Domestic Members
AmerenUE
Callaway
American Electric Power Co.
D.C. Cook 1 & 2
Arizona Public Service Co.
Palo Verde 1, 2 & 3
Constellation Energy Group
Calvert Cliffs 1 & 2
Dominion Nuclear Connecticut
Millstone 2 & 3
Dominion Virginia Power
North Anna 1 & 2
Surry 1 & 2
Duke Energy
Catawba 1 & 2
McGuire 1 & 2
Entergy Nuclear Northeast
Indian Point 2 & 3
Entergy Nuclear South
ANO 2
Waterford 3
Exelon Generation Company LLC
Braidwood 1 & 2
Byron 1 & 2
FirstEnergy Nuclear Operating Co.
Beaver Valley 1 & 2
FPL Group
St. Lucie 1 & 2
Seabrook
Turkey Point 3 & 4
Nuclear Management Co.
Kewaunee
Palisades
Point Beach 1 & 2
Prairie Island
Omaha Public Power District
Fort Calhoun
Pacific Gas & Electric Co.
Diablo Canyon 1 & 2
Progress Energy
H. B. Robinson 2
Shearon Harris
PSEG – Nuclear
Salem 1 & 2
Rochester Gas & Electric Co.
R. E. Ginna
South Carolina Electric & Gas Co.
V. C. Summer
Southern California Edison
SONGS 2 & 3
STP Nuclear Operating Co.
South Texas Project 1 & 2
Southern Nuclear Operating Co.
J. M. Farley 1 & 2
A. W. Vogtle 1 & 2
Tennessee Valley Authority
Sequoyah 1 & 2
Watts Bar 1
TXU Electric
Commanche Peak 1 & 2
Wolf Creek Nuclear Operating Corp.
Wolf Creek

International Members
Electrabel
Doel 1, 2, 4
Tihange 1 & 3
Electricité de France
Kansai Electric Power Co.
Mihama 1
Takahama 1
Ohi 1 & 2
Korea Hydro & Nuclear Power Co.
Kori 1 – 4
Ulchin 3 & 4
Yonggwang 1 - 5
British Energy plc
Sizewell B
NEK
Krško
Spanish Utilities
Asco 1 & 2
Vandellos 2
Almaraz 1 & 2
Ringhals AB
Ringhals 2 – 4
Taiwan Power Co.
Maanshan 1 & 2

June 13, 2003
WOG-03-305

Project No. 692

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

Attn: Chief, Information Management Branch
Division of Program Management

Subject: Response to Request for Additional Information Related to the Westinghouse CENTS Topical Report (WCAP-15996-P)

Reference:
1. Letter, G. S. Pavis (CEOG) to USNRC Document Control Desk, "Submittal of Combustion Engineering Owners Group Reports: WCAP-15996-P, (Proprietary) and WCAP-15996-NP, (Non-Proprietary), entitled "Technical Description Manual for the CENTS Code", CEOG-02-256, December 13, 2002
2. Letter, G. S. Pavis (CEOG) to USNRC Document Control Desk, "Submittal of Combustion Engineering Owners Group Reports: WCAP-15996-P, Volume 4 (Proprietary) and WCAP-15996-NP, Volume 4 (Non-Proprietary), entitled "Technical Description Manual for the CENTS Code", WOG-03-76, February 19, 2003
3. Letter, D. G. Holland (NRC) to G. Bischoff (Westinghouse), "Request for Additional Information Related to the Westinghouse CENTS Topical Report (TAC No. MB6982)", May 22, 2003

By means of References 1 and 2, the Combustion Engineering Owners Group (CEOG) submitted WCAP-15996-P, Rev. 0, Volumes 1 - 4, "Technical Description Manual for the CENTS Code" for Nuclear Regulatory Commission (NRC) review and approval. During the course of its review the NRC staff determined that it required additional information in order to complete its assessment (Reference 3). The responses to the NRC RAIs are provided in Enclosures 1-P (Proprietary) and 2 (Non-Proprietary).

Enclosure 3 contains:

1. One (1) copy of the Application for Withholding, CAW-03-1662.
2. One (1) copy of Affidavit.
3. Proprietary Information Notice.
4. Copyright Notice.

Westinghouse has determined that the information contained in Enclosure 1-P, "Response to Request for Additional Information Regarding WCAP-15996-P, Volumes 1 – 4, Technical Description Manual for the CENTS Code", is proprietary in nature. Consequently, it is requested that this information be withheld from public disclosure in accordance with the provisions of 10 CFR 2.790 and that copies of this information be appropriately safeguarded.

D047

Correspondence with respect to the proprietary aspect of the Applications for Withholding or the supporting Westinghouse affidavits should reference CAW-03-1662, as appropriate, and should be addressed to Mr. H. A. Sepp, Manager of Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P. O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

All correspondence and invoices related to the review of WCAP-15996-P should be addressed to:

Mr. Gordon Bischoff
Manager, Owners Group Program Management Office
Westinghouse Electric Company LLC
2000 Day Hill Road
Windsor, CT 0095-0500

If you require further information, please contact Mr. Jim Molkenthin in the Owners Group Program Management Office at (860) 731-6727

Sincerely,
Westinghouse Owners Group

Robert H Bryan

R. H. Bryan, Chairman

Enclosures

xc: Management Committee
Analysis Subcommittee
Project Management Office
C. B. Brinkman, Westinghouse, w/o enclosures
H. A. Sepp, Westinghouse, w/o enclosures
M. C. Janke, Westinghouse, w/ enclosures
V. A. Paggen, Westinghouse, w/o enclosures
E. J. Schulz, Westinghouse, w/ enclosures
S. E. Colpo, NRC, w/ enclosures
S. Dembek, NRC, w/o enclosures
D. G. Holland, NRC, w/ enclosures (via Federal Express)
J. L. Uhle, NRC, w/o enclosures

Enclosure 2 to WOG-03-305

WESTINGHOUSE ELECTRIC COMPANY LLC

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING WCAP-15996-NP, VOLUMES 1 — 4 TECHNICAL DESCRIPTION MANUAL FOR THE CENTS CODE

JUNE, 2003

Response to RAIs Regarding NRC Review of WCAP-15996-P

Questions Related to the Main Steamline and Header Model, Section 5.6

RAI No. 1: Equation 5.33 on Page 5-40 of Volume I of WCAP-15996-P is an equation for flow rate. However, the units of the equation do not result in flowrate units. Equation 5.36 results in break flow being in units of mass per length. Since this appears to be incorrect, please correct the documentation and coding as needed.

Response 1a:

The drain rate constant in Equation 5.33 should be 0.5/sec instead of 0.5, then Equation 5.33 becomes

[ ] a, c

When Westinghouse produces the "-A" approved version of the topical report, it will factor the RAI responses into the text so that the body of the report is correct in all aspects.

Response 1b:

The term C_0 in Equation 5.36 (and 5.24) is a constant that has units of(BTU * in^2) / (lbf * sec * ft^2)

When Westinghouse produces the "-A" approved version of the topical report, it will factor the RAI responses into the text so that the body of the report is correct in all aspects.

RAI No. 2: Should equation 5.54 be A11*Pj+A12*hj=A13? How do you get from "A13=..." at the bottom of page 5-50 to Equation 5.54?

Response 2a:

Yes, Equation 5.54 contains a typographical error. It should read:

[ ] a, c

When Westinghouse produces the "-A" approved version of the topical report, it will factor the RAI responses into the text so that the body of the report is correct in all aspects.

Response 2b:

If a substitution is made for the ($\Sigma W_{in} - \Sigma W_{out}$), and substitute $A_{11} = B_{10}$ and $A_{12} = B_{11}$, then the equation at the bottom of Page 5-50 becomes

[ ] a, c

Then, the terms combine to

[ ] a, c

When Westinghouse produces the "-A" approved version of the topical report, it will factor the RAI responses into the text so that the body of the report is correct in all aspects.

Questions related to Steam Generator Tube Heat Transfer, Section 5.3

RAI No. 3: The last sentence of Section 5.3.2.2 states that if there is a tube rupture, then the flows are adjusted accordingly. Please expand on how the flows are adjusted.

Response 3:

Given a primary tube node with N sections, the inlet and exit flowrates of the node are given by the RCS path information. Those are distributed smoothly over the node's subsections:

$$w_0 = W_0$$

$$w_i = w_{i-1} + (W_N - W_0) / N, \quad \text{for } 1 \le i \le N$$

where

w_i = Flowrate at top of section i
W_0 = Inlet flow to node
W_N = Exit flow from node

If there is a Tube Rupture at tube section M, then the above distribution is adjusted as follows:

$$w_i = W_0 \quad \text{for } 0 \le i \le M\text{-}1$$

$$w_M = W_0 - W_{SGTR}$$

$$w_i = w_{i-1} + (W_N - W_M) / (N - M), \quad \text{for } M+1 \le i \le N$$

where

w_{SGTR} = Tube Rupture flow rate

When Westinghouse produces the "-A" approved version of the topical report, it will factor the RAI responses into the text so that the body of the report is correct in all aspects.

RAI No. 4: Is W_i of Section 5.3.2.3 mass flowrate?

Response 4:

Yes, as indicated in the response to Question No. 3, W_i = Flow rate in section i.

When Westinghouse produces the "-A" approved version of the topical report, it will factor the RAI responses into the text so that the body of the report is correct in all aspects.

Questions related to Steam Generator Tube Rupture Model, Section 5.7

RAI No. 5: The slot break model is described in Section 5.7.3. Does the code support flow from both tube sections out the slot break? Please clarify the meaning of the last sentence of Section 5.7.3.

Response 5:

The slot break model does support flow from both tube sections out the slot break. In general, the model supports flow in either direction through the slot and flow in either direction through either tube section.

The last sentence of Section 5.7.3 describes the situation where flow through one tube section is toward the break and flow through the other tube section is away from the break. This situation can occur if the break flow is very small. For a larger break, flow through both tube sections is toward the break.

When Westinghouse produces the "-A" approved version of the topical report, it will factor the RAI responses into the text so that the body of the report is correct in all aspects.

Questions related to Feedwater Line Model, Section 5.5

RAI No. 6: On Page 5-23, the flow-squared term is linearized from the momentum equation. Please annotate the steps taken to arrive at each step listed.

Response:

In addition to adding text to clarify the linearization of the momentum equation, there is a negative sign missing from the right hand side of the equation after the substitution back into the momentum equation. The text below should replace the text on Pages 5-23 and 5-24.

For the momentum equation, the flow-squared term is linearized as follows:

a, c

a, c

When Westinghouse produces the "-A" approved version of the topical report, it will factor the RAI responses into the text so that the body of the report is correct in all aspects.

RAI No. 7: The time of 668 seconds does not seem to be correct for peak steam generator pressure on Table 2.2.2.B.

Response:

There are two peaks for steam generator (SG) maximum pressure. The first peak occurs soon after the peak reactor coolant system (RCS) pressure. The second peak occurs in the intact SG after the main steam isolation valves (MSIV) shut and the SG re-pressurizes to the lift set point of the main steam safety valves, see Figure 2.2.2.H. The first peak is 1121 psia and occurs at 67 seconds. The second peak is slightly higher, 1122 psia, and occurs at 668 seconds. For all the subsequent cases, using the current CENTS version, the first peak is the highest pressure.

RAI No. 8: Please clarify the reason for the different trends observed on Figure 2.2.1.F.

Response:

Figure 2.2.1.F plots the intact loop cold leg temperature for the event of steam line break with loss of AC.

The temperature trend at this position in the RCS is not representative of the overall system response. It is strongly affected by the direction of RCS flow in the intact loop cold legs. The magnitude of the rate of flow in the intact loop is very low after the coastdown of the reactor coolant pumps and is an order of magnitude smaller than in the ruptured loop. The direction of flow reverses soon after the time of coastdown of the reactor coolant pumps. During the time of reverse flow the temperature of the intact loop cold legs decrease rapidly because the reactor pressure vessel, which is upstream, is cooled by flow from the ruptured loop and because of the impact of cold safety injection flow to each of the cold legs. During this time, the results of the current version (models deactivated) and the original version are very close. The lower temperature which is predicted by the current version (models active) is the result of a better prediction of natural circulation flow.

Flow in the intact loop reverses again and becomes positive sometime after the blowdown of the ruptured steam generator is complete so that the direction of flow is from the intact steam generator toward the core. The intact steam generator is hot and reverse heat transfer occurs in the intact steam generator. This causes the temperature of the intact loop cold legs to increase when the flow becomes positive.

The intact loop cold leg temperature response predicted by the current version (models activated) and the current version (models deactivated) are nearly the same during the heatup part of the transient. The temperature increase of the original version occurs later. This is because the second flow reversal (from negative to positive) occurs later for this version. The difference in the predicted time of flow reversal is primarily due to the correction of the implementation of the steam generator heat transfer correlation for reverse heat transfer conditions, which also affects the intact steam generator pressure (Figure 2.2.1.H).

RAI No. 9: What is the reason for the pressurizer pressure difference between the original version and the current version (models activated) in Figure 2.2.2.Q?

Response:

Pressurizer pressure diverges for the two cases at about 380 seconds when the pressure begins to decrease in response to emergency feedwater (EFW) actuation. The CENTS model which causes the differences in EFW timing is the four (4) node steam generator (SG) tube model with sectionalized heat transfer. This model effects the SG blowdown rate, which in turn effects the timing of the EFW flow after the Steam Generator Isolation Signal (SGIS). In the original version case, EFW flow is lost for 52 seconds, from time of SGIS until flow resumes to the intact SG. For the current version (models activated), EFW is lost for only 36 seconds. This reduces the RCS heatup and pressure spike, as shown in Figure 2.2.2.Q.

In the original version, the EFW system must wait for a SG $\Delta P>250$ psi, between the two SGs, prior to receiving a signal to re-start flow. In the current version (models activated), the intact SG pressure rises above the SGIS pressure setpoint which sends the signal to restart flow; therefore, there is no need to wait for the SG ΔP condition. This difference is due to the more accurate heat transfer modeling with the four (4) node SG model.

RAI No. 10: Is there actually a second y-axis in Figures 2.2.3.K and 2.2.4.K?

Response:

Yes, a second y-axis is implicit for the first 60 seconds (Fig. 2.2.3.K) or 25 seconds (Figure 2.2.4.K). These figures are intended to show the number of decades and rate of power increase from the initial power level. Figures 2.2.3.A and 2.2.4.A are linear plot figures to review just the peak power levels.

RAI No. 11: Please explain why the iteration described in the second paragraph of Section 3.4.1 is performed.

Response:

Two (2) codes are used in the iteration. The RELAP code is used to model the feedwater system. CENTS is used to model the rest of the nuclear steam supply system (NSSS), the steam generators (SGs), and the main steam system. For both codes, certain output of the other code is required as input. CENTS determines SG pressure during the transient. RELAP uses SG pressure vs. time as an input boundary condition to determine the feedwater flow and enthalpy. The feedwater flow and enthalpy from RELAP is used, in turn, as input to CENTS. Iteration is required because of the circular flow of data between the codes. Typically, only two (2) iterations are required to reach a converged solution.

The purpose of using the RELAP code was as a benchmark against the CENTS detailed Main Feedwater model.

RAI No. 12: Please describe why there's 30% less break flow in the current versions as compared to the original version as shown on Figure 3.2.2.K.

Response:

The original steam generator tube rupture (SGTR) model allowed the break to originate in only one (1) node. In this case, the hot side tube node was chosen. Thus, all break flow originates from one (1) node and the break flow enthalpy is the enthalpy of the hot side tube node.

In the current SGTR model, the flow through the ruptured tube originates from both ends of the tube, in the inlet and exit plenums of the SG (except for very small slot breaks, as discussed in the response to RAI # 5). Thus, the flow through the break has two (2) components; a hot side component and a cold side component.

Figure 3.2.2.K shows the entire break flow for the original case since all of it is modeled as coming from the "hot" tube node. However, for the current cases, the flow presented in this figure represents only the flow from the hot side of the tube rupture. The rest of the flow comes from the cold side, as shown in Figure 3.2.2.L. In Figure 3.2.2.L, the original case has zero flow. Finally, Figure 3.2.2.M presents the total break flow for all cases. This figure shows very good agreement.

RAI No. 13: In most cases outlined in the roadmap, the changes which are requested to be reviewed did not result in changes to the outcome. For each case, please explain whether the reason for making the changes was not as important as originally thought, or whether the code does not adequately predict the phenomena expected.

Response:

As stated in the Roadmap (Enclosure 2-P to CEOG-02-256, dated 12/13/02), the CENTS technical description was updated to capture the current status of the CENTS code and the documentation was improved to describe the models more completely and accurately. Since the changes described run the gamut from inconsequential to significant, it was not a surprise that most changes had little to no effect on the calculated result; especially with respect to limiting cases. It is recognized that in most cases, the changes outlined in the Roadmap did not have a large effect. The changes were made to increase the general accuracy and capability of the code for specific transient situations that are not necessarily related to the regulatory acceptance criteria for design basis events (i.e., those typically presented in Chapter 15 of a Safety Analysis Report). Most improvements are intended to better model non-licensing best-estimate and non-limiting cases rather than the more limiting design basis events. These non-licensing application cases are examined for setpoint calculations, PRA studies, as-found safety assessments, potential equipment availability or alignment scenarios, etc.

Using a conservative interpretation of 10CFR50.59 as a guide, the entire package of changes was subjected to review. This activity resulted in the categorization of changes being either acceptable without prior NRC review or that NRC review prior to implementation was required. Regardless of the categorization, however, WCAP-15996-P captures changes made in both areas in order to provide a complete description of the CENTS code. Roadmap Sections 3 and 4 delineate, respectively, those changes for which NRC review is not deemed necessary and those for which prior review is requested.

The only changes which result is a significant benefit are the newly added dose model and the detailed main feedwater (MFW) model. For the dose model, the current methodology uses very conservative hand calculations. These will be replaced by the dose model calculation within CENTS. For the detailed MFW model the code user currently inputs conservative feedwater flow and enthalpy boundary conditions for the steam line break and feedwater line break, or alternatively, a separate code is necessary to model the feedwater system and iterations with CENTS are required.

The change in feedwater line break methodology for the location of the steam generator feed ring has a significant effect on the long term effects of the feed line break event and resulting pressurizer level. This is a change in application of the code rather than a model change since the feed ring location (i.e., elevation) is a user input parameter. This change does not have a significant benefit in the calculation of peak RCS pressure.

Enclosure 3 to WOG-03-305

WESTINGHOUSE ELECTRIC COMPANY LLC

PROPRIETARY AFFIDAVIT
FOR
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING WCAP-15996-P, VOLUMES 1 — 4 TECHNICAL DESCRIPTION MANUAL FOR THE CENTS CODE

Westinghouse

Westinghouse Electric Company
Nuclear Services
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

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

Direct tel: 412/374-5282
Direct fax: 412/374-4011
e-mail: seppIha@westinghouse.com
Project No.: 692

Our ref: CAW-03-1662

13 June, 2003

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: Response to Request for Additional Information Related to the Westinghouse CENTS Topical Report (WCAP-15996-P)

Reference: Letter from R. H. Bryan (WOG) to USNRC Document Control Desk, "Response to Request for Additional Information Related to the Westinghouse CENTS Topical Report (WCAP-15996-P)," WOG-03-305, June 13, 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 subject report. In conformance with 10 CFR Section 2.790, Affidavit CAW-03-1662 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 CAW-03-1662 and should be addressed to the undersigned.

Very truly yours,

for Henry A. Sepp, Manager
Regulatory Compliance and Plant Licensing

CAW-03-1662

AFFIDAVIT

STATE OF CONNECTICUT:

ss: TOWN OF WINDSOR

COUNTY OF HARTFORD:

Before me, the undersigned authority, personally appeared Ian C. Rickard, 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, a Delaware limited liability company ("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:

Ian C. Rickard
Project Licensing Manager

Sworn to and subscribed
before me this 13th day
of June, 2003.

Notary Public

My commission expires: May 31, 2008

(1) I am Licensing Project Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, of the 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.

(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 , Enclosure 1-P to WOG-03-305, "Response to Request for Additional Information Related to the Westinghouse CENTS Topical Report (WCAP-15996-P)," June 13, 2003, for submittal to the Commission 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 CENTS computer code.

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

(a) Perform non-LOCA accident transient analyses using a more accurate representation of the nuclear steam supply system response using the upgraded CENTS computer code.

(b) Support licensees in evaluating non-LOCA accident transient analyses.

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 provide reload analyses to customers, which are fully compliant with NRC requirements, without the need for unnecessarily restrictive limits.

(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 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).

Copyright Notice

The documents transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies for 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 not withstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond these 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.