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December 13, 2013

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 2013-003, Unanalyzed Condition for Potential Floodwater Intrusion into  
Vital Battery Rooms, Revision 1

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The attached Licensee Event Report (LER) 2013-003 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 1 of the LER.

Should you have any questions regarding this submittal, please contact Thomas Harding at 585-771-5219.

Sincerely,

MP/KC

Attachment: LER 2013-003

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

*LE22  
NRK*

## **Attachment**

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**LER 2013-003**

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<b>NRC FORM 366</b> <small>(10-2010)</small>		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>		APPROVED BY OMB: NO. 3150-0104		EXPIRES: 10/31/2013		
<b>LICENSEE EVENT REPORT (LER)</b> <small>(See reverse for required number of digits/characters for each block)</small>				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 <a href="mailto:infocollects.resource@nrc.gov">infocollects.resource@nrc.gov</a> , 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 <b>R.E. Ginna Nuclear Power Plant</b>				2. DOCKET NUMBER <b>05000 244</b>		3. PAGE <b>1 OF 4</b>		
4. TITLE <b>Unanalyzed Condition for Potential Floodwater Intrusion into Vital Battery Rooms</b>								
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR
<b>09</b>	<b>20</b>	<b>2013</b>	<b>2013 - 003 - 1</b>			<b>12</b>	<b>13</b>	<b>2013</b>
			8. OTHER FACILITIES INVOLVED					
			FACILITY NAME			DOCKET NUMBER		
						<b>05000</b>		
			FACILITY NAME			DOCKET NUMBER		
						<b>05000</b>		
9. OPERATING MODE		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: <i>(Check all that apply)</i>						
<b>1</b>		<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 50.73(a)(2)(i)(C) <input checked="" type="checkbox"/> 50.73(a)(2)(vii)						
		<input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(A)						
<b>100%</b>		<input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(4) <input checked="" type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(vii)(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"/> 73.71(a)(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 checked="" type="checkbox"/> 50.73(a)(2)(v)(D)						
12. LICENSEE CONTACT FOR THIS LER								
FACILITY NAME						TELEPHONE NUMBER (Include Area Code)		
<b>Thomas Harding, Licensing Director</b>						<b>(585) 771-5219</b>		
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT								
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	REPORTABLE TO EPIX
14. SUPPLEMENTAL REPORT EXPECTED					15. EXPECTED SUBMISSION DATE			
<input type="checkbox"/> YES <i>(If yes, complete 15. EXPECTED SUBMISSION DATE)</i> <input checked="" type="checkbox"/> NO					MONTH    DAY    YEAR 			
ABSTRACT <i>(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)</i>								
<p><b>On September 20, 2013, R.E. Ginna Nuclear Power Plant determined that there was a potential for flooding of both battery rooms during a design basis flood due to unqualified wall penetration material. A flow test was performed to verify functionality of cable vault drains. Accumulation of water in the cable vault could potentially challenge unqualified penetration barriers between the manhole and "B" Battery Room, leading to flooding of the "A" Battery Room under the normally closed fire door. Flooding from these penetrations has not been previously evaluated.</b></p> <p><b>The apparent cause of this condition is inadequate re-evaluation of new flood level impacts during the 1981-1983 Systematic Evaluation Program review.</b></p> <p><b>The penetration between the cable vault and the battery room has since been sealed watertight. Additionally, the drain line in the cable vault has been cleared of obstruction.</b></p>								

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**NARRATIVE**

**I. DESCRIPTION OF EVENT**

**A. PRE-EVENT PLANT CONDITIONS:**

The reactor was in Operational Mode 1 at 100% power, 2235 psig and 574 degrees F.

**B. EVENT:**

On September 20, 2013 at 1600, a flow test was performed on drain lines for cable vaults that share a wall with the Main Battery Room B. This test was performed when it was determined on September 17, 2013 during a review of pictures taken during an earlier visual inspection of the cable vault, that the drain grate appeared to be missing. There was concern that since it appeared to have a missing grate that there was a potential for blockage in the cable vault drain.

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

None

**D. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:**

- 1967 Original Construction
- 1972 Maximum flood elevation evaluated at less than 253.5ft
- 1983 Flooding analysis revised under the Systematic Evaluation Program, maximum flood elevation raised to 273.8ft for areas West and South of containment
- 05/29/2013 During a planned flooding walkdown, it was identified that there were apparently unqualified environmental penetrations. A followup inspection was initiated for further evaluation of the condition of the cable vault drainage.
- 09/17/2013 Determination of missing drain grating and potential drain obstruction, and compensatory actions consisting of monitoring the weather forecast and placement of plastic and sandbags on top of the manhole covers to prevent potential rainwater into the cable vault are initiated.
- 09/20/2013 Flow test failure, reinstated compensatory actions for plastic and sandbags.
- 10/04/2013 Penetrations from cable vault into B Battery Room sealed watertight.

**E. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:**

None

**F. METHOD OF DISCOVERY:**

The cable vault drain lines failed to pass the expected flow during testing. This was performed as followup to the initial flooding walkdown that identified the unqualified penetrations.

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## NARRATIVE

## G. MAJOR OPERATOR ACTION:

On-shift Operations Crew reinstated compensatory actions consisting of monitoring the weather forecast and placing plastic covering and sandbags over the manholes that would provide a leak path for rainwater into the cable vault.

## H. SAFETY SYSTEM RESPONSES:

The failed flow test of a cable vault drain had no direct impact on safety systems.

## II. CAUSE OF EVENT:

The primary cause of the condition was the apparent lack of rigor concerning verifying the assumptions of the flooding analysis during the 1983 Systematic Evaluation Program. Original construction of the cable vault occurred during construction of Ginna. The drawing was last revised in 1967, and shows the Battery Room cable penetrations. The drawing also shows that the floor drains were to be installed in each room in the vault of manhole 1. The original flood analysis showed a maximum flood elevation of 253.5 ft, well below the 270 ft elevation of manhole 1. For this reason, flood protection measures were not required. In December of 1982, the NRC published NUREG-0821, Integrated Plant Safety Analysis for the Systematic Evaluation Program for R.E. Ginna Nuclear Power Plant. As discussed in section 4.5 of this report, the NRC concluded that Ginna was required, as a minimum, to provide Deer Creek flood protection to a level consistent with a standard projected flood plus one foot. After additional correspondence, in 1983 protection was provided through procedural actions and modifications to a level of 273.8 ft, corresponding to approximately 80% of the creek flow producing the Probable Maximum Flood. It does not appear that Ginna evaluated the potential for flooding through this manhole or underground sources.

The cause of the obstructed cable vault drain is the drain was clogged with legacy construction debris from original construction and the drain grate screens appear to have been never installed at the time of plant construction or possibly removed sometime later.

The condition was entered into the corrective action program as CR-2013-005643.

## III ANALYSIS OF THE EVENT:

This event is reportable in accordance with 10 CFR 50.73, Licensee Events Report System under items (a)(2)(ii)(B), Unanalyzed Condition; (a)(2)(v)(D) Condition that could have Prevented the Fulfillment of a Safety Function; and (a)(2)(vii)(D), Common Cause Inoperability of Independent Trains.

This condition is reportable under 10 CFR 50.73(a)(2)(ii)(B), Unanalyzed Condition, because the Ginna flooding analysis does not consider floodwater entering the battery rooms. The condition was caused by a change to the flooding analysis performed in 1983. The flood level was raised; however, it does not appear that Ginna evaluated the potential for flooding through this manhole or any other underground sources, other than the emergency diesel generator vaults. The original design and licensing basis did not consider flooding from Deer Creek to be credible. Two levels of flooding re-analysis were required during the Systematic Evaluation Program. The first level was determined by the NRC to be the minimum acceptable level and was represented by a Standard Project Flood with one foot of additional margin. This flood level would not have challenged the battery room penetrations. Second, Ginna was required to perform a cost/benefit

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**NARRATIVE**

analysis to justify why protection to a higher level was not warranted. Ultimately Ginna agreed to provide protection to a higher level of flood flow despite asserting that the design basis should remain the Standard Project Flood. It is this higher level flood determined through cost/benefit and probabilistic analyses that results in the unanalyzed condition.

This condition is reportable under 10 CFR 50.73(a)(2)(v)(D), Condition that could have Prevented the Fulfillment of a Safety Function, because had a design basis flood occurred prior to sealing the cable vault – battery room penetration, the Safety Function of the 125 VDC Station Batteries would have been lost. Loss of the DC system will lead to an eventual loss of all AC power to the site with no capability for using installed plant equipment for decay heat removal or inventory control.

This condition is reportable under 10 CFR 50.73(a)(2)(vii)(D), Common Cause Inoperability of Independent Trains, because had the design basis flood occurred prior to sealing the cable vault – battery room penetration, the flood waters entering into the B Battery Room could have entered into the A Battery room under the Fire Door that connects them. The sump pump in A Battery room may not have been able to accommodate the flood water causing the water level to rise in both rooms such that both trains of the vital batteries would become inoperable.

This issue had no actual nuclear, radiological, industrial, or environmental impact. Since the flooding did not occur, the penetration between the cable vault and the battery room did not leak and the operability of the batteries was not challenged. In addition, the penetration between the cable vault and the battery room has been made watertight. Although the cable vault drains were subsequently determined to have little impact on the threat from postulated design basis flood conditions, the cable vault drain lines have been cleared of obstruction. Therefore, this event had no impact on the health and safety of the public.

**IV. CORRECTIVE ACTIONS:**

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

The cable vault drain line has been cleared of obstruction.

**B. ACTIONS TAKEN OR PLANNED TO PREVENT RECURRENCE**

The penetration from the cable vault into the B battery room has been sealed watertight to preclude the possibility of water from passing from the vault into the battery room.

**V. ADDITIONAL INFORMATION:**

**A. FAILED COMPONENT**

None

**B. PREVIOUS LERS ON SIMILAR EVENTS**

A review of recent Ginna events identified one similar event:  
LER 2013-001, Unanalyzed Condition Due to Missing Barrier