



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

Report Nos. 50-338/82-25 and 50-339/82-25

Licensee: Virginia Electric and Power Company  
P. O. Box 26666  
Richmond, VA 23261

Facility Name: North Anna Units 1 and 2

Docket Nos. 50-338 and 50-339

License Nos. NPF-4 and NPF-7

Inspection at North Anna site near Mineral, Virginia

Inspectors:	<u>C. Julian for</u>	<u>8/2/82</u>
	D. F. Johnson	Date Signed
	<u>C. Julian for</u>	<u>8/2/82</u>
	M. B. Shymlock	Date Signed
Approved by:	<u>C. Julian</u>	<u>8/2/82</u>
	C. A. Julian, Section Chief, Division of Project and Resident Programs	Date Signed

SUMMARY

Inspection on May 24 - June 5, 1982

Areas Inspected

This special inspection involved 27 resident inspector-hours on site in the area of review of the circumstances of both Overpressure Protection Systems being out of service when required to be operable.

Results

Two violations were found in the area inspected.

## DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*W. R. Cartwright, Station Manager
- \*E. W. Harrell, Assistant Station Manager
- \*J. A. Hanson, Superintendent - Technical Services
- D. L. Benson, Superintendent - Operations
- J. M. Mosticone, Operations Coordinator
- \*F. P. Miller, Quality Control Supervisor
- \*A. L. Hogg Jr., Site Quality Control Manager
- \*M. E. Fellows, Staff Assistant

Other licensee employees contacted included operators and office personnel.

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on June 5, 1982, with those persons indicated in paragraph 1 above. The violations presented in paragraph 5 were discussed with station management at that time and they acknowledged their understanding of the findings.

### 3. Licensee Action on Previous Inspection Findings

Not inspected.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

### 5. Inoperable Overpressure Protection System Operation.

On May 19, 1982, while cooling down in Mode 4 at about 0100 hours, the pressurizer power operated relief valve (PORV) mode controller key switch was placed in automatic. This activated the Overpressure Protection Systems (OPS) enabling the automatic opening of the PORVs with nitrogen pressure in the event of an overpressure condition in the Reactor Coolant System (RCS) with the RCS cold leg temperature equal to or less than 320°F.

At 0300 hours on May 19, the nitrogen pressure in reservoir A supplying one PORV (PCV-1456) decreased to below the setpoint required to maintain the PORV operable (1775 psig). Due to nitrogen leakage, the system could not be repressurized successfully. This resulted in entering the action statement of Technical Specification (TS) 3.4.9.3.a., which states with one PORV inoperable, either restore the inoperable PORV to operable status within seven days or depressurize and vent the RCS through 2.07 square inch vent(s)

within the next 8 hours and maintain the RCS in a vented condition until both PORV's have been restored to an operable status. At 1719 hours on May 22, 1982, the nitrogen reservoir B low pressure alarm for the remaining PORV (PCV-1455C) actuated. At 1800 hours a containment entry was made to repressurize the B nitrogen reservoir. It was reported to the shift supervisor that two valves were opened to pressurize the reservoir when, normally, only a single valve operation is required. After repressurization the operator reported that he shut both valves. At 1910 hours the reservoir B low pressure alarm actuated again. Another containment entry was made by two operators who verified the 1455C PORV was inoperable due to the B nitrogen reservoir isolation valve being closed. Thus nitrogen pressure was not available to operate the PORV.

Since PORV-1456 had previously been declared inoperable, the T. S. 3.4.9.3b. action statement for two inoperable PORV's was recognized to be applicable. T.S. 3.4.9.3b states with both PORV's inoperable, depressurize and vent the RCS through a 2.07 square inch vent(s) within 8 hours and maintain the RCS in a vented condition until both PORV's have been restored to an operable status. The licensee initially determined that the B reservoir isolation valve must have been closed during a containment entry at some earlier date.

Upon discovery of the condition on May 22 the reservoir isolation valve was promptly opened and the B reservoir pressurized to 1975 psig. On May 25, 1982, both PORV's were manually blocked open to provide an RCS vent path.

The total period of time in the action statement for a single inoperable PORV was determined by the licensee to be approximately 6 days and 11 hours. The licensee conducted an investigation of this event to attempt to determine if the B reservoir isolation valve had been closed at some earlier date or was mistakenly closed on May 22 by the first operator sent into containment to repressurize the B system. A test was conducted to attempt to duplicate the circumstances of the B isolation valve being closed and to measure the bleed down rate of the B piping system. The results were inconclusive, in that, the piping held nitrogen pressure for an extended period, but valve packing adjustments were made prior to the test. The licensee concluded that if the operator mistakenly closed the valve on May 22, the plant was only in the action statement for two inoperable PORVs for 2 hours and 45 minutes. The licensee further concludes that if the B isolation valve was closed on May 14 as originally postulated, then both PORV's were inoperable for 3 days and 18 hours from May 19 until May 22.

The operator who made the first containment entry on May 22 states that he found the B isolation valve closed. The licensee's updated LER 82-041 of July 19, 1982 presents the results of their investigation and concludes that there is reasonable assurance that the valve was mistakenly closed at 1800 on May 22. Region II has reviewed this matter and found no evidence to dispute this conclusion.

The backup system for the nitrogen supply is the containment instrument air system which was operable. By manually opening both solenoid valves from the instrument air system and positioning the PORV mode controller key

switch in off, the inoperable PORV's could have been manually opened for overpressure relief from the control room. However, if an actual over-pressurization event had occurred it would be highly unlikely that manual actuation of the PORV's would be quick enough to prevent overpressurization of the RCS. With both PORV's inoperable no automatic overpressure protection was available. During the period of inoperability, there was no event to cause RCS overpressurization.

The inspectors observed that there were no procedures for the operation of the overpressure protection system nor any valve check-off sheets for ensuring proper valve lineups. Therefore performing system operation without adequate procedures was a contributing factor to the event described above. This is a violation. (82-25-01) The controlled system piping drawing 11715-FM-105A-10 for the overpressure protection system was also not accurate, in that, the manual isolation valves for the nitrogen reservoirs were not shown on the drawing. This is a second violation (82-25-02). Although the piping arrangement for Unit 2 is slightly different no procedures were available there either and the drawings were also in error.

A possible contributing cause to this event is that the OPS system valves were not labeled and are in difficult locations to reach. Also performance history has shown the OPS system to frequently develop nitrogen leaks. This requires frequent containment entries and valve manipulations to recharge the systems. The licensee is developing design changes to improve the design. The progress of these efforts will be followed as an inspection followup item. (82-25-03)