



Order No. EA-13-109

RS-16-107

June 30, 2016

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

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Fourth Six-Month Status Report For Phases 1 and 2 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)

References:

1. NRC Order Number EA-13-109, "Issuance of Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," dated June 6, 2013
2. NRC Interim Staff Guidance JLD-ISG-2015-01, "Compliance with Phase 2 Order EA-13-109, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions", Revision 0, dated April 2015
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 1, dated April 2015
4. Exelon Generation Company, LLC's Answer 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 26, 2013
5. Exelon Generation Company, LLC Phase 1 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 (RS-14-059)
6. Exelon Generation Company, LLC First Six-Month Status Report Phase 1 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 December 17, 2014 (RS-14-303)
7. Exelon Generation Company, LLC Second Six-Month Status Report Phase 1 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, 2015 (RS-15-149)

8. Exelon Generation Company, LLC Phase 1 (Updated) and Phase 2 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 December 16, 2015 (RS-15-300)
9. NRC letter to Exelon Generation Company, LLC, LaSalle County Station, Units 1 and 2 – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Phase 1 of Order EA-13-109 (Severe Accident Capable Hardened Vents) (TAC Nos. MF4456 and MF4457), dated March 31, 2015

On June 6, 2013, the Nuclear Regulatory Commission (“NRC” or “Commission”) issued an Order (Reference 1) to Exelon Generation Company, LLC (EGC). Reference 1 was immediately effective and directs EGC to require their BWRs with Mark I and Mark II containments to take certain actions to ensure that these facilities have a hardened containment vent system (HCVS) to remove decay heat from the containment, and maintain control of containment pressure within acceptable limits following events that result in loss of active containment heat removal capability while maintaining the capability to operate under severe accident (SA) conditions resulting from an Extended Loss of AC Power (ELAP). Specific requirements are outlined in Attachment 2 of Reference 1.

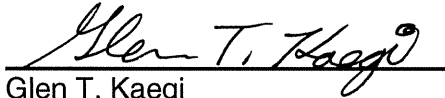
Reference 1 required submission of an Overall Integrated Plan (OIP) by June 30, 2014 for Phase 1 of the Order, and an OIP by December 31, 2015 for Phase 2 of the Order. The interim staff guidance (Reference 2) provides direction regarding the content of the OIP for Phase 1 and Phase 2. Reference 2 endorses industry guidance document NEI 13-02, Revision 1 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided the EGC initial response regarding reliable hardened containment vents capable of operation under severe accident conditions. Reference 5 provided the LaSalle County Station, Units 1 and 2, Phase 1 OIP pursuant to Section IV, Condition D.1 of Reference 1. References 6 and 7 provided the first and second six-month status reports pursuant to Section IV, Condition D.3 of Reference 1 for LaSalle County Station. Reference 8 provided the LaSalle County Station, Units 1 and 2, Phase 1 updated and Phase 2 OIP pursuant to Section IV, Conditions D.2 and D.3 of Reference 1.

The purpose of this letter is to provide the fourth six-month update report for Phases 1 and 2, pursuant to Section IV, Condition D.3 of Reference 1, that delineates progress made in implementing the requirements of Reference 1 for LaSalle County Station, Units 1 and 2. The enclosed report provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief and the basis, if any. The enclosed report also addresses the NRC Interim Staff Evaluation open items contained in Reference 9.

This letter contains no new regulatory commitments. If you have any questions regarding this report, please contact David P. Helker at 610-765-5525.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 30th day of June 2016.

Respectfully submitted,



Glen T. Kaegi
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Enclosure:

LaSalle County Station, Units 1 and 2 Fourth Six-Month Status Report for Phases 1 and 2
Implementation of Order EA-13-109, Order Modifying Licenses with Regard to Reliable
Hardened Containment Vents Capable of Operation Under Severe Accident Conditions

cc: Director, Office of Nuclear Reactor Regulation
NRC Regional Administrator - Region III
NRC Senior Resident Inspector - LaSalle County Station
NRC Project Manager, NRR - LaSalle County Station
Mr. Raj Auluck, NRR/JLD/TSD/JCBB, NRC
Mr. John P. Boska, NRR/JLD/JOMB, NRC
Illinois Emergency Management Agency - Division of Nuclear Safety

Enclosure

LaSalle County Station, Units 1 and 2

**Fourth Six-Month Status Report for Phases 1 and 2 Implementation of Order EA-13-109,
Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable
of Operation Under Severe Accident Conditions**

(8 pages)

Enclosure

LaSalle County Station, Units 1 and 2 Fourth Six-Month Status Report for Phases 1 and 2 Implementation of Order EA-13-109, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions"

1 Introduction

LaSalle Station developed an Overall Integrated Plan (Reference 1 in Section 8), 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 Reference 2 in Section 8. Starting with this six month status report, updates of milestone accomplishments will be based on the combined Phases 1 and 2 Overall Integrated Plan dated December 16, 2015.

LaSalle Station developed an updated and combined Phases 1 and 2 Overall Integrated Plan (Reference 7 in Section 8), documenting:

1. 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 Reference 2 in Section 8.
2. An alternative venting strategy that makes it unlikely that a drywell vent is needed to protect the containment from overpressure related failure under severe accident conditions, including those that involve a breach of the reactor vessel by molten core debris, in response to Reference 2 in Section 8.

This enclosure provides an update of milestone accomplishments since submittal of the combined Phases 1 and 2 Overall Integrated Plan, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

The following milestone(s) have been completed since the development of the combined Phases 1 and 2 Overall Integrated Plan (Reference 7 in Section 8), and are current as of May 15, 2016:

- Fourth Six-Month Update (complete with this submittal)

3 Milestone Schedule Status

The following provides an update to Attachment 2 of the combined Phases 1 and 2 Overall Integrated Plan. It provides the activity 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.

The revised milestone target completion dates do not impact the Order implementation date.

LaSalle County Station, Units 1 and 2
 Fourth Six-Month Status Report for the Implementation of HCVS Phases 1 and 2
 June 30, 2016

Milestone	Target Completion Date	Activity Status	Comments
Phases 1 and 2 HCVS Milestone Table			
Submit Phase 1 Overall Integrated Plan	Jun 2014	Complete	
Submit 6 Month Updates			
Update 1	Dec 2014	Complete	
Update 2	Jun 2015	Complete	
Update 3 and Phase 2 Overall Integrated Plan	Dec 2015	Complete	
Update 4	Jun 2016	Complete	This submittal
Update 5	Dec 2016	Not Started	
Update 6	Jun 2017	Not Started	
Update 7	Dec 2017	Not Started	
Update 8	Jun 2018	Not Started	
Update 9	Dec 2018	Not Started	
Phase 1 Specific Milestones			
Phase 1 Unit 2 Modifications			
Begin Conceptual Design	Jun 2014	Complete	
Complete Conceptual Design	Jun 2014	Complete	
Begin Detailed Design	Jun 2015	Complete	
Complete Detailed Design and Issue Modification Package	Nov 2016	Started	
Begin Online Installation	Jun 2016	Not Started	
Complete Online Installation	Feb 2017	Not Started	
Begin Outage Installation	Feb 2017	Not Started	
Complete Outage Installation	Mar 2017	Not Started	
Phase 1 Unit 2 Procedure Changes			
Operations Procedures Developed	Dec 2016	Not Started	
Maintenance Procedures Developed	Dec 2016	Not Started	

LaSalle County Station, Units 1 and 2
 Fourth Six-Month Status Report for the Implementation of HCVS Phases 1 and 2
 June 30, 2016

Milestone	Target Completion Date	Activity Status	Comments
Phases 1 and 2 HCVS Milestone Table			
Procedure Changes Active	Mar 2017	Not Started	
Phase 1 Unit 2 Training			
Training Complete	Dec 2016	Not Started	
Phase 1 Unit 2 Completion			
Unit 2 HCVS Phase 1 Implementation	Mar 2017	Not Started	
Submit Completion Report	May 2019	Not Started	
Phase 1 Unit 1 Modifications			
Begin Conceptual Design	Jun 2014	Complete	
Complete Conceptual Design	Jun 2014	Complete	
Begin Detailed Design	Jun 2015	Complete	
Complete Detailed Design and Issue Modification Package	Mar 2017	Started	
Begin Online Installation	May 2017	Not Started	
Complete Online Installation	Feb 2018	Not Started	
Begin Outage Installation	Feb 2018	Not Started	
Complete Outage Installation	Mar 2018	Not Started	
Phase 1 Unit 1 Procedure Changes			
Operations Procedures Developed	Dec 2017	Not Started	
Maintenance Procedures Developed	Dec 2017	Not Started	
Procedure Changes Active	Mar 2018	Not Started	
Phase 1 Unit 1 Training			
Training Complete	Dec 2017	Not Started	
Phase 1 Unit 1 Completion			
Phase 1 Unit 1 Implementation	Mar 2018	Not Started	
Phase 1 Full Site Implementation	Mar 2018	Not Started	

LaSalle County Station, Units 1 and 2
 Fourth Six-Month Status Report for the Implementation of HCVS Phases 1 and 2
 June 30, 2016

Milestone	Target Completion Date	Activity Status	Comments
Phases 1 and 2 HCVS Milestone Table			
Submit Completion Report	May 2018	Not Started	
Phase 2 Specific Milestones			
Phase 2 Unit 1 Modifications			
Begin Conceptual Design	Jun 2015	Complete	
Complete Conceptual Design	Jun 2015	Complete	
Begin Detailed Design	Jun 2016	Not Started	
Complete Detailed Design and Issue Modification Package	Mar 2017	Not Started	
Begin Online Installation	May 2017	Not Started	
Complete Online Installation	Feb 2018	Not Started	
Begin Outage Installation	Feb 2018	Not Started	
Complete Outage Installation	Mar 2018	Not Started	
Phase 2 Unit 1 Procedure Changes			
Operations Procedures Developed	Dec 2017	Not Started	
Maintenance Procedures Developed	Dec 2017	Not Started	
Procedure Changes Active	Mar 2018	Not Started	
Phase 2 Unit 1 Training			
Training Complete	Dec 2017	Not Started	
Phase 2 Unit 1 Completion			
Phase 2 Unit 1 Implementation	Mar 2018	Not Started	
Submit Phase 1 and Phase 2 Completion Report	May 2018	Not Started	
Phase 2 Unit 2 Modifications			
Begin Conceptual Design	Jun 2015	Complete	
Complete Conceptual Design	Jun 2015	Complete	
Begin Detailed Design	Jun 2017	Not Started	

LaSalle County Station, Units 1 and 2
 Fourth Six-Month Status Report for the Implementation of HCVS Phases 1 and 2
 June 30, 2016

Milestone	Target Completion Date	Activity Status	Comments
Phases 1 and 2 HCVS Milestone Table			
Complete Detailed Design and Issue Modification Package	Mar 2018	Not Started	
Begin Online Installation	May 2018	Not Started	
Complete Online Installation	Feb 2019	Not Started	
Begin Outage Installation	Feb 2019	Not Started	
Complete Outage Installation	Mar 2019	Not Started	
Phase 2 Unit 2 Procedure Changes			
Operations Procedures Developed	Dec 2018	Not Started	
Maintenance Procedures Developed	Dec 2018	Not Started	
Procedure Changes Active	Mar 2019	Not Started	
Phase 2 Unit 2 Training			
Training Complete	Dec 2018	Not Started	
Phase 2 Unit 2 Completion			
Phase 2 Unit 2 Implementation	Mar 2019	Not Started	
Phase 2 Full Site Implementation	Mar 2019	Not Started	
Submit Phase 1 and Phase 2 Completion Report	May 2019	Not Started	

4 Changes to Compliance Method

None.

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

LaSalle expects to comply with the Order implementation date and no relief/relaxation is required at this time.

6 Open Items from Combined Phases 1 and 2 Overall Integrated Plan and Interim Staff Evaluations

The following tables provide a summary of the open items documented in the combined Phases 1 and 2 Overall Integrated Plan or the Interim Staff Evaluation (ISE) and the status of each item.

Combined Phase 1 and 2 OIP Open Items		Status
Phase 1 Open Items		
7	Perform radiological evaluation for Phase 1 vent line impact on ERO actions.	Started
Phase 2 Open Items		
1	Evaluate feasibility of strategy due to radiological conditions.	Started
2	Verify required modifications to support SAWA/SAWM.	Not Started

No.	Phase 1 Interim Staff Evaluation Open Item	Status
1	Make available for NRC staff audit documentation of a method to disable HCVS during normal operation to provide assurances against inadvertent operation that also minimizes actions to enable HCVS operation following an ELAP.	Started. The motive and purge gas systems will be isolated by one locked closed manual valve in each system during normal operation. Main Control Room (MCR) controls will be via key-locked switches. PCIVs are air-to-open, spring/fail closed.
2	Make available for NRC staff audit the final sizing evaluation for HCVS batteries/battery charger including incorporation into FLEX DG loading calculation.	Started
3	Make available for NRC staff audit documentation of the HCVS argon pneumatic system design including sizing and location.	Started
4	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.	Started
5	Make available for NRC staff audit analyses demonstrating that HCVS has the capacity to vent the steam/energy equivalent of one percent of licensed/rated thermal power (unless a lower value	Started

LaSalle County Station, Units 1 and 2
 Fourth Six-Month Status Report for the Implementation of HCVS Phases 1 and 2
 June 30, 2016

	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.	
6	Make available for NRC staff audit the seismic and tornado missile final design criteria for the HCVS stack.	Started. LaSalle design will comply with the reasonable tornado protection criteria of Reference 6 in Section 8.
7	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.	Started
8	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.	Not Started
9	Provide a description of the final design of the HCVS to address hydrogen detonation and deflagration.	Started. LaSalle design will use argon purge system to prevent the possibility of hydrogen detonation and deflagration.
10	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.	Started. LaSalle wetwell vent line has a dedicated HCVS flowpath from the wetwell penetration to the outside with no interconnected system. The discharge point meets the guidance of HCVS-FAQ-04 (Att. J of Reference 3 in Section 8).
11	Make available for NRC staff audit documentation of a seismic qualification evaluation of HCVS components.	Started
12	Make available for NRC staff audit descriptions of all instrumentation and controls (existing and planned) necessary to implement this order including qualification methods.	Started
13	Make available for NRC staff audit the procedures for HCVS operation.	Not Started

LaSalle County Station, Units 1 and 2
 Fourth Six-Month Status Report for the Implementation of HCVS Phases 1 and 2
 June 30, 2016

	Phase 2 Interim Staff Evaluation Open Item	Status
	Phase 2 ISE not yet issued.	N/A

7 Interim Staff Evaluation Impacts

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

8 References

The following references support the updates to the combined Phases 1 and 2 Overall Integrated Plan described in this enclosure.

1. LaSalle County Station, Units 1 and 2, Phase 1 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. ML14184A016).
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 NRC Order EA-13-109, ‘To Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions,’ Revision 1, dated April 2015.
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 Industry “Hardened Containment Venting System (HCVS) Phase 1 Overall Integrated Plan Template (EA-13-109) Rev 0,” dated May 14, 2014 (Accession No. ML14128A219).
6. Industry White Paper HCVS-WP-04, “Missile Evaluation for HCVS Components 30 Feet Above Grade,” Revision 0, dated August 17, 2015
7. LaSalle County Station, Units 1 and 2, Phase 1 (Updated) and Phase 2 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 December 16, 2015 (Accession No. ML15352A109).
8. NRC Interim Staff Guidance JLD-ISG-2015-01, “Compliance with Phase 2 of Order EA-13-109, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions,” Revision 0, dated April 2015 (Accession No. ML15104A118).