

**Virginia Electric and Power Company  
North Anna Power Station  
1022 Haley Drive  
Mineral, Virginia 23117**

March 16, 2016

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

Serial No.: 16-035  
NAPS: MPW  
Docket No.: 50-338, 50-339  
License No.: NPF-4, NPF-7

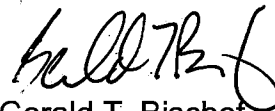
Dear Sirs:

Pursuant to 10CFR50.73, Virginia Electric and Power Company hereby submits the following Licensee Event Report applicable to North Anna Power Station Units 1 and 2.

Report No: 50-338/2016-001-00

This report has been reviewed by the Facility Safety Review Committee and will be forwarded to the Management Safety Review Committee for its review.

Sincerely,



Gerald T. Bischof  
Site Vice President  
North Anna Power Station

Enclosure

Commitments contained in this letter: None

cc: United States Nuclear Regulatory Commission  
Region II  
Marquis One Tower  
245 Peachtree Center Ave., NE, Suite 1200  
Atlanta, Georgia 30303-1257

NRC Senior Resident Inspector  
North Anna Power Station

IEZZ  
NRR



**LICENSEE EVENT REPORT (LER)**

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

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, Privacy and Information Collections Branch (T-5-F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@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.

<b>1. FACILITY NAME</b> North Anna Power Station, Units 1 and 2	<b>2. DOCKET NUMBER</b> 05000338	<b>3. PAGE</b> 1 OF 3
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**4. TITLE**  
Emergency Diesel Generators Automatic Start Due to Loss of Power to "C" Reserve Station Service Transformer

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	23	2016	2016	- 001	- 00	03	16	2016	North Anna Power Station	05000339
									FACILITY NAME	DOCKET NUMBER
										05000

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

**12. LICENSEE CONTACT FOR THIS LER**

LICENSEE CONTACT Gerald T. Bischof, Site Vice President	TELEPHONE NUMBER (Include Area Code) (540) 894-2101
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**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
C	EA	63	S254	Y					

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

On January 23, 2016, at approximately 1703 hours, with Units 1 and 2 operating at 100 percent power Mode 1, the North Anna 34.5kv Bus 3, offsite power feed to the "C" Reserve Station Service Transformer, was lost due to the opening of the L102 breaker. This resulted in the loss of power to the Unit 1H and Unit 2J emergency buses and the automatic start of the 1H and 2J emergency diesel generators (EDG). The Unit 1H emergency bus off-site power was restored and the 1H EDG was secured and returned to automatic. The 2J EDG continued to carry the 2J bus until repairs to L102 were completed and the 72 hour limiting action for Unit 2 was exited at 1706 hours on 1/24/16. The direct cause for the opening of the L102 breaker was an internal switch contact failure due to moisture. At 1948 hours on January 23, 2016, an 8-hour Non-Emergency Report was made to the NRC in accordance with 10 CFR 50.72(b)(3)(iv)(A) as a condition that resulted in valid actuation of Engineered Safety Features (ESF). Units 1 and 2 continued to operate safely during the event. The health and safety of the public were not affected by this event.



**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

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, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [Infocollects.Resource@nrc.gov](mailto:Infocollects.Resource@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	2. DOCKET	6. LER NUMBER			3. PAGE		
North Anna Power Station, Units 1 & 2	05000338	YEAR	SEQUENTIAL NUMBER	REV NO.	2	OF	3
		2016	- 001	- 00			

**NARRATIVE**

**1.0 DESCRIPTION OF THE EVENT**

On January 23, 2016, at approximately 1703 hours, Switchyard breaker L102 (EIS System – EA, Component – BKR), supply to 34.5kV bus #3, tripped open from the Sulfur Hexafluoride (SF<sub>6</sub>) gas pressure switch. This resulted in the loss of "C" Reserve Station Service Transformer (RSST) (EIS System – EA, Component – XFMR) which supplies "F" transfer and 2G intake structure 4160VAC buses (EIS System – EB, Component – BU). The 2G bus fast transferred to the 1G bus allowing all Unit 2 circulating water pumps to continue to run being supplied by Unit 1. The "F" transfer bus supplies the 1H and 2J emergency buses (EIS System – EK, Component – BU). Their associated Emergency Diesel Generators (EDG) (EIS System – EK, Component – DG) started and loaded to recover those buses. The 1H bus was swapped to its alternate supply from 1B station service and the 1H EDG was shutdown and returned to auto standby. Limiting actions on Unit 1 were cleared at that time. The 2J EDG continued to carry the 2J bus. At 1948 hours on January 23, 2016, an 8-hour Non-Emergency Report was made to the NRC in accordance with 10 CFR 50.72(b)(3)(iv)(A) as a condition that resulted in valid actuation of ESF.

As a result of the event, the Unit 2 Moisture Separator Reheater (MSR) flow control valves (FCVs) (EIS System – SB, Component – FCV) went closed and reactor power reduced to approximately 96 percent. In addition, the Unit 1 "B" Charging pump (EIS System – CB, Component – P) auto-started due to the under-voltage condition on the 1H bus. The pump was secured and returned to auto at 1720 hours on January 23, 2016. The MSR FCVs were reopened at 0332 hours on January 24, 2016. At 1528 hours on January 24, 2016, the "C" RSST was energized and normal power restored to the 2J Emergency bus. The 2J EDG was secured at 1541 hours. Repairs to breaker L102 were completed and the Unit 2 72 hour limiting action was exited at 1706 hours on January 24, 2016.

**2.0 SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS**

Units 1 and 2 continued to operate, as designed, following the loss of offsite power. No significant safety consequences resulted from this event because the 1H and 2J EDGs powered the emergency busses, as designed. Offsite power sources were restored in a timely manner and the associated EDGs were secured and returned to automatic. The health and safety of the public were not affected by this event.

**3.0 CAUSE**

The direct cause for the opening of the L102 breaker was an internal switch contact.

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**NARRATIVE**

failure due to moisture. Snow/moisture intrusion inside the cabinet likely shorted across the electrical terminals for the SF<sub>6</sub> gas pressure switch (63G) and caused the 63X relay to pick up, which tripped and locked out the breaker.

The SF<sub>6</sub> pressure switch vendor was unable to find anything wrong with the calibration of the switch. Subject matter experts (SME) within the company along with the breaker manufacturer were also unable to find anything physically wrong with the switch.

**4.0 IMMEDIATE CORRECTIVE ACTION(S)**

The L102 SF<sub>6</sub> gas pressure switch was replaced and the 72 hour limiting action for Unit 2 was exited.

**5.0 ADDITIONAL CORRECTIVE ACTIONS**

In accordance with the manufacturer's and Dominion SME recommendations, all 34.5KV breakers in the North Anna switchyard have had weather sealant applied to prevent moisture intrusion (rain/snow) where air gaps were noted to be around the conduit access plate and the mechanism access plate at the bottom of the breaker cabinet which are the most likely intrusion areas. Additionally the L102 and L202 breakers had weather sealant applied to the area where the breaker cabinet top meets the breaker cabinet side walls along the front and two sides.

**6.0 ACTIONS TO PREVENT RECURRENCE**

The preventive maintenance procedure is being revised to include an additional check for snow and moisture intrusion paths into cabinets and seal as appropriate for the breakers in question. Monitoring of all the 34.5KV breakers for moisture intrusion will occur to determine if additional actions to seal the breakers are required for the remaining nine (9) breakers. Inspections of the sealant will also be performed to ensure it remains intact. The monitoring period will be for approximately one year to allow the breakers to be exposed to all seasonal conditions.

**7.0 SIMILAR EVENTS**

None

**8.0 ADDITIONAL INFORMATION**

Component: 63G pressure switch  
 Manufacturer: Solon  
 Model: 6TC Bulb type