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Paul Wood
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Waterford 3

W3F1-2020-0002

January 8, 2020

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

Subject: Transmittal of Slides for Third Partially Closed Presubmittal Meeting with Entergy Operations, Inc. to Discuss a Planned License Amendment Request for Digital Instrumentation and Control Modification at Waterford Steam Electric Station, Unit 3 (EPID L-2019-LRM-0093)

Waterford Steam Electric Station, Unit 3
NRC Docket No. 50-382
Renewed Facility Operating License No. NPF-38

Reference: Meeting Notice, "Third Partially Closed Presubmittal Meeting with Entergy Operations, Inc. to Discuss a Planned License Amendment Request for Digital Instrumentation and Control Modification at Waterford Steam Electric Station, Unit 3 (EPID L-2019-LRM-0093)," (ADAMS Accession No. ML19365A097), dated December 31, 2019

A partially closed meeting between Entergy Operations, Inc. (Entergy) and the U.S. Nuclear Regulatory Commission (NRC) staff is scheduled for January 16, 2020. The purpose of this meeting is to discuss, in detail, a planned license amendment request (LAR) to replace the Core Protection Calculator and Control Element Assembly Calculator Systems with digital systems in accordance with Digital Instrumentation and Control (DI&C) Interim Staff Guidance (ISG) DI&C-ISG-06, Revision 2.

Attached to this letter are:

- Presubmittal Meeting Slides, "Waterford Unit 3 CPC/CEAC Replacement License Amendment Request NRC Pre-submittal Meeting #2" [Westinghouse document WAAP-11643-NP (Non-Proprietary)] (Attachment 1).

- Westinghouse Letter CAW-20-4988, which includes the Affidavit, Proprietary Information Notice, and Copyright Notice (Attachment 2).
- Presubmittal Meeting Slides, "Waterford Unit 3 CPC/CEAC Replacement License Amendment Request NRC Pre-submittal Meeting #2" [Westinghouse document WAAP-11643-P (Proprietary)] (Attachment 3).

As Attachment 3 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.

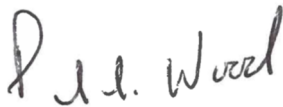
Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse Affidavit should reference CAW-20-4988 and should be addressed to Camille T. Zozula, Manager, Infrastructure & Facilities Licensing, Westinghouse Electric Company, 1000 Westinghouse Drive, Suite 165, Cranberry Township, Pennsylvania 16066.

This letter contains no new regulatory commitments.

If you have any questions or require additional information, please contact the Regulatory Assurance Manager, Paul Wood, at (504) 464-3786.

Respectfully,

A handwritten signature in black ink that reads "Paul Wood". The signature is written in a cursive, slightly slanted style.

Paul Wood

PW/mmz

- Attachments:
1. Waterford Unit 3 CPC/CEAC Replacement License Amendment Request
NRC Pre-submittal Meeting #2 [Westinghouse document
WAAP-11643-NP (Non-Proprietary)]
 2. Westinghouse Letter CAW-20-4988
 3. Waterford Unit 3 CPC/CEAC Replacement License Amendment Request
NRC Pre-submittal Meeting #2 [Westinghouse document
WAAP-11619-P (Proprietary)]

cc: NRC Region IV Regional Administrator
NRC Senior Resident Inspector – Waterford 3
NRC Project Manager – Waterford 3

Attachment 1

W3F1-2020-0002

**Waterford Unit 3 CPC/CEAC Replacement License Amendment Request
NRC Pre-submittal Meeting #2
[Westinghouse document WAAP-11643-NP (Non-Proprietary)]**

**Waterford Unit 3
CPC/CEAC Replacement
License Amendment Request
NRC Pre-submittal Meeting #2**

January 16, 2020



WAAP-11643-NP

Participants

Entergy Waterford Unit 3

- Ron Gaston, Director - Fleet Regulatory Assurance
- William Steelman, Design Manager - Waterford
- John Schrage, Senior Staff Engineer - Corporate Licensing
- Janice Cruz, Manager, Major Fleet Projects – Engineering
- Christopher Talazac, Supervisor, Major Fleet Projects – Engineering
- Roger Rucker, Lead Responsible Engineer, Major Fleet Projects – Engineering
- William Truss, I&C Engineer, Major Fleet Projects – Engineering
- Jacob Champagne, I&C Engineer, Major Fleet Projects – Engineering
- Loren Miller, Project Manager, CPC Replacement Project
- David Constance, Assistant Operations Manager - Support
- Pareez Golub, SME, Major Fleet Projects – Engineering
- Alan Harris, Site Regulatory Assurance

Participants

Westinghouse

- Warren Odess-Gillett, Licensing Lead
- Steven Merkiel, Senior Engineer
- Allen Denyer, Project Technical Advisor
- Eric Fredrickson, Project Manager

Pre-submittal Meeting Purpose

- Engage with NRC Staff prior to LAR submittal and describe the WF3 CPC/CEAC digital upgrade
- Provide an overview of LAR content
- Gain alignment on use of ISG-06 Alternate Review process and submittal/review process
- Solicit Staff feedback prior to LAR submittal to facilitate a more efficient NRC review

Agenda – Open Portion

- Project milestones
- CPC/CEAC Existing and New System Overview
- Westinghouse Licensing Technical Report (LTR)
Table of Contents (TOC)
- Acronym List

Agenda – Closed Portion

- Technical Specifications Impacts
 - Limiting Condition for Operations (LCO)
 - Surveillance Requirement (SR) Elimination
- September 2019 Pre-submittal meeting summary and follow-up actions
- Plant Specific Action Items (PSAIs)
- DI&C-ISG-06 C.2.2 Commitments
- Vendor Oversight Update
- LAR Content for DI&C-ISG-06 Sections of Interest
- Human Factors Considerations



Pre-submittal Meeting – Open Portion

Project Milestones

- Draft LAR Submitted 5/2020
- NRC Pre-submittal Meeting 5/2020
- LAR Submittal 6/2020
- Request NRC approval 6/2021
- System Installation (RF 24) 4/2022



CPCS/CEAC System Description

System Overview
Functional Architecture
Main Control Room Overview

CPC/CEAC System Overview

- WF3 Plant Protection System (PPS) is comprised of an Engineered Safety Features Actuation System (ESFAS) and a Reactor Protection System (RPS)
- Core Protection Calculator (CPC) System provides two reactor trip signals in the RPS to assure fuel design limits are not exceeded and aids the ESFAS in limiting consequences of an accident

CPC/CEAC System Overview

The CPCs provide the following Auxiliary trips, to the RPS, to initiate a reactor trip (no pre-trip alarms):

- CPC Failure
- Less than two RCPs running
- Asymmetrical Steam Generator Trip (ASGT)
- Variable Overpower Trip (VOPT)
- Thot at Saturation
- Any input parameter outside of CPC operating space:
 - Cold Leg temperature
 - Primary pressure
 - Radial Peaking Factor (RPF)
 - Axial Shape Index (ASI)

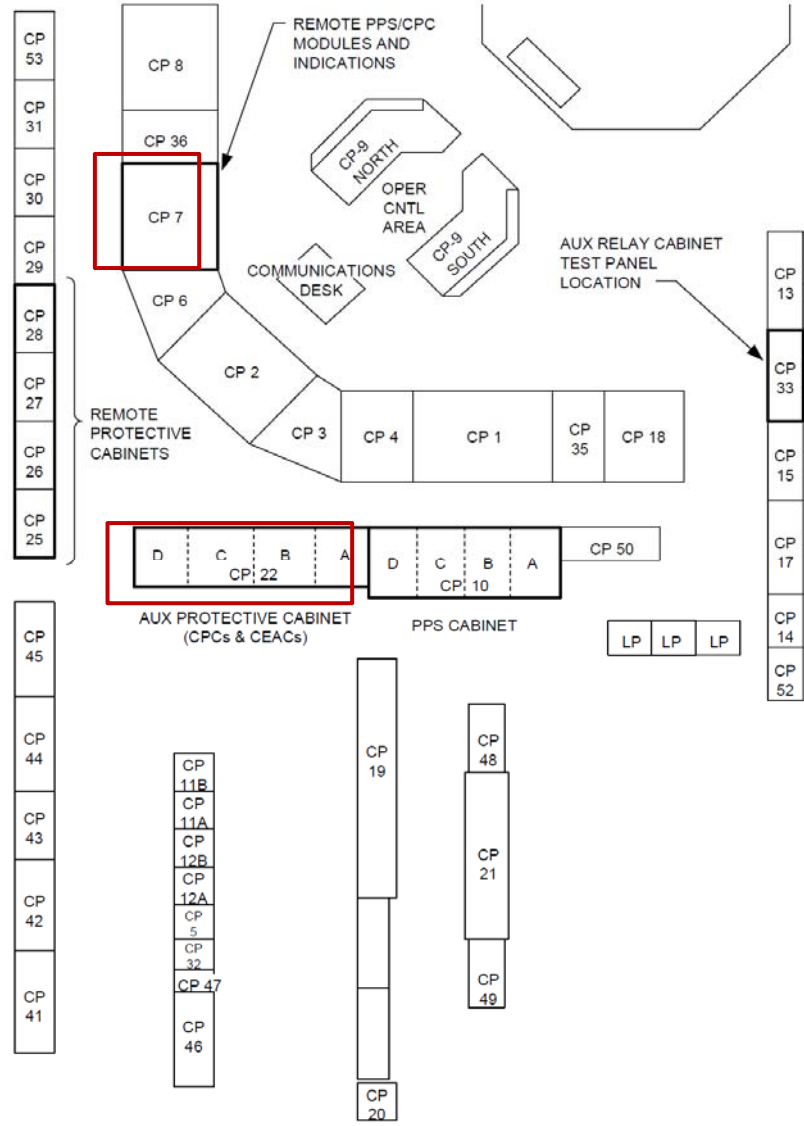
CPC/CEAC System Overview

- The Control Element Assembly Calculators (CEACs) provide the CPCs with information about individual CEA deviations
 - Each CEAC monitors the CEAs distributed to the four CPC channels and sends penalty factors for deviations of CEA position between the CPC channels
 - Each CEAC receives input from its Reed Switch Position Transmitters (RSPT)

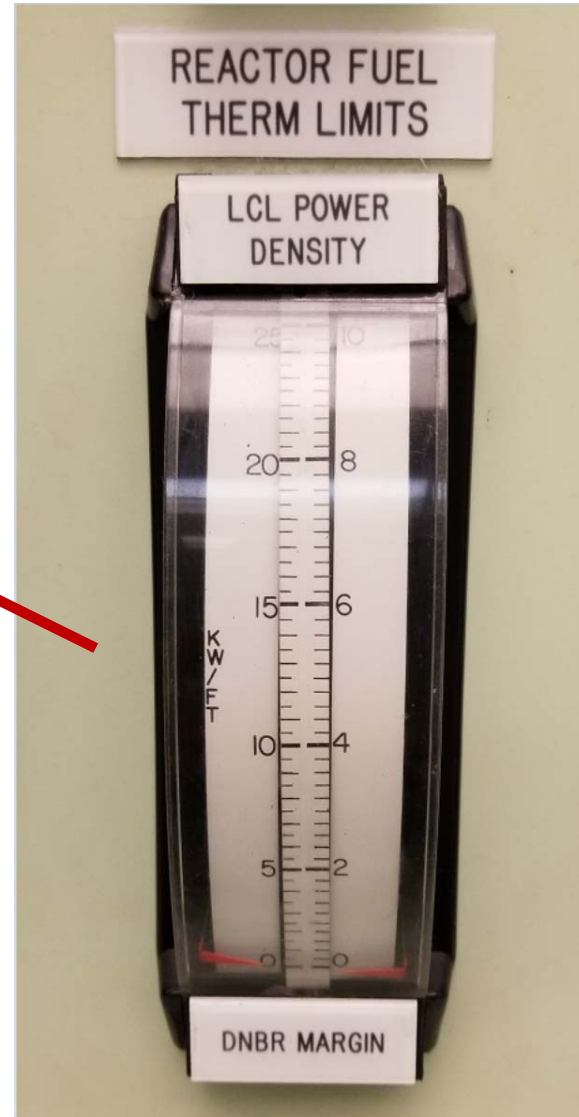
CPC/CEAC System – Functional Architecture

- The CPCs provide the following two trips, to the RPS, to initiate a reactor trip:
 - Low Departure From Nucleate Boiling Ratio (DNBR) trip
 - High Local Power Density (LPD) trip
- Each trip has a pre-trip Main Control Room alarm

Main Control Room Overview



MCR CP-7 Channel B



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Digital Upgrade Project Description

Overview

Functional Architecture

Planned digital upgrade overview

- Replace the existing system with Westinghouse Common Qualified (Common Q) digital platform for CPC and CEAC functionality
- Each CPC channel (A-D) will have two CEACs each for eight total CEACs
- Replace Operator Modules with new touchscreen Flat Panel Displays
- Each channel has its own Maintenance Test Panel (MTP)
- Replace control room board indicators for Reactor Fuel Therm(al) Limits – LPD and DNBR Margin

Digital upgrade – Functional Architecture

No **design basis** changes to the algorithms or functional architecture from the existing CPC system:

- Initiates two trips in the RPS:
 - Low Departure From Nucleate Boiling Ratio (DNBR) trip
 - High Local Power Density (LPD) trip
- Initiates CEA Withdrawal Prohibit (CWP) signal for use in the PPS
- Initiates annunciator alarms
- Provides analog outputs for control room board indicators for DNBR margin and LPD margin

CPC algorithm will be changed to add pre-trip alarms for the Auxiliary trips

Licensing Technical Report (LTR) TOC

1. INTRODUCTION
2. PLANT SYSTEM DESCRIPTION (D.1)
3. SYSTEM ARCHITECTURE (D.2)
 1. EXISTING ARCHITECTURE (D.2.1)
 2. NEW SYSTEM ARCHITECTURE (D.2.2)
 3. NEW SYSTEM FUNCTIONS (D.2.3 AND 2.3.1)
 4. FUNCTION ALLOCATION (D.2.4 AND D.2.4.1)
 5. SYSTEM INTERFACES (D.2.5)
 6. FUNDAMENTAL DESIGN PRINCIPLES IN THE NEW ARCHITECTURE (D.2.6)
4. HARDWARE EQUIPMENT QUALIFICATION (D.3)
5. I&C SYSTEM DEVELOPMENT PROCESSES (D.4)
6. APPLYING REFERENCED TOPICAL REPORT SAFETY EVALUATION (D.5)

Licensing Technical Report (LTR) TOC

7. COMPLIANCE/CONFORMANCE MATRIX FOR IEEE STANDARDS 603-1991 AND 7-4.3.2-2003 (D.6)
8. TECHNICAL SPECIFICATIONS (D.7)
9. SECURE DEVELOPMENT AND OPERATIONAL ENVIRONMENT (D.8)
10. REFERENCES
11. BIBLIOGRAPHY
12. APPENDIX A WSES-3 CPCS TECHNICAL SPECIFICATION MARKUPS
13. APPENDIX B UFSAR MARKUPS
14. APPENDIX C ELIMINATION OF SPECIFIC CPCS TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENTS

Acronym List

Alternate Review Process	ARP
Asymmetrical Steam Generator Trip	ASGT
Auxiliary Multiplexer	Aux MUX
Axial Shape Index	ASI
CEA Withdrawal Prohibit	CWP
Common Cause Failure	CCF
Control Element Assembly	CEA
Control Element Assembly Calculator	CEAC
Control Element Assembly Position Display System	CEAPDS
Control Panel	CP
Core Operating Limit Supervisory System	COLSS
Core Protection Calculator	CPC
Core Protection Calculator System	CPCS
Departure From Nucleate Boiling Ratio	DNBR
Digital Instrumentation and Control	DI&C
Electromagnetic Interference/Radio Frequency Interference	EMI/RFI
Electro-magnetic Compatibility	EMC
Equipment Qualification	EQ
Equipment Qualification Summary Report	EQSR

Acronym List

Flat Panel Display	FPD
Generic Open Item	GOI
Human Factors Engineering	HFE
Inter-Range Instrument Group	IRIG
Institute of Electrical and Electronics Engineers	IEEE
Interim Staff Guidance	ISG
License Amendment Request	LAR
Local Power Density	LPD
Main Control Room	MCR
Maintenance Test Panel	MTP
Operator Module	OM
Plant Protection System	PPS
Plant Specific Action Item	PSAI
Pressurizer	PZR
Quality Assurance	QA
Radial Peaking Factor	RPF
Reactor Coolant Pump	RCP
Reactor Protection System	RPS
Record of Changes	ROC

Acronym List

Reed Switch Position Transmitter	RSPT
Requirements Traceability Matrix	RTM
Response Time Test	RTT
Safety Evaluation Report	SER
Secure Development and Operational Environment	SDOE
Secure Development Environment	SDE
Secure Operational Environment	SOE
Single Point Vulnerabilities	SPV
Site Acceptance Test	SAT
Software Program Manual	SPM
Standard	Std.
System Requirements Specification	SyRS
Technical Specifications	TS
Topical Report	TR
United States Nuclear Regulatory Commission	NRC
Variable Overpower Trip	VOPT
Vendor Oversight Plan	VOP
Waterford Unit 3	WF3
Westinghouse Common Qualified Platform	Common Q



Pre-submittal Meeting – Closed Portion



Technical Specifications Impacts

Technical Specification Impact

Limiting Condition for Operations (LCO) changes:

- Increasing from two CEACs total per four channels to two CEACs per channel (eight CEACs total)
 - TS 3/4.2.4, DNBR Margin
 - TS 3/4.3.1, Reactor Protective Instrumentation
- CEAC Operability incorporated under each CPC Channel Functional Unit in Table 3.3-1
- Elimination of auto-restart in legacy system
 - TS 3/4.2.4, DNBR Margin
 - TS 3/4.3.1, Reactor Protective Instrumentation
- Revision of reference to software change procedure
 - TS 6.8, Procedures and Programs

Technical Specification Impact

Surveillance Requirements Elimination

- TS SR 4.3.1.1 (Channel Functional Testing of the CPCS portion of the SR)
- TS SR 4.3.1.3 (RTT of the CPCS portion of the SR)
- TS SR 4.3.1.5 (CPC/CEAC Operability)

Technical Specification Impact

The LAR will propose eliminating certain TS Surveillance Testing by crediting self-diagnostics of Common Q.

- Reference licensing precedence of Vogtle 3&4 SR Elimination LAR (ML19084A309) for Waterford 3 CPCS LAR
- Present markups of CPCS TS surveillances to be eliminated:
 - TS SR 4.3.1.1 (Channel Functional Testing of the CPCS portion of the SR)
 - TS SR 4.3.1.3 (RTT of the CPCS portion of the SR)

Technical Specification Impact

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Technical Specification Impact

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Technical Specification Impact

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September 19, 2019 Pre-submittal Meeting Follow-up

9/19/2019 Pre-submittal Meeting Follow-up

Entergy-NRC first pre-submittal meeting held on 9/19/2019. Below are follow-up items listed in the Meeting Summary dated 11/5/2019:

- Further details of the vendor oversight plan (VOP)
- Potential licensee commitments and license conditions in the LAR that are associated with early design approval under the ARP
- Potential reduction of technical specification surveillance testing by crediting self-diagnostic/testing functions of the Common Q platform
- Crediting anticipated transient without scram (ATWS) in an updated diversity and defense-in-depth analysis
- Addressing the independence clause in IEEE Std. 603-1991, “IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations”

9/19/2019 Pre-submittal Meeting Follow-up

Below are follow-up items listed in the Meeting Summary dated 11/5/2019:

- Disposition of Common Q platform generic open items and plant application-specific action items for Waterford 3
- Future revision to the equipment qualification summary report after the submittal of the LAR
- Timing analysis of the Common Q platform
- Frequency of interactions and use of an open items list during the NRC review of the LAR

ATWS in CCF discussion

- CPCs provide 2 of the 12 Reactor Trip signals to the RPS.
- ATWS provides mitigation when the RPS fails to trip the reactor
 - Uses independent high pressurizer (PZR) pressure indications
 - CCF review shows various RPS trips provide backup to the DNBR and LPD trips generated by CPCs
- Summary:
 - RPS provides backup when CPCs fail to generate a trip signal
 - Failure of the CPCs does not directly lead to operation of the ATWS system

IEEE Std. 603, Clause 5.6, Independence

To address CEAC conformance to Clause 5.6:

- Site Licensing Basis IEEE 279
- WF3 designed with 2 trains RSPT signals
- IEEE-603 5.6.1 states: “redundant portions of a safety system provided for a safety function shall be independent of, and physically separated from each other **to the degree necessary** to retain the capability to accomplish the safety function...”

IEEE Std. 603, Clause 5.6, Independence

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Common Q Topical Report PSAIs

The WF3 CPCS Replacement LAR will address Generic Open Items (GOI) 8 & 12 and the 24 Plant-Specific Action Items (PSAIs)

- The dispositions for these GOIs and PSAIs will be in the LAR addressing DI&C-ISG-06 Revision 2, D.5.1.1
- Certain PSAIs of interest are discussed in subsequent slides

Common Q Topical Report PSAIs (cont.)

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Common Q Topical Report PSAIs (cont.)

The DI&C-ISG-06, Revision 2, Section D.5.1.2, “Resolution of Topical Report Plant-Specific Action Items” states:

“Based on a topical report review in accordance with SRP BTP 7-14, some topical reports include plant-specific items stating that the NRC staff should review detailed design, implementation, testing, and ongoing life cycle activities. For the Alternate Review Process, the licensee will provide oversight of the performance of these activities, in accordance with the licensee’s QA program and Vendor Oversight Plan.”

Common Q Topical Report PSAIs (cont.)

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Common Q Topical Report PSAIs (cont.)

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Common Q Topical Report PSAIs (cont.)

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Common Q SPM PSAIs

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Proposed LAR commitments

Per ISG-06 Section C.2.2.3, LAR to include regulatory commitments for:

- Referenced topical report's plant-specific action items
- Completion of life cycle activities after LAR submittal
 - Under Tier 1, 2, 3 these would be complete prior to LAR review completion
 - LAR will include regulatory commitments for life cycle activities listed as DI&C-ISG-06, Enclosure B, Tier 1 items to be completed post-LAR submittal

Proposed LAR commitments

- Entergy will evaluate WF3 CPCS Replacement Project Site Acceptance Test (SAT) and Installation Test Plans using the software process testing characteristics described in BTP 7-14 Section B.3.2.4. This is Plant-specific Action Item #6 per WCAP-16097, *Common Qualified Platform Topical Report*.
- Entergy will complete the following document in accordance with Entergy's Quality Assurance program:
 - Westinghouse Technical Manual (***Enclosure B Item 2.2, As-Manufactured, System Configuration Documentation***)
- Entergy will complete the following activity in accordance with Entergy's Quality Assurance program and WCAP-16096, *Software Program Manual for Common Q™ Systems*, Rev. 5:
 - Factory Acceptance Test (***Enclosure B Items 2.3 and 2.4, Summary Test Reports and System Response Time Confirmation Report***)
- Entergy will complete the following activity in accordance with Entergy's Quality Assurance program and WCAP-16097, *Common Qualified Platform Topical Report*:
 - *Equipment qualification of CPCS equipment determined upon completion of detailed design* (***Enclosure B Item 2.7, Qualification Test Methodologies***)

Proposed LAR commitments

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Vendor Oversight Update

Planned Audits (dates are tentative):

- Regression Analysis for the CPC Reference Design (Feb 2020)
 - Includes software test plans and results, IV&V reports, and the regression analysis documents
- Requirements Traceability (May 2020)
 - Includes system requirements specifications, drawings, analysis, calculations, etc.
- Regression Analysis for the WF3 changes (Aug 2020)
 - Includes the software test plans and results, IV&V reports, and the regression analysis documents
- Testing Observation and Requirements Traceability (Sep-Oct 2020)
 - Includes observation of testing for the WF3 project associated with the WF3 software and hardware



LAR Content for *DI&C-ISG-06 Sections of Interest*



Licensing Technical Report (LTR) TOC

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Licensing Technical Report (LTR) TOC

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DI&C-ISG-06 Section D.4

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DI&C-ISG-06 Section D.4

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DI&C-ISG-06 Section D.4

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DI&C-ISG-06 Section D.4

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DI&C-ISG-06 Section D.5

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DI&C-ISG-06 Section D.6

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DI&C-ISG-06 Section D.8

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Human Factors Considerations

Human Factors Considerations

- In accordance with DI&C-ISG-06 and IEEE 603-1991 clause 5.14, human factors is being considered at each stage throughout the design to ensure safety functions can be successfully accomplished.
- Waterford 3 CPC Project HFE Considerations:
 - No existing automatic actions become manual actions with the new system
 - No change to existing staff levels
 - Minimal procedural changes expected (Operations team member involved in identifying impacts and reviewing)
 - Project team is multi-disciplinary (e.g., Engineering, Operations, Maintenance) to ensure HFE is considered at each level

Human Factors Considerations

- Human factors considerations from the NRC-approved Palo Verde CPCS implementation are being used in addition to the 15 years of Palo Verde operating experience.
- WNA-IG-00871-GEN, “Human Factors Engineering Guideline for the Common Q Display System” is being used to ensure Common Q Display software complies with applicable human factor design principles.
- Palo Verde October 2019 refueling outage benchmark - Maintenance personnel
- Factory Acceptance Test and Site Acceptance Test will be developed to ensure all conditions are tested and human-error mechanisms are considered

Human Factors Considerations

- WF3 Training organization involved in Engineering Change package development and review
- Entergy design process and procedures include identifying the applicable design inputs. Key HFE design inputs include:
 - Design functions and performance requirements
 - Layout/arrangement requirements
 - Operational requirements
 - Accessibility/maintenance/repair requirements, and
 - Interface requirements between equipment and operations/maintenance personnel.

MCR Photos

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Human Factors – Conceptual OM screen

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Human Factors – Conceptual OM screen

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Questions?

Attachment 2

W3F1-2020-0002

Westinghouse Letter CAW-20-4988

As Attachment 3 contains information proprietary to Westinghouse Electric Company LLC, 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 commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

COUNTY OF BUTLER:

- (1) I, Zachary S. Harper, 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 WAAP-11643-P 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.

AFFIDAVIT

- (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

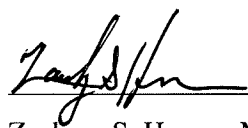
AFFIDAVIT

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: 01/08/2020



Zachary S. Harper, Manager
Licensing Engineering

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).

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.