

Vogle PEmails

From: Habib, Donald
Sent: Friday, March 15, 2019 1:53 PM
To: Vogtle PEmails
Subject: Transmittal of Information for March 26th Tech Exch Meeting re: Reconciliation of Detailed AP1000 Radiation LAR - NON-PROPRIETARY INFORMATION
Attachments: Non-Proprietary Slides for LAR-19-003 Tech Exch.pdf; SVP_SV0_005426 Affidavit and Req for Withholding.pdf

From: Quarles, Adam Graham <AGQUARLE@southernco.com>
Sent: Friday, March 15, 2019 11:42 AM
To: Patel, Chandu <Chandu.Patel@nrc.gov>; Habib, Donald <Donald.Habib@nrc.gov>
Cc: Chamberlain, Amy Christine <ACCHAMBE@southernco.com>; Agee, Stephanie Y. <SYAGEE@southernco.com>; Haggerty, Neil <X2NHAGGE@SOUTHERNCO.COM>; Dorsey, Keith A. <kadorsey@southernco.com>
Subject: [External_Sender] Transmittal of Information for March 26th Tech Exch Meeting re: Reconciliation of Detailed AP1000 Radiation LAR - NON-PROPRIETARY INFORMATION

This message provides the non-Proprietary Information that will be used for the Technical Exchange Meeting on the Reconciliation of Detailed AP1000 Radiation License Amendment Request (LAR).

The following non-proprietary information is provided:

- Non-Proprietary Slides for LAR-19-003 Tech Exch.pdf (provides the slides that will be presented during the March 26th meeting)
- SVP_SV0_005426 Affidavit and Req for Withholding.pdf (supports the request to withhold proprietary information from the Public)

Enclosed in SVP_SV0_005426 is:

CAW-19-4874, which includes: the Affidavit, Proprietary Information Notice, Copyright Notice The enclosure contains information proprietary to Westinghouse Electric Company LLC ("Westinghouse"), it is supported by an Affidavit signed by Westinghouse, the owner of the information. The Affidavit sets forth the basis on which the information may be withheld from public disclosure by the Nuclear Regulatory Commission ("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 to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse Affidavit should reference CAW-19-4874 and should be addressed to Camille T. Zozula, Manager, Infrastructure & Facilities Licensing, Westinghouse Electric Company, 1000 Westinghouse Drive, Suite 165, Cranberry Township, Pennsylvania 16066.

The attachments to this message may be provided to the Public prior to the March 26th meeting.

SNC has provided the Proprietary information in a separate email, for distribution to NRC Staff in preparation of the meeting.

Thank you,

Adam G. Quarles

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Non-Proprietary Slides for LAR-19-003 Tech Exch.pdf		647935
SVP_SV0_005426 Affidavit and Req for Withholding.pdf		475315

Options
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Reconciliation of Detailed AP1000 Radiation Analysis (WEC LAR 164) (Non-Proprietary)



Meeting Purpose & Agenda

Meeting Purpose

- Discuss changes proposed by WEC LAR-164
- Inform Staff of LAR Scope and gain feedback

Agenda

- Background information and context
- Basis for proposed changes
- Proposed changes



Background Information

(a,c)

IRWST – In-Containment Refueling Water Storage Tank

Large crescent shaped tank of water on western side of containment. Filled during normal operation, drained to the refueling canal during shutdown (returned to IRWST at conclusion of outage).

Spans elevations 103'-0" to 133'-3"

Contains the passive residual heat removal (PRHR) heat exchanger (HX) for passively cooling the RCS.



Background Information

(a,c)

Shielding design considers a variety of radiation sources. Some examples include the core, primary coolant, and spent resin.

Historically the IRWST was not considered a radiation source. Reviewing assumptions for the basis of this claim revealed two credible pathways for radioactivity to enter the IRWST.

In-leakage from PRHR HX

Tech Spec L.C.O 3.4.7 allows operation with up to 500 GPD of leakage from PRHR HX to IRWST.

Refueling Canal

At the conclusion of an outage there is some quantity of corrosion products present in the water that is returned to the IRWST.



Background Information

(a,c)

To summarize:

Major pathways for radionuclides to enter IRWST are:

- In-leakage from PRHR HX
- From refueling canal following an outage

Removal pathways for radionuclides in the IRWST

- Normal purification
- Radioactive decay
- Overflow to the sump

Analyses have been performed that quantify the IRWST radioactive source and its impact on containment for normal and shutdown operations.



Background Information

- [

](a,c)

- [

](a,c)



Background Information

- Method
 1. [](a,c)
 2. [](a,c)
 3. [](a,c)
 4. Analysis models walls already credited as radiation shields in ITAAC Appendix C Table 3.3-1. In addition, it models two walls not yet designated “Yes” for radiation shielding in ITAAC Appendix C Table 3.3-1
 - CA03 (5/8" thick steel module forming the circumferential *west wall* of the IRWST)
 - CA02 (2'-6" concrete & steel module, *northeast wall* of IRWST parallel to column line N)



Background Information

Design Basis Case – Maximum Dose Rates

1. Inside IRWST: []^(a,c) rem/hr
2. Between CA03 (Circumferential West Wall) and CV: []^(a,c) mrem/hr
3. Room 11400 adjacent to vapor space: []^(a,c) mrem/hr
4. Annulus: []^(a,c) mrem/hr

Radiation fields under expected conditions remain within established zoning limits.

Notes added to radiation drawing indicate elevated dose rates during design basis conditions. EQ has considered design basis conditions.



} (a,c)

Background Information

Expected Case – Maximum Dose Rates

1. Inside IRWST: []^(a,c) mrem/hr
2. Between CA03 (Circumferential West Wall) and CV: []^(a,c) mrem/hr
3. Room 11400 adjacent to vapor space: []^(a,c) mrem/hr
4. Annulus: []^(a,c) mrem/hr

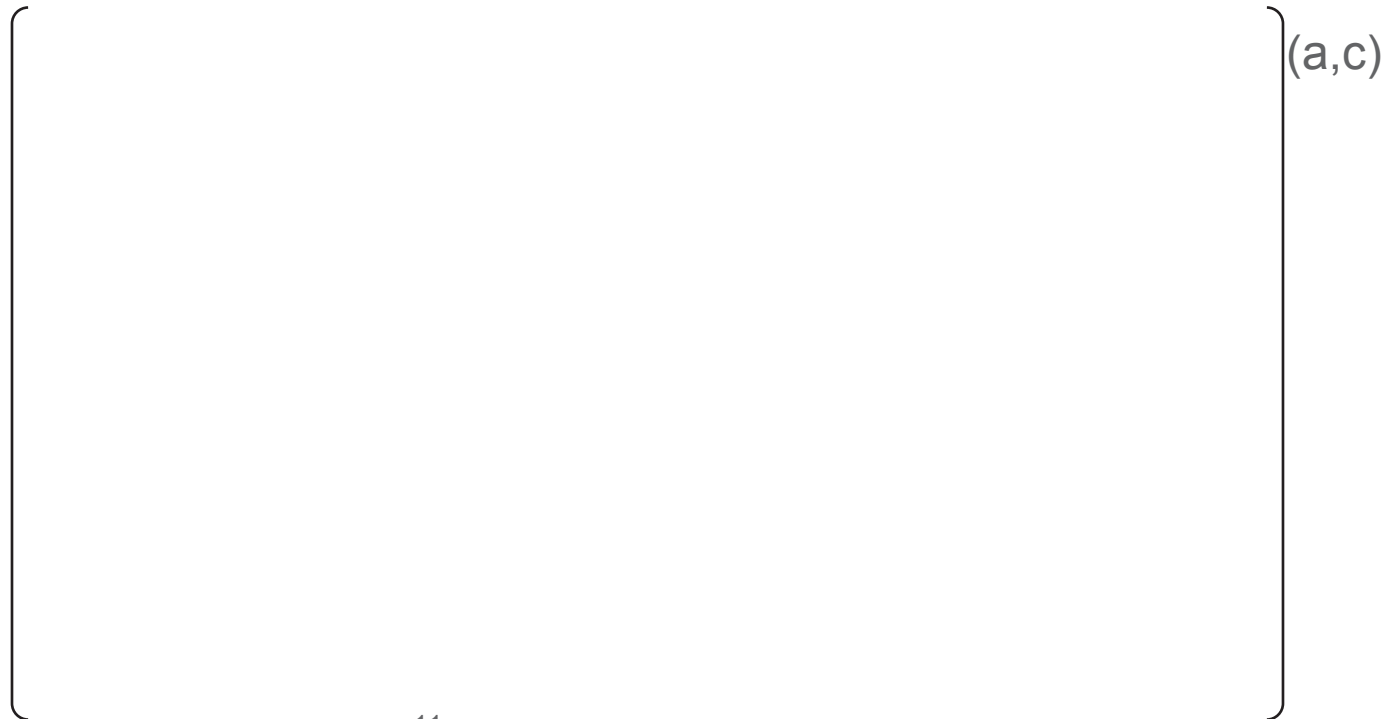
} (a,c)



Basis for Proposed Changes

- Analysis models the following walls
 - Credits shielding of CA03 (5/8" thick steel module forming the *west wall* of the IRWST)
 - Credits shielding of CA02 (2'-6" concrete & steel module, *northeast wall* of IRWST parallel to column line N)

Crediting these walls is necessary for maintaining established radiation zoning shown in UFSAR Chapter 12 assuming 500 GPD leakage concurrent with 0.25% fuel defects.



Proposed Change

Licensing Basis Impact – Tier 1 (GDC 1)

TABLE 3.3-1 DEFINITION OF WALL THICKNESSES FOR NUCLEAR ISLAND BUILDINGS, TURBINE BUILDING, AND ANNEX BUILDING⁽¹⁾				
Wall or Section Description	Column Lines ⁽⁷⁾	Floor Elevation or Elevation Range ⁽⁷⁾⁽⁸⁾	Concrete Thickness ⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁹⁾	Applicable Radiation Shielding Wall (Yes/No)
Containment Building Internal Structure				
North-east wall of in-containment refueling water storage tank	Parallel to column line N	From 103'-0" to 135'-3"	2'-6"	Yes
West wall of in-containment refueling water storage tank	Not applicable	From 103'-0" to 135'-3"	5/8" steel plate with stiffeners	Yes



Proposed Change

Licensing Basis Impact – Tier 2 (GDC 4)

**Table 3D.5-2
60-Year Normal Operating Doses**

Location	Gamma Dose Rate (Rad air hour)	60-Year Gamma Dose (Rads air)
Inside Containment		
RCS Pipe - Center	1.9×10^3	1.0×10^9
RCS Pipe - ID	1.1×10^3	5.7×10^8
RCS Pipe – OD (contact)	7.8×10^1	4.1×10^7
RCS Pipe – General Area ^(b)	4.0×10^1	2.1×10^7
Outside CA01 Excluding Rooms 11104 and 11204	<0.45	$<2.4 \times 10^5$
Adjacent to Reactor Vessel Wall	$\leq 3.6 \times 10^4$	$\leq 1.9 \times 10^{10(a)}$
<u>IRWST</u>	--	<u>2.2×10^7</u>
Outside Containment		
Penetration Area	--	$<2 \times 10^7$
Pump Cubicles	--	$<2 \times 10^7$
Radioactive Waste Area	--	$<2 \times 10^7$
<u>Radwaste Tank Cubicles</u>	--	$<5 \times 10^7$
Other General Areas Not Under Radiation Control	--	$<1 \times 10^4$

Notes:

- a. 60-year neutron fluence for E > 1 MeV is 4.6×10^{18} n/cm²
- b. 12 inches from RCS pipe OD



Proposed Change

Licensing Basis Impact – Tier 2 (GDC 61)

(a,c)



Summary of Changes

UFSAR Impacts

- Tier 1 Table 3.3-1
 - Adding credit of IRWST walls for credit in normal dose shielding
 - IRWST Circumferential West Wall
 - IRWST Northeast Wall parallel to Column Line
- Tier 2 Table 3D.5-2
 - Addition of IRWST normal operating dose line item
- Tier 2 Figure 12.3-1
 - Clarification of localized dose rates



Questions?



AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

COUNTY OF BUTLER:

- (1) I, Jill S. Monahan, have been specifically delegated and authorized to apply for withholding and execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse).
- (2) I am requesting the proprietary portions of APP-GW-GLY-168 Revision 0 be withheld from public disclosure under 10 CFR 2.390.
- (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 10 CFR 2.390, 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 and is not customarily disclosed to the public.
 - (ii) 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.

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- (5) Westinghouse has policies in place to identify proprietary information. 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.
- (6) The attached documents are bracketed and marked to indicate the bases for withholding. The justification for withholding 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

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refer to the types of information Westinghouse customarily holds in confidence identified in Sections (5)(a) through (f) of this Affidavit.

I declare that the averments of fact set forth in this Affidavit are true and correct to the best of my knowledge, information, and belief.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: 3-13-2019



Jill S Monahan, Manager
Licensing Special Programs

PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and non-proprietary versions of a document, 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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