Southern Nuclear

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June 8, 2023

ND-23-0376

10 CFR 50.73(a)(2)(iv)(A)

Docket No.: 52-025

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

Southern Nuclear Operating Company
Vogtle Electric Generating Plant (VEGP) – Unit 3
Licensee Event Report 2023-003-00
Automatic Reactor Protection System Actuation During Startup Testing Due to Incorrect Turbine Control Valve Setting

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(iv)(A), Southern Nuclear Operating Company is submitting the enclosed Licensee Event Report for VEGP Unit 3.

This letter contains no regulatory commitments. If you have questions regarding the enclosed information, please contact Will Garrett at (706) 848-7154.

Respectfully submitted,

Patrick A. Martino
Site Vice President, Unit 3

PAM/KJD/sfr

Enclosure: Unit 3 Licensee Event Report 2023-003-00

CC:
Regional Administrator, Region II
VPO Project Manager
Senior Resident Inspector – Vogtle 3 & 4
Director, Environmental Protection Division - State of Georgia

Vogtle Electric Generating Plant - Unit 3

Licensee Event Report 2023-003-00

Automatic Reactor Protection System Actuation During Startup Testing Due to Incorrect Turbine Control Valve Setting

Enclosure

Unit 3 Licensee Event Report 2023-003-00

NRC FORM 366 (03-14-2023) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Library, and Information Collections Branch (T-6 A10M), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by email to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; email: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. Facility Name		2. Docket Number	3. Page
Vogtle Electric Generating Plant, Unit 3	☐ 050 ☒ 052	00025	1 OF 2

4. Title
Automatic Reactor Protection System Actuation During Startup Testing Due to Incorrect Turbine Control Valve Setting

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved		
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	☐ 050	Docket Number
04	10	2023	2023	- 003 -	00	06	08	2023	Facility Name	☐ 052	Docket Number

9. Operating Mode	10. Power Level
1	018

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*

10 CFR Part 20	☐ 20.2203(a)(2)(vi)	**10 CFR Part 50**	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.1200(a)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	☐ 73.1200(b)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	☐ 73.1200(c)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.36(c)(2)	☑ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)	☐ 73.1200(d)
☐ 20.2203(a)(2)(i)	**10 CFR Part 21**	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	**10 CFR Part 73**	☐ 73.1200(e)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.77(a)(1)	☐ 73.1200(f)
☐ 20.2203(a)(2)(iii)		☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(2)(i)	☐ 73.1200(g)
☐ 20.2203(a)(2)(iv)		☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(ii)	☐ 73.1200(h)
☐ 20.2203(a)(2)(v)		☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)		

☐ **OTHER** (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include area code)
Will Garrett, VEGP 3&4 Licensing Manager	(706) 848-7154

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS	Cause	System	Component	Manufacturer	Reportable to IRIS
B	JJ	DCC	W120	N					

14. Supplemental Report Expected		15. Expected Submission Date	Month	Day	Year
☑ No	☐ Yes (If yes, complete 15. Expected Submission Date)				

16. Abstract (Limit to 1326 spaces, i.e., approximately 13 single-spaced typewritten lines)

On April 10, 2023, at 0048 EDT with Vogtle Electric Generating Plant (VEGP) Unit 3 in Mode 1 at 18 percent power, the reactor protection system was automatically actuated due to low reactor coolant flow while conducting main generator testing activities. The operators responded timely by stabilizing the plant and removing decay heat by the steam generator power operated relief valves. The cause of the event was incorrect turbine control valve logic setting which resulted in inadequate turbine speed and generator voltage. The corrective action for this event adjusted the turbine control valve logic setting to open the valves sufficiently to maintain turbine speed and generator output voltage to support house loads during operation in island mode (with the generator disconnected from the grid and supplying unit auxiliary loads).

This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) as a condition that resulted in automatic actuation of the reactor protection system, which tripped the reactor. VEGP Units 1, 2, and 4 were unaffected by this event.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

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1. FACILITY NAME		2. DOCKET NUMBER	3. LER NUMBER		
			YEAR	SEQUENTIAL NUMBER	REV NO.
Vogtle Electric Generating Plant, Unit 3	☐ 050 ☒ 052	00025	2023	- 003	- 00

NARRATIVE

EVENT DESCRIPTION

On April 10, 2023, at 0048 EDT with the Vogtle Electric Generating Plant (VEGP) Unit 3 in Mode 1 at 18 percent power, the Reactor Protection System (RPS) [EIIS: JC] was automatically actuated during main generator system [EIIS: EL] startup testing. While performing procedure 3-ZAS-MEM-002, "Main Generator Initial Synchronization Testing," with the main generator connected to the offsite power grid and supplying approximately 65 Megawatts (MW), the switchyard breakers [EIIS: FK / BKR] ZBS-161750 and ZBS-161850 were opened to disconnect the main generator from the offsite power grid and place the generator into island mode (supplying unit auxiliary loads). Shortly after placing the main generator in island mode, the turbine control system [EIIS: JJ] was not able to automatically maintain speed at the required 1800 rpm. This caused a reduction of speed and output voltage from the main generator, which resulted in a reduction in the speed of the Reactor Coolant Pumps [EIIS: AB / P]. This caused reduction in the reactor coolant flowrate, which resulted in the automatic RPS actuation. There were no structures, systems, or components that were inoperable at the beginning of the event that contributed to the event. This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) as a condition that resulted in automatic actuation of the RPS.

EVENT ANALYSIS

The cause of this event was an incorrect turbine control valve setting, which was not identified through oversight of legacy design. The turbine control valve high limit setting was not set to maintain house loads during island mode operation. The turbine control valve high limit setting was set at 7 percent, which was a default value for turbine speed control and was not sufficient to support island mode operation. The software was changed to increase the high limit setting from 7 to 25 percent to support island mode operation.

SAFETY ASSESSMENT

There were no safety consequences due to this event because the automatic actuation function of the RPS maintained the plant in a safe condition. The operators responded timely following the reactor trip by ensuring plant stability and decay heat was removed by steam generator power operated relief valves [EIIS: SB / PCV]. All safety systems functioned as expected as a result of the event. There were no equipment failures that contributed to the event. VEGP Units 1, 2, and 4 were unaffected by this event.

CORRECTIVE ACTIONS

The turbine control valve setting was corrected by a software design change to increase the setting from 7 to 25 percent.

PREVIOUS SIMILAR EVENTS

None