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Northern States Power Company Minneapolis, Minn 55401 L. J. Wachter	8-6-73	8-7-73				FACSIMILE

TO:	ORIG	CC	OTHER	SENT AEC PDR X SENT LOCAL PDR X
Mr. Grier	1			

CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D	DOCKET NO:
	XXX			1	50-263

DESCRIPTION:
Ltr re 7-26-73 ltr fm B H Grier to L J Wachter.... furnishing info re shutdown margin verification tests on all control rods.....W/Attached - Results of Monticello Shutdown Margin Verification Test, dtd August 3-5, 1973.....

ENCLOSURES:
....

ACKNOWLEDGED

DO NOT REMOVE

PLANT NAME: Monticello

FOR ACTION/INFORMATION 8-8-73 AB

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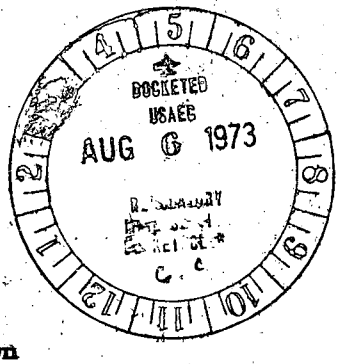

August 6, 1973

Mr. Boyce H Grier, Director
Directorate of Regulatory Operations
Region III
United States Atomic Energy Commission
799 Roosevelt Road
Glen Ellyn, Illinois 61037

Dear Mr. Grier:

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Response to July 26, 1973 Letter on Shutdown Margin Testing

On August 3, 4 and 5, 1973, Shutdown Margin Verification tests were completed on all 121 control rods at the Monticello Nuclear Generating Plant as stipulated in the July 26, 1973 letter from B H Grier to L J Wachter. These tests were performed in accordance with the AEC criteria presented in our August 2, 1973 telephone conversation documented in an August 3, 1973 letter from D L Ziemann to L O Mayer. These criteria required demonstrating a shutdown margin of 0.75% delta k with allowance for transient xenon and samarium so long as no more than two control rods were withdrawn from the fully inserted position. Testing of peripheral rods commenced 77 hours after the July 31, 1973 shutdown. Subcriticality was verified for each test condition.

Attached is a tabulation of 199 shutdown margin demonstrations, some rods being tested more than once. The tests are grouped into three categories:

TRO - Two Rod Out tests showed that two adjacent control rods could be fully withdrawn while maintaining subcriticality. This was done on the periphery where individual rod worths are very small.

NSP - Calculations were done by NSP prior to receiving the final AEC criteria. Tests were specified to demonstrate greater than or equal to 1% delta k shutdown margin with one rod out. The transient xenon and samarium was less than 0.25% delta k at the time of these tests so the AEC criteria were satisfied.

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GE - calculations were likewise done by GE prior to receiving AEC criteria. Their tests were designed to demonstrate a shutdown margin of greater than or equal to 1.20% delta k with one rod out. This larger margin was chosen to allow testing to be done at moderator temperatures up to 125°F which adds a negativity reactivity of up to 0.20% delta k. Testing was done with moderator temperatures between 95 and 100°F which involves no significant change in reactivity from the cold condition. Transient xenon and samarium was less than 0.25% delta k during these tests also such that AEC criteria were satisfied.

Should there be any questions regarding the tabulated test results, please feel free to contact us.

Yours very truly,

L J Wachter
Vice President -
Power Production & System Operation

LJW/br

cc: D L Ziemann
G Charnoff
Minnesota Pollution Control Agency
Attn: K Dzugan

Telecopied to Grier & Ziemann, 8/6/73

RESULTS OF MONTICELLO SHUTDOWN MARGIN VERIFICATION TESTS, AUGUST 3-5, 1973

Test No.	Rod Fully Withdrawn	Adjacent Rod Location	Adjacent Rod Position	Comments
1	22-51	26-47	08	GE
2	22-51	26-51	48	TRO
3	26-51	30-47	08	GE
4	26-51	30-51	48	TRO
5	30-51	26-47	08	GE
6	14-47	18-43	08	GE
7	14-47	18-47	48	TRO
8	18-47	22-43	08	GE
9	22-47	18-43	10	NSP
10	26-47	22-43	10	NSP
11	30-47	34-43	10	NSP
12	34-47	30-43	08	GE
13	34-47	38-47	48	TRO
14	38-47	34-43	08	GE
15	10-43	14-39	48	TRO
16	14-43	18-39	14	GE/NSP
17	18-43	22-39	14	GE
18	22-43	26-39	48	GE
19	22-43	26-47	06	NSP
20	26-43	30-39	48	GE
21	26-43	22-47	06	NSP
22	30-43	26-39	48	GE
23	30-43	26-47	06	NSP
24	34-43	30-39	14	GE
25	38-43	34-39	14	GE/NSP
26	42-43	38-39	48	TRO
27	06-39	10-35	08	GE
28	06-39	06-35	48	TRO
29	10-39	14-35	14	GE/NSP
30	14-39	18-35	14	GE
31	14-39	10-35	08	NSP
32	18-39	22-35	14	GE
33	18-39	14-43	06	NSP
34	22-39	26-35	14	GE
35	22-39	18-43	08	NSP
36	26-39	30-35	14	GE
37	26-39	22-35	08	NSP
38	30-39	26-35	14	GE
39	30-39	34-43	08	NSP
40	34-39	30-35	14	GE
41	34-39	38-43	06	NSP
42	38-39	34-35	14	GE
43	38-39	42-35	08	NSP
44	42-39	38-35	14	GE/NSP
45	46-39	42-35	08	GE
46	46-39	46-35	48	TRO
47	06-35	10-31	08	GE

Test No.	Rod Fully Withdrawn	Adjacent Rod Location	Adjacent Rod Position	Comments
48	10-35	14-31	14	GE
49	14-35	18-31	14	GE
50	14-35	10-39	06	NSP
51	18-35	22-31	48	GE
52	18-35	14-39	08	NSP
53	22-35	26-31	48	GE
54	22-35	18-39	10	NSP
55	26-35	30-31	48	GE
56	26-35	22-39	08	NSP
57	30-35	26-31	48	GE
58	30-35	34-39	10	NSP
59	34-35	30-31	48	GE
60	34-35	38-39	08	NSP
61	38-35	34-31	14	GE
62	38-35	42-39	06	NSP
63	42-35	38-31	14	GE
64	46-35	42-31	08	GE
65	02-31	06-27	08	GE
66	02-31	02-27	48	TBO
67	06-31	10-35	10	NSP
68	10-31	14-27	48	GE
69	10-31	06-27	06	NSP
70	14-31	18-27	14	GE
71	14-31	10-35	08	NSP
72	18-31	22-27	48	GE
73	18-31	14-27	10	NSP
74	22-31	26-27	48	GE
75	22-31	18-35	08	NSP
76	26-31	30-27	48	GE
77	26-31	22-35	12	NSP
78	30-31	26-27	48	GE
79	30-31	34-35	08	NSP
80	34-31	30-27	48	GE
81	34-31	38-35	10	NSP
82	38-31	34-27	14	GE
83	38-31	42-35	08	NSP
84	42-31	38-27	48	GE
85	42-31	46-27	06	NSP
86	46-31	42-35	10	NSP
87	50-31	46-27	08	GE
88	50-31	50-27	48	TBO
89	02-27	06-23	08	GE
90	06-27	10-23	10	NSP
91	10-27	14-23	48	GE
92	10-27	06-23	06	NSP
93	14-27	18-23	14	GE
94	18-27	22-23	48	GE

Test No.	Rod Fully Withdrawn	Adjacent Rod Location	Adjacent Rod Position	Comments
95	18-27	14-31	08	NSP
96	22-27	26-23	48	GE
97	22-27	26-31	16	NSP
98	26-27	30-23	48	GE
99	26-27	22-31	12	NSP
100	30-27	26-23	48	GE
101	30-27	34-23	12	NSP
102	34-27	30-23	48	GE
103	34-27	38-23	08	NSP
104	34-27	38-31	08	NSP
105	38-27	34-23	14	GE
106	42-27	38-23	48	GE
107	42-27	46-31	06	NSP
108	46-27	42-23	10	NSP
109	50-27	46-23	08	GE
110	02-23	06-27	08	GE
111	02-23	02-27	48	TRO
112	06-23	10-27	16	NSP
113	06-23	10-19	10	NSP
114	10-23	14-27	48	GE
115	10-23	06-27	06	NSP
116	14-23	18-27	14	GE
117	14-23	10-19	08	NSP
118	18-23	22-27	48	GE
119	18-23	14-27	10	NSP
120	22-23	26-27	48	GE
121	22-23	18-19	08	NSP
122	26-23	30-27	48	GE
123	26-23	30-19	12	NSP
124	30-23	26-27	48	GE
125	30-23	34-19	08	NSP
126	34-23	30-27	48	GE
127	34-23	38-19	10	NSP
128	38-23	34-27	14	GE
129	38-23	42-19	08	NSP
130	42-23	38-27	48	GE
131	42-23	46-27	06	NSP
132	46-23	42-19	10	NSP
133	50-23	46-27	08	GE
134	50-23	50-27	48	TRO
135	06-19	10-23	08	GE
136	06-19	06-15	48	TRO
137	10-19	14-23	14	GE
138	10-19	14-15	12	NSP
139	14-19	18-23	14	GE
140	14-19	10-15	06	NSP
141	18-19	22-23	48	GE
142	18-19	14-15	08	NSP
143	22-19	26-23	48	GE
144	22-19	18-15	10	NSP
145	26-19	30-23	48	GE

Test No.	Rod Fully Withdrawn	Adjacent Rod Location	Adjacent Rod Position	Comments
146	26-19	22-15	08	NSP
147	30-19	26-23	48	GE
148	30-19	34-15	10	NSP
149	34-19	30-23	48	GE
150	34-19	38-15	08	NSP
151	38-19	34-23	14	GE
152	38-19	42-15	06	NSP
153	42-19	38-23	14	GE
154	42-19	38-15	12	NSP
155	46-19	42-23	08	GE
156	46-19	46-15	48	TRO
157	06-15	10-19	08	GE
158	10-15	14-19	14	GE/NSP
159	14-15	18-19	14	GE
160	18-15	22-19	14	GE
161	18-15	14-11	06	NSP
162	22-15	26-19	14	GE
163	22-15	18-11	08	NSP
164	26-15	30-19	14	GE
165	30-15	26-19	14	GE
166	30-15	34-11	08	NSP
167	34-15	30-19	14	GE
168	34-15	38-11	06	NSP
169	38-15	34-19	14	GE
170	38-15	42-19	08	NSP
171	42-15	38-19	14	GE/SNP
172	46-15	42-19	08	GE
173	10-11	14-15	48	TRO
174	14-11	18-15	14	GE/NSP
175	18-11	22-15	14	GE
176	22-11	26-15	48	GE
177	22-11	26-07	06	NSP
178	26-11	30-15	48	GE
179	26-11	30-07	06	NSP
180	30-11	26-15	48	GE
181	30-11	26-07	06	NSP
182	34-11	30-15	14	GE
183	34-11	38-15	08	NSP
184	38-11	34-15	14	GE
185	42-11	38-15	48	TRO
186	14-07	18-11	08	GE
187	14-07	18-07	48	TRO
188	18-07	22-11	08	GE
189	22-07	18-11	10	NSP
190	26-07	22-11	10	NSP
191	30-07	34-11	10	NSP
192	34-07	30-11	08	GE
193	34-07	38-07	48	TRO
194	38-07	34-11	08	GE
195	22-03	26-07	08	GE
196	22-03	26-03	48	TRO
197	26-03	30-07	08	GE
198	26-03	30-03	48	TRO
199	30-03	26-07	08	GE