PWROG
PWR Owners Group

Program Management Office
4350 Northern Pike
Monroeville, Pennsylvania 15146

Project No. 694

WCAP-15791, Revision 1-NP

January 16, 2007

OG-07-21

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

Subject: PWR Owners Group
Revisions to Topical Report WCAP-15791 Revision 1-NP, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times," and the Final Safety Evaluation (Original TAC NO. MB5751), MUHP-3010/LSC-0029/LSC-0135

Reference:
1. "Revisions to Topical Report WCAP-15791 Revision 1-NP, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times," and the Final Safety Evaluation (Original TAC NO. MB5751)", OG-06-415, December 15, 2006.

On December 15, 2006 the PWROG transmitted mark-ups to WCAP-15791 Revision 1-P (Reference 1). These mark-ups contained proprietary information. Even though the complete WCAP was not included in the mark-ups, the NRC Staff requested that the PWROG transmit an affidavit. For completeness, the PWROG is also supplying the non-proprietary version of the marked-up proprietary pages from WCAP-15791. Enclosure 1 contains the non-proprietary mark-ups of WCAP-15791, Rev. 1.

Also enclosed are:

1. One (1) copy of the Application of Withholding Proprietary Information from Public Disclosure, CAW-07-2227 (Non-Proprietary).

2. One (1) copy of Affidavit CAW-07-2227 (Non-Proprietary).

As this draft report mark up to WCAP-15791-P, Rev. 1 (Reference 1), contains information proprietary to Westinghouse Electric Company, it is being transmitted with affidavits signed by Westinghouse, the owner of the information. The affidavits set forth the basis on which the information be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations. Accordingly, it is respectfully requested that the information which is proprietary be withheld from public disclosure in accordance with 10CFR Section 2.390 of the Commission's regulations.

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Correspondence with respect to the proprietary aspect of the Applications for Withholding or the supporting Westinghouse affidavits should reference CAW-07-2227 as appropriate and should be addressed to Mr. James A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, P. O. Box 355, Pittsburgh, PA 15230-0355.

Correspondence related to this transmittal and invoices associated with the review of WCAP-15791, Rev. 1 should be addressed to:

Mr. Gordon Bischoff
Manager, Owners Group Program Management Office
Westinghouse Electric Company
Mail Stop ECE 5-16
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355

If you require further information, please contact Mr. Tom Laubham in the PWR Owners Group Program Management Office at 412-374-6788.

Sincerely,

Frederick P. "Ted" Schiffley, II, Chairman
PWR Owners Group

FPS:TJL:mjl

Enclosures (3)

cc: PWROG Steering Committee
PWROG Licensing Subcommittee Participating Members
PWROG Program Management Office
S. Peters, USNRC
S. Rosenberg, USNRC
C. Brinkman, Westinghouse
J. Andrachek, Westinghouse
J. Andre, Westinghouse
J. Gresham, Westinghouse

Attachment

WCP-15791-NP, Rev. 1 Mark-ups

Westinghouse Electric Company LLC
P.O. Box 355
Pittsburgh, PA 15230-0355

Key modeling details:

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FINAL CT EXTENSION for valves 2 or 1, for any type: 168 hours

8.2.3 Class II: Penetration Flow Paths Connected to the RCS

Class II represents those penetrations that are connected to the RCS. Section 8.2.3.1 contains the ICLERP and ΔLERF sample calculations for those RCS systems that are standby, and Section 8.2.3.2 contains the sample calculations for the normally operating systems.

The key assumptions and diagrams are shown for each penetration analyzed. The calculations were done similar to the calculations for the containment atmosphere connections in Section 8.2.2. That is, the calculations are done first with a CT of 168 hours and if the ICLERP or ΔLERF value at this CT does not meet the criteria in Regulatory Guides 1.174 and 1.177, the ICLERP and/or ΔLERF were recalculated at

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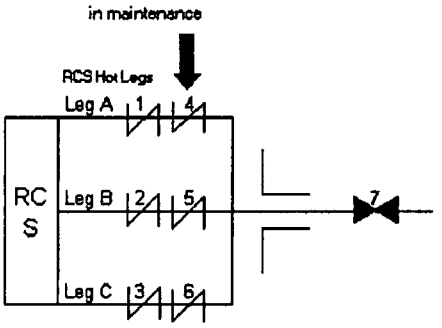
- any CIV IC is in maintenance such that the pressure boundary is maintained (still closed system IC):



Key modeling details:

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FINAL CT EXTENSION for valve 1, for SOV type: 168 hours

8.2.4 Class III: Penetration Flow Paths Connected to the SGs

Class III represents those penetrations that are connected to the Steam Generator Secondary Side. The ICLERP and ΔLERF calculations for steam generator connections that are open to the outside environment are in Section 8.2.4.1. The calculations for the steam generator connections that are closed to the outside environment are in Section 8.2.4.2.

Similar to Sections 8.2.2 and 8.2.3 (Class I and Class II penetrations), assumptions and diagrams are shown for each penetration analyzed. The methodology in the calculations is also consistent with Classes I and II such that the calculations are done first with a CT of 168 hours. If the ICLERP or ΔLERF value at this CT does not meet the criteria in Regulatory Guides 1.174 and 1.177, the ICLERP and ΔLERF values were recalculated at lesser CTs. The sample calculations provided in Sections 8.2.4.1 and 8.2.4.2 reflect only valve failure probabilities for SOVs. Table 8-4 summarizes the Class III results which contain calculations for all valve types (SOVs, MOVs, AOVs, check valves, and SRVs, as appropriate).

8.3 DETERMINISTIC EVALUATION OF CONTAINMENT HOLE SIZE

This section provides the evaluation to determine the minimum containment hole size that will result in a large release. Penetration flow paths connected to the containment atmosphere (this excludes all RCS and SG connections) that have piping diameters smaller than this minimum threshold value are assumed of insufficient size to result in a large release. These penetrations automatically default to the 7 day CT and no detailed probabilistic analysis is required.

A large release was initially defined as a pathway of sufficient size to release the contents of the containment (i.e., one volume change) within one hour. This criteria is provided in the EPRI PSA Applications Guide (Reference 8). The vent diameter, or containment hole size, was calculated that met this criteria. For this program, all releases are considered early. Based on this criteria, the minimum containment hole sizes required for a large release are provided in Table 8-5 for each containment type.

As discussed in the section "Identification of Revisions", the NRC provided RAIs related to the minimum containment hole size required for a large release. Several detailed discussions were held with the Staff reviewers on the subject. The Staff did not agree with the definition that was used for a large release (one containment volume per hour) and felt the criteria used in previous studies was more appropriate. In previous studies, a 2 inch containment hole size has been used for screening in the development of containment isolation PRA models. Based on these discussions, the WOG agreed to apply a 2 inch containment hole size to define the threshold for a large release for all three containment types, that is, it is assumed that a hole size of > 2 inches can result in a large release.

Table 8-5 Containment Hole Size Results

Containment Type	Volume, V (ft^3)	Vent diameter / Pipe Size (in)
sub-atmospheric	[ ] a,c	[ ] a,c
ice condenser	[ ]	[ ]
Large dry containment	[ ]	[ ]

8.4 TIER 2: AVOIDANCE OF RISK-SIGNIFICANT PLANT CONDITIONS

The objective of the second tier, which is applicable to CT extensions, is to provide reasonable assurance that risk-significant plant equipment outage configurations will not occur when equipment is out of service. If risk-significant configurations do occur, then enhancements to Technical Specifications or procedures, such as limiting unavailability of backup systems, increased surveillance frequencies, or upgrading procedures or training, can be made that avoid, limit, or lessen the importance of these configurations.

The containment isolation valves form part of the containment barrier limiting releases to the environment. Other containment systems, such as the containment cooling system and containment spray system, also function to mitigate releases to the environment, but by different mechanisms. These other systems typically are used to preserve containment integrity by limiting containment pressure increase or to remove radioactive material from the containment atmosphere. The containment cooling and

9 LEAD PLANT APPLICATION OF THE GENERIC ANALYSIS

This section presents the analysis and assumptions used in the lead plant application of the generic assessment discussed in Section 8.

The lead plant for this analysis was the Wolf Creek Generating Station (WCGS). The lead plant application provided insight on how to fine tune the generic assessment so that it can be applied to all plants straightforwardly, provides an example application of the generic analysis, and provides a useful guidance tool for other utilities wanting to implement the change. Also, the final percentage of WCGS CIVs that can be justified for an extended CT are provided.

The implementation involved identifying all of WCGS's containment isolation penetrations, using the 2-inch containment hole size critiera of Section 8.3 to identify the 'small lines' (that are automatically justified to 168 hour CTs), matching the remaining penetrations up with the corresponding generic penetrations listed in Sections 8.2.2 through 8.2.4, and determining the final CTs for each CIV. The steps that were followed for WCGS are documented in Section 9.1. The steps are also the methodology that any other utility wanting to implement the change would need to follow.

9.1 IMPLEMENTATION PROCEDURE

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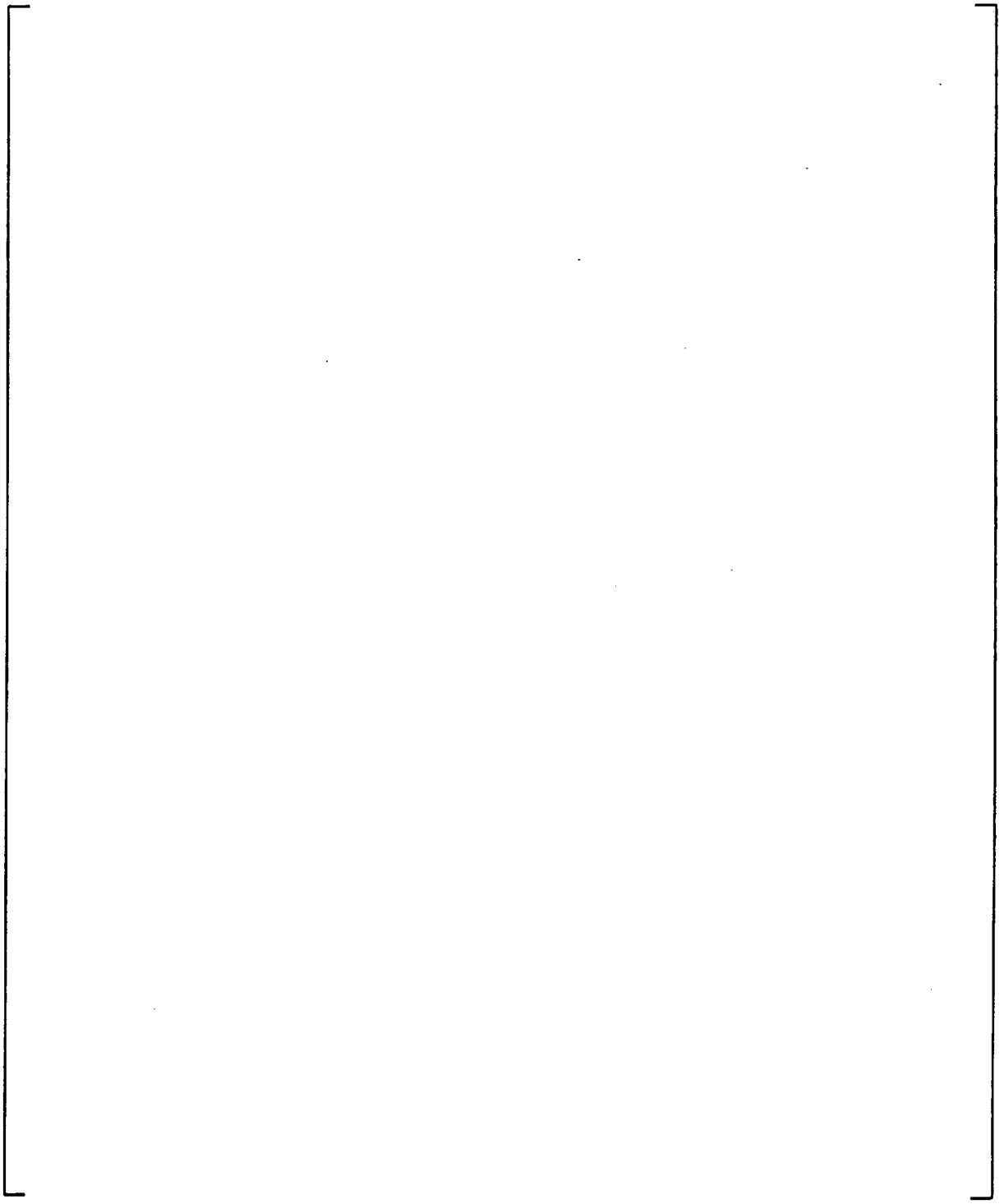

10 PLANT SPECIFIC ANALYSIS

This section documents the plant specific analysis that was done for WCGS.

The plant specific study involved taking WCGS-specific parameters and implementing them into the generic probabilistic evaluation of Section 8.2 to get actual WCGS-specific results. The purpose of this study was to determine how many more of WCGS's CIVs could be justified for longer CT relaxations in addition to those justified under the generic analysis. The generic analysis was a conservative assessment, and therefore, applicable to all Westinghouse Owner's Group plants, including WCGS. A plant specific application will result in additional CT improvements. Note that the threshold containment hole size, for penetrations from the containment atmosphere to the outside environment, that can provide a large release remained at 2 inches. That is, containment hole sizes greater than 2 inches can result in a large release and hole sizes of 2 inches or less cannot.

First, the WCGS CIVs that were unable to meet the full 168 hour CT extension under the generic analysis were identified (see Table 9-2 of Section 9). Next, the necessary input parameters relative to WCGS were obtained and the analysis of Sections 8.2 and 8.3 was repeated using the WCGS specific parameters. Re-doing the analysis plant specifically made it possible to determine whether or not longer CTs could be justified for WCGS.

The re-analysis involved re-calculation of ICLERPs and ΔLERFs (see the methodology of Section 8.2) using WCGS specific parameters for those penetrations that could not be justified to the full 168 hour CT under the application of the generic analysis of Section 9.

The methodology, terminology and assumptions that were applicable in the generic analysis (of Sections 8.2 and 8.3) are all applicable to this WCGS specific analysis. The only difference is that WCGS input parameters are used, rather than generic parameters. The WCGS input parameters are listed in Tables 9-1a through 9-1d. Since WCGS does not quantify all external events, the value for CDF_T was set to 1.0E-04/yr.

10.1 CALCULATIONS

The ICLERP and/or ΔLERF (depending on which was more limiting) was re-calculated with the WCGS-specific input parameters of Tables 9-1a, 9-1b, 9-1c, and 9-1d for the CIVs with CTs less than 168 hrs. The inputs were used in the appropriate ICLERP and ΔLERF equations discussed in Sections 8.2.2 through 8.2.4. Similar to Step 5 of Section 9.1, Guidelines A and B had to be followed when choosing which valve type to assume for the penetration, however this time, Guidelines A and B are Wolf-Creek specific.

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Table 10-1 summarizes those CIVs that could not meet the full 168 hour CT under the application of the generic analysis. It identifies which CIVs received longer CTs due to the plant specific probabilistic re-evaluation. Note, not all CIVs were able to be justified for longer CTs due to failure probability and/or penetration configuration.

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Our ref: CAW-07-2227

January 23, 2007

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: OG-06-415, Markups of WCAP-15791-P, Rev. 1, Entitled, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-07-2227 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 the PWR Owners Group.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-07-2227, 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,

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

Enclosures

cc: Jon Thompson (NRC O-7E1A)

bcc: J. A. Gresham (ECE 4-7A) 1L
R. Bastien, 1L (Nivelles, Belgium)
C. Brinkman, 1L (Westinghouse Electric Co., 12300 Twinbrook Parkway, Suite 330, Rockville, MD 20852)
RCPL Administrative Aide (ECE 4-7A) 1L (letter and affidavit only)

CAW-07-2227

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared B. F. Maurer, 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:

B. F. Maurer, Principal Engineer
Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 23rd day of January, 2007

Sharon L. Fiori
Notary Public

Notarial Seal
Sharon L. Fiori, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires January 29, 2007
Member, Pennsylvania Association Of Notaries

(1) I am Principal Engineer, 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 OG-06-415, markups of WCAP-15791-P, Rev. 1, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times" (Proprietary), dated January 2007, on behalf of the PWR Owners Group letter and Application for Withholding Proprietary Information from Public Disclosure to the Document Control Desk. The proprietary information as submitted by the PWR Owners Group is applicable to other licensee submittals.

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

(a) Evaluate the impact of changes to containment isolation requirements on containment isolation reliability and on plant risk.

(b) Assist the customers in the licensing and NRC approval of the Technical Specification changes associated with this program.

Further this information has substantial commercial value as follows:

(a) Westinghouse can contract with utilities to implement these Technical Specification changes to their plants and to also perform a plant specific analysis that will allow additional Technical Specification improvements.

(b) Westinghouse can sell support and defense of the technology to its customers in the licensing process.

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 calculation, evaluation 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 generic and/or 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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