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 Writer's Direct Dial Number

July 30, 1984

Mr. Dennis M. Crutchfield, Chief
 Operating Reactors Branch
 U.S. Nuclear Regulatory Commission
 Washington, D. C. 20555

Dear Mr. Crutchfield:

Subject: Oyster Creek Nuclear Generating Station (OCNGS)
 Docket No. 50-219
 SEP Topic No. III-10A, Thermal-Overload Protection
 for Motors of Motor-Operated Valves

During the integrated assessment of the subject SEP topic, GPU Nuclear made a commitment to evaluate thermal-overload relays for the motor operator for each engineered safety feature (ESF) valve.

GPU Nuclear has recently developed a methodology as described in the attached report with which to determine the optimum setpoints (heater size) for the thermal-overload-relays. The methodology was developed to satisfy Regulatory Guide 1.106 position C2, which requires that the setpoints be established with all uncertainties resolved in favor of completing the safety related function. Safety factors are employed in establishing these setpoints to help ensure completion of the valve operation while still providing motor protection.

A sample calculation for sizing the thermal overload setpoints on Core Spray Isolation Valve motor operator is included in the report.

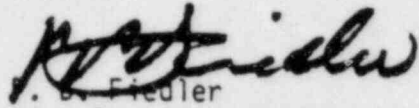
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*Note: 2nd Distribution
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GPU Nuclear plans to utilize the methodology provided in the report for the remaining ESF valves in determining the setpoints. The evaluation and modification, if necessary, are expected to be completed by March, 1985.

Very truly yours,



J. B. Fiedler
Vice President and Director

1r/0331e

cc: Administrator
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pa. 19406

NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, N.J. 08731

Obsolete Devices

Note: If full load amperes falls between increments, use next higher rating.

Table 46, NEMA Sizes 00, 0, & 1

Use Column A For:

- CR106, CR109^①, Open, Types 4, 7, 9
- CR110, CR111^①, All Enclosures
- CR124A1^{①②}, Open or Type 1
- CR133C^①

Use Column B For:

- CR106, CR109^①, Types 1, 12
- CR107, CR108^①, All Enclosures
- CR160C1^①

Max. Motor Full-load Amperes		Heater Cat. No. CR123
Column A	Column B	
0.33	0.31	C036A
0.37	0.34	C039A
0.41	0.38	C043A
0.46	0.43	C048A
0.52	0.47	C054A
0.57	0.52	C060A
0.61	0.56	C066A
0.67	0.62	C071A
0.75	0.69	C078A
0.84	0.77	C087A
0.94	0.87	C097A
1.03	0.94	C109A
1.14	1.04	C118A
1.30	1.18	C131A
1.42	1.30	C148A
1.61	1.47	C163A
1.72	1.56	C184A
1.93	1.75	C196A
2.10	1.90	C220A
2.34	2.13	C239A
2.64	2.40	C268A
2.85	2.60	C301A
3.13	2.84	C326A
3.32	3.02	C356A
3.68	3.34	C379A
4.08	3.72	C419A
4.61	4.20	C466A
5.21	4.73	C526A
5.67	5.02	C592A
6.12	5.55	C630A
6.63	6.21	C695A
7.70	6.92	C778A
8.48	7.64	C867A
9.19	8.31	C955A
9.92	9.04	C1048
11.1	9.99	C1138
12.2	10.9	C1258
13.5	12.0	C1378
14.6	13.0	C1518
16.1	14.3	C1638
17.9	15.6	C1800
19.3	17.0	C1918
20.6	18.1	C2148
22.6	19.9	C2298
24.8	21.8	C2508
27.0	24.2	C2738
	26.3	C3038
	27.0	C3308

Table 47, CR106K, Size 1P^①

Type Enclosure		Device
Open 4, 7, 9	1, 12	CR106
Max. Motor Full-load Amperes		Heater Cat. No. CR123
15.1	.....	C151B
16.7	15.0	C163B
18.5	16.6	C180B
20.0	17.9	C196B
21.4	19.0	C214B
23.5	20.9	C229B
25.8	22.9	C250B
28.7	25.4	C273B
31.2	27.6	C303B
36.0	30.7	C330B
.....	33.5	C366B
.....	36.0	C400B

Table 48 NEMA Size 2

Use Column A For:

- CR106, CR109^①, Open, Types 4, 7, 9
- CR110, CR111^①, All Enclosures
- CR124B1^{①②}, All
- CR131D, CR133D, CR134D^①, All

Use Column B For:

- CR106, CR109^①, Types 1, 12
- CR107, CR108^①, All Enclosures
- CR160C2^①

Max. Motor Full-load Amperes		Heater Cat. No. CR123
Col. A	Col. B	
6.63	.....	C665A
7.59	6.60	C778A
8.39	7.78	C867A
9.20	8.63	C955A
9.93	9.53	C1048
11.2	10.7	C1138
12.5	11.7	C1258
14.1	12.8	C1378
15.5	14.3	C1518
17.4	16.1	C1638
19.8	17.9	C1808
21.2	19.3	C1968
22.7	21.4	C2148
24.9	22.6	C2298
27.3	24.8	C2508
29.7	26.7	C2738
34.2	30.0	C3038
40.2	34.8	C3308
46.0	40.1	C3668
.....	43.3	C4008
.....	46.0	C4408

Table 49, NEMA Size 3

Use Column A For:

- CR106, CR109^①, Open, Types 4, 7, 9
- CR110, CR111^①, All Enclosures
- CR131E^①, All
- CR123E^①, All Enclosures

Use Column B For:

- CR106, CR109^①, Types 1, 12
- CR107, CR108^①, All Enclosures

Max. Motor Full-load Amperes		Heater Cat. No. CR123
Col. A	Col. B	
23.1	20.9	F243B
26.3	23.5	F270B
29.5	25.5	F300B
30.9	27.7	F327B
33.8	30.3	F357B
36.5	32.8	F395B
41.1	37.1	F430B
47.6	42.9	F487B
52.5	47.0	F567B
56.8	50.1	F614B
61.9	54.5	F658B
67.9	58.5	F719B
75.5	64.1	F772B
79.6	68.6	F848B
87.9	77.5	F914B
90.0	.....	F104C
.....	.....	F114C

- ① Heaters for current devices are now selected by type of enclosure. See table NEMA Type Enclosures, page 10
- ② Three heaters required. Single-phase—One heater. Two-speed controllers require six heaters
- ③ Do not use table for CR124 relays mounted directly on magnetic starters. Refer to table for starter involved
- ④ One heater required
- ⑤ Three heaters required

Table 50, NEMA Size 4

Use Column A For:

- CR106, CR109^①, Open, Types 4, 7, 9
- CR110, CR111^①, All Enclosures
- CR131F^①, All
- CR133F^①, All Enclosures

Use Column B For:

- CR106, CR109^①, Types 1, 12
- CR107, CR108^①, All Enclosures

Max. Motor Full-load Amperes		Heater Cat. No. CR123
Col. A	Col. B	
37.8	34.3	F365B
42.6	38.9	F430B
46.8	43.3	F487B
54.2	48.0	F567B
58.0	52.6	F614B
66.5	57.4	F658B
70.8	61.6	F719B
79.1	67.8	F772B
83.6	73.0	F848B
92.9	83.1	F914B
100	84.7	F104C
110	.....	F114C
124	105	F118C
133	118	F133C
.....	130	F146C

Table 51, NEMA Size 5

Use Column A For:

- CR106, CR109^①, Open, Types 4, 7, 9
- CR110, CR111^①, All Enclosures
- CR131G, CR133G^①, All

Use Column B For:

- CR106, CR109^①, Types 1, 12
- CR107, CR108^①, All Enclosures

Max. Motor Full-load Amperes		Heater Cat. No. CR123
Col. A	Col. B	
76.2	.....	C378A
84.2	79.9	C418A
84.6	80.1	C466A
106	100	C526A
111	107	C592A
122	114	C630A
137	127	C695A
151	137	C778A
170	147	C867A
185	159	C955A
201	170	C1048
223	185	C1138
244	202	C1258
266	218	C1378
270	231	C1518
.....	250	C1638
.....	270	C1808