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SUBJECT: LER 89-023-00:on 890907,fabrication flaws discovered in HPCI line welds.

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October 10, 1989

Report Required by:
10 CFR Part 50,
Section 50.73

U S Nuclear Regulatory Commission
Attn: Document Control Desk
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MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Fabrication Flaws Discovered in HPCI Line Welds

The Licensee Event Report for this occurrence is attached.

Please contact us if you require additional information related to this event.

Thomas M Parker
Manager
Nuclear Support Services

c: Regional Administrator-III, NRC
NRR Project Manager, NRC
Resident Inspector, NRC
MPCA
Attn: J W Ferman

IE22
1/1

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4)
Fabrication Flaws Discovered in HPCI Line Welds

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
										0 5 0 0 0
0 9	0 7	8 9	8 9	— 0 2 3	— 0 0	1 0	1 0	8 9		0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Jeff Ricker, Supt. Materials and Special Processes	AREA CODE 6 1 2 3 3 7 - 2 1 4 6

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X YES (If yes, complete EXPECTED SUBMISSION DATE)	NO		1 1	0 1	8 9

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

Rejectable flaws were discovered in dissimilar metal welds joining a Type 304 flow venturi in the steam supply to the High Pressure Coolant Injection (HPCI) turbine. These were the only welds remaining in the system which required augmented Inservice Inspection (ISI) by Generic Letter 88-01 and NUREG 0313 Rev 2 after replacement projects completed in 1984 (recirculation piping) and 1986 (core spray piping).

The flaws were not previously discovered by ISI because irregular I.D. joint geometry masked Ultrasonic Testing (UT) indications. For this reason, radiography was used to supplement UT during the current refueling outage. The flaws were disclosed on 9/7/89.

The flaws appear to be from the original fabrication of the spool piece welds joining carbon steel pup pieces to each end of stainless steel venturi. Radiography was not performed during fabrication, nor was it required at the time by the design and fabrication Code B31.1-1967.

The replacement venturi spool piece has a venturi of Nuclear Grade stainless steel and weld joint geometry designed to facilitate UT inspectability.

DESCRIPTION

During a scheduled ISI examination of welds in the HPCI (BJ) steam supply line, rejectable flaws were found in two welds. The plant was shutdown for refueling at the time. The flaws were discovered by radiographic testing on 9/7/89. The flawed welds (PSAF 2b and 2c) on line PS 18-8"ED are shown on the attached figure. The welds are dissimilar metal welds joining a stainless steel venturi (PSP) in the carbon steel line.

The venturi is part of a spool piece fabricated by BIF Inc., in 1972. This spool piece consists of a stainless steel venturi and carbon steel pup pieces on each end. The spool piece was installed in April, 1973 as a modification to improve steam flow measurements to the HPCI turbine. Prior to this modification, steam flow measurement was taken from steam piping elbow taps.

CAUSE

The flaws appear to be slag and lack of fusion weld defects from fabrication. Radiography was not performed during fabrication of spool piece as it was not required by the design and fabrication Code, ANSI B31.1-1967. The liquid penetrant testing done during fabrication would not have detected the flaws found.

ANALYSIS

This event does not involve equipment failure. The flaws were not found previously because joint configuration masked indications when examined using ultrasonic testing (UT). Recognizing difficulties with UT examination, radiography was attempted to further evaluate previous inspection results. Radiography revealed rejectable flaws. Acceptance criteria are defined by ASME Boiler and Pressure Vessel Code, Section IX 1977 edition including summer 1978 addenda.

ASME Boiler and Pressure Vessel Code Section XI and fracture mechanics analyses have been completed to see if these flaws could have resulted in a significant safety problem. The analyses indicate that the weld would not have failed as a result of stresses from normal operation or accident conditions.

CORRECTIVE ACTION

The spool piece including the flow venturi and pup pieces was replaced soon after detection of the flaw. A replacement spool piece was ordered before the outage in anticipation of possible stress corrosion cracking in the venturi welds. Design of the new component facilitates inspection. Radiography and baseline ultrasonic examination results of welds on the new component are acceptable. The new flow element and dissimilar welds conform to NUREG 0313 Rev 2 for "Category A Weldments."

PREVIOUS SIMILAR EVENTS

None

NRC FORM 366A (6-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

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TEXT (If more space is required, use additional NRC Form 366A's) (17)