



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

July 2, 2015

Mr. Ronald A. Jones, Vice President  
New Nuclear Operations  
South Carolina Electric & Gas Company  
14368 State Highway 213  
Jenkinsville, SC 29065

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 – REQUEST FOR A  
COMMISSION-APPROVED SIMULATION FACILITY

Dear Mr. Jones:

By letter dated January 16, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15016A339), South Carolina Electric & Gas Company (SCE&G/licensee) submitted a request for a Commission-approved simulation facility for the Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3. The proposed request, if approved, would allow SCE&G to use the proposed simulation facility for the administration of operating tests to applicants for operators' licenses under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 55. The purpose of this letter is to notify you that the technical information SCE&G has provided to date is insufficient in scope and depth to allow the U.S. Nuclear Regulatory Commission (NRC) staff to complete its detailed safety review. The staff is therefore suspending its review of your request until you are able to provide the necessary information.

To ensure protection of public health and safety and the environment, licensed operators must not only be proficient in general operation of the facility but also be able to safely cope with plant transients and malfunctions.<sup>1</sup> The NRC "will approve a simulation facility...for administration of operating tests if it finds that the simulation facility and its proposed use...are suitable for the conduct of operating tests for the facility licensee's reference plant[.]"<sup>2</sup> A simulator may only be used for operator testing if it "satisfies the NRC's core modeling and fidelity requirements[.]"<sup>3</sup> and accurately portrays plant malfunctions as well as general operability.<sup>4</sup> The Commission's requirements for simulation facilities "ensure that the simulator experience replicates evolutions

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<sup>1</sup> 10 CFR Parts 50 and 55, Operators' Licenses and Conforming Amendments, 52 Fed. Reg. 9453, 9457 (Wednesday, March 25, 1987).

<sup>2</sup> 10 C.F.R. 55.46(b).

<sup>3</sup> 10 C.F.R. Part 55, "Operator License Eligibility and Use of Simulation Facilities in Operator Licensing," Final Rule, 66 Fed. Reg. 52657, 52662 (Wednesday, October 17, 2001).

<sup>4</sup> 52 Fed. Reg. 9457.

on the plant and that license applicants receive the same overall experience in safe plant operation as they would on the plant itself.”<sup>5</sup>

In support of your request to use a Commission-approved simulation facility for operator testing, and to obtain the technical information needed to complete the safety review of your proposed simulation facility, the NRC staff and SCE&G have held five public teleconferences on March 19, April 30, May 7, May 14, and June 4, 2015. During these meetings, the staff requested additional technical information needed to complete its safety review. The NRC staff has reviewed supplemental information you provided on March 30, April 28, and June 25, 2015 (ADAMS Accession Nos. ML15089A425, ML15118A802, and ML15182A188, respectively). The NRC staff has also considered the results of several related NRC inspections. While these interactions have addressed many of the NRC staff's concerns, several significant technical issues remain unresolved. The staff has determined that the items delineated in the enclosure to this letter must be addressed through corrective action or additional explanation before the staff can complete its detailed safety review of your proposed simulator. Without such corrective action or additional information, the staff cannot complete its independent assessment as to whether your proposed simulator meets all regulatory requirements and will ensure adequate protection of public health and safety and the environment.

When SCE&G has resolved the technical issues and corrective action items outlined in the enclosure to this letter, and has submitted the necessary information for each listed item along with any needed changes to the previous information, SCE&G may request that the staff resume its safety review.

If you have any questions, please contact the VCSNS Units 2 and 3 Project Manager, Denise McGovern, at (301) 415-0681.

Sincerely,

*/RA/*

Francis M. Akstulewicz, Director  
Division of New Reactor Licensing  
Office of New Reactors

Docket No(s): 52-027  
52-028

cc: See next page

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<sup>5</sup> 66 Fed. Reg. 52658.

on the plant and that license applicants receive the same overall experience in safe plant operation as they would on the plant itself.”<sup>6</sup>

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Francis M. Akstulewicz, Director  
Division of New Reactor Licensing  
Office of New Reactors

Docket No(s): 52-027  
52-028

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ADAMS Accession No.: ML15182A097		NRO-002	
OFFICE	DNRL/LB4:LA	DNRL/LB4:PM	DCIP/COLB
NAME	RButler	DMcGovern	MJunge (MCheok for)
DATE	07/01/15	07/02/15	07/02/15
OFFICE	OGC	DCIP/D	DNRL/D
NAME	SVrahoretis*	MCheok	FAkstulewicz
DATE	07/2/15	07/02/15	07/2/15

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<sup>6</sup> 66 Fed. Reg. 52658.

Letter to: Mr. Ronald A. Jones, Vice President, From: Francis M. Akstulewicz, SUBJECT:  
VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 – REQUEST FOR A  
COMMISSION- APPROVED SIMULATION FACILITY. DATED: JULY 2, 2015

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UNRESOLVED ITEMS  
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VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3  
REQUEST FOR COMMISSION-APPROVED SIMULATION FACILITY

<b>Summary of Unresolved Items as of 06/30/2015</b>		
1	VC-TO-40	Subcriticality CSF alarm block is turning magenta (bad input) intermittently
2	VC-TO-45	Control rods rejecting to manual
3	VC-TO-52	WPIS is cycling between different displays
4	VC-TO-54 and 58	Feedflow oscillations
5	VC-TO-89	Unexpected hotwell low level during trip recovery
6	VC-TO-96	Modeling of baseline vs design certification configuration
7	VC-TO-101 and 104	Control rods reject to manual
8	VC-TO-128	MSR valve response is incorrect and causes a reactor coolant system (RCS) temperature transient.
9	VC-TO-131	Aux steam pressure not meeting design requirements
10	VC-1411-03	Unexpected Main Turbine System alarm at power
11	VC-1501-08	Rod control urgent failure on loss of EK-12 appears inconsistently without loss of power.
12	VC-1502-10	AO rods move inconsistently between tests
13	VC-1503-03 and 04	RCS wide range pressure dropped from 1400 to 700 psig
14	VC-1503-16	Alarm avalanche
15	VC-TO-75 and 76	Inconsistent VRS and VHS radiation monitor indications on a loss of process flow
16	VC-TO-102	BEACON operability
17	VC-1504-02	Inconsistent navigation to (PMS) mimics in Ovation
18	VC-TO-122	Confusing PMS status display

Enclosure

19	VC-1502-03	Unexplained (SG) level rise following trip of all RCPs
20	VC-1502-08	(PZR) Level went down in 2 of 3 training scenarios with the leak through the PZR safety
21	VC-1502-09	Over power control permissives did not respond to steam leak as designed
22	VC-1502-12	PZR Water Level response during Safety valve malfunctions has variations in tests
23	VC-1502-13	During Load Rejection events, Load Unbalance response is inconsistent causing noticeable deltas in several key parameters.
24	VC-1503-33	TCS heat transfer characteristics through the H2 coolers are unrealistic
25	VC-1504-01	"Instrument Air" alarm tile has no points assigned to it
26	VC-1504-09	Control logic functions associated with solid plant operations do not function as described in the design documentation.
27	VC-TO-47	Control rods rejecting to manual during ATWS
28	VC-1410-07	Steam dump capacity appears to be larger than expected
29	VC-1501-02	Determine if ventilation system response is correct (VAS, VRS, (VFS) systems)
30	VC-1502-14	Following SG dryout, SG Wide Range level does not stay at zero. The Level will oscillate.
31	VC-1502-15	SG parameters have unexplained damped oscillation following "Main Steamline Break Outside Containment"
32	VC-1503-08 and 09	Difficulty determining CMT actuation
33	VC-1503-21	Problems during transfer to remote shutdown room
34	VC-1503-13	(RNS) system over-pressurization
35	completion of corrective action for VC-1503-15	CCS low surge tank level alarm priority is incorrect
36	Reconcile difference in statements between cumulative effect letter and response to request for additional information (RAI) response for VC-1410-09	RNS pump does not restart on DG Sequencer
37	VC-TO-04	EDS battery performance
38	VC-TO-89	MS rad monitors do not respond during SGTR

39	VC-1503-25	When Containment Air Filtration System had no flow, VFS-RY102 alarmed for high iodine
40	As the licensee notes in their RAI response, the computer support applications provided by (NAPs) would not be used for Job Performance Measures because they do not assess the applicant's knowledge. Calculations would be performed manually. This is why many of the discrepancies were considered to be not significant. However, NAPs provides data to the operator during event diagnosis and response. Given the number of NAPs discrepancies the staff concludes that they could impact operator workload in an inconsistent manner. The staff concludes that there needs to be a reduction in the number of NAPs related discrepancies including those already identified as significant.	
41	Provide documentation that the Westinghouse Electric Company's resolution of HED-1 discrepancies is consistent with the VCS conclusions provided in the Commission-approved simulator request and its supplements.	
42	Include all open discrepancy reports when the docketed list of simulator discrepancies is submitted.	

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(Revised 06/16/2015)

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