

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 80-04

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 Nuclear Station, Unit 2

Inspection at: Scriba, New York

Inspection conducted: May 12-15, 1980

Inspectors: R. A. McBrearty
R. A. McBrearty, Reactor Inspector

July 7, 1980
date signed

for R. A. McBrearty
G. A. Walton, Reactor Inspector

July 7, 1980
date signed

date signed

Approved by: L. E. Tripp
L. E. Tripp, Chief, Engineering Support
Section No. 2, RC&ES Branch

July 8, 1980
date signed

Inspection Summary:

Inspection on May 12-15, 1980 (Report No. 50-410/80-04)

Areas Inspected: Routine, unannounced inspection of repair activities associated with the biological shield wall. The inspection involved 32 inspector-hours onsite by two regional based inspectors.

Results: No items of noncompliance were identified.



DETAILS

1. Persons Contacted

Niagara Mohawk Power Corporation

*S. Czuba, QA Engineer
*R. Dahlin, Construction Services
*J. L. Dillon, QA Engineer
*L. G. Trenton,
*R. A. Norman,
*R. L. Patch, QA Engineer

Stone & Webster Engineering Corporation (S&W)

*R. Bernard, Project QA Manager
*C. E. Crocker, Mechanical Engineer
*W. E. Franczek, Biological Shield Wall Manager
*C. E. Gay, Superintendent, Field QC
*C. A. Goody, Resident Manager
C. E. Hilton, Superintendent of Construction
V. Langley, Level III UT Technician (Boston)
M. Mathews, QC Inspector
*M. R. Oleson, Assistant Resident Manager
*M. O. Pace, QA Engineer
J. E. Rogers, Chief Office Engineer
L. E. Shea, Head, Site Engineering Office
*W. J. Taylor, Field QC

*Denotes those present at the exit interview.

2. Biological Shield Wall Repair

a. Record Review

The inspector reviewed procedures, mill test reports and other records associated with the biological shield wall plate material. The review was done to ascertain compliance with the ordering requirements found in specification NMP-2-S204G.

The following were included in the inspector's review:

- Stone & Webster (S&W) specification number NMP-2-S204G, Revision 1.
- Cives Corporation shop order number 5850 dated June 12, 1979 for rolled plate number A5683 and number C7328.



- S&W QAIR number N25204G for shop order number 5850.
- Lukens Steel Company procedure A.0021.
- Lukens Steel test report dated 10/27/76 for melt and slab number A5683.
- Lukens Steel test report dated 9/28/76 for melt and slab number C7328.
- Lukens Steel mill test certificate dated 11/8/76 for melt number A5683.
- Lukens Steel mill test certificate dated 10/15/76 for melt number C7328.

The above were considered with respect to ordering requirements, material identity and compliance with applicable NDE requirements.

The inspector found that ASTM537, Class 1 material was ordered. Ultrasonic examination requirements of ASTM A578 Level 1, including supplementary requirements S3 and S4, and one hundred percent scan pattern was specified.

No items of noncompliance were identified.

b. Nondestructive Examination (NDE)

The licensee has categorized the biological shield wall welds into the following groups:

- inner wall to stiffener welds
- stiffener to stiffener welds
- cover plate to stiffener welds

The inspector reviewed NDE procedures, NDE data sheets and observed NDE in progress to ascertain compliance with the applicable requirements of the Structural Welding Code AWS D1.1-75.

The following were included in the review:



- Stone & Webster (S&W) QCI-HQ3-D9.51-04A, "Ultrasonic Examination of Welds on the Biological Shield Wall".
- Cives Corp. Ultrasonic Examination Procedure NDT-UT 76, Revision 1.
- Cives Corp. ultrasonic examination data sheets for the following welds:
 - PB 85/C welded to PA 77
 - PB 77 welded to PA 85/4
 - PB 85/1 welded to JA/1
 - PA 79 welded to PM 86/1
- S&W ultrasonic examination report dated 5/13/80 for coverplate 18-5, weld D.
- S&W ultrasonic examination report dated 5/13/80 for coverplate 18-14, weld D.
- S&W ultrasonic examination report dated 5/14/80 for coverplate 18-107, weld B.

The inspector observed the ultrasonic examination of the defect area of weld D, coverplate 18-5 and coverplate 18-14. The welds correspond to Cives Corp. welds PF 274 to PA 85/3 and PK 259 to PC 85/1, respectively. The examinations were done by S&W personnel using a 2.25 MHz, $\frac{1}{2}$ " x $\frac{1}{2}$ " transducer at an entry angle of 70° and a Krautkramer model USM2 flaw detector. Calibration for the examination was done using the 1/16" diameter hole in a steel IIW calibration block in accordance with AWS D1.1 and S&W procedure QCI-HQ3D9.51-04A. Defects revealed by the examination were attributed to lack of fusion and were judged unacceptable per the acceptance criteria of AWS D1.1-75, Section 8.

Prior to shipment from the vendor's plant, Cives personnel performed examinations using ultrasonic and magnetic particle techniques in accordance with the methods delineated in AWS D1.1, Section 6. S&W Engineering Corporation specification no. NMP-2-S204G, Revision 1 dated 7/14/77 allowed Cives Corp. the option of doing a volumetric examination using radiography or ultrasonics, or surface examination using magnetic particle methods at 1/3, 2/3 and 3/3 weld joint thickness. Specification S204G required, additionally, that back-gouged weld surfaces be examined with magnetic particle methods, and at all weld joints requiring radiographic or ultrasonic inspection, and where backing strips remain, the weld root be examined with magnetic particle methods. Cives Corp. elected to perform ultrasonic examination with supplementary magnetic particle examination where required.



The reviewed records indicate that the required examinations were done and, based on the examination results, the biological shield wall was considered acceptable by the vendor.

In addition to the above listed data sheets, the inspector reviewed ultrasonic examination records associated with various welds which were examined on site by S&W NDE personnel.

The inspector found that defect indications ranging from $\frac{1}{8}$ " to 48" long were detected at various depths in the welds. The ultrasonic indications were attributed to lack of fusion, possibly lamellar tearing and cracking. Metallurgical studies to determine the cause or causes of the defects were not completed at the time of this inspection.

Evaluation criteria was not defined for disposition of ultrasonic indications detected by S&W on site examinations. This item is considered unresolved pending clarification of the criteria to be used for the disposition of ultrasonic indications. (410/80-04-01)

The examinations by S&W were done after surface improvement by grinding to enhance transducer/surface contact. The Cives examinations were done on the original surface with no improvement. The inspector found no correlation between the Cives and the S&W examination results.

The licensee has determined that the stiffener to stiffener welds are inaccessible to ultrasonic examination. The quality of those inaccessible welds will be evaluated based on an analysis using inner wall to stiffener ultrasonic examination data and not based on data obtained from the specific welds. Disposition of the inaccessible welds is considered unresolved pending delineation of the evaluation parameters considered in the disposition and NRC review of the evaluation and disposition. (410/80-04-02).

c. Welding

The inspector reviewed the following records relative to the fabrication and repair of the biological shield wall. The audit was performed to ascertain compliance with the Structural Welding Code AWS D1.1.

Cives Corporation

- Welding Procedure Specification (WPS) 76-40 Flux Core Automatic Welding, Prequalified (B-U4C-GF)
- WPS 76-44 Shielded Metal Arc Welding, Prequalified (B-74A)



- WPS 76-41 Flux Core Automatic Welding, Prequalified (TC-U5-GF)
- WPS 77-42 Flux Core Automatic Welding, Prequalified (TC-U5-GF)
- WPS 77-40 Flux Core Automatic Welding, Prequalified (TC-U4d-GF)
- WPS 77-65 Flux Core Automatic Welding, Qualified with procedure qualification record (PQR) 77-5. Qualified using a minimum preheat of 250° F.

Chicago Bridge & Iron

- Specification E 70T-1-3899W using FCAW manual. Qualified with PQ 3899 at 150° F minimum preheat.
- Specification E 70T-1-3901W using FCAW manual.
- Specification E 70T-1-3913W using FCAW manual. Qualified with P.Q. 3913W at 150° F minimum preheat.

No items of noncompliance were identified.

3. Unresolved Items

Unresolved items are items about which more information is required to ascertain whether they are acceptable items, items of noncompliance or deviations. Two unresolved items disclosed during this inspection are discussed in paragraph 2b.

4. Exit Interview

The inspectors met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on May 14, 1980. The inspectors summarized the purpose and the scope of the inspection and the findings.

