TABLE 3.7-5

ALLOWABLE TOTAL SETTLEMENT OR DIFFERENTIAL SETTLEMENT FOR CLASS 1 STRUCTURES

SETTLEMENT POINT	STRUCTURE	SETTLEMENT POINT	STRUCTURE/COMPONENT	ALLOWABLE TOTAL SETTLEMENT* (FEET)	ALLOWABLE DIFFERENTIAL SETTLEMENT* (FEET)
130	Containment Unit 1	223	Fuel Building	N/A	0.12
130	Containment Unit 1	129	Auxiliary Building	N/A	0.12
143	Containment Unit 1	142	Unit 1 Safeguards Area	N/A	0.04
144	Containment Unit 1	145	Unit 1 Safeguards Area	N/A	0.04
149	Containment Unit 1	239	Unit 1 Main Steam Valve House	N/A	0.12
144	Containment Unit 1	243,199,132	Service Building	N/A	0.12
146	Safeguards Area Unit 1	239	Unit 1 Main Steam Valve House	N/A	0.07
128	Auxiliary Building	238	Unit 1 Main Steam Valve House	N/A	0.08
129	Auxiliary Building	239	Unit 1 Main Steam Valve House	N/A	0.08
129	Auxiliary Building	223	Fuel Building	N/A	0.05
123	Auxiliary Building	224	Fuel Building	N/A	0.05
122	Auxiliary Building	119	Service Buidling Tunnel	N/A	0.07
7 or 10	Service Water Pump House	17,18	North Side of Expansion Joint Service Water Piping at SWPH	N/A	0.22 from 7/77
243,132	Service Building (E-5, E-6)	238	Unit 1 Main Steam Valve House	N/A	0.04
117	**Service Building (E-14)	113	Unit 2 Main Steam Valve House	N/A	0.047 from 7/77
222	Auxiliary Feedwater Pump House - Unit 1	240	Pipe Tunnel	N/A	0.12

TABLE 3.7-5

ALLOWABLE TOTAL SETTLEMENT OR DIFFERENTIAL SETTLEMENT FOR CLASS 1 STRUCTURES

SETTLEMENT POINT	STRUCTURE	SETTLEMENT POINT	STRUCTURE/COMPONENT	ALLOWABLE TOTAL SETTLEMENT* (FEET)	ALLOWABLE DIFFERENTIAL SETTLEMENT* (FEET)
17,18	North Side of Expansion Joint Service Water Piping at SWPH			0.22 from 8/78	N/A
228	Decontamination Building	250	Pipe Tunnel	N/A	0.06
226	Fuel Building	251	Waste Gas Decay Tank Enclosure	N/A	0.06
114	Service Building (E-7)			0.09	N/A
141	Safeguards Area - Unit 1	253	Unit 1 - Casing	N/A	0.12 from 2/79
158	***Turbine Building (B-9 1/2)			0.06	N/A
245, 246	Fuel Oil Pump House			0.03	N/A
206, 207, 208, 209	Boron Recovery Tank Dike			0.03	N/A
204	Circulating Water Intake Structure			0.15	N/A
25,26,27,28	Service Water Valve House			0.32 (see note)	N/A
29,30,31,32	Service Water Tie-in Vault			0.12 (see note)	N/A

NOTE: From date of Piping Tie-in

*Unless otherwise indicated, allowable settlements are from baseline elevations established in May 1976 or reference elevations corrected to the May 1976 survey.

**Critical differential settlement is downward movement of Point 117 with respect to Point 113.

***Not Class 1 structure, but settlements affects Class 1 pipeline.

TABLE 3.7-5

ALLOWABLE TOTAL SETTLEMENT OR DIFFERENTIAL SETTLEMENT FOR CLASS 1 STRUCTURES

SETTLEMENT POINT	STRUCTURE	SETTLEMENT POINT	STRUCTURE/COMPONENT	ALLOWABLE TOTAL SETTLEMENT* (FEET)	ALLOWABLE DIFFERENTIAL SETTLEMENT* (FEET)
131	Containment Unit 2	224	Fuel Building	N/A	0.12
131	Containment Unit 2	123	Auxiliary Building	N/A	0.05
106	Containment Unit 2	105	Unit 2 Safeguards Area	N/A	0.07
107	Containment Unit 2	108	Unit 2 Safeguards Area	N/A	0.07
131	Containment Unit 2	124	Unit 2 Main Steam Valve House	N/A	0.03
107	Containment Unit 2	116	Service Building (E-15)	N/A	0.12
111	Safeguards Area Unit 2	124	Unit 2 Main Steam Valve House	N/A	0.12
122	Auxiliary Building	120	Unit 2 Main Steam Valve House	N/A	0.04
123	Auxiliary Building	124	Unit 2 Main Steam Valve House	N/A	0.04
123	Auxiliary Building	224	Fuel Building	N/A	0.05
129	Auxiliary Building	223	Fuel Building	N/A	0.05
122	Auxiliary Building	119	Service Buidling Tunnel	N/A	0.07
243,132	Service Building (E-5, E-6)	238	Unit 1 Main Steam Valve House	N/A	0.04
117	**Service Building (E-14)	113	Unit 2 Main Steam Valve House	N/A	0.047 from 7/77
231	Auxiliary Feedwater Pump House - Unit 2	249	Pipe Tunnel	N/A	0.12
228	Decontamination Building	250	Pipe Tunnel	N/A	0.06

TABLE 3.7-5

ALLOWABLE TOTAL SETTLEMENT OR DIFFERENTIAL SETTLEMENT FOR CLASS I STRUCTURES

SETTLEMENT POINT	STRUCTURE	SETTLEMENT POINT	STRUCTURE/COMPONENT	ALLOWABLE TOTAL SETTLEMENT* (FEET)	ALLOWABLE DIFFERENTIAL SETTLEMENT* (FEET)
226	Fuel Building	251	Waste Gas Decay Tank Enclosure	N/A	0.06
104	Safeguards Area Unit 2	254	Unit 2 Casing Cooling Building	N/A	0.12 from 2/79
7, 10	Service Water Pump House	17, 18	Service Water Piping at SWPH	N/A	0.22 from 7/77
17, 18	Service Water Piping at SWPH North Side of Expansion Joint			0.22 from 8/78	N/A
204	Circulating Water Intake Structure			0.15	N/A
158	***Turbine Building (B-9 1/2)			0.06	N/A
114	Service Building (E-17)			0.09	N/A
245, 246	Fuel Oil Pump House			0.03	N/A
206, 207, 208, 209	Boron Recovery Tank Dike			0.03	N/A
25,26,27,28	Service Water Valve House			0.32 (see note)	N/A
29,30.31,32	Service Water Tie-in Vault			0.12 (see note)	N/A

NOTE: From date of piping tie-in

ATTACHMENT 2

SAFETY EVALUATION

Virginia Electric and Power Company

Change to Units 1 and 2 Technical Specification Table 3.7.5, "Allowable Total Settlement or Differential Settlement for Class 1 Structure."

DISCUSSION

The proposed changes to Technical Specifications Section 3.7.12, Table 3.7.5 deletes the Settlement Monitoring requirements for Service Water lines which were removed from service and replaced with new lines connecting the Service Water System to the new Service Water valve house and spray headers during the Service Water Reservoir Improvement Project in 1987.

BASIS FOR NO SIGNIFICANT HAZARDS DETERMINATION

The proposed change to delete monitoring of settlement points no longer in service does not involve a significant hazards consideration because operation of North Anna Units 1 & 2 in accordance with this change would not:

(1) involve a significant increase in the probability or consequence of an accident previously evaluated, or

(2) create the possibility of a new or different kind of accident from any accident previously identified, or

(3) involve a significant reduction in a margin of safety, because this change only deletes Settlement Monitoring on equipment previously replaced. This replacement was approved by the NRC via license amendment 91 for Unit 1, and license amendment 76 for Unit 2, both dated March 27, 1987.

Therefore it has been concluded that the proposed change does not involve a significant safety hazards consideration.

DISCUSSION

The proposed change will also revise the limit for differential settlement between points 117 and 113 of Table 3.7-5. The differential settlement between settlement monitoring points 117, the Service Building, and 113, the Unit 2 Main Steam Valve House (MSVH), has frequently approached 75% of the allowable value in Table 3.7-5 of Technical Specification Section 3.7.12, and the measured value exceeded 75% of the allowable value in June 1987 and in 1980. A report on exceeding 75% of allowable differential settlement between these two points was submitted to the Commission in 1981 and in August 1987 in accordance with Technical Specifications. The report of August 1987 is provided in Attachment 3.

The primary concern of the differential settlement between the Service Building and the Unit 2 MSVH is the effect on the four buried service water lines running between the two structures. The code allowable stress in the service water lines for differential settlement condition is 45,000 psi. As stated in the Technical Specifications, critical differential settlement is downward movement of the Service Building with respect to the MSVH. The results of an engineering analysis show that, disregarding survey inaccuracies, there has been negligible additional settlement of the Service Building since 1981.

The differential settlement limit of 0.03 feet in the Technical Specification was based upon an estimate of future differential settlement between points 117 and 113. The Service Water pipe stress analysis shows that considerable margin exists before code allowable stresses would be exceeded and, therefore, the differential settlement of the Service Building with respect to the Unit 2 MSVH has had no significant impact on the service water pipes or on plant operability.

The proposed change will revise the allowable value of differential settlement between the Service Building and the Unit 2 MSVH from 0.03 feet to 0.047 feet. This value, 0.047 feet, corresponds to a stress of 44,176 psi in the service water lines, which is still below the code allowable stress of 45,000 psi. This action would mean that the 75% reportable threshold would increase. Therefore, additional review need only be initiated when there is significant concern.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION

The proposed change to increase the Allowable Differential Settlement between points 117 and 113 does not involve a significant hazards consideration as defined by 10 CFR 50.92 because operation of North Anna 1 and 2 in accordance with this change would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated as the stress in the service water lines for the requested value of differential settlement has been verified to be below the code allowable stress.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed increase in differential settlement will not place the service water lines in a condition that

will compromise the structural integrity of the piping and therefore will not introduce any new or unique operational modes or accident precursors.

3. Involve a significant reduction in the margin of safety, because the resulting pipe stress, while increased, will still be within the code allowable stress and therefore the margin of safety required by the code is maintained.