

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

March 31, 1993

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Serial No. 93-050
NO/ETS R3
Docket Nos. 50-338
50-339
License Nos. NPR-4
NPR-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNITS 1 AND 2
REGULATORY GUIDE 1.97 VARIABLE QUALIFICATION STATUS

Virginia Electric and Power Company's letter serial number 054, dated January 31, 1984, detailed our initial response to Regulatory Guide (RG) 1.97, Revision 3, as required by NUREG-0737. The NRC issued a Safety Evaluation Report on March 31, 1988 that concluded that the post accident monitoring instrumentation at North Anna conforms to RG 1.97, Revision 3.

Since our 1984 submittal, a number of engineering and construction activities have taken place as well as a NRC inspection of the RG 1.97 variables. In response to these activities we have completed extensive re-reviews of the variables associated with RG 1.97. These reviews have determined that the intent of the regulatory guide is being met at North Anna Power Station. These reviews also have determined that some additional exceptions to the Design and Qualification Criteria of RG 1.97 are required. Attachment 1 contains the justification for these exceptions. Your review and approval of these exceptions is requested.

Additionally, the status of an ongoing engineering project to correct a transmitter qualification concern for a RG 1.97 variable is included in Attachment 2 for information.

Should you have any additional questions or require additional information, please contact us.

Very truly yours,

W. L. Stewart
W. L. Stewart
Senior Vice President - Nuclear

Attachments

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Mr. M. S. Lesser
NRC Senior Resident Inspector
North Anna Power Station

Attachment 1

North Anna Power Station Units 1 and 2

Regulatory Guide 1.97 Variables
Exceptions and Deletion

R.G. 1.97 Variable Exceptions and Deletion

1. Variable D-24 "Heat Removal by the Containment Fan Heat Removal System," Category 2.

Our letter, Serial Number 054, dated January 31, 1984, identified the Containment Recirculation Cooler Fan subsystem as the North Anna equivalent to the Containment Fan Heat Removal System as specified in Table 3 of RG 1.97. During our re-review of RG 1.97 variables in 1991, we determined that the containment licensing calculations for North Anna Power Station do not rely upon the Containment Recirculation Cooler Fan subsystem for accident mitigation purposes. The Quench Spray and Recirculation Spray Systems are the systems required for mitigation of design basis accidents. The flows and temperatures for these systems are already being monitored as Variables D-23, "Containment Spray Flow", D-30, "Component Cooling Water Temperature to ESF System" and D-31, "Component Cooling Water Flow to ESF System". Since the safety analysis takes no credit for the Containment Recirculation Cooler Fan subsystem as a containment heat removal system, North Anna is deleting D-24 from its RG 1.97 variables.

2. Variables A-8 and D-7, "High Pressure Safety Injection Flow," Category 1.

Variable A-8, "High Pressure Safety Injection (HPSI) Flow," was deleted as a Type "A" Variable. This change in status was identified to the NRC in our letter Serial Number 86-485, dated October 13, 1986. The recent RG 1.97 re-review has identified the need to reinstate this variable as a Type "A" Variable. The basis for reinstatement is on Reactor Coolant Pump trip criteria during a small break LOCA. The manual action performed by the operator (RCP pump trip) is based upon the indication of at least one HPSI pump running and a RCS sub-cooling margin less than 25 degrees. This manual operator action is not dependent upon any minimum or trended HPSI flow rates. Additionally, HPSI flow rate (variable D-7) is used to assess the proper operation of the HPSI System during and following an accident.

The requirements for a Category 1 variable dictate a recorder be incorporated into the instrumentation for trending this variable. There are no accident mitigating procedures that require trended HPSI flow information either as an "A" or "D" variable. The redundant flow indicators will provide the operator with the HPSI pump running status and flow rate necessary for mitigation of a design basis accident. Therefore, North Anna requests an exception to the requirements of RG 1.97, Criterion 6, "Display and Recording" for recording/trending Variable A-8.

3. **Variable A-2, "Steam Generator Pressure," Category 1.**

North Anna Power Station requests an exception to Criterion 6 "Display and Recording" requirements for a dedicated recorder for Steam Generator Pressure. Steam Generator Pressure is evaluated to mitigate the consequences of a faulted steam generator that is not automatically isolated. Emergency procedures contain steps for the control room operator to check steam generator pressures. Steam Generator Pressure is evaluated based on operating conditions (RCS temperature) and the pressures in the non faulted steam generators. If the pressure in a steam generator decreases 100 psig below the other steam generators, a main control room annunciator will activate. This annunciator will alert the control room operator of the adverse trend.

4. **Variable B-14, "Containment Isolation Valve Position," Category 1.**

An exception to the following RG 1.97 Criteria is requested for the following Containment Isolation Valve Position indications:

1. Criterion 1, "Equipment Qualification"
2. Criterion 2, "Redundancy"
3. Criterion 3, "Power Source"

These containment isolation valves are closed during accident conditions. The operation of the associated systems are not relied upon to mitigate the consequences of any accident. The isolation valves themselves will still be subject to the appropriate 10 CFR 50 Appendix J tests. The exceptions to the criteria are for the valve position indications only and will not affect the containment integrity requirements of the valves. Based upon these assertions, North Anna Power Station is requesting exceptions to the Design and Qualification Criteria 1, 2, and 3 for the valve position indications. The exceptions are for the valves identified in the following tables. The valve numbers listed are for Unit 1. The exceptions are requested for both Unit 1 and Unit 2 valves.

The following valves are maintained closed under Administrative Control per Technical Specification Table 3.6-1 when in Modes 1 through 4.

Containment Purge

<u>VALVE</u>	<u>STATUS DURING ACCIDENT</u>
HV-MOV-100A	CLOSED
HV-MOV-100B	CLOSED
HV-MOV-100C	CLOSED
HV-MOV-100D	CLOSED
HV-MOV-101	CLOSED
HV-MOV-102	CLOSED

4. Variable B-14, "Containment Isolation Valve Position" (continued)

Loop Fill Header

VALVE

STATUS DURING ACCIDENT

Note: This valve does not use a open/closed limit switch for valve position indication. The Control Room operator is provided with a percent open indicator instead.

CH-FCV-1160

CLOSED

Containment Vacuum Air Ejector Suction

VALVE

STATUS DURING ACCIDENT

CV-TV-100

CLOSED

Attachment 2

North Anna Power Station Units 1 and 2

Regulatory Guide 1.97 Variables
Status of Engineering Project

Status of Engineering Project

1. Inside Recirculation Spray Flow and Service Water Flow Transmitter Replacement

This design change is the result of the 1991 RG 1.97 review process. The design change will replace non-environmentally qualified transmitters with Equipment Qualified (EQ) transmitters.

These packages are being developed and will be implemented by the end of each refueling outage for operating cycle 10 for North Anna Units 1 and 2. These outages are currently scheduled for 1994 and 1995 for North Anna Units 1 and 2, respectively.