



Exelon Generation®

Oyster Creek Generating Station www.exeloncorp.com
Route 9 South
PO Box 388
Forked River, NJ 08731

RA-13-046

10 CFR 50.73

April 30, 2013

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

Oyster Creek Nuclear Generating Station
Renewed Facility Operating License No. DPR-16
NRC Docket No. 50-219

Subject: Licensee Event Report (LER) 2012-003-01, Control Rod Drive Return
Nozzle Weld NC-4-1A PT Indications at N9

Enclosed is LER 2012-003-01, Control Rod Drive Return Nozzle Weld NC-4-1A PT Indications at N9, Revision 1. The LER was revised to add supplemental information as required by Revision 0. This event did not affect the health and safety of the public or plant personnel. This event did not result in a safety system functional failure. There are no regulatory commitments made in this LER submittal.

Should you have any questions concerning this letter, please contact Jim Barstow, Regulatory Assurance Manager, at (609) 971-4947.

Respectfully,

Russell R. Peak
Plant Manager
Oyster Creek Nuclear Generating Station

Enclosure: NRC Form 366, LER 2012-003-01

cc: Administrator, NRC Region 1
NRC Senior Resident Inspector - Oyster Creek Nuclear Generating Station
NRC Project Manager - Oyster Creek Nuclear Generating Station

*JEJ
NRR*

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: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), 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.

1. FACILITY NAME Oyster Creek, Unit 1	2. DOCKET NUMBER 05000219	3. PAGE 1 OF 3
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4. TITLE
Control Rod Drive Return Nozzle Weld NC-4-1A PT Indications at N9

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	07	2012	2012	003	01	04	30	2013	N/A	N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

9. OPERATING MODE N	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)							
10. POWER LEVEL 0	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 50.73(a)(2)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)		Specify in Abstract below or in NRC Form 366A			

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME James Barstow, Regulatory Assurance Manager	TELEPHONE NUMBER (Include Area Code) (609) 971-4947
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO				MONTH	DAY	YEAR
				N/A	N/A	N/A

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On November 07, 2012 at 1240 EST while the reactor was in the Cold Shutdown Condition and during Refueling Outage 1R24 In-Service Inspections, indications were identified in the adjacent base material area of the safe end to pipe weld of Reactor Pressure Vessel (RPV) Control Rod Drive Return Nozzle (N9). The indications were identified to be on the outside surface of the piping, during dye penetrant testing. The most probable cause of the surface indications was determined to be outside diameter stress corrosion cracking. The investigation performed, as a result of finding the indications, revealed that there was no moisture or leakage found in the area of the indications. Ultrasonic examinations also confirmed the indications were not inside diameter connected. Corrective action included repair to this location using a full structural weld overlay (WOL.) The WOL was installed using resistant stainless steel WOL material with a delta ferrite level above 7.5 FN (Ferrite Number). There were no Emergency Plan Emergency Action Levels applicable for this event.

This event is being reported pursuant to 10CFR50.73(a)(2)(ii)(A), "Any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded."

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Oyster Creek, Unit 1	05000219	YEAR	SEQUENTIAL NUMBER	REV NO.	2	OF	3
		2012	- 003	- 01			

NARRATIVE

Plant Conditions Prior To Event

Event Date: November 7, 2012, Event Time: 12:40 EST
 Unit 1 Mode: Cold Shutdown, Power Level: 0%

Description of Event

On November 07, 2012 while the reactor was in the Cold Shutdown Condition for Refueling Outage 1R24, two indications were identified associated with the Control Rod Drive Return Nozzle piping (N9). The indications were identified to be on the outside surface of the piping, during dye penetrant testing. The indications were in the adjacent base material area of the safe end to pipe weld. The indications were located Top Dead Center of the 3 inch pipe. The safe end side linear indication was 2.5 inches long and the pipe side linear indication was 1.75 inches long. The indications were discovered as part of In-Service Inspections (ISI) being performed in accordance with station procedures and ASME Section XI, Inspection Category B-J, Item Number B9.21.

Corrective action included local grinding and repair to this location using a full structural weld overlay (WOL). The WOL was installed using resistant stainless steel weld material in accordance with ASME code case N-504-4. The WOL extended from the safe-end onto the pipe and upstream elbow to ensure all indications found as part of extent of condition inspections were covered by the full structural weld overlay.

The repair was completed on November 26, 2012 and passed the final UT and PT examinations and a post-repair pressure test followed, which validated the integrity of the repair and the RPV Class 1 pressure boundary.

Analysis of Event

This event was of low significance since the indications were found during In-Service Inspections and the condition identified was surface indications only and not inner-diameter connected. These indications did not yield a through-wall flaw and did not result in any leakage out of the Reactor Coolant System boundary. Additional examinations were performed in accordance with ASME Section XI requirements with no unacceptable indications found.

Cause of Event

The most probable causal factor has been determined to be outside diameter stress corrosion cracking. The most probable cause of the outside diameter stress corrosion cracking was installation of a contaminated insulation pad approximately twenty years ago which was a failure to meet the Controlled Materials and Hazard Communications Program requirements for critical systems. The material where the indications were found is austenitic stainless steel which is susceptible to this type of cracking. The investigation performed, as a result of finding the indications, revealed that there was no moisture or leakage found in the area of the indications. Ultrasonic examinations also confirmed the indications were not inside diameter connected.

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NARRATIVE

Corrective Actions

The design of the OCNGS safe end, pipe, and elbow weld overlay was performed in accordance with requirements of ASME Code Case N-504-4 [2] and ASME Code, Section XI, Non-mandatory Appendix Q [3]. The weld overlay is demonstrated to be acceptable for one operating cycle of 24 months based on the following:

1. In accordance with ASME Code Case N-504-4, structural design of the overlay was performed to meet the requirements of ASME Code, Section XI, IWB-3640 based on an assumed circumferential flaw 100% through-wall, and 360° around the original weld. The resulting full structural weld overlay thus restores the original safety margins of the original weld, with no credit taken for the underlying flawed material.
2. A qualitative assessment was performed by assuming a conservative thermal transient and using other weld overlaid nozzle results with similar dimensions and transients to demonstrate that over one operating cycle of 24 months, ASME Code, Section III fatigue and fatigue crack growth criteria will be satisfied.
3. After completion of the WOL application, measurements of the weld overlay showed that all WOL dimensions exceeded the design minimums, and final PT and UT examinations were completed satisfactory.
4. A walk down of the affected line following the WOL application indicated that all hangers and other supports were either within or reset to design dimensional tolerances.

Based on the above observations and the fact that similar weld overlays have been applied to other plants since 1986 with no subsequent problems identified, it is concluded that the N9 nozzle weld overlay can safely operate for one operating cycle of 24 months. Subsequent analysis is being performed to support safe operation for continued operating cycles.

Previous Occurrences

There have been no similar Licensee Event Reports associated with this component failure submitted at OCNGS in the last three years.