



Exelon Generation®

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March 23, 2018

U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTENTION: Document Control Desk

SUBJECT: R.E. Ginna Nuclear Power Plant
Renewed Facility Operating License No. DPR-18
Docket No. 50-244

LER 2018-001, Leakage in Reactor Coolant System Pressure Boundary through an existing weld in original installation equipment due to orifice wear/erosion resulting in progressively increasing system vibrations.

The attached Licensee Event Report (LER) 2018-001 is submitted under the provisions of NUREG-1022, Event Reporting Guidelines. There are no new commitments contained in this submittal. This submittal is for revision 0 of the LER.

Should you have any questions regarding this submittal, please contact Kyle Garnish at 315-791-5321.

Sincerely,

Paul Swift,
Ginna Plant Manager

PS/ces

Attachment: LER 2018-001

cc: NRC Regional Administrator, Region I
NRC Project Manager, Ginna
NRC Resident Inspector, Ginna

IEZZ
NRR

Attachment

LER 2018-001

**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollect.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 R. E. Ginna Nuclear Power Plant	2. Docket Number 05000244	3. Page 1 OF 4
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4. Title
Leakage in Reactor Coolant System Pressure Boundary through an existing weld in original installation equipment due to orifice wear/erosion resulting in progressively increasing system vibrations.

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
01	23	2018	2018	- 001	- 00	03	23	2018	Facility Name	05000

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
10. Power Level	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
100	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<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)(D)	<input type="checkbox"/> 73.77(a)(2)(ii)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(iii)
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)	

12. Licensee Contact for this LER		Telephone Number (Include Area Code)
Licensee Contact Kyle Garnish, Regulatory Assurance Manager		3157915321

13. Complete One Line for each Component Failure Described in this Report									
Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES
B	CB	PSF		Y					
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:				

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten line)

On January 23, 2018 a 0.015 gallon per minute (gpm) increase in unidentified Reactor Coolant System (RCS) Leakage was identified. A containment entry was performed on January 26, 2018 to identify the source of the leakage. A through-wall pinhole leak was identified in the Chemical and Volume Control System (CVCS) Normal Letdown line between AOV-200A (Letdown Orifice AOV-200A), and LCH01 (40 GPM Letdown Orifice Upstream of AOV-200A). The leak was found on the downstream weld of a socket welded elbow at the 10 o'clock position. CVCS Letdown was realigned to Excess Letdown and valve 543 was closed, isolating the leak. At that time, the leak was determined to be RCS pressure boundary leakage. The defective weld was subsequently removed and re-welding was performed to repair the pinhole leak. All repairs were done while the plant was on-line. The most probable cause was determined to be orifice wear/erosion from cavitation resulting in increasing system vibrations.

This event is reportable under 10CFR50.73(a)(2)(ii)(A) as a condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; and under 10CFR50.73(a)(2)(i)(B) as any operation or condition which was prohibited by the plant's TS.

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

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
R. E. Ginna Nuclear Power Plant	05000244	2018	- 001	- 00

NARRATIVE**I. PRE-EVENT PLANT CONDITIONS**

At the time the condition was identified, the plant was in Mode 1 at approximately 100% rated thermal power.

II. DESCRIPTION OF EVENT**A. EVENT**

On January 23, 2018 a 0.015 gallon per minute (gpm) increase in unidentified Reactor Coolant System (RCS) Leakage was identified.

A containment entry was performed on January 26, 2018 to identify the source of the leakage. A through-wall pinhole leak was identified in the Chemical and Volume Control System (CVCS) Normal Letdown line between AOV-200A (Letdown Orifice AOV-200A), and LCH01 (40 GPM Letdown Orifice Upstream of AOV-200A). The leak was found on the downstream weld of a socket welded elbow. CVCS Letdown was realigned to Excess Letdown and valve 543 was closed, isolating the leak.

At that time, the leak was determined to be RCS pressure boundary leakage and TS LCO 3.4.13 RCS Operational Leakage, Action B.1 was entered at 0853. The leak was isolated and TS LCO 3.4.13 RCS Operational Leakage, Action B.1 was exited at 1015. The NRC was notified via Event Notification System(ENS) report (53185) at 1306 on January 26, 2018.

The defective weld joint was removed and re-welded to code standard. The weld repair was successful and a post-repair liquid penetrant (PT) examination identified no indications. Post Maintenance Testing (PMT) included a Visual Examination for Leakage (VT-2) and identified no leakage at normal operating pressure and temperature.

Following repair completion, the system was realigned to Normal Letdown and Excess Letdown removed from service on January 29, 2018. All repairs were done while the plant was on-line.

B. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

None

C. DATES AND APPROXIMATE TIMES OF MAJOR OCCURENCES:

January 23, 2018 – Trending reveals RCS operational leakage has increased. Issue documented in the Corrective Action Program (CAP) (04096294).

January 24, 2018 – Adverse Condition Monitoring Plan (ACMP) developed. Plans are developed to perform containment entry for inspection and to determine source of leakage.

January 26, 2018 - Containment entry and inspection identified source of leakage at weld upstream of 200A and documented in CAP (04097619). Leak determined to be RCS pressure boundary leakage. TS LCO 3.4.13 RCS Operational Leakage, Action B.1 entered at 0853. The leak was isolated and TS LCO 3.4.13 RCS Operational Leakage, Action B.1 exited at 1015. NRC notified via ENS report (53185) at 1306.

January 29, 2018 – Re-welding performed, leak repaired, PMT performed, and normal letdown returned to service.



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R. E. Ginna Nuclear Power Plant	05000244	YEAR	SEQUENTIAL NUMBER	REV NO.
		2018	- 001	- 00

NARRATIVE

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

None

E. METHOD OF DISCOVERY:

Routine trending of RCS Operational leakage determined that unidentified leakage had increased. The subsequent inspection during containment entry verified the system and that it was RCS pressure boundary leakage.

F. SAFETY SYSTEM RESPONSES:

No safety systems actuated, which was expected response.

III. CAUSE OF EVENT:

In the absence of a preserved flaw, a definitive cause for the failure cannot be provided and a most-probable cause was assessed during engineering causal analysis. The most probable cause of the leak is orifice wear/erosion resulting in progressively increasing system vibrations.

IV. ASSESSMENT OF THE SAFETY CONSEQUENCES OF THE EVENT:

Pressure boundary leakage is defined as leakage (except primary to secondary leakage) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall. TS LCO 3.4.13, Action B.1, requires the plant to be shutdown and taken to Mode 3 within 6 hours and Mode 5 within 36 hours if any RCS pressure boundary leakage exists. This action is based on reducing the severity of the leak and preventing the leak itself from causing further deterioration of the pressure boundary. During the event described in this report, the pressure boundary leak was isolated, preventing any further deterioration and securing the actual pressure boundary leakage, within approximately 82 minutes of discovery which is well before the six hour requirement for plant shutdown.

Based on the above considerations, this event is not considered to have had any significant effect on the health and safety of the public.

V. CORRECTIVE ACTIONS

A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:

Weld joint was removed and re-welded to code standard. The weld repair was successful and a post-repair PT examination identified no indications. PMT included a VT-2 inspection and identified no leakage at normal operating pressure and temperature. Following repair completion, the system was realigned to Normal Letdown and Excess Letdown removed from service.

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NARRATIVE**B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:**

- Performed Extent of Condition VT-2 Examinations on similar welds in containment.
- Replace LCH01 (AOV-200A flow orifice) during 2018 refueling outage.
- Evaluate vibration data and determine methodology for monitoring orifice degradation.
- Evaluate similar orifices for susceptibility to Cavitation Erosion.
- Switched to LCH02 (AOV-200B flow orifice) as the preferred orifice for the remainder of the cycle.

VI. ADDITIONAL INFORMATION:

None

A. FAILED COMPONENTS:

Piping weld in CVCS system

B. PREVIOUS LERs ON SIMILAR EVENTS:

A search of all Ginna LERs submitted to the NRC determined there have been no prior LERs reporting RCS pressure boundary leakage.

C. THE ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) COMPONENT FUNCTION IDENTIFIER AND SYSTEM NAME OF EACH COMPONENT OR SYSTEM REFERRED TO IN THIS LER:

COMPONENT – Pipe Fitting
IEEE 803 FUNCTION NUMBER - PSF
IEEE 805 SYSTEM IDENTIFICATION - SB