



Monticello Nuclear Generating Plant  
2807 W County Road 75  
Monticello, MN 55362

February 24, 2015

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

Monticello Nuclear Generating Plant  
Docket No. 50-263  
Renewed Facility Operating License No. DPR-22

Monticello Nuclear Generating Plant's Fourth Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049) (TAC No. MF0923)

References:

1. NRC Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012 (ADAMS Accession No. ML12054A735).
2. NRC Interim Staff Guidance JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0, dated August 29, 2012 (ADAMS Accession No. ML12229A174).
3. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012 (ADAMS Accession No. ML12242A378).
4. NSPM Letter to NRC, "Initial Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," L-MT-12-088, dated October 29, 2012 (ADAMS Accession No. ML12305A420).

5. NSPM Letter to NRC, "Monticello Nuclear Generating Plant's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," L-MT-13-017, dated February 28, 2013 (ADAMS Accession No. ML13066A066).
6. NSPM Letter to NRC, "Monticello's First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," L-MT-13-079, dated August 28, 2013 (ADAMS Accession No. ML13241A200).
7. NSPM Letter to NRC, "Monticello Nuclear Generating Plant's Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049) (TAC No. MF0923)," L-MT-14-014, dated February 28, 2014 (ADAMS Accession No. ML14065A037).
8. NSPM Letter to NRC, "Monticello Nuclear Generating Plant's Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049) (TAC No. MF0923)," L-MT-14-073, dated August 28, 2014 (ADAMS Accession No. ML14241A260).

On March 12, 2012, the Nuclear Regulatory Commission (NRC) staff issued Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," (Reference 1), to all NRC power reactor licensees and holders of construction permits in active or deferred status. Reference 1 was effective immediately and directed Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, to develop, implement and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities following a beyond-design-basis external event for the Monticello Nuclear Generating Plant (MNGP). Specific requirements are outlined in Attachment 2 of Reference 1.

Pursuant to Condition C of Section IV, Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (ISG), an overall integrated plan, and status reports at six-month intervals following the submittal of the overall integrated plan. The ISG (Reference 2) endorses, with clarifications, an industry guidance document from the Nuclear Energy Institute (NEI), NEI 12-06,

"Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0 (Reference 3). Reference 4 provided the MNGP initial 60-day status report regarding mitigation strategies. Reference 5 provided the overall integrated plan for MNGP. The first, second and third six-month status reports were provided in References 6, 7 and 8, respectively.

The purpose of this letter is to provide the fourth six-month status report pursuant to Section IV, Condition C.2 of Reference 1, which delineates the progress made in implementing the requirements of the Reference 1 Order. The enclosed report provides an update of milestone accomplishments since the Reference 8 status report was submitted, including changes to the compliance method, schedule, or the need and basis for relief, if any.

Please contact John Fields, at 763-271-6707, if additional information or clarification is required.

Summary of Commitments

This letter makes no new commitments and no revisions to existing commitments.

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

Executed on February 24, 2015.



Peter A. Gardner  
Site Vice President, Monticello Nuclear Generating Plant  
Northern States Power Company – Minnesota

Enclosure

cc: Administrator, Region III, USNRC  
Director of Nuclear Reactor Regulation (NRR), USNRC  
Project Manager, Monticello Nuclear Generating Plant, USNRC  
Resident Inspector, Monticello Nuclear Generating Plant, USNRC

**Monticello Nuclear Generating Plant  
Fourth Six-Month Status Report for Implementation of Order EA-12-049,  
Order Modifying Licenses with Regard to Requirements for  
Mitigation Strategies for Beyond-Design-Basis External Events**

**1.0 Introduction**

The Nuclear Regulatory Commission (NRC) issued Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," on March 12, 2012 (Reference 1). The Order required licensees to develop, implement and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities following a beyond-design-basis external event. The Order required licensees to submit an Overall Integrated Plan (OIP), including a description of how the requirements in Attachment 2 of the Order would be achieved. Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, submitted the OIP (Reference 2) for the Monticello Nuclear Generating Plant (MNGP) on February 28, 2013. In accordance with Section IV, Condition C.2 of Reference 1, NSPM submitted the first six-month status report on August 28, 2013 (Reference 3), the second six-month report on February 28, 2014 (Reference 4) and the third six-month report on August 28, 2014 (Reference 6).

On November 25, 2013, the NRC issued an Interim Staff Evaluation (ISE) for MNGP's Mitigating Strategies OIP (Reference 5). The ISE documents the NRC's conclusion that NSPM has provided sufficient information to determine that there is reasonable assurance that the OIP, when properly implemented, will meet the requirements of Order EA-12-049 at MNGP. The ISE also documents the confirmatory and open items identified by the NRC as a result of their review and audit of MNGP's OIP.

This Enclosure provides the fourth six-month status report. This status report includes an update of milestone accomplishments since submittal of the third six-month status report, including changes to the compliance method, schedule, or the need and basis for relief, if any. This status report also provides an update on NSPM's closure of the open and confirmatory items identified in the NRC's ISE. This information is current as of January 31, 2015.

In a September 30, 2013 letter (Reference 8) the NRC requested to be informed of plans to follow the NEI 12-06 Position Paper on Shutdown/Refueling Modes, dated September 18, 2013. MNGP will incorporate the supplemental guidance provided in this NEI paper to enhance the shutdown risk process and procedures.

## **2.0 Milestone Accomplishments**

The original milestone schedule with target dates was provided in Attachment 2 of the Reference 2 Enclosure. The milestone dates were updated in the last six-month status report. Three milestones were completed since the last six-month status report and prior to January 31, 2015. These milestones, "Commence Installation for Online Modifications - Phase 2 and 3," "Submit Staffing Assessment" and "Complete Communication Recommendation," were completed.

## **3.0 Milestone Schedule Status**

The following Table 1 provides an update of the milestone schedule for the OIP. This table includes a brief milestone status and a revised target date, if the target date has changed. The target dates are planning dates subject to change as design and implementation details are developed. This schedule is current as of January 31, 2015.

- National SAFER Response Center Operational (MNGP)

The target date for completing the National SAFER Response Center Plan has been changed from November 2014 to March 2015.

- Procure Equipment

The target date for completing equipment procurement has been changed from December 2014 to April 2015.

- Implement Storage

The target date for completion of storage facilities has been changed from December 2014 to April 2015.

- Submit Completion Report

The target date for submittal of the completion report has been changed from August 2015 to July 2017. See section 5.0 for further details.

<b>Table 1 – Overall Integrated Plan Milestone Schedule</b>			
<b>Milestone</b>	<b>Target Completion Date</b>	<b>Activity Status</b>	<b>Revised Target Completion Date</b>
Submit 60 Day Status Report	October 2012*	Complete	
Submit Overall Integrated Plan	February 2013*	Complete	
Submit First Six-Month Status Report	August 2013*	Complete	
Commence Engineering Modification Design – Phase 2 & 3	January 2014	Complete	
Submit Second Six-Month Status Report	February 2014*	Complete	
National SAFER Response Center Operational (MNGP)	November 2014	Started	March 2015
Procure Equipment	December 2014	Started	April 2015
Submit Third Six-Month Status Update	August 2014*	Complete	
Commence Installation for Online Modifications – Phase 2 and 3	October 2014	Complete	
Implement Storage	December 2014	Started	April 2015
Issue Maintenance Procedures	March 2015	Started	
Implement Training	April 2015	Started	
Submit Fourth Six-Month Status Report	February 2015*	Complete with this submittal	
Submit Staffing Assessment	Four months prior to R27*	Complete	
Complete Communication Recommendations	Four months prior to R27*	Complete	
Issue Procedures Updated for FLEX strategies	April 2015	Started	
Implementation Outage	May 2015 (End of R27)*	Not Started	
Validation Walk-throughs	April 2015	Not Started	
Submit Completion Report	August 2015	Not Started	July 2017

\*Required dates

#### **4.0 Proposed Changes to Compliance Method**

There are no additional changes to the compliance methods in the Reference 2 OIP. Updates to information in the OIP are discussed below.

##### OIP Update - Raw Water Filtration

The National SAFER Response Center will supply Monticello with a raw water filter in addition to pumps suction strainers for maintaining core cooling during Phase 3.

##### OIP Update – Water Sources

The OIP identified the discharge canal as the primary source of water. Two other sources are:

The Intake Bay will be used as an alternate.

The Condensate Storage Tanks will be the primary source of water during a flooding event as the Condensate Storage Tanks will be protected from the flood.

##### OIP Update – Reactor Water Level during Raw Water Injection

Debris in unfiltered raw water could restrict cooling water flow into the lower fuel cooling passages. When injecting with raw unfiltered water, the reactor water level will be maintained above the steam separator return elevation and below the main steam lines. This will allow raw water to enter the fuel through the top of the fuel channel to provide a redundant source of cooling water should the lower fuel cooling passages be blocked.

#### **5.0 Need and Basis for Relief from the Requirements of the Order**

NSPM expects to comply with the Order implementation date (as described below) and requirements. No relief from the requirements of the Order is required at this time.

NSPM has changed the "Submit Completion Report" milestone date from August 2015 to July 2017 and thus the final Order Implementation date. On October 1, 2014, NSPM submitted a relaxation request to the NRC for Order EA-12-049 (Reference 9). The relaxation request was proposed because the installation of a containment wetwell vent that meets the requirements of Order EA-13-109, Phase I, will take additional time to complete, as compared to the compliance dates associated with Order EA-12-049. On November 21, 2014 the NRC approved the requested relaxation (Reference 10).

NSPM plans to provide the NRC with a report that full compliance with the EA-12-049 order has been achieved within 60 days after completion of the 2017 refueling outage.

The change to the "Submit Completion Report" milestone is consistent with the current projected completion of the 2017 refueling outage, plus 60 days.

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

NSPM did not identify any open items in the MNGP Mitigating Strategies OIP. The OIP contained future actions to ensure compliance with the Order. The future actions were identified internally and are being tracked through NSPM's corrective action program (CAP).

On November 25, 2013, the NRC issued the ISE for MNGP's Mitigating Strategies OIP (Reference 5). As a result of the review and audit of MNGP's OIP, the NRC identified a list of confirmatory and open items that required additional follow-up or resolution. Confirmatory items are items that the NRC considered conceptually acceptable, but for which resolution might be incomplete. These items require some minimal follow up review or audit prior to NSPM's compliance with Order EA-12-049. Open items are items for which NSPM did not present a sufficient basis for NRC to determine that the issue is on a path to resolution. The NRC's intention for designating an issue as an open item was to document significant items that needed resolution during the review process, rather than being verified after the compliance date through the inspection process.

Subsequently, during the week of November 17 – 21, 2014 the NRC held an onsite audit to assess MNGP's readiness for compliance with Order EA-12-049. As a result of the onsite audit, the NRC closed the Order EA-12-049 Open Issues, except for the following items listed in Table 2.

In the third 6-month status report, there are references to information to be supplied in this fourth 6-month status report. Most of this information was supplied to the NRC during the November onsite audit. Table 2 provides additional information on these items supplementing information provided during the onsite audit.

<b>Table 2 – Open Issues from Onsite Audit</b>	
<b>Issue No.</b>	<b>Description</b>
Open Item 3.1.1.3.A	The licensee's integrated plan did not address the potential impacts from large internal flooding sources that are not seismically robust and do not require ac power, the potential loss of ac power to mitigate ground water in critical locations, or the impact of potential failure of non-seismically robust downstream dams.
This issue remains open pending completion of NRC review.	



<b>Table 2 – Open Issues from Onsite Audit</b>	
<b>Issue No.</b>	<b>Description</b>
Open Item 3.1.2.2.A	The licensee's integrated plan did not address flooding deployment issues for restocking supplies during flooding conditions, protection for fuel supplies assuring connection points are protected, the need to provide water extraction pumps, and the need for temporary flood barriers.
The procedures required to verify the requested information were under development as of January 31, 2015. NSPM will notify the NRC when the required procedures are available and provide the requested information to the NRC via the online reference portal.	
Open Item 3.2.1.2.A	The licensee did not identify or provide justification for the assumptions made regarding primary system leakage from the recirculation pump seals and other sources.
This issue remains open pending completion of NRC review.	
Open Item 3.2.4.8.A	The licensee did not provide any information regarding loading/sizing calculations of portable diesel generator(s) and strategy for electrical isolation for FLEX electrical generators from installed plant equipment.
The analyses required to verify the requested information were under development as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested information to the NRC via the online reference portal.	
Two FLEX 480V diesel generators have been delivered to the site. The diesel generators have a standby rating of 200 kw (prime rating of 182 kw).	
Confirmatory Item 3.1.1.4.A	The licensee's integrated plan did not identify Regional Response Center resources, the off-site staging areas, and delivery methods sufficiently in order to evaluate the means to obtain the resources from off site.
The "SAFER Response Plan for MNGP" provides the plan for staging during a flood condition. NSPM will notify the NRC when the SAFER Response Plan is available and provide the requested information to the NRC via the online reference portal.	

<b>Table 2 – Open Issues from Onsite Audit</b>	
<b>Issue No.</b>	<b>Description</b>
Confirmatory Item 3.1.5.3.A	The licensee did not provide measures for operating FLEX equipment at possible excessively high temperatures that may exist inside plant structures and buildings.
Ventilation analyses were not completed as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested analyses to the NRC via the online reference portal.	
Confirmatory Item 3.2.1.3.E	The licensee provided preliminary times for SOE Action Items 10, 11, and 12 regarding ventilation needs for various areas of the plant. Additional analysis is required to confirm timing.
Ventilation analyses were not completed as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested information to the NRC via the online reference portal.	
Confirmatory Item 3.2.1.4.A	The licensee did not provide complete updated information regarding FLEX portable pump flow analyses. This will be provided in the licensee's February 2014 status update report.
The analyses required to verify the requested information were under development as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested information to the NRC via the online reference portal.	
Confirmatory Item 3.2.1.6.A	The licensee specified that the 24-hour time constraint for supplying alternate nitrogen is preliminary but provided no technical basis or analysis to support the 24-hour requirement to supply alternate nitrogen. The licensee will provide updated information in a six-month status report in February 2014.
The analyses required to verify the requested information were under development as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested information to the NRC via the online reference portal.	

<b>Table 2 – Open Issues from Onsite Audit</b>	
<b>Issue No.</b>	<b>Description</b>
Confirmatory Item 3.2.2.B	The licensee did not provide complete information regarding the FLEX portable pump for the strategy for maintaining SFP level including routing of hoses, available flow rates and flow rates required to the SFP.
The analyses required to verify the requested information were under development as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested information to the NRC via the online reference portal.	
Confirmatory Item 3.2.4.2.A	The licensee did not perform calculations or supporting analysis regarding the effects of loss of ventilation in the RCIC room (that NEI 12-06 states may be addressed by plant-specific thermal hydraulic calculations) nor other areas of the plant (main control room (MCR) and battery room) when normal ventilation will not be available during the ELAP. This should include formal analysis for supplemental cooling of the RCIC room and battery room using portable fans, opening doors, and the timing and scope of such actions.
Ventilation analyses were not completed as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested information to the NRC via the online reference portal.	
Confirmatory Item 3.2.4.2.B	The licensee needs to provide information to confirm that the habitability limits of the MCR will be maintained in all Phases of an ELAP considering MIL-STD-1472C, which is incorporated by reference in NEI 12-06 via NUMARC 87-00 and specifies that 110°F is tolerable for light work for a 4-hour period while dressed in conventional clothing with a relative humidity of ~30%.
Ventilation analyses were not completed as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested information to the NRC via the online reference portal.	
Confirmatory Item 3.4.A	The licensee needs to provide additional information regarding the minimum capabilities for offsite resources for which each licensee should establish availability as noted in considerations 2 through 10 of NEI 12-06, Section 12.2 lists the following minimum capabilities.

<b>Table 2 – Open Issues from Onsite Audit</b>	
<b>Issue No.</b>	<b>Description</b>
<p>The information is contained in the “SAFER Response Plan for MNGP” document. NSPM will notify the NRC when the SAFER Response Plan is available and provide the requested information to the NRC via the online reference portal.</p>	
<p>Audit Question 24</p>	<p>NEI 12-06, Section 3.2.1, "General Criteria and Baseline Assumptions" discusses the criteria and assumptions to be used in establishing the baseline coping capability. On pages 33-34 of the OIP, NSPM states that "with this deep load shedding strategy, it is expected that the station batteries can be extended through Phase 1 and do not require portable supplemental charging before eight hours for the most limiting battery. Additional formal analysis will be performed to support this. If analysis results require a change in strategy, that change will be communicated in a six month status report. This approach will reduce critical instrument diversity as only Division II of essential instrumentation will remain powered after load shedding."</p> <p>Identify the six-month OIP update for NSPM set to provide the formal load shed and battery life extension analysis mentioned above and any resulting changes in strategy.</p>
<p>The cells used in the safety related batteries at Monticello have manufacturer supplied discharge ratings for durations up to 12 hours that were used in the cell sizing analyses.</p> <p>Battery life calculations were not completed as of January 31, 2015. NSPM will notify the NRC when the required calculations are available and provide the requested information to the NRC via the online reference portal.</p>	
<p>Audit Question 27</p>	<p>NEI 12-06 Section 3.2.1.7, principle 6, specifies that strategies that have a time constraint to be successful should be identified and a basis provided that the time can reasonably be met. No technical basis or supporting analysis is provided for (1) why Action Item 5 (depressurization of the RCS to 100 psig) has no time constraint, (2) why depressurization is required prior to venting the Torus, (3) the rate of depressurization that would be implemented, or (4) that the resulting pressure or temperature conditions in the containment have been determined to be acceptable, e.g., for RCIC net positive suction head (NPSH).</p> <p>Provide additional information and analysis to address the gaps (1) through (4) identified above.</p>

**Table 2 – Open Issues from Onsite Audit**

Issue No.	Description													
<p>1. Why Action Item 5 (depressurization of the RCS to 100 psig) has no time constraint?</p> <p>There is no specific time to begin reactor pressure depressurization. Two start times were analyzed with MAAP, 30 minutes and 2 hours. The two analysis produced very similar results:</p> <table border="1" data-bbox="350 625 1341 913"> <thead> <tr> <th></th> <th>30 Minutes Case</th> <th>2 hours</th> </tr> </thead> <tbody> <tr> <td>Time for Suppression Pool Pressure to be greater than 10 psig</td> <td>1.7 hours</td> <td>1.5 hours</td> </tr> <tr> <td>Time for Drywell temperature to be above 280°F</td> <td>9.1 hours</td> <td>8.5 hours</td> </tr> <tr> <td>Time to reach 240°F in the Suppression Pool</td> <td>11.5 hours</td> <td>11.3 hours</td> </tr> </tbody> </table> <p>Either case produces acceptable results. Therefore, the time that depressurization begins is not critical to the successful performance of FLEX.</p>		30 Minutes Case	2 hours	Time for Suppression Pool Pressure to be greater than 10 psig	1.7 hours	1.5 hours	Time for Drywell temperature to be above 280°F	9.1 hours	8.5 hours	Time to reach 240°F in the Suppression Pool	11.5 hours	11.3 hours		
	30 Minutes Case	2 hours												
Time for Suppression Pool Pressure to be greater than 10 psig	1.7 hours	1.5 hours												
Time for Drywell temperature to be above 280°F	9.1 hours	8.5 hours												
Time to reach 240°F in the Suppression Pool	11.5 hours	11.3 hours												
<p>2. Why depressurization is required prior to venting the Torus?</p> <p>The Emergency Operating Procedures currently require depressurization prior to venting.</p>														
<p>3. Rate of depressurization that would be implemented.</p> <p>The depressurization rate is procedurally restricted not to exceed a 100 °F/hr Reactor Pressure Vessel cooldown rate.</p>														
<p>4. Resulting pressure or temperature conditions in the containment have been determined to be acceptable, e.g., for RCIC net positive suction head (NPSH).</p> <p>In neither analyzed cases, does the containment temperature exceed the safety relief valve environmental temperature limit.</p> <p>RCIC net positive suction head (NPSH) has been determined to be acceptable.</p>														



<b>Table 2 – Open Issues from Onsite Audit</b>	
<b>Issue No.</b>	<b>Description</b>
Audit Question 38	<p>Battery Room Ventilation. With regard to ventilation, the licensee stated that "there are two strategies for venting the battery rooms. The primary strategy will be to repower the existing exhaust fan which is connected to the emergency power bus. The alternate strategy is to prop open doors and set up portable fans.</p> <p>Provide a discussion of the hydrogen gas exhaust path for each strategy.</p>
<p>Ventilation analyses were not completed as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested information to the NRC via the online reference portal.</p>	
Audit Question 49	<p>The MNGP integrated plan for Phase 2 SFP makeup for the normal and emergency heat load case contains insufficient information to determine the adequacy of SFP cooling strategies and did not provide any details regarding providing makeup via the RHR spent fuel cooling piping to include the routing of hoses from the FLEX portable pump, location where the portable pump is connected to the system, and FLEX pump flow and pressure requirements and capabilities using this flow path.</p> <p>Provide a discussion and analysis regarding how this strategy will be implemented considering the above factors and an analysis to show that the required flow can be delivered to the SFP with the planned deployment strategy.</p>
<p>The analyses required to verify the requested information were under development as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested information to the NRC via the online reference portal.</p>	
Audit Question 65	<p>Provide a discussion on the effects of heightened temperatures (i.e., temperatures above those assumed in the sizing calculation for each battery) on each battery's capability to perform its function for the duration of the ELAP event.</p>
<p>Ventilation analyses were not completed as of January 31, 2015. NSPM will notify the NRC when the required analyses are available and provide the requested information to the NRC via the online reference portal.</p>	

<b>Table 2 – Open Issues from Onsite Audit</b>	
<b>Issue No.</b>	<b>Description</b>
Safety Evaluation Item 5	Verify that appropriate human factors are applied for the implementation of the FLEX strategies.
NSPM has made additional information to address this issue available via the online reference portal.	
Safety Evaluation Item 8	In the August 2014 update, the licensee discussed changing the portable FLEX pump connections to RHRSW from the Reactor Building to the Turbine Building. Confirm this change provides reasonable assurance that accessibility to at least one connection point of FLEX equipment is limited to seismically robust structures. This access includes both the connection point and any areas that plant operators will have to access to deploy or control the capability as required by NEI-12-06, Section 5.3.2. Consideration 2. Provide additional information to demonstrate conformance to NEI 12-06, Section 5.3.2, Consideration 2.
Seismic paths have been identified for all FLEX actions except entry in the Emergency Filtration Building. This issue will be addressed with building analyses or a plant modification to provide the necessary seismic path.	

## 7.0 Potential Interim Staff Evaluation Impacts

An evaluation of the potential impacts of the OIPs updates, described in the NRC's ISE is described below.

### OIP Update - Raw Water Filtration

The NRC's ISE include the following information regarding the use of raw water:

*Additionally, a FLEX portable diesel driven pump will be used during Phase 2 to supply water from the discharge canal that empties to the Mississippi River in all events, except the beyond design basis flooding event. The Mississippi River is the ultimate makeup water source, and will be available in all scenarios. The FLEX portable pump will be deployed near the discharge canal and take suction directly from the canal. It will rely on its suction strainer to prevent large debris from entering the pump. The use of raw water is acceptable because the water level is maintained above the top of the fuel throughout the ELAP so that cooling of the fuel does not rely solely on flow up from the bottom of the fuel assembly.*

The addition of raw water filtration in Phase 3 does impact the above statement, but only improves the plant options to supply water to the reactor.

#### OIP Update – Water Sources

The NRC's ISE includes the following information regarding water sources:

*A FLEX portable diesel driven pump will be made available to supply water from the discharge canal (or intake structure berm in a flooding event), and a FLEX portable diesel driven generator will be made available to support related direct current (dc) powered equipment.*

*On page 14 of the integrated plan regarding consideration 3, loss of access to the ultimate heat sink, the licensee stated that the Mississippi River is the ultimate makeup water source, and will be available in all scenarios. The FLEX portable pump will be deployed near the discharge canal and take suction directly from the canal. For the flood hazard, the plant will be shutdown. The discharge canal will be flooded therefore the FLEX portable pump will be deployed inside the berm near the intake structure, and take suction directly from the river outside the berm. Using this strategy will ensure that the UHS is available during flooding conditions.*

*The licensee provided updated information as part of the EA-12-049 Audit response process which partially addresses this issue by stating that, the normal water sources are the two Condensate Storage Tanks (non-seismic tanks) and the suppression chamber. The backup water sources are the Discharge Canal, where water is processed through the traveling screens prior to the loss of power, and the Mississippi river, which serves as a backup source of water to the discharge canal.*

The additional water sources do impact the above statement, but only improves the plant options and quality of the water supplied to the reactor.

#### OIP Update – Reactor Water Level during Raw Water Injection

The NRC's ISE include the following information regarding water sources:

*The Mississippi River is the ultimate makeup water source, and will be available in all scenarios. The FLEX portable pump will be deployed near the discharge canal and take suction directly from the canal. It will rely on its suction strainer to prevent large debris from entering the pump. The use of raw water is acceptable because the water level is maintained above the top of the fuel throughout the*



*ELAP so that cooling of the fuel does not rely solely on flow up from the bottom of the fuel assembly.*

*For the Phase 2 strategy for maintaining adequate core cooling, page 14 of the integrated plan indicates that the use of raw water is acceptable because the water level is maintained above the top of the fuel throughout the ELAP so cooling of the fuel does not rely solely on flow up from the bottom of the fuel assembly. A discussion of the quality of this water (e.g., suspended solids) and a justification that its use will not result in blockage at the fuel assembly inlets to an extent that would inhibit adequate flow to the core is needed. Alternately, if deleterious blockage at the fuel assembly inlets cannot be precluded, an alternate means for assuring adequate core cooling is needed.*

Maintaining the reactor water level above the steam separator return elevation supports the above comments in the ISE.

## **8.0 References**

1. NRC Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012 (ADAMS Accession No. ML12054A735).
2. NSPM Letter to NRC, "Monticello Nuclear Generating Plant's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," L-MT-13-017, dated February 28, 2013 (ADAMS Accession No. ML13066A066).
3. NSPM Letter to NRC, "Monticello's First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," L-MT-13-079, dated August 28, 2013 (ADAMS Accession No. ML13241A200).
4. NSPM Letter to NRC, "Monticello Nuclear Generating Plant's Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049) (TAC No. MF0923)," L-MT-14-014, dated February 28, 2014 (ADAMS Accession No. ML14065A037).

5. NRC Letter to NSPM, "Monticello Nuclear Generating Plant – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC No. MF0923)," dated November 25, 2013 (ADAMS Accession No. ML13220A139).
6. NSPM Letter to NRC, "Monticello Nuclear Generating Plant's Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049) (TAC No. MF0923)," L-MT-14-073, dated August 28, 2014 (ADAMS Accession No. ML14241A260).
7. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012 (ADAMS Accession No. ML12242A378).
8. NRC Letter Jack R. Davis to Joseph E. Pollock (NEI), dated September 30, 2013 regarding endorsement of NEI document entitled "Position Paper: Shutdown/Refueling Modes" (ADAMS Accession No. ML13267A382).
9. NSPM Letter to NRC, "Request for Relaxation from NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" - Monticello Nuclear Generating Plant," L-MT-14-083, dated October 1, 2014. (ADAMS Accession No. ML14289A512)
10. NRC letter to NSPM, "Monticello Nuclear Generating Plant- Relaxation of Certain Schedule Requirements for Order EA-12-049 "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events" (TAC No. MF0923)," dated November 21, 2014. (ADAMS Accession No. ML14294A061)