



December 9, 2004

10 CFR 50.73(a)(2)(ii)(A)

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Palisades Nuclear Plant  
Docket 50-255  
License No. DPR-20

Licensee Event Report 04-002, Leak Path Indications Identified in Reactor Pressure Vessel Head Nozzle Penetrations

Licensee Event Report (LER) 04-002 is enclosed. The LER describes the discovery of leak path indications in two reactor pressure vessel head control rod drive mechanism nozzle penetrations. This event is reportable in accordance with 10 CFR 50.73(a)(2)(ii)(A).

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments.

Daniel J. Malone  
Site Vice President, Palisades Nuclear Plant  
Nuclear Management Company, LLC

Enclosure (1)

CC Administrator, Region III, USNRC  
Project Manager, Palisades, USNRC  
Resident Inspector, Palisades, USNRC

JE22

**ENCLOSURE 1**

**LER 04-002, LEAK PATH INDICATIONS IDENTIFIED IN  
REACTOR PRESSURE VESSEL HEAD NOZZLE PENETRATIONS**

**4 Pages Follow**

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0066), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>FACILITY NAME (1)</b> Palisades Nuclear Plant	<b>DOCKET NUMBER (2)</b> 05000-255	<b>PAGE (3)</b> 1 of 2
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**TITLE (4)**  
LEAK PATH INDICATIONS IDENTIFIED IN REACTOR PRESSURE VESSEL HEAD NOZZLE PENETRATIONS

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	16	2004	2004	-- 002 --	00	12	09	2004	FACILITY NAME	DOCKET NUMBER
<b>OPERATING MODE (9)</b>		6	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 11: (Check all that apply) (11)</b>							
<b>POWER LEVEL (10)</b>		0%	20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
			20.2201(d)			20.2203(a)(4)			50.73(a)(2)(iii)	50.73(a)(2)(x)
			20.2203(a)(1)			50.36(c)(1)(i)(A)			50.73(a)(2)(iv)(A)	73.71(a)(4)
			20.2203(a)(2)(i)			50.36(c)(1)(ii)(A)			50.73(a)(2)(v)(A)	73.71(a)(5)
			20.2203(a)(2)(ii)			50.36(c)(2)			50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)	
			20.2203(a)(2)(iv)			50.73(a)(2)(i)(A)			50.73(a)(2)(v)(D)	
			20.2203(a)(2)(v)			50.73(a)(2)(i)(B)			50.73(a)(2)(vii)	
			20.2203(a)(2)(vi)			50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)	
			20.2203(a)(3)(i)		X	50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)	

**LICENSEE CONTACT FOR THIS LER (12)**

<b>NAME</b> Barb Dotson	<b>TELEPHONE NUMBER (Include Area Code)</b> (269) 764-2265
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**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	AB	RPV	C490	Y					

<b>SUPPLEMENTAL REPORT EXPECTED (14)</b>				<b>EXPECTED SUBMISSION DATE (15)</b>		
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO		MONTH	DAY	YEAR

**ABSTRACT**

On October 16, 2004, with the plant in Mode 6, leak path indications were identified in the inconel buttering of the J-groove weld on reactor pressure vessel (RPV) head control rod drive mechanism nozzle penetrations 29 and 30. Initially, ultrasonic examinations performed in accordance with EA-03-009, "Issuance of First Revised NRC Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors," identified the leak path indications. Subsequently, in accordance with the Order, a bare metal visual inspection of the exterior of the RPV head was performed. Although no evidence of leakage was visible during the bare metal inspection, a dye-penetrant examination was performed of the J-groove welds for penetrations 29 and 30. The dye-penetrant exam showed minor surface indications that required further evaluation. During grinding activities on penetration 29, an approximately 1/4-inch long axial crack was identified perpendicular to the fusion line of the J-weld. During grinding activities on penetration 30, a circumferential crack, approximately one inch long, was identified adjacent to the fusion line of the J-weld. Penetrations 29 and 30 were repaired, and the reactor head was returned to service.

The safety significance of this event was minimal due to the size and orientation of the cracks. The cracks were small and tight, with no visible evidence of leakage. This event is reportable in accordance with 10 CFR 50.73(a)(2)(ii)(A) as a condition that resulted in a principle safety barrier being seriously degraded.

**LICENSEE EVENT REPORT (LER)**  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Palisades	05000-255	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 2
		2004	-- 002	-- 00	

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

**EVENT DESCRIPTION**

On October 16, 2004, with the plant in Mode 6, leak path indications were identified in the inconel buttering of the J-groove weld on reactor pressure vessel (RPV) [RPV;AB] head control rod drive mechanism nozzle [NZL;AB] penetrations 29 and 30. Initially, ultrasonic examinations performed in accordance with EA-03-009, "Issuance of First Revised NRC Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors," identified the leak path indications. Subsequently, in accordance with the Order, a bare metal visual inspection of the exterior of the RPV head was performed.

Although no evidence of leakage was visible during the bare metal inspection, a dye-penetrant examination was performed of the J-groove welds for penetrations 29 and 30. The dye-penetrant exam showed minor surface indications that required further evaluation. During grinding activities on penetration 29, an approximately 1/4 inch long axial crack was identified perpendicular to the fusion line of the J-weld. During grinding activities on penetration 30, a circumferential crack, approximately one inch long, was identified adjacent to the fusion line of the J-weld (See Figure 1). This event is reportable in accordance with 10 CFR 50.73(a)(2)(ii)(A) as a condition that resulted in a principle safety barrier being seriously degraded.

**CAUSE OF THE EVENT**

Additional metallurgical examinations were not performed on the indications, however, based on industry experience, the cause of the two penetration cracks is believed to be primary water stress corrosion cracking.

**SAFETY SIGNIFICANCE**

The safety significance of this event was minimal due to the size and orientation of the cracks. The cracks were small and tight, with no visible evidence of leakage.

**CORRECTIVE ACTIONS**

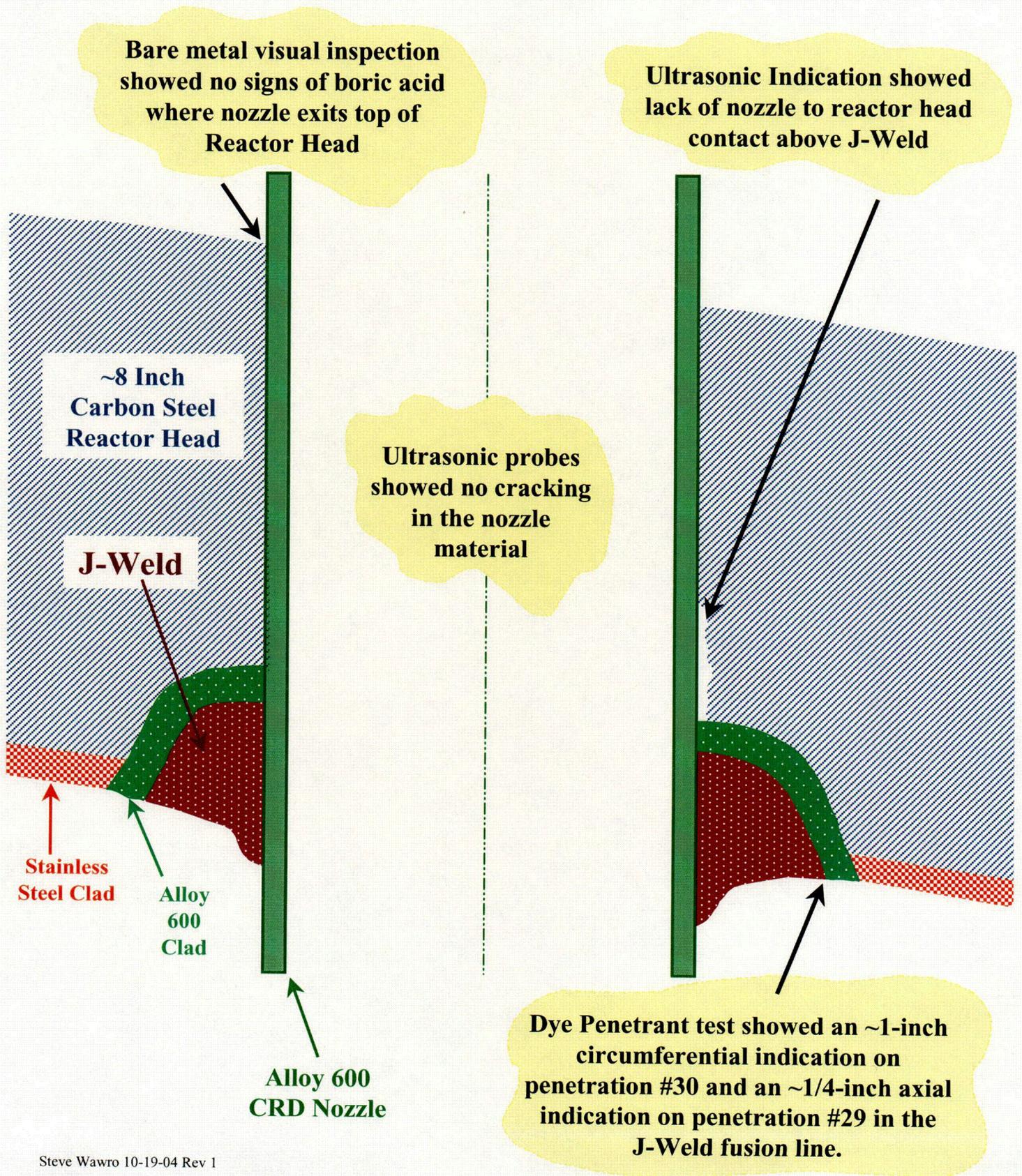
The bottom portions of the nozzles were cut and removed. New half-nozzles were inserted and welded to the upper portion of the existing nozzles and the RPV head, thus establishing a new pressure boundary weld. (See Figure 2).

After acceptable inspection of the repairs, the RPV head was returned to service.

**PREVIOUS SIMILAR EVENTS**

None.

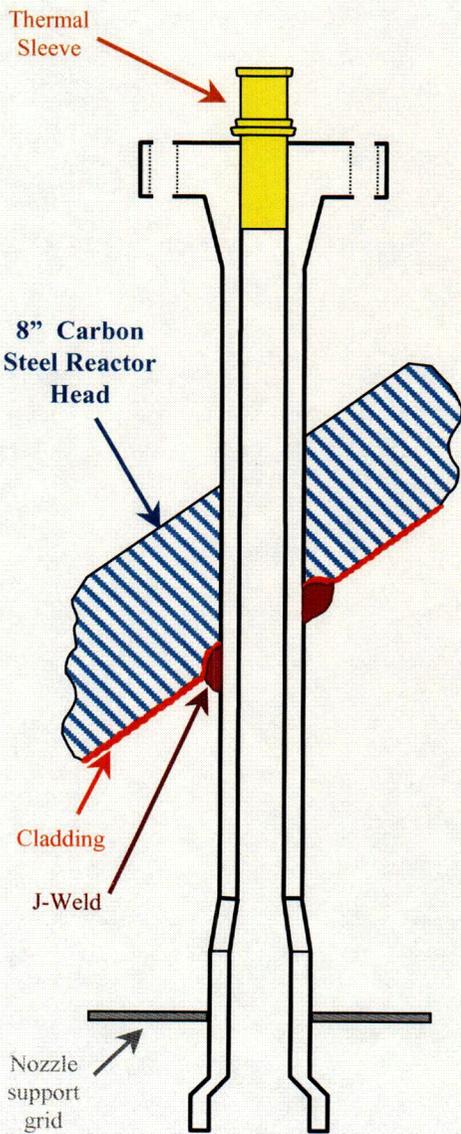
# FIGURE 1



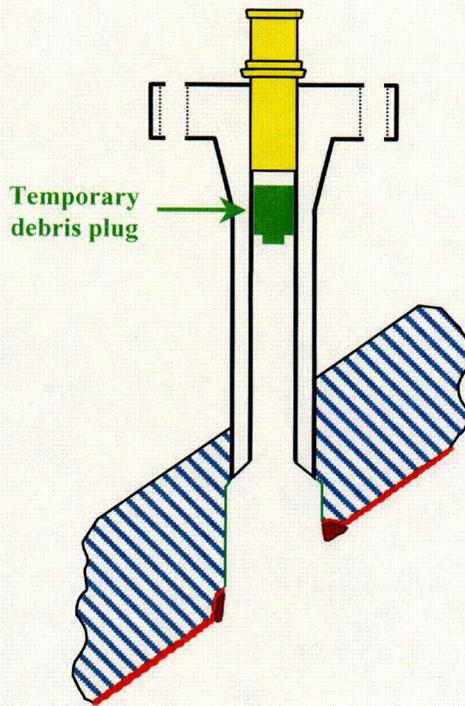
# FIGURE 2

## Original Nozzles

Thermal sleeve previously cut for weld inspection



## Bottom portion of nozzles cut and removed.



## New nozzle inserted, welded to upper portion and reactor head. Lower nozzle assembly reattached.

