

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

March 13, 2001

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

Serial No. 01-020B
NL&OS/GSS/ETS R0
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
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION AND
CLARIFICATION OF EXEMPTION REQUEST REGARDING
PROPOSED TECHNICAL SPECIFICATIONS CHANGES FOR
REACTOR COOLANT SYSTEM PRESSURE/TEMPERATURE LIMITS
LTOPS SETPOINTS, AND LTOPS ENABLE TEMPERATURES

In a letter dated June 22, 2000 (Serial No. 00-306) and supplemented January 4, 2001 (Serial No. 01-020) Virginia Electric and Power Company (Dominion) submitted a Technical Specification change request concerning the North Anna Units 1 and 2 RCS pressure/temperature (P/T) limits, low temperature overpressure protection system (LTOPS) setpoints, and LTOPS enable temperatures (T_{enable}). The Technical Specification change request was accompanied by a request for exemption from the requirements of 10 CFR 50 Appendix G to permit application of ASME Section XI Code Case N-640 to North Anna Units 1 and 2. In addition, an exemption to permit a plant-specific application of the analysis methodology that supports ASME Section XI Code Case N-514 to North Anna Units 1 and 2 was also requested.

During a March 1, 2001 telephone conference call, NRC staff noted that ASME Code Case N-641, ("Alternative Pressure-Temperature Relationship and Low Temperature Overpressure Protection System Requirements," dated January 17, 2000) administratively bundled Code Cases N-514 ("Low Temperature Overpressure Protection," dated February 12, 1992), N-588 ("Alternative to Reference Flaw Orientation of Appendix G for Circumferential Welds in Reactor Vessels," dated December 12, 1997), and N-640 ("Alternative Reference Fracture Toughness for Development of P-T Limit Curves," dated February 26, 1999). This bundling permits the NRC to approve exemptions for these three code cases with a single exemption for Code Case N-641. NRC staff indicated their preference for issuing a single exemption for Code Case N-641, instead of two separate exemptions for N-514 and N-640 as

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previously requested by Dominion. We support this proposal and hereby request that the NRC grant an exemption to the requirements of 10 CFR 50 Appendix G to permit application of the more recently issued ASME Code Case N-641 in lieu of the previously identified individual exemptions for ASME Code Case N-640 and for plant-specific application of the methodology supporting ASME Code Case N-514. This request is made with the understanding that the technical and licensing bases for the individual exemption requests previously provided in letters dated June 22, 2000 and January 4, 2001 remain valid and applicable to this revised exemption request without further justification.

During a separate teleconference on February 26, 2001, the NRC staff requested additional information regarding the vessel stresses associated with plant heatup and cooldown. The attachment to this letter provides the additional data requested to support NRC review of the Technical Specification change request submitted by letters dated June 22, 2000 and January 4, 2001. As we discussed in the telephone conference call of February 26, 2001, Westinghouse has indicated that the computer code used to calculate the P/T limits in our Technical Specification change request had an error that adversely affected the heatup curves. Westinghouse is in the process of modifying the computer code, and issuing corrected heatup curves applicable to North Anna Units 1 and 2. The revised heatup curves will be provided as a supplement to our Technical Specification change request when they become available.

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

Very truly yours,



William R. Matthews
Vice President - Nuclear Operations

Attachment

Commitments made in this letter:

1. The revised heatup curves will be provided as a supplement to our Technical Specification change request when they become available.

cc: U.S. Nuclear Regulatory Commission
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North Anna Power Station

Commissioner
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Attachment

**Stress Intensity Data for EOLE Heatup and Cooldown Curves
in WCAP-15112, Rev. 1**

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

TABLE 1
Data for 20°F/hr Heatup Curve

$\frac{1}{4} T_{RT_{NDT}} = 218.5^{\circ}F$		50.3 EFPY	$\frac{3}{4} T_{RT_{NDT}} = 195.6^{\circ}F$	
Water Temperature ($^{\circ}F$)	$\frac{1}{4}T$ Temperature ($^{\circ}F$)	$\frac{3}{4}T$ Temperature ($^{\circ}F$)	$\frac{1}{4}T$ Kit (KSI SQ. RT. IN.)	$\frac{3}{4}T$ Kit (KSI SQ. RT. IN.)
75	72.63	70.92	-1.04	0.70
80	77.11	73.83	-1.73	1.32
85	81.52	77.97	-1.92	1.44
90	86.45	82.49	-2.10	1.60
95	91.28	87.30	-2.13	1.62
100	96.27	92.17	-2.19	1.66
105	101.21	97.11	-2.19	1.67
110	106.21	102.06	-2.23	1.69
115	111.18	107.02	-2.22	1.69
120	116.18	111.99	-2.25	1.70
125	121.16	116.96	-2.24	1.71
130	126.15	121.94	-2.26	1.72
135	131.13	126.91	-2.27	1.72
140	136.12	131.88	-2.28	1.73
145	141.11	136.85	-2.29	1.74
150	146.09	141.83	-2.30	1.75
155	151.08	146.80	-2.31	1.75
160	156.06	151.77	-2.32	1.76
165	161.06	156.74	-2.33	1.77
170	166.04	161.72	-2.34	1.78
175	171.03	166.69	-2.35	1.78
180	176.01	171.66	-2.36	1.79
185	181.00	176.63	-2.37	1.80
190	185.99	181.60	-2.38	1.81
195	190.98	186.58	-2.39	1.81
200	195.96	191.55	-2.40	1.82
205	200.95	196.52	-2.41	1.83
210	205.93	201.49	-2.42	1.84
215	210.92	206.46	-2.43	1.84
220	215.91	211.44	-2.44	1.85
225	220.90	216.41	-2.45	1.86
230	225.88	221.38	-2.46	1.87
235	230.87	226.35	-2.47	1.87
240	235.85	231.32	-2.48	1.88
245	240.84	236.30	-2.49	1.89
250	245.83	241.27	-2.50	1.90
255	250.81	246.24	-2.51	1.90
260	255.80	251.21	-2.52	1.91
265	260.79	256.18	-2.53	1.92
270	265.77	261.15	-2.54	1.93
275	270.76	266.12	-2.55	1.94
280	275.74	271.10	-2.56	1.94
285	280.73	276.07	-2.57	1.95
290	285.72	281.04	-2.58	1.96
295	290.71	286.01	-2.59	1.97

TABLE 2
Data for 40°F/hr Heatup Curve

$\frac{1}{4} T_{RT_{NDT}} = 218.5^{\circ}F$		50.3 EFPY	$\frac{3}{4} T_{RT_{NDT}} = 195.6^{\circ}F$	
Water Temperature ($^{\circ}F$)	$\frac{1}{4}T$ Temperature ($^{\circ}F$)	$\frac{3}{4}T$ Temperature ($^{\circ}F$)	$\frac{1}{4}T$ Kit (KSI SQ. RT. IN.)	$\frac{3}{4}T$ Kit (KSI SQ. RT. IN.)
75	71.99	70.38	-1.09	0.67
80	75.83	71.88	-2.21	1.59
85	79.71	74.55	-2.82	2.09
90	84.06	77.92	-3.34	2.48
95	88.55	81.78	-3.64	2.74
100	93.21	85.99	-3.89	2.93
105	97.97	90.42	-4.04	3.06
110	102.78	95.01	-4.18	3.16
115	107.66	99.72	-4.25	3.23
120	112.56	104.50	-4.33	3.28
125	117.49	109.33	-4.38	3.32
130	122.42	114.19	-4.42	3.35
135	127.38	119.08	-4.45	3.38
140	132.33	123.99	-4.49	3.41
145	137.30	128.91	-4.51	3.43
150	142.26	133.84	-4.54	3.44
155	147.24	138.77	-4.56	3.46
160	152.20	143.71	-4.58	3.48
165	157.18	148.65	-4.60	3.49
170	162.14	153.59	-4.63	3.51
175	167.12	158.53	-4.64	3.53
180	172.09	163.47	-4.67	3.54
185	177.07	168.42	-4.68	3.56
190	182.04	173.36	-4.71	3.57
195	187.01	178.31	-4.72	3.59
200	191.98	183.25	-4.74	3.60
205	196.96	188.19	-4.76	3.62
210	201.93	193.14	-4.78	3.63
215	206.91	198.08	-4.80	3.65
220	211.88	203.03	-4.82	3.66
225	216.85	207.97	-4.84	3.68
230	221.83	212.92	-4.86	3.69
235	226.80	217.86	-4.88	3.71
240	231.77	222.81	-4.90	3.72
245	236.75	227.75	-4.92	3.74
250	241.72	232.69	-4.94	3.75
255	246.69	237.64	-4.96	3.77
260	251.67	242.58	-4.98	3.78
265	256.64	247.52	-5.00	3.80
270	261.61	252.47	-5.02	3.81
275	266.59	257.41	-5.04	3.83
280	271.56	262.36	-5.06	3.84
285	276.53	267.30	-5.08	3.86
290	281.50	272.24	-5.10	3.87
295	286.48	277.18	-5.12	3.89

TABLE 3
Data for 20°F/hr & 40°F/hr Cooldown Data for EOLE

20 F/hr Cooldown Water Temp (F)	1/4 T Vessel Temp. (F)	1/4T Kit		40 F/hr Cooldown Water Temp (F)	1/4 T Vessel Temp. (F)	1/4T Kit
230	234	2.48		230	238	5.02
225	229	2.47		225	233	5.00
220	224	2.46		220	228	4.98
215	219	2.45		215	223	4.96
210	214	2.44		210	218	4.94
205	209	2.43		205	213	4.91
200	204	2.42		200	208	4.89
195	199	2.41		195	203	4.87
190	194	2.40		190	198	4.85
185	189	2.39		185	193	4.83
180	184	2.38		180	188	4.81
175	179	2.37		175	183	4.79
170	174	2.36		170	178	4.77
165	169	2.35		165	173	4.75
160	164	2.34		160	168	4.73
155	159	2.33		155	163	4.71
150	154	2.32		150	158	4.69
145	149	2.31		145	153	4.67
140	144	2.30		140	148	4.65
135	139	2.29		135	143	4.63
130	134	2.28		130	138	4.61
125	129	2.27		125	133	4.59
120	124	2.26		120	128	4.57
115	119	2.25		115	123	4.55
110	114	2.24		110	118	4.53
105	109	2.23		105	113	4.51
100	104	2.22		100	108	4.49
95	99	2.21		95	103	4.47
90	94	2.20		90	98	4.46
85	89	2.19		85	93	4.44
80	84	2.18		80	88	4.42
75	79	2.17		75	83	4.40
70	74	2.17		70	78	4.38
65	69	2.16		65	73	4.36
60	64	2.15		60	68	4.34

TABLE 4
Data for 60°F/hr & 100°F/hr Cooldown Data for EOLE

60 F/hr Cooldown Water Temp (F)	1/4 T Vessel Temp. (F)	1/4T Kit		100 F/hr Cooldown Water Temp (F)	1/4 T Vessel Temp. (F)	1/4T Kit
225	238	7.58		215	237	12.82
220	233	7.55		210	231	12.77
215	228	7.52		205	226	12.72
210	223	7.49		200	221	12.67
205	218	7.46		195	216	12.61
200	213	7.43		190	211	12.56
195	208	7.39		185	206	12.51
190	202	7.36		180	201	12.45
185	197	7.33		175	196	12.40
180	192	7.30		170	191	12.35
175	187	7.27		165	186	12.30
170	182	7.24		160	181	12.24
165	177	7.21		155	176	12.19
160	172	7.18		150	171	12.14
155	167	7.15		145	166	12.09
150	162	7.12		140	160	12.03
145	157	7.09		135	155	11.98
140	152	7.06		130	150	11.93
135	147	7.03		125	145	11.88
130	142	7.00		120	140	11.83
125	137	6.97		115	135	11.78
120	132	6.94		110	130	11.72
115	127	6.91		105	125	11.67
110	122	6.88		100	120	11.62
105	117	6.85		95	115	11.57
100	112	6.82		90	110	11.52
95	107	6.79		85	105	11.47
90	102	6.76		80	100	11.42
85	97	6.73		75	95	11.37
80	92	6.70		70	89	11.32
75	87	6.67		65	84	11.27
70	81	6.64		60	79	11.22
65	76	6.61				
60	71	6.58				