

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-410/86-38

Docket No. 50-410

License No. CPPR-112 Category B

Licensee: Niagara Mohawk Power Corporation

200 Erie Boulevard West

Syracuse, New York 13202

Facility Name: Nine Mile Point Nuclear Station, Unit 2

Inspection At: Scriba, New York

Inspection Conducted: July 14-24, 1986

Inspectors:

D. Florek
D. Florek, Lead Reactor Engineer

8/7/86
date

M. Evans
M. Evans, Reactor Engineer

8/7/86
date

E. Vanterpool
E. Vanterpool, Summer Intern

8/7/86
date

Approved by:

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

8/7/86
date

Inspection Summary: Inspection on July 14-24, 1986 (Inspection Report No. 50-410/86-38)

Areas Inspected: Routine unannounced inspection by two region based inspectors and a summer intern of licensee action on previous inspection findings, preoperational test results evaluation review, the power ascension test program including the overall program and test procedure review; QA/QC interfaces; independent measurements and verification, and facility tours and meetings.

Results: No violations were identified.

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

DETAILS

1.0 Persons Contacted

Niagara Mohawk Power Corporation

- R. Abbott, Station Superintendent, NMPC
- S. Agarival, Senior Licensing Engineer
- G. Carlisle, Lead STD and A Engineer, GE
- *J. Conway, Power Ascension Manager, NMPC
- # J. Drake, Startup Special Projects Supervisor (SWEC)
- # W. Hansen, Manager, Nuclear Quality Assurance (QA) Operations
- J. Halusic, System Test Engineer
- # T. Lee, Special Projects
- J. McKenzie, Quality Surveillance Supervisor
- L. Ringlespaugh, Test Coordinator
- J. Robles, GE Site Operations Manager, GE
- *I. Weakley, Special Projects, NMPC
- *P. Wiede, Supervisor, Surveillance QA

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- #*W. Cook, Senior Resident Inspector

*Denotes those present at interim exit held on July 18, 1986.

#Denotes those present at the final exit on July 24, 1986.

2.0 Licensee Actions on Previous Inspection Findings

(Closed) Construction Deficiency Report (410/86-00-03) Failure of RPS trip on high thermal power. Based on review of Engineering and Design Coordinator Report (E&DCR) No. C46438, Field Deviation Disposition Request (FDDR) No. K61-4895, and letter GE to Stone and Webster dated April 24, 1986, the inspector concurred with the licensee that the item was not reportable under 10 CFR 50.55(e). This item is closed.

(Closed) Unresolved Item (410/86-20-01) Licensee to resolve three open test deficiencies concerning preoperational test procedure N2-POT-32, Low Pressure Core Spray. The inspector reviewed deficiency reports (DR's) 13885, 13615 and 11203 and noted that appropriate corrective actions, retests and Quality Control Inspections had been accomplished. Also the inspector verified that DR 13885 received Joint Test Group (JTG) approval as required. This item is closed.

(Closed) Unresolved Item (410/86-29-04) Three Mile Island (TMI) Action Plan Task No. II.K.3.21, Restart of Core Spray and Low Pressure Coolant Injection System. The licensee committed to modify the High Pressure Core Spray (HPCS) actuation logic to include an automatic restart capability. The HPCS pump will auto-restart on low reactor vessel water level if the pump has been stopped manually. The inspector discussed the HPCS auto-restart actuation logic with a licensee representative and reviewed appropriate General Electric (GE) Elementary Drawings. The inspector reviewed the results of preliminary test procedure EE.GENE.006, Control Circuit Verification, Revision 5, to verify proper testing of the HPCS relay logic. The inspector also reviewed the results of Sections 4.12 and 4.13 of pre-operational test procedure N2-POT-33, High Pressure Core Spray, Revision 1 and verified that proper system operation had been demonstrated. This item is closed.

(Closed) Unresolved Item (410/85-25-03) Licensee to identify the preoperational test procedures (POT) in which compliance to three diesel generator preoperational test requirements is demonstrated. The inspector reviewed test procedure N2-POT-300, Loss of Offsite Power/ECCS, Revision 1 and verified that the redundant diesel generators are started simultaneously during the reliability demonstration to identify potential common mode failures. The inspector reviewed field revision form (FRF) #1 to preliminary test procedure MD.0100.A04, Standby Diesel Generator Air Start Capacity Test, Revision 0, and verified that the preliminary procedure had been revised to demonstrate the diesel air start system capacity for five consecutive starts (instead of two) to rated speed and voltage within ten seconds. Also, the inspector reviewed a log, compiled by the licensee, of diesel generator starts subsequent to completion of the diesel generator reliability demonstration. The inspector noted that periodic diesel generator testing was being accomplished as required. This item is closed.

(Open) Unresolved Item (50-410/86-27-01) Licensee to include a list of deficiencies, the status of the deficiencies, and the supporting closure documentation in all preoperational test packages. During Inspection 50-410/86-33, the inspector noted several deficiency reports (DRs) and problem reports (PRs) which were not properly annotated as Joint Test Group (JTG) open action items on the licensee's Master Tracking System (MTS). Subsequent to that inspection, the licensee audited its tracking system, and identified several more discrepancies. The inspector discussed this with a licensee representative who stated that the tracking system will be audited weekly in order to assure that JTG open action items are properly tracked.

In addition, the inspector reviewed the preoperational test package for POT-100-A1 (previously reviewed in Inspection 50-410/86-33) and noted that supporting closure documentation for three recently closed DRs and one PR was included in the test package. This item will remain open pending additional review of approved preoperational test result packages.

3.0 Preoperational Test Results Evaluation Review

3.1 Scope

The completed test procedures listed below were reviewed during this inspection to verify that adequate testing had been conducted to satisfy regulatory guidance, licensee commitments and FSAR requirements and to verify that uniform criteria were being applied for evaluation of completed test results in order to assure technical and administrative adequacy.

3.2 Discussion

The inspector reviewed the test results and verified the licensee's evaluation of test results by review of test changes, test exceptions, test deficiencies, "As-Run" copy of the test procedure, acceptance criteria, performance verification, recording conduct of test, QC inspection records, restoration of system to normal after test, independent verification of critical steps or parameters, identification of personnel conducting and evaluating test data, and verification that the test results have been approved.

- N2-POT-97, Reactor Protection System (RPS), Revision 1, Station Operations Review Committee (SORC) approved on June 26, 1986.
- N2-POT-92.3, Power Range Monitoring System, Revision 1, SORC approved on May 23, 1986. (Inspector only reviewed sections relating to RPS.)

3.3 Findings

No violations were observed. One open test deficiency, DR #19649, concerning N2-POT-97 will be carried as an unresolved item (410/86-38-01) pending licensee resolution and subsequent NRC review.

4.0 Power Ascension Test Program

4.1 References

- o Regulatory Guide 1.68, Revision 2, August 1978 "Initial Test Programs for Water-Cooled Nuclear Power Plants"
- o ANSI N18.7-1976 "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants"
- o Nine Mile Point Unit 2 (NMP-2) Technical Specifications Final Draft June 25, 1986
- o NMP-2 Final Safety Analysis Report (FSAR), Chapter 14 "Initial Test Program"

- NMP-2 Safety Evaluation Report

4.2 Overall Power Ascension Test Program Administration

4.2.1 Scope

The inspector reviewed the following procedures:

- AP-1.4, "Startup Test Phase", Revision 1 draft, dated May 1986
- AP-8.7, "Power Ascension Test Procedures", Draft copy dated April 1986
- AP-2, "Production and Control of Procedures", Revision 5, dated June 1986.

The inspector discussed with the Power Ascension Manager (PAM) the approaches taken to assure adequate implementation of the power ascension program. Training and staffing were also discussed. The inspector reviewed the administrative procedures to determine whether adequate controls exist to assure that test procedures are current prior to use, test personnel are knowledgeable, controls exist for test procedure changes, interruptions in test are controlled, proper test coordination, documentation of unusual events and test deficiencies, test results are reviewed, test acceptance criteria are defined, re-test after test deficiencies and appropriate review.

The inspector also held discussions with the Supervisor QA Surveillance to determine their plans for the power ascension test program.

4.2.2 Discussion

Inspector review of the procedures identified the following items which the licensee representative agreed to include in the administrative procedures.

- Clarifying test exception tracking and control for those test exceptions which may carry over into a subsequent test plateau.
- NRC approvals for changes to the Power Ascension program need not be more restrictive than required by the operating license.
- Methodology to assure that test procedure changes are approved prior to or concurrent with approval of test results.

- Station Operations Review Committee (SORC) review of resolution to exceptions to Level 1 acceptance criteria prior to release of the plant test HOLD condition.

With the addition of the above items, the inspector had no further questions regarding the administrative controls. These will also be reviewed in a subsequent inspection when the procedures are finalized.

The Power Ascension Manager (PAM) described the organization to implement the power ascension test program (PATP). The licensee will utilize 5 shifts during the program with a mixture of GE, S&W and NMPC personnel as test engineers. Staffing levels are established. Four key shift test supervisors are on site with one to arrive within a few weeks.

Training for station personnel is in progress. Three levels of training are planned. Administrative Procedure Training for Normal Station personnel will soon commence. Overall PATP training for operators, reactor analysts, QA personnel and test engineers has started and will continue. Detailed Test Engineer Training is also being developed and will be provided prior to beginning a test condition throughout the program. Whereas the detailed training material was not reviewed by the inspector, the overall approach was considered acceptable.

Discussions with the Supervisor Surveillance QA indicated that QA will review all test procedures, perform surveillance activities of selected tests and review all completed test results. Checklists are being developed.

4.2.3 Findings

No violations were identified.

4.3 Power Ascension Test Program Procedure Review

4.3.1 Scope

The procedures of Appendix A were reviewed to determine the degree of compliance with the following attributes:

- Appropriate management review and approval has been accomplished.
- Appropriate committee review has been accomplished.
- Procedure is in the proper format.
- Test objectives are clearly stated and consistent with the FSAR.

- 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 utilized.
- Provisions have been made to identify personnel performing the test.
- The procedure is technically adequate and workable.
- 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.

4.3.2 Discussion

Based on questions from the inspector, the licensee representative agreed to include the following in the appropriate procedures:

- N2-SUT-1-OV Limits for conductivity and chlorides should be consistent throughout the procedure.
- N2-SUT-3-OV Inspector reviewed the draft copy plus comments identified by the licensee reviewers. Licensee comments will resolve inspector questions.
- N2-SUT-5-OV Test criteria for friction settling limits was not consistent in procedures N2-SUT-5-OV and reference procedure N2-IMP-CRD-2.0.
- N2-SUT-6-HU Source range monitor (SRM) trip setpoint should be lowered until completion of non-saturation test. Specify Operability of all SRM's for initial criticality. Define "on-scale" for SRM/IRM overlap. Use individual SRM normalizations versus average SRM normalization for SRM/IRM overlap. Clarify that satisfactory completion of shutdown margin test in addition to the SRM/IRM overlap and SRM nonsaturation testing is required prior to installation of the shorting links.
- N2-SUT-12-HU The range of plant conditions that the methodology used to perform the calibration is applicable should be specified. Clarify that actual APRM gain adjustments should occur at a constant power level.

- N2-SUT-16-HU Clarify where the shutdown level range check is performed. Licensee will provide the analysis regarding level variation as a function of reactor building temperature variation.
- N2-SUT-17-HU Clarify when the analysis steps are performed, at the intermediate temperatures or at rated temperature. Resolve potential inconsistency with the Section 8.0 Note and the analysis step for Level 1 Acceptance criteria on interpretation of tests data.
- N2-SUT-75-HU Specify applicable temperature limits for the undervessel area.

Not all procedures of Attachment A were issued however, the review process was essentially completed for all. Based on the items generated by the inspector review, the inspector was concerned on the adequacy of the licensee review process.

The licensee recognized that they had inconsistencies with startup test procedures and had established a followup review of all revision 0 issued procedures to verify that the procedures were compatible with plant procedures, correct and workable. In addition, the licensee had planned to utilize the procedures on the plant simulator as part of the training program. Based on the licensee pre-established plans to conduct a followup review of the startup procedures and use of the simulator the inspector will consider the adequacy of the licensee startup procedure review process unresolved pending implementation and effectiveness of the followup review (50-410/86-38-02).

4.3.3 Findings

No violations were identified.

5.0 QA/QC Interfaces

5.1 Power Ascension Test Program

The QA plans for the power ascension test program are discussed in Section 4.1. QA signatures were noted in the issued power ascension test procedures.

5.2 Preoperational Test Program

The inspector reviewed several recent Nuclear Quality Assurance Surveillance Reports (QASR) regarding different activities of the licensee's startup department. The following QASR's were reviewed:

- QASR 86-10569, surveillance of troubleshooting of Main Steam Isolation Valve (MSIV) #7A, completed on July 16, 1986. During performance of preoperational test N2-POT-1, Main and Auxiliary Steam System, Revision 1, the eight MSIV's were tested for fast closure (3 to 5 seconds) on an emergency trip. Seven of the MSIV's performed satisfactorily. However, the closing time for MSIV #7A was greater than ten seconds. The QA inspector witnessed the troubleshooting of the MSIV performed by the Startup and Test (SU&T) departments. SU&T concluded that excess fluid in the MSIV's hydraulic system was causing the greater than acceptable valve closure times. SU&T removed the excess fluid and retested the MSIV. The valve closed within the specified time on each of three retests. The QA inspector noted that the system test engineer appropriately documented the MSIV troubleshooting and retesting in the test summary of the procedure.
- QASR 86-10574, surveillance of retesting of portions of preoperational test N2-POT-1, Service Water System, performed on July 9, 1986. Retesting of several annunciators was conducted under deficiency report (IR) 17024. The QA inspector noted that all retesting was performed satisfactorily.

In addition to the above, the inspector reviewed the resolution of QASR 86-10519, which was initially reviewed during Inspection 50-410/86-31, and discussed the resolution with a licensee QA representative. The QASR identified changes made to preoperational test (POT) packages after Joint Test Group (JTG) approval of the completed procedure. The corrective action implemented was the transmittal to QA, for review and comment, copies of all documents to be added to POT packages and the JTG review of all documents added to POT packages.

5.3 Findings

No violations were identified within the scope of the above review.

6.0 Independent Measurements and Verifications

During the power ascension test procedure review, the inspector verified adequacy and consistency among procedures. The results of the review are discussed in Section 4.3.

7.0 Facility Tours and Meetings

7.1 Tours

The inspector made several tours of various areas of the facility including the drywell, reactor building, control structure and turbine building to observe work in progress, housekeeping, cleanliness and status of construction. The inspector observed a much improved overall plant appearance; more typical of a plant approaching initial fuel load.

7.2 Meetings

The inspector randomly attended the licensee's morning Startup Plan of the Day meeting during which the current status of preoperational testing activities and any holds or delays are discussed. Other items such as surveillance and outage activities are also discussed.

7.3 Findings

No unacceptable conditions were observed.

8.0 Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable, an item of noncompliance or a deviation. The unresolved items identified during this inspection are discussed in Paragraphs 3.2 and 4.3 of this report.

9.0 Exit Interview

A management meeting was held at the conclusion of the inspection on July 24, 1986 to discuss the inspection scope, findings and observations as detailed in this report. An interim exit meeting was also held on July 18, 1986 to discuss preliminary inspection findings (see Paragraph 1 for attendees at both meetings). No written information was provided to the licensee at any time during this inspection. The licensee did not indicate that any proprietary information was contained within the scope of this inspection.

APPENDIX A

Power Ascension Test Program Procedure Review

- N2-SUT-1-OV, Chemical and Radiochemical, Revision 0
Issued June 11, 1986
- N2-SUT-2-OV, Radiation Measurements, Revision 0
Issued May 2, 1986
- N2-SUT-3-OV, Fuel Movements, Revision 0
- N2-SUT-5-OV, Control Rod Drive System, Revision 0
- N2-SUT-6-HU, SRM Performance, Revision 0
- N2-SUT-10-HU, IRM Performance, Revision 0
- N2-SUT-12-HU, APRM Calibration, Revision 0
- N2-SUT-16-HU, Selected Process Temperature and Water Level
Measurements, Revision 0
Issued June 16, 1986
- N2-SUT-17-HU, System Expansion, Revision 0,
Issued June 3, 1986
- N2-SUT-70-HU, Reactor Water Cleanup System, Revision 0
Issued June 3, 1986
- N2-SUT-75-HU, Drywell Cooling System, Revision 0
Issued June 12, 1986
- N2-SUT-78-HU, BOP System Expansion, Revision 0

NOTE:

Those procedures not indicated as "issued" are copies in the review cycle.