

**ENCLOSURES 1, 2, 3, 4, 5 AND 6 CONTAIN PROPRIETARY INFORMATION –
WITHHOLD FROM PUBLIC DISCLOSURE IN ACCORDANCE WITH 10CFR 2.390**



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

July 19, 2012

L-MT-12-056
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

Monticello Extended Power Uprate: Replacement Steam Dryer – Second Set of
Responses to Requests for Additional Information (TAC MD9990)

- References:
- 1) Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "License Amendment Request: Extended Power Uprate (TAC MD9990)," L-MT-08-052, dated November 5, 2008. (ADAMS Accession No. ML083230111)
 - 2) Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "Monticello Extended Power Uprate: Replacement Steam Dryer Supplement (TAC MD9990)," L-MT-10-046, dated June 30, 2010. (ADAMS Accession No. ML102010462)
 - 3) Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "Monticello Extended Power Uprate: Updates to Docketed Information (TAC MD9990)," L-MT-10-072, dated December 21, 2010. (ADAMS Accession No. ML103570026)
 - 4) Email from Peter Tam (NRC) to Lynne Gunderson, et al. (NSPM), "Monticello EPU - Draft RAI regarding the Replacement Steam Dryer (TAC MD9990)," dated October 12, 2010. (ADAMS Accession No. ML102850581)
 - 5) Email from Peter Tam (NRC) to Lynne Gunderson, et al. (NSPM), "Monticello - Revised RAI regarding the Replacement Steam Dryer for EPU operation (TAC MD9990)," dated November 16, 2010. (ADAMS Accession No. ML103210297)

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- 6) Email from Peter Tam (NRC) to Lynne Gunderson, et al. (NSPM), "Monticello – Additional Draft RAI Questions for Extended Power Uprate Using the Replacement Steam Dryer (TAC MD9990)," dated March 16, 2011. (ADAMS Accession No. ML110760666)
- 7) Letter from Peter Tam (NRC) to T J O'Connor (NSPM) Subject: Monticello Nuclear Generating Plant (MNGP) - Audit Report, Use of Nordic Steam Dryer for Extended Power Uprate (TAC No. MD9990)," dated July 8, 2011. (ADAMS Accession No. ML11144A085)
- 8) Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "Monticello Extended Power Uprate: Replacement Steam Dryer – Initial Response to Request for Additional Information (TAC MD9990)," L-MT-11-004, dated January 13, 2012. (ADAMS Accession No. ML12019A246)

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 (TS) to increase the maximum authorized power level from 1775 megawatts thermal (MWt) to 2004 MWt.

In Reference 2 NSPM provided a supplement to Reference 1 to provide detailed design and analysis results for a replacement steam dryer (RSD) for MNGP. Reference 3 was provided to correct reactor internal pressure differential information provided in Reference 2.

In Reference 4 the NRC provided NSPM draft requests for additional information (RAIs). After a conference call was held to discuss the draft RAIs, the NRC made changes to several draft RAIs and forwarded those changes to NSPM in Reference 5. In Reference 6 the NRC provided additional RAIs to NSPM. In April 2011 the NRC performed an audit of RSD documentation: Reference 7 is an audit report of that effort. In the audit report the NRC identified 18 Action Items associated with the RSD analyses.

The purpose of this letter is to provide the NRC with responses to the remaining RAIs provided by the NRC in Reference 4, as modified by Reference 5, and Reference 6. In addition, the remaining Action Items from Reference 7 are also addressed in this letter. An initial response to some of the RAIs and one Action Item was provided in Reference 8.

Enclosure 1 contains Westinghouse Electric Company, LLC (WEC) letter LTR-A&SA-12-10, Revision 1, P - Attachment, "Monticello Replacement Steam Dryer RAI and Action Item Responses for Acoustic/Structural Evaluation," dated July 3, 2012. Enclosure 1 provides the responses to the remaining NRC RAIs and Action Items. The

NRC RAI and Action Item responses are supported by the data and analyses provided in Enclosures 2 – 6. Enclosure 1 contains WEC proprietary information.

Enclosure 2 contains WEC Report WCAP-17548-P, Revision 0, "Signal Processing Performed on Monticello MSL Strain Gage and RSD Instrumentation Data." During the May 2011 refueling outage, NSPM replaced the MNGP steam dryer from the original equipment manufacturer to a Westinghouse designed RSD. Instrumentation including strain gages, pressure transducers, and accelerometers were installed on the surface of the dryer. In addition, strain gages installed on the Main Steam Lines (MSLs) for data collection in 2007 and 2008 were replaced to ensure the maximum number of channels collecting valid data.

Since the installation of the RSD, time history data were recorded during twenty-five, two-minute long data collection intervals executed between May 2011 and December 2011. The data collections were recorded at 19 different reactor power levels. The purpose of collecting the data was two-fold: first, the data was used to support benchmarking of a methodology to evaluate the structural integrity of the dryer given MSL strain gage measurements, and secondly, the data were used to evaluate the acoustic operating condition of the plant through 100 percent of current licensed thermal power (CLTP) and to define a baseline CLTP MSL acoustic signature for use in future EPU signature predictions. Enclosure 2 details the signal processing methods applied to the plant data to support the benchmarking of the structural integrity evaluation methods.

Enclosure 3 contains WEC Report WCAP-17540-P, Revision 0, "Monticello Replacement Steam Dryer Program Acoustic Load Definition Methodology." This report presents the methodology used to establish the acoustic load definition and consequent stress field on the steam dryer structure. The approach uses an end-to-end benchmark comparison of the predicted acoustic loads with actual measured data as well as predicted strain levels compared to measured strains on the steam dryer structure. This approach resulted in a hybrid acoustic circuit model (ACM) called Acoustic Circuit Enhanced or ACE 1.0. ACE 1.0 uses ACM 4.1 in the low frequency range and a Monticello specific model is used in the high frequency ranges.

Enclosure 4 contains WEC Report WCAP-17252-P, Revision 2, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project." This report is a revision to WCAP-17252-P, Revision 0 that was previously sent to the NRC in Reference 2. This report presents a three-dimensional model of the steam dryer and the surrounding fluid, i.e., steam, to predict the distribution of the acoustic pressure loads on the entire structure. The load prediction for the steam dryer was performed by applying an ACE 1.0 (provided in Enclosure 3) to the conditioned signals (provided in Enclosure 2) obtained from the strain gauges installed on the MSLs.

Enclosure 5 contains WEC Report WCAP-17549-P, Revision 0, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads Using

ACE.” This report presents acoustic loads and stresses for current licensed thermal power (CLTP) and extended power uprate (EPU) conditions. The loads determined for EPU conditions have been evaluated for high-cycle fatigue and have been determined to meet the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code Section III, Subsection NG criteria.

Enclosure 6 contains a proprietary attachment from WEC letter LTR-A&SA-09-32, Revision 5, “Limit Curves for Monticello Power Ascension.” This letter provides limit curves for the MNGP power ascension to EPU conditions. The limit curves were developed using the ACE 1.0 methodology. The limit curves will be compared to the measured power spectral densities encountered during power ascension to EPU conditions. Further information is available in Reference 8 regarding the use of these limit curves.

Enclosure 7 contains affidavits executed to support withholding Enclosure 1, 2, 3, 4, 5 and 6 from public disclosure. The affidavits set forth the basis on 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). NSPM requests that the proprietary information in Enclosures 1 – 6 inclusive, be withheld from public disclosure in accordance with 10 CFR 2.390(a)4, as authorized by 10 CFR 9.17(a)4. Accordingly, it is respectfully requested that the information which is proprietary to WEC be withheld from public disclosure in accordance with 10 CFR 2.390.

Correspondence with respect to the copyright or proprietary aspects of WEC information or the supporting WEC affidavits in Enclosure 7 should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company LLC, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Enclosures 8 - 13 contain nonproprietary versions of Enclosures 1 - 6 respectively. 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.

This is the second in a series of three letters in which NSPM has provided responses to NRC RAIs and provided updated technical data and analyses that support the suitability of the RSD for operation in the EPU environment. In the final letter NSPM will provide the inspection criteria and performance schedule for the RSD. This statement, concerning the availability of the inspection criteria document, should not be taken as a commitment but is provided as scheduler information only. All outstanding NRC RAIs and Action Items have been addressed by this letter and Reference 8.

The RAI and Action Item responses provided herein do not change the conclusions of the No Significant Hazards Consideration and the Environmental Consideration evaluations provided in Reference 1 as revised by Reference 3.

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 no new commitments and no revisions to existing commitments.

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

Executed on: July 19, 2012

A handwritten signature in black ink, appearing to read "Mark A. Schimmel", written over a horizontal line.

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

Enclosures (13)

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)

L-MT-12-056

ENCLOSURE 7

**WESTINGHOUSE AFFIDAVITS FOR
WITHHOLDING PROPRIETARY INFORMATION**

43 pages follow

Enclosure 7

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
LTR-EP-12-035 R1 Affidavit CAW-12-3510	Enclosure 1 - LTR-A&SA-12-10, Revision 1, P - Attachment, "Monticello Replacement Steam Dryer RAI and Action Item Responses for Acoustic/Structural Analyses"
LTR-EP-12-029 Affidavit CAW-12-3492	Enclosure 2 - WCAP-17548-P, Revision 0, "Signal Processing Performed on Monticello MSL Strain Gage and RSD Instrumentation Data"
LTR-EP-12-029 Affidavit CAW-12-3491	Enclosure 3 - WCAP-17540-P, Revision 0, "Monticello Replacement Steam Dryer Program Acoustic Load Definition Methodology"
LTR-EP-12-029 Affidavit CAW-12-3490	Enclosure 4 - WCAP-17252-P, Revision 2, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project"
LTR-EP-12-028 Affidavit CAW-12-3489	Enclosure 5 - WCAP-17549-P, Revision 0, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads Using ACE"
LTR-EP-12-032 Affidavit CAW-12-3508	Enclosure 6 – Proprietary Attachment from LTR-A&SA-09-32, Revision 5, "Limit Curves for Monticello Power Ascension"



Westinghouse Electric Company
Nuclear Services
1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066
USA

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Direct tel: (412) 374-4643
Direct fax: (724) 720-0754
e-mail: greshaja@westinghouse.com
Proj letter: LTR-EP-12-035, Rev. 1

CAW-12-3510

July 9, 2012

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

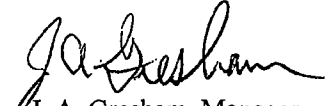
Subject: LTR-A&SA-12-10 Revision 1 P-Attachment, "Monticello Replacement Steam Dryer RAI and Action Item Responses for Acoustic/Structural Analyses" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-12-3510 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.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference CAW-12-3510, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,


J. A. Gresham, Manager
Regulatory Compliance

Enclosures

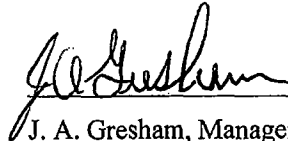
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COMMONWEALTH OF PENNSYLVANIA:

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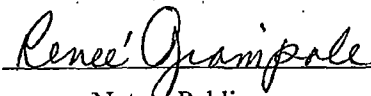
COUNTY OF BUTLER:

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:

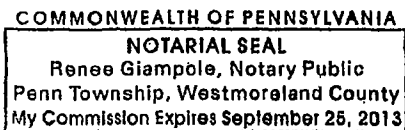


J. A. Gresham, Manager
Regulatory Compliance

Sworn to and subscribed before me
this 9th day of July 2012



Notary Public



- (1) I am Manager, Regulatory Compliance, 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 LTR-A&SA-12-10 Revision 1 P-Attachment, "Monticello Replacement Steam Dryer RAI and Action Item Responses for Acoustic/Structural Analyses" (Proprietary), dated July 3, 2012, 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 Replacement Steam Dryer project, and may be used only for that purpose.

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

- (a) Provide responses to the remaining set of Requests for Additional Information (RAIs) from the U.S. NRC for the Monticello Replacement Steam Dryer project.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of the information to its customers for the purpose of the Monticello Replacement Steam Dryer project.
- (b) 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 technical evaluation justifications 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.



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Proj letter: LTR-EP-12-029

CAW-12-3492

May 30, 2012

APPLICATION FOR WITHHOLDING PROPRIETARY
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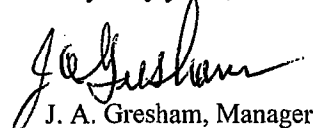
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Very truly yours,


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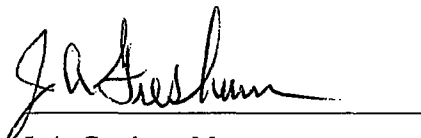
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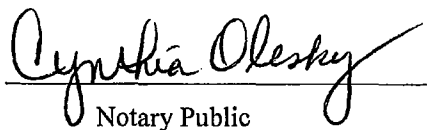
COUNTY OF BUTLER:

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

Sworn to and subscribed before me
this 30th day of May 2012


Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Cynthia Olesky, Notary Public
Manor Boro, Westmoreland County
My Commission Expires July 16, 2014
Member, Pennsylvania Association of Notaries

- (1) I am Manager, Regulatory Compliance, 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.
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- (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.
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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-17548-P, Revision 0, "Signal Processing Performed on Monticello MSL Strain Gauge and RSD Instrumentation Data" (Proprietary), dated May 2012, for submittal to the Commission, being transmitted by NMC - 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 Westinghouse's request for NRC approval of WCAP-17548, Revision 0, and may be used only for that purpose.

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

- (a) Obtain NRC approval of WCAP-17548, Revision 0, "Signal Processing Performed on Monticello MSL Strain Gauge and RSD Instrumentation Data."

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for the 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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U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Direct tel: (412) 374-4643
Direct fax: (724) 720-0754
e-mail: greshaja@westinghouse.com
Proj letter: LTR-EP-12-029

CAW-12-3491

May 30, 2012

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-17540-P, Revision 0, "Monticello Replacement Steam Dryer Program Acoustic Load Definition Methodology" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-12-3491 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 NMC - Xcel Energy.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference CAW-12-3491 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Gresham', written in a cursive style.

J. A. Gresham, Manager
Regulatory Compliance

Enclosures

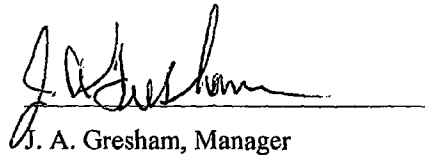
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

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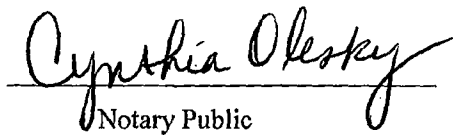
COUNTY OF BUTLER:

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:

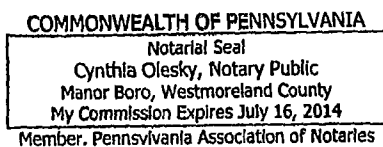


J. A. Gresham, Manager
Regulatory Compliance

Sworn to and subscribed before me
this 30th day of May 2012



Notary Public



- (1) I am Manager, Regulatory Compliance, 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-17540-P, Revision 0, "Monticello Replacement Steam Dryer Program Acoustic Load Definition Methodology" (Proprietary), dated May 2012, for submittal to the Commission, being transmitted by NMC - 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 Westinghouse's request for NRC approval of WCAP-17540, Revision 0, and may be used only for that purpose.

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

- (a) Obtain NRC approval of WCAP-17540, Revision 0, "Monticello Replacement Steam Dryer Program Acoustic Load Definition Methodology."

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for the 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.

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Further the deponent sayeth not.

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Proj letter: LTR-EP-12-029

CAW-12-3490

May 30, 2012

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

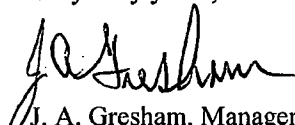
Subject: WCAP-17252-P, Revision 2, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-12-3490 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 NMC - Xcel Energy.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference CAW-12-3490 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,


J. A. Gresham, Manager
Regulatory Compliance

Enclosures

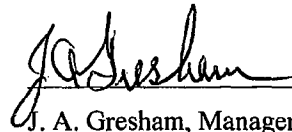
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

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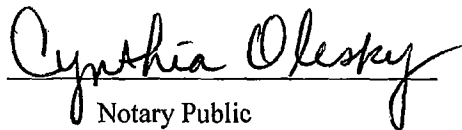
COUNTY OF BUTLER:

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

Sworn to and subscribed before me
this 30th day of May 2012



Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Cynthia Olesky, Notary Public
Manor Boro, Westmoreland County
My Commission Expires July 16, 2014
Member, Pennsylvania Association of Notaries

- (1) I am Manager, Regulatory Compliance, 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.
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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:

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

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- (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.
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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-17252-P, Revision 2, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project" (Proprietary), dated May 2012, for submittal to the Commission, being transmitted by NMC - 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 Westinghouse's request for NRC approval of WCAP-17252, Revision 2, and may be used only for that purpose.

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

- (a) Obtain NRC approval of WCAP-17252, Revision 2, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project."

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for the purpose of Replacement Steam Dryers.
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Further the deponent sayeth not.

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e-mail: greshaja@westinghouse.com
Proj letter: LTR-EP-12-028

CAW-12-3489

May 30, 2012

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

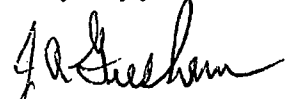
Subject: WCAP-17549-P, Revision 0, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads Using ACE" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-12-3489 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 NMC - Xcel Energy.

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Very truly yours,


J. A. Gresham, Manager
Regulatory Compliance

Enclosures

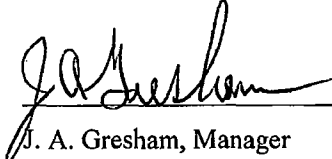
AFFIDAVIT

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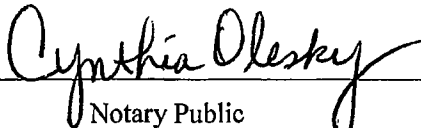
COUNTY OF BUTLER:

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

Sworn to and subscribed before me
this 30th day of May 2012



Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Cynthia Olesky, Notary Public
Manor Boro, Westmoreland County
My Commission Expires July 16, 2014
Member, Pennsylvania Association of Notaries

- (1) I am Manager, Regulatory Compliance, 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.
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- (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-17549-P, Revision 0, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads Using ACE" (Proprietary), dated May 2012, for submittal to the Commission, being transmitted by NMC - 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 Westinghouse's request for NRC approval of WCAP-17549, Revision 0, and may be used only for that purpose.

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

- (a) Obtain NRC approval of WCAP-17549, Revision 0, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads Using ACE."

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for the 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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Proj letter: LTR-EP-12-032

CAW-12-3508

July 2, 2012

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-A&SA-09-32 P-Attachment, Revision 5, "Limit Curves for Monticello Power Ascension"
(Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-12-3508 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.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference CAW-12-3508, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'J. A. Gresham'.
J. A. Gresham, Manager
Regulatory Compliance

Enclosures

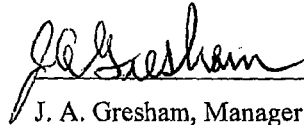
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF BUTLER:

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:



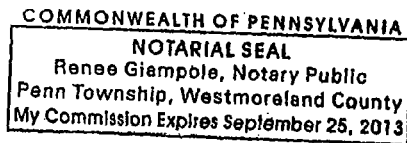
J. A. Gresham, Manager

Regulatory Compliance

Sworn to and subscribed before me
this 2nd day of July 2012



Notary Public



- (1) I am Manager, Regulatory Compliance, 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 LTR-A&SA-09-32 P-Attachment, Revision 5, "Limit Curves for Monticello Power Ascension" (Proprietary), dated June 2012, 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 Monticello Steam Dryer Replacement Project, and may be used only for that purpose.

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

- (a) Provide limit curves for Monticello EPU power ascension with the Westinghouse replacement dryer.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of the information to its customers for the purpose of Monticello Steam Dryer Replacement.
- (b) 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 technical evaluation justifications 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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ENCLOSURE 8

**WESTINGHOUSE LETTER, LTR-A&SA-12-10, REVISION 1, NP- ATTACHMENT
MONTICELLO REPLACEMENT STEAM DRYER
RAI AND ACTION ITEM RESPONSES FOR ACOUSTIC/STRUCTURAL ANALYSES**

This Enclosure covers the following NRC Requests for Additional Information and Action Items:

- | | |
|-------------------------------|--------------------|
| 1) MNGP-EMCB-SD-RAI-2 S02(c) | 23) Action Item 1 |
| 2) MNGP-EMCB-SD-RAI-8 S02 | 24) Action Item 2 |
| 3) MNGP-EMCB-SD-RAI-10 S02(a) | 25) Action Item 3 |
| 4) MNGP-EMCB-SD-RAI-10 S02(b) | 26) Action Item 4 |
| 5) MNGP-EMCB-SD-RAI-11 S03 | 27) Action Item 5 |
| 6) MNGP-EMCB-SD-RAI-17 S03 | 28) Action Item 6 |
| 7) MNGP-EMCB-SD-RAI-21 S01 | 29) Action Item 7 |
| 8) MNGP-EMCB-SD-RAI-22 S01 | 30) Action Item 8 |
| 9) MNGP-EMCB-SD-RAI-23 S01 | 31) Action Item 9 |
| 10) MNGP-EMCB-SD-RAI-25 | 32) Action Item 10 |
| 11) MNGP-EMCB-SD-RAI-27 | 33) Action Item 11 |
| 12) MNGP-EMCB-SD-RAI-30 | 34) Action Item 12 |
| 13) MNGP-EMCB-SD-RAI-31 | 35) Action Item 13 |
| 14) MNGP-EMCB-SD-RAI-32 | 36) Action Item 14 |
| 15) MNGP-EMCB-SD-RAI-33 | 37) Action Item 15 |
| 16) MNGP-EMCB-SD-RAI-35(a) | 38) Action Item 16 |
| 17) MNGP-EMCB-SD-RAI-35(b) | 39) Action Item 18 |
| 18) MNGP-EMCB-SD-RAI-36 | |
| 19) MNGP-EMCB-SD-RAI-37 | |
| 20) MNGP-EMCB-SD-RAI-38 | |
| 21) MNGP-EMCB-SD-RAI-39 | |
| 22) MNGP-EMCB-SD-RAI-40 | |

LTR-A&SA-12-10 Revision 1 NP-Attachment

Monticello Replacement Steam Dryer
RAI and Action Item Responses
for
Acoustic/Structural Analyses
July 3, 2012

Westinghouse Electric Company LLC
1000 Westinghouse Drive
Cranberry Township, PA 16066 USA

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Monticello Replacement Steam Dryer
RAI and Action Item Responses for Acoustic/Structural Analyses

MNGP- EMCB-SD-RAI-2 S02

Section 2.1.2 of Appendix 5 of Enclosure 1 of L-MT-10-046, describes the Power Ascension Test Plan (PATP) for the replacement steam dryer (RSD) and states that *"It is not expected that instrumentation performing direct monitoring of the RSD will be operational through the power ascension process. Therefore, this monitoring may not be available through the full RSD – PATP."* Section 2.2 further states that: *"The assessment of the system/component performance and integrity will be completed through the analysis of both main steam line and dryer moisture carryover data."* In other words, the dryer sensors are not expected to provide any data to benchmark the 'prototype' RSD or validate the results of the pre-operational vibration analysis. It is not clear to the NRC staff why the licensee assumes that the dryer sensors will fail and will not be functioning during power ascension, although similar instrumentation and measurements have been performed successfully in other plants (e.g., QC2 and Susquehanna).

- (c) Further, please explain how you will modify the end-to-end dryer alternating stress margin bias errors and uncertainties in the event the instrumented dryer measurements reveal non-conservative loads and/or structural responses, and how changes to those end-to-end bias errors and uncertainties will be applied to the limit curves that will be used during subsequent power ascension monitoring. Revise the power ascension test plan report accordingly, including a commitment to submit the benchmarking results to the NRC staff for evaluation prior to ascension to EPU levels.

Response:

a,b



a,b

MNGP- EMCB-SD-RAI-8 S02

- (a) Based on the information in Table 3.2 of Enclosure 6 (WCAP-17252-P, Revision 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project") of L-MT-10-046, the licensee continues to use a negative (nonconservative) bias of -59.7% for the standpipe resonance frequency range of 158-162 Hz, and has not updated the stress margins as requested in the RAI. Please, therefore, provide updated dryer stress margins, along with limit curves, based on a previously accepted positive bias error of 65% and an uncertainty of 10% for frequencies between 158 and 162 Hz.

Response:



a,b

- (b) Also, the new limit curves provided in LTR-A&SA-09-32, Rev. 2, which is attached as Enclosure 7 to L-MT-10-046, show strong spectral peaks between 50 and 60 Hz, as well as at other multiples of 60 Hz. The NRC staff requires limit curves based on CLTP MSL measurements which have electrical and nonacoustic (such as those from the recirculation pumps) tones removed, unless those tones have also been included in the dryer acoustic load definition. Please provide updated limit curves based on MSL CLTP signals which do not include electrical and recirculation pump tones (assuming these tones have not been included in the acoustic load definitions) and which are based on stress margins computed using the previously accepted 158-162 Hz bias error and uncertainty.

Response:

The limit curves have been re-derived based on [

] ^{a,b}

MNGP-RAI EMCB-SD-RAI-10 S02

- (a) Based on the information in Table 3.2 of Enclosure 6 (WCAP-17252-P, Rev 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project") of L-MT-10-046, the licensee has not computed acoustic loading bias errors and uncertainties for the 60-70 and 70-100 Hz frequency ranges, and has not applied them to its alternating stress ratio margin calculations. The licensee is, once again, requested to provide these calculations.

Response:

a,b

- (b) The licensee is also requested, during the design stage when the MSL strain gages are used for assessing dryer structural integrity under EPU conditions, to use a minimum alternating stress ratio of 2.0, even for new or replacement dryers. Please confirm that the minimum alternating stress ratio, at any location in the steam dryer, is not less than 2.0

Response:

[] a,b

MNGP-EMCB-SD-RAI-11 S03

Based on an evaluation of Enclosure 2-9 of L-MT-10-046, it is not clear if the licensee used CLTP MSL signals which were reduced using low-flow measurements. Since low-flow noise removal is not acceptable, except in clear cases where acoustic model anomalies lead to non-physical tones at discrete frequencies, please provide dryer alternating stress calculations which are based on MSL signals that are not adjusted by the removal of low-flow noise.

Response:

[] a,b

MNGP-EMCB-SD-RAI-17 S03

The main purpose of this RAI is to assess the validity of the fatigue analysis procedure used by MNGP, by confirming whether the fatigue analysis results are consistent with the field fatigue failures in the currently installed steam dryer (CISD). Fatigue analysis of the RSD would not provide such assessment because it is not yet in operation. Therefore, please provide the amplitude of the alternating stress intensity at locations where CISD has experienced fatigue cracking and confirm whether the fatigue analysis procedure being used is conservative.

Response:

[Empty response box]

a,b

MNGP-EMCB-SD-RAI-21 S01

The information requested in the previous RAI-21 is associated with the step-by-step acoustic load estimation procedure of “any” steam dryer installed in the MNGP, including the RSD. The response to RAI-21 did not include the information; please, therefore, provide such information.

Response:

The overall process is provided in the response to RAI MNGP-EMCB-SD-RAI-28. Please see the response to RAI MNGP-EMCB-SD-RAI-28 as this response will be the same. The response to MNGP-EMCB-SD-RAI-28 was previously sent to the NRC.

MNGP-EMCB-SD-RAI-22 S01

The information requested in the previous RAI-22 is associated with the [coherence filtering of upper and lower MSL strain gauge array]^{a,b} signals from the MSL strain gage signals at CLTP of “any” steam dryer installed in MNGP including the RSD. The response to RAI-22 did not include the information; please, therefore, provide such information.

Response:

a,b

MNGP-EMCB-SD-RAI-23 S01

The information requested in the previous RAI-23 is associated with any inconsistencies between procedures used in benchmarking based on QC2 data that the Monticello procedures used in qualification of “any” steam dryer installed in MNGP, including the RSD. The response to RAI-23 did not include the information; please, therefore, provide such information.

Response:

In the previous RAI the NRC asked for the following:

“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.”

NSPMs response regarding filtering of low flow noise is discussed in MNGP-EMCB-SD-RAI-11 S03.

NSPMs response regarding coherence filtering is described in MNGP-EMCB-SD-RAI-22 S01.

[] a,b

MNGP- EMCB-SD-RAI-25

In Westinghouse Report WCAP-17251-P, Rev 0, the normalized RMS pressure amplitudes in the subscale MSLs are given in Figures 5.4-1 to 5.4-4. The flow conditions at the onset of safety relief valve (SRV) resonance closely approximate those at EPU operation. Since the RMS pressure amplitudes increase sharply with Mach number at the onset of resonance (i.e., just beyond the postulated EPU Mach number), please explain the effect of uncertainty in determining the Mach number during the scale model test (SMT) on the measured pressure amplitudes. Please explain that the effect of uncertainty in measuring the Mach number on the bump-up factor (Figures 5.6-1 to 5.6-4) is conservative, or adjust the bump-up factor to accommodate the effect of the Mach number uncertainty.

Response:

[] a,b

MNGP- EMCB-SD-RAI-27

The SMT results are given in Westinghouse Report WCAP-17251-P, Rev. 0. When the tank is depressurized during the SMT, the temperature of the flowing medium (air) decreases substantially (up to 80 degrees reduction). As a result, the speed of sound and the standpipe frequency decreased during the experiment. Averaging the frequency spectra over time, therefore, widens the spectral peak of the standpipes and reduces its amplitude. This is clearly depicted in the frequency spectra provided in the report. Please discuss the effect of the changes in the speed of sound during the SMT on the measured bump-up factors and confirm whether this effect is conservative.

Response:

a,b



a,b

MNGP- EMCB-SD-RAI-30

Section 2.2 of Westinghouse Report WCAP-17252-P, Rev. 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project" describes the development of the finite volume model of the steam volume in the reactor, above the water level. It is not clear how the dryer banks are dealt with in this model. Please include details regarding the modeling of the dryer banks into the finite volume model, and substantiate the value of the sound absorption coefficient that is assigned to these banks.

Response:



a,b

MNGP- EMCB-SD-RAI-31

Westinghouse Report WCAP-17252-P, Rev. 0, "Acoustic Loads Definition for the Monticello Steam Dryer Replacement Project" provides plots of maximum dryer load pressure spectra (or spectral densities - it is not clear which is plotted) for each quadrant of the dryer. Please either

(a) provide the reference for the dB scales used in the plots, being sure to plot spectral densities, or (b) plot the spectra in the more typical log scale, in units of (psid)²/Hz.

Response:

The plots were revised to provide maximum dryer load pressure spectra in the units of PSID²/Hz as requested. [

] ^{a,b}

MNGP- EMCB-SD-RAI-32

Enclosure 5 to NSP letter L-MT-10-046 is WCAP-17251-P, Revision 0, "Monticello Replacement Steam Dryer Four-Line Acoustic Subscale Testing Report." Reference 4 listed on page 2 of 23 of Enclosure 9 is WCAP-17251-P, Revision 0, "Monticello Plant Data Processing and Subscale Testing Report." However, the report provided in Enclosure 5 of the same letter, mentioned above, has the same document number (WCAP-17251-P, Revision 0), but a different title and does not include any discussion of the analysis or processing of the plant data. Please clarify this discrepancy and provide a document which includes a discussion of the processing of the plant data.

Response:

[] a,b

MNGP- EMCB-SD-RAI-33

Please provide a summary of the size and dimensions, flow rates, and geometrical characteristics of the currently operating "Nordic" steam dryer compared with those of the Monticello replacement steam dryer.

Response:

[] a,b

Westinghouse Non-Proprietary Class 3

Page 43 of 60

Our ref: LTR-A&SA-12-10, Rev. 1

a,b

a,b

MNGP-EMCB-SD-RAI-35

The licensee submitted the fatigue assessment results for the RSD in WCAP-17085-P, Revision 1, "Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads".

- (a) Section 7.3, "Calculation and Evaluation of Weld Stresses," of the report, states that the majority of the welds in the RSD are full-penetration welds. One exception is the weld between the vane banks and the troughs, which is a fillet weld. Please identify and summarize if there are any other fillet welds in the dryer. If there are, please identify them and provide dimensions for the ones that are undersized.

Response:

a,b

(b) The licensee presented a method to calculate nominal stresses at the weld line of the fillet weld and applies them to the fillet weld between the vane banks and the troughs. Then the licensee multiplied the calculated nominal stress by the fatigue strength reduction factor of 4.0. The resulting maximum alternating stress intensity for this weld under EPU conditions is 6,791.3 psi, as stated in Section 8.3 of the report. The resulting

ratio ($13,600/6,791.3 = 2.003$) is very close to 2.0. Please provide the uncertainty associated with calculation of the nominal stresses.

Response

[

$f^{a,b}$

MNGP-EMCB-SD-RAI-36

The applicant submitted the fatigue assessment results for the RSD in the Westinghouse WCAP-17085-P, Rev. 1. Section 7.1.1, "Unit Load Harmonic Solutions," of the report describes the model support (boundary) conditions and states, "*However, for any out-of-balance loads (in the in-plane direction) due to the acoustic loads, it is assumed that only two of the four lugs would be active. Thus, two sets of boundary conditions are evaluated.*" Please provide a rationale for selecting two out of the four lugs instead of all four lugs to be active.

Response:

[

a,b

MNGP-EMCB-SD-RAI-37 The applicant submitted the fatigue assessment results for the RSD in WCAP-17085-P, Rev. 1. Section 8.2, "Sub-modeling," discusses the application of the sub-modeling procedure to the middle hood and middle hood stiffener. Please confirm that the resulting stress field along the cut boundaries (also called intersection lines) does not deviate from the global model as the mesh around the points of interest (maximum stress locations) refined.

Response:

[] a,b

MNGP-EMCB-SD-RAI-38

In WCAP-17251-P, Rev. 0, the bump-up factors at various strain gage locations are shown in Figures 5.6-1 to 5.6-4 as functions of frequency. Over several frequency ranges, the bump-up factors are taken to be lower than the square of the steam velocity ratio, which is equal to $(V_{EPU}/V_{CLTP})^2 = 1.35$. BWRVIP-182 report, "Guidance for Demonstration of Steam Dryer Integrity for Power Uprate," recommends using the velocity squared ratio as a "minimum value" for the bump-up factor when the SMT results yield lower values. This procedure was agreed upon and confirmed in the response to NRC RAI 8 on Report BWRVIP-182. In this response, BWRVIP stated that "At any frequency, the factor used to increase the in-plant CLTP pressures shall not be less than the ratio of flow velocities squared." Therefore, in the stress analysis at EPU conditions for MNGP, please use a bump-up factor at least equal to the ratio of flow velocities squared (1.35) whenever the SMT yields a lower value.

Response:

[] a,b

MNGP-EMCB-SD-RAI-39

The licensee is requested to provide a summary table of the operating and geometric parameters of the European and/or other BWRs with the Nordic steam dryer in comparison to that of the proposed replacement steam dryer Monticello. The operating parameters should include length of operation, power level, steam velocities, steam quality, steam temperature, moisture content, and steam pressure. The geometric parameters should include steam dryer diameter; vessel shape, diameter and height; main steam line (MSL) diameter and entry points to the reactor pressure vessel; relative locations of safety valves along the MSLs; valve standpipe diameters and lengths, and the presence of any dead-end pipe segments.

Response:

See Response to MNGP-EMCB-SD-RAI-33.

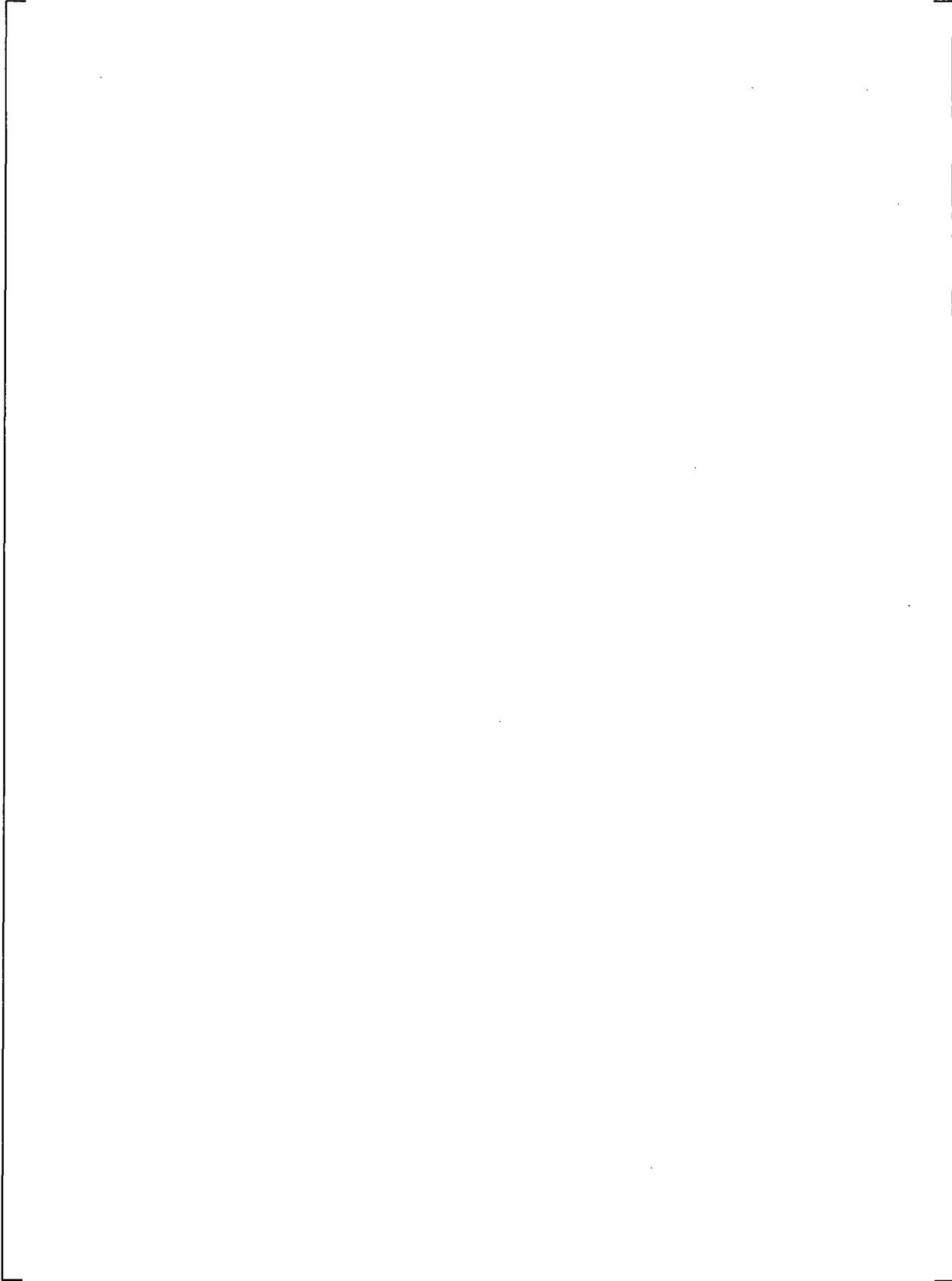
MNGP-EMCB-SD-RAI-40

The licensee is requested to provide a summary of the operating experience describing whether any Nordic steam dryer has experienced cracking or other damage during operation. In the case that there was Nordic dryer cracking or damage, the licensee is requested to explain what caused the damage. If the damage includes fatigue cracking, the licensee is requested to provide a root cause analysis report for such cracking. The licensee is further requested to demonstrate that the stress analysis approach proposed for the Monticello replacement steam dryer will have the capability to predict such cracking and the cracking location(s) to provide assurance regarding the validation of the proposed approach.

Response:

[Empty response box]

a,b



a,b

Response to Action Items from “Audit Report by the Office of Nuclear Reactor Regulation Replacement Steam Dryer – Nordic Steam Dryer Supplied by Westinghouse Monticello Nuclear Generating Plant Extended Power Uprate License Amendment Request (TAC No. MD9990)”, Accession No. 11144A096

Action Item 1

The licensee is requested to provide a summary of the instrumentation installed on the replacement steam dryer, including the locations and the logic of choosing the locations. The summary may include the as-installed orientation of the sensors and the offset effects of pressure transducer caps.

Response:

Northern States Power, Minnesota (NSPM) has installed the RSD along with direct steam dryer monitoring instrumentation which consisted of []^{a,b} mounted directly to the RSD. []

The []^{a,b} were selected for their resistance to the environmental conditions to be found inside the reactor vessel steam dome, in addition to meeting the data gathering requirements of this project. All []^{a,b} have acceptable operational history in similar environments.

The location and justification of RSD instrumentation was made available to the NRC in Westinghouse document []^{a,b} as part of the NRC Audit Report by the Office of Nuclear Reactor Regulation Replacement Steam Dryer – Nordic Steam Dryer Supplied by Westinghouse Monticello Nuclear Generating Plant Extended Power Uprate (EPU) License Amendment Request (TAC No. MD9990 (Accession No. ML11144A096)). In section 3.2, Item 4 of the audit report, the NRC reviewed the steam dryer instrumentation, its' location, the data acquisition plan and determined them “to be well founded and grounded in previously successful in-plant measurement programs”. The NRC staff found the dryer instrumentation and data acquisition plans acceptable.

Action Item 2:

The licensee is requested to quantify the difference between the predictions of the current ACM 4.0 and the new version of ACM, which will be used during power ascension, in terms of steam dryer pressure sensor measurements and locations.

Response:

[] a,b

Action Item 3:

The licensee is requested to ensure that the future submittals reflect the fact that the locations of the instrumentation were determined based on the results of current ACM 4.0 and that the final submittal for Monticello will reflect the use of the new version of ACM.

Response:

[] a,b

Action Item 4:

The licensee is requested to discuss the treatment of the background noise and ensure that this treatment will be consistent during power ascension.

Response:

[] a,b

Action Item 5:

The licensee is requested to determine the finite element mesh convergence error (bias error) in the calculated displacements and stresses at CLTP prior to power ascension to EPU. The licensee is requested to include this error in estimating predicted stresses.

Response:

[] a,b

Action Item 6:

The licensee is requested to establish bias and uncertainty of FE model response transfer function calculations based on comparison to the modal test data.

Response:

[Empty response box]

a,b

[Redacted content]

a,b

Action Item 7:

The licensee is requested to provide a table of bias and uncertainty for each of the different steps taken for predicting and measuring the dryer stresses. The licensee is also requested to discuss how this will be applied to the final measured and calculated stress results, for example, the uncertainties on instrumentation/data acquisition system will be on measurements.

Response:

[Redacted content]

a,b

Action Item 8

The licensee is requested to use the steam dryer strain gauge measurements at 90% and 100% CLTP for making the “end-to-end comparison” - start from the beginning (i.e., MSL strain gauge measurements), applying all of the validated tools along with their bias and uncertainties, and determine whether the predicted strains/stresses are conservative. If not, the licensee is requested to determine additional bias and uncertainties.

Response:

[] a,b

Action Item 9:

The licensee is requested to provide validation of trending of steam dryer stresses and pressures using the measurements made during power ascension to CLTP.

Response:

[] a,b

Action Item 10:

The licensee is requested to add/update a power level for data collection that is likely to capture the contribution of the double vortex mode (55%-60% CLTP), if it exists.

Response:

[] a,b

Action Item 11:

The licensee is requested to evaluate power ascension data to CLTP and determine whether the dryer strain gauges/accelerometers measurements show a response to the recirculation pump vane passing frequency and explaining how it will be accounted for in predicting the steam dryer stresses.

Response:

[Empty response box]

a,b

Action Item 12:

In the finite element model of the replacement steam dryer, the vane banks are modeled as rigid members; actual stiffness of the vane banks is not modeled. The licensee is requested to explain how this modeling approach affects the mode shapes and, therefore, the dynamic response of the dryer.

Response:

See the response to MNGP- EMCB-SD-RAI-30.

Action Item 13:

The licensee is requested to describe the power ascension plan for the replacement steam dryer from CLTP to EPU including the detailed description and justification of primary and secondary licensing paths. The licensee is also requested to provide explicit criteria and conditions under which secondary licensing path will be followed.

Response:

[Empty response box]

a,b

Action Item 14:

The licensee is requested to evaluate the possibility of loose parts generation due to potential failure at high stress locations in the replacement steam dryer.

Response:

[Empty response box]

a,b

As a result, it would not reasonably be expected that a loose part will be generated due to excessive operating plant stresses.

Action Item 15:

The licensee is requested to provide a summary of the structural design enhancements in the replacement steam dryer compared to the original equipment manufacturer (OEM) design.

Response :

a,b



a,b

Action Item 16:

The licensee is requested to provide the following information in a summary table (similar to that provided during the audit, which was from the SEM 10-163), for various Nordic plants without revealing the plants' specific identification, such as the name.

- Quantification of the differences in the annular space between the OEM and replacement steam dryers in-situ (vessel internal diameter to outer hood reference point)

Response: [*J^{a,b}*]

- Duration the dryer has been in operation prior to the most recent inspection.

Response: [*J^b*]

- Description of how the inspection program for the steam dryer in the Nordic region compares with that in the United States.

Response:

[

J^b

- Duration the dryers have been in operation

Response: [$J^{a,b}$

- Comparison of margins between Monticello and the Nordic plants in terms of the spread between the operating conditions and the predicted onset Mach numbers/steam velocities.

Response:

[$J^{a,b}$

- Description of how the high stress regions are inspected in the Nordic region.

Response: [$J^{a,b}$

- Description of how the high stress region in the replacement steam dryer will be inspected. Explanation on how the inspection method will be qualified for detecting high cycle fatigue cracks.

Response: [

$J^{a,b}$

Action Item 18:

During the audit the NRC staff was informed that some of the original dryers in the Nordic plants experienced fatigue cracking. Therefore, the original steam dryers were replaced with the Nordic dryers. The licensee is requested to summarize the root cause analysis for the fatigue cracking of the original dryers.

Response:

[$J^{a,b}$