

Stephen A. Byrne  
Senior Vice President, Nuclear Operations  
803.345.4622



August 11, 2004

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

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION  
DOCKET NO. 50-395  
OPERATING LICENSE NO. NPF-12  
LICENSEE EVENT REPORT (LER 2004-002-00)  
SAFETY SYSTEM ACTUATION DUE TO MOMENTARY LOSS OF OFFSITE  
POWER

Attached is Licensee Event Report (LER) No. 2004-002-00, for the V. C. Summer Nuclear Station (VCSNS). The report describes the starting and loading of the "A" Emergency Diesel Generator due to a momentary loss of the normal incoming Engineered Safety Features (ESF) power source caused by a lightning induced fault on the line. This LER serves to report the safety system actuation in accordance with 10CFR50.73(a)(2)(iv)(A).

Should you have any questions, please call Mr. Ronald B. Clary at (803) 345-4757.

Very truly yours,

Stephen A. Byrne

AMM/SAB  
Attachment

c: N. O. Lorick  
N. S. Carns  
T. G. Eppink (w/o attachment)  
R. J. White  
W. D. Travers  
K. R. Cotton  
NRC Resident Inspector  
M. N. Browne  
Paulette Ledbetter  
D. L. Abstance

EPIX Coordinator  
K. M. Sutton  
INPO Records Center  
J&H Marsh & McLennan  
Maintenance Rule Engineer  
NSRC  
RTS (C-04-1846)  
File (818.07)  
DMS (RC-04-0126)

IE22

<b>NRC FORM 366</b> (7-2001)	<b>U.S. NUCLEAR REGULATORY COMMISSION</b>	<b>APPROVED BY OMB NO. 3150-0104</b>	<b>EXPIRES 7-31-2004</b>
<b>LICENSEE EVENT REPORT (LER)</b> (See reverse for required number of digits/characters for each block)		Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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.	

<b>1. FACILITY NAME</b> Virgil C. Summer Nuclear Station	<b>2. DOCKET NUMBER</b> 05000395	<b>3. PAGE</b> 1 OF 4
---	-------------------------------------	--------------------------

**4. TITLE**  
Emergency Diesel Generator Start and Load Due to Momentary Fault on Incoming Feed

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	12	2004	2004	- 002	- 00	08	11	2004	FACILITY NAME	DOCKET NUMBER

<b>9. OPERATING MODE</b>	1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)</b>								
<b>10. POWER LEVEL</b>	100%	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)					
		<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)					
		<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 73.71(a)(4)					
		<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(5)					
		<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<b>OTHER</b> Specify in Abstract below or in NRC Form 366A					
		<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)						
		<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)						
		<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)						
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)								
<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)								

**12. LICENSEE CONTACT FOR THIS LER**

NAME R. B Clary, Mgr., Nuclear Licensing	TELEPHONE NUMBER (Include Area Code) (803) 345-4757
---	--

**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

<b>14. SUPPLEMENTAL REPORT EXPECTED</b>				<b>15. EXPECTED SUBMISSION DATE</b>		
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO		MONTH	DAY	YEAR

**16. ABSTRACT** (Limit to 1400 spaces. I.e., approximately 15 single-spaced typewritten lines)

At 2029 on June 12, 2004, the normal incoming ESF feed (1DA) to the V. C. Summer Nuclear Station (VCSNS) opened on an undervoltage condition. The "A" Emergency Diesel Generator (EDG) started and loads sequenced on as designed. The "A" Residual Heat Removal (RHR) pump started but did not inject any water into the Reactor Coolant System (RCS). The "A" Emergency Feedwater (EFW) pump started and ran for approximately 7 minutes. Other plant equipment and systems also responded as expected.

At the time of the event a severe thunderstorm was in progress. A lightning strike upstream of the Parr Substation caused multiple breakers to open at the substation and resulted in a temporary loss of 115kV voltage to the substation. This loss of voltage de-energized the VCSNS 115kV ESF line, which was detected by the 1DA undervoltage and degraded voltage relays. These relays opened the normal and emergency feed breakers to 1DA as designed and the "A" EDG started. Loads sequenced on as designed and equipment operated as expected. Operations personnel monitored the plant and verified conditions were stable prior to realigning the plant to the normal feed and securing the EDG at approximately 2300 on June 12, 2004.

**LICENSEE EVENT REPORT (LER)**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
V.C. Summer Nuclear Station	05000395	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
		2004	-- 002 --	00	

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

**PLANT IDENTIFICATION**

Westinghouse - Pressurized Water Reactor

**EQUIPMENT IDENTIFICATION**

- "A" Emergency Diesel Generator (EDG)
- "A" Residual Heat Removal Pump (RHR)
- "A" Emergency Feedwater Pump (EFW)

**IDENTIFICATION OF EVENT**

At 2029 on June 12, 2004, the normal incoming ESF feed (1DA) to VCSNS opened on an undervoltage condition. The "A" EDG started and loads sequenced on as designed. The "A" RHR pump started but did not inject any water into the RCS. The "A" EFW pump started and ran for approximately 7 minutes. Other plant equipment and systems also responded as expected.

At the time of the event a severe thunderstorm was in progress. A lightning strike upstream of the Parr Substation caused multiple breakers to open at the substation and resulted in a temporary loss of 115kV voltage to the substation. This loss of voltage de-energized the VCSNS 115kV ESF line which was detected by the 1DA undervoltage and degraded voltage relays. These relays opened the normal and emergency feed breakers to 1DA as designed and the "A" EDG started.

This event was reported under Event Notification EN #40811 at 0223 hours on June 13, 2004 in accordance with 10CFR 50.72(b)(3)(iv)(A).

**EVENT DATE**

June 12, 2004

**REPORT DATE**

August 11, 2004

**CONDITIONS PRIOR TO EVENT**

Mode 1, 100% Power

**LICENSEE EVENT REPORT (LER)**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
V.C. Summer Nuclear Station	05000395	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
		2004	-- 002 --	00	

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

**DESCRIPTION OF EVENT**

At 2029 on June 12, 2004, the normal incoming feed (1DA) to the V. C. Summer Nuclear Station (VCSNS) opened on an undervoltage condition. The "A" EDG started and loads sequenced on as designed. The "A" RHR pump started but did not inject any water into the RCS. The "A" EFW pump started and ran for approximately 7 minutes. Other plant equipment and systems responded as expected.

At the time of the event a severe thunderstorm was in progress. A lightning strike upstream of the Parr Substation caused multiple breakers to open at the substation and resulted in a temporary loss of 115kV voltage to the substation. This loss of voltage de-energized the VCSNS 115kV ESF line which was detected by the 1DA undervoltage and degraded voltage relays. These relays opened the normal and emergency feed breakers to 1DA as designed and the "A" EDG started.

Condition Evaluation Report C-04-1846 was generated to document the event and lessons learned.

**CAUSE OF EVENT**

At the time of the event a severe thunderstorm was in progress. A lightning strike upstream of the Parr Substation caused multiple breakers to open at the substation and resulted in a temporary loss of 115kV voltage to the substation. This loss of voltage briefly de-energized the VCSNS 115kV ESF line which was detected by the 1DA undervoltage and degraded voltage relays. These relays opened the normal and emergency feed breakers to 1DA as designed and the "A" EDG started. The 230 kV alternate feed to the "A" ESF bus remained available throughout the event.

Subsequent to the event, SCE&G substation personnel found a faulty breaker at the Parr Substation. This faulty breaker failed to isolate the incoming fault and is the cause for several other lines at the substation being affected. The breaker at the substation has been repaired.

**ANALYSIS OF EVENT**

The undervoltage and degraded voltage relays associated with 1DA functioned properly upon detecting the loss of voltage on the incoming 115kV line. The "A" EDG started and loads sequenced on as designed. Operators acknowledged alarms and walked down the main control board to ensure equipment was functioning properly. Building operators were also dispatched to monitor proper operation of some of the more critical equipment such as the EDG, the RHR pump, and the EFW pump. Once operations personnel were satisfied that conditions were stable, operating equipment that was not needed was secured. The "A" RHR pump was secured without injecting any water into the RCS. The "A" EFW pump was also secured after running for approximately 7 minutes. Additional plant equipment was also restored to normal alignment as necessary. Reactor power remained at approximately 100% throughout the event.

**LICENSEE EVENT REPORT (LER)**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
V.C. Summer Nuclear Station	05000395	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 4
		2004	-- 002 --	00	

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

**ANALYSIS OF EVENT (Continued)**

The 115kV bus section that feeds VCSNS has three power feeds. The other feeds restored power to the bus within several seconds after the trip. While the normal offsite power source was available within seconds of the initial loss, and the 230kV alternate feed to the "A" ESF bus remained available throughout the event, operations personnel monitored the plant and discussed the event with the SCE&G system dispatcher to ensure conditions were stable prior to realigning the plant to the normal offsite power feed via 1DA. This realignment occurred at approximately 2252 hours on June 12, 2004, and the "A" EDG was subsequently secured at approximately 2300 hours.

**CORRECTIVE ACTIONS**

SCE&G substation personnel have repaired the faulty breaker at the substation. All other equipment, both at the substation and at VCSNS, responded as expected.

VCSNS corrective actions include:

Condition Evaluation Report C-04-1846 was generated to document the event and lessons learned. A discussion of the event will be provided as an operating experience item during operator requalification training.

**PRIOR OCCURRENCES**

There are no prior occurrences of the loss of the normal incoming ESF feed to the plant due to a lightning induced fault on the system.