U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-220/85-07

Docket No. 50-220

License No. DPR-63 Priority -- Category C

Licensee: Niagara Mohawk Power Corp.
300 Erie Boulevard West
Syracuse, New York 13202

Facility Name: Nine Mile, Unit 1

Inspection At: Oswego, New York

Inspection Conducted: May 13 - 17, 1985

Inspectors: Jin W. Chung — 7/10/85 date
Jin W. Chung
Lead Reactor Engineer

Pete Phelan — 7/10/85 date
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Approved by: Jin W. Chung for — 7/10/85 date
C. Anderson
Chief, Plant System Section, EB

Inspection Summary: Inspection on May 13 - 17, 1985 (Report No. 50-220/85-07)

Areas Inspected: Routine, unannounced inspection of licensee activities on maintenance and preventive maintenance programs; electrical maintenance; instrumentation maintenance; and administrative controls. The inspection included 135 inspector-hours on-site and 10 hours off-site by four region-based inspectors.

Results: Violations - None; Deviations - None.

DETAILS

1.0 Persons Contacted

J.C. Aldrich, Operations Supervisor
F. Borden, Chief, Electrical Foreman
*W.J. Connally, QA Supervisor - Nuclear Operations
*R. Coon, I&C
K.A. Dahlberg, Maintenance Superintendent
S. Doty, Electrical Maintenance Engineer
*M.J. Falise, Superintendent, Mechanical Maintenance
C. Fisher, Electrical Maintenance Supervisor
W. James, Site Assistant I&C Supervisor
B. Rammond, Fire Chief
*T.W. Roman, Station Superintendent
L. Price, E.Q. Engineer
L. Stacky, QA Engineer
K. Sweet, Electrical Maintenance
*B. Taylor, I&C
R. Tesser, Assistant Planning Coordinator

USNRC

A. Luptak, Resident Inspector
*S. Hudson, Senior Resident Inspector

The inspector also held discussions with other licensee employees during the inspection, including operations, technical supports and administrative personnel.

*Denotes those present at the exit meeting on May 17, 1985.

2.0 Administrative Controls for Maintenance Activities

Administrative controls were reviewed to determine the licensee's program for implementing requirements associated with the corrective and preventive maintenance activities. The inspection was conducted to assure that the licensees program was consistent with the Technical Specifications, Regulatory Guide 1.33, ANSI N18.7 and 10 CFR 50, Appendix B. Documents reviewed are listed in section 7.0.

Within the scope of this inspection, no unacceptable conditions were identified.

3.0 Maintenance Program

3.1 Corrective Maintenance

The inspector verified by review of the station administrative procedures and licensee responses to the generic letter 83-28 that:

-- administrative controls for routine and emergency maintenance were established;

-- safety related maintenance versus non-safety related maintenance was identified;

-- maintenance records were properly reviewed and stored;

-- QC hold points were established;

-- criteria and responsibilities were identified; and

-- Programmatic controls for post-maintenance testing were established to assure that work activities were carried out in a safe manner.

3.2 Preventive Maintenance (PM)

The inspector verified by review of administrative procedures, APN-8, Revision 3, "Test and Inspection Program", and the Master 1985 Electrical and Mechanical PM schedule that a program was established for controlling PM activities. The program included systems identified in Technical Specifications and other systems required to assure reliable operation of various safety related equipment. The PM frequency and the responsible department for a particular PM were identified by the corresponding procedure number as well as the responsibility for documentation and review.

3.3 Equipment Control

The licensee has a program for releasing and returning to service plant equipment or systems undergoing corrective or preventive maintenance. The program assures that the status of equipment is documented and allows for QA verification.

3.4 Special Processes

The inspector verified that a program was developed for controlling special processes and that a welding engineer was hired for training and procedure control. The licensee is in the process of establishing a corporate welding program which will assure that all welders are qualified to nuclear industry standards.

3.5 Housekeeping/Cleanliness

A draft copy of a new administrative procedure, AP-8.5, "Housekeeping and Cleanliness Control" was reviewed which would upgrade the licensee's housekeeping program. This procedure formally implements

the program initiated in October, 1984, and requires weekly plant tours by the Station Superintendent and the principal department supervisors or superintendents. The Purpose of the tour is to verify corrective actions on deficiencies resulting from Fire Protection inspections and to identify conditions in the plant which may result in hazards to personnel or equipment or improved operation. A list of identified items requiring corrective actions is generated along with the target dates for their completion. The Station Superintendent audits the list monthly for compliance. In addition, this procedure establishes five cleanliness zones. A tour of the plant provided verification that the program is working well. A new cleanliness/decontamination program is also being implemented. This program consists of 15 utility mechanics and two foremen dedicated to a cleanliness/decontamination program throughout the plant. They (1) provide rapid deployment to unexpected operational occurrences that present a hazard to station personnel, (2) recover and clean protective clothing and respiratory equipment, (3) decontaminate and recover tools and equipment which normally would be disposed of as radioactive waste, (4) systematically clean all areas of the plant, on a six year cycle basis, and (5) provide routine cleaning of access areas.

3.6 Environmental Qualification (EQ)

The inspector reviewed the EQ System Component Evaluation Worksheet, and the Environmental Qualification Checklist, EQCL-1 and held discussions with the EQ Engineer on the status of the licensees EQ program. Based on this review and discussion the inspector concluded that:

(1) All components requiring environmental qualification have been identified.

(2) Some EQ preventive and corrective maintenance requirements have been developed.

(3) A master EQ list has been prepared. The Maintenance and QA Supervisor review this list for each Work Request to determine specific EQ related considerations.

(4) The ordering of EQ replacement parts has begun. Minimum-maximum ordering criteria for the warehouse is being established to assure a minimum quantity of parts.

(5) Short, medium, and long term plans are being developed for upgrading and replacing EQ components.

(6) An EQ Reference Manual is being developed which will list all EQ items and provide maintenance, QA, warehouse and engineering guidance.

3.7 Findings

Generic letter 83-28 paragraph 3.2, Post-Maintenance Testing, requires that the licensee "..... submit a report documenting the extending of test and maintenance procedures ..... to assure that post-maintenance operability testing of all safety-related equipment is required to be conducted ....."

Administrative Procedure AP-5, Procedure for Repair, paragraph 5.8.4 as it relates to completion of a WR states in part "..... the signature of the Station Shift Supervisor (SSS) is required on line 25 prior to making the equipment "operable" as defined in Technical Specifications." In most cases, this equipment has not yet undergone post-maintenance operability testing. While operability testing requirements and responsibilities relating to safety-related equipment covered by Technical Specifications is clearly defined, operability testing requirements and responsibilities for safety-related equipment outside the scope of the Technical Specifications is not defined.

In a November 30, 1984 letter to the Director of Nuclear Reactor Regulation, the licensee indicated that their review of the post-maintenance procedures would not be completed until November, 1985. Based on the above, this is an unresolved item pending the development and implementation of post-maintenance testing procedures for safety-related systems and components not covered by Technical Specifications. (50-220/85-07-01)

4.0 Instrumentation Maintenance

4.1 Procedures

The inspector reviewed randomly selected instrumentation implementation procedures and temporary procedure changes to verify that they conform with the criteria of the Administration Procedures APN-8.4 "Procedure for control and calibration of equipment used in tests and inspections" Revision 0, dated March 12, 1985; APN-13 "Procedure and control of station corrective repair and maintenance" Revision 5, dated January 24, 1985; APN-8 "Test and Inspection Program" Revision 3 dated March, 1983; and to verify that they include:

-- Provision for administrative approvals for removing the item from service and returning it to service;

-- Provisions to require that the latest approved drawings and instructions are used;

-- Provision to assure that materials, parts, and components are correct and suitable;

-- Provisions for assuring that Limiting Condition for Operation (LCO) requirements of the TS are identified and satisfied during the repair period including the verification of redundant system operability when required;

-- Provisions for the control of housekeeping during the maintenance effort; and

-- Provisions for cleaning safety related systems/components during maintenance.

The following implementation procedures were reviewed:

Instrument Maintenance Procedures

(1) Procedure No. NI-IMP-NEU-1.1 "Source range monitor instrument channel calibration" Rev. 1, dated December 13, 1984.

(2) Procedure No. NI-IMP-FWC-2 "Feedwater System Steam Flow" Rev. 1, dated May 25, 1983.

(3) Procedure No. NI-IMP-100 "Repair and Replacement of Miscellaneous Solenoid Valves" Rev. 5, dated September 12, 1984.

Instrument Calibration Procedures

(1) Procedure No. NI-ICP-GOA "Emergency Coding Level Control, Channel 11." Rev. 6, dated December 14, 1984.

(2) Procedure No. NI-ICP-81 "Core Spray System" Rev. 8, dated December 4, 1984.

Findings

The inspector noted that Administrative Control Procedure APN-8 "Test and Inspection Program" expired in April, 1985, and was still being used. The licensee stated that this procedure will be replaced by a new administrative procedure AP-8.1 "Procedure for Service and Preventive Maintenance". The new procedure had been drafted but not yet issued, pending completion of personnel training for implementing the new procedure. The maintenance activities performed in May were still based on the old procedure which, according to the licensee, will be superseded shortly.

The inspector also noted that numerous I&C implementation procedures expired without new revision, some as much as six years ago (e.g. Procedure No. NI-ISP-23.1." Drywell Pressure Instrumentation" Revision 0, expired May 27, 1979). The licensee explained that some procedures were seldom used (e.g. Procedure NI-IMP-NEU-4.3 "TIP Substitution for LPRM Detectors" Rev. 0, expired September 29, 1982) and some were covered by new procedures (e.g. NI-ISP-IC-23.1 "Drywell Pressure Instrumentation" was covered by NI-ISP-RPS-TP "RX Protection System - Auto Trip System" Revision 13, expires July 2, 1986). Instead of continuously reviewing and revising these procedures, the licensee revises those procedures used regularly and those expected to be used soon.

The inspector considered the above approached acceptable. No unacceptable conditions were identified in this area.

4.2 Safety-Related Instrument Maintenance Activities

The inspector reviewed the records of preventive maintenance performed by the licensee on a sampling basis to verify that:

-- Maintenance activities were performed within the frequency indicated in the maintenance schedule (schedule reviewed covered six year period, 1980 through 1985, see findings).

-- Required administrative approvals were obtained prior to initiating the work.

-- An approved procedure was used as appropriate.

-- Functional testing, adjustments and calibrations as necessary were completed prior to returning the equipment to operation.

-- Data were properly filled in, records were properly signed and dated.

-- Records were assembled, stored and retrieved as part of the maintenance history.

-- Qualified I&C personnel performed the maintenance activities.

-- The criteria for acceptability were met.

Records of the following preventive maintenance activities were reviewed:

(1) Calibration report for Feedwater control system steam flow transmitters ID 33A and ID 33B, dated April 23, 1984.

(2) Calibration records for No. 11 core spray flow transmitter 81.1-01 and flow square root converter RV-35A, dated February 8, 1985.

(3) Calibration records for No. 12 core spray flow transmitter 81.1-02, flow square root converter RV-35B and flow indicator RV-27B, all dated February 8, 1985.

(4) Same as item (3) above, dated May 4, 1985.

(5) WR No. 32211, maintenance records for CRD Solenoid Valve CRD-34-51-SOV117, dated April 16, 1985.

(6) WR No. 32212, maintenance record for CRD Solenoid Valve CRD-30-51-SOV117, dated April 16, 1985.

Findings

The I&C maintenance schedules reviewed by the inspector covered the period 1980 through 1985. These schedules did not have issuance date nor revision numbers. The I&C supervisor used these schedules to track the maintenance status and record the completion of each maintenance activity.

The licensee stated that they were in the process of incorporating the maintenance schedules into a computer program, which would track the instrument's maintenance due date and record the completion date of each maintenance activity.

No unacceptable conditions were identified.

4.3 Inspector's Witnessing of In-Progress Maintenance Activities

1. The inspector witnessed the performance of instrument maintenance activities of selected instruments to verify that:

   -- maintenance procedures were available and in use.

-- the procedures were adequately detailed to assure satisfactory performance.

-- operational personnel were notified and their clearance obtained.

-- properly specified parts and materials were identified for the activity.

-- qualified test equipment and tools were used.

-- proper restoration of barriers and covers was accomplished.

-- adequate functional testing was performed prior to returning the equipment to operations for system restoration.

The inspector witnessed the calibration of the following instruments:

(1) Source Range Monitor No. 14 - Procedure NI-IMP-NEU-1.1 "Source Range Monitor Instrument Channel Calibration," Revision 4, dated December 13, 1984.

(2) Reactor Level LoLoLo trip unit, channels 11-A and 12-B - Procedure No. NI-ISP-RPS-TP "Reactor Protection System-Auto Trip System Instrument Trip Channel Test/Calibration" Revision 13, dated July 2, 1984.

Findings

Calibrations were performed in accordance with the procedures and met the applicable requirements.

No violations were identified.

4.4 I&C Maintenance Personnel Qualification

The inspector reviewed the qualification records of four I&C technicians who performed maintenance work on safety-related instruments to verify that their experience levels and training were in accordance with the guidance of ANSI 18.1-1971 "Standard for Selection and Training of Personnel for Nuclear Power Plants".

The inspector also discussed with three I&C technicians (two level C and one chief) instrument calibration and functional loop checks. They were found to be knowledgeable about the procedures for performing I&C maintenance activities.

No unacceptable conditions were identified.

4.5 Environmental Qualification Program for Equipment Replacement

There were no implementation procedures nor replacement schedule for this program available for the inspector's review. The licensee stated that they were in the process of completing this replacement program by their engineering department for the equipment and components that fall under 10 CFR 50.49(b) whose qualified life is less than the plant life.

5.0 Electrical Maintenance

5.1 Administrative Controls and Procedures

The inspector reviewed the Administrative Controls to verify that the licensee's program was fully implementing the requirements associated with safety-related maintenance activities as specified in the Technical Specifications, Quality Assurance Requirements, ANSI 18.7, Administrative Controls for Nuclear Plants, Regulatory Guides 1.33 and ANSI 45.2, Quality Assurance program requirements for Nuclear Power Plants.

The corrective and preventive maintenance procedures were reviewed to verify the following items:

Corrective Maintenance

-- responsibilities that form the basis for determining the activity as safety or non-safety related have been included;

-- appropriate inspection hold points were included;

-- methods and responsibilities have been designated for performing functional testing of components and systems following maintenance work;

-- causes of failures were evaluated and adequate corrective maintenance was taken;

-- considerations to radiological hazards were included;

-- provisions for fire protection, cleanliness, and housekeeping were included;

-- supplementary reference material was listed.

Preventive Maintenance

-- procedures specified were adequate to control the scope of the maintenance;

-- administrative approvals and tagouts were included;

-- QC hold points were established where required; and

-- measuring and test equipment were identified.

The following procedures were reviewed:

(1) NI-MST-MI, 125 VDC Batteries, Cells Specific Gravity and Battery Voltage, Rev. 4, June 23, 1983.

(2) NI-EMP-45.102, Installation of 24/48 Volt DC Instrumentation Batteries, Rev. 0, December 18, 1984.

(3) NI-EPM-C4, Limitorque Valve and Breaker inspection of DC Motor type limitorque, Rev. 0, February 1, 1984.

(4) NI-EMP-M2, Monthly Surveillance of Reactor Trip Bus HFA Relays for IE Bulletin 84-02, Rev. 0, November 21, 1984.

(5) NI-EPM-C7, RX Trip Power MG (131 and 141) and Associated Breakers inspection and cleaning, Rev. 0, February 1, 1984.

(6) EMP-23.2, Maintenance of 600 V Switchgear type AK-2-15 and type AK-2-25, Rev. 1, April 19, 1984.

(7) NI-EMP-C12, Type Ak Breaker/Motor Inspection and Breaker Load Test, Rev. 1, March 16, 1984.

(8) NI-MPM-C2, 4.16 Kv Breaker/Motor Inspection, Rev. 1, December 4, 1982.

(9) NI-EMP-44.2, Installation procedure for Class I and IE Electrical Equipment.

(10) MP-22.3, Maintenance of Diesel Generator Air Compressors, Rev. 2, December, 1982.

No violations were identified.

5.2 Safety-Related Maintenance Activities

The inspector reviewed randomly selected corrective and preventive safety-related maintenance activities to verify the following:

-- Proper operational personnel had been notified and clearance obtained.

-- Appropriate maintenance work requests were issued.

-- Latest approved procedures, drawings and instructions were used.

-- Specified parts and materials were identified for the activity.

-- Qualified test equipment and tools were used.

-- Functional testing was performed prior to returning equipment to service.

-- Required administrative approvals were obtained prior to initiating work.

-- Acceptance criteria was met.

-- Qualified personnel performed the work.

-- Inspection personnel signed off at the designated steps.

-- Trending analysis was performed.

The following corrective and preventive maintenance documentation was reviewed:

(1) Work Request (WR) No. 25027, Supply Breaker 1053.

(2) WR No. 23071, Air Compressor.

(3) WR No. 26105, FW Pump #11 Breaker.

(4) WR No. 25733, 4160 V Breaker Transformer Breaker R1031.

(5) WR No. 27260, Motor Driven FW Pump FCV Hi Level Trip Limit Switches.

(6) WR No. 26154, 171 MG Set.

(7) Quality Control Inspection Report (QCIR), 84-986.

(8) QCIR 84-275.

(9) QCIR 84-419.

(10) QCIR 83-673.

(11) QCIR 84-278.

(12) QCIR 84-374.

(13) Material Issue, No. 9547814, March 20, 1984.

(14) Material Issue, No. 9578214, April 23, 1984.

(15) Material Issue, No. 9578765, April 5, 1984.

Findings

The inspector determined by review of the Electrical Maintenance Schedule for 1985, that the preventive maintenance (PM) EPM-N12, Monthly Surveillance of Reactor Trip Bus HFA Relay for IE Bulletin 84-02, was missed for the month of February. The licensee was unable to ascertain the reason for the PM being missed. The inspector noted that all other scheduled electrical PM's for that month and the following months, had been successfully completed within the proper time interval.

The Emergency Diesel Generator (EDG) air compressor oil change tag, located on the air compressor, indicated that the oil was last changed in 1976. The DG manual, Ingersoll-Rand Instructions for Type 30 Compressors, DOCNO SLD196, July, 1981, recommends that the oil be changed once every 500 hours or 90 days. It also states that the change out interval could be altered commensurate with operational experience. It was indicated to the inspector, by the operational personnel who perform the daily oil check of the compressor, that the oil had not been changed out in the last five years. The mechanical maintenance department which performs corrective maintenance such as head gasket replacement and overhaul, was unable to produce any documentation to indicate that the oil had ever been changed.

The safety related DG air compressor provides starting air to the Emergency DG's. Degraded oil could lead to bearing and crankshaft failures, rendering the compressor inoperable and thereby jeopardizing the availability of the Emergency DG's.

This item is open pending licensee evaluation of their PM program and NRC review of corrective actions, and constitutes an unresolved item. (50-220/85-07-02)

5.3 Maintenance Personnel Qualification

The inspector reviewed the qualifications of two electrical technicians who routinely perform maintenance on safety-related equipment and verified that the individuals level of experience and training was commensurate with the type and degree of work being done. The training/qualification program was reviewed for the following:

-- Training was kept up to date to reflect plant modifications and procedure changes.

-- Two years of working experience was required in their speciality.

-- A minimum of one year of related technical training was required.

-- Training programs were scheduled and planned. This training included reviewing text material, attending lectures and taking frequent examinations.

-- Technicians were well versed with the equipment being worked on.

-- Supplementary and reference material was easily accessible.

-- A retraining program was implemented.

No unacceptable conditions were identified.

6.0 Quality Assurance

The inspector discussed QA/QC involvement in the corrective and preventive maintenance programs. The inspector noted excellent input by the Quality Control group in the area of Work Request inspections. The Quality Control Inspection Report/Checklist which were attached to the work request contained pertinent information and observations.

No unacceptable conditions were identified.

7.0 Other Document Reviewed

(1) Generic Letter 83-28, Required Actions Based on Generic Implications of Salem ATWS Events, July 8, 1983.

(2) Administrative Procedure (AP)-5.0, Revision 0, Procedure for Repair.

(3) AP-4, Revision 1, Administration of Operations.

(4) Letter to NRC, November 30, 1984, Response to Generic Letter 83-28, Sections 2.1, 3.1 and 3.2.

(5) Administrative Procedure Number (APN)-8, Revision 3, Test and Inspection Program.

(6) AP-8.5, Proposed Procedure, Housekeeping and Cleanliness Control.

(7) Internal Correspondence, February 11, 1985, Proposed Cleanliness/ Decontamination Program - Phase 1.

(8) AP-5.1, Revision 0, Site Welding Program.

(9) AP-8.4, Revision 0, Procedure for Control and Calibration of Equipment Used in Test and Inspections.

(10) AP-3.3.2, Revision 0, Control of Equipment Placement of Jumpers or Blocks or Lifting of Leads.

(11) Office Instructions (OI)-21, Revision 0, Work Tracking System.

(12) Station Radiation Protection Procedure (S-RP)-7, Revision 1, Incorporating Alara Requirements into Work Planning and Initiation.

(13) Internal Correspondence, March 29, 1985, Maintenance of Qualification of Equipment Qualified Per 10 CFR 50.49.

(14) Quality Assurance Procedure (QAP)-10.30, Revision 1, Inspection Activities at Nuclear Generation Stations.

(15) QAP-14.10, Revision 1, Inspection, Test and Operating Status.

(16) Quality Assurance Instruction (QAI)-14.10-02, Revision 0, Review of Station Work Requests and Work Control Reports.

(17) APN-13, Revision 5, Procedure for Control of Station Corrective Repair and Maintenance.

(18) Inservice Inspection Instruction No. ISI-007, Revision 0, Instruction for Pre and Post Pump Test Inspection, January, 1985.

(19) ISI-006, Instruction for Initiation of Corrective Action, Revision 0, January, 1985.

(20) OI-9, Instructions for Maintenance Library Documents, Revision 1, June, 1982.

8.0 Control Room Observations and Facility Tours

The inspector observed Control Room operations for control room manning, shift turnover and log sheets, and facility operation in accordance with the administrative procedures and Technical Specification requirements. Inspection tours of the turbine/generator building and selected protected areas were conducted.

No unacceptable conditions were identified.

9.0 Unresolved Items

Unresolved items are matters about which more information is required to clarify whether they are acceptable, or items of noncompliance, or deviations. Two unresolved item were identified and detailed in Paragraph 3.7 and 5.2.

10.0 Exit Meeting

The inspector met with the licensee representatives denoted in paragraph 1 on May 17, 1985, and summarized the purpose, scope and findings of the inspection. The attendees are listed in paragraph 1 of the report.

At no time during this inspection was written material provided to the licensee by the inspector.