#### VIRGINIA ELECTRIC AND POWER COMPANY Richmond, Virginia 23261

# Virginia Electric and Power Company North Anna Power Station P. O. Box 402 Mineral, Virginia 23117

February 20, 2008

U. S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, D. C. 20555-0001 Serial No.: 07-0843 NAPS: MPW Docket No.: 50-339 License No.: 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 Unit 2.

#### Report No. 50-339/2007-004-00

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,

Dan Stoddard

Daniel G. Stoddard, P.E. Site Vice President North Anna Power Station

Enclosure

Commitments contained in this letter: None

cc: United States Nuclear Regulatory Commission Region II Sam Nunn Atlanta Federal Center 61 Forsyth Street, SW, Suite 23T85 Atlanta, Georgia 30303-8931

NRC Senior Resident Inspector North Anna Power Station

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NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION							<u>م</u> ۱۵	APPROVED BY OMB NO. 3150-0104 EXPIRES: 8/31/2010								
(9-2007) LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)					E a ptifi ir E e a s	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 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										
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) On December 25, 2007 at 2110 hours, with Unit 2 in Mode 1 at 100% power, an automatic reactor trip occurred. The automatic reactor trip was a result of a loss of coolant flow with power greater than 30 percent. The loss of coolant flow was the result of the B Reactor Coolant Pump (RCP) motor trip. A review of the event determined that the breaker supplying the B RCP motor opened due to a response by the neutral over current protection relay. Post-event testing of the B RCP motor trip identified a "B" phase to ground fault. The cause of this event will be determined following the motor failure analysis being performed by an offsite vendor. This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv)(A) for an event that resulted in the automatic actuation of the Reactor Protection System and Engineered Safety Features Actuation Systems. All Engineered Safety Feature equipment responded as designed with the exception of the steam driven auxiliary feedwater pump which tripped due to actuation of the over-speed trip valve and was manually reset and subsequently placed in service. The health and safety of the public were not affected at any time during the event.																

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# LICENSEE EVENT REPORT (LER)

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

# 1.0 DESCRIPTION OF THE EVENT

At 2110 hours on 12/25/2007, Unit 2 experienced an automatic reactor trip due to loss of reactor coolant (RCS) flow with power greater than 30 percent. A review of the event determined that the motor breaker supplying the Unit 2 B Reactor Coolant Pump (RCP) motor (EIIS System- AB, Component-MO) opened due to a response by the neutral over current protection relay (EIIS Component-RLY).

The digital fault recorder displayed a peak neutral current of 2189 amps for approximately 100 milliseconds. The fault was on "B" phase to ground. This was cleared by the motor feeder breaker opening. A post-event insulation to ground test of the field cables between the motor breaker (EIIS Component-BKR) and the B RCP motor determined that no damage had been incurred and that the field cables remained acceptable for service.

At 2322 hours on 12/25/2007, a 4-hour Non-Emergency Report was made to the NRC in accordance with 10 CFR 50.72 (b)(2)(iv)(B), for actuation of the Reactor Protection System (RPS). An 8-hour Non-Emergency Report was also made in accordance with 10 CFR 50.72 (b)(3)(iv)(A) for an actuation of the Auxiliary Feedwater System.

Unit 2 was placed in Mode 5, cold shutdown, to facilitate removal and replacement of the B RCP motor. On site evaluation of the B RCP motor determined that the fault occurred to the motor stator assembly, although it is unknown at this time if there is any damage to the rotor. The subject motor was removed from the Unit 2 containment building and replaced with a spare motor. The faulted motor assembly has been shipped to a vendor where a motor failure analysis will be performed. North Anna personnel will be directly involved in the motor failure analysis.

The B RCP motor is a Westinghouse Model CS, S/N 1S81P777, 7000 HP, 4000 volt, 1185 RPM, Full load amp 891, 6 pole, Class H windings and a service factor of 1.15. The motor 'windings were replaced in 1992. A vendor inspection/refurbishment was last performed in 1999. At that time, corona activity was identified on all of the line coils of the stator winding. The vendor treated the windings to preclude reoccurrence. Since refurbishment in 1999, the motor has been in service as the 2-RC-P-1B motor. A review of motor stator temperature and vibration readings prior to the event did not reveal any abnormalities. The review of all Preventive Maintenance (PM) test and inspection data from the past two refueling outages for B RCP motor determined that there have been no electrical or mechanical abnormalities. The electrical readings taken in the spring of 2007 for the motor stator stator windings compared closely to the ones taken in fall of 2005 and showed no evidence of degradation.

During the event the steam driven auxiliary feedwater pump tripped due to actuation of the over speed trip valve. The steam driven auxiliary feedwater pump (EIIS System- BA, Component-P) was manually reset and placed in service.

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#### 2.0 SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS

There is no impact on the design function, ability to function and method of performing the function or control/operation of a structure, system or component (SSC) described in the USFAR. Reactor coolant pumps are designed to provide core cooling and not required during emergency operating conditions. The ability to maintain the reactor shutdown is not affected by failure of these components.

Following the reactor trip the Reactor Protection System (RPS) and all Engineered Safety Feature Actuation System (ESFAS) (EIIS System JE) equipment responded as designed with the exception of the Auxiliary Feedwater System (AFW) (EIIS System BA) steam driven pump. The steam driven auxiliary feedwater pump was reset manually and operated as designed. No other major equipment issues were noted. This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv)(A) for an event that resulted in the automatic actuation of the Reactor Protection System and Engineered Safety Features Actuation Systems. The health and safety of the public were not affected at any time during the event.

## 3.0 <u>CAUSE</u>

The cause evaluation for the B RCP motor failure is in progress. The reactor trip was the result of a loss of coolant flow with power greater than 30 percent. The B RCP motor trip was a result of a "B" phase to ground fault. The steam driven auxiliary feedwater pump trip was caused by a lack of procedural guidance for performing certain critical dimensional checks that should be performed when assembling the trip linkage for the overspeed trip valve.

### 4.0 IMMEDIATE CORRECTIVE ACTION(S)

Control Room personnel responded to the event in accordance with emergency procedure E-0, Reactor Trip or Safety Injection. Control Room personnel stabilized the plant using ES-0.1 Reactor Trip Recovery. All safety systems responded appropriately with the exception of the steam driven auxiliary feedwater pump which tripped due to actuation of the over speed trip valve and was manually reset and subsequently placed in service. The unit was stabilized at no-load conditions.

# 5.0 ADDITIONAL CORRECTIVE ACTIONS

A failure analysis is in progress for the B RCP motor. The motor will be refurbished. The steam driven auxiliary feedwater pump trip linkage was rebuilt to restore manufacturer recommended tolerances. Training is being provided to the Operations staff on the enhancements for latching the trip valve linkage and emergency trip mechanism engagement.

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

## 6.0 ACTIONS TO PREVENT RECURRENCE

Following the completion of the B RCP motor failure analysis corrective actions will be implemented to prevent recurrence. Maintenance procedures for the steam driven auxiliary feedwater pump have been revised to ensure adequate trip valve linkage and emergency trip mechanism engagement meets the manufacturer recommended tolerances.

#### 7.0 SIMILAR EVENTS

There have been no similar events where the reactor tripped on a loss of coolant flow with power greater than 30 percent as a result of an RCP motor trip.

#### 8.0 ADDITIONAL INFORMATION

At the time of this event, North Anna Unit 1 was operating at 100 percent power and was not affected by this event.

Component information:

Description:Reactor Coolant Pump MotorManufacturer:WestinghouseModel No.:CSSerial No.:1S81P777