

Vogle PEmails

From: Hoellman, Jordan
Sent: Friday, July 21, 2017 2:26 PM
To: Vogle PEmails
Subject: Draft Licensee Actions to Verify AP1000 Design is Complete
Attachments: 2017-08-03 Draft Licensee Actions for a Complete Design.docx

Attached is the draft licensee actions to verify the AP1000 Design is complete for discussion during a public meeting, tentatively scheduled for August 3, 2017.

These licensee actions are for item 1.a, Specify licensee's actions for declaring a Plant-Referenced Simulator (PRS), of the charter referenced below.

- [ML17079A362](#) – Charter for Declaration of Plant-Referenced Simulators and Qualification of Commission-Approved Simulation Facilities to Support the Cold Operator Licensing Process

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Hearing Identifier: Vogtle_COL_Docs_Public
Email Number: 132

Mail Envelope Properties (f7a096c799fe4d75bfa6db10aff08927)

Subject: Draft Licensee Actions to Verify AP1000 Design is Complete
Sent Date: 7/21/2017 2:26:09 PM
Received Date: 7/21/2017 2:26:10 PM
From: Hoellman, Jordan

Created By: Jordan.Hoellman2@nrc.gov

Recipients:
"Vogtle PEmails" <Vogtle.PEmails@nrc.gov>
Tracking Status: None

Post Office: HQPWMSMRS03.nrc.gov

Files	Size	Date & Time
MESSAGE	815	7/21/2017 2:26:10 PM
2017-08-03 Draft Licensee Actions for a Complete Design.docx		25665

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Licensee Actions to Verify AP-1000 Design is Complete

1. The actions described below are the actions necessary by the Licensee to complete their I & C and HFE designs as described in their Safety Analysis Report (SAR) and upon which the NRC approval Safety Evaluation is based. Once the design is complete, the licensee can take the required actions leading to a declaration of a PRS (ANSI-3.5 testing).
 - a. Licensee's actions for completing the design.
 - I. Complete the Fuel Load Baseline for the instrumentation and controls (I&C) systems, including the Protection and Safety Monitoring System (PMS) and Plant Control System (PLS), which are the safety protection system and the non-safety plant control systems, respectively.
 - II. Complete the appropriate outstanding human factors engineering (HFE) verification and validation (V&V) design activities in accordance with the previously approved HFE implementation plans listed in Appendix C, Section 3.2, "Human Factors Engineering," of the plant combined license.

Specifically, human engineering discrepancy (HED) issue resolution and retesting need to be completed in accordance with APP-OCS-GEH-320, "AP1000 Human Factors Engineering Integrated System Validation Plan," and APP-OCS-GEH-420, "AP1000 Human Factors Engineering Discrepancy Resolution Process." The Fuel Load Baseline must be incorporated into the simulator that is used for conducting HED retesting.

Alternatively, the licensees can perform an evaluation demonstrating that there are no significant differences between the I&C baseline currently modeled and the Fuel Load Baseline that could result in negative training. To do so, the differences between the I&C baseline currently modeled and the Fuel Load Baseline would need to be known. The NRC staff would inspect the evaluation method and results as part of ongoing inspection activities verifying the completion of this design activity.

- III. Because these HFE V&V activities are related to Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Nos. 3.2.00.01c.ii and 3.2.00.01d listed in Appendix C, Section 3.2, "Human Factors Engineering," of the plant combined license, NRC staff will confirm that the HFE V&V activities have been completed satisfactorily during inspections.

NRC staff will document conclusions regarding the completion of these V&V activities in an inspection report. Even though these activities are related to ITAAC, staff does not need the ITAAC closure notifications be submitted and successfully closed in order for the licensee to proceed with the next actions to declare a PRS.

- b. Licensee's actions once the design is complete.

The licensees shall confirm that simulators at the sites model the control room HFE design that were a result of the HFE V&V activities described in with APP-OCS-GEH-320 and APP-OCS-GEH-420 and the Fuel Load Baseline.

Complete simulator performance testing in accordance with Regulatory Guide 1.149, "Nuclear Power Plant Simulation Facilities for Use in Operator Training, License Examinations, and Applicant Experience Requirements," and American National Standards Institute/American Nuclear Society (ANSI/ANS)-3.5, "Nuclear Power Plant Simulators for Use in Operator Training and Examination," to demonstrate fidelity of the simulator to the design that results from completion of the HFE V&V activities and the Fuel Load Baseline. This testing shall define the specific safety system malfunctions applicable to AP1000 Reactor Plants. In accordance with existing regulation, following these actions the licensee may declare a PRS.

The licensees provide written notification to the Office Director, NRO and the Regional Administrator, Region II informing the NRC when they declare a PRS.

Following the PRS declaration the NRC may, at its discretion, perform a simulator inspection per IP-41502.