

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 84-19
Docket No. 50-410
License No. CPPR-112 Priority -- Category A
Licensee: Niagara Mohawk Power Corporation
300 Erie Boulevard
Syracuse, New York 13202

Facility Name: Nine Mile Point, Unit 2

Inspection At: Scriba, New York

Inspection Conducted: November 5,-December 21, 1984

Inspectors: *W. J. Lazarus for*
R. A. Gramm, Senior Resident Inspector

1/29/85
date

W. J. Lazarus for
R. M. Wheeler, Resident Inspector

1/29/85
date

Approved By: *W. J. Lazarus*
W. J. Lazarus, Chief, Reactor Projects
Section 2C, DPRP (Acting)

1/29/85
date

Inspection Summary: Inspection on November 5-December 21, 1984 (Report No. 50-410/84-19)

Areas Inspected: Routine inspection by the resident inspector of work activities, procedures and records relative to allegations, MSIV cladding operations, instrument tubing and supports, small bore piping supports, ITT pipe supports and concrete expansion anchors. The inspector also reviewed licensee action on previously identified items and performed plant inspection tours. The inspection involved 239 hours by the inspectors.

Results: Two violations were identified with two examples of each: Failure to properly inspect an instrumentation tubing support weld configuration (paragraph 6a) and a failure to properly inspect a pipe support baseplate gap (paragraph 8a); lack of effective corrective action to preclude recurrence of damage to installed instrumentation tubing (paragraph 6b) and failure of corrective action to ensure that craftsmen follow installation instructions (paragraph 8c).

DETAILS

1. Project Organizations

Niagara Mohawk Power Corporation (NMPC)

Stone and Webster Engineering Corporation (SWEC)

General Electric Company (GE)

ITT-Grinnell Industrial Piping, Inc. (ITT)

Johnson Controls, Inc. (JCI)

Reactor Controls, Inc. (RCI)

2. Plant Inspection Tours

The inspector observed work activities in-progress, completed work and plant status in several areas during general inspection tours. Work was examined for any obvious defects or noncompliance with regulatory requirements or license conditions. Particular note was taken of the presence of quality control inspectors and quality control evidence such as inspection records material identification, nonconforming material identification, housekeeping and equipment preservation. The inspector interviewed craft personnel supervision, and quality inspection personnel in the work areas. Observations are noted below:

The inspector discovered an arc strike and weld splatter on the hydrogen recombiner system line number 2-HCS-003-14-2, near support BZ-140 AE. After being notified of this condition, ITT Grinnell issued an unsatisfactory inspection report (IPC 1402) and repaired the pipe by grinding out the arc strike and weld splatter. ITT Grinnell subsequently performed a visual inspection, Ultrasonic test and a liquid penetrant test of the repair area. The results of the inspection and tests were satisfactory. Based on the ITT Grinnell actions, the inspector had no further questions.

The inspector examined PGCC cabinet H13-P837. It was observed that cable IHA-W031 had been lifted from a terminal without marking it with a temporary modification tag. SWEC subsequently issued IR E4A05558. The inspector was informed that a Punch List Item Report (PLIR) had been generated for the cable in question. This is open pending inspector review of Startup Administrative Procedure (SAP) 118 to assure that clear direction is provided on identification of temporary modifications. (84-19-01).

The inspector attended a presentation for the NMPC Quality First Program (QIP). All Nine Mile Point Unit 2 personnel are to be scheduled to attend the Quality First Program presentation. The QIP presentation emphasized that NMPC was providing a mechanism for the employee to report any safety or quality concerns. The QIP presentation also pointed out that reporting concerns to the NRC is an alternative option available to the employee.

The licensee met with Region I management and the resident inspector to discuss the preliminary results of the licensee's hardware reverification efforts. The NMPC QA department has performed overview inspections on pipe support, instrument tubing supports, HVAC supports, raceway supports, cable tray, conduit, electrical equipment, structural steel and concrete expansion anchors. To supplement the NMPC QA inspections, SWEC QA has conducted additional inspections for large bore pipe supports. Engineering and QA analysis is continuing for the commodities inspected to date.

No violations were identified.

3. Licensee Action On Previously Identified Items

- a. (Closed) FOLLOWUP ITEM (83-18-15): Violation of cable spacing between adjacent partial-pulled cables and the side rail of the cable tray. The licensee took the following actions:

1. Quality Assurance Inspection Plan N20E61AFA025 was revised to require, on partial-pulls, the QC inspector to inspect the cable back to the point at which the cable meets the specification requirements.
2. The deficient cables were reinspected and inspection record E4005018 and E4005086 confirmed the cables were corrected.

This item is closed.

- b. (Closed) VIOLATION (83-18-40): ASME code edition for welder qualification. The ITT QA manual did not specify the edition of ASME Section IX to be used at the time of a welder qualifications.

ITT Grinnell revised Field Quality Control Procedure (FQC) 5.2-2-6, "Welder Testing" to indicate that welder qualifications shall be in accordance with the latest edition of ASME. The licensee ascertained that previous ITT practice did in fact use the latest ASME edition for weld qualification.

Based on the licensee corrective action, this item is closed.

- c. (Closed) FOLLOWUP ITEM (83-18-45): Retraining conducted by deficient inspector. A tool box training session for preplacement inspection had been conducted by a QC inspector who did not adequately perform the preplacement inspections. The licensee conducted a subsequent retraining session instructed by the civil QC inspection supervisor. Based upon the retraining session, this item is closed.
- d. (Closed) FOLLOWUP ITEM (83-18-57): Concrete truck mixer failed uniformity test. During inspection 50-410/83-18 it was determined a concrete truck mixer (truck #25) had failed the uniformity test and was not retested or repaired.

As a result of this finding, the licensee took the following actions:

1. Truck #25 was retested on 11/16/83 for uniformity and the results were satisfactory.
 2. The licensee also reviewed concrete test and inspection records associated with truck #25 between 1981 and 1983. Based on this review the licensee concluded truck #25 had produced concrete of an acceptable quality during the 1981 to 1983 time period.
 3. To prevent recurrence, the Quality Assurance Inspection Plan N205203AF0001 "Mixing and Delivery of Concrete" was revised to require vendor notification via a letter if a deficient truck is identified. The revised inspection plan also does not allow the use of the deficient truck on Nine Mile Point Unit 2 concrete placements. This item is closed.
- e. (Closed) VIOLATION (83-18-91): Inadequate licensee corrective action. The specific examples deal with corrective actions for the failed uniformity test of truck #25 (see item 83-18-57) for corrective and preventive actions) and the inadequate training of QC personnel (See item 83-18-45 for corrective actions).

Based on the corrective actions taken by the licensee, this item is closed.

- f. (Closed) CONSTRUCTION DEFICIENCY REPORT (84-00-04): Problem with Hydrostatic Uplift in Reactor Building Design. The original design calculations for the reactor building did not consider the hydrostatic uplift pressure due to the normal ground water table because of the existence of a mat drainage system. However, since the reactor building drainage system is not Category I, the calculations for the Reactor Building should have accounted for the effects of the normal ground water table. Based on this concern, the licensee recalculated the reactor building loads and incorporated the hydrostatic uplift pressure effects due to the normal ground water table.

The inspector reviewed the assumptions for the revised calculations and concluded they were reasonable and conservative. The revised calculations indicate a factor of safety for overturning, sliding and flotation to be 1.1, 1.43 and 1.7 respectively. FSAR table 3.8-14 is being revised via SWEC Licensing Document Change Notice LDCN 1422 to reflect the new calculated values. The factors of safety in LDCN 1422 meet or exceed the minimum factors of safety indicated in FSAR Section 3.8.5.5. This item is closed.

- g. (Closed) UNRESOLVED (84-11-08): Damage to installed instrumentation tubing. This item is closed as it has been escalated to violation 84-19-03. Paragraph 6b of this report discusses the details.

4. Allegations

During the inspection period the inspector conducted inspections and interviews in response to allegations presented to the NRC, the inspector and licensee actions resulting from the allegations are noted below:

- a. (RI-84-A-0169) The NRC received an allegation regarding welds on a seismic support at the FitzPatrick generating station. This allegation has been referred to the senior resident inspector at the FitzPatrick plant for resolution. Followup and close out coordination will be accomplished by the FitzPatrick resident inspector.
- b. (RI-84-A-165) The NRC received an allegation that ITT radiographic operations were to be conducted in the drywell area on 11/4/84. It was further alleged that simultaneous work operations would be performed in close proximity to the radiographic operations and that the potential for overexposure would exist.

ITT was contacted and it was determined the radiography operations were scheduled on 11/4/84.

Through NMPC management, it was determined no ITT crafts were scheduled to work on 11/4/84.

The NMPC-QA manager was informed of the concern.

The inspector toured the primary and secondary containments from 1pm to 4pm on 11/4/84 to observe the conduct of the ITT and RCI radiography. Appropriate rope barriers and radiation warning signs were in place. Guards were stationed at each access point to prohibit unauthorized entry. Calibrated survey meters were utilized. Warning announcements were made on the plant loudspeaker prior to the initiation of the RT activity.

No violations were identified.

5. Modifications to the Main Steam Isolation Valves

As a result of corrosion discovered in similar Main Steam Isolation Valves (MSIVs), at another site, the NMP-2 MSIV's were inspected and found to have corrosion in spool seat areas. SWEC issued Nonconformance and Disposition (N&D) #9952 to modify the MSIVs. The inspector observed the work activities associated with the MSIV modifications. The inspector observed and reviewed the MSIV modification procedure, the machine welding and cutting operation, final bore measurements, final liquid penetrant tests and welder qualification documentation.

Nonconformance and Disposition (N&D) 9952 calls for removal of the existing spool seat material, rewelding the spool bores with corrosion resistant Inconel 625 overlay, machining the overlay welds to the original design dimensions and examination of final machined surface by the liquid penetrant method. Based on the details and technical content of N&D 9952, dated 11/9/84, the inspector concludes the procedure is adequate and appropriate for the MSIV modification work. A member of the Construction Team Inspection (50-410/84-18) who specializes in welding and ASME code interpretations also reviewed the modification procedure and found the methodology and ASME code compliance adequate. The inspector observed ongoing MSIV modification work and found it to be conducted in accordance with N&D 9952.

The inspector observed the MSIV modification machine welding operation. The SWEC subcontractor (Power Cutting Industry) utilized the GTAW process for depositing the inconel overlay. The observed cutting operation was found to be in compliance with the dimensional tolerances described in N&D 9952. The Construction Team Inspector (Inspection 50-410/84-18) welding specialist observed the machine weld operation and reviewed the SWEC welding qualification method and found both to be acceptable. Based on compliance with the N&D and the NRC welding specialists review, the inspector had no further questions.

The inspector observed final bore measurements by SWEC QC for inlet section of MSIV 7C. The final machined ID dimension was 23.661", which is within the N&D 9952 tolerance of between 23.655" and 23.665". SWEC used an inside micrometer (serial number 09243 calibrated to 2-6-85) to measure the bore diameter. The inspector had no further questions.

The final liquid penetrant tests were observed for MSIV 7C (inlet) and 6B (outlet). SWEC QC performed the final PT's in accordance with Quality Assurance Directive QAD 9.31, Rev B. The set times for cleaning, penetrant and developer were found in compliance with QAD 9.31. The results of the liquid penetrant tests were compared to the acceptance standards contained in ASME Section III subsection NB 5352. An NDE specialist from the Construction Team Inspection witnessed the liquid penetrant test for valve 6B and found the test and results acceptable. The inspector had no further questions.

The welder qualification records were reviewed. The inspector noted the welders were qualified for GTAW machine process. During the machine welding process, the welding operators were compared to the welder qualification list. In all cases the machine welder operators were appropriately qualified.

Based on the inspector and the regional specialists review, there were no further questions.

6. Instrument Tubing and Supports

- a. The inspector obtained design and QA documentation for six JCI final accepted Category I tubing supports. Tubing supports BZ-410-ME, BZ-410-MF, BZ-412-GS, BZ-412-JD, BZ-426-SG and BZ-426-SJ were inspected to determine if the hardware configuration was consistent with the design. Except for support BZ-412-JD, the tubing support configurations matched the design information. The inspector identified an undersized fillet weld on support BZ-412-JD. JCI QC reinspected the tubing support and issued ISR 8849 to document the undersized fillet weld. The failure of the contractor inspection program to identify the deficient weld condition is a violation of 10 CFR 50, Appendix B, Criterion X. (84-19-02)

The inspector selected 5 more JCI tubing supports for review and detailed inspection. The inspector did not identify any more hardware concerns relative to the additionally selected instrumentation tubing supports.

- b. As a followup to close a previously identified unresolved item (84-11-08) regarding damage to QA Category I instrumentation tubing, the inspector reviewed the results of the licensee corrective and preventative actions. The licensee corrective action involved providing site personnel retraining and issuing an ISR to track the damaged tubing identified by the inspector.

The SWEC training department was contacted to determine the extent of the retraining given to the various site contractors. The SWEC training department had received evidence of retraining from Cives and LK Comstock. Other contractors such as ITT, RCI, JCI and SWEC had not submitted any documented evidence that their personnel had been retrained regarding the prevention of damage to instrumentation tubing.

The specific damaged tubing run as noted in unresolved item 84-11-08 had not been repaired or replaced. ISR 6896 is still open pending disposition of the tubing run.

The inspector performed inspections in the Reactor building to determine if there was evidence of additional new damage to QA Category I instrumentation tubing. In secondary containment at elevation 196 between azimuth 180 and 270, two new areas of tubing damage were identified by the inspector. The instrument tubing runs in the two locations were utilized by ITT as scaffolding support. As a result of the inspectors concern, JCI issued ISR 9143 to address the damaged instrumentation tubing and NMPC QA department was notified regarding the improperly erected scaffolding. The NMPC construction department directed ITT to correct the improperly erected scaffolding. After identification of the concern at elevation 196, the inspector examined the elevation 215 secondary containment with the JCI QC inspector responsible for this area. The JCI inspector pointed out four new areas where QA Category I instrumentation tubing had been recently damaged. During the early November 1984 time frame, approximately 20 ISR's had been issued regarding damage to instrumentation tubing in the elevation 215 containment area. The failure of the licensee to implement effective corrective action to minimize damage to QA Category I instrumentation tubing is a violation of 10 CFR 50, Appendix B, Criterion XVI (84-19-03).

- c. During the review of the JCI tubing support documentation packages, it was noted that JCI had identified a problem with certain materials not having adequate material traceability. The inspector asked JCI how the generic concern with the incorrect heat codes was being tracked. JCI produced ISR 4912 which identified the generic problem with the incorrect heat codes. A review of ISR 4912 revealed the ISR had been closed, although all the corrective actions were not complete. The incompleated corrective action dealt with keeping the ISR open until all installation records have been reviewed. JCI has reopened ISR 4912 to track the generic heat code problem. At the same time ISR 4912 was issued, JCI also issued stop work directive #5 to stop work on all installations and requisitions for the problem heat codes. On April 20, 1984 stop work order #5 was lifted except for assembly AKC via JCI Inter-Office Correspondence (IOC) JCI-14-188. The JCI Quality Assurance standard QAS-301 Rev. 0 does not provide for partial lifting of a stop work order via an inter-office memorandum. JCI has subsequently closed out stop work #5 in total. JCI verified that this was an isolated case whereby a stop work directive had been lifted via an IOC. Based on the reinitiation of ISR 4912 and close out of stop work order #5, the inspector has no further questions.

7. Small Bore Pipe Supports

An inspection and documentation review of ASME Section III NF Class 3 small bore pipe supports was conducted by the inspector. All selected supports had been final inspected by SWEC QC and the documentation package

reviews had been completed. Supports BZ-411-L, BZ-451-VN and BZ-450-AZ were selected to determine if the hardware configuration was the same as that shown by the design. All the supports examined were found to be in compliance with the design drawings. The inspector had no further questions.

The documentation packages for small bore pipe supports BZ-452-DT, BZ-451-VP, BZ-452-BP and BZ-416-EC were reviewed for completeness and any obvious omissions. The inspector requested a clarification on BZ-411-L because the latest control drawing revision number was not the same as indicated in the inspection record. SWEC QC provided a clarification and the inspector concluded that the final inspection had been conducted to the latest control drawing with the associated applicable change documents. The inspector had no further questions.

8. ITT-Grinnell Pipe Supports

- a. The inspector selected 7 ASME III ITT pipe supports which had been final inspected by ITT QC. Piping supports BZ-108-TQ796, BZ-19-QY, BZ-11-HR, BZ-19-MT, BZ-19-NC, BZ-19-LS and BZ-60-G-004-S2 were inspected for compliance with applicable drawings and specifications. All the supports except BZ 60-G-004-S2 were found to be in compliance. Support BZ-60-G-004-S2 did not meet the specification (P301J) requirement for the gap behind the wall mounted base plates. The specification requires shims to be used for gaps equal or greater than 1/8 inch, the support was found to have 1/8 inch gaps and no shims were provided. Upon further investigation it was determined that the ITT inspection plan FQC 4.2-14-12 does not specifically require the gap attribute to be inspected. ITT issued an unsatisfactory Inspection Report FU6346 regarding the deficient gap. ITT has committed to perform a sampling reinspection to determine the extent of this problem. The failure of the contractor inspection program to identify the deficient hardware is a violation of 10 CFR 50, Appendix B, Criterion X. (84-19-04)
- b. The ITT support documentation packages were reviewed for completeness. All the documentation packages were found acceptable except for support number BZ-60-G-004-S2. The ITT Hilti bolt inspection record (plan #FQC 4.2-16-7) was not signed off in the block for anchor bolt angularity. ITT Grinnell reinspected the angularity attribute for support BZ 60-G-004-S2 and found it to be satisfactory. The inspector determined that this was an isolated omission.
- c. In NRC Inspection Report 83-02 a violation was identified relative to the uninstructed use of a pipe spreader to correct a spool piece out of round condition. The response to the NRC stated that ITT Grinnell will issue written instructions to all supervisory construction personnel to the effect that where the specific engineering

directives have been incorporated into the planner package, compliance to the directives or procedures is mandatory, and that alternate methods/construction procedures shall not be employed without written approval from ITT Grinnell field engineering.

On November 6, work was observed on SVV Tee quencher supports. The craft were using hydraulic rams and a plate former to achieve proper fitup. The associated E&DCR V10289 specified only light grinding on the Tee Quencher base stand. ASME NF 4231 does not condone the application of mechanical force to deform support parts and further states such devices shall be used carefully to avoid surface damage to the parts.

SWEC IR QP4G0187, ITT N&D 2825 and N&D IG-4990 were generated as a result of this problem. While the hardware disposition to N&D IG-4990 was accept-as-is, this deficiency represents a failure of the licensee implement effective long term corrective action to preclude repetition of the problem identified in report 83-02, specifically the application of unauthorized installation activities. The failure to implement effective long term corrective actions to ensure that craft personnel adhere to installation instructions is a violation of 10 CFR 50, Appendix B Criterion XVI. (84-19-05)

9. Concrete Expansion Anchors

The inspector reviewed several aspects of concrete expansion anchor installation including specification S203G, the various inspection plans, and the requirements of I&E Bulletin 79-02.

Specification S203G is the site specification for concrete expansion anchor installation. Specification S203G was found to envelope the required technical aspects of expansion anchor installations.

Specification 8203G is the site specification for concrete expansion anchor installation. Specification 8203G was found to envelope the required technical aspects of expansion anchor installations. The specification also provided a listing of mandatory inspection attributes. This listing provides guidance to the contractors relative to their respective inspection plans. I&E Bulletin 79-02 identified concerns on the prohibited use of leveling nuts, but specification S203G does not specifically address this practice. This item is open pending further inspector reviews of existing installations and the licensee response to I&E Bulletin 79-02. (84-19-06)

The inspection plans for JCI, ITT and SWEC were compared with specification S203G mandatory inspection attributes. All the plans reflected the mandatory attributes listed in the specification. The SWEC inspection plan N20S203GFA003 and JCI inspection plan QAS-11.04 contain a table on the Hilti bolt length identification system which provides a range of anchor lengths for each letter code. This practice appeared to have the

potential to cause confusion among QC inspectors. SWEC committed to revise the inspection plans to list a singular anchor length. The inspector sampled 12 installed expansion anchors to determine if the completed installations were affected by the two length dimensions shown in the inspection plans. All 12 inspected expansion anchors exceeded the minimum embedment requirements given in specification S203G. Based on the independent inspection, the inspector had no further questions.

No violations were identified.

10. Quality Performance Management Program

As a result of CAT findings in 1983, the licensee committed to develop a program to measure and monitor quality construction performance. As of December 14, 1984 the licensee had issued eleven QPMP reports. On December 14, 1984 the licensee made a presentation to NRC Regional Management and the site inspectors giving examples of how the licensee used the report to improve the quality of the ongoing construction work. No violations were identified.

11. Management Meetings

At periodic intervals during the course of this inspection, meetings were held with senior plant management to discuss the scope and findings of this inspection. Apparent violations of NRC requirements were discussed with licensee plant management during an exit meeting held on December 21, 1984. Based on the NRC Region I review of this report and discussions held with licensee representatives on December 21, 1984, it was determined that this report does not contain information subject to 10 CFR 2.790 restrictions.