



Nebraska Public Power District

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NLS2017055
June 19, 2017

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

Subject: Nebraska Public Power District's Sixth 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)
Cooper Nuclear Station, Docket No. 50-298, DPR-46

- References:**
1. 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
 2. NPPD letter to NRC, "Nebraska Public Power District's 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 (NLS2014057)
 3. NPPD letter to NRC, "Nebraska Public Power District's First 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)," dated December 19, 2014 (NLS2014101)
 4. NPPD letter to NRC, "Nebraska Public Power District's Phase 1 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 21, 2015 (NLS2015137)
 5. NPPD letter to NRC, "Nebraska Public Power District's Fifth 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)," dated December 28, 2016

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NRR

On June 6, 2013, the Nuclear Regulatory Commission (NRC) issued Order EA-13-109 (Reference 1) to Nebraska Public Power District (NPPD). Reference 1 was immediately effective and directs NPPD to take certain actions to ensure that Cooper Nuclear Station (CNS) has a Hardened Containment Vent System 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 conditions resulting from an Extended Loss of AC Power. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of a Phase 1 overall integrated plan (OIP) pursuant to Section IV, Condition D, and status reports at six-month intervals thereafter. NPPD submitted an initial OIP for CNS by letter dated June 30, 2014 (Reference 2), Revision 1 to the OIP by letter dated December 19, 2014 (Reference 3), and Revision 2 which provided a combined Phase 1 and Phase 2 OIP (Reference 4). In Reference 5, NPPD reported that CNS had completed implementation of Phase 1 Order requirements.

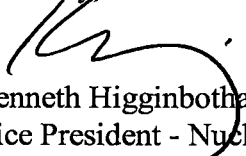
The purpose of this letter is to provide the sixth six-month update pursuant to Section IV, Condition D.3, of Reference 1.

This letter contains no new regulatory commitments. Should you have any questions concerning the content of this letter, please contact Jim Shaw, Licensing Manager, at (402) 825-2788.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: 6/19/17

Sincerely,


Kenneth Higginbotham
Vice President - Nuclear and
Chief Nuclear Officer

/bk

Attachment: Nebraska Public Power District's Sixth 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"

cc: Regional Administrator, w/attachment
USNRC - Region IV

Senior Resident Inspector, w/attachment
USNRC - CNS

Director, w/attachment
USNRC - Office of Nuclear Reactor Regulation

NPG Distribution, w/o attachment

Cooper Project Manager, w/attachment
USNRC - NRR Plant Licensing Branch IV

CNS Records, w/attachment

Attachment

Nebraska Public Power District's Sixth 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"

Introduction

Nebraska Public Power District (NPPD) developed an Overall Integrated Plan (OIP) for Cooper Nuclear Station (CNS) (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. Updates of milestone accomplishments are based on the combined Phase 1 and 2 OIP (Reference 4).

NPPD developed Reference 4 in accordance with the guidance contained in Reference 3, documenting:

1. The installation of a 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.
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.

This attachment provides an update of milestone accomplishments since submittal of the December 2016 status report (Reference 8) including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

Milestone Accomplishments

There has been no change in Phase 2 milestone status since the last status update.

Milestone Schedule Status

The following tables provide an update to Attachment 2 of Reference 4. They provide 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.

Phase 1 and 2 HCVS Milestone Table		
Milestone	Target Completion Date	Activity Status
Submit Phase 1 OIP	June 2014	Complete
Submit Six-Month Updates:	--	--
Update 1	December 2014	Complete
Update 2	June 2015	Complete
Update 3 with Phase 2 OIP	December 2015	Complete
Update 4	June 2016	Complete
Update 5	December 2016	Complete
Update 6	June 2017	Complete with this submittal
Update 7	December 2017	Not Started
Update 8	June 2018	Not Started

Phase 1 Specific Milestones	
Milestone	Activity Status
Hold preliminary/conceptual design meeting	Complete
Design Engineering On-site/Complete	Complete
Operations Procedure Changes Developed	Complete
Site Specific Maintenance Procedure Developed	Complete
Training Complete	Complete
Procedure Changes Active	Complete
Walk Through Demonstration/Functional Test	Complete

Phase 2 Specific Milestones			
Milestone	Target Completion Date	Activity Status	Comments/Date Changes
Hold preliminary/conceptual design meeting	December 2015	Complete	
Design Engineering On-site/Complete	October 2017	In Progress	
Operations Procedure Changes Developed	May 2018	In Progress	
Site Specific Maintenance Procedure Developed	May 2018	In Progress	
Training Complete	June 2018	In Progress	
Implementation Outage	October 2018	Not Started	
Walk Through Demonstration/Functional Test	October 2018	Not Started	
Procedure Changes Active	October 2018	Not Started	
Submit Completion Report (60 days after full site compliance)	January 2019	Not Started	

Changes to Compliance Method

There are no changes to the compliance method as documented in the combined Phase 1 and 2 OIP.

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

NPPD completed implementation of Phase 1 Order requirements prior to CNS entering Mode 2 (Startup) on November 6, 2016.

NPPD expects to comply with the Phase 2 Order implementation date and no relief/relaxation is required at this time.

Open Items from Combined Phase 1 and 2 Overall Integrated Plan and Interim Staff Evaluation

The following tables provide a summary of the open items documented in the combined Phase 1 and 2 OIP, the Interim Staff Evaluations (ISE) for Phase 1 and Phase 2 (References 5 and 7), and the status of each item.

Combined Phase 1 and 2 OIP Open Items	
Phase 1 Open Items	
OIP Open Item #	Status/Comment
1	Closed. Response provided in Reference 6.
2	Closed. Response provided in Reference 6.
3	Closed. Response provided in Reference 6.
4	Closed. Response provided in Reference 6.
5	Closed. Response provided in Reference 6.
6	Closed. Response provided in Reference 6.
7	Closed. Response provided in Reference 6.
8	Closed. Response provided in Reference 6.
9	Closed. Response provided in Reference 6.
10	Closed. Response provided in Reference 6.
11	Closed. Response provided in Reference 6.
12	Closed. Response provided in Reference 8.
Phase 2 Open Items	
None.	

Phase 1 Interim Staff Evaluation Open Items	
ISE Open Item #	Status
1	Complete. Response provided in Reference 6.
2	Complete. Response provided in Reference 6.
3	Complete. Response provided in Reference 6.
4	Complete. Response provided in Reference 6.
5	Complete. Response provided in Reference 8.
6	Complete. Response provided in Reference 8.
7	Complete. Response provided in Reference 6.
8	Complete. Response provided in Reference 6.
9	Complete. Response provided in Reference 6.
10	Complete. Response provided in Reference 6.
11	Complete. Response provided in Reference 6.

Phase 2 Interim Staff Evaluation Open Items		
ISE Open Item #	Action / ISE Section Reference	Status
1	Licensee to demonstrate that containment failure as a result of overpressure can be prevented without a drywell vent during severe accident conditions. Section 3.3.3	Complete. Response provided in Reference 8.
2	Licensee to demonstrate that there is adequate communication between the MCR and the operator at the FLEX pump during severe accident conditions. Section 3.3.3.4	Complete. Response provided in Reference 8.
3	Licensee to demonstrate the SAWM flow instrumentation qualification for the expected environmental conditions. Section 3.3.3.4	Complete. Per CNS' Final Integrated Plan for Order EA-12-049, the following environmental conditions exist: <ul style="list-style-type: none"> • Snow, ice, and extreme cold (minus 5 degrees Fahrenheit) • Extreme heat (97 degrees Fahrenheit) The severe accident water management (SAWM) pump that will be used to provide make-up water for

Phase 2 Interim Staff Evaluation Open Items		
ISE Open Item #	Action / ISE Section Reference	Status
		<p>HCVS Phase 2 actions is rated for 925 gpm and 378 feet of discharge head. As such, the pump's maximum discharge pressure is approximately 165 psig.</p> <p>The selected flow meter is normally supplied with polyvinyl chloride (PVC) piping; however, for this application, CNS will use chlorinated polyvinyl chloride (CPVC) piping. CPVC material (4-inch diameter, schedule 80) has a pressure rating of approximately 320 psig. However, this pressure rating is reduced when accounting for elevated temperatures. An operating temperature of 100 degrees Fahrenheit has a derating factor of 0.82. Therefore, the selected CPVC material has a pressure rating of approximately 260 psig which exceeds the maximum discharge pressure of the SAWM pump.</p> <p>The selected flow meter has a listed operating ambient temperature range of 0-150 degrees Fahrenheit, although the vendor confirmed that the meter will function and provide accurate readings at the required minus 5 degrees Fahrenheit.</p> <p>Additionally, the selected flow meter is listed for applications such as lake or river water, potable water, de-ionized water, etc. These types of fluids meet the applications that CNS may be pumping through the flow meter.</p>

Interim Staff Evaluation Impacts

There are no potential impacts to the ISE identified at this time.

References

1. NPPD letter to NRC, "Nebraska Public Power District's 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: BWR Mark I and II Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," Revision 1, dated April 2015
4. Nebraska Public Power District's Phase 1 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 21, 2015
5. NRC letter to NPPD, "Cooper Nuclear Station - 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. MF4384)," dated February 11, 2015
6. NPPD letter to NRC, "Nebraska Public Power District's Fourth 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)," dated June 30, 2016
7. NRC letter to NPPD, "Cooper Nuclear Station - Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Phase 2 of Order EA-13-109 (Severe Accident Capable Hardened Vents) (TAC NO. MF4384)," dated September 29, 2016
8. NPPD letter to NRC, "Nebraska Public Power District's Fifth 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)," dated December 28, 2016