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**Brian R. Sullivan**  
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JAFP-15-0148  
December 29, 2015

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

**Subject:** Entergy – James A. FitzPatrick Third Six-Month Status Report in Response to June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109)

James A. FitzPatrick Nuclear Power Plant  
Docket No. 50-333  
License No. DPR-059

- Reference:**
1. NRC Order, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, EA-13-109, dated June 6, 2013
  2. NRC Interim Staff Guidance, Compliance with Order EA-13-109, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, Revision 0, JLD-ISG-2013-02, dated November 2013
  3. NEI document, Industry Guidance for Compliance with NRC Order EA-13-109: BWR Mark I & II Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, Revision 0, NEI 13-02, dated November 2013
  4. Entergy letter, James A. FitzPatrick Overall Integrated Plan In Response To June 6, 2013 Commission Order Modifying License With Regard To Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109), JAFP-14-0075, dated June 30, 2014
  5. Entergy Letter, Notification of Permanent Cessation of Power Operations, JAFP-15-0133, dated November 18, 2015

Dear Sir or Madam:

On June 6, 2013, the Nuclear Regulatory Commission (“NRC” or “Commission”) issued an order [Reference 1] to James A. FitzPatrick Nuclear Power Plant (JAF). Reference 1 was immediately effective and directs JAF to install a reliable hardened venting capability for pre-core damage and under severe accident conditions, including those involving a breach of the reactor vessel by molten core debris. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of a Phase 1 overall integrated plan pursuant to Section IV, Condition D. Reference 2 endorses industry guidance document NEI 13-02, Revision 0 [Reference 3] with clarifications and exceptions identified in Reference 2. Reference 4 provided the JAF overall integrated plan.

Reference 1 requires submission of a status report at six-month intervals following submittal of the overall integrated plan. Reference 2 (and 3) provides direction regarding the content of the status reports. The purpose of this letter is to provide the third six-month status report pursuant to Section IV, Condition D, of Reference 1, that delineates progress made in implementing the requirements of Reference 1. The attached report provides an update to milestone status, including any changes to the compliance method, schedule, or possible need for relief and the basis.

JAF expects to comply with the Order implementation date; however, based on Entergy's plan to permanently shut down the JAF Nuclear Power Plant (Reference 5), compliance with the Order will be affected. Future six-month status report submittals will address any requests for exemption from the order requirements prior to the Order implementation date. No relief or relaxation is requested at this time.

This letter contains no new regulatory commitments. If you have any questions regarding this report, please contact Mr. Chris M. Adner, Regulatory Assurance Manager, at 315-349-6766.

I declare under penalty of perjury that the foregoing is true and correct; executed on December 29, 2015.

Sincerely,



Brian R. Sullivan  
Site Vice President

BRS/CMA/mh

- Attachment 1: James A. FitzPatrick (JAF) Nuclear Power Plant's Third Six-Month Status Report in Response to June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109)
- 2: Response to Phase 1 Interim Staff Evaluation Open Items

cc: Director, Office of Nuclear Reactor Regulation  
NRC Regional Administrator  
NRC Resident Inspector  
Mr. Douglas Pickett, Senior Project Manager  
Ms. Bridget Frymire, NYSPSC  
Mr. John B. Rhodes, President NYSERDA

**Attachment 1 to JAFP-15-0148**

**James A. FitzPatrick (JAF) Nuclear Power Plant's Third Six Month  
Status Report for the Implementation of Order EA-13-109, "Order to  
Modify Licenses with Regard to Reliable Hardened Containment Vents  
Capable of Operation Under Severe Accident Conditions"**

**(3 Pages)**

**James A. FitzPatrick (JAF) Nuclear Power Plant’s Third Six Month Status Report for the Implementation of Order EA-13-109, “Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions”**

**1 Introduction**

JAF developed an Overall Integrated Plan (Reference 1), documenting the installation of a Hardened Containment Vent System (HCVS) that provides a reliable hardened venting capability for pre-core damage and under severe accident conditions, including those involving a breach of the reactor vessel by molten core debris, in response to NRC Order Number EA-13-109 (Reference 2). This attachment provides an update of milestone accomplishments since submittal of the Phase 1 Overall Integrated Plan and the subsequent Six Month Status Reports, including any changes to the compliance method, schedule, or need for relief / relaxation and the basis, if any.

The Phase 2 Overall Integrated Plan is addressed in a separate submittal in lieu of modifying the Phase 1 Overall Integrated Plan.

**2 Milestone Accomplishments**

The following milestone(s) have been completed since the development of the Overall Integrated Plan (Reference 1), and are current as of December 29, 2015. (See Section 3)

- The HCVS detailed design change package has been approved.

**3 Milestone Schedule Status**

The following provides an update to Part 5 of the Overall Integrated Plan (Reference 1). It provides the status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed.

<b>Milestone</b>	<b>Target Completion Date</b>	<b>Activity Status</b>	<b>Comments</b>
Hold preliminary / conceptual design meeting	Jan. 2014	Complete	
Submit Overall Integrated Implementation Plan	Jun. 2014	Complete	
Submit 6 Month Status Report	Dec. 2014	Complete	
Submit 6 Month Status Report	Jun. 2015	Complete	
Design Engineering On-site/Complete	Dec. 2015	Complete	
Submit 6 Month Status Report	Dec. 2015	Complete	
Submit 6 Month Status Report	Jun. 2016	Not started	
Operations Procedure Changes Developed	Aug. 2016	Not started	
Site Specific Maintenance Procedure Developed	Aug. 2016	Not started	
Implementation Outage	Oct. 2016	Not started	

**James A. FitzPatrick (JAF) Nuclear Power Plant’s Third Six Month Status Report for the Implementation of Order EA-13-109, “Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions”**

<b>Milestone</b>	<b>Target Completion Date</b>	<b>Activity Status</b>	<b>Comments</b>
Procedure Changes Active	Nov. 2016	Not started	
Walk Through Demonstration/Functional Test	Nov. 2016	Not started	
Submit 6 Month Status Report	Dec. 2016	Not started	
Training Complete	Dec. 2016	Not started	
Submit 6 Month Status Report	Jun. 2017	Not started	
Submit Completion Report	Jun. 2017	Not started	

**4 Changes to Compliance Method**

There is no change to the compliance method that meets NEI 13-02 (Reference 3). The JAF design changes to the HCVS will continue to meet the requirements of Order EA-13-109 (Reference 2). The listed changes below are in addition to those identified in previous 6-month updates:

*Part 1, State Applicable Extreme External Hazard from NEI 12-06, Section 4.0-9.0*

External Flooding has changed from screen out to screen in based on compliance with EA-12-049.

**5 Need for Relief / Relaxation and Basis for the Relief / Relaxation**

JAF expects to comply with the Order implementation date; however, based on Entergy’s plan to permanently shut down the JAF Nuclear Power Plant (Reference 8), compliance with the Order will be affected. Future submittals will address any requests for exemption from the order requirements prior to the Order implementation date. No relief or relaxation is requested at this time.

**6 Open Items from Overall Integrated Plan and Interim Staff Evaluation**

See JAFP-15-0148 Attachment 2.

**7 Interim Staff Evaluation Impacts**

There are no potential impacts to the Interim Staff Evaluation identified at this time.

**James A. FitzPatrick (JAF) Nuclear Power Plant's Third Six Month Status Report for the Implementation of Order EA-13-109, "Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions"**

## **8 References**

The following references support the updates to the Phase 1 Overall Integrated Plan described in this enclosure.

1. Letter JAFP-14-0075, JAF's Overall Integrated Plan in Response to June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109), dated June 30, 2014 (Accession No. ML14181B117).
2. NRC Order Number EA-13-109, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions dated June 6, 2013 (Accession No. ML13143A321).
3. NEI 13-02, Industry Guidance for Compliance with Order EA-13-109: BWR Mark I & II Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, Revision 0, dated November 2013 (Accession No. ML13316A853).
4. NRC Interim Staff Guidance JLD-ISG-2013-02, Compliance with Order EA-13-109, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, Revision 0, dated November 2013 (Accession No. ML13304B836).
5. NRC Endorsement of the Industry's Hardened Containment Venting System (HCVS) Phase 1 Overall Integrated Plan Template (EA-13-109) Rev 0, dated May 14, 2014 (Accession No. ML14128A219).
6. Nuclear Regulatory Commission Audits of Licensee Responses to Phase 1 of Order EA-13-109 to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions, dated May 27, 2014 (Accession No. ML14126A545).
7. Nuclear Regulatory Commission Interim Staff Evaluation, dated 2/12/15, Interim Staff Evaluation by The Office of Nuclear Reactor Regulation Related To Order EA-13-109 Phase 1, Modifying Licenses With Regard To Reliable Hardened Containment Vents Capable Of Operation Under Severe Accident Conditions, Entergy Nuclear Operations, Inc., James A. FitzPatrick Nuclear Power Plant, Docket No. 50-333 (Accession No. ML15007A090).
8. Letter JAFP-15-0133, Notification of Permanent Cessation of Power Operations, dated November 18, 2015 (Accession No. ML15322A273).

**Attachment 2 to JAFP-15-0148**

**Response to Phase 1 Interim Staff Evaluation Open Items**

**(4 Pages)**

**Response to Phase 1 Interim Staff Evaluation Open Items**

OI	Action	Comment	Response
1	Make available for NRC staff audit analyses demonstrating that HCVS has the capacity to vent the steam/energy equivalent of one (1) percent of licensed/rated thermal power (unless a lower value is justified), and that the suppression pool and the HCVS together are able to absorb and reject decay heat, such that following a reactor shutdown from full power containment pressure is restored and then maintained below the primary containment design pressure and the primary containment pressure limit.	Section 3.2.2.1 Section 3.2.2.2	<p><b>COMPLETE</b></p> <p>JAF is capable of (a) venting the equivalent of (1) percent of licensed/rated thermal power and (b) the Torus is capable of absorbing the decay heat from full power to (1) one percent licensed/rated thermal power to maintain the integrity of primary containment.</p> <p>Auditable analyses to justify the capability of the Torus, as described in this action, have been issued as calculation JAF-CALC-14-00015 (part of the approved design change package EC 52721) and calculation JAF-CALC-15-00026 (part of the approved design change package EC 58158).</p>
2	Make available for NRC staff audit the seismic and tornado missile final design criteria for the HCVS stack.	Section 3.2.2.3	<p><b>COMPLETE</b></p> <p>The HCVS piping from the Torus to the discharge above the RB Roof is designed to be seismically rugged as supported by calculations JAF-CALC-14-00017, JAF-CALC-15-00008, JAF-CALC-15-00033, and JAF-CALC-14-00016 (part of the approved design change package EC 52721).</p> <p>Protection from tornado missiles relies on HCVS-WP-04 which concludes that piping located a minimum of 30' above grade is unlikely to be damaged in a manner that prevents containment venting. All JAF HCVS piping is located a minimum of 30' above grade.</p>
3	Make available for NRC staff audit the final sizing evaluation for HCVS batteries/battery charger including incorporation into FLEX DG loading calculation.	Section 3.2.2.4 Section 3.2.3.1 Section 3.2.3.2 Section 3.2.4.1 Section 3.2.4.2 Section 3.2.5.1 Section 3.2.5.2 Section 3.2.6	<p><b>NOT COMPLETE</b></p> <p>The HCVS Battery System will support a minimum of 24 hours of operation. This evaluation is included in EC 52721.</p> <p>The power source for the charger will be backed by a FLEX DG. The FLEX DG loading will be issued as part of the FLEX design change package.</p>



**Response to Phase 1 Interim Staff Evaluation Open Items**

OI	Action	Comment	Response
4	Make available for NRC staff audit documentation of the HCVS nitrogen pneumatic system design including sizing and location.	Section 3.2.2.4 Section 3.2.3.1 Section 3.2.3.2 Section 3.2.4.1 Section 3.2.4.2 Section 3.2.5.1 Section 3.2.5.2 Section 3.2.6	<b>COMPLETE</b> The HCVS pneumatic system design sizing will be capable of 12 cycles in the first 24 hours. The sizing of the nitrogen motive force and purge systems are provided in calculations JAF-CALC-15-00013 and JAF-CALC-15-00038, respectively (part of the approved design change package EC 52721).
5	Provide a description of the final design of the HCVS to address hydrogen detonation and deflagration.	Section 3.2.2.6	<b>COMPLETE</b> The JAF strategy for preventing hydrogen detonation and deflagration beyond the final isolation point (valve) is a nitrogen purge system. Concurrent with closing the isolation valve, the purge system will be initiated to purge the vented fluid from the HCVS pipeline.
6	Provide a description of the strategies for hydrogen control that minimizes the potential for hydrogen gas migration and ingress into the reactor building or other buildings.	Section 3.2.2.6	<b>COMPLETE</b> At JAF the interfaces between the RB and the HCVS pipeline are limited to normally closed, small bore drain and instrument valves minimizing the hydrogen gas migration and ingress into the Reactor Building. In addition, migration to the Standby Gas Treatment System is minimized through the use of existing Class VI MOVs that will be leak tested in accordance with NEI 13-02.
7	Make available for NRC staff audit descriptions of all instrumentation and controls (existing and planned) necessary to implement this order including qualification methods.	Section 3.2.2.10	<b>NOT COMPLETE</b> The required instrumentation and controls (existing and new) are identified as part of the JAF OIP, Part 2. The qualification of the equipment has been described within the approved design change package EC 52721; however, additional documentation must be supplied by vendors before this item is completed.

**Response to Phase 1 Interim Staff Evaluation Open Items**

OI	Action	Comment	Response
8	Make available for NRC staff audit documentation of a seismic qualification evaluation of HCVS components.	Section 3.2.2.9	<b>NOT COMPLETE</b> The qualification of the equipment has been described within the approved design change package EC 52721; however, additional documentation must be supplied by vendors before this item is completed.
9	Make available for NRC staff audit the descriptions of local conditions (temperature, radiation and humidity) anticipated during ELAP and severe accident for the components (valves, instrumentation, sensors, transmitters, indicators, electronics, control devices, etc.) required for HCVS venting including confirmation that the components are capable of performing their functions during ELAP and severe accident conditions.	Section 3.2.2.3 Section 3.2.2.5 Section 3.2.2.9 Section 3.2.2.10	<b>COMPLETE</b> The approved design change package EC 52721 describes the conditions and capability of the equipment to function within the stated conditions.
10	Make available for NRC staff audit documentation of an evaluation verifying the existing containment isolation valves, relied upon for the HCVS, will open under the maximum expected differential pressure during BDBEE and severe accident wetwell venting.	Section 3.2.2.9	<b>COMPLETE</b> Calculations 14620.9011-US(N)-004 confirms that the PCIVs are capable of operation under the maximum expected differential pressure during BDBEE and severe accident wetwell venting.
11	Make available for NRC staff audit documentation that demonstrates adequate communication between the remote HCVS operation locations and HCVS decision makers during ELAP and severe accident conditions.	Section 3.2.2.5	<b>NOT COMPLETE</b> The capability for communication between the HCVS operation locations and decision makers will be evaluated as part of EP-Comms modifications. The EP-Comms detailed design is currently in progress and the design change package is scheduled for approval in 2016.

**Response to Phase 1 Interim Staff Evaluation Open Items**

OI	Action	Comment	Response
12	Make available for NRC staff audit an evaluation of temperature and radiological conditions to ensure that operating personnel can safely access and operate controls and support equipment.	Section 3.2.1 Section 3.2.2.3 Section 3.2.2.4 Section 3.2.2.5 Section 3.2.2.10 Section 3.2.4.1 Section 3.2.4.2 Section 3.2.5.2 Section 3.2.6	<p><b>COMPLETE</b></p> <p>The approved design change package EC 52721, along with supporting calculations, has identified the anticipated conditions during ELAP and a Severe Accident and confirm the capability for operating personnel to safely access and operate controls and support equipment.</p>