

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

May 20, 2010

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 10-236A
NL&OS/ETS R0
Docket Nos. 50-338/339
License Nos. NPF-4/7

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2
REVISED PUMP RELIEF REQUEST P-1
FOURTH INTERVAL INSERVICE TESTING PROGRAM PLAN

In a November 24, 2009 letter (Serial No. 09-715), Dominion submitted the Fourth Interval Inservice Testing (IST) Program Plans for North Anna Power Station Units 1 and 2. Pursuant to 10 CFR 50.55a(f)(4)(ii), the IST programs were updated to comply with the ASME Code for Operations and Maintenance of Nuclear Power Plants 2004 Edition. The attachments to that letter included the IST Program Plans, which described the programmatic aspects of the IST programs, and included the associated proposed alternatives and relief requests for the fourth interval. In an April 6, 2010 e-mail from Dr. V. Sreenivas, the NRC requested additional information (RAI) to complete the review of the proposed alternatives and relief requests. Dominion responded to the RAI in a letter dated April 27, 2010 (Serial No. 10-236).

In a phone call with the NRC on April 8, 2010 to clarify the RAI, Dominion agreed to revise and resubmit Pump Relief Request P-1 for both North Anna Units 1 and 2. The attachment to this letter provides the revised Pump Relief Request P-1 for North Anna Units 1 and 2. As requested in the RAI, Dominion has verified that each pump listed in revised Relief Request P-1 has at least one reference value less than 0.05 inches per second (ips).

The fourth IST interval will begin on December 15, 2010 and North Anna Units 1 and 2 will begin implementation of the plans on that date. Therefore, Dominion continues to request review and approval of the relief requests by December 1, 2010.

If you have any questions or require additional information, please contact Mr. Thomas Shaub at (804) 273-2763.

Sincerely,



Leslie N. Hartz
Vice President – Nuclear Support Services

Commitments made in this letter: None

Attachment: Revised Pump Relief Request P-1 for North Anna Units 1 and 2

cc: U.S. Nuclear Regulatory Commission
Region II
Marquis One Tower
245 Peachtree Center Avenue, NE
Suite 1200
Atlanta, Georgia 30303-1257

Mr. J. E. Reasor, Jr.
Old Dominion Electric Cooperative
Innsbrook Corporate Center
4201 Dominion Blvd.
Suite 300
Glen Allen, Virginia 23060

NRC Senior Resident Inspector
North Anna Power Station

Ms. K. R. Cotton
NRC Project Manager
U. S. Nuclear Regulatory Commission
One White Flint North
Mail Stop O-8 G9A
11555 Rockville Pike
Rockville, Maryland 20852

Dr. V. Sreenivas
NRC Project Manager
U. S. Nuclear Regulatory Commission
One White Flint North
Mail Stop O-8 G9A
11555 Rockville Pike
Rockville, Maryland 20852

Attachment

**REVISED PUMP RELIEF REQUEST P-1
FOR NORTH ANNA UNITS 1 AND 2**

**North Anna Power Station
Virginia Electric and Power Company
(Dominion)**

RELIEF REQUEST P-1 North Anna Unit 1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i)
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Refer to Table P-1

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition

3.0 Applicable Code Requirements

ISTB-3300, "Reference Values"

ISTB-3300(a) requires that initial reference values shall be determined from the results of testing meeting the requirements of ISTB-3100, "Preservice Testing," or from the results of the first inservice test.

ISTB-3300(d) requires that reference values shall be established at a point(s) of operation (reference point) readily duplicated during subsequent tests.

ISTB-3300(f) requires that all subsequent test results shall be compared to these initial reference values or to new reference values established in accordance with ISTB-3310, ISTB-3320, or ISTB-6200(c).

ISTB-5120, "Inservice Testing" (Centrifugal Pumps, Except Vertical Line Shaft Centrifugal Pumps)

ISTB-5121(e) and ISTB-5123(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5121-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5121-1. For example, if vibration exceeds either $6V_r$, or 0.7 in/sec, the pump is in the required action range.

RELIEF REQUEST P-1 (Cont.)

ISTB-5220, "Inservice Testing" (Vertical Line Shaft Centrifugal Pumps)

ISTB-5221(e) and ISTB-5223(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5221-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5221-1.

Note: There are no ASME Code Classed positive displacement pumps in the North Anna IST Program.

4.0 Reason for Request

The pumps listed in Table P-1 tend to be smooth running pumps. Each pump listed in Table P-1 has at least one vibration reference value (V_r) that is currently less than 0.05 inches per second (ips). Small values for V_r produce small acceptable ranges for pump operation. The acceptable ranges are defined in Tables ISTB-5121-1 and ISTB-5221-1 as less than or equal to $2.5V_r$. Based on a small acceptable range, a smooth running pump could be subject to unnecessary corrective action if the measured vibration parameter exceeds this acceptable range.

For very small reference values, hydraulic noise and instrument error can be a significant portion of the reading and affect the repeatability of subsequent measurements. Also, experience gathered from the North Anna preventive maintenance program has shown that changes in vibration levels in the range of 0.05 ips do not normally indicate significant degradation in pump performance.

To avoid unnecessary corrective action, a minimum value for V_r of 0.05 ips has been established for velocity measurements. This minimum value will be applied to individual vibration locations for the pumps listed in Table P-1 where the measured reference value is less than 0.05 ips.

When new reference values are established per ISTB-3310, ISTB-3320 or ISTB-6200(c), the measured parameters will be evaluated for each location to determine if the provisions of this relief request still apply.

In addition to the requirements of ISTB, the pumps in the ASME Inservice Testing Program are included in the North Anna Predictive Maintenance Program. The North Anna Predictive Maintenance Program currently employs predictive monitoring techniques such as:

RELIEF REQUEST P-1 (Cont.)

- vibration monitoring and analysis beyond that required by ISTB,
- oil sampling and analysis where applicable (e.g., for pumps with sufficiently large oil reservoirs).

If the measured parameters are outside the normal operating range or are determined by analysis to be trending toward an unacceptable degraded state, appropriate actions are taken that may include:

- increased monitoring to establish rate of change,
- review of component specific information to identify cause, and
- removal of the pump from service to perform maintenance.

It should be noted that all of the pumps in the IST Program will remain in the Predictive Maintenance Program even if certain pumps have very low vibration readings and are considered to be smooth running pumps. This alternative to the requirements of ISTB-3300, ISTB-5120 and ISTB-5220, and Table ISTB-5121-1 and Table ISTB-5221-1 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Basis for Use

For the pumps listed in Table P-1, if a measured reference value is below 0.05 ips for a particular vibration measurement location, then subsequent test results for that location may be compared to an acceptable range based on 0.05 ips. In addition to the Code requirements, all pumps in the IST Program are included in and will remain in the North Anna Predictive Maintenance Program regardless of their smooth running status.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3300, ISTB-5120 and ISTB-5220, and Table ISTB-5121-1 and Table ISTB-5221-1 will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(a)(3)(i), Relief Request P-1 requests relief from the specific ISTB requirements identified in this request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-1 will be used for the North Anna Power Station Unit 1 Fourth Ten Year Inservice Testing Interval.

RELIEF REQUEST P-1 (Cont.)

7.0 Precedents

A similar relief request for the North Anna Unit 1 Third Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "North Anna Power Station, Units Nos.1 and 2 Re: Inservice testing Program for Pumps and Valves, Third Ten Year Interval Update (TAC NOS. MB2221 and MB2222)" dated January 28, 2002.

The following relief requests for other plants that are similar to P-1 were approved by the NRC.

Pump Relief Request PRR8 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131).

Pump Relief Request PRR8 for Beaver Valley 2 was approved by the NRC by letter dated 2/14/2008 (TAC NOS. MD5595 – MD5604).

8.0 References

1. ASME OM Code, 2004 Edition

RELIEF REQUEST P-1 (Cont.)

Table P-1

Pump Groups	System	Code Class	OM Group	Description	Pump Type	Pump Speed (rpm)
1-CC-P-1A 1-CC-P-1B	Component Cooling	3	A	Component Cooling Water Pumps	Centrifugal	1170
1-CH-P-1A 1-CH-P-1C	Chemical and Volume Control/ Safety Injection Volume Control	2	A	High Head Safety Injection/Charging Pump	Centrifugal	4820
1-CH-P-2A 1-CH-P-2B	Chemical and Volume Control	2	A	Boric Acid Transfer Pumps	Centrifugal	3500
1-FW-P-3A	Feedwater	3	B	Motor Driven Auxiliary Feedwater Pumps	Centrifugal	3560
1-HV-P-20A 1-HV-P-20B	Heating and Ventilation	3	A	Control and Relay Room Chilled Water Pumps	Centrifugal	3560
1-HV-P-22A 1-HV-P-22B 1-HV-P-22C	Heating and Ventilation	3	A	Control and Relay Room Condenser Water Pumps	Centrifugal	1760
1-RH-P-1B	Residual Heat Removal	2	A	Residual Heat Removal Pumps	Centrifugal	1780
1-RS-P-3A	Recirculation Spray	3	B	Casing Cooling Pump	Centrifugal	1780
1-SW-P-1B	Service Water	3	A	Main Service Water Pump	Centrifugal	1180

RELIEF REQUEST P-1 NORTH ANNA UNIT 2

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i)
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Refer to Table P-1

4.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition

5.0 Applicable Code Requirements

ISTB-3300, "Reference Values"

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ISTB-5121(e) and ISTB-5123(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5121-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5121-1. For example, if vibration exceeds either 6Vr, or 0.7 in/sec, the pump is in the required action range.

RELIEF REQUEST P-1 (Cont.)

ISTB-5220, "Inservice Testing" (Vertical Line Shaft Centrifugal Pumps)

ISTB-5221(e) and ISTB-5223(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5221-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5221-1.

Note: There are no ASME Code Classed positive displacement pumps in the North Anna IST Program.

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7.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-1 will be used for the North Anna Power Station Unit 2 Fourth Ten Year Inservice Testing Interval.

RELIEF REQUEST P-1 (Cont.)

7.0 Precedents

A similar relief request for the North Anna Unit 2 Third Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "North Anna Power Station, Units Nos.1 and 2 Re: Inservice testing Program for Pumps and Valves, Third Ten Year Interval Update (TAC NOS. MB2221 and MB2222)" dated January 28, 2002.

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8.0 References

1. ASME OM Code, 2004 Edition

RELIEF REQUEST P-1 (Cont.)

Table P-1

Pump Number	System	Code Class	OM Group	Description	Pump Type	Pump Speed (rpm)
1-CH-P-2C 1-CH-P-2D	Chemical and Volume Control	2	A	Boric Acid Transfer Pumps	Centrifugal	3500
2-CC-P-1A 2-CC-P-1B	Component Cooling	3	A	Component Cooling Water Pumps	Centrifugal	1170
2-CH-P-1B	Safety Injection/ Chemical and Volume Control	2	A	High Head Safety Injection/Charging Pump	Centrifugal	4820
2-HV-P-20A 2-HV-P-20B 2-HV-P-20C	Heating and Ventilation	3	A	Control and Relay Room Chilled Water Pumps	Centrifugal	3560
2-HV-P-22A 2-HV-P-22B 2-HV-P-22C	Heating and Ventilation	3	A	Control and Relay Room Condenser Water Pumps	Centrifugal	1760
2-QS-P-1A	Quench Spray	2	B	Quench Spray Pumps	Centrifugal	1780
2-RH-P-1A 2-RH-P-1B	Residual Heat Removal	2	A	Residual Heat Removal Pumps	Centrifugal	1780
2-RS-P-3A 2-RS-P-3B	Recirculation Spray	3	B	Casing Cooling Pump	Centrifugal	1780
2-SW-P-1B	Service Water	3	A	Main Service Water Pump	Centrifugal	1180