

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

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REGULATORY DOCKET FILE COPY

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

Serial No. 509
PO&M/DLB:scj
Docket No. 50-281
License No. DPR-37

Dear Mr. O'Reilly:

Pursuant to Surry Power Station Technical Specifications, the Virginia Electric and Power Company hereby submits the following Licensee Event Reports for Surry Unit No. 2.

Report No.	Applicable Technical Specification
LER 78-013/03X-1	TS 6.6.2.b.3
LER 78-029/03L-0	TS 6.6.2.b.2
LER 78-031/03L-0	TS 6.6.2.b.2

These reports have been reviewed by the Station Nuclear Safety and Operating Committee and will be placed on the agenda for the next meeting of the System Nuclear Safety and Operating Committee.

Very truly yours,

C. M. Stallings

C. M. Stallings
Vice President—Power Supply
and Production Operations

Enclosures (3 copies)

cc: Mr. John G. Davis, Director (30) copies
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Surry Power Station, Unit 2
Docket No: 50-281
Report No: 78-013/03X-1
Event Date: 4-8-78

Critical Below Insertion Limits

1. Description of Event:

Following an outage for steam generator inspection, during the conduct of a normal start-up, the supervising Senior Operator observed instrument responses at about 1447 that indicated that criticality might be achieved below the minimum insertion limits. He directed that control rods be inserted to put Control Bank C at zero steps and proceeded to a review of the Estimated Critical Position calculation. At the time of the Senior Operator's observations and action, unit neutron levels were approximately 1×10^{-8} amperes in the intermediate range on both channels. Proper overlap between intermediate range and source range had been achieved earlier and source range high voltage had been blocked according to procedure.

Following the insertion of Control Rod Bank C, the Senior Operator and the unit Operator, reviewing the ECP, identified an error which indicated that the RCS had been overdiluted. During this period, neutron level on the unit decayed to about 7×10^{-11} amperes on both channels of intermediate range instrumentation.

After reference to Technical Specifications to verify insertion limits, a "boration" of the RCS was carried out to bring the rod position above insertion limits. A second approach to criticality was commenced. Criticality was achieved at approximately 1510. While the unit power was leveled at 1×10^{-8} amperes in the intermediate range for critical data, the Senior Operator referred again to Technical Specification to verify that minimum insertion limits had been observed. He discovered that he had selected a value for Unit 1 (C-128, D-0) rather than for Unit 2 (C-154, D-23) and ordered immediate shutdown of the reactor and emergency boration of the RCS. This event was described in the original Licensee Event Report.

Detailed review of the charts and records following the event indicates that criticality was apparently achieved at about 1447 on the first rod withdrawal.

The circumstances described constitute a condition contrary to Technical Specifications 3.12.A.2 and 3.12.A.4 and are reportable in accordance with Technical Specification 6.6.2.b.(3).

2. Probable Consequences:

The insertion limits are determined to satisfy safety requirements such as shutdown margin, power distribution limits, and the maximum worth from an ejected control rod. A violation of the insertion limits does not necessarily result in a violation of the above limits because of conservatism used in developing these limits. An evaluation of this event has determined that due to the conservative assumptions used, the subject limits were not violated. Therefore, the health and safety of the general public were not affected.

Surry Power Station, Unit 2
Docket No: 50-281
Report No: 78-013/03X-0
Event Date: 4-8-78

Critical Below Insertion Limits

3. Cause of the Event:

The event occurred due to personnel error in calculation of the ECP and overdilution of the RCS past the boron concentration required by the ECP. The result of these errors was achievement of criticality below minimum insertion limits.

4. Immediate Corrective Action:

The reactor was immediately returned to shutdown conditions using the emergency boration system. This is the required response for the violation of this limiting condition for operation.

5. Subsequent Corrective Action:

Appropriate operating procedures (ECP) have been revised to provide additional administrative controls in the startup sequence.

6. Actions Taken to Prevent Recurrence:

Personnel involved in this event will be reassigned to additional retraining in start-up procedures and reinstructed to maintain appropriate documentation of all significant operating events.

7. Generic Implications:

None.

Surry Power Station
Docket No: 50-281
Report No: 78-029/03L-0
Event Date: 8-14-78

Cooling Water Inlet Temperature

1. Description of Event:

At approximately 1500 on 8-14-78, with the unit at full rated power, the inlet circulating water temperature was observed to exceed 87°F. This inlet temperature exceeds the limit for operation specified in the Order for Modification of License dated June 29, 1978. An orderly shutdown of Unit 2 was commenced. The rampdown was halted and return to full power commenced at 1830 on 8-14-78 when the Licensee was informed that the NRC had approved the Condition of the License dated 8-14-78 which allows a maximum service water temperature of 90°F. This event is reportable pursuant to Technical Specification 6.6.2.b.(2). Unit 1 was at hot shutdown during this event.

2. Probable Consequences/Status of Redundant Systems:

The health and safety of the general public were not affected.

3. Cause:

The temperature increase was due to solar heating of the lower James River estuary. The warm water was brought to the station by the flooding tide.

4. Immediate Corrective Action

An orderly shutdown was commenced. At 1830, the Licensee was informed of approval to operate with no more than 90°F service water temperature and the unit was returned to rated power after a reduced power period of about 7 hours.

5. Immediate Corrective Action:

None.

6. Action to Prevent Recurrence:

Since the heating of the James River is a natural summer condition, this event may recur and will be handled as required by license provisions.

7. Generic Implications:

None.

Surry Power Station, Unit 2
Docket No: 50-281
Report No: 78-031/03L-0
Event Date: 08-09-78

Malfunction of Circulating Water Valve MOV-CW-200C

1. Description of Event:

During normal operation, while attempting to cycle C Waterbox Discharge MOV-CW-200C, it was found that the valve would not close electrically. The valve was operational in the manual mode and an operator was assigned in the event emergency operation was necessary. This is reportable under T.S. 6.6.2.b.(2). The health and safety of the public were not affected.

2. Probable Consequences of Occurrence:

Since the problem was discovered during a routine operational event and valve operation was possible in the manual mode, there were no consequences.

3. Cause of Occurrence:

Subsequent investigation revealed that the motor operator was turning but the valve was not turning. Further investigation revealed that a key in the drive train had slipped out.

4. Immediate Corrective Action:

A new key was installed, the valve cycled and returned to service.

5. Subsequent Corrective Action:

None required.

6. Actions Taken to Prevent Recurrence:

The new key was secured in place in such a manner that it could not slip out.

7. Generic Implications

Since this problem has not occurred in similar motor operators, there are no apparent generic implications.