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

Prairie Island Nuclear Generating Plant Units 1 and 2
Dockets 50-282 and 50-306
Renewed License Nos. DPR-42 and DPR-60

Supplement to License Amendment Request to Exclude the Dynamic Effects Associated with Certain Postulated Pipe Ruptures From the Licensing Basis Based Upon Application of Leak-Before-Break Methodology – Response to Request for Additional Information (TAC Nos. ME2976 and ME2977)

References:

1. Letter from M. A. Schimmel, Northern States Power Company, a Minnesota corporation (NSPM), to Document Control Desk (Nuclear Regulatory Commission, NRC), License Amendment Request to Exclude the Dynamic Effects Associated with Certain Postulated Pipe Ruptures From the Licensing Basis Based Upon Application of Leak-Before-Break Methodology, L-PI-09-134, dated December 22, 2009, ADAMS Accession Number ML100200129.

2. Letter from T. J. Wengert (NRC) to M. A. Schimmel (NSPM), Request for Additional Information Related to Request to Exclude the Dynamic Effects Associated with Certain Postulated Pipe Ruptures From the Licensing Basis Based Upon Application of Leak-Before-Break Methodology (TAC Nos. ME2976 and ME2977), dated July 22, 2011, ADAMS Accession Number ML112010696.

In Reference 1, Northern States Power Company, a Minnesota corporation doing business as Xcel Energy (hereafter "NSPM"), submitted a License Amendment Request (LAR) to apply leak-before-break (LBB) methodology to certain piping systems at the Prairie Island Nuclear Generating Plant (PINGP). As part of the review effort for this LAR, the NRC requested additional information regarding the proposed design and operation of the Reactor Coolant System (RCS) leakage detection system in Reference 2.

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The enclosure to this letter provides the requested information. NSPM submits this supplement in accordance with 10 CFR 50.90.

The supplemental information provided in this letter does not impact the conclusions of the Determination of No Significant Hazards Consideration or Environmental Assessment presented in the Reference 1 submittal.

In accordance with 10 CFR 50.91, NSPM is notifying the State of Minnesota of this LAR supplement by transmitting a copy of this letter to the designated State Official.

If there are any questions or if additional information is needed, please contact Sam Chesnutt at 651-267-7546.

Summary of Commitments

This letter contains the following new commitments:

1. Within 180 days after approval of the LBB LAR, NSPM will implement procedural guidance to allow plant operators to approximate the quantity of RCS leakage based on containment sump A pump operating frequency or containment particulate radiation monitor indications.

2. Within 180 days after approval of the LBB LAR, NSPM will provide indications and alarms on the plant Emergency Response Computer System that will alert plant operators to potential RCS leakage based on containment particulate radiation monitor indications.

3. Within 180 days after approval of the LBB LAR, NSPM will implement procedural guidance to clarify operator actions in response to indications of potential RCS leakage based on containment sump A pump run time indications or containment particulate radiation monitor indications.

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

Executed on AUG 0 9 2011

Mark A. Schimmel
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosure

cc: Administrator, Region III, USNRC
NRR Project Manager, PINGP, USNRC
Resident Inspector, PINGP, USNRC
State of Minnesota

ENCLOSURE

Response to a Request for Additional Information Provided July 22, 2011, Related to a License Amendment Request to Exclude the Dynamic Effects Associated with Certain Postulated Pipe Ruptures From the Licensing Basis Based Upon Application of Leak-Before-Break Methodology at the Prairie Island Nuclear Generating Plant

This enclosure includes responses from the Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), to a Request for Additional Information (RAI) regarding Reactor Coolant System (RCS) leakage detection capabilities at the Prairie Island Nuclear Generating Plant (PINGP). This information is associated with NSPM's License Amendment Request (LAR) submitted December 22, 2009 (Reference 1) regarding the use of Leak-Before-Break (LBB) methodology. The Nuclear Regulatory Commission (NRC) provided the subject RAI in a letter dated July 22, 2011 (Reference 2).

To support the Reference 1 LAR, NSPM previously submitted additional information regarding RCS leakage detection capabilities in letters dated October 8, 2010 (Reference 3), January 14, 2011 (Reference 4), February 23, 2011 (Reference 5), and April 6, 2011 (Reference 6).

This Enclosure quotes each RAI in italics and each question is followed by the NSPM response. Referenced documents are identified at the end of this Enclosure.

In Reference 2, the NRC provided a brief Background discussion and the following questions:

"*Request for Additional Information (RAI)*

Accordingly, provide the following information to resolve the concerns with the proposed design and operation of the leakage detection system:

a. *Discuss PINGP's plans to develop and describe procedures that would allow operators to approximate the quantity of leakage in the range above 0.2 gpm based on indications from the particulate radiation monitor or other leakage monitor subject to a Technical Specification (TS) limiting condition for operation (LCO). Describe how masking of a slowly increasing leak rate would be avoided.*

b. *Discuss PINGP's plans to develop and identify a reliable alarm that would be set to alarm at leakage rates less than 1 gpm. The instrument associated with the alarm should be subject to a TS LCO.*

c. *Specify operator actions for leakage levels in excess of 0.2 gpm. Address entry conditions for abnormal or alarm response procedures, actions to verify actual leakage rates (avoid over-reliance on one instrument or process), identification of*

leak location, and any criteria for containment entry or plant shutdown more conservative than the TS LCOs.

In preparing this RAI, the NRC staff acknowledges that methods and solutions that differ from those set forth in RG 1.45 and the SRP will be deemed acceptable if they provide a basis for findings required for the issuance of the leak-before-break license amendment."

NSPM provides the following response:

RAI Question a:

Discuss PINGP's plans to develop and describe procedures that would allow operators to approximate the quantity of leakage in the range above 0.2 gpm based on indications from the particulate radiation monitor or other leakage monitor subject to a Technical Specification (TS) limiting condition for operation (LCO). Describe how masking of a slowly increasing leak rate would be avoided.

NSPM Response to RAI Question a:

NSPM will develop procedural guidance to allow plant operators to determine approximate RCS leakage rates in the range above 0.2 gpm. Current procedures will be enhanced to support detection of both slowly increasing RCS leaks and more rapidly developing RCS leaks as follows.

<u>Slowly Increasing RCS leaks</u>

Slowly increasing RCS leaks are detected by monitoring operating time of the containment sump A pumps. This method was described in Reference 3 as one of the eight diverse monitoring methods available to detect RCS leakage, but it was not previously credited for the LBB application requested in Reference 1. Sump A pump run time indication is effective for detecting slowly increasing RCS leaks and will be credited for this application. Sump A pump run time is not affected by containment radiation levels and it is not subject to masking due to slowly changing indications.

Containment sump A pump run time instrumentation is required to be operable by TS LCO 3.4.16, *RCS Leakage Detection Instrumentation*. The run time instrumentation displays cumulative run time in tenths of a minute for each pump. The run time data is currently recorded four times each day as part of operator rounds, and the data is recorded once per day in the plant Daily RCS Leakage Test surveillance procedure. The Daily RCS Leakage Test surveillance procedure implements the TS Surveillance Requirement (SR) 3.4.14.1 requirement to perform a water inventory balance, and also documents containment humidity, containment sump A pump run time indication, and containment particulate and gaseous radiological monitor activity values.

Sump A pump run time data is also manually entered each day into an RCS leakage trend database and into the plant's Emergency Response Computer System (ERCS). Changes in pump run time are identified by comparison to the previous data. The plant Daily RCS Leakage Test surveillance procedure currently requires action to investigate the source of leakage if the sump A pump operates on three consecutive days. This procedure will be changed, as discussed below, to require investigative actions if the sump A pump operates on two consecutive days.

Sump A in each reactor containment contains two pumps that start and stop based on high- and low-level switches. Each pump's high-level start switch has a separate setting so that only one pump normally operates at a time. The second pump has a higher start level and therefore acts as a backup supplemental pump. Each pump cycle discharges a fixed volume between the high and low switch settings. Therefore, the number of pump cycles in a period of time is representative of the rate at which water enters the sump.

The primary containment sump A pump typically operates at a frequency that ranges from less than once every 3 weeks up to once every 4 or 5 days, depending on operational leakage from various sources in containment. In addition to RCS leakage, the containment sump collects other leakage within containment, including service water, component cooling water, steam, feedwater, and condensation of humidity from the atmosphere.

The Unit 1 sump pump operating range (from the high-level pump start setting to the low-level pump stop setting) is approximately 288 gallons, which is equal to the amount of water that would be released from a 0.2 gpm leak over a 24 hour period. The Unit 2 sump pump operating range is approximately 247 gallons, which is the amount of water that would be released from a leak of approximately 0.17 gpm over a 24 hour period.

Sump pump operation on two consecutive days would indicate leakage of approximately 0.2 gpm. By trending sump pump operation each day, a 0.2 gpm leak can be detected within approximately 48 hours, after the leakage reaches the sump. More frequent checking of sump pump run time would not provide earlier leakage detection of a 0.2 gpm leak because it takes one day for the sump to fill for a 0.2 gpm leak and it takes two consecutive pump operations to identify changes from normal, routine pump operation.

RCS leaks larger than 0.2 gpm will result in more frequent sump pump operation. For example, sump pump operation twice in one day would indicate leakage greater than 0.2 gpm and five times in one day would indicate leakage of approximately 1 gpm. By checking sump pump run time indication four times per day, leaks larger than 0.2 gpm will be detected in less than 48 hours, depending on the leak rate. It is noted that although sump pump run time indication will detect a 1 gpm RCS leak, a 1 gpm RCS leak will be detected much sooner using the containment radiological monitors as described below.

Changes to procedures:

- NSPM will develop procedural guidance to allow operators to approximate the quantity of RCS leakage based on the frequency of sump pump operation. The operator instructions for logging sump A pump run time will direct operators to this guidance based on various frequencies of pump operation.
- The Daily RCS Leakage Test surveillance procedure will be changed to require investigative actions if sump A pump operation is observed on two consecutive days. This frequency is conservative because, as described above, there are numerous sources of leakage or moisture in containment that are not associated with RCS leakage.

Rapidly Developing RCS Leaks

Use of the containment particulate radiation monitor (R-11) to detect RCS leaks has previously been discussed in References 3, 4, 5, and 6. Although the ability of this monitor to detect slowly increasing RCS leaks may be limited by the potential for slowly increasing background levels to mask count rate increases associated with small RCS leaks, the R-11 monitor will detect rapidly developing RCS leaks.

To allow operators to approximate the quantity of RCS leakage based on R-11 indications, new computer points in the plant ERCS will be created. These computer points will be developed and used to identify RCS leakage using the following logic:

- ERCS will calculate mean count rate data over a time interval of approximately ten minutes. Mean count rate data will be used instead of raw count rate data to smooth data variability while still allowing timely detection of increased count rates. This will be a continuously calculated value.
- ERCS will determine rate-of-change values by comparing the calculated mean count rate values to mean count rates calculated for a previous time period, to identify increases that could indicate an RCS leak. For a 0.2 gpm leak, a rate of change will be calculated over an approximate 4 hour time period. For a 1 gpm leak, a rate of change will be calculated over a one hour time period. The rate of change will be continually calculated and available for review in ERCS.
- Plant operators will check the ERCS computer points once each day as part of the Daily RCS Leakage Test surveillance procedure, and will review the calculated rate-of-change values for the previous day. These rate-of-change values will be compared to pre-determined criteria that could indicate a 0.2 gpm or a 1 gpm RCS leak. These criteria will be developed using the same analytical methodology used to establish the response capability for the R-11 monitors as described in References 4 and 5. These criteria include threshold values along with trend descriptions that would indicate a 0.2 gpm or a 1 gpm RCS leak. By performing these daily checks and reviews, a 0.2 gpm leak will be identified within approximately 24 hours. As described in the response to Question 'b' below, a 1 gpm RCS leak will be identified by a new ERCS alarm. No alarm will be provided for a 0.2 gpm leak.

The R-11 monitor is subject to a PINGP TS LCO. The R-11 monitor is required to be operable by TS LCO 3.4.16, *RCS Leakage Detection Instrumentation*. TS LCO 3.4.16.b requires "One containment radionuclide monitor." The PINGP containment radiological monitoring system includes a radioactive particulate monitor, R-11, and a gaseous radiation monitor, R-12, for each unit. The Bases for LCO 3.4.16 clarify that LCO 3.4.16.b is normally met by the containment radioactive particulate monitor, R-11. This Bases statement explains the intent of LCO 3.4.16.b and in practice, the LCO Action Statement for an inoperable containment radionuclide monitor is entered at PINGP whenever the R-11 monitor is inoperable.

The ERCS is not subject to TS controls but it is maintained in a reliable condition to provide information to plant operators during emergency conditions. Also, operability of the ERCS is tracked under the Maintenance Rule. The ERCS is widely used to monitor plant functions and equipment performance, and it will be used to calculate mean R-11 count rates and changes in mean count rate.

Changes to procedures:

- The Daily RCS Leakage Test surveillance procedure will be revised to require a daily check of the ERCS rate-of-change computer points. These values will be compared to rate-of-change values that would indicate a 0.2 gpm leak or a 1 gpm leak.

Changes to ERCS:

- New data points will be provided to indicate the rate of change in R-11 mean count rates over time periods that will identify 0.2 gpm and 1 gpm RCS leaks.

Use of the sump pump run time indication in combination with the containment radioactive particulate monitor will provide a diverse means of detecting 0.2 gpm RCS leaks whether they develop slowly or appear quickly. Using the methods described above, rapidly developing leaks will be detected within 24 hours using R-11, and slowly increasing leaks will be detected within 48 hours using the containment sump A pump run time indication. These methods are in addition to the RCS inventory balance which is performed daily in accordance with TS SR 3.4.14.1, and is implemented in the Daily RCS Leakage Test surveillance procedure. Performance of the Daily RCS Leakage Test surveillance procedure will also identify 0.2 gpm RCS leaks within 24 hours. These leak detection methods will ensure detection of small RCS leaks with substantial margin before the crack could grow to the size of the LBB postulated leakage flaw, as previously described in the Reference 3 discussion of a site-specific crack growth analysis performed by Structural Integrity Associates.

The procedural guidance discussed above will be implemented within the 180 day implementation period identified in the LBB LAR (Reference 1).

RAI Question b:

Discuss PINGP's plans to develop and identify a reliable alarm that would be set to alarm at leakage rates less than 1 gpm. The instrument associated with the alarm should be subject to a TS LCO.

NSPM Response to RAI Question b:

NSPM will develop two new alarms on the plant ERCS to alert operators to RCS leakage rates of 1 gpm or less. Both of these alarms will be based on count rate data from the containment particulate monitor (R-11). One alarm will be based on a rate of change in mean count rate over a rolling one hour period, and the other will be a fixed setpoint. Both alarms will use mean count rate data instead of raw count rate data to smooth data variability and minimize spurious or nuisance alarms.

The rate of change alarm will alert operators to an RCS leakage increase of 1 gpm within one hour, consistent with Regulatory Guide 1.45. The fixed setpoint alarm will take longer than one hour to reach the 1 gpm setpoint, but it will alarm for slowly developing leaks where the increase in count rates might not be fast enough to trip the rate of change alarm. The fixed setpoint alarm will alert operators to an RCS leakage increase of 1 gpm within approximately 4 hours.

The ERCS will provide the new alarms to indicate RCS leakage of 1 gpm or less. ERCS alarms provide an audible tone and a visual indication on a control room monitor. The visual indication consists of a flashing alarm icon on a computer monitor that continues to flash until the specific initiating alarm condition is acknowledged. Acknowledged alarms are tracked until they are cleared and the condition for the alarm no longer exists.

The R-11 monitor associated with the RCS leakage rate alarm is subject to a PINGP TS LCO, as described in the response to Question 'a' above. Reliability of the ERCS is also described in the response to Question 'a' above. The ERCS is not subject to TS controls but it is maintained to provide reliable information to plant operators during emergency conditions. The ERCS will be used to calculate mean R-11 count rates and rates of changes in mean count rate.

NSPM will also provide alarm response procedural guidance to investigate potential leakage and ensure that appropriate response actions are initiated, as described in the response to Question 'c' below.

Changes to ERCS alarms:

- A new R-11 alarm will be provided for a rate of change in mean count rates corresponding to an RCS leak of 1 gpm or less
- A new R-11 alarm will be provided for a fixed mean count rate corresponding to an RCS leak of 1 gpm or less

The R-11 ERCS alarms discussed above will be implemented within the 180 day implementation period identified in the LBB LAR (Reference 1).

RAI Question c: *Specify operator actions for leakage levels in excess of 0.2 gpm. Address entry conditions for abnormal or alarm response procedures, actions to verify actual leakage rates (avoid over-reliance on one instrument or process), identification of leak location, and any criteria for containment entry or plant shutdown more conservative than the TS LCOs.*

NSPM Response to RAI Question c:

Operator Actions Based on Containment Sump A Pump Run Time Indications

Based on current procedural guidance and good operating practices, operators monitor sump A pump operating frequency as an indication of leakage inside containment, which is potentially RCS leakage. As noted in the response to Question 'a' above, there are numerous other sources of leakage into the sump. As also discussed in the response to Question 'a' above, sump A pump run time indications are recorded four times a day and this data is trended once per day. The sump pump typically operates no more than once every 4 or 5 days and operation every day or more frequently will be identified during the trend reviews.

Plant procedures currently require investigative actions if sump pump operation occurs on three consecutive days. As discussed in the response to Question 'a', this requirement will be changed to two consecutive days. However, current operating practice is to investigate excessive sump pump operation. The investigation would include the following actions:

- Determine whether any known operating, maintenance, or surveillance activities could cause the increased pump operation.
- Check for plant operating conditions that could indicate potential RCS inventory losses. Changes in operating conditions are monitored as part of good operating practices. As described in References 3 and 5, operating conditions that may indicate RCS leakage, depending on the size of the leak, include:
  - Changes in slope of trend curves for volume control tank (VCT) level and pressurizer level
  - Increases in charging pump flow
- Check for confirmatory conditions using other leak detection indications. These other leak detection indications are reviewed and assessed to determine whether they are indicative of a potential RCS leak or other system leak. These indications include:
  - Containment humidity increases
  - Increases in condensate from cooling coils in the containment fan coil units

  - Increases in count rates on the containment radiological monitors.
- Perform an RCS inventory balance calculation to determine unidentified RCS leakage. This calculation is required to be performed daily as a TS Surveillance, and may be performed more frequently as part of the investigative process. The inventory balance determines the total unidentified leakage, but does not quantify the sources and is therefore conservative.
  - If the total unidentified leakage exceeds 0.2 gpm, a more detailed investigation is performed to determine an adjusted unidentified RCS leak rate. The adjusted rate removes leakage sources that can be identified, such as leakage to the reactor coolant drain tank, pressurizer relief tank, or non-aerated sump tank.
  - If the adjusted unidentified RCS leak rate exceeds 0.1 gpm, the condition is entered into the plant Corrective Action Program. Investigative actions are planned and may include radiochemical analysis of sump liquid, analysis of atmospheric samples, and/or a containment entry (taking into account ALARA considerations).
- If a containment entry is performed, investigative actions may include any or all of the following:
  - Visual examination for boric acid crystal deposits
  - Sampling of liquid in the sump and fan coil unit condensate to support radiochemical analysis and discrimination between a primary leak, secondary leak, or leak of cooling water or component cooling water. The presence of Niobium, Cesium, and Cobalt isotopes would be indicative of RCS leakage. Tests for sodium, hardness, and chromium could identify secondary coolant leakage or other cooling water leaks.
  - Local air sampling for particulate activity to localize a leakage site
  - Remote visual examination using remotely operated camera equipment in inaccessible locations
- If any Reactor Coolant Pressure Boundary leakage is identified, the reactor will be shut down for repairs in accordance with TS LCO 3.4.14, *RCS Leakage*, which limits RCS operational leakage to "no pressure boundary leakage."

To ensure detection and identification of 0.2 gpm leaks in a timely manner, the above procedural guidance will be revised and enhanced as follows:

- Procedural guidance will be provided to allow operators to approximate RCS leakage amounts based on sump A pump operating frequency, as described in the response to Question 'a' above.
- Operators will be directed to take action based on the frequency of pump operation observed during their rounds.
- The RCS leakage trending database will be revised to refer to this leak rate approximation guidance, based on observed frequency of pump operation.
- The plant Daily RCS Leakage Test surveillance procedure will be revised to require investigative actions if sump A pump operation is observed on two consecutive days.

- Plant procedural guidance for investigating potential RCS leakage will be revised to formalize the good practices identified above for the identification of plant operating conditions that could indicate RCS inventory losses, and for use of confirmatory leakage detection indications. This will also include review of the new ERCS computer point for R-11 rate of change described in the response to Question 'a' above.
- Procedural guidance will be revised to require a containment entry if a potential RCS leak of 0.2 gpm or greater is identified by sump A pump operating frequency and is confirmed by at least one other indication. Operators will also be directed to guidance for potential actions to be considered when planning a containment entry.

Operator Actions Based on R-11 Indications

Based on current procedural guidance and good operating practices, operators monitor R-11 count rates as an indication of RCS leakage inside containment. As described in Reference 5, operators perform an ERCS log check every hour, which provides an opportunity to observe elevated R-11 count rates. Also, R-11 data is trended every 24 hours. If R-11 count rates exhibit a step change increase that remains elevated, the potential for an RCS leak would be investigated in accordance with current operating practice. In addition, plant procedures currently require investigative actions if R-11 activity is observed to increase by at least a factor of 3 above the 24 hour average and if the source cannot be determined.

Investigative actions are the same as those described above under "Operator Actions Based on Containment Sump A Pump Run Time Indications."

To ensure detection and identification of 0.2 gpm leaks in a timely manner, the above procedural guidance will be revised and enhanced as follows:

- The plant Daily RCS Leakage Test surveillance procedure will be revised to require daily review of the new ERCS computer points for R-11 rate of change in mean count rates described in the response to Question 'a' above. Guidance will be provided to identify threshold values and descriptions of trends that would indicate a 0.2 gpm leak. The same investigative actions identified above (for sump A pump run time indications) will also be required if a 0.2 gpm RCS leak is indicated by the R-11 rate-of-change data.
- An ERCS alarm response procedure will be provided for the new R-11 rate-of-change and fixed setpoint alarms that indicate a 1 gpm RCS leak, as described in the response to Question 'b' above. The same investigative actions identified above (for sump A pump run time indications) will also be required in response to an ERCS R-11 alarm for a 1 gpm leak.
- Procedural guidance will be revised to require a containment entry if a potential RCS leak of 0.2 gpm or greater is identified by the ERCS R-11 rate-of-change computer point and if potential RCS leakage is confirmed by at least one other leak indication. A containment entry will also be performed if an ERCS R-11

alarm is received and if potential RCS leakage is confirmed by at least one other leak indication. Operators will be directed to guidance for potential actions to be considered when planning a containment entry.

The procedural guidance discussed above will be implemented within the 180 day implementation period identified in the LBB LAR (Reference 1).

References

1. Letter from M. A. Schimmel (NSPM) to Document Control Desk (NRC), "License Amendment Request to Exclude the Dynamic Effects Associated with Certain Postulated Pipe Ruptures From the Licensing Basis Based Upon Application of Leak-Before-Break Methodology," L-PI-09-134, dated December 22, 2009, ADAMS Accession Number ML100200129.

2. Letter from T. J. Wengert (NRC) to M. A. Schimmel (NSPM), "Request for Additional Information Related to Request to Exclude the Dynamic Effects Associated with Certain Postulated Pipe Ruptures From the Licensing Basis Based Upon Application of Leak-Before-Break Methodology," dated July 22, 2011, ADAMS Accession Number ML112010696.

3. Letter from M. A. Schimmel (NSPM) to Document Control Desk (NRC), "Supplement to License Amendment Request to Exclude the Dynamic Effects Associated with Certain Postulated Pipe Ruptures From the Licensing Basis Based Upon Application of Leak-Before-Break Methodology – Response to Request for Additional Information (TAC Nos. ME2976 and ME2977)," L-PI-10-094, dated October 8, 2010, ADAMS Accession Number ML102810518.

4. Letter from M. A. Schimmel (NSPM) to Document Control Desk (NRC), "Supplement to License Amendment Request to Exclude the Dynamic Effects Associated with Certain Postulated Pipe Ruptures From the Licensing Basis Based Upon Application of Leak-Before-Break Methodology – Response to Request for Additional Information (TAC Nos. ME2976 and ME2977)," L-PI-11-006, dated January 14, 2011, ADAMS Accession Number ML110140367.

5. Letter from M. A. Schimmel (NSPM) to Document Control Desk (NRC), "Supplement to License Amendment Request to Exclude the Dynamic Effects Associated with Certain Postulated Pipe Ruptures From the Licensing Basis Based Upon Application of Leak-Before-Break Methodology – Response to Requests for Clarification (TAC Nos. ME2976 and ME2977)," L-PI-11-019, dated February 23, 2011, ADAMS Accession Number ML110550582.

6. Letter from M. A. Schimmel (NSPM) to Document Control Desk (NRC), "Supplement to License Amendment Request to Exclude the Dynamic Effects

Associated with Certain Postulated Pipe Ruptures From the Licensing Basis Based Upon Application of Leak-Before-Break Methodology – Support for Containment Particulate Monitor Response Calculation (TAC Nos. ME2976 and ME2977)," L-PI-11-038, dated April 6, 2011, ADAMS Accession Number ML110970101.