U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-410/85-08

Docket No. 50-410

License No. CPPR-112 Priority -- Category B

Licensee: Niagara Mohawk Power Corporation

300 Erie Boulevard, West

Syracuse, New York 13202

Facility Name: Nine Mile Point, Unit No. 2

Inspection At: Scriba, New York

Inspection Conducted: March 18-22, 1985

Inspectors: A. Finkel, Lead Reactor Engineer — April 23, 1985 (date)

L. Cheung, Reactor Engineer — April 23, 1985 (date)

C. Woodard, Reactor Engineer — April 23, 1985 (date)

Approved by: C. J. Anderson, Chief, PSS, DRS — 5/3/85 (date)

Inspection Summary: Inspection on March 18-22, 1985 (Report No. 50-410/85-08).

Areas Inspected: Routine, unannounced inspection by three region based inspectors of activities pertaining to the installation of electrical and instrumentation safety-related equipment and the status of previous inspection findings. The inspection involved 105 inspector hours onsite by three region-based inspectors.

Results: No violations were identified.

DETAILS

1.0 Persons Contacted

1.1 Niagara Mohawk Power Corporation

*Mr. C. Beckham, Project Quality Assurance Manager
*Mr. G. Griffith, Site Licensing
*Mr. B. Morrison, Manager Quality Engineering
*Mr. J. White, Projects

1.2 Stone and Webster Engineering Company

*Mr. T. Airington, Project Quality Assurance Manager
*Mr. T. Baumgartner, Site Quality Assurance Supervisor
*Mr. J. Gallagher, Licensing Engineer
*Mr. E. Hubner, Assistant Superintendent of Engineering
*Mr. M. Milo, Quality Assurance
*Mr. C. Terry, Projects Quality Assurance Manager
*Mr. S. Tsombaris, Principal Engineer

1.3. Johnson Control, Inc.

Mr. M. Hoffman, Senior Q.A. Engineer
Mr. R. Askew, Q.A. Supervisor
Mr. D. Fine, Q.A. Engineer
Mr. J. Martin, Q.C. Inspector
Mr. N. Hurd, Q.A. Manager
Mr. P. Hargitt, Lead Q.A. Auditor

1.4 U.S. Nuclear Regulatory Commission

*Mr. S. Ebneter, Division Director, Division of Reactor Safety, Region I
*Mr. R. Gramm, Senior Resident Inspector

*Denotes those personnel present at exit meeting. Other managers, supervisors, craftsmen and technicians were contacted during the course of the inspection as activities interfaced with their areas.

2.0 Facility Tour

The inspector observed work activities in progress, completed work and construction status in the cable spreading room, control room, battery and switchgear rooms and plant locations where 4160 volt switchgear and 480 volt Motor Control Centers were located.

No violations were identified.

3.0 Licensee Actions on Previous Inspection Findings

(Closed) Construction Deficiency Report 84-00-54 Establish maximum KVA required from the diesel generator at time t=0 after closure of the diesel generator breaker. A re-calculation of the assumptions made in the "Diesel Generator Voltage Profile Study" for the 600 volt class IE system verified that the original assumptions were correct.

To assure that the re-calculation considered the present system design requirements, the inspector reviewed the following calculations;

-- Calculation 12177-EC-32, Revision 4, Depicts a maximum total of 4067KVA motor starting loads at time t=0 after closure of the diesel generator breaker,

-- Short Circuit Calculation, NMP2-EC-39, Revision-2, August 31, 1983,

-- Auxiliary Electrical Distribution System Voltage Profile Study, NMP2-EC-40, Revision-2, November 22, 1983,

-- Stone and Webster-EDC-4, Revision 2, July 25, 1983,

-- General Electric NEG Drawings titled, "Unit Summary CR 8000 MCC", Stone and Webster file No.'s 1.743-001-033B and -035B, and

-- Emergency Diesel Generators 2EGS*EG1 and 2EGS*EG3 Loading Calculation NMP2-EC-32, Revision 4, January 28, 1985.

The early calculations were modified to include the present status of the various systems that are part of the loads on the diesel buses.

This item is considered closed.

(Closed) Construction Deficiency Report 84-00-17

Qualification of low voltage power and control type penetration assemblies supplied by Conax Corporation. The reported concern was that Conax Corporation (Conax) during the performance of the Rated Maximum Duration of Rated Short-Circuit Test, had leakage detected at seven feedthroughs at the inboard (primary containment) end, Conax capped the feedthroughs. A subsequent leakage test verified that the leakage rate was within the acceptance criteria. The leakage rate of the outboard end measured 5.0×10^{-9} scc/s (He) which is much less than the acceptance criteria of 10^{-2} scc/s. Based on the test data and the requirements of Conax test procedure IPS-634 "NMP2 Electrical Penetration-Qualification-Report," this item is considered closed.

(Closed) Construction-Deficiency Report 84-00-44-

Potential moisture leakage into the Rosemount Model 1153 B Transmitters.

Rosemount, Inc. identified a leakage path in the seal of the threads between the sensor module and the electronic housing on their transmitters manufactured between January-August 1984. Of 17 transmitters identified as being manufactured in the above time span, eight transmitters were from the balance of plant systems and nine were from the NSSS supplied systems. Transmitters have been repaired and returned to the licensee's storage facility.

This item is considered closed.

(Closed) Construction-Deficiency Report 83-00-16

Failure of Kerite Control Cable to satisfy temperature environmental qualification requirements. The 40 mil, 1000 volt fire resistant Kerite control cable is not qualified for use in the the primary containment and portions of the reactor building. Fifty-one cables have been pulled from the system and are being replaced with fifty-one qualified cables. The inspector verified that the master cable list has been corrected to reflect the replacement cables and that approximately 47 of the 51 cables have been re-installed.

This item is considered closed.

(Closed) Unresolved Item 84-02-03

Identify and provide direction to correct separation, terminal connections, harness supports and other identified concerns within the Power Generation Control Console (PGCC). General Electric (GE) performed a joint engineering/quality control audit on all GE panels. The nonconformances identified were dispositioned on GE FDDR KG1-1477. Drawing/hardware discrepancies have been documented on GE memo RMP 83-1250 dated October 10, 1983 and dispositioned on attached FDDR's. The GE audit and the field quality control daily inspections provide assurance of correction.

This item is considered closed.

(Closed) Unresolved Item 84-02-04 - Status of class IE electrical/instrumentation - completed work vs. installed work.

There were differences between the Construction and Quality Control Department in reporting the status of completed work. The Construction Department included partially completed installation as 100% complete, while the Quality Control Department included only the completed portions of the installation in their status report.

The licensee has changed their reporting information to reflect the status listed in the Quality Performance Management Program (QPMP) Report No. 12177.50, that has been issued since February 26, 1985. This is one of the reports now being used to give plant status on completed work.

This item is considered closed.

(Closed) Unresolved Item 84-02-06 - Compliance with criteria of IEEE 336-1977, "Installation, Inspection and Testing Requirements for Instrumentation and Electrical Equipment During the Construction of Nuclear Power Generating Stations." This unresolved item was repeated and had been combined with other items as an unresolved item in inspection report 85-04.

This unresolved item is considered closed.

4.0 Electrical (Cables & Terminations) Review of Quality Records

The inspector selected safety-related power and control cables that have been installed and tested in order to review pertinent work and quality records to ascertain whether these records are in conformance with established requirements, NRC and licensee procedures and commitments in the areas of receipt and installation inspections, material certifications, non-destructive examinations, and non-conformance dispositions.

4.1 Documentation Criteria

To determine if the licensee's site quality assurance documentation reflect the inspection and control requirements of FSAR Section 17.1.10, the inspector reviewed the following documents.

-- Quality Assurance Inspection Plan N 20 E061AFA025, Revision F, Change 01 dated March 12, 1985 - Electrical Installation - Cable Pulling

-- Quality Assurance Inspection N 20 E061AFA026, Revision-0B, Change-06 dated April 7, 1984 - Electrical Installation - Cable, Jumper and Internal Wiring Terminations and Splices

-- Quality Standard QS-10-52-NM, Revision 0, dated October 10, 1984 - Raceway and Cable Installation

-- Electrical Installation Specification E 061A, Revision 9, dated April 7, 1984

The procedures reviewed were current, properly prepared, approved and signed. They were in good order, and reflect FSAR requirements.

No violations were identified.

4.2 Records Review

The inspector reviewed quality control records for the safety-related power and control cables listed below to verify that the receiving installation and termination requirements of the documents listed in paragraph 4.1 above are met.

-- Power Cables 2EJSBYL204, 2EGTAGK002, 2EGTBYK002

-- Control Cables 2EGTAGK001, 2EGSAGC631, 2EGSBYC631

The inspector identified records which rejected the cable reels from which the above cables were cut. The incomplete vendor data was later received and accepted by quality control. The records were complete with outstanding items accepted by quality control.

No violations were identified.

4.3 Non Conformance and Disposition Report

The inspector selected the following Non Conformance and Disposition Reports (NC&DR) to determine if the engineering dispositions were adequate and if the resolutions were resolved in a timely manner.

NC&DR No.	Subject Area
9420	Terminations Lugs
9334	Cable Identification
9727	Cable Sealing
9403	Cable Terminations
9549	Cable Terminations
10,127	Cable Hold Points
11,153	Cable Termination Tools
10,550	Damaged Cable
10,296	Cable Physical Integrity
10,008	Cable Pull Tension
10,004	Cable Pull Tension
9975	Cable Identification
9958	Cable FQC Witness
9686	Cable Pull Equipment
9647	Cable Damage
9645	Cable FQC Witness
9565	Cable Pull Tension
9410	Cable Landing

In the NC&DR's selected, the inspector determined that the licensee's dispositions were adequate and timely in closing the items.

No violations were identified.

5.0 Electrical (Components & Systems) Review of Quality Records

The inspector selected safety-related electrical equipment and components that have been installed and tested in order to review pertinent work and quality records to ascertain whether these records are in conformance with licensee procedures in the areas of receipt and installation inspections,

material certifications, storage-handling and identification, nonconformance examinations and nonconformance dispositions.

5.1 Documentation Criteria

To determine if the licensee's site documentation reflect the inspection and control requirements stated in the FSAR, the inspector reviewed the following documents.

-- Quality Standard QS-10.51-NM, Revision 0, October 10, 1984 - Electrical Equipment Installations

-- Quality Assurance-Inspection Plan N20E061AFA097, Revision 0B, Change 00, dated February 12, 1985 - Electrical Installation (Pre-Installation Verification).

-- Quality Assurance-Inspection Plan N20E061A040, Revision 0D, Change 04 dated June 15, 1984 - Electrical Installations - (Electrical Equipment Installation)

-- Electrical Installation Specifications E061A, Revision 9 dated April 7, 1984.

The procedures reviewed were current, properly prepared and approved. They were in good order, and reflect FSAR requirements.

No violations were identified.

5.2 Records Review

The inspector reviewed quality control records for the safety-related equipments listed below to verify that receiving, storage and installation requirements of the documents listed in paragraph 5.1 above are met.

-- 125 volt dc Emergency Battery Charger Panel 2BYS*BAT2A

-- 125 volt dc Control Panel 2BYS*PNL201A

-- 125 volt dc Switchgear Panel 2BYS*SWG002A

The inspector reviewed records associated with the installation of safety-related items in the following areas.

-- Pre-installation verification

-- Inprocess inspection verification, and

-- Final installation

The nonconformances identified during the above installation work were documented and dispositioned on the N&D form. The dispositions were timely and resolved the nonconformance.

No violations were identified.

5.3 Nonconformance and Disposition Reports (N&D's)

The inspector selected nonconformance and dispostion reports (N&Ds), associated with panels 2BYS*PNL201, 2BYS*BAT2A and 2BYS*SWG002A, to determine if the corrective action was timely, corrected the nonconformance and that the drawings reflected the changes specified by the N&D. Of the five (5) N&D's reviewed by the inspector, these were all closed, corrective action was timely and the drawings were in the process of being revised to reflect the N&D changes.

No violations were identified.

6.0 Electrical (Cables and Terminations) Observation of Work and Work Activities

The inspector witnessed the installation of safety-related control cables and determined that the construction and inspection personnel were following their field installation and inspection procedures. Discussions with the installation and inspection personnel indicated that they were knowledgeable of the installation criteria and all precautions were adhered to.

6.1 Observation of Cable Pulls

The inspector witnessed two safety-related instrumentation cables that were hand pulled from the reactor building below the refueling elevation 0215 feet to the digital radiation monitoring panels in the reactor control room, elevation 0316 feet.

The inspector verified the cables, 2HVRAGX003 and 2HVRAGX004, were listed on the cable pull tickets and that the raceways were cleaned prior to the cable pull. In addition to the above verification, the licensee's quality control inspector identified the cable reel that the cables were cut from were off a "Q" listed reel, the cable ends were protected and that the temperature of the cable was such that it could be installed.

The activities and quality control measures taken by the licensee quality control inspector was observed by the inspector and determined to be in accordance with his written inspection criteria for this type of installation. The inspector determined that the installation and quality control activities associated with this cable installation were in accordance with the licensee's procedures.

No violations were identified.

6.2 Documentation Criteria

To determine if the licensee's quality control procedures reflected the requirements of FSAR section 17.1.10 the inspector reviewed the following:

-- Electrical Installation Specification E 061A, Revision 9, dated April 7, 1984

-- Quality Assurance Cable Installation Verification Procedure E003, Rev. 4 dated December 12, 1984

-- Quality Surveillance Procedure 12.1, Revision C dated December 12, 1984.

-- Quality Assurance Inspection Plan N 20-EO 61AFA026, Revision OF, Change 01 dated March 12, 1985 "Electrical Installation - Cable Pulling"

The procedures reviewed were current, properly prepared, approved, in good order and reflect FSAR requirements.

No violations were identified.

7.0 Instrumentation (Component and Systems) Work Observations and Record Reviews

7.1 Instrumentation Components

The inspector examined work performance, partially completed work and completed work pertaining to the installation of safety-related pressure and flow transmitters, and associated instrument tubing and instrument valves, to determine whether the requirements of applicable specifications, NRC requirements and licensee commitments were met in the areas of material qualification, installation and quality control inspection. The inspector also verified the instrument tubing slope, valve flow direction, proper capping of unconnected ports, and instrument tubing welding condition.

7.1.1 Items examined for this determination include:

a) Safety-related pressure and flow transmitters 2SWP*PT66A and 2SWP*FT76B, all located in the Standby DG Building at El 261'.

b) Safety-related pressure and flow transmitters 2SWP*PT79A and 2SWP*FT29B, all located in the middle rooms in the Control Building, at El 261'

c) Stone & Webster (S&W) Drawing No. 12177-EK-400B-2 "Instrument Piping, Control Building, Plan El 261" Revision 2, dated August 1983

d) S & W Drawing No. 12177-EK-404A-5 "Instrument Piping, Standby Emergency DG Building, Plan El 261" Revision 5, dated January 14, 1985

e) S & W Specification for Instrument Installation, No. NMP2-C081A, Revision 3, dated April 18, 1984

f) S & W Advance Change Notice (ACN) No. 030894 for Instrument 2SWP*FT 29A, 2 sheets, dated December 18, 1984

g) S & W ACN No. 030889 for Instrument 2SWP*PT79A, 3 sheets dated December 7, 1984

h) S & W Nonconformance and Disposition report No. JC-476 "Incorrect Flex Hose Installation dated March 19, 1985

i) Johnson Control, Inc. (JCI) SECD Procedure No. QAS-1801-NMP2 "Collection, Storage and Maintenance of Category I QA Records" Revision 12, dated November 28, 1984

j) JCI SECD Procedure No. QAS-1992-NMP2 "Cleaning and Cleanliness Procedure" Rev. 6, dated January 25, 1984

k) JCI SECD Procedure No. QAS-1005-NMP2 "Fabrication and Installation Procedure Category I" Rev. 12, dated October 18, 1984

l) JCI SECD Procedure No. QAS-1601-NMP2 "Control of Nonconformance" Rev. 15 dated November 11, 1983

m) JCI Installation Package for PT 79A, containing ISR #10026, N&D No. JC-438, QA final check list, JCI weld map, ISR #10940 Installation Conditional Release BLP No. 11,004 and Final Test Report No. H*0482.

7.1.2 Findings

The inspector noted that for 25WP*PT66A, the braided flex hose connecting the root valve and the instrument tubing was damaged (due to excessive bending). This was identified by the JCI inspector and was documented in their ISR No. 11038. S&W N&D report No. JC-476 requires that this hose be replaced.

No violations were identified.

7.2 Quality Assurance (QA) Records Review

7.2.1 Quality Assurance Audits

The inspector reviewed the licensee's and their contractor's (JCI) QA Audit program in the instrument installation area for compliance with NMPC QA Procedures 18.10 "Quality Assurance Department Audits," Revision 6, February 13, 1985 and JCI QA Program Section 19, "Audits", Revision 4, May 16, 1983.

7.2.1.1 JCI QA Audits for instrumentation installation were included in the mechanical installation programs. The inspector reviewed the following QA documents and audit reports:

a) JCI SECD QA Program Section 10 "Control Special Process" dated May 28, 1981

b) JCI SECD OA Program Section 11, "Inspections" Rev. 4 dated May 16, 1983

c) Procedure No. QAS-1301-NMP2 "Calibration Control of Measuring and Testing Equipment" Rev. 9 dated December 19, 1984

d) QA Audit Schedule for 1983 through 1985 (included in memo JCI-014-035 dated December 4, 1984)

e) Audit report No. JCI-QAA-006 for mechanical installation (audit date: March 28 through March 30, 1983) which identified six (6) findings, all resolved within reasonable time.

f) Audit report No. JC1-OAA-033 for visual weld inspection (audit date: February 15 through February 27, 1985) which identified two (2) findings. Resolution date not yet due.

g) Audit report No. JCI-OAA-038 (audit date: February 27, 1985) for "Access Implementation and Effectiveness of Calibrating Control of Measuring and Testing Equipment Procedure OAS-1301, Rev. 7". No findings were identified in this audit.

7.2.1.2 The inspector reviewed the following NMPC QA documents and Audit reports for their audits on JCI.

a) Projects Annual Audit Schedules for:
- 1985 Rev. O dated January 17, 1985
- 1984 (from September on) Rev. 2 dated September 1984

b) Audit report No. 04-JCON-84 (audit date June 25-29, 1984) dated July 5, 1984, which identified two (2) findings. One finding was resolved on time. The resolution for the other finding (record storage facilities in compliance with ANSI 45.2.9) is still pending and was covered in paragraph 6.3.7 of NRC Team Inspection Report 50-410/84-18

7.2.1.3 Findings

No violations were identified.

7.2.2 Equipment Storage and Records Review

7.2.2.1 Instrument Storage

The inspector toured the warehouse and storage areas and observed the storage conditions for safety-related instruments, in particular the following Rosemount transmitters which had been repaired by the manufacturer on the connecting seals between the sensor modules and the electronic housings:

2RSS*POT109
2IAS*PT231 thorugh 236
2ISC*PT2C,D
2ISC*PT15C
2ICS*PT167X,Y
2ICS*PT168X,Y
2 spare transmitters

7.2.2.2 The inspector reviewed the receipt inspection records of the above instruments, the date returned to and the date received from the manufacturer to assure that these instruments were repaired and handled in a timely manner.

7.2.2.3 Findings

No violations were identified.

8.0 Exit Meeting

The inspector met with licensee and contractor representatives (denoted in paragraph 1) at the conclusion of the inspection on March 22, 1985. The inspector summarized the scope and findings of the inspection as described in this report.

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