

August 31, 2018

Docket Nos.: 52-025
52-026

ND-18-0635
10 CFR 50.55a

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

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Response to Request for Additional Information Regarding Application of VT-1 Visual
Examination Methodology for Preservice Inspection of the
Reactor Vessel Nozzle Inner Radius Sections (VEGP 3&4-PSI-ALT-07S3)

Ladies and Gentlemen:

By letter dated July 6, 2017, Southern Nuclear Operating Company (SNC) submitted a request for an alternative in accordance with 10 CFR 50.55a for preservice inspection of the Reactor Vessel Nozzle Inner Radius Sections [ML17192A125]. On October 30, 2017, the Nuclear Regulatory Commission (NRC) staff issued a draft request for additional information (RAI) [ML17303A270]. The responses to the RAI questions were provided on December 8, 2017 [ML17342A826]. The NRC provided a second draft RAI on February 6, 2018 and additional clarification was provided during the February 15, 2018 public meeting. On February 23, 2018, the RAI was issued [ML18054A672]. The responses to the RAI questions were provided on March 8, 2018 [ML18067A287]. The NRC provided a third RAI on April 4, 2018 [ML18094B066].

The responses to the RAI questions are included in Enclosure 5 (non-proprietary) and Enclosure 6 (proprietary), which supplement the original code alternative.

- Enclosure 5 provides the non-proprietary (i.e., redacted) supplemental information in response the NRC Staff's RAIs.
- Enclosure 6 provides the proprietary (i.e., non-redacted) supplemental information in response the NRC Staff's RAIs. **Enclosure 6 provides information that is considered to be proprietary; therefore, Enclosure 6 is requested to be withheld from disclosure to the public under 10 CFR 2.390.**
- Enclosure 7 provides the SNC affidavit for withholding proprietary information contained in Enclosure 6.
- Enclosure 8 provides the Westinghouse affidavit for withholding proprietary information contained in Enclosure 6.

The supplemental information provided in this letter does not impact the scope or conclusions of the original alternative.

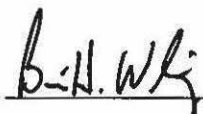
This letter contains no regulatory commitments. This letter has been reviewed and determined not to contain security related information.

The requested approval date for the subject code alternative is changed to September 28, 2018.

Should you have any questions, please contact Mr. Corey Thomas at (205) 992-5221.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 31st of August 2018.

Respectfully submitted,



Brian H. Whitley
Director, Regulatory Affairs
Southern Nuclear Operating Company

- Enclosures: 1) - 2) (previously submitted with the original code alternative, VEGP 3&4-PSI-ALT-07, in SNC letter ND-17-1121)
- 3) (previously submitted in VEGP 3&4-PSI-ALT-07S1, in SNC letter ND-17-2032)
 - 4) (previously submitted in VEGP 3&4-PSI-ALT-07S2, in SNC letter ND-18-0279)
 - 5) Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (Publicly Available Information) (VEGP 3&4-PSI-ALT-07S3)
 - 6) Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (**Withheld Information**) (VEGP 3&4-PSI-ALT-07S3)
 - 7) Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Affidavit from Southern Nuclear Operating Company for Withholding Under 10 CFR 2.390 (VEGP 3&4-PSI-ALT-07S3)

- 8) Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Westinghouse Authorization Letter CAW-18-4791, Affidavit, Proprietary Information Notice and Copyright Notice (VEGP 3&4-PSI-ALT-07S3)

cc:

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Southern Nuclear Operating Company

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Enclosure 5

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

**Response to Request for Additional Information Regarding Application of VT-1 Visual
Examination Methodology for Preservice Inspection of the
Reactor Vessel Nozzle Inner Radius Sections
(Publicly Available Information)
(VEGP 3&4-PSI-ALT-07S3)**

(This Enclosure consists of 10 pages, including this cover page)

Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (Publicly Available Information) (VEGP 3&4-PSI-ALT-07S3)

RAI Question 1:

Request #1: Provide the cumulative fatigue usage factor (CUF) from the applicable design reports for each AP1000 inlet, outlet, and DVI nozzle. In addition, provide a discussion of the basis for the CUF for each AP1000 inlet, outlet, and DVI nozzle.

Given that the material fracture toughness for the AP1000 and the operating fleet nozzles are comparable, the smaller allowable flaw sizes in the nozzle corner region for the AP1000 nozzles appear to be driven by more severe thermal stresses and thermal transients. With more severe thermal transients, the NRC staff has concerns with the nozzle inner radius regions for the AP1000 having higher CUF due to thermal fatigue. A higher CUF would mean there is a higher probability to initiate and propagate fatigue cracks during service. The NRC staff observed in the technical basis for Code Case N-648-1 that all nozzle inner radius regions for the operating fleet are cited as having CUF of less than 0.1, which means the operating fleet has a very low probability of initiating and propagating fatigue cracks during service.

Response to Question 1:

This request by the NRC staff was made in order to understand the relative margin within the nozzle corner inner radii regions for crack initiation by fatigue. The AP1000 Reactor Vessel Inlet, Outlet, and DVI nozzles were evaluated per ASME Section III, NB-3200 [1] using finite element analysis (FEA). The Section III analyses included calculations of the cumulative usage factors (CUFs) at the nozzle corner regions. Figures 1 through 3 show the limiting stress cut lines considered for the fatigue usage calculations at the nozzle inner radii regions. The stresses from these cut lines were also used as input to calculate the flaw tolerance results reported in the Alternative Request [2]. Table 1-1 lists the limiting CUFs for the Inlet, Outlet, and DVI nozzle inner radii.

As shown in Table 1-1, all of the usage factors are less than the Section III allowable limit of 1.0. The usage factors for the Inlet, Outlet, and DVI nozzles were calculated considering the full set of applicable AP1000 reactor vessel design basis loads, transients, and associated cycles for a 60-year design life. The AP1000 design basis is different than that of the operating fleet and includes more transients overall due to the passive cooling design of the plant. The operating fleet reactor vessels were originally designed for a 40-year life. Thus, the AP1000 not only has a larger set of design transients than the operating fleet but more transient cycles over the 60-year design life. Regardless, the calculated usage factors at the AP1000 nozzle inner radii are well below the acceptable limit of 1.0 required by ASME Section III, NB-3222.4 [1]. It should also be noted that the ASME fatigue curves include a factor of 2 on stress and 20 on cycles (see Appendix III, III-2000 of [1]). Therefore, there is inherently significant margin for any calculated CUF less than 1.0. Furthermore, an ASME Section III Appendix G evaluation was also performed for these nozzle corner regions which shows that the nozzle corners have sufficient fracture toughness and meet the requirements of the Code for vessel integrity for the design life of the plant.

For the purpose of responding to the NRC staff's request and providing a CUF result based on an analysis approach that is more consistent with the Inlet and Outlet fatigue calculations, the CUF for the DVI nozzle inner radius was recalculated. The standard plant fatigue analyses for the Inlet and Outlet nozzles were performed using a customized ANSYS macro that provides fatigue analysis options not available in the ANSYS Fatigue Module. However, the standard plant DVI nozzle CUF was calculated using the ANSYS Fatigue Module which does not include the options applied for the Inlet and Outlet Nozzles. Therefore, the DVI CUF was recalculated

Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (Publicly Available Information) (VEGP 3&4-PSI-ALT-07S3)

using alternate software in order to employ similar fatigue analysis options used for the standard plant Inlet and Outlet nozzle Section III fatigue calculations.¹ A detailed discussion of the differences in fatigue analysis approaches is provided below.

The Vogtle-specific calculation produced a CUF result for the DVI nozzle similar to the standard plant Inlet nozzle and is the value reported in Table 1-1. By comparison, the CUF in the AP1000 DVI standard plant analysis of record was calculated using a more conservative approach and shows less margin with respect to the ASME fatigue limit. However, the AP1000 standard plant CUF for the DVI nozzle will be retained as the design basis value, since it is an acceptable result per ASME Section III, and the Vogtle-specific value is reported herein to support the NRC staff's request.

The main reason for the improved CUF produced by the recalculation is a more rigorous approach to the fatigue evaluation. The major changes are described below, and the effects of the fatigue calculation refinements are demonstrated in Table 1-2.

It should also be noted that all stress analysis locations evaluated for fatigue and flaw tolerance will be examined during preservice and inservice examinations using the methods described in the alternative request ML17192A125 [2]. This includes examination at both Cuts 8 and 9 locations of DVI nozzle as well as Cuts 5 and 6 locations of the Inlet and Outlet nozzles.

¹ For example, the Inlet and Outlet nozzle fatigue evaluation uses a cycle pairing option similar to the "Limit Pairing" option implemented for the Vogtle-specific DVI fatigue evaluation described in numbered paragraph 3.

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Enclosure 5

Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (Publicly Available Information) (VEGP 3&4-PSI-ALT-07S3)

a,c,e

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Enclosure 5

Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (Publicly Available Information) (VEGP 3&4-PSI-ALT-07S3)

a,c,e



Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (Publicly Available Information) (VEGP 3&4-PSI-ALT-07S3)

**Table 1-1 Cumulative Usage Factors (CUF) at the Inner Radii of the Reactor Vessel (RV)
Inlet, Outlet, and DVI Nozzle Corners**

A diagram of a rectangular box. The top right corner is labeled with the text "a,c,e".

Table 1-2 Effect of Fatigue Analysis Changes on Cumulative Usage Factors (CUFs) at the Inner Radii of the Reactor Vessel DVI Nozzle Corner at Cut 9

Table 1.2 Effect of Fatigue Analysis Changes on Cumulative Damage Factors (CDFs) at the Inner Radii of the Reactor Vessel DVI Nozzle Corner at Cut 9



Figure 4 – Example of WESTEMS Selected Transient Peaks and Valleys

RAI Question 2:

Request #2: Please describe the EPFM methodology used and provide the basis for the average allowable flaw sizes for the AP1000 inlet, outlet, and DVI nozzles.

The staff is requesting more information regarding the EPFM analyses because some of the results cited are difficult to interpret, for example the EPFM critical flaw cited for the DVI nozzle being larger than the DVI nozzle section thickness.

Observing again that, at least by comparison of the LEFM results, it cannot be determined that the critical flaw sizes for the AP1000 nozzles are bounded by the critical flaw sizes calculated for the operating fleet (i.e., that there exists inherently less margin for the AP1000 nozzles than for those of the operating fleet), the staff requires a thorough understanding of the EPFM results in order to determine if an adequate basis exists for approving the requested alternative for Vogtle, Units 3 and 4.

Response to Question 2:

The elastic-plastic fracture mechanics (EPFM) method used to calculate the end of evaluation period flaw sizes for the AP1000 Inlet, Outlet, and DVI nozzle inner radii follows the rules of NRC-approved ASME Section XI Code Case N-749 [3], which is similar to the procedures for ferritic components provided in Appendix K of ASME Section XI [4] and Regulatory Guide 1.161 [5]. ASME Appendix K was written to provide analysis guidelines for fracture evaluation of components made from materials with low upper temperature charpy impact energy levels.

Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (Publicly Available Information) (VEGP 3&4-PSI-ALT-07S3)

Code Case N-749 is applicable to ferritic steel components operating in the upper-shelf temperature range and uses similar methods as Appendix K except that more conservative safety factors are applied. The technical basis for Code Case N-749 PVP2012-78190 [6], provides a detailed discussion of the methodology and compares the difference between the factors applied in Appendix K and N-749. Because the AP1000 reactor vessel operating temperatures are well above the upper-shelf temperature of the nozzle material for level A/B events, the procedures of Code Case N-749 are applicable for fracture evaluation. Note that the EPFM method was only applied for level A/B events, because these were determined to be limiting for the AP1000 nozzle corner regions. The Level C/D events were evaluated using linear elastic fracture mechanism (LEFM) and the allowable flaw sizes were shown to be acceptable for 60 years of plant operation as discussed in [2].

There are two criteria that must be satisfied for ductile stability using the EPFM method described in Code Case N-749 [3]. The first criterion is that the crack driving force must be shown to be less than the material toughness as follows:

$$J_{\text{applied}} < J_{\text{material}}$$

J_{applied} is the J-integral value calculated for the postulated flaws under the applicable service level condition and J_{material} is the J-integral characteristic of the material's resistance to ductile tearing at a crack extension of 0.1 inch. Section 3.2 of Code Case N-749 requires the application of a factor of 1.5 on primary loads and a factor of 1.0 on secondary load for calculating J_{applied} . [

$$]^{(a,c,e)}$$

The second criterion is that the flaw must also be stable under ductile crack growth as follows:

$$\frac{\partial J_{\text{applied}}}{\partial a} < \frac{dJ_{\text{material}}}{da}$$

$$\text{At } J_{\text{applied}} = J_{\text{material}}$$

Where:

$$\begin{aligned} \frac{\partial J_{\text{applied}}}{\partial a} &= \text{Partial derivative of the applied J-integral with respect to flaw depth, and} \\ \frac{dJ_{\text{material}}}{da} &= \text{Slope of the J-R curve} \end{aligned}$$

In accordance with Section 3.2 of Code Case N-749, a factor of 2.14 is applied to the primary loads and a factor of 1.0 is applied to the secondary loads when evaluating flaw stability. These

Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (Publicly Available Information) (VEGP 3&4-PSI-ALT-07S3)

factors are applied when calculating J_{applied} for evaluating flaw stability. At the point where the J_{applied} and J_{material} curves cross, the slope of the J_{applied} curve must be less than the slope of the J_{material} curve.

The preceding paragraphs provide a general overview of the EPFM methodology used. Code Case N-749 uses similar methods as those of ASME Section XI Appendix K (but with more conservative safety factors applied) and Regulatory Guide 1.161. The EPFM analysis results provided in the Alternative Request [2] demonstrate that AP1000 nozzle corner regions are tolerant of flaws greater than 3 inches in depth. Therefore, the visual examination techniques proposed in the Alternative Request [2] would detect flaws that would be of concern.

In regards to interpreting the EPFM results relative to the section thicknesses, it should be noted that the applicable analysis sections are through the nozzle corners as shown in Figures 1 through 3. A comparison of the analysis thickness for the Inlet, Outlet, and DVI nozzles to the calculated limiting flaw sizes are shown in Table 2-1. As can be seen, the calculated maximum allowable initial flaw sizes (for 60 years of operation) are all less than half of the analysis section thicknesses for each nozzle type.

Enclosure 5

Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (Publicly Available Information) (VEGP 3&4-PSI-ALT-07S3)

Table 2-1 Nozzle Corner Thicknesses at Inner Radii Analysis Regions and Limiting Flaw Size Depth Results

Size Depth Results

References:

1. ASME Boiler and Pressure Vessel Code, 1998 Edition with 2000 Addenda, Section III, Division 1, Subsection NB, "Class 1 Components," American Society of Mechanical Engineers, New York, NY.
2. Southern Nuclear Letter ND-17-1121 (ML17192A125), "Southern Nuclear Operating Company Vogtle Electric Generating Plant Units 3 and 4 Request for Alternative: Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (VEGP 3&4-PSI-ALT-07)," July 6, 2017.
3. ASME Section XI Code Case N-749, "Alternative Acceptance Criteria for Flaws in Ferritic Steel Components Operating in the Upper Shelf Temperature Range Section XI, Division 1," March 16, 2012.
4. ASME Boiler and Pressure Vessel Code, Section XI, 2007 Edition with 2008 Addenda, "Rules for Inservice Inspection of Nuclear Power Plant Components," American Society of Mechanical Engineers.
5. Regulatory Guide 1.161, "Evaluation of Reactor Pressure Vessel with Charpy Upper-Shelf Energy Less Than 50 ft-lb," June 1995.
6. Proceedings of the ASME 2012 Pressure Vessel & Piping Conference, PVP2012-78190, "Alternative Acceptance Criteria for Flaws in Ferritic Steel Components Operating in the Upper Shelf Temperature Range."
7. Eason, E. D., J. E. Wright, and E. E. Nelson, "Multivariable Modeling of Pressure Vessel and Piping J-R Data," NUREG/CR-5729, MCS 910401, RF, R5, May 1991.
8. Westinghouse Calculation Note APP-MV01-Z0C-081, Rev. 0, "Direct Vessel Injection (DVI) Nozzle for the AP1000 Reactor Vessel – Refined Fatigue Analysis at Inside Nozzle Corner," August 24, 2018.

Southern Nuclear Operating Company

ND-18-0635

Enclosure 6

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

**Response to Request for Additional Information Regarding Application of VT-1 Visual
Examination Methodology for Preservice Inspection of the
Reactor Vessel Nozzle Inner Radius Sections**

(Withheld Information)

(VEGP 3&4-PSI-ALT-07S3)

(This Enclosure consists of 10 pages, including this cover page)

Southern Nuclear Operating Company

ND-18-0635

Enclosure 7

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

**Affidavit from Southern Nuclear Operating Company for Withholding Under 10 CFR 2.390
(VEGP 3&4-PSI-ALT-07S3)**

(This Enclosure consists of 2 pages, plus this cover page.)

Affidavit of Brian H. Whitley

1. My name is Brian H. Whitley. I am the Regulatory Affairs Director of Southern Nuclear Operating Company (SNC). I have been delegated the function of reviewing proprietary information sought to be withheld from public disclosure and am authorized to apply for its withholding on behalf of SNC.
2. I am making this affidavit on personal knowledge, in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations, and in conjunction with SNC's filing on dockets 52-025 and 52-026, Vogtle Electric Generating Plant Units 3 and 4, Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (VEGP 3&4-PSI-ALT-07S3). I have personal knowledge of the criteria and procedures used by SNC to designate information as a trade secret, privileged or as confidential commercial or financial information.
3. Based on the reason(s) at 10 CFR 2.390(a)(4), this affidavit seeks to withhold from public disclosure Enclosures 6 of SNC letter ND-18-0635 for Vogtle Electric Generating Plant Units 3 and 4, Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (VEGP 3&4-PSI-ALT-07S3).
4. The following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - a. The information sought to be withheld from public disclosure has been held in confidence by SNC and Westinghouse Electric Company.

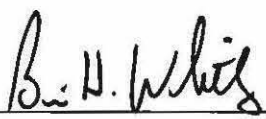
ND-18-0635

Enclosure 7

Affidavit from Southern Nuclear Operating Company for Withholding Under 10 CFR 2.390
(VEGP 3&4-PSI-ALT-07S3)

- b. The information is of a type customarily held in confidence by SNC and Westinghouse Electric Company and not customarily disclosed to the public.
 - c. The release of the information might result in the loss of an existing or potential competitive advantage to SNC and/or Westinghouse Electric Company.
 - d. Other reasons identified in Enclosure 8 of SNC letter ND-18-0635 for Vogtle Electric Generating Plant Units 3 and 4, Westinghouse Authorization Letter CAW-18-4791, Affidavit, Proprietary Information Notice and Copyright Notice (VEGP 3&4-PSI-ALT-07S3), and those reasons are incorporated here by reference.
5. Additionally, release of the information may harm SNC because SNC has a contractual relationship with the Westinghouse Electric Company regarding proprietary information. SNC is contractually obligated to seek confidential and proprietary treatment of the information.
6. 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.
7. To the best of my knowledge and belief, 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.

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



Brian H. Whitley

Executed on 8/31/18
Date

Southern Nuclear Operating Company

ND-18-0635

Enclosure 8

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

**Westinghouse Authorization Letter CAW-18-4791, Affidavit, Proprietary Information
Notice and Copyright Notice
(VEGP 3&4-PSI-ALT-07S3)**

(This Enclosure consists of 10 pages, plus this cover page.)



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CAW-18-4791

August 30, 2018

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: Westinghouse Response to SNC RFI ND-VOGTLE34-RF-1021

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 response is further identified in Affidavit CAW-18-4791 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 Southern Nuclear Operating Company.

Correspondence with respect to the proprietary aspects of the Application for Withholding or the Westinghouse Affidavit should reference CAW-18-4791, and should be addressed to Edmond J. Mercier, Manager, Fuels Licensing and Regulatory Support, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 2 Suite 256, Cranberry Township, Pennsylvania 16066.

Jill S. Monahan, Manager
Licensing Inspections and Special Programs

Westinghouse Non-Proprietary Class 3



Westinghouse Electric Company
1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066
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Enclosures to CAW-18-4791

1. AFFIDAVIT
2. PROPRIETARY INFORMATION NOTICE and COPYRIGHT NOTICE

ENCLOSURE 1 to CAW-18-4791

AFFIDAVIT

CAW-18-4791

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF BUTLER:

I, Jill S. Monahan, 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: 8-30-2018

Jill S Monahan

Jill S. Monahan, Manager
Licensing Inspections and Special Programs

- (1) I am Manager, Licensing Inspections and Special Programs, 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 ND-18-0635, "Response to Request for Additional Information Regarding Application of VT-1 Visual Examination Methodology for Preservice Inspection of the Reactor Vessel Nozzle Inner Radius Sections (VEGP 3&4-PSI-ALT-07S3)," for submittal to the Commission, being transmitted by Southern Nuclear Operating Company letter. The proprietary information as submitted by Westinghouse is that associated with Southern Nuclear Operating Company Alternative Request Number 7, and may be used only for that purpose.
- (a) This information is part of that which will enable Westinghouse to
 - (i) Manufacture and deliver products to utilities based on proprietary designs.

- (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 licensing of new nuclear power stations.
 - (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.

ENCLOSURE 2 to CAW-18-4791

PROPRIETARY INFORMATION NOTICE and COPYRIGHT NOTICE

PROPRIETARY INFORMATION NOTICE

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