Exelon Generation®

Order No. EA-13-109

RS-15-153

June 30, 2015

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

Nine Mile Point Nuclear Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-63 and DPR-69
NRC Docket Nos. 50-220 and 50-410

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. Constellation Energy Nuclear Group, 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 21, 2013
5. Exelon Generation Company, LLC Nine Mile Point Nuclear Station, Units 1 and 2, Overall Integrated Plan per Order EA-13-109 Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, dated June 27, 2014
6. Exelon Generation Company, LLC December 2014 (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 16, 2014 (FLL-14-035)
7. NRC letter to Exelon Generation Company, LLC, Nine Mile Point Nuclear Station, Unit 1 – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Phase 1 of Order EA-13-109 (Severe Accident Capable Hardened Vents) (TAC No. MF4481), dated March 26, 2015

8. NRC letter to Exelon Generation Company, LLC, Nine Mile Point Nuclear Station, Unit 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 No. MF4482), dated February 11, 2015

On June 6, 2013, the Nuclear Regulatory Commission ("NRC" or "Commission") issued an order (Reference 1) to Exelon Generation Company, LLC (EGC), known previously as Constellation Energy Nuclear Group, LLC (Exelon, the licensee). 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 Nine Mile Point Nuclear Station, Units 1 and 2 Phase 1 Overall Integrated Plans.

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 Nine Mile Point 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 reports provide 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 reports also address the NRC Interim Staff Evaluation open items contained in References 7 and 8.

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 2015.

Respectfully submitted,

James Barstow
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Enclosures:

1. Nine Mile Point Nuclear Station, Unit 1 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

2. Nine Mile Point Nuclear Station, Unit 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 I
NRC Senior Resident Inspector – Nine Mile Point Nuclear Station, Units 1 and 2
NRC Project Manager, NRR – Nine Mile Point Nuclear Station, Units 1 and 2
Mr. Charles H. Norton, NRR/JLD/PPSD/JOMB, NRC
Mr. Jason C. Paige, NRR/JLD/JOMB, NRC

Enclosure 1

Nine Mile Point Nuclear Station, Unit 1

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

(5 pages)

Enclosure 1

Nine Mile Point Unit 1 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

Nine Mile Point Unit 1 (NMP1) 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 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 June 15, 2015.

- 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.

Milestone	Target Completion Date	Activity Status	Comments
Hold preliminary/conceptual design meeting	November 2013	Complete	
Submit Overall Integrated Implementation Plan	June 2014	Complete	
Submit Six-Month Update	December 2014	Complete	
Submit Six-Month Update	June 2015	Complete with this submittal	
Submit Six-Month Update	December 2015		Simultaneous with Phase 2 OIP

Submit Six-Month Update	June 2016		
Submit Six-Month Update	December 2016		
Design Engineering Complete	April 2016	Started	
Operations Procedure Changes Developed	December 2016		
Site Specific Maintenance Procedure Developed	December 2016		
Training Complete	February 2017		
NMP1 Implementation Outage	April 2017		
Procedure Changes Active	April 2017		
Walk Through Demonstration/Functional Test	April 2017		
Submit Completion Report	June 2017		

4 Changes to Compliance Method

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

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

NMP1 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.

Overall Integrated Plan Phase 1 Open Items	Status
1. Perform final sizing evaluation for HCVS batteries and battery charger and include in FLEX DG loading calculation.	Deleted (closed to ISE open item number 7 below)
2. Perform final vent capacity calculation for the Torus HCVS piping confirming 1% minimum capacity.	Deleted (closed to ISE open item number 2 below)
3. Perform final sizing evaluation for pneumatic Nitrogen (N2) supply.	Deleted (closed to ISE open item number 8 below)

4. Perform confirmatory environmental condition evaluation for the Turbine Building in the vicinity of the Remote Operating Station (ROS) and HCVS dedicated pneumatic supply and batteries.	Deleted (closed to ISE open item numbers 6 and 11 below)
5. State which approach or combination of approaches the plant determines is necessary to address the control of combustible gases downstream of the HCVS control valve.	Deleted (closed to ISE open item number 3 below)
6. Complete evaluation for environmental/seismic qualification of HCVS components.	Deleted (closed to ISE open item numbers 9 and 11 below)
7. Complete evaluation for environmental conditions and confirm the travel path accessibility.	Deleted (closed to ISE open item number 6 below)

Interim Staff Evaluation Open Items	**Status**
1. Make available for NRC staff audit the seismic and tornado missile final design criteria for the HCVS stack.	Not Started
2. 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.	Started
3. Provide a description of the final design of the HCVS to address hydrogen detonation and deflagration.	Started
4. 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
5. Provide a description of the strategies for hydrogen control that minimizes the potential for hydrogen gas migration and ingress in the reactor building or other buildings.	Not Started

6. 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
7. Make available for NRC staff audit the final sizing evaluation for HCVS batteries/battery charger including incorporation into FLEX DG loading calculation.	Started
8. Make available for NRC staff audit documentation of the HCVS nitrogen pneumatic system design including sizing and location.	Started
9. Make available for NRC staff audit documentation of a seismic qualification evaluation of HCVS components.	Not Started
10. Make available for NRC staff audit descriptions of all instrumentation and controls (existing and planned) necessary to implement this order including qualification methods.	Started
11. Make available for NRC staff audit the description 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

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. Letter from M. G. Korsnick to Document Control Desk (NRC), Overall Integrated Plan per Order EA-13-109 Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, dated June 27, 2014(ML14184B340)
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(ML13143A321)
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, Rev. 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, Rev. 0, dated April 2015
5. Letter from M. G. Korsnick to Document Control Desk (NRC), December 2014 Six-Month Status Report in Response to Order EA-13-109 Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, dated December 16, 2014
6. NRC letter to Exelon Generation Company, LLC, Nine Mile Point Nuclear Station, Unit 1 – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Phase 1 of Order EA-13-109 (Severe Accident Capable Hardened Vents) (TAC No. MF4481), dated March 26, 2015

Enclosure 2

Nine Mile Point Nuclear Station, Unit 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

(5 pages)

Enclosure 2

Nine Mile Point Unit 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

Nine Mile Point Unit 2 (NMP2) 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 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 June 15, 2015.

- 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.

Milestone	Target Completion Date	Activity Status	Comments
Hold preliminary/conceptual design meeting	November 2013	Complete	
Submit Overall Integrated Implementation Plan	June 2014	Complete	
Submit Six-Month Update	December 2014	Complete	
Design Engineering Complete	June 2015	Started	August 2015 Outage-related engineering is complete.
Submit Six-Month Update	June 2015	Complete	

		with this submittal	
Operations Procedure Changes Developed	December 2015		
Site Specific Maintenance Procedure Developed	December 2015		
Submit Six-Month Update	December 2015		Simultaneous with Phase 2 OIP
Training Complete	February 2016		
NMP2 Implementation Outage	April 2016		
Procedure Changes Active	April 2016		
Walk Through Demonstration/Functional Test	~~April 2016~~		May 2016 (Outage End)
Submit Completion Report	June 2016		

4 Changes to Compliance Method

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

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

NMP2 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.

Overall Integrated Plan Phase 1 Open Item	Status
1. Perform final sizing evaluation for HCVS batteries and battery charger and include in FLEX DG loading calculation.	Deleted (closed to ISE open item number 8 below)
2. Perform final vent capacity calculation for the Torus HCVS piping confirming 1% minimum capacity.	Deleted (closed to ISE open item number 3 below)

3. Perform final sizing evaluation for pneumatic Nitrogen (N2) supply.	Deleted (closed to ISE open item number 9 below)
4. Perform seismic evaluation of Reactor Building Track Bay.	Deleted (closed to ISE open item number 2 below)
5. State which approach or combination of approaches the plant determines is necessary to address the control of combustible gases downstream of the HCVS control valve.	Deleted (closed to ISE open item number 4 below)
6. Complete evaluation for environmental/seismic qualification of HCVS components.	Deleted (closed to ISE open item numbers 10 and 12 below)
7. Complete evaluation for environmental conditions and confirm the travel path accessibility.	Deleted (closed to ISE open item number 7 below)
8. Perform final environmental evaluation of the Remote Operating Station (ROS) location.	Deleted (closed to ISE open item number 7 below)

Interim Staff Evaluation Open Item	**Status**
1. Make available for NRC staff audit the seismic and tornado missile final design criteria for the HCVS stack.	Started
2. Make available for NRC staff review documentation of a determination of seismic adequacy for the ROS location in the Reactor Building Track Bay.	Started
3. 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.	Started
4. Provide a description of the final design of the HCVS to address hydrogen detonation and deflagration.	Started
5. Make available for NRC staff audit documentation that demonstrates adequate communication between the remote HCVS	Started

operation locations and HCVS decision makers during ELAP and severe accident conditions.	
6. Provide a description of the strategies for hydrogen control that minimizes the potential for hydrogen gas migration and ingress in the reactor building or other buildings.	Started
7. 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
8. Make available for NRC staff audit the final sizing evaluation for HCVS batteries/battery charger including incorporation into FLEX DG loading calculation.	Started
9. Make available for NRC staff audit documentation of the HCVS nitrogen pneumatic system design including sizing and location.	Started
10. Make available for NRC staff audit documentation of a seismic qualification evaluation of HCVS components.	Started
11. Make available for NRC staff audit descriptions of all instrumentation and controls (existing and planned) necessary to implement this order including qualification methods.	Started
12. Make available for NRC staff audit the description 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
13. 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.	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. Letter from M. G. Korsnick to Document Control Desk (NRC), Overall Integrated Plan per Order EA-13-109 Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, dated June 27, 2014(ML14184B340)
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(ML13143A321)
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, Rev. 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, Rev. 0, dated April 2015
5. Letter from M. G. Korsnick to Document Control Desk (NRC), December 2014 Six-Month Status Report in Response to Order EA-13-109 Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, dated December 16, 2014
6. NRC letter to Exelon Generation Company, LLC, Nine Mile Point Nuclear Station, Unit 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 No. MF4482), dated February 11, 2015