

ENCLOSURE 1, APPENDIX 4, AND ENCLOSURES 2, 3, 4, 5, 6, 7, 8 AND 9
CONTAIN PROPRIETARY INFORMATION – WITHHOLD FROM PUBLIC
DISCLOSURE IN ACCORDANCE WITH 10CFR 2.390



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

June 30, 2010

L-MT-10-046
10 CFR 50.90

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

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

Subject: Monticello Extended Power Uprate: Replacement Steam Dryer Supplement
(TAC MD9990)

- References:
- 1) Letter from Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy to Document Control Desk (NRC), "License Amendment Request: Extended Power Uprate," L-MT-08-052, dated November 5, 2008. (ADAMS Accession No. ML083230111)
 - 2) Letter from NSPM, d/b/a Xcel Energy to Document Control Desk (NRC), "Subject: Monticello Replacement Steam Dryer," L-MT-10-007, dated February 18, 2010. (ADAMS Accession No. ML100550127)
 - 3) Regulatory Guide 1.20, Revision 3, "Comprehensive Vibration Assessment Program for Reactor Internals During Preoperational and Initial Startup Testing," dated March 2007. (ADAMS Accession No. ML070260376)

Pursuant to 10 CFR 50.90, the Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, requested in Reference 1 an amendment to the Monticello Nuclear Generating Plant (MNGP) Renewed Operating License (OL) and Technical Specifications to increase the maximum authorized power level from 1775 megawatts thermal (MWt) to 2004 MWt.

In Reference 2, NSPM informed the NRC of its plan to replace the existing MNGP steam dryer. NSPM is replacing the steam dryer because the replacement steam dryer (RSD) is a cost effective measure to reduce moisture carryover to < 0.1%. This reduction in moisture carryover helps minimize corrosion products in the steam loop. The reduced corrosion products minimize high pressure turbine wear, reduce the production and transportation of activated corrosion products, and reduce the volume of

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radioactive wastes (from Condensate Demineralizer & Reactor Water Cleanup (RWCU) filtering material replacements). These reductions help minimize worker doses.

NSPM has contracted Westinghouse Electric Company, LLC (WEC) to provide a new steam dryer to replace the currently installed steam dryer (CISD). In this supplement to the EPU application NSPM is submitting to the NRC the analyses and evaluations required to support use of the RSD under EPU conditions. The analyses are provided in accordance with Regulatory Guide (RG) 1.20, Revision 3 (Reference 3). The provided analyses support the planned extended power uprate (EPU) at MNGP. These analyses have been performed to determine the functional and performance requirements of the RSD as well as to qualify the RSD for acoustic pressure loads. The process used to perform the analyses involves advanced thermal/hydraulic computer codes to assess dryer performance and scale model testing, multiple acoustic and structural analyses and several computer codes, both commercially available and special-purpose codes developed in conjunction with the evaluation of acoustic loads.

Enclosure 1 to this letter contains an overview of the design and analyses performed for the RSD. This includes the RSD design, instrumentation provided with the RSD and a description of the scale model testing of the RSD design. In addition, this enclosure discusses the stress analysis results and justifications for acoustic monitoring methodology used.

Appendix 1 to Enclosure 1 is the RG 1.20, Revision 3 compliance table (matrix). This matrix demonstrates RG 1.20 compliance in the RSD development. Appendix 2 to Enclosure 1 provides an analysis of previously unanswered NRC requests for additional information (RAI's) for the currently installed steam dryer. This appendix provides information on whether the RAI is applicable to the RSD and where the response to the RAI is contained. Appendix 3 to Enclosure 1 contains an evaluation of the changes to EPU documentation based on use of the RSD. Appendix 4 to Enclosure 1 contains revised final pages to other analyses and documents within the body of documentation that is used to support the MNGP EPU licensing basis. Portions of appendix 4 contain proprietary information. Finally, Appendix 5 to Enclosure 1 is the Power Ascension Test Plan for the RSD.

Enclosure 2 is Westinghouse Electric Company, LLC (WEC) WCAP-17085-P, Revision 1, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads." This document provides a high cycle fatigue evaluation of the WEC RSD for MNGP. Acoustic loads and stresses for both current licensed thermal power (CLTP) and extended power uprate (EPU) conditions have been evaluated for high cycle fatigue. The conclusion of the report indicates that the acoustic loads and stresses meet the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code Section III, Subsection NG criteria.

Enclosure 3 is WEC Report, SES 09-127-P, Revision 2, "Monticello Steam Dryer Replacement – Structural Verification of Steam Dryer." This report presents a stress

analysis of the MNGP RSD for service level A, B, C and D conditions. The purpose of the analysis is to verify that the RSD fulfills the requirements of Section III, Subsection NG of the American Society of Mechanical Engineers (ASME) code.

Enclosure 4 is WEC Report, SES 09-129-P, Revision 2, "Monticello - Steam Dryer Replacement Moisture Carryover Analysis." This report documents the analyses of the performance of the steam dryer in terms of moisture carryover (MCO) and pressure drop. The analysis concludes that the replacement steam dryer for MNGP is expected to have acceptable performance at a reactor thermal power of 2004 MWt:

Enclosure 5 is WEC Report, WCAP-17251-P, Revision 0 "Monticello Replacement Steam Dryer Four Line Acoustic Subscale Testing Report." The purpose of the subscale testing presented in this report is two-fold. First, the subscale main steam line acoustic signature at a range of operating conditions was examined to evaluate the effect of the replacement dryer geometry. Second, a new set of CLTP to EPU scaling spectra were derived to scale the plant acoustic signature from the CLTP signature with the current steam dryer to the predicted EPU signature with the RSD.

Enclosure 6 is WEC Report WCAP-17252-P, Revision 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project." The report develops two key factors which are to be used as input to the structural analysis of the RSD. First, the report develops the three-dimensional acoustic pressure field. Second, the report applies the acoustic circuit model (ACM) Rev. 4.0 methodology to the RSD design to develop the boundary sources at CLTP and EPU conditions. The conditioned pressure signals measured on the main steam lines (MSLs) (provided in Enclosure 5) are applied to the ACM and the scaling factors at CLTP and EPU conditions are calculated.

Enclosure 7 is letter LTR-A&SA-09-32, Revision 2 from WEC dated June 21, 2010. This letter provides the power ascension test plan (PATP) limit curves that are planned to be utilized following installation of the RSD. Due to the timing of the installation of the RSD and the timing of approval by the NRC to proceed to a higher power level, the RSD – PATP may be accomplished in two phases as outlined in Enclosure 1, Appendix 5.

Enclosure 8 is letter LTR-EP-10-059, Revision 1 from WEC dated June 24, 2010. This letter provides details of the differential pressure methodology utilized by WEC in design of the MNGP RSD.

Enclosure 9 is letter LTR-EP-10-062, Revision 1 from WEC dated June 29, 2010. This letter provides a detailed comparison of the RSD design and testing with RG 1.20, Revision 3. This Enclosure along with Enclosure 1, Appendix 1, provide assurance that the RSD complies with the requirements of RG 1.20, revision 3. The letter contains both proprietary and nonproprietary attachments.

Enclosure 10 contains affidavits executed to support withholding Enclosure 1, Appendix 4 and Enclosures 2, 3, 4, 5, 6, 7, 8 and 9 from public disclosure. Enclosure 1, Appendix 4 contains information proprietary to General Electric – Hitachi (GEH), the owner of the information. Enclosures 2 - 9 contain information proprietary to WEC; the owner of the information. The affidavits provided set forth the basis for which the information may be withheld from public disclosure by the NRC and addresses with specificity the considerations listed in 10 CFR 2.390(b)(4). Accordingly, it is respectfully requested that the information which is proprietary to GEH and WEC be withheld from public disclosure in accordance with 10 CFR 2.390.

Correspondence with respect to the copyright or proprietary aspects of GEH information or the supporting GEH affidavit in Enclosure 10 should be addressed to Edward Schrull, Vice President, Services Licensing, Regulatory Affairs, GE Hitachi Nuclear Energy Americas LLC, 3901 Castle Hayne Road, Wilmington, North Carolina 28401.

Correspondence with respect to the copyright or proprietary aspects of WEC information or the supporting WEC affidavits in Enclosure 10 should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Enclosure 11 is a summary of EPU commitments including commitments associated with the RSD. The commitment summary includes whether the commitment is new, revised, or completed.

Enclosures 12, 13, 14, 15 and 16 contain nonproprietary versions of Enclosures 2, 3, 4, 5 and 6 respectively. Enclosures 7 and 8 are entirely proprietary and thus no nonproprietary documents have been provided. The nonproprietary reports are being provided based on the NRC's expectation that the submitter of the proprietary information should provide, if possible, a nonproprietary version of the document with brackets showing where the proprietary information has been deleted.

During a conference call held with the NRC on April 23, 2010, the NRC requested information pertaining to the European operating history and operating conditions of designs similar to the RSD that is to be installed in the MNGP reactor. WEC has determined that certain documentation (including the above requested information) related to the MNGP RSD is non-releasable as trade secrets. In order for the NRC to perform a thorough review of the RSD, NSPM understands that the NRC staff may require access to some of these documents. Therefore, arrangements have been made with WEC to provide copies of these documents and make them available for NRC audit and inspection at the WEC offices near NRC headquarters. Please contact Mike Sivack of WEC at 412-374-2372 to arrange for an appointment to audit these documents.

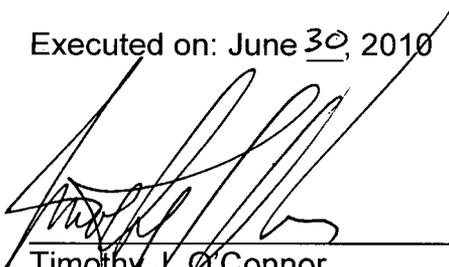
In accordance with 10 CFR 50.91(b), a copy of this application supplement, without enclosures is being provided to the designated Minnesota Official.

Summary of Commitments

This letter makes changes to existing commitments and implements one new commitment. See Enclosure 11 for details.

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

Executed on: June 30, 2010



Timothy J. Connor
Site Vice-President
Monticello Nuclear Generating Plant
Northern States Power Company-Minnesota

Enclosures (16)

cc: Administrator, Region III, USNRC (w/o enclosures)
Project Manager, Monticello Nuclear Generating Plant, USNRC
Resident Inspector, Monticello Nuclear Generating Plant, USNRC (w/o enclosures)
Minnesota Department of Commerce (w/o enclosures)

ENCLOSURE 1

**DESIGN AND ANALYSIS OF THE REPLACEMENT STEAM DRYER FOR THE
PROPOSED EPU AMENDMENT**

ENCLOSURE 1

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Appendix 1 – Regulatory Guide 1.20, Revision 3 Compliance Matrix

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Appendix 5 – Replacement Steam Dryer Power Ascension Test Plan

1.0 OVERVIEW

In 2008 Northern States Power, a Minnesota corporation (NSPM) requested from the United States Nuclear Regulatory Commission (NRC) an amendment to the Monticello Nuclear Generating Plant (MNGP) Renewed Operating License (OL) and Technical Specifications (TS). The purpose of the amendment request was to increase the maximum authorized power level from 1775 megawatts thermal (MWt) to 2004 MWt. (Reference 1)

NSPM also notified the NRC in 2010 that a replacement steam dryer (RSD) is planned to be installed in MNGP in 2011. The RSD is a cost effective measure to reduce moisture carryover to < 0.1%. This reduction in moisture carryover helps minimize corrosion products in the steam loop. The reduced corrosion products minimize high pressure turbine wear, reduce the production and transportation of activated corrosion products, and reduce the volume of radioactive wastes (from Condensate Demineralizer & Reactor Water Cleanup (RWCU) filtering material replacements). These reductions help minimize worker doses. (Reference 2)

NSPM has contracted Westinghouse Electric Company, LLC (WEC) to provide the RSD to replace the currently installed steam dryer (CISD). The MNGP RSD is based on a design that is in use and has proven to be reliable in a number of European Boiling Water Reactor (BWR) plants. Its main feature is the concentric layout of the dryer panels. This provides symmetry of fluid flow paths through the dryer and supports the overall robustness and integrity with regard to structural loads. Steam dryers of this basic configuration have been in use in European BWRs since 1978 and have accumulated over 200 reactor years of successful operation. The RSD is designed and built by Westinghouse Electric Company, LLC (WEC) (Enclosure 3).

The general layout of the RSD is shown in Figure 1.0-1 below. The upper part consists of a framework built-up of vertical beams and radial girders. This cage-like structure provides support to the dryer panels and to the lifting lugs. The panels are placed in three concentric rings and provide additional stiffness to the upper part of the dryer. The outside shell is made of semi-curved plates to allow a smooth pathway for the steam flowing to the reactor vessel nozzles. Additional views and cutaways of the RSD are provided in Enclosure 2, Figures 2-1 – 2-8.

The NRC requires that plants evaluate steam dryers before any planned increase in power level against the requirements of Regulatory Guide (RG) 1.20, Revision 3, "Comprehensive Vibration Assessment Program For Reactor Internals During Preoperational And Initial Startup Testing," (reference 3). In this case, because the steam dryer is being replaced (versus verifying the CISD is acceptable at uprated conditions), RG 1.20 requires NSPM establish a comprehensive vibration assessment program for the RSD. This includes collecting data from instrumentation mounted directly on the steam dryer.

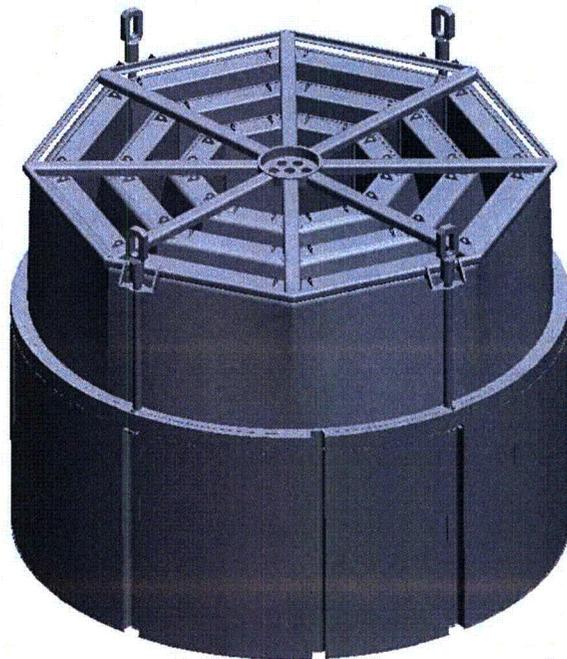


Figure 1.0-1 – Monticello Replacement Steam Dryer

In accordance with RG 1.20, and the planned extended power uprate (EPU); analyses have been performed to determine the functional and performance requirements of the RSD as well as to qualify the RSD for acoustic pressure loads. The process used to perform the analysis involves multiple acoustic and structural analyses, scale model testing, and several computer codes, both commercially available and special-purpose codes developed in conjunction with the evaluation of acoustic loads. The balance of this enclosure provides an overview of the analyses that have been performed in support of RSD qualification for the EPU conditions of MNGP.

2.0 BACKGROUND

As described in section 1.0 and Reference 2, it is NSPMs intention to replace the CISD with the RSD. As stated in reference 2, a preliminary review under 10 CFR 50.59 concluded that installation of the RSD could be completed without NRC approval. This includes operation of the RSD up to 1775 MWt (current licensed thermal power (CLTP)). The purpose of the analyses and evaluations in this letter is to justify use of the RSD up to 2004 MWt (EPU conditions).

2.1 Design of the Replacement Steam Dryer

A steam dryer is a passive component that has no safety-related function. It does have a passive function considered important to safety, to maintain its structural integrity during abnormal events.

The RSD structure is modeled using a finite element model (FEM) analysis. The FEM consists of a mixture of elements used to simulate various features and components within the RSD structure. Additional details on the FEM description can be found in Enclosure 2, Section 3. Figures 3-2 through 3-20 provide visual details concerning the FEM simulations.

The RSD is fabricated of stainless steel plates, bars and forgings from material SA-240 type 316L. Enclosure 3 (SES 09-127-P, section 4) provides a detailed description of the geometry and features of the RSD. Loading of the RSD is described in section 8 of Enclosure 3.

Structural damping is defined as 1% of critical damping for all frequencies. This damping is consistent with the guidance provided in Regulatory Guide 1.20. WEC has used the harmonic analysis approach which uses a consistent damping level across the frequency domain.

Two design evaluations, 1) ASME Code Section III stress evaluation and 2) Fatigue analysis including consideration of acoustic resonance pressure loading have been performed as indicated in section 3.1 of this enclosure to validate the design.

2.2 Instrumentation Provided with the Replacement Steam Dryer

Prior to use of the RSD, the RSD will be modified to attach instrumentation. Design of the RSD is influenced by structural, moisture carryover (MCO), and acoustics analysis. In order to collect real time data used for benchmarking and analytical comparison, accelerometers (2), pressure transducers (22), and strain gages (12) are being installed at pre-designed locations on the RSD.

Westinghouse has prepared an acoustic and structural analysis for the replacement steam dryer being installed at MNGP in 2011. Instrumentation will be installed on the

surface of steam dryer components consistent with the requirements of NRC RG 1.20 Rev. 3. The instrumentation will be used to perform a comparison to verify that the analytical models used for acoustic and structural analysis are adequate to confirm that the dryer design meets all ASME code and U.S. regulatory requirements.

Data will be gathered from the RSD instrumentation at several discrete steps during ascension to EPU power. The RSD data will be provided by 12 strain gauges, 2 accelerometers, and 22 pressure transducers. MSL data will be provided by strain gauges installed on the four MSLs. During the power ascension process, data from the MSL strain gauges will be compared to limit curves in order to verify that stresses are within allowable limits.

Accelerometers are being used to verify that there is no RSD movement during operation. The placement of the two accelerometers at 90 degree separation and away from any lifting lugs is adequate to ensure detection of dryer motion.

Pressure transducers and strain gauges are intended to provide comparison data. As such, no single instrument location is considered critical and redundancy is built in due to the number of sensors and their locations. The pressure transducers will measure the pressures experienced by the RSD hood panels. Pressure data will then be compared to values developed from the ACM. This comparison will provide additional information on the ACM results used as inputs to the structural analysis. Strain gauges will take mechanical data from the steam dryer hood panels which will then be compared to results from the structural analysis.

The combination of pressure transducers, strain gauges, and modal testing represents a check of the analytical models and will provide supplemental information to ensure that the structural integrity of the steam dryer will be maintained.

A hammer test prior to RSD installation will provide comparisons to the modal analysis performed using the finite element model created for the RSD.

No further detail on the specific locations of strain gages, accelerometers and pressure transducers can be supplied to the NRC by NSPM as this information is WEC proprietary information that is not releasable. The specific locations of the instrumentation on the RSD are owned exclusively by WEC. However, this information is available for audit and inspection by the NRC at WEC offices.

2.3 Instrumentation on the Main Steam Lines

The main steam line (MSL) instrumentation has not changed from the initial discussion of this instrumentation in Reference 1, Enclosure 11. To facilitate the NRC's review of this supplement, a summary of the MSL instrumentation is provided below. Further details concerning the MSL instrumentation can be found in Reference 1, Enclosure 11, Section 3.

Generation of Load Definition

Measured strain gage time-history data in the four main steam lines at the MNGP were processed by a dynamic model of the steam delivery system to predict loads on the full-scale steam dryer. These measured data were first converted to pressures, then positioned on the four main steam lines and used to extract acoustic sources in the system. A validated acoustic circuit methodology was used to predict the fluctuating pressures anticipated across components of the steam dryer in the reactor vessel. The acoustic circuit methodology included a low frequency hydrodynamic contribution, in addition to an acoustic contribution at all frequencies. This pressure loading was then provided for structural analysis to assess the structural adequacy of the CISD in MNGP.

Strain Gage Locations and Configuration

Strain gage (SG) locations were determined by Continuum Dynamics Incorporated (CDI). The locations were selected to optimize the signal for the frequency of interest (162 Hz) and to minimize uncertainties associated with comparisons to the Quad Cities benchmark data (see Reference 1, Enclosure 11, Appendix II). The locations were selected so that no acoustic sources would be present between upper and lower strain gages. Figure 2.3-1 displays the general locations of the strain gages as installed at MNGP. The upper strain gages were located on the vertical pipe runs at the same location on each pipe; approximately 12 feet from the vessel steam outlets. The lower strain gages were located exactly 32 feet downstream of the upper gages on the diagonal runs of each line (not shown in the figure).

Strain gages were installed during the 2007 refueling outage. Each of the four main steam lines was instrumented in two locations for a total of eight strain gage locations. Each location received eight strain gages installed circumferentially and equally spaced for a total of 64 strain gages. In order to minimize the bending error, the strain gages that are diametrically opposite to each other are connected in a half-bridge "Wheatstone Bridge" configuration. Consequently, signals from the individual SGs are additive, resulting in the partial cancellation of the bending strain and enhancement of the hoop strain sensitivity. For every such location, the four signals are averaged to minimize the bending errors and improve the signal to noise ratio. Failure of individual strain gages can cause spurious signals as cancellation of bending strains is reduced. The effect of this is addressed in Reference 1, Enclosure 11, Section 3.3 and shown graphically in Figure 2.3-2 and Figure 2.3-3.

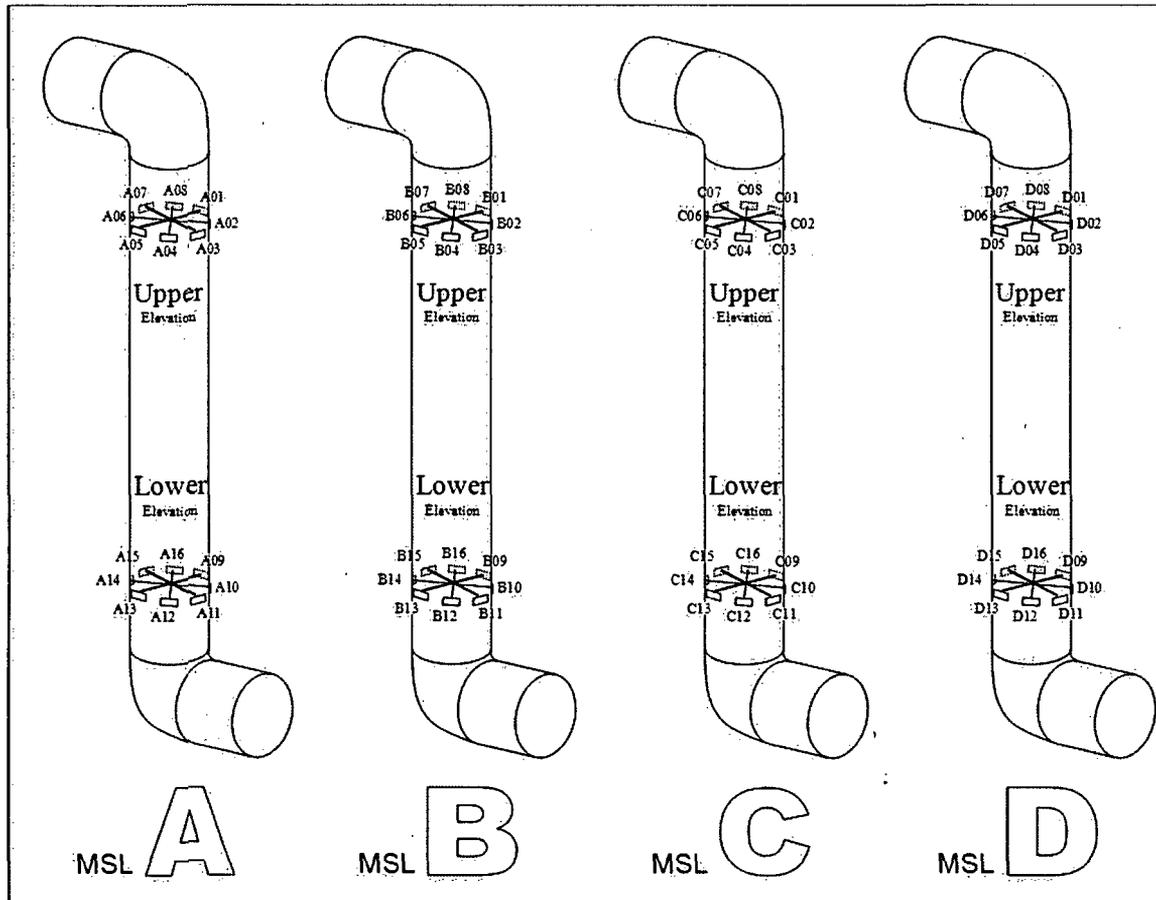


Figure 2.3-1 MSL Acoustic Pressure Vibration Monitoring Strain Gage Installation (typical)

Channels 01 and 02 are two of the 4 channels measuring hoop strain at the upper location on main steam line A. The strain gages that make up these two channels are mounted adjacent to each other as demonstrated in Figure 2.3-1 as strain gage pairs A01-A05 (channel 01) and A02-A06 (channel 02).

Figure 2.3-2 and Figure 2.3-3 demonstrate the effect of the loss of one strain gage from channel 01. Without an opposed strain gage to cancel the bending strain caused by a pipe vibration mode at approximately 22 Hz, an artificial peak is generated in the channel 01 data. This effect is repeated in the data each time a single strain gage is lost from a channel. How these artificial peaks are treated in the load definition is addressed in Reference 1, Enclosure 11, Section 3.4.

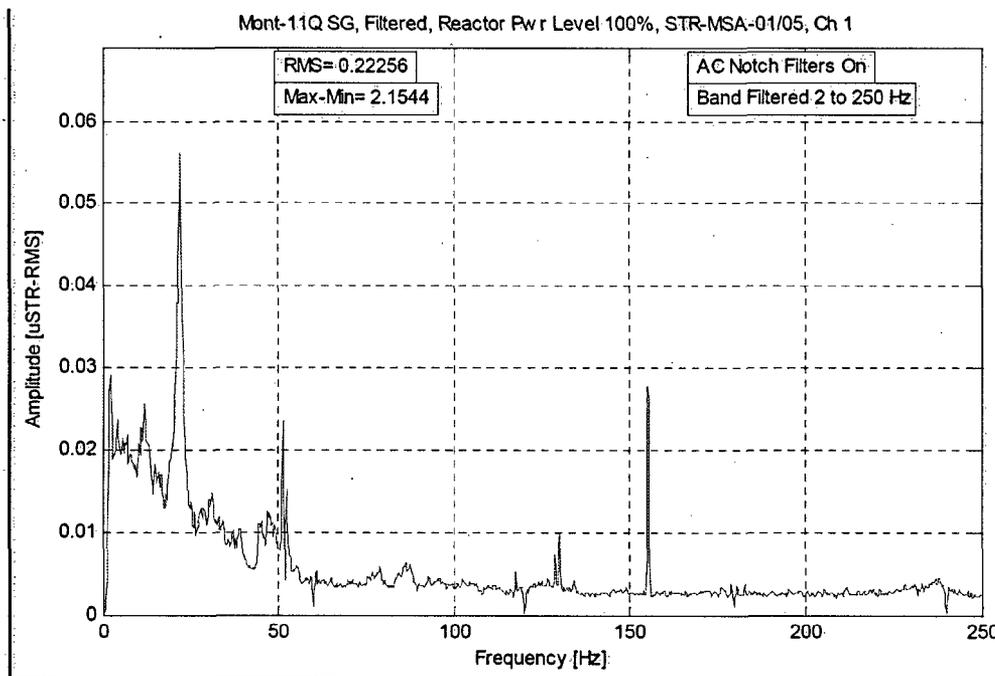


Figure 2.3-2: Channel 01 with a single operational strain gage. Note the peak at approximately 22 Hz.

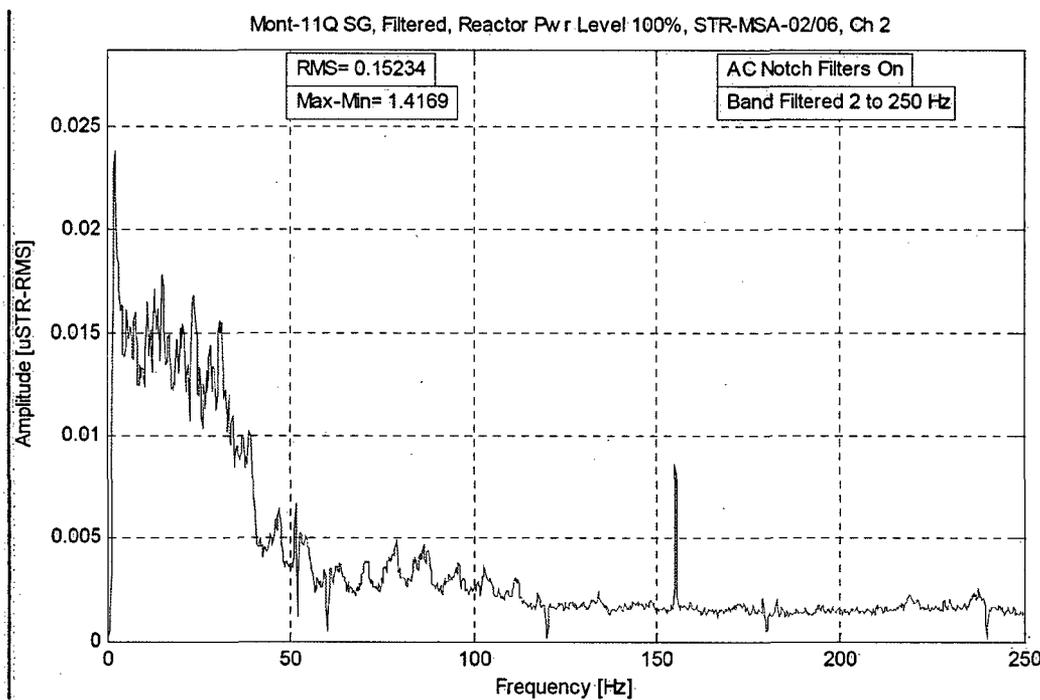


Figure 2.3-3: Channel 02 with a pair of operational strain gages. Note the absence of the peak at approximately 22 Hz.

A typical strain gage system is comprised of a Wheatstone Bridge (WB) as shown in Figure 2.3-4. In Figure 2.3-4, V_{in} is the DC voltage supplied to the WB circuit, V_{out} is the output voltage measured. R_1 to R_4 are the four resistances on the four arms of the WB circuit. In order to minimize the bending strain error, at each SG location the WB circuit was wired in a half bridge configuration. This means that one of the two diametrically attached SGs occupied the position of R_1 and the other SG, that is 180° apart, occupied the R_3 position.

The WB circuit analysis will show that the active resistances R_1 and R_3 in this case will be additive. Before the start of the measurements and with no applied strain on the active gages, the compensating resistors R_2 and R_4 will be adjusted such that the output voltage V_{out} is zero, which means that the WB circuit is balanced. In the presence of applied strain the resistances R_1 and R_3 will vary and the output voltage consequently will change and be proportional to the applied strain.

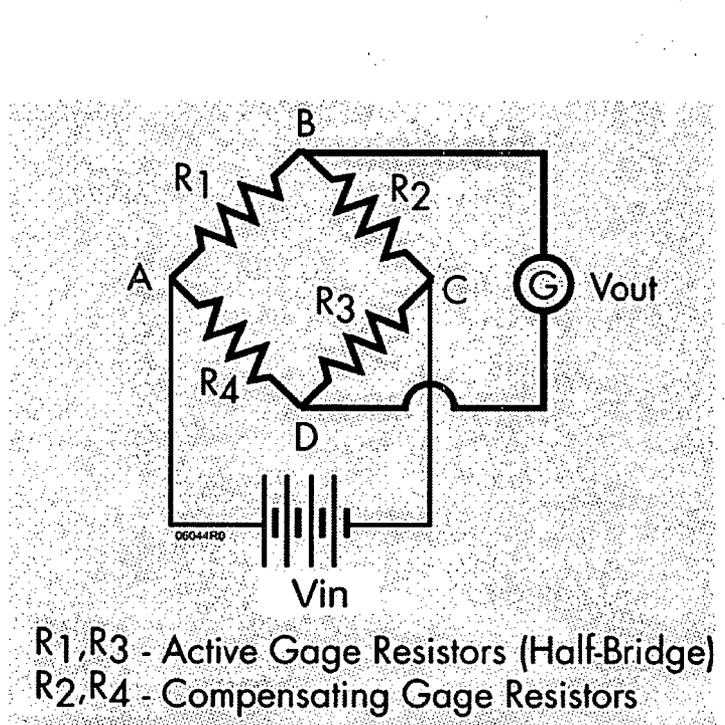


Figure 2.3-4: Wheatstone Bridge and Strain Gage Electrical Schematic

Raw Data Reduction

The relationship between SG and pressure is governed by the geometry of the piping; therefore, thickness and OD measurements of the piping are performed at all the instrumented locations. Average SG to dynamic pressure conversion factors (PCFs) are computed for each location and are provided in Reference 1, Enclosure 11, Table 3-

1. The uncertainties of the various quantities in the SG to pressure relationship were considered when computing the uncertainty in the indirect pressure measurement.

The raw data is independently processed twice. The raw data for the analyses was first transmitted to Structural Integrity Associates (SIA). SIA processed the data as described below to generate frequency versus amplitude (microstrain) plots for each channel. The raw data was also transmitted to CDI. CDI performs a similar processing of the data as described in Reference 1, Enclosure 11, Section 3.4.

The strain gage time histories were first filtered using a Chebychev type bandpass filter (data from 2- 250 Hertz was allowed to pass). Since the data had electrical noise, digital notch filters were applied to the time histories at 60, 120, 180, and 240 Hz. Also, digital notch filters were used to exclude the electrical excitation from a recirculation pump drive. Once the signal was bandpass and notch filtered, each time history was converted from the time domain to the frequency domain (frequency spectra) using a Fast Fourier Transform (FFT) algorithm. Each time signal was averaged over the recording length in groups of 2500/.25 samples (the block size); that is, the time history was grouped into 50 percent overlapping groups of 2500/.25 samples.

Due to the digital filter imperfections, the first few seconds of processed strain data were artificially amplified causing erroneously high readings. To overcome this phenomenon, the first 2 to 5 seconds of processed data were removed before the frequency spectrum was calculated. An FFT was generated for each group and then all FFT groups were summed together, and divided by the number of groups to provide linearly averaged frequency spectra. Plots for each averaged frequency spectrum (amplitude, $\mu\epsilon$ versus frequency, Hz) were generated for each channel. Figure 2.3-2 and Figure 2.3-3 are representative of the post-processed data.

Further details concerning the MSL instrumentation can be found in Reference 1, Enclosure 11.

2.4 Scale Model Testing of the Replacement Steam Dryer

In Reference 1, Enclosure 11, Attachment II, NSPM provided CDI report 07-25P to the NRC. This report is entitled, "Acoustic and Low Frequency Hydrodynamic Loads at CLTP Power Level on Monticello Steam Dryer to 200 HZ."

This report provided measured strain gage time-history data of the four MSLs at MNGP as processed by a dynamic model of the steam delivery system to predict loads on the full-scale CISD. These measured data were first converted to pressures, then positioned on the four MSLs and used to extract acoustic sources in the system. A validated acoustic circuit methodology was used to predict the fluctuating pressures anticipated across components of the steam dryer in the reactor vessel. The acoustic circuit methodology included a low frequency hydrodynamic contribution, in addition to

an acoustic contribution at all frequencies. This pressure loading was then provided for structural analysis to assess the structural adequacy of the CISD for MNGP.

When the decision was made to remove the CISD and install the RSD, NSPM reanalyzed the acoustic loads for the RSD. Enclosure 5 contains WEC Report, WCAP-17251-P, "Monticello Replacement Steam Dryer Four Line Acoustic Subscale Testing Report." The purpose of the subscale testing presented in this report is two-fold. First, the subscale main steam line (MSL) acoustic signature at a range of operating conditions was examined to evaluate the effect of the RSD geometry. Second, a new set of CLTP to EPU scaling spectra were derived to scale the plant acoustic signature from the CLTP signature with the current steam dryer to the predicted EPU signature with the RSD.

In order to evaluate the structural integrity of the RSD at EPU conditions, the four MSL subscale test described in CDI report 07-25P was reconstructed. For comparison purposes the testing included both the CISD design and the RSD design. This was necessary in order to validate earlier work that had been done to quantify the acoustic signature scaling from CLTP to EPU operating conditions and to evaluate the effect of dryer geometry on the acoustic signature measured on the MSLs.

The results of the testing indicated that the steam Mach number at EPU operating conditions lies in such a range that the safety relief valve (SRV) acoustics contributed to the MSL signature. Using the 4-line subscale test, CLTP to EPU scaling spectra were derived for each MSL transducer location, and these spectra were applied to the plant CLTP signal to predict the MSL acoustic signature at EPU. The testing also indicated that dryer geometry had minimal signal difference at a given steam velocity.

Details concerning how the subscale model testing was setup, performed and data filtering are provided in section 4 of Enclosure 5.

The variation between the original (as found in CDI report 07-25P) and replacement designs dryer geometry did not have a significant impact on the signal. Therefore, it is acceptable to use the plant MSL CLTP signal measured with the CISD as a basis for the acoustic analysis and scaling to the plant MSL EPU signal with the RSD.

Based on the processed plant MSL signals, as well as the results from the subscale testing program, a set of CLTP to EPU scaling spectra have been derived for each MSL measurement location. The energy contribution due to the SRV resonance is inherent in the scaling spectra. The acceptance of using this signal as a basis for the signal at EPU with the RSD was demonstrated with the subscale testing program.

Further details concerning the scale model testing of the RSD can be found in Enclosure 5.

3.0 ANALYSIS OF THE REPLACEMENT STEAM DRYER

3.1 Stress Analysis of the Replacement Steam Dryer

Acoustic Stress Evaluation

Enclosure 2 provides a high cycle fatigue evaluation of the Westinghouse RSD for MNGP. Acoustic stresses for the MNGP replacement dryer at both current licensed thermal power (CLTP) and extended power uprate (EPU) conditions have been evaluated.

The frequency-dependent acoustic loads were developed using a three-dimensional (3-D) acoustic model representation of the dryer assembly. The acoustic pressure loads on the steam dryer structure were calculated by solving the 3-D wave diffusion equation in the frequency domain, i.e., the Helmholtz equation.

The resulting pressure loads are generated using a 1.5-inch uniform mesh grid. Plots showing the geometry of the acoustic model are provided in Enclosure 2, Figures 6-1 and 6-2. Loads are developed for both monopole and dipole load sources, and include both the real and imaginary portions of the load in order to maintain phasing information.

The acoustic load files use a small frequency increment between solutions. Using special-purpose computer codes, the frequency interval is reduced to limit the peak response error below 5%. This methodology results in variable frequency spacing across the frequency domain, with finer frequency spacing at the lower frequencies.

The acoustic load files generated in the acoustic analysis are input to a special-purpose computer program and the data is reorganized into a 3-D table array format required for reading into ANSYS¹. The data from the acoustic analysis is limited to the grid positions of the acoustic model and only data adjacent to the steam dryer surfaces is present in the files. In preparing the ANSYS load tables, interpolation of the data on the model surface and simple diffusion schemes off the surface are used to fully populate the load tables.

To be consistent with the acoustic model, only surfaces of the structural FEM that are represented in the acoustic model are prepared to accept the pressure values from the table array files. The FEM is prepared by selecting surfaces common to the acoustic model and superimposing ANSYS pressure elements that are capable of applying both real and imaginary components of the pressure loads.

¹ ANSYS is registered trademarks of ANSYS, Inc. or its subsidiaries located in the United States or other countries.

Strain gages are mounted on the four main steam lines of MNGP as described in section 2.4. Two data sets are examined in the stress analysis. The first data set corresponds to the CLTP power level, and the second set corresponds to the CLTP signals modified with the scaling factors obtained from a 1/8th scale model test performed for MNGP with the RSD to approximate EPU conditions. The resulting scale factors were supplied to the dynamic analysis code in the form of text files, two files for CLTP conditions, corresponding to the monopole and dipole loads, and similarly, two files for EPU conditions.

The scale factors that are obtained from the ACM analysis are related to the frequency sampling rate for the strain gage data collection. To account for uncertainties in the modal frequency predictions of the FEM, the stresses were also computed for loads that are shifted in the frequency domain.

Acoustic stresses for the MNGP replacement dryer at both CLTP and EPU conditions have been evaluated and found to be acceptable. The acoustic stresses are evaluated for high-cycle fatigue. The requirement is to maintain the alternating stress below the endurance limit. The lowest stress ratio occurs on the middle hood stiffener at both CLTP and EPU. The lowest stress ratios satisfy NRC criteria (above 2.0) at both EPU and CLTP conditions.

See Enclosure 2 for further details on the stress analysis for the RSD.

Structural Stress Evaluation

Enclosure 3 provides a structural analysis of the RSD for MNGP. This report presents the analysis to verify that the RSD fulfills the requirements of ASME Section III, Subsection NG, 2004 Edition, No Addenda. The analysis is performed using Finite Element Modeling (FEM). The finite element model covers the complete RSD including:

- Primary stresses are evaluated for Service Levels A through D.
- Secondary stresses and fatigue are evaluated for Service Level A and B.
- The acoustic part originating from Flow Induced Vibrations (FIV) is considered for Level A and B service conditions.
- Seismic blocks are verified for applicable loads.

The report presents an evaluation of primary stresses, primary plus secondary stresses and cyclic operation. The results show that the overall stress levels are low in the steam dryer. The verification of cyclic operation shows that the requirements are fulfilled with good margins. The results provide the conclusion that the steam dryer fulfills the requirements of ASME Section III, Subsection NG, 2004 Edition, No Addenda. In addition the seismic blocks and lifting rods were analyzed and shown to meet the requirements.

See Enclosure 3 for further details on the structural verification performed on the RSD.

3.2 Acoustic Circuit Model

An accurate 3-D model of the steam dryer and the surrounding fluid, i.e., steam, was developed to predict the distribution of the pressure loads on the entire structure. This model is based on the solution of the 3-D wave diffusion equation in the frequency domain, i.e., Helmholtz equation. Solutions of the acoustic pressure field have been obtained using both monopole and dipole acoustic sources. The solutions were developed in a range from 0 to 250 Hz for the monopole source case and from 0 to 60 Hz for the dipole source case. The solutions obtained with this methodology were post-processed to obtain the pressure field impinging on the inside and outside surfaces of the steam dryer structure.

In order to develop a prediction of the pressure loads for plant specific conditions, i.e., EPU, a set of conditioned pressure signals measured with strain gauges on the MSLS was processed through the acoustic circuit model (ACM) Rev. 4.0. The ACM produces the boundary sources which are then combined with the unit pressure loads to obtain a prediction of the acoustic pressure field surrounding the steam dryer. The application of these boundary sources to the 3-D pressure loads generates a prediction of the pressure field for the specific plant conditions, i.e., power level, steam flow rate, and steam line geometry.

Further details concerning use and development of ACM can be found in Enclosure 6 and in Reference 1, Enclosure 11.

3.3 Moisture Carryover Performance

In a BWR, the moisture separation is performed in two stages. The two-phase mixture that leaves the core has a quality of around 10-20 % when it enters the first separation stage made of the steam separators also called primary separators. The steam separators separate most of the water. Depending on the performance of the separators, the quality of the flow after the separators is around 90-99 % (corresponding to a moisture content of 1-10 % by weight). The remaining water drops are separated in the second stage of separation. The second stage of separation is the steam dryer. Almost dry steam then leaves the reactor vessel through the steam lines. The moisture content in the steam leaving the reactor vessel is called the moisture carryover (MCO).

The inlet moisture content at EPU conditions has been estimated based on core power and flow data as specified by NSPM. The data consist of a general heat balance sheet and core distributions of the active flow for each fuel assembly as well as relative power fraction for each fuel assembly. The data was given at three different points in the burnup cycle: Beginning Of Cycle (BOC), Middle Of Cycle (MOC) and End Of Hot Full Power (EOHFP).

With the RSD installed, NSPM specified that MCO be less than 0.030% at 2004 MWt. This value has been met. To account for 10 CFR 50 Appendix K uncertainties, MCO was also calculated at 2044 MWt. The results of this calculation provided satisfactory MCO values, less than 0.5%.

See Enclosure 4 for further details on the MCO evaluation performed for the RSD.

3.4 Regulatory Guide 1.20 Revision 3 Compliance

Regulatory Guide 1.20, Revision 3, (reference 3) describes a methodology for vibration assessment program for reactor internals that the NRC staff considers acceptable. The methodology satisfies General Design Criterion 1, "Quality Standards and Records," as set forth in Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10, Part 50, of the *Code of Federal Regulations* (10 CFR Part 50), "Domestic Licensing of Production and Utilization Facilities" and 10 CFR 50.34, "Contents of applications; technical information,"

Reactor internals are designed to accommodate steady-state and transient vibratory loads throughout the service life of the reactor. RG 1.20 presents a comprehensive vibration assessment program that the NRC staff considers acceptable for use in verifying the structural integrity of reactor internals for flow-induced vibrations prior to commercial operation. The overall program includes individual analytical, measurement, and inspection programs. The overall program emphasizes that the individual analytical, measurement, and inspection programs should be used cooperatively to verify structural integrity and to establish the margin of safety.

Although this regulatory guide is directed to new nuclear power plants, current licensees proposing a power uprate also use this guidance in establishing a power ascension testing program.

In accordance with RG 1.20, section C1.1, NSPM has determined that the RSD is to be evaluated as a 'prototype' component, because its arrangement and design represents a first-of-a-kind design for which no 'valid prototype' exists within the United States.

RG 1.20 states that licensees with a prototype component should perform a detailed analysis of potential adverse flow effects (both flow-excited acoustic resonances and flow-induced vibrations) that can severely impact RPV internal components (including the steam dryer in BWRs) and other main steam system components, as applicable.

Further details on how the RSD complies with RG 1.20, revision 3 is provided in Enclosures 2, 3, 4, 5, 6, 7, 8 and 9. In addition, a matrix demonstrating compliance with RG 1.20, revision 3, is provided in Appendix 1.

4.0 CHANGES TO CURRENT EPU LICENSING BASES

4.1 Changes to EPU Analyses

The purpose of this section is to identify those changes to the original EPU analyses and subsequent re-analyses and RAI responses that require modification due to the RSD.

The table included in Appendix 3 provides a summary of all the changes to the EPU analyses. Changed pages to EPU analyses are provided in Appendix 4 to this enclosure.

Major changes to the EPU Analyses are presented below:

4.1.1 Reactor Internal Pressure Differentials (RIPDs)

In Reference 1, Enclosure 5, page 2-48, the calculated value for RIPD for the C1SD is a differential pressure (dP) of 0.49 psid irreversible, at 1880 MWt. This value was derived by application of the more conservative BWR4-6 correlation based on the air test data for BWR6 steam dryers. An analysis was performed for the EPU project using a different and more realistic correlation for a BWR3 steam dryer and resulted in a C1SD dP of 0.30 psid irreversible at EPU conditions. In addition to the irreversible term, the elevation loss of 0.08 psid was calculated for EPU per the revised methodology.

In Reference 1, Enclosure 1, section 2.0, NSPM requested approval for use of a revised methodology (BWR3) for calculating RIPD. This request is no longer required as the BWR3 correlation will no longer be used for calculating the RIPD for the RSD. Rather NSPM requests approval of the WEC methodology for determining RSD faulted differential pressure provided in Enclosure 8.

4.1.2 Moisture Carryover (MCO)

In Reference 1, Enclosure 5, section 2.2.3, NSPM discussed an increase in Moisture Carryover (MCO) for EPU conditions. As shown in Reference 1, Enclosure 5, Figure 1-2, MCO used in the heat balance for EPU conditions (100% power and core flow) is 0.49%. In Reference 1, Enclosure 5, section 2.10, NSPM described that the MCO increase could lead to increased radiation levels in local areas of the balance of plant (BOP) piping due to deposition and build up of contaminants over time.

Reference 4, Enclosure 1, pg 8, provides further information on the MCO analyses that NSPM performed. The RAI response indicated that the evaluation for radiation levels assumed an increase in MCO for the C1SD from 0.05% (CLTP) to 0.5% (EPU). This then led to an increase in the generation of deposition sources in the reactor coolant. The increase in deposition sources led to a large increase in post shutdown dose rates.

The MCO value calculated for the RSD under nominal EPU conditions was determined by the methodology described in section 3.3 above. This returns the MCO value used in the analyses back to a value that meets the original MCO assumptions for CISD (0.05%) under CLTP conditions. Therefore, changes associated with an increase in MCO are no longer required. This means that radiation levels for post shutdown dose rates would be similar to the current environment with no appreciable increase.

As demonstrated in the references cited above, use of a MCO value of 0.5%, while conservative, still results in acceptable values for the EPU analyses. Therefore, these analyses will remain unchanged and are still considered bounding for the RSD. Based on this determination, no changes are required to the previous dose evaluations for MCO for EPU conditions.

4.2 Changes to CPPU testing plans

Start up testing described in Enclosure 1, Appendix 5 is intended to enhance the current CPPU startup testing program previously provided in Enclosures 9 and 10 of Reference 1. Specifically, this will identify the testing planned and the results expected during startup from the 2011 plant refueling outage. This start up plan is in sufficient detail to ensure the RSD design is validated.

4.2.1 Power Ascension Testing

The RSD Power Ascension Test Plan (RSD - PATP) is provided in Enclosure 1, Appendix 5. The plan is divided into three parts to facilitate testing at startup to 80% of CLTP conditions, 80% - 100% of CLTP conditions and from 100% CLTP to EPU conditions.

As described in Reference 1, Enclosure 10 the Structural Integrity Associates Versatile Data Acquisition Systems (SI-VersaDAS™), which was utilized for the flow induced vibration testing, will be utilized for acquiring data during the RSD - PATP. The data stream will include MSL strain gauges, RSD strain gauges, RSD accelerometers and RSD pressure transducers. Data collection will be simultaneous to ensure data validity and remove any questions concerning timing of data collected. Data collection will occur after steady state operation (as defined by operations) has been achieved at each power level. After the data collection has been confirmed as successful, power ascension testing will continue.

Data will be collated and compared to the design data for the RSD to validate the model and design outputs. This will also confirm that the acceptance criteria of a stress ratio greater than 1 is achieved.

Standard moisture carry over (MCO) testing (in accordance with existing plant procedures) will also be performed to establish a baseline for trending purposes during

normal plant operations as described in Reference 1, Enclosure 9, section 4.2 and table 2.

Data collected will be compared to the limit curves provided in Enclosure 7. If a level 1 acceptance criterion is exceeded, operations will place the unit in a previously acceptable plant condition. If this requires the plant to return to a lower power level then the plant will be placed in that lower power level condition until the level 1 criteria is re-evaluated and new limit curves are generated.

NSPM is making a new commitment to complete the RSD - PATP. The commitment is as follows:

As part of MNGP restart following installation of the replacement steam dryer, NSPM will implement the Power Ascension Test Plan found in Enclosure 1, Appendix 5 of this letter.

The commitment is required to satisfy the requirements of Regulatory Guide 1.20. The RSD - PATP contains requirements from RG 1.20 concerning testing and reporting requirements for the RSD. See Enclosure 11 of this letter for details concerning this commitment. See Appendix 1 to this enclosure for further details on compliance with RG 1.20.

4.2.2 Data reduction

Data reduction and comparisons to design data will be transmitted to the NRC after appropriate plant management review. If new limit curves are generated, they will be included in the data package transmitted to the MNGP NRC PM. Power ascension will continue when operations is satisfied that all test conditions have been successfully met. This is documented in the RSD - PATP which is provided in Appendix 5 to this enclosure.

4.3 Evaluation of the No Significant Hazards Consideration

With this letter NSPM is essentially describing three changes to the EPU analyses provided in the original amendment request (Reference 1). These changes are:

Reactor Internal Pressure Differential (RIPD) methodology
Moisture Carryover (MCO) analysis results
Replacement Steam Dryer Power Ascension Testing Plan (RSD-PATP)

RIPD

The No Significant Hazards Consideration (NSHC) provided in Reference 1, Enclosure 1, section 5.1 discussed changes to the Reactor Internal Pressure Differentials (RIPDs) which occurred in the EPU evaluations. The RIPD changes were due to the evaluations using the CISD under EPU conditions.

As described in section 4.1 above, the methodology for determining the RIPD was changed in Reference 1, Enclosure 1, section 2.0. In Reference 1, Enclosure 1, NSPM requested approval for use of a revised methodology (BWR3) for calculating RIPD. This request is no longer required as the BWR3 correlation will no longer be used for calculating the RIPD for the RSD. Rather NSPM requests approval of the WEC methodology for determining RSD faulted differential pressure described above.

As this letter requests approval of an RIPD methodology and Reference 1, Enclosure 1, also requested approval of an RIPD methodology, no change to the No Significant Hazards Consideration (NSHC) is required. In addition, the proposed changes do not affect the outcome of the NSHC evaluation.

MCO

The MCO analysis value provided in section 4.1.2 of this enclosure is less than the MCO value previously provided value found in the analysis in Reference 1. Therefore, the bounding MCO value provided will still be used. In addition, the MCO changes in reference 1 did not require evaluation under the NSHC. Therefore, no changes to the NSHC are required.

RSD-PATP

Finally, the RSD-PATP documented in section 4.2 of this enclosure provides documentation of the revised testing required to support the RSD installation. The RSD-PATP provides assurance that the installed component has the analyzed margin of safety and confirms the results of the vibration analysis. The RSD-PATP does not require evaluation under the NSHC and therefore, no changes to the NSHC are required.

5.0 REFERENCES

1. Letter from Northern States Power Company, a Minnesota corporation (NSPM), to Document Control Desk (NRC), "License Amendment Request: Extended Power Uprate," L-MT-08-052, dated November 5, 2008. (ADAMS Accession No. ML083230111)
2. Letter from NSPM, to Document Control Desk (NRC), "Subject: Monticello Replacement Steam Dryer," L-MT-10-007, dated February 18, 2010. (ADAMS Accession No. ML100550127)
3. Regulatory Guide (RG) 1.20, Revision 3, "Comprehensive Vibration Assessment Program For Reactor Internals During Preoperational And Initial Startup Testing." Dated March 2007. (ADAMS Accession No. ML070260376)
4. Letter from NSPM to Document Control Desk (NRC), "Monticello Extended Power Uprate: Response to NRC Reactor Inspection Branch Request for Additional Information (RAI) dated March 20, 2009 (TAC No. MD9990)," L-MT-09-042, dated June 16, 2009.

APPENDIX 1

REGULATORY GUIDE 1.20, REVISION 3 COMPLIANCE MATRIX

Regulatory Guide 1.20, Revision 3, Compliance Matrix

The MNGP RSD has been evaluated against the criteria provided in Regulatory Guide (RG) 1.20, Revision 3, *"Comprehensive Vibration Assessment Program for Reactor Internals during Preoperational and Initial Startup Testing."* The purpose of the table (matrix) provided below is to demonstrate that the MNGP RSD has been fully evaluated and confirm that the analyses meet the requirements of RG 1.20, Revision 3.

NSPM has determined that the MNGP RSD meets the definition of a "prototype" classification as found in RG 1.20, Rev. 3 section 1.1. Based on this classification, section 2, of RG 1.20 defines the assessment program applicable to the MNGP RSD. The table below demonstrates how NSPM is complying with RG 1.20, Rev. 3 with the analysis and testing program applicable to the RSD.

The matrix is divided into four columns. The first column contains an item number. Since some of the responses to the RG 1.20 requirements are proprietary to Westinghouse Electric Company, LLC (WEC), the item number can be used to find the proprietary response in Enclosure 9. The second and third columns provide the RG 1.20 reference and recite the RG 1.20 requirement. The final column in this table describes how the associated RG 1.20 requirement is met by NSPM. As noted above some of the methods for meeting the RG 1.20 requirements are proprietary, in this case the response in column four will say see Enclosure 9. Reference documents are also provided in the final column. Reference numbers in this column correspond to the list provided below:

Table References:

1. Enclosure 3 - Westinghouse Electric Sweden AB Report SES 09-127-P, Revision 2, Monticello Steam Dryer Replacement – Structural Verification of Steam Dryer," June 3, 2010. (WESTINGHOUSE PROPRIETARY)
2. Enclosure 2 - Westinghouse WCAP-17085-P, Revision 1, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads," June, 2010. (WESTINGHOUSE PROPRIETARY)
3. Enclosure 6 - Westinghouse WCAP-17252-P, Revision 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project," June, 2010. (WESTINGHOUSE PROPRIETARY)
4. Enclosure 5 - Westinghouse WCAP-17251-P, Revision 0, "Monticello Plant Data Processing and Subscale Testing Report," June, 2010. (WESTINGHOUSE PROPRIETARY)

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
1	C.2.1	"...should perform a vibration and stress analysis for those steady-state and anticipated transient conditions that correspond to preoperational, initial startup test, and normal operating conditions."	Analysis of steady-state and anticipated transients conditions that correspond to pre-operational (tests conducted prior to fuel loading) and initial startup (tests conducted after fuel loading during initial plant startup) tests are applicable only to new plants, and are therefore not applicable to the MNGP RSD. The RSD has been evaluated for steady-state loads and anticipated transient conditions applicable to normal operating conditions as part of the design qualification. The analysis of non-acoustic loads is documented in Reference (1) and the analysis of acoustic loads is documented in Reference 2.
2	C.2.1(1)	"Describe the theoretical structural and hydraulic models and analytical formulations or scaling laws and scale models used in the analysis, including all bias errors and uncertainties for reactor internals that, based on past experience, are not adversely affected by the flow-excited acoustic resonances and flow-induced vibrations."	This compliance matrix is limited to matters related to the structural qualification of the RSD. The theoretical structural and hydraulic models and analytical formulations or scaling laws and scale models used in the qualification of the RSD, including loads that may potentially be adversely affected by the flow-excited acoustic resonances and flow-induced vibrations, are documented in References 1 through 4. Further information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
3	C.2.1(1)(a)	"Determine the pressure fluctuations and vibration in the applicable plant systems under flow conditions up to and including the full operating power level."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
4	C.2.1(1)(b)	"Justify the method for determining pressure fluctuations, vibration, and resultant cyclic stress in plant systems."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
5	C.2.1(1)(c)	"Address significant acoustic resonances that have the potential to damage ... steam dryers, and perform modifications to reduce those acoustic resonances, as necessary, based on the analysis."	Modification to the RSD is not necessary as all ASME Code requirements are met with satisfactory margins, as documented in References 1 and 2.

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
6	C.2.1(1)	"...obtain plant-specific data to confirm the scale testing and analysis results for pressure fluctuations and vibration..."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
7	C.2.1(1)	<p>"If scale model testing is used to support the applicant's submission, the following areas should be considered:</p> <ul style="list-style-type: none"> (a) the effects of sound attenuation in the model (or effects of pressure, size, and medium) on the generation of any self-excitation mechanism (flow-excited acoustic or structural resonances) (b) the effects of sound attenuation on the acoustic pressures ... (c) the conservatism of the simulation of boundary conditions in the scale model (d) whether the size of the scale model is sufficiently large to allow investigation of small relevant geometrical details (such as branch line openings)" 	Information regarding compliance with these requirements are proprietary to WEC, see Enclosure 9.
8	C.2.1(2)	"Describe the structural and hydraulic system natural frequencies and associated mode shapes that may be excited during steady-state and anticipated transient operation, for reactor internals that, based on past experience, are not adversely affected by the flow-excited acoustic resonances and flow-induced vibrations."	Qualification of the reactor internals was performed in the original EPU analysis and is unchanged by the RSD. See L-MT-08-052, Enclosure 5, Section 2.2.3 for further details.
9	C.2.1(2)	"... analyses should be performed on ... steam dryers ... that may potentially be adversely affected by flow-excited acoustic resonances and flow-induced vibrations."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
10	C.2.1(2)	"Determine the damping of the excited mode shapes, and the frequency response functions (FRFs, i.e., vibration induced by unit loads or pressures, and stresses induced by unit loads or pressures), including all bias errors and uncertainties."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
11	C.2.1(2)	"If a numerical model is used to compute mode shapes and FRFs, the modeling approach should be documented along with the model itself. Uncertainties and bias errors associated with both the approach and the specific model should be provided, along with their bases."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
12	C.2.1(2)	"Upper bounds on the uncertainties associated with all significant natural frequencies of the mode shapes, which may be excited during steady-state and transient operation, should be provided, along with the uncertainties and bias errors associated with the amplitudes of the FRFs. The uncertainties associated with modeling the fluid loading (by water and/or steam) on reactor internal structures should also be reported (specifically, how they relate to uncertainties in the natural frequencies and FRFs)."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
13	C.2.1(2)	"... any attempt to specify structural damping coefficients greater than 1 percent for frequencies greater than seismic frequencies should be strongly substantiated with measurements."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
14	C.2.1(3)	"Describe the estimated random and deterministic forcing functions, including any very-low-frequency components, for steady-state and anticipated transient operation for reactor internals that, based on past experience, are not adversely affected by the flow-excited acoustic resonances and flow-induced vibrations." (NOTE: This requirement is concluded to apply to reactor internals components apart from the dryer which is specifically called out in the following sentence in the RG 1.20.)	Qualification of the reactor internals was performed in the original EPU analysis and is unchanged by the RSD. See L-MT-08-052, Enclosure 5, Section 2.2.3 for further details.
15	C.2.1(3)	"Evaluate any forcing functions that may be amplified by lock-in with an acoustic and/or structural resonance (sometimes called self-excitation mechanisms). ... All potential flow-excited acoustic or structural resonances that lead to feedback and loading amplification (commonly termed lock-in) should be addressed."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
16	C.2.1(3)	<p>“Tables of expected flow rates and resonance frequencies, along with the possible ranges of lock-in and potential load amplifications should be provided. Uncertainties in any of the lock-in parameters (such as the characteristic Strouhal numbers of the flow-excitation sources) should be clearly defined.”</p>	<p>This data was documented in L-MT-08-052, Enclosure 11, sections 2 and 3. No changes are required based on the RSD.</p>
17	C.2.1(3)	<p>“If any potential self-excitation or lock-in is identified, the applicant should provide specific mitigation procedures that would be employed if the lock-in leads to vibration and/or stresses that exceed allowable limits.”</p>	<p>The structural qualification of the Monticello steam dryer, documented in Reference 2, shows that all ASME Code requirements are met with satisfactory margins. Therefore, no specific mitigation procedures are required for the replacement dryer.</p>

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
18	C.2.1(3)	<p>“...some of the forcing functions that should be considered:</p> <ul style="list-style-type: none"> (a) flow instabilities over openings in the MSLs, like control and safety valve stand pipes, blind flanges, and others that lead to strong narrow-band excitation, which can lock-in to acoustic and/or structural resonances, considering the following parameters: <ul style="list-style-type: none"> (i) Strouhal number analysis to check critical flow rates (including any uncertainties in Strouhal number) (ii) effects of diameter ratio (iii) effects of upstream elbows (iv) distance between stand pipes (v) relative length of stand pipes <p>Flow instability frequencies should be compared to those of acoustic modes in the reactor dome and structural modes in the MSLs, any connected valves, and reactor internal structures. Finite element (FE) simulations or measurements may be used to determine the resonance frequencies.</p> <p>Any identified self-excitation or lock-in should not be analyzed by simply using linear extrapolation techniques.</p> <ul style="list-style-type: none"> (b) separated, impinging and reattached flows in the reactor dome, including low-frequency hydrodynamic loading on the steam dryer in BWRs (c) flow turbulence and narrowband excitation in the steam ring of MSLs in BWRs” 	<p>Information regarding compliance with these requirements are proprietary to WEC, see Enclosure 9.</p>
19	C.2.1(3)	<p>“...determine the design load definition for ... the steam dryer in BWRs up to the full licensed power level, and should validate the method used to determine the load definitions based on scale model or plant data.”</p>	<p>Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.</p>

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
20	C.2.1(3)	"...include instrumentation on the steam dryer to measure pressure loading, strain, and acceleration to confirm the scale model testing and analysis results."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
21	C.2.1(3)	"...obtain plant data at current licensed power conditions for use in confirming the results of the scale model testing and analysis for the steam dryer load definition prior to submitting a power uprate request."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
22	C.2.1(3)	"...clearly define all uncertainties and bias errors associated with the MSL pressure measurements and modeling parameters. The bases for the uncertainties and bias errors, such as any experimental evaluation of modeling software, should be clearly presented."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
23	C.2.1(3)	<p><i>Although stated as guidance, NSPM has evaluated the RSD against the following statements in RG 1.20.</i></p> <p><i>"...approaches that minimize uncertainty and bias error:</i></p> <ul style="list-style-type: none"> (a) At least two measurement locations should be employed on each MSL in a BWR ... (b) Strain gages (at least four gages, circumferentially spaced and oriented) may be used to relate the hoop strain in the MSL to the internal pressure. ... (c) The speed of sound used in any acoustic models should not be changed from plant to plant, but rather should be a function of temperature and steam quality. (d) Reflection coefficients at any boundary between steam and water should be based on rigorous modeling or direct measurement. The uncertainty of the reflection coefficients should be clearly defined. ... assuming 100-percent reflection coefficient is not necessarily conservative. (e) Any sound attenuation coefficients should be a function of steam quality (variable between the steam dryer and reactor dome), rather than constant throughout a steam volume (such as the volume within the RPV). (f) Once validated, the same speed of sound, attenuation coefficient, and reflection coefficient should be used in other plants. However, different flow conditions (temperature, pressure, quality factor) may dictate adjustments of these parameters." 	<p>In regard to measurement of MSL pressures and computing fluctuating pressures within the reactor pressure vessel and main steam lines (MSLs):</p> <ul style="list-style-type: none"> (a) NSPM has installed strain gages (SGs) at two elevations on each MSL. The placement of the elevations is based on calculations that ensure the installed SG locations do not occur at acoustic nodes. Eight strain gages are used around the circumference of the MSL. (b) Eight (8) SGs are installed at each MSL elevation to ensure an acceptable number of working SGs at each elevation. During installation of the SGs, the diameter and thickness of the pipe is measured and used in the determination the measurement uncertainty. (c) Through (f): Information regarding compliance with these requirements is proprietary to WEC, see Enclosure 9.

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
24	C.2.1(4)	"Additional analyses should be performed on those systems and components, such as steam dryers ..., that may potentially be adversely affected by the flow-excited acoustic resonances and flow-induced vibrations. ... The calculated responses should include vibrations for components that have maximum vibration limits, as well as stresses for components that have maximum stress criteria ... The margins against violating the criteria should be reported."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
25	C.2.1(4)	"Based on the uncertainties and bias errors identified in items 1–3 [2.1(1) – (3)] above, an end-to-end uncertainty and bias error should be reported, along with a clear explanation of how the individual uncertainties and bias errors have been combined."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
26	C.2.1(4)	"Since the transfer functions (or FRFs) described in item 2 [2.1(2)], and forcing functions described in item 3 [2.1(3)], have an uncertainty associated with the frequencies of the response peaks attributable to resonant modes, the vibration and stress calculations should address those uncertainties by shifting either the FRFs or forcing functions in frequency to span the uncertainty in the response peak frequencies. ... the worst case vibration or stress should be reported..."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
27	C.2.1(5)	"Summarize the calculated structural and hydraulic responses for preoperational and initial startup testing conditions, compared to those for normal operation. This summary should address the adequacy of the test simulation to normal operating conditions."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
28	C.2.1(6)	"Identify the anticipated structural or hydraulic vibratory response [defined in terms of frequency, amplitude (displacement, acceleration, and/or strain), and modal contributions] that is appropriate to each of the sensor locations for steady-state and anticipated transient preoperational and startup test conditions."	<p>The anticipated structural or hydraulic vibratory responses that correspond to pre-operational (tests conducted prior to fuel loading) and initial startup (tests conducted after fuel loading during initial plant startup) tests are applicable only to new plants, and are therefore not applicable to the MNGP RSD.</p> <p>Further information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.</p>
29	C.2.1(7)	"Specify the test acceptance criteria with permissible deviations and the bases for the criteria. The criteria should be established in terms of maximum allowable response levels in the structure, and presented in terms of maximum allowable response levels at sensor locations."	Qualification of the reactor internals was performed in the original EPU analysis and is unchanged by the RSD. See L-MT-08-052, Enclosure 5, Section 2.2.3 for further details.
30	C.2.1(7)	"After developing a steam dryer load definition... should apply the load definitions to vibration and stress models to determine the vibrations ... and stresses within the steam dryer, with justified damping assumptions and applicable weld factors and stress intensities. After including applicable bias errors and random uncertainties, the applicant/licensee should compare ... peak stresses at critical steam dryer locations to the fatigue limits in the ASME Boiler & Pressure Vessel Code..."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
31	C.2.1(7)	"...compare stresses, at any locations that might have experienced fatigue cracking, with the ASME Code fatigue limits to validate the stress model. ... should also compare the primary and secondary stresses that the steam dryer may experience as a result of plant transients to the applicable ASME Code service level limits."	The above requirement is not applicable to the MNGP RSD since it has not experienced any fatigue cracking.
32	C.2.1(7)	"...implement modifications to the BWR steam dryer based on the design stress margin or to any components responsible for high excitation to reduce that excitation, so that none of the resulting stresses exceed the Code allowable limits."	The above requirement is not applicable to the MNGP RSD as all ASME Code requirements are met with satisfactory margins as documented in Reference 2.

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
33	C.2.1(7)	"...develop a ... stress limit curve for the steam dryer for power ascension to provide assurance that the ... stress in the individual steam dryer components will not exceed the ASME Code fatigue limits."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
34	C2.1(7)	"The limit curves, while including the bias errors and uncertainties from the end-to-end vibration and stress analyses, should also include those associated with the vibration and stress measurement program (in particular, those associated with the data acquisition systems and instrumentation)."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
35	C.2.1(7)	"...develop a method for collecting plant data during power ascension and full licensed power conditions that can be used to calculate the valve vibrations steam dryer stress, including appropriate bias errors and random uncertainties."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9. The RSD Power Ascension Test Plan (RSD - PATP) contains requirements for collecting plant data during power ascension (see Enclosure 1, Appendix 5).
36	C.2.2	"... develop and implement a vibration measurement program to verify the structural integrity of reactor internals, determine the margin of safety associated with steady-state and anticipated transient conditions for normal operation, and confirm the results of the vibration analysis."	The RSD will not affect the steam flow, pressure, and temperature for the rest of the reactor internals. Thus, the Task Reports that evaluated the RPV and internals are still valid and are appropriate for confirming the structural adequacy at EPU operating conditions.
37	C.2.2	"... collect plant data from instrumentation mounted directly on the steam dryer at significant locations (including the outer hood and skirt, and other potential high-stress locations) to verify that the stress on individual steam dryer components is within allowable limits during plant operation. ... BWR licensees planning a power uprate may use plant instrumentation to evaluate steam dryer pressure loading and stress, rather than installing steam dryer instrumentation where justified."	Enclosure 1, section 2.2 describes the instrumentation mounted directly on the RSD. Further Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
38	C.2.2	"The instrumentation directly mounted on the steam dryer should provide sufficient information for a stress analysis of the entire steam dryer, and should include pressure sensors, strain gauges, and accelerometers."	See response to Item 37.
39	C.2.2	"The MSLs should also be instrumented to collect data to determine steam pressure fluctuations in order to identify the presence of flow-excited acoustic resonances and allow analysis of those pressure fluctuations to calculate ... steam dryer loading and stress."	See L-MT-08-052, Enclosure 11, section 3, for the full description of the MSL strain gage installation. Further information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
40	C.2.2	"The direct steam dryer data should be used to calibrate the MSL instrumentation and data analysis prior to removal or failure of the steam dryer instrumentation."	Correlation of the MSL strain gage data with the steam dryer direct instrumentation will be performed during power ascension testing. It is anticipated that the biases and uncertainties included in the dryer qualification will result in conservative loads and resultant stresses, such that the applied pressure loads and calculated stresses will be conservative relative to the values measured during power ascension. Enclosure 1, section 2.2 of this letter describes the instrumentation mounted directly on the RSD. The RSD instrumentation will be used to confirm that results obtained using the MSL strain gages are conservative. Plotting of results during power ascension will allow a confirmation of expected trends for ACM predicted loads and FEA results. In the event that RSD instrumentation is lost, the use of this trend will provide a method for confirming that the ACM and FEA results are conservative and support the requirements for further analysis at higher power levels.
41	C.2.2	"As part of the startup and power ascension program ... the steam [dryer],... should be instrumented to measure vibration during plant operation to verify that qualification limits will not be exceeded..."	Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.
42	C.2.2(1)	"The vibration measurement program submittal should include a description of the following ...: the data acquisition and reduction system, including the	The vibration measurement program for the RSD includes the following: (a) The transducer types (e.g., pressure transducers,

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
		<p>following details:</p> <ul style="list-style-type: none"> (a) transducer types and their specifications, including useful frequency and amplitude ranges (b) transducer positions, which should be sufficient to monitor significant lateral, vertical, and torsional structural motions of major reactor internal components in shell, beam, and rigid body modes of vibration, as well as significant hydraulic responses and those parameters that can be used to confirm the input forcing function (c) precautions being taken to ensure acquisition of quality data (e.g., optimization of signal-to-noise ratio, relationship of recording times to data reduction requirements, choice of instrumentation system) (d) online data evaluation system to provide immediate verification of general data quality (e) procedures for determining frequency, modal content, and maximum values of response (f) all bias errors (such as model underprediction) and random uncertainties (such as instrumentation error) associated with the instrumentation and data acquisition systems" 	<p>accelerometers, and strain gauges) are selected to ensure they will remain functional during the vibration measurement program. Data specifications will be included to show compliance with the expected operating conditions, including frequency and amplitude ranges.</p> <ul style="list-style-type: none"> (b) The number and type of transducers and their positions are based on the acoustic and structural analyses of the steam dryer and will be able to confirm the input forcing function. (c) Precautions being taken as follows: <ul style="list-style-type: none"> • All sensors will use shielded cable grounded at one point to minimize electrical noise interference • Signal-to-noise will be maximized by the following: <ul style="list-style-type: none"> • transducer dynamic range selected to coincide with expected values • use low noise electronics from signal conditioning to DAS • high digitization (number of bits) • use anti-aliasing filter • Data recording times will be sufficient length to provide at least 1,000 cycles of data at the lowest frequency of interest • Instrumentation system will be designed to provide: <ul style="list-style-type: none"> • Simultaneous acquisition of steam dryer and MSL channels • Anti-alias filtering for all channels • High order low and high pass filtering • Amplification • High accuracy electronics (d) Data acquisition system will be able to provide a table of maximum, minimum, root mean square values, and allow data to be easily and quickly trended as a function of

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
			<p>power/flow immediately after acquiring the data. In addition, the acquired data may be analyzed using time history and spectrum analysis prior to ascending to the next data point.</p> <p>(e) Procedures will be provided to perform modal testing on the steam dryer prior to installation into the reactor. The modal testing will provide resonant characteristics (mode shapes, resonant frequency, and damping). This information can then be compared to the operational data to distinguish modal response from the forced response and isolate the acoustic response as observed by the main steam line strain gauges.</p> <p>(f) An uncertainty analysis will be performed for the instrumentation system from the transducer through data recording. The uncertainty analysis will include:</p> <ul style="list-style-type: none"> • uncertainty related to each component • uncertainty related to the transducer installation and placement
43	C.2.2(2)	<p>"The vibration measurement program submittal should include a description of the following ...: test operating conditions, including the following details: (a) ... establish a power ascension program, which includes, as applicable, (i) specific hold points and their durations during power ascension; (ii) activities to be accomplished during the specified hold points; (iii) plant parameters to be monitored in comparison with applicable limit curves; (iv) inspections and walkdowns to be ... during the specified hold points; (v) methods to be used to trend plant parameters; (vi) acceptance criteria for monitoring and trending plant parameters, and for conducting walkdowns and inspections; (vii) actions to be taken if acceptance criteria are not satisfied; and (viii) provisions for providing information to the NRC staff on plant data,</p>	<p>The RSD Power Ascension Test Plan (RSD - PATP) contains requirements for vibration monitoring (see Enclosure 1, Appendix 5). The RSD - PATP contains the following parameters:</p> <p>(i) Above CLTP power will be increased in 2.5% increments. After each 2.5% increment, data will be collected for the transducers installed on the RSD and the MSL SGs.</p> <p>(ii) Preliminary data reduction will be performed on the MSL SGs and compared to limit curves. In addition, a comparison of the pressure transducers will be compared to the results of the ACM analysis.</p> <p>(iii) Plant parameters such as moisture carryover, main steam flow, and recirculation pump speed will be monitored.</p> <p>(iv) Walkdowns will be performed for accessible components</p>

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
		<p>evaluations, walkdowns, inspections, and procedures prior to and during power ascension, including interactions during hold points and any instance in which acceptance criteria are not satisfied, and resolution of safety concerns identified during the staff's review of that information prior to further power ascension or continued full-power operation."</p>	<p>of the main steam system. Accelerometers have been installed at various locations of the main steam piping to monitor steady state vibration during EPU power ascension.</p> <p>(v) Moisture carryover will be monitored via plant parameters (e.g., main steam flow, recirculation pump speeds, etc.) which will be tabulated corresponding to the time that the data is collected.</p> <p>(vi) Acceptance criteria have been developed, in the form of limit curves, for the RSD. Additionally, acceptance criteria have been developed for the main steam piping accelerometers.</p> <p>(vii) If the limit curves are exceeded, then the power will be reduced to the previous level that showed acceptable steady state vibration. For the potential frequencies that exceed the limits curves, specific analyses will be performed for the replacement steam dryer to confirm structural acceptability and revised limit curves will be provided.</p> <p>(viii) At each 5% increment in power above 100% CLTP (e.g., 105%, and 110%), preliminary summary reports will be provided to the NRC, prior to proceeding with the power ascension.</p>
44	C.2.2(2)(a)	<p>"... with an instrumented steam dryer, ... determine the steam dryer stress from the direct instrumentation, and compare that stress to the applicable limit curves considering bias errors and random uncertainties, as applicable. ... without an instrumented steam dryer, ... calculate the steam dryer stress using data from steam system instrumentation, and considering appropriate bias errors and random uncertainties."</p>	<p>Information regarding compliance with this requirement is proprietary to WEC, see Enclosure 9.</p>

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
45	C.2.2(2)(a)	“... provide a summary of its evaluation of plant startup and power ascension to the NRC staff within 90 days of reactor criticality. If full licensed power is not achieved in that time period, ... provide a supplemental report within 30 days of achieving full licensed power.”	The Power Ascension Test Plan contains requirements for this reporting (see Enclosure 1, Appendix 5). See Commitment #11 for this requirement.
46	C.2.2(2)(b)	“... specify the planned duration of all testing in normal operating modes to ensure that the testing will subject each critical component to at least 10^6 cycles of vibration (i.e., computed at the lowest frequency for which the component has a significant structural response) prior to the final inspection of the reactor internals.”	<p>Qualification of the reactor internals was performed in the original EPU analysis and is unchanged by the RSD. See L-MT-08-052, Enclosure 5, Section 2.2.3 for further details.</p> <p>As regarding the RSD, based on MSL SG baseline data previously collected for MNGP and the expectation that EPU will not result in the onset of any acoustic phenomenon, the duration of the power ascension plus the hold point will ensure that at least 10^6 cycles of vibration will occur. The typical frequency range of interest is 0 - 250 Hz. If 200 Hz is conservatively used, the number of vibration cycles that corresponds to 200 Hz is 17.28×10^6 cycles in one day. Thus, the duration of the power ascension is adequate to ensure 10^6 cycles.</p>
47	C.2.2(2)(c)	“... address the disposition of fuel assemblies.”	<p>Qualification of the reactor internals was performed in the original EPU analysis and is unchanged by the RSD. See L-MT-08-052, Enclosure 5, Section 2.2.3 for further details.</p> <p>NSPM has determined that the RSD will not affect the steam flow through the fuel. Based on the previous EPU submittal described above, the fuel was shown to be adequate for EPU operating conditions. Since the RSD does not change any of the operating conditions for the fuel, no further evaluation is required for the fuel assemblies.</p>

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
48	C.2.3	<p>"The inspection program submittal should include the following information:</p> <ul style="list-style-type: none"> (1) ... local areas to be inspected, including the following details:... <ul style="list-style-type: none"> (e) those critical locations on the reactor internal components as identified by the vibration analysis, such as the steam dryers in BWRs (f) the interior of the reactor vessel for evidence of loose parts or foreign material <p>(2) tabulation of specific inspection areas that can be used to verify segments of the vibration analysis and measurement program.</p> <p>(3) description of the inspection procedure, including the method of examination (e.g., visual and nondestructive surface examinations), method of documentation, provisions for access to the reactor internals, and specialized equipment to be employed during the inspections to detect and quantify evidence of the effects of vibration"</p>	<p>The Power Ascension Test Plan contains requirements for inspection of the steam dryer. See Enclosure 1, Appendix 5 for details.</p>
49	C.2.4(1)	<p>"The preliminary report should summarize an evaluation of the raw and, as necessary, limited processed data and the results of the inspection program with respect to the test acceptance criteria. Anomalous data that could bear on the structural integrity of the reactor internals should be identified, as should the method to be used for evaluating such data."</p>	<p>The Power Ascension Test Plan contains requirements for this reporting (see Enclosure 1, Appendix 5). See Commitment #11 for this requirement.</p>

Item #	RG 1.20 section	RG. 1.20, Rev. 3 Requirement	NSPM Compliance including Reference Document
50	C.2.4(2)	<p>“... final report should include the following information:</p> <ul style="list-style-type: none"> (a) description of any deviations from the specified measurement and inspection programs, including instrumentation reading and inspection anomalies, instrumentation malfunctions, and deviations from the specified operating conditions (b) comparison between measured and analytically determined modes of structural response (including damping factors) and hydraulic response (including those parameters from which the input forcing function is determined) for the purpose of establishing the validity of the analytical technique (c) determination of the margins of safety associated with operation under normal steady-state and anticipated transient conditions, including the margins of safety associated with any flow-excited acoustic or structural resonances (d) evaluation of unanticipated observations or measurements that exceeded acceptable limits not specified as test acceptance criteria, as well as the disposition of such deviations” 	<p>The Power Ascension Test Plan contains requirements for this reporting (see Enclosure 1, Appendix 5). See Commitment #11 for this requirement.</p>
51	C.2.4(3)	<p>“If (a) inspection of the reactor internals reveals defects, evidence of unacceptable motion, and/or excessive or undue wear; (b) the results from the measurement program fail to satisfy the specified test acceptance criteria; or (c) the results from the analysis, measurement, and inspection programs are inconsistent, the final report should also include an evaluation and description of the modifications or actions planned in order to justify the structural adequacy of the reactor internals.”</p>	<p>This Item is applicable to reactor internals and not applicable to the steam dryer qualification. Qualification of the reactor internals was performed in the original EPU analysis and is unchanged by the RSD. See L-MT-08-052, Enclosure 5, Section 2.2.3 for further details. Reporting of the structural adequacy of the steam dryer is adequately covered in items 49 and 50.</p>

APPENDIX 2

**APPLICABILITY OF PREVIOUSLY UNANSWERED NRC REQUESTS FOR
INFORMATION FOR THE MONTICELLO NUCLEAR GENERATING PLANT
REPLACEMENT STEAM DRYER**

Appendix 2

The purpose of this appendix is to provide answers to NRC requests for additional information (RAIs) related to the MNGP steam dryer that have not been previously answered. Previously, answered EPU RAIs have been reviewed for impact by the RSD. This review is documented in Appendix 3 to Enclosure 1 of this letter.

NSPM received two sets of RAIs from the NRC related to the MNGP currently installed steam dryer (CISD) that have not been previously answered. One set was dated November 27, 2009 and the other set was dated March 4, 2010. Responses to each set of RAIs are provided below.

Steam Dryer RAIs dated November 27, 2009

On November 27, 2009, Northern States Power Minnesota (NSPM) received an email from the NRC project manager for MNGP (reference 1). The email contained the questions below. These questions were based on the CISD and thus some of the questions or portions of questions are no longer applicable. NSPM is providing a response based on the replacement steam dryer (RSD) as described in this supplement to the Extended Power Uprate (EPU) license amendment request (LAR).

Below are the NRC questions and the NSPM responses:

RAI - EMCB-SD-RAI 2 S01 (a)

In its response to EMCB-SD-RAI-2, NPSM discussed three techniques that were applied to justify the removal of signals from the main steam line (MSL) data at frequencies between 14 and 34 Hz, attributing them to pipe vibration modes. The explanation under Technique 3 is not clear. The licensee is requested to clarify the explanation for Technique 3 with examples and figures, and a more detailed explanation, to justify the removal of signals from the MSL data between frequencies between 14 and 34 Hz.

NSPM Response:

The methods for removal of signals for the RSD are discussed in Enclosure 2. The RSD design complies with Regulatory Guide (RG) 1.20 as demonstrated in Appendix 1 of Enclosure 1 to this letter, which ensures that the RSD meets NRC requirements.

RAI - EMCB -SD-RAI 2 S01 (b)

NSPM acknowledges that 38 of the 64 MSL strain gages have failed. NSPM has not yet positively identified a reason for the failures, but has replaced 18 of the failed gages. The NRC staff requests that NPSM identify the locations and the corresponding number of strain gages that failed during CLTP data acquisition. In addition, NSPM should also provide a stronger justification, substantiated by in-plant demonstrations, that sufficient

strain gages will be operational during EPU power ascension to ensure that the limit curves are not violated.

NSPM Response:

MSL strain gauges provided an input to the design of the RSD. However, the MSL strain gauges also play an important part in the validation of the design of the RSD. As such, NSPM intends to begin start up from the 2011 refueling outage with 64 operating strain gauges. However, is not very likely that all 64 strain gauges will be operational after startup. Industry OE indicates that most plants have had significant numbers of strain gauge failures during startup activities.

The RSD Power Ascension Test Plan (RSD - PATP) contains the requirement that if during startup activities above CLTP conditions (section C testing) the number of active MSL strain gauges is less than one strain gauge at each location, then NSPM will stop start up activities. In this condition, repair activities will commence and RSD - PATP activities above CLTP will resume when strain gauges function has been returned.

RAI - EMCB-SD-RAI 8 S01

In Enclosure 3 of L-MT-09-043, NSPM responded to EMCB-SD-RAI-8 stating, that optimal MSL strain gage array spacing is used to minimize errors near the peak standpipe frequency, and therefore, the bias error and uncertainty near the standpipe resonance frequency (158 to 162 Hz) can be changed from those based on the QC2 benchmarking tests. The NRC staff notes that changing the distance (L) between the strain gage measurement locations would not only affect (e.g., reduce) the bias error at the frequency ranges for which the distance L is optimized, but would also influence the errors (e.g., increase) for many other frequency ranges for which the distance L is not optimal. These changes in the bias error and uncertainty must be assessed for the whole frequency range (not only for a selected range) and must be validated by in-plant measurements. Therefore, the NRC staff cannot approve the use of a negative bias error of 59.7% for some frequency ranges in the Monticello EPU stress analysis without an in-plant validation of the bias errors and uncertainties at the other frequency ranges. The licensee is requested to provide the following:

- (a) updated dryer stress margins based on a positive bias error of 65% and an uncertainty of 10% for frequencies between 158 and 162 Hz, and*
- (b) updated limit curves reflecting this bias error and uncertainty.*

NSPM Response:

- (a) Dryer stress margins are provided in Enclosures 2 and 3 to this letter.
- (b) Limit curves are provided in Enclosure 7 to this letter.

RAI - EMCB-SD-RAI 10 S01

In Enclosure 3 of L-MT-09-043, NSPM responded to EMCB-SD-RAI 10, stating that it is not justifiable to introduce a change in the frequency intervals for bias and uncertainty computation. NSPM provided the following arguments in declining to perform the requested stress computations:

- (a) The high alternating stress ratio of 2.0 accounts for any non-conservatism that may be associated with the choice of frequency intervals used to benchmark the ACM model.*
- (b) Changing the frequency intervals would require recalibration of the ACM model.*

The NRC staff does not find the above two arguments to be acceptable. The above mentioned stress ratio of 2 is required to account for other sources of errors and uncertainties. Additionally, the NRC staff does not see any reason to recalibrate the ACM model if the frequency intervals are changed.

Finally, in the response to the RAI, NSPM speculates that the end results of the requested additional computations would not affect the qualification of the dryer, and the predicted stress ratios would not differ significantly from the ones obtained from the present computations. The NRC staff requests that NSPM confirm that the end results are not affected, by the means of stress computations based on dividing the frequency interval of 60 to 100 Hz into the two intervals: 60 to 70 Hz and 70 to 100 Hz, with the appropriate bias errors and uncertainties. The licensee is also requested to update the stress results in the CDI report 07-26P, to reflect the changed bias errors and uncertainties.

NSPM Response:

The RSD is designed to meet RG 1.20 requirements which provides a stress ratio of 1.0. Calibration of the ACM model is provided in Enclosure 2. In Reference 3, Enclosure 11, Attachment III, NSPM provided a stress assessment report of the CISD. The stress assessment report prepared by Continuum Dynamics, Inc. (CDI) report 07-26P, Revision 1, "Stress Assessment of Monticello Steam Dryer." is not applicable to the MNGP RSD. This report is superseded by Enclosure 2 to this LAR supplement. In addition, Enclosure 1, Appendix 1 discusses use of steam dryer instrumentation to confirm ACM loads and to ensure that FEA results remain conservative.

RAI - EMCB-SD-RAI 11 S01

In Enclosure 3 of L-MT-09-043, NSPM responded to EMCB-SD-RAI 11 and submitted the tabulated results of the stress computations with and without low flow noise. While this response complies with the NRC staff's request to include the low flow noise from the stress computation (EMCB-SD-RAI- 5), it does not account for two of the three main concerns expressed in the RAI, namely:

- (a) *The dryer loads at frequencies between 158 and 162 Hz are unjustifiably reduced (RAI 8 S01), and*
- (b) *The uncertainties and bias error in the frequency range of 60 to 100 Hz are not subdivided into two frequency intervals (RAI 10 S01).*

However, the NRC staff finds that the reduced FE model uncertainty (see EMCB-SD-RAI-9) is now acceptable because the licensee provided adequate justification for using mean overall bias plus uncertainty that is based on optimized damping in shaker tests. Please provide the stress ratios at EPU conditions for calculations that account for the two concerns mentioned above that are based on dryer loads with the inclusion of low flow noise.

NSPM Response:

This RAI describes questions associated with the CISD. NSPM, as described in reference 2, intends to remove the CISD and install the RSD. Data included in enclosures 2, 3, 4, 5, 6, 7, 8 and 9 provide information on the evaluations performed for qualification of the RSD at CPPU conditions. In addition, Enclosure 1, Appendix 1 discusses use of steam dryer instrumentation to confirm ACM loads and to ensure that FEA results remain conservative.

RAI - EMCB-SD-RAI 11 S02

As mentioned in the response to RAI 11, NPSM has followed ASME Code Section III, Subsection NG, Table NG-3352-1, for calculating the alternating stresses at the fillet weld. According to this table, the alternating stress at fillet welds is equal to the estimated nominal stresses at the fillet weld multiplied by the fatigue strength reduction factor of 4.0. The licensee is requested to explain how the nominal stresses at the fillet weld were estimated. Specifically, explain whether the nominal stresses from the surrounding elements are extrapolated to the weld line to determine the maximum nominal stress at the weld. Please also explain whether there are any undersized welds in the Monticello steam dryer. If so, provide dimensions and locations of those welds and explain how the presence of the undersized welds is accounted for in calculating the fatigue stresses.

NSPM Response:

This RAI describes a question associated with the CISD. NSPM, as described in reference 2, intends to remove the CISD and install the RSD. Data included in enclosures 2, 3, 4, 5, 6, 7, 8 and 9 provide information on the evaluations performed for qualification of the RSD at CPPU conditions.

RAI - EMCB-SD-RAI 15 S01

The NRC staff requests that NPSM revise its power ascension procedure if Limit 1 curve is violated and the evaluation requires a revised stress analysis and corresponding new limit curves to resolve the violation. The revision may allow 96 hours for the NRC staff to review and approve the evaluation before the licensee can further increase the reactor power above CLTP.

NSPM Response:

NSPM will revise the power ascension procedure to return to an acceptable power level (e.g., one that had acceptable limit curve evaluations) if a level 1 limit curve is exceeded. Appropriate calculations / evaluations will be completed and transmitted to the NRC. Upon transmission NSPM will continue power ascension.

RAI - EMCB-SD-RAI 17 S01

- (a) *The licensee states that all three indications in the steam dryer end plates are non-branched and fully contained within the weld, suggesting a fatigue type crack. The licensee further states that the fabrication records indicate that these cracks are facilitated by residual stresses developed during the welding sequence. The high residual stresses, which act as a high mean stress, would tend to promote fatigue crack initiation under cyclic loading conditions. The NRC staff accepts the licensee's explanation about the role of high mean stress in the initiation of fatigue cracks, but such initiation still requires alternating stresses with a minimum amplitude of 13,600 psi. Note that this value of the alternating stress amplitude is from the Design Fatigue Curve C in Fig. I-9.2.2, ASME Section III, Division 1, Appendix I. This curve includes the effect of maximum possible mean stress (i.e., yield stress of the material). Therefore, the stress analysis results presented in CDI Report 07-26P are inconsistent with the cracking experience discussed here, and are possibly non-conservative and inaccurate. The NRC staff requests that NSPM revise the stress analysis so that its results are consistent with the cracking of the steam dryer end plate.*
- (b) *The licensee states that all existing cracks on the steam dryer end plate have been re-inspected at least once and no significant crack growth has been identified. Therefore, NSPM concludes that these cracks will not grow at EPU conditions. The NRC staff does not accept this conclusion at this time because all the RAIs related to stress analysis of the dryer under CLTP conditions have not yet been resolved. The NRC staff requests the licensee to re-perform and re-submit the crack growth analysis under EPU conditions after all the RAIs related to the stress analysis of the Monticello dryer are satisfactorily resolved.*

NSPM Response:

This RAI describes questions associated with the CISD. NSPM as described in reference 2 intends to remove the CISD and install the RSD. Data included in enclosures 2, 3, 4, 5, 6, 7, 8 and 9 provide information on the evaluations performed for qualification of the RSD at CPPU conditions.

RAI - EMCB-SD-RAI 17 S02

- (a) *The licensee describes the cracking observed in the steam dryer guide channel as atypical because it is oriented perpendicular to the weld and proceeds from what appears to be an arc strike to the weld material joining the guide channel to the skirt. The postulated initiation mechanism for this flaw is a local stress concentration. However, the explanation of the postulated crack initiation mechanism is not clear and it contradicts the information in the Structural Integrity Report (No. 0800760.401, Oct. 2008) submitted as part of the Monticello EPU application. That report mentions that this crack has the characteristics of a fatigue crack. The licensee is requested to describe the characteristics of the crack and then explain the mechanism that may have initiated it.*
- (b) *The licensee states that the three successive inspections of crack in the steam dryer guide channel revealed that this indication has been arrested. Then, the licensee concludes that since the postulated initiation mechanism is unrelated to the operating power level, this indication does not warrant any special attention or concern for operation at EPU conditions. It is not clear how the absence of any crack growth under CLTP conditions implies that this crack does not warrant any attention during the EPU conditions. The licensee is requested to provide a crack growth evaluation of this indication under EPU conditions after all the RAIs related to the stress analysis of the dryer are satisfactorily resolved.*

NSPM Response:

This RAI describes a question associated with the CISD. NSPM as described in reference 2 intends to remove the CISD and install the RSD. Data included in enclosures 2, 3, 4, 5, 6, 7, 8 and 9 provide information on the evaluations performed for qualification of the RSD at CPPU conditions.

RAI - EMCB-SD-RAI 17 S03

The licensee states that inter-granular stress corrosion cracking (IGSCC), in lieu of the high cycle fatigue, is the initiation mechanism for the drain channel cover plate cracking. The licensee further states that the inspection of these indications during the 2009 Refueling Outage did not identify any observable crack growth. However, an IGSCC crack can grow by cyclic loads if the loads are large enough. The licensee is requested to demonstrate that this crack will not grow by high-cycle fatigue mechanisms under

EPU conditions. The NRC staff recommends that the licensee respond to this request after all the RAIs related to the stress analysis of the dryer are satisfactorily resolved.

NSPM Response:

This RAI describes a question associated with the CISD. NSPM as described in reference 2 intends to remove the CISD and install the RSD. Data included in enclosures 2, 3, 4, 5, 6, 7, 8 and 9 provide information on the evaluations performed for qualification of the RSD at CPPU conditions.

Steam Dryer RAIs dated March 4, 2010

On March 4, 2010 NSPM received an email from the NRC project manager for MNGP (reference 2). The email contained the questions below. These questions were based on the CISD and thus some of the questions or portions of questions are no longer applicable. NSPM is providing a response based on the RSD as described in this supplement to the EPU LAR.

Below are the NRC questions and the NSPM responses:

EMCB-SD RAI No. 21

The licensee is requested to provide a detailed description (i.e., a step-by-step procedure) of how the QC2 main steam line (MSL) strain gage signals at CLTP were modified (both during and after data acquisition), before they were applied to the ACM Rev. 4 Code (whose results were used for benchmarking), to estimate acoustic loads on the instrumented QC2 dryer. Please also provide a step-by-step comparison of this benchmarking procedure with the procedures used in revising the MSL strain gage signals at CLTP for MNGP.

Additionally, the licensee is requested to provide the following information about any exclusion frequencies:

- a) *Provide the amplitudes of the QC2 MSL strain gage signals for the exclusion frequencies (60, 120 and 180 Hz) at CLTP conditions before these frequencies were removed or filtered. Discuss which of these frequencies were treated as exclusion frequencies in modifying the QC2 signals.*
- b) *Provide the information on the QC2 recirculation pump frequency, and provide the amplitudes of the MSL strain gage signals at this frequency. Explain whether this frequency was treated as an exclusion frequency in modifying the QC2 signals.*
- c) *Explain whether any exclusion frequency filtering was also applied to the instrumented QC2 dryer pressure signals.*
- d) *Provide a comparison of frequencies that were treated as exclusion frequencies in the ACM Rev. 4 benchmarking and MNGP stress analysis. Please also provide an explanation of the differences.*

NSPM Response:

This RAI describes a question associated with the CISD. NSPM as described in reference 2 intends to remove the CISD and install the RSD. Data included in enclosures 2, 3, 4, 5, 6, 7, 8 and 9 provide information on the evaluations performed for qualification of the RSD at CPPU conditions. The RSD meets all NRC requirements from Regulatory Guide 1.20. See Enclosure 1, Appendix 1 of this letter for details on compliance with RG 1.20. In addition, Enclosure 1, Appendix 1 discusses use of steam

dryer instrumentation to confirm ACM loads and to ensure that FEA results remain conservative.

EMCB-SD RAI No. 22

*This RAI pertains to the [[
]] signals from the MSL strain gage signals at CLTP, [[
]] the hydrodynamic and acoustic loads on the steam dryer. In a recent conference call with another licensee, on using Revision 4 of the Continuum Dynamics Incorporated (CDI) Acoustic Circuit Model (ACM), regarding the extended power uprate (EPU) application, the NRC staff was informed that during the benchmarking of the ACM parameters, by means of the Quad Cities Unit 2 (QC2) data, [[*

]] the data used to estimate the steam dryer loads. Therefore, it is non-conservative to apply coherence filtering to the MNGP strain gauge data, prior to computing dryer loads using Rev. 4 of the ACM Code.

The licensee is requested to provide revised steam dryer stress analysis results for EPU conditions based on steam dryer loads [[

]]. In addition, the licensee is requested to ensure that the minimum alternating stress ratio (SR-a) is not less than 2.0 for any dryer component, for the projected EPU conditions.

NSPM Response:

This RAI describes a question associated with the CISD. NSPM as described in reference 2 intends to remove the CISD and install the RSD. Data included in enclosures 2, 3, 4, 5, 6, 7, 8 and 9 provide information on the evaluations performed for qualification of the RSD at CPPU conditions. The RSD meets all NRC requirements from Regulatory Guide 1.20. See Enclosure 1, Appendix 1 of this letter for details on compliance with RG 1.20. In addition, Enclosure 1, Appendix 1 discusses use of steam dryer instrumentation to confirm ACM loads and to ensure that FEA results remain conservative.

EMCB-SD RAI No. 23

Contrary to the staff's understanding of the methodology employed in ACM Rev. 4 benchmarking, based on the QC2 data, various BWR plants are using an approach that would result in under-prediction of dryer loads by consideration of the following items: (1) filtering of low flow noise (plant background noise), (2) filtering of EIC signals, and (3) coherence filtering. The licensee is requested to identify any other inconsistencies, as appropriate, with the QC2 benchmarking procedure that the staff is unaware of. In addition, please describe the impact of those inconsistencies on the minimum alternating stress ratio for the projected EPU conditions.

NSPM Response:

This RAI describes a question associated with the CISD. NSPM as described in reference 2 intends to remove the CISD and install the RSD. Data included in enclosures 2, 3, 4, 5, 6, 7, 8 and 9 provide information on the evaluations performed for qualification of the RSD at EPU conditions. The RSD meets all NRC requirements from Regulatory Guide 1.20. See Enclosure 1, Appendix 1 of this letter for details on compliance with RG 1.20. In addition, Enclosure 1, Appendix 1 discusses use of steam dryer instrumentation to confirm ACM loads and to ensure that FEA results remain conservative.

References

- 1 Email from Peter, Tam (NRC) to Lynne Gunderson, Gabor Salamon, Kurt T. Schaefer, (NSPM), Subject: "Monticello – Second round RAI on steam dryer for the proposed EPU amendment (TAC MD9990)," dated November 27, 1999.
- 2 Email from Peter, Tam (NRC) to Lynne Gunderson, Kurt T. Schaefer, (NSPM), Subject: "Monticello – Additional draft RAI re. steam dryer structural integrity for EPU (TAC MD9990)," dated March 4, 2010.
- 3 Letter from Northern States Power Company, a Minnesota corporation (NSPM), to Document Control Desk (NRC), "License Amendment Request: Extended Power Uprate," L-MT-08-052, dated November 5, 2008. (ADAMS Accession No. ML083230111)

APPENDIX 3

**EVALUATION OF CHANGES TO EPU DOCUMENTATION BASED ON USE OF THE
REPLACEMENT STEAM DRYER**

The purpose of this table is to provide an overview of changes that are made to the MNGP EPU application and associated RAI responses and supplements based on the changes in analysis for the RSD. The first two columns in the table below lists the location of text that describes the steam dryer (CISD) and analyses that use CISD parameters. The third column describes the contents that are under review. The final column dispositions the text under review and describes any actions or resolutions that were identified.

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-08-052, EPU LAR ML083230111	Cover letter, pg 3	<p>The cover letter states:</p> <p><i>“Enclosure 11 provides the Steam Dryer Dynamic Stress Evaluation. This enclosure summarizes the analyses performed to demonstrate the structural adequacy of the MNGP steam dryer at EPU conditions. Enclosure 11 contains information which is proprietary to Continuum Dynamics Incorporated (CDI). CDI requests that this proprietary information be withheld from public disclosure in accordance with 10 CFR 2.390(a)4 and 9.17(a)4. An affidavit supporting this request is provided in Enclosure 12. Enclosure 13 contains the non-proprietary version of the Steam Dryer Dynamic Stress Evaluation.”</i></p>	<p>This text is hereby superseded by the text of this supplement cover letter. As described below, portions of Enclosures 11 to L-MT-08-052, are superseded by the analyses provided in Enclosures 2 - 9 of this letter. An equivalent introductory paragraph is provided in this supplement cover letter to address the RSD. Enclosure 12 (affidavit) is still applicable to proprietary portions of Enclosure 11 that remain in effect. Enclosure 13 is nonproprietary and is essentially superseded by Enclosures 2 - 9 of this letter.</p> <p>This cover letter section does not provide any technical discussion and therefore, does not need to be modified. This text will be retained for historical purposes.</p>
L-MT-08-052, EPU LAR ML083230111	Cover letter, pg 4 commitment	<p>The commitment states:</p> <p><i>“NSPM will inspect the steam dryer during the next refueling outage to confirm no unexpected changes in crack length on the steam dryer.”</i></p>	<p>The commitment is applicable to the CISD, and was completed during the 2009 refueling outage. Therefore, this commitment is no longer required. See Enclosure 11 of this letter for details on this commitment.</p>

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-08-052, EPU LAR ML083230111	Enclosure 1, pg 1	<p>Page 1 states: <i>"As part of the MNGP EPU request, NSPM is also proposing changes to the licensing basis for methodology used for containment analysis, credit for use of containment overpressure for net positive suction head (NPSH) for low pressure Emergency Core Cooling System (ECCS) pumps, and reactor internal pressure differentials for the steam dryer."</i></p>	<p>The portion of this statement that is evaluated for the RSD is reactor internal pressure differentials (RIPD). The RIPD methodology for the CIRD is based on the air test data for BWR6 steam dryer methodology, whereas the RIPD for the RSD is based on the WEC methodology described in Enclosure 1, section 4.1 of this letter.</p> <p>This statement is valid for both the CIRD and the RSD, and thus, no change is required. NSPM is still requesting a change in methodology from the BWR6 methodology to the WEC methodology.</p>
L-MT-08-052, EPU LAR ML083230111	Enclosure 1, pg 4	<p>Page 4 states "<u>Reactor Internal Pressure Differentials (RIPDs) for the Steam Dryer</u> The effects on reactor internal loads as a result of EPU were evaluated. The increase in core power generally results in increased RIPDs for reactor internals due to the higher core exit steam quality. The RIPDs for the steam dryer in the EPU analysis are reduced from those used in the current analyses. NRC approval is requested for this change since it is a change to the current licensing basis for analytical methods used for evaluation of the loads for the reactor internals. The EPU methodology is based on a more realistic correlation for a BWR3 steam dryer instead of air test data for BWR6 steam dryers. The change methodology for determining steam dryer RIPDs is described in Enclosure 5, Section 2.2.3."</p>	<p>The text is revised to eliminate discussion of the BWR3 methodology as applicable to the EPU. This is no longer correct based on the RIPD for the RSD having been evaluated to a WEC methodology found in Enclosure 1, section 4.1 of this letter.</p> <p>Therefore, the following statement will be deleted: <i>The EPU methodology is based on a more realistic correlation for a BWR3 steam dryer instead of air test data for BWR6 steam dryers.</i> The subsequent statement is still applicable as text in Enclosure 5, section 2.2.3 will be modified as described below. (see L-MT-08-052, Enclosure 5, section 2.2.3)</p>

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-08-052, EPU LAR ML083230111	Enclosure 1, pg 26	Page 26 is part of the <i>Evaluation of Proposed Changes</i> , which states: <i>"Reactor Internal Pressure Differentials for the Steam Dryer</i> <i>The technical bases for the change in steam dryer RIPDs used in the reactor vessel internal load evaluation includes information proprietary to GE Hitachi and are discussed in Enclosure 5, Section 2.2.3."</i>	The text is revised to eliminate discussion of GE Hitachi proprietary information as applicable to the steam dryer. This is incorrect based on the RIPD for the RSD having been evaluated to a WEC methodology found in Enclosure 1, section 4.1 of this letter. Therefore, this statement will be revised to read as follows: <i>"The technical bases for the change in steam dryer RIPDs used in the reactor vessel internal load evaluation includes information from Westinghouse Electric Corporation (WEC) and are discussed in Enclosure 5, Section 2.2.3."</i>
L-MT-08-052, EPU LAR ML083230111	Enclosure 1, pg 28	Page 28 is part of the <i>No Significant Hazards Consideration (NSHC)</i> evaluation for question 1, where it addresses <i>"Reactor Internal Pressure Differentials (RIPDs) for the Steam Dryer."</i>	The statements in question 1 of the NSHC regarding the evaluation of change in RIPD methodology are still correct and applicable. No change to this text is required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 1, pg 29	Page 29 is part of the NSHC evaluation for question 2, where it addresses <i>"Reactor Internal Pressure Differentials (RIPDs) for the Steam Dryer."</i>	The statements in question 2 of the NSHC regarding the evaluation of change in RIPD methodology are still correct and applicable. No change to this text is required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 1, pg 31	Page 31 is part of the NSHC evaluation for question 3, where it addresses <i>"Reactor Internal Pressure Differentials (RIPDs) for the Steam Dryer."</i>	The statements in question 3 of the NSHC regarding the evaluation of change in RIPD methodology are still correct and applicable. No change to this text is required.

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-08-052, EPU LAR ML083230111	Enclosure 1, pg 33	<p>Page 33 is part of the <i>Applicable Regulatory Requirements</i> evaluation where it addresses "<i>Reactor Internal Pressure Differentials (RIPDs) for the Steam Dryer</i>" which states:</p> <p><i>"Section 1.2 of the Monticello USAR contains principal design criteria specific to Monticello. Section 1.2.1 .a of the USAR states, "The plant is designed, fabricated, erected, and operated to produce electrical power in a safe, reliable, and efficient manner and in accordance with applicable codes and regulations."</i></p> <p><i>Section 1.2.2.i of the USAR states, "The reactor core and associated systems are designed to accommodate plant operational transients or maneuvers which might be expected without compromising safety and without fuel damage."</i></p> <p><i>The EPU methodology is based on a more realistic correlation for a BWR3 steam dryer instead of air test data for BWR6 steam dryers. The change methodology for determining steam dryer RIPDs is described in Enclosure 5, Section 2.2.3. The evaluation indicates that the reactor internals and core supports will continue to meet the requirements of 10 CFR 50.55a and MNGP's current licensing basis following implementation of the proposed EPU."</i></p>	<p>The first two paragraphs of this section are factually accurate as they describe the current USAR design criteria applicable to the CISD. The final paragraph contains the proposed change for EPU conditions and no longer correct information. As described above, the BWR3 correlation will not be proposed, rather the WEC methodology described in Enclosure 1, section 4.1 is proposed.</p> <p>Therefore, the following sentence is deleted: "<i>The EPU methodology is based on a more realistic correlation for a BWR3 steam dryer instead of air test data for BWR6 steam dryers.</i>"</p> <p>The subsequent statement is still applicable as text in Enclosure 5, section 2.2.3 will be modified as described below.</p> <p>The conclusion of the Applicable Regulatory Requirements section is unaffected by the change.</p>
L-MT-08-052, EPU LAR ML083230111	Enclosure 1, pg 34	Page 34 is part of the <i>Environment Consideration</i> , which has a part labeled " <i>Containment Analysis Methods Change, Containment Overpressure for NPSH for Low Pressure ECCS Pumps, and Steam Dryer RIPDs</i> "	The statement is still valid for the RSD as a methodology change is still proposed, and thus, no change is required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 2, all	TS markup for EPU conditions	L-MT-08-052, Enclosure 2 is not affected by the RSD. Therefore, no further actions are required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 3, all	TS Bases markup for EPU conditions	L-MT-08-052, Enclosure 3 is not affected by the RSD. Therefore, no further actions are required.

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-08-052, EPU LAR ML083230111	Enclosure 4, pg 6	The last sentence of Section 2.0 states: <i>"Additionally, the operating conditions and performance of the steam dryer will be closely monitored to determine if a modification or replacement will be necessary to support the extended power uprate."</i>	This statement should be viewed as a historical statement. L-MT-08-052, Enclosure 4 is the "MNGP Extended Power Uprate Environmental Assessment." The statement does not contain any technical information that is subject to change with the RSD. As described in Enclosure 1, Reference 2 to this letter the change to the RSD improves the radiological conditions (environment) for workers in the plant. Therefore, this statement has been determined to be correct and no change is required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, Figure 1-2	Figure 1-2 is the nominal 100% power heat balance, which shows <i>"Carryunder = 0.35%"</i> and <i>"0.49 M"</i> (Moisture %).	The value used in the heat balance for Moisture is equivalent to Moisture Carryover (MCO). This is a bounding value and is verified to be bounding by the analysis described in section 4.1 of Enclosure 1 of this letter. Carryunder is calculated as part of the separator (not steam dryer) evaluation evaluations. It has a negligible effect on the reactor heat balance, because the calculated steam flow is not dependent on the carryunder fraction. Therefore, the RSD does not affect the heat balance. Based on the above no change is required to the figure.

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, Figure 1-3	Figure 1-3 is the 102% power heat balance, which shows "Carryunder = 0.35%" and "0.52 M" (Moisture %).	<p>The value used in the heat balance for Moisture is equivalent to Moisture Carryover (MCO). This is a bounding value and is verified to be bounding by the analysis described in section 4.1 of Enclosure 1 of this letter.</p> <p>Carryunder is calculated as part of the separator (not steam dryer) evaluation evaluations. It has a negligible effect on the reactor heat balance, because the calculated steam flow is not dependent on the carryunder fraction. Therefore, the RSD does not affect the heat balance.</p> <p>Based on the above no change is required to the figure.</p>
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.1.3	The section addresses a technical evaluation of Reactor Internal and Core Support Materials.	The steam dryer is made of 316L stainless steel, and thus, is compatible with the environment and materials within the reactor pressure vessel.
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.1.4	The section addresses Reactor Coolant Pressure Boundary Materials. Page 2-8 refers to inspecting the steam dryer.	The statement is generic to all steam dryers, and thus, remains valid for the RSD.
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.1.6 & T2.1-3	The section addresses "Flow-Accelerated Corrosion." Page 2-11 states that moisture content is a variable that influences FAC. Table 2.1-3 "FAC Parameter Comparison for EPU" includes "Steam Quality (%)."	The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the PUSAR evaluation results bound EPU operation with the RSD. Therefore, no change is required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.1.7& T2.1-5	The section addresses "Reactor Water Cleanup System." Table 2.1-5 "Estimated EPU Effect on Reactor Water Parameters" addresses "Conductivity" and "Iron" content.	The values shown in Table 2.1-5 are based on a 15% increase from CLTP nominal values without regard to steam dryer performance. Therefore, the PUSAR evaluation results are not affected by the RSD.

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.2.3, T2.2-5, T2.2-6, T2.2-7, T2.2-8	<p>Section 2.2.3 addresses <i>“Reactor Pressure Vessel Internals and Core Supports.”</i> It states</p> <ol style="list-style-type: none"> 1. Page 2-41: <i>“The steam dryer and steam separators are non safety-related components. Failure of a dryer component does not represent a safety concern, but can result in a large economic effect.”</i> and 2. Page 2-41: <i>“A proprietary evaluation has been performed to characterize dryer stress at EPU conditions considering dynamic loading conditions. This evaluation is provided as enclosures 11 (proprietary) and 12 (non-proprietary). It concludes that the Monticello steam dryer is structurally adequate for operation at EPU conditions.”</i> 3. Page 2-45 addresses <i>“Steam Dryer Hold Down Brackets”</i> and <i>“Steam Dryer Support Brackets.”</i> 4. Page 2-48 addresses <i>“Steam Dryer RIPD Methodology.”</i> 5. Page 2-52, Item i) addresses the effects of changes in loads due to EPU for the steam dryer. 6. Page 2-55 addresses <i>“Steam Dryer/Separator Performance.”</i> 7. Tables 2.2-5, 2.2-6, 2.2-7 and 2.2-8 (pages 2-68 – 2-71) provide steam dryer RIPDs. 	<ol style="list-style-type: none"> 1. The statement is generic to all steam dryers, and thus, remains valid for the RSD. 2. Enclosures 11 - 13 of L-MT-08-052 were applicable to the CISD and are superseded by RSD information found in Enclosures 2 – 9 of this letter with the exceptions taken under the evaluation of Enclosure 11. This statement is deleted and replaced with the following: <i>“Evaluation of the steam dryer is provided in NSPM letter L-MT-10-046.”</i> 3. The Steam Dryer Hold Down Brackets and Steam Dryer Support Brackets are evaluated in Enclosure 3, sections 15 and 16 to this letter and found to be acceptable. Therefore the acceptability conclusion on Page 2-45 remains valid. 4. A revised RIPD methodology is included in section 4.1 of Enclosure 1 of this letter. Therefore, this entire section on pg 2-48 of the PUSAR is superseded by the evaluation presented in Enclosure 1, section 4.1 of this letter. The text is revised as follows: <i>“See NSPM letter L-MT-10-046, Enclosure 1 for information on the replacement steam dryer RIPD methodology.”</i> 5. Enclosure 3 of this letter presents an evaluation of primary stresses, primary plus secondary stresses and

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
			<p>cyclic operation, and thus, supersedes the discussions presented on this page of the PUSAR. The text is revised as follows: <i>“See NSPM letter L-MT-10-046, Enclosure 1 for information on the replacement steam dryer RIPD methodology.”</i></p> <p>6. The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the PUSAR evaluation results bound EPU operation with the RSD. For clarity the first two sentences in the second paragraph are replaced with the following: <i>“The evaluation of steam separator performance at EPU conditions indicates an increase in moisture carryover will occur. The evaluation of steam dryer performance at EPU conditions is provided in NSPM letter L-MT-10-046, Enclosure 4.”</i></p> <p>7. The dPs for the RSD are shown in section 8.3.2 of Enclosure 3 to this letter, and are less than those for the CISD. Therefore, the Tables 2.2-5, 2.2-6, 2.2-7 and 2.2-8 steam dryer results bound EPU operation with the replacement dryer. Each table is revised to remove the incorrect information and add the following note in its place: <i>“4 – See L-MT-10-046, Enclosure 3, section 8.3.2 for value.”</i></p>

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.4.1.3, T2.4-1	<p>Page 2-103 addresses "Reactor Water Level - Low (SCRAM)," and states</p> <p><i>"Increased steam flow through the steam dryer creates an increased differential pressure across the steam dryer. If reactor water level drops below the level of the steam dryer skirt, resulting steam bypassing the dryer flows past the variable leg reactor water level instrument tap and creates a Bernoulli effect pressure reduction indicated as a non-conservative increase in reactor water level. The analytical limit for this setpoint has been revised applying this effect as a bias."</i></p> <p>Table 2.4-1 has a change in the Reactor Water Level - Low (SCRAM) analytical limit.</p>	<p>The dP across the RSD at EPU conditions is less than that for the CISD at CLTP conditions. Therefore, the section 2.4.1.3 statement is no longer needed, and the Table 2.4-1 Reactor Water Level - Low (SCRAM) analytical limit change is not needed. However, the net effect of the lower dryer dP is the reactor low water level scram will occur at a slightly higher level. This makes the safety analyses that use that scram slightly more conservative, and thus, no change is needed.</p>
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.5.1.4	<p>The section (pg 2-117, 2-118) addresses the Fire Protection safe shutdown analysis, which potentially could be affected by dryer weight and pressure drop.</p>	<p>The steam dryer support brackets are analyzed and can support the weight of the replacement steam dryer (Enclosure 3). During a blow down, the increased mass of the RSD will liberate more sensed heat to the suppression pool. However, this additional heat load results in a < 0.2°F pool temperature increase, and thus, is judged to be insignificant.</p> <p>The dP across the RSD at EPU conditions is less than the dP across the current dryer at CLTP conditions. The net effect of the lower dryer dP is the reactor low water level scram will occur at a slightly higher level. This makes the safety analyses that use that scram slightly more conservative.</p> <p>The systems required for safe shutdown are not affected by the dryer change.</p> <p>Therefore, the Fire Protection safe shutdown analysis is not adversely affected. No change required.</p>

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.5.5.2	This section (pg 2-152, 2-153) addresses " <i>Liquid Waste Management Systems</i> ," and provides specific values that could change due to the RSD.	The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the PUSAR evaluation results bound EPU operation with the RSD. Therefore, no change is required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.6.3, S2.6.5 and associated tables and figures	The Section 2.6.3 (pgs 2-177, 2-178) addresses " <i>Mass and Energy Release</i> ," and Section 2.6.5 (2-181 – 2-186) addresses " <i>Containment Heat Removal</i> " performance.	During the blow down, the increased mass of the RSD will liberate more sensed heat to the suppression pool. However, this additional heat load results in a $< 0.2^\circ\text{F}$ pool temperature increase, and thus, is judged to be insignificant. No change required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.8.2	The section 2.8.2 (pg 2-239) addresses " <i>Nuclear Design</i> ," i.e., <i>fuel performance</i> ."	Fuel performance is not expected to be affected by the RSD, however, fuel performance issues are evaluated and resolved as part of the core reload analyses. No change required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.8.3, S2.8.3.3	The section 2.8.3 (pg 2-244 – 2-247) addresses " <i>Thermal-Hydraulic Design</i> ," i.e., <i>stability</i> .	Thermal-hydraulic instability detection, mitigation and effects are not expected to be affected by the RSD, however, stability issues are evaluated and resolved as part of the core reload analyses. No change required.

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L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.8.4.2, S2.8.5, S2.8.5.1, S2.8.5.2, S2.8.5.3, S2.8.5.4, S2.8.5.5, S2.8.5.6.1	These sections (pgs 2-254, 2-255, 2-266 - 2-269, 2-271, 2-273 – 2-278, 2-280, 2-282, 2-284, 2-285, 2-287 and 2-289) address the transient analyses, which potentially could be affected by dryer weight and pressure drop.	<p>The steam dryer support brackets are analyzed and can support the weight of the replacement steam dryer.</p> <p>During a blow down, the increased mass of the replacement steam dryer will liberate more sensed heat to the suppression pool. However, this additional heat load results in a < 0.2°F pool temperature increase, and thus, is judged to be insignificant.</p> <p>The dP across the replacement steam dryer at EPU conditions is less than the dP across the current dryer at CLTP conditions, and about the same as that for the current dryer at OLTP. The net effect of the lower dryer dP is the reactor low water level scram will occur at a slightly higher level. This makes the safety analyses that use that scram slightly more conservative.</p> <p>The systems required for transient mitigation are not affected by the dryer change. Therefore, the transient analyses are not adversely affected.</p>
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.8.4.6	The section addresses Recirculation System performance, which can be affected by carryunder and dryer drain flow.	Carryunder is calculated as part of the separator (not steam dryer) evaluation evaluations. The basis for carryunder, as shown in the EPU heat balance, is not changed. Drain down flow may slightly increase due to the ~0.4% decrease in MCO, however, this will have a negligible affect on Recirculation System available NPSH.

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L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.8.5.6.2	The section (pgs 2-291 – 2-295) addresses ECCS-LOCA performance. The steam dryer affects SAFER input in three areas: 1) Vessel internal metal stored energy, 2) Initial vessel water inventory, and 3) Vessel steam dome volume.	For the limiting LOCA event the reactor water level drops immediately following the break and the dryer heat slab does not transfer its stored energy to the fluid inside the vessel, therefore there is no impact on the ECCS-LOCA Licensing Basis PCT. Reduction in the dryer dP will increase the initial water level inside the dryer skirt (and consequently the overall initial vessel water inventory) which would slightly reduce the calculated PCT and the current ECCS-LOCA analysis results would still be applicable. Small changes in the dryer dP are not expected to affect the core flow coastdown result and consequently will have no impact on the ECCS-LOCA Licensing Basis PCT. SAFER and LAMB results are not impacted by free volume and dP changes associated with the RSD. Therefore, no change is required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.8.5.7	This section (pgs 2-297 - 2-299) addresses the ATWS analyses. The ATWS analyses were evaluated for a change in dryer weight and a change in pressure drop.	There is no change to reactor volumes used to calculate boron requirements and therefore no change to these requirements. Since ATWS events do not assume reactor cooldown, changes to mass and volume for the RSD do not impact containment response. There is no impact to system capability or operator actions used to mitigate an ATWS event. Therefore there no change to the existing analysis is required.

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L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.9.1	<p>The section addresses "Source Terms for Radwaste Systems Analyses."</p> <p>Page 2-334 addresses "Activated Corrosion Products and Fission Products," and states:</p> <p><i>"Fission products in the reactor coolant are separable into the products in the steam and the products in the reactor water. The activity in the steam consists of noble gases released from the core plus carryover activity from the reactor water. This activity is the noble gas offgas that is included in the plant design. The calculated offgas rates for EPU after thirty minutes decay are well below the original design basis of 0.26 Curie/sec. Therefore, no change is required in the design basis for offgas activity for the EPU."</i></p> <p>Also pages 2-335 and 2-336.</p>	<p>The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the PUSAR evaluation results bound EPU operation with the RSD. Therefore, no change is required.</p>
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.10.1	<p>The section addresses "Occupational and Public Radiation Doses."</p> <p>Page 2-343 addresses "Post-operation radiation levels," and states</p> <p><i>"Post-operation radiation levels in most areas of the plant increase by no more than 13 percent. Post-Operation Radiation levels are generally much lower than present during operation. Evaluations were conservatively performed assuming a large increase in moisture carryover with increased carryover of radioactivity and deposition in BOP systems. This could result in increased radiation levels in local areas of BOP piping equipment by as much as 1130 percent (assumes a 13 percent increase in production of contaminants and a ten-fold increase in carryover and deposition). This buildup would occur over time. Plant radiation surveys should provide prompt detection of these conditions."</i></p>	<p>The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the PUSAR evaluation results bound EPU operation with the RSD. Therefore, no change is required.</p>

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, T2.10-1, T2.10-2	<p>Table 2.10-1 addresses <i>"Monticello Area Radiation Levels During Normal Operation,"</i> and states <i>"Some very low dose areas may see increased deposition due to moisture carryover."</i></p> <p>Table 2.10-2 addresses <i>"Monticello Post Operation Area Radiation Levels,"</i> and states <i>"Due to increased moisture carryover some areas may see increased deposition of radioactivity that could create focalized increases up to 1130 percent."</i></p>	The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the PUSAR evaluation results bound EPU operation with the RSD. Therefore, no change is required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 5, NEDC-33322P, S2.12.1	<p>The section addresses <i>"Approach to EPU Power Level and Test Plan."</i> Page 2-353 states:</p> <ul style="list-style-type: none"> • <i>"Steam separator-dryer performance will be confirmed to be within limits by determination of steam moisture content as required during power ascension testing."</i> • <i>"Steam dryer-separator performance will be confirmed within limits by determination of steam moisture content as required during power ascension testing."</i> 	These statements are still valid for the RSD. Therefore, no change is required. However, compliance with RG 1.20 requires more testing for the RSD. The additional testing of the RSD for EPU conditions is provided in the RSD - PATP provided in Enclosure 1, Appendix 5 of this letter.
L-MT-08-052, EPU LAR ML083230111	Enclosure 6, all	No technical content – Affidavit for proprietary information in Enclosure 5.	L-MT-08-052, Enclosure 6 is not affected by the RSD. Since none of the changes to L-MT-08-052, Enclosure 5 are of a proprietary nature, this document does require reissue based on re-issuance of selected pages of L-MT-08-052, Enclosure 5.
L-MT-08-052, EPU LAR ML083230111	Enclosure 7,	NEDO-33322, is a nonproprietary version of Enclosure 5.	This document does not require reissue as no proprietary changes have been made. All changes have been made in Enclosure 5.

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L-MT-08-052, EPU LAR ML083230111	Enclosure 8, Table 8-3	Table 8-3 addresses "EPU Phase II Modifications Planned for 2011 (primarily RFO25)."	As stated in L-MT-08-052, Enclosure 8, "These tables are provided for information only and are not commitments. The timing and scope of the modifications may change..." Therefore, NSPM does not consider it necessary to update this table to reflect replacement of the MNGP steam dryer.
L-MT-08-052, EPU LAR ML083230111	Enclosure 9, pg 8	Enclosure 9 addresses the EPU Startup Test Plan. Section 4.2, page 8, states: <i>"Steam dryer/separator performance will be confirmed within limits by determination of steam moisture content as required during power ascension testing."</i>	The statement is valid for the RSD. Therefore, no change is required. However, compliance with RG 1.20 requires more testing for the RSD. The additional testing of the RSD for EPU conditions is provided in the RSD - PATP provided in Enclosure 1, Appendix 5 of this letter.
L-MT-08-052, EPU LAR ML083230111	Enclosure 9, Table 1, pg 21	Table 1 addresses "Comparison of MNGP Initial Startup Testing and Planned EPU Testing." The 2 nd line item states: <i>"<u>Steam Dryer</u>: The purpose of this test is to measure moisture content in main steam."</i>	The item is valid for the RSD. Therefore, no change is required. However, compliance with RG 1.20 requires more testing for the RSD. The additional testing of the RSD for EPU conditions is provided in the RSD - PATP provided in Enclosure 1, Appendix 5 of this letter.
L-MT-08-052, EPU LAR ML083230111	Enclosure 9, Table 2, pg 27	Table 2 addresses "Planned EPU Power Ascension Testing." The 2 nd line item addresses "Steam Dryer/Separator Performance," and states: <i>"Samples will be taken and measurements will be made at selected EPU power levels to determine steam dryer/separator performance (i.e., moisture carryover). For this testing main steam line moisture content is considered equivalent to the steam separator-dryer moisture carryover. Sampling and analysis will be in accordance with existing plant procedures."</i>	This item is valid for the RSD. Therefore, no change is required. However, compliance with RG 1.20 requires more testing for the RSD. The additional testing of the RSD for EPU conditions is provided in the RSD - PATP provided in Enclosure 1, Appendix 5 of this letter.

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L-MT-08-052, EPU LAR ML083230111	Enclosure 10, all	Enclosure 10 is the <i>"Piping Flow Induced Vibration Monitoring Program."</i>	L-MT-08-052, Enclosure 10 is not affected by the RSD. Therefore, no further actions are required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 11, all	Enclosure 11 is the <i>"Steam Dryer Dynamic Stress Evaluation,"</i> proprietary version.	<p>L-MT-08-052, Enclosure 11 of L-MT-08-052 is superseded in its entirety with equivalent analyses for the RSD, except as follows:</p> <ul style="list-style-type: none"> ○ Enclosure 11, Sections 2 and 3 provide a description of the analytical methods and subscale testing used to analyze the behavior of the SRV standpipes and the instrumentation used on the MSLs. This is still valid for the RSD. ○ Enclosure 11, Attachment I provides the results of the flow induced vibration (FIV) monitoring performed for MNGP. This is still valid for the RSD. ○ Enclosure 11, Attachment II (acoustic model) was used as a subscale test comparison to the acoustic model provided in Enclosure 5 to this letter. <p>Based on this assessment the following change is made to the cover page for Enclosure 11: <i>"This enclosure contains information regarding the MNGP steam dryer that is no longer accurate. See NSPM letter L-MT-10-046 for information concerning the MNGP replacement steam dryer (RSD). Based on review this enclosure is superseded in its entirety with the following exceptions:</i></p> <ul style="list-style-type: none"> ○ <i>Enclosure 11, Sections 2 and 3 provide a description of the analytical methods and subscale testing used to analyze</i>

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
			<p><i>the behavior of the SRV standpipes and the instrumentation used on the MSLs. This is still valid for the RSD.</i></p> <ul style="list-style-type: none"> ○ <i>Enclosure 11, Attachment I provides the results of the flow induced vibration monitoring performed for MNGP. This is still valid for the RSD.</i> ○ <i>Enclosure 11, Attachment II was used as a subscale test comparison to the acoustic model provided in L-MT-10-046, Enclosure 5."</i>
L-MT-08-052, EPU LAR ML083230111	Enclosure 12	Enclosure 12 is the "Continuum Dynamics, Inc Affidavit." This is applicable only to Enclosure 11 of L-MT-08-052.	Enclosure 12 of L-MT-08-052 is considered historical information. No further action is required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 13, all	Enclosure 13 is the "Steam Dryer Dynamic Stress Evaluation," nonproprietary version.	<p>L-MT-08-052, Enclosure 13 is superseded in its entirety with an equivalent nonproprietary analysis for the RSD, except for portions noted above for Enclosure 11.</p> <p>Based on this assessment the following change is made to the cover page for Enclosure 13: "This enclosure contains information regarding the MNGP steam dryer that is no longer accurate. See NSPM letter L-MT-10-046 for information concerning the MNGP replacement steam dryer (RSD). Based on review this enclosure is superseded in it entirety with the following exceptions:</p> <ul style="list-style-type: none"> ○ <i>Enclosure 13, Sections 2 and 3 provide a description of the analytical methods and subscale testing used to analyze the behavior of the SRV standpipes and the instrumentation used on the MSLs.</i>

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			<p><i>This is still valid for the RSD.</i></p> <ul style="list-style-type: none"> ○ <i>Enclosure 13, Attachment I provides the results of the flow induced vibration monitoring performed for MNGP. This is still valid for the RSD.</i> ○ <i>Enclosure 13, Attachment II was used as a subscale test comparison to the acoustic model provided in L-MT-10-046, Enclosure 5.</i>
L-MT-08-052, EPU LAR ML083230111	Enclosure 14, all	Enclosure 14 is the <i>"Midwest Independent System Operator (MISO) Grid Stability Study Summary"</i>	L-MT-08-052, Enclosure 14 is not affected by the RSD. Therefore, no further actions are required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 15, all	Enclosure 15 is the <i>"Identification of Risk Implications Due to Extended Power Uprate at Monticello"</i>	L-MT-08-052, Enclosure 15 is not affected by the RSD. Therefore, no further actions are required.
L-MT-08-052, EPU LAR ML083230111	Enclosure 16, pg 1 and 6	<p>Enclosure 16 addresses <i>"Table of Docketed NRC Acceptance Review Questions and NMC Response Letters Associated with the March 31, 2008 Monticello EPU LAR Submittal."</i></p> <p>Page 1, 2nd paragraph states: <i>"It should be noted that NSPM acceptance review responses to NRC questions associated with the steam dryer contained in this enclosure may have been superseded by information contained in Enclosure 11."</i></p> <p>Page 6, all questions from the Mechanical & Civil Engineering Branch – EMCB except the 4th question concern issues applicable to the CISD.</p>	<p>L-MT-08-052, Enclosure 16, page 1, only provides historical information, and thus, is not subject to change. However, L-MT-08-052, Enclosure 11 is superseded in its entirety, except as described above.</p> <p>L-MT-08-052, Enclosure 16, page 6, addresses information with respect to the CISD. This information was provided in L-MT-08-052, Enclosure 11. As stated above this information is superseded.</p> <p>No changes are required as this is considered historical information.</p>

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L-MT-08-052, EPU LAR ML083230111	Enclosure 17, Attachments and Appendix, except Task Report T1004.	<p>Enclosure 17 is NSPM's responses to NRC review items documented in the June 26, 2008 NRC non-acceptance letter. Pages 1 - 3 of Enclosure 17 address "<i>Steam Dryer Structural Integrity</i>" for the CISD. Most of the attachments and appendix to Enclosure 17 address CISD flaws.</p> <p>EEEEB EQ issues are also included in Enclosure 17 and are not impacted by the RSD.</p>	<p>The portions of L-MT-08-052, Enclosure 17, its attachments and appendix and all references to them that are applicable to the CISD, are superseded by Enclosures 2 - 9 of this letter.</p> <p>EEEEB EQ issues are not adversely affected by the RSD, and do not require change.</p> <p>Based on this assessment the following change is made to the cover page for Enclosure 17: "<i>This enclosure contains information regarding the MNGP steam dryer that is no longer accurate. See NSPM letter L-MT-10-046 for information concerning the MNGP replacement steam dryer (RSD). Based on review this enclosure is superseded in its entirety with the following exceptions:</i></p> <ul style="list-style-type: none"> ○ <i>Task Report T1004 is still applicable.</i> ○ <i>EEEEB Environmental Qualification descriptions are still applicable.</i>
L-MT-08-052, EPU LAR ML083230111	Enclosure 17, Task Report T1004, pg i, pg 14, Item 3	<p>Page i only identifies a moisture carryover related change to Page 14.</p> <p>The EPU Inputs/Impacts column states "<i>Normal radiation doses under EPU conditions plant-wide based on calculation CA-08-067 [97]. This calculation includes the EPU moisture carry-over affects for Reactor Building Volumes 5 and 8 and Turbine Building Volumes 2, 3, 13, 14, 25, 41, 42, and 44 as prescribed in Task Report T0803 [112].</i>"</p>	<p>The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the applicable RAI response bounds EPU operation with the RSD. Therefore, no change is required.</p>

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L-MT-08-052, EPU LAR ML083230111	Enclosure 17, Task Report T1004, S3.4.7, pg 53	Section 3.4.7 addresses a "Normal and Accident Radiation Evaluation." The 1 st paragraph has the statement "Under EPU, the normal plant doses are generally increased by 13% over CLTP doses while some steam line containing areas also experience increased doses during shut-down due to moisture carry-over issue related to EPU."	The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the applicable RAI response bounds EPU operation with the RSD. Therefore, no change is required.
L-MT-08-091, Acceptance Review Supplement ML083500099	Cover letter and Enclosure 1	The purpose for this letter and enclosure is to provide the Steam Dryer Outer Hood Submodel Analysis applicable to the CISD.	L-MT-08-091 (including Enclosure 1) is only applicable to the CISD. Therefore, L-MT-08-091 is superseded in its entirety by the RSD analyses provided in Enclosures 2 - 9 of this letter.
L-MT-09-002, RAI Response ML090360545	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-003, RAI Response ML090300303	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-004, RAI Response ML090710679	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-005, LAR Revision ML093620023	Cover letter and Enclosure 1	The purpose for this letter and enclosure is to revise the "Flaw Evaluation and Vibration Assessment of Existing Monticello Steam Dryer Flaws for Extended Power Uprate" for the CISD. Enclosure 1 of L-MT-09-005 superseded the CISD flaw evaluation portions of Enclosure 17 of L-MT-08-052. Environmental qualification portions of Enclosure 17 are still valid and were not revised.	L-MT-09-005 (including Enclosure 1) is only applicable to the CISD. Therefore, L-MT-09-005 is superseded in its entirety by the RSD analyses provided in Enclosures 2 - 9 of this letter.
L-MT-09-017, RAI Response ML090790388	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.

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L-MT-09-018, RAI Response ML090560464	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-025, RAI Response ML091130636	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-026, RAI Response ML091410120	Enclosure 1, response to EICB RAI No.1, pg 6, item 3, and associated Attachment 1 calculation CA- 95-073 R4	Page 6, item 3 addresses a change in the low reactor water level scram analytical limit, because increased steam flow at EPU causes increases the differential pressure (dP) across the current steam dryer. If reactor water level drops below the level of the steam dryer skirt, resulting steam bypassing the dryer flows past the variable leg reactor water level instrument tap and creates a Bernoulli effect pressure reduction indicated as a non-conservative increase in reactor water level.	The dP across the RSD at EPU conditions is less than the dP across the CISD at CLTP conditions. The net effect of the lower dryer dP is the reactor low water level scram will occur at a slightly higher level. This makes the safety analyses that use that scram slightly more conservative. Therefore, maintaining the analytical limit change, discussed in the RAI response, as conservative. Leaving the calculation unchanged is conservative and appropriate. No change is required.
L-MT-09-026, RAI Response ML091410120	Response to EICB RAI No.1, Enclosure 1, Attachment 1, CA-95-075, pg 3	Paragraph 4.8 states "MNGP EPU Task Report T2005, Moisture Carryover in MSL (EC11845). This input evaluates the effect of increased moisture carryover on the main steam flow instrumentation."	The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the applicable RAI response bounds EPU operation with the RSD. Therefore, no change is required.
L-MT-09-026, RAI Response ML091410120	Response to EICB RAI No.1, Enclosure 1, Attachment 1, CA-95-075, pg 13	Paragraph 6.5.9 states "Task Report T2005 (Input 4.8) assessed the effect of increased moisture carryover on the main steam flow instrumentation at EPU conditions. The increase in measured pressure drop with moisture increase was found to have an insignificant influence on the main steam flow instrumentation."	The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the applicable RAI response bounds EPU operation with the RSD. Therefore, no change is required.
L-MT-09-027, RAI Response ML092320064	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.

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L-MT-09-029, RAI Response ML091520133	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-042, RAI Response ML091671787	Response to Reactor Inspection Branch RAI 3	RAI question 3 addresses local dose rate increases due to the increased flows and the increased MCO assumed for the CISD.	The MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the applicable RAI responses bound EPU operation with the RSD. Therefore, no change is required.
L-MT-09-043, RAI Response ML092260436	Responses to EMCB RAIs, Enclosures 1 (Nonproprietary) and 3 (Proprietary)	RAI questions 4, 8 - 20 address issues specific to the CISD (ie stress ratios or cracks in the CISD). These questions are not relevant to the RSD.	RAI responses 4, 8 – 20 are superseded by analyses performed on the RSD (see enclosures 2 - 9 of this letter). The balance of the RAI questions and responses continue to be applicable since they cover instrument signal filtering/conditions. Based on this assessment the following change is made to the cover page for Enclosure 1 and 3: <i>“RAI responses 4, 8 – 20 are superseded by analyses performed for the replacement steam dryer. See NSPM letter L-MT-10-046 for the revised analyses.”</i>
L-MT-09-044, RAI Response ML092390332	Response to EMCB RAI 25, Enclosures 1 & 3, pgs 39, 40	The response addresses a summary report for the shell and top head includes a summary of all major discontinuities in the shell and top head, which includes the steam dryer hold down bracket and support bracket.	The conclusions in the response are not affected by the RSD. No further actions are required.
L-MT-09-045, RAI Response ML091470559	EEEE RAIs	A portion of the RAIs address environmental qualification (EQ).	The only issues that could be applicable are radiation doses of which the effects of MCO could be a contributor. However, the MCO assumed for EPU is 0.5%, while the predicted MCO for the RSD is $\leq 0.1\%$. Thus, the applicable RAI responses bound EPU operation with the RSD. Therefore, no change is required.

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L-MT-09-046, RAI Response ML091670410	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-047, TS Revision ML092440171	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-048, RAI Response ML091	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-049, RAI Response ML092090219	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-072, Draft SE review	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-073, RAI Response ML092430088	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-083, RAI Response ML092390321	Enclosure 1	Enclosure 1 to the referenced letter provided CISD limit curves.	L-MT-09-083 (including Enclosure 1) is only applicable to the CISD. Therefore, L-MT-09-083 is superseded in its entirety by the limit curves for the RSD. Limit curves for the RSD are provided in Enclosure 7 to this letter.
L-MT-09-088, LAR PUSAR Rev	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-09-097, Review Delay letter ML092870159	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.

Letter No. ADAMS No.	Locations Evaluated	Applicable Contents/Issues	Required Actions or Resolution
L-MT-09-100, M+ to EPU link request ML093030035	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-10-002, EPU LAR Update ML100270020	NA	The contents of this letter have been evaluated and it was determined that this letter is not affected by the change from the CISD to the RSD.	No further actions are required.
L-MT-10-007, Information Letter ML100550127	Replacement Steam Dryer Introduction	The letter discusses installation of the RSD under CLTP conditions and is not applicable to the EPU licensing process.	No further actions are required.

ENCLOSURE 10

AFFIDAVITS FOR WITHHOLDING PROPRIETARY DOCUMENTS

68 pages follow

Enclosure 10

Affidavits for Withholding Proprietary Documents

The table below provides an index to the affidavits provided within this enclosure. The index correlates the affidavit with the document each affidavit supports.

Letter and Affidavit #	Enclosure number - Document number & Name
No letter GE-Hitachi Nuclear Energy Americas LLC Affidavit	Enclosure 1, Appendix 4 – General Electric –Hitachi document NEDC-33322P, Revision 3, pages 2-52 and 2-55
LTR-EP-10-058 Affidavit CAW-10-2852	Enclosure 2 - WCAP-17085-P, Revision 1, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads"
LTR-EP-10-063 Affidavit CAW-10-2873	Enclosure 3 - SES 09-127-P, Revision 2, "Monticello Steam Dryer Replacement – Structural Verification of Steam Dryer"
LTR-EP-10-053 Affidavit CAW-10-2860	Enclosure 4 - SES 09-129-P, Revision 2, "Monticello - Steam Dryer Replacement Moisture Carryover Analysis"
LTR-EP-10-050 Affidavit CAW-10-2857	Enclosure 5 - WCAP-17251-P, Revision 0 "Monticello Replacement Steam Dryer Four Line Acoustic Subscale Testing Report"
LTR-EP-10-051 Affidavit CAW-10-2837	Enclosure 6 - WCAP-17252-P, Revision 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project"
LTR-EP-10-057 Affidavit CAW-10-2867	Enclosure 7 - LTR-A&SA-09-32, Revision 2, "Limit Curves for Monticello Power Ascension During 2011 Outage"
No letter Affidavit CAW-10-2875	Enclosure 8 - LTR-EP-10-059, Revision 1, "Monticello Replacement Steam Dryer Differential Pressure Methodology Discussion"
No letter Affidavit CAW-10-2872	Enclosure 9 - LTR-EP-10-062, Revision 1, P-Attachment, "Monticello Replacement Steam Dryer Regulatory Guide 1.20, Revision 3, Compliance Matrix, Revision 1"

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, **Tim E. Abney**, state as follows:

- (1) I am Vice President, Services Licensing, Regulatory Affairs, GE-Hitachi Nuclear Energy Americas LLC ("GEH"). I have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.
- (2) The information sought to be withheld is contained in GEH Licensing Topical Report NEDC-33322P, "Safety Analysis Report for Monticello Constant Pressure Power Uprate", Revision 3, Class III (GEH Proprietary Information), October 2008. GEH proprietary information text in NEDC-33322P Revision 3 is identified by a dark red dotted underline inside double square brackets [[This sentence is an example.⁽³⁾]]. Figures and large equation objects containing GEH proprietary information are identified with double square brackets before and after the object. In each case, the superscript notation ⁽³⁾ refers to Paragraph (3) of this affidavit, which provides the basis for the proprietary determination.
- (3) In making this application for withholding of proprietary information of which it is the owner or licensee, GEH relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), and 2.390(a)(4) for "trade secrets" (Exemption 4). The material for which exemption from disclosure is here sought also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).
- (4) Some examples of categories of information which fit into the definition of proprietary information are:
 - a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by GEH's competitors without license from GEH constitutes a competitive economic advantage over other companies;
 - b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;
 - c. Information which reveals aspects of past, present, or future GEH customer-funded development plans and programs, resulting in potential products to GEH;
 - d. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a. and (4)b. above.

- (5) To address 10 CFR 2.390(b)(4), the information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GEH, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GEH, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties, including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.
- (6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge, or subject to the terms under which it was licensed to GEH. Access to such documents within GEH is limited on a "need to know" basis.
- (7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist, or other equivalent authority for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GEH are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.
- (8) The information identified in paragraph (2) above is classified as proprietary because it contains detailed results and conclusions regarding supporting evaluations of the safety-significant changes necessary to demonstrate the regulatory acceptability of the "Safety Analysis Report for Monticello Constant Pressure Power Uprate" for a GEH Boiling Water Reactor ("BWR"). The analysis utilized analytical models and methods, including computer codes, which GEH has developed, obtained NRC approval of, and applied to perform evaluations of Constant Pressure Power Uprate analysis for a GEH BWR.

The development of the evaluation process along with the interpretation and application of the analytical results is derived from the extensive experience database that constitutes a major GEH asset.

- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GEH's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GEH's comprehensive BWR safety and technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

NEDC-33322P, Revision 3
GEH Proprietary Information

The research, development, engineering, analytical and NRC review costs comprise a substantial investment of time and money by GEH.

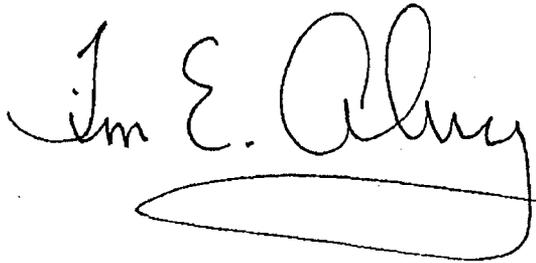
The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

GEH's competitive advantage will be lost if its competitors are able to use the results of the GEH experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to GEH would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GEH of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing and obtaining these very valuable analytical tools.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed on this 24th day of October 2008.

A handwritten signature in black ink that reads "Tim E. Abney". The signature is written in a cursive style with a large, sweeping underline that extends across the width of the signature.

Tim E. Abney
Vice President, Services Licensing
Regulatory Affairs
GE-Hitachi Nuclear Energy Americas LLC



Westinghouse Electric Company
Nuclear Services
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

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

Direct tel: (412) 374-4643
Direct fax: (412) 374-3846
e-mail: greshaja@westinghouse.com
Proj letter: LTR-EP-10-058

CAW-10-2852

June 24, 2010

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-17085-P, Revision 1, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads," (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-10-2852 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Xcel Energy Inc.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2852 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

A handwritten signature in black ink, appearing to read 'R.M. Gresham/for'.

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared R. M. Span who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

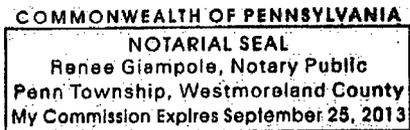
R. M. Span

R. M. Span, Principal Engineer
Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 24th day of June 2010

Renee Giampole

Notary Public



- (1) I am Principal Engineer, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390; it is to be received in confidence by the Commission.
- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-17085-P, Revision 1, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads," (Proprietary) dated June 2010, for submittal to the Commission, being transmitted by Xcel Energy letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the Monticello Extended Power Uprate submittal, and may be used only for that purpose.

This information is part of that which will enable Westinghouse to:

- (a) Provide detailed design information to Xcel Energy.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purpose of Replacement Steam Dryers.
- (b) Westinghouse can sell support and defense of Steam Dryer design.
- (c) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar analyses and designs and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

COPYRIGHT NOTICE

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.

Xcel Energy

Letter for Transmittal to the NRC

The following paragraphs should be included in your letter to the NRC:

Enclosed are:

1. 4 copies of WCAP-17085-P, Revision 1, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads," (Proprietary)
2. 2 copies of WCAP-17085-NP, Revision 1, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads," (Non-Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-10-2852, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-10-2852 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.



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Proj letter LTR-EP-10-063, Revision 1

CAW-10-2873

June 29, 2010

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: SES 09-127-P, Revision 2, "Monticello Steam Dryer Replacement – Structural Verification of Steam Dryer" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-10-2873 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Xcel Energy, Inc.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2873 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

A handwritten signature in cursive script, appearing to read "J. A. Gresham".

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

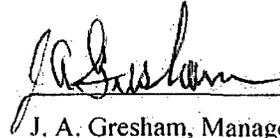
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

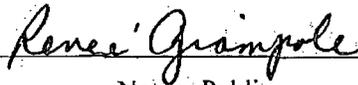
Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



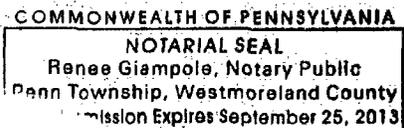
J. A. Gresham, Manager

Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 29th day of June 2010



Notary Public



- (1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10.CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390; it is to be received in confidence by the Commission.
- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in SES 09-127-P, Revision 2, "Monticello Steam Dryer Replacement – Structural Verification of Steam Dryer" (Proprietary) dated June 28, 2010, for submittal to the Commission, being transmitted by Xcel Energy letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the Monticello Extended Power Uprate submittal, and may be used only for that purpose.

This information is part of that which will enable Westinghouse to:

- (a) Provide detailed design information to Xcel.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purpose of Replacement Steam Dryers.
- (b) Westinghouse can sell support and defense of Steam Dryer design.
- (c) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar analyses and designs and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

PROPRIETARY INFORMATION NOTICE

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In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

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Xcel Energy

Letter for Transmittal to the NRC

The following paragraphs should be included in your letter to the NRC:

Enclosed are:

1. 4 copies of SES 09-127-P, Revision 2, "Monticello Steam Dryer Replacement – Structural Verification of Steam Dryer" (Proprietary)
2. 2 copies of SES 09-127-NP, Revision 2, "Monticello Steam Dryer Replacement – Structural Verification of Steam Dryer" (Non-Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-10-2873, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-10-2873 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.



Westinghouse Electric Company
Nuclear Services
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

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

Direct tel: (412) 374-4643
Direct fax: (412) 374-3846
e-mail: greshaja@westinghouse.com
Proj letter: LTR-EP-10-053

CAW-10-2860

June 18, 2010

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: SES 09-129, Revision 2, "Monticello Steam Dryer Replacement Moisture Carryover Analysis"
(Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-10-2860 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Xcel Energy Inc.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2860 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Gresham'.

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

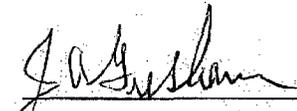
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

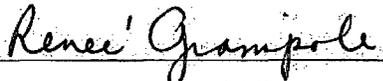
Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



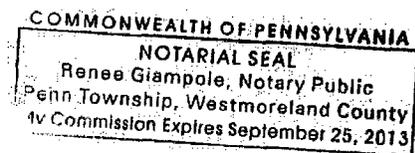
J. A. Gresham, Manager

Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 18th day of June 2010



Notary Public



- (1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390; it is to be received in confidence by the Commission.
 - (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
 - (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in SES 09-129, Revision 2, "Monticello Steam Dryer Replacement Moisture Carryover Analysis" (Proprietary), dated June 18, 2010, for submittal to the Commission, being transmitted by Excel Energy letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the Monticello Extended Power Uprate submittal, and may be used only for that purpose.

This information is part of that which will enable Westinghouse to:

- (a) Provide detailed design and performance information to Xcel Energy.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purpose of Replacement Steam Dryers.
- (b) Westinghouse can sell support and defense of Steam Dryer design.
- (c) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar analyses and designs and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

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Xcel Energy

Letter for Transmittal to the NRC

The following paragraphs should be included in your letter to the NRC:

Enclosed are:

1. 4 copies of SES'09-129, Revision 2, "Monticello Steam Dryer Replacement Moisture Carryover Analysis" (Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-10-2860, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-10-2860 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.



Westinghouse Electric Company
Nuclear Services
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

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

Direct tel: (412) 374-4643
Direct fax: (412) 374-3846
e-mail: greshaja@westinghouse.com
Proj letter: LTR-EP-10-050

CAW-10-2857

June 16, 2010

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: . WCAP-17251-P, Revision 0, "Monticello Replacement Steam Dryer Four-Line Acoustic
Subscale Testing Report," (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-10-2857 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Xcel Energy Inc.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2857 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Gresham'.

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

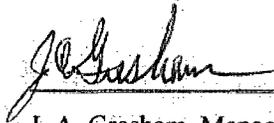
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

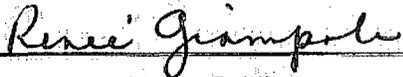
Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



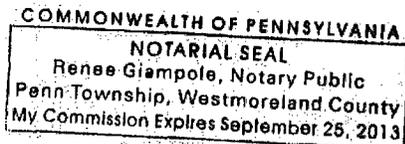
J. A. Gresham, Manager

Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 16th day of June 2010:



Notary Public



- (1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
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 - (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
 - (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-17251-P, Revision 0, "Monticello Replacement Steam Dryer Four-Line Acoustic Subscale Testing Report," (Proprietary) dated June 2010, for submittal to the Commission, being transmitted by Xcel Energy letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the Monticello Extended Power Uprate submittal, and may be used only for that purpose.

This information is part of that which will enable Westinghouse to:

- (a) Provide detailed design information to Xcel Energy.

Further this information has substantial commercial value as follows:

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Further the deponent sayeth not.

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Xcel Energy

Letter for Transmittal to the NRC

The following paragraphs should be included in your letter to the NRC:

Enclosed are:

1. 4 copies of WCAP-17251-P, Revision 0, "Monticello Replacement Steam Dryer Four-Line Acoustic Subscale Testing Report," (Proprietary)
2. 2 copies of WCAP-17251-NP, Revision 0, "Monticello Replacement Steam Dryer Four-Line Acoustic Subscale Testing Report," (Non-Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-10-2857, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-10-2857 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.



Westinghouse Electric Company
Nuclear Services
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U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Direct tel: (412) 374-4643
Direct fax: (412) 374-3846
e-mail: greshaja@westinghouse.com
Proj letter: LTR-EP-10-051

CAW-10-2837

June 16, 2010

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-17252-P, Revision 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project," (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-10-2837 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Xcel Energy Inc.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2837 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Gresham', written over a horizontal line.

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

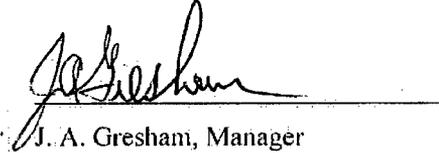
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

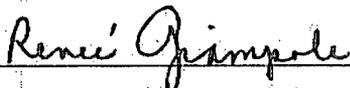
COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

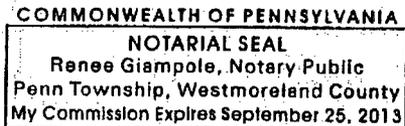


J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 16th day of June 2010



Notary Public



- (1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390; it is to be received in confidence by the Commission.
 - (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
 - (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-17252-P, Revision 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project," (Proprietary) dated June 2010, for submittal to the Commission, being transmitted by Xcel Energy letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the Monticello Extended Power Uprate submittal and may be used only for that purpose.

This information is part of that which will enable Westinghouse to:

- (a) Provide detailed design information to Xcel Energy.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purpose of Replacement Steam Dryers.
- (b) Westinghouse can sell support and defense of Steam Dryer design.
- (c) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar analyses and designs and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

PROPRIETARY INFORMATION NOTICE

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Xcel Energy

Letter for Transmittal to the NRC

The following paragraphs should be included in your letter to the NRC:

Enclosed are:

1. 4 copies of WCAP-17252-P, Revision 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project," (Proprietary)
2. 2 copies of WCAP-17252-NP, Revision 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project," (Non-Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-10-2837, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-10-2837 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.



Westinghouse Electric Company
Nuclear Services
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

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

Direct tel: (412) 374-4643
Direct fax: (412) 374-3846
e-mail: greshaja@westinghouse.com
Proj letter: LTR-EP-10-057

CAW-10-2867

June 24, 2010

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-A&SA-09-32, Revision 2, "Limit Curves for Monticello Power Ascension During 2011 Outage," (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-10-2867 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Xcel Energy Inc.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2867 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Gresham', written over a horizontal line.

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

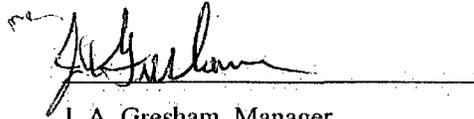
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

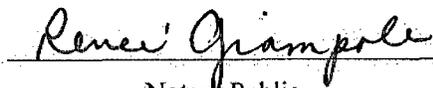
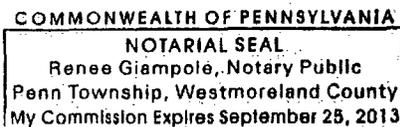
Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



J. A. Gresham, Manager

Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 24th day of June 2010


Notary Public

- (1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
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 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

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- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
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 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390; it is to be received in confidence by the Commission.
- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is marked in LTR-A&SA-09-32, Revision 2, "Limit Curves for Monticello Power Ascension During 2011 Outage," (Proprietary), for submittal to the Commission, being transmitted by Xcel Energy letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the Monticello Extended Power Uprate submittal, and may be used only for that purpose.

This information is part of that which will enable Westinghouse to:

- (a) Provide detailed design information to Xcel Energy.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purpose of Replacement Steam Dryers performance during power uprates.
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- (c) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar analyses and designs and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

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In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

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Xcel Energy

Letter for Transmittal to the NRC

The following paragraphs should be included in your letter to the NRC:

Enclosed are:

1. 4 copies of LTR-A&SA-09-32, Revision 2, "Limit Curves for Monticello Power Ascension During 2011 Outage," (Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-10-2867, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-10-2867 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.



Westinghouse Electric Company
Nuclear Services
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

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

Direct tel: (412) 374-4643
Direct fax: (412) 374-3846
e-mail: greshaja@westinghouse.com

CAW-10-2875

June 29, 2010

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-EP-10-059, Revision 1, "Monticello Replacement Steam Dryer Differential Pressure Methodology Discussion," (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced letter is further identified in Affidavit CAW-10-2875 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Xcel Energy, Inc.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2875 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Gresham'.

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss.

COUNTY OF ALLEGHENY:

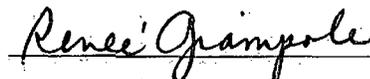
Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



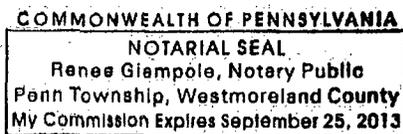
J. A. Gresham, Manager

Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 29th day of June 2010



Notary Public



- (1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
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- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is LTR-EP-10-059, Revision 1, "Monticello Replacement Steam Dryer Differential Pressure Methodology Discussion," (Proprietary) dated June 24, 2010, for submittal to the Commission, being transmitted by Xcel Energy letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the Monticello Extended Power Uprate submittal, and may be used only for that purpose.

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- (a) Provide detailed design information to Xcel Energy.

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1. ___ copies of LTR-EP-10-059, Revision 1, "Monticello Replacement Steam Dryer Differential Pressure Methodology Discussion," (Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-10-2875, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-10-2875 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.



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Nuclear Services
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USA

U.S. Nuclear Regulatory Commission
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Washington, DC 20555-0001

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Direct fax: (412) 374-3846
e-mail: greshaja@westinghouse.com

CAW-10-2872

June 29, 2010

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-EP-10-062, Revision 1, P-Attachment, "Monticello Replacement Steam Dryer Regulatory Guide 1.20, Revision 3, Compliance Matrix, Revision 1" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced letter is further identified in Affidavit CAW-10-2872 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Xcel Energy, Inc.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2872 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

A handwritten signature in black ink that reads "J. A. Gresham".

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

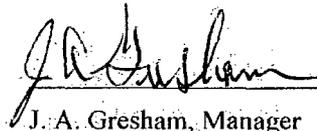
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

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COUNTY OF ALLEGHENY:

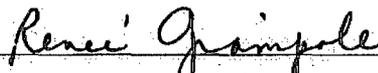
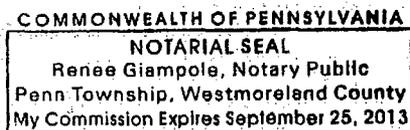
Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



J. A. Gresham, Manager

Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 29th day of June 2010


Notary Public

- (1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390; it is to be received in confidence by the Commission.
- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is appropriately marked in LTR-EP-10-062, Revision 1, P-Attachment, "Monticello Replacement Steam Dryer Regulatory Guide 1.20, Revision 3, Compliance Matrix, Revision 1" (Proprietary) dated June 2010, for submittal to the Commission, being transmitted by Xcel Energy letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the Monticello Extended Power Uprate submittal, and may be used only for that purpose.

This information is part of that which will enable Westinghouse to:

- (a) Provide detailed design information to Xcel.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purpose of Replacement Steam Dryers performance during power uprates.
- (b) Westinghouse can sell support and defense of Steam Dryer design.
- (c) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar analyses and designs and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

COPYRIGHT NOTICE

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.

Xcel Energy

Letter for Transmittal to the NRC

The following paragraphs should be included in your letter to the NRC:

Enclosed are:

1. 4 copies of LTR-EP-10-062, Revision 1, P-Attachment, "Monticello Replacement Steam Dryer Regulatory Guide 1.20, Revision 3, Compliance Matrix, Revision 1" (Proprietary)
2. 2 copies of LTR-EP-10-062, Revision 1, NP-Attachment, "Monticello Replacement Steam Dryer Regulatory Guide 1.20, Revision 3, Compliance Matrix, Revision 1" (Non-Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-10-2872, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-10-2872 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

ENCLOSURE 11

**SUMMARY OF EPU COMMITMENTS INCLUDING COMMITMENTS ASSOCIATED
WITH THE REPLACEMENT STEAM DRYER**

NRC Commitments from Monticello EPU Correspondence

Below is the complete list of NRC commitments for the EPU project prior to issuance of this supplement.

No.	Letter No. Date	Commitment text	Status
1	L-MT-08-052 11/5/2008	NSPM will inspect the steam dryer during the next refueling outage to confirm no unexpected changes in crack length on the steam dryer.	Active
2	L-MT-09-017 3/19/2009	The steady state bypass void fraction for the EPU core will be calculated using the method described by the NSPM response to NRC RAI SNPB-7 of L-MT-09-017.	Active
3	L-MT-09-043 8/12/2009	NSPM will provide the evaluation of steam dryer structural integrity to the NRC staff prior to further increases in reactor power when increasing to power levels above CLTP.	Active
4	L-MT-09-043 8/12/2009	NSPM will perform outage steam dryer inspections based on the guidance of BWRVIP.	Active
5	L-MT-09-044 8/21/2009	Confirmation that Feedwater and Condensate pump and heater replacement modifications are complete and meet the code allowables will be provided to the NRC prior to implementation of the EPU license amendment request.	Active
6	L-MT-09-044 8/21/2009	Confirmation that modification of support TWH-143 is complete will be provided to the NRC prior to implementation of the EPU license amendment request.	Active
7	L-MT-09-046 6/12/2009	NSPM will perform an analysis prior to RF025 to predict combined Condensate and Feedwater system performance for normal operation and for transients including Single Feedwater pump trip, Feedwater Control System Failure and Single Condensate Pump Trip. Acceptance criteria will include adequate margin to preclude loss of both reactor feedwater pumps from low suction pressure or flow.	Active
8	L-MT-09-046 6/12/2009	Prior to RF025, the USAR will be revised to indicate that the emergency heat load of 24.7 MBTU/hr occurs approximately 168 hours after shutdown.	Active

9	L-MT-09-048 7/13/2009	NSPM commits to evaluating the changes in condensate and feed pump area heat load to confirm temperatures remain within design limits prior to RFO25. If necessary, modifications to the HVAC system for this area will be implemented to maintain these areas within the design limits.	Active
10	L-MT-09-100 10/28/2009	If NRR agrees to review the MELLLA+ LAR concurrent with the EPU LAR, NSPM will commit in the MELLLA+ LAR to resolve the CAP section in the same manner as the issue is resolved for the delayed EPU amendment.	Active

Revised Commitments

By this supplement the following commitments are changed:

Commitment 3 is no longer applicable as this commitment was only applicable to the CISD. Commitment 3 states that: *“NSPM will provide the evaluation of steam dryer structural integrity to the NRC staff prior to further increases in reactor power when increasing to power levels above CLTP.”* This commitment was made based up on the use of the CISD. The CISD is being replaced by the RSD, therefore this commitment is no longer required.

In addition, Regulatory Guide 1.20, revision 3, section 2.2 requires that a structural integrity evaluation of the replacement steam dryer (RSD) be performed before increasing above CLTP. The Replacement Steam Dryer - Power Ascension Test Plan (RSD – PATP) requires an evaluation of the RSD structural integrity be completed at various power levels. The RSD-PATP is being added as commitment 11. See the summary provided under New Commitments below.

Completed Commitments

Commitment 1 is considered complete. Commitment 1 states that: *“NSPM will inspect the steam dryer during the next refueling outage to confirm no unexpected changes in crack length on the steam dryer.”* This commitment was completed during RFO24. This commitment was made in November 2008 and was satisfied by inspection of the CISD during the 2009 refueling outage. Therefore, this commitment is considered complete.

Commitment 2 is considered complete. Commitment 2 states that: *“The steady state bypass void fraction for the EPU core will be calculated using the method described by the NSPM response to NRC RAI SNPB-7 of L-MT-09-017.”* This commitment was completed by completion of the Cycle 25 Safety Reload Licensing Report (SRLR). The bypass void fraction was reported in Appendix I of the Cycle 25 SRLR report.

Commitment 10 is considered complete. Commitment 10 states that: *If NRR agrees to review the MELLLA+ LAR concurrent with the EPU LAR, NSPM will commit in the MELLLA+ LAR to resolve the CAP section in the same manner as the issue is resolved for the delayed EPU amendment.* On November 23, 2009, the NRC agreed to review the MELLLA+ LAR for review since the "...the MELLLA+ amendment to the EPU amendment satisfied the criteria for 'rare circumstances' stated in Office Instruction L1C-109." Therefore, this commitment is considered complete. A separate commitment was made in the MELLLA+ LAR to resolve the CAP issue.

New Commitments

NSPM proposes new commitment 11. The commitment is as follows:

As part of MNGP restart following installation of the replacement steam dryer, NSPM will implement the RSD – PATP found in Enclosure 1, Appendix 5 of this letter.

This commitment is discussed in section 4.2.1 of Enclosure 1. The commitment is required to satisfy the requirements of Regulatory Guide 1.20. The RSD - PATP contains requirements from Regulatory Guide 1.20 concerning testing and reporting requirements for the RSD.

Final List of EPU Commitments

Based on these changes and the revised commitments associated with this supplement the revised EPU commitments table is as follows:

No.	Letter No. Date	Commitment text	Status
1	L-MT-08-052 11/5/2008	NSPM will inspect the steam dryer during the next refueling outage to confirm no unexpected changes in crack length on the steam dryer.	Complete – performed in RFO24.
2	L-MT-09-017 3/19/2009	The steady state bypass void fraction for the EPU core will be calculated using the method described by the NSPM response to NRC RAI SNPB-7 of L-MT-09-017.	Complete – provided in Cycle 25 SRLR.
3	L-MT-09-043 8/12/2009	NSPM will provide the evaluation of steam dryer structural integrity to the NRC staff prior to further increases in reactor power when increasing to power levels above CLTP.	Deleted – Commitment no longer required.
4	L-MT-09-043 8/12/2009	NSPM will perform outage steam dryer inspections based on the guidance of BWRVIP.	Active

5	L-MT-09-044 8/21/2009	Confirmation that Feedwater and Condensate pump and heater replacement modifications are complete and meet the code allowables will be provided to the NRC prior to implementation of the EPU license amendment request.	Active
6	L-MT-09-044 8/21/2009	Confirmation that modification of support TWH-143 is complete will be provided to the NRC prior to implementation of the EPU license amendment request.	Active
7	L-MT-09-046 6/12/2009	NSPM will perform an analysis prior to RF025 to predict combined Condensate and Feedwater system performance for normal operation and for transients including Single Feedwater pump trip, Feedwater Control System Failure and Single Condensate Pump Trip. Acceptance criteria will include adequate margin to preclude loss of both reactor feedwater pumps from low suction pressure or flow.	Active
8	L-MT-09-046 6/12/2009	Prior to RF025, the USAR will be revised to indicate that the emergency heat load of 24.7 MBTU/hr occurs approximately 168 hours after shutdown.	Active
9	L-MT-09-048 7/13/2009	NSPM commits to evaluating the changes in condensate and feed pump area heat load to confirm temperatures remain within design limits prior to RFO25. If necessary, modifications to the HVAC system for this area will be implemented to maintain these areas within the design limits.	Active
10	L-MT-09-100 10/28/2009	If NRR agrees to review the MELLLA+ LAR concurrent with the EPU LAR, NSPM will commit in the MELLLA+ LAR to resolve the CAP section in the same manner as the issue is resolved for the delayed EPU amendment.	Complete – NRC acceptance of MELLLA+ LAR.
11	L-MT-10-046 6/30/2010	As part of MNGP restart following installation of the replacement steam dryer, NSPM will implement the Power Ascension Test Plan found in Enclosure 1, Appendix 5 of this letter.	Active