

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

February 5, 1999

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

Serial No. 99-006
NL&OSETS R1
Docket Nos. 50-338
50-339
License Nos. NPF-4
NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNITS 1 AND 2
PROPOSED TECHNICAL SPECIFICATION CHANGE
ALLOWED OUTAGE TIME FOR PORV NITROGEN ACCUMULATOR
AND SEPARATE ACTIONS FOR PORV OPERABILITY
REQUEST FOR ADDITIONAL INFORMATION

In a letter dated October 25, 1995 (Serial No. 95-498), Virginia Electric and Power Company requested amendments, in the form of changes to the Technical Specifications and to Facility Operating License Numbers NPF-4 and NPF-7 for North Anna Power Station Units 1 and 2, respectively. The proposed changes would establish an allowed outage time for the nitrogen accumulators and separate actions for the power-operated relief valves (PORV). In a December 17, 1998 telephone conference call, the NRC staff requested additional information about the risk-basis of the nitrogen accumulator action statement to complete their review of the proposed Technical Specifications changes. The response to these questions is provided in Attachment 1 to this letter.

This action statement for the nitrogen accumulators for the PORVs was supported with both deterministic and risk insights as described in the October 25, 1995 submittal. However, at that time, the NRC had not finalized their position on risk-informed Technical Specifications and did not require the implementation of a risk management process for risk-informed Technical Specifications. Since that time, Virginia Electric and Power Company has received approval of a risk-informed action statement for the emergency diesel generators. As part of that amendment, a Configuration Risk Management Program (CRMP) was incorporated into the Administrative Control Section of Technical Specifications, the action statement was annotated to identify it as "risk-informed," and the basis was modified to address risk management. For consistency in the implementation of risk-informed Technical Specifications, similar risk-informed annotation and discussion is being proposed for the action statement associated with the backup nitrogen accumulator for the pressurizer power operated relief valves (PORV).

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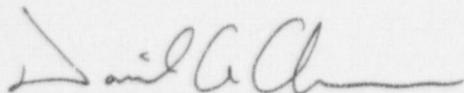
Therefore, pursuant to 10 CFR 50.90, Virginia Electric and Power Company requests additional changes to Technical Specifications to supplement the changes requested in the October 25, 1995 submittal. These proposed supplemental changes will identify that the proposed 14-day action statement for the backup nitrogen accumulators is "risk-informed" and the basis will address invoking the CRMP when using/entering the action statement. The discussion of the proposed changes is provided in Attachment 2.

The proposed supplemental Technical Specifications changes have been reviewed and approved by the Station Nuclear Safety and Operating Committee and the Management Safety Review Committee. It has been determined that the proposed Technical Specifications changes do not involve an unreviewed safety question as defined in 10 CFR 50.59 or a significant hazards consideration as defined in 10 CFR 50.92. The proposed supplemental Technical Specifications changes are provided as a mark-up on the October 25, 1995 proposed Technical Specifications pages. A Technical Specification amendment has been approved by the NRC since the October 25, 1995 submittal that has affected some of the Technical Specifications pages associated with the proposed changes. Therefore, the original Technical Specifications changes, including the proposed supplement, are provided in Attachment 4. Please use these pages to complete your review of the proposed Technical Specifications changes.

The basis for our determination that these changes do not involve a significant hazards consideration provided in the October 25, 1995 submittal remains valid since these changes are administrative in nature.

If you have any further questions, please contact us.

Very truly yours,



D. A. Christian
Vice President - Nuclear Operations

Commitments made in this letter:

1. The Configuration Risk Management Program (CRMP) will be invoked when the fourteen day risk-informed allowed outage time for the nitrogen backup supply for the PORVs is used/entered.

Attachments

cc: U.S. Nuclear Regulatory Commission
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Mr. M. J. Morgan
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North Anna Power Station

Commissioner
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Attachment 1

**PROPOSED TECHNICAL SPECIFICATION CHANGE
ALLOWED OUTAGE TIME FOR PORV NITROGEN ACCUMULATOR
AND SEPARATE ACTIONS FOR PORV OPERABILITY
REQUEST FOR ADDITIONAL INFORMATION**

**North Anna Power Station
Units 1 and 2
Virginia Electric and Power Company**

Response to NRC Request for Additional Information

Operating Experience of Power-Operated Relief Valves (PORV)

1. Provide the power-operated relief valves (PORV) reliability and unavailability data for the last 5 years.

Response:

Pressurizer PORV unavailability data for both North Anna units are provided in Table 1. The hours shown for each month are the cumulative total for the previous twelve months. The significant PORV unavailability during this time has been due to leakage. Reliability data for the PORVs are provided in Table 3.

2. Discuss and/or provide the data associated with the reliability and unavailability of Instrument Air.

Response:

Instrument Air unavailability for both North Anna units are provided in Table 1. Reliability data for the instrument air system are provided in Table 3.

3. Provide the incidents that required the use of the AOT due to inoperable backup motive power (last 5 years).

Response:

The unavailability of the Nitrogen accumulator tanks and pressure control valves is tracked as part of the maintenance rule program. Table 2 shows that the components have not been out of service during period from February 1995 to the present.

4. Provide the number of loss of offsite power events/SGTR events.

Response:

There has been no loss of offsite power events at either unit of North Anna as documented in Reference 3. There has been one steam generator tube rupture and one steam generator tube leak at North Anna as documented in Reference 4. It should be noted that both of these events occurred before the steam generators were replaced at North Anna. Performance with the inconel tube, Type-F, steam generators has been excellent.

5. Provide the number of events that required the operators to use the backup motive power.

Response:

It is not possible to respond to this question without a detailed review of licensee event reports, which would require a substantial effort. Reference 4, Table D-5, indicates that there has been no loss of instrument air events at North Anna during the 1985 to 1996 period. Therefore, it can be concluded that since the instrument air system reliability has been good the backup motive power source has rarely been required to respond to initiating events.

Configuration Control/Maintenance Rule

1. Provide a discussion on the PORV reliability and unavailability within your maintenance rule implementation.

Response:

The pressurizer PORVs are within the scope of the maintenance rule for North Anna. The nitrogen supply to the pressurizer PORVs is also included within the scope of the maintenance rule for North Anna. The PORVs have been assigned the following performance criteria:

- 36 hours per valve per year (includes time PORV is isolated with the MOV)
- One maintenance preventable functional failure (MPFF) of either functional equipment group (FEG) per PORV per two years. Failures include failure of the PORV to open automatically or the MOV to open and does not include failures during NDT protection.

The nitrogen supply system has the following performance criteria:

- 36 hours per RCS PORV per year and 1 MPFF per PORV (failure to supply adequate Nitrogen pressure – two years)

3. Provide a discussion on the need for an appropriate control of plant activities to avoid potential high risk configurations during the proposed AOT.

Response:

The evaluation of configuration risk at Virginia Power is governed by an administrative procedure that requires the use of an on-line maintenance matrix to evaluate the removal of risk significant equipment from service as part of the work planning process. The matrix also treats emergent work. Since the pressure control valves and the accumulator tanks are risk significant this equipment would not be removed from service during power operation without doing a PRA evaluation.

NRC evaluated the current approach to configuration risk management during an inspection in November 1997. With regard to this area of the maintenance rule the inspection report cited below commented that "The licensee had effectively implemented a comprehensive process for performing safety assessments for on-line maintenance activities." Consistent with our implementation of the Emergency Diesel Generator risk-informed allowed outage time, the Configuration Risk Management Program (CRMP) will be invoked when the fourteen day risk-informed allowed outage time for the nitrogen backup supply for the PORVs is used.

PRA/Risk

1. What would be the expected annual unavailability for backup motive power given the new 14-day AOT? Please provide a brief discussion on the basis to your response.

Response:

The annual unavailability of risk significant components within the scope of the maintenance rule is controlled by the performance criterion. As stated above the current unavailability performance criterion for the backup motive power is 36 hours per tank per year. As of December 15, 1998 neither train of backup motive power had been out of service during the year. Thus, it is concluded based on planned usage (the performance criterion) and actual usage (the actual unavailability) that there would be little change in the expected annual unavailability for backup motive power.

2. A discussion that the risk impact of the proposed change in terms of the total plant CDF (core damage frequency)/LERF (large early release frequency) would be negligible.

Response:

The risk impact of the proposed change has been evaluated using the calculation module of WinNUPRAtm (see Reference). The calculation module was used to quantify the existing cut set equation with revised basic event probabilities for the unavailability of the accumulators. The table below provides the results of the calculation.

Sensitivity	CDF/year	Δ CDF/year	LERF/year	Δ LERF/year
0 hours	4.049E-5	-	5.492E-6	-
36 hours	4.052E-5	3E-08	5.540E-6	5E-08
7 days	4.060E-5	1E-07	5.594E-6	1E-07
14 days	4.071E-5	2E-07	5.696E-6	2E-07

As the above table indicates the change in risk is small for the proposed ACT even assuming an average of 14 days of unavailability per year. It is concluded that this change meets the acceptance guidelines in Section 2.2.4 of RG 1.174.

References

- 1 NRC Inspection Report Nos. 50-338/97-08 and 50-339/97-08, November 24, 1997.
- 2 WinNUPRAtm User's Manual, Version 1.11, May 1998.
- 3 Evaluation of Loss of Offsite Power Events at Nuclear Power Plants: 1980 – 1996, Table C-5.
- 4 Rates of Initiating Events at U.S. Commercial Nuclear Power Plants 1987 through 1995, Table D-10.

12/22/98

Table 1
North Anna Unavailability 24 Month Trend 01/94 to 01/96

Component Information			Date / Unavailability Trending Data												
Mark Number	System	Function	Criteria	Report Date = 01/95											
				01/94	02/94	03/94	04/94	05/94	06/94	07/94	08/94	09/94	10/94	11/94	12/94
				01/95	02/95	03/95	04/95	05/95	06/95	07/95	08/95	09/95	10/95	11/95	12/95
1-IA-C-1	IA	IA004	175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-IA-C-1	IA	IA004	175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-RC-PCV-1455C	RC	RC002	36	0.0	0.6	0.8	0.8	0.9	6.5	6.7	7.3	7.9	8.3	12.4	12.4
1-RC-PCV-1456	RC	RC002	36	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.3	42.6	42.8	46.9	46.9
2-RC-PCV-2455C	RC	RC002	36	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.6	0.6	0.6	0.8	1.1
2-RC-PCV-2456	RC	RC002	36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.5

12/22/98

North Anna Unavailability 24 Month Trend 01/96 to 01/98

Component Information			Date / Unavailability Trending Data												
Mark Number	System	Function	Criteria	Report Date = 01/97											
				01/96	02/96	03/96	04/96	05/96	06/96	07/96	08/96	09/96	10/96	11/96	12/96
				01/97	02/97	03/97	04/97	05/97	06/97	07/97	08/97	09/97	10/97	11/97	12/97
1-IA-C-1	IA	IA004	175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5	15.5	15.5	15.5
2-IA-C-1	IA	IA004	175	0.0	0.0	0.0	0.0	47.0	47.0	47.0	47.0	47.0	64.0	64.0	64.0
1-RC-PCV-1455C	RC	RC002	36	6.9	6.9	6.6	7.0	6.9	6.9	6.9	7.3	5.3	5.4	3.6	3.2
1-RC-PCV-1456	RC	RC002	36	1.2	1.2	1.1	1.2	1.0	1.0	1.0	1.2	1.2	1.3	1.4	1.3
2-RC-PCV-2455C	RC	RC002	36	3.4	3.3	3.5	3.1	3.1	3.1	3.4	4.0	2.7	2.5	2.3	2.1
2-RC-PCV-2456	RC	RC002	36	1.5	1.4	1.4	1.3	1.3	1.3	1.4	1.6	1.2	1.1	1.0	0.9

Table 3
Reliability Data for the Pressurizer PORVs and the Instrument Air System

DR #	Mark Number	DR Date	Description of Problem	Compl	Remarks	PFF	Func #	Sys
96-0663	1-IA -C -1	3/23/96	1-IA-C-1 Tripped on motor overload on 3/23/96 at 1625.	3/25/96	CLOSE TO RCE 96-0663 DUE TO TRAINING DEMANDS.	Y	IA004	IA
96-1005	1-IA -C -1	5/16/96	ON 5/16/96 AT 0449, 1-IA-C-1 tripped on 'cooling system fault.' upon investigation at 1-IA-C-1, the cooling skid pump (1-IA-P-1) was found tripped and had a burning smell.	5/16/96	Corrective maintenance was completed under WO #00341805-01&03. No additional actions are required at this time.	Y	IA004	IA
96-1391	2-IA-D-1	8/1/96	IA pressure dropped to approx. 80psi The instrument air dryer was blowing down.	11/7/96	A tubing line ruptured causing the air dryer to blowdown. The cause was due to overtorquing of the copper tubing fittings.	Y		IA
96-2008	2-IA-SOV-207A	9/21/93	IA tubing ruptured causing the air dryer to blowdown. IA pressure went approx 81 psi.	11/7/96	Tubing was overtorqued as in DR 96-1391. Tubing material was changed to SS to eliminate reoccurrence. Not placed in A-1.	Y		IA
97-0754	1-IA-C-1	3/26/97	Weld leak found on inlet piping to 1-IA-E-1B for 1-IA-C-1 on the SW side.	4/16/97	Leak was due to MIC which has already identified previously and the system is already in A-1 as result.	Y		IA
97-0758	1-IA-E-1B	3/27/97	Found thru-wall lead on water outlet piping of compressor.	4/16/97	Leak was due to MIC which has already identified previously and the system is already in A-1 as result.	Y		IA
97-1959	2-IA-C-1	6/27/97	Tripped on Hi HP inlet temp. Placed Coppus blower on compressor.	8/20/97	The failure was an MRFF/MPFF as we allowed the compressor to fail when indication of Hi temps known.	Y	IA004	IA
98-2988	1-IA-C-2A	9/23/98	"A" Containment IA compressor couldn't maintain pressure.	10/13/98	The failure is a FS & is an MRFF/MPFF.	Y	IA004	IA

Table 3 (Continued)
Reliability Data for the Pressurizer PORVs and the Instrument Air System

DR #	Mark	DR Date	Description of	Compl	Remarks	PFF	Func #	Sys
94-0730	2-RC -PCV -2456	6/2/94	0501, 2-RC-PCV-2456 failed 2-PT-212.30, stroked too slow.	6/2/94	Diaphragm was replaced although not a factor in this failure. stem was cleaned & lubed w/ neo-lube & proper valve operation was obtained. use of anti-seize to lube stem & packing has been stopped. this should preclude a recurrence of this failure.	Y	RC010	RC
94-0751	2-RC -PCV -2455C	6/5/94	2135, CYCLING 2-RC-PCV-2455C PER 2-OP-5.1, mid position was indicated on 'a' train limits with valve fully closed.	6/5/94	Corrective maintenance was completed under w.o. no further action required.	Y	RC010	RC
95-0451	2-RC -PCV -2456	3/27/95	AT 2350 ON 3/27/95, PORV-2456 FAILED CLOSED.	3/28/95	Extended from 4/18 (dwr). close to category 2 RCE 95-0451.	Y	RC002, RC006	RC
95-0516	2-RC -MOV -2536	3/31/95	2-RC-MOV-2536 motor went to locked-rotor (stall) while closing during votes testing. apparent cause is contactor stuck close in breaker cubicle. discovered on 3/31/95 at 1600.	4/3/95	E.T. SE 95-002, REV. 0, an engineering evaluation, provided the recommended corrective actions to return the mov to operable status. W.r. 030830 was written to remove the stem and penetrant test(pt) the valve stem. The actuator tear-down and inspection.	Y	RC002	RC
95-0945	2-RC -PCV -2455C	5/22/95	On 5/22/95 at 1526, attempted to cycle 2-rc-pcv-2455c via keyswitch. Valve did not change position.	5/23/95	PER WO #319082, the coil was replaced and the pcv will function properly. the alarms still come in sporadically and will be evaluated via task #2 of WO #319281.	Y	RC006	RC
95-1345	1-RC-PCV-1456	8/14/95	AT 0845 during lamp test for 1-pt-44.7, It was found that 'H' train of open (red) light for 1-RC-PCV-1456 would not light up.	8/15/95	The socket was removed and cleaned. New bulbs were installed. After it was reinstalled, it tested satisfactorily repeatedly. No further corrective actions are needed.	Y	RC010	RC

Attachment 2

**PROPOSED TECHNICAL SPECIFICATION CHANGE
RISK-INFORMED ALLOWED OUTAGE TIME
FOR PORV NITROGEN ACCUMULATOR**

Discussion of Supplemental Changes

**North Anna Power Station
Units 1 and 2
Virginia Electric and Power Company**

Discussion of Change

Introduction and Background

In an October 25, 1995 letter (Serial No. 95-498), Virginia Electric and Power Company requested changes to the Technical Specifications to provide a separate action statement for the inoperability of the backup nitrogen accumulator for the pressurizer power operated relief valves (PORV). This action statement was supported with both deterministic and risk insights as described in the October 25, 1995 submittal. However, at that time, the NRC had not finalized their position on risk-informed Technical Specifications and did not require the implementation of a risk management process for risk-informed Technical Specifications. Since that time, Virginia Electric and Power Company has received approval of a risk-informed action statement for the emergency diesel generators. As part of that amendment, a CRMP was incorporated into the Administrative Control Section of Technical Specifications, the action statement was annotated to identify it as "risk-informed," and the basis was changed to discuss the risk management aspects of the Technical Specifications. Consequently, for consistency in the implementation of risk-informed Technical Specifications, similar risk-informed annotation and discussion will be provided for the action for backup nitrogen accumulator for the pressurizer power operated relief valves (PORV) as well.

Therefore, pursuant to 10 CFR 50.90, Virginia Electric and Power Company requests additional changes to Technical Specifications to supplement the changes requested in the October 25, 1995 submittal. These proposed supplemental changes will identify that the proposed 14-day action statement for the backup nitrogen accumulators is "risk-informed" and will require invoking the configuration risk management program (CRMP) when using/entering the action statement.

These changes are administrative in nature and do not modify the plant or its operation in any way. Therefore, an unreviewed safety question is not created.

Background

Current Licensing Basis and Design Basis

The current licensing and design bases are described in the Discussion of Change provided in the October 25, 1995 submittal.

Specific Changes

The following changes supplement the changes proposed in the October 25, 1995 submittal:

- Proposed Action 3.4.3.2.A.2 for an inoperable backup nitrogen accumulator is being revised to include the term "**(Risk-informed)**" as an operator aid to implement the CRMP.
- The following sentence is being included in Basis Sections 3/4.4.2 and 3 to address the CRMP: "**A configuration risk management program (CRMP) defined in Administrative Control Section 6.8.4.g is implemented to evaluate risk associated with an inoperable backup nitrogen supply.**"
- The list of risk-informed Technical Specifications in Specification 6.8.4.g is being updated to include the proposed 14-day action statement for the backup nitrogen accumulators (3.4.3.2.A.2)

Safety Significance

These supplemental changes to the proposed Technical Specifications for the PORVs, submitted in our October 25, 1995 submittal, are administrative in nature. These supplemental proposed changes are to identify that the proposed 14-day action statement for the backup nitrogen accumulators is "risk-informed" and will require invoking the configuration risk management program (CRMP) when using/entering the action statement. Plant systems and their operation are not affected by this administrative change. Furthermore, the change does not affect the Chapter 15 accident analysis or the Environmental Protection Plan.

Since the operation of the plant and its systems are not being modified nor are operability requirements for any system or component being changed:

- There is no increase in the probability of occurrence for any accident or the consequences of any accident previously analyzed.
- The change does not create the possibility of any accident or malfunction of a different type.
- The margin of safety as defined in the basis of any Technical Specification is not decreased.

Therefore, there is no unreviewed safety question generated by this administrative change to the Technical Specifications.

Attachment 3

**PROPOSED TECHNICAL SPECIFICATION CHANGE
RISK-INFORMED ALLOWED OUTAGE TIME
FOR PORV NITROGEN ACCUMULATOR**

**Mark-up of Supplemental Changes
Identification of Risk-Informed Action Statement**

**North Anna Power Station
Units 1 and 2
Virginia Electric and Power Company**

Unit 1