

Exelon Nuclear
Limerick Generating Station
PO Box 2300
Sanatoga, PA 19464

www.exeloncorp.com

10CFR50.73

April 1, 2003

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

Limerick Generating Station, Unit 1
Facility Operating License No. NPF-39
NRC Docket No 50-352

Subject: LER 1-03-001, Unit 1 Reactor Enclosure Dirty Radwaste Line Cleanout Plug Not Installed

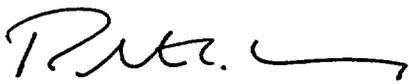
This Licensee Event Report (LER) addresses a Technical Specification (TS) violation that occurred as a result of the 1A and 1C subsystems of the Residual Heat Removal (RHR) system being degraded due to a breach of a flood barrier for a period that exceeded the TS allowable outage time (AOT). The inoperable condition was due to a dirty radwaste line cleanout plug that was not reinstalled properly after use.

Report Number: 1-03-001
Revision: 00
Event Date: January 31, 2003
Discovered Date: January 31, 2003
Report Date: April 1, 2003

This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(i)(B).

If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,


BRWJ

FOR William Levis
Vice President - Limerick

cc: H J. Miller, Administrator Region I, USNRC
A. L. Burritt, USNRC Senior Resident Inspector, LGS

JE22

Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1) Limerick Generating Station, Unit 1	DOCKET NUMBER (2) 05000 352	PAGE (3) 1 OF 5
---	---------------------------------------	---------------------------

TITLE (4)
Degraded Flood Barrier Due To Reactor Enclosure Dirty Radwaste Line Cleanout Plug Not Installed

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
01	31	2003	2003	001	00	04	01	2003		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check all that apply) (11)								
POWER LEVEL (10)	100	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		
		20 2203(a)(2)(iii)		50.46(a)(3)(ii)		50 73(a)(2)(v)(C)		Specify in Abstract below or in		
		20 2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50 73(a)(2)(v)(D)		NRC Form 366A		
		20 2203(a)(2)(v)	x	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)		50 73(a)(2)(ii)(A)		50 73(a)(2)(viii)(B)				

LICENSEE CONTACT FOR THIS LER (12)

NAME Marino C. Kaminski, Manager – Experience Assessment	TELEPHONE NUMBER (Include Area Code) (610) 718-3400
--	---

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

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

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

One of the flood barriers for the 1A subsystem and 1C subsystem of the Residual Heat Removal (RHR) system was discovered to be inoperable. The barrier was a 4 inch floor drain line cleanout plug that most likely was not reinstalled following hydrolazing activity in the area causing a breach of a flood barrier. The condition is assumed to have existed for a period that exceeded the TS AOT for RHR. The plug was reinstalled upon discovery. The plugs have been labeled as hazard barriers and will be added to the barrier breach procedure.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)	
Limerick Generating Station, Unit 1	05000352	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5	
		2003	-- 001	-- 00		

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

Unit Conditions Prior to the Event

Unit 1 was in Operational Condition (OPCON) 1 (Power Operation) at approximately 100% power. There were no structures, systems or components out of service that contributed to this event.

Description of the Event

On January 31, 2003, at approximately 10:30 hours, an engineer discovered that a cleanout plug was not properly installed in a dirty radwaste drain (EIIS:DRN) line embedded in the floor of the 1A / 1C residual heat removal (RHR) (EIIS:EO) pump room. The plug was found resting on the opening but the threads were not engaged. The system engineer then consulted with the subject matter expert on flooding to determine the potential impact. Operations shift management was informed of the condition at approximately 13:00 hours. The plug was subsequently reinstalled by maintenance.

Operations shift management determined that the issue was reportable and completed the required 8-hour NRC ENS notification at 19:55 hours. The condition was reported under 10CFR50.72(b)(3)(ii) due to a condition that results in the plant being in an unanalyzed condition that significantly degrades plant safety.

An investigation determined that the floor drain line cleanout plug was most likely improperly installed following a hydrolazing activity that was performed on the 1A RHR Heat Exchanger during the prior Unit 1 refueling outage in March 2002. The 1A RHR and 1C RHR were affected by the flood barrier breach for approximately 11 months, which exceeds the Technical Specifications (TS) allowable outage time (AOT) specified in several TSs.

The TS AOT for ECCS (3.5.1), Suppression Pool Cooling (3.6.2.3), Suppression Pool Spray (3.6.2.2), Primary Containment Hydrogen Recombiner Systems (3.6.6.1) and TS 3.0.3 were exceeded if it is assumed that 1A and 1C RHR pumps were inoperable due to the degraded flood barrier. In addition, the 1B RHR pump was concurrently inoperable for planned maintenance for approximately 40 hours and 1D RHR pump was concurrently inoperable for planned maintenance for approximately 32 hours during the above 11 month period.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
Limerick Generating Station, Unit 1	05000352	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 5
		2003	-- 001	-- 00	

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

A qualitative analysis of the risk impact of this condition was performed. The analysis determined that the likelihood of flooding both Unit 1 RHR rooms to a level that would render all four pumps unavailable is low. The analysis assumes that operators would be capable of taking mitigating actions and prevent the 1A / 1C RHR room from flooding to a level that would adversely affect the 1A and 1C RHR pumps. Therefore, this condition is not considered an unanalyzed condition that significantly degrades plant safety and is not reportable under 10CFR50.73(a)(2)(ii)(B).

This event involved an operation or condition that was prohibited by the plant's TS. Therefore, this LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(i)(B).

Analysis of the Event

There were no actual safety consequences associated with this event. The potential safety consequences of this event were also minimal.

The cleanout plug is located in a dirty radwaste drain line that is embedded in the concrete floor of the 1A / 1C RHR room on reactor enclosure 177 elevation. This is the lowest elevation in the Reactor Enclosure. The line is designed to route drainage from higher elevations to the reactor enclosure dirty radwaste sump located on 177 elevation. The dirty radwaste sump collects inputs into the reactor enclosure floor drains. The clean radwaste sump collects inputs from the reactor enclosure equipment drains.

The flood analysis assumes the capacity of the reactor enclosure sumps will be exceeded and the surrounding corridor will then flood. The emergency core cooling systems (ECCS) rooms are protected from back flooding through the floor drains by check valves. The affected line is from a higher elevation and it is not equipped with a check valve. If the sumps are flooded the affected drain line would back flood the 1A / 1C RHR room through the missing cleanout plug

If a flooding event is postulated to occur in the 1B / 1D RHR room, with the cleanout plug not installed in the 1A / 1C RHR room and no operator action assumed, then both RHR rooms would flood and all four RHR pumps would become unavailable. The moderate energy line break (MELB) analysis (UFSAR 3.6.1, Postulated Piping Failures in Fluid Systems) assumes that only one ECCS room would flood and the safe shutdown of the reactor would not be prevented.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)	
Limerick Generating Station, Unit 1	05000352	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 5	
		2003	-- 001	-- 00		

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

The design basis leak for the 1B / 1D RHR room is a crack in the RHR suction pipe between the suppression pool wall and the RHR suction primary containment isolation valve (PCIV). This would result in an unisolable leak of 225 gpm entering the 1B / 1D RHR room. It would take approximately 34 hours for the 1B / 1D RHR room to equalize with the suppression pool with level reaching 17.4 feet in the RHR room.

Cross compartment flooding on reactor enclosure 177 elevation is not assumed in the plant probabilistic risk analysis (PRA) based on the plant design using water tight compartments to protect redundant safe shutdown equipment. Therefore a quantitative risk assessment of this condition could not be performed. A qualitative risk assessment was performed and determined that the risk of all four RHR pumps becoming unavailable was insignificant.

The basis for this assessment is that the initiating event frequency of a flood in the 1B / 1D RHR compartment is low. The initiating event also has a low probability of being unisolable. In addition, it is likely that operations personnel would be able to identify and terminate a dual-compartment RHR flooding event prior to exceeding the Maximum Safe Operating (MSO) water level in both RHR rooms given that both pump rooms have flood alarms (EHS:LA) (setpoint 3.25 inches) in the main control room (MCR) and the estimated length of time to flood both rooms.

Cause of the Event

The work order detail for the refueling outage hydrolazing activity did not provide clear direction on how to dispose of the water. As a result, it is likely that the work team chose to use the drain line cleanout.

No procedure provides direction for use of the drain line cleanouts.

The drain line cleanouts do not have labels that identify them as hazard barriers.

Corrective Action Completed

The affected Unit 1 reactor enclosure drain line cleanout plug has been properly installed.

All of the Unit 1 and Unit 2 reactor enclosure 177 elevation drain line cleanout plugs were verified properly installed.

All of the Unit 1 and Unit 2 reactor enclosure 177 elevation drain line cleanout plugs were labeled to indicate that a barrier breach permit is required to remove the plug.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)	
Limerick Generating Station, Unit 1	05000352	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 5	
		2003	-- 001	-- 00		

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

Corrective Actions Planned

An evaluation will be performed to identify the population of drain line cleanouts that should be controlled by the barrier breach program. This action will be complete by June 15, 2003.

The barrier breach program procedure will be revised to include the appropriate drain line cleanouts. This action will be complete by September 16, 2003.

Previous Similar Occurrences

There were no previous occurrences of RHR inoperability due to improperly restored drain line cleanout plugs.

Component data:

System: WD (Liquid Radwaste Management System)
 Component: DRN (Drain)
 Manufacturer: Z010 (Zurn)
 Model number: Z-1380-2-76