

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 83-02
Docket No. 50-410
License No. CPPR-112 Priority -- Category A

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

Facility Name: Nine Mile Point, Unit 2

Inspection At: Scriba, New York

Inspection Conducted: February 7 - March 11, 1983

Inspectors: *H. B. Kister*
R. D. Schulz, Senior Resident Inspector

3-25/83
date

_____ date

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Approved by: *H. B. Kister*
H. B. Kister, Chief, Reactor Projects Section 1C

3/25/83
date

Inspection Summary:

Inspection on February 7-March 11, 1983 (Report No. 50-410/83-02)

Areas Inspected: Routine inspection by the resident inspector of work activities relative to safety-related components, concrete, cable installation, structural welding, instrument installation, and safety-related piping. The inspector also performed plant inspection tours. The inspection involved 100 inspector hours.

Results: One violation was identified. Performing activities without documented instructions and failure to have a correct process planner at the work location, (paragraph 8b).

DETAILS

1. Persons Contacted

Niagara Mohawk Power Corporation

W. D. Baker, Construction Engineer
J. L. Dillon, Q. A. Supervisor
D. P. Dise, Vice President, Quality Assurance
L. G. Fenton, Senior Q. A. Technician
F. J. Osypiewski, Q. A. Engineer
J. P. Ptak, Manager of Construction, Site
J. Swenszkowski, Q. A. Technician

Johnson Controls, Inc.

V. Williams, Q. C. Inspection Supervisor

Stone & Webster Engineering Corporation

R. L. Clarke, Q. C. Inspector
S. W. Crowe, Assistant Superintendent Field Q. C.
T. Dean, Q. C. Inspector
R. Kelvin, Senior Q. C. Engineer
E. Magilley, Assistant Superintendent Field Q. C.
J. C. Thompson, Superintendent of Field Q. C.

ITT Grinnell Industrial Piping, Inc.

D. R. Giguere, Q. C. Manager
D. L. Grodi, Inspection Supervisor
L. Pela, Technical Supervisor
J. White, Project Manager

Reactor Controls, Inc.

B. Kienlen, Q. C. Inspector
L. M. Smith, Assistant Q. C. Supervisor

The inspector also interviewed other licensee, contractor, and craft personnel.

2. Plant Tours

The inspector observed work activities in-progress, completed work and plant status in several areas during general inspections of the plant. 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. Craft personnel, supervision, and quality inspection personnel were interviewed as such personnel were available in the work areas.

Specifically, the inspector observed structural beam placement above elevation 306 feet in the secondary containment and power generation control complex module load-in in the control building.

No violations were identified.

3. Safety-Related Components

The mechanical equipment installation contract was recently assigned to Stone & Webster Engineering Corporation. The inspector reviewed the Stone & Webster Quality Assurance Program and found it in compliance with regulatory requirements and Specification NMP2-P275C, Mechanical Equipment Erection.

Inspection records were reviewed for the Low Pressure Core Spray Pump pit liner weld, connecting the restraint support plate at the bottom of the liner to the restraint plate, as identified on drawing 12177-EV-159A-4. Documentation included verifications of fit-up, material traceability, pre-heat, final visual, and magnetic particle test using the dry powder-ycke technique. The restraint plate was furnished to Specification SA-36 and was traceable to certifications. In addition, the inspector confirmed that the plate was fabricated in accordance with Section III, NF, of the ASME Boiler and Pressure Vessel Code and that the magnetic particle test was in accordance with NF-5221(B). The weld was a 5/16" fillet weld, 2" long with 6¼" centers. The weld was accomplished in accordance with an approved procedure and the welder maintained procedure qualification records for this welding process. The welding rod used, E7018 - 3/32" was traceable to material certifications in accordance with the ASME Code.

Subsequently, records were requested on the three Residual Heat Removal Pump pit liner welds, connecting the restraint support plate at the bottom of the liner to the restraint plate, also identified on drawing 12177-EV-159A-4. From reviewing the records, the inspector determined that the following deficiencies existed for these three Residual Heat Removal pit welds.

- a. Weld data documentation was missing, and
- b. A required magnetic particle test examination was not performed.

Upon further investigation, it was discovered that Stone & Webster Quality Control inspection personnel had identified these deficiencies, plus the following two deficiencies in January 1983.

- c. The ITT Grinnell quality control inspector who performed the final visual was not certified for visual inspection, and
- d. The welds were 1/16" to 1/8" undersized with regard to leg length.

Pending rework by ITT Grinnell, this item will remain open (410/83-02-01).

The procedures and documents which control the installation of the Service Water Pumps were reviewed and it was determined that Stone & Webster had adequate controls taking into account such factors as location, leveling, bolting, and use and documentation of measuring and test equipment.

No violations were identified.

4. Concrete

The inspector observed work being performed in concrete construction to determine whether work and inspection activities are being accomplished according to applicable specifications, codes, standards, drawings, and procedures in the following areas:

- Placement preparation including reinforcing steel, formwork, cleanliness, foundations, and embedments
- Preparation and control of construction documentation including concrete pre-placement checklist sign-off by construction supervision and quality control.

These activities were observed for screenwell pour number 5-310-182-P. The pour was for a (4) four foot wall from elevation 245 feet to 261 feet 4 inches.

The following aggregate and concrete test results, selected at random, were reviewed:

<u>Documentation</u>	<u>Specification</u>
Sieve Analysis - #1680	ASTM C136
Specific Gravity/Absorption - #1545, #1592, #1500	ASTM C127/128
Clay lumps and friable particles - #1715, #1012	ASTM C142
Lightweight Pieces - #1680	ASTM C123
Moisture - #38443, #38451, #44476	ASTM C566
Slump - Mix #4-710-439P, Mix #1-123-403P	ASTM C143
Concrete strength - Mix #4-710-439P Mix 1-123-403P	ASTM C39
Air content - Mix #4-710-439P, Mix #1-123-403P	ASTM C321

Tests were in accordance with Specification S203A, Mixing and Delivering Concrete and S203H, Concrete Testing Services.

No violations were identified.

5. Cable Installation

Three partial cable pulls were witnessed in the control room building. The pulls were in accordance with NMP2-E061A, Specification for Electrical Installation, Stone & Webster Inspection Plan No. N20F061AFA025, and the cable pull tickets. The cable pull tickets contained detailed instructions for the pull, and the three cable installations are detailed below:

<u>Cable Type</u>	<u>System</u>	<u>Routing</u>
Control - 12AWG	Residual Heat Removal	PGCC cable termination cabinet CR to 4160V emergency switchgear - 290 feet
Control - 12AWG	Low Pressure Core Spray	PGCC cable termination cabinet CR to 4160V emergency switchgear - 280 feet
Control - 10AWG	Air Conditioning	PGCC cable termination cabinet CR to 120V dist. panel - 80 feet

The following attributes were examined:

- Raceway cleanliness
- Cable ticket issue
- Color code
- Physical integrity
- Routing
- Cable tie down
- Identification

The Stone & Webster quality control inspectors and craft personnel were knowledgeable in the cable pull requirements. After reviewing the cable pull tickets and interviewing a Stone & Webster quality control inspector, it appeared to the resident inspector that a system had not been established for determining which manual cable pulls require tension monitoring. Specification for Electrical Installation NMP2-E061A, states in part in

Section 3.2.3 that engineering will designate which manual pulls, that are either heavy or where raceway configuration is long or complex, require tension monitoring. The licensee has been requested to address this issue for resolution including whether any past pulls have been done without required tension monitoring. Pending licensee investigation, this item will remain open (410/83-02-02).

No violations were identified.

6. Structural Welding

Numerous structural steel welds were examined in the secondary containment. These welds were for plates connecting beam to beam or beam to embedment. The welds were in accordance with the drawing weld details and AWS D1.1. The welding details included full penetration welds with backing bars, partial penetration welds, and fillet welds. During the inspection, the resident questioned the Stone & Webster quality control inspector and it appeared that adequate measures have not been established to assure that the field welded connection plates are correct with regard to configuration and dimensions. The licensee has been requested to investigate this issue for both past and future installations. This item will remain unresolved (410/83-02-03).

No violations were identified.

7. Instrument Installation

The installations and associated records of two identical instrument support stands located in the control room building at elevation 292 feet were examined. The instrument support stands were identified on Stone & Webster drawings 12177-BZ-493-ES-1 and 12177-BZ-493-ET-1, and designed to support two temperature elements and a moisture transmitter. The installations were in accordance with the drawings, including the welding details. Both support stands were designed on the drawings as being qualified per SB-135, 403ZM. The inspector checked the qualifications for the support stands and discovered that SB-135, 403ZM was the qualification for a support stand that included a 3/16" flare bevel weld, 1 1/2" long with 6" centers. The support stands on drawings 12177-BZ-493-ES-1 and 12177-BZ-493-ET-1 included a 3/16" flare bevel weld, 1 1/2" long with 8" centers thus indicating that this was an incorrect qualification. Subsequently, the licensee decided to examine the qualifications on other instrument supports in order to determine if a generic problem exists, or if adequate design calculations qualifying the support stands are available, to determine if this is an isolated drafting error referencing the wrong qualification sheet. Pending the results of the licensee's review, this item will remain unresolved (410/83-02-04).

The planner packages for both support stands were reviewed and instructions to the craftsmen were adequate taking into account such factors as requisitioning material from storage, transferring heat numbers for

material traceability, requesting weld filler metal, preparing surfaces to be welded, and the welding operation. The support stands were stamped with the welders identification number and the identification number of the stand. Welder's qualifications and the welding procedure qualification were in accordance with ASME B&PV Code, Section III and Section IX. Materials were traceable to certified material test reports and the test reports met the specification requirements. Quality control inspection hold points included verification of base metal identification, weld rod identifications, visual acceptance of weld, and final installation acceptance.

While reviewing Specification NMP2-C081A, Instrument Installation, ASME Code, Section III, Class 2 and 3, ANSI Code B31.1, the inspector noted that Stone & Webster drawings 12177-BZ-493-ES-1 and 12177-BZ-493-ET-1 did not reference whether the support stands were classified as ASME Code Section III-NF-Class 2, Class 3 or ANSI Code B31.1. Also, none of the Johnson Controls, Inc. inspection documents referenced code classifications. It appeared to the resident inspector that code classification references were needed to assure correct code compliance for fabrications or installations. Furthermore, the inspector verified that Johnson Controls, Inc. was not producing their own fabrication/installation drawings as stipulated in Specification NMP2-C081A, but were using Stone & Webster produced drawings. The inspector brought these issues to the attention of the licensee and subsequently the licensee decided to examine the Stone & Webster drawings produced for the instrumentation contract, in order to determine their adequacy with regard to code classifications and other information required for correct fabrications and installations. The original intent of Specification NMP2-C081A was for Johnson Controls, Inc. to produce their own fabrication/installation drawings from the Stone & Webster drawings. For example, weld numbers do not appear on the Stone & Webster drawing and Johnson Controls, Inc. is adding them to the drawing with a pen instead of producing their own drawings. Pending the results of the licensee's review, these drawing issues will remain unresolved (410/83-02-05).

8. Safety-Related Piping

a. Observation of Work and Records - Reactor Controls, Inc.

The welds and associated documentation on two 24" reactor recirculation pipe welds were examined. One of the welds connected the pipe to the reactor pressure vessel nozzle and the other weld connected a discharge riser pipe to a discharge valve. Weld data sheets were checked to verify quality control acceptance of pre-weld cleanliness, preheat and interpass temperature, fit-up, insert installation, and penetrant test of the root pass. The resident inspector also witnessed a penetrant examination on the discharge riser to valve weld. The x-ray of the weld had identified a defect and a portion of the weld had to be removed and re-welded using both the GTAW and SMAW processes. The

penetrant examination was performed after the GTAW process was completed but before the SMAW process began. The penetrant examination was in accordance with ASME Boiler and Pressure Vessel Code, Section V. Penetrant examination reports and a radiograph reader sheet were reviewed for the discharge riser to valve weld.

The welding procedure which was used on both welds was qualified in accordance with ASME Boiler and Pressure Vessel Code, Section IX. Portable rod ovens were found to be plugged in and calibrated in January 1983. Weld rod was adequately stored and requisitioning of welding materials was controlled through welding filler metal control sheets which indicated:

- Weld material classification
- Size
- Quantity issued and quantity returned
- Date and time of issue and return
- Heat and lot number
- Craft welder's name and symbol
- Weld joint identification

No violations were identified.

b. Observation of Work and Records - ITT Grinnell Industrial Piping, Inc.

Several welds were examined in the high pressure core spray, residual heat removal, and reactor building closed loop cooling water systems located within the primary containment. Welding was in accordance with ASME Boiler and Pressure Vessel Code, Section III and IX. Also, a pre-fit-up inspection and grinding inspection was performed by the resident inspector resulting in a violation as described below.

ITT Grinnell Industrial Piping, Inc. Quality Assurance Manual, Section 4, Process Control, states in part that field engineering shall describe the work to be performed in the process planner and construction shall be responsible for performing work in accordance with the planner.

Contrary to the above, on March 7, 1983, a site fabricated pipe spreader was being used on the inside of a 12" nominal residual heat removal pipe, identified on isometric 66-49 as spool piece #NM-66-331X, and heat was being applied in order to correct ovality

deviations, but instructions for the work were not provided in the process planner nor were procedures documented that prescribed the activities. Activities affecting quality include: assurance that the pipe spreader is removed, elimination of possible surface defects after removal of the pipe spreader, and assurance that temperatures are not applied that would be detrimental to the metal.

Also, on March 8, 1983, grinding was being performed on a 12" nominal high pressure core spray pipe, for inservice inspection surface condition, identified on isometric 25-10 at field weld #001, but the craftsmen had been issued an incorrect process planner for performing the grinding activity. Therefore, the correct planner authorizing and describing the work was not at the work location. Performing activities without documented instructions and procedures is a violation of 10 CFR 50, Appendix B, Criterion V, and failure to have the correct process planner at the location where the prescribed activity is performed is a violation of 10 CFR 50, Appendix B, Criterion VI (410/83-02-06).

9. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations or deviations. Unresolved items disclosed during the inspection are discussed in paragraphs 6 and 7.

10. 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. The licensee acknowledged the inspectors findings and concerns.