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 MANGAN, C. V. Niagara Mohawk Power Corp.
 RECIP. NAME RECIPIENT AFFILIATION
 ADENSAN, E. G. BWR Project Directorate 3

SUBJECT: Forwards changes to FSAR re dual role of assistant station shift supervisor & shift technical advisor, organizational changes & changes to training procedures. Changes will be included in subsequent FSAR amend.

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BWR PD3 PD		1	1	HAUGHEY, M	01	2	2
BWR PSB		1	1	BWR RSB		1	1
INTERNAL: ACRS	41	6	6	ADM/LFMB		1	0
ELD/HDS3		1	0	IE FILE		1	1
IE/DEPER/EPB	36	1	1	IE/DQAVT/QAB	21	1	1
NRR BWR ADTS		1	0	NRR PWR-B ADTS		1	0
NRR ROE M L		1	1	NRR/DHFT/MTB		1	1
REG FILE	04	1	1	RGN1		3	3
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EXTERNAL: BNL (AMDTs ONLY)		1	1	DMB/DSS (AMDTs)		1	1
LPDR	03	1	1	NRC PDR	02	1	1
NSIC	05	1	1	PNL GRUEL, R		1	1

July 24, 1986
(NMP2L 0795)

Ms. Elinor G. Adensam, Director
BWR Project Directorate No. 3
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Washington, DC 20555

Dear Ms. Adensam:

Re: Nine Mile Point Unit 2
Docket No. 50-410

Enclosed are changes to the Final Safety Analysis Report. Attachment 1 includes changes concerning the dual role of the Assistant Station Shift Supervisor and Shift Technical Advisor. Attachment 2 includes changes resulting from Niagara Mohawk's reorganization and reflects the organization that will be in place after fuel load. Attachment 3 consists of changes resulting from new Nuclear Training Procedures.

Although changes in Attachments 2 and 3 cover a number of pages, they are not significant and do not involve a change in basic policy. The changes reflect a greater role of Niagara Mohawk management and the phasing out of the Management Analysis Company personnel.

These changes will be included in a subsequent Final Safety Analysis Report amendment.

Very truly yours,

C. V. Mangan
C. V. Mangan
Senior Vice President

WB:ja
1867G

Enclosures

xc: W. A. Cook, NRC Resident Inspector
Project File (2)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
Niagara Mohawk Power Corporation)
(Nine Mile Point Unit 2))

Docket No. 50-410

AFFIDAVIT

C. V. Mangan, being duly sworn, states that he is Senior Vice President of Niagara Mohawk Power Corporation; that he is authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information and belief.

C. Mangan

Subscribed and sworn to before me, a Notary Public in and for the State of New York and County of Onondaga, this 24th day of July, 1986.

Christine Austin
Notary Public in and for
Onondaga County, New York

My Commission Expires:
CHRISTINE AUSTIN
Notary Public in the State of New York
Qualified in Onondaga Co. No. 4787687
My Commission Expires March 30, 1987

My Commission Expires March 30, 1977
Quinted in Orange Co. NY 4787637
Hobby Paper in the State of New York
CHRISTINE ANSTIN

ATTACHMENT 1

8608010196

Nine Mile Point Unit 2 PSAR

TABLE 13.1-2

REACTOR OPERATING MODES

(Number of Personnel Required)

WHPC Position Title	Licenses Requirements	Normal Operation	Startup	Refuel ⁽¹⁾	Shutdown	Operation Without Process Computer ⁽²⁾
SSS	SRO	1	1	1	1	1
ASSS ⁽³⁾	SRO ⁽⁴⁾	1	1	-	1 ⁽⁵⁾	1
Licensed reactor operators (CSO/NAOE)	RO	2	3	2	1	2
Auxiliary operators		2	2	2	2	2/3
Fire brigade	-	5 ⁽⁶⁾	5 ⁽⁶⁾	5 ⁽⁶⁾	5 ⁽⁶⁾	5 ⁽⁶⁾
Radiation protection technician	-	1	1	1	1	1
Chemistry and radiochemistry technician		1	1	1	-	1
Shift technical advisor ⁽⁴⁾		1	1	-	1 ⁽⁵⁾	1

⁽¹⁾An SRO who has no other concurrent responsibilities will supervise all core alternations.

⁽²⁾Two auxiliary operators are required up to 8 hr without the process computer; three auxiliary operators are required after 8 hr without the process computer.

⁽³⁾May be other qualified staff position.

⁽⁴⁾See Table 13.1-3 for further discussion of the ASSS and STA duties.

⁽⁵⁾Can include three members from the Unit 1 fire brigade, making the site fire brigade a total of seven members.

⁽⁶⁾During a hot shutdown condition, a dual ASSS/STA or an ASSS and STA are required. During a cold shutdown condition, neither an ASSS or an STA is required.



Nine Mile Point Unit 2 FSAR

TABLE 13.1-3 (Cont)

Superintendent Operations Nuclear

This Superintendent directs the functional conduct of shift operations and when required performs the duties of the Station Shift Supervisor. He shall hold an NRC senior reactor operator's license for his station. In the absence of the Station Superintendent he is designated to act as Station Superintendent.

Assistant Superintendent Operations Nuclear

This Superintendent assists the Superintendent Operations Nuclear in the functional conduct of shift operations. He shall hold an NRC Senior Reactor Operators License. In the absence of the Superintendent Operations Nuclear he is designated to act in his behalf.

Station Shift Supervisor (SSS)

The Shift Supervisor is in charge of all operations on his assigned shift. Under the general direction of the Superintendent Operations Nuclear his function includes direction of shift activities, authorization of equipment releases for maintenance, ensuring that the plant is operated safely and within the license and technical specifications and ensuring that plant operations are conducted in accordance with approved procedures. As overall supervisor of operations for his shift, the Station Shift Supervisor should avoid becoming personally involved in the manipulative tasks or details of operation of any one portion of the plant so that he may retain a comprehensive perspective of general station conditions at all times. In an emergency situation, however, should the Shift Supervisor choose to perform manipulative functions to ensure that the plant is in a safe condition he shall coordinate his actions with the Chief Shift Operator. Whenever he determines that the safety of the reactor is in immediate jeopardy or when operating parameters exceed any of the reactor protection circuit set points and automatic shutdown should but does not occur, he has the responsibility and the authority to order shutdown of the reactor, or to personally effect the shutdown.

The Shift Supervisor shall hold a NRC senior reactor operator license. He shall be continuously present at the plant for the duration of his assigned shift until properly relieved by the oncoming Shift Supervisor. It is his

Nine Mile Point Unit 2 FSAR

TABLE 13.1-3 (Cont)

Shift Technical Advisor

The Shift Technical Advisor position normally will be combined with that of the Assistant Station Shift Supervisor. There may be some instances where a separate, dedicated Shift Technical Advisor will be utilized instead of a combined ASSS/STA. During off-normal events, the Shift Technical Advisor provides the Station Shift Supervisor with an assessment of station conditions and advises actions to terminate or mitigate the consequences of off-normal conditions.

Other Operators

The other operators at the station provide operational attendance to the station equipment on shift. Their duties shall include checking the rotating equipment, checking the operation of the screen-house, and handling the duties of the solid and liquid waste systems. They shall perform all operations with the concurrence of or at the direction of the Chief Shift Operator.



Nine Mile Point Unit 2 FSAR

TABLE 13.1-4 (Cont)

<u>Title</u>	<u>No. Site Personnel</u>	<u>Section of ANSI/ANS 3.1-1978 Containing Qualifications</u>
Respiratory Protection Coordinator	1	4.7.2
Radiological Engineer	1	4.7.2
Assistant Station Shift Supervisor Nuclear	16	4.3.1 ⁽¹⁾
Station Shift Supervisor Nuclear	16	4.3.1
Shift Technical Advisor (dedicated)	As needed	(2)
Chief Shift Operator	12	4.3.1
Nuclear Axuiliary Operator E	24	4.5.1
Superintendent Technical Services Nuclear	1	4.2.4
Supervisor Computer Operations and Maintenance Nuclear	1	4.7.2
Assistant Supervisor Computer Operations and Maintenance Nuclear	1	4.7.2
Supervisor Reactor Analysis	1	4.4.1
Unit Supervisor Reactor Analysis	2	4.4.1
Supervisor Instrument and Control Nuclear	1	4.4.2
Unit Supervisor Instrument and Control Nuclear	2	4.4.2
Supervisor Technical Support Nuclear	1	4.7.1

Nine Mile Point Unit 2 FSAR

TABLE 13.1-4 (Cont),

<u>Title</u>	<u>No. Site Personnel</u>	<u>Section of ANSI/ANS 3.1-1978 Containing Qualifications</u>
Planning Coordinator Nuclear	1	NA
Supervisor Office Nuclear	1	NA

*When one of these individuals temporarily fills the position of Superintendent Chemistry and Radiation Management, the individual will meet the qualifications of ANSI 3.1-1979 (draft), Section 4.4.4.

(1) When the ASSS is functioning as STA, he also will meet the requirements for the STA.

(2) A bachelor's degree in a physical science or engineering, or a PE license issued by examination is required.



ATTACHMENT 2

Nine Mile Point Unit 2 FSAR

CHAPTER 13

CONDUCT OF OPERATIONS

13.1 ORGANIZATIONAL STRUCTURE OF APPLICANT

The following sections describe the organizational structure of Niagara Mohawk Power Corporation (NMPC) and delineate the line of responsibility for the operation of Unit 2 in accordance with established administrative and quality standards. The organizational structure associated with the quality assurance program for plant operation is described in Section 17.2.

13.1.1 Management and Technical Support Organization

13.1.1.1 Design and Operating Responsibilities

Design and construction activities:

1. Principal site-related work, such as meteorology, seismology, hydrology, demography, and environmental effects, has been completed and is described in Chapter 2. Postoperational environmental evaluations are described in the ER-OLS.
2. The design of the Unit 2 plant and auxiliary systems is described in Chapters 3 and 9.
3. The review and approval of plant design features were completed as an integral part of the design review process.
4. Site layout with respect to environmental effects is described in Chapter 2. Section 13.6 discusses the security plan with respect to site layout.
5. Most of the FSAR was prepared through the combined efforts of NMPC, General Electric Company (GE), and Stone & Webster Engineering Corporation (SWEC). Some portions were prepared by Dames and Moore, Lawler, Matusky, and Skelly, and Meteorological Evaluation Services.



6. Management control and review of construction activities are currently and have been exercised routinely during construction of the plant.

13.1.1.2 Organizational Arrangement

NMPC is a privately owned utility with over 20 yr experience in the operation, design, and construction of nuclear power plants. Figure 13.1-1 shows the corporate upper management and the functions of the senior vice presidents. The upper management organization is depicted on Figures 13.1-1a and 13.1-2, which show the corporation organizations responsible for the nuclear generation program at NMPC. The Senior Vice President (Nuclear Generation, Engineering, and Licensing) reports to the President and is responsible for nuclear operations, design, construction, project management, and other nuclear-related work. The Vice President Quality Assurance reports to the President and is responsible for the quality assurance program. The Vice President Nuclear Generation has responsibility for plant operations, maintenance, testing, and other operations functions. The Manager Nuclear Engineering and Licensing has responsibility for performing engineering analysis, design, licensing, and fuel design services. Unit 2 is constructed close enough to Nine Mile Point Unit 1 to be connected by an enclosed passage. Therefore, the operation of Unit 2 will be under the same site management as Unit 1.

Nuclear Generation

The Vice President Nuclear Generation has overall responsibility for the safe and reliable operation of Units 1 and 2. The organization responsible for these activities is under the direct responsibility of the General Superintendent Nuclear Generation (Sections 13.1.2 and 13.1.3, and Figure 13.1-3). See Figure 14.2-6 for the



Nine Mile Point Unit 2 FSAR

staffing levels of personnel assigned during preoperational testing and startup testing. See Figure 13.1-5b for the staffing levels of site personnel for Units 1 and 2.

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Nuclear Engineering and Licensing

The Manager Nuclear Engineering and Licensing has overall responsibility for engineering services after commercial operation. The corporate engineering staff currently performs or controls the performance of design activities relating to modifications to Nine Mile Point Unit 1, and will support Unit 2 in the same manner. Established Engineering Department procedures will be utilized for such activities. The Engineering and Licensing Department organization chart is provided on Figure 13.1-4.

The Manager Nuclear Engineering or his designee is the engineering contact for plant-to-engineering interfaces.

A number of engineers from this organization have actively engaged in technical aspects of the Unit 2 design. This organization presently consists of over 125 engineers and technical personnel with a variety of disciplines and backgrounds in power plant technology. The organization is expected to expand and add about 150 engineers and technical personnel. Support in plant chemistry, health physics, fueling and refueling operations, and maintenance support as required in nuclear, mechanical, structural, electrical, thermal-hydraulic, and instrument and control engineering are provided. During commercial operation, construction support will also be provided by this organization. Approximately 25 technical personnel will be used for this purpose. Specific headquarters support group descriptions are provided in Table 13.1-1. Qualifications of engineering support personnel are described in job descriptions.

Most design-related requests (after commercial operation) are relayed from the Station Superintendent through the Manager Nuclear Engineering, who assigns appropriate engineering support groups the design responsibility and/or hires a vendor or contractor to perform the work. Conceptual designs are formulated and sent to the site for approval after engineering approval. Conceptual site approval is made by the Station Superintendent after review by the appropriate site discipline. Final design is provided by Engineering for review by the appropriate site discipline, the Station Superintendent, and Site Operations Review Committee (SORC), and is approved by the General Superintendent Nuclear Generation. Written safety evaluation reports are prepared in accordance with 10CFR50.59 and reviewed by the SORC, approved by the General Superintendent Nuclear Generation, and reviewed by the Safety Review and Audit Board (SRAB).

Nine Mile Point Unit 2 FSAR

Nuclear Construction

The Senior Vice President has the overall responsibility for project management of Unit 2. The project management efforts include management of construction, design, support for preoperational and startup testing, and turnover of plant equipment and systems to Nuclear Generation for operation. These activities are governed by the Project Manual and procedures for Unit 2.

The technical staff will be used in the initial test program to the extent practical. Participants in the test program (i.e., Test Engineers) will receive training in plant specifics, systems, and indoctrination in administrative controls of the test program.

The Test Engineers will participate in preliminary and preoperational test phases. In the preliminary test phase they will write the preliminary test and help to direct the testing. In the preoperational test phase they will help to write the preoperational test and participate in the actual testing.

After commercial operation, the construction organization will be assimilated into other areas of the corporation, such as Quality Assurance, Nuclear and Non-Nuclear Engineering, and Operations. The Construction Engineers will provide coordination support for Contractors engaged in the installation and checkout of plant modifications. Support to Contractors will include the provision of equipment, such as welding machines, trailers, and special tools that may be required by the Contractor personnel during the performance of the contracted services.

13.1.1.3 Qualifications

General responsibilities and activities of the above support groups are described in appropriate corporate documents including Administrative Procedures, the Project Manual, and Engineering Procedures. Contract support for Unit 2 is utilized in the same general manner as contract support at Unit 1. After commercial operation, ultimate responsibility for contractor performance onsite rests with the General Superintendent Nuclear Generation.

The support group department heads are generally employees with 8 to 25 yr experience who have operations-related experience from the more than 20 yr of NMPC's nuclear power generation, construction, and design.



Nine Mile Point Unit 2 FSAR

TABLE 13.1-1

HEADQUARTERS SUPPORT

<u>Position</u>	<u>Summary Description</u>
Manager Nuclear Compliance and Verification	Manages the effort to verify all NRC commitments and design activities to certify accurate and as-built documentation is provided to regulatory agencies.
Manager Nuclear Engineering	Manages the nuclear design engineering and analysis programs. Functions as the prime engineering contact with the site for engineering work.
Manager Nuclear Staff Services	Manages the efforts for administrative control of nuclear projects including those aspects associated with schedule and cost.
Manager Nuclear Technology	Manages consulting, scheduling, licensing, fuels, plant productivity, and health physics.



Nine Mile Point Unit 2 FSAR

TABLE 13.1-3 (Cont)

Supervisor Radwaste Operations

The Supervisor Radwaste Operations, under the general direction of the Superintendent Operations, is responsible for coordinating the safe and efficient conduct of waste operations. He schedules and coordinates waste shipments and supervises the packing of radioactive waste as necessary. He directs and supervises the work of operators assigned to duties in the waste facility. Assistant Supervisors Radwaste Operations are assigned, as required.

Radiological Engineer

Under the general direction of the Supervisor Radiological Support, this supervisor is responsible for providing highly specialized technical advice and assistance in the area of radiological engineering. There could be more than one Radiological Engineer.

Emergency Coordinator

This supervisor has responsibility for maintaining and modifying the Emergency Plan and Procedures as required, for maintaining the Emergency Plan Monitoring equipment and for the scheduling, operation and analysis of drills and other exercises of the Emergency Plan and Procedures. An assistant emergency coordinator is assigned to assist this supervisor.

Environmental Protection Coordinator

This supervisor is responsible for coordination of the environmental programs associated with the Nine Mile Point Site and operated by contractors, and also for environmental monitoring conducted by site personnel.



Nine Mile Point Unit 2 FSAR

TABLE 13.1-5

SCHEDULE FOR FILLING OPERATING SHIFT CREW POSITIONS

THIS TABLE HAS BEEN DELETED.



CHAIRMAN OF THE BOARD
AND CHIEF EXECUTIVE OFFICER

PRESIDENT

SENIOR VICE PRESIDENT

Fossil Generation
Management Systems &
Services
Engineering (Non-Nuclear)
Power Contracts
Power Control
Employee Relations

VICE PRESIDENT
QUALITY ASSURANCE

Nuclear and Non-Nuclear
Quality Assurance

SENIOR VICE PRESIDENT

Public Affairs & Corporate
Communications
Safety
Administrative Services
Training & Development
Transportation

SENIOR VICE PRESIDENT

Nuclear Generation
Nuclear Engineering
and Licensing
Nuclear Construction

SENIOR VICE PRESIDENT

Treasury
Risk Management
Purchasing
Security
Materials Management
Contract Administration

SENIOR VICE PRESIDENT,
GENERAL COUNSEL &
SECRETARY

Legal Secretary's Office

SENIOR VICE PRESIDENT

Controller's Office
Corporate Planning
Rates
Regulatory Proceedings
Economic Development
Environmental Affairs
Research & Development

SENIOR VICE PRESIDENT

Gas
Electric Operations
(System)
Consumer Services
Customer Accounting
Regional Operations

MANAGER INTERNAL AUDIT

Internal Financial Auditing

Note the departments listed under each Senior Vice President, Vice President, or Manager are representative and may not be inclusive.

FIGURE 13.1-1

NMPC CORPORATE UPPER MANAGEMENT
ORGANIZATION AND FUNCTION

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT



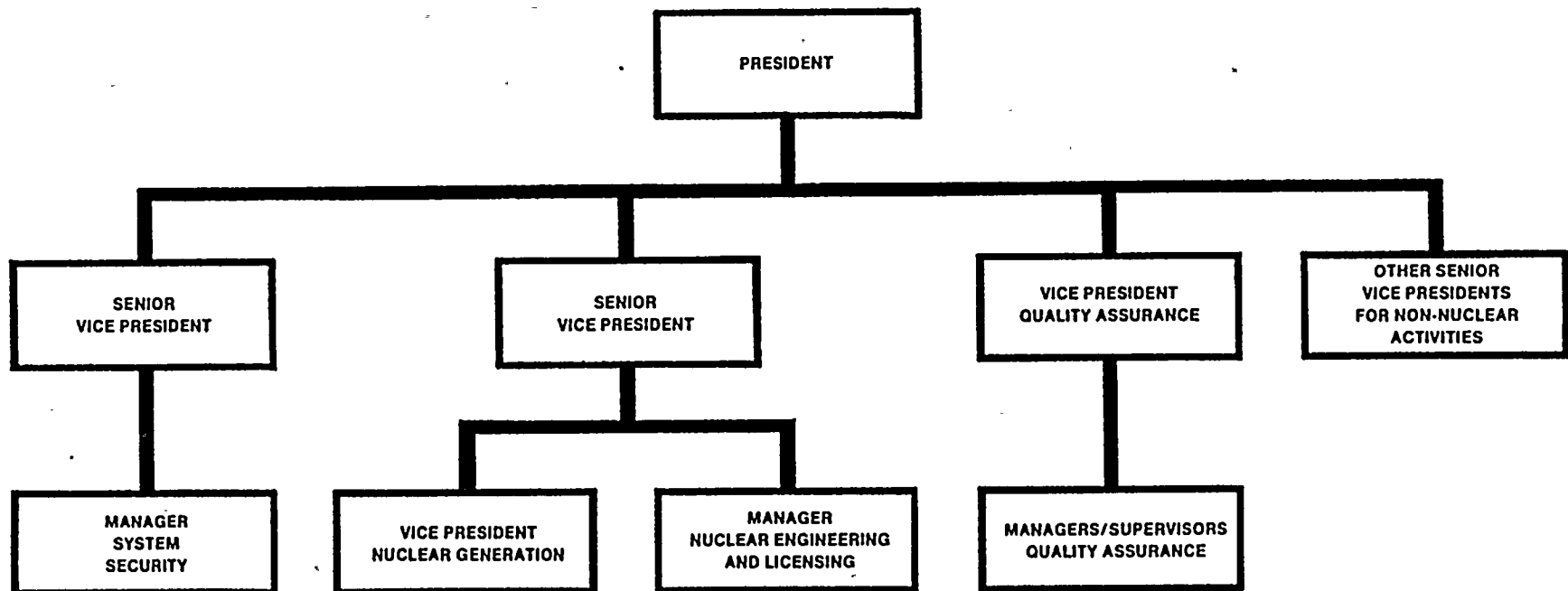


FIGURE 13.1-1a

**NMPC UPPER MANAGEMENT
NUCLEAR ORGANIZATION**

**NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT**

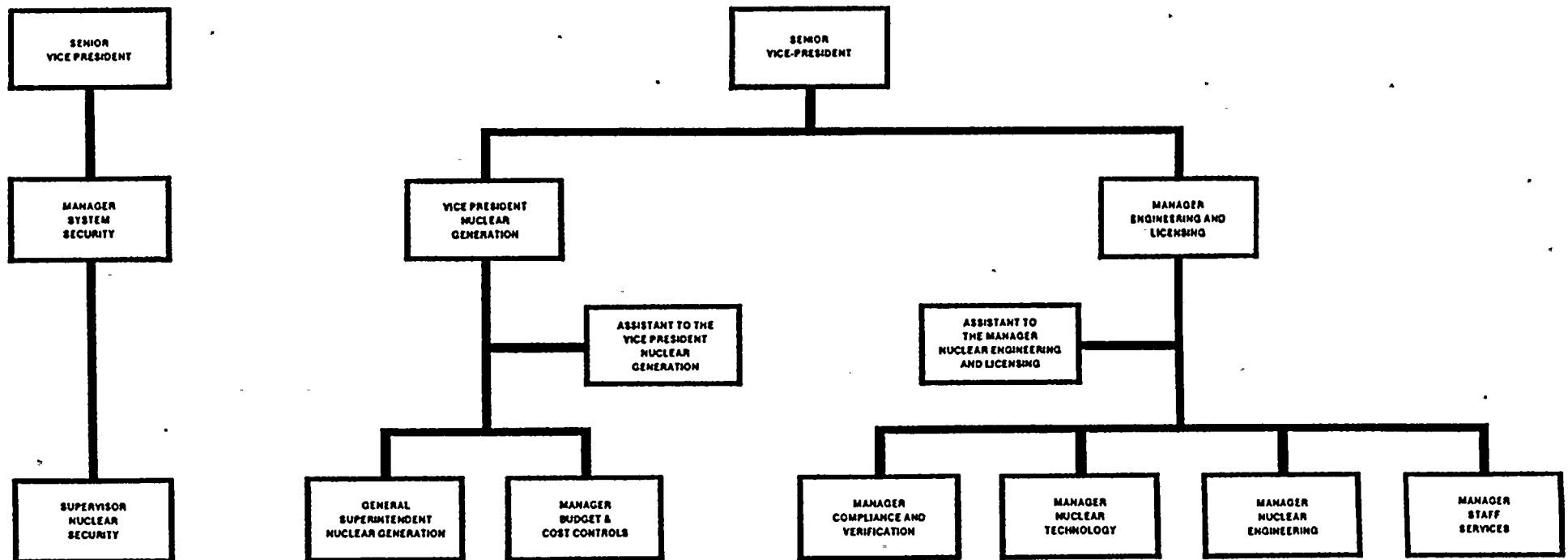
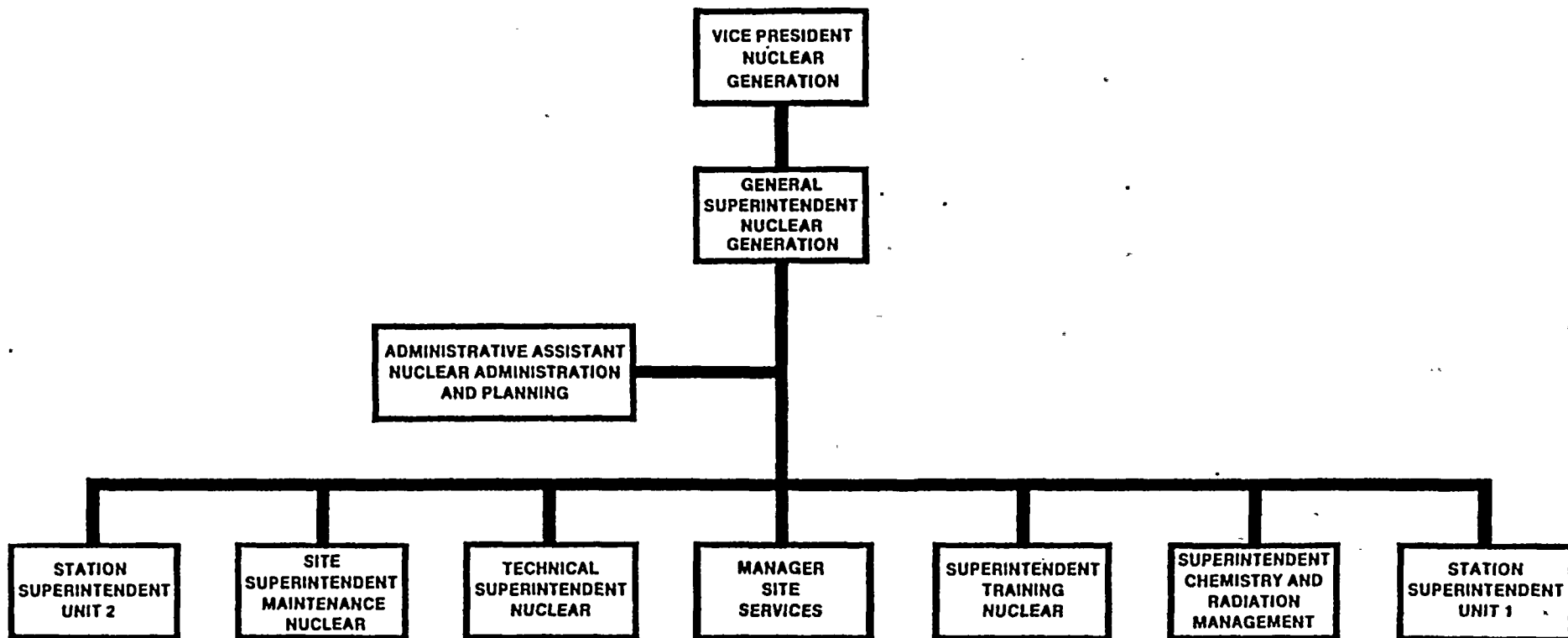


FIGURE 13.1-2

NMPC NUCLEAR AND SECURITY
ORGANIZATION

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT





NOTES:

1. ALL OF THE ABOVE ORGANIZATION IS ASSIGNED TO THE SITE EXCEPT THE VICE PRESIDENT NUCLEAR GENERATION

FIGURE 13.1-3

NUCLEAR GENERATION ORGANIZATION

**NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT**



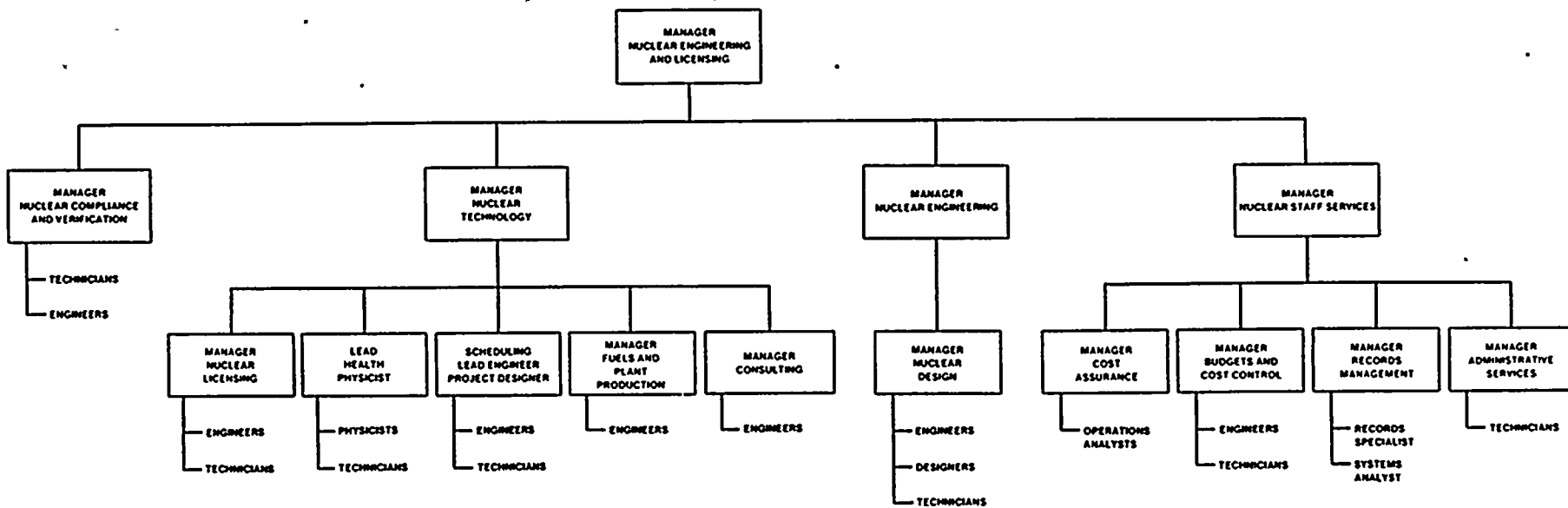


FIGURE 13.1-4
NUCLEAR ENGINEERING AND LICENSING ORGANIZATION
NIAGARA MOHAWK POWER CORPORATION NINE MILE POINT-UNIT 2 FINAL SAFETY ANALYSIS REPORT

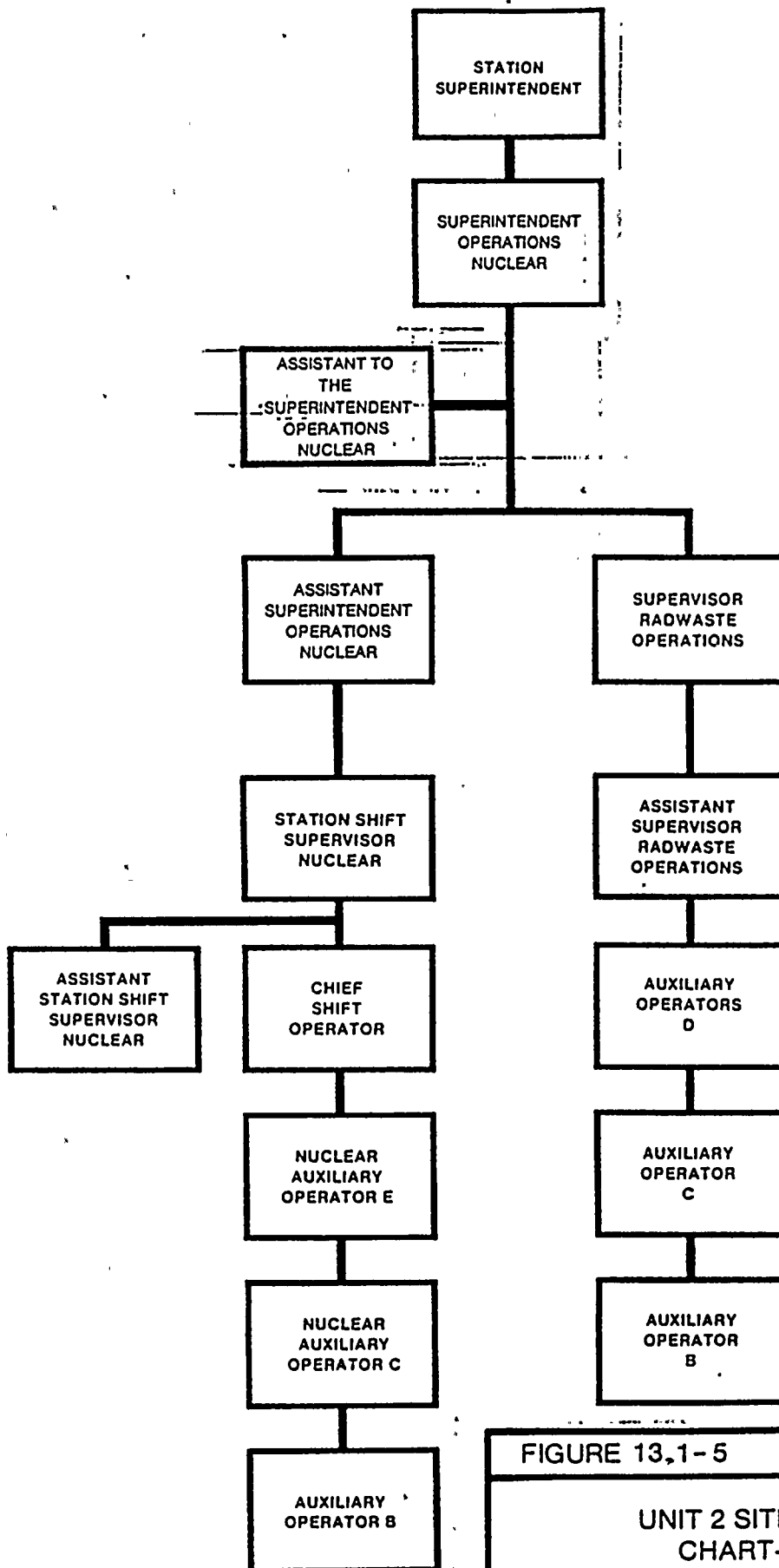
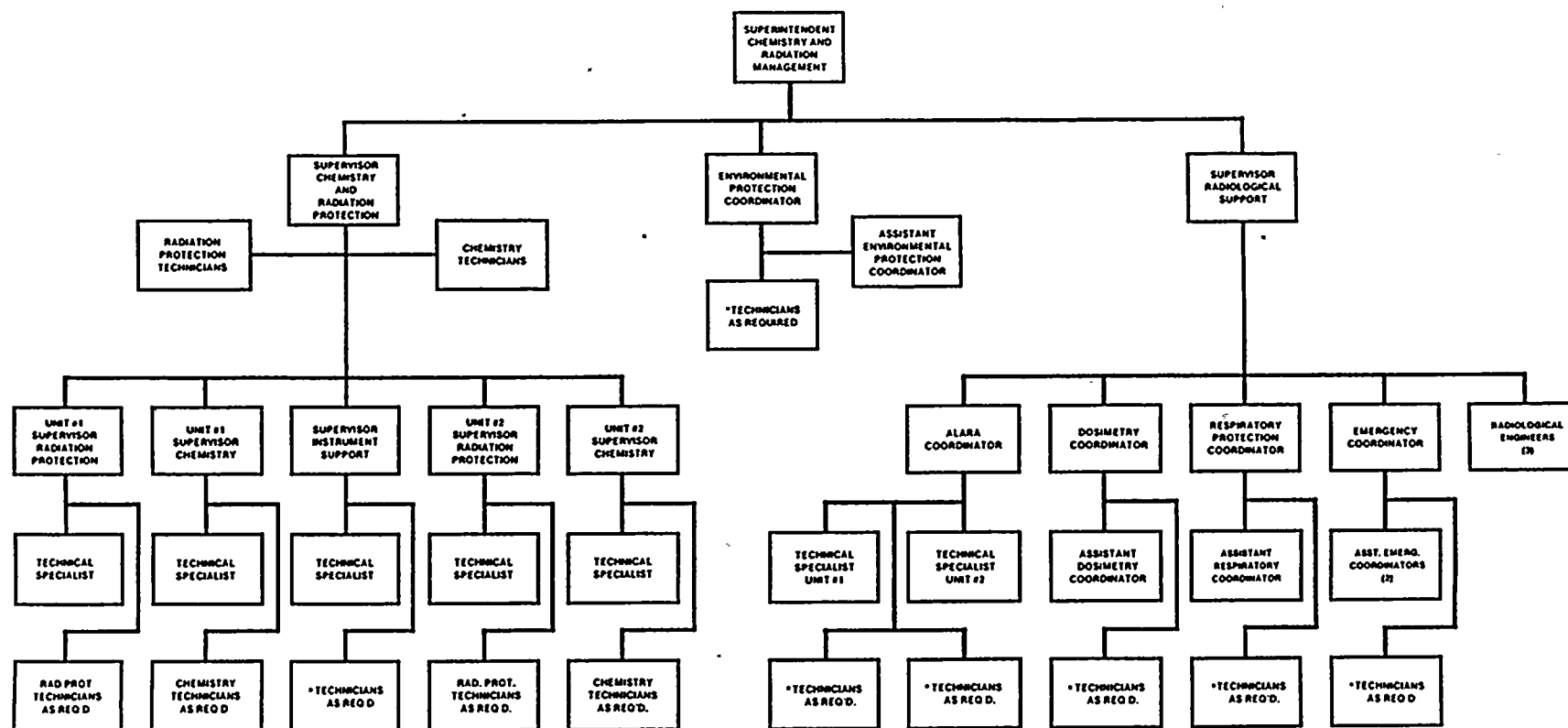


FIGURE 13.1-5

UNIT 2 SITE ORGANIZATION
CHART-PRODUCTION

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT





NOTES:

NUMBER IN PARENTHESES REPRESENTS THE NUMBER OF POSITIONS.

* TECHNICIANS WILL BE ASSIGNED BY THE SUPERVISOR CHEMISTRY AND RADIATION PROTECTION AS REQUIRED.

FIGURE 13.1-9

**CHEMISTRY AND RADIATION
PROTECTION ORGANIZATION**

**NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT**



Nine Mile Point Unit 2 FSAR

Superintendent Nuclear Generation is included as a board member providing liaison and direct information to board members and ensuring that board recommendations are implemented.

The SRAB is charged with the responsibility for reviewing change requests originating in the SORC and recommending action where appropriate. When a license change is required, the SRAB reviews necessary documents for submission to the NRC. The SRAB also reviews all abnormal situations that may arise in plant operation. Periodic audits of operation are made by board members knowledgeable in the operating process, but without responsibility for daily plant operation. Functions served by these committees are the same as those performed by the Nine Mile Point Unit 1 committees shown in Tables 13.4-1 and 13.4-2. Education and experience qualifications required for members of the SRAB are as follows:

Staff Engineer, Manager, or Vice President - Chairman

Education: Four-year college graduate or equivalent.

Experience: Ten years of electric utility experience, with 5 years of experience in a responsible engineering management position which includes 4 years of nuclear plant engineering, design, construction, or operation.

General Superintendent Nuclear Generation

The General Superintendent Nuclear Generation qualifications are described in Section 13.1.3.1.1.

Staff Engineer - Nuclear

Education: Four-year college graduate in engineering or operations, of nuclear facilities with at least 3 years of experience in nuclear engineering.

Nine Mile Point Unit 2 FSAR

TABLE 13.4-2 (Cont)

8. Any area of facility operation considered appropriate by the SRAB, Vice President Nuclear Generation, or Manager Nuclear Engineering and Licensing.
9. The radiological environmental monitoring program and the results thereof at least once per 12 mo.
10. The Offsite Dose Calculation Manual and implementing procedures at least once per 24 mo.
11. The Process Control Program and implementing procedures for processing and packaging of radioactive wastes at least once per 24 mo.

Authority

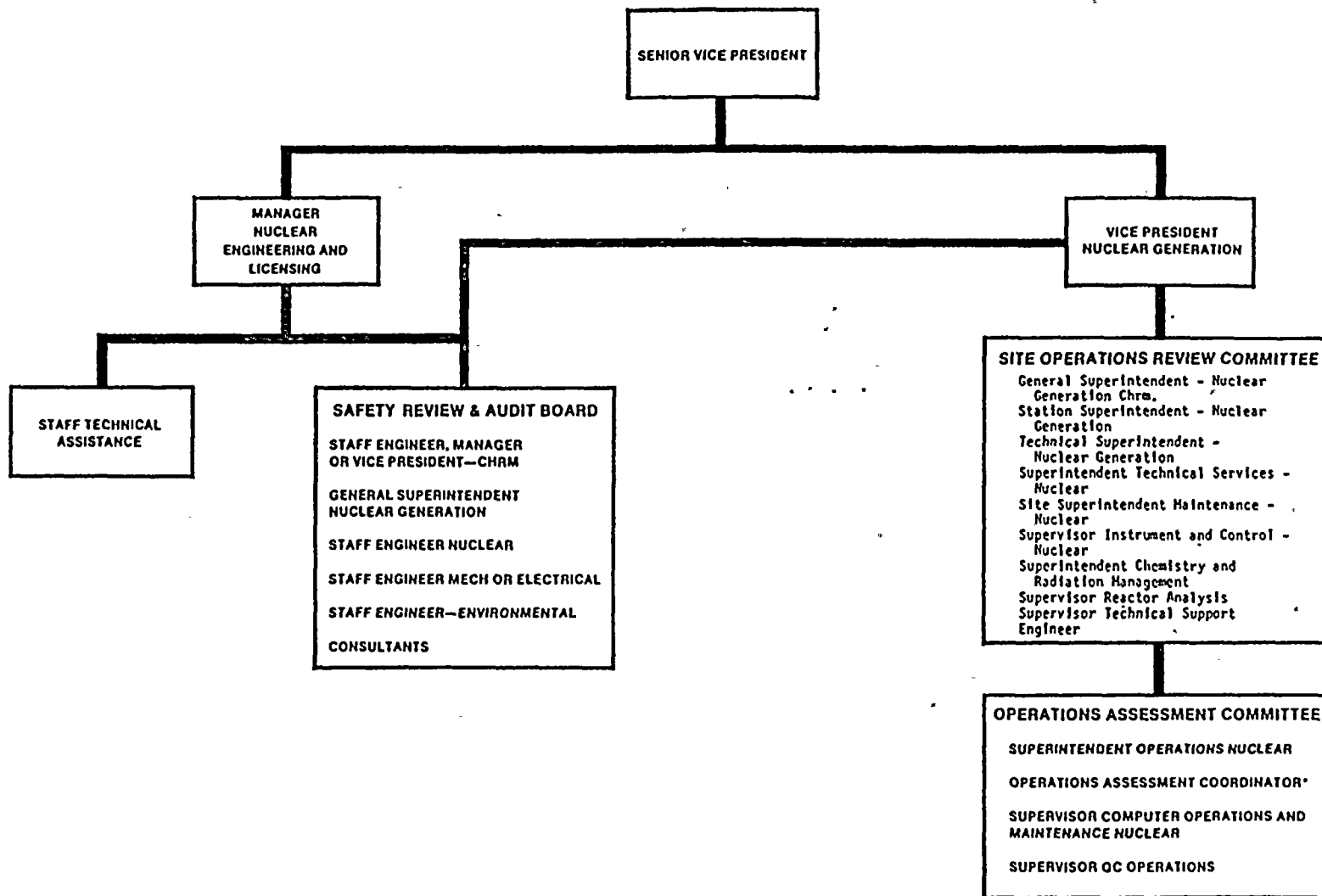
The SRAB shall report to and advise the Vice President Nuclear Generation and Manager Nuclear Engineering and Licensing on those areas of responsibility specified. The SRAB shall report to the Manager, System Security, regarding security audits.

Records

Records of SRAB activities shall be prepared, approved, and distributed as indicated below:

1. Minutes of each SRAB meeting shall be prepared, approved, and forwarded to the Vice President Nuclear Generation and Manager Nuclear Engineering and Licensing within 30 days following each meeting.
2. Audit reports encompassed by the above shall be forwarded to the Vice President Nuclear Generation and Manager Nuclear Engineering and Licensing and to management positions responsible for the areas audited within 90 days after completion of the audit. However, audit reports, made in connection with Nuclear Security, are submitted to the Manager, System Security, only.
3. Reports of reviews encompassed by foregoing items 5, 6, 7, and 8 shall be prepared, approved, and forwarded to the Vice President Nuclear Generation and Manager Nuclear Engineering and Licensing within 14 days following completion of the review.





*THE OPERATIONS ASSESSMENT COORDINATOR IS A STAFF MEMBER OF THE TECHNICAL SERVICES DEPARTMENT

FIGURE 13.4-1

SAFETY REVIEW AND AUDIT OF OPERATIONS ORGANIZATION

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT



NINE MILE POINT UNIT 2 FSAR
TABLE 13.5-4
APPROVAL FOR OPERATING PROCEDURES*

PROCEDURE TYPE APPROVALS																	
	ADMINISTRATIVE	OFFICE INSTRUCTIONS	DOCUMENT CONTROL INSTRUCTIONS	EMERGENCY PLAN	SECURITY PLAN	SITE RADIATION PROTECTION	OPERATING	SPECIAL (EMERGENCY)	WELDING PROCEDURES	SURVEILLANCE	TEST & INSPECTION (PM)	MAINTENANCE (CORRECTIVE)	DEPARTMENTAL RADIATION PROTECTION	REACTOR ANALYST	FUEL HANDLING	INITIAL STARTUP	PREOPERATIONAL
SUPT. RECORDS MANAGEMENT			X														
SUPERVISOR NUCLEAR SECURITY				X													
C&RP SUPERVISOR																	
RAD. WASTE SUPV.																	(2)
SUPERVISOR RAD. SUPPORT																	(2)
GENERAL SUPERINTENDENT	X			X	X	X	X	X	X	X	X				X	X	X
STATION SUPERINTENDENT (3)	X			X	X	X	X	X		X	X	X	X	X	X	X	X
OPER. SUPERVISOR							X	X		(2)					X		(2)
I&C SUPERVISOR										(2)	(2)	(2)			(2)		(2)
MAINT. SUPERINTENDENT								X		(2)	(2)	(2)			(2)		(2)
C&RM SUPT.					X					(2)			X	X	(2)		(2)
REACTOR ANALYST SUPER.										(2)					X		(2)
MANAGER OA (CONCURRENCE)	X			(2)													(2)
ADMIN. SERVICES SUPERVISOR		X															(2)
SUPERVISOR FIRE PROTECTION										X							(2)
TECH. SERVICES SUPT.															(2)	(2)	(2)
TECH. SUPT.																	(2)
SUPT. TRAINING NUCLEAR																	X

*See the latest revision of Administrative Procedure 2 for the latest table.

Nine Mile Point Unit 2 FSAR

17.1 QUALITY ASSURANCE PROGRAM DURING OPERATION

Appendix D to the Unit 2 PSAR, as updated in accordance with 10CFR50 submitted under separate cover, defines the NMPC QA program used for the design and construction phase of Unit 2. This section describes the QA program to be used during the preliminary and preoperational testing phase of Unit 2 including those preoperational/acceptance tests and retests performed in the period starting with fuel load and ending with the 100-hr warranty run. Startup testing and operational activities subsequent to preoperational testing will be governed by the NMPC Quality Assurance Program Topical Report Nine Mile Point Nuclear Station Units 1 and 2 Operations Phase, NMPC-QATR-1, Revision 1. Figures 17.1-1 and 17.1-2 depict the organizational structure and lines of responsibility for the three program phases. Figure 17.1-2 also shows that during the interval between fuel load and full-power commercial operation, all three programs will be employed to handle any components or systems requiring reworking or retesting by the construction and preoperational test groups at Unit 2. Following the 100-hr warranty run at full power, the PSAR Appendix B and FSAR Chapter 17 programs will be replaced by the NMPC-QATR-1, Revision 1, Topical QA program.

17.1.1 Organization

17.1.1.1 General Organizational Structure

The QA Department is a corporate department under the direction of a Vice President of Quality Assurance (see Figure 17.1-1) who reports on quality matters to the President. Further definition of the administrative and functional organizations is included in the procedures developed to implement specific parts of this program. Table 17.1-1 contains tabular cross-references from 10CFR50 Appendix B to the applicable NMPC procedures. The QA Department regularly reviews the status and adequacy of the QA program, including a quality compliance review of all contractors and a self-appraisal.

The organization of the Safety Review and Audit Board (SRAB) and the Site Operations Review Committee (SORC) is discussed in Section 13.4.

QA-related activities are performed by other individuals and groups in accordance with the requirements of the NMPC QA program manuals and Appendix B to 10CFR50. The NMPC organizations that perform these activities for Unit 2 include:



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10. Station Superintendent and Staff.

11. Manager System Materials Management and Staff.

17.1.1.2 Program Responsibility

Total responsibility for the QA program is retained by NMPC. The QA Department is responsible to the President for execution and implementation of the QA program. This program includes control measures, such as audit, surveillance, and review and/or approval, to assure QA compliance for the design, procurement, fabrication, storage, construction, test, operation, and maintenance of the facility or any modifications.

Within this program, those individuals and organizations assigned specific QA functions, as described herein, have the responsibility for assuring the establishment of specific criteria for measurement and verification of the correctness of work performed against these criteria. Additionally, the size of the QA Department will be determined by the scope of the design, construction, and operations activities and their importance to safety.

The management of Niagara Mohawk Power Corporation (NMPC) at the presidential or chief executive officer level assesses the scope, status, adequacy, and compliance of the Quality Assurance program for the nuclear stations at a predetermined regularity. Management at this level employs the following means:

- The Vice President Quality Assurance normally attends Chief Executive Officer's staff meeting attended by appropriate members of executive management (C.E.O. and/or President and/or Administrative Assistant) as well as by the senior vice presidential level. The Vice President Quality Assurance is expected to provide oral presentations or furnish an assessment of quality assurance matters.
- The Vice President Quality Assurance is listed on the agenda of the corporate monthly operating review meetings and normally presents an oral capsule assessment of QA matters to the executive management level and to other attendees.

Certain actions of the safety review and audit board and of the site operations review committee result in audits and/or reports by which members of these offsite and onsite review committees are made aware, on a regular basis, of the



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effectiveness of the QA program. The action of these committees and their reporting on a regular basis to the Vice President Quality Assurance and other specified vice presidential levels is described in Section 13.4.2.

Management above the QA organization utilizes, on at least an annual basis, the services of a combined utility assessment team and/or the contracted services of qualified QA assessors. The combined utility assessment team is composed of appropriately qualified auditors from a consortium of nuclear utilities.

17.1.1.2.1 Vice President Quality Assurance

The Vice President Quality Assurance reports directly to the President and is responsible for the overall control and implementation of the Quality Assurance program. The Vice President Quality Assurance is organizationally independent from the various functional groups and has the freedom to deal independently with matters concerning quality activities performed by those groups. To ensure that the Vice President Quality Assurance may deal with quality problems effectively, the Vice President Quality Assurance has the authority to take direct action concerning matters affecting quality. Direct action includes the initiation of an order to "stop work" or consultation with NMPC corporate management concerning unresolvable quality problems.

The Vice President Quality Assurance effects overall Quality Assurance policy through approval of the content of this document and through approval of the Quality Assurance Department Procedures, as delegated.

In addition, the requirements exist for the Vice President Quality Assurance or his designee to review top level procedures of other departments and to indicate, in writing, acceptance of (concurrence with) these procedures which cover quality-related activities. This must be accomplished prior to implementation and applies equally to changes to these procedures. This requirement makes it possible for the Vice President Quality Assurance to achieve an acceptable level of control over all activities which relate to quality.

The Vice President Quality Assurance exercises the control and direction of NMPC's Quality Assurance program from:



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1. This being the highest NMPC corporate position totally and exclusively concerned with quality activities.
2. This position reporting to the President.
3. This position exercising total functional control over the QA organization.
4. This position having the responsibility and authority to formulate and establish QA policy for NMPC.
5. This position having the responsibility to approve QA Department procedures.
6. This position having the responsibility to indicate acceptance prior to implementation of other procedures that contain quality provisions. Such procedures are those that deal with operation, design, repair, maintenance, modification, and procurement.
7. This position directing the audit/followup program of the QA organization.
8. This position having the authority to indicate or delegate initiation of "stop work" action and maintain control to completion of acceptable corrective action.

17.1.1.2.2 Quality Assurance Supervisors/Managers

Quality Assurance Supervisors/Managers have the responsibility for supervision of the members of their staffs assigned to evaluate and coordinate necessary QA functions. More specifically, some of their activities include:

1. Supervising, directing, and coordinating the staff personnel and consultants within the framework of established policies and QA Department procedures.
2. Bringing unresolved quality-related problems to the attention of the Vice President Quality Assurance.
3. Coordinating and evaluating necessary audit functions.
4. Implementing QA Department procedures and instructions regarding safety-related modification and refueling operations.

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5. Implementing all required quality control activities in accordance with applicable QA procedures and instructions.
6. Regularly reporting to the Vice President Quality Assurance the status of quality activities being performed.
7. Initiating "stop work" action at the site, when appropriate. This is further described in Section 17.1.10.2.1.

The QA Supervisors/Managers maintain the necessary independence to perform QA activities by reporting directly to the Vice President Quality Assurance. Organizational independence from those performing actual work will be maintained.

Personnel performing verification of conformance to established requirements are members of the Quality Assurance Department or their designee. This department is headed by the Vice President Quality Assurance, who reports directly to the President of NMPC.

Personnel performing the work being verified (nuclear engineering, nuclear generation, Purchasing, Materials Management, etc) report to other vice presidents.

The Manager Nuclear Quality Assurance Operations exercises control and direction of NMPC's Operations Nuclear Quality Assurance program by:

1. Being the highest position within the QA Department devoted exclusively to operations nuclear quality assurance activities.
2. Having the responsibility to ensure implementation of the NMPC nuclear policy and procedures established by the Vice President Quality Assurance.
3. Having the responsibility to advise the Vice President Quality Assurance of serious quality assurance concerns regarding identified nuclear problems.

The Manager Corporate Quality Assurance provides support for the Nuclear Quality Assurance Operations unit by having the responsibility to:

1. Conduct corporate QA audits and provide a trend analysis program.

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2. Recommend corporate QA Department procedures and policy to the Vice President Quality Assurance for his approval.
3. Coordinate QA Department training.
4. Advise the Vice President Quality Assurance and the Manager Nuclear Quality Assurance Operations of serious quality assurance concerns regarding identified nuclear problems.

The Manager Quality and Reliability Engineering provides technical support to the Nuclear QA Operations section. Responsibilities include:

1. Reviewing plant modification design documents for inspectability, developing quality planning to support installation of plant changes, and coordinating the technical aspects of QA modification package implementation during plant shutdowns.
2. Providing for control of purchased equipment through the contractor qualification program, source surveillance, and the preparation for receiving inspection planning (for implementation by Nuclear QA Operations personnel).
3. Providing materials engineering support in the areas of material selection, welding, corrosion prevention, nondestructive examination, and fuels quality assurance.
4. Advising the Vice President Quality Assurance and the Manager Nuclear QA Operations of nuclear quality activities.
5. Providing reliability engineering support for the equipment qualification program, establishment of system and equipment availability goals, followup with suppliers on achievements of equipment reliability requirements, and performance of studies on extending equipment life.
6. Reviewing and concurring with various documents and other department procedures, where applicable, which implement this Quality Assurance Program.



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7. Recommending to appropriate management courses of corrective action, when required, including initiation of stop work orders. This stop work authority is delineated in writing.

17.1.1.2.3 Quality Assurance Staff

The QA staff for Unit 2 consists of those members of the QA Department who are assigned by the QA Supervisors/Managers. Some of the duties of the staff include:

1. Conducting audits of the various NMPC departments, architect-engineers, contractors and subcontractors, including QA groups within these organizations.
2. Preparing and updating policy manuals, certain procedures, and instructions necessary to implement the QA program.
3. Reviewing the procedures, programs, and results of the various organizations performing the quality activities within or for NMPC, including the incorporation of hold or "witness" points therein.
4. Trending of quality-related problems.
- 5.a. Reviewing and approving quality programs of contractors involved in modification and refueling.
b. Reviewing and approving QA programs and manuals of contractors supplying services for maintenance, repair, and tests conducted at the site.
6. Appraising the quality-related capabilities of contractors and vendors.
- 7.a. Reviewing and accepting procurement documents, specifications, documentation of design calculations and related documents and drawings



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generated by the Nuclear Division relating to modification and refueling.

- b. Reviewing and accepting procurement documents, specifications, and drawings relating to maintenance, repair, inspections, and tests conducted at the site.
- 8.a. Surveillance/auditing of NMPC and vendor activities relating to modification and refueling.
- b. Surveillance of site activities regarding modifications, maintenance, repair, fuel handling operations, inspections, and tests.
- 9. Preparing reports for the Vice President Quality Assurance, as assigned.
- 10. Performing other duties delineated in subsequent sections of this document and in the appropriate QA Department procedures.
- 11. Performing or assuring performance of the independent inspections associated with corrective maintenance, receipt inspections, and modifications.

QA staff personnel have expertise in various disciplines such as mechanical, nuclear, electrical, structural, NDE, and metallurgical.

The responsibility for the inservice inspection resides with the Nuclear Generation staff. The QA Department provides surveillance and inspection of this function as part of the audit program.

The QA staff has the responsibility and authority to audit any organization, both within and outside NMPC performing quality-related activities. This allows the QA Department to evaluate/investigate the performance of applicable QA groups and to provide additional assurance of proper accomplishment of activities affecting quality.

Additionally, the QA staff is responsible to assist the QA Department Supervisors through regular audits, reviews, surveillances, and other assigned functions.



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17.1.1.2.4 Nuclear Engineering and Licensing

The Manager Nuclear Engineering and Licensing has overall responsibility for engineering services after commercial operation. The corporate engineering staff currently performs, or controls the performance of, design activities relating to modifications to Unit 1 and will support Unit 2 in the same manner. Established Engineering Department procedures will be utilized for such activities. The Engineering Department organization chart is provided on Figure 13.1-4. The Manager Nuclear Engineering or his designee is the engineering contact for plant-to-engineering interfaces.

A number of engineers from this organization have actively engaged in technical aspects of the Unit 2 design. This organization presently consists of over 100 engineers with a



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variety of disciplines and backgrounds in power plant technology. Support in plant chemistry, health physics, fueling and refueling operations, and maintenance support, as required in nuclear, mechanical, structural, electrical, thermal-hydraulic, and instrument and control engineering are provided. Specific headquarters support group descriptions are discussed in Chapter 13.

Most design-related requests (after commercial operation) are relayed from the Station Superintendent through the Manager Nuclear Engineering, who assigns appropriate engineering support groups the design responsibility and/or hires a vendor or contractor to perform the work. Conceptual designs are formulated and sent to the site for approval after engineering approval. Conceptual site approval is made by the Station Superintendent after review by the appropriate site discipline. Final design is provided by Engineering for review by the appropriate site discipline, the Station Superintendent, and the SORC, and is approved by the General Superintendent Nuclear Generation and reviewed by the SRAB.

Any design-related activities not performed as described above are performed onsite or controlled onsite. Such activities are controlled in a similar manner except that technical review and approval and procurement are maintained by site personnel, with Engineering acting as a consultant if requested by the Station Superintendent.

17.1.1.2.5 Nuclear Construction

The Senior Vice President has the overall responsibility for project management of Unit 2. The project organization is shown on Figure 13.1-2. The project management efforts include management of construction, design, and support for turnover of plant equipment and systems to Nuclear Generation for preliminary, preoperational, and startup testing (fuel load). These activities are governed by the Project Manual and procedures for Unit 2.

17.1.1.2.6 Purchasing

The Vice President Purchasing reports directly to a Senior Vice President and is responsible for formulating, establishing, and enforcing compliance with procurement requirements. The Vice President Purchasing and his staff are responsible to ensure that all applicable procurement documents and changes are reviewed and accepted by the QA Department.



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17.1.1.2.7 Safety Review and Audit Board (SRAB)

The SRAB is responsible to the Manager Nuclear Engineering and Licensing and the Vice President Nuclear Generation. In addition to other specified duties, this board reports its observations regarding Unit 2 QA functions to the previously mentioned Manager and Vice President and the Vice President of Quality Assurance. The organization and functions of the SRAB are discussed in Chapter 13.

17.1.1.2.8 Site Operations Review Committee (SORC)

The SORC is responsible to the General Superintendent Nuclear Generation and transmits reports to the SRAB. In addition to other specified duties, the SORC reviews all initial and revised procedures utilized at the site by the Nuclear Generation Department. The organization and functions of the SORC are discussed in Chapter 13.

17.1.1.2.9 General Superintendent Nuclear Generation

The General Superintendent Nuclear Generation reports directly to the Vice President Nuclear Generation. The General Superintendent is responsible for implementing NMPC QA policies as applicable to operation, maintenance, modification, and repair conducted at the site. He is responsible for formulating, establishing, and enforcing compliance with all Nuclear Generation Department procedures implemented at the site.

The General Superintendent is authorized to approve all site Nuclear Generation Department procedures, to continually analyze site operations to detect potential safety problems, and to implement "stop work" action at his discretion and when requested by the QA Department in accordance with applicable procedures.

17.1.1.2.10 Maintenance Superintendent Nuclear and Staff

The Site Maintenance Superintendent Nuclear and his staff report to the General Superintendent Nuclear Generation. This superintendent is primarily concerned with:

1. Originating procurement documents for maintenance, modification, and repair.
2. Welding.
3. Equipment testing for maintenance (electrical, structural, mechanical), repair, and modification.



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4. Supervision of maintenance, repair, and site-controlled modifications.
5. Control of Maintenance Department measuring and test equipment.

17.1.1.2.11 Technical Superintendent Nuclear Generation

The Technical Superintendent Nuclear and his staff report to the General Superintendent Nuclear Generation. The Superintendent Technical Services Nuclear and his staff report to the Technical Superintendent Nuclear and are concerned with:

1. Control of Instrument and Control and Operations Department measuring and test equipment, and maintenance and testing of process, instrumentation, and control equipment.
2. Reactor core management receipt, storage, inspection, utilization, and disposal of nuclear fuel.
3. Operations maintenance of computer-related services.
4. Technical support services.
5. Inservice inspection.
6. Fire protection.
7. Administrative services (Chapter 13).

17.1.1.2.12 Superintendent Chemistry and Radiation Management

The Superintendent Chemistry and Radiation Management and his staff report to the General Superintendent - Nuclear Generation. They are responsible for chemistry, radiochemistry, radiation protection, environmental protection and emergency planning including control of measuring and test equipment for these activities (Chapter 13).

17.1.1.2.13 Superintendent Training

The Superintendent Training and his staff report to the General Superintendent Nuclear Generation. They are responsible for the training of personnel (Chapter 13).



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NMPC and by those supplying materials, equipment, and services to NMPC. In making this evaluation, QA personnel audit or conduct surveillance of quality activities in all of the above-mentioned areas. QA personnel are responsible to assure the identification of quality problems, to initiate or recommend solutions to these problems, to verify corrective actions relative to these problems, and to verify that quality instructions are implemented. The Vice President Quality Assurance regularly informs the President and the appropriate Senior Vice President as to findings.

17.1.1.3.3 "Stop Work"

To ensure that the Vice President Quality Assurance may deal with quality problems effectively, he has authority to take direct action concerning matters affecting quality. Direct action includes the initiation of an order to stop work or consultation with NMPC senior executives concerning unresolved quality problems. Sections 17.1.1.2.9 and 17.1.10.2.1 identify other personnel who have the authority to initiate "stop work" action.

17.1.1.4 Quality Assurance Interfaces

The QA communications interfaces established are described below:

1. The interfacing groups are knowledgeable about the scope of each others' activities affecting quality by exchanging controlled documents as required.
2. For the life of certain modification projects, interfaces, including QA interfaces, are identified in appropriate documents furnished to major project participants including contractors.

Examples of QA communications interfaces include the following:

- QA/QC nuclear operations organization personnel will attend informal planning sessions with the maintenance department. These are generally held daily.
- During normal operation, QA/QC may attend plant operation meetings. These are generally held weekly.
- QA/QC may attend site operational review committee meetings as a nonvoting member. These are generally held weekly.
- QA/QC will review all Class I work requests prior to the initiation of work and all modification requests.



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17.1.2.8 Program Development

Copies of NMPC and contractors' QA procedures, instructions, or manuals are available for reference in the NMPC QA organization offices or at the contractors' offices. The procedures require provision for controlled conditions when carrying out activities affecting quality. These procedures require the use of appropriate equipment in suitable environments and verification that quality prerequisites have been achieved.

17.1.2.9 Program Assessment

The Vice President of Quality Assurance periodically assesses the implementation and effectiveness of the QA program



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through review of reports concerning audits and surveillances conducted by the QA organization. The QA Department regularly performs audits and surveillances of the activities of the various organizations performing QA-related activities (Section 17.1.18). Copies of the reports of audits/surveillances are sent to the Vice President Quality Assurance, who in turn reports significant findings/problems to the President. The audits of the SRAB are conducted and reports distributed as indicated in Section 17.1.18.

The QA programs and the QA manuals for contractors and vendors involved in repair, maintenance, inservice testing, and modifications to, and the refueling of, Unit 2 are reviewed and accepted by QA personnel under the direction of a Quality Assurance Manager/Supervisor. Documentation of the review and acceptance action is audited by the QA group.

17.1.2.10 QA Interfaces During Initial Testing

The QA interfaces are described in Section 17.1.1.4. This will include interfaces between architect-engineers, NSSS, and other NMPC groups to assure successful transition and implementation of the QA program.

17.1.2.11 Review and Approval of Program Manuals/Procedures

The frequency of audits and surveillance is commensurate with the safety significance of the activities performed. The audit frequency is sufficient (Section 17.1.18) to provide QA Department management, and in turn, NMPC corporate management, with means to continually evaluate the QA program.

All QA Department policies and procedures that are used by the QA Department require the approval of the Vice President Quality Assurance or his designee. QA Department procedures are originated by QA Department staff personnel, reviewed by the QA Department Supervisors, and approved by the Director of Quality Assurance or his designee.

The QA program description will be kept current by annual review and update of the FSAR as required by 10CFR50. Substantive changes to the accepted QA program will be submitted to the NRC for review and concurrence before implementation. Additionally, the NRC will be notified of organization changes within 30 days of announcement.



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17.1.5 Instructions, Procedures, and Drawings

17.1.5.1 General

The intent of this section is to assure that quality-related activities are prescribed by documented instructions, procedures, and drawings and are accomplished in accordance with these instructions, procedures, and drawings.

17.1.5.2 Quality Activities

The NMPC QA Department or their designated representative will verify that appropriate QA measures exist and are implemented in all quality-related activities. Quality measures include, but are not limited to, instructions, procedures, and drawings.

The NMPC design office, operations group, or designated representative, as applicable, is responsible for establishing appropriate quantitative and/or qualitative acceptance criteria for determining that quality-related activities are satisfactorily accomplished. In the case of equipment and components, these criteria are made a part of the design documents, for procurement and/or installation of each piece of equipment, component, or order of material. In the case of operations, these criteria are set forth in the applicable operations and maintenance procedures.

The description of compliance to the requirements of 10CFR50.55(a) is described in various FSAR sections (such as conformance to ASME Section XI, described in FSAR Section 6). Procedures will be developed to address the implementation of plant modifications to ensure continuing conformance to 10CFR50.55(a) and QA procedures to assure conformance.

The description of compliance to regulatory guides is described in Section 1.8. Procedures will be developed to address the implementation of the regulatory guides listed in Table 17.0-1 and QA procedures to ensure conformance.

QA department procedures for the preparation, review, and control of procedures requires that reviews be performed on a scheduled basis. All changes or revisions are reviewed, approved, and controlled in the same manner as the original procedure. The reviews are performed by the Corporate QA Section with input provided by the affected QAD sections. QA Department procedures are approved by the Vice President Quality Assurance and may be concurred with by other NMPC organizations whose responsibilities are affected by the QA procedure.



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Assurance that similar procedures are established and implemented in other departments is obtained by audit and surveillance by the QA department.

The Quality Assurance department reviews all engineering and site administrative procedures for QA-related aspects. Concurrence by the QA Manager is required before implementation. Concurrence is indicated by signature and date on the title page of the procedure.

17.1.5.2.1 Document Procedures

Procedures for directing quality-related activities will be prepared to comply with each of the 18 criteria within 10CFR50, Appendix B.

17.1.5.2.2 Preparation of Procedures, Instructions, and Drawings

All quality-related activities shall be performed in accordance with properly approved instructions, procedures, and drawings. The preparation of necessary written procedures and instructions is the responsibility of the department or group performing the activity. Required procedures, instructions, and drawings are prepared in accordance with controlling procedures that include requirements for review, approval, and issuance of the documents involved.

All NMPC QA Department procedures are reviewed and approved by the Vice President Quality Assurance or his designated representative. Certain other procedures including NMPC Engineering procedures, the Nine Mile Point site adminis-

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trative procedures, and certain controlling procedures of the Nuclear Construction Department, Materials Management, and Purchasing Departments require the concurrence prior to issuance of the Vice President Quality Assurance or his designated representative for quality-related content.

17.1.5.2.3 Requirements

NMPC imposes on their architect-engineers, vendors, and contractors, the requirement for utilizing approved written procedures and instructions, as appropriate. The architect-engineers, vendors, and contractors are obligated to impose applicable requirements on their suppliers and subsuppliers.

17.1.6 Document Control

17.1.6.1 Document Issuance Maintenance and Control

The purpose of this section is to assure the implementation of programs for establishing and maintaining control over documents that affect the quality and safe operation of Unit 2. This policy is implemented through written procedures. It is imposed upon contractors, suppliers, and subsuppliers, when appropriate, through contractual arrangements.

The measures that control the issuance and revision of these documents require:

1. Review of controlled documents for accuracy.
2. Approval of controlled documents by authorized personnel prior to release.
3. Distribution of controlled documents to the points of use.
4. Use of controlled documents where the prescribed activity is carried out.
5. Changes and alterations to documents affecting quality are made by subjecting the revised document to the same controls (review, approval for release, distribution, and use) as the document that it replaces, changes, or alters. The changes are reviewed and approved by the same organizations that performed the original review and approval. Document control provides that changes are included in a timely manner, when applicable. Unit 2 will maintain marked-up copies of all drawings to



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inspected by methods that are the same as the original inspection methods. Modified or repaired items are inspected by methods that are equivalent to the original inspection methods.

In the event that direct inspection of processed material is not feasible, measures are established to employ indirect control as a means of determining product quality. This may take the form of monitoring of processing, equipment, and personnel. Indirect control methods supplement direct inspection whenever required to verify product quality.

17.1.10.1.1 Implementation

Inspections are conducted, but are not limited to:

1. The contractor's manufacturing facility.
2. Receipt inspection at the site.
3. Installation inspection.
4. Inservice inspections.
5. Operations inspections.
6. Corrective maintenance.
7. Preventive maintenance.

At the Unit 2 site, Quality Control is responsible to perform receipt inspection. Normally, inspection will be performed by Quality Control personnel, although qualified and appropriately certified independent personnel from other departments or outside contractors may be used.

Instructions for inspection are documented and are furnished to inspectors prior to an inspection activity. Equipment used in an inspection operation is controlled in accordance with Section 17.1.12. The Engineering or QA Department evaluates and determines the accuracy requirements.

Completion of inspection and/or certification that all inspection operations have been performed shall be provided consistent with the requirements of the inspection. Responsibility for verification of inspection shall be accomplished by the QA Department prior to placing the equipment into service.



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identify those mandatory inspection hold points beyond which work may not proceed until inspected by a designated inspector.

17.1.10.2.1 "Stop Work" Policy

The Vice President Quality Assurance or his designated representative has the authority to initiate "stop work" action. Where normal station operation or maintenance work is involved, the General Superintendent Nuclear Generation is also authorized to issue "stop work" action. He may designate that certain of his personnel have the authority to issue "stop work" actions. For major repairs or modifications delegated to it, the Design Office is also authorized to issue "stop work" action.

When a process on a safety-related system fails to meet established criteria due to noncompliance with specifications, procedures, or drawings, unsatisfactory workmanship, or deviation from operational standards, authorized personnel may deem it necessary to issue "stop work" instructions. When safety-related station changes or modifications are involved, either the NMPC Design Office or the General Superintendent Nuclear Generation (as previously described) shall issue "stop work" instructions to:

1. Forbid the use of materials, equipment, or workmanship that do not conform to specifications, or that would cause improper installation relative to specifications.

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Measures are established within test programs to ensure that test performance and test results are documented and evaluated and that test requirements have been satisfied by predetermined qualified personnel.

Prototype and preinstallation tests are specified in the specifications and reviewed by NMPC's responsible engineer and the appropriate QA Department staff member in accordance with Sections 17.1.3 and 17.1.4. Specified prototype and preinstallation tests conducted in vendors' shops are witnessed, inspected, or audited by NMPC and/or their agent. NMPC may also participate in "notification point" or "hold point" tests. Specified prototype and preinstallation tests performed in the field are witnessed, inspected, or audited by NMPC and/or their agent.

17.1.11.1.1 Preliminary, Preoperational, Startup and Operational Tests

Station Operations personnel perform necessary preliminary, preoperational, startup, and operational tests in accordance with guidelines established in both the Startup and Site administrative procedures. Test procedures are prepared and reviewed by Station Operations personnel in accordance with these procedures.

Preliminary testing is that phase in the test program which is performed prior to preoperational testing to verify that individual components or subsystems and setpoints function correctly. These tests serve as a prerequisite to preoperational test.

Preoperational testing is that testing necessary to initially verify that a structure, system, or component, or modification thereto, meets certain design and performance requirements prior to placing that structure, system, or component into commercial operation. Preoperational testing may include some tests that must be run while the unit is operating. Therefore, preoperational test procedures must define the basis for completion of the test, thus establishing the point at which the structure, system, or component is in commercial operation. Preoperational test procedures are reviewed for QA adequacy by the QA Department and approved by the Joint Test Group Chairman or other responsible approved authority.

Operational testing is testing conducted to establish that a structure, system, or component placed into commercial operation continues to meet specified requirements, including those contained in the technical specification. These procedures are reviewed and approved by the SORC prior to implementation.

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2. The cause of the condition is determined and prompt corrective action is implemented.
3. Determination of corrective action is made by cognizant and responsible personnel.
4. Follow-up action is taken to provide implementation, verification, and closure of the documentation by the appropriate QA Department supervisory personnel.

It is the responsibility of the particular QA Department Supervisor to control the deficiency and corrective action reporting system in his area of responsibility. He shall determine which of those reported conditions are significant conditions adverse to quality, and shall ensure that they are immediately reported to appropriate management levels including the Vice President Quality Assurance. Corrective action for significant deficiency reports is handled in a manner consistent with their importance to safety. Corrective action includes preventive measures to preclude recurrence of the condition.

The appropriate manager/supervisor of the organization upon which a deficiency citation has been prepared is responsible for determining the corrective action to be applied, preparing any procedures required, and ensuring that the corrective action is implemented.

Contractors involved in station modification, repair, or services are required to have procedures that require that nonconformance and corrective action documentation and reporting be implemented. The QA Department is responsible for ensuring that such requirements are stated in procurement documents by review, and for ensuring implementation by surveillance and/or audit.

The Vice President Quality Assurance maintains overall responsibility for, and control of, the deficiency and corrective action reporting system. He has the approval authority for all procedures and changes thereto involved in the Nonconformance Reports system. He maintains control by means of audits, surveillance, and reviews of Nonconformance Reports by personnel of the QA staff. Procedures require that a copy of any report indicating a significant condition adverse to quality be transmitted to the Vice President Quality Assurance or his designee.

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17.1.16.3 Analysis

Reports indicating quality problems are reviewed by the QA Department for trend analysis. The QA Department staff is also required by procedures to document and report adverse trends, QA program breakdowns, or other significant deficiencies to the Vice President Quality Assurance or his designee. He has the authority, through reporting to corporate management, to ensure that proper corrective and preventive measures are undertaken to satisfy the requirements of the applicable safety criteria.

17.1.16.4 NRC Notification of Problem Areas

Procedures are established regarding the reporting of failures to comply or defects to the NRC, as required by 10CFR21. Procedures provide for internal reporting and analysis of deviations and require the imposition of the requirements of 10CFR21 on suppliers as part of procurement documents.

17.1.16.5 Records

The QA Department shall maintain a file of records generated relating to this section as delineated in Section 17.1.17.

17.1.17 Quality Assurance Records

17.1.17.1 General

It is the policy of NMPC to maintain a record retention system which contains an easily retrievable quality history for each safety-related item. All records must be consistent with applicable codes, standards, specifications, and contracts. This policy requires that station operating and maintenance records be maintained. Design offices, vendors, and contractors are required to generate and provide to NMPC records covering the period of design, manufacture, and installation. The purpose of this system is to permit reconstruction of the significant events that cause any given part to be located where it is, in regard to physical position and operating status, at any particular point in time. These records can be used for such purpose as analysis of failures, maintenance programs, and replacement frequency.

The following are examples of records to be maintained: procurement documents, calibration procedures and results, nonconformance reports, operating logs, refueling records,

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17.1.18.8 Audits/Surveillances by the Quality Assurance Department Staff

Independent audits as well as surveillances shall be conducted by the QA Department staff. These include, but are not limited to:

1. Operation, maintenance, receipt inspection, testing, modification, installation, repair, technical services, training, and chemical and radiation management.
2. Engineering, Project Management, Purchasing, and Materials Management.
3. Audits of records of SORC and SRAB.
4. Contractors' activities, design offices, shops, and field erection.
5. Corrective action and nonconformance content.
6. FSAR commitments.
7. Compliance with regulatory requirements.
8. Calibration facilities.
9. Activities associated with computer programs.

Audits and surveillances are scheduled at appropriate intervals to ensure that all safety-related activities, procedures, and programs are in compliance with their intended functions and regulatory requirements. Checklists shall be prepared in advance when appropriate.

Audit and surveillance reports are distributed, as applicable, to:

1. Vice President Quality Assurance.
2. QA Department Managers and Supervisors.
3. General Superintendent Nuclear Generation or SRAB chairman.
4. Station Superintendent.
5. QA Department files.
6. Organizations involved in audit/surveillance.

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All audits include an objective evaluation of quality-related practices, procedures, instructions; activities and items; and review of documents and records to ensure that the QA program is effective and properly implemented in accordance with procedures.

17.1.18.9 Audits by the Safety Review and Audit Board

NMPC corporate management utilizes the services of the SRAB to audit QA-related activities at the site, as well as within applicable portions of the QA and Nuclear Departments.

The SRAB conducts audits in the areas and at the frequency specified in the Technical Specifications using checklists prepared in advance. SRAB audits of QA-related activities are conducted under the immediate direction of a board member or consultant who has no direct responsibilities in the areas being audited. He may invite the participation of a member of the QA Department and/or other concerned groups as observers. The scope of audits conducted by the SRAB is of such nature as to appraise the QA program policies, activities, and procedures. These policies, activities, and procedures are evaluated against the criteria of Appendix B to 10CFR50. Deficiencies observed in the QA program policies, activities, and procedures are described in the audit report. Ensuing corrective action is verified on subsequent audits by the SRAB.

An annual summary of SRAB audits performed is reported. The distribution of this report is, as a minimum, to the Vice President Nuclear Generation, the Manager Nuclear Engineering and Licensing, the Chairman of the SRAB, and the Vice President Quality Assurance.

17.1.18.10 Records

Audit reports are maintained as delineated in Section 17.1.17.

17.1.19 Fire Protection Quality Assurance Program

NMPC commits to the general requirements provided in the Fire Protection Quality Assurance Program for Unit 2 (see Section 9A.3.4).



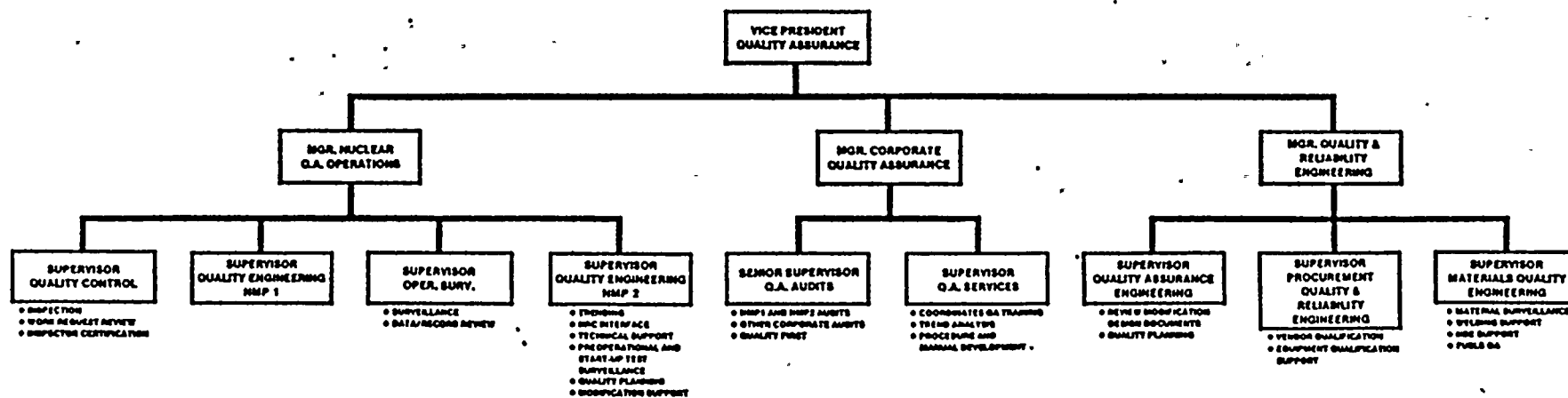


FIGURE 17.1-1

QA NUCLEAR ORGANIZATION DURING
CONSTRUCTION, PRELIMINARY TEST,
PREOPERATIONAL TESTING, STARTUP
TESTING, OPERATIONS

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT



ATTACHMENT 3



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CHAPTER 13

CONDUCT OF OPERATIONS

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13.2 TRAINING

13.2.1 Unit 2 Station Staff Training Program

The objectives of this program are to:

1. Train sufficient personnel to operate and maintain the plant in a safe and reliable manner.
2. Prepare the Technical Services Group for their functions necessary for the support and safety of plant operation.
3. Prepare shift supervisory personnel, main control room personnel, and other licensed personnel for NRC licensing examinations.
4. Provide training for replacement of personnel due to vacancies.
5. Provide requalification training, as required by NRC regulations, to maintain a high level of proficiency throughout the plant staff.

The initial plant staff training schedule is presented on Table 13.2-1. This schedule is established to meet the scheduled fuel load date.

The overall training program for the plant staff is the responsibility of the General Superintendent Nuclear Generation. The details of the training program and its administration are the responsibility of the Training Superintendent Nuclear, who in turn is responsible to the General Superintendent Nuclear Generation.

The Training Superintendent Nuclear designates, as necessary, qualified individuals to prepare lesson plans, give lectures, tests and examinations, provide performance evaluations, and document various aspects of the training programs.

The duration of the listed courses is typical, but may vary depending on the needs of the students and the intensity of the course instruction.

13.2.1.1 Program Description

The training program for Unit 2 is designed to provide the initial plant staff training, requalification training, and

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replacement training at all levels of the plant organization.

The training programs incorporate the guidelines set forth in Regulatory Guide 1.8. They are designed to allow placement of personnel into specific programs based on the employee's previous experience and intended position.

Pursuant to ANSI-3.1, differences in the training programs based on the extent of an individual's previous nuclear power plant experience may be used to establish eligibility for cold license examinations as follows:

1. Individuals who have had nuclear experience at facilities not subject to licensing (e.g., U.S. Navy) are evaluated on a case-by-case basis to determine training required.
2. Individuals certified to have completed an NRC-approved training program utilizing a nuclear power plant simulator or having completed an NRC-administered written examination and operating test at a comparable licensed reactor facility with or without issuance of an RO or SRO license will attend the Unit 2 Licensed Operator Candidate Course (NTP-10) as a minimum. Additional training is specified on a case basis commensurate with the individual's needs.
3. Individuals with no previous nuclear experience will attend the Unlicensed Operator Training Course (NTP-12) prior to attending the licensed operator candidate course (NTP-10).

Other personnel attend lectures in courses on systems related to their disciplines which satisfy NRC requirements.

In the following sections each course is described to include 1) a general course description, 2) the approximate course length, 3) the organization responsible for teaching the course or supervising the instruction, and 4) a listing of personnel who will be scheduled to attend.

13.2.1.2 Administration of Training Programs

All instructors teaching the licensed training and retraining programs concerning systems, integrated responses, transients, and simulator courses shall demonstrate senior reactor operator qualifications and participate in appropriate regualification programs. Other



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members of the permanent or nonpermanent training staff who are responsible for teaching technical subjects such as reactor theory, heat transfer, fluid mechanics, thermodynamics, health physics, chemistry, and instrumentation are exempt from the senior reactor operator criterion. Guest lecturers who are considered subject matter experts and are used on a limited basis are also exempt from the senior reactor operator criterion; however, they shall be monitored by a qualified instructor.

13.2.2 Training of Unlicensed Operators (NTP-12) Up to 24 Months

This course is structured to teach fundamental nuclear reactor plant technology including a review of fundamental mathematics and science. The subject matter provides the student with the prerequisite knowledge for understanding



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the material taught in the training of Licensed Operator Candidates Course (NTP-10).

The course is taught by members of the Nine Mile Point nuclear training staff or by qualified vendors under the supervision of the Supervisor of Training Nuclear. The schedule for operator training programs is shown on Figure 13.2-1.

13.2.2.1 Program

13.2.2.1.1 Technical Training

Operating personnel who are not licensed candidates shall be scheduled for training sessions on topics including:

1. Nuclear power plant fundamentals, 1-wk course (design familiarization).
2. Mathematics, 2-wk course including but not limited to:
 - a. Algebraic functions.
 - b. Trigonometric functions.
 - c. Exponential functions.
 - d. Graphic and vector analysis.
 - e. Graphic application of differentiation and integration.
3. The physical sciences, 2-wk course including but not limited to:
 - a. Mechanics.
 - b. Heat and heat transfer.
 - c. Electrical fundamentals.
 - (1) Resistive circuits.
 - (2) Motors and generators.

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- (2) Quantum energies.
- e. Structure and properties of materials.
- f. Nuclear physics:
 - (1) Nucleons, binding energy.
 - (2) Radioactive decay, activation.
 - (3) Fission, fusion.

13.2.2.1.2 Systems Training

The following courses are 1 to 4 weeks in duration:

1. Nuclear steam supply system.
2. Neutron monitoring system.
3. Containment and emergency systems.
4. Turbine, generator, and electrical systems.
5. Balance-of-plant and auxiliary systems.

13.2.2.1.3 Individual Reading Assignments as Necessary

13.2.2.1.4 Offsite Facilities Training

Visits to offsite training facilities may be used to substitute for or supplement the on-the-job training and technical training specified in Sections 13.2.2.1.1, 13.2.2.1.2, and 13.2.2.1.5.

13.2.2.1.5 On-the-Job Training

On-the-job training is variable in duration until such time as they meet the experience eligibility requirements of 10CFR55 to become licensed operator candidates.

1. Operators shall participate in shift operations, including manipulation of equipment control when practical.
2. Training manuals similar to those provided for licensed candidates and for licensed operators shall be maintained by all operating personnel assigned to a shift. These manuals shall contain check-lists of plant evolutions, individual reading



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Personnel attending this course are, but may not be limited to, those persons designated unlicensed operators.

13.2.3 Training of Licensed Operator Candidates (NTP-10) Approximately 520 Hours

This course is structured to teach those persons designated NRC Licensed Operator candidates the knowledge and skills necessary to obtain an NRC Senior Reactor or Reactor Operator License.

This program is taught by members of the Nine Mile Point Nuclear training staffs or by qualified vendors under the supervision of the Training Supervisor Nuclear.

Personnel attending this course will include, but may not be limited to:

1. Superintendent Operations - Nuclear.
2. Assistant Superintendent of Operations - Nuclear.
3. Assistant to the Superintendent of Operations - Nuclear.
4. Station Shift Supervisor.
5. Assistant Station Shift Supervisor.
6. Chief Shift Operator.
7. Nuclear Auxiliary Operator E.
8. Superintendent Training.
9. Assistant Superintendent of Training.
10. Training Supervisor Nuclear.
11. Generation Specialist Nuclear.



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13.2.3.1 Technical Training

Technical training for candidates for the NRC Operator license shall consist of scheduled classroom sessions to cover the following subjects:

1. Theory and principles of reactor operation.
2. General and specific plant operating characteristics.
3. Plant instrumentation and control systems.
4. Plant protective systems.
5. Engineered safety systems.
6. Normal, abnormal, and emergency operating procedures.
7. Administrative procedures, conditions, and limitations.
8. Radiation protection and Site Emergency Plan and procedures.
9. Fuel handling and core parameters.
10. Technical specifications.
11. Applicable portions of Title 10 of Code of Federal Regulations.
12. Heat transfer, fluid flow, and thermodynamics.
13. Use of installed plant systems to control or mitigate an accident in which the core is severely damaged (see Table 13.2-2).
14. Reactor and plant transients and accidents.
15. Procedures and equipment available for handling and disposal of radioactive material and effluents.



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4. The Training Supervisor or his designee shall review each individual's training manual quarterly. He shall arrange with the Superintendent Operations-Nuclear to schedule manipulations or simulations so that the candidate may complete prescribed evolutions on a timely basis.

13.2.3.3 On/Offsite Simulator Training

Visits to offsite reactors and training facilities including a simulator may be used to substitute for or supplement the technical and on-shift training specified in Sections 13.2.3.1 and 13.2.3.2. Detailed records of this on/offsite training shall be placed in the individual's training file. When a simulator is used the candidate shall actually perform all logged operations by manipulation of controls of the simulator.

Operator and Senior Operator license applicants will attend simulator training as outlined in Enclosure 1 of H. R. Denton's March 28, 1980 letter (NUREG-0737).

All Operator and Senior Operator license applicants will be administered a simulator examination in addition to the written and plant oral tests when the Unit 2 plant reference simulator is available. Until such time, examinations shall be administered pursuant to SECY 82-232.

The Unit 2 plant reference simulator is designed and constructed to meet the requirements of Regulatory Guide 1.149 and ANSI/ANS 3.5-1981, Nuclear Power Plant Simulators for Use in Operator Training.

13.2.3.4 Tests and Audits

1. Progress tests similar to the regualification written examinations (NTP-11) shall be used to evaluate the effectiveness of the lecture series. Assignments to additional individual study or attendance at repeat lectures shall be made on the basis of test results.
2. The Station Superintendent or his appointed representative shall conduct oral examinations and evaluations of demonstrated or simulated performance for each candidate prior to formal presentation to the licensing examiner. These evaluations shall be placed in the individual's training file.

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3. Certifications completed, pursuant to Section 55.10 (a)(6) of 10CFR55 shall be signed by the Vice President Nuclear Generation.



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13.2.4 Licensed NRC Operator Retraining (NTP-11) 24 Months

This course establishes the procedures, programs, responsibilities, and requirements for requalification of NRC licensed Reactor Operators and Senior Operators at Unit 2.

This program is taught by members of the Nine Mile Point Nuclear Training staff or by qualified vendors under the supervision of the Training Supervisor Nuclear.

This program shall be structured and administered in accordance with 10CFR55. The program will be ongoing for the duration of the 2-year license period with written examinations to check the training needs of the licensed operators.

13.2.4.1 Technical Training

13.2.4.1.1 Lectures

The requalification program shall include preplanned lectures to be given throughout the 2-yr period. Lectures will normally be scheduled to average 4 hr/month/man to accommodate all licensed operating personnel. Emphasis shall be placed on those areas where annual operator and senior operator written examinations indicate that an increase in scope and depth of coverage is needed in the following general subjects:

1. Theory and principles of operation.
2. General and specific plant operating characteristics, including operational limitations, precautions, and set points.
3. Plant instrumentation and control systems.



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13.2.4.2.6 Log of Control Operation and Simulation

When an operator or senior operator participates in a plant manipulation or performs a walk-through he shall log the date of the exercise in his individual training manual and note whether he actually performs the manipulation or it was a simulation or performed under his direction. Each entry shall be initialed by the Station Shift Supervisor or another licensed senior operator present.

13.2.4.3 Evaluation

13.2.4.3.1 Written Examinations

1. Written examinations shall be given as prescribed by 10CFR55. The examination shall closely parallel the NRC written examinations outlined in 10CFR55.21 and 10CFR55.22.
2. All written examinations shall be graded and filed in the individual's training file for audit by the NRC.
3. The written examination results shall be used to determine the areas in which retraining is needed to upgrade licensed operator and senior operator knowledge. Examination results will also be used to determine the scope and content of subsequent regualification cycles.
4. An operator scoring 80 percent or above in all sections of the annual regualification examination shall not be required to attend further regualification lectures until the next annual regualification examination. Other operators may be excused from lectures in subjects for which they scored 80 percent or above but shall be required to attend lectures on all other topics.
5. An accelerated regualification program consisting of additional lectures and/or walk through shall be scheduled for all individuals whose average score for all sections of the annual regualification examination is below 80 percent, or whose individual category score is below 70 percent. Individual programs consisting of any or all of the following shall be tailored to place emphasis where required:
 - a. Individual reading assignments.
 - b. Additional on-shift evolutions.



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- c. Individual review with members of the operating staff.
- d. Attendance at formal lectures.

The exact details of the accelerated program, including its scope and duration, will be made by a review team consisting of the Station Superintendent, Superintendent Operations - Nuclear, and Training Supervisor. Any individual who is required to participate in this program will be removed from normal shift operation for the duration of his/her program and will be given no additional responsibilities other than training. Any operator or senior operator assigned to the accelerated program shall be required to successfully complete a second written and/or oral requalification examination or category at the completion of his/her accelerated review program. All written reexaminations shall be graded and placed in the individual's training file along with the results of any oral examination given.

- 6. Written quizzes shall be administered following each required attendance requalification lecture or series of lectures on a given topic. In addition, written quizzes may periodically be administered to determine the operator's knowledge of material covered in specific reading assignments or walk-through exercises. These quizzes shall be graded and their results placed in the individual's training file. An operator or senior operator who fails a quiz shall require remediation.



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13.2.4.3.2 Oral Examinations and Evaluation

Continuous Evaluation

Systematic observation and evaluation of the performance and competency of licensed operators and senior operators shall be made by the Station Superintendent and his designated representatives. The following procedure will be used:

1. The Superintendent of Operations - Nuclear and/or the Training Supervisor shall review each individual training manual quarterly.
2. He shall arrange with the Station Superintendent to schedule reactivity control manipulations, if possible, so that each individual may complete the prescribed manipulations on a timely basis.

Superintendent's Audit

On an annual basis, each operator and senior operator shall participate in an oral examination with the Station Superintendent or his appointed designee. This examination and evaluation shall, as a minimum, contain the following:

1. A discussion of required actions to be taken during abnormal and emergency conditions and the reasons for these actions.
2. A simulation of abnormal and emergency conditions while in the control room showing each action and each controlling device to be operated.
3. Should the performance of the operator or senior operator be deemed unsatisfactory, the operator or senior operator shall participate in an accelerated review program as described in Section 13.2.4.3.1.

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4. Upon completion of the accelerated review program but no later than one month following the initial interview he shall be subject to reexamination.
5. A plant-specific simulator may be used in meeting the requirements of the Superintendent's Audit if the simulator reproduces the general operating characteristics of the plant involved, and the arrangement of instrumentation and controls is similar to the plant involved.

A written record of the results of these oral examinations and evaluations shall be placed in each individual's training file.

Personnel required to attend this course are all personnel holding an NRC Reactor Operators License or Senior Operator License at Unit 2.

13.2.5 Radwaste Operator Training (NTP-13)

Training - 2 weeks
Retraining - 2 weeks annually

This program is structured to provide basic knowledge in radwaste systems and procedures for waste handling. Included in this program is a practical section to enhance operator skills and development.

This program will be taught by members of the Nine Mile Point training staff, or by a qualified vendor under the supervision of the Training Supervisor Nuclear.

13.2.5.1 Programs

Technical training for Radwaste Operators shall consist of scheduled classroom sessions and/or laboratory time, offsite training, vendor training, and assigned reading to cover the following subjects.

13.2.5.1.1 Level B (Auxiliary Operator B)

Persons employed as Radwaste Operators at the entry level shall receive classroom training in the following areas:

1. General theory of liquid and solid radwaste handling systems.
2. General sources of radioactivity and contamination.



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certification sheets must be signed by the Radwaste Supervisor, and entered in the individual's training file.

4. Upon completion of the Practical Factors for a given level of qualification, a final examination will be conducted by the Radwaste Supervisor. This examination may be written or oral, or a combination written and oral exam. Successful completion will be attested to by the Radwaste Supervisor's signature on a certification sheet for each level.

13.2.5.2 Retraining

Retraining will be conducted as needed to keep Radwaste Operators abreast of changes to procedures, regulations, equipment modifications, and significant LER's.

Personnel attending this program are, but may not be limited to, personnel assigned to or designated as Radwaste Operators.

13.2.6 General Employee Training (NTP-6)

Training - 3 Days

Retraining - Annually

These courses are structured to provide a basic knowledge of radiation protection and general employee training topics required for work at the Nine Mile Point Station.

The program will be taught by members of the Nine Mile Point training staff, or by a qualified vendor under the supervision of the Training Supervisor Nuclear.

13.2.6.1 General Program

13.2.6.1.1 General Administrative Plans and Procedures Training

Annually, all site personnel shall attend a training class in administrative plans and procedures that shall include such portions of the administrative controls and procedures that should generally be known by all site personnel. This shall include the composition and responsibilities of the site and station organization security access control and correct use of the photo ID system.

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13.2.6.1.2 Nuclear Security Orientation

Annually, all site personnel and nonsite personnel granted unescorted access to the Security Protected Area shall attend a nuclear security orientation that shall review the portions of the security plan and procedures with which they must be familiar.

13.2.6.1.3 Quality Assurance Training

1. Annually, all site personnel shall attend a quality assurance training class which shall review the objectives of the quality assurance program, the duties of individuals and groups in connection with the program, and the importance of cooperation in the performance of work.
2. Personnel not licensed in accordance with 10CFR55, who perform quality-related inspections, examinations, and tests shall be qualified and certified in accordance with NQA-1 and AP 1.3.1. Certification of these personnel shall be retained in the individual's training file maintained by the Training Superintendent.
3. Personnel who are licensed according to 10CFR55 may be considered certified for the surveillance tests and inspections assigned to operators without further documentation in accordance with NQA-1 and AP 1.3.1.

13.2.6.1.4 Site Emergency Plan and Procedures Training

Annually, all site personnel and nonsite personnel granted unescorted access to the security protected area shall receive site Emergency Plan and procedures training to review the actions they should take in an emergency. This includes personnel actions as detailed in the Emergency Plan implementing procedures, response to station alarms, evacuation routes and assembly areas, and evacuation to an assembly area offsite.

13.2.6.1.5 Industrial Safety Training

Annually, all site personnel and nonsite personnel granted unescorted access to the security protected area shall attend an industrial safety training class based upon the NMPC Manual of Accident Prevention Rules.

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13.2.6.2.5 Self-Contained Breathing Apparatus Qualification and Regualification

Initially, and annually thereafter, to be qualified to wear self-contained breathing apparatus, or to directly supervise such individuals, an individual must attend a self-contained breathing apparatus qualification course or regualification course.

13.2.6.2.6 Self-Monitoring Qualification and Regualification

Initially, and annually thereafter, to be qualified to use radiation detection instruments to measure radiation and contamination levels and to use the extended radiation work permits, an individual must attend a self-monitoring qualification training course or regualification course. Regualification of Radiation Protection Technicians shall be as described in NTP-14.

13.2.7 Emergency Preparedness Training (NTP-4)

This program is structured to describe the training requirements for site personnel and nonsite personnel who have response and functional group duties in accordance with the Nine Mile Point site Emergency Plan and Corporate Emergency Response/Recovery Plan.

This program is taught by members of the Nine Mile Point training staff, or by a qualified vendor under the supervision of the Training Supervisor Nuclear.

13.2.7.1 Functional Groups of Site Personnel

13.2.7.1.1 Site Personnel Granted Unescorted Access to Protected Area

Annually, all site personnel granted unescorted access to the security protected area shall receive site Emergency Plan and procedures training to review the actions they should take in an emergency. This includes personnel actions as detailed in the Emergency Plan Implementing Procedures, response to station alarms, evacuation routes and assembly areas, and evacuation to an assembly area offsite.



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13.2.7.1.2 Emergency Director

The General Superintendent, Station Superintendents, Superintendent of Operations, Station Shift Supervisors, Assistant Station Shift Supervisors, and other staff personnel licensed as Senior Reactor Operators compose the functional group known as emergency directors. Annually, they shall be trained in applicable emergency procedures.

13.2.7.1.3 Radiological Assessment and Survey/Sample Team Coordinators

The Chemistry and Radiation Management Superintendent, Chemistry and Radiation Protection Supervisor, Environmental Protection Coordinator, Emergency Planning Coordinator and other Chemistry and Radiation Management Department Supervisors compose the functional group known as Radiological Assessment and Survey/Sample Team Coordinators.

Annually, they shall be trained in applicable emergency procedures. Annually, they shall be trained in the post-accident sampling and analysis procedures for stack gas, reactor water, drywell atmosphere, and floor and equipment drains.

13.2.7.1.4 Operators

Reactor Operator licensed and non-licensed shift operating personnel compose the group known as operators. For the purpose of this paragraph, "operators" does not include the Station Shift Supervisor or the Assistant Station Shift Supervisor.

Annually, operators shall be trained in applicable emergency procedures.

13.2.7.1.5 Radiological Monitoring Teams

Radiation Protection technicians "C" and above compose the functional group known as Radiological Monitoring Teams. Annually, they shall be trained in the technician actions required for applicable emergency procedures.

13.2.7.1.6 Post-Accident Sampling Technicians

Chemistry Technicians, as assigned by the Supervisor Chemistry and Radiation Protection, shall be trained in post-accident sampling and analysis procedures for stack gas, reactor water, drywell atmosphere, and floor and equipment drains.

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In addition, scheduled Chemistry Technicians will receive radiological assessment training.



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13.2.7.1.7 Operational Support Center Staff

This functional group consists of individuals as listed below. Annually, they shall be trained in their actions required by applicable emergency procedures.

1. Maintenance - Supervisors, Assistant Supervisors, Chief Mechanics, and Chief Electricians.
2. Instrumentation and Control - Chief Technicians I&C.
3. Chemistry and Radiation Management - Chief Chemistry and Radiochemistry Technicians and Chief Radiation Protection Technicians.
4. Fire Protection - Supervisor Fire Protection and Assistant Supervisors - Fire Protection.
5. Materials Management - Supervisor Storeroom, Assistant Supervisor Storeroom, and Storekeeper.

13.2.7.1.8 Technical Support Center Staff and Control Room Advisors

The Technical Superintendent and staff, Maintenance Superintendent and Maintenance Supervisors, Site Instrumentation and Control (I&C) Supervisor and I&C Supervisors, Reactor Analyst Supervisor, Security Supervisor, and their alternates compose the functional group known as the Technical Support Center (TSC) Staff.

Annually, the above groups shall be trained in the actions required of them by applicable emergency procedures.

13.2.7.1.9 Damage Control Teams

Maintenance Supervisors, Assistant Maintenance Supervisors, Chief Mechanics and electricians, mechanics and electricians "C", Chief I&C Technicians, and I&C Technicians compose the functional group known as the Damage Control Teams. Annually, they shall be trained in their actions and the information given in emergency procedures.

13.2.7.1.10 Fire, Search and Rescue, and First-Aid Brigade

The fire, search and rescue, and first-aid brigades are composed of members of the Nine Mile Point Fire Department. Annually, they shall be trained in their actions required by the emergency procedures.



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13.2.7.2 Functional Groups of Nonsite Personnel

13.2.7.2.1 Nonsite Personnel Granted Unescorted Access to the Protected Area

Annually, all nonsite personnel granted unescorted access to the security protected area shall receive site Emergency Plan and procedures training to review the actions they should take in an emergency. This includes personnel actions as detailed in the Emergency Plan Implementing Procedures, response to station alarms, evacuation routes and assembly areas, and evacuation to an assembly area offsite.

13.2.7.2.2 Nonsite Personnel Working at the Nine Mile Point Station Site Outside the Protected Area

Nonsite personnel working at the site but outside the protected area are informed of their emergency response in accordance with emergency procedures. The Manager Construction Services, or his onsite representative is responsible for ensuring that appropriate personnel receive this training.

13.2.7.2.3 Communications Chief and Staff

The Supervisor Quality Assurance Operations, and his staff (as assigned by the Supervisor Quality Assurance Operations) compose the functional group known as the Communications Chief and staff. Annually, they shall be trained in their actions required by the emergency procedures.

13.2.7.2.4 EOF Managers

The Corporate Emergency Response/Recovery Plan and Implementing Procedure CPP-4, Emergency Operations Facility (EOF), lists individuals assigned duties in the EOF, and their alternates. These individuals compose the functional group known as the EOF Managers. Initially, they shall be given an orientation in the basic principles of radiological safety. Initially, and annually thereafter, they shall be trained in their actions required by emergency procedures. Initially, and annually thereafter, they shall be trained in their actions required by the Corporate Emergency Response/Recovery Plan and Implementing Procedures.

13.2.7.2.5 Corporate Headquarters Support

Engineers listed in CPP-7 with expertise in Electrical Engineering, Mechanical Engineering, Structural Engineering,

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Fuel Management and Operations Assessment Engineering, Licensing, and Health Physics comprise the group known as the Engineering Technical Support Center Coordinator and staff.



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Annually, they shall be trained in their actions required by emergency procedures, and their callout procedures.

13.2.7.2.6 Energy Information Center Staff

Full time, NMPC employees of the Energy Information Center (EIC) compose the functional group known as the EIC staff. Annually, they shall be trained in their actions, and those of visitors, in an emergency, as required by procedure.

13.2.7.2.7 Nine Mile Point Security

Guards of the Nine Mile Point Security Force compose the functional group known as Security. Annually, they shall be trained in their actions required by the emergency procedures. The Training Instructors, Nuclear Security are responsible for the training.

13.2.7.2.8 Emergency/Disaster Service Organizations

The New York State Department of Health, the New York State Office of Disaster Preparedness, and the Oswego County Office of Emergency Preparedness compose the Emergency/Disaster Service Organizations. Annually, key personnel from these organizations will be invited to attend emergency preparedness training. The training may include a review of the Nine Mile Point Emergency Plan and appropriate Emergency Plan implementing procedures, the Corporate Engineering Response/Recovery Plan and appropriate procedures, classification of emergencies, reporting requirements, assessment, protective and corrective actions, and communications networks as appropriate to meet the specific training needs/requests of these organizations.

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13.2.7.2.9 Local Fire/Ambulance Companies, and Local Medical Support

NMPC will provide emergency preparedness training to local fire/ambulance companies and local medical support personnel as specified in respective letters of agreement or as required to ensure a high state of emergency preparedness and response capability between these organizations and the Nine Mile Point emergency organization. These local organizations and personnel who may provide onsite emergency assistance will be encouraged to become familiar with the Nine Mile Point Station (including the physical plant layout) and key station personnel. The local fire/ambulance companies will be invited to attend annual training programs that may include:

1. Nine Mile Point facility layout.
2. Basic health physics training.
3. Onsite fire protection equipment.
4. Differences between onsite fire protection equipment and fire company supplied equipment.
5. Communications system.
6. Appropriate sections of the Nine Mile Point Emergency Plan.
7. Emergency Plan implementing procedures.
8. Interface with Nine Mile Point Security during an emergency.
9. Interface with the Nine Mile Point Emergency organizations especially the Nine Mile Point Fire Department.

The Supervisor Fire Protection will coordinate the scheduling of training for all offsite fire support personnel.

The local medical support organizations will be invited to attend annual training that may include:

1. A review of the appropriate sections of the radiation emergency plan and procedures of the Oswego Hospital and the State University of New York at Upstate Medical Center.

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2. The Nine Mile Point emergency organization including interface between Nine Mile Point radiation protection personnel, local medical support personnel, and radiation medicine consultants.
3. Radiological aspects of emergency medical treatment.
4. Nine Mile Point Emergency Plan procedures for decontamination.
5. Communications system.

13.2.7.2.10 Public News Organizations

Annually, major public news organizations serving the Nine Mile Point emergency planning zone (EPZ), such as radio and TV stations, newspapers, local wire service offices, and local correspondents to national news media will be invited to send representatives to attend emergency preparedness training. The training may include:

1. Orientation to the content and implementation of the Nine Mile Point Emergency Plan.
2. Emergency classification scheme.
3. Public notification system.
4. News release/public information procedures and points of contact for release of public information in an emergency.
5. A basic overview of nuclear power electrical generation and radiation concerns.
6. Familiarization with the physical plant layout.

The Director Nuclear Information Services will coordinate the scheduling of this program and, in conjunction with station personnel and/or contractor personnel, administer the program.

13.2.7.2.11 Joint News Center Director and Staff

The position of Joint News Center Director will be filled by the Manager Public Affairs and Corporate Communications, or designee, and members of his staff.

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Annually, they shall be trained in their actions required by procedure.

13.2.8 Instrument and Control Technician - Nuclear Training Program

13.2.8.1 Technical Training

Training for Technicians - Instrument and Control - Nuclear shall consist of the following classroom training and/or laboratory sessions, and in addition, will include, as appropriate, the following:

1. Technical Specifications and Administrative Procedures
2. Instrument and Control Procedures
3. On-the-job training (OJT) orientation.

13.2.8.1.1 Initial Training

General technical training provides the technician with generic technical knowledge as follows:

- *1. Math
- *2. Physics
3. Electricity and electronics
 - a. Dc electronics
 - b. Ac electronics
 - c. Semiconductor devices
 - d. Electronic circuits/troubleshooting
 - e. Operational amplifiers
 - f. Digital electronics/troubleshooting
 - g. Introduction to computers
4. Tools and test equipment
 - a. Gauges, indicators
 - b. Calibrators (voltage and current)
 - c. Power supplies
 - d. Meters and recorders
 - e. Bridges
 - f. Generators, counters, and analyzers

*Required prerequisite by job specification; may be required by supervisor.

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- g. Oscilloscopes and probes
- h. Soldering techniques
- i. Tubing bending and fittings
- j. Logic probes

5. BWR technology

- a. Reactor theory
- b. Plant systems
- c. Mitigation of core damage

6. Print reading

- a. Symbols
- b. Index identification, types, and classifications

7. Instrumentation - measurement concepts

- a. Pressure
- b. Level and flow
- c. Temperature
- d. Conductivity measurement
- e. Radiation detection
- f. Vibration and seismic

8. Instrumentation - control methods

- a. Pressure control loop
- b. Level control loop
- c. Flow control loop
- d. Temperature control loop
- e. Final control elements
- f. Valve manifolds and valving methods

9. Instrumentation automatic - control theory

- a. Modes of control
- b. Control system action
- c. Proportional control
- d. Proportional and reset control
- e. Proportional and reset and rate control

13.2.8.1.2 Advanced Training

1. Signal Processing/Conditioning (Module Operation)

- a. Transmitters
- b. Square Root Converters
- c. Controllers

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- d. Electronic to Pneumatic Devices, Summers - function generators
 - e. Positioners
 - f. Linear Variable Differential Transmitters
 - g. Servos
 - h. Chart recorders
2. Microprocessors and computer interface
- a. Microprocessor
 - b. Digital interface
 - c. Analog Digital, Digital/Analog conversion units
 - d. Computer techniques
 - e. Display devices
 - f. Data loggers
 - g. Multiplexers
 - h. Data links
 - i. Control systems
3. Reactor plant system training

Each technician will be trained in a minimum of five major systems, as assigned:

- a. Reactor protection system
- b. Nuclear instrumentation (SRM, IRM, LPRM, APRM, tip machines)
- c. Rod control and rod position indication
- d. Rod block monitoring
- e. Radiation monitoring (area and process)
- f. Electric hydraulic control (EPR, EMC)
- g. Turbine supervisory instrumentation
- h. Reactor recirculation flow control
- i. Feedwater control/HPCS/RCIC
- j. Containment and vessel isolation system (PCRVICES)
- k. Reactor core isolation coolant system
- l. Liquid radwaste
- m. Radiation monitoring system
- n. Video system
- o. Meteorological
- p. Fire protection system

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13.2.8.2 On-the-Job Training

The On-the-Job Training (OJT) Program consists of three manuals:

1. Qualified Evaluators Manual
2. Technician Qualification Record Manual
3. Reference Manual.

The OJT Qualified Evaluators Manual provides a listing of modules/tasks and qualified evaluators approved by the Department Supervisor or his designee.

The OJT Technician Qualification Record Manual provides a listing of modules and associated tasks. Each technician will receive his own manual. An action code is used to determine whether the task was performed, simulated, observed, or discussed (P, S, O, D). Performed is the preferred action, with acceptable alternatives listed in decreasing order of preference. When a task is successfully completed as witnessed by a Qualified Evaluator, the technician shall be deemed qualified to perform the task again unsupervised. This is verified by the signature and date of the Qualified Evaluator.

The OJT Reference Manual provides a complete guideline to all modules and associated tasks for the technician and the evaluator. The reference manual is provided to each Qualified Evaluator. The information provided consists of:

1. Index - module/task
2. Purpose/Scope
3. Instruction - Technician/Evaluator
4. Start/End a Task
5. Module
 - a. Cover Sheet
 - b. Task Reference Number Sheet
 - c. Task Sheet.

Technicians participating in the on-the-job qualification program may also be administered written, practical, and/or

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oral examinations. Instrument and Control Technicians - Nuclear in qualification may perform responsible work if:

1. The work is performed under the direct supervision of a qualified Instrument and Control Technician who is responsible for and signs for the work accomplished, or
2. The individual has satisfactorily performed work and has been verified as proficient in a specific qualification element pertaining to that work. The work will be reviewed and countersigned by a Supervisor Instrument and Control or his designee, if required by procedure.

The Training Supervisor Instrument and Control or his designee shall review each individual's Qualification Manual quarterly. All manuals will be centrally located (I&C Shop).

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13.2.8.3 Examination and Quizzes

1. Examinations and quizzes shall be used to evaluate the effectiveness of the instrument and control technician training program.
2. Additional reading assignments and/or attendance at repeat classroom lectures shall be made on the basis of the test results.
3. Demonstration of competency of an individual shall be accomplished by satisfactory completion of the Instrument and Control Technician Training Program with a minimum grade of 80 percent in each subject.

13.2.8.4 Exemptions

Exemptions from attending specific presentations will be approved by the Supervisor Instrument and Control if the individual demonstrates expertise in that area by academic performance or on-the-job performance.

The Supervisor Instrument and Control shall approve all technical training lesson plans and the station practical training program.

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13.2.8.5 Continued Training Program

The Instrument and Control Technician Continued Training Program shall include regularly scheduled lectures, laboratory exercises, and on-the-job training.

Lectures

The continued training program shall include preplanned lectures for Instrument and Control Technicians. Lectures will cover selected topics outlined in Sections 13.2.8.1.1 and 13.2.8.1.2 and, in addition, infrequent performed tasks, changes to procedures, station modifications, and other pertinent information. Examinations may be administered following laboratory exercises or lectures. A minimum grade of 80 percent will be required on all examinations. Additional reading assignments and/or attendance at repeat lectures shall be made on the basis of test results.



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13.2.8.6 Records

An individual Training Records Book will be maintained for each Instrument and Control Technician.

Recordings will be maintained in accordance with NTIs 2.1 (Individual Training Files) and 2.2 (Nuclear Training Department Files), and Station Records Management Procedures AP-10 and Administration of Training AP-9.0.

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13.2.9 Training and Continued Training Chemistry and Radiochemistry Technicians (NTP-1)

This program is structured to provide a comprehensive technical and practical program for chemistry and radiochemistry training and continued training. This program will be taught by members of the Nine Mile Point training staff, or by a qualified vendor under the supervision of the Training Superintendent-Nuclear.

13.2.9.1 Chemistry and Radiochemistry Technician Training Program

13.2.9.1.1 Scope

This training program will consist of annual training, technical training, station on-the-job training and task qualification, and assigned reading.

13.2.9.1.2 Annual Training

Annually, \pm 3 months, chemistry and radiochemistry technicians will attend the following training, as detailed in the appropriate administrative procedures:

1. General Employee Training and Radiation Protection Training (NTP-6).
2. Site Emergency Plan Procedures Training.

13.2.9.1.3 Technical Training

Technical training for chemistry and radiochemistry technicians will consist of the following classroom training and/or laboratory sessions, and in addition will include as appropriate, the following:

1. Technical Specifications and Administrative Procedures.
2. Chemistry and Radiation Management Procedures.

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Company School - A

- *1. Mathematics
- *2. Physics
 - 3. Mechanical Fundamentals
 - 4. Electrical Fundamentals
- *5. Nuclear Physics
 - 6. Health Physics Fundamentals
- *7. Chemistry Fundamentals
 - 8. Analytical Chemistry and Corrosion
 - 9. Analytical Laboratory
- 10. Radiochemistry
- 11. Counting Room Laboratory
- 12. BWR Technology
 - a. Reactor Theory
 - b. BWR Systems (Unit Specific)
 - c. Mitigation of Core Damage

Company School - B

Advanced training for chemistry and radiochemistry technicians will consist of four of the following classroom training and/or laboratory sessions, as assigned:

- 1. Atomic Absorption Spectroscopy
- 2. Gas Chromatography
- 3. Gamma Ray Spectroscopy for Chemistry and Radio-chemistry Technicians
- 4. Radioactive Waste Sampling, Analysis, and Classification Determination
- 5. Stack Effluent Monitoring Systems Sampling, Analysis, and Recordkeeping
- 6. Nine Mile Point Station Lessons Learned
- 7. Liquid Scintillation Counting
- 8. Demineralizer Management
- 9. Post-Acident Sampling and Analysis
- 10. Fuel Oil Analysis
- 11. Ion Chromatography
- 12. Total Organic Carbon/Purgible Organic Carbon Analysis
- 13. Surveillance Testing

*Required prerequisite by job specifications; may be required by the supervisor.

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13.2.9.1.4 Station On-the Job Training and Task Qualification

Station on-the-job training and task qualification for chemistry and radiochemistry technicians will consist of a systematic on-the-job training and task qualification module program.

13.2.9.1.4.1 Qualification Manual

Each chemistry and radiochemistry technician will be forwarded an individual Chemistry Technical Task Qualification Module Manual. The



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Qualification Manual shall contain training modules for on-the-job training and qualification.

Technicians will be given assignments by the Supervisor, Chemistry and Radiation Protection or his designee, providing for regular participation in chemistry and radiochemistry technician tasks to complete required qualification modules.

Technicians participating in the on-the-job qualification program may also be administered written examinations and/or oral examinations.

Chemistry and radiochemistry technicians in qualification may perform responsible work if:

1. The work is performed under the direct supervision of a qualified chemistry and radiochemistry technician, who is responsible for and signs for the work accomplished, or
2. The individual has satisfactorily performed work and has been verified as proficient in a specific qualification element pertaining to that work. The work will be reviewed and countersigned by the Supervisor, Chemistry and Radiation Protection or his designee, if required by procedure.

The Training Supervisor, Chemistry and Radiation Protection or his designee will review each individual's Qualification Manual quarterly and arrange with the Supervisor, Chemistry and Radiation Protection to schedule job assignments so that the technician may complete qualification modules on a timely basis.

13.2.9.1.5 Examinations and Quizzes

Examinations and quizzes will be used to evaluate the effectiveness of the chemistry and radiochemistry technician training program.

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Additional reading assignments and/or attendance at repeat classroom lectures will be made on the basis of the test results.

13.2.9.1.6 Exemptions

Exemptions from attending specific presentations will be approved by the Supervisor, Chemistry and Radiation Protection if the individual demonstrates expertise in that area by academic performance or on-the-job performance.

The Supervisor, Chemistry and Radiation Protection will approve all technical training lesson plans and the station on-the-job training and task qualification program.

13.2.9.2 Chemistry and Radiochemistry Technician Continued Training Program

The chemistry and radiochemistry technician continued training program will be conducted on a 2-yr cycle. The program will include regularly scheduled lectures and self-study. Lectures will cover selected subjects outlined in Section 13.2.9.1.3 and also changes to procedures, station modifications, and other pertinent information. Written examinations or quizzes may be administered following the lectures.

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Additionally, Chemistry and Radiochemistry Instruction No. 1 describes the mechanism for keeping technicians apprised of changes to procedures, station modifications, and other pertinent information.



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13.2.9.3 Documentation

13.2.9.3.1 Technician Training File

An individual training file will be maintained for each chemistry and radiochemistry technician. Training files will contain the following information:

1. A list of the subjects of the formal training lectures with a record of the name of the instructor, the length of the lecture, and the date of attendance.
2. A list, by subject, of all examinations and quizzes taken. The list shall also indicate the date taken and results of all examinations and quizzes.
3. A list of reading assignments completed.
4. A record of the successful completion of the modules as contained in the Task Qualification Module Training Manual.

13.2.9.4 Chemistry and Radiochemistry Technician Advancement

Technician A, Chemistry and Radiochemistry to Technician B, Chemistry and Radiochemistry

Upon satisfactory completion of 18 months as a Technician A, Chemistry and Radiochemistry, satisfactory completion of company school, and demonstration of the satisfactory performance of each of the routine procedures, measurements, and calibrations basic to chemistry and radiochemistry, the employee will be promoted to Technician B, Chemistry and Radiochemistry.



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Technician B, Chemistry and Radiochemistry to Technician C, Chemistry and Radiochemistry

Upon satisfactory completion of 2 yr as a Technician B, Chemistry and Radiochemistry, satisfactory completion of company school, and certification by qualified supervisors of satisfactory performance of each of the routine procedures, measurements, and calibrations basic to chemistry and radiochemistry, the employee will be promoted to Technician C, Chemistry and Radiochemistry. Assignment as Technician C, Chemistry and Radiochemistry may be subject to certification and recertification with periodic reviews if required by NRC or industry standards.

Chief Technician, Chemistry and Radiochemistry

This position must have completed 2 yr as a Technician C, Chemistry and Radiochemistry and demonstrated satisfactory completion of company requalification training and task assignments required for the Technician C, Chemistry and Radiochemistry.

Chief Technician, Chemistry and Radiochemistry must have knowledge of reactor and power plant operation sufficient to analyze problems, make necessary calculations, prepare comprehensive reports, draw conclusions, and prepare recommendations. Assignment as Chief Technician, Chemistry and Radiochemistry may be subject to certification and recertification, with periodic reviews (if required) by NRC or industry standards. He must be able to assign and direct the work of others and be physically capable of performing assigned duties.

Personnel may be provisionally advanced to a higher grade without meeting the company school requirement if compensating qualification for assigned duties can be identified by the Supervisor, Chemistry and Radiation Protection.

13.2.9A Training and Continued Training of Radiation Protection Technicians (NTP-14)

This program is structured to provide a comprehensive technical and practical program for radiation protection technician training and continued training. This program will be taught by members of the Nine Mile Point training staff, or by a qualified vendor under the supervision of the General Training Superintendent Nuclear.



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13.2.9A.1 Radiation Protection Technician Training Program

13.2.9A.1.1 Scope

This training program will consist of annual training, technical training, station on-the-job training, task qualification, and assigned reading.

13.2.9A.1.2 Annual Training

Annually, \pm 3 months, radiation protection technicians will attend the following training as detailed in the appropriate administrative procedures:

1. General Employee Training and Radiation Protection Training.
2. Site Emergency Plan Procedures Training.

13.2.9A.1.3 Technical Training

Technical training for radiation protection technicians will consist of the following classroom training and/or laboratory sessions and also will include, as appropriate, the following:

1. Technical Specifications and Administrative Procedures.
2. Chemistry and Radiation Management Procedures.

Company School - A

- *1. Mathematics
- *2. Physics
3. Mechanical Fundamentals
4. Electrical Fundamentals
- *5. Chemistry Fundamentals
- *6. Nuclear Physics
7. Health Physics Fundamentals
8. Radiochemistry
9. Counting Room Laboratory
10. Radiation Protection
11. Radiation Protection Laboratory

*Required prerequisite by job specifications; may be required by supervisor.



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12. BWR Technology

- a. Reactor Theory
- b. Systems (Unit Specific)
- c. Mitigation of Core Damage

Company School - B

Advanced training for radiation protection technicians will consist of four of the following classroom training and/or laboratory sessions, as assigned:

- 1. Gamma Ray Spectroscopy for Radiation Protection Technicians
- 2. Operation of the Panasonic TLD System
- 3. Respiratory Protection Program and Engineering Controls
- 4. Preparation, Packaging and Shipment, Accountability, and Receipt of Licensed Radioactive Material
- 5. Nine Mile Point Station Lessons Learned
- 6. Surveillance Testing
- 7. Radiological Evaluations
- 8. Senior Radiation Protection Technician Procedure Training Program
- 9. Dosimetry Assignment, Beta and Neutron Monitoring

13.2.9A.1.4 Station On-the-Job Training and Task Qualification

Station on-the-job training and task qualification for Radiation Protection Technicians will consist of a systematic on-the-job training and task Qualification Module Program.

13.2.9A.1.4.1 Qualification Manual

Each Radiation Protection Technician will be forwarded an individual Radiation Protection Technician Task Qualification Module Manual. The Qualification Manual shall contain training modules for on-the-job training and qualification.

Technicians will be given assignments by the Supervisor, Chemistry and Radiation Protection or his designee, providing for regular participation in radiation protection technician tasks to complete required qualification modules.



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Technicians participating in the on-the-job Qualification Program may also be administered written examinations and/or oral examinations.

Radiation Protection Technicians in qualification may perform responsible work if:

1. The work is performed under the direct supervision of a qualified Radiation Protection Technician, who is responsible for and signs for the work accomplished, or
2. The individual has satisfactorily performed work and has been verified as proficient in a specific qualification element pertaining to that work. The work will be reviewed and countersigned by the Supervisor, Chemistry and Radiation Protection or his designee, if required by procedure.

The Training Supervisor, Chemistry and Radiation Protection or his designee will review each individual's Qualification Manual quarterly and will arrange with the Supervisor, Chemistry and Radiation Protection to schedule job assignments so that the technician may complete qualification modules on a timely basis.

13.2.9A.1.5 Examinations and Quizzes

Examinations and quizzes will be used to evaluate the effectiveness of the radiation protection technician training program. Additional reading assignments and/or attendance at repeat lectures will be made on the basis of the test results.

13.2.9A.1.6 Exemptions

Exemptions from attending specific presentations will be approved by the Supervisor, Chemistry and Radiation Protection if the individual demonstrates expertise in that area by academic performance or on-the-job performance.

The Supervisor, Chemistry and Radiation Protection will approve all technical training lesson plans and the station on-the-job training and task qualification program.

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13.2.9A.2 Radiation Protection Technician Continued Training Program

The radiation protection technician continued training program will be conducted on a 2-yr cycle. The program will include regularly scheduled lectures and self-study. Lectures will cover selected subjects outlined in Section 13.2.9A.1.3 and also changes to procedures, station modifications, and other pertinent information. Written examinations or quizzes may be administered following the lectures.

Additionally, Radiation Protection Instruction No. 1 describes the mechanism for keeping technicians apprised of changes to procedures, station modifications, and other pertinent information.



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13.2.9A.3 Documentation

13.2.9A.3.1 Technician Training File

An individual training file will be maintained for each radiation protection technician. Training files will contain the following information:

1. A list of the subjects of the formal training lectures, with a record of the name of the instructor, the length of the lecture, and the date of attendance.
2. A list, by subject, of all examinations and quizzes taken. The list shall also indicate the date taken and the results of all examinations and quizzes.



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3. A list of reading assignments completed.
4. A record of the successful completion of the modules as contained in the Task Qualification Module Training Manual.

13.2.9A.4 Radiation Protection Technician Advancement

Technician A, Radiation Protection to Technician B, Radiation Protection

Upon satisfactory completion of 18 months as a Technician A, Radiation Protection, satisfactory completion of company school and demonstration of the satisfactory performance of the routine procedures, measurements, and calibrations basic to radiation protection, the employee will be promoted to Technician B, Radiation Protection.

Technician B, Radiation Protection to Technician C, Radiation Protection

Upon satisfactory completion of 2 yr as a Technician B, Radiation Protection, satisfactory completion of company school and certification by qualified supervisors of satisfactory performance of the routine procedures, measurements and calibrations pertaining to radiation protection, the employee will be promoted to Technician C, Radiation Protection. Assignment as Technician C, Radiation Protection may be subject to certification and recertification with periodic reviews if required by NRC or industry standards.

Chief Technician, Radiation Protection

This position must have completed 2 yr as Technician C, Radiation Protection and demonstrated satisfactory completion of company requalification training and task assignments required for Technician C, Radiation Protection. The Chief Technician, Radiation Protection must have sufficient knowledge of reactor and power plant operation to analyze problems, make necessary calculations, prepare comprehensive reports, draw conclusions, and prepare recommendations. Assignment as Chief Technician, Radiation Protection may be subject to certification and recertification with periodic reviews. He must be able to assign and direct the work of



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others and be physically capable of performing assigned duties.

Personnel may be provisionally advanced to a higher grade without meeting the company school requirements if compensating qualification for assigned duties can be identified by the Supervisor, Chemistry and Radiation Protection.

13.2.10 Training of Maintenance Mechanics (NTP-9)

This course is structured to provide a comprehensive technical and practical program for mechanical maintenance training. This course will be taught by members of the Nine Mile Point Training Staff, or by a qualified vendor under the supervision of the Training Superintendent Nuclear.

13.2.10.1 Mechanical Maintenance Training

Mechanical maintenance training is divided into three categories:

1. Initial training
 - a. Mechanic Helper School
 - b. Mechanic A School
 - c. Mechanic B School.
2. Continued training
 - a. Routine training
 - b. Nonroutine training.
3. On-the-job training (OJT).

Any or all of these categories may involve the use of:

1. Classroom training
 - a. Lecture, and/or
 - b. Videotape, and/or
 - c. Work booklets, and/or
 - d. Demonstrations, and/or
 - e. Assigned reading



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f. Computer-assisted training (CAT).

2. Shop/lab practicals

a. Hands-on pass/fail practicals, and/or

b. Checkoff sheets, and/or

c. Written examinations.

3. On-the-job training

a. In the plant

b. Training center mockups.

13.2.10.1.1 Initial Training Program

1. Mechanic Helper School

Successful completion of Mechanic Helper School with its associated shop practicals and on-the-job training, as described in the individual's training manuals, is required before progressing to Mechanical "A" School. Part 1 consists of generic subjects and must be successfully completed prior to entry into Part 2. Mechanic Helper School is conducted twice annually and consists of two parts.

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Part 1, which may be attended jointly by electricians and mechanics, consists of:

- Procedures Familiarization
- Mathematics for Repairmen
- Physical Science
- Measuring Tools
- Basic Rigging (includes forklift)
- General Shop Practices
- Reactor Familiarization
- Lubrication
- Communications Systems
- Technical Specifications Orientation
- Systems Training - Part I

Part 2, designed for a Mechanic Helper level, consists of:

- Mechanical Print Reading
- Corrosion Chemistry
- Properties of Materials
- Care and Use of Hand Tools
- Care and Use of Power Tools
- Cutting, Welding, and Introduction to Fabrication
- Lubrication and Turbine Oil Reservoir
- Filters, Strainers, and Pipe Obstructions
- Condensers and Tubes
- Basic Pneumatics
- Basic Hydraulics
- Storeroom and Document Control Computers - Part I

2. Mechanic 'A' School

Successful completion of Mechanic 'A' School, with its associated shop practicals and on-the-job training, as described in the individual's training manual, is required before progressing to Mechanic 'B' School. Mechanic 'A' School is conducted annually and consists of:

- Math/Science Review
- Plant Systems Part II
- Helper School Review
- Advanced Metals
- Basic Bearings and Lubrication
- Basic Valves
- Basic Pumps
- Basic Fans, Blowers, and Air Compressors
- Filters, Traps, and Strainers
- Basic Packing
- Hangers and Restraints
- Precision Instruments



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Thermal Insulation
Machine Shop Familiarization
Maintenance Work Practices - Part I
Document Control Computers - Part II
Storeroom Computers - Part II
Bolting and Fastening
Brazing and Braze Welding Overview
Principles of TIG
Plasma - Arc and Air Carbon Arc Overview
Hazardous Substances

3. Mechanic 'B' School

Successful completion of Mechanic 'B' School, with its associated shop practicals and on-the-job training, as described in the individual's training manual, is required before a mechanic is considered a fully qualified journeyman level mechanic (Mechanic C). Mechanic 'B' School is conducted twice each 3-yr cycle and consists of:

'A' School Review
Plant Systems Part III
Advanced Rigging

- Overhead Crane Certification
- Lift-A-Loft Certification
- Information only - Cherry Picker Qualification, as appropriate

Advanced Valves and Piping
Advanced Pumps
Alignments/Vibration
Mechanical Seals
Snubbers/Restraints
Basic Diesel Generator
Bearings - Roller/Sliding
Heat Exchangers/Condensers
Turbine Generators
Heating and Air Conditioning
Use of Organic Compounds
Mechanical Modifications
Technical Specifications - Mechanical
OJT Orientation
QA Requirements for Mechanics
Emergency Training
Maintenance Work Practices - Part II
Surveillance Procedures

Upon satisfactory completion of Mechanic 'B' School, the candidate becomes a fully qualified journeyman level mechanic, which allows him to work independently as a lead man on any mechanical job at Unit 2.

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Limited qualifications may be authorized by meeting specified requirements and demonstration of abilities for any task in the program from the time an individual enters the program until he becomes fully qualified.

Mechanics who have not demonstrated a particular task, but have been evaluated by Maintenance Supervision to possess the knowledge and basic skills necessary to do the job, can perform the job, providing controls are in place to ensure the work has been completed satisfactorily (i.e., detailed work package, added work group hold points, or sufficient testing to ensure the job has been completed in a manner consistent with its importance).

Any person, regardless of training status, may perform tasks or procedures requiring demonstrated skill under the direction of a trained mechanic, factory representative, or Maintenance Supervisor. Direction specifically means having one of these persons either physically present or in communication with the person performing the work to provide direction.

13.2.10.1.2 Continued Training

The continued training program is established to ensure that essential job-related knowledge and skills are maintained and improved. The appropriate categories of continued training are entered into upon completion of Mechanic 'B' School. The Continued Training Program consists of two categories: routine training and nonroutine training.

Routine training is training normally required on a specified time basis. This training typically consists of:

1. General employee training
2. Radiation work training
3. Emergency Plan training
4. Self-contained breathing apparatus training
5. Hearing testing
6. Eye examinations.

Additionally, routine training shall incorporate:

1. Industry events



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2. License event reports (LERs)
3. Nine Mile Point occurrence reports
4. Plant modifications update
5. Station procedures changes.

Nonroutine training is training scheduled through normal training requests procedure. This training is provided to address observed or anticipated training needs identified by the Maintenance Department.

Persons selected by Mechanical Maintenance Supervision to attend nonroutine training are required to demonstrate mastery of the subjects.

Task difficulty, importance to plant safety, reliability, and ALARA are factors in determining training needs and depth of coverage.

This nonroutine training consists of, but is not limited to, the following:

1. Training for infrequently performed tasks such as:
 - a. Rolling vessel stub tubes
 - b. Major overhaul of recirculation pump internals
 - c. Under vessel and refuel-related work.
2. Training to improve degraded job performance recognized in either individual workers or work groups, such as:
 - a. Excessive reworks
 - b. Less than normal quality.
3. Training on complex systems, systems modifications, or equipment changes, such as:
 - a. Development of a new process dealing with recirculation seal cartridges
 - b. Control rod drive overhaul
 - c. Heavy Loads criteria.



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Methods of implementing the Continued Training Program consist of any combination of the following:

1. Classroom - Lectures, self study, demonstrations, written examinations, oral examinations, or computer-assisted training.
2. Shop Practice - Hands-on pass/fail practicals, written examinations, or checkoff sheet procedural testing.
3. OJT - In-plant task performance graded by an evaluator to predetermined criteria.

Continued training may be accomplished by attending initial training, on-the-job training, or specially developed training.

13.2.10.1.3 On-the-Job Training (OJT)

On-the-job training is conducted in conjunction with Mechanic Helper School, 'A' School, and 'B' School, as appropriate.

Additionally, OJT is utilized when conducting continued training.

The Training Department, in cooperation with plant maintenance management, assumes the responsibility of analyzing the recognized tasks and incorporating those tasks, as appropriate, along with the appropriate references, into the training manual.

The Maintenance Department designates the evaluators, and the Training Department trains the evaluators.

The Maintenance Department has the overall responsibility for implementing the OJT program with a Generation Specialist from the Training Department, assuming the responsibility of documenting the completed OJT tasks on a quarterly basis, and supplying updates and modifications to the training manuals, as required.

The training manuals are maintained in an accessible designated area with a current list of task evaluators and instructions for evaluations.

Training manuals consist of the following:



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1. Training courses and/or evaluations required in each level of training with appropriate signoffs.
- 2.- Any milestones that might be established by Maintenance Supervision.
3. On-the-job training assignments and signoffs.

13.2.10.2 Mechanical Evaluations

When appropriate, examinations are given to evaluate trainee mastery. Examinations may include written and/or practical segments. A mechanic must demonstrate mastery by achieving a score of at least 80 percent on any examination or combination of examinations related to any course.

All examinations, both written and practical, become a matter of record in the individual's training file.

An accelerated retraining program consisting of additional lectures, additional studies, and/or practical training is scheduled for any mechanic whose average score is below 80 percent.

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13.2.11 Training of Maintenance Electricians (NTP-3)

This course is structured to provide a comprehensive technical- and practical program for electrical maintenance training. This program will be taught by members of the Nine Mile Point Training Staff, or by a qualified vendor under the supervision of the Training Superintendent Nuclear.

13.2.11.1 Electrical Maintenance Training

Electrical maintenance training is divided into three categories:

1. Initial training
 - a. Electrician Helper School
 - b. Electrician 'A' School
 - c. Electrician 'B' School
2. Continued training
 - a. Routine training
 - b. Nonroutine training
3. On-the-job training (OJT)

Any or all of these categories may involve use of the following:

1. Classroom training
 - a. Lecture, and/or
 - b. Videotape, and/or
 - c. Work booklets, and/or
 - d. Demonstrations, and/or
 - e. Assigned reading
 - f. Computer-assisted training (CAT).
2. Shop/lab practicals
 - a. Hands-on pass/fail practicals, and/or

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- b. Checkoff sheets, and/or
- c. Written examinations.
- 3. On-the-job training
 - a. In the plant
 - b. Training center mockups.

13.2.11.1.1 Initial Training Program

1. Electrician Helper School

Successful completion of Electrician Helper School is required before progressing to Electrician 'A' School. Part 1 consists of generic subjects and must be successfully completed prior to entry into Part 2. Electrician Helper School is conducted twice annually and consists of two parts.

Part 1, which may be attended jointly by mechanics and electricians, consists of:

- Procedures Familiarization
- Mathematics for Repairmen
- Physical Science
- Measuring Tools
- Basic Rigging (includes forklift)
- General Shop Practices
- Reactor Familiarization
- Lubrication
- Communications Systems
- Technical Specifications Orientation
- Systems Training Mech.

Part 2, designed exclusively for the Electrician Helper level, consists of:

- Basic Electricity
- Maintenance of Electrical Equipment
- Battery Safety
- Grounding
- Fuses
- Conduits
- Electrical Test Equipment and Tools
- Lighting
- Storeroom and Document Control Computers
- Bearings
- Use of Calibrated Tools

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Trigonometry
Print Reading - Part I

2. Electrician 'A' School

Successful completion of Electrician 'A' School, with its associated shop practicals and on-the-job training, as described in the individual's training manual, is required before progressing to Electrician 'B' School.

Electrician 'A' School is conducted annually and consists of:

- Electric Theory
- Control Circuit Theory
- Motor Controllers
- Relays and Control Circuits
- Use of Test Equipment - Part II
- Maintenance of Electrical Equipment - Part II
- Electric Heaters
- Disconnect Switches
- Cable Terminations
- Electric Motors (less 25 hp)
- Transformers
- Batteries
- Heat Trace
- Soldering
- Bucket Truck Safety
- Maintenance Work Practices - Part I
- Print Reading - Part II
- Electrical Separation Criteria
- Storeroom Computer - Part II
- Document Control Computer - Part II
- Solenoids
- Cable Trays and Conduits
- Emergency Lighting
- Welding Machines
- Equipment Qualification - Part I
- Elevator Overview
- Washer and Dryer Maintenance
- Voltage Regulators
- Solid State Theory
- Systems Training - Part II

3. Electrician 'B' School

Successful completion of Electrician 'B' School, with its associated shop practicals and on-the-job training, as described in the individual's training manual, is required.



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before an electrician is considered a fully qualified journeyman level electrician (Electrician C). Electrician 'B' School is conducted twice every 3-yr cycle and consists of:

- Maintenance of Electrical Equipment - Part III
 - Valve Operators
 - Fire Protection Maintenance
 - Air-Conditioning Equipment
 - Medium Voltage Circuit Breakers
 - Low Voltage Circuit Breakers
 - Medium Voltage Cable Terminations
 - Cable
 - Motors (over 25 hp)
- Use of Test Equipment - Part III
 - Mechanical Couplings
 - Generator and Exciter
 - Transformers and Buses
 - Batteries and Chargers
 - Communication Systems
- Use of Organic Compounds
- Maintenance Work Practices - Part II
- Print Reading - Part III
- Electrical Modifications
- Surveillance Procedures
- Technical Specifications - Electrical
- OJT Orientation
- Vibration
- Multipin Connectors
- Equipment Qualification - Part II
- Emergency Training
- Advanced Rigging
 - Overhead Crane
 - Life-A-Loft Certification
 - Heavy Loads Criteria
- UPS System
- Control Circuitry
- Systems Training - Electrical
- QA Requirements for Electrician

Upon satisfactory completion of Electrician 'B' School, the candidate becomes a fully qualified journeyman level electrician, which allows him to work independently as a lead man on any electrical job at Unit 2.

Limited qualifications may be authorized by meeting specified requirements and demonstration of abilities for any task in the program from the time an individual enters the program until he becomes fully qualified.

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Electricians who have not demonstrated a particular task, but have been evaluated by Maintenance Supervision to possess the knowledge and basic skills necessary to do the job, can perform the job, providing controls are in place to ensure the work has been completed satisfactorily (i.e., detailed work package, added work group hold points, or sufficient testing to ensure the job has been completed in a manner consistent with its importance).

Any person, regardless of training status, may perform tasks or procedures requiring demonstrated skill under the direction of a trained electrician, factory representative, or Maintenance Supervisor. Direction specifically means having one of these persons either physically present or in communication with the person performing the work to provide direction.

13.2.11.1.2 Continued Training

The Continued Training Program is established to ensure that essential job-related knowledge and skills are maintained and improved. The appropriate categories of continued training are entered into upon completion of Electrician 'B' School. The Continuing Training Program consists of two categories: routine training and nonroutine training.

Routine training is training normally required on a specified time basis. This training typically consists of:

1. General employee training
2. Radiation work training
3. Emergency Plan training
4. Self-contained breathing apparatus training
5. Hearing testing
6. Eye examinations.

Additionally, routine training shall incorporate:

1. Industry events
2. License event reports (LERs)
3. Nine Mile Point occurrence reports
4. Plant modifications update

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5. Station procedures changes.

Nonroutine training is training scheduled through normal training requests procedure. This training is provided to address observed or anticipated training needs identified by the Maintenance Department.

Persons selected by Electrical Maintenance Supervision to attend routine training are required to demonstrate mastery of the subjects.

Task difficulty, importance to plant safety, reliability, and ALARA are factors in determining training needs and depth of coverage.

This nonroutine training consists of, but is not limited to, the following:

1. Training for infrequently performed tasks, such as:
 - a. Test Equipment - Part IV
 - b. Oil Circuit Breakers
 - c. Air Circuit Breakers
 - d. Motor-Operated Disconnects
 - e. Print Reading - Part IV
 - f. Containment Penetrations
 - g. Generator and Exciter - Part II
 - h. Transformers and Buses - Part II
 - i. Voltage Regulators.- Part II.
2. Training to improve degraded job performance recognized in either individual workers or work groups, such as:
 - a. Excessive reworks
 - b. Below normal quality.



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3. Training on complex systems, systems modifications, or equipment changes.

Methods of implementing the Continued Training Program consist of any combination of the following:

1. Classroom - Lectures, self-study, demonstrations, written examinations, oral examinations, or computer-assisted training.
2. Shop Practice - Hands-on pass/fail practicals, written examinations, or checkoff sheet procedural testing.
3. OJT - In-plant task performance grades by an evaluator to predetermined criteria.

Continued training may be accomplished by attending initial training, on-the-job training, or specially developed training.

13.2.11.1.3 On-the-Job-Training (OJT)

On-the-job training is conducted in conjunction with Electrician Helper School, 'A' School, and 'B' School, as appropriate.

Additionally, OJT is utilized when conducting continued training.

The Training Department, in cooperation with plant maintenance management, assumes the responsibility of analyzing the recognized tasks and incorporating those tasks, as appropriate, along with the appropriate references, into the training manual.

The Maintenance Department designates the evaluators, and the Training Department trains the evaluators.

The Maintenance Department has the overall responsibility for implementing the OJT program with a Generation Specialist from the Training Department, assuming the responsibility of reviewing the electricians' completed OJT tasks on a quarterly basis, and supplying updates and modifications to the training manuals, as required. Periodically, and at least after completion of a level, the manual will be photocopied and filmed for plant records by Training.



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The training manuals are maintained in the Electrical Shop with a current list of task evaluators and instructions for evaluations.

Training manuals consist of the following:

1. Training courses, laboratories, and/or evaluations required in each level of training, with appropriate signoffs.
2. Any milestones that might be established by Maintenance Supervision
3. On-the-job training assignments and signoffs.

13.2.11.2 Electrical Evaluations

When appropriate, examinations are given to evaluate trainee mastery. Examinations may include written and/or practical segments. An electrician must demonstrate mastery by achieving a score of at least 80 percent on any examination or combination of examinations related to any course.

Any examinations, both written and practical, become a matter of record in the individual's training file.

An accelerated retraining program consisting of additional lectures, additional studies, and/or practical training is scheduled for any electrician whose average score is below 80 percent.



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13.2.12 Nuclear Firefighter and Nuclear Fire Chief Training (NTP-5.0)

This program is structured to provide comprehensive training in firefighting techniques, including fundamentals in power plant systems and safety systems with a practical program for development of skills. This program will be taught by members of the Nine Mile Point Training Staff, or by a qualified vendor under the supervision of the Training Superintendent Nuclear.

13.2.12.1 Initial Training Program

The initial classroom instruction shall include:

1. Indoctrination of the plant fire-fighting plan with identification of each brigade member's responsibilities.
2. Identification of the type and location of fire hazards and associated types of fires that could occur in the plant.
3. The toxic and corrosive characteristics of expected products of combustion.
4. Identification of the location of fire-fighting equipment for each fire area and familiarization with the layout of the plant, including access and egress routes to each area.
5. The proper use of available fire-fighting equipment and the correct method of fighting each type of fire. The types of fires covered will include fires in energized electrical equipment, fires in cables and cable trays, hydrogen fires, fires involving flammable and combustible liquids or hazardous process chemicals, fires resulting from construction or modifications (welding), and record file fires.
6. The proper use of communication, ventilation, and emergency breathing equipment.
7. The proper method for fighting fires inside buildings and confined spaces.
8. The direction and coordination of the fire-fighting activities (fire brigade leaders only).



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9. Review of fire-fighting strategies and procedures.
10. Review of plant modifications and corresponding changes which affect fire-fighting plans.
11. The instruction will be provided by qualified individuals who are knowledgeable, experienced, and trained in fighting fires that could occur in the plant and using equipment available in the nuclear power plant.
12. Instruction will be provided to fire brigade members and fire brigade leaders.
13. Regular planned meetings will be held, at a minimum, every 3 months for brigade members to review changes in the fire protection program and other subjects as necessary.
14. Periodic training sessions will be held to repeat the classroom instruction program for brigade members over a 2-yr period. These sessions may be concurrent with the regular planned meetings.

13.2.12.2 Practice

Practice sessions will be held for each shift fire brigade on the proper method of fighting fires that could occur in a nuclear power plant. These sessions will provide brigade members with experience in actual fire extinguishment and the use of emergency breathing apparatus under conditions encountered in fire fighting. These practice sessions will be provided once each year for each fire brigade member.

13.2.12.3 Drills

1. Most fire brigade drills will be performed in the plant so that the fire brigade can practice as a team. Other drills will occur in the site area (transformer yard, etc.).
2. Drills will be performed at regular intervals not to exceed 3 months for each shift fire brigade. Fire brigade members may participate in each drill, but must participate in at least two drills per year.

A sufficient number of these drills, but not less than one for each shift fire brigade per year, will be unannounced to determine the fire-fighting



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readiness of the plant fire brigade, brigade leader, and fire protection systems and equipment. Persons planning and authorizing an unannounced drill will ensure that the responding shift fire brigade members are not aware that a drill has been planned until it has begun. Unannounced drills will not be normally scheduled closer than 4 weeks.

At least one drill per year should be performed on a "back shift" for each shift fire brigade.

3. The drills will be preplanned to establish the training objectives of the drill and will be critiqued to determine how well the training objectives have been met.

Unannounced drills will be planned and critiqued by members of the management staff responsible for plant safety and fire protection. Performance deficiencies of a fire brigade or of individual fire brigade members will be remedied by scheduling additional training for the brigade or members. Unsatisfactory drill performance will be followed by a repeat drill within 30 days.

4. At 3-yr intervals, a randomly selected unannounced drill will be critiqued by qualified individuals independent of NMPC's staff. A copy of the written critique shall be available for NRC review.

5. Drills will, as a minimum, include the following:

Assessment of fire alarm effectiveness, time required to notify and assemble the fire brigade, and selection, placement, and use of equipment and fire-fighting strategies.

Assessment of each brigade member's knowledge of his or her role in the fire-fighting strategy for the area assumed to contain the fire. Assessment of the fire brigade member's conformance with established fire-fighting procedures and use of fire-fighting equipment, including self-contained emergency breathing apparatus, communication equipment, and ventilation equipment, to the extent practicable.

The simulated use of fire-fighting equipment required to cope with the situation and type of fire selected for the drill. The area and type of

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- 13.2.13 Reserve Fire Brigade Training and Retraining
(NTP-5.1)
Training - 1 day
Retraining - annual meeting

This program is structured to provide a functional knowledge in firefighting fundamentals. This program will be taught by members of the Nine Mile Point Training Staff, or by a qualified vendor under the supervision of the Training Superintendent Nuclear.

13.2.13.1 Training Program

Training will include, but not be limited to, the following:

1. Initial training: Fire school - 1 day session
2. Retraining: Annual meetings shall be held for all Reserve Fire Brigade members to review changes in the fire protection program and other subjects as necessary.

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13.2.14 Training of Unlicensed Managerial Personnel (NTP-8)

This program describes the responsibilities for training of professional personnel assigned to Unit 2. Specific programs will be taught by members of the Nine Mile Point Training Staff or by subject matter experts as designated by the General Superintendent Nuclear or Station Superintendent.

13.2.14.1 Professional Personnel

1. It shall be the responsibility of each individual management or professional person assigned to the plant/station or site to maintain an up-to-date resume of his professional training and experience.
2. The General Superintendent Nuclear Generation or Station Superintendent, with the assistance of the Training Superintendent, shall from time to time arrange for training activities for management and professional personnel as they may consider required. These may include:
 - a. Assignments at other operating reactors or simulators.
 - b. Participation in construction or startup activities.
 - c. Attendance at lectures, seminars, or retraining sessions.
 - d. Formal academic training.
3. A training file shall be maintained for each individual assigned as professional personnel. This file shall contain a record of formal training sessions attended and a resume of the individual's technical competence. A checklist shall be included of the major job assignments for which the individual is qualified.
4. A record of attendance at general employee training shall be included in each individual's training file.

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TABLE 13.2-1

1986 FUEL LOAD

<u>Section</u>	<u>Title</u>	<u>Start Date</u>	<u>Completion Date</u>
13.2.2	Training of Un-licensed Operations NTP-12	1/1/84	Continuous
13.2.3	Training of Licensed Operator Candidates APN-10A:		
	*1st Start Cold License	1/85	6/85
	*2nd Start Cold License	6/85	12/85
	*3rd Start Cold License	2/86	7/86
	1st Hot License Course	3/87	12/87
13.2.4	License Operator Retraining NTP-11	Implemented 1/86	Continuous
13.2.5	Radwaste Operator Training NTP-13	Implemented 1/84	Continuous
13.2.6 through 13.2.14	Other Unlicensed Personnel	This training is presently in place for Unit 1; these training programs are generic to both units and are presently being conducted.	

*Personnel attending these classes will hold current NRC RO and SRO licenses on Unit 1 or meet all of the requirements set forth in 10CFR55 and NUREG 737.

NOTE: This schedule is subject to fuel load in 1986.

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TABLE 13.2-2 (Cont)

H.R. Denton	INPO
Letter	Rev. 1
<u>3/28/80</u>	<u>1/15/81</u>

B. Administrative Procedures

AP-1.1, 1.2, 1.3

*This program has been developed to ensure that appropriate personnel are trained in the use of installed plant systems to recognize, control, and/or mitigate an accident in which the core is severely damaged.

The columns adjacent to the course material reference the paragraph of H.R. Denton's letter of March 28, 1980, to all Power Reactor Applicants and Licensees, Enclosure 3, and/or INPO's Guidelines for Training to Recognize and Mitigate the Consequences of Core Damage, Rev. 1, January 15, 1981.

In addition to the personnel listed in Section 13.2.3, the following will attend training for mitigating core damage:

1. Technical and maintenance superintendents
2. Reactor analysts, supervisors, and technicians
3. Station superintendent
4. I&C technicians
5. Radiation protection technicians

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TABLE 13.2-3

SRO PROGRAM COMPARISON TO NUREG-0737* APPENDIX C

<u>NUREG-0737, Appendix C</u>	<u>SRO Program</u>	<u>Duration (hr)</u>
6.2 Applied Fundamentals (120 hr)	Reactor Theory	80
Plant Specific Rx Technology	Simulator Week	8
Chemistry & Corrosion Control	Plant Systems Train-	40
I&C	ing	
Plant Materials	Plant Systems Train-	4
Plant Thermal Cycle	ing	40
	Thermodynamics	[172-192]
6.3 Management/Supervisory Skills (40 hr)	Admin Procedures,	
Leadership	Controls & Limita-	24
Interpersonal Communication	tions	
Motivation of Personnel	(Leadership Training)	16
Problem & Decisional Analysis	(Procedural Training)	[40-60]
Stress		
Human Behavior		
Command Responsibilities & Limits		
6.4 Plant Systems (200 hr)	Plant Systems Training	[200-300]
6.5 Administrative Controls (80 hr)	Simulator Training	25
	Admin Procedures,	
	Controls & Limitations	40
		[65-70]
6.6 General Operating Procedures (30 hr)	Simulator Training	[30-70]
6.7 Transient/Accident Analysis (30 hr)	Simulator Training	[30-70]
6.8 Simulator Training	Simulator Training	[120-280]

*This table is typical of each training class; however, the actual hours may vary based upon the qualifications and experience of the training class.

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TABLE 13.5-4
APPROVAL FOR OPERATING PROCEDURES

NOTES:

- X Review and/or approvals required.
 Procedure element should always be considered if applicable.
- (1) May be issued by either Superintendent or Operations Supervisor.
- (2) Approval required if procedure is in Supervisor's or Superintendent's department area.
- (3) Unit 1 and Unit 2 for site procedures; otherwise applicable unit only.

**THIS FIGURE HAS
BEEN DELETED**

FIGURE 13.2-1

**NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT**

