiler repair mechanics, and station mechanics. Prepared maintenance procedures, monitored construction progress, and provided startup technical support

TABLE 13.1-4 (cont)

1970 - 1973

Watch foreman for Salem Generating Station, PWR: Participated in the SRO license program, developed operating and emergency procedures, developed and presented training courses, monitored construction progress, and reviewed startup procedures

1969 - 1970

Engineering assistant at PSE&G for Mercer and Salem Generating Stations: Indoctrination training, procedure preparation, and administrative duties

1962 - 1969

Engineering watch supervisor, U.S. Navy nuclear program: Naval experience included 3 years as the senior enlisted engineering watchstander supervising the operation of a two-loop PWR both at power and during refueling

TABLE 13.1-4 (cont)

MAINTENANCE MANAGER

P. 14 of

NAME: Peter J. Kudless

LICENSES AND CERTIFICATES:

Professional Engineer - New Jersey

MILITARY:

1967 - 1971	U. S. Navy (Active Duty)
1971 - Present	U. S. Naval Reserve (currently Commander, CEC, USNR-R)

EDUCATION AND TRAINING:

1962 - 1966	Worcester Polytechnic Institute, BS, Civil Engineering
1970 - 1971	University of Rhode Island, Masters level course in Statistics, Math, Economics and Law
1975	PSE&G QA Orientation for Engineers ASME, Nuclear Power Engineering
1976	PSE&G, CPM of Scheduling
1977	PSE&G, ASME Boiler & Pressure Vessel Code General Electric, BWR Design Survey Course PSE&G, Control Valves & Pipe Fittings PSE&G, Welding Inspection General Electric, BWR Installation Course PSE&G, Non-Destructive Examination PSE&G, QA Orientation for Construction Engineers

TABLE 13.1-4 (cont)

EDUCATION AND TRAINING:

1978	PSE&G, Hydraulic & Friction Crane Operation, Maintenance & Safety
	AMR Internation, Project Management
1979	PSE&G, Supervisory Training Program
1980	PSE&G, Strategies of Effective Listening
	PSE&G, OAD Follow Up Training for Engineering & Construction Personnel
1981	Rutgers University, Advance Management Training

EXPERIENCE:

1971 - Present	<u>Public Service Electric and Gas Company</u>
6/84 - Present	Maintenance Manager - HCGS: Responsible for management, direction and control of the work of the Maintenance Department. Assure conduct of electrical and mechanical maintenance activities is in accordance with facility license, company and government regulations. Assure maintenance activities are accomplished safely and efficiently by properly trained and qualified personnel. Assure that maintenance is conducted safely and efficiently during outage to achieve maximum possible unit availability and reliability. Develop and control budgets for the Maintenance Department. Assure a cost effective spare parts inventory. Act as Vice Chairman and member of the Station Operations Review Committee.

TABLE 13.1-4 (cont)

P. 16 of 6

EXPERIENCE:

12/80 - 6/84

Project Construction Manager, HCGS:
Responsible for monitoring the field construction efforts of a 1100MW BWR power plant. Managed a staff in excess of 50 personnel (Civil, mechanical, electrical, HVAC, cost & scheduling engineers and administrative personnel) who controlled the field construction and support work of over 4000 personnel. Also responsible for site security contract.

11/78 - 11/80

Principle Construction Engineer - HCGS:
Supervised a staff of 20 Construction engineers (all disciplines) who monitored and controlled all the field construction effort of over 3500 personnel.

7/76 - 11/78

Senior Construction Engineer - HCGS:
Supervised a staff of 5 Construction Engineers who monitored and controlled the field construction efforts of over 1500 personnel in the power block area of the plant.

3/75 - 7/76

Associate Field Representative - Assigned to the corporate home offices, with rotational field assignments, providing staff support (i.e., procedure, specification, drawing review) in preparation for the start of the full site construction effort on the HCGS.

8/71 - 7/75

Engineer - Gas Engineering Dept. for 2 1/2 years, was senior site representative supervising a staff of 15 construction engineers and administrative personnel who monitored and controlled the site construction and support efforts for a Synthetic Natural Gas (SNG) plant. For 1 1/2 years provided home office staff support for construction of the first SNG plant constructed in this country, and a peak sharing Liquified Natural Gas (LNG) storage facility.

Amendment

TABLE 13.1-4 (cont)

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EXPERIENCE:

1966 - 8/71

U. S. Navy - Served on active duty as a Civil Engineer Corps (CEC) Officer. Attended Naval OCS and CEC officers school. After commissioning, served at Newport, R.I., and Republic of Viet Nam. While at Newport, R.I. was assigned as Assistant Operation officer for 1 1/2 years and a Resident Officer in Charge of Construction (ROICC) 1 1/2 years at the Navy Public Work Center. In the former position was responsible for directing the day to day operations of 3 divisions (Utilities, Maintenance and Transportation) of the Operations Department, which provided the services to all the Naval commands (approximately 10,000 personnel) at the Newport Naval Base. In the latter position, was responsible for the administration of greater than 10 million dollars of construction contracts including utility (i.e., boiler repair), vertical and horizontal construction projects. While serving 1 year as a ROICC in Viet Nam, I was assigned to two different field locations to administer construction contracts in excess of 1 billion dollars. Type of projects included power plants and utility systems, waterfront, vertical and horizontal construction.

Amendment

TABLE 13.1-4 (cont)

p. 18 of

OPERATING ENGINEER

NAME: Joseph J. Hagan

LICENSES AND CERTIFICATES:

Stationary Engineer, New Jersey Blue Seal

SRO Certification, BWR, Susquehanna Steam Electric Station,
General Physics Program - 1983

EDUCATION:

1983	Memphis State University Center For Nuclear Studies Certificate - Reactor Fundamentals Program
1976	Drexel University, BS, Electrical Engineering
1981	Drexel University, MS, Engineering Management
1977	PSE&G, Supervisory Training Course
1977	PSE&G, Engineering Economics Course

EXPERIENCE:

1983 - Present	Public Service Electric and Gas Company Operating Engineer for Hope Creek Generating Station: Assists the operations manager by directing and controlling the work of the department through supervision of the senior shift supervisors and the operations department staff
1982 - 1983	Maintenance engineer - Salem Generating Station: Assisted the maintenance manager in the overall direction of plant equipment maintenance. Responsible for the planning, conduct and general overall supervision of daily maintenance activities. Provided direct supervision to three (3) senior maintenance supervisors and the station ISI engineers. Included the overall direction of maintenance activities during two (2) refueling outages

1979 - 1982

Senior maintenance supervisor - Salem Generating Station: Assisted the maintenance engineer in planning and completing maintenance repair and inspection activities. Duties included interdepartmental coordination and scheduling, maintaining training requirements and certification and daily direct supervision of approximately 6-8 first line supervisors. Experience included the direction of refueling activities such as reactor disassembly and reassembly during two (2) refueling outages and the initial start up of Salem Unit 2.

1978 - 1979

Maintenance supervisor - Salem Generating Station: Directed the maintenance and repair of nuclear power plant equipment by supervising approximately 10 to 20 mechanics. Responsibilities included the planning and scheduling of assignments, ordering of spare parts, enforcement of station radiation protection and quality assurance programs.

1976 - 1978

Maintenance supervisor - Mercer Generating Station: Responsibilities and duties consisted of direct supervision of 15-20 mechanics in the maintenance and repair of plant equipment; scheduling and planning of work assignments and providing technical assistance.

Senior planning supervisor (Designated) - Mercer Generating Station: Responsible for the development of a program to improve station reliability. Duties included review and forecasting of equipment failures, development of improvement projects, preparing project justifications in future construction budgets and the development of preventative maintenance programs.

1970 - 1976

Substation mechanic - Electric Transmission and Distribution department - Camden Division: Actual performance of maintenance, repair and installation of high voltage substation and switching station equipment.

TABLE 13.1-4 (cont)

P. 20 of

OPERATING ENGINEER

NAME: Calvin Allen Vondra

LICENSES AND CERTIFICATES:

Senior Reactor Operator - Duane Arnold Energy Center

BWR Cold License Certified - General Electric

EDUCATION AND TRAINING:

9/60 - 5/64	High School - Omaha South High - College Prep Courses. Graduated.
9/65 - 9/71	Nuclear Power School, Nuclear Power Training Reactor, Electronics Technician School, and many other USN military schools relating to nuclear power, electronics, and the training thereof.
11/71 - 4/73	Nuclear Utility Services Basic Nuclear Theory Course, General Electric BWR Technology, General Electric Simulator Training - SRO Cold Certified.
9/74 - 11/79	Kirkwood Community College - Cedar Rapids, Iowa. Completed Associates of Science Degree.
11/79 - 1/83	Completed 40 Semester Hr. Purdue/Public Service Indiana Shift Technical Advisor Program.
1/83 - Present	State University of New York - 164 Semester Hours Completed - Need 15 Semester Hrs. for B. S. in Math.

EXPERIENCE:

4/84 - Present	Operating Engineer - Hope Creek Generating Station. Public Service Electric & Gas.
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Amendment

HCGS FSAR

TABLE 13.1-4 (cont)

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1/79 - 1/84	Operations Manager - Marble Hill Nuclear Station P.S.I. Public Service of Indiana Operations Manager - Marble Hill is a two unit (1150 MWe each), Westinghouse PWR. Responsible for the operation of all Station equipment and directing 28 supervisors and 78 bargaining unit people. Member of the Plant Review Committee and Corporate Safety Review Committee. Responsible for the scheduling, staffing, and training of this department. Assume the duties of the Station Production Manager in his absence.
9/80 - 9/81	Evaluation and Assistance Division of INPO. Assisted in developing performance objectives and participated in seven plant evaluations while representing Public Service of Indiana in an "on loan" capacity.
4/73 - 12/78	Shift Supervising Engineer - Duane Arnold Energy Center - Iowa Electric Light & Power Palo, Iowa. Licensed SRO (#1990) responsible for the safe operation of the plant on a shift basis. This included emergency director, fire chief, security supervisor, supervision of all maintenance activities on the back shifts, coordination of maintenance activities on the day shifts, crew training, and supervision of all refueling activities. During the construction pre-op and startup testing, performed all quality assurance hold point checks and was the responsible test supervisor on a shift basis.
8/72 - 4/73	On-site Training Coordinator - Duane Arnold Energy Center - Palo, Iowa. Responsible for the establishment, scheduling, presentation, and testing of the systems phase of the license training program. Of twenty-six people to sit for licenses, 25 were licensed.

Amendment

TABLE 13.1-4 (cont)

11/71 - 8/72

Second Assistant Operator - Duane Arnold Energy Center - Palo, Iowa. This was a training position for an NRC license. Completed the Nuclear Utility Services Basic Nuclear Theory, General Electric Boiling Water Technology, Iowa State University Research Reactor Training, and General Electric Boiling Water Cold License Simulator Training at the top of class in all phases.

9/61 - 9/65

Electronics Technician and Reactor Operator - U. S. Navy - U.S.S. George C. Marshall - Responsible for the maintenance and testing of associated reactor electronic systems in addition to the duties of a reactor operator.

Amendment

MAINTENANCE ENGINEER

NAME: John M. Rucki

LICENSES AND CERTIFICATES:

Registered Professional Engineer - Pennsylvania

EDUCATION:

1967 - 1971	Villanova University, Villanova, PA, BS, Electrical Engineering
1972 - 1972	Drexel University, Philadelphia, PA, Three courses in Transmission Analysis
1982	INPO, Workshop for Effective Maintenance

EXPERIENCE:

1982 - Present	Public Service Electric and Gas Company maintenance engineer for Hope Creek Generating Station: Establishes and manages the maintenance program including personnel qualification, spare parts, ISI, procedures, training, testing, corrective and preventive maintenance program
1981 - 1982	Consulting engineer for United Engineers & Constructors Inc in Philadelphia, PA: Task force leader responsible for the review of NRC Regulation 10 CFR 50, Appendix B, as applicable to plant configuration. This review included the determination of safe shutdown systems and equipment and the failure modes and effects analysis based on the Appendix R criteria. Performed review for both Carolina Power & Light Co's BSEP 1 and 2 and Washington Public Power Supply System's WNP 1

1979 - 1981	Lead site engineer for Carolina Power & Light Brunswick Steam Electric Plants 1 and 2: Directly assisted Carolina Power & Light resident engineer in establishing and supervising the site engineering support services group for operating nuclear plants. Scope of work included resolution of operation/maintenance problems, generation and implementation of plant modifications, and review of regulatory requirements
1978 - 1979	Lead site engineer for Carolina Power & Light Brunswick Steam Electric Plants 1 and 2: Supplied A/E site engineering support to CP&L plant, engineering and construction divisions as required to generate and complete back-fits and upgrades. Also provided consultation and technical assistance needed to support operation, maintenance and regulatory activities
1972 - 1978	A/E site lead electrical engineer for Carolina Power & Light Brunswick Steam Electric Plants 1 and 2: Responsible for client and constructor interface for resolution of construction and startup problems that included QA items, equipment deficiencies, system modifications, preoperational test problems, and NRC Inspector concerns and findings
1971 - 1972	Electrical design engineer for UE&C, Philadelphia, PA, Carolina Power & Light Brunswick Steam Electric Plants 1 and 2: Generated specifications and purchase order for equipment procurement, preparation of the conduit and cable schedule, review of control wiring diagrams with system descriptions, review of vendor drawings, witnessing of factory tests, and inspection for release to ship

TABLE 13.1-4 (cont)

TECHNICAL ENGINEER

P. 25 of 6

NAME: Thomas G. Busch

LICENSES AND CERTIFICATES:

Senior Reactor Operator License - Wm. H. Zimmer Nuclear Power
Station SOP-00096

Certified Engineer in Training - State of Ohio

EDUCATION AND TRAINING:

- | | |
|------|---|
| 1975 | Bachelor of Science in Nuclear Engineering,
1975, University of Cincinnati,
Cincinnati, Ohio |
| 1976 | Successfully completed a four week course of
classroom and laboratory training dealing
with operation of Honeywell 4000 series
process computers. During the course process
assembly language was learned along with
operation and interfacing of the computer
operating system and other software. The
course was conducted by Honeywell. |
| 1976 | Successfully completed a five week course of
classroom training concerning thermal
hydraulic and nuclear characteristics of BWR
cores on an engineering level. Thermal limit
calculations and bases, core flow
calibration, fuel preconditioning and process
computer software were learned along with
reactor integrated response to control
changes. The course was conducted by the
General Electric Company. |
| 1976 | Successfully completed a three week course
consisting of classroom and laboratory
training dealing with the BWR process
computer NSSS software package. The methods
employed in calculating core power
distribution and thermal limits was learned.
The course was conducted by The General
Electric Company. |

TABLE 13.1-4 (cont)

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1977	Successfully completed an intensive twelve week course dealing with systems and operation of a BWR (Browns Ferry Unit 1) including approximately six weeks of simulator training, ultimately leading to SRO certification. The course was conducted by the General Physics Corporation at the TVA Power Production Training Center, Chattanooga, TN
1977	Completed a four week course consisting of approximately eighty hours of classroom review and eighty hours of observation of all facets of BWR operation. The course was conducted by the General Physics Corporation at the Browns Ferry Nuclear Power Station
1978	Worked approximately two months during the period 6/78 to 11/78 at the Edwin I. Hatch Nuclear Power Plant. Served as shift test engineer during initial fuel loading. Participated in low power testing to approximately 30% power on Unit No. 2
1980	During the period 2/24/80 to 3/15/80 worked with the Nuclear Engineering staff of the Monticello Nuclear Generating Station during the core alterations, control rod drive maintenance and fuel shuffling periods
1980	During the period 3/31/80 to 4/9/80 worked with the Nuclear Engineering staff of the Monticello Nuclear Generating Plant during the plant startup following refueling to full power
1980	Electrical Engineering Technology, twelve credit hours, Clermont Technical College, Batavia, Ohio
1981	Successfully completed a six day simulator course for Shift Technical Advisors conducted by General Electric at the Morris simulator
1981	During the period of 3/21/81 to 3/25/81 participated in NRC evaluation of emergency operating procedures developed from BWROG guidelines and contingencies. Review conducted by NRC Procedures Testing Review Branch at the Morris simulator.

TABLE 13.1-4 (cont)

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1981	Shift Technical Advisor Program, eighteen graduate credit hours, University of Cincinnati, Cincinnati, Ohio
1983	During the period of 1/6/83 to 3/11/83 participated in the reactor engineering activities at the Susquehanna Steam Electric Station. During that time SSES Unit 1 was undergoing power escalation testing from 30 to 100% power.
1983	INPO Technical Managers Workshop

EXPERIENCE:Public Service Electric and Gas Company
Hope Creek Generating Station

1984 - Present	Acting as Technical Engineer responsible for program development and conduct of activities in the areas of reactor engineering, technical reports and procedures, thermal performance, equipment reliability monitoring and testing, and document control.
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Cincinnati Gas and Electric Company
Wm. H. Zimmer Nuclear Power Station

1983 - 1984	Served as Superintendent of the Technical Support Division. Responsible for supervision of eight staff engineers and four engineers in training. Technical Support Division activities include: reactor engineering, computer engineering, coordination of preventive maintenance and surveillance testing programs, development of MPRD databases, and providing technical support to other departmental divisions.
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1981 - 1983	Served as Technical Engineer, responsible for supervision of five engineers assigned to the reactor engineering and computer engineering groups. Also during this period, coordinated development of preventive maintenance
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TABLE 13.1-4 (cont)

P. 28 of

and surveillance test scheduling, equipment nameplate database, spare parts inventory, and commitment tracking computer based systems. Was also responsible for training of personnel and conducting drills for the Technical Support Center staff in preparation for a successfully completed emergency preparedness exercise.

1977 - 1981

Served as Reactor Engineer, responsible for preparation of core alteration, fuel handling, SNM accountability, core thermal limit surveillance, neutron monitoring equipment calibration and other station procedures. Primarily responsible for receipt of the initial core fuel. Assisted the Startup Coordinator with preparation of administrative controls, test implementing procedures and licensing submittals for the startup testing program. Assisted the plant Technical Engineer in preparation of plant technical specifications.

1975 - 1977

Served as staff engineer in the Technical Support Division. Prepared, reviewed and conducted system flushing and preoperational test procedures.

1972 - 1975

Served as Student Engineer in training at the Walter C. Beckjord station, a six unit pulverized coal generating plant. During this period worked in the maintenance, operations and technical staff departments on an alternating quarterly basis as part of the University of Cincinnati co-op student program.

TABLE 13.1-4 (cont)

P.29

CHEMISTRY ENGINEER

NAME: Eric D. YochheimLICENSES AND CERTIFICATES:

None

EDUCATION AND TRAINING:

1962 - 1967	Ashland College, Ashland, Ohio BS in Chemistry
1968 - 1969	Fehrend Campus, Pennsylvania State University, Erie, PA Graduate courses in Industrial and Chemical Engineering
1969 - 1971	New Mexico Highlands University, Las Vegas, NM, MS (candidate) in Radiochemistry
1981	EPRI - Chemistry Managers Condensate Polishing Workshop
1983	INPO - Chemistry Managers workshop
1983	EPRI - BRAC Workshop

EXPERIENCE:

1983 - Present	<u>Public Service Electric and Gas Company</u> <u>Chemistry Engineer:</u> Establishes and manages the chemistry program including personnel qualifications, spare parts, chemical equipment operations procedures, quality control, training, analytical sampling and analysis, chemical equipment testing, corrective and preventive maintenance, and water quality limits
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TABLE 13.1-4 (cont)

P.30

1981 - 1983

NUS Corporation

Principal Engineer: Provided consulting and specialty assistance to PWR and BWR nuclear facilities. Participated in special studies for governmental agencies and industrial clients. Performed water and waste management consulting projects, primarily water-chemistry studies for utilities. Spent five months on-site at Angra Nuclear I in Brazil as plant chemistry consultant

1980 - 1981

TVA

Water Quality Unit Leader: Supervised 4 - 10 professional engineers and chemists. Prepared technical documents relating to plant chemistry/radiochemistry, development of EPRI Guidelines for Water Chemistry Requirements (Steam Generation Owners Group), development solutions for plant chemistry problems, e.g., sodium leakage from condensate polishers, and development of post accident sampling systems. Involved in startup of Sequoyah and development of chemistry limits and sampling frequencies for Browns Ferry

1974 - 1980

Babcock & Wilcox Co.

Senior Engineer: Supervised 1 - 2 engineers and/or chemists. Onsite radiochemistry/chemistry consultation for startup of Arkansas Nuclear 1, Crystal River Unit 3, and Three Mile Island Unit 2, developed lab counting schedules computerized analysis programs for liquid (gaseous waste releases), sampling system evaluations, radwaste monitoring instrumentation setup and calibration, and lab technician training, headed home office research projects in plant chemistry, radiochemistry, and fuel evaluation. Performed pre and post operational fiberoptic examinations of system generators for corrosion damage, and was a member of the original post TMI-2 accident recovery team sent from B&W to aid Met. Ed. in the safe shutdown and initial cleanup efforts

TABLE 13.1-4 (cont)

1972 - 1974

Controls for Environmental Pollution, Inc..

Manager for Environmental Sciences Division:
Supervised 2 - 4 degree chemists and 2 technicians. Performed environmental radiological monitoring studies of environmental media for several nuclear power plants and nuclear fuel processing facilities.

1970 - 1972

Hillsdale Local Schools

Teacher of General Science, Chemistry, and Physics.

1967 - 1969

Hughson Chemical Co.

Process Development Chemist: Process development studies for production of rubber-to-metal specialty chemicals.

TABLE 13.1-4 (cont)

RADIATION PROTECTION ENGINEER

P. 32 of

NAME: John Russell Lovell

LICENSES AND CERTIFICATES:

American Board of Health Physics certification in power reactor health physics

EDUCATION:

1976	Brigham Young University BA, Japanese/Zoology
1978	Harvard University School of Public Health MS Radiological Sciences

EXPERIENCES:

1983 - Present	Radiation Protection Engineer - Hope Creek Operations: Primary responsibilities as Radiation Protection Department Head include development and implementation of the Station Radiation Protection and Radioactive Material Control Programs to ensure that personnel radiation exposure and releases of radioactive material are as low as reasonably achievable (ALARA)
1982 - 1983	Plant Health Physicist for Consumers Power Palisades Nuclear Power Plant, Covert, MI: As designated, Radiation Protection Manager responsibilities included implementation of the plant radiation safety supervisors and technicians, procedure development and review, development and implementation of the plant ALARA program and regulatory compliance
1981 - 1982	Senior Health Physicist for Consumers Power Midland Energy Center, Midland, MI: Responsible for supervising the development of plant programs and procedures for emergency planning, radioactive materials control and environmental surveillance

TABLE 13.1-4 (cont)

1979 - 1981	Radiological Control Engineer for Newport News Reactor Services, Naval Reactors Facility, Idaho: Developed radiological control procedures, assisted in technician training, performed ALARA planning and tracking and audited procedure compliance during the refueling and overhaul of the A1W prototype reactor plant.
1980 - 1981	Associated faculty member of the University of Idaho, Idaho Falls, ID: Taught college level health physics classes as part of the University of Idaho/Idaho National Engineering Laboratory's education program.
1978 - 1979	Health Physicist for Allied Chemical Idaho Chemical Processing Plant, Idaho Falls, ID: Responsibilities at this nuclear fuels reprocessing plant include effluent monitoring, internal dosimetry and technical support for operational health physics program.
1976 - 1978	Health Physics Technician for Harvard University, Cambridge, MA: As part-time position involving radiological surveys of biological research laboratories, instrument calibration and providing assistance in teaching basic radiation safety courses.

TABLE 13.1-4 (cont)

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INSTRUMENT & CONTROL ENGINEER

NAME: Stephen L. FunstenLICENSES AND CERTIFICATIONS:

BWR Operator Cold Certification for Susquehanna Station

EDUCATION:

1965 - 1969	Villanova University, Villanova, PA, BS, Electrical Engineering
1969	GE Field Engineering Program, Schenectady, NY, 10 weeks, 1969 Classroom training on power transmission, power generation, electrical systems stability, feedback and control theory, dc drive systems and effective presentation
1970	GE Nuclear Instrumentation Course, San Jose, CA, 13 weeks, 1970 Four weeks of BWR systems technology lecture and nine weeks of hands-on training with components for systems within nuclear steam supply systems
1971 - 1972	Hartford Community College, Undergraduate Business Law and Accounting courses
1974	GE Refueling Outage Planning Seminar, San Jose, CA, 1 week 1974 Discussed various topics related to major refueling outage tasks. Reviewed problems encountered at previous outages
1975	GE Instructor Training Workshop, Atlanta, GA, 1975, 1 week trained in and then demonstrated techniques related to professional instruction in technical and nontechnical presentations

TABLE 13.1-4 (cont)

1975	GE Power Regulator School, Waynesboro, VA, 1 week, 1975 Intensive training in fundamentals of installation, trouble-shooting, and startup of static and rotating excitation systems
1975 - 1976	Widener University, Masters level Advanced Engineering Mathematics
1981	IEEE Seminar, Topic: Qualification of Electrical Equipment for Class 1E Nuclear Use, 3 days, 1981, Atlanta, GA
1982	INPO sponsored I&C workshop, 3 days, 11/82 main topic: Reduction of Scrums/Trips

EXPERIENCE:

1982 - Present	Public Service Electric and Gas Company instrument and controls engineer, HCGS: Responsible for providing overall administration and technical direction to the I&C department. Ensure planning and coordination of all I&C training, computer support, operational and outage work, and compliance of all I&C procedures with station, Technical Specification, and regulatory requirements.
1969 - 1982	General Electric installation & service , engineering , engineering division
1979 - 1982	Field engineering supervisor for instrumentation and electrical projects - nuclear services: Coordinated and directed field engineering projects for instrument and electrical projects in BWR type nuclear power plants. Performed technical direction and field consulting service during refueling outages including pre-outage task planning, procedure writing, system preventive maintenance, and startup testing. Directed other engineers and supervisors in the performance of similar tasks

TABLE 13.1-4 (cont)

1975 - 1978	Nuclear instrumentation and electrical system field services including: outage planning, installation of of major electrical modifications, supervision of instrument and electrical maintenance, calibration, trouble-shooting, technician training, procedure writing, maintainability assessment studies at BWR construction sites, and participating in 14 refueling outages. Directed installation of BPRI-funded research and test program at Peach Bottom for END-OF-CYCLE Stability testing 1977-78.
1974 - 1975	Directing maintenance, installation, and tune-up of turbine supervisory instruments and generator excitation system components. Also turbine EHC system line-up adjustment and maintenance
1971 - 1974	Nuclear construction at Peach Bottom 2 & 3 providing technical direction to architect and owner as nuclear steam supply electrical and instrumentation representative
1970 - 1971	Field installation, assembly and testing of switchgear and power circuit breakers
1970	Corporate training - nuclear instrumentation Field installation and assembly of power circuit breakers from 13 kV to 500 kV
1969	Corporate training - electrical electronics Product service engineer for GE Switchgear Plant

TABLE 13.1-4 (cont)

SENIOR OPERATING SUPERVISOR

P.37 of

NAME: Stephen C. SaundersLICENSES AND CERTIFICATES:

1969	N.J. Second Class Stationary Engineer (Red Seal)
1974	Salem Reactor Operator Unit No. 1 (PWR)
1980	Salem Reactor Operator Unit No. 2 (PWR)
1982	Salem Senior Reactor Operator Unit Nos. 1 and 2 (PWR)

EDUCATION AND TRAINING:

1984	2 weeks Simulator Course - Susquehanna Simulator
1983	Nuclear Review fundamental course given by Memphis State University to obtain college credits towards an Associate Degree
1983	INPO Reactor Operator Task Analysis Group
1981 - 1982	Salem No. 1 and No. 2 Senior Reactor Operator training course
1981	Salem Reactor Operator Regualification Unit Nos. 1 and 2. (PWR)
1976 - 1982	Simulator Qualification at various simulator training centers such as Surry, Indian Point, W Snupps 2 and Zion. Salem Reactor Operator Regualification courses
1980	Mitigating Core Damage (PWR)
1979 - 1980	Salem No. 2 Reactor Operator Training (PWR)
1979	Salem/TMI Training (PWR)
1974 - 1975	Salem No. 1 Reactor Operator Course (PWR)
1970 - 1971	PSE&G Apprentice Training Program
1962	Graduated Rancocas Valley Regional High School

EXPERIENCE:

4/1983 - Present

Senior Shift Supervisor Nuclear for Hope Creek Generating Station. (BWR)

Responsible for Safety tagging procedures in accordance with SUP No. 8 tagging rules.

Responsible for ordering supplies, setting up shift's filing system and Document Control.

Coordinating with the Startup group the pre-operational testing and turn-over of Safety Related and Non-safety Related Systems and equipment from the constructor.

Administer directives to the Shift Supervisor's Nuclear, Nuclear Control Operators, Equipment Operators and Utility Operators.

Interface with other PSE&G departmental supervision to expedite pre-operational testing and turn-over.

Receive and administer various forms of directives from the Operations Manager.

4/1983 - 8/1983

Shift Supervisor Nuclear for Salem Generating Station. (PWR)

Responsible for the proper administration of plant operations while on shift and insure their completion in accordance with the operating license.

Refueling SRO during No. 2 Unit's first Refueling.

Direct Salem Units No. 1 and No. 2 Reactor Operators, Equipment Operators and Utility Operators in their daily duties while on Shift.

Interface with other departmental supervisors in the repair, prevenative maintenance and surveillance testing of plant equipment.

TABLE 13.1-4 (cont)

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8/1974 - 8/1981

Performed duties required of a Nuclear Control Operator during pre-operational testing and turn-over, cold hydrostatic testing, low power physics testing, initial criticality and subsequent power escalation and operations on both Salem No. 1 and No. 3 Units. (PWR)

Operation of manipulator crane during Salem Unit No. 1 first refueling

Directed Equipment Operators and Utility Operators in their daily routine shift duties

7/1973 - 8/1974

Equipment Operator for Salem No. 1. (PWR)

Primary duties were to observe operation of various plant equipment, safety tagging and operation of remote auxiliary equipment

7/1970 - 9/1973

Utility Operator at Burlington Generating Station. (Fossil fuel)

Performed duties of Utility operator such as lubrication of equipment, cleaning and recording plant equipment readings

1963 - 1970

Chief Engineer McGraw Edison Co. (Fossil Fuel)

Responsible for the overall operation and maintenance of the steam processing plant

TABLE 13.1-4 (cont)

SENIOR OPERATIONS SUPPORT SUPERVISOR

P. 40 of

NAME: Lawrence M. SilveyLICENSES AND CERTIFICATES:

1983 Reactor Operator Peach Bottom Unit 1 HTGR

1975 Senior Reactor Operator Peach Bottom Unit 2 & 3 BWR

EDUCATION AND TRAINING:

1957	Temple High School
1969	Health Physic Tech (4 weeks)
1971	Dresden GE BWR Certification (8 weeks)
1974	Oyster Creek Familiarization (7 days)
1980	TVA Simulator (1 week)
1981 - 1982	Limerick Simulator (2 weeks)
1979 - 1982	Phila. Elect. Fire School (1 week)

EXPERIENCE:

1984 - Present	Hope Creek - Senior Operations Support Supervisor. Responsibilities: Fire Protection, Radwaste, Commitment items, Training Review.
1983 - 1984	Grand Gulf - Shift Advisor - Consultant to Shift Supervisors on BWR operations.
1977 - 1983	Peach Bottom - Shift Supervisor Directed operation of Nuclear Power Plant, Reactor, Radwaste, Refueling Floor, Boiler Plant, Water Plant, Sewage Plant, Boiler Training Program, Maintenance Coordinator.
1972 - 1977	Peach Bottom - Chief Operator Carried out directions of Supervisor on Operations of Power Plant

Amendment

HCGS FSAR

TABLE 13.1-4 (cont)

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EXPERIENCE:

1971 - 1972	Peach Bottom - Plant Operator Handled all electrical equipment 480 volt to 500 KV in the power plant.
1969 - 1971	Peach Bottom - Reactor Operator Handled Reactor Controls HTGR
1968 - 1969	Peach Bottom - Health Physic Technician Did area surveys, RWPs.
1963 - 1968	Peach Bottom - Auxiliary Operator Operated all Reactor and Turbine Auxiliaries Water Plant, Sewage Plant, Boiler House.
1958 - 1963	Chester Station - Auxiliary Operator. Operated all Turbine Auxiliary in Fossil Power Plant.

Amendment

TABLE 13.1-4 (cont)

SENIOR OPERATING TECHNICAL SUPERVISOR

P. 42 of

NAME: George S. Daves Jr.LICENSES AND CERTIFICATES:

1983 Senior Reactor Operator Certification - Susquehanna

1974 New Jersey Black Seal License

EDUCATION AND TRAINING:

1973	Lowell University BS - Electrical Engineering
1974 - 1975	New Jersey Institute of Technology (NJIT) 15 Credits - Concrete, Structures, Stress Analysis
1974	PSE&G Supervisory Training Program
1976	PSE&G ANSI 45.2.6 Level II Qualification Program
1982	Lund Consulting Inc. Aberrant Behavior Identification and Leadership Skills.
1983	Salem Community College 12 Credits - Computer Programming in BASIC, FORTRAN & PASCAL.
1983	PSE&G BWR Technology
1983	Memphis State University Certificate - Nuclear Reactor Fundamentals
1983	Memphis State University Certificate - Reactor Startup Experience

Amendment

HCGS FSAR

TABLE 13.1-4 (cont)

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EXPERIENCE:

4/84 - Present	Senior Engineer assigned to the HCGS Operations department acting as the group head of the staff group. Responsible for the development of: All department technical and administrative procedures, systems to track and schedule department activities and records, systems to develop and maintain the tagging request information system, and to review industry and station information for dissemination to department personnel.
4/82 - 4/83	Lead Engineer assigned to the Technical Department (I&C Group). Responsible for administrative and technical direction for the development of all departmental procedures. Also responsible for the development and maintenance of the groups five-year budget.
9/79 - 4/82	Lead Engineer assigned to the Assistant Plant Manager - Salem Generating Station. Responsible in part for the development of the Site Emergency Plan and Emergency Action Levels associated with the Licensing effort of Salem Unit No. 2. Participated in establishing initial onsite TSC and offsite EOF. Performed as the Emergency Coordinator and Observer/Referee on numerous emergency plan exercises.
6/76 - 9/79	Engineer assigned to the I&C Group - Salem Generating Station. Responsible for the direct supervision of I&C Technicians in all aspects of the plants instrumentation systems. This work included testing, maintenance and routine calibration.
6/75 - 6/76	Salem Generating Station (Quality Assurance Department) assigned as an engineer. During this time, activities were primarily as a Q.C. Test Engineer monitoring various Phase I and Phase II Startup Testing Activities. Secondly, involvement in the initial reviews of the Station Administrative Procedures prior to the program implementation.

Amendment

HCGS FSAR

TABLE 13.1-4 (cont)

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EXPERIENCE:

1/74 - 6/75

Hudson Generating Station (Maintenance Department) Title of Maintenance Supervisor at a large oil and coal fired generating station. Responsible for the direct supervision of several work crews. Diverse work areas included most electrical and mechanical systems.

6/73 - 1/74

Hudson Generating Station (Operating Department) Worked as an assistant to a Senior Shift Supervisor on a rotating shift. This assignment was designed as a training and orientation program of steam plant operation.

Amendment

TABLE 13.1-4 (cont)

SENIOR NUCLEAR SHIFT SUPERVISOR

P. 45 of

NAME: Louis AversaLICENSES AND CERTIFICATES:

1976	New Jersey Blue Seal License, Stationary Engineer
1984	Cold SRO Certification - Susquehanna Simulator

EDUCATION:

1976	PSE&G, Operators Phase II Training
1981	PSE&G, Supervisory Training Course
1982	NUS, BWR Technology Course
1983	Memphis State University, Nuclear Reactor Fundamentals Memphis State University, STA Advanced Training
1984	Hope Creek Systems Course (8 weeks)

EXPERIENCE:

1982 - Present	Shift supervisor at Hope Creek Generating Station
1980 - 1982	Shift supervisor at Salem Generating Station
1980	Shift supervisor at Bergen Generating Station
1980	Control operator at Bergen Generating Station
1976 - 1980	Equipment operator at Bergen Generating Station
1973 - 1976	Utility operator at Bergen Generating Station

TABLE 13.1-4 (cont)

SENIOR NUCLEAR SHIFT SUPERVISOR

P. 46 of

NAME: Edward J. RileyLICENSES:

Reactor Operator - James A. Fitzpatrick, Nuclear Power Plant

Senior Reactor Operator - James A. Fitzpatrick, Nuclear Power Plant

EDUCATION AND TRAINING:

1983	S.R.O. Training Program F.A.F.N.P.P.
1978 - 1983	R.O. Requal, J.A.F.N.P.P., Simulator T.V.A. Chattenogga, Tenn.
1977	R.O. Training Program - J.A.F.N.P.P. Simulator G.E. Morris Ill.
1976	Baily Meter Instrumentation School
1975 - 1976	State University of New York Buffalo, New York
1975	T.L.D. Design & Maintenance Harshaw Chemical Co., Salon Oh.
1970	U.S. Navy Nuclear Power Training Unit SlC, Windsor, Conn.
1969	U.S. Navy Nuclear Power School Mare Island, California
1968	U.S. Navy Electronics Technician "A" School, Great Lakes Ill.
1965 - 1967	State University College of New York Buffalo, New York
1965	Bishop Timon High School Buffalo, New York

TABLE 13.1-4 (cont)

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EXPERIENCE:

1/84 - Present

Senior Nuclear Shift Supervisor-
Public Service Gas & Electric,
Hope Creek Generating Station:
Operations Department Systems
Turnover Coordinator, S.O.R.C.
member.

8/83 - 1/84

New York Power Authority, James
A. Fitzpatrick, Asst. Shift Supervisor,
First Line Supervisor, S.R.O.
Responsible for plant operation
and compliance to technical
Specification.

1980 - 1983

Senior Nuclear Operator - James
A. Fitzpatrick: Directs the activities
of all operators on shift during
all modes of operation including
refuelling, startup, shutdown,
normal, abnormal and emergency
conditions.

1978 - 1980

Nuclear Control Room Operator:
Primary operator controls all
equipment on the main control
boards.

1977 - 1978

Nuclear Operator C: Operation
of all plant equipment not controlled
by the main plant control room,
this includes the auxilliary boilers,
Rad Waste facility, Containment
air dilution system, Fire system and
other balance of plant equipment.

1976 - 1977

Virginia Electric & Power Company,
Surry 1 & 2: Nuclear Instrumentation
Technician. Calibration and Maintenance
of instrumentation for Nuclear, Reactor
protection, Radiation protection,
balance of plant, security and plant
computer.

1967 - 1975

U.S. Navy ETR2(SS)
R.O. U.S.S. Truxtun CGN35
R.O. U.S.S. Tullibee SSN597

TABLE 13.1-4 (cont)

SHIFT SUPERVISOR

NAME: John Buchanan

to be
deleted from
FSAR

LICENSES AND CERTIFICATES:

1980 New Jersey Red Seal License,
Stationary Engineer

EDUCATION:

1974 - 1976 Saint Peter's College - Jersey City, NJ,
Courses in Accounting, Economics, Management,
Business Law; Data Processing.

1976 PSE&G
Operations Indoctrination Course

1977 PSE&G,
Operations Course

1982 Memphis State University,
Certificate - Nuclear Reactor Fundamentals

1983 Memphis State University,
Certificate - Reactor Startup Experience

1983 PSE&G,
BWR Technology Course

1983 General Electric,
Certificate - Shift Supervisor Nuclear

1983 Lund Consulting, Inc.
Aberrant Behavior Identification and
Leadership Skills Course

TABLE 13.1-4 (cont)

Page ⁴⁹23 of 52EXPERIENCE:

1982 - Present

Shift Supervisor for Hope Creek Generating Station, BWR: Responsible to the Senior Shift Supervisor for supervising shift personal and directing the accomplishment of shift activities. The operations department directs the overall operation of the nuclear steam supply system, turbine generator and auxiliary system, waste system, fire protection system, and other support systems. Responsibilities includes:

- a) Conducting shift activities in accordance with Operating Practices, the Station Plant Manual, the NRC Operating License (Technical Specifications) and good operating practice.
- b) Supervising the shift operating crew, comprised of control operators, equipment operators, utility operators and others as assigned for training or special tasks.
- c) Performing the steps necessary to ensure that shift operations are adequately manned to meet licence requirements and anticipated plant conditions.
- d) Explaining plans, procedures and safety precautions to shift operating personal prior to unusual or infrequent operations and prior to the performance of periodic tests, required by Technical Specifications.
- e) Assisting the Senior Shift Supervisor in disseminating Station Plant Manual revision information to shift operating personal.
- f) Responding to the PSE&G electrical system emergency procedures.
- g) Reviewing the Shift Reports, log sheets recorder charts, computer print-outs and other data compiled by the shift operating crew to detect abnormal trends, assess potential operating

TABLE 13.1-4 (cont)

problems and confirm the accuracy of the information.

- h) Initiating requests for maintenance or repair through the Work Order System to insure the continuity and safety of operations.
- i) Assembling and reporting absences of personal under supervision, in the event of station evacuation.
- j) Reviewing Safety Tagging Rules every six months with each member of the shift crew for training purposes.

1981 - 1982

Control Operator for Hudson Generating Station Control the operation of a high-pressure boiler-turbine-generator unit and associated equipemnt.

1978 - 1981

Equipment Operator for Hudson Generating Station Operate boilers, turbines, generators from isolated panels and major auxiliary apparatus, perform electrical switching operations and assist in the operation of the control room.

1976 - 1977

Utility Operator for Hudson Generating Station Operate certain boiler and turbine-generator auxiliary apparatus, station service equipment and associated piping and perform work related to the operation of boilers, turbine-generators and associated equipment.

TABLE 13.1-4 (cont)

SHIFT SUPERVISOR

NAME: Edward M. JeffersLICENSES AND CERTIFICATES:

1981 New Jersey Red Seal License, Stationary Engineer

EDUCATION:

1972 PSE&G,
Equipment Operator Trainign Course

1974 PSE&G,
Control Operator Training Course

1981 PSE&G,
Management Training Program

1982 Memphis State University,
Nuclear Reactor Fundamentals

1983 General Electric,
Shift Technical Advisor Training

PSE&G,
BWR Technology Course

Lund Consulting, Inc.,
Aberrant Behavior Identification and
Leadership Skills Course

EXPERIENCE:

1982 - Present Shift Supervisor at Hope Creek Generating Station

1980 - 1982 Shift Supervisor at Linden Generating Station

1978 - 1980 Control Operator at Linden Generating Station

1972 - 1978 Equipment Operator at Linden Generating Station

TABLE 13.1-4 (cont)

1970 - 1972

Utility Operator at Linden Generating
Station

TABLE 13.1-4 (cont)

SENIOR NUCLEAR SHIFT SUPERVISOR

1.53 of 1

NAME: Martin J. TrumLICENSES AND CERTIFICATES:

1978	New Jersey Red Seal License, Stationary Engineer
1983	Cold SRO Certification Susquehanna Simulator

EDUCATION:

1969	U.S. Navy Basic Electricity and Electronics School
1970 - 1973	U.S. Navy Schools in Electronics, Communications Equipment, Navigation Electronics, Damage Control and Electronic Counter Measures Equipment
1974	DeVry Technical Institute, Electronics Technology Certificate
1975	PSE&G, Operations Phase II Training
1977	PSE&G, Supervisor Training PSE&G, Operations Phase IV Training for Supervisors
1978	PSE&G, Advanced Management Training Seminars
1980	NUS Corporation, BWR Technology
1982	Memphis State University, Nuclear Reactor Fundamentals
1983	Memphis State University, Reactor Startup Certificate Memphis State University, STA Training

TABLE 13.1-4 (cont)

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EXPERIENCE:

1983 - Present	Senior Nuclear Shift Supervisor at Hope Creek. During the period 1/84 through 7/84 served as assistant to the Shift Supervisor at Susquehanna Steam Electric Station. While assigned to an operating shift, participated in the operation of Unit 1 and Unit 2 Startup from operations for initial criticality up through power operation.
1980 - 1983	<p>Shift supervisor at Salem and Hope Creek. During the time at Salem my major responsibility was handling Liquid Rad Waste Operations for the Operating Department. I was also responsible for the training of Operating Department personnel in the operation of the Process Evaporators and responsible to the operations manager for many miscellaneous activities involved with the support of operating shifts</p> <p>Also prior to transferring to the Nuclear Department from Linden Generating Station, I was selected to participate in a group of five people to come to Salem and train new operating department personnel in the fundamentals of power plant operations. This assignment lasted 4 months and we trained approximately 60 people</p>
1977 - 1980	Shift supervisor at Linden Generating Station. Supervised an Operating Department Shift, prepared daily Operating Department reports, supervised the day-to-day operation of the plant
1975 - 1977	Control operator at Linden Generating Station
1973 - 1975	Equipment Operator at Liden Generating Station
1969 - 1973	Electronics technician U.S. Navy. Had direct responsibility for the maintenance of all shipboard communications equipment, electronic navigation equipment and electronic countermeasures equipment
1968 - 1969	Utility Operator at Linden Generating Station

TABLE 13.1-4 (cont)

NUCLEAR SHIFT SUPERVISOR

P. 55 of 6

NAME: Larry NewmanLICENSES AND CERTIFICATES:

1976	Qualified Electrical Operator on S5G Prototype, PWR
1978	Qualified Engineering Watch Supervisor on USS Cavalla (SSN 684), PWR
1979	Qualified Reactor Operator for Startup Testing on USS OHIO (SSBN 726), PWR
1980	Qualified Engineering Watch Supervisor on USS OHIO (SSBN 726), PWR
1983	SRO Cold Certification, Susquehanna Steam and Electric Station, BWR

EDUCATION AND TRAINING:

1974	U.S. Navy Basic Electricity (Electronics, (6 weeks)
1975	U.S. Navy Interior Communications Electrician "A" School (9 weeks)
1975	U.S. Navy Nuclear Power School, (24 weeks)
1975	U.S. Navy Nuclear Power Training Unit, S5G Prototype, (26 weeks)
1982	Memphis State University, Nuclear Reactor Fundamentals
1983	Memphis State University, Startup experience
1983	Memphis State University, Shift Technical Advisor Program
1983	BWR Cold Certification Training on the Susquehanna Steam and Electric Station, General Physics Corp.
1984	Hope Creek Systems Training
1985	The University of the State of New York, BS, Physics

Amendment

TABLE 13.1-4 (cont)

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EXPERIENCE:

1982 - Present

Shift Supervisor, Hope Creek Generating Station, BWR; Responsible to Senior Nuclear Shift Supervisor for Supervision of shift operators and shift support personnel. Responsibilities include:

- a) Overall operation of the Nuclear Steam Supply System, Turbine Generator and Auxiliary Systems, Waste Systems, Fire Protection Systems, and other support systems.
- b) Procedure reviews which apply to power operation, startup, shutdown, and emergency or abnormal conditions.
- c) Reviewing CRIDS displays for technical content, general layout and operator usability.

1974 - 1982

United States Navy

Responsibilities Included:

- a) Engineering Watch Supervisor, the field supervisor for overall operation of the propulsion plant during extended operating periods, new construction startup testing and initial Sea Trails of the USS OHIO (SSBN 726), the lead ship of the Trident class submarine.
- b) Logroom Yeoman, Administrative Assistant to the Engineer Officer. Responsible for maintaining and supervising the updating of all technical documents associated with operating the propulsion plant.

Amendment

TABLE 13.1-4 (cont)
NUCLEAR SHIFT SUPERVISOR

P.57 of 6

NAME: Thomas L. Russell

LICENSES AND CERTIFICATES:

Reactor Operator - Salem 1 & 2 Units

Senior Reactor Operator Certified Susquehanna Simulator

New Jersey Red Seal

EDUCATION AND TRAINING:

1962	Leanapo Regional High School, Medford, New Jersey
1971	Phase II Boiler and Turbine Operation 6 months course
1971	Understanding Nuclear Mechanics 2 weeks
1971	Pratt and Whitney Gas Turbine Operation 1 week
1974 - 1975	Reactor Operator Training Program 9 months
1974	Radiation Protection Training 2 weeks
1976	Westinghouse, Reactor Simulator Training Reactor Startup Certification
1976	Westinghouse: Pre-License Review Series and Audit 3 months
1977 - 1981	Reactor Operator Requalification Program, at the following simulators: Indian Point, NJ; Surey, VA; Snupps, Pittsburg, PA.
1982	BWR Plant Indoctrination Course 2 weeks
1983	General Electric: Shift Technical Advisor Training 8 week course
1983	Memphis State University Nuclear Reactor Fundamentals (10 months)

Amendment

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TABLE 13.1-4 (cont)

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EDUCATION AND TRAINING:

1983	Supervisor Training 3 weeks
1983 - 1984	General Physics: S.R.O. BWR Certification Susquehanna Simulator (12 weeks)
1984	S.R.O. Observation Training Susquehanna, (6 months)
1984	Hope Creek System Course 8 weeks

EXPERIENCE:

1982 - Present	Nuclear Shift Supervisor - Hope Creek
1974 - 1982	Nuclear Control Operator - Salem 1 & 2 Units Responsible to operate plant in a safe and professional manner. Duties: operate control consoles, direct and instruct equipment and utility operators in their duties during normal and abnormal operations, and special testing. Participated in both units Pre-operational Testing, Cold Hydro, Hot Functional Testing, Initial Core Load, Initial Reactor Start-up, Low Power Physic Testing and Refueling.
1972 - 1974	Equipment Operator: Salem I Duties: Electrical Switching, Gas Turbine Operation; Initial Boiler and Boric Acid Evaporator Start-up. Assisted System Engineers in initial system alignment and system start-ups.
1970 - 1972	Equipment Operator: Burlington Generating Station Duties: Operator 1200 & 600# Boilers and Turbines. Directed utility operator during normal operation.
1969 - 1970	Utility Operator: Burlington Generating Station Duties: Operated Boiler and Turbines Auxiliary Equipment and performed minor maintenance on equipment.

Amendment

TABLE 13.1-4 (cont)

NUCLEAR SHIFT SUPERVISOR

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NAME: David M. PowellLICENSES AND CERTIFICATES:

Reactor Operator - Grand Gulf Nuclear Station (BWR)

EDUCATION AND TRAINING:

1970 - 1971	Various U.S. Navy Nuclear Power Schools Fire Training/Multimedia First Aid, Mississippi State Fire Academy General Electric BWR RO Certification (8 weeks), Tulsa, OK
1983	Hope Creek Systems, Memphis State University

EXPERIENCE:

1983 - Present	Nuclear Shift Supervisor - Hope Creek In charge of coordinating activities pertaining to shift operations during the construction phase.
1980 - 1983	Control Room Operator at Grand Gulf Nuclear Station. Duties included control of all plant operations, reactor operations, and shift fire brigade leader.
1977 - 1980	Electronics Technician, Moore Business Forms, Dover, New Hampshire.
1970 - 1977	Electronics Technician, U.S. Navy. Qualified as Reactor Operator, Electrical Operator, and Shutdown Maneuvering Area Watch.

Amendment

TABLE 13.1-4 (cont)
NUCLEAR SHIFT SUPERVISOR

P. 60 of

NAME: Robert Stamato

LICENSES AND CERTIFICATES:

Reactor Operator - Salem Unit 1 & 2 (PWR)

Senior Reactor Operator (cold cert) - Susquehanna Steam Electric Station (BWR)

Stationary Engineer - New Jersey Red Seal

EDUCATION AND TRAINING:

1968	High School Diploma - St. Michaels High School
1969 - 1971	Various U.S. Navy Machinist Mate courses
1972	Apprentice Equipment Operator Training Program (PSE&G)
1975	Basic Nuclear Power Training and RO Licensing Program - Salem Nuclear Station
1977 - 1982	Salem Licensing requal program
1983	BWR Technology
1984	General Physics pre-cert and certification program - Susquehanna Steam Electric Station.
1984	Six months SRO observation training at Susquehanna Steam Electric Station.

EXPERIENCE:

1982 - Present	Nuclear Shift Supervisor - Hope Creek In charge of coordinating activities pertaining to shift operations during the construction phase.
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Amendment

TABLE 13.1-4 (cont)

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EXPERIENCE:

1974 - 1982	Nuclear Control Operator - Salem Unit 1 and 2. Responsible for operation of plant control consoles, direct and instruct EOs/UOs, and performed plant testing. Participated in pre-op testing, cold hydro, hot functional testing, initial core load, initial reactor startup, low power physics testing and refueling.
1972 - 1974	Equipment Operator, Salem Nuclear Station. Duties included: electrical switching, gas turbine operation, system alignments and component startups.
1971 - 1972	Utility Operator, Marion Generating Station.
1969 - 1971	U.S. Navy, Machinist Mate 3C.

Amendment

TABLE 13.1-4 (cont)

NUCLEAR SHIFT SUPERVISOR

P. 62 of

NAME: Randall K. ThorsonLICENSES AND CERTIFICATES:

Senior Reactor Operator - LaCrosse, BWR

EDUCATION AND TRAINING:

1973	High School Diploma; Dundie High, Dundie, Ill.
1974 - 1975	Various U.S. Navy Nuclear Power Schools
1981	R.O. Licensing classes at LaCrosse BWR
1982	2 years college level technical courses at the University of Wisconsin - LaCrosse (Pre-Engineering Major)
1983	S.R.O. Licensing classes at LaCrosse BWR
1984	Technical Supervisory Skills Program (8 weeks) PSE&G

EXPERIENCE:

Jan 1984 - Present	Nuclear Shift Supervisor - Hope Creek In charge of coordinating activities pertaining to shift operations during the construction phase.
July 1983 - Dec 1983	SRO at the LaCrosse BWR. Responsible for the supervision of shift personnel operating the controls to ensure safe operation and procedural compliance.
Dec. 1979 - Dec 1983	RO at the LaCrosse BWR Responsible for the manipulation of reactor controls.
Aug. 1973 - Oct. 1979	Machinist Mate - Nuclear in the United States Navy. Qualified EWS on USS Will Rogers (SSBN 659). In charge of coordinating maintenance of Secondary Plant Components.

Amendment

TABLE 13.1-4 (cont)
NUCLEAR SHIFT SUPERVISOR

P. 63 of

NAME: Francis P. Higgins

LICENSES AND CERTIFICATES:

1974 Qualified Mechanical Operator on S5G Prototype, PWR
1978 Qualified Engineering Watch Supervisor on USS Virginia,
PWR
1983 SRO Cold Certification, Susquehanna Steam Station

EDUCATION AND TRAINING:

1972 Graduated Phoenixville Area High School,
Phoenixville, PA.
1973 U.S. Navy Machinist Mate "A" School, Great
Lakes, ILL.
1973 U.S. Navy Nuclear Power School, Mare Island,
CA.
1973 U.S. Navy Nuclear Power Training Unit S5G
Prototype Idaho Falls, Idaho.
1982 Drexel University credits in Math and
English.
1982 Memphis State University Nuclear Reactor
Fundamentals
1983 Memphis State University Startup Experience
1983 Memphis State Station Program
1983 Pre-certification System Training
1983 BWR Cold Certification Training
1983 Hope Creek Systems Training
1984 University of the State of New York, 100
credits in Credit Bank

Amendment

TABLE 13.1-4 (cont)

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EXPERIENCE:

1982 - Present

Shift Supervisor - Hope Creek Generating Station, BWR. Responsible to Senior Shift. Supervisor for supervision of shift operators and shift support personnel. Responsibilities include:

- a) Overall operation of nuclear steam supply system, Turbine Generator and Auxiliary Systems, waste-systems, Fire Protection Systems and other support systems.
- b) Procedure reviews which apply to power operation, start-up, shutdown and emergency or abnormal conditions.

1981 - 1982

Bechtel Power Corporation, Limerick, PA. Instrumentation Staff Engineer - Coordinate Instrument Group scheduling activities including: manpower forecasting, Hydro and Turnover systems completion. Initiate and update group standards and procedures, research coordinate and disseminate design information between Instrument Group, Resident Engineer and Home Office Staff. Interface with Lead Field Instrument Engineer to provide design criteria interpretation and resolve installation problems. Act on behalf of Lead Instrument Engineer in his absence.

1981

Bechtel Power Corporation, Limerick, PA. Assistant Instrumentation Superintendent. Supervise 37 pipefitters assigned to Turbine Instrument Group. Coordinate installations with Field Engineers to support construction schedules. Forecast and assign manpower as required to support schedules. Insure safety regulations and design requirements were adhered to by craftsmen.

Amendment

EXPERIENCE:

1980 - 1981

Bechtel Power Corporation, Limerick, PA.
Senior Instrument Field Engineer. Supervise 6 Field Engineers and one clerk, control work activities and assign tasks, coordinate all Instrument Field Engineering activities in Turbine and Control Building. Interface with Lead Field Instrument Engineer and Superintendents as required. Provide resolutions for design and installation related problems.

1979 - 1980

Bechtel Power Corporation, Grand Gulf, MS.
Instrument Field Engineer. Provide engineering support to craftsmen as required. Insure work is being and has been completed in accordance with design criteria. Prepare work packages for craftsmen. Responsible for 13 start-up systems including punch listing Hydro testing and turnover to start-up.

1973 - 1979

United State Navy, Nuclear Machinist Mate.
Qualified as Engineering Watch Supervisor, Engineer Room Supervisor, Engine Room Supervisor, Eng. Duty Petty Officer and was Leading Petty Officer in #2 Engine Room on USS Virginia. Responsible for scheduling and assigning and supervising all maintenance for both primary and secondary systems in #2 Engine Room. Assigned to USS Virginia Precommissioning Unit at Newport News Shipyard. Participated in preconditioning of Reactor Plant Systems, Quality Control of Shipyard Personnel, Initial Fuel Load, Initial Criticality, Builders Trials and Acceptance Trials. Also testing and acceptance of all related systems; i.e., Turbine Generators, Feed Pumps and their governing systems. Performed maintenance on primary and secondary systems, including: pumps, valves, control systems and governing systems.

TABLE 13.1-4 (cont)
NUCLEAR SHIFT SUPERVISOR

P. 66 of

NAME: Francis J. Hughes

LICENSES AND CERTIFICATES:

1969	Qualified Reactor Operator on S1C Prototype, PWR
1970	Qualified Reactor Operator on U.S.S. Daniel Boone, PWR
1979	S.R.O. License SOP3436, Indian Point Unit III, Buchanan, New York, PWR
1983	Cold SRO Certification - Susquehanna Simulator

EDUCATION AND TRAINING:

1966	Graduated Collingswood H.S., Collingswood, NJ
1967	U.S. Navy Electronic "A" School in Great Lakes, Illinois
1968	U.S. Navy Nuclear Power School in Bainbridge, Maryland
1969	U.S. Navy Nuclear Power Training Unit S1C Prototype, Windsor Locks, Connecticut
1969 - 1972	Various U.S. Navy Schools, courses in Nuclear Instrumentation, Reactor Protection Systems, Steam Generator Feed Water Level Control System, Rod Control System
1973	Consolidated Edison Nuclear Plant Operator Training Course
1978	N.U.S. License Preparatory Course, Buchanan, New York
1983	Memphis State University
1983	Hope Creek Systems Course
1984 - Present	Susquehanna Steam Electric Station - Experience training as an Assistant Shift Supervisor on D Shift

Amendment

TABLE 13.1-4 (cont)

EXPERIENCE:

1983 - Present

Shift Supervisor for Hope Creek Generating Station, BWR: Responsible to the Senior Shift Supervisor for direct supervision of the operating crews including the Radwaste Operators and Shift Support personnel. Responsibilities include:

- a) Overall operations of the Nuclear Steam Supply System, Turbine Generator and Auxiliary Systems, Waste Systems, Fire Protection Systems and other Support Systems.
- b) Review procedures which apply to startup, power operations, shutdown emergency and abnormal conditions.

1979 - 1983

Senior Reactor Operator at Indian Point Unit III: Supervise the performance of the Control Room Operators and ensure that operations are conducted safely and efficiently in compliance with Technical Specifications and operating license.

1973 - 1972

Nuclear Plant Operator: Operates equipment in the field at Indian Point Unit III.

1966 - 1972

Reactor Operator: U.S.S. Daniel Boone.

TABLE 13.1-4 (cont)
NUCLEAR SHIFT SUPERVISOR

P. 68 of

NAME: Randy F. Ebright

LICENSES AND CERTIFICATES:

Reactor Operator - Shoreham Nuclear Station (BWR)

BWR Operators Certificate - Dresden Nuclear Station (BWR)

EDUCATION AND TRAINING:

Hope Creek Systems, Memphis State University

NRC Reactor Operator's License OP-6226

Shoreham Operator's Training Program

Mitigating Core Damage Course

Heat Transfer, Fluid Flow and Thermodynamics Course
(NUS Corp. & NES Corp.)

Operator Simulator Training - Limerick NPS
(General Physics Corp.)

BWR Observation Program - Millstone NPS
(General Electric)

BWR Operator's Certification Program - Dresden NPS
(General Electric)

BWR Technology Course (General Electric)

Shoreham NPS On-Site Training Program

Research Reactor Training Program (Brookhaven National
Labs)

Nuclear Energy Training Course (NUS Corp.)

Naval Nuclear Power Training Unit

Naval Nuclear Power School

Electronics Technician "A" School

Basic Electronics and Electricity School

Amendment

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TABLE 13.1-4 (cont)

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EXPERIENCE:

1983 - Present

Nuclear Shift Supervisor - Hope Creek
In charge of coordinating activities pertaining to shift operations during the construction phase. During this time, was temporarily assigned to the Nuclear Training Department. Conducted initial review of Plant System Operating Procedures and Integrated Operating Procedures. Assisted Engineering and Construction Department in development and enhancement of the Control Room Integrated Display System. As a member of the Hope Creek Simulator Test Team, conducted testing of the Hope Creek Simulator at Singer - Link facility in Columbia, MD.

1981 - 1983

Nuclear Assistant Station Operator/Nuclear Equipment Operator - Shoreham Nuclear Station. Responsibilities included: operation, surveillance testing and performance testing of BWR plant and associated balance of plant equipment. During start-up test program, assisted system engineers in operational and performance testing of systems.

1981

Instrumentation and Controls Technician - Combustion Engineering. Assisted PWR Plant Instrumentation and Controls Department during refueling outage in the backfitting, replacement, repair, calibration and trouble shooting of plant's electrical, electronic and hydro-pneumatic equipment.

1979 - 1981

U.S. Navy

Electronics Technician - USS Canopus

Electronics Technician involved in the maintenance, repair and troubleshooting of a wide variety of nuclear submarines; electronic equipment.

Amendment

EXPERIENCE:

Nuclear Reactor Operator - USS Kamehameha

Nuclear Reactor Operator aboard 640 Class fleet ballistic missile submarine. Qualified Nuclear Reactor Operator. Duties included: operation, troubleshooting and repair of 55MW reactor plant and associated reactor controls equipment. Other responsibilities included: Reactor Controls Division Repair Parts Petty Officer, Reactor Controls Division Training Petty Officer, Engineering Log Room Yeoman and Human Relations Council member.

Nuclear Reactor Operator - Naval Nuclear Power Training Unit

Qualified Nuclear Reactor Operator on the MARF Reactor Plant. After qualification, assisted in the qualification training program of junior students.

TABLE 13.1-4 (cont)

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SENIOR NUCLEAR MAINTENANCE SUPERVISOR

NAME: Thomas R. WysockiEDUCATION:

1958	Greenport High School
1962	Wentworth Institute, Credits toward Associate Degree in Architecture
1962	Franklin Institute, Credits in Math and English
1973	Delaware Community College, Credits in Computers and Math
1975	Salem Community College, Associated Degree Construction Technology

TRAINING:

1963	U.S. Navy Machinist Mate A School
1964	U.S. Navy Submarine School
1965	U.S. Navy Nuclear Power School
1966 - 1970	Various U.S. Navy Service Schools on Nuclear Submarine Equipment
1974	Quality Assurance Orientation Course
1977	Quality Assurance Visual Examiners Level I and II Training Course
1980	Quality Assurance Liquid Penetrant Method of Nondestructive Examination Course
1980	Quality Assurance Magnetic Particle Method of Nondestructive Examination Course
1981	BWR Technology Course

TABLE 13.1-4 (cont)

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1983	Aberrant Behavior Identification and Leadership Skills
1983	Advance Supervisory Training Program
1984	Diesel Engine Training

EXPERIENCE:

1970 - Present	Public Service Electric and Gas Company
1981 - Present	Senior maintenance supervisor for Hope Creek Generating Station: Responsible for planning assignments, assigning manpower, and establishing work priorities. Involved with the maintenance department establishment, spare parts acquisition, system and facility design reviews, procedure writing, and preparing for the startup test program
1975 - 1981	Maintenance supervisor for Salem Generating Station: Responsible for the direct planning and execution of maintenance activities. Direct supervisor of bargaining unit work force
1972 - 1975	Startup test engineer for Salem Generating Station: Duties included developing, writing, and directing startup procedures. Prepared test reports and evaluated test results
1970 - 1972	Junior staff assistant for corporate office Assisted the production department performance engineer in collecting data and preparing reports
1965 - 1970	Machinist mate, U.S. Navy: Served as a mechanical repairman/operator on S5w pressurized water reactor. Responsibilities included repairing, testing, and operation of the reactor and associated systems

TABLE 13.1-4 (cont)

SENIOR NUCLEAR MAINTENANCE SUPERVISOR

P. 73 of 6

NAME: Mark ShedlockEDUCATION:

1971	Colonia High School
1975	Union Junior College, A.A. Degree in Engineering
1977	Rutgers University - College of Engineering B.S.E.E. in Electrical Engineering, Magna Cum Laude

TRAINING:

1977	Westinghouse P.W.R. Course
1977	QAD Course #25 for P.C.D. Personnel
1977	Non-Destructive Examination Course
1978	23rd Annual Appalachian Underground Corrosion Short Course
1978	Seminar on State of the Art Power Plant Construction
1978	QAD Course #5 for Orientation Training for Engineers
1978	QAD Course #27 for Reg. Guide 1.58 and ANSI N45.2.6
1979	CCM-5 Construction Backcharges/Subcontracts Course
1979	CCM-3 Construction Scheduling Course
1979	CCM-2 Construction Accountability Course
1979	CCM-1 Overall Construction Process Course
1984	QA Training for Hope Creek Startup and Test Personnel

TABLE 13.1-4 (cont)

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EXPERIENCE:

1977 - Present	Public Service Electric and Gas Company
1983 - Present	Senior Maintenance Supervisor for Hope Creek Generating Station: Responsible for planning assignments, assigning manpower and establishing work priorities for maintenance activities and startup testing activities. Involved with the Maintenance Department establishment, system and facility acceptance, acquisition of department tools and test equipment and procedure review and approval
1979 - 1983	Resident Electrical Engineer for Salem Generating Station, responsible for resolution of electrical operating problems to maintain unit reliability; develop specifications for subcontract work packages; modification to system design to suit station conditions; review new design for constructability and material needs; site fire protection coordinator; interface with maintenance contractor and home office Engineering regarding new work items and NRC commitments; member - Salem Emergency Response Team
5/1979 - 11/1979	Public Service Electric and Gas Company Hope Creek Generating Station Construction Engineer responsible for monitoring the progress and quality of electrical, control and instrumentation activities in the power block; procurement review for permanent plant and construction equipment and materials; subcontract administration encompassing specification review, bid invitation, contract award and progress to closeout
7/1977 - 5/1979	Public Service Electric and Gas Company Salem Generating Station - Unit No. 2 Acting Lead Construction Engineer - Electrical responsible for integration of discipline activities; review and approve Engineering changes; direct administration of Electrical subcontractor work packages; review and revise work package specifications; provide functional direction to Field Engineers and Designers. Identify and resolve all construction problems; certified Startup/Test Engineer - Level II

TABLE 13.1-4 (cont)
SENIOR I&C SUPERVISOR

P.75 of 6

NAME: Theodore R. RobbinsEDUCATION:

1960 - 1964	East Haven High School
1965 - 1966	U.S. Navy Electronic "A" School
1968	U.S. Navy Nuclear Power School
1968	U.S. Navy Submarine School
1969	U.S. Navy S5W Primary Plant Instrumentation School
1969	U.S. Navy Atmosphere Analyser School
1969	U.S. Navy S5W Westinghouse 60-Cycle Rod Control School
1969	U.S. Navy Magnetic Amplifier School
1970	U.S. Navy Advanced Transistor Theory School
1972	General Physics Electronics Training
	PSE&G, Report Writing Course
1980	NUS BWR Information Course
1983	Aberrant Behavior and Leadership Skills

EXPERIENCE:

1972 - Present	Public Service Electric and Gas Company
1981 - Present	Senior I&C supervisor - Hope Creek Operations: Responsible for instrumentation and control systems maintenance, testing, and calibration

Amendment

TABLE 13.1-4 (cont)

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1975 - 1981	Instrument supervisor - Salem Generating Station: Supervised I&C technicians in all aspects of instrumentation system maintenance, testing, and calibration. Functioned as department planning coordinator for initial startup of Unit 2 and two refueling outages for Unit 1
1972 - 1975	I&C technician for Salem Generating Station: Performed maintenance, calibration, and testing activities on instrumentation and control systems
1965 - 1972	Electronics technician for U.S. Navy: Performed maintenance and testing of reactor plant instrumentation systems Reactor operator: Daily operations of submarine S5W reactor plant Engineering watch supervisor: Supervised activities of technicians, machinists, and electricians in the varied aspects of submarine reactor plant operation and maintenance

TABLE 13.1-4 (cont)

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SENIOR I&C ENGINEER

NAME: Michael D. Zapolski, Sr.

LICENSES AND CERTIFICATES:~~None~~

1984

Certified QA Level III

EDUCATION:

1963

Henry Ford High School

1978

Degree, Liberal Arts
Cumberland County College

1982

Degree, Associate in Engineering
Widener University

1983

Degree, BS, Engineering
Widener UniversityTRAINING:

1964 - 1965

U.S. Navy Electronics "A" School

1965

Basic Naval Nuclear School

1965 - 1968

Naval Nuclear ^{Power} Training Unit
Reactor Supervisor and Staff Instructor

1968 - 1969

U.S. Navy Electronics "B" School

1971 - 1975

Naval Nuclear Power Training Unit
Reactor Supervisor and Staff Instructor
Analysis of Electronic Systems
DeVry Institute of Technology

1977

Level II Quality Assurance

1982

BWR Technology Course

1984

Level III Quality Assurance

EXPERIENCE:

1975 - Present

Public Service Electric and Gas Company

TABLE 13.1-4 (cont)

Page 11 of 52

1983 - Present	Senior Engineer assigned to the Technical Department (I&C Group), Hope Creek Generating Station: Responsible for providing administration and technical direction to three staff engineers and ten on-site consultants, development of the I&C Training Programs, direct supervision of the I&C procedure writing effort, and development and maintenance of a five-year department budget. Also serves as a member of the Hope Creek Operations PORC Committee.
1981 - 1983	Lead Engineer assigned to the Operating Department, Hope Creek Generating Station: Responsible for the design and development of the department's activities prior to core load.
1978 - 1981	Engineer assigned to the Maintenance Department, Salem Generating Station: Responsible for the development, maintenance, and direct supervision of forced, annual, and refueling outage maintenance schedules (CPM's).
1976 - 1978	Associate Engineer assigned to the Maintenance Department, Salem Generating Station: Responsible for analyzing station work orders and developing work plans. During outages, coordinate the performance of work order jobs with the various departments from within the station.
1975 - 1976	Nuclear Staff Assistant assigned to the Operating Department, Salem Generating Station: Responsible for organizing the station's Technical Specifications and Surveillance Testing Program.
1971 - 1975	Training Engineering Officer of the Watch, U.S. Navy: Responsible for qualifying offices and engineers in electrical, mechanical, and steam systems design; and supervising and teaching staff members in reactor plant theory, control, maintenance and operation.
1965 - 1971	Electronics Technician for U.S. Navy: Performed and scheduled maintenance and testing of reactor plant control and instrumentation systems

Amendment 5

(Cont'd)

Reactor Operator: Conducted daily operations of
SSW and DIG reactor plants.

Reactor Prototype Instructor: Conducted ^{reactor controls} theoretical and
practical training for enlisted
personnel at the DIG prototype

TABLE 13.1-4 (cont)

SENIOR REACTOR SUPERVISOR

NAME: Richard J. ThompsonLICENSES AND CERTIFICATES:

1981	Shift Technical Advisor Certification - Oyster Creek Nuclear Generating Station, BWR
1983	Shift Technical Advisor Certification - Susquehanna Steam Electric Station, BWR
1983	Senior Reactor Operator Certification on the Susquehanna Steam Electric Station Simulator, BWR

EDUCATION AND TRAINING:

1973 - 1977	Pennsylvania State University, BS, Nuclear Engineering
1977	Exxon Nuclear Corp., Core Management Computer Codes Training
1978	EPRI Power Shape Monitoring System workshop, Nuclear Services Corp., Campbell, CA
1980	GE BWR Training Center, Morris, IL, Simulator Training for Shift Technical Advisor Certification EPRI Power Shape Monitoring System Advanced Workshop, Systems Control, Inc., Palo Alto, CA
1980 - 1981	Oyster Creek Nuclear Generating Station, Shift Technical Advisor Certification Training
1981	Oyster Creek Nuclear Generating Station, Mitigation of Core Damage Lecture Series
1983	Susquehanna Steam Electric Station, Shift Technical Advisor Certification Training

TABLE 13.1-4 (cont)

1983 Susquehanna Steam Electric Station Simulator,
Senior Reactor Operator Certification
Training

1983 - Present Hope Creek Senior Reactor Operator Cold
License Training Program

EXPERIENCE:

4/1983 - Present Public Service Electric and Gas Company

Senior Reactor Supervisor, HCGS: Responsible
for reactor engineering, thermal performance
and equipment reliability monitoring.
Provide coordination and technical direction
to staff engineers to ensure compliance with
station procedures, Technical Specifications
and regulatory requirements

1981 - 1983 Nuclear Energy Services, Inc.

Field Engineer - Assigned to the Susquehanna
Steam Electric Station of the technical
review of the Unit 2 preoperational test
procedures. Subsequently completed Shift
Technical Advisor certification training for
on shift duty. Responsibilities as Shift
Technical Advisor included: providing
analysis and assessment of overall plant
status and critical plant parameters during
major transients and accidents; providing a
technical review and analysis of plant
operations from a nuclear safety viewpoint;
assisting Shift Supervision in interpreting
and applying the requirements of Technical
Specifications; and directing the
implementation of the startup tests by
serving as test director during the Startup
Test Program

Previously assigned to the Shoreham Nuclear
Power Station as principal engineer for
development of the initial Integrated Leak
Rate Tests (types A, B, and C).
Responsibilities range from writing the
functional test procedures to supervising the
successful completion of the tests

TABLE 13.1-4 (cont)

1977 - 1981

Jersey Central Power and Light CompanyLead Reactor Engineer and Shift Technical Advisor - Responsibilities included:

determination and direct supervision of core maneuvers; core monitoring and analysis to assure compliance with Technical Specification limits; predictive computer calculations for determination of fuel reload patterns, shutdown margin, and core operating strategies; low power physics testing and analysis; control rod withdrawal sequence development and criticality predictions for reactor startup; control, inventory and isotopic accounting of special nuclear material; preparing and reviewing procedures; training and development of less experienced reactor engineers; and special projects as required

Responsible for core-related computer software systems which included: maintaining core calculational computer codes and making modifications as required; site representative for the EPRI Power Shape Monitoring System in a benchmarking and development effort.

Responsible for coordination of local leak rate testing activities and associated procedures, and participation in the performance of the primary containment integrated leak rate test

Other duties included: Technical Support Engineer in the Emergency Plan; preparing and presenting lectures to licensed reactor operators; development of a computer program to perform feedwater flow calculations; writing a bid specification for in-core nuclear instrumentation assemblies

1975 - 1976

Westinghouse Electric Corp.

Summer Student Program

Functional Analysis Group: Worked with Senior Engineer in connection with a new Power Control System for XL cores. Tested an analog computer model for a Boron Control System. Developed an analog model for a Reactor Coolant Leakage Detection System. Conducted a comparison study of two protection system reactor trip margins. Wrote a digital computer code to simulate xenon poisoning for application to a hybrid computer model of PWR plants.

Fuel Licensing & Coordination Group: Assisted the group engineers as needed. Wrote section for Fuel Licensing and Safety Manual. Wrote and handled correspondence for various licensing actions.

TABLE 13.1-4 (cont)

SENIOR CHEMISTRY SUPERVISOR

NAME: Tracy W. Vannoy (Acting)

LICENSES AND CERTIFICATES:

Industrial Waste Treatment Plant S-In, Issued 5/84
Registered Radiation Protection Technologist

EDUCATION AND TRAINING:

1965 - 1967	University of Pittsburgh Mechanical Engineering
1967	U.S. Navy Nuclear Power School
1968	U.S. Navy S5G Prototype
1968	U.S. Navy Engineering Laboratory Technician School
1973 - 1979	PSE&G Training Classes Including: Radiation Protection Instrumentation, Radiochemistry, Liquid Scintillation Counting Methodology, Atomic Absorption Spectroscopy, and Gamma Spectroscopy
1980	Thomas Edison State College A.A. Degree
1980 - 1981	Atlantic Community College Advanced Waste Water Operations
1982	Hazardous Material Waste Management Compliance Seminar
1982 - 1983	PSE&G Training Classes Including: Boiling Water Reactor Technology, Supervisory Training Program, Aberrant Behavior and Leadership Skills, and Water Cooling Tower and System Technology

TABLE 13.1-4 (cont)

EXPERIENCE:

1982 - Present	Public Service Electric and Gas Chemistry Supervisor - Supervised chemistry personnel in all aspects of Chemistry Department responsibilities during the construction and startup phase of a boiling water reactor
1978 - 1982	Chemistry Supervisor at Salem Generating Station - Supervised personnel performing analyses and operating water treatment facilities. Was acting Senior Supervisor for 20 months during Salem Unit 2 start-up
1973 - 1978	Chemistry Technician at Salem Generating Station - Performed analyses, operated water treatment systems, and performed other testing activities during start-up of Salem Unit 1
1967 - 1973	Leading Engineering Laboratory Technician - Responsible for chemical and radiochemical analyses, report generation, and supervision of five other engineering laboratory technicians. Was a fully qualified mechanical operator

TABLE 13.1-4 (cont)

SENIOR RADIATION PROTECTION SUPERVISOR

NAME: Leo. J. KrajewskiLICENSES AND CERTIFICATES:

None

EDUCATION AND TRAINING:

1962	Aquinas High School
1963	University of Wisconsin - LaCross Pre-engineering Credits
1963	U.S. Navy Machinist Mate "A" School
1964	U.S. Navy Nuclear Power School
1964	U.S. Navy Nuclear Power Training Unit - DIG Prototype
1965	U.S. Navy Engineering Laboratory Technician School
1969	Dairyland Power Cooperative Radiation Protection Apprentice Program
1981	Quality Assurance Level II Training
1981	Biological Effects of Radiation and Radiation Measurements - University of Michigan
1981	Non-license Nuclear Supervisors Systems Training - INGS
1982	49CFR Regulatory Awareness Course
1982	ALARA Design Review Methods Course
1983	PSE&G Supervisory Training
1983	BWR Technology
1983	Health Physics Supervisory Training - University of Florida
1984	Technical Supervisory Skills Program (TSSP-1)

TABLE 13.1-4 (cont)

EXPERIENCE:

1981 - Present	Public Service Electric and Gas Company
1984 - Present	Senior Radiation Protection Supervisor - Hope Creek - Staff, equipment, procedure and program development. Act as department head in absence of radiation protection engineer
1982 - 1984	Lead Engineer - Hope Creek Radiation Protection - Construction review for ALARA design and utilization. Department initiation, organization and development, staffing, equipment and procedure planning
1981 - 1982	Radiation Protection Supervisor - Salem Generating Station - First line supervisor in surveillance group and radiation exposure permit workroom. Lead engineer activities for ALARA review, administrative assistant to radiation protection engineer and acting department head in absence of radiation protection engineer
1969 - 1981	Dairyland Power Cooperative - LaCross Boiling Water Reactor Acting RPE - Radiation protection management during 3 years of operation and 2 refueling. Health and Safety Supervisor - First line supervision of department technicians and all program documentation in Health Physics and industrial safety for 4 years Health and Safety Technician - Health physics and industrial safety technician during 8 years of operation and 3 refueling
1963 - 1969	U.S. Navy Machinist Mate - Operation and maintenance of naval nuclear propulsion plant engine room equipment Instructor - In-plant instructor in engine room operation to officer and enlisted personnel ELT - Radiological and chemistry control of PWR systems

TABLE 13.1-4 (cont)

LEAD RADIATION PROTECTION SUPERVISOR

Will be provided by December 1984

TABLE 13.1^c-4 (cont)

SENIOR RADIOLOGICAL ENGINEER

Will be provided by December 1984

TABLE 13.1-4 (cont)

SENIOR ENGINEERING TECHNICIAN

NAME: John P. Hawrylak

LICENSES AND CERTIFICATES:

None

EDUCATION AND TRAINING

1971	BS - Chemical Engineering, University of Pittsburgh
1973	MS - Nuclear Engineering, University of New Mexico
1975	PWR Technology Course - 4 weeks Westinghouse Training Course
1976	Nuclear Safety Course Nuclear Heat Transport and Reactor Design Course Westinghouse Water Reactor Division Evening Courses
1977	Problem Solving and Decision Making Course - 1 week - Westinghouse Training Course
1977	BWR Plant Design and Fundamentals - 3 weeks - General Electric Training Services Honeywell 4000 User Programming Course - 4 weeks Honeywell Process Computer Concepts and Practice Course - 2 weeks Honeywell Process Control Division Training Center Modcomp Programming and Operating Systems - 3 weeks - Modcomp Computer Systems Training Center
1979	Station Nuclear Engineer Course - 5 weeks General Electric Nuclear Services Division

TABLE 13.1-4 (cont)

1979	7 week participation in refueling outage and subsequent startup of Peach Bottom Unit 3, cycle 3 assigned to the Reactor Engineering Section
1980	3 week participation in the startup of Fitzpatrick Nuclear Power Station Cycle 4 assigned to the Reactor Engineering Section
1984	SRO Certification on Susquehanna Steam Electric Station BWR Simulator - 15 week General Physics Corp.

EXPERIENCE:

1983 - Present	<u>Public Service Electric and Gas Company</u> Senior Engineer - Computer Services Responsible for providing support services to all station departments in the area of computer based programmatic controls. Responsible for maintaining plant process computer software. Coordinate problem resolution, requests for modifications and proposed improvements for computer based information systems used at the Hope Creek Generating Station
1978 - 1983	<u>Long Island Lighting Company</u> Nuclear Engineer - Shoreham Nuclear Power Station Responsible for assisting the Reactor Engineer in the following areas: 1) Maintaining the software associated with the plant computer systems. 2) Monitoring of the overall plant performance including nuclear, thermal, and hydraulic performance of the reactor core in accordance with plant technical specification and in assisting in maintaining overall plant performance. 3) Preparing and conducting reactor training and retraining programs for station personnel. 4) Generation and review of Startup Test Program procedures and for on-shift performance of the Startup Test Program

HCGS PSAR

TABLE 13.1-4 (cont)

1973 - 1978

Westinghouse Electric Corp.
 Senior Engineer Grade B (11/77 to 2/78) and
 Engineer (10/73 to 10/77), Water Reactor
 Division, Nuclear Fuel Division. Performed
 Nuclear Design of Point Beach Unit 2, Cycles
 2, 3, 4, and 5, and assisted in Nuclear
 Design of Point Beach Unit 1, Cycle 3.
 Performed pre-analysis and post-analysis and
 was present for the Rod Swap Test done during
 startup of Point Beach Unit 2, Cycle 4.
 Assisted in the Nuclear Design of an
 Optimized 14 x 14 fuel assembly. Assisted in
 developing a streamlined reload nuclear
 design method

be split) may be able to be accomplished by a group, normally stationed offsite, with frequent onsite presence.

We do not intend, at this time, to specify or advocate a minimum time onsite.

Response

The STA function will be provided, on shift, by an individual meeting the experience, education, and training requirements as specified in NUREG-0737 and ANSI 3.1-1981. The proposed supervisory shift crew composition for conditions 1 through 3 consists of one senior nuclear shift supervisor (SNSS-SRO), one nuclear shift supervisor (NSS-SRO), and two nuclear control operators (NCO-RO). In the event that neither the SNSS nor the NSS are STA qualified, an additional person who is STA qualified will be assigned.

Various proposals for meeting the STA on shift requirement are currently under review by the Institute for Nuclear Power Operations (INPO) and the NRC. The final recommendations of these studies will be incorporated into station procedures.

The STA will have a bachelors degree or equivalent in a scientific or engineering discipline with specific training in plant design and response and analysis of the plant for transients and accidents in accordance with the requirements of NUREG-0737, Section I.A.1.1.

Any STA filling the dual role of STA/SRO (Reference 13.1.2.2.3) will have a bachelors degree in a scientific or engineering discipline from an accredited institution as well as the specific training specified above.

During normal operations, the STA may be assigned responsibilities that pertain to the engineering aspects of ensuring safe operations of the plant.

See Section 13.1 for further discussion.

Training procedure TP-303, Shift Technical Advisor Training and Certification, meets the requirements of NUREG-0737, ANSI 3.1-1981, and 10CFR55. The Hope Creek specific TP-303 will be in place by March, 1985. The content of this program is described in FSAR Section 13.2.1.

P. 2 of John T. Boetlger's resume
Assistant VP - Nuc. ops. Support

HOGS FSAR

8/84

TABLE 13.1-1a (Cont)

Page of

EXPERIENCE:

1960 - Present	Public Service Electric and Gas Company
1984 - Present	Assistant vice president - nuclear operations support
1981 - Present 1984	General manager - nuclear support: Responsible for engineering, licensing, and fuel design services to support the operation, maintenance, and modifications of operating nuclear power generating stations. Oversee the performance of independent safety reviews of operational activities.
1980 - 1981	General manager - corporate quality assurance: General supervision of the corporate quality assurance department. This department interprets regulations, codes, and standards. It also formulates and approves corporate QA programs and implements assurance functions of these programs.
1972 - 1980	Project manager - Hope Creek: Responsible for the licensing, engineering/design, construction, and startup of two 1100-MWe boiling water reactor power plants
1970 - 1972	Senior engineer: Responsible for licensing and system analysis for nuclear plant control and protection systems
1960 - 1970	Various: Assignments in the engineering department related to the design, construction, and startup of new electrical generating stations
1960 - 1961	Management training program for engineers

PROFESSIONAL AFFILIATIONS:

Past/present member of ANS, IEEE and FMI

Member of IEEE Standards Board

Member of Industry Steering Committee on PRA Procedures Guide

Past chairman of IEEE/PES Nuclear Power Engineering Committee

GENERAL MANAGER - NUCLEAR ENGINEERING

NAME: R. A. Burricelli

LICENSES AND CERTIFICATES:

Professional Engineer, New Jersey

EDUCATION:

1970 - 1973	Rutgers University, Master of Business Administration
1967 - 1969	Rose Hulman Institute of Technology, BS, Mechanical Engineering
1962 - 1964	Newark College of Engineering, Two years study toward BSME

EXPERIENCE:

1976 - Present	Public Service Electric and Gas Company
1984 - Present	General Manager - Nuclear Engineering
1981 - <u>1984</u>	Manager of methods and administration-nuclear: Responsible for methods and administration activities in the areas of cost and scheduling human resources, computer system applications, and management methods and system activities in support of corporate nuclear activities.
1980 - 1981	Manager of emergency preparedness: Responsible for the development of emergency preparedness activities in accordance with the requirements of NUREG-0654 to provide for the licensing of Salem Generating Station Unit 2
1979 - 1980	Assistant manager of project control services: Responsible for cost and scheduling activities associated with the construction and operation support of electric generating facilities.

GENERAL MANAGER - NUCLEAR QUALITY ASSURANCE

NAME: Charles Peter Johnson

EDUCATION

1963	University of Southern California B.S., Industrial Engineering
1965	Completed Navy Officer's Nuclear Propulsion Training Program
1975	Drexel University MBA, Business Administration
1970	Westinghouse Design Lecture Series - Salem PWR

EXPERIENCE:

1970 - Present	Public Service Electric and Gas Company
8/1984 - Present	General Manager - Nuclear Quality Assurance
11/1983 - 8/1984	Manager - Nuclear Operations Quality Assurance: Responsible for planning, coordinating, directing and overseeing the functional implementation of QA/QC programs dedicated to operation of the Salem and Hope Creek Nuclear Generating Stations. Analyzes the state of the art concerning Quality requirements and trends, and interfaces with interdepartmental management to ensure attainment of established Quality objectives.
1981 - 1983	Assistant to Vice President - Nuclear, Nuclear Department: Responsible to Vice president for General Office and corporate management liaison on all nuclear matters. Additionally, perform independent reviews of nuclear facilities and special projects. Chairman of Nuclear Review Board Audits Committee.

Table 13.1-1a (cont)

PERSONNEL AFFAIRS MANAGER - NUCLEAR

NAME: Stanley M. Kosierowski

LICENSES AND CERTIFICATES:

Certified Test Coordinator/Test Administrator, Edison Electric Institute

EDUCATION:

1974 Newark College of Engineering
BS - Mechanical Engineering

1974 - Present COMPANY SPONSORED PROGRAMS:
Management Orientation Program
Management Training
Communications Training
Interviewing Skills Training
Advanced Management Training

EXPERIENCE:

1974 Cadet Engineer - Public and Employee Relations
General Office

1974 - 1975 Assistant Engineer - Gas Transmission & Distribution
General Office

1975 Assistant Engineer - Gas Transmission & Distribution
Newark

1975 - 1977 Associate Engineer - Gas Transmission & Distribution
Newark

EXPERIENCE:

1977 - 1978	Engineer - Gas Transmission & Distribution Summit
1978	Engineer - Gas Transmission & Distribution Newark
1978 - 1980	District Engineer Gas Transmission & Distribution Newark
1980	Senior District Engineer Gas Transmission & Distribution Newark
1980 - 1982	Assistant Manager - Employment & Placement General Office
1982 - Present	Personnel Affairs Manager - Nuclear Human Resources Department Artificial Island

PROFESSIONAL AFFILIATIONS:

Member - American Society of Mechanical Engineers
- American Gas Association

Served on Task Force - Nuclear Personnel Task Force, Edison Electric
Institute.

MANAGER - NUCLEAR MAINTENANCE SERVICES

NAME: Frederick Meyer

LICENSES AND CERTIFICATES:

Engineers License, New Jersey Gold Seal

EDUCATION:

1947 - 1949 Attended Montclair State College

1949 - 1953 U.S. Merchant Marine Academy,
BS, Engineering

EXPERIENCE:

1957 - Present Public Service Electric and Gas Company

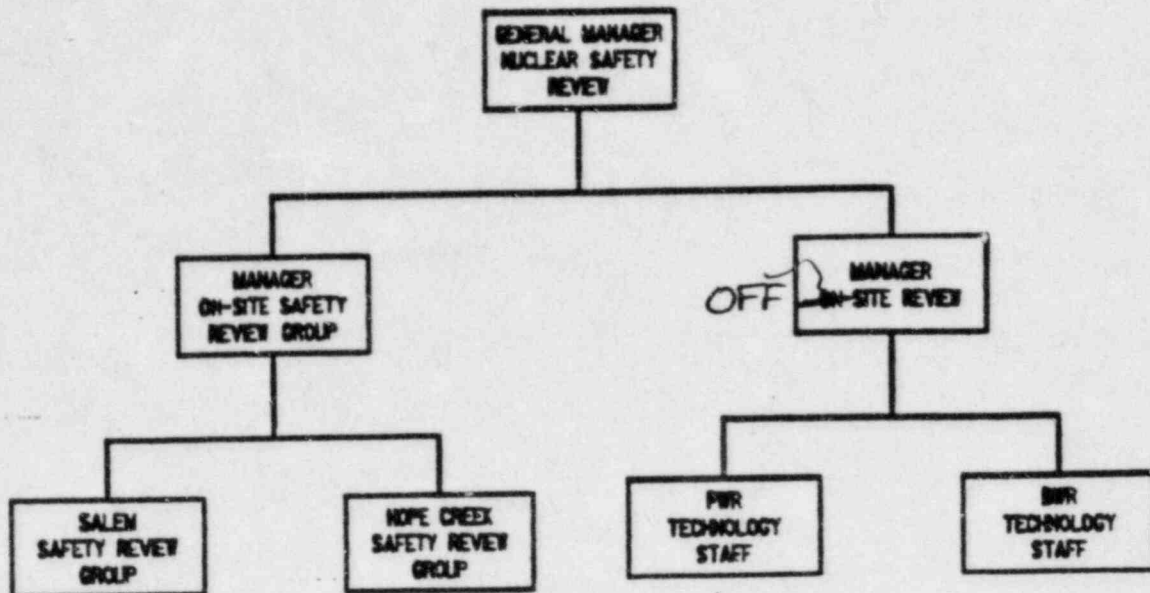
1984 - Present Manager - nuclear maintenance services

1981 - 1984 Manager of nuclear site maintenance in
nuclear department at Artificial Island:
Provide maintenance support and other
services to the operation of nuclear plants

1981 Manager of QA operations and maintenance in
general office, corporate quality assurance
department: Responsible for directing the QA
activities of an operating nuclear plant and
supervising QA personnel

1980 - 1981 Mechanical plant engineer in general office,
production department: Provided support and
direction to the station's maintenance
engineer in resolving problems and improving
the operation of mechanical equipment

1974 - 1980 Chief engineer for Bergen Generating Station:
Responsible for the safe and efficient
operation of the station and the supervision
of all operating, performance, and yard
department personnel



HOPE CREEK
GENERATING STATION
FINAL SAFETY ANALYSIS REPORT

NUCLEAR SAFETY REVIEW
NUCLEAR DEPARTMENT

FIGURE ISJ - 6A

AMENDMENT