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Project No.: 700
Our ref: LTR-NRC-03-57

September 10, 2003

Subject: "Response to NRC Request for Additional Information WCAP-16072-P & -NP, "Implementation of ZrB₂ Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs"" (Proprietary / Non-proprietary)

References: 1. Fax, B. J. Benney (NRC) to R. Sisk (W), "WCAP-16072 Formal RAIs", July 10, 2003
2. WCAP-16072-P & -NP, "Implementation of ZrB₂ Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs", April 2003
3. Letter, H. A. Sepp (W) to USNRC Document Control Desk, "Submittal of WCAP-16072-P, Revision 0, Implementation of ZrB₂ Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs, (Proprietary/Non-proprietary)", LTR-NRC-03-14, April 25, 2003

Enclosed are copies of Westinghouse Electric Company LLC (Westinghouse) responses to the Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI), Reference 1, regarding WCAP-16072-P & -NP, "Implementation of ZrB₂ Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs", Reference 2. This topical report was submitted for NRC review and approval on April 25, 2003, Reference 3.

Also enclosed are:

1. One (1) copy of the Application for Withholding, AW-03-1701 with Proprietary Information Notice and Copyright Notice.
2. One (1) copy of Affidavit, AW-03-1701.

This submittal contains Westinghouse proprietary information of trade secrets, commercial or financial information which we consider privileged or confidential pursuant to 10 CFR 9.17(a)(4). Therefore, it is requested that the Westinghouse proprietary information attached hereto be handled on a confidential basis and be withheld from public disclosure.

This material is for your internal use only and may be used solely for the purpose for which it is submitted. It should not be otherwise used, disclosed, duplicated, or disseminated, in whole or in part, to any other person or organization outside the Office of Nuclear Reactor Regulation without the expressed prior written approval of Westinghouse.

Correspondence with respect to any Application for Withholding should reference AW-03-1701 and should be addressed to H. A. Sepp, Manager of Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, P. O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,



J. S. Galembush, Acting Manager
Regulatory Compliance and Plant Licensing

Enclosures

cc: F. M. Akstulewicz, NRC (w/o enclosures)
B. J. Benney, NRC (w/ 3 proprietary & 1 non-proprietary copies)
P. Clifford, NRC (w/o enclosures)
D. G. Holland, NRC (w enclosures)
E. S. Peyton, NRC (w enclosures)

Enclosure

Response to NRC Request for Additional Information

WCAP-16072-P & -NP

"Implementation of ZrB₂ Burnable Absorber Coating in
CE Nuclear Power Fuel Assembly Designs"

RAI No. 1a:

Section 5 best describes the ZrB₂ IFBA fuel rod design as consisting of "...a ZrB₂ coating on the outer diameter of UO₂ fuel pellets over the center region of the fuel rod with cutback regions (regions without ZrB₂ coating) on both ends of the fuel rod". The description continues, "Lower enrichment fuel pellets may also be used in a portion of the cutback region....The cutback regions may consist of solid, annular, or a solid and annular fuel pellet combination...".

Evaluations credit the location of annular fuel pellets in the lower power ends of the fuel stack. Yet, the topical does not provide any limitation on the axial length of the annular pellet cutback regions. Please provide the supporting technical basis for your conclusion.

Response 1a:

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]^{a,c} Although the exact length may vary depending on what is required to provide optimal peaking for individual plants or cycles, it is anticipated that [

]^{a,c} No specific limitation on the size of this region is necessary since core design guidelines and cycle specific calculations will explicitly verify that the required power margin in the annular pellet region is maintained.

RAI No. 1b:

The topical states that the ZrB₂ IFBA coating may be natural or enriched with the B¹⁰ isotope. Yet, the topical does not provide any limitation on the extend of B¹⁰ enrichment or its potential impact on core physics predictions. Please provide the supporting technical basis for your conclusion.

Response 1b:

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RAI No. 1c:

Evaluations credit the narrow width of the ZrB₂ coating. The topical states that the coating thickness may vary within a specified range. Please describe the impact of coating thickness on core physics predictions.

Response 1c:

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RAI No. 1d:

The IFBA fuel rod design includes lower U²³⁵ enrichment axial blanket regions. The topical does not provide any detail on limitations on the axial length or the enrichment split of these blanket regions. Please provide additional information on these axial blanket regions.

Response 1d:

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As stated above, the cycle specific reload calculations will verify that the required power margin in the annular pellet region is maintained even in cases where the blankets are fully enriched.

RAI No. 2:

The topical does not provide any information on the impact of U²³⁵ enrichment axial blanket regions on core physics predictions and safety analyses. Please provide the analyses that demonstrate that the impact of these axial blanket regions are acceptable.

Response 2:

Low enriched blankets have been used extensively in PWR plants throughout the US. Most of the Westinghouse plants currently employ low enriched axial blankets. The Westinghouse physics code ANC has been extensively benchmarked to cycles containing low enriched axial blankets. The PHEONIX/ANC code package is currently being used to perform reload analysis for St. Lucie 2 core, a CE plant that contains low enriched axial blankets. Axial blankets have been used in the St. Lucie 2 core for three (3) cycles. The St. Lucie 2 UFSAR was appropriately updated. Other CE plants have indicated an interest in axial blankets as well.

The DIT/ROCS computer code systems has been used to analyze several of these cycles. Topical report CENPD-275-P-A contains results of benchmarks of the DIT/ROCS computer codes on St. Lucie Unit 1 Cycle 7 and St. Lucie Unit 2 Cycle 3 that contained several LTAs with low enriched axial blankets. In all of these cases, no significant impact on the accuracy of the physics predictions was observed.

The impact of low enriched axial blankets will be explicitly considered in the plant specific safety analysis. The physics analysis that will be performed to support the implementation of the axial blankets will explicitly model the low enriched axial blankets. The impact of these blanket regions on parameters important to safety will be calculated and used to revise the safety analysis where necessary.

RAI No. 3:

The topical does not provide any information on the impact of biases/uncertainties and manufacturing tolerances on the ZrB_2 coating thickness and B^{10} enrichment on core physics predictions and safety analyses. Please provide the analyses that demonstrate that these uncertainties and tolerances have been properly accounted for.

Response 3:

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The impact of uncertainty in B^{10} loading on helium release and internal pressure is conservatively accounted for in a manner as discussed in Response 7.

Section 1.2 states, "...Westinghouse has had considerable fabrication and operational experience with the ZrB₂ Integral Fuel Burnable Absorber". Section 1.3 states, "Post-irradiation examinations of ZrB₂ IFBA test rods revealed no profilometry anomalies in the coated fuel pellet zone, no chemical interaction between the coating and fuel rod cladding, no incipient cracks in the cladding inner diameter, no excessive fuel pellet cracking, nor any anomalies in the fuel structure".

- Response 4:**

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RAI No. 5a:

With regard to the modeling capability of the CE design analyses:

Is FATES3B capable of specifically modeling the different axial regions of the IFBA fuel rod (e.g. annular vs solid pellet region, enrichment blankets, ZrB₂ coating and cutback regions)?

Response 5a:

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RAI No. 5b:

Will the axial nodes be aligned in such a way as to avoid splitting these different axial regions?

Response 5b:

The actual lengths of annular pellets and ZrB₂ coatings are expected to coincide closely with FATES3B axial node lengths. However, if they do not, the input and FATES3B adjustments are described in Response 5a.

RAI No. 5c:

What are the limitations of STRIKIN-II with respect to calculating radial power distribution in an annular pellet?

Response 5c:

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]^{a,c} Solid and annular pellet radial power distributions are described in approved FATES3B reports, Reference 38 and References 2 and 3, respectively, of WCAP-16072-P.

RAI No. 5d:

In the annulus region, how does FATES3B model relocation, thermal expansion, and swelling? Is there an experience database available to validate these models specifically for annular fuel?

Response 5d:

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RAI No. 6:

In order to compensate for the helium production associated with the B¹⁰ depletion, the initial helium fill pressure will be reduced. One consequence of this change would be a lower BOC gap conductivity. Does this reduced gap conductivity remain above the minimum gap conductivity assumed in the UFSAR safety analyses for each of the CE plants?

Response 6:

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RAI No. 7:

Section 2.2 states, "...the maximum and minimum ZrB₂ IFBA helium release will be applied deterministically consistent with the specific applications". Please provide the values and bases for the minimum and maximum helium release fraction.

Response 7:

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RAI No. 8:

Section 4.2.2.4 states, "The evaluations of cladding collapse in the plenum region of the rods demonstrated that cladding collapse would not occur if the radial support offered to the cladding by the plenum spring is factored into the analysis". Is credit for the spring required to compensate for attributes of the IFBA fuel rod design?

Response 8:

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RAI No. 9:

Section 4.2.3 states, "...the post-LOCA Long Term Cooling EM is unaffected and, therefore, not addressed herein". IFBA has the potential to influence the initial critical boron concentration of the RCS which in turn may impact the timing and magnitude of boron precipitation in the LTC Analysis. Please provide the supporting technical basis for your conclusion.

Response 9:

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The maximum RCS boron concentration is determined by the cycle length and the burnable absorber worth loaded into the core. The required burnable absorber worth for CE plants is typically set by number of burnable absorber rods required to reduce the RCS boron concentration to a value low enough to assure that the most positive MTC Tech Spec limit will not be exceeded. [

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RAI No. 10:

Section 4.2.4.1 discusses the impact of ZrB_2 IFBA on core peaking. Does the rapid depletion of B-10 result in an increasing radial peaking factors in the beginning of cycle (e.g. Fr increases with burnup initially, then burns down)?

Response 10:

Cores containing ZrB_2 IFBA often experience the highest radial peak sometime after BOC. This is also true for most cores containing gadolinia burnable absorber and for some cores containing the erbia burnable absorber. This behavior is thus not unusual and is not anticipated to cause any problems. The current CE safety analysis methodology does not assume or require that the power peaking be monotonically decreasing.

RAI No. 11a:

Section 4.2.4.1 states, "peak soluble boron concentration may occur sometime after beginning-of-cycle".

Will Plant Operations staff be trained and will Operating Procedures be updated to reflect this new operating scheme?

Response 11a:

This is a plant specific implementation issue, but will be recommended to the utility. Some cycle designs may show a slow and modest increase in the RCS critical boron concentration over the first third of the cycle. When ZrB₂ IFBA is implemented in a specific plant, the utility may decide that some training is necessary in order to alert the plant operations staff to the possibility of this behavior for some cycles. The utility may decide to review and update plant operating procedures to accommodate potential differences in core behavior between ZrB₂ and erbia IFBAs.

RAI No. 11b:

Plant Technical Specifications require MTC surveillance tests to validate the physics predictions (and safety analyses) and ensure that plant operations remain within Technical Specification limits. Please justify how TS SR 3.1.3.1 and SR 3.1.3.2 perform their intended purpose in the presence of an increasing MTC at startup.

Response 11b:

This is a plant specific implementation issue. The Tech Specs currently require that the MTC be measured at HZP, at HFP near BOC (for some plants this has been described as prior to reaching 800 ppm RCS boron), and prior to reaching two thirds of the cycle length. Note that currently only the HZP BOC MTC measurement is used to confirm that the MTC is less than the most positive limit. Thus no explicit changes to the Tech Specs are necessary. However Westinghouse will recommend that procedures be implemented to confirm that the MTC (either by direct measurement or by extrapolation from other cycle specific measurements) is within its limits at the highest RCS boron concentration expected during the cycle.

RAI No. 12:

Figures 4.2-3 and 4.2-4 illustrate higher rod internal pressures with ZrB₂ IFBA. These higher internal rod pressures, especially at lower burnup, translate into a greater challenge to DNB Propagation. With the current methodology, a greater number of pins is likely to balloon and even rupture during Non-LOCA events which experience DNB. Please provide the analyses that demonstrate that this further challenge to DNB Propagation is acceptable from a radiological dose perspective, core coolable geometry perspective, and fuel relocation perspective.

Response 12:

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RAI No. 13:

The annulus region of an IFBA fuel rod (with annular fuel pellets) may potentially be filled with moderator as the result of a clad failure. Has any evaluations been completed to assess the neutronic, thermal, and mechanical behavior of a flawed IFBA fuel rod under normal, transient, and shutdown (including spent fuel pool) conditions?

Response 13:

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The current methodology used for spent fuel pool criticality analysis conservatively assumes that the annular pellet regions are comprised of solid, full diameter pellets. This is conservative since it results in the highest K_{eff} for the fuel storage configuration. The reactivity calculated for this configuration would bound the reactivity associated with a fuel rod comprised of annular pellets containing water in the annulus.

Westinghouse's operating experience with behavior of ZrB_2 IBFA fuel rods does not indicate any difference in behavior from non-IFBA fuel rods. Furthermore, operation with potentially flawed or failed fuel rods is a very low probability. No requirement exists to specifically model such rods. Since the probability of the existence of such flawed/failed fuel is small, e.g., 1 or 2 rods at most in the core, the impact on normal, transient, or shutdown conditions would be insignificant. Consequently, no specific evaluations have been performed and Westinghouse believes that such calculations are not needed.

RAI No. 14:

Section 4.2.3.2 states, "the pool-boiling hot rod heatup calculation for the limiting break of the break spectrum is reanalyzed over the range of rod internal pressures identified by the hot rod fuel performance analysis. A sufficient number of rod internal pressures is analyzed...". Please quantify the range of pressures evaluated and the technical basis of this range.

Response 14:

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RAI No. 15:

As a follow on to RAIs 4c and 5d, please provide analyses that demonstrate that the fuel relocation models are capable of accurately accounting for cladding ruptures within or just below the annular fuel region.

Response 15:

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Additional Information Concerning Dose Calculations

The Westinghouse safety analysis provided in WCAP-16072-P, "Implementation of Zirconium Diboride Burnable Absorber Coatings in CE Nuclear Power Fuel Assembly Designs," addresses the impact on fuel rod design and safety analyses in the areas of fuel performance, fuel mechanical design, ECCS performance evaluations, non-LOCH (sic) transient safety analyses, and neutronic design. The safety analysis does not address the impact of the proposed changes (i.e., increased fuel rod pressure, annular fuel pellets, and/or axial blankets) on the generation of fission products and the transport of fission products released during LOCA and non-LOCA design basis accidents. These considerations need to be addressed in order for the staff to make a finding that the use of the proposed fuel will not impact assumptions used in the current licensing basis analysis for demonstrating compliance with 10 CFR Part 100, or 10 CFR 50.67, as applicable. For example:

Dose Question 1:

Does the addition of the zirconium diboride coating alter the source term assumptions provided in NUREG-1465 with regard to the magnitude and mix of the radionuclides released from the fuel, expressed as fractions of the fission product inventory in the fuel, as well as their physical and chemical form, and the timing of their release? In particular, does the added zirconium diborate upset current conclusions regarding the radiochemistry of iodines (e.g., does the increased mass of Zr shift the chemical equilibrium of reactions that yield CsI as opposed to ZrI)

Dose Response 1:

The application of ZrB_2 to the CE fleet is basically the same as that implemented for the Westinghouse fleet. The Vantage-5 Fuel Assembly design topical report WCAP-10444, Addendum 1, was reviewed and accepted by NRC on March 12, 1986; where Addendum 1 reported information relative to the use of ZrB_2 in the fuel rod design. Westinghouse has subsequently accrued more than 15 years of satisfactory performance of ZrB_2 design. Based on this experience base and the research and testing that preceded its application in operating plants, [

] ^{a,c} Thus, the use of the ZrB_2 fuel will not impact assumptions used in the current licensing basis analysis for demonstrating compliance with 10 CFR Part 100, or 10 CFR 50.67, as applicable.

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³ WCAP-12921 "Chalk River Irradiation Test of Enriched ZRBs Coatings", February 1991, (Westinghouse Proprietary Class 2)
⁴ NUREG-1465

Dose Question 2:

Does the increased helium gas pressure in the fuel pins invalidate assumptions regarding fuel handling accident fission product release iodine scavenging in the spent fuel pool or reactor cavity. Note that the pool decontamination factors in Safety Guide 25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors," are predicated on a maximum fuel rod pressurization of 1200 psig. (The assumptions in this safety guide were largely developed from the results of experiments performed by Westinghouse as reported in WCAP-7518-L.)

Dose Response 2:

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Safety Guide 25 identifies a rod internal pressure of 1200 psig as being associated with the determination of the pool scrubbing DF provided by the pool of water and states that the DF will be lower for fuel rod pressures greater than 1200 psig. The Safety Guide also states that with pressures >1200 psig the DF is to be calculated on an individual basis using assumptions comparable in conservatism to those used in the Safety Guide. [

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Dose Question 3:

Is the fission product migration in an annular pellet different from that of a solid pellet in a manner that would affect previous analysis assumptions related to the fraction of core inventory in the fuel gap, or on the timing of fission product releases following a transient? Is the correlation between burnup and fission product diffusion different for an annular pellet than a solid pellet?

Dose Response 3:

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These three questions are offered only as examples. The staff expects Westinghouse to provide a full evaluation of the impact of zirconium diboride on the generation and transport of fission products as currently analyzed in DBA radiological consequence analyses.



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Project No.: 700
Our ref: AW-03-1701
September 10, 2003

**APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE**

Subject: "Response to NRC Request for Additional Information WCAP-16072-P & -NP, "Implementation of ZrB₂ Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs"" (Proprietary / Non-proprietary)

Reference: Letter from J. S. Galembush (W) to USNRC Document Control Desk, "Response to NRC Request for Additional Information WCAP-16072-P & -NP, "Implementation of ZrB₂ Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs"" (Proprietary / Non-proprietary), LTR-NRC-03-57, dated September 10, 2003

The Application for Withholding is submitted by Westinghouse Electric Company LLC (Westinghouse), a Delaware limited liability company, pursuant to the provisions of paragraph (b)(1) of Section 2.790 of the Commission's regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

The proprietary material for which withholding is being requested is identified in the proprietary version of the Enclosure to the Reference letter. In conformance with 10 CFR Section 2.790, Affidavit AW-03-1701 accompanies this Application for Withholding, setting forth the basis on which the identified proprietary information may be withheld from public disclosure.

Accordingly, it is respectfully requested that the subject information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.790 of the Commission's regulations.

Correspondence with respect to this application for withholding or the accompanying affidavit should reference AW-03-1701 and should be addressed to H. A. Sepp, Manager of Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, P. O. Box 355, Pittsburgh, Pennsylvania 15230-0355

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. S. Galembush'.

J. S. Galembush, Acting Manager
Regulatory Compliance and Plant Licensing

Enclosures

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared J. S. Galembush, 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:



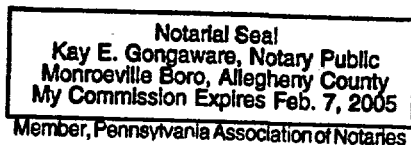
A handwritten signature of J. S. Galembush in black ink, written over a horizontal line.

J. S. Galembush, Acting Manager
Regulatory Compliance and Plant Licensing

Sworn to and subscribed
before me this 10th day
of September, 2003

A handwritten signature of Kay E. Gongaware in black ink, written over a horizontal line.

Notary Public



- (1) I am the Acting Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC ("Westinghouse"), a Delaware limited liability company 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 rulemaking proceedings, and am authorized to apply for its withholding on behalf of the Westinghouse Electric Company LLC.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.790 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 the 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 2.790 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 which 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 2.790, 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 the Enclosure "Response to NRC Request for Additional Information WCAP-16072-P & -NP, "Implementation of ZrB₂ Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs"" (Proprietary / Non-proprietary), September 10, 2003, for submittal to the Commission, being transmitted by Westinghouse letter (LTR-NRC-03-57) and Application for Withholding Proprietary Information from Public Disclosure, to the NRC Document Control Desk. The proprietary information as submitted for use by Westinghouse is expected to be applicable in other licensee submittals in response to certain NRC requirements for justification of the application of the ZrB₂ Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs.

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

- (a) Conduct analyses of ZrB2 Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs and ensure appropriate safety limits are met.
- (b) Support licensees in implementing ZrB2 Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purposes of meeting NRC requirements for licensing documentation.
- (b) Westinghouse can sell support and defense of ZrB2 Burnable Absorber Coating in CE Nuclear Power Fuel Assembly Designs.
- (c) 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 for developing the enclosed improved core thermal performance methodology.

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 generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.790 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 2.790(b)(1).

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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 2.790 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.