

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No.: 50-220/90-17

Docket No.: 50-220

License No.: DPR-63

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

Facility Name: Nine Mile Point Nuclear Station, Unit 1

Inspection At: Scriba, New York

Inspection Conducted: May 29 - June 13, 1990

Inspectors: *L. J. Wink* 6/26/90
L. J. Wink, Reactor Engineer Date

Approved by: *N. J. Blumberg* 6/28/90
N. J. Blumberg, Chief Date
Operations Program Section, DRS

Inspection Summary: Inspection on May 29 - June 13, 1990 (Inspection Report No. 50-220/90-17)

Areas Inspected: Routine, unannounced inspection by one region-based inspector of the overall restart Power Ascension Test Program (PATP) including test procedure reviews, test witnessing, test results evaluation, quality verification interfaces, engineering and technical support, and independent calculations and verifications.

Results: The licensee continues to display a deliberate, conservative approach to testing activities in preparation for restart. A sample of PATP test procedures were reviewed and found to be technically adequate and written in accordance with administrative requirements. The testing witnessed demonstrated that test and operations personnel were knowledgeable and proficient in the conduct of testing. Test results were adequately documented and reviewed. Significant site and corporate engineering support is being provided to support testing and resolve identified deficiencies. Quality assurance and self-assessment activities are being implemented as planned. No violations were identified.



Details

1.0 Persons Contacted

Niagara Mohawk Power Corporation

- D. Coleman, Unit Supervisor, Reactor Analyst
- * K. Dahlberg, Station Superintendent, NMP1
- S. Domago, Assistant Superintendent Operations
- * D. Helms, Restart Power Ascension Manager
- T. Howard, Station Shift Supervisor
- M. Masuicca, Assistant to Superintendent of Operations
- G. Montgomery, Technical Assistant to Station Superintendent
- T. Pao, General Electric Test Engineer
- R. Randall, Superintendent of Operations, NMP1
- K. Shay, QA Engineer, Operations Surveillance
- G. Shelling, Test Director
- M. Stancliffe, Station Shift Supervisor
- R. Swanson, Test Director
- R. Tessier, Outage Manager

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- * W. Cook, Senior Resident Inspector
- * R. Laura, Resident Inspector, NMP2
- R. Temps, Resident Inspector, NMP1

* Denotes those present at the exit meeting on June 13, 1990.

The inspector also contacted other members of the licensee's operations, technical and test staffs.

2.0 Overall Restart Power Ascension Test Program (PATP)

2.1 Scope

The inspector held discussions with the Power Ascension Manager (PAM) and attended the daily outage work planning meetings to assess the status of the restart effort and preparations for initial Power Ascension testing.

2.2 Findings

At the beginning of the inspection period preparations were underway for the performance of operations surveillance test N1-ST-R2, Loss of Coolant and Emergency Diesel Generator Simulated Automatic Initiation Test. This surveillance tests the response of the plant, emergency diesel generators and the essential power distribution system during a simulated accident condition and is a prerequisite



for the performance of the PATP Loss of Power Test. The performance of this test identified several minor equipment problems and identified a concern involving the stability of the Motor-Generator (M-G) sets supplying power to the Reactor Protection System (RPS) instrument and control buses (see section 4.0). The licensee elected to implement a modification to the control logic of the battery-changer M-G sets #161 and #171 to address this concern. The implementation of this modification and the unrelated replacement of the Control Rod Drive (CRD) Pump #12 prevented the successful completion of this surveillance during the inspection period.

Delays were also experienced in the completion of feedwater system testing. During the performance of special test procedure N1-STP-12, Feedwater Pump 11 Operational Test, problems were experienced with high motor current on FW pump #11 and pressure pulsations in the minimum flow recirculation lines (see section 4.0). The licensee halted testing and established a task force to review all recent experience with the feedwater system and to develop a plan to diagnose and correct these problems. These efforts were underway at the conclusion of the inspection.

The inspector concluded that a deliberate, conservative approach is being taken to the identification and resolution of problems. The daily outage work planning meetings were effective in identifying work priorities to resolve identified problems and in assigning appropriate resources to their resolution.

3.0 Restart PATP Test Procedure Review

3.1 Scope

The inspector reviewed the test procedures developed for the restart PATP to ensure conformance with the requirements and guidelines of the references listed in Attachment A and to verify the following attributes:

- Appropriate management reviews and approvals have been accomplished
- Appropriate committee reviews have been accomplished
- Test procedures are in the proper format
- Test objectives are clearly stated
- Appropriate references are listed
- Appropriate prerequisites and precautions have been included
- Initial test conditions are specified



- Acceptance criteria are clearly stated
- Provisions have been made to identify test equipment to be used
- Provisions have been made to identify personnel performing the test
- The test procedure is technically adequate and workable
- Temporary jumpers, installations and lifted leads will be properly restored by the procedure
- Provisions have been made for recording, evaluating and approving test data
- Provisions have been made to identify test deficiencies and exceptions and to document their resolutions

3.2 Findings

The PATP test procedures listed in Attachment B were reviewed by the inspector and found to conform with the requirements and guidelines of the references listed in Attachment A and to possess the attributes listed above. The inspector also reviewed operations surveillance test N1-ST-R1, Control Rod Scram Insertion Time Test, to ensure that the procedure was technically adequate and in conformance with Technical Specifications.

The inspector attended Station Operations Review Committee (SORC) meetings on May 29 and June 12 at which PATP test procedures were reviewed and approved. During the SORC meeting on June 12, Safety Evaluation 90-024, Main Turbine-Generator Rotor System Torsional Screening Test (N1-PAT-12-1), was reviewed to ensure that the performance of this test did not involve an unreviewed safety question under the provisions of 10 CFR 50.59. The inspector determined that reviews of the PATP test procedures and the safety evaluation for the Torsional Screening Test were appropriate and comprehensive and in conformance with Technical Specification requirements.

At the conclusion of the inspection, 15 of the 22 test procedures needed for the PATP had been issued. Of the test procedures required for the first phase of testing, 8 of 9 have been issued.

4.0 Restart Test Witnessing

4.1. Scope

The inspector witnessed portions of the tests discussed below to ensure conformance with the requirements and guidelines of the references listed in Attachment A and to verify the following attributes:



- The current, approved revision of the test procedure is available and in use by all participants
- The minimum shift crew requirements, as defined in the approved procedure and Technical Specifications, are being met
- Required prerequisites and initial conditions are established
- Test equipment is calibrated and operated in accordance with procedure
- The procedure is technically adequate and appropriate to the circumstances
- Crew performance is correct and timely
- Coordination of test related activities is adequate
- A preliminary analysis of all data collected is expeditiously performed following completion of the test
- The test is performed in accordance with all administrative requirements

4.2 Findings

N1-ST-R2, Loss of Coolant and Emergency Diesel Generator Simulated Automatic Initiation Test

This test was performed on May 30, 1990. The inspector attended the pre-test briefings conducted by the Test Director (a Senior Licensed Operator) and the Superintendent of Operations. The inspector witnessed the performance of prerequisites and the alignment of equipment to support testing. During the performance of simulated LOCA portion of the test (Section 8.13), the inspector independently verified expected equipment response including valve isolations, core and containment spray pump starts and receipt of alarms and annunciators.

Several minor equipment problems were noted. One isolation valve (201.7-11) had double indication, indicative of a limit switch problem, but was visually verified to be shut. A second valve, Shutdown Cooling Isolation Valve 12 (38-02), failed to close and could not be closed from the control room (this was an acceptance criteria failure). A walkdown of the Core Spray System identified a leak in a small seal cooler line which required the shutdown and isolation of the #112 Core Spray Pump. Test personnel identified all these problems and generated work requests to investigate and correct them.



The Test Director and Station Shift Supervisor, in consultation with the Superintendent of Operations, elected to continue the test and verify the proper operation of the emergency diesel generators and essential power distribution system even though, with Core Spray Pump #112 isolated, all acceptance criteria would not be able to be verified. This decision allowed for the identification of a problem with the stability of the RPS MG Sets during restoration of the battery charger MG Sets to the EDG supplied power boards. The inspector views the decision to continue testing as prudent, in that it allowed problems to be expeditiously identified and corrected.

During the portion of the test witnessed by the inspector, crew performance was judged to be good and the performance of the test was in conformance with the requirements and guidelines of the references listed in Attachment A and possessed the attributes listed above. The inspector noted, however, that the smooth performance of the test was hindered by the need to make several procedural changes. While the changes were minor in scope, better reviews during procedural development could have found and corrected these flaws. This concern for procedural adequacy was independently identified by the licensee's quality assurance organization and is being addressed through their open item tracking system.

N1-STP-12, Feedwater Pump 11 Operating Test

This test was performed on June 7 and June 8, 1990. The inspector attended the pre-test briefing on June 7th and the briefing prior to the resumption of testing on June 8th. The briefings were conducted by the Test Director (Feedwater System Engineer) and the Assistant Superintendent of Operations. The inspector witnessed the performance of prerequisites and performed a walkdown of the system to verify alignment and observe test equipment installation.

On June 8th, during the first attempt to start Feedwater Pump 11 on minimum flow recirculation, the Control Room Operator noted increasing motor amps and, in accordance with procedural requirements, tripped the pump when the current exceeded 350 amps. The test was placed on hold and an evaluation was performed. With the concurrence of the Station Superintendent and corporate engineering personnel, a change was made to the test procedure which would restrict the opening of the 6 inch minimum flow recirculation valve to approximately 30% during the start of the FW Pump to prevent the possibility of pump runout causing the observed high current readings. With this change in place, a second attempt was made to place Feedwater Pump 11 in service. On this second attempt, motor current was acceptable but the Control Room Operator tripped the pump upon notification of excessive vibration of the 6 inch minimum flow line. A subsequent walkdown revealed no damage to this line. Further testing was cancelled and a task force was created to examine all recent experience and problems with the Feedwater System and to recommend a course of action to diagnose and correct these problems.



During the test, crew performance was judged to be excellent with Operations personnel maintaining strict control over the test environment and taking swift corrective actions when problems were encountered. The performance of the test was in conformance with the requirements and guidelines of the references listed in Attachment A and possessed the attributes listed above. The inspector noted, however, that the test briefings were less than fully effective in that personnel were not assigned specific responsibilities prior to the integrated briefing and that the Test Director did not take into account the diverse backgrounds and training of personnel when conducting the briefings. This concern for test briefing effectiveness was independently identified by the licensee's quality assurance organization and is being addressed through their open item tracking system.

5.0 Restart Test Results Evaluation

5.1 Scope

The inspector reviewed the test results discussed below to ensure conformance with the requirements and guidelines of the reference listed in Attachment A and to verify the following attributes:

- The test was performed in accordance with a current, approved procedure
- Test changes were approved in accordance with administrative procedures
- Test changes were annotated in the procedure and completed, as appropriate
- The basic objectives of the test were met
- Test results were evaluated against established acceptance criteria
- Test deficiencies were documented, as required
- Test deficiencies were resolved, accepted by management and, as required, retests completed
- System or process changes necessitated by test deficiencies were properly documented and reviewed
- Test deficiencies which constitute reportable occurrences were properly reported
- An engineering evaluation of test data was performed, as required
- Test results were reviewed by QA or other independent organization, as required



- Test results were approved and accepted by appropriate management

5.2 Findings

The inspector reviewed the test results for N1-RPSTP-7, In Sequence Shutdown Margin Test, performed on May 14, 1990. An independent calculation of the shutdown margin was performed by the inspector to confirm that the Technical Specification requirements were satisfied. The calculations verified that adequate shutdown margin would be available throughout Cycle 10. The test results were found to conform with the requirements and guidelines of the references listed in Attachment A and to possess the attributes listed above.

6.0 Quality Verification Activities

During the witnessing of testing discussed in Section 4.0, the inspector noted that QA engineers were performing surveillances of operations and testing activities. During the preparation and conduct of the feedwater system testing the inspector noted management personnel implementing self-assessment activities in accordance with Restart Action Plan Underlying Root Cause #4 (lack of self-assessment).

The inspector reviewed QA Surveillance Report No. 90-10149, Observations of N1-ST-R2:LOCA and Emergency Diesel Generator Simulated Auto Initiation Test. The observations and recommendations included in this report were consistent with the inspector's findings discussed in Section 4.2.

7.0 Engineering and Technical Support

The inspector observed adequate engineering and technical support for testing activities. During the feedwater system testing, the site System Engineer for feedwater was assigned as Test Director. Additional corporate engineering personnel were on-site during testing and appropriately included in the testing activities and problem resolution. Following the problems discussed in Section 4.0, a corporate engineer, with senior licensed operator experience at Unit 1, was assigned as the task manager.

8.0 Independent Calculations and Verifications

During the witnessing of testing discussed in Section 4.0, the inspector made multiple observations of valve actuations, pump starts and receipt of alarms to verify expected responses to testing. During the review of test results discussed in Section 5.0, the inspector performed an independent calculation of shutdown margin.

The inspector's calculations and verifications agreed with those made by the licensee.



9.0 Exit Interview

On June 13, 1990, an exit meeting was held with licensee personnel (identified in Section 1.0) to discuss the inspection scope, findings and observations as detailed in this report. At no time during the inspection was written material provided to the licensee by the inspector. Based on the NRC, Region I review of this report and discussions held with licensee representatives during the inspection, it was determined that this report does not contain information subject to 10 CFR 2.790 restrictions.



ATTACHMENT A

References

- Regulatory Guide 1.68, Revision 2, August 1978, "Initial Test Programs for Water-Cooled Nuclear Power Plants"
- ANSI N18.7-1972, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants"
- Nine Mile Point Unit 1 Technical Specifications
- Nine Mile Point Unit 1 Final Safety Analysis Report



ATTACHMENT B

PATP and Surveillance Test Procedures Reviewed

N1-PAT-9-1 Water Level Measurements, Revision 0, issued May 30, 1990

N1-PAT-9-3 Water Level Measurements, Revision 0, issued May 30, 1990

N1-PAT-10-1 Loss of Off-Site Power, Revision 0, issued May 29, 1990

N1-PAT-12-1 Main Turbine-Generator Rotor System Torsional Screening Test, Draft, approved by SORC June 12, 1990

N1-ST-R1 Control Rod Scram Insertion Time Test, Revision 9, issued June 12, 1990



POST INSPECTION SALP DATA SHEET

1. Facility: NMP Unit 1
2. Inspector: Wink
3. Docket No./Report No.: 50-220/90-17
4. Inspection Dates: 5/29-6/13/90
5. Functional Area: Surveillance
6. Category Rating (1,2 or 3): 2
7. Inspection Hours For This Functional Area: 68 hrs.
8. Prepare a completed, typed, SALP Input. Start in the space below and continue on a separate sheet if necessary:

The licensee displays a deliberate, conservative approach to testing activities in preparation for restart. Management personnel are assigned to support particular test activities and are available full-time during test performance. Engineering support for testing is adequate. Operations is particularly effective in the control of test activities. Quality verification activities are conspicuous and the assign personnel are generally knowledgeable and provide substantive critiques of activities.

9. Submitted by Inspector (Sign/date): _____
10. Approved by DRS Section Chief.
(Sign/date) _____

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DRP Section Chief for the Reactor Inspected
Sr. Resident Inspector

