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January 8, 2007
RC-07-0005

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Ladies and Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
LICENSEE EVENT REPORT (LER 2006-003-00)
EMERGENCY DIESEL GENERATOR START DUE TO UNDERVOLTAGE
ON 1DB EMERGENCY BUS

Attached is Licensee Event Report (LER) No. 2006-003-00, for the Virgil C. Summer Nuclear Station (VCSNS). The report describes the 'B' Emergency Generator auto start on Emergency Bus 1DB undervoltage. Should you have any questions, please call Mr. Arnie Cribb at (803) 345-4346.

Very truly yours,

Jeffrey B. Archie

FWK/dr
Attachment

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IE22

LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME Virgil C. Summer Nuclear Station		2. DOCKET NUMBER 05000395	3. PAGE 1 OF 3
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4. TITLE
Emergency Diesel Generator Start Due To Undervoltage On 1DB Emergency Bus

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	09	2006	2006	003	00	01	08	2007		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE 5	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)																											
	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 73.71(a)(4)	<input type="checkbox"/> 73.71(a)(5)
10. POWER LEVEL N/A																												

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME VIRGIL C. SUMMER NUCLEAR STATON	TELEPHONE NUMBER (Include Area Code) (803) 345-4757
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

At 1444 on 11/09/06, after initial installation of the Alternate AC Power Supply, post modification testing was being performed in accordance with STP-125.021, "Periodic Testing of The Alternate AC Power Supply." During the test the 'B' Diesel Generator (DG) was in the standby mode and bus power was being supplied by the Alternate AC Power Supply. As individual loads were manually loaded on the 1DB bus, bus voltage momentarily decreased as each load was started. When the 'B' Emergency Feedwater Pump was started, an undervoltage condition occurred on the bus that was sufficient to pick up the undervoltage (UV) relays, (27-1DB), starting the 'B' DG.

Design Engineering has determined that the bus voltages were sufficient for operation of the bus. The Alternate AC Power Supply was functional and met all test requirements. The 'B' DG was operable, and it auto-started on low voltage, according to design. No load breakers or MCC based contactors opened due to low voltage during the performance of the test. The Supplemental Instrument Air Compressor tripped during the low voltage dip from the Charging Pump start, and the 'B' train Hydrogen Analyzer trouble alarm came in. Both of these components have local controllers and are not supplied by MCC based contactors. Although both were affected by the low voltage on the bus they were not a contributing factor in the UV start of the DG.

STP-125.021 will be revised to align the DG to prevent an inadvertent start during testing. This action is scheduled for completion prior to the next scheduled test.

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

PLANT IDENTIFICATION

Westinghouse – Pressurized Water Reactor

EQUIPMENT IDENTIFICATION

- 'B' Emergency Diesel Generator (DG)
- 'B' Emergency Feedwater Pump (BA)
- 'B' Charging Pump (BQ)
- Undervoltage Relays (27)
- 'B' Emergency Bus (EK)
- Supplemental Instrument Air Compressor (IA)
- 'B' Hydrogen Analyzer (BB)

IDENTIFICATION OF EVENT

While performing Surveillance Test Procedure STP-125.021, "Periodic Testing of The Alternate AC Power Supply," the 'B' Diesel Generator (DG) started on undervoltage as the 'B' Emergency Feedwater Pump was started. This is a reportable event under 10 CFR 50.72(b)(3)(iv)(A) and 10 CFR 50.73(a)(2)(iv)(A).

EVENT DATE

11/09/2006

REPORT DATE

01/08/2007

CONDITIONS PRIOR TO EVENT

Mode 5, Refueling

DESCRIPTION OF EVENT

VCSNS was shutdown, post refueling, in Mode 5, prior to plant restart. At 1444 on 11/09/06, after initial installation of the Alternate AC Power Supply, post modification testing was being performed in accordance with STP-125.021, "Periodic Testing of The Alternate AC Power Supply." The stated purpose of STP-125.021 is to demonstrate the capability of the Alternate AC Power Supply to supply one train of ESF equipment. During the test the 'B' DG was in the standby mode and bus power was being supplied by the Alternate AC Power Supply. As individual loads were manually loaded on the 1DB bus, bus voltage momentarily decreased as each load was started. When the 'B' Emergency Feedwater Pump was started, an undervoltage condition occurred on the bus that was sufficient to pick up the undervoltage (UV) relays, (27-1DB) starting the 'B' DG. The 'B' Engineered Safety Features Actuation System load sequencer was de-energized prior to the test as required by STP-125.021 and, therefore, the DG output breaker did not close onto the 1DB bus. Undervoltage conditions were reached on other pump starts also. Voltage on the 1DB bus was restored by the Alternate AC Power Supply after each loading sequence, all loads were successfully started, and the test was completed satisfactorily. After the DG started it was allowed to continue running for the remainder of the surveillance test, approximately 2 hours and 20 minutes.

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CAUSE OF EVENT

The procedure in use, STP-125.021, placed the DG in standby mode during the performance of the test. This mode enabled the DG to start on a valid start signal. As the loads were manually sequenced onto the 1DB bus, the pump starting current would draw the voltage down on the bus. Starting currents for the large pump loads were sufficient to lower the voltage enough to energize the UV relays, thus starting the DG on low voltage, when the Emergency Feedwater Pump was started. Aligning the DG to prevent an inadvertent start during performance of the test would have prevented it from starting when low voltage conditions occurred.

ANALYSIS OF EVENT

While the plant was in Mode 5 with decay heat being removed by 'A' train components, STP-125.021 was performed using 'B' train in order to validate the function of the Alternate AC Power Supply. As individual large loads were loaded on the bus the voltage was observed to decrease momentarily during motor starts. However, Design Engineering has determined that the bus voltages were sufficient for operation of the bus. The Alternate AC Power Supply was functional. It met all its test requirements. The 'B' DG was operable and it auto-started on low voltage, according to design. No load breakers or MCC based contactors opened due to low voltage during the performance of the test. The Supplemental Instrument Air Compressor tripped during the low voltage dip from the Charging Pump start, and the B train Hydrogen Analyzer trouble alarm came in. Both of these components have local controllers and are not supplied by MCC based contactors. Although both were affected by the low voltage on the bus they were not a contributing factor in the UV start of the DG.

CORRECTIVE ACTIONS

Condition Evaluation Report C-06-4031 assigned an action to revise STP-125.021 "Periodic Testing of the Alternate AC Power Supply" to align the DG to prevent an inadvertent start during testing.

PRIOR OCCURRENCES

This was the first use of STP-125.021 after installation of the Alternate AC Power Supply during RF16. There has been no other occurrence of a DG start on undervoltage while the emergency bus was supplied by the Alternate AC Power Supply.