

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

DOCKET/REPORT NO: 50-286/94-406
LICENSEE: New York Power Authority
New York, New York 10019
FACILITY: Indian Point 3 Nuclear Power Station
DATES: December 5, through December 8, 1994
CONTRACTOR: William Mingus, TET, Inc., Mobile, AL

INSPECTOR: E. H. Gray for RHH 12/30/94
Richard H. Harris, NDE Technician Date
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APPROVED: E. H. Gray 12/30/94
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Inspection Summary: An announced inspection was conducted at Indian Point Unit 3 Nuclear Power Station, December 5-8, 1994 (Report No. 50-286/94-406). The purpose of this inspection was to perform an independent review and evaluation of safety-related radiographs and related documentation for components, systems, and weldments radiographed by the utility to assure that these are in compliance with the applicable Codes, standards, and regulatory requirements.

Areas Inspected: The inspectors reviewed a random sample of the licensee's radiographic packages which consisted of safety-related welded components fabricated to the Construction Code. Seventy-two (72) radiographic packages, from the nine hundred and eighty-nine (989) safety-related construction and modification radiographic packages of the plant were selected. Included in this sample was the steam generator blowdown (SGBD), main steam (MS), residual heat removal (RHR), chemical volume control (CVCS), containment water coolant (CCW), instrument air (IA), service water (SW), steam generator boiler feed (BFD), steam generator girth weldment (SG-G), essential service water (ESS), reactor water clean-up (RWCU), and feedwater (BF) systems.

Results: The results of the evaluation of radiographs performed by the NRC were consistent with the radiographic review documentation of the licensee. The radiographs and documentation met the requirements of the ASME Code and no rejectable conditions were identified. During this inspection, the inspector reviewed and closed out Unresolved Items 286/94-05-01, 94-11-03, and 94-15-01. No violations or deviations were identified.

DETAILS

1.0 INDEPENDENT MEASUREMENTS - NRC NONDESTRUCTIVE EXAMINATION AND QUALITY RECORDS REVIEW OF SAFETY-RELATED SYSTEMS (73753)

INTRODUCTION

In May of 1994, based on concerns regarding radiographic examination records initially identified at the James A. FitzPatrick Nuclear Power Plant, New York Power Authority (NYPA) initiated a review of similar records at Indian Point 3 (IP3). The subsequent inspection (286/94-15) by a NRC regional inspector at IP3 noted problems with radiographic records contained in pipe modification documentation packages.

An audit of construction radiographs and post-construction modifications of safety-related systems involving welding and non-destructive examinations was performed by the licensee. This audit was performed to determine the extent to which radiographic documentation deficiencies of welds exist at IP3 for original construction and post-construction safety-related work, and to provide for corrective actions.

During the period of December 5-8, 1994, an onsite independent inspection was conducted at Indian Point 3 Nuclear Power Station. This inspection was conducted by a NRC inspector and a contractor radiographic specialist. The objective of the inspection was to assess the adequacy of the licensee's safety-related radiographs and determine Code acceptability of concerns identified in NRC Report 286/94-15. These concerns included deficiencies in weld-related documentation, specifically radiographic records contained in modification packages and inconsistencies identified in the piping specifications with regard to nondestructive examination (NDE) requirements. The NYPA welding program, Administrative Program (AP-33), specifies that welding will be in accordance with ANSI B31.1, 1977; however, the design welding code that IP3 is committed to per FSAR Section 16.1.4 references ANSI B31.1 (1967).

2.0 RADIOGRAPHIC FILM REVIEW

The inspector independently selected a random sample of seventy-two (72) radiographic packages (RT) generated from a list of nine hundred and eighty-nine (989) radiographic packages for safety-related piping and pressure vessel welds submitted by the licensee. The inspector concluded that the licensee had initiated a comprehensive program for determining what radiography had been performed during and after construction and verified the quality of these radiographs and related documentation. This was accomplished by reviewing the licensee's RT packages for retrievability of radiographs and associated documentation, and to determine if the film and welds were acceptable, unacceptable, or missing. The inspector reviewed each RT package for conformance to ASME Code requirements: density coverage, film archival quality, artifacts, classification, and weld integrity and then compared these review results to the licensee's RT documentation. The radiographic packages reviewed are shown in Table 1.

Conclusion

The inspectors found the radiographs in the random sample selection set to be readily available, complete, and in accordance with the Code, with no conditions of unacceptable weld quality. This provides a high confidence level that there are no weld integrity problems associated with safety-related radiographed systems at the Indian Point 3 Nuclear Generating Station. Any historical problems associated with the radiographs or corresponding quality records have since been corrected by the licensee. The response by the licensee was appropriate for the previous NRC concerns, such as retrievability of records, film quality, Code acceptance, and weld integrity. The inspector concluded, after a thorough review of the radiographs and associated documentation, that there are no open concerns in this area.

3.0 (CLOSED) UNRESOLVED ITEM 286/94-05-01

The IP3 design welding Code, per Section 16.1.4 of the FSAR, is ANSI B31.1 1967. However, the NYPA welding program, Administrative Procedure (AP-33), developed in 1977, incorrectly referenced the 1977 version instead of the 1967 Edition of B31.1.

The licensee took the following actions:

1. Developed an Action Plan for Code Reconciliation and Nuclear Engineering Design Task Request No. 94-3102, requiring the formation of a multi-discipline task force to address specific actions to be taken to resolve this issue.
2. Confirmed that the Design Code of Record for IP 3 is B31.1, 1967 Edition and Revised AP-33 to reflect changes.
3. Reviewed that later Editions of B31.1 against the Code of record; evaluated and resolved any discrepancies in AP-33 and associated welding procedures, and QA/QC NDE inspection procedure requirements.
4. Determined the root cause, the extent of the condition, and the safety significance of this issue. Generated an engineering evaluation report, nuclear safety evaluation, and/or FSAR change necessitated by this evaluation.

The inspector reviewed the ANSI/ASME Code reconciliation prepared by the Nuclear Engineering and Design Department to evaluate the NDE and welding acceptance criteria differences between B31.1, 1967 and subsequent Editions and Addenda of B31.1. The inspector concluded that the engineering evaluation supports the closing of this issue.

4.0 (CLOSED) UNRESOLVED ITEMS 286/94-15-01 AND 286/94-11-03

Resolution of flaws found during review of Welds BWF-35 and BWF-36 in the safety injection (SI) line.

The licensee's quality assurance NDE Procedure (NDEP 9.3, Rev. 3) established radiographic acceptance standards. This procedure, in part, states that welds that are shown by radiography to have any type of crack or zone of incomplete fusion or penetration are unacceptable. Indications in welds BWF-35/36 were identified by the licensee during a review of the original radiographs and confirmed later by new radiographs. The new radiographs confirmed circumference flaws due to lack of penetration. The action taken by the licensee, based on the radiographic results, was to perform calculations to assess the effects of the flaws. These welds were evaluated by ultrasonic examination for a more accurate flaw assessment and placed in the inservice inspection (ISI) plan for periodic monitoring. The reported flaws in welds BWF-35 and BWF-36 were evaluated to the requirements of ASME Section XI, Table IWB-3641-1 (1989 Edition) and determined to be acceptable by IWB-3641 criteria. The licensee has submitted documentation with component description, applied stresses and flaw characterization (NYPA-41Q-301) "Evaluation of 2 flaws in Indian Point 3 Safety Injection Piping" and calculations.

The licensee has concluded that, although growth of the flaws is not expected, they have taken a conservative approach. The conservative flaw growth shows that ASME Section XI IWB-3641 allowable values are not violated for at least 2.5 years of continued operation, and that the observed flaws are acceptable without repair at present and will remain acceptable for at least the next operating cycle. The inspector concluded that the engineering evaluation and associated documents support the closing of these issues.

Unresolved Items 286/94-15-01 and 286/94-11-03 are essentially the same and are closed.

TABLE 1
List of radiographs reviewed, with comments:

SYSTEM	WELD		COMMENTS
CCW	W-4		Mod. No. 93-03-337
CVCS	BFW-328		Mod. No. 79-03-021
MS	BFW-67		Mod. No. 81-03-047
RHR	W-29		Mod. No. 78-03-022
IA	IA-508		Mod. No. 92-03-250
IA	IA-601		Mod. No. 93-030250
SGBD	BFW2269		Mod. No. 88-03-050
SGBD	BFW2352		Mod. No. 89-03-237
SGBD	BFW2357		Mod. No. 89-03-273
CCW	(HX31)122		Mod. No. 88-03-242
CCW	(HX32)101		Mod. No. 88-03-242
CVCS	755		Mod. No. 90-03-138
CVCS	773		Mod. No. 90-03-138
CVCS	779		Mod. No. 90-03-138
CVCS	784		Mod. No. 90-03-138
RHR	150		Mod. No. 89-03-251
RHR	160		Mod. No. 89-03-251
RHR	166		Mod. No. 89-03-251
RHR	171		Mod. No. 89-03-251
RHR	181		Mod. No. 89-03-251
RHR	184R1		Mod. No. 89-03-251
RHR	194R1		Mod. No. 89-03-251
RHR	198R4		Mod. No. 89-03-251
SGBD	2261		Mod. No. 88-03-050
SGBD	FW-5		
SGBD	FW-26		
BF	(SG31)FW-5		
BF	(SG34)FW-26		
MS	(SG31)FW-2		
MS	(SG32)FW-8R1		
RCS	(RTD)FW-4		Mod. No. 88-03-041
SGBD	2107		
SGBD	2206		
SGBD	(45-5)FW-3		Mod. No. 88-03-050
SGBD	(45-6)FW-7		Mod. No. 88-03-050

SYSTEM	WELD	COMMENTS
SGBD	45-7	Mod. No. 88-03-050
SGBD	48-3	Mod. No. 88-03-050
SGBD	FW-1	Mod. No. 88-03-050
SGBD	(SG31)FW-3	
SGBD	(SG31)FW-31	
SGBD	(SG34)FW-25	
(SG31)	(V-01)-(33)	Vendor Film
(SG32)	(0-1)-(9-0)	Vendor Film
(SG32)	(0-1)-(33-0)	Vendor Film
(SG33)	(0-1)-(9-0)	Vendor Film
(SG34)	(0-1)-(9-0)	Vendor Film
SGBD	(BDR)793	Vendor Film
SGBD	(BDR)883	Vendor Film
SGBD	(BDR)966R1	Vendor Film
SGBD	(BDR)1010	Vendor Film
SGBD	(BDR)1050	Vendor Film
SGBD	(BDR)1082	Vendor Film
SWN	423	Vendor Film
SWT	456	Vendor Film
SWT	497	Vendor Film
ESS	162	Mod. No. 81-03-068
BFW	FW017D	
ESS	163	Mod. No. 81-03-068
MS	(L/32)FW-15	Mod. No. 81-03-040
MS	(L/34)FW-32	Mod. No. 81-03-040
BFD	127	
BFD	132	
CVCS	BFW-A-21	Mod. No. 78-03-047
RHR	BFW-14	Mod. No. 78-03-022
SFPC	BFW-9	Mod. No. 78-03-011
SFPC	8008-2W1-X	Vendor Film
SFPC	8008-4W3-C	Vendor Film
SFPC	8079-2W1-CP	Vendor Film
N2	SW-116	MMT 77-3-10
OPP	FW-5	MMT 77-3-03

5.0 MANAGEMENT MEETINGS AND MANAGEMENT OVERSIGHT

The licensee has recently performed an extensive review of radiographs and related documentation and has taken corrective actions as needed. This review was initiated by NYPA management after finding a problem with the availability and completeness of radiographs at the FitzPatrick plant.

Licensee management was informed of the scope and purpose of this inspection at the entrance meeting on December 5, 1994. The findings of the inspection were discussed with the licensee representatives during the course of the inspection, and presented to licensee management at the exit meeting on December 8, 1994. The licensee did not indicate that proprietary information was involved within the scope of this inspection, nor did the licensee object to any of the findings of the inspection. The following individuals were contacted:

New York Power Authority (NYPA)

* M. Carmichael	Quality Assurance
* J. Cemiotos	General Manager Support
* L. Hill	Resident Manager
N. Houborgor	Maintenance Manager
* S. Memon	Quality Assurance
* D. O'Brian	Licensing Coordinator
R. Patch	Director of QA
P. Peloquin	Quality Assurance
* K. Peter	Licensing Manager
* W. Rheaume	Quality Assurance
* S. Schnurr	Quality Assurance
S. Toth	Quality Assurance
J. Zach	Manager Operations

U. S. Nuclear Regulatory Commission

* D. Lew	Resident Inspector, RI
E. Gray	Chief, DRS/NDE, RI

* Denotes those individuals attending the entrance and exit meetings. The inspectors also contacted other administrative and technical personnel during the inspection.