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Fred Dacimo
Vice President
Operations License Renewal

NL-14-117

September 8, 2014

U.S. Nuclear Regulatory Commission
Document Control Desk
11545 Rockville Pike, TWFN-2 F1
Rockville, MD 20852-2738

SUBJECT: Reply to Request for Additional Information Regarding
the License Renewal Application
Indian Point Nuclear Generating Unit Nos. 2 & 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

- REFERENCES:**
1. Entergy letter, NL-14-010, "Reply to Request for Additional Information Regarding the License Renewal Application" dated January 16, 2014.
 2. NRC letter, "Indian Point Nuclear Generating Unit Nos. 2 and 3 - Request for Withholding Information from Public Disclosure (TAC Nos. MD5407 and MD5408)" dated August 14, 2014.

Dear Sir or Madam:

Entergy Nuclear Operations, Inc provided in Reference 1 the response to request for additional information SET 2013-06 pertaining to NRC review of the License Renewal Application (LRA) for Indian Point 2 and Indian Point 3. That response contained certain information that was marked proprietary by Westinghouse and, as such, was requested to be withheld from public disclosure. As documented in Reference 2 the NRC has denied that request for a limited subset of marked proprietary information. In order to address this denial Westinghouse has revised their proprietary and non-proprietary documents and Entergy requests that Reference 1 be replaced by this submittal. Enclosed are:

1. One (1) copy of LTR-RIAM-13-117, Revision 1, Attachment 1, "Final Response to U.S. NRC RAI 6-A Items 1 and 2 on the RVI Program and RVI Inspection Plan for Indian Point Units 2 and 3 (Proprietary)"
2. One (1) copy of LTR-RIAM-13-117, Revision 1, Attachment 2, "Final Response to U.S. NRC RAI 6-A Items 1 and 2 on the RVI Program and RVI Inspection Plan for Indian Point Units 2 and 3 (Non-Proprietary)"

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Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-14-4017, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

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

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

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse Affidavit should reference CAW-14-4017 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 310, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

There are no new regulatory commitments in this submittal.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 8, 2014.

Sincerely,



FRD/rw

- Enclosures:
1. LTR-RIAM-13-117, Revision 1, Attachment 1, "Final Response to U.S. NRC RAI 6-A Items 1 and 2 on the RVI Program and RVI Inspection Plan for Indian Point Units 2 and 3 (Proprietary)"
 2. LTR-RIAM-13-117, Revision 1, Attachment 2, "Final Response to U.S. NRC RAI 6-A Items 1 and 2 on the RVI Program and RVI Inspection Plan for Indian Point Units 2 and 3 (Non-Proprietary)"
 3. Application for Withholding Proprietary Information from Public Disclosure

cc: Mr. William Dean, Regional Administrator, NRC Region I
Mr. Sherwin E. Turk, NRC Office of General Counsel, Special Counsel
Mr. Dave Wrona, NRC Branch Chief, Engineering Review Branch I
Ms. Kimberly Green, NRC Sr. Project Manager, Division of License Renewal
Mr. Douglas Pickett, NRR Senior Project Manager
Ms. Bridget Frymire, New York State Department of Public Service (w/o Enclosure 1)
NRC Resident Inspector's Office
Mr. John B. Rhodes, President and CEO NYSERDA (w/o Enclosure 1)

ENCLOSURE 2 TO NL-14-117

**LTR-RIAM-13-117, Revision 1, Attachment 2, "Final Response to U.S. NRC RAI 6-A Items
1 and 2 on the RVI Program and RVI Inspection Plan for Indian Point Units 2 and 3
(Non-Proprietary)"**

**ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3
DOCKET NOS. 50-247 AND 50-286**

Westinghouse Non-Proprietary Class 3

Attachment 2 Page 1 of 5

Our ref: LTR-RIAM-13-117, Rev. 1

August 20, 2014

**Attachment 2: Final Response to U.S. NRC RAI 6-A Items 1 and 2 on the RVI Program
and RVI Inspection Plan for Indian Point Units 2 and 3 (Non-Proprietary)**

Final Response to U.S. NRC RAI 6-A Items 1 and 2 on the RVI Program and RVI Inspection Plan for Indian Point Units 2 and 3 (Non-Proprietary)

RAI 6-A Item 1:

Do the IP2 or IP3 reactor vessel internals (RVI) have non-weld or bolting austenitic stainless steel components with 20 percent cold work or greater, and if so, do the affected components have operating stresses greater than 30 ksi? If so, perform a plant-specific evaluation to determine the aging management requirements for the affected components.

RAI 6-A Item 1 Response:

The EPRI guidance document for MRP-227-A applicability (MRP 2013-025) was followed for this evaluation [3]. Indian Point Unit 2 and Unit 3 have evaluated reactor internals components according to the MRP-191 [1] industry generic component listings and screening criteria (including consideration of cold work as defined in MRP-175 [2], 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 a resulting reduction in wall thickness of 20% was applied as an evaluation limit. It was confirmed that all of the Indian Point Unit 2 and Unit 3 components, as applicable for the design, are included directly in the MRP-191 component lists, except for the components identified in Table 1.

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 through applicable quality controlled protocols. The evaluation performed concluded that the reactor internals Category 1, 2, and 3 (non-bolting) components at Indian Point Unit 2 and Unit 3 contain no cold work greater than 20% as a result of construction. Category 4 components were already assumed to have the potential for cold work in the generic assessments and no category 5 components were identified. The evaluation therefore concluded that there was no impact to the MRP-227-A sampling inspection aging management requirements based on the detailed evaluation for Applicant/Licensee Action Item 1.

Table 1: Component Categories for MRP-191 Material Differences

MRP-227 Component	Material (Form/Fabrication)	Category ⁽¹⁾	Cold-worked 20% Assessment ⁽²⁾	Comments
Mixing Devices	[] ^{a,c} Type 304 SS; [] ^{a,c} Grade CF8	3 1	N	
Fuel Alignment Pins	[] ^{a,c} Type 304 SS	3	N	
Brackets, Clamps, Terminal Blocks, and Conduit Straps	[] ^{a,c} Grade CF8	1	N	
Locking Caps	[] ^{a,c} Type 304L SS	3	N	
BMI Column Cruciforms	[] ^{a,c} Type 304A SS [] ^{a,c} Type 304 SS	3	N	
Flux Thimble Tube Plugs	[] ^{a,c} AISI 308	2	N	
Fuel Alignment Pins	[] ^{a,c} Type 304 SS	3	N	
Lower Support Column Bolts	[] ^{a,c} Type 316 SS	4	Y	
Thermal Shield Dowels	[] ^{a,c} Type 304 SS	3	N	
Radial Support Key Bolts	[] ^{a,c}	4	Y	
Lock Keys	[] ^{a,c} Type 304 SS	3	N	

Notes:

(1) Categories include the following:

- 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)

(2) Cold work potential based on MRP-227-A generic criteria:

- N applies to categories 1, 2, and 3.
- Y applies to categories 4 and 5.

RAI 6-A Item 2:

Has IP2 or IP3 ever utilized atypical fuel design or fuel management that could make the assumptions of MRP-227-A regarding core loading/core design non-representative for that unit, including power changes/uprates? If so, describe how the differences were reconciled with the assumptions of MRP-227-A, or provide a plant-specific aging management program for affected components as appropriate.

RAI 6-A Item 2 Response:

Neither Indian Point Unit 2 nor Indian Point Unit 3 has ever utilized atypical fuel design or fuel management that could make the assumptions of MRP-227-A regarding core loading/core design non-representative for that unit, including power changes/uprates that have occurred over the operating lifetime of both units. This conclusion is based on comparisons of the Indian Point Units 2 and 3 core geometry and operating characteristics with the MRP-227-A applicability guidelines for Westinghouse-designed reactors specified in [3].

Specifically, the following comparisons with the MRP-227-A applicability guidelines were established for the key reactor internals components at Indian Point Units 2 and 3:

Components Located Beyond the Outer Radius of the Reactor Core

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

Comparison - Indian Point Unit 2 initiated low-leakage fuel management strategy in the sixth fuel cycle following 5.2 effective full-power years of operation and has been implementing low-leakage core designs since that time. There are no current plans to return to out-in fuel management.

Indian Point Unit 3 initiated low-leakage fuel management strategy in the fourth fuel cycle following 3.2 effective full-power years of operation and has been implementing low-leakage core designs since that time. 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 [3]) shall not exceed 124 W/cm³.

Comparison - For the last four operating fuel cycles (Cycles 18 through 21), Indian Point Unit 2 has been operating at a rated power level of 3216 MWt. For the 193 fuel assembly Indian Point Unit 2 core geometry, the 3216 MWt power level corresponds to a core power density of 98.5 W/cm³. This level of power generation is also representative of anticipated future operation.

For the last four operating fuel cycles (Cycles 15 through 18) Indian Point Unit 3 has been operating at a rated power level of 3188.4 MWt. For the 193 fuel assembly Indian Point Unit 3 core geometry, the 3188.4 MWt power level corresponds to a core power density of 97.7 W/cm³. This level of power generation 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 [3]) shall not exceed 68 W/cm³.

Comparison - For the last four operating fuel cycles at Indian Point Unit 2, the HGR-FOM at key baffle locations has ranged between []^{a,c}. This range of HGR-FOM is representative of anticipated future operation.

For the last four operating fuel cycles at Indian Point Unit 3, the HGR-FOM at key baffle locations has ranged between []^{a,c}. This range of HGR-FOM is representative of anticipated future operation.

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 [3]) shall not exceed 124 W/cm³ for a period of more than two effective full-power years.
- Comparison - Over the operating lifetime of the Indian Point Unit 2 reactor, the rated core power level, including power uprates, has varied between 2758 MWt and 3216 MWt. This variation of rated power level corresponds to a power density range of 84.5 W/cm³ to 98.5 W/cm³.
- Over the operating lifetime of the Indian Point Unit 3 reactor, the rated core power level, including power uprates, has varied between 3025 MWt and 3188.4 MWt. This variation of rated power level corresponds to a power density range of 92.7 W/cm³ to 97.7 W/cm³.
- 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 12.2 inches for a period of more than two effective full-power years.
- Comparison - For the Indian Point Unit 2 reactor internals and fuel assembly geometry, the nominal distance between the top of the active fuel stack and the bottom of the upper core plate (UCP) averaged over the first 21 fuel cycles of operation was []^{a,c}. During that period of time the nominal distance between the UCP and the top of the active fuel was not less than 12.2 inches.
- For the Indian Point Unit 3 reactor internals and fuel assembly geometry, the nominal distance between the top of the active fuel stack and the bottom of the upper core plate (UCP) averaged over the first 18 fuel cycles of operation was []^{a,c}. During that period of time the nominal distance between the UCP and the top of the active fuel was not less than 12.2 inches.

Components Located Below the Reactor Core

Based on the discussion provided in [3], 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.

References

1. *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.
2. *Materials Reliability Program: PWR Internals Material Aging Degradation Mechanism Screening and Threshold Values (MRP-175)*. EPRI, Palo Alto, CA: 2005, 1012081.
3. Materials Reliability Program, MRP 2013-025, "MRP-227-A Applicability Template Guideline," October 14, 2013

ENCLOSURE 3 TO NL-14-117

Application for Withholding Proprietary Information from Public Disclosure

**ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3
DOCKET NOS. 50-247 AND 50-286**



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IPP-14-21, INT-14-20

CAW-14-4017

August 25, 2014

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-RIAM-13-117, Revision 1, Attachment 1, "Final Response to U.S. NRC RAI 6-A Items 1 and 2 on the RVI Program and RVI Inspection Plan for Indian Point Units 2 and 3"
(Proprietary)

The proprietary information for which withholding is being requested in the above-referenced letter is further identified in Affidavit CAW-14-4017 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 Entergy for Indian Point Units 2 and 3.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse Affidavit should reference CAW-14-4017 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Building 3 Suite 310, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

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

James A. Gresham, Manager

Regulatory Compliance

Enclosures


AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

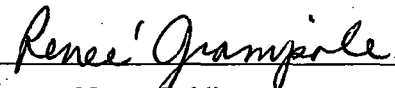
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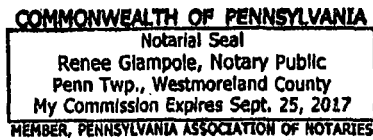
COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared James 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:


James A. Gresham, Manager
Regulatory Compliance

Sworn to and subscribed before me
this 25th day of August 2014


Notary Public



- (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 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.
- (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, it 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-RIAM-13-117, Revision 1, Attachment 1, "Final Response to U.S. NRC RAI 6-A Items 1 and 2 on the RVI Program and RVI Inspection Plan for Indian Point Units 2 and 3" (Proprietary), for submittal to the Commission, being transmitted by Entergy 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 NRC letter, "Request for Additional Information for the Review of the Indian Point Nuclear Generating Unit Nos. 2 and 3, License Renewal Application, Set 2014-06 (TAC Nos. MD5407 AND MD5408)," ML143181A450, November 19, 2014, and may be used only for that purpose.

- (a) This information is part of that which will enable Westinghouse to:
 - (i) Support reactor vessel internals aging management.

- (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 internals aging management.
 - (ii) 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 associated with the NRC letter, "Request for Additional Information for the Review of the Indian Point Nuclear Generating Unit Nos. 2 and 3, License Renewal Application, Set 2014-06 (TAC Nos. MD5407 AND MD5408)," ML143181A450, November 19, 2014, and may be used only for that purpose.

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.