Westinghouse

Westinghouse Electric Company
Nuclear Power Plants
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USA

U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, D.C. 20555

Direct tel: 412-374-6206
Direct fax: 412-374-5005
e-mail: sisk1rb@westinghouse.com

Your ref: Docket No. 52-006
Our ref: DCP_NRC_002705

December 1, 2009

Subject: AP1000 Response to Request for Additional Information (SRP7.1)

Westinghouse is submitting responses to the NRC request for additional information (RAI) on SRP Section 7.1. These RAI responses are submitted in support of the AP1000 Design Certification Amendment Application (Docket No. 52-006). The information included in the response is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification and the AP1000 Design Certification Amendment Application.

Responses are provided herein for:

RAI-SRP7.1-FMEA-01
RAI-SRP7.1-FMEA-06

Pursuant to 10 CFR 50.30(b), proprietary and non-proprietary versions of the response to the request for additional information on SRP Section 7.1 are submitted as Enclosures 3, 4, 5 and 6. Also enclosed is one copy of the Application for Withholding, AW-09-2709 (non-proprietary) with Proprietary Information Notice, and one copy of the associated Affidavit (non-proprietary).

This submittal contains proprietary information of Westinghouse Electric Company, LLC. In conformance with the requirements of 10 CFR Section 2.390, as amended, of the Commission's regulations, we are enclosing with this submittal an Application for Withholding from Public Disclosure and an affidavit. The affidavit sets forth the basis on which the information identified as proprietary may be withheld from public disclosure by the Commission.

Correspondence with respect to the affidavit or Application for Withholding should reference AW-09-2709 and should be addressed to James A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, LLC, P. 0. Box 355, Pittsburgh, Pennsylvania 15230-0355.

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NRO

Questions or requests for additional information related to the content and preparation of this response should be directed to Westinghouse. Please send copies of such questions or requests to the prospective applicants for combined licenses referencing the AP1000 Design Certification. A representative for each applicant is included on the cc: list of this letter.

Very truly yours,

Robert Sisk, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

/Enclosures

1. AW-09-2709 "Application for Withholding Proprietary Information from Disclosure," dated December 1, 2009

2. AW-09-2709, Affidavit, Proprietary Information Notice, Copyright Notice dated December 1, 2009

3. Response to Request for Additional Information on SRP Section 7.1, RAI-SRP7.1-FMEA-01 (Proprietary)

4. Response to Request for Additional Information on SRP Section 7.1, RAI-SRP7.1-FMEA-01 (Non-Proprietary)

5. Response to Request for Additional Information on SRP Section 7.1, RAI-SRP7.1-FMEA-06 (Proprietary)

6. Response to Request for Additional Information on SRP Section 7.1, RAI-SRP7.1-FMEA-06 (Non-Proprietary)

cc:	D. Jaffe	-	U.S. NRC	6E
	E. McKenna	-	U.S. NRC	6E
	S. Mitra	-	U.S. NRC	6E
	T. Spink	-	TVA	6E
	P. Hastings	-	Duke Power	6E
	R. Kitchen	-	Progress Energy	6E
	A. Monroe	-	SCANA	6E
	P. Jacobs	-	Florida Power & Light	6E
	C. Pierce	-	Southern Company	6E
	E. Schmiech	-	Westinghouse	6E
	G. Zinke	-	NuStart/Entergy	6E
	R. Grumbir	-	NuStart	6E
	B. Seelman	-	Westinghouse	6E

ENCLOSURE 1

AW-09-2709

APPLICATION FOR WITHHOLDING
PROPRIETARY INFORMATION FROM DISCLOSURE

Westinghouse

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

U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, D.C. 20555

Direct tel: 412-374-6206
Direct fax: 412-374-5005
e-mail: sisk1rb@westinghouse.com

Your ref: Docket Number 52-006
Our ref: AW-09-2709

December 1, 2009

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: Submittal of Proprietary and Non-Proprietary Technical Document Information, Response to Request for Additional Information (RAI) on SRP Section 7.1

The Application for Withholding is submitted by Westinghouse Electric Company, LLC (Westinghouse), pursuant to the provisions of Paragraph (b) (1) of Section 2.390 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 RAI response. In conformance with 10 CFR Section 2.390, Affidavit AW-09-2709 accompanies this Application for Withholding, setting forth the basis on which the identified proprietary information may be withheld from public disclosure.

Accordingly, it is respectively requested that the subject information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to this Application for Withholding or the accompanying affidavit should reference AW-09-2709 and should be addressed to James A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, LLC, P.O. Box 355, Pittsburgh, Pennsylvania, 15230-0355.

Very truly yours,

Robert Sisk, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

cc: G. Bacuta - U.S. NRC

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ENCLOSURE 2

Affidavit

AW-09-2709
December 1, 2009

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared Robert Sisk, 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:

Robert Sisk, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

Sworn to and subscribed
before me this 1st day
of December 2009.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Linda J. Bugle, Notary Public
City of Pittsburgh, Allegheny County
My Commission Expires June 18, 2013
Member, Pennsylvania Association of Notaries

Notary Public

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(1) I am Manager, Licensing and Customer Interface, 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 RAI-SRP7.1-FMEA-01 and RAI-SRP7.1-FMEA-06 in support of the AP1000 Design Certification Amendment Application, being transmitted by Westinghouse letter (DCP_NRC_002705) and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse for the AP1000 Design Certification Amendment application is expected to be applicable in all licensee submittals referencing the AP1000 Design Certification and the AP1000 Design Certification Amendment Application in response to certain NRC requirements for justification of compliance of the safety system to regulations.

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

(a) Manufacture and deliver products to utilities based on proprietary designs.

(b) Advance the AP1000 Design and reduce the licensing risk for the application of the AP1000 Design Certification

(c) Determine compliance with regulations and standards

(d) Establish design requirements and specifications for the system.

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 plant construction and operation.

(b) Westinghouse can sell support and defense of safety systems based on the technology in the reports.

(c) The information requested to be withheld reveals the distinguishing aspects of an approach and schedule 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 digital technology safety systems 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).

COPYRIGHT NOTICE

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 2.390 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.

ENCLOSURE 4

Response to Request for Additional Information on SRP Section 7.1

RAI-SRP7.1-FMEA-01

(Non-Proprietary)

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP7.1-FMEA-01
Revision: 0

Question:

Demonstrate how the failure of one or any of the five component interface modules (CIMs) defined below do not affect system safety or reliability in an adverse manner.

On page 1-3 of Revision 2 of the "Failure Modes and Effects Analysis (FMEA) of the AP1000 Protection and Safety Monitoring System" (PMS) it states: [

]a, c

The text goes on to explain that this value is not consistent with the reliability/availability targets for the system.

Adequate system reliability is a requirement of IEEE Standard (Std.) 603-1991, Clause 5.15 – Reliability, which is endorsed by 10 CFR 50.55a(h) Protection and Safety Systems. Explain how this statement affects the overall safety and/or reliability goals of the system. If these component(s) adversely affect system safety, provide an analysis demonstrating what measures are taken to ensure I&C system safety goals are met.

Westinghouse Response:

Component Interface Modules (CIM) failures that lead to the output [

]a, c

Reference(s):
WCAP-16438 Revision 2, FMEA of AP1000 Protection and Safety Monitoring System.

Design Control Document (DCD) Revision:
None

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

PRA Revision:
None

Technical Report (TR) Revision:
None

ENCLOSURE 6

Response to Request for Additional Information on SRP Section 7.1

RAI-SRP7.1-FMEA-06

(Non-Proprietary)

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP7.1-FMEA-06
Revision: 0

Question:

Discuss in the FMEA what methods (alarms, indications, testing, etc.) or design features are utilized to ensure the condition of a checksum failure that potentially prevents actuation of a division will not will not act as an undetected fault.

On page 2-14 of Revision 2 of the "Failure Modes and Effects Analysis (FMEA) of the AP1000 Protection and Safety Monitoring System" (PMS) it states: [

]a,c

Clause 5.1, the Single Failure Criterion, of IEEE Std. 603-1991, which is endorsed by 10 CFR 50.55a(h) Protection and Safety Systems states that IEEE Std. 379-1988, IEEE Standard Application of the Single-Failure Criterion to Nuclear Power Generating Station Safety Systems, provides guidance on the application of single failures. Per the definitions section of IEEE Std. 603-1991, it states IEEE Std. 379-1988 defines identifiable, but non-detectable failures within Section 5.2 and states that the non-detectable failures should either be designed out of the system or presumed to have occurred yet have no impact upon the system's ability to initiate and complete its safety function should it be required. Discuss how the checksum failure fault will be minimized; mitigated or eliminated from the PMS.

Westinghouse Response:

The case in point involves setpoint changes [

]a,c

DCD Revision: None

PRA Revision: None

Technical Report (TR) Revision: None