



**INDIANA  
MICHIGAN  
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PROPRIETARY INFORMATION

Enclosure 3 to this letter contains proprietary information.  
Withhold from public disclosure under 10 CFR 2.390.  
Upon removal of Enclosure 3, this letter is decontrolled.

**Indiana Michigan Power**  
One Cook Place  
Bridgman, MI 49106  
IndianaMichiganPower.com

November 20, 2009

AEP-NRC-2009-71  
10 CFR 50.90

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

SUBJECT: Donald C. Cook Nuclear Plant Unit 2  
Docket No. 50-316  
Response to Request for Additional Information Regarding a License Amendment  
Request Associated With the Large-Break Loss-Of-Coolant Accident Analysis  
Methodology (TAC No. ME1017)

- References:
- 1) Letter from L. J. Weber, Indiana Michigan Power Company (I&M), to U. S. Nuclear Regulatory Commission (NRC) Document Control Desk, "Donald C. Cook Nuclear Plant Unit 2, Docket No. 50-316, License Amendment Request Regarding Large Break Loss-of-Coolant Accident Analysis Methodology," AEP-NRC-2009-23, dated March 19, 2009 (ADAMS Accession Number ML090930453).
  - 2) Letter from T. A. Beltz, NRC, to J. N. Jensen, I&M, "Donald C. Cook Nuclear Plant, Unit 2 - Request for Additional Information (RAI) Regarding the License Amendment Request Associated With the Large-Break Loss-of-Coolant Accident Analysis Methodology (TAC No. ME1017)," dated September 22, 2009 (ADAMS Accession Number ML092610029).

Dear Sir or Madam:

This letter provides Indiana Michigan Power Company's (I&M's) response to a U. S. Nuclear Regulatory Commission (NRC) request for additional information (RAI) regarding I&M's proposed license amendment to adopt a new large break loss-of-coolant accident (LBLOCA) analysis for Donald C. Cook Nuclear Plant (CNP) Unit 2.

By Reference 1, I&M proposed to amend Appendix A, Technical Specification (TS), to the CNP Unit 2 Facility Operating License, DPR-74. I&M proposed to modify TS 3.4.1, "RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits," TS 3.5.2, "ECCS – Operating," and TS 5.6.5, "Core Operating Limits Report (COLR)." I&M also requested NRC approval to adopt a new LBLOCA analysis for CNP Unit 2. The new analysis uses a plant-specific adaptation of the NRC-approved methodology documented in Westinghouse Electric Company LLC (Westinghouse) Topical Report WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)." By Reference 2, the NRC requested additional information regarding the proposed amendment. This letter provides I&M's response to the request for additional information.

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Enclosure 1 to this letter provides an affirmation statement. Enclosure 2 provides I&M's response to the NRC RAI. Enclosure 3 provides a document prepared by Westinghouse which validates the CNP plant-specific adaptation of the ASTRUM methodology. Enclosure 3 is proprietary to Westinghouse. Enclosure 4 provides Westinghouse's application for withholding the proprietary information in Enclosure 3 from public disclosure. As detailed in Enclosure 2, a non-proprietary version of Enclosure 3 has been provided by separate letter and is available via ADAMS Accession Number ML080090299. Enclosure 5 provides a revision of one of the marked-up CNP Unit 2 TS pages transmitted by Reference 1. Clean copies of all affected TS pages with the proposed changes incorporated will be provided to the NRC Licensing Project Manager upon request.

Copies of this letter and its enclosures are being transmitted to the Michigan Public Service Commission and Michigan Department of Environmental Quality, in accordance with the requirements of 10 CFR 50.91. This letter contains no new or modified NRC commitments.

Should you have any questions, please contact Mr. James Petro, Jr., Regulatory Affairs Manager, at (269) 466-2489.

Sincerely,



Lawrence J. Weber  
Site Vice President

JRW/rdw

Enclosures:

1. Affirmation
2. Response to NRC Request for Additional Information
3. WCOBRA/TRAC Validation with Revised Downcomer Noding for D.C. Cook Units 1 and 2
4. Application for Withholding Proprietary Information in Enclosure 3 from Public Disclosure
5. Revised Mark-up of Donald C. Cook Nuclear Plant Unit 2 Technical Specification Page 5.6-3

c: T. A. Beltz – NRC Washington DC,  
J. T. King, MPSC  
S. M. Krawec, AEP Ft. Wayne, w/o enclosures  
MDEQ – WHMD/RPS  
NRC Resident Inspector  
M. A. Satorius, NRC Region III

AFFIRMATION

I, Lawrence J. Weber, being duly sworn, state that I am Site Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this request with the Nuclear Regulatory Commission on behalf of I&M, and that the statements made and the matters set forth herein pertaining to I&M are true and correct to the best of my knowledge, information, and belief.

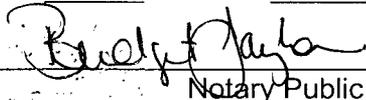
Indiana Michigan Power Company



Lawrence J. Weber  
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 20 DAY OF November, 2009

  
\_\_\_\_\_  
Notary Public

My Commission Expires 6/10/2013

## Enclosure 2 to AEP-NRC-2009-71

### Response to NRC Request for Additional Information

The documents referenced in this enclosure are identified on Pages 7 and 8.

By Reference 1, Indiana Michigan Power Company (I&M) proposed to amend Appendix A, Technical Specification (TS), to the Donald C. Cook Nuclear Plant (CNP) Unit 2 Facility Operating License, DPR-74. I&M proposed to modify TS 3.4.1, "RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits," TS 3.5.2, "ECCS – Operating," and TS 5.6.5, "Core Operating Limits Report (COLR)." I&M also requested Nuclear Regulatory Commission (NRC) approval to adopt a new large break loss-of-coolant accident (LBLOCA) analysis for CNP Unit 2. The new analysis uses a plant-specific adaptation of the NRC-approved methodology documented in Westinghouse Electric Company LLC (Westinghouse) Topical Report WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)." Reference 2 transmitted an NRC request for additional information (RAI) regarding the proposed amendment. Each RAI item in Reference 2 is restated below followed by the corresponding I&M response.

#### **NRC Request for Additional Information Item 1(a)**

- 1. With respect to the proposed change to Technical Specification (TS) 3.4.1, the current value for minimum reactor coolant system (RCS) total flow specified in the TS 3.4.1 Limiting Condition for Operations and Surveillance Requirements is 366,400 gallons per minute (gpm). The proposed LAR [Reference 1] stated that the value of 366,400 gpm is a minimum measured flow value which includes allowances for flow measurement uncertainty. Therefore, based on U.S. Nuclear Regulatory Commission (NRC)-approved method WCAP-16009-P, the proposed change to TS 3.4.1 will use so-called current practice of the thermal design flow value of 354,000 gpm. It further states that the proposed change will not affect the 354,000 gpm value used in the current and the new LBLOCA analyses.*

*Please provide the following:*

- (a) A description to explain that the proposed term of the thermal design flow value is a common industry practice and identify applicable examples currently used in U.S. nuclear power plants;*

#### **I&M Response**

In 1999, the NRC approved Westinghouse topical report WCAP-14883 as providing justification for the relocation of departure-from-nucleate-boiling parameters, including RCS flow rate, from a plant's TS to its COLR. In approving the WCAP, the NRC recommended that the value for the minimum limit for RCS total flow based on an NRC-approved analysis (i.e., the thermal design flow) be retained in the TS. The NRC acceptance of the generic methodology is documented in the NRC cover letter and NRC Safety Evaluation (SE) incorporated into WCAP-14883-A (Reference 3). The SE cover letter states that the WCAP is acceptable for referencing in licensing applications, and page 4 of the SE states that relocation of RCS total flow rate to the

COLR is acceptable. The NRC recommendation that the thermal design flow be retained in the TS is documented on Page 3 of the SE.

Examples of NRC approval of this practice are provided by the NRC SE approving a power uprate for Indian Point 2 Nuclear Generating Unit and the NRC SE approving a power uprate for Indian Point 3 Nuclear Generating Unit. In conjunction with these power uprates, the NRC explicitly approved changing the RCS flow value specified in the Indian Point 2 and Indian Point 3 TS 3.4.1 Limiting Condition for Operations (LCOs) and Surveillance Requirements from the minimum measured flow value to the thermal design flow value. For Indian Point 2, NRC approval of this change is documented on Pages 3 and 95 of the SE transmitted with Reference 4. For Indian Point 3, NRC approval of this change is documented on Pages 92 and 93 of the SE transmitted with Reference 5.

#### **NRC Request for Additional Information Item 1(b)**

*[Please provide the following:]*

*(b) Clarification that the proposed change will not affect the 354,000 gpm value used in the current and the new LBLOCA analyses;*

#### **I&M Response**

The proposed change to the TS 3.4.1 LCO and Surveillance Requirements will not affect the 354,000 gpm value used in the current and new LBLOCA analyses. The current TS 3.4.1 LCO and Surveillance Requirements specify the minimum measured flow value (366,400 gpm). This minimum measured flow is the thermal design flow (354,000 gpm) plus an allowance for measurement uncertainty. The proposed change will replace the minimum measured flow value with the value for the thermal design flow. The TS 3.4.1 LCO and Surveillance Requirements will continue to also require that the total RCS flow be greater than or equal to the limit specified in the COLR. The limit specified in the COLR will continue to be the minimum measured flow. Structuring the TS 3.4.1 LCO and Surveillance Requirement in this manner provides assurance that the actual flow is greater than or equal to the flow assumed in the accident analyses and design calculations (i.e., the thermal design flow, 354,000 gpm) by assuring that the Surveillance Requirement tests account for measurement uncertainty.

#### **NRC Request for Additional Information Item 1(c)**

*[Please provide the following:]*

*(c) A detailed assessment that a 3.4 percent reduction of the RCS total flow from current value of 366,400 gpm to proposed value of 354,000 gpm will not reduce plant operation safety margin during a LOCA, even considering an accurate flow measurement uncertainty, an uncertainty always exists;*

#### **I&M Response**

There will be no reduction in the RCS total flow. The current analysis and new analysis both assume a total flow of 354,000 gpm. The minimum measured flow value (366,400 gpm) will

continue to be the acceptance criteria when performing surveillance testing to account for measurement uncertainty, thereby confirming that the 354,000 gpm value is actually being met.

#### **NRC Request for Additional Information Item 1(d)**

*[Please provide the following:]*

*(d) The real minimum RCS flow used in the LBLOCA analysis.*

#### **I&M Response**

As described in the response to Question 1(b), the minimum RCS flow used in the LBLOCA analysis is the thermal design flow, 354,000 gpm (88,500 gpm/loop).

#### **NRC Request for Additional Information Item 2(a)**

- 2. The current TS 3.5.2 Actions include a Condition D that allows the unit to be in Mode 1, 2, or 3 for an unlimited amount of time if a Safety Injection (SI) system cross-tie valve is closed, provided that thermal power is reduced to less than or equal to a specified value. It further states that this allowance is justified by the current LBLOCA and SBLOCA analyses. However, the proposed new LBLOCA analysis does not include a condition in which an SI subsystem cross-tie valve is closed. Therefore, I&M is proposing that Condition D be deleted from the TS 3.5.2 Actions, and reference to Condition D deleted from Condition A and Condition C.*

*Please provide the following:*

*(a) The rationale to delete Condition D which directly provides an action against a situation that an SI system cross-tie valve is closed;*

#### **I&M Response**

The allowance provided by TS 3.5.2 Condition D is not needed. During normal plant operation in Mode 1, the cross-tie valve is closed infrequently and only for brief periods for evolutions such as refilling accumulators or testing. The cross-tie valves are typically reopened within one hour, which precludes the need to reduce power in accordance with TS 3.5.2 Condition D. A review of historical CNP Unit 2 Control Room logs as far back as 2000 and discussions with cognizant operations and engineering personnel have not identified any occurrence in which Condition D (or the similar TS requirement that existed prior to conversion to the improved TS of NUREG-1431) was used to allow operation at reduced power with an SI system cross-tie valve closed. The allowance provided by Condition D is not included in the CNP Unit 1 TS or the standard improved TS of NUREG-1431. I&M reviewed the TS of 38 other Westinghouse units and identified no other unit with a similar TS allowance. Additionally, the standard improved TS for Babcock and Wilcox and for Combustion Engineering pressurized water reactors (NUREG-1430 and NUREG-1432) contain no similar allowance.

**NRC Request for Additional Information Item 2(b)**

*[Please provide the following:]*

*(b) The action(s) to be taken if an SI system cross-tie valve is closed;*

**I&M Response**

If, following implementation of the proposed change to TS 3.5.2, an SI system cross-tie valve is closed with both SI trains otherwise normally aligned and both SI pumps operable, TS 3.5.2 Condition A would be entered. The piping arrangement is such that closure of an SI system cross-tie valve will result in each of the SI pumps delivering flow to only two RCS loops. Although greater than or equal to 100% of the flow equivalent to a single operable SI train would be available initially, a subsequent single failure that disabled an SI pump would result in flow to only two RCS loops from the remaining operable SI pump. The resulting reduced and asymmetrical flow to the reactor vessel is outside the bounds of the new LBLOCA analysis. Therefore, operation in this condition, in which a single failure could preclude the ability of the SI system to perform its safety function, is appropriately limited to 72 hours by TS 3.5.2 Condition A.

If an SI system cross-tie valve is closed with an SI pump known to be inoperable, TS 3.5.2 Condition C would be entered because 100% of the flow equivalent to a single operable Emergency Core Cooling System (ECCS) train would not be available and the system would be known to be incapable of performing its safety function. Therefore, operation in this condition, in which the system would be incapable of performing its safety function, appropriately requires initiation, within 1 hour, of action to place the unit in Mode 3 pursuant to TS 3.0.3 as invoked by TS 3.5.2 Condition C.

**NRC Request for Additional Information Item 2(c)**

*[Please provide the following:]*

*(c) A description of which allowance is justified by the current LBLOCA and SBLOCA analyses, and its relationship with the proposed deletion of Condition D.*

**I&M Response**

The current small break LOCA (SBLOCA) and LBLOCA analyses justify the allowance provided by Condition D. The current SBLOCA analysis was transmitted to the NRC for information in March 2009 by Reference 6. This analysis is currently under review by the NRC staff. The analysis includes a case for which acceptable results were obtained assuming the SI cross-tie valves are closed at a power level of 3304 megawatts-thermal (MWt), thereby justifying TS 3.5.2 Condition D.

The current LBLOCA analysis was transmitted to the NRC for information in February 2000 by Reference 7. The analysis includes a case for which acceptable results were obtained assuming the SI cross-tie valves are open and the residual heat removal (RHR) cross-tie valves are closed at a power level of 3413 MWt. For the LBLOCA analysis, the closure of the RHR

cross-tie valves (with SI cross-tie valves open) yields a more limiting scenario than the closure of the SI cross-tie valves (with RHR cross-tie valves open). Thus, the LBLOCA analysis of record justifies TS 3.5.2 Condition D.

Although TS 3.5.2 Condition D is justified by the current SBLOCA and LBLOCA analyses as described above, it is not justified by the new LBLOCA analysis and is not needed as described in the response to Request for Additional Information Item 2(a).

### **NRC Request for Additional Information Item 3**

*3 Please provide a description and the results of the evaluation completed against the conditions and limitations stated in the staff's safety evaluation report on the ASTRUM methodology in WCAP-16009-P-A with respect to the CNP-2 plant-specific adaptation of the ASTRUM methodology. Identify any deviations and their safety impact on the plant operations.*

### **I&M Response**

The new Unit 2 LBLOCA analysis was performed in compliance with the conditions and limitations identified in the NRC SE (Reference 8) approving the ASTRUM methodology, including the following condition as stated in the SE:

The methodology described in WCAP-16009-P-A, Revision 0, is a separate and unique methodology. Any other version derived from this TR [topical report], such as designated by a new revision number, amendment number, addendum number or other equivalent designation, would constitute a definition of a new methodology requiring NRC review and acceptance prior to generic application and prior to any specific plant licensing application of a new methodology derived from ASTRUM.

A plant-specific adaptation of the ASTRUM methodology was used for the new CNP Unit 2 analysis. The plant-specific adaptation involved increasing the circumferential nodding stacks from four to twelve for the reactor vessel downcomer region. The same plant-specific adaptation of the ASTRUM methodology was previously used for CNP Unit 1. In accordance with the above stated SE condition, I&M submitted the plant-specific adaptation for NRC review and acceptance for Unit 1 via Reference 9, and submitted the plant-specific adaptation for NRC review and acceptance for Unit 2 via Reference 1. The Unit 1 submittal included an assessment (Enclosure 3 to Reference 9) of the analysis model with the finer nodalization against experimental data. This assessment applies to both Unit 1 and Unit 2. The new Unit 1 LBLOCA analysis was approved by the NRC as documented by Reference 10.

To facilitate NRC review of the new Unit 2 LBLOCA analysis submitted via Reference 1, I&M is providing, as Enclosure 3 to this letter, another copy of the assessment previously provided as Enclosure 3 to Reference 9. The assessment provided as Enclosure 3 to this letter is proprietary to Westinghouse. Enclosure 4 to this letter provides Westinghouse's application for withholding the proprietary information in the assessment from public disclosure. A non-proprietary version of the assessment was previously provided as Enclosure 4 to Reference 9, and is publicly available via ADAMS Accession Number ML080090299.

**NRC Request for Additional Information Item 4**

4. *Please describe the reason why higher peak centerline temperatures shown in Figure 1 fall in the range of  $CD * A_{break}/ACL$  between 1 and 2.5.*

**I&M Response**

The quantity ( $CD * A_{break} / ACL$ ) is the effective break area. The break size, break type (either double-ended guillotine, or split break), and break discharge coefficient (CD) for each case is determined by random sampling. The break sizes considered, in accordance with the approved methodology, vary from 1 square foot ( $ft^2$ ) up to 2 times the pipe area (i.e., a double-ended guillotine break). The approved methodology includes the sampling of numerous other parameters in determining the inputs for the 124 cases that are analyzed. As such, the resulting peak cladding temperature (PCT) for the various cases would not necessarily be expected to show a strong trend as a function of effective break size due to the interaction of the other uncertainty parameters that influence both the thermal-hydraulic system response as well as the local heat transfer. Thus, a convenient presentation of the results is via the scatter plot provided as Figure 1 of Enclosure 2 to Reference 1, which shows the PCT results for the 124 calculations performed as part of the ASTRUM analysis.

**NRC Request for Additional Information Item 5**

5. *Please describe the physical meaning and cause with respect to a negative vapor flow rate as shown in Figures 7 and 8 between 20 and 40 seconds after break.*

**I&M Response**

Section 1-2-1 of WCAP-16009-P-A provides a description of the postulated break scenario. A LBLOCA transient can be characterized by three distinct periods: blowdown, refill, and reflood. During blowdown, a period of flow reversal (downward, or negative core vapor flow) is possible as a result of the degradation of the reactor coolant pump flows under two-phase conditions, as the strong pressure forces driving flow to the break dominate and upward flow in the downcomer is established. As accumulator flow begins to enter the downcomer, the counter-current flow characteristic of ECCS bypass can persist until the end of refill, when the lower plenum becomes filled with ECCS liquid and there is no longer any steam flow up the downcomer, ending downward or negative steam flow in the hot assembly.

**NRC Request for Additional Information Item 6(a)**

- 6(a) *Please provide the revision number and/or approval date for the topical report (i.e., WCAP-16009-P-A) referenced in proposed TS 5.6.5.b.4.*

**I&M Response**

Revision 0 of the topical report was approved on November 5, 2004, by Reference 8.

**NRC Request for Additional Information Item 6(b)**

- (b) *Please provide reference to the NRC letter approving the use of the plant-specific adaption of the topical report listed in proposed TS 5.6.5.b.4.*

**I&M Response**

The CNP-specific adaptation of the topical report was approved by Reference 10.

**NRC Request for Additional Information Item 6(c)**

- (c) *Please ensure that the information being provided in 6(a) and 6(b) above, is incorporated in proposed TS 5.6.5.b.4.*

**I&M Response**

The information provided in response to Items 6(a) and 6(b) has been incorporated into the proposed change to TS 5.6.5.b.4 as shown on the revised markup of TS page 5.6-3 provided in Enclosure 5 to this letter. The TS Page 5.6-3 provided in Enclosure 5 to this letter replaces TS Page 5.6-3 provided in the attachment to Reference 1. A clean copy of TS Page 5.6-3 with the revised changes incorporated will be provided to the NRC Licensing Project Manager upon request, along with clean copies of the other pages provided in the attachment to Reference 1.

**References**

- 1) Letter from L. J. Weber, I&M, to NRC Document Control Desk, "Donald C. Cook Nuclear Plant Unit 2, Docket No. 50-316, License Amendment Request Regarding Large Break Loss-of-Coolant Accident Analysis Methodology," dated March 19, 2009, AEP-NRC-2009-23 (ADAMS Accession Number ML090930453).
- 2) Letter from T. A. Beltz, NRC, to J. N. Jensen, I&M, "Donald C. Cook Nuclear Plant, Unit 2 - Request for Additional Information (RAI) Regarding the License Amendment Request Associated With the Large-Break Loss-of-Coolant Accident Analysis Methodology (TAC No. ME1017)," dated September 22, 2009 (ADAMS Accession Number ML092610029).
- 3) WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report," approved January 19, 1999 (ADAMS Accession Number ML020430092).
- 4) Letter from P. D. Milano, NRC, to M. R. Kansler, Entergy Nuclear Operations, "Indian Point Nuclear Generating Unit No. 2 - Issuance of Amendment Re: 3.26 Percent Power Uprate (TAC No. Mc1865)," dated October 27, 2004 (ADAMS Accession Number ML042960007).
- 5) Letter from P. D. Milano, NRC, to M. R. Kansler, Entergy Nuclear Operations, "Indian Point Nuclear Generating Unit No. 3 - Issuance of Amendment Re: 4.85 Percent Stretch Power Uprate and Relocation of Cycle-Specific Parameters (TAC No. MC3552)," dated March 24, 2005 (ADAMS Accession Number ML050600380).

- 6) Letter from R. A. Hruby, I&M, to NRC Document Control Desk, "Donald C. Cook Nuclear Plant Unit 2, Small Break Loss-of-Coolant Accident Evaluation Model Reanalysis," dated March 30, 2009, AEP-NRC-2009-25 (ADAMS Accession Number ML091100153).
- 7) Letter from M. W. Rencheck, I&M, to NRC Document Control Desk, "Donald C. Cook Nuclear Plant Unit 2; Annual Report of Loss-of-Coolant Accident Evaluation Model Changes and Submittal of New Large Break Loss-of-Coolant Accident Analysis of Record for Unit 2," dated February 2, 2000 (ADAMS Accession Number ML003681609).
- 8) Letter from H. N. Berkow, NRC, to J. A. Gresham, Westinghouse Electric Company, "Final Safety Evaluation for WCAP-16009-P, Revision 0, 'Realistic Large Break LOCA Evaluation Methodology Using Automated Statistical Treatment of Uncertainty Method (ASTRUM)' (TAC No. MB9483)," dated November 5, 2004 (ADAMS Accession Number ML043100073).
- 9) Letter from J. N. Jensen, I&M, to NRC Document Control Desk, "Donald C. Cook Nuclear Plant Unit 1, Docket No. 50-315, License Amendment Request Regarding Large Break Loss-of-Coolant Accident Analysis Methodology," dated December 27, 2007, AEP:NRC:7565-01 (ADAMS Accession Number ML080090268).
- 10) Letter from T. A. Beltz, NRC, to M. W. Rencheck, I&M, "Donald C. Cook Nuclear Plant, Unit 1 - Issuance of Amendment to Renewed Facility Operating License Regarding Use of The Westinghouse ASTRUM Large Break Loss-Of-Coolant Accident Analysis Methodology (TAC No. MD7556)," dated October 17, 2008 (ADAMS Accession Number ML082670351).

Enclosure 4 to AEP-NRC-2009-71

Application for Withholding Proprietary Information in Enclosure 3 from Public Disclosure



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Ref: LTR-LIS-07-827

CAW-09-2683

October 12, 2009

APPLICATION FOR WITHHOLDING PROPRIETARY  
INFORMATION FROM PUBLIC DISCLOSURE

Subject: “WCOBRA/TRAC Validation with Revised Downcomer Noding for D. C. Cook  
Units 1 and 2,” dated November 2007 (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced document is further identified in Affidavit CAW-09-2683 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 American Electric Power (AEP) Company.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-09-2683, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Gresham', written over a horizontal line.

J. A. Gresham, Manager  
Regulatory Compliance and Plant Licensing

Enclosures

cc: G. Bacuta (NRC OWFN 12E-1)

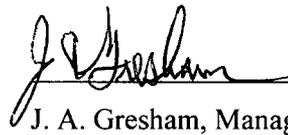
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

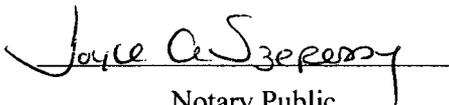


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J. A. Gresham, Manager

Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me  
this 12<sup>th</sup> day of October, 2009



Notary Public

COMMONWEALTH OF PENNSYLVANIA

Notarial Seal  
Joyce A. Szepessy, Notary Public  
Monroeville Boró, Allegheny County  
My Commission Expires April 16, 2013  
Member, Pennsylvania Association of Notaries

- (1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse "Application for Withholding" accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
  - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
  - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

- (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

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

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
  - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
  - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.
- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in “WCOBRA/TRAC Validation with Revised Downcomer Noding for D. C. Cook Units 1 and 2” (Proprietary), dated November 2007 for submittal to the Commission, being transmitted by the American Electric Power (AEP) Company letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by AEP for D. C. Cook Units 1 and 2 is that associated with the request for NRC approval of “WCOBRA/TRAC Validation with Revised Downcomer Noding for D. C. Cook Units 1 and 2.”

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

- (a) Obtain NRC approval of “WCOBRA/TRAC Validation with Revised Downcomer Noding for D. C. Cook Units 1 and 2.”
- (b) Provide documentation of the specific adaptation of the ASTRUM analysis method for D. C Cook Units 1 and 2.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to potentially sell the use of this information to its customers for purposes of BELOCA analysis.
- (b) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar calculations and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

## **PROPRIETARY INFORMATION NOTICE**

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

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5.6 Reporting Requirements

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5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

5. LCO 3.1.6, "Control Bank Insertion Limits";
  6. LCO 3.2.1, "Heat Flux Hot Channel Factor ( $F_Q(Z)$ )";
  7. LCO 3.2.2, "Nuclear Enthalpy Rise Hot Channel Factor ( $F_{\Delta H}^N$ )";
  8. LCO 3.2.3, "AXIAL FLUX DIFFERENCE (AFD)";
  9. LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation," Functions 6 and 7 (Overtemperature  $\Delta T$  and Overpower  $\Delta T$ , respectively) Allowable Value parameter values;
  10. LCO 3.4.1, "RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits"; and
  11. LCO 3.9.1, "Boron Concentration."
- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
1. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," (Westinghouse Proprietary);
  2. WCAP-8385, "Power Distribution Control and Load Following Procedures - Topical Report," (Westinghouse Proprietary);
  3. WCAP-10216-P-A, "Relaxation of Constant Axial Offset Control/ $F_Q$  Surveillance Technical Specification," (Westinghouse Proprietary);
  4. ~~WCAP-10266-P-A, "The 1981 Version of Westinghouse Evaluation Mode Using BASH Code," (Westinghouse Proprietary);~~ Plant-specific adaptation (approved by letter from T. A. Beltz, NRC, to M. W. Rencheck, I&M, dated October 17, 2008) of WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," Revision 0 (Westinghouse Proprietary), approved by letter from H. N. Berkow, NRC, to J. A. Gresham, Westinghouse Electric Company, dated November 5, 2004;
  5. WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report," (Westinghouse Proprietary);