U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-220/88-23
50-410/88-22

Docket Nos. 50-220
50-410

License Nos. DPR-63
NPF-54

Licensee: Niagara Mohawk Power Corporation
301 Plainfield Road
Syracuse, New York 13212

Facility Name: Nine Mile Point Nuclear Station, Units 1&2

Inspection At: Scriba, New York

Inspection Conducted: June 13-17, 1988

Inspectors: H. Gregg
H. Gregg, Senior Reactor Engineer — date: 7/28/88

Approved by: P. K. Eapen
P. K. Eapen, Chief, Special Test Program Section, EB, DRS — date: 8/1/88

Inspection Summary: Inspection on June 13-17, 1988 (Report No. 50-220/88-23, and 50-410/88-22)

Areas Inspected: Routine unannounced inspection of the licensee's Inservice Testing (IST) of pumps and valves. This included review of organizational structure, test procedures, results of testing, schedule adherence, trending of results, vibration measurements and other pertinent matters relating to IST.

Results: No violations were identified. One unresolved item relating to differential pressure ranges for Emergency service water pumps was identified.

## DETAILS

### 1.0 Persons Contacted

#### 1.1 Niagara Mohawk Power Corporation (NMPC)

R. Abbott, Station Superintendent, Unit 2
*S. Agarwal, Lead Engineer - Site Licensing
W. Bandla, Assistant Supervisor Operations, Unit 1
R. Dean, Assistant Supervisor I&C, Unit 2
G. Dolney, Unit 2 Supervisor ISI
M. Esposito, Chief Technician I&C, Unit 2
W. James, I&C Supervisor, Unit 1
J. Kinsley, I&C Supervisor, Unit 2
*J. Neyhard, IST Specialist, Unit 2
*A. Pinter, Site Licensing, Unit 2
D. Rapin, Nuclear Operator E
T. Roman, Station Superintendent, Unit 1
*R. Shelton, Unit 1 Supervisor ISI
*J. Spadafore, Acting Technical Superintendent
R. Swindells, Chief Technician I&C, Unit 1
P. Wilde, Supervisor QA Surveillance
*J. Willis, General Superintendent

#### 1.2 New York State Electric and Gas Corporation

P. Mac Ewan, Site Representative

#### 1.3 New York State Public Service Commission

P. Eddy, Site Representative

#### 1.4 U.S. Nuclear Regulatory Commission

*W. Cook, Senior Resident Inspector
A. Krasopoulos, Resident Inspector
W. Schmidt, Resident Inspector

*Denotes those present at exit meeting.

### 2.0 Summary

This was an overview type inspection effort to review the Inservice Testing (IST) of pumps and valves implementation and the IST organizational structure at both Unit 1 (NMP-1) and Unit 2 (NMP-2).

The different time frame of construction of NMP-1 and NMP-2 and the requirements at those times resulted in some differences in the IST

implementation between the two plants. NMP-2 being recently constructed and licensed had the advantage of planning IST from the start. The past knowledge of IST requirements as they were being formulated, the ASME IST evolution, the use of more sophisticated measurement equipment and computer technology was advantageous to the newer plant. On the other hand, NMP-1 was constructed and licensed prior to IST requirements which resulted in the use of test methods and instrumentation available at that time and the implementation of IST requirements as they were imposed.

While the IST implementation effort is being performed at each plant, the organization and methods are different. The licensee's goal is to have more consistent IST implementation at both plants. An organizational change including personnel is presently in process which can lead to accomplishing this objective.

There was one unresolved item finding at NMP-1 which related to differential pressure ranges for emergency service water pumps.

## 3.0 Inservice Testing of Pumps and Valves (73756)

### Inspection Purpose and Scope

This inspection was conducted to review and assess the licensee's activities relating to Inservice Testing (IST) of pumps and valves and other activities associated with IST implementation. This was a combined inspection to review the IST implementation at Nine Mile Point 1 (NMP-1) and Nine Mile Point 2 (NMP-2). Verification of adherence to regulatory requirements, ASME Section XI requirements and licensee's commitments as well as consideration of safety consequences, organizational structure and interfacing of other departmental groups were addressed as part of this inspection.

The Code of Federal Regulations part 10 CFR 50.55a(g) requires the implementation of IST of pumps and valves and requires licensee's to comply with the ASME Boiler and Pressure Vessel Code Section XI which defines the testing to be performed, test frequency, acceptance criteria and corrective actions. The licensee's Technical Specifications and their IST program plan also requires conformance to ASME Section XI.

### 3.1 IST Program Background

The inspector reviewed the licensee's current IST pump and valve program and held discussions concerning the program with cognizant IST personnel. The following inspector determinations were made:

NMP-1

The IST program is maintained as a controlled document. This plant was constructed prior to the adoption of the ASME Nuclear Codes and commercial operation commenced in 1969. The plant is in its first 10 year interval IST program which commits to ASME Section XI, 1974 Edition up to and including Summer '75 addenda. A site meeting was held with NRR and their consultant EGG on October 7-8, 1980. After subsequent discussions and incorporation of additional program details revision of the program was resubmitted August 7, 1981. A Technical Specification amendment request to incorporate ISI and IST was made November 4, 1983. Amendment request No. 57 was granted but the IST aspects were not addressed. The first 10 year interval is from December 1979 to 1989 and is the program currently being implemented.

A new program for the second 10 year interval was submitted to NRR in the fall of 1985 with a request to start the next interval in June 1986. This was submitted to NRR in the fall of 1985. This program commits to the ASME 1983 Code Edition through Summer 1983 Addenda. Problems were encountered in the licensee's capability to implement the new program and the second ten year interval dates reverted back to December 1989 to December 1999. A site meeting with NRR and their consultant EG&G was held September 9-10, 1987. Most comments have been addressed but there are several remaining issues to be resolved. Final responses are scheduled to be made by the end of 1988.

NMP-2

This plant is one of the more recently constructed plants and began commercial operation on March 11, 1988. The first ten year IST program (also to be a controlled document) was initially submitted to NRR on July 30, 1987. Subsequent discussions were made with NRR and many required changes were made to the program. A site meeting was held with the licensee and NRR and their consultant (EG&G) was held on December 3-4, 1987. This resulted in several items which required additional licensee input. By letter of June 7, 1988 the NRC gave the licensee interim approval for use of the program until the detailed review of the program is completed and the safety evaluation is issued.

## 3.2 IST Organization

At both plants IST is a subgroup of the Inservice Inspection (ISI) group. Organizational responsibilities changes were made earlier this year which shifted reporting responsibility from Technical Support (reporting to site Nuclear Generation) to Site Engineering (reporting to offsite Nuclear Engineering). Combined ISI oversight

of both plants is through the site engineering function. The licensee's administrative procedure AP-8.3 defines these organizational responsibilities. In addition to the organizational change mentioned above, the position of ISI superintendent appears to have been eliminated and has been replaced by the site engineering manager.

3.2.1 Staffing

Staffing of the IST organization was reviewed at both plants. New IST organization charts and a staffing plan for both plants has been established as part of the reorganization. The proposed organization is similar at both plants.

At NMP-1 the entire IST activity is performed by the ISI Unit Supervisor. Two additional positions are authorized, and filling these positions has high priority status. The licensee's goal is to complete full staffing as described in the site engineering plan by year end. Staffing improvements will enable utilization of more sophisticated techniques.

At NMP-2, IST staffing is presently similar to the reorganization proposal. The ISI Unit Supervisor does have five contracted employees who perform some IST function. Current plans are to staff IST organization with permanent NMP staff. The Unit 2 ISI supervisor also has a heavy work load due to the sophisticated and comprehensive computerized IST activities, and the high level of effort to develop the first ten year program and the procedural means to implement this activity.

Staffing at Unit 2 was mentioned as a concern in a prior NRC Inspection report No. 87-40. During this inspection, staffing was determined to be capable and the IST activity is being performed. While not to its full planned complement, there is some staff depth.

Staffing at both units will be reviewed at a subsequent inspection after implementation of the new staffing plan.

3.3 Test Scheduling and Adherence

The inspector reviewed the methods utilized to schedule testing at both plants. The adherence to schedule was verified during the inspector's review of test results throughout the inspection.

NMP-1

Scheduling is done by Operations Department and is verified by IST. It is a hand drawn schedule made up for an entire year. Quarterly

tests are scheduled February, May, August, and November. Several pumps, including liquid poison, and raw water cooling are tested monthly due to TS requirements. The schedule, even though a manual system, was effectively developed and implemented. Each of the surveillance tests reviewed were determined to be in accordance with the schedule.

NMP-2

Scheduling is done by the planning department and has operations and IST review and input. A computerized schedule is issued weekly and is updated twice a week by IST. The schedule lists all the surveillance tests to be performed, the plant mode required for the test, the last test date the next scheduled date, and an early/best/proposed/late date. The schedule appears to be effectively developed and implemented. Also in each of the tests reviewed the scheduled test date was met.

3.4 Surveillance Test Results

a) CRD Pumps (NI-ST-Q2)

The inspector reviewed the quarterly IST test results of the CRD pumps (#11 and #12) performed 5/19/87, 8/19/87, and 11/19/87. In each of the tests the vibration readings and other parameters were verified to be within the ASME Code and the licensee's prescribed acceptable range.

The inspector reviewed prior history of CRD pump #11 which had a problem found during the 1986 outage. When problem of unusual noise was identified, I&C performed vibration troubleshooting and informational measurements with the IRD 880 equipment. The pump was taken out of service and rebuilt and the problem recurred. After further repair work the root cause was determined to be an internal pump pressure problem (not a bearing vibration problem) and subsequent repair resolved the problem.

b) Core Spray Pump (NI-ST-Q1)

The inspector reviewed the IST test results of 5/10/87, 8/12/87, 9/14/87 and 11/9/87. In the test of 8/12/87 topping pump #112 had a vibration reading in the alert range which placed the pump in an increased surveillance. The subsequent test and the next quarterly test had acceptable range vibration readings.

An evaluation determined there is a piping vibration problem induced by cavitation when utilizing the test loop. The cause appears to be isolation valve 40-05 or pressure control valve 81-85. Several recommendations were made: 1) perform surface examination of piping; 2) reduce flow rate to compensate for the test loop piping; and, 3) disassemble and inspect the valves. The inspector determined that item 1, the piping surface examination, was being performed and the course to be taken on items 2 and 3 are being evaluated.

Although the IST test criteria were met the resolution of the problem has to be addressed. The resident inspector will follow the licensee's disposition of this matter.

c) Emergency Service Water (N1-ST-Q13)

The inspector reviewed the test result of 5/12/87 where the differential pressure test results of pump 11 were in the action range. The licensee's evaluation dated 5/14/87 which analyzed the problem and concluded that the differential pressure acceptable, alert and required action ranges needed to be expanded was also reviewed by the inspector. It was evident that one of the data points that formed the licensee's basis for the acceptance reference value was higher than the initially assigned acceptance range value and caused the range to be extended. However, the inspector was concerned that the cause of the high pressure gauge fluctuations described in the evaluation which the licensee used as justification to expand the reference value range was not fully explored. The inspector also noted that the new differential pressure assigned ranges were not proportional to those in ASME Section XI Table IWP-3100-2. This item is unresolved pending licensee's evaluating the cause and corrective actions to eliminate pressure gauge fluctuations and the justification and assignment of the revised differential pressure range if needed (UNR 50-220/88-23-01).

3.5 Trending of Test Results

NMP-1

The licensee uses 10 CFR 50, Appendix J leak rate tests to test containment isolation valves. While AppendixJ leak test requirements are acceptable substitution for leak testing requirements of ASME Section IXI IWV-3421 through 3425, they do not adequately address IWV-3426 and 3427 requirements.

Due to the recent discussions with NRR, the licensee was made aware that the ASME Section XI requirements IWV-3426 and 3427. The inspector reviewed the licensee's leakage trending of March 24, 1988 for Raw Water Intertie Valves 93-64, 93-71, and 93-74. The licensee's charting and review was an effective hand system which projected the next scheduled leakage based on the past three leak tests. The inspector verified that the projections showed that these valves would not exceed the specified leakage limit, and corrective action would not be required.

NMP-2

This plant computerizes all the test inputs from the master hard copy test results. Recall of all test history and graphics for trends and charting of past results are programmed into the system whereby trending can be readily obtained. The inspector reviewed the High Pressure Core Spray Valve Operability Test History (relating to N2-OSP*CHS-Q001). There was only one valve failure and the failure was verified to be an operator error or system problem and not a valve problem. The use of computerized trending enhances the licensee's capability to quickly recognize problems.

3.6 Vibration Testing

NMP-1

This plant utilizes an IRD Model 306 vibration instrument for all pump testing except the Liquid Poison Pump. This is a relatively simple hand held probe type instrument which measures displacement. The readings are taken at a pink painted mark on the pump. Due to the slow speed of the Liquid Poison pumps, a more sophisticated instrument (IRD Model 880) is used and this testing is performed by I&C.

Operations personnel perform the testing with the IRD 306. Training in this instrument's use is an on-the-job method whereby new people are guided by experienced personnel and the instrument instruction book. There is no formal procedural guidance, however, the instrument and its instruction book are relatively simple and the operations personnel performing the tests have a high level of technical capability. The inspector was concerned because of the lack of formal guidance and independently audited an operator in the use of the IRD-306. The operator was found to be capable to use the instrument. The IST personnel and QA, audit the taking of vibration readings which also provides assurance of the correct use of the instrument.

3.7 QA Interface

The inspector discussed QA involvement with a licensee representative and determined that QA does perform IST surveillance audits at both plants. The audits subdivide pump and valve types so that each of the ASME Section XI test requirements are covered as surveillance attributes.

The inspector reviewed the NMP-1 audits 88-20296 for the testing of Core Spray Valves and the audit 88-20297 for the testing of No. 12 Emergency Service Water Pump. The valve audit had no unacceptable observations whereas, the pump audit identified two issues relating to bearing temperature measurements and lubrication level measurements. Each of these observations required a response from the IST department, which the inspector verified and found acceptable.

The inspector reviewed two NMP-2 audits, 88-10243 for the testing of Service Water Pump 2C and 88-10244 for the quarterly stroke testing of Containment Purge Valves. These two audits did not observe any adverse conditions.

3.8 Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations or deviations. An unresolved item is discussed in paragraph 3.4c of this report.

3.9 Exit Meeting

The inspector met with the licensee's representatives (identified in paragraph 1.0) at the conclusion of the inspection on June 17, 1988, to summarize the findings of this inspection. The NRC Resident Inspectors, were also in attendance.

During this inspection, the inspector did not provide any written material to the licensee. The licensee did not indicate that the inspection involved any proprietary information.