VIRGINIA ELECTRIC AND POWER COMPANY RICHMOND, VIRGINIA 23261

August 20, 1999

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

Serial No. 99-169A NL&OS/ETS R0 Docket No. 50-338 License No. NPF-4

Gentlemen:

## VIRGINIA ELECTRIC AND POWER COMPANY NORTH ANNA POWER STATION UNIT 1 THIRD TEN YEAR INSERVICE INSPECTION PROGRAM REVISED PROGRAM AND RELIEF REQUESTS

In a letter dated April 8, 1999 (Serial No. 99-169) Virginia Electric and Power Company submitted the inservice inspection (ISI) program for the third ten-year inservice inspection interval for North Anna Unit 1 for Class 1, 2 and 3 components and component supports. This program was written in accordance with the requirements of the 1989 Edition of Section XI of the ASME Boiler and Pressure Vessel Code. Since the initial program submittal, we have reevaluated and revised a portion of the program including two of the associated relief requests submitted with the program. Thus, please replace those pages from our initial ISI program submittal, dated April 8, 1999, with the corresponding revised ISI program pages and relief request. The revised pages are included as an attachment to this letter.

The revised relief requests have been reviewed and approved by the Station Nuclear Safety and Operation Committee.

If you need any additional information, please contact us.

Very truly yours,

Leslie N. Hartz Vice President - Nuclear Engineering and Services

Commitments made in this letter:

There are no new commitments in this letter.

Attachments

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U.S. Nuclear Regulatory Commission Region II Atlanta Federal Center 61 Forsyth Street, SW Suite 23T85 Atlanta, Georgia 30303

Mr. M. J. Morgan NRC Senior Resident Inspector North Anna Power Station

Mr. M. Grace Authorized Nuclear Inspector North Anna Power Station

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# Attachment 1

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North Anna Power Station Unit 1 Revised Inservice Inspection Program and Relief Requests

Virginia Electric and Power Company

### Virginia Electric and Power Company North Anna Power Station Unit 1 Third Ten Year Interval

#### RELIEF REQUEST NDE-2

### I. Identification of Components:

Systems: Safety Injection Pumps (1-SI-P-1A and 1-SI-P-1B).

Components: Pump casing welds identified below:

Component	Drawing No.	Weld 1	No.
1-SI-P-1A	11715-WMKS-SI-P-1A	1	
1-SI-P-1A	11715-WMKS-SI-P-1A	2	
1-SI-P-1A	11715-WMKS-SI-P-1A	3	
1-SI-P-1A	11715-WMKS-SI-P-1A	LS-1	
1-SI-P-1A	11715-WMKS-SI-P-1A	LS-2	
1-SI-P-1A	11715-WMKS-SI-P-1A	LS-3	
1-SI-P-1A	11715-WMKS-SI-P-1A	LS-4	(Partial
1-SI-P-1A	11715-WMKS-SI-P-1A	LS-5 1	Access)
1-SI-P-1B	11715-WMKS-SI-P-1B	1	
1-SI-P-1B	11715-WMKS-SI-P-1B	2	
1-SI-P-1B	11715-WMKS-SI-P-1B	3	
1-SI-P-1B	11715-WMKS-SI-P-1B	LS-1	
1-SI-P-1B	11715-WMKS-SI-P-1B	LS-2	
1-SI-P-1B	11715-WMKS-SI-P-1B	LS-3	
1-SI-P-1B	11715-WMKS-SI-P-1B	LS-4	(Partial
1-SI-P-1B	11715-WMKS-SI-P-1B	LS-5 1	Access)

#### II. Code Requirements:

Section XI of the ASME Boiler and Pressure Vessel Code, 1999 Edition, Category C-G, Item Number C6.10, requires that a surface examination be performed on 100% of the welds each inspection interval. Code Case N-460, Alternate Examination Coverage for Class 1 and Class 2 welds, allows a reduction in coverage, if it is less than 10%. The examination can be limited to one pump in the case of multiple pumps of similar design, size, function, and service in a system. The examination may be performed from either the inside or outside surface of the component.

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### RELIEF REQUEST NDE-2 CONTINUED

#### III. Basis for Relief:

Each of the two safety injection pump casings has a total of five circumferential welds and five longitudinal welds. Three of the circumferential welds (1, 2 and 3), and three of the longitudinal welds (LS-1, LS-2 and LS-3) are completely encased in concrete and are not accessible for examination from the outside diameter (O.D.). Of the remaining two longitudinal welds, one weld is partially encased in concrete (LS-4) and one weld is partially covered by a vibration plate (LS-5). Partial O.D. examinations can be performed on both of these longitudinal welds. Two circumferential welds are completely accessible for examinations from the O.D. Surface examinations from the Inside Diameter (I.D.) are not a practicable alternative. Access to the inside of the pump casings is limited by physical size (24 inch outside diameter), the pump shaft, and the pump shaft support obstructions. Disassembly of the pump and removal of the pump shaft would cause a burden without a compensating increase in quality and safety.

### IV. Proposed Alternate Examination:

A surface examination of the accessible portions of the circumferential and longitudinal welds will be performed to the extent and frequency described in Table IWC-2500-1. A remote visual examination (VT-1) of the I.D. of the pump casing welds will be performed only if the pump is disassembled for maintenance, and the pump shaft is removed.

The proposed alternative examinations stated above will ensure that the overall level of plant quality and safety will not be compromised. CN-2

### Virginia Electric and Power Company North Anna Power Station Unit 1 Third Inspection Interval

### RELIEF REQUEST SPT-4

#### I. IDENTIFICATION OF COMPONENTS

Approximately 20, small diameter ( $\leq 1$  inch), Class 1, reactor coolant system (RCS) pressure boundary vent and drain, sample, and instrumentation connections.

### II. IMPRACTICABLE CODE REQUIREMENTS

Section XI Examination Category B-P, Items B15.51 and B15.71 require system hydrostatic testing and associated VT-2 visual examination of all Class 1 pressure retaining piping and valves.

### III. ISI BASIS FOR RELIEF REQUEST

These piping segments are equipped with values, or value and flange, that provide for double isolation of the reactor coolant system (RCS) pressure boundary. These components are generally maintained closed during normal operation and the piping outboard of the first isolation value is, therefore, not normally pressurized. The proposed alternative provides an acceptable level of safety and quality based on the following:

- 1. ASME Section XI Code, paragraph IWA-4700, provides the requirements for hydrostatic pressure testing of piping and components after repairs by welding to the pressure boundary. IWA-4700(b)(5) excludes component connections, piping, and associated valves that are 1 inch nominal pipe size and smaller from the hydrostatic test. Consequently, hydrostatic testing and the associated visual examination of these < 1 inch diameter RCS vent/drain/sampling connections once each 10-year interval is unwarranted considering that a repair weld on the same connections is exempted by the ASME XI Code.</p>
- The non-isolable portion of the RCS vent and drain connections will be pressurized and visually examined as required. Only the isolable portion of these small diameter vent and drain connections will not be pressurized.

CN-Z

RELIEF REQUEST SPT-4 Continued

3. All piping connections are typically socket-welded, and the welds received a surface examination after installation. The piping and valves are nominally heavy wall (schedule 160 pipe and 1500# valve bodies). The piping and valve/flanges are toward the free end of a cantilever configuration (stub end isolated by either a valve or a flange). There is no brace or support for this portion of the pipe. Consequently, this portion does not experience any thermal loading. This portion of the line is isolated during normal operation and does not experience pressure loading unless there is a leak at the first isolation valve. The valves do not have an extended operator, so the rotational accelerations at the valve do not produce significant stress. Since the lines are designed to the Code, the stresses toward the free end of the cantilever due to other types of loading are only a small fraction of the applicable Code allowable. As a result, this portion of the lines is not subjected to high stress or high intensity cyclic loading.

The Technical Specifications (TS) require RCS leakage monitoring (TS 4.4.6.2.1) during normal operation. Should any of the TS limits be exceeded, then appropriate corrective actions, which may include shutting the plant down, are required to identify the source of the leakage and restore the RCS boundary integrity.

During the 1998 North Anna Unit 1 refueling outage similar piping segments were pressurized by removing a flange and connecting a test rig. A majority of these piping segments are located in close proximity to the RCS main loop piping thus requiring personnel entry into high radiation areas within the containment. The dose associated with this testing was 1.5 man-Rem.

IV. ALTERNATE PROVISIONS

As an alternative to the Code required hydrostatic test of the subject Class 1 reactor coolant system pressure boundary connections the following is proposed:

 The RCS vent, drain, instrumentation, and sample connections will be visually examined for leakage, and any evidence of past leakage, with the isolation valves in the normally closed position each refueling outage CN-Z

RELIEF REQUEST SPT-4 Continued

during the ASME XI Class 1 System Leakage Test (IWB-5221).

2. The RCS vent, drain, instrumentation, and sample connections will also be visually examined with the isolation valves in the normally closed position during the 10-year ISI pressure test (IWB-5222 and Code Case N-498-1). This examination will be performed with the RCS at nominal operating pressure and at near operating temperature after satisfying the required 4-hour hold time.

In addition, during modes 1 through 4 the RCS will be monitored for leakage at the following frequency pursuant to TS requirements:

- Every 72 hours, during steady state operation, the reactor coolant system leak rate will be monitored to assure the limit of one gallon per minute unidentified leakage is maintained.
- 2. Every 12 hours the containment atmosphere particulate radioactivity will be monitored.

The proposed alternative stated above will ensure that the overall level of plant quality and safety will not be compromised.

### V. IMPLEMENTATION SCHEDULE

This alternative to Code requirements will be implemented upon receiving NRC approval for the remainder of the third ten-year inspection interval.

By a letter dated September 3, 1998 the NRC approved a similar relief request for the Edwin I. Hatch Plant, Units 1 and 2.

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