U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos.:	50-220/91-03 50-410/91-03
Docket Nos.:	50-220 50-410
License Nos.:	DPR-63 NPF-69
Licensee:	Niagara Mohawk Power Corporation 301 Plainfield Road Syracuse, New York 13212
Facility Name:	Nine Mile Point Nuclear Power Station, Units 1 and 2
Inspection At:	Scriba and Volney, New York
Inspection Conducted:	January 22-25, 1991

Inspector: C. G. Amato — Feb. 8, 1991
C. G. Amato, Emergency Preparedness Specialist, NRC, RI — date

Approved by: [signature] — 2/28/91
W. J. Lazarus, Chief, Emergency Preparedness Section, Division of Radiation Safety and Safeguards — date

Inspection Summary: Inspection on January 22-25, 1991 (Combined Inspection Report Nos. 50-220/91-03 and 50-410/91-03)

Areas Inspected: Announced, routine safety inspection of the licensee's emergency preparedness program. Inspection areas included: review and distribution of procedures; organization; management control; training; audits and reviews; off-site activities; operational events; and dose assessment.

Results: No violations were identified.

DETAILS

1. Persons Contacted

The following personnel were contacted. Unless noted otherwise, personnel listed below are Niagara Mohawk Power Corporation staff.

*R. Abbott, Nine Mile Point Unit 2 Plant Manager
*W. Allen, Radiological Assessment Manager, Management, Analytical and Technical Services, Inc.
J. Askew, Supervisor, Publishing, Nuclear Support Department
*J. Benson, Assistant Drill Coordinator, Emergency Preparedness Branch
C. Boniti, Nuclear Security Specialist, Operations
G. Burgess, Quality Assurance Technician
*R. Cotton, Instructor, General Employee, Emergency Preparedness and Radiation Training, Training Department
*K. Dahlberg, Nine Mile Point Unit 2 Plant Manager
*J. Firlit, Vice President, Nuclear Generation, Nine Mile Point
*P. Hartnett, Project Coordinator, Emergency Preparedness Department
*M. Hedrick, Supervisor, Nuclear Training, Training Department
*C. Howes, Facility Coordinator, Emergency Preparedness Branch
*M. Jaworsky, Licensing Engineer, Site Licensing, Corporate Licensing Department
J. Parrish, Station Shift Supervisor, Nine Mile Point Unit 1
*J. Perry, Vice President, Quality Assurance
*A. Salemi, Director, Emergency Preparedness Branch
R. Sanaker, Operator Training Supervisor, Unit-2, Training Department
R. Seifried, General Superintendent, Operator Training, Training Department
R. Slade, Operator Training Supervisor, Unit 1, Training Department
*K. Thomas, Supervisor, Site Licensing
*S. Wilczek, Vice President, Nuclear Support Department

* Denotes those who attended the exit meeting.

The inspector also interviewed and observed the actions of other licensee personnel.

2. Operational Status of the Emergency Preparedness Program

2.1 Emergency Plan and Implementing Procedures

To determine if procedures for the development, review, distribution and control have been established, the inspector studied review procedures, discussed these

with the Director, Emergency Preparedness Branch, and interviewed the supervisor for document distribution and control.

Procedures are reproduced, distributed and controlled per AP-2.0, "Production and Control of Procedures" and Office Instruction OI-01-22. The Administrative Service Manager is responsible. The Supervisor for Publication was interviewed and records sampled. On this basis, the inspector concluded procedures were appropriately distributed and controlled. Details of the review procedure will be found in Section 2.5 of this report.

The inspector reviewed several procedures revised since the last inspection. Only one, S-EPP-22, "Damage Control" was required to reviewed and approved by the Plant Managers. The inspector concurred; changes did not decrease emergency preparedness effectiveness.

Based on the above findings, this portion of the licensee's emergency preparedness program is acceptable.

2.2 Emergency Response Facilities (ERFs)

ERFs were inspected to determine if they were maintained in a state of readiness with adequate facilities and equipment provided for assessing and monitoring plant and off-site conditions in an emergency. Equipment, instrumentation, supplies, status boards, maps, safety system diagrams, plans, procedures, and communication systems were reviewed or tested on a sampling basis for each of the ERFs, one control room and the alternate emergency operating facility (AEOF).

The site ERFs were maintained in a state of readiness. Emergency phone systems were tested and functioned functionally. Plans and procedures checked were current. Maps, reactor vessel diagrams, Safety Parameter Display System (SPDS) terminals and radiation monitoring system read outs were available.

The AEOF is a dedicated area within the Volney Service Center of Niagara Mohawk. This ERF was also maintained in a state of readiness. With the exception of a SPDS System terminal and an NRC Emergency Notification System (ENS) and health physics network phones, the AEOF appointments duplicated those of the near site emergency operations facility. The licensee plans to dedicate two commercial phones for the Health Physics Network system and the Emergency Notification System.

Based on the above findings, this portion of the licensee's emergency preparedness program is acceptable.

2.3 Organization and Management Control

The emergency preparedness program structure was reviewed, personnel were interviewed and activities evaluated to ascertain if the licensee is maintaining and controlling an adequate emergency preparedness program required by NRC regulations.

As the result of a number of organizational changes since the last inspection, Emergency Preparedness (EP) Branch has been established. The EP Branch is a one of the six units of the Nuclear Support Department and is headed by a Director who reports directly to the Vice President Nuclear Support. Ten positions are assigned to the EP Branch including the Director and three clerical. One position was vacant. Another is filled by a Station Supervisor (SSS) on rotational assignment from Unit 1. The SSS continues senior reactor operator cycle training and serves on shift for 40 hours/calendar quarter.

The EP staff cumulative experience totals 17 years almost all of it with Niagara Mohawk. Staff degrees are in radiological physics, meteorology, education and criminal justice. One staff member per year attends training courses such as that given by the Harvard University's School of Public Health. Two staff are assigned to exercise and drill scenario development. The EP Branch is now responsible for writing the exercise scenarios beginning this year. A contractor is developing procedures for writing scenarios.

Executives, managers and directors were interviewed. The Vice President Nuclear Support meets with his direct subordinates including the Director, Emergency Preparedness Branch during biweekly staff meetings. There is, in addition, another biweekly one-on-one meeting between this vice president and the Director, Emergency Preparedness Branch. The vice president indicated that he attends Emergency Preparedness Branch staff meetings and attempts to create a positive atmosphere conducive to the exchange of views. These individuals maintain their Emergency Response Organization qualifications, participate in drills and exercises, review and approve changes to the Site Emergency Plan and Procedures, and interface with State and County officials.

Several management tracking tools are employed. A Nuclear Commitment Tracking System, Business Plan, Quality Assurance audits, an open item list and NRC reports. The Business Plan identifies safety as the first objective. Associated with the objectives are two strategies which are associated with emergency preparedness (EP). One is monitoring the EP program which includes presentation of EP issues to senior management and monitoring of exercise and drill performance. The other objective is the development of a specific interface plan for the New York State Office of Emergency Management and Oswego County Office of Emergency Management.

2.4 Knowledge and Performance of Duties (Training)

Emergency preparedness lesson plans, training matrix, examinations, training and attendance records and the Emergency Response Organization qualification roster were reviewed. Training Department (TD) staff were interviewed and a practical training session observed in order to verify that emergency preparedness training is provided.

The training of Emergency Response Organization (ERO) personnel is the responsibility of the General Employee, Emergency Preparedness and Radiation Protection program of the Training Department. Training details are given in NTP-4.0, revision 4, "Emergency Preparedness Training Program" which contains the training matrix. A Supervisor, an instructor and three consultants are assigned to this activity. The 45 EP lesson plans which are based on the EP procedures and not task analysis were completely rewritten during the last 18 months. This was done to increase user friendliness and to ensure conformance with revised Training Department policies regarding format. Different lesson plans are used for initial qualification and requalification. Training is performance based and the lesson plans are site plans with the exception of unit specific classification procedures. Trainers are qualified per NTP-16 and are considered technique masters.

The Training Department maintains a tracking to follow-up trainee responses and feed-back from drills and exercises. Scheduling is done on a block basis to provide instructors with development and catch-up time. In so far as possible, training is then scheduled uniformly over the year and is not bunched up before the annual, NRC observed exercise. One-on-one training is discouraged. The presence of executives is encouraged so they may serve as role models and by their presence convey the importance of EP. The passing grade is 80%. If a trainee merits a grade between 70% and 80%, immediate corrective action is taken. No report is made to management unless there are two failures. The director of the EP Branch may remove an individual's name from the ERO qualification list. At the time of this inspection, there were approximately 1300 Nine Mile Point staff members qualified for the ERO. Six individuals were qualified for each ERO management and decision making positions.

The inspector audited one training class for Emergency Preparedness Essentials. The instructor showed both subject and technique mastery. An interactive approach was used. Questions were asked and answered promptly. The examination was multiple choice. The inspector advised the instructor that the answers to many questions could be determined by the process of elimination. A review of the lesson plan indicated it was accurate and easy to follow.

Reactor operators are given simulator training during each of their training cycles and classroom training during one cycle. Simulator training uses scenarios taking the operators through classification and protective action recommendations (PARs). When this is done the entire control room shift is in the simulator. Classification and PAR development is considered a critical test. Failure would indicate an apparent inability to protect health and safety. If operator performance is not satisfactory, immediate corrective action is taken. If satisfactory corrective action cannot be effected, then the operators' name may be removed from the shift roster. The effectiveness of this training was shown by the response to actual conditions requiring four Notifications of Unusual Event for Unit-1. The classifications were correct and timely. The causes were loss of off-site power (the emergency diesel electric generators came on line); loss of both emergency condensers; unidentified reactor coolant system leakage in excess of Technical Specification limits; and, an injured contaminated worker taken off-site. No emergency action level classifications were required for Unit-2.

Emergency communication phones have been installed in each control room. These phones simulate the NRC Emergency Notification System and the New York State Radiological Emergency Communication System. Operators complete the NRC and New York State notification forms, have them approved and the use the emergency phones which are answered by the trainers. Operators are also instructed in the use of the Community Alerting System to call-in ERO staff during off normal work hours. Enlarged Emergency Operating Procedures (EOPs) have been board mounted and operators are trained to mark them as they proceed through the EOPs. The EOPs do not contain referrals to classification procedures. The operators are expected to rely on memory when classification is in order. The next revision of the EOPs will contain referrals printed at appropriate locations within the EOPs. Drills and exercises are not driven from the simulators. However, it is Niagara Mohawk's intent to do this. An implementation date has not set. A forty hour course in Mitigation of Core Damage is given as part of the Technical Staff Training Program. Accident Management is not now taught to Technical Support Center and Emergency Operations Facility engineering staff.

Last year ten drills were held including four station drills, four call-in drills two of which required ERO personnel to report to the station. A medical, environmental sample collection, an accountability and a health physics drills were also conducted.

Based on the above review and observations, this portion of the licensee's emergency preparedness program is acceptable.

2.5 Independent Audits/Reviews

An independent review/audit is required at least every twelve months by 10 CFR 50.54(t) which also requires a determination for adequacy of the State/ County licensee interface. Results of the interface determination are to be offered to State and County governments. To determine if this requirement is met, the inspector reviewed the licensee's Technical Specifications, review requirements, Quality Assurance Procedures (QAP), met the Quality Assurance (QA) auditors and reviewed the QA report for the emergency preparedness report.

Technical Specifications (TS) for each Nine Mile Point unit require an independent audit/review by the Safety Review and Audit Board (SRAB), and a quality assurance audit per Quality Assurance Procedure 18.10, Rev. 12. These audits are in addition to the requirements of 10 CFR 50.54(t). To avoid unnecessary duplication, these audits have been combined. QA Procedure 18.10, Rev. 12 is traceable to Appendix B of 10 CFR 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Facilities". Problems are classified as an audit observation (AO) or Corrective Action Recommendation (CAR). If a condition adverse to quality is identified, a CAR is issued. AOs and CARs are sent to the Nuclear Regulatory Compliance Group for response coordination. Following review of the audit report by the SRAB, the Board's findings are sent to senior nuclear management. SRAB findings are carried as open items in the Board's unfinished business list until a satisfactory disposition report is received and accepted.

The inspector reviewed Quality Assurance Report for audit No. 90015-RG/IN dated November 16, 1990 and concluded the report conformed to Quality Assurance Procedures. A team of five auditors including a SRAB representative audited nine areas during a two week period. The State/County interface was audited and government officials were contacted. Site drill records were reviewed. While several AOs were identified, the team concluded an effective emergency preparedness program is being conducted, and the State/ County interface was adequate. Copies of the report were sent to the Offices of Emergency Management for New York State and Oswego County on November 28, 1990.

There is no procedure or check list to determine if a Site Emergency Plan or Site Emergency Plan Procedure change decreases emergency preparedness effectiveness. The Director, Emergency Preparedness uses his professional judgement. If he has doubts, the procedure is sent to licensing for a safety i.e. technical evaluation. If the change is deemed not to decrease effectiveness, the plan or procedure change is forwarded to the Station Operating Review Committee (SORC) for a limited safety review per 10 CFR 50.59. If the EP Director has no doubts, the changed plan or procedure goes directly to SORC. Following SORC approval, the change(s) become effective following completion of

training in their use. The originator is responsible for the procedure until it is hand carried to Administrative Services for reproduction, distribution and control per the procedures described in Section 2.1 above.

Based on the above findings, this portion of the licensee's emergency preparedness program is acceptable.

3. **Public Information and Off-Site Activities**

Correspondence, documentation and records were reviewed, and personnel interviewed, to determine if the prompt notification system was functional, public information is distributed to the public, off-site personnel are offered training, and coordination meetings with off-site authorities are held periodically.

Public Information Material consists of brochures, posters, stickers and telephone directory inserts. Brochures were mailed to all residences, commercial and industrial facilities, schools and other institutions. Posters are distributed for transient use and stickers are sent to restaurants and bus depots. Inserts appear in telephone directories. A mass media briefing packet is prepared annually. The Oswego County government has established an emergency management display booth for use at the State Fair in Syracuse. The display includes information for both Nine Mile Point and the J. A. Fitzpatrick reactor sites.

Sirens, tone alert radios (TARs) and route alerting are the components of the alert and notification system. The 37 sirens are activated from one of two County government locations. Sirens are remotely tested using three systems two of which are remote testing systems. One remote testing system sends a signal activating a siren decoder. A response signal is returned indicating activation or no activation. This test is done on a biweekly basis. The second test involves human observation of the siren when a quarterly growl test and the annual full activation tests are run. Results from these tests are used to compute annual availability which was 99.87% for 1990. The other remote testing system is a battery operated sensing system which continuously monitors 13 siren functions. If a failure occurs, a signal is sent and the County government which then advises Niagara Mohawk. A repair order is then issued. A daily mode test is also run. Lightning strikes temporally disabled 23 sirens last year. If a siren is known to be out of service for more than an hour, the NRC is notified per 10 CFR 50.72(b). Six such notification were made last year.

Two thousand TARs in the form of NOAA weather radios are sent to residents, institutions and industrial facilities. They are AC operated with battery back-up. Route alerting is us used on an needed basis as back-up.

Personnel of off-site fire departments and companies are trained by the licensee. Support hospital staffs are trained by a medical consultant. Since some of the site firemen are certified Emergency Medical Technicians, there is still need to offer medical training to ambulance company personnel except for site access procedures. Niagara Mohawk offers an annual training session in boiling water reactor operations to off site personnel.

Letters of Agreement are up-dated every two years. Evacuation Time Estimates will be up-dated, if needed, when the 1990 census data are available. Monthly coordination meetings are held with County officials. Senior Niagara Mohawk managers meet their governmental counter persons. Nine Mile Point staff participate in the quarterly New York State Power Pool Meetings during which emergency preparedness is discussed.

Based on the above, this portion of the licensee's emergency preparedness program is acceptable.

4. **Dose Assessment**

During a 1988 Emergency Response Facility appraisal, the NRC inspection team identified a number of dose assessment related items requiring licensee action (refer to NRC RI Combined Inspection report Nos. 50-220/88-25 and 50-410/88-25). In order to assess licensee response to these items, the inspector interviewed staff, checked records, inspected dose assessment related facilities including equipment, and reviewed dose projection model bases. Details are reported below and NRC action on the follow-up-items is given in Section 7. below.

Dose projection software is un-named and is run on a DEC Virtual Address Extension (VAX) computer. The same meteorological model (puff advection) and regulatory model (class A) are used for Units 1 and 2. Meteorological data may be automatically transferred to the computer or keyboard entered; source data must be keyboard entered. The default iodine to noble gas (I/NG) ratio is 0.00001; this value is in excellent agreement with real world data for wet filtered loss-of-coolant accidents and analysis of reactor cooling system activity. These values would be used until sample analysis provides measured ratios. Three systems are installed in Unit-1 to measure release rates and one in Unit-2. The Unit-2 system measures particulate, iodine and noble gasses. Gamma ray spectrometry of Unit-1 samples is needed to measure the I/NG ratio. The release duration value of four hours is acceptable to the State and County. The back-up dose projection system is based on a straight line Gaussian meteorological model. Projected doses are hand calculated by a chemistry technician using a work sheet.

This is done in the control room where meteorological and source term data are available prior to activation of the Technical Support Center and Emergency Operations Facility.

Verification and validation of software has begun. A software check on a subroutine by subroutine basis has been completed. The AEC document, "Meteorology and Atomic Energy", was consulted and a comparison made against documentation provided by the now defunct vendor. Constant values were compared against the values in Regulatory Guides 1.109, 1.11 and 1.23. The licensee was uncertain as to how best complete the validation. The inspector suggested they consider following the approach given in NUREG/CR-4604.

Based on the above review and findings, this portion of the licensee's emergency preparedness program is acceptable.

5. **Emergency Preparedness-Security and Fire Department Interface**

To determine if Nine Mile Point Nuclear Power Station Nuclear Officers and Fireman are trained to cooperate with and support emergency preparedness response activities, the inspector interviewed a Security supervisor and the reviewed Site Emergency Plan Fire Department interface procedures.

Station Security Officers and Firemen are Niagara Mohawk staff. The EP interface is detailed in Site Emergency Plan (SEP) sections 10 (Security), and 2,3,4 (Fire). They are radiation worker qualified, respirator trained and fitted, and Firemen are SCBA qualified, and are given Emergency Preparedness training. EP staff observe Security drills and there has been one security driven exercise. Security sends a representative to the drill and scenario development committee meetings. Evacuation criteria have been established for security facilities and fall back locations identified. The Site Emergency Director would order evacuation. Accountability is computerized. Security officers would assist firemen in search and rescue operations. Station Security has arranged for Oswego County Sheriff Deputies to be given radiation protection training.

There is a fire department for each unit headed by a Chief. There are five firemen per shift at least one of whom is a New York State licensed Emergency Medical Technician. Firemen conduct search and rescue supported by security officers. They respond to illness and injury requests.

Based on the above review and findings, this portion of the licensee's emergency preparedness program is acceptable.

6. **Cooperative Emergency Preparedness Activities**

Nine Mile Point Nuclear Power Station and the James A. Fitzpatrick Nuclear Power Plant are contiguous sites. To avoid unnecessary duplication of emergency preparedness activities, cooperative programs have been developed. These were identified and listed in Section 3.0 of NRC Inspection Report 50-333/88-13. The inspector reviewed these activities to determine if changes have been made since the 1988 inspection.

Four changes have taken place: the "sympathetic" ALERT has been canceled; the licensees are working to develop a combined emergency thermoluminescent dosimetry program; there is no longer a common dose assessment methodology; and, the Fitzpatrick Emergency Operations Facility at Volney will be used to issue temporary "Green Cards" to Emergency Response Organization staff who have lost or misplaced their permanent green card. This card is required by Sheriff's Deputies or State Police to permit passage beyond an Access Control Point following activation of the off-site Radiological Emergency Response Plan. Nine Mile Point Security under these conditions requires both the site badge and the green card before access to the protected area is granted.

Based on the above review and findings, this portion of the licensee's emergency preparedness program is acceptable.

7. **Licensee Action on Previously Identified Items**

The following items were identified during a 1988 Emergency Response Facility appraisal. The following status is based on a review of records, licensee correspondence with the NRC (NMPIL 0561) and interviews with personnel by the inspector.

(CLOSED) 50-220/88-25-01 and 50-410/88-25-01 IFI Use post accident sampling system (PASS) sample analysis results to project doses as recommended in Section I(10) of NUREG-0654. Use of stack sample analysis results and default ratios noted in Section 4 above provide the data which can also be given by analysis of a containment atmosphere PASS sample.

(CLOSED) 50-220/88-25-02 and 50-410/88-25-02 IFI Dose assessment procedures shall address both units. A common dose projection model has been developed. Refer to Section 4. above for details.

(OPEN) 50-220/88-25-04 and 50-410/88-25-04 IFI Verify and validate dose projection software. The licensee has not completed this activity. Refer to Section 4. for details.

(OPEN) 50-220/88-25-05 and 50-410/88-25-05 IFI Review adequacy of safety parameter signal isolation. Completion is scheduled for September 1992 following the refueling outage.

(OPEN) 50-220/88-25-06 and 50-410/88-25-06 IFI Plant computer system has no reserve for heavy use periods. The licensee will upgrade the process computer. This undertaking is scheduled to begin September 1992.

(OPEN) 50-220/88-25-07 and 50-410/88-25-07 IFI Verification of plant sensor data. Two of the five tasks have been completed and another is 70% completed. The remaining tasks are scheduled for completion during the fourth calendar quarter of 1991.

(OPEN) 50-220/88-25-08 and 50-410/88-25-08 IFI A protection factor of five is not attainable at the double exit doors to the Emergency Operations Facility. The licensee has not begun to work on this problem or set a completion date.

(OPEN) 50-220/88-25-09 and 50-410/88-25-09 IFI Event historical capabilities shall be improved. An analysis has begun to determine if the recording capability can be increased and by how much. Additional work is scheduled to begin during September 1992.

8. **Exit Meeting**

An exit meeting was held with licensee personnel identified in Section 1 of this report on January 25, 1991. The inspector presented the results of the inspection and advised the licensee that no violations were identified. Licensee management acknowledged these findings and indicated they would evaluate them and take appropriate corrective action where necessary.