

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-220/87-11
50-410/87-25

Docket Nos. 50-220
50-410

License Nos. DPR-63
NPF-54 Category C

Licensee: Niagara Mohawk Power Corporation
301 Plainfield Road
Syracuse, New York 13212

Facility Name: Nine Mile Point Units 1 and 2

Inspection At: Scriba, New York

Inspection Conducted: June 29-30, and July 6-10, 1987

Inspectors: Harry W. Kerch
Harry W. Kerch, Lead Reactor Engineer

9/1/87
date

for Harry W. Kerch
Robert A. Gramm, Sr. Resident Inspector

9/1/87
date

Approved by: E. H. Gray
E. H. Gray, Acting Chief, Materials
and Processes Section, EB, DRS

9/1/87
date

Inspection Summary: A special inspection regarding an allegation associated with ITT Grinnell welding at Unit 1 and a routine inspection regarding previous inspection items at Units 1 and 2 and Main Steam Isolation Valve (MSIV) replacement weld radiographs at Unit 2 were performed. The special inspection was performed by two Region I personnel during June 29-30, 1987 and the routine inspection was performed by one Region I inspector during July 6-10, 1987. The purpose of these inspections was to verify the adequacy of the licensee's welding quality control and NDE programs.

Results: Two violations were identified. One violation involves a missed rejectable welding indication in the MSIV replacement piping. The other violation involves the procedure for qualifying contractor visual inspection personnel. An unresolved item regarding inspection of reactor pressure vessel beltline welds was also identified.

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DETAILS

1.0 Persons Contacted

1.1 Niagara Mohawk Power Corporation

- *C. Beckham, Mgr. QA Operations
- L. Wolf, Unit 1 Site Licensing
- T. Newman, Supervisor QE/QC
- L. Ludwig, Supervisor ISI
- T. Egan, NC&V Engineer
- N. Radermachi, QA

1.2 Nuclear Energy Services

- C. Taylor, NES Site Manager
- T. Beck, NES Site Supervisor

1.3 Nuclear Regulatory Commission

- B. Cook, Sr. Resident Inspector, NMP Units 1 and 2
- R. Gramm, Sr. Resident Inspector, Limerick Unit 2
- *H. Kerch, Lead Reactor Engineer

*Denotes those present at exits on both June 29, 1987 and July 10, 1987.

2.0 Allegation Followup Unit No. 2

The Nuclear Regulatory Commission received an allegation that a welder had possibly employed improper welding practices while at Nine Mile Point Unit 2. Specifically, it was alleged that pieces of filler metal were inserted in the weld joint and welded over. This process referred to as "slugging" could result in poor quality weldments. The welder had been employed by ITT-Grinnell in 1979 and from 1982 through 1984. The welder had been assigned a unique weld stencil of "GB". The licensee reviewed quality records for 291 pipe whip restraints and identified that welder GB had worked on nine restraints. The inspector reviewed quality records associated with the following restraints.

2MSS*PRS017	2WCS*PRS016
2MSS*PRS036	2FWC*PRS007
2FWS*PRS034	2RCS*PRS034
2MSS*PRS006	2FWS*PRS024
2FWS*PRS018	

In particular, the inspector reviewed the weld data cards to identify the weld joints that welder GB had made. The associated Nondestructive Examination records for final magnetic particle (MT) and visual examinations were reviewed. The progressive magnetic particle examination records for MT that was performed at ½ inch increments of weld thickness were also



reviewed. The direct current prod method was utilized for all magnetic particle examinations. This method would have detected subsurface discontinuities representative of the alleged weld slugging. Detection of slugging was not documented on the quality records.

The licensee indicated that surveillance amperage check logs and welder certification records were reviewed to identify pipe welds that welder "GB" had made. The licensee found 22 welds that welder "GB" had worked on. The licensee reviewed the associated radiographic film and found them satisfactory. Radiographic film from 11 large bore pipe welds was selected for independent NRC review.

The following is a list of welds for which radiographs were reviewed by the NRC for slugging.

<u>ISO</u>	<u>System</u>	<u>Weld Number</u>
47-16	FW	FW006R1
47-13	FW	FW009R1
01-5	MS	FW007R3
9-14	WCS	FW012R1
9-14	WCS	FW014
9-14	WCS	FW015R1
9-14	WCS	FW016
9-14	WCS	FW021
47-1	FW	FW003
01-4	MS	FW003
01-4	MS	FW009R1

The quality records and radiographs associated with components that welder "GB" had worked on indicate that the hardware was fabricated in accordance with the appropriate site quality program requirements. The intermediate and final weld examinations provide satisfactory evidence that weld slugging was not performed by welder "GB" at Nine Mile Point 2.

3.0 Unit No. 1 Outstanding Items Closed During This Inspection

(Closed) Unresolved Item (220/83-07-01). Inaccurate reporting of radiographic source physical size versus curie strength on radiographic reports.

Items reviewed:

- Licensee's folder 1047
- Letter 21643
- Letter 6640
- NRC Inspection Item 220/83-07-01.
- NRC Inspection Report 50-220/83-18.
- 18 randomly selected radiographic weld packages that contain the radiographic reader sheets.



The inspector randomly selected recirculation system radiographic reader sheets and noted that the correct source size and curie strength had been placed on the applicable reader sheets. Based on this review, the inspector considers item (220/83-07-01) closed.

(Closed) Unresolved Item (220/84-04-01) Minimum distance which must be maintained between divers working in spent fuel pool and the nearest spent fuel elements.

Items reviewed:

- Licensee's folder 1289
- Letter 15306
- Letter dated March 1, 1984
- NRC letter dated May 24, 1987
- IMPELL Corporation report dated September 17, 1984
- NRC Inspection Report 50-220/84-04.

The licensee advised the inspector that the questions concerning the minimum distance which must be maintained between divers working in the spent fuel pool has been discussed with NRR in Licensee Amendment No. 54 and the Safety Evaluation (SE). The main concern was the Man-Rem exposure of the diving operation. The inspector reviewed the Post-work ALARA evaluation for this modification prepared by IMPELL. This report reflected a 41% Man-Rem saving for diving operations. Based on this information and the other actions taken by the licensee that reduced Man-Rem, the inspector considers unresolved item 220/84-04-01 closed.

(Closed) Unresolved Item (220/83-02-03). Concerned the examination of welding during recirculating piping replacement.

Items reviewed:

- Licensee's folder 1081
- Letter 21611
- Dye Penetrant Report 2819-359
- NRC Inspection Report 50-220/83-02.

During the 83-02 inspection, it was noted that the outside surface of the straight portion of FW-15S-SEN weld had not received a surface examination after post weld heat treatment. ASME Section III, NB2547(c) requires a surface examination of accessible surfaces to be performed in the finished condition. The inspector reviewed and verified that an acceptable liquid penetrant inspection was performed on FS-15S-SEN dated, February 22, 1983. Based on review of the licensee's liquid penetrant examination report 2819-359, the inspector considers this item closed.



(Closed) Unresolved Item (220/84-04-02) welders performance qualification.

Items reviewed:

- Licensee's folder 1290
- Letter 14480
- Quality Control Inspection Report QCIR-83-709
- CBI welders qualification maintenance records dated 2/15/84
- CBI welders qualification dated 7/06/84
- CBI welders qualification test dated 2/02/84.

Prior to installation of the new spent fuel racks in the spent fuel pool, two support lugs will be fillet welded to the pool floor liner. Two welders were designated to perform the underwater welding. The welders performance qualification records were poor quality copies in that they were illegible and they were not dated. The inspector reviewed the replaced welding records for both welders and found them to be acceptable. Based on this review, the inspector considers this item closed.

(Closed) IFI (220/82-16-05). Qualification and certification of NRC personnel.

Items reviewed:

- 9 personnel records.

Based on the review of NES personnel certification records and inspections discussed in Paragraph 5 of this report concerning NES Procedure 80A9069 certification of visual inspection personnel, the inspector closed item 82-16-05.

(Open) Unresolved Item 220/84-07-01. During inspection 84-07-01 two concerns were raised regarding the Ultrasonic Test (UT) report for the repair of weld SW49B. The first concern was that the UT report did not state if the results of the post repair inspection were acceptable. During this inspection, the NRC inspector reviewed ultrasonic inspection data sheet 2818-153, dated May 13, 1984, documenting the results of the licensee's evaluation of the subject weld. This data sheet included an evaluation by the licensee Level III inspector of an indication 3" in length and .040" deep on the ID of weld SW49B. However, the inspection data sheet included no characterization record for this indication. The NRC inspector also reviewed the 1986 ultrasonic inspection data for this weld and upon further review by the licensee, the licensee committed to evaluate the 1984 and 1986 ultrasonic inspection reports and perform additional examinations of this weld during the 1987 outage. The second part of this unresolved item deals with the lack of a procedure to properly identify, document and verify dendritic properties. The licensee has developed and implemented procedure TDP-12 that addresses all the concerns with documenting the problems of dendritic properties.



4. Main Steam Isolation Valve Replacement Radiographs

Twenty-six MSIV piping field weld radiographs were reviewed at Nine Mile 2 by the NRC inspector.

The following is a list of radiographs of welds reviewed.

<u>ISO</u>	<u>WELD</u>	<u>STATUS</u>
X1-2MSS-AOV6A-CDA	FW-001	Acceptable
	FW-002	Acceptable
X1-2MSS-AOV6B-CDA	FW-001	Acceptable
	FW-002	Acceptable
X1-2MSS-AOV6C-CDA	FW-003	Acceptable
	FW-001	Acceptable
	FW-002	Acceptable
X1-2MSS-AOV6D-CDA	FW-003	Acceptable
	FW-001	Acceptable
	FW-002	Acceptable
X1-2MSS-AOV7A-CDA	FW-001	Acceptable
	FW-002	Acceptable
	FW-003	Rejected
X1-2MSS-AOV7B-CDA	FW-004	Acceptable
	FW-001	Acceptable
	FW-002	Acceptable
	FW-003	Acceptable
X1-2MSS-AOV7C-CDA	FW-004	Acceptable
	FW-001	Acceptable
	FW-002	Acceptable
	FW-003	Acceptable
X1-2MSS-AOV7D-CDA	FW-004	Acceptable
	FW-001	Acceptable
	FW-002	Acceptable
	FW-003	Acceptable
	FW-004	Acceptable

Weld 2MSS*AOV7A FW-003 contained a 3/4" rejectable zone of incomplete fusion that was not recorded or dispositioned in film area 1-2. This indication did not meet the requirements of site Procedure QAD 9.41, Rev. 0 nor was it acceptable to ASME Code Section III, 1974 Edition, Summer 1975 addenda, paragraph NC5320. The licensee has issued Nonconformance Report 2-87-0084 documenting the rejectable indication. Subsequent to being "N" stamped, this weld was subject to a preservice ultrasonic examination under Section XI. During this preservice inspection the subject indication was identified and found to be acceptable by the Section XI flaw evaluation criteria.

This item is considered a violation (50-410/87-25-01) in that the licensee failed to effectively complete a ASME Section III Code required examination. For weld FW 003, ISO X1-2MSS-AOV7A-CDA.



5. Experience Requirements for Visual Examination Personnel Unit No. 1

During this inspection it was disclosed that Nine Mile 1 site procedure 80A9069 "ISI Certification of Visual Examination Personnel" was not in compliance with ASME Section XI paragraph IWA2300, 1980 Edition of the code. The ASME Code Section XI invokes ANSI-N45.2.6. Below is a comparison of ANSI-N45.2.6 and NES procedure 80A9069.

ANSI N45.2.6-1973 experience requirements:

- Section 3.0 Qualifications

The requirements contained within this section are intended to define the minimum capabilities that qualify personnel to perform quality assurance functions that are within the scope of this standard.

- Section 3.1 Levels of Capability

The education and experience requirements specified for the various levels should not be treated as absolute when other factors provide reasonable assurance that a person can competently perform a particular task.

- Section 3.1.1 Level I. To be considered for certification, a candidate must satisfy the following requirements:

High school graduate, plus one year of experience in quality assurance including testing or inspection (or both) of equivalent construction and installation activities.

- Section 3.1.2 Level II. To be considered for certification, a candidate must satisfy one of the following requirements:

- (1) Graduate of a four-year accredited engineering or science college or university, plus two years of experience in quality assurance including testing or inspection (or both) of equivalent construction and installation activities.

- (2) High school graduate, plus four years of experience in testing or inspection (or both) of power plant, nuclear plant, heavy industrial or other similar equipment or facilities.

Nuclear Energy Services 80A9069 procedure experience requirements for certification for visual inspection:

Level I (All categories)



For certification, the candidate shall satisfy any one of the following requirements:

1. Three months as a Level I or II in either the liquid penetrant or magnetic particle methods and one month of experience in visual examinations.
2. Three months of experience in visual examinations.
3. Prior certification as a Visual Level I.

Level II (All categories)

For certification, the candidate must satisfy any one of the following requirements.

1. Six months as a Level II in either the liquid penetrant or magnetic particle methods and three months of experience in visual examinations.
2. Six months as a Visual Level I in accordance with this procedure.
3. Prior certification as a Visual Level II.

As an example, the NES procedure would permit an individual to become a Level I visual inspector with only three months of experience wherein the ANSI standard imposes one year of experience. It is recognized that the ANSI 45.2.6 standard permits some latitude in establishing experience and educational requirements within user procedures; however, the reduction of the recommended experience levels by a factor of four does not provide adequate assurance that inspectors are properly trained.

This item is considered a violation (50-220/87-11-01) in that the licensee procedure in use did not meet the ANSI N45.2.6 requirements with respect to experience times for Level I and II visual examiners.

6. Inservice Inspection ISI Unit No. 1

During this inspection it was disclosed that the reactor vessel welds for Nine Mile 1 were not being ISI examined except for the upper head and nozzles. Further investigation revealed that relief from the code required volumetric examination for these welds had been granted by the NRC due to licensee's reported accessibility problems.

The inspector discussed the need for an updated feasibility study of reactor pressure vessel ISI in light of current state-of-the-art techniques with licensee representatives at the exit of this inspection and in a telephone conversation with Mr. G. Gresock of the licensee staff on August 20, 1987. This is an Unresolved Item (50-220/87-11-02).



7. Exit Interview

Exit interviews were held on 6/29/87 and 7/10/87, with members of the licensee's staff. The inspector summarized the scope and findings of this inspection. No written material was provided to the licensee during this inspection.

