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BVY 13-108

December 31, 2013

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

SUBJECT: Licensee Event Report 05000271/2013-002-00, Potential to Flood Switchgear Rooms
Due to Missing Conduit Flood Seal
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

Dear Sir or Madam:

As defined by 10CFR50.73.(a)(2)(ii)(B) and 10CFR50.73(a)(2)(v)(A - D), Entergy Nuclear Operations, Inc. is submitting the attached Licensee Event Report, LER 05000271/2013-002-00 for Vermont Yankee Nuclear Power Station.

There are no new regulatory commitments contained within this correspondence.

Should you have any questions concerning this letter, please contact Mr. Coley Chappell at (802) 451-3374.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Wamser", written over a large, stylized initial "C".

[CJW/ble]

Attachment: LER 05000271/2013-002-00, Potential to Flood Switchgear Rooms Due to Missing Conduit Flood Seal

cc list: (next page)

IE22
NRR

cc: Mr. William M. Dean
Region 1 Administrator
U.S. Nuclear Regulatory Commission
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Mr. Douglas Pickett, Project Manager
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Commissioner
VT Department of Public Service
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NRC Form 366 (10-2010)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0104		EXPIRES 10/31/2013		
LICENSEE EVENT REPORT (LER)				<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 Records and FOIA/Privacy Service Branch (T-5 F55), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollect@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.</small>				
1. FACILITY NAME Vermont Yankee Nuclear Power Station				2. DOCKET NUMBER 05000271		3. PAGE 1 of 4		
4. TITLE Potential to Flood Switchgear Rooms Due to Missing Conduit Flood Seal								
5. EVENT DATE			6. LER NUMBER		7. REPORT DATE		8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR
11	07	2013	2013	-- 002 --	00	12	31	2013
							FACILITY NAME N/A	
							DOCKET NUMBER N/A	
9. OPERATING MODE Y			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)					
10. POWER LEVEL 100			<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"/> 20.2201(d)		<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)	
			<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"/> 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"/> 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"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.36(c)(2)		<input checked="" type="checkbox"/> 50.73(a)(2)(v)(A)	
			<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.46(a)(3)(ii)		<input checked="" type="checkbox"/> 50.73(a)(2)(v)(B)	
			<input type="checkbox"/> 20.2203(a)(2)(v)		<input type="checkbox"/> 50.73(a)(2)(i)(A)		<input checked="" type="checkbox"/> 50.73(a)(2)(v)(C)	
			<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 Vincent Fallacara, General Manager Plant Operations						TELEPHONE NUMBER (Include Area Code) (802) 258-5409		
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT								
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	REPORTABLE TO EPIX
14. SUPPLEMENTAL REPORT EXPECTED						15. EXPECTED SUBMISSION DATE		
<input type="checkbox"/> YES (If Yes, complete EXPECTED SUBMISSION DATE). <input checked="" type="checkbox"/> NO								
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)								
<p>On November 6, 2013, with the plant at 100% Reactor Power, Vermont Yankee Nuclear Power Station (VY) identified a conduit containing a loose screw type conduit seal plug and another conduit with a missing seal inside electrical manhole MH-S2 located outside the Administrative Building. This was discovered during a routine preventative maintenance surveillance of flood seals. On November 7, 2013, it was identified that the missing flood seal compromised the flood design controls for the Switchgear Rooms. The conditions were corrected by installing silicone elastomer seals in the two affected spare conduits, thus removing the potential flood paths. The causes of the incorrect and missing flood seals were due to not completing the appropriate corrective actions following a similar event reported in LER 2013-001-00, dated May 16, 2013. Plant procedure requires inspection of the Switchgear Rooms during a flood event and includes actions that would have mitigated any flooding; therefore, this event did not pose a threat to public health and safety.</p>								

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

Description of Event

On November 6, 2013, during performance of a scheduled preventive maintenance surveillance, it was identified that two conduits in manhole MH-S2 were not sealed with SYLGARD 170 silicone elastomer (SYLGARD 170). One conduit in MH-S2 was found to have the mechanical screw-type expandable plug of the type that had been previously installed in spare conduits. The installed mechanical conduit seal was discovered to have some movement and therefore was not considered a complete seal. Another spare conduit was found without any type of seal. On November 7, 2013, it was identified, through review of design documentation and performance of an air test, that the spare conduits communicated with the Switchgear (EIS=EK) Rooms. Manhole MH-S2, which is located outside the Administration Building, has direct communication with the Switchgear Rooms via MH-S1 which is located in the west switchgear room. This open conduit and the as-found condition of the mechanical screw-type expandable plug compromised the design flood controls and created potential flood paths into the Switchgear Rooms. Flooding could affect the operability of safety class switchgear located in these rooms. The electrical switchgear and distribution equipment located in the rooms power both Division I and Division II Engineered Safety Feature systems and Emergency Core Cooling Systems.

On November 7, 2013 the two affected spare conduits in manhole MH-S2 were sealed with SYLGARD 170, thus removing the potential flood path.

During the extent of condition review for this event, VY verified that all spare conduits that communicate with the Switchgear Room have been sealed with SYLGARD 170.

This event is reported in accordance with 10CFR50.73(a)(2)(ii)(B) as an event or condition that resulted in the plant being in an unanalyzed condition that significantly degraded plant safety and 10CFR50.73(a)(2)(v)(A-D) as an event or condition that could have prevented the fulfillment of a safety function.

Cause of Event

The causes of this event were determined to be:

- 1) No specific owner of the flood seals as a program or procedure;
- 2) Inaccurate identification of electrical conduits that required silicon elastomer flood seals;
- 3) Drawings and surveillances did not identify all screw type flood seals in the field;
- 4) Work management requirements, including use of design drawings and documenting completion of all steps, were not completely met during installations of SYLGARD 170 in March 2013; and
- 5) A corrective action performed following the events described in LER 2013-001-00 was not effective in verifying the configuration of conduit seals.

Analysis of Event

The entrances to the VY Administration (EIS=MA) and Turbine Buildings (EIS=NM) are located at the 252.5 feet elevation. VY Updated Final Safety Analysis Report (UFSAR) Table 2.4-9 shows that the maximum VY flood level expected would reach a maximum elevation of 252.5 feet, at a time of 96 hours into the flood. VY UFSAR Section 2.4.3.4 states, "Since the entrances to all of these structures are at elevation 252.5 feet MSL, they are at maximum flood stage and thus, are protected against the maximum probable flood." However, UFSAR Section 2.4.3.4 also states, "A potential avenue of water intrusion into the Switchgear Rooms, Elevation 248.5 feet MSL

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exists through underground conduits routed from manholes and handholes to the Switchgear Room floor. Should water enter these manholes, the underground conduits could provide a path for water to enter the Switchgear Room manholes. If the water level gets high enough, flooding in the Switchgear Rooms and lower levels of the administration and Turbine Building could occur. This flooding could affect the operability of safety class switchgear." The spare conduits with the missing flood seal and loose screw-type plug created a potential flow path from an exterior manhole to the Switchgear Rooms via manhole MH-S2, located in the yard adjacent to the station startup transformers.

Following the VY Individual Plant Examination External Events review, all conduits running into the Switchgear Room manholes connected to yard manholes, were sealed to limit any leakage into the room during site flooding conditions. In conjunction with the conduit sealing, sufficient portable pumping capacity was provided on-site to remove any water which may enter the Switchgear Room manholes. Additionally, the site flood procedure was revised to direct plant personnel to remove this water in the event of flooding and to open Switchgear Room doors to provide a flow path for water out of the room if ponding cannot be prevented.

Should the postulated flooding event occur, the plant would be shut down when the flood level reaches the 237 foot elevation, which is approximately 72 hours into the event. This shutdown is required before the intake structure becomes submerged by the flood water. As the level continues to rise and enter manhole MH-S2, water would begin flowing through the unsealed conduit connecting these structures to the west Switchgear Room, with the water levels in the unsealed conduit matching the flood level. Per UFSAR Table 2.4-9, the water level reaches elevation 247.2 feet 84 hours into the event, and remains above this level for approximately 24 hours.

During the 24 hour period in which the flood water level is above elevation 247.2 feet, the Switchgear Room water level would seek external flood level. Unabated, the water level could reach a level of 4 feet within the room. However, by procedure, water would be pumped out of manhole MH-S1 with up to two sump pumps rated at 100 gallons per minute each and would flow out of the Switchgear Room doors to the outside.

VY has a preventive maintenance task to perform inspections of manhole flood seals every 6 months.

Safety Significance

Plant procedure requires a plant shutdown be initiated if water levels indicate an imminent flooding condition which may cause river level to exceed 230 feet, which is 18.5 feet below the level of the Switchgear Rooms. Plant shutdown would have to be complete by the time the flood stage reaches 237 feet due to inundation of the service water and circulating water pump motors. The procedure also requires that additional actions be implemented if a flood occurs, including using a sump pump to remove water from switchgear manholes should in-leakage occur. To date the maximum river level that has occurred at the site was elevation 231.4 feet. Because the probability of a maximum flood is extremely low, the highest level achieved during a previous high water condition was 17.1 feet below the elevation of concern and the prescribed procedural actions in the event of flooding, this event is not considered to have resulted in an increased threat to public health and safety.

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Corrective Actions

Completed Actions

- 1) The affected conduits in MH-S2 were sealed with SYLGARD 170.
- 2) An extent of condition review was performed for all manholes, with the exception of MH-S2, and handholes with conduits that communicate with the Switchgear Rooms to verify that these conduits were properly sealed.
- 3) An additional inspection of the conduit flood seals was performed to independently verify the current configuration, including MH-S2.
- 4) A responsible program owner was designated for maintaining overall responsibility for the flood seal program including maintenance or modifications to flood seals in conduits that communicate with the Switchgear Rooms.

Planned Actions

- 1) Revise the procedure controlling the configuration of flood seals to include identification of conduits by specific number and whether they contain cables or no cables (spares).

Previous Similar Events

In 2013, VY reported the potential for water intrusion into the Switchgear Rooms via an underground conduit during Maximum Postulated Flood Conditions due to a missing conduit seal and an abandoned sump pump line that was found during the water intrusion event during Refueling Outage 30 (LER 2013-001-00, dated May 16, 2013).

In 2012, VY reported the potential for water intrusion into the Switchgear Rooms via an underground conduit during Maximum Postulated Flood Conditions due to a missing conduit seal that was found during inspection (LER 2012-001-01, dated September 12, 2012).