



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30303

Report Nos.: 50-338/84-16 and 50-339/84-15

Licensee: Virginia Electric and Power Company  
Richmond, VA 23261

Docket Nos.: 50-338 and 50-339

License Nos.: NPF-4 and NPF-7

Facility Name: North Anna 1 and 2

Inspection Date: May 21-25, 1984

Inspection at North Anna site near Mineral, Virginia

Inspector: N. Merriweather  
N. Merriweather

6-8-84  
Date Signed

Approved by: T. E. Conlon  
T. E. Conlon, Section Chief  
Engineering Branch  
Division of Reactor Safety

6-8-84  
Date Signed

SUMMARY

Scope: This routine, unannounced inspection involved 33 inspector-hours on site in the areas of maintenance of 4160 volt breakers, protective relay settings, and followup on reactor trip breaker problems.

Results: Of the three areas inspected, no violations or deviations were identified.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*E. W. Harrell, Station Manager
- \*A. L. Hobb, Jr., Manager, QA
- \*J. Harper, Superintendent of Maintenance
- \*L. A. Johnson, Superintendent of Technical Services
- \*R. F. Saunders, Assistant Station Manager-Surry
- \*J. A. Smith, Supervisor, QC
- \*F. P. Miller, Supervisor, QC
- \*S. B. Eisenhart, Licensing Coordinator

Other licensee employees contacted included electrical technicians and other office personnel.

#### NRC Resident Inspector

- \*J. Luehman

\*Attended exit interview.

### 2. Exit Interview

The inspection scope and findings were summarized on May 25, 1984, with those persons indicated in paragraph 1 above. The licensee was informed of the inspection finding listed below. The licensee acknowledged the finding with no dissenting comment.

Unresolved Item 50-338/84-16-01, Determine If The Doble Model F3S Unit Calibration Records Are Current, paragraph 6.

### 3. Licensee Action on Previous Enforcement Matters

Not inspected.

### 4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. New unresolved items identified during this inspection are discussed in paragraph 6.

5. Followup on Reactor Trip Breaker (RTB) Problems (92700) - Unit 2

On May 11, 1984, the regional office was notified by the resident inspector of problems identified with the Unit 2 reactor trip bypass breakers. During performance of electrical maintenance of the reactor trip breakers on May 5, 1984, it was discovered that bypass breaker no. 2-RT-BYB undervoltage trip device attachment (UVTA) would not trip consistently and bypass breaker 2-RT-BYA had a bushing and snap ring missing from the undervoltage trip attachment (UVTA). Subsequently, both UVTAs were replaced. The licensee later provided the UVTAs to IE Headquarters for testing.

In following up on this matter, the inspector reviewed licensee maintenance records, interviewed appropriate licensee representatives and discussed the issue with NRC management. It appears from reviewing the licensee records and discussing the procedures with the electrical maintenance supervisor that maintenance was last performed on the Unit 2 Reactor Trip Breakers (BYA and BYB breakers in particular) on April 11, 1983, using Electrical Procedure No. EMP-P-EP-7 (Rev. 2). The breakers were specifically inspected at that time to ensure that all pivot pins and lock springs were in place and secure. In addition, post maintenance checkout required the breakers to be functionally tested before final acceptance.

The licensee's response to IEB 83-01 indicated that the maintenance performed on the DB-50 breakers was found to meet or exceed all technical aspects of the bulletin. However, at that time, the licensee indicated that a nine month surveillance and maintenance cycle was acceptable based on the relatively clean environment and the frequent UV linkage testing program. This would also correspond to the planned outage, usually every nine months for maintenance. The licensee subsequently re-evaluated the maintenance period and determined that maintenance should be on a six month cycle until adequate maintenance data for extending the period could be obtained. So the licensee developed periodic tests (2-PT-36.12.3 and 2-PF-36-12.4) which invokes Electrical Maintenance Procedure EMP-P-EP-8, (Rev. 1) Reactor Trip Breaker Maintenance on a six month frequency. (By making this a periodic test, the maintenance must be performed within a six month period or as allowed by administrative procedures in the Technical Specifications.) EMP-P-EP-8 is the procedure that was being performed on May 5, 1984, when the UVTA problems were identified. This is a new procedure and was approved on May 3, 1984. It was developed specifically to incorporate all the latest NRC requirements and Westinghouse recommendations on DB-50 breaker maintenance. The licensee was performing this procedure when they identified that a bushing and snap ring were missing on RTB-BYA-UVTA and RTB-BYB-UVTA failed to trip. Bypass breaker BYB failed to trip when the licensee attached 20 ounces (+0, -4 ounces) to the tripper bar, re-energized the UVTA, manually closed the breaker, and finally de-energized the UVTA to observe the breaker trips. No breaker trip resulted. The licensee subsequently replaced both UVTAs. In discussing this issue with the licensee, the inspector learned that the maintenance procedure did not require the as-found condition to be tested before

performing the required maintenance. Therefore, the licensee has no way of knowing if the breakers in the as-found condition were operational. Both UVTAs were bench tested in the shop and were determined to be functional by the Westinghouse representatives who were present during the conduct of the maintenance activities. The licensee did indicate that the procedure is being revised to functionally test the as-found condition prior to performing maintenance and that all maintenance procedures will be revised when they are in the review cycle to require as-found testing. There is currently no NRC requirement to test the as-found condition while performing maintenance; therefore, this is not considered to be a violation. In conclusion, it appears that the maintenance performed by the licensee on the RTBs on May 5, 1984, was done in accordance with licensee commitments and procedure requirements.

6. 4160V Breaker Maintenance and Protective Relay Settings (92700) - Unit 2

The inspector observed the electrical craft performing routine preventive maintenance on Unit 1 4160 volt J-Bus circuit breakers. The licensee had initiated maintenance reports (MRs) to cover the work and the MRs were properly recorded on the front of the maintenance procedure. The shift supervisor had given permission to perform maintenance on the equipment and QC had been notified. The procedure used for breaker maintenance was EMP-P-PH-01 (Rev. 3), Electrical Checkout of 4160 Volt Load Center Air Circuit Breaker. The procedure was a detailed step-by-step procedure on exactly what the technician was required to do. The procedure contained appropriate acceptance criteria for any data taken and required post maintenance checkout prior to acceptance of the equipment by operations.

The inspector observed the craft performing maintenance on 4160V breakers 15J02, 15J05, 15J06, 15J07, and 15J13. The breakers were disassembled and inspected for damage. The contacts were cleaned and insulating parts were inspected for damage. The mechanical tightness of the breaker was checked and the contact and phase resistances were measured. The breakers were cycled to verify that they open and close properly at a test panel. Finally, the breakers were reassembled by reattaching the arc chutes and the interphase barrier.

The inspector did not witness the racking of breakers into the cubicles or post maintenance testing because construction was terminating cables inside some of the 4160V cubicles. However, the procedure does require post maintenance testing prior to final acceptance by operations.

The test equipment (i.e., multimeter, milliohm tester, and 5KV megger) used by the craft was found to have calibration stickers which indicated the date of calibration and the next calibration due date. All equipment examined was found to be within its calibration due date.

Overall, it appeared that the 4160V breaker maintenance activities were performed in accordance with approved procedures.

The inspector observed work performed by VEPCO's Nuclear Automation and Control Group (A&C). This group is headquartered in Richmond, Virginia, and they have the responsibility to perform maintenance on basically the 4160 and above protective relays for North Anna and Surry Nuclear Plants. They perform work in accordance with the station approved procedures and relay record cards. Their test equipment is maintained in their own calibration program and the station must independently verify that the equipment has been calibrated, that the calibration interval has not expired, and that the calibration is traceable to the National Bureau of Standards.

A Relay Record Card contains the required relay settings. The relay record card is maintained in station records and any changes to the relay record card will be initiated by design changes or engineering work requests for appropriate station review.

The inspector observed the A&C group, performing tests on relays for breakers no. 15J03, 15J12, and 15J09. The inspector observed that a maintenance report had been issued and was properly noted on the procedure. All initial conditions and precautions had been satisfied per the procedure. The inspector witnessed the testing and resetting of relays for phases A, B, and C on breaker nos. 15J03 and 15J12. The inspector witnessed the functional testing of 4160 volt breaker 15J09. All tests were completed successfully and all temporary jumpers were removed. The inspector examined the test equipment used by the A&C group to determine if the equipment had been calibrated and if the calibration intervals were current. All but one piece of equipment used by the A&C group contained calibration stickers. This was a model F3S Doble unit which did not contain a calibration sticker indicating the date calibrated and the next calibration due date. The A&C staff indicated that all the equipment was on a one year interval. In reviewing this matter further, the inspector found that Administrative Procedure 12.1, paragraph 1.8, requires QC to perform receipt inspections of all measuring and test equipment brought on the station by contractors or VEPCO departments. QC acceptance will verify that the equipment has been calibrated and that the calibration interval has not expired. It appears that A&C carries a copy of the calibration certifications to the station for all measuring and test equipment used. However, the calibration certifications for the Doble unit, in question, only indicated that the unit was calibrated on August 3, 1983. It does not state when recalibration is due. The inspector questioned the licensee about how this equipment was determined to be acceptable in accordance with Administrative Procedure 12.1. It appears that the inspector accepted it on the basis that all of A&C's equipment is calibrated on a one year basis. The inspector discussed this concern on a conference call with the A&C supervisor in Richmond, Virginia. He indicated that all the equipment is calibrated on a yearly basis and that this would also be indicated in the manufacturer's technical manual.

The technical manual was not at the site so the inspector requested that the appropriate information be sent to the site which indicates that the calibration interval was not exceeded. It appears that this condition was isolated and limited to this one piece of equipment. The inspector informed the licensee that this matter is unresolved until a determination is made as to whether the Doble Model F3S Unit was properly calibrated. This item was identified to the licensee as unresolved item 50-338/84-16-01, Determine If The Doble Model F3S Unit Calibration Records Are Current. Meanwhile, the licensee has taken steps to prevent the further use of this equipment at the site until this issue has been resolved.

Within the area examined, no violations or deviations were identified.