Exelon Generation®

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Attachment A contains Proprietary Information.
Withhold from public disclosure under 10 CFR 2.390.
When separated from Attachment A, this document is decontrolled.

RS-15-156 10 CFR 50.90

May 27, 2015

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

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: Response to Request for Additional Information Regarding License Amendment Request to Utilize WCAP-16143-P, Revision 1, as an Analytical Method to Determine the Reactor Coolant System Pressure and Temperature Limits

References:
(1) Letter from D. M. Gullott (Exelon Generation Company, LLC) to U. S. NRC, "License Amendment Request to Utilize WCAP-16143-P, Revision 1, as an Analytical Method to Determine the Reactor Coolant System Pressure and Temperature Limits," dated October 16, 2014

(2) Email from J. S. Wiebe (U. S. NRC) to J. A. Bauer (Exelon Generation Company, LLC), "Braidwood and Byron Stations Preliminary RAIs Regarding Utilization of WCAP-16143-P," dated April 6, 2015

In Reference 1, Exelon Generation Company, LLC, (EGC) requested an amendment to Facility Operating License Nos. NPF-72 and NPF-77 for Braidwood Station, Units 1 and 2, and Facility Operating License Nos. NPF-37 and NPF-66 for Byron Station, Units 1 and 2. This amendment request proposes to utilize WCAP-16143-P, Revision 1, "Reactor Vessel Closure Head/Vessel Flange Requirements Evaluation for Byron/Braidwood Units 1 and 2," dated October 2014, as an analytical method to determine the reactor coolant system pressure and temperature limits.

In Reference 2, the NRC requested that EGC provide additional information to support their review of the subject License Amendment Request (i.e., Reference 1). The response to these requests is provided in Attachment A.

Attachment A contains Proprietary Information.
Withhold from public disclosure under 10 CFR 2.390.
When separated from Attachment A, this document is decontrolled.

Attachment A contains information proprietary to Westinghouse Electric Company, LLC, and is therefore supported by an affidavit (i.e., Attachment C) 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 10 CFR 2.390, "Public inspections, exemptions, requests for withholding." Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure. A non-proprietary version of this information is provided in Attachment B.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse Affidavit should reference CAW-15-4192 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

EGC has reviewed the information supporting the No Significant Hazards Consideration and the Environmental Consideration that was previously provided to the NRC in Reference 1. The additional information provided in this submittal does not affect the conclusion that the proposed license amendment does not involve a significant hazards consideration. This additional information also does not affect the conclusion that neither an environmental impact statement nor an environmental assessment need be prepared in support of the proposed amendment.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), EGC is notifying the State of Illinois of this additional information by transmitting a copy of this letter and its attachment to the designated State Official.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Joseph A. Bauer at (630) 657-2804.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 27th day of May 2015.

Respectfully,

David M. Gullott
Manager – Licensing
Exelon Generation Company, LLC

Attachments:
A. LTR-PAFM-15-52, Revision 0, Attachment A, "Development of Responses to NRC RAIs Pertaining to WCAP-16143-P Revision 1 for Braidwood Units 1 and 2 and Byron Units 1 and 2" (Proprietary)
B. LTR-PAFM-15-52, Revision 0, Attachment B, "Development of Responses to NRC RAIs Pertaining to WCAP-16143-P Revision 1 for Braidwood Units 1 and 2 and Byron Units 1 and 2" (Non-Proprietary)

C. Westinghouse Application for Withholding Proprietary Information from Public Disclosure, CAW-15-4192, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector, Braidwood Station
NRC Senior Resident Inspector, Byron Station
Illinois Emergency Management Agency – Division of Nuclear Safety

Attachment B
(Non-Proprietary)

Development of Responses to NRC RAIs Pertaining to WCAP-16143-P Revision 1 for Braidwood Units 1 and 2 and Byron Units 1 and 2

Portions of this report contain proprietary information. Proprietary information is identified and bracketed. For each of the bracketed sections, the reasons for the proprietary classification are provided using superscripted letters "a", "c", and "e". These letter designations are:

a. The information reveals the distinguishing aspects of a process or component, structure, tool, method, etc. The prevention of its use by Westinghouse's competitors, without license from Westinghouse, gives Westinghouse a competitive economic advantage.

c. The information, if used by a competitor, would reduce the competitor's expenditure of resources or improve the competitor's advantage in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.

e. The information reveals aspects of past, present, or future Westinghouse- or customer-funded development plans and programs of potential commercial value to Westinghouse.

Development of Responses to NRC RAIs Pertaining to WCAP-16143-P Revision 1 for Braidwood Units 1 and 2 and Byron Units 1 and 2

NRC RAI 1: In WCAP-16143-P, Revision 1, Figure E-6, "Crack Driving Force as a Function of Flaw Size: Circumferential Outside Surface Flaw in the Torus to Flange Region Weld with All Studs Intact (Flaw Length/Flaw Depth=6)," the NRC staff notes that the next time period of applied stress intensity factor (K) distribution is for "t = 1 second", which are for the axial stress results at Cut 3 for time = 1 second in Table F-1, "Stress for Upper Head to Flange Transition Region from Three-Dimensional Finite Element Model." Confirm that the ambient temperature (the expected inside containment temperature), and therefore the starting steady state uniform temperature, used in the finite element model is the same as the listed coolant temperature for time = 1 second in Table F-1. The concern is that if the starting steady temperature used is 60°F, then the metal temperature would hardly change after 1 second after the metal comes in contact with the coolant at the temperature listed for time = 1 second in Table F-1, in which case the calculated fracture toughness (KIC) value after 1 second would be a value close to the KIC value at the assumed boltup temperature of 60°F, and the bounding applied K distribution may not be the boltup case, but some time a little after (since the applied K distribution is higher as shown in Figure E-6).

Westinghouse Response:

For the fracture mechanics evaluation in WCAP-16143-P, Revision 1, it is confirmed that the ambient coolant temperature used in the finite element model is the same as the listed coolant temperature (120°F) for time = 1 second in Table F-1. In the finite element analysis (FEA), an ambient temperature of 120°F was used for both the boltup condition (time = 0 seconds) and the beginning of heatup (time = 1 second). Therefore, between boltup and the start of heatup, there is no change in temperature and no associated thermal stress in the finite element model; this will be further explained in detail in the next paragraph. The difference in stresses between time = 0 and 1 second is the result of the application of the initial heatup pressure ([ ]^{a,c,e} along with boltup stress) at time = 1 second, whereas only boltup stress is considered at time = 0 seconds. Since the boltup condition, which is t = 0 seconds, may occur at a temperature as low as 60°F, the temperature of 60°F is used in the calculation of K_{Ic}. At the beginning of heatup, which is t = 1 second, the temperature of 120°F is used to calculate the K_{Ic} value.

It should be noted that the use of 120°F as the starting steady state temperature for the heatup design transient is appropriate as specified in Section 3.9, "Mechanical Systems and Components," of the Byron/Braidwood UFSAR, Revision 15. The design heatup transient starts at 120°F and ramps up to no-load temperature of 557°F at a rate of 100°F/hr. The Byron/Braidwood design transients in UFSAR are based on the Westinghouse Systems Standard SSDC 1.3 Rev. 2 (Reference 1). Based on Reference 1, during the cold shutdown condition below 120°F, the reactor coolant system is depressurized (more specifically below 350 psig based on plant data) and at a uniform temperature somewhere between 70°F and 120°F. For the temperature range between 70°F and 120°F, the temperature changes very slowly without causing any significant thermal transient effects, especially in the closure head region.

Exelon has stated that this is consistent with plant operations performed during Mode 5 (Cold Shutdown) (i.e., at 200°F or below, with the reactor vessel head tensioned). Evolutions in Mode 5 such as reactor coolant system evacuation and fill or pressurizer bubble formation do not produce rapid temperature changes below 120°F. In addition, heatup from ambient conditions is inherently limited as reactor heat is not available until Mode 2 (i.e., sole source of heatup is reactor coolant pump heat and decay heat).

For example, based on the most recent plant startup from refueling in April 2015 (Braidwood Unit 1 Outage A1R18), wide range cold leg temperature readings provided by Exelon in Reference 2 demonstrated that the initial heatup from ambient conditions occurred from approximately 90°F (time = 14-Apr-2015 19:00:00) to 190°F (time = 15-Apr-2015 06:0:00), which resulted in a heatup rate of approximately 9°F/hr. This heatup rate is far below the 100°F/hr heatup rate limit described in the Braidwood UFSAR, Section 3.9. Furthermore, based on pressure sensor data for Braidwood Unit 1 from the last outage, at a temperature of 120°F the system pressure is below [ ]^{a,c,e}, which was used as the pressure at the beginning of heatup in the finite element evaluation. Therefore, between boltup (60°F) and the start of heatup (120°F), there is no significant thermal and pressure transient effects. The plant sensor data described above for Braidwood Unit 1 are also consistent with Braidwood Unit 2, and Byron Units 1 and 2 sensor data from the last outages.

Furthermore, the residual decay heat from the core can raise the temperature to approximately 120°F within the reactor vessel, therefore, the ambient condition is assumed to be 120°F for the beginning of the heatup transient. As a result, for temperatures below 120°F, there are no significant thermal or pressure transient stresses that should be considered in the fracture mechanics evaluation. Thus, the use of temperature of 120°F at the beginning of the heatup transient (t =1 second), and the temperature of 60°F for the boltup condition (t = 0 second) is appropriately considered in the calculation of K_{Ic} as part of the fracture mechanics evaluation.

References:

1. Westinghouse Systems Standard 1.3, Rev. 2, "System Standard Design Criteria Nuclear Steam Supply System Design Transients."

2. Braidwood Unit 1 and 2/Byron Unit 1 and 2 Design Information Transmittal, DIT-BRW-2015-0022/BYR-15-030. May 15, 2015.

NRC RAI 2: The NRC staff notes that during heatup and cooldown for the missing stud case, the load due to pressure that had been taken by the missing stud was redistributed to the nearby studs, most likely to the two studs immediately adjacent to the missing stud. Intuitively, the stresses in the flange location in question at the stud cut plane immediately adjacent to the missing stud cut plane (at the 6.66° cut plane shown in Figure E-3 "Upper Head/Flange Region Stress Cut Planes") would be higher than those in the same cut plane for the case where there is no missing stud. In order to allow verification of the fidelity of the finite element analysis results, identify the stresses in the flange in the center-of-stud cut plane (6.66° cut plane) after the 0° cut plane.

Westinghouse Response:

For the condition during bolt-up with all studs intact, the flange load can be viewed as the distribution of point loads from the tension of each stud. Figure 1 below shows a representation of this condition (all studs intact) with uniform tension on each stud (F_1) and a uniform distribution around the flange. For the 5-stud sector shown, the total stud load would be $5 \cdot F_1$ and the bending stress in the flange transition region would also be uniform as shown in the related stress plot in Figure 2.

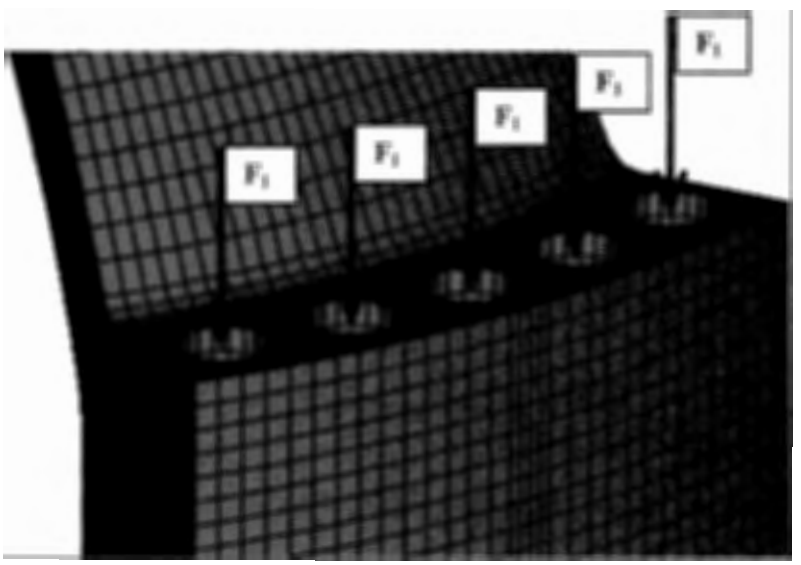

Figure 1: Distribution of Point Loads at Boltup - All Studs Intact

a,c,e

Figure 2: Stress Intensity Contour Plot at Boltup – All Studs Intact

Next we consider the single stud out-of-service condition. During bolt-up operations the studs are tensioned to the same initial value (F_1), but the center stud is no longer contributing to the net flange load that dominates the bending stress in the flange transition region. Figure 3 below shows a representation of the out-of-service stud condition. For this case, the net load over the 5-stud region is now non-uniform and only produces a total load of $4 \cdot F_1$. Since the net load in the region being evaluated is less for the single stud out-of-service condition it is logical that the resulting stresses are also less. This is supported by the stress plot showing lower stresses near the missing stud in Figure 4.

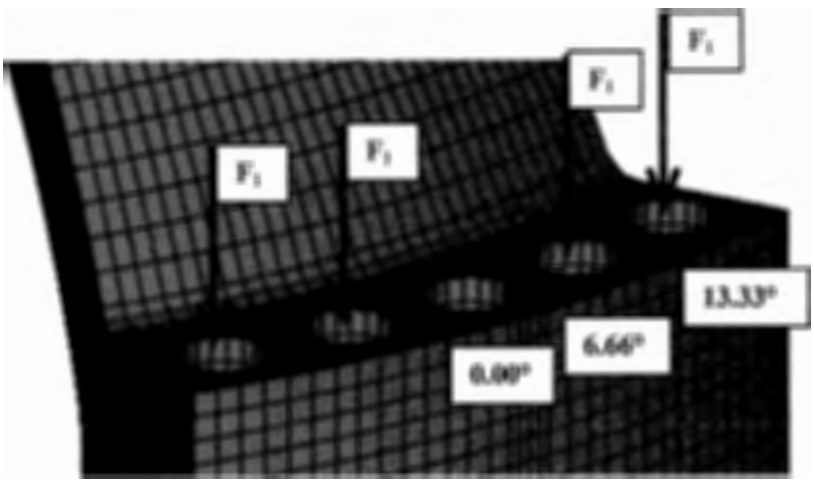

Figure 3: Distribution of Point Loads at Boltup - Stud Out-of-Service

a,c,e

Figure 4: Stress Intensity Contour Plot at Boltup – Stud Out-of-Service

For the condition with all studs intact, the uniform stress near each stud location is a combination of both the direct loading from the nearest stud and the interaction loading from the adjacent studs. Stresses in the flange transition region nearest the out-of-service stud are reduced because there is not a direct load applied in this region. The stresses here are purely interaction from the adjacent, intact studs. Likewise, in the region of the first adjacent stud, the stresses are still less than the condition with all studs intact because the interaction loading from the out-of-service stud is not included. Therefore, for the boltup condition, the stresses in the flange location with all studs intact are higher than the flange stresses for the missing stud condition in the flange region adjacent to the 6.66° cut plane.

During transient operations stud loads increase and decrease to follow changes in two loading conditions:

(1) internal pressure loading on the reactor vessel head
(2) variations of the thermal expansion of the reactor vessel head flange.

The stresses in the flange region are less for the stud out-of-service condition than the case with all studs intact for bolt-up and throughout the heatup and cooldown transient conditions. This is because the missing stud is no longer contributing to the stresses seen in the flange transition region due to bolt-up.

For the flange transition region nearest to the stud at 6.66°:

- A major contribution to stress is from the flange loading by the stud at 6.66°. This stress contribution is slightly higher than for the case with all studs intact (uniform stud loading).
- Secondary contributions to stress come from the flange loading produced by the nearby studs at 0.00° and 13.33°.
    - The stud load at 13.33° is comparable between the case with all studs intact and the case with one stud out-of service. The stress contribution will be comparable for both cases.

- The stud load at 0.00° is zero for the stud out-of-service case. No stress contribution from the 0.00° stud is attributed to the stress location at 6.66°.

So while the greater stud load at 6.66° may result in slightly increased stress in the flange transition region, this is offset by the lack of stress contribution from the stud loading at the 0.00° location (no preload). The results of the FEA analysis confirm this understanding of the stress interactions. The following stress intensity contour plots in Figures 5 and 6, shown on matching contour scales, show the stresses in the flange transition region to be greater for the case with all studs intact than the case with one stud out-of-service.

An important note to consider is that the effects of the missing stud attenuate the further you move away from the missing stud location. Stresses are lowest directly near the missing stud, increase slightly at the first adjacent stud, and increase slightly more at the second adjacent stud. Continuing to move away from the missing stud location would culminate in stress results identical to the condition with all studs intact.

a,c,e

Figure 5: Stress Intensity Contour Plot at End of Heatup – All Studs Intact

a,c,e

Figure 6: Stress Intensity Contour Plot at End of Heatup – Stud Out-of-Service

NRC RAI 3: In order to make a finding regarding Braidwood's and Byron's continued eligibility for the exemption from 10 CFR 50, Appendix G.IV.2.c., the NRC staff requires additional information regarding the probability of detection (POD) values reported in Sections E.5.1 "Missing Stud Results" and E.5.2 "All Studs Intact Results" of WCAP-16143-P, Revision 1. The NRC staff understands that the licensee considered the POD distributions from both the pass plus failed candidates and passed only candidates, and that the reported POD values are from the most limiting POD distribution. Identify which POD distribution best represents the personnel performing the ultrasonic testing (UT) examinations at the Braidwood and Byron Stations, Units 1 and 2. Also discuss the adequacy of the POD values reported in Sections E.5.1 and E.5.2 of WCAP-16143-P, Revision 1 for the manual UT examination to support that flaw depths of 0.43 inch and 0.32 inch have not been and will not be missed.

Westinghouse Response:

Past volumetric and surface inspections along with visual (VT-2) inspections performed every refueling outage, demonstrate the continued structural integrity of the Reactor Vessel Head to Flange weld for Byron/Braidwood Units 1 and 2. Furthermore, past First and Second Interval inspections, Preservice inspections, ASME Section III construction inspections and every refueling outage VT-2 inspection have revealed no recordable indications and provide reasonable assurance of the continued structural integrity of the head to flange weld.

The inspection capability demonstrations were conducted at the EPRI NDE Center since the beginning of the Performance Demonstration Initiative (PDI) testing in 1983. The techniques used for examination of these welds have not changed since the original response to Regulatory Guide 1.150, "Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations." In order to respond to the requirements of ASME Section XI Appendix VIII, the PDI testing was used to develop the Probability of Detection (POD) values reported in Figures 5-1 and 5-2 and described in Appendix A of WCAP-16143-P. These figures were developed by EPRI NDE Center personnel, working with technology supplied by Westinghouse.

Figure 5-1 of WCAP-16143-P, Revision 1 provides the Pass+Fail Manual OD POD curve, which demonstrates that for a flaw size of 0.32 inch there is a [ ]^{a,c,e} POD, while for a 0.43 inch flaw the POD is over [ ]^{a,c,e}. The Pass+Fail results represent a lower bound estimate of expected performance. Only passed examiners would actually perform the inspections in the field. Therefore, the POD values in Figure 5-2 of WCAP-16143-P, Revision 1 would provide a more accurate representation of the POD distribution that best represents the personnel performing the ultrasonic testing (UT) examinations at the Braidwood and Byron Stations, Units 1 and 2. Therefore, for the flaw depths of 0.43" and 0.32" there is a very high level of confidence to discover these flaws, approximately [ ]^{a,c,e} based on the results for manual exams for the examiners who passed (Figure 5-2 of WCAP-16143-P).

ATTACHMENT C

BRAIDWOOD STATION, UNIT 1 AND UNIT 2
BYRON STATION, UNIT 1 AND UNIT 2

Westinghouse Electric Company, LLC

Application for Withholding Proprietary Information from Public Disclosure, CAW-14-4042

Affidavit

Proprietary Information Notice and Copyright Notice

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Proj letter: CAE-15-31/CCE-15-29

CAW-15-4192

May 20, 2015

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-PAFM-15-52, Revision 0, Attachment A, "Development of Responses to NRC RAIs Pertaining to WCAP-16143-P, Revision 1 for Braidwood Units 1 and 2 and Byron Units 1 and 2" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-15-4192 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 Exelon Corp, LLC.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse Affidavit should reference CAW-15-4192, 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.

Very truly yours,

James A. Gresham, Manager

Regulatory Compliance

Enclosures

CAW-15-4192
May 20, 2015

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 that the averments of fact set forth in this Affidavit are true and correct to the best of my knowledge, information, and belief.

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 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, 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-PAFM-15-52, Revision 0, Attachment A, "Development of Responses to NRC RAIs Pertaining to WCAP-16143-P, Revision 1 for Braidwood Units 1 and 2 and Byron Units 1 and 2" (Proprietary) for submittal to the Commission, being transmitted by Exelon Corp, LLC 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 Nuclear Regulatory Commission Document Number ML15112A141, "2015/04/21 NRR E-mail Capture – RE: Braidwood and Byron Stations Preliminary RAIs Regarding Utilization of WCAP-16143-P," April 21, 2015, and may be used only for that purpose.

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

(i) Generate pressure-temperature limit curves

(ii) Address low-temperature operation

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

(i) Westinghouse plans to sell the capability to generate pressure-temperature limit curves.

(ii) The information requested to be withheld reveals Byron and Braidwood-specific information that was used 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 environmental fatigue screening 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 documents furnished to the NRC in connection with Nuclear Regulatory Commission Document Number ML15112A141, "2015/04/21 NRR E-mail Capture – RE: Braidwood and Byron Stations Preliminary RAIs Regarding Utilization of WCAP-16143-P," April 21, 2015, 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