

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-410/87-26

Docket No. 50-410

License No. NPF-69

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

Facility Name: Nine Mile Point Nuclear Station, Union 2

Inspection At: Scriba, New York

Inspection Conducted: July 6-10, 1987

Inspectors:

M. Evans, Reactor Engineer, DRS

8/6/87
date

Approved by:

P. Eselgroth, Chief, Test Programs Section
Operations Branch, DRS

8/11/87
date

Inspection Summary: Inspection on July 6-10, 1987 (Report No. 50-410/87-26)

Areas Inspected: Routine, unannounced inspection by one region based inspector of overall power ascension test program, power ascension test witnessing, power ascension test results evaluation, surveillance test witnessing, QA/QC interfaces with power ascension test program and independent calculations and verifications.

Results: No violations were identified.

NOTE: For acronyms not defined, refer to NUREG-0544, "Handbook of Acronyms and Initialisms".



DETAILS

1.0 Persons Contacted

Niagara Mohawk Power Corporation

- *C. Beckham, Manager, Quality Assurance Operations
- R. Bodily, Shift Test Supervisor
- G. Carlisle, Lead STD&A Engineer
- *J. Conway, Power Ascension Manager
- J. Harris, Shift Test Supervisor
- M. Jones, Operations Superintendent
- T. Pao, Shift Test Supervisor
- *T. Perkins, General Superintendent
- *A. Pinter, Site Licensing Engineer

U.S. Nuclear Regulatory Commission (NRC)

- *W. Cook, Senior Resident Inspector
- C. Marshall, Resident Inspector
- W. Schmidt, Resident Inspector

*Denotes those present at the exit meeting on July 10, 1987.

The inspector also contacted other members of the licensee's technical, QA and Operations staff.

2.0 Power Ascension Test Program (PATP)

2.1 References

- Regulatory Guide 1.68, Revision 2, August 1978 "Initial Test Program for Water Cooled Nuclear Power Plants."
- ANSI N18.7-1976 "Administrative Controls and Quality Assurance for Operations Phase of Nuclear Power Plants."
- Nine Mile Point Unit 2 (NMP-2) Technical Specifications, July 2, 1987.
- Nine Mile Point Unit 2 Final Safety Analysis Report (FSAR) Chapter 14 "Initial Test Program."
- Nine Mile Point Unit 2 Safety Evaluation Report.
- Nine Mile Point Unit 2 AP-1.4, Startup Test Phase, Revision 3.



2.2 Overall Power Ascension Test Program

The inspector held discussions with the Power Ascension Manager (PAM), the Lead Startup, Design and Analysis (STD&A) engineer and other members of the PATP staff to assess the status of low power testing, the test results evaluation process and the preparation and approval of the remaining test procedures. The inspector attended daily power ascension management meetings and two Station Operation's Review Committee (SORC) meetings.

At the beginning of the inspection period, the plant was operating at rated temperature and pressure. During the inspection, several power ascension testing activities were completed including MSIV functional testing, single rod scram time testing for sequence "A" control rods and testing to determine no temperature stratification present with only one recirculation pump in operation. In the area of test results evaluation, 13 of the 19 test condition heat up procedures had been approved by the SORC. Of the remaining six test procedures to be approved, procedures for RCIC (N2-SUT-14-HU) and Process Temperatures (N2-SUT-16-HU) were in the review cycle; the return to ambient conditions for BOP Expansion (N2-SUT-78-HU) and testing of the suppression pool cooling mode of RHR (N2-SUT-71-HU) were being deferred to Test Condition-1; a safety evaluation had been approved by the SORC to defer RWCU testing (N2-SUT-70-HU) to Test Condition-2; and testing of the Offgas System (N2-SUT-74-HU) was on hold pending system operability.

2.3 Power Ascension Test Witnessing

Scope

The inspector witnessed the performance of the power ascension test discussed below. The performance of this test was witnessed to verify the attributes previously defined in Inspection Report No. 50-410/86-64, Section 2.3.

Discussion

N2-SUT-5-HU, Control Rod Drive System

This startup test includes scram time testing of all control rods at rated temperature and pressure. Scram times for "B" sequence control rods were previously determined during a planned scram on June 27, 1987.

During this inspection, the licensee determined scram times for control rods in the "A" sequence by performing individual scram time testing.



The inspector observed the scram tests performed on control rods 58-31, 50-23, 42-23, 34-23, 54-19 and 46-19. The inspector witnessed testing activities in the control room and the reactor building. The overall test crew performance and interface with operations personnel were satisfactory. The inspector observed the shift briefing prior to testing, pre-scram data taking, initiation of testing for each rod and data reduction following the testing of each rod. The test results were well within acceptance criteria limits.

Findings

No deficiencies were identified.

2.4 Power Ascension Test Results Evaluation

Scope

The power ascension test results listed in Attachment A were evaluated for the attributes identified in Inspection Report 50-410/86-64, Section 2.1.

Discussion

The test results listed in Attachment A and annotated by an asterisk (*) had been previously reviewed and evaluated for technical adequacy (see Inspection Reports 50-410/87-17, 87-21 and 87-23). During this inspection the evaluation focused on administrative adequacy and the licensee's review and approval process including quality assurance review and formal management acceptance of the test results. For all other tests listed in Attachment A, the inspector conducted a thorough review of the test results discussed below.

N2-SUT-01-HU, Chemical and Radiochemical

Reactor water chemistry was within technical specification limits and is summarized below:

<u>Parameter</u>	<u>Measured</u>	<u>Limit</u>
Conductivity (μ MHO/cm)	.263	≤ 1
Chlorides (ppm)	<.01	.1
pH	6.8	5.6-8.6

All acceptance criteria were satisfied. One test exception not related to acceptance criteria was identified and properly dispositioned.



N2-SUT-05-HU, Control Rod Drive System

Portions of this procedure were reviewed during two previous inspections (50-410/87-21 and 87-23). During this inspection, the inspector reviewed the scram time measurements made for all control rods at 955 psig reactor pressure. All control rods individually satisfied the mean scram time criteria.

N2-SUT-10-HU, IRM Performance

IRM scram setpoints and IRM continuity when switching from the low frequency amplifier (Ranges 1-6) to the high frequency amplifier (Ranges 7-10) were verified. All acceptance criteria were satisfied.

N2-SUT-13-HU, Process Computer

There were no acceptance criteria for this procedure. The test verified traversing incore probe alignment while in the heatup condition.

N2-SUT-17-HU, System Expansion

This test involved the remote measurement of the thermal displacement of the recirculation system piping from cold shutdown to rated conditions. The measured displacements were compared against acceptance criterion: Level 1 - allowable expansion limits and Level 2 - expected expansion. Results obtained during the initial and subsequent plant Heat up were reviewed in a previous inspection report (50-410/87-23). During this inspection, the results of the third plant heat up were reviewed. One Level 2 test exception was identified for eight points exceeding their expected displacement. The data was transmitted to General Electric Engineering which recommended the results be accepted "as-is", since the eight points were a confirmation of data obtained during the initial heatup.

N2-SUT-25-HU, Main Steam Isolation Valves (MSIV)

In this procedure, individual fast closure of each MSIV was performed to verify their functional performance and to determine closure times. The inspector performed independent calculations of four MSIV stroke times based on recorded data. For those calculations performed, the acceptance criteria of 3 to 5 seconds were satisfied.

N2-SUT-75-HU, Drywell Cooling System

This test verified the capability of the drywell atmosphere cooling system to maintain primary containment environment within design limits during operating conditions. Two level 2 exceptions were generated for 1) two drywell maximum air temperatures exceeding



150°F; and 2) three reactor pressure vessel skirt area temperatures not exceeding 100°F with the reactor at normal operating temperatures (528-544°F). Both test exceptions were accepted "as-is" and a work request was generated to make flow balance adjustments at the next unit outage. All other acceptance criteria were satisfied. Three test exceptions not related to acceptance criteria were identified and dispositioned properly.

N2-SUT-81-HU, Penetration Cooling

The purpose of this test was to demonstrate the capability of the drywell penetrations to maintain the surrounding concrete below design temperatures. The inspector verified that all acceptance criteria were satisfied.

Findings

All test results reviewed were found to be acceptable.

3.0 Surveillance Test Witnessing

On July 9, 1987, the inspector witnessed Reactor Core Isolation Cooling System (RCIC) vessel injections per surveillance procedure N2-IMP-ICS-@010, "RCIC Tune-up Procedure". Operations established RCIC flow at approximately 600 gpm with the controller in AUTO and performed decreasing and increasing 5% flow step changes by changing the flow controller setpoint rapidly. At approximately 360 gpm, 5% and 10% flow step changes were performed. These flow steps were recorded using GETARS and an evaluation of the RCIC control system tuning status was performed. No adjustments were determined to be necessary.

Prior to initiation of testing, the inspector attended the shift briefing and noted that operations and test personnel planned and coordinated the testing activities well. During the testing, operations personnel monitored several plant parameters including reactor water level and pressure, bypass valve position and reactor power. Shift supervisory personnel effectively controlled the conduct of testing.

Findings

No unacceptable conditions were identified.

4.0 QA/QC Interfaces with the PATP

The inspector reviewed four Quality Assurance surveillance reports during this inspection. Two reports cover the test results review of startup tests N2-SUT-81-HU, Drywell Penetrations and N2-SUT-75-HU, Drywell Cooling System. The other two reports document the ongoing activity associated with startup tests N2-SUT-05-HU, Control Rod Drive System and



N2-SUT-14-HU, Reactor Core Isolation Cooling which have not been completed. The inspector verified that each QA surveillance report included checklists which detailed critical attributes to be monitored. In addition, the two reports documenting ongoing activities also included Surveillance Plans which detailed critical attributes to be monitored specific to the test being performed. All QA inspector concerns identified were adequately resolved.

The inspector also observed QA surveillance coverage of the testing activities discussed in paragraphs 2.3 and 3.0.

Findings

No unacceptable conditions were identified.

5.0 Independent Calculations and Verifications

The inspector independently verified the results of the power ascension tests listed in attachment A and discussed in paragraph 2.4, including independent calculation of MSIV stroke times based on recorded data. No discrepancies were identified.

6.0 Exit Interview

At the conclusion of the inspection on July 10, 1987, 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 as 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

Power Ascension Test Results Evaluated

N2-SUT-01-HU	Chemical and Radiochemical - Heat Up Testing, Revision 1, results accepted July 2, 1987.
N2-SUT-02-HU	Radiation Measurements - Heatup, Revision 1, results accepted July 7, 1987.
*N2-SUT-04-HU	Full Core Shutdown Margin, Revision 1, results accepted June 30, 1987.
N2-SUT-05-HU	Control Rod Drive System, Revision 2, results accepted July 9, 1987.
*N2-SUT-06-HU	SRM performance, Revision 3, results accepted June 30, 1984.
N2-SUT-10-HU	JRM Performance - Heatup, Revision 3, results accepted June 30, 1987.
*N2-SUT-12-HU	APRM Calibration - Heatup, revision 2, results accepted June 30, 1987.
N2-SUT-25-HU	Main Steam Isolation Valves - Heatup, results accepted July 9, 1987
N2-SUT-75-HU	Drywell Cooling System, Revision 1, results accepted July 2, 1987.
N2-SUT-81-HU	Penetration Cooling - Heatup, Revision 1, results accepted, June 30, 1987

