

PART 21 IDENTIFICATION NO. 80-310-000COMPANY NAME Virginia Electric & Power CompanyDATE OF LETTER 11/19/80 DOCKET NO. 50-260/261; 50-338/339DATE DISTRIBUTED 11/24/80 p.m. ORIGINAL REPORT ☒ SUPPLEMENTARY ☐

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## ACTION:

PRELIMINARY EVALUATION OF THE ATTACHED REPORT INDICATES LEAD RESPONSIBILITY FOR FOLLOWUP AS SHOWN BELOW:

IE ☒NRR ☐

37 OF NOV 92

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NOT RECORDED

REV. 8/1/80

9/17/80

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# 50-310-000

**VIRGINIA ELECTRIC AND POWER COMPANY**  
**RICHMOND, VIRGINIA 23261**

November 19, 1980

Mr. James P. O'Reilly, Director  
Office of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Serial No. 932  
NO/ESG:ms  
Docket Nos. 50-280  
50-281  
50-338  
50-339  
License Nos. DPR-32  
DPR-37  
NPF-4  
NPF-7

Dear Sir:

Under the provisions of the Technical Specifications and 10 CFR 21, NRC Region II was notified on November 14, 1980 that a potential significant deficiency or substantial safety hazard existed at Surry Units 1 and 2 and North Anna Units 1 and 2.

In accordance with the reporting requirements of 10 CFR 21, the following information is submitted:

A. Name and address of reporting individual:

Mr. B. R. Sylvia, Manager  
Nuclear Operations and Maintenance  
Virginia Electric and Power Company  
P. O. Box 26666  
Richmond, Virginia 23261

B. Facility, activity and/or component affected:

Surry Units 1 and 2

North Anna Units 1 and 2

C. Name of firm constructing the facility or supplying the component, activity or service:

Stone & Webster Engineering Corporation  
Boston, Massachusetts 02107

D. Description of defect, deficiency or failure to comply:

Stone & Webster Engineering Corporation informed Vepco that under certain conditions, an out of phase transfer might occur when the emergency buses are transferred from the offsite power source to the emergency diesel generator after the generators have reached rated speed and voltage because there is no definitive phase relationship between the offsite source and the emergency diesel generator voltages and no time permissive for collapsing the residual voltage. On November 14, 1980, Stone & Webster Engineering Corporation confirmed a significant out of phase transfer could occur under the following conditions:

1. A Safety Injection signal is received and the diesels start and run on standby.
2. Offsite power is lost, the emergency buses isolate from the offsite supply and are transferred to the diesel generators.

As built, there was no time permissive to allow for collapsing of residual bus voltages. Therefore, an out of phase transfer might have caused severe motor end-turn forces as well as high torsional stresses that could cause motor rotor, coupling or driven equipment shaft failures. A study of this transfer effect on the low head safety injection motors indicates that the resultant volts per Hertz may not be within the recommended allowable limit for a safety transfer per ANSI C50.41-1977.

E. Date of determination of reportability: November 14, 1980

F. Similar components, activities or services: None

G. Corrective Action which has been, is being or will be taken, the individual responsible and the length of time to complete the action:

A time delay circuit has been installed on the Surry Unit 2 and North Anna Unit 1 emergency diesel generator output breakers to allow a 2.0 second time delay between the opening of the offsite supply breakers and closing of the emergency diesel generator breakers. A 1.96 second time delay is sufficient for the residual voltages to dissipate to allowable levels.

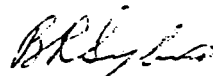
The modifications will be completed on Surry Unit 1 and North Anna Unit 2 prior to startup from their current outages.

H. Other information:

Any additional information regarding the above topic will be submitted in the Licensee Event Reports.

Should you require further information, please contact this office.

Very truly yours,



B. R. Sylvia  
Manager - Nuclear  
Operations and Maintenance

cc: Mr. Victor Stello, Director (3)  
Office of Inspection and Enforcement