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Serial No: MNS-17-050

December 13, 2017

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

Subject: Duke Energy Carolinas, LLC (Duke Energy)
McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369 and 50-370
Review Request for the Aging Management Program and Inspection Plan for the McGuire Nuclear Station Units 1 and 2 Reactor Vessel Internals to Implement MRP-227-A

McGuire's Updated Final Safety Analysis Report (UFSAR) Section 18.2.23 contains the existing reactor vessel internals (RVI) inspection commitments. This UFSAR section contains an allowance that permits Duke Energy to modify or eliminate these inspections if plant-specific justification is provided to demonstrate the basis for the modification or elimination. Additionally, as part of its license renewal, Duke Energy stated they would participate in industry activities associated with RVI-related issues and that the McGuire RVI Program is subject to future enhancements as the industry's understanding of degradation continues to improve. The industry efforts have defined the required inspections and examination techniques for those components critical to aging management of RVI. The results of the industry recommended inspections serve as the basis for identifying any augmented inspections that are required to complete the McGuire RVI Program.

By letter dated June 16, 2010, Duke Energy notified the Nuclear Regulatory Commission (NRC) of its intent to revise its commitments for RVI inspections from those that currently exist in McGuire's UFSAR to the inspection guidelines provided by Materials Reliability Program (MRP)-227 as approved by the NRC (i.e., MRP-227-A).

By letter dated March 19, 2014, Duke Energy notified the NRC of its intent to submit a plant-specific RVI inspection plan for McGuire to implement MRP-227-A no later than two years before the initial inspection.

By letter dated February 23, 2017, Duke Energy notified the NRC that the expected inspection plan submittal date for McGuire is Fall 2017. The expected initial inspection dates are Spring 2019 and Spring 2023 for McGuire Units 1 and 2, respectively, but may be subject to change.

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NRR

Attachment 2 to this letter contains proprietary information.
Withhold from public disclosure under 10 CFR 2.390.
Upon removal of Attachment 2, this letter is uncontrolled.

Attachment 1 contains the Aging Management Program (AMP) and Inspection Plan for the McGuire Nuclear Station Units 1 and 2 Reactor Vessel Internals (Non-Proprietary). This document includes the information identified in Section 3.5.1 of the NRC Safety Evaluation on MRP-227, Revision 0, and therefore meets the requirement for application of MRP-227-A as a strategy for managing age-related material degradation in reactor vessel internal components. Once this document is approved by the NRC, the McGuire UFSAR will be updated as required.

As a result of the review of the Applicant/Licensee Action Items (A/LAIs) 1 and 2 responses submitted by the industry, the NRC has requested that additional information on fuel design/management and cold work assessments be provided to support plant-specific demonstration of MRP-227-A applicability. Attachments 2, 3 and 4 below are intended to supplement the discussion of A/LAIs 1 and 2 in Section 6.2 of Attachment 1.

Attachment 2 contains the McGuire Units 1 & 2 Summary Report for the Fuel Design/Fuel Management Assessments to Demonstrate MRP-227-A Applicability (Proprietary).

Attachment 3 contains the McGuire Units 1 & 2 Summary Report for the Fuel Design/Fuel Management Assessments to Demonstrate MRP-227-A Applicability (Non-Proprietary).

Attachment 4 contains the McGuire Units 1 & 2 Summary Report for the Cold Work Assessment (Non-Proprietary).

Attachment 5 contains the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-17-4641, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Attachment 2 contains information proprietary to Westinghouse Electric Company LLC ("Westinghouse"), 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 NRC and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the NRC'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 NRC's regulations. Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse Affidavit should reference CAW-17-4641 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

Attachment 6 contains the list of open items/commitments and corresponding due dates.

Duke Energy requests NRC approval of this submittal by June 3, 2019, to support MRP-227 implementation activities. If you have any questions or require additional information, please contact P.T. Vu of Regulatory Affairs at (980) 875-4302.

Attachment 2 to this letter contains proprietary information.
Withhold from public disclosure under 10 CFR 2.390.
Upon removal of Attachment 2, this letter is uncontrolled.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 13, 2017.

Thomas D. Ray

Attachments

xc:

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Andy Hutto
NRC Senior Resident Inspector
McGuire Nuclear Station

ATTACHMENT 3

McGuire Units 1 & 2 Summary Report for the Fuel Design/Management Assessments to Demonstrate MRP-227-A Applicability

(Non-Proprietary)

Attachment 2: McGuire Units 1 & 2 Summary Report for the Fuel Design / Fuel Management Assessments to Demonstrate MRP-227-A Applicability (Non-Proprietary)

MRP 2013-025 GUIDELINES TO DEMONSTRATE MRP-227-A APPLICABILITY FOR McGuire UNITS 1 AND 2 REACTOR INTERNALS AGING MANAGEMENT FUEL DESIGN / FUEL MANAGEMENT ASSESSMENTS

1 Introduction and Purpose

Applicant/Licensee Action Item 1 from the U.S. Nuclear Regulatory Commission (NRC) staff's final safety evaluation of MRP-227-A, "Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines (MRP-227-A)," (Reference 1) states that:

> "Each applicant/licensee shall refer, in particular, to the assumptions regarding plant design and operating history made in the FMECA and functionality analyses for reactors of their design (i.e., Westinghouse, CE, or B&W) which support MRP-227 and describe the process used for determining plant-specific differences in the design of their RVI components or plant operating conditions, which result in different component inspection categories."

As a result of the technical discussions between the NRC staff, Westinghouse, The Electric Power Research Institute (EPRI) and utility representatives, the basis for a plant to respond to the NRC's Request for Additional Information (RAI) to demonstrate compliance with MRP-227-A for originally licensed and uprated conditions was determined to be satisfied with plant-specific responses to the following two questions (References 2 and 3):

Question 1 Does the plant have non-weld or bolting austenitic stainless steel (SS) components with 20 percent cold work or greater, and, if so, do the affected components have operating stresses greater than 30 ksi? (If both conditions are true, additional components may need to be screened in for stress corrosion cracking, SCC.)

Question 2 Does the plant have atypical fuel design or fuel management that could render the assumptions of MRP-227-A, regarding core loading/core design, non-representative for that plant?

The information provided herein addresses NRC RAI, Question 2 from References 2 and 3 for McGuire Units 1 & 2.

1.1 McGuire Units 1 and 2 Evaluation for Question 2

McGuire Units 1 & 2 have not utilized atypical fuel design or fuel management that could make the assumptions of MRP-227-A regarding core loading/core design non-representative for those units, including power changes/uprates that have occurred over their operating lifetimes. This conclusion is based on comparisons of the McGuire Units 1 & 2 core geometries and operating characteristics with the MRP-227-A applicability guidelines for Westinghouse-designed reactors specified in Reference 4.

Specifically, the comparisons with the MRP-227-A applicability guidelines presented in the following sub-sections were established for the key reactor internals components at McGuire Units 1 & 2.

1.1.1 Components Located Beyond the Outer Radius of the Reactor Core

Guideline 1 - The reactor has been operated with out-in fuel management for 30 years or less and all future operation will use low leakage fuel management.

Comparison - Both McGuire Units 1 & 2 have initiated low leakage fuel management strategies. Unit 1 implemented a low leakage strategy in the 15th cycle following 16.71 years of operation and Unit 2 implemented a low leakage strategy in the 11th cycle following 10.95 years of operation. Both units have been implementing low leakage core designs since the time of these transition cycles and there are no current plans to return to out-in fuel management.

Guideline 2 - For operation going forward, the average power density of the reactor core (as defined in Reference 4) shall be less than 124 W/cm^3.

Comparison - For the last five operating fuel cycles (Cycles 20 through 24), McGuire Unit 1 has been operating at the following power levels (core power densities for 193 fuel assembly geometry):

- Cycles 20-23: 3411 MWt (104.50 W/cm^3)
- Cycle 24: 3469 MWt (106.28 W/cm^3)

For the last five operating fuel cycles (Cycles 20 through 24), McGuire Unit 2 has been operating at the following power levels (core power densities):

- Cycles 20-21: 3411 MWt (104.50 W/cm^3)
- Cycle 22: 3428 MWt (105.02 W/cm^3)
- Cycles 23-24: 3469 MWt (106.28 W/cm^3)

For both units, the final Cycle 24 power generation level is also representative of anticipated future operation.

Guideline 3 - For operation going forward, the nuclear heat generation rate figure of merit (HGR-FOM) (as defined in Reference 4) shall not exceed 68 W/cm^3.

Comparison - For the last five operating fuel cycles (Cycles 20 through 24) at the McGuire plants, the HGR-FOM at key baffle locations has ranged between [ ]^{a,c} for Unit 1 and between [ ]^{a,c} for Unit 2. This range of HGR-FOM is representative of anticipated future operation.

1.1.2 Components Located Above the Reactor Core

Guideline 1 - Considering the entire operating lifetime of the reactor, the average power density of the core (as defined in Reference 4) shall not equal or exceed 124 W/cm^3 for a period of more than two years.

Comparison - Over the operating lifetime of McGuire Units 1 & 2, the rated core power level, including power uprates, has varied between 3411 MWt and 3469 MWt. This variation of rated power level corresponds to a power density range of 104.50 W/cm^3 to 106.28 W/cm^3.

Guideline 2 - Considering the entire operating lifetime of the reactor, the distance between the top of the active fuel stack and the bottom of the upper core plate (UCP) shall not be less than or equal to 12.2 inches for a period of more than two years.

Comparison - For the McGuire Units 1 & 2 reactor internals and fuel assembly geometries, the nominal distance between the top of the active fuel stack and the bottom of the UCP averaged over the first 24 fuel cycles of operation was [ ]^{a,c} inches for both Unit 1 and Unit 2. During that period of time, the nominal distance between the bottom of the UCP and the top of the active fuel was greater than 12.2 inches for all fuel cycles except for a limited number of cycles when non-Westinghouse fuel was utilized. The cycles in which the distance between the bottom of the UCP and the top of the active fuel was less than 12.2 inches were as follows:

- Unit 1: Cycles 9-14 the distance from top of fuel to bottom of UCP ranged from [ ]^{a,c} inches
- Unit 2: Cycles 9-13 the distance from top of fuel to bottom of UCP ranged from [ ]^{a,c} inches

Although a fuel-assembly-to-UCP gap of less than 12.2 inches for a period greater than two calendar years violated the established MRP-227-A criterion, further evaluation demonstrated that the increase in neutron flux caused by the loss of attenuation over that time period was offset by the margin afforded by the lower operating power density over the entire plant lifetime.

This evaluation demonstrated that, for all fuel cycles of both units, the MRP-227-A power density criterion was met with margins of approximately [ ]^{a,c}. This margin in power density translated directly into a neutron flux reduction relative to that which would be allowed for plant operation at the 124.0 W/cm^3 criterion. Conversely, the increase in neutron flux for the fuel cycles associated with the smaller gaps was estimated to exceed the limit value corresponding to a 12.2 inch gap by approximately [ ]^{a,c} for the cycles identified above. For all other fuel cycles of both units, the fuel-assembly-to-UCP criterion was met with associated margins in the resulting flux varying from [ ]^{a,c}.

When the entire operating periods of McGuire Units 1 & 2 are considered, the significantly larger margins associated with the lower power densities compensate for the small increase in neutron flux due to the loss of attenuation during the cycles identified above. Therefore, it can be concluded that for McGuire Units 1 & 2, the combined effects of cycle-dependent power densities and fuel configurations would result in neutron fluxes at the components located above the reactor core that are less than the neutron fluxes generated by operation with power densities and fuel-assembly-to-UCP configurations based directly on the values specified as the MRP-227A criteria.

1.1.3 Components Located Below the Reactor Core

Based on the discussion provided in Reference 1, plant-specific applicability of MRP-227-A for components located below the reactor core with no further evaluation required is demonstrated by meeting the MRP-227-A, Section 2.4 criteria.

2 References

1. *Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines* (MRP-227-A). EPRI, Palo Alto, CA: 2011. 1022863.
2. USNRC Letter, "Summary of February 25, 2013, Telecom with the Electric Power Research Institute and Westinghouse Electric Company," March 15, 2013. (ADAMS Accession No. ML13067A262)
3. USNRC Presentation: "Status of MRP-227-A Action Items 1 and 7," June 5, 2013. (ADAMS Accession No. ML13154A152)
4. EPRI Letter MRP 2013-025, "MRP-227-A Applicability Template Guideline," October 14, 2013. (ADAMS Accession No. ML13322A454)

ATTACHMENT 4

McGuire Units 1 & 2 Summary Report for the Cold Work Assessment

(Non-Proprietary)

Appendix A

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

As a result of the review of the Applicant/Licensee Action Items (A/LAI) 1, 2, and 7 responses submitted by the industry, the NRC has requested that additional information on cold work in Reactor Vessel Internals (RVI) be provided to support A/LAI 1 plant-specific demonstration of MRP-227-A applicability. The issue of cold work in stainless steel relates to the criteria in MRP-175 [3] for stress corrosion cracking (SCC). The specific NRC question is focused on whether the materials of original construction for the domestic fleet RVI components contain "severe cold work" (greater than 20%). A guideline template (MRP 2013-025 [1]) was completed by Westinghouse and the Electric Power Research Institute (EPRI) to define a process for evaluating cold work in the RVI component materials. For the purposes of this evaluation it is noted that the assessments are based on the screening and binning process based exclusively on material specifications. This assessment did not specifically investigate any other avenues, such as field installation.

The MRP-227-A Applicability Template Guideline as summarized in MRP 2013-025 [1] is followed to support the assessment and response to the NRC.

McGuire Unit 1

Westinghouse has evaluated the McGuire Unit 1 reactor internals components according to industry guideline MRP 2013-025 [1] and the MRP-191 [2] industry generic component listings and screening criteria (including consideration of cold work as defined in MRP-175 [3], noting the requirements of Section 3.2.3). In addition to consideration of the material fabrication, forming, and finishing process, a general screening definition of "severe cold work", a resulting reduction in wall thickness of 20%, was applied as an evaluation limit. It was confirmed that all McGuire Unit 1 components, as applicable for design, are included directly in the MRP-191 component lists. The evaluation included a review of all plant modifications affecting reactor internals and the plant operating history. The components were procured according to ASTM International or ASME material specifications that were called out in the original plant construction drawings. Material and component procurement was through applicable quality controlled protocols. Thus material identification based on the material call outs and notes in the component drawings was an efficient and reasonable approach to identifying the material of construction of the components in McGuire Unit 1.

Based on the specifications utilized in the plant component drawings it was possible to immediately bin the components into the five material categories identified in EPRI MRP 2013-025. McGuire Unit 1 components were binned according to the following categories for the materials used in component fabrication:

Categories based on MRP 2013-025 include the following:

- Cast Austenitic Stainless Steel (CASS) (Category 1)
- hot-formed austenitic stainless steel (Category 2)
- annealed austenitic stainless steel (Category 3)
- fasteners austenitic stainless steel (Category 4)

- cold-formed austenitic stainless steel without subsequent solution annealing (Category 5)

The potential for cold work is directly controlled by the materials specifications. Essentially all of the components that are binned (based on their specified materials) as Category 1, 2, and 3 are non-cold-worked; they therefore have less than 20% cold work according to the NRC criteria. Similarly any component binned under Category 5 by definition has the potential to contain greater than 20% cold work. Category 4 materials are fasteners that may have been intentionally strain hardened. The strain hardening according to guidelines should have been intentionally restricted to less than 20%. Frequently Westinghouse call out and material definition in drawings identify maximum yield stress restrictions on these materials, which allows the identification of the cold work level. In some cases however, these restrictions are not present on drawings. Restrictions or limitations on the material Yield Stress (e.g. maximum 90 ksi) would indicate that the material cold work would be limited to be less than 20% cold work. In the absence of a maximum restriction on the yield stress of strain hardened material a conservative approach has been taken to indicate the potential for greater than 20% cold work.

Where multiple options existed for a component or assembly, the bounding condition was taken as the option that had the greater potential to include greater than 20% cold work. This option was then employed in the assessment of the component, and was selected for the purposes of the assessment. In some instances sequential fabrication would appear to mitigate any potential for cold work, however, since the historical record was not detailed the potential is noted but a conservative approach was selected for this assessment.

The evaluation of the materials of record, performed in accordance with the industry guideline, identified reactor internals components that could by virtue of their specified material be binned into Categories 1, 2, 3, and 5 and therefore identified directly as having cold work less than 20% or greater than 20%. No components were found that were binned as Category 5 with greater than 20% cold work for McGuire Unit 1. The only materials with the potential for greater than 20% cold work were strain hardened fasteners binned as Category 4 materials. Material drawing notes and Westinghouse purchasing specifications that were employed in addition to ASME and ASTM specifications for parts purchase were found to generally limit the strength of the employed materials, such that the use of greater than 20% cold work material would be precluded in the construction of McGuire Unit 1. Thus, the detailed evaluation for Applicant/Licensee Action Item for McGuire Unit 1 cold work assessments concluded that the plant-specific material fabrication and design was consistent with the MRP-191 basis and the MRP-227-A sampling inspection aging management requirements as related to cold work are directly applicable to McGuire Unit 1.

McGuire Unit 2

Westinghouse has evaluated the McGuire Unit 2 reactor internals components according to industry guideline MRP 2013-025 [1] and the MRP-191 [2] industry generic component listings and screening criteria (including consideration of cold work as defined in MRP-175 [3], noting the requirements of Section 3.2.3). In addition to consideration of the material fabrication,

forming, and finishing process, a general screening definition of "severe cold work", a resulting reduction in wall thickness of 20%, was applied as an evaluation limit. It was confirmed that all McGuire Unit 2 components, as applicable for design, are included directly in the MRP-191 component lists. The evaluation included a review of all plant modifications affecting reactor internals and the plant operating history. The components were procured according to ASTM International or ASME material specifications that were called out in the original plant construction drawings. Material and component procurement was through applicable quality controlled protocols. Thus material identification based on the material call outs and notes in the component drawings was an efficient and reasonable approach to identifying the material of construction of the components in McGuire Unit 2.

Based on the specifications utilized in the plant component drawings it was possible to immediately bin the components into the five material categories identified in EPRI MRP 2013-025. McGuire Unit 2 components were binned according to the following categories for the materials used in component fabrication:

Categories based on MRP 2013-025 include the following:

- Cast Austenitic Stainless Steel (CASS) (Category 1)
- hot-formed austenitic stainless steel (Category 2)
- annealed austenitic stainless steel (Category 3)
- fasteners austenitic stainless steel (Category 4)
- cold-formed austenitic stainless steel without subsequent solution annealing (Category 5)

The potential for cold work is directly controlled by the materials specifications. Essentially all of the components that are binned (based on their specified materials) as Category 1, 2, and 3 are non-cold-worked; they therefore have less than 20% cold work according to the NRC criteria. Similarly any component binned under Category 5 by definition has the potential to contain greater than 20% cold work. Category 4 materials are fasteners that may have been intentionally strain hardened. The strain hardening according to guidelines should have been intentionally restricted to less than 20%. Frequently Westinghouse call out and material definition in drawings identify maximum yield stress restrictions on these materials, which allows the identification of the cold work level. In some cases however, these restrictions are not present on drawings. Restrictions or limitations on the material Yield Stress (e.g. maximum 90 ksi) would indicate that the material cold work would be limited to be less than 20% cold work. In the absence of a maximum restriction on the yield stress of strain hardened material a conservative approach has been taken to indicate the potential for greater than 20% cold work.

Where multiple options existed for a component or assembly, the bounding condition was taken as the option that had the greater potential to include greater than 20% cold work. This option was then employed in the assessment of the component, and was selected for the purposes of the assessment. In some instances sequential fabrication would appear to mitigate any potential for cold work, however, since the historical record was not detailed the potential is noted but a conservative approach was selected for this assessment.

The evaluation of the materials of record, performed in accordance with the industry guideline, identified reactor internals components that could by virtue of their specified material be binned into Categories 1, 2, 3 and 5 and therefore identified directly as having cold work less than 20% or greater than 20%. No components were found that were binned as Category 5 with greater than 20% cold work for McGuire Unit 2. The only materials with the potential for greater than 20% cold work were strain hardened fasteners binned as Category 4 materials. Material drawing notes and Westinghouse purchasing specifications that were employed in addition to ASME and ASTM specifications for parts purchase were found to generally limit the strength of the employed materials, such that the use of greater than 20% cold work material would be precluded in the construction of McGuire Unit 2. Thus, the detailed evaluation for Applicant/Licensee Action Item for McGuire Unit 2 cold work assessments concluded that the plant-specific material fabrication and design was consistent with the MRP-191 basis and the MRP-227-A sampling inspection aging management requirements as related to cold work are directly applicable to McGuire Unit 2.

1. EPRI Letter MRP 2013-025, "MRP-227-A Applicability Template Guideline," October 14, 2013.
2. *Materials Reliability Program: Screening, Categorization, and Ranking of Reactor Internals Components for Westinghouse and Combustion Engineering PWR Design (MRP-191)*. EPRI, Palo Alto, CA: 2006. 1013234.
3. *Materials Reliability Program: PWR Internals Material Aging Degradation Mechanism Screening and Threshold Values (MRP-175)*. EPRI, Palo Alto, CA: 2005. 1012081.

ATTACHMENT 5

Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-17-4641, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice

Westinghouse Non-Proprietary Class 3

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CAW-17-4641

September 26, 2017

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-REA-17-108, Rev. 0, Attachment 1, "McGuire Units 1 & 2 Summary Report for the Fuel Design/Fuel Management Assessments to Demonstrate MRP-227-A Applicability" (Proprietary)

The Application for Withholding Proprietary Information from Public Disclosure is submitted by Westinghouse Electric Company LLC ("Westinghouse"), pursuant to the provisions of paragraph (b)(1) of Section 2.390 of the Nuclear Regulatory Commission's ("Commission's") regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-17-4641 signed by the owner of the proprietary information, Westinghouse. 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 Duke Energy.

Correspondence with respect to the proprietary aspects of the Application for Withholding or the Westinghouse Affidavit should reference CAW-17-4641, and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

James A. Gresham, Manager
Regulatory Compliance

CAW-17-4641

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF BUTLER:

I, James A. Gresham, am authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC ("Westinghouse") and declare that the averments of fact set forth in this Affidavit are true and correct to the best of my knowledge, information, and belief.

Executed on: 9/26/17

James A. Gresham, Manager
Regulatory Compliance

(1) I am Manager, Regulatory Compliance, 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 Nuclear Regulatory Commission's ("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 constitute Westinghouse policy and provide 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.

(iii) 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.

(iv) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, is to be received in confidence by the Commission.

(v) 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.

(vi) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in LTR-REA-17-108, Rev. 0 Attachment 1, "McGuire Units 1 & 2 Summary Report for the Fuel Design/Fuel Management Assessments to Demonstrate MRP-227-A Applicability" (Proprietary), for submittal to the Commission, being transmitted by Duke Energy letter. The proprietary information as submitted by Westinghouse is that associated with Nuclear Regulatory Commission Request for Additional Information (RAI), Question 2 from EPRI Letter MRP 2013-025, "MRP-227-A Applicability Template Guideline," October 14, 2013. (ADAMS Assession No. ML13154A152), and may be used only for that purpose.

(a) This information is part of that which will enable Westinghouse to support reactor vessel internals aging manage.

(b) Further, this information has substantial commercial value as follows:

(i) Westinghouse plans to sell the use of similar information to its customers for the purpose of supporting reactor vessel aging management.

(ii) Westinghouse can sell support and defense of industry guidelines and acceptance criteria for plant-specific applications.

(iii) 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 non-proprietary versions of a document, 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).

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ATTACHMENT 6

List of Open Items/Commitments and Corresponding Due Dates

The following table identifies the regulatory commitments in this document. Any other statements in this submittal represent intended or planned actions. They are provided for information purposes and are not considered to be regulatory commitments.

Commitment	Due Date
1. Incorporate in the McGuire Updated Final Safety Analysis Report (UFSAR) a description of the Aging Management Program and Inspection Plan for the McGuire Nuclear Station Units 1 and 2 Reactor Vessel Internals (Application to Implement MRP-227-A).	In the next periodic update of the UFSAR in accordance with 10 CFR 50.71(e) after NRC approval
2. Submittal to address Access Plug Assembly Springs in accordance with Applicant/Licensee Action Items 1 and 2.	May 31, 2018
3. Submittal to address Anti-Vibration Sleeves in accordance with Applicant/Licensee Action Items 1 and 2.	May 31, 2018
4. Submittal to address Upflow Conversion Modification in accordance with Applicant/Licensee Action Items 1 and 2.	May 31, 2018