SummerRAIsPEm Resource

From: GLEAVES, Bill C
Sent: Wednesday, June 29, 2016 9:17 AM
To: SummerRAIsPEm Resource
Subject: FW: Draft RAI for VCS on Commission Approved Simulator

---

From: Kent, Lauren A
Sent: Wednesday, June 29, 2016 9:01 AM
To: KALLAN, PAUL B; GLEAVES, Bill C
Cc: JUNGE, MICHAEL A; PIERINGER, PAUL A
Subject: Draft RAI for VCS

Hello,
The draft RAI we would like to send to VCS is included below.

I did not put it into eRAI. Should I? Thank you.

Sincerely,

Lauren Kent, Reactor Operations Engineer
NRO/DCIP/HOIB
Phone: 301-415-6043
Office: T07G05
Mail stop: T7D24M

Regulatory Basis:

10 CFR 55.4, "Definitions," includes the term "simulation facility," which "means one or more of the following components, alone or in combination: used for either the partial conduct of operating tests for operators, senior operators, and license applicants, or to establish on-the-job training and experience prerequisites for operator license eligibility:

(1) A plant-referenced simulator;

(2) A Commission-approved simulator under § 55.46(b); or

(3) Another simulation device, including part-task and limited scope simulation devices, approved under § 55.46(b)."

10 CFR 55.4, "Definitions," also defines "performance testing" as "testing conducted to verify a simulation facility's performance as compared to actual or predicted reference plant performance."

10 CFR 55.46(d) states: *"Continued assurance of simulator fidelity*. Facility licensees that maintain a simulation facility shall:

(1) Conduct performance testing throughout the life of the simulation facility in a manner sufficient to ensure that paragraphs (c)(2)(ii), as applicable, and (d)(3) of this section are met. The results of performance tests must be retained for four years after the completion of each performance test or until superseded by updated test results;

(2) Correct modeling and hardware discrepancies and discrepancies identified from scenario validation and from performance testing;

(3) Make results of any uncorrected performance test failures that may exist at the time of the operating test or requalification program inspection available for NRC review, prior to or concurrent with preparations for each operating test or requalification program inspection; and

(4) Maintain the provisions for license application, examination, and test integrity consistent with § 55.49."

Information in the CAS Request Letter:
Section 3.0, "Maintenance of Simulator Fidelity," of Enclosure 3, "Description of the Performance Tests for the Simulation Facility and Results of the Tests
- 10 CFR 55.46(b)(1)(ii)" of the letter from R.A. Jones, Vice President, New Nuclear Operations, SCE&G to NRC, Subject: South Carolina Electric & Gas Company, Virgil C. Summer Nuclear Station Units 2 and 3, Request for a Commission-Approved Simulation Facility, dated April 21, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16112A256), states the following:

"The NRC documented an inspection of the VCS Units 2 and 3 simulation facility on May 21, 2015. The inspection included a review of SCE&G's programs and processes related
to continued assurance of simulator fidelity in accordance with 10 CFR 55.46(d). The inspection yielded no findings of significance and determined that SCE&G's programs to
assure continued simulator fidelity were adequate (Reference 1)."

The NRC staff reviewed Reference 1, which is NRC Simulation Facility Inspection Report 05200027/2015301, 05200028/2015301, dated May 21, 2015 (ADAMS Accession No. ML15142A657).

The staff did not find a conclusion in the inspection report that "SCE&G's programs to assure continued simulator fidelity were adequate." The inspection report documented the following issues:

1. Section 1P01.b.1.(a), "Steady-State Test Results," documents that the NRC inspectors reviewed a sample of the results from steady-state tests that SCE&G performed to meet the requirements of ANSI/ANS-3.5-1998, "Nuclear Power Plant Simulators for Use in Operator Training and Examination," Section 4.1.3.1, "Steady-State Operation." The report states,

   "The inspectors found that the licensee had identified: (1) the 75% power steady state test resulted in a required parameter, Power Range Nuclear Instrumentation (PRNI) readings, that was high out-of-tolerance for the entire test, and (2) the 50% power steady state test had a required parameter, Pressurizer level, that was low out-of-tolerance for the entire test. ***The inspectors identified that for both cases, the facility had marked the test results as "satisfactory." The licensee had identified other parameters that were out-of-tolerance for these two tests and had generated SDR VC-1501-10 to document these other parameters; however, SDR VC-1501-10 did not identify either the PRNI reading or the Pressurizer level reading that were outside the required tolerances during the test performance. The inspectors questioned the licensee's overall evaluation of these test results, and why an SDR had not been generated for the Pressurizer level and PRNI parameters being out-of-tolerance. The licensee entered this issue into their corrective action program as part of CR-NND-15-00380.*** As a corrective action, the licensee re-performed the 50% and the 75% steady-state tests with corrected initial conditions for PRNI readings and Pressurizer level, as appropriate. During the performance of these tests, PRNI readings and Pressurizer level were observed to remain within the specified tolerance bands during the entire test run time. The other parameters associated with SDR VC-1501-10 were again observed to be out-of-tolerance during the test. After the inspectors questioned the overall evaluation of the test results again, the licensee re-performed the 50% and 75% steady-state tests an additional time, with initial conditions for the parameters associated with SDR VC-1501-10 matching the reference unit data spreadsheet that had been provided by the reactor vendor. These tests resulted in all required parameters meeting the

required tolerances as specified in the ANSI/ANS-3.5 standard." [emphasis added to the problems this RAI is concerned with]

2. Section 1P01.b.3(a), "Licensee Identification of Diverging Trends in Test Data," documents that the NRC inspectors reviewed a sample of the results from transient tests that SCE&G performed to meet the requirements of ANSI/ANS-3.5-1998, "Nuclear Power Plant Simulators for Use in Operator Training and Examination," Section 4.4.3.1, "Simulator Operability Testing." The report states,

   "The inspectors identified multiple instances (five malfunction tests and four transient tests) where the licensee documented diverging trends in test results, e.g., the response of certain 2A simulator parameters did not correspond in direction to the response of the same parameters on the 2B simulator for the same test. ***All of these tests, identified by the inspectors, were evaluated by the licensee as satisfactory, and no SDR(s) had been generated. The inspectors questioned why SDRs were not needed for the diverging test parameters. The licensee entered this issue into their corrective action program as one of the issues of CR-NND-15-00380***. As a corrective action, the licensee performed an extent-of-condition review of their simulation facility test records and generated six new SDRs (VC-1502-10 through -15) as a result of this review. The licensee further evaluated these six issues by performing training needs analyses. The licensee's corrective action program will continue to evaluate the actions that will be needed to fully resolve each SDR associated with these issues. The inspectors' initial assessment of the licensee's process and actions on these six SDRs was that the licensee was taking acceptable actions to correct the identified deficiencies." [emphasis added to the problems this RAI is concerned with]

   The inspection report documents issues with SCE&G's implementation of test controls during simulator performance testing and review of test results in addition to simulator fidelity issues.

Questions:

1. **Explain how the Summer staff reached a conclusion that the NRC inspection determined that SCE&G's programs to assure continued simulator fidelity were adequate when the report contained problems associated with test control and results analysis.**

2. Describe actions that SCE&G has taken to ensure that:
(a) the correct set of initial conditions are established when conducting simulator performance testing in accordance with ANSI/ANS-3.5-1998, and
(b) when test results do not meet the acceptance criteria contained in ANSI/ANS-3.5-1998, tests are marked as "unsatisfactory" and corrective actions are taken.

Hearing Identifier: Summer_COL_eRAIs
Email Number: 147

Mail Envelope Properties (cb017dbbfa5343d59d103b0072bcf685)

Subject: FW: Draft RAI for VCS on Commission Approved Simulator
Sent Date: 6/29/2016 9:17:13 AM
Received Date: 6/29/2016 9:17:18 AM
From: GLEAVES, Bill C

Created By: Bill.Gleaves@nrc.gov

Recipients:
"SummerRAIsPEm Resource" <SummerRAIsPEm.Resource@nrc.gov>
Tracking Status: None

Post Office: HQPWMSMRS02.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	8812	6/29/2016 9:17:18 AM

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