

U.S. NUCLEAR REGULATORY COMMISSION

DCS NUMBERS

Region I

50220-840320 50220-840524  
50220-840327 50220-840608  
50220-840412 50220-840603  
50220-840507 50220-840601  
50220-840509 50220-840614  
50220-840413 50220-840617  
50220-840521

Report No. 84-11

Docket No. 50-220

License No. DPR-63 Priority --

Category C

Licensee: Niagara Mohawk Power Corporation

300 Erie Boulevard West

Syracuse, New York 13202

Facility Name: Nine Mile Point Nuclear Station, Unit 1

Inspection at: Scriba, New York

Inspection conducted: June 1 to July 16, 1984

Inspectors: *S.D. Hudson*  
S.D. Hudson, Senior Resident Inspector *for*

*8/28/84*  
date signed

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date signed

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date signed

Approved by: *S.J. Collins*  
S.J. Collins, Chief, Reactor Projects  
Section 2C, DPRP

*9/5/84*  
date signed

Inspection Summary:

Inspection on June 1 to July 16, 1984 (Report No. 50-220/84-11)

Areas Inspected: Routine inspection by the resident inspector (133 hours). Areas inspected included: licensee action on previous inspection findings, operational safety verification, physical security, plant tours, surveillance testing, safety system verification, maintenance activities, and review of License Event Reports.

Results: One violation was identified. (Failure to establish procedures for two primary containment isolation valves).

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## DETAILS

### 1. Persons Contacted

J. Aldrich, Supervisor, Operations  
W. Connolly, Supervisor, Q.A. Operations  
K. Dahlberg, Site Maintenance Superintendent  
W. Drews, Technical Superintendent  
F. Hawksley, Inservice Inspection Superintendent  
E. Leach, Superintendent of Chemistry and Radiation Management  
T. Perkins, General Superintendent, Nuclear Generation  
R. Raymond, Supervisor, Fire Protection  
T. Roman, Station Superintendent  
B. Taylor, Supervisor, Instrument and Control

The inspector also interviewed other licensee personnel during the course of the inspection including shift supervisors, administrative, operations, health physics, security, instrument and control, and contractor personnel.

### 2. Summary of Plant Activities

On June 13, the plant was started-up following a three month refueling and modification outage. On June 14, the plant was shutdown due to the failure of three Main Steam relief valves. On June 16, the plant was re-started. On June 17, after one Main Steam relief valve stuck open and several others were found to be leaking after testing, the plant was shut-down again. A third reactor start-up was performed on June 22 and the main generator placed on line on June 23.

### 3. Licensee Action on Previous Inspection Findings

(Closed) INSPECTOR FOLLOWUP ITEM (78-07-01): Licensee to record actual and required values for spring hangers. The inspector reviewed Field Change no. 1 dated February 18, 1983 to the "Visual Examination Procedure", NES document no. 8042820 Rev. 1. This change requires recording the actual and required values for spring hangers on the examination data sheet. The licensee intends to incorporate this field change into a permanent revision of the above procedure.

(Closed) VIOLATION (83-02-02): Failure to maintain records of acceptability of inservice inspections. The inspector reviewed Field Change no. 3 dated April 15, 1983 to the "Visual Examination Procedure", NES document no. 80A2820 Rev. 1. This change requires that if the actual and required spring can hangar settings are not the same, the discrepancy be reported to the licensee's Engineering Department and the disposition be documented on the applicable data sheets. The inspector reviewed several data sheets from the 1983 outage to verify that the requirement is being properly implemented.

(Closed) INSPECTOR FOLLOWUP ITEM (83-18-02): Licensee to establish procedures for the emergency condenser vents to the torus. The inspector reviewed Operating Procedure No. OP-13, "Emergency Cooling System", Revision 15 and verified that procedures have been established for the use of the emergency condenser vents to the torus. This procedure change has been placed on the licensee's "required reading list" for all licensed operators. The inspector also verified that tags have been cleared from the valves to restore them to an operable status. This completes the action required for TMI Item II.B.1., "Reactor Coolant Vents".

(Open) UNRESOLVED ITEM (83-28-02): Quarterly testing of Main Steam Isolation Valve (MSIV) does not verify the operability of the MSIV limit switches. On May 8, 1984, the Office of Nuclear Reactor Regulation provided a safety evaluation to NRC, Region I concerning the requirements for testing of the MSIV limit switches. It concluded that due to operational problems encountered when shutting the MSIV's at power, to verify the operability of the 10% limit switches, strict adherence to a fixed test frequency is not necessary. The staff recommended that the licensee incorporate a requirement in their technical specifications to test the MSIV instrument channels prior to start-up following a plant shutdown by actual closure of the MSIV's, unless the test has been performed within the previous 92 days. The inspector examined Operating Procedure, OP-43, "Start-Up and Shutdown Procedure", Rev. 25 and determined that it has been revised to ensure that the test is performed as recommended by the NRR safety evaluation. This item remains open pending its incorporation into technical specifications.

A copy of the safety evaluation has been provided to the licensee.

#### 4. Operational Safety Verification

##### a. Control Room Observation

Routinely throughout the inspection period, the inspector independently verified plant parameters and equipment availability of engineered safeguard features. The following items were observed:

- Proper control room manning and access control;
- Adherence to approved procedures for ongoing activities;
- Proper valve and breaker alignment of safety systems and emergency power sources;
- Shift turnover.

##### b. Review of Logs and Operating Records

The inspector reviewed the following logs and instructions for the period June 1 to July 16, 1984:

- Control Room Log Book
- Station Shift Supervisor's Log Book

-- Station Shift Supervisor's Instructions

The logs and instructions were reviewed to:

- Obtain information on plant problems and operation;
  - Detect changes and trends in performance;
  - Detect possible conflicts with technical specifications or regulatory requirements;
  - Assess the effectiveness of the communications provided by the logs and instructions; and
  - Determine that the reporting requirements of technical specifications are met.
- c. The inspector witnessed the reactor start-up and a portion of the start-up following the refueling outage on June 13 to verify that it was conducted in accordance with approved procedures.

No violations were identified.

5. Observation of Physical Security

The inspector made observations to verify that selected aspects of the plant's physical security system were in accordance with regulatory requirements, physical security plan and approved procedures. The following observations relating to physical security were made:

- The security force was properly manned and appeared capable of performing their assigned functions.
- Protected area barriers were intact - gates and doors closed and locked if not attended.
- Isolation zones were free of visual obstructions and objects that could aid an intruder in penetrating the protected area.
- Persons and packages were checked prior to entry into the protected area.
- Vehicles were properly authorized, searched and escorted or controlled within the protected area.
- Persons within the protected area displayed photo identification badges, persons in vital areas were properly authorized, and persons requiring an escort were properly escorted.
- Compensatory measures were implemented during periods of equipment failure.

No violations were identified.

6. Plant Tours

During the inspection period, the inspector made multiple tours of plant areas to make an independent assessment of equipment conditions, radiological conditions, safety and adherence to regulatory requirements. The following

areas were among those inspected:

- Turbine Building
- Auxiliary Control Room, including the interior of safety-related relay cabinets
- Vital Switchgear Rooms
- Drywell
- Diesel Generator Rooms
- Screen House
- Reactor Building

The following items were observed or verified:

a. Radiation Protection:

- Personnel monitoring was properly conducted.
- Randomly selected radiation protection instruments were calibrated and operable.
- Radiation Work Permit requirements were being followed.
- Area surveys were properly conducted and the Radiation Work Permits were appropriate for the as-found conditions.

b. Fire Protection:

- Randomly selected fire extinguishers were accessible and inspected on schedule.
- Fire doors were unobstructed and in their proper position.
- Ignition sources and combustible materials were controlled in accordance with the licensee's approved procedures.
- Appropriate fire watches or fire patrols were stationed when equipment was out of service.

c. Equipment Controls:

- Jumpers and equipment mark-ups did not conflict with Technical Specification requirements.
- Conditions requiring the use of jumpers received prompt licensee attention.
- Administrative controls for the use of jumpers and equipment mark-ups were properly implemented.

d. Vital Instrumentation:

- Selected instruments appeared functional and demonstrated parameters within Technical Specification Limiting Conditions for Operation.

e. Radioactive Waste System Controls:

- Gaseous releases were monitored and recorded.
- No unexpected gaseous releases occurred.

f. Housekeeping:

- Plant housekeeping and cleanliness were in accordance with approved licensee programs.

7. Surveillance Testing

The inspector witnessed the performance of selected surveillance tests to verify that:

- Surveillance procedures conform to technical specification requirements and have been properly approved.
- Test instrumentation is calibrated.
- Limiting conditions for operations for removing equipment from service are met.
- Testing is performed by qualified personnel.
- Surveillance schedule is met.
- Test results met technical specification requirements.
- Appropriate corrective action is initiated, if necessary.
- Equipment is properly restored to service following the test.

The following tests were included in this review:

- RPSTP-5, "Reactivity Margin - Core Loading" performed on June 13, 1984.
- ISP-RPS-TP, "Reactor Protection System - Auto Trip System Instrument Trip Channel Test" performed on low-low reactor vessel level instrument #36-04D on June 12, 1984.

During this test, the Emergency Condenser Return Isolation Valve (#39-06) automatically opened. Normally the initiation logic should not cause the valve to open unless at least 2 detectors had been actuated. The plant was in cold shutdown at the time of the testing, therefore, there was no effect on the reactor. Subsequent trouble shooting revealed that a wiring error had been made during the installation of a recently completed modification. The inspector verified that the error was corrected and retested prior to start-up.

-- ST-C2, "Manual Opening of Solenoid Actuated Relief Valve", performed on June 14, 1984.

During this test, four of the 6 Main Steam Relief Valves were tested. One valve operated satisfactorily, one failed to open and two opened but failed to close. The licensee suspended further testing and immediately began a normal reactor shutdown as required by Technical Specifications. The pilot valve on relief valve #112 was overhauled and new pilot valves were installed on relief valves #121 and 122. The failure of relief valve #113 to open was apparently caused by shorting of the internal wires for the solenoid actuated pilot valves. These wires were repositioned. This event was reported by the licensee in accordance with 10 CFR 50.72 on June 14, 1984 and as Licensee Event Report #84-13 on July 13, 1984. All six relief valves were retested on June 17, 1984.

During the retest, relief valve #121 stuck open and seat leakage was detected on the other 5 valves after they closed. The main and pilot valve for each valve was disassembled and cleaned. Corrosion products on the main valve seat was suspected to have caused the seat leakage. Plugging of the pilot valve guide openings on relief valve #121 was suspected as the cause of the valve failing to open. Based on this experience, the licensee learned that these small passages must be cleaned mechanically rather than by the previously used vacuum method.

The licensee plans to revise its maintenance procedure to ensure that these passages are properly cleaned. These actions will be reviewed by the NRC during a future inspection (50-220/84-11-01).

This event was reported to the NRC on June 17, 1984 in accordance with 10 CFR 50.72 and as Licensee Event Report 84-14 on July 17, 1984. All six relief valves were successfully tested on June 22, 1984.

The inspector noted that although Technical Specification 4.1.5 requires that this test be performed at low reactor pressure, the licensee performs the test at a reactor pressure of 950 psig. The Technical Specifications do not provide an explanation or limit to further define "low pressure".

The merits and disadvantages of performing the test at low pressure were reviewed by the resident inspector, the NRC project Section Chief, and NRR Licensing Project Manager. Due to the uncertainty of the response of the reactor pressure control system at a much lower pressure, it was decided that current test should be performed as it had in the past.

The licensee currently has submitted a proposed amendment to Technical Specifications to delete the reference to "low pressure". This issue remains unresolved pending review of the licensee's submitted by NRR. (50-220/84-11-02).

-- ISP-RPS-TP, "Reactor Protection System. Auto Trip System Instrument Trip Channel Test" performed on high drywell pressure instrument #201.2-476A on July 14, 1984.

No violations were identified.

## 8. Safety System Operability Verification

On a sampling basis, the inspector directly examined selected safety system trains to verify that the systems were properly aligned in the standby mode. This examination included:

- Verification that each accessible valve in the flow path is in the correct position by either visual observation of the valve or remote position indication.
- Verification that power supply breakers are aligned for components that must actuate upon receipt of an initiation signal.
- Visual inspection of the major components for leakage, proper lubrication, cooling water supply, and other general conditions that might prevent fulfillment of their functional requirements.
- Verification by observation that instrumentation essential to system actuation or performance was operational.

During this inspection period, the following systems were examined:

- Core Spray Systems #11 and 12
- Emergency Ventilation System

The inspector also examined randomly selected primary containment isolation valves to verify that they were in the correct position. On July 10, the outside containment isolation valve for service air or water to the drywell (valve SW 121) was found to be open and connected via a flexible hose to the service air piping. The inspector informed the shift supervisor, who took immediate corrective action by sending an operator to close the valve. Through discussions with another operator, the inspector learned that the inside containment isolation valve was locked closed and capped.

The inspectors review indicates that the outside containment isolation valve was left open since prior to plant startup on June 22, 1984 and resulted from the valve not being included in a controlled valve check-off list procedure. During subsequent review of Operating Procedure OP-43, "Start-up and Shutdown Procedure," Rev. 25, the inspector noted that the "Primary Containment Pre-Start-Up Check-Off" requires that the inside containment isolation valves for breathing air and service water connections be locked closed but does not address the outside isolation valves. Technical Specifications 6.8.1 requires, in part, that written procedure shall be established, implemented and maintained that meet or exceed the requirements of Appendix "A" of Regulatory Guide 1.33. Regulatory Guide 1.33 requires, in part, that written procedures be established for maintaining containment integrity. The failure to include the outside containment isolation valves for breathing air and service water to the drywell in an approved procedure is a violation of Technical Specification 6.8.1. (50-220/84-11-03).

The inspector noted that prior to completion of the inspection period the licensee affected long-term corrective action by revising OP-43 to include the missing valves. This violation is closed, no additional response is required at this time.



## 9. Maintenance Activities

The inspector examined portions of various safety related maintenance activities. Through direct observation and review of records, he determined that:

- These activities did not violate the limiting conditions for operation.
- Required administrative approvals and tagouts were obtained prior to initiating the work.
- Approved procedures were used or the activity was within the "skills of the trade"
- Appropriate radiological controls were properly implemented.
- Quality control inspections were performed.
- Equipment was properly tested prior to returning it to service.

During this inspection period, the following activities were examined:

- Repair of Main Steam relief valves #121 and 122
- Trouble shooting Emergency Condenser initiation logic.

No violations were identified.

## 10. Maintenance Program Review

The inspector reviewed the licensee's program for evaluation of equipment failures and personnel errors to ensure that the root cause of such failures is determined and corrected. An associated purpose of this inspection was to determine the extent to which maintenance practices may contribute to system unavailability (e.g. the potential for like-component failure).

The licensee's Administrative Procedure APN-13, "Procedure for Control of Station Corrective Repair & Maintenance" Rev. 4 requires that the apparent cause of the equipment failure be listed on the work request after corrective maintenance is performed. This is generally determined by the most senior mechanic or technician who performed the repair and then reviewed by a maintenance supervisor. The licensee's has also used metallurgical samples to determine the cause of cracks found in piping systems. APN-13 also requires an annual review of the index of work requests for all safety-related equipment by the appropriate departmental supervisor. The licensee uses a computer based system for tracking work requests. Therefore various sorts are available to the departmental supervisors to assist in performing their reviews. For those items exhibiting a high failure rate, the work requests are reviewed to determine the cause of failure. A written report of significant findings and recommendations is provided to the Station Superintendent. The inspector reviewed the reports for the maintenance and instrument and controls departments for 1983 to verify that the requirements of the administrative procedure had been completed.

The inspector also examined a sample of selected licensee records from 1983 to determine the maintenance history for various safety-related systems. Records were reviewed to determine if there were indications of repeat failures, failures on the first retest, or redundant components being affected by a single root cause. All 45 Licensee Event Reports for 1983, and 93 work requests from 1983 for main steam, emergency condensers, diesel generators, core spray and containment spray systems and 56 work requests for the core spray system for 1984 were reviewed.

Eleven of the 46 work requests for emergency condensers system involved maintenance on hydraulic snubbers. These generally involved snubbers found to be low on oil. The licensee functionally tests the snubber in the "as-found" condition to determine its operability. The snubber is then overhauled and retested prior to being placed back into the system. In one case, a snubber was found to be leaking one month after oil had been added to its reservoir. However, the snubber had not been tested or overhauled when it was first found to be low on oil. No apparent cause for the low oil level was listed on work request #24002. This appears to be an exception to the licensee's normal practice.

Following the 1984 outage, 2 main steam relief valves stuck open during testing. The licensee has learned that the passages in the pilot valve bushings must be thoroughly cleaned to ensure reliable valve operation. The licensee intends to revise its maintenance procedures for these valves.

No unacceptable conditions were found.

#### 11. Review of Licensee Event Reports (LER's)

The LER's submitted to NRC Region I were reviewed to determine whether the details were clearly reported, including accuracy of the description of the cause and adequacy of the corrective action. The inspector also determined whether the assessment of potential safety consequences had been properly evaluated, whether generic implications were indicated, whether the event warranted on site follow-up and whether the reporting requirements of 10 CFR 50.73 had been met.

During this inspection period, the following LER's were reviewed:

<u>LER No.</u>	<u>EVENT DATE</u>	<u>SUBJECT</u>
84-01	March 20, 1984	Failure of G.E. breakers overcurrent trip devices

Prior to start-up, the licensee completed testing of the overcurrent trip devices for all safety related breakers. No additional failures were found. The licensee intends to establish a schedule for periodic testing of the overcurrent trip devices. The licensee's actions will be reviewed during a future inspection (50-220/84-11-04).

84-02	March 27, 1984	Control Rod Drive housing leak
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The licensee's actions are described in NRC Inspection Report 84-07.

84-03	April 12, 1984	Reactor safety valves out of tolerance
84-04	May 7, 1984	Core Spray piping crack
The licensee's actions are described in NRC Inspection Report 84-07.		
84-05	May 9, 1984	Spurious intermediate range monitor scram
84-06	April 13, 1984	Inadvertent scram due to loss of power
84-07	May 21, 1984	Inadvertent high pressure scram
84-08	May 24, 1984	Inadvertent scram due to operator error
84-10	June 8, 1984	Inadvertent scram due to loss of power
84-11	June 3, 1984	Inadvertent scram due to operator error
84-12	June 1, 1984	Diesel Generator start due to loss of power
* 84-13	June 14, 1984	Reactor shutdown due to failed Main Steam relief valves
* 84-14	June 17, 1984	

\* Further described in paragraph 7 of this report.

No violations were identified.

12. Unresolved Items

An unresolved item requires further review to determine its acceptability. Paragraph 7 contains an unresolved item.

13. Exit Interview

Periodically, throughout the inspection period, the inspector met with senior station management to discuss the inspection scope and findings.