



Order No. EA-13-109

RS-15-149

June 30, 2015

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: Second Six-Month Status Report For 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)

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 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 NRC 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. 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.

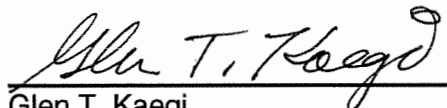
Reference 1 required submission of a Phase 1 Overall Integrated Plan pursuant to Section IV, Condition D by June 30, 2014. Reference 2 endorses industry guidance document NEI 13-02, Revision 1 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided the EGC initial answer to the Order 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 Overall Integrated Plan.

Reference 1 requires submission of a status report at six-month intervals following submittal of the Phase 1 overall integrated plan. Reference 3 provides direction regarding the content of the status reports. Reference 6 provided the first six-month status report pursuant to Section IV, Condition D.3 of Reference 1 for LaSalle Station. The purpose of this letter is to provide the second six-month status report for Phase 1 pursuant to Section IV, Condition D.3, of Reference 1, that delineates progress made in implementing the requirements of Reference 1. 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 7.

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 30<sup>th</sup> day of June 2015.

Respectfully submitted,



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

Enclosure:

LaSalle County Station, Units 1 and 2 Second Six-Month Status Report for Phase 1  
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, Units 1 and 2  
NRC Project Manager, NRR – LaSalle County Station, Units 1 and 2  
Mr. Charles H. Norton, NRR/JLD/PPSD/JOMB, 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**

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

(6 pages)

## Enclosure

### LaSalle County Station, Units 1 and 2 Second Six Month Status Report for the 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 County Station, Units 1 and 2 (LSCS) 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. This enclosure provides an update of milestone accomplishments since submittal of the Phase 1 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 Overall Integrated Plan (Reference 1), and are current as of May 29, 2015.

- Held preliminary/conceptual design meeting
- First Six-Month Update
- Second Six-Month Update (complete with this submittal)

#### 3 Milestone Schedule Status

The following provides an update to Part 5 of the 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.

| Milestone                                  | Target Completion Date | Activity Status              | Comments |
|--|------------------------|------------------------------|----------|
| <b>Phase 1 HCVS Milestone Table</b>        |                        |                              |          |
| Submit Overall Integrated Plan             | June 2014              | Complete                     |          |
| Hold preliminary/conceptual design meeting | June 2014              | Complete                     |          |
| <b>Submit 6 Month Updates:</b>             |                        |                              |          |
| Update 1                                   | December 2014          | Complete                     |          |
| Update 2                                   | June 2015              | Complete with this submittal |          |

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| Milestone                                      | Target Completion Date | Activity Status | Comments                                |
|--|------------------------|-----------------|---|
| <b>Phase 1 HCVS Milestone Table</b>            |                        |                 |   |
| Update 3                                       | December 2015          | Not Started     | Simultaneous with Phase 2 OIP           |
| Update 4                                       | June 2016              | Not Started     |   |
| Update 5                                       | December 2016          | Not Started     |   |
| Update 6                                       | June 2017              | Not Started     |   |
| Update 7                                       | December 2017          | Not Started     |   |
| <b>Modifications:</b>                          |                        |                 |   |
| U2 Phase 1 Design Engineering On-site/Complete | March 2016             | Started         | Design Engineering started in July 2014 |
| Operations Procedure Changes Developed         | December 2016          | Not Started     |   |
| Site Specific Maintenance Procedure Developed  | December 2016          | Not Started     |   |
| Training Complete                              | December 2016          | Not Started     |   |
| U2 Implementation Outage (Phase 1)             | February 2017          | Not Started     |   |
| Procedure Changes Active                       | March 2017             | Not Started     |   |
| U2 Walk Through Demonstration/Functional Test  | March 2017             | Not Started     |   |
| U1 Phase 1 Design Engineering On-site/Complete | March 2017             | Not Started     |   |
| Submit U2 Phase 1 Completion Report            | May 2017               | Not Started     |   |
| U1 Implementation Outage (Phase 1)             | February 2018          | Not Started     |   |
| U1 Walk Through Demonstration/Functional Test  | March 2018             | Not Started     |   |
| Submit U1 Phase 1 Completion Report            | May 2018               | Not Started     |   |

**4 Changes to Compliance Method**

There are no changes to the compliance method as documented in the Phase 1 Overall Integrated Plan (Reference 1).

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

LaSalle County Station expects to comply with the order implementation date; therefore, no relief/relaxation is required at this time.

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

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

| Open Item | Action  | Status  |
|-----------|---|---|
| 1         | Determine how Motive Power and/or HCVS Battery Power will be disabled during normal operation.                  | Deleted (closed to ISE open item number 1 below)  |
| 2         | Confirm that the Remote Operating Station (ROS) will be in an accessible area following a Severe Accident (SA). | Deleted (closed to ISE open item number 4 below)  |
| 3         | Determine wetwell line size to meet 1% venting criteria.  | Deleted (closed to ISE open item number 5 below)  |
| 4         | Confirm suppression pool heat capacity.   | Completed – See Reference 6<br>The MAAP analyses done for the LaSalle station as part of the FLEX implementation demonstrate that containment venting can be delayed for greater than 3 hours from the start of the ELAP event. |
| 5         | Determine the approach for combustible gases.   | Deleted (closed to ISE open item number 9 below)  |
| 6         | Provide procedures for HCVS Operation.  | Deleted (closed to ISE open item number 13 below)   |

| Number | Interim Staff Evaluation Open Item  | Status      |
|--------|---|-------------|
| 1      | Make available for NRC audit a description of how HCVS dc power and/or motive power will be disabled during normal operation to provide assurances against inadvertent operation, but to also minimize actions to enable HCVS operation during an ELAP. | Not Started |

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|   |  |             |
|---|--|-------------|
| 2 | Make available for NRC staff audit the final sizing evaluation for HCVS batteries/battery charger including incorporation into FLEX DG loading calculation.  | Not Started |
| 3 | Make available for NRC staff audit documentation of the HCVS nitrogen pneumatic system design including sizing and location.   | Not 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.   | Not 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 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. | Started     |
| 6 | Make available for NRC staff audit the seismic and tornado missile final design criteria for the HCVS stack.   | Not Started |
| 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.   | Not 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 |



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|    |  |             |
|----|--|-------------|
| 9  | Provide a description of the final design of the HCVS to address hydrogen detonation and deflagration.   | Not Started |
| 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. | Not Started |
| 11 | Make available for NRC staff audit documentation of a seismic qualification evaluation of HCVS components.   | Not 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.  | Not Started |
| 13 | Make available for NRC staff audit the procedures for HCVS operation.  | Not Started |

**7 Interim Staff Evaluation Impacts**

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

**8 References**

The following references support the updates to the Phase 1 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.
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.
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-2015-01, "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 April 2015.

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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 (ML14128A219).
6. LS-MISC-017, Revision 1, MAAP Analysis to Support Initial FLEX Strategy, dated February 13, 2013
7. LaSalle County Station’s, First Six Month Status Report for the implementation of Hardened Containment Vent (Order EA-13-109), RS-14-303, dated December 17, 2014 (ML 14351A450)
8. 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), dated March 31, 2015 (ML 15084A180)