

LA-UR-20-21532

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Title: Oak Ridge National Laboratory Pool Critical Assembly MCNP6 Criticality
Calculation Input File

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Intended for: Supplemental Reference

Issued: 2020-02-18

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Oak Ridge National Laboratory Pool Critical Assembly MCNP6 Criticality Calculation Input File

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This report provides an MCNP[®] input file for a k -eigenvalue (`kcode`) calculation of the Oak Ridge National Laboratory (ORNL) Pool Critical Assembly (PCA). That is, this report provides the input file used for the first of the calculations described in [1] to produce a fission source term for the ORNL PCA.

If this input file is used, then [1] should be cited as its source.

For convenience, the MCNP input file is listed in Appendix A and also provided as an attachment to this PDF, which can be accessed using Adobe Acrobat through the menu path shown in Fig. 1.

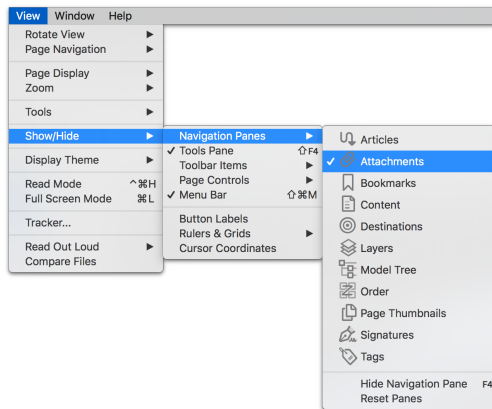


Figure 1: Adobe Acrobat Menu Path to Access PDF Attachments

References

- [1] J. A. Kulesza and R. L. Martz, “Evaluation of the Pool Critical Assembly Benchmark with Explicitly Modeled Geometry Using MCNP6,” *Nuclear Technology*, vol. 197, no. 3, pp. 284–295, Mar. 2017. DOI: [10.1080/00295450.2016.1273711](https://doi.org/10.1080/00295450.2016.1273711)

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A ORNL PCA MCNP Input File and Results

This appendix contains the ORNL PCA k -eigenvalue calculation MCNP input file in Listing 1.

Listing 1: ORNL PCA k -eigenvalue Calculation MCNP Input File

```

1 ORNL PCA
2 c
3 c Author: Joel A. Kulesza
4 c     Monte Carlo Codes Group (XCP-3)
5 c     Los Alamos National Laboratory
6 c     jkulesza@lanl.gov
7 c
8 c This calculation is run **first** to generate a converged 'srctp' file for use
9 c in a subsequent calculation for:
10 c
11 c J. A. Kulesza and R. L. Martz, "Evaluation of the Pool Critical Assembly
12 c Benchmark with Explicitly Modeled Geometry Using MCNP6," Nuclear Technology,
13 c vol. 197, no. 3, pp. 284-295, Mar. 2017.
14 c
15 c DOI: 10.1080/00295450.2016.1273711
16 c
17 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
18 c
19 c Cell Definitions
20 c
21 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
22 c
23 c Regular Fuel Assembly (with Trailing Fuel Plate)
24 c
25 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
26 c
27 1001 102 -2.7      1  -2  3 -4      110 -115      imp:n=1 u=1 $ Lower Side Plate
28 1002 102 -2.7      1  -2  5 -6      110 -115      imp:n=1 u=1 $ Upper Side Plate
29 c
30 1011 102 -2.7      13 -10  4 -5 110 -111      imp:n=1 u=1 $ Fuel Plate 1 (Leftmost) Lowest Aluminum Region
31 1012 102 -2.7      13 -10  4 -5 111 -112      imp:n=1 u=1 $ Fuel Plate 1 (Leftmost) Lower Aluminum Region
32 1013 102 -2.7      11 -10  4 -5 112 -113      imp:n=1 u=1 $ Fuel Plate 1 (Leftmost) Left Aluminum Wall
33 1014 102 -2.7      12 -11 -15 -5 112 -113      imp:n=1 u=1 $ Fuel Plate 1 (Leftmost) Upper Aluminum Spacer
34 1015 103 -2.881093  12 -11 -14 15 112 -113      imp:n=1 u=1 $ Fuel Plate 1 (Leftmost) Fuel
35 1016 102 -2.7      12 -11 14  4 112 -113      imp:n=1 u=1 $ Fuel Plate 1 (Leftmost) Right Aluminum Wall
36 1017 102 -2.7      13 -12  4 -5 112 -113      imp:n=1 u=1 $ Fuel Plate 1 (Leftmost) Lower Aluminum Spacer
37 1018 102 -2.7      13 -10  4 -5 113 -114      imp:n=1 u=1 $ Fuel Plate 1 (Leftmost) Upper Aluminum Region
38 1019 102 -2.7      13 -10  4 -5 114 -115      imp:n=1 u=1 $ Fuel Plate 1 (Leftmost) Highest Aluminum Region
39 c
40 1022 102 -2.7      13 -10  4 -5 111 -112      trcl 2 imp:n=1 u=1 $ Fuel Plate 2
41 1023 102 -2.7      11 -10  4 -5 112 -113      trcl 2 imp:n=1 u=1 $ Fuel Plate 2
42 1024 102 -2.7      12 -11 -15 -5 112 -113      trcl 2 imp:n=1 u=1 $ Fuel Plate 2
43 1025 103 -2.881093  12 -11 -14 15 112 -113      trcl 2 imp:n=1 u=1 $ Fuel Plate 2
44 1026 102 -2.7      12 -11 14  4 112 -113      trcl 2 imp:n=1 u=1 $ Fuel Plate 2
45 1027 102 -2.7      13 -12  4 -5 112 -113      trcl 2 imp:n=1 u=1 $ Fuel Plate 2

```

46	1028 102 -2.7	13 -10 4 -5 113 -114	trcl 2	imp:n=1 u=1	\$ Fuel Plate 2
47	c				
48	1032	like 1022 but	trcl 3	imp:n=1 u=1	\$ Fuel Plate 3
49	1033	like 1023 but	trcl 3	imp:n=1 u=1	\$ Fuel Plate 3
50	1034	like 1024 but	trcl 3	imp:n=1 u=1	\$ Fuel Plate 3
51	1035	like 1025 but	trcl 3	imp:n=1 u=1	\$ Fuel Plate 3
52	1036	like 1026 but	trcl 3	imp:n=1 u=1	\$ Fuel Plate 3
53	1037	like 1027 but	trcl 3	imp:n=1 u=1	\$ Fuel Plate 3
54	1038	like 1028 but	trcl 3	imp:n=1 u=1	\$ Fuel Plate 3
55	c				
56	1042	like 1022 but	trcl 4	imp:n=1 u=1	\$ Fuel Plate 4
57	1043	like 1023 but	trcl 4	imp:n=1 u=1	\$ Fuel Plate 4
58	1044	like 1024 but	trcl 4	imp:n=1 u=1	\$ Fuel Plate 4
59	1045	like 1025 but	trcl 4	imp:n=1 u=1	\$ Fuel Plate 4
60	1046	like 1026 but	trcl 4	imp:n=1 u=1	\$ Fuel Plate 4
61	1047	like 1027 but	trcl 4	imp:n=1 u=1	\$ Fuel Plate 4
62	1048	like 1028 but	trcl 4	imp:n=1 u=1	\$ Fuel Plate 4
63	c				
64	1052	like 1022 but	trcl 5	imp:n=1 u=1	\$ Fuel Plate 5
65	1053	like 1023 but	trcl 5	imp:n=1 u=1	\$ Fuel Plate 5
66	1054	like 1024 but	trcl 5	imp:n=1 u=1	\$ Fuel Plate 5
67	1055	like 1025 but	trcl 5	imp:n=1 u=1	\$ Fuel Plate 5
68	1056	like 1026 but	trcl 5	imp:n=1 u=1	\$ Fuel Plate 5
69	1057	like 1027 but	trcl 5	imp:n=1 u=1	\$ Fuel Plate 5
70	1058	like 1028 but	trcl 5	imp:n=1 u=1	\$ Fuel Plate 5
71	c				
72	1062	like 1022 but	trcl 6	imp:n=1 u=1	\$ Fuel Plate 6
73	1063	like 1023 but	trcl 6	imp:n=1 u=1	\$ Fuel Plate 6
74	1064	like 1024 but	trcl 6	imp:n=1 u=1	\$ Fuel Plate 6
75	1065	like 1025 but	trcl 6	imp:n=1 u=1	\$ Fuel Plate 6
76	1066	like 1026 but	trcl 6	imp:n=1 u=1	\$ Fuel Plate 6
77	1067	like 1027 but	trcl 6	imp:n=1 u=1	\$ Fuel Plate 6
78	1068	like 1028 but	trcl 6	imp:n=1 u=1	\$ Fuel Plate 6
79	c				
80	1072	like 1022 but	trcl 7	imp:n=1 u=1	\$ Fuel Plate 7
81	1073	like 1023 but	trcl 7	imp:n=1 u=1	\$ Fuel Plate 7
82	1074	like 1024 but	trcl 7	imp:n=1 u=1	\$ Fuel Plate 7
83	1075	like 1025 but	trcl 7	imp:n=1 u=1	\$ Fuel Plate 7
84	1076	like 1026 but	trcl 7	imp:n=1 u=1	\$ Fuel Plate 7
85	1077	like 1027 but	trcl 7	imp:n=1 u=1	\$ Fuel Plate 7
86	1078	like 1028 but	trcl 7	imp:n=1 u=1	\$ Fuel Plate 7
87	c				
88	1082	like 1022 but	trcl 8	imp:n=1 u=1	\$ Fuel Plate 8
89	1083	like 1023 but	trcl 8	imp:n=1 u=1	\$ Fuel Plate 8
90	1084	like 1024 but	trcl 8	imp:n=1 u=1	\$ Fuel Plate 8
91	1085	like 1025 but	trcl 8	imp:n=1 u=1	\$ Fuel Plate 8

92	1086	like 1026 but	trcl 8	imp:n=1 u=1 \$ Fuel Plate 8
93	1087	like 1027 but	trcl 8	imp:n=1 u=1 \$ Fuel Plate 8
94	1088	like 1028 but	trcl 8	imp:n=1 u=1 \$ Fuel Plate 8
95	c			
96	1092	like 1022 but	trcl 9	imp:n=1 u=1 \$ Fuel Plate 9
97	1093	like 1023 but	trcl 9	imp:n=1 u=1 \$ Fuel Plate 9
98	1094	like 1024 but	trcl 9	imp:n=1 u=1 \$ Fuel Plate 9
99	1095	like 1025 but	trcl 9	imp:n=1 u=1 \$ Fuel Plate 9
100	1096	like 1026 but	trcl 9	imp:n=1 u=1 \$ Fuel Plate 9
101	1097	like 1027 but	trcl 9	imp:n=1 u=1 \$ Fuel Plate 9
102	1098	like 1028 but	trcl 9	imp:n=1 u=1 \$ Fuel Plate 9
103	c			
104	1102	like 1022 but	trcl 10	imp:n=1 u=1 \$ Fuel Plate 10
105	1103	like 1023 but	trcl 10	imp:n=1 u=1 \$ Fuel Plate 10
106	1104	like 1024 but	trcl 10	imp:n=1 u=1 \$ Fuel Plate 10
107	1105	like 1025 but	trcl 10	imp:n=1 u=1 \$ Fuel Plate 10
108	1106	like 1026 but	trcl 10	imp:n=1 u=1 \$ Fuel Plate 10
109	1107	like 1027 but	trcl 10	imp:n=1 u=1 \$ Fuel Plate 10
110	1108	like 1028 but	trcl 10	imp:n=1 u=1 \$ Fuel Plate 10
111	c			
112	1112	like 1022 but	trcl 11	imp:n=1 u=1 \$ Fuel Plate 11
113	1113	like 1023 but	trcl 11	imp:n=1 u=1 \$ Fuel Plate 11
114	1114	like 1024 but	trcl 11	imp:n=1 u=1 \$ Fuel Plate 11
115	1115	like 1025 but	trcl 11	imp:n=1 u=1 \$ Fuel Plate 11
116	1116	like 1026 but	trcl 11	imp:n=1 u=1 \$ Fuel Plate 11
117	1117	like 1027 but	trcl 11	imp:n=1 u=1 \$ Fuel Plate 11
118	1118	like 1028 but	trcl 11	imp:n=1 u=1 \$ Fuel Plate 11
119	c			
120	1122	like 1022 but	trcl 12	imp:n=1 u=1 \$ Fuel Plate 12
121	1123	like 1023 but	trcl 12	imp:n=1 u=1 \$ Fuel Plate 12
122	1124	like 1024 but	trcl 12	imp:n=1 u=1 \$ Fuel Plate 12
123	1125	like 1025 but	trcl 12	imp:n=1 u=1 \$ Fuel Plate 12
124	1126	like 1026 but	trcl 12	imp:n=1 u=1 \$ Fuel Plate 12
125	1127	like 1027 but	trcl 12	imp:n=1 u=1 \$ Fuel Plate 12
126	1128	like 1028 but	trcl 12	imp:n=1 u=1 \$ Fuel Plate 12
127	c			
128	1132	like 1022 but	trcl 13	imp:n=1 u=1 \$ Fuel Plate 13
129	1133	like 1023 but	trcl 13	imp:n=1 u=1 \$ Fuel Plate 13
130	1134	like 1024 but	trcl 13	imp:n=1 u=1 \$ Fuel Plate 13
131	1135	like 1025 but	trcl 13	imp:n=1 u=1 \$ Fuel Plate 13
132	1136	like 1026 but	trcl 13	imp:n=1 u=1 \$ Fuel Plate 13
133	1137	like 1027 but	trcl 13	imp:n=1 u=1 \$ Fuel Plate 13
134	1138	like 1028 but	trcl 13	imp:n=1 u=1 \$ Fuel Plate 13
135	c			
136	1142	like 1022 but	trcl 14	imp:n=1 u=1 \$ Fuel Plate 14
137	1143	like 1023 but	trcl 14	imp:n=1 u=1 \$ Fuel Plate 14

138	1144									like 1024 but		trcl 14	imp:n=1	u=1	\$ Fuel Plate 14
139	1145									like 1025 but		trcl 14	imp:n=1	u=1	\$ Fuel Plate 14
140	1146									like 1026 but		trcl 14	imp:n=1	u=1	\$ Fuel Plate 14
141	1147									like 1027 but		trcl 14	imp:n=1	u=1	\$ Fuel Plate 14
142	1148									like 1028 but		trcl 14	imp:n=1	u=1	\$ Fuel Plate 14
143	c														
144	1152									like 1022 but		trcl 15	imp:n=1	u=1	\$ Fuel Plate 15
145	1153									like 1023 but		trcl 15	imp:n=1	u=1	\$ Fuel Plate 15
146	1154									like 1024 but		trcl 15	imp:n=1	u=1	\$ Fuel Plate 15
147	1155									like 1025 but		trcl 15	imp:n=1	u=1	\$ Fuel Plate 15
148	1156									like 1026 but		trcl 15	imp:n=1	u=1	\$ Fuel Plate 15
149	1157									like 1027 but		trcl 15	imp:n=1	u=1	\$ Fuel Plate 15
150	1158									like 1028 but		trcl 15	imp:n=1	u=1	\$ Fuel Plate 15
151	c														
152	1162									like 1022 but		trcl 16	imp:n=1	u=1	\$ Fuel Plate 16
153	1163									like 1023 but		trcl 16	imp:n=1	u=1	\$ Fuel Plate 16
154	1164									like 1024 but		trcl 16	imp:n=1	u=1	\$ Fuel Plate 16
155	1165									like 1025 but		trcl 16	imp:n=1	u=1	\$ Fuel Plate 16
156	1166									like 1026 but		trcl 16	imp:n=1	u=1	\$ Fuel Plate 16
157	1167									like 1027 but		trcl 16	imp:n=1	u=1	\$ Fuel Plate 16
158	1168									like 1028 but		trcl 16	imp:n=1	u=1	\$ Fuel Plate 16
159	c														
160	1172									like 1022 but		trcl 17	imp:n=1	u=1	\$ Fuel Plate 17
161	1173									like 1023 but		trcl 17	imp:n=1	u=1	\$ Fuel Plate 17
162	1174									like 1024 but		trcl 17	imp:n=1	u=1	\$ Fuel Plate 17
163	1175									like 1025 but		trcl 17	imp:n=1	u=1	\$ Fuel Plate 17
164	1176									like 1026 but		trcl 17	imp:n=1	u=1	\$ Fuel Plate 17
165	1177									like 1027 but		trcl 17	imp:n=1	u=1	\$ Fuel Plate 17
166	1178									like 1028 but		trcl 17	imp:n=1	u=1	\$ Fuel Plate 17
167	c														
168	1181	102 -2.7			13 -10		4 -5	110 -111				trcl 18	imp:n=1	u=1	\$ Fuel Plate 18
169	1182									like 1022 but		trcl 18	imp:n=1	u=1	\$ Fuel Plate 18
170	1183									like 1023 but		trcl 18	imp:n=1	u=1	\$ Fuel Plate 18
171	1184									like 1024 but		trcl 18	imp:n=1	u=1	\$ Fuel Plate 18
172	1185									like 1025 but		trcl 18	imp:n=1	u=1	\$ Fuel Plate 18
173	1186									like 1026 but		trcl 18	imp:n=1	u=1	\$ Fuel Plate 18
174	1187									like 1027 but		trcl 18	imp:n=1	u=1	\$ Fuel Plate 18
175	1188									like 1028 but		trcl 18	imp:n=1	u=1	\$ Fuel Plate 18
176	1189	102 -2.7			13 -10		4 -5	114 -115				trcl 18	imp:n=1	u=1	\$ Fuel Plate 18
177	c														
178	1191	102 -2.7			13 -10		4 -5	110 -111				trcl 19	imp:n=1	u=1	\$ Fuel Plate 19 (Trailing)
179	1192									like 1022 but		trcl 19	imp:n=1	u=1	\$ Fuel Plate 19 (Trailing)
180	1193									like 1023 but		trcl 19	imp:n=1	u=1	\$ Fuel Plate 19 (Trailing)
181	1194									like 1024 but		trcl 19	imp:n=1	u=1	\$ Fuel Plate 19 (Trailing)
182	1195									like 1025 but		trcl 19	imp:n=1	u=1	\$ Fuel Plate 19 (Trailing)
183	1196									like 1026 but		trcl 19	imp:n=1	u=1	\$ Fuel Plate 19 (Trailing)

184	1197							like 1027 but	trcl 19	imp:n=1 u=1	\$ Fuel Plate 19 (Trailing)
185	1198							like 1028 but	trcl 19	imp:n=1 u=1	\$ Fuel Plate 19 (Trailing)
186	1199	102 -2.7	13 -10	4 -5	114 -115				trcl 19	imp:n=1 u=1	\$ Fuel Plate 19 (Trailing)
187	c										
188	1300	101 -0.9931									\$ Water
189	#1001 #1002										
190	#1011 #1012 #1013 #1014 #1015 #1016 #1017 #1018 #1019										
191	#1022 #1023 #1024 #1025 #1026 #1027 #1028										
192	#1032 #1033 #1034 #1035 #1036 #1037 #1038										
193	#1042 #1043 #1044 #1045 #1046 #1047 #1048										
194	#1052 #1053 #1054 #1055 #1056 #1057 #1058										
195	#1062 #1063 #1064 #1065 #1066 #1067 #1068										
196	#1072 #1073 #1074 #1075 #1076 #1077 #1078										
197	#1082 #1083 #1084 #1085 #1086 #1087 #1088										
198	#1092 #1093 #1094 #1095 #1096 #1097 #1098										
199	#1102 #1103 #1104 #1105 #1106 #1107 #1108										
200	#1112 #1113 #1114 #1115 #1116 #1117 #1118										
201	#1122 #1123 #1124 #1125 #1126 #1127 #1128										
202	#1132 #1133 #1134 #1135 #1136 #1137 #1138										
203	#1142 #1143 #1144 #1145 #1146 #1147 #1148										
204	#1152 #1153 #1154 #1155 #1156 #1157 #1158										
205	#1162 #1163 #1164 #1165 #1166 #1167 #1168										
206	#1172 #1173 #1174 #1175 #1176 #1177 #1178										
207	#1181 #1182 #1183 #1184 #1185 #1186 #1187 #1188 #1189										
208	#1191 #1192 #1193 #1194 #1195 #1196 #1197 #1198 #1199										
209										imp:n=1 u=1	
210	c										
211	c ccc										
212	c										
213	c Center Fuel Assembly with One Plate Removed (but with Trailing Fuel Plate)										
214	c										
215	c ccc										
216	c										
217	2001	102 -2.7	1 -2	3 -4	110 -115					imp:n=1 u=2	\$ Lower Side Plate
218	2002	102 -2.7	1 -2	5 -6	110 -115					imp:n=1 u=2	\$ Upper Side Plate
219	c										
220	2011	102 -2.7	13 -10	4 -5	110 -111					imp:n=1 u=2	\$ Fuel Plate 1 (Leftmost) Lowest Aluminum Region
221	2012	102 -2.7	13 -10	4 -5	111 -112					imp:n=1 u=2	\$ Fuel Plate 1 (Leftmost) Lower Aluminum Region
222	2013	102 -2.7	11 -10	4 -5	112 -113					imp:n=1 u=2	\$ Fuel Plate 1 (Leftmost) Left Aluminum Wall
223	2014	102 -2.7	12 -11	-15 -5	112 -113					imp:n=1 u=2	\$ Fuel Plate 1 (Leftmost) Upper Aluminum Spacer
224	2015	103 -2.881093	12 -11	-14 15	112 -113					imp:n=1 u=2	\$ Fuel Plate 1 (Leftmost) Fuel
225	2016	102 -2.7	12 -11	14 4	112 -113					imp:n=1 u=2	\$ Fuel Plate 1 (Leftmost) Right Aluminum Wall
226	2017	102 -2.7	13 -12	4 -5	112 -113					imp:n=1 u=2	\$ Fuel Plate 1 (Leftmost) Lower Aluminum Spacer
227	2018	102 -2.7	13 -10	4 -5	113 -114					imp:n=1 u=2	\$ Fuel Plate 1 (Leftmost) Upper Aluminum Region
228	2019	102 -2.7	13 -10	4 -5	114 -115					imp:n=1 u=2	\$ Fuel Plate 1 (Leftmost) Highest Aluminum Region
229	c										

230	2022 102 -2.7	13 -10 4 -5 111 -112	trcl 2	imp:n=1 u=2	\$ Fuel Plate 2
231	2023 102 -2.7	11 -10 4 -5 112 -113	trcl 2	imp:n=1 u=2	\$ Fuel Plate 2
232	2024 102 -2.7	12 -11 -15 -5 112 -113	trcl 2	imp:n=1 u=2	\$ Fuel Plate 2
233	2025 103 -2.881093	12 -11 -14 15 112 -113	trcl 2	imp:n=1 u=2	\$ Fuel Plate 2
234	2026 102 -2.7	12 -11 14 4 112 -113	trcl 2	imp:n=1 u=2	\$ Fuel Plate 2
235	2027 102 -2.7	13 -12 4 -5 112 -113	trcl 2	imp:n=1 u=2	\$ Fuel Plate 2
236	2028 102 -2.7	13 -10 4 -5 113 -114	trcl 2	imp:n=1 u=2	\$ Fuel Plate 2
237	c				
238	2032	like 2022 but	trcl 3	imp:n=1 u=2	\$ Fuel Plate 3
239	2033	like 2023 but	trcl 3	imp:n=1 u=2	\$ Fuel Plate 3
240	2034	like 2024 but	trcl 3	imp:n=1 u=2	\$ Fuel Plate 3
241	2035	like 2025 but	trcl 3	imp:n=1 u=2	\$ Fuel Plate 3
242	2036	like 2026 but	trcl 3	imp:n=1 u=2	\$ Fuel Plate 3
243	2037	like 2027 but	trcl 3	imp:n=1 u=2	\$ Fuel Plate 3
244	2038	like 2028 but	trcl 3	imp:n=1 u=2	\$ Fuel Plate 3
245	c				
246	2042	like 2022 but	trcl 4	imp:n=1 u=2	\$ Fuel Plate 4
247	2043	like 2023 but	trcl 4	imp:n=1 u=2	\$ Fuel Plate 4
248	2044	like 2024 but	trcl 4	imp:n=1 u=2	\$ Fuel Plate 4
249	2045	like 2025 but	trcl 4	imp:n=1 u=2	\$ Fuel Plate 4
250	2046	like 2026 but	trcl 4	imp:n=1 u=2	\$ Fuel Plate 4
251	2047	like 2027 but	trcl 4	imp:n=1 u=2	\$ Fuel Plate 4
252	2048	like 2028 but	trcl 4	imp:n=1 u=2	\$ Fuel Plate 4
253	c				
254	2052	like 2022 but	trcl 5	imp:n=1 u=2	\$ Fuel Plate 5
255	2053	like 2023 but	trcl 5	imp:n=1 u=2	\$ Fuel Plate 5
256	2054	like 2024 but	trcl 5	imp:n=1 u=2	\$ Fuel Plate 5
257	2055	like 2025 but	trcl 5	imp:n=1 u=2	\$ Fuel Plate 5
258	2056	like 2026 but	trcl 5	imp:n=1 u=2	\$ Fuel Plate 5
259	2057	like 2027 but	trcl 5	imp:n=1 u=2	\$ Fuel Plate 5
260	2058	like 2028 but	trcl 5	imp:n=1 u=2	\$ Fuel Plate 5
261	c				
262	2062	like 2022 but	trcl 6	imp:n=1 u=2	\$ Fuel Plate 6
263	2063	like 2023 but	trcl 6	imp:n=1 u=2	\$ Fuel Plate 6
264	2064	like 2024 but	trcl 6	imp:n=1 u=2	\$ Fuel Plate 6
265	2065	like 2025 but	trcl 6	imp:n=1 u=2	\$ Fuel Plate 6
266	2066	like 2026 but	trcl 6	imp:n=1 u=2	\$ Fuel Plate 6
267	2067	like 2027 but	trcl 6	imp:n=1 u=2	\$ Fuel Plate 6
268	2068	like 2028 but	trcl 6	imp:n=1 u=2	\$ Fuel Plate 6
269	c				
270	2072	like 2022 but	trcl 7	imp:n=1 u=2	\$ Fuel Plate 7
271	2073	like 2023 but	trcl 7	imp:n=1 u=2	\$ Fuel Plate 7
272	2074	like 2024 but	trcl 7	imp:n=1 u=2	\$ Fuel Plate 7
273	2075	like 2025 but	trcl 7	imp:n=1 u=2	\$ Fuel Plate 7
274	2076	like 2026 but	trcl 7	imp:n=1 u=2	\$ Fuel Plate 7
275	2077	like 2027 but	trcl 7	imp:n=1 u=2	\$ Fuel Plate 7

276	2078	like 2028 but	trcl 7	imp:n=1 u=2	\$ Fuel Plate 7
277	c				
278	2082	like 2022 but	trcl 8	imp:n=1 u=2	\$ Fuel Plate 8
279	2083	like 2023 but	trcl 8	imp:n=1 u=2	\$ Fuel Plate 8
280	2084	like 2024 but	trcl 8	imp:n=1 u=2	\$ Fuel Plate 8
281	2085	like 2025 but	trcl 8	imp:n=1 u=2	\$ Fuel Plate 8
282	2086	like 2026 but	trcl 8	imp:n=1 u=2	\$ Fuel Plate 8
283	2087	like 2027 but	trcl 8	imp:n=1 u=2	\$ Fuel Plate 8
284	2088	like 2028 but	trcl 8	imp:n=1 u=2	\$ Fuel Plate 8
285	c				
286	2092	like 2022 but	trcl 9	imp:n=1 u=2	\$ Fuel Plate 9
287	2093	like 2023 but	trcl 9	imp:n=1 u=2	\$ Fuel Plate 9
288	2094	like 2024 but	trcl 9	imp:n=1 u=2	\$ Fuel Plate 9
289	2095	like 2025 but	trcl 9	imp:n=1 u=2	\$ Fuel Plate 9
290	2096	like 2026 but	trcl 9	imp:n=1 u=2	\$ Fuel Plate 9
291	2097	like 2027 but	trcl 9	imp:n=1 u=2	\$ Fuel Plate 9
292	2098	like 2028 but	trcl 9	imp:n=1 u=2	\$ Fuel Plate 9
293	c				
294	2102	like 2022 but	trcl 10	imp:n=1 u=2	\$ Fuel Plate 10
295	2103	like 2023 but	trcl 10	imp:n=1 u=2	\$ Fuel Plate 10
296	2104	like 2024 but	trcl 10	imp:n=1 u=2	\$ Fuel Plate 10
297	2105	like 2025 but	trcl 10	imp:n=1 u=2	\$ Fuel Plate 10
298	2106	like 2026 but	trcl 10	imp:n=1 u=2	\$ Fuel Plate 10
299	2107	like 2027 but	trcl 10	imp:n=1 u=2	\$ Fuel Plate 10
300	2108	like 2028 but	trcl 10	imp:n=1 u=2	\$ Fuel Plate 10
301	c				
302	2112	like 2022 but	trcl 11	imp:n=1 u=2	\$ Fuel Plate 11
303	2113	like 2023 but	trcl 11	imp:n=1 u=2	\$ Fuel Plate 11
304	2114	like 2024 but	trcl 11	imp:n=1 u=2	\$ Fuel Plate 11
305	2115	like 2025 but	trcl 11	imp:n=1 u=2	\$ Fuel Plate 11
306	2116	like 2026 but	trcl 11	imp:n=1 u=2	\$ Fuel Plate 11
307	2117	like 2027 but	trcl 11	imp:n=1 u=2	\$ Fuel Plate 11
308	2118	like 2028 but	trcl 11	imp:n=1 u=2	\$ Fuel Plate 11
309	c				
310	2122	like 2022 but	trcl 12	imp:n=1 u=2	\$ Fuel Plate 12
311	2123	like 2023 but	trcl 12	imp:n=1 u=2	\$ Fuel Plate 12
312	2124	like 2024 but	trcl 12	imp:n=1 u=2	\$ Fuel Plate 12
313	2125	like 2025 but	trcl 12	imp:n=1 u=2	\$ Fuel Plate 12
314	2126	like 2026 but	trcl 12	imp:n=1 u=2	\$ Fuel Plate 12
315	2127	like 2027 but	trcl 12	imp:n=1 u=2	\$ Fuel Plate 12
316	2128	like 2028 but	trcl 12	imp:n=1 u=2	\$ Fuel Plate 12
317	c				
318	2132	like 2022 but	trcl 13	imp:n=1 u=2	\$ Fuel Plate 13
319	2133	like 2023 but	trcl 13	imp:n=1 u=2	\$ Fuel Plate 13
320	2134	like 2024 but	trcl 13	imp:n=1 u=2	\$ Fuel Plate 13
321	2135	like 2025 but	trcl 13	imp:n=1 u=2	\$ Fuel Plate 13

322	2136		like 2026 but	trcl 13	imp:n=1 u=2	\$ Fuel Plate 13
323	2137		like 2027 but	trcl 13	imp:n=1 u=2	\$ Fuel Plate 13
324	2138		like 2028 but	trcl 13	imp:n=1 u=2	\$ Fuel Plate 13
325	c					
326	2142		like 2022 but	trcl 14	imp:n=1 u=2	\$ Fuel Plate 14
327	2143		like 2023 but	trcl 14	imp:n=1 u=2	\$ Fuel Plate 14
328	2144		like 2024 but	trcl 14	imp:n=1 u=2	\$ Fuel Plate 14
329	2145		like 2025 but	trcl 14	imp:n=1 u=2	\$ Fuel Plate 14
330	2146		like 2026 but	trcl 14	imp:n=1 u=2	\$ Fuel Plate 14
331	2147		like 2027 but	trcl 14	imp:n=1 u=2	\$ Fuel Plate 14
332	2148		like 2028 but	trcl 14	imp:n=1 u=2	\$ Fuel Plate 14
333	c					
334	2152		like 2022 but	trcl 15	imp:n=1 u=2	\$ Fuel Plate 15
335	2153		like 2023 but	trcl 15	imp:n=1 u=2	\$ Fuel Plate 15
336	2154		like 2024 but	trcl 15	imp:n=1 u=2	\$ Fuel Plate 15
337	2155		like 2025 but	trcl 15	imp:n=1 u=2	\$ Fuel Plate 15
338	2156		like 2026 but	trcl 15	imp:n=1 u=2	\$ Fuel Plate 15
339	2157		like 2027 but	trcl 15	imp:n=1 u=2	\$ Fuel Plate 15
340	2158		like 2028 but	trcl 15	imp:n=1 u=2	\$ Fuel Plate 15
341	c					
342	2162		like 2022 but	trcl 16	imp:n=1 u=2	\$ Fuel Plate 16
343	2163		like 2023 but	trcl 16	imp:n=1 u=2	\$ Fuel Plate 16
344	2164		like 2024 but	trcl 16	imp:n=1 u=2	\$ Fuel Plate 16
345	2165		like 2025 but	trcl 16	imp:n=1 u=2	\$ Fuel Plate 16
346	2166		like 2026 but	trcl 16	imp:n=1 u=2	\$ Fuel Plate 16
347	2167		like 2027 but	trcl 16	imp:n=1 u=2	\$ Fuel Plate 16
348	2168		like 2028 but	trcl 16	imp:n=1 u=2	\$ Fuel Plate 16
349	c					
350	2172		like 2022 but	trcl 17	imp:n=1 u=2	\$ Fuel Plate 17
351	2173		like 2023 but	trcl 17	imp:n=1 u=2	\$ Fuel Plate 17
352	2174		like 2024 but	trcl 17	imp:n=1 u=2	\$ Fuel Plate 17
353	2175		like 2025 but	trcl 17	imp:n=1 u=2	\$ Fuel Plate 17
354	2176		like 2026 but	trcl 17	imp:n=1 u=2	\$ Fuel Plate 17
355	2177		like 2027 but	trcl 17	imp:n=1 u=2	\$ Fuel Plate 17
356	2178		like 2028 but	trcl 17	imp:n=1 u=2	\$ Fuel Plate 17
357	c					
358	2191	102 -2.7	13 -10 4 -5 110 -111	trcl 19	imp:n=1 u=2	\$ Fuel Plate 19 (Trailing)
359	2192		like 2022 but	trcl 19	imp:n=1 u=2	\$ Fuel Plate 19 (Trailing)
360	2193		like 2023 but	trcl 19	imp:n=1 u=2	\$ Fuel Plate 19 (Trailing)
361	2194		like 2024 but	trcl 19	imp:n=1 u=2	\$ Fuel Plate 19 (Trailing)
362	2195		like 2025 but	trcl 19	imp:n=1 u=2	\$ Fuel Plate 19 (Trailing)
363	2196		like 2026 but	trcl 19	imp:n=1 u=2	\$ Fuel Plate 19 (Trailing)
364	2197		like 2027 but	trcl 19	imp:n=1 u=2	\$ Fuel Plate 19 (Trailing)
365	2198		like 2028 but	trcl 19	imp:n=1 u=2	\$ Fuel Plate 19 (Trailing)
366	2199	102 -2.7	13 -10 4 -5 114 -115	trcl 19	imp:n=1 u=2	\$ Fuel Plate 19 (Trailing)
367	c					

```

368 2300 101 -0.9931                                $ Water
369 #2001 #2002
370 #2011 #2012 #2013 #2014 #2015 #2016 #2017 #2018 #2019
371 #2022 #2023 #2024 #2025 #2026 #2027 #2028
372 #2032 #2033 #2034 #2035 #2036 #2037 #2038
373 #2042 #2043 #2044 #2045 #2046 #2047 #2048
374 #2052 #2053 #2054 #2055 #2056 #2057 #2058
375 #2062 #2063 #2064 #2065 #2066 #2067 #2068
376 #2072 #2073 #2074 #2075 #2076 #2077 #2078
377 #2082 #2083 #2084 #2085 #2086 #2087 #2088
378 #2092 #2093 #2094 #2095 #2096 #2097 #2098
379 #2102 #2103 #2104 #2105 #2106 #2107 #2108
380 #2112 #2113 #2114 #2115 #2116 #2117 #2118
381 #2122 #2123 #2124 #2125 #2126 #2127 #2128
382 #2132 #2133 #2134 #2135 #2136 #2137 #2138
383 #2142 #2143 #2144 #2145 #2146 #2147 #2148
384 #2152 #2153 #2154 #2155 #2156 #2157 #2158
385 #2162 #2163 #2164 #2165 #2166 #2167 #2168
386 #2172 #2173 #2174 #2175 #2176 #2177 #2178
387 #2191 #2192 #2193 #2194 #2195 #2196 #2197 #2198 #2199
388                                         imp:n=1 u=2
389 c
390 c cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
391 c
392 c   Regular Fuel Assembly (without Trailing Fuel Plate)
393 c
394 c cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
395 c
396 3001 102 -2.7      1   -2   3  -4      110 -115          imp:n=1 u=3 $ Lower Side Plate
397 3002 102 -2.7      1   -2   5  -6      110 -115          imp:n=1 u=3 $ Upper Side Plate
398 c
399 3011 102 -2.7      13  -10   4  -5  110 -111          imp:n=1 u=3 $ Fuel Plate 1 (Leftmost)
400 3012 102 -2.7      13  -10   4  -5  111 -112          imp:n=1 u=3 $ Fuel Plate 1 (Leftmost)
401 3013 102 -2.7      11  -10   4  -5  112 -113          imp:n=1 u=3 $ Fuel Plate 1 (Leftmost)
402 3014 102 -2.7      12  -11 -15  -5  112 -113          imp:n=1 u=3 $ Fuel Plate 1 (Leftmost)
403 3015 103 -2.881093  12  -11 -14  15  112 -113          imp:n=1 u=3 $ Fuel Plate 1 (Leftmost)
404 3016 102 -2.7      12  -11  14   4  112 -113          imp:n=1 u=3 $ Fuel Plate 1 (Leftmost)
405 3017 102 -2.7      13  -12   4  -5  112 -113          imp:n=1 u=3 $ Fuel Plate 1 (Leftmost)
406 3018 102 -2.7      13  -10   4  -5  113 -114          imp:n=1 u=3 $ Fuel Plate 1 (Leftmost)
407 3019 102 -2.7      13  -10   4  -5  114 -115          imp:n=1 u=3 $ Fuel Plate 1 (Leftmost)
408 c
409 3022 102 -2.7      13  -10   4  -5  111 -112          trcl 2   imp:n=1 u=3 $ Fuel Plate 2
410 3023 102 -2.7      11  -10   4  -5  112 -113          trcl 2   imp:n=1 u=3 $ Fuel Plate 2
411 3024 102 -2.7      12  -11 -15  -5  112 -113          trcl 2   imp:n=1 u=3 $ Fuel Plate 2
412 3025 103 -2.881093  12  -11 -14  15  112 -113          trcl 2   imp:n=1 u=3 $ Fuel Plate 2
413 3026 102 -2.7      12  -11  14   4  112 -113          trcl 2   imp:n=1 u=3 $ Fuel Plate 2

```

414	3027	102	-2.7	13	-12	4	-5	112	-113	trcl	2	imp:n=1	u=3	\$ Fuel Plate 2			
415	3028	102	-2.7	13	-10	4	-5	113	-114	trcl	2	imp:n=1	u=3	\$ Fuel Plate 2			
416	c																
417	3032									like	3022	but	trcl	3	imp:n=1	u=3	\$ Fuel Plate 3
418	3033									like	3023	but	trcl	3	imp:n=1	u=3	\$ Fuel Plate 3
419	3034									like	3024	but	trcl	3	imp:n=1	u=3	\$ Fuel Plate 3
420	3035									like	3025	but	trcl	3	imp:n=1	u=3	\$ Fuel Plate 3
421	3036									like	3026	but	trcl	3	imp:n=1	u=3	\$ Fuel Plate 3
422	3037									like	3027	but	trcl	3	imp:n=1	u=3	\$ Fuel Plate 3
423	3038									like	3028	but	trcl	3	imp:n=1	u=3	\$ Fuel Plate 3
424	c																
425	3042									like	3022	but	trcl	4	imp:n=1	u=3	\$ Fuel Plate 4
426	3043									like	3023	but	trcl	4	imp:n=1	u=3	\$ Fuel Plate 4
427	3044									like	3024	but	trcl	4	imp:n=1	u=3	\$ Fuel Plate 4
428	3045									like	3025	but	trcl	4	imp:n=1	u=3	\$ Fuel Plate 4
429	3046									like	3026	but	trcl	4	imp:n=1	u=3	\$ Fuel Plate 4
430	3047									like	3027	but	trcl	4	imp:n=1	u=3	\$ Fuel Plate 4
431	3048									like	3028	but	trcl	4	imp:n=1	u=3	\$ Fuel Plate 4
432	c																
433	3052									like	3022	but	trcl	5	imp:n=1	u=3	\$ Fuel Plate 5
434	3053									like	3023	but	trcl	5	imp:n=1	u=3	\$ Fuel Plate 5
435	3054									like	3024	but	trcl	5	imp:n=1	u=3	\$ Fuel Plate 5
436	3055									like	3025	but	trcl	5	imp:n=1	u=3	\$ Fuel Plate 5
437	3056									like	3026	but	trcl	5	imp:n=1	u=3	\$ Fuel Plate 5
438	3057									like	3027	but	trcl	5	imp:n=1	u=3	\$ Fuel Plate 5
439	3058									like	3028	but	trcl	5	imp:n=1	u=3	\$ Fuel Plate 5
440	c																
441	3062									like	3022	but	trcl	6	imp:n=1	u=3	\$ Fuel Plate 6
442	3063									like	3023	but	trcl	6	imp:n=1	u=3	\$ Fuel Plate 6
443	3064									like	3024	but	trcl	6	imp:n=1	u=3	\$ Fuel Plate 6
444	3065									like	3025	but	trcl	6	imp:n=1	u=3	\$ Fuel Plate 6
445	3066									like	3026	but	trcl	6	imp:n=1	u=3	\$ Fuel Plate 6
446	3067									like	3027	but	trcl	6	imp:n=1	u=3	\$ Fuel Plate 6
447	3068									like	3028	but	trcl	6	imp:n=1	u=3	\$ Fuel Plate 6
448	c																
449	3072									like	3022	but	trcl	7	imp:n=1	u=3	\$ Fuel Plate 7
450	3073									like	3023	but	trcl	7	imp:n=1	u=3	\$ Fuel Plate 7
451	3074									like	3024	but	trcl	7	imp:n=1	u=3	\$ Fuel Plate 7
452	3075									like	3025	but	trcl	7	imp:n=1	u=3	\$ Fuel Plate 7
453	3076									like	3026	but	trcl	7	imp:n=1	u=3	\$ Fuel Plate 7
454	3077									like	3027	but	trcl	7	imp:n=1	u=3	\$ Fuel Plate 7
455	3078									like	3028	but	trcl	7	imp:n=1	u=3	\$ Fuel Plate 7
456	c																
457	3082									like	3022	but	trcl	8	imp:n=1	u=3	\$ Fuel Plate 8
458	3083									like	3023	but	trcl	8	imp:n=1	u=3	\$ Fuel Plate 8
459	3084									like	3024	but	trcl	8	imp:n=1	u=3	\$ Fuel Plate 8

460	3085	like 3025 but	trcl 8	imp:n=1 u=3	\$ Fuel Plate 8
461	3086	like 3026 but	trcl 8	imp:n=1 u=3	\$ Fuel Plate 8
462	3087	like 3027 but	trcl 8	imp:n=1 u=3	\$ Fuel Plate 8
463	3088	like 3028 but	trcl 8	imp:n=1 u=3	\$ Fuel Plate 8
464	c				
465	3092	like 3022 but	trcl 9	imp:n=1 u=3	\$ Fuel Plate 9
466	3093	like 3023 but	trcl 9	imp:n=1 u=3	\$ Fuel Plate 9
467	3094	like 3024 but	trcl 9	imp:n=1 u=3	\$ Fuel Plate 9
468	3095	like 3025 but	trcl 9	imp:n=1 u=3	\$ Fuel Plate 9
469	3096	like 3026 but	trcl 9	imp:n=1 u=3	\$ Fuel Plate 9
470	3097	like 3027 but	trcl 9	imp:n=1 u=3	\$ Fuel Plate 9
471	3098	like 3028 but	trcl 9	imp:n=1 u=3	\$ Fuel Plate 9
472	c				
473	3102	like 3022 but	trcl 10	imp:n=1 u=3	\$ Fuel Plate 10
474	3103	like 3023 but	trcl 10	imp:n=1 u=3	\$ Fuel Plate 10
475	3104	like 3024 but	trcl 10	imp:n=1 u=3	\$ Fuel Plate 10
476	3105	like 3025 but	trcl 10	imp:n=1 u=3	\$ Fuel Plate 10
477	3106	like 3026 but	trcl 10	imp:n=1 u=3	\$ Fuel Plate 10
478	3107	like 3027 but	trcl 10	imp:n=1 u=3	\$ Fuel Plate 10
479	3108	like 3028 but	trcl 10	imp:n=1 u=3	\$ Fuel Plate 10
480	c				
481	3112	like 3022 but	trcl 11	imp:n=1 u=3	\$ Fuel Plate 11
482	3113	like 3023 but	trcl 11	imp:n=1 u=3	\$ Fuel Plate 11
483	3114	like 3024 but	trcl 11	imp:n=1 u=3	\$ Fuel Plate 11
484	3115	like 3025 but	trcl 11	imp:n=1 u=3	\$ Fuel Plate 11
485	3116	like 3026 but	trcl 11	imp:n=1 u=3	\$ Fuel Plate 11
486	3117	like 3027 but	trcl 11	imp:n=1 u=3	\$ Fuel Plate 11
487	3118	like 3028 but	trcl 11	imp:n=1 u=3	\$ Fuel Plate 11
488	c				
489	3122	like 3022 but	trcl 12	imp:n=1 u=3	\$ Fuel Plate 12
490	3123	like 3023 but	trcl 12	imp:n=1 u=3	\$ Fuel Plate 12
491	3124	like 3024 but	trcl 12	imp:n=1 u=3	\$ Fuel Plate 12
492	3125	like 3025 but	trcl 12	imp:n=1 u=3	\$ Fuel Plate 12
493	3126	like 3026 but	trcl 12	imp:n=1 u=3	\$ Fuel Plate 12
494	3127	like 3027 but	trcl 12	imp:n=1 u=3	\$ Fuel Plate 12
495	3128	like 3028 but	trcl 12	imp:n=1 u=3	\$ Fuel Plate 12
496	c				
497	3132	like 3022 but	trcl 13	imp:n=1 u=3	\$ Fuel Plate 13
498	3133	like 3023 but	trcl 13	imp:n=1 u=3	\$ Fuel Plate 13
499	3134	like 3024 but	trcl 13	imp:n=1 u=3	\$ Fuel Plate 13
500	3135	like 3025 but	trcl 13	imp:n=1 u=3	\$ Fuel Plate 13
501	3136	like 3026 but	trcl 13	imp:n=1 u=3	\$ Fuel Plate 13
502	3137	like 3027 but	trcl 13	imp:n=1 u=3	\$ Fuel Plate 13
503	3138	like 3028 but	trcl 13	imp:n=1 u=3	\$ Fuel Plate 13
504	c				
505	3142	like 3022 but	trcl 14	imp:n=1 u=3	\$ Fuel Plate 14

506	3143				like 3023 but		trcl 14	imp:n=1 u=3	\$ Fuel Plate 14	
507	3144				like 3024 but		trcl 14	imp:n=1 u=3	\$ Fuel Plate 14	
508	3145				like 3025 but		trcl 14	imp:n=1 u=3	\$ Fuel Plate 14	
509	3146				like 3026 but		trcl 14	imp:n=1 u=3	\$ Fuel Plate 14	
510	3147				like 3027 but		trcl 14	imp:n=1 u=3	\$ Fuel Plate 14	
511	3148				like 3028 but		trcl 14	imp:n=1 u=3	\$ Fuel Plate 14	
512	c									
513	3152				like 3022 but		trcl 15	imp:n=1 u=3	\$ Fuel Plate 15	
514	3153				like 3023 but		trcl 15	imp:n=1 u=3	\$ Fuel Plate 15	
515	3154				like 3024 but		trcl 15	imp:n=1 u=3	\$ Fuel Plate 15	
516	3155				like 3025 but		trcl 15	imp:n=1 u=3	\$ Fuel Plate 15	
517	3156				like 3026 but		trcl 15	imp:n=1 u=3	\$ Fuel Plate 15	
518	3157				like 3027 but		trcl 15	imp:n=1 u=3	\$ Fuel Plate 15	
519	3158				like 3028 but		trcl 15	imp:n=1 u=3	\$ Fuel Plate 15	
520	c									
521	3162				like 3022 but		trcl 16	imp:n=1 u=3	\$ Fuel Plate 16	
522	3163				like 3023 but		trcl 16	imp:n=1 u=3	\$ Fuel Plate 16	
523	3164				like 3024 but		trcl 16	imp:n=1 u=3	\$ Fuel Plate 16	
524	3165				like 3025 but		trcl 16	imp:n=1 u=3	\$ Fuel Plate 16	
525	3166				like 3026 but		trcl 16	imp:n=1 u=3	\$ Fuel Plate 16	
526	3167				like 3027 but		trcl 16	imp:n=1 u=3	\$ Fuel Plate 16	
527	3168				like 3028 but		trcl 16	imp:n=1 u=3	\$ Fuel Plate 16	
528	c									
529	3172				like 3022 but		trcl 17	imp:n=1 u=3	\$ Fuel Plate 17	
530	3173				like 3023 but		trcl 17	imp:n=1 u=3	\$ Fuel Plate 17	
531	3174				like 3024 but		trcl 17	imp:n=1 u=3	\$ Fuel Plate 17	
532	3175				like 3025 but		trcl 17	imp:n=1 u=3	\$ Fuel Plate 17	
533	3176				like 3026 but		trcl 17	imp:n=1 u=3	\$ Fuel Plate 17	
534	3177				like 3027 but		trcl 17	imp:n=1 u=3	\$ Fuel Plate 17	
535	3178				like 3028 but		trcl 17	imp:n=1 u=3	\$ Fuel Plate 17	
536	c									
537	3181	102 -2.7	13 -10	4 -5	110 -111		trcl 18	imp:n=1 u=3	\$ Fuel Plate 18	
538	3182				like 3022 but		trcl 18	imp:n=1 u=3	\$ Fuel Plate 18	
539	3183				like 3023 but		trcl 18	imp:n=1 u=3	\$ Fuel Plate 18	
540	3184				like 3024 but		trcl 18	imp:n=1 u=3	\$ Fuel Plate 18	
541	3185				like 3025 but		trcl 18	imp:n=1 u=3	\$ Fuel Plate 18	
542	3186				like 3026 but		trcl 18	imp:n=1 u=3	\$ Fuel Plate 18	
543	3187				like 3027 but		trcl 18	imp:n=1 u=3	\$ Fuel Plate 18	
544	3188				like 3028 but		trcl 18	imp:n=1 u=3	\$ Fuel Plate 18	
545	3189	102 -2.7	13 -10	4 -5	114 -115		trcl 18	imp:n=1 u=3	\$ Fuel Plate 18	
546	c									
547	3300	101 -0.9931							\$ Water	
548		#3001	#3002							
549		#3011	#3012	#3013	#3014	#3015	#3016	#3017	#3018	#3019
550		#3022	#3023	#3024	#3025	#3026	#3027	#3028		
551		#3032	#3033	#3034	#3035	#3036	#3037	#3038		


```
552      #3042 #3043 #3044 #3045 #3046 #3047 #3048
553      #3052 #3053 #3054 #3055 #3056 #3057 #3058
554      #3062 #3063 #3064 #3065 #3066 #3067 #3068
555      #3072 #3073 #3074 #3075 #3076 #3077 #3078
556      #3082 #3083 #3084 #3085 #3086 #3087 #3088
557      #3092 #3093 #3094 #3095 #3096 #3097 #3098
558      #3102 #3103 #3104 #3105 #3106 #3107 #3108
559      #3112 #3113 #3114 #3115 #3116 #3117 #3118
560      #3122 #3123 #3124 #3125 #3126 #3127 #3128
561      #3132 #3133 #3134 #3135 #3136 #3137 #3138
562      #3142 #3143 #3144 #3145 #3146 #3147 #3148
563      #3152 #3153 #3154 #3155 #3156 #3157 #3158
564      #3162 #3163 #3164 #3165 #3166 #3167 #3168
565      #3172 #3173 #3174 #3175 #3176 #3177 #3178
566      #3181 #3182 #3183 #3184 #3185 #3186 #3187 #3188 #3189
```

```
567      imp:n=1 u=3
568 c
569 c cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
570 c
```

```
571 c Fuel Assembly Ahead of Control Rod Assembly
```

```
572 c
573 c cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
574 c
```

```
575 4001 102 -2.7      1   -2   3  -4      110 -115      imp:n=1 u=4 $ Lower Side Plate
576 4002 102 -2.7      1   -2   5  -6      110 -115      imp:n=1 u=4 $ Upper Side Plate
577 c
578 4011 102 -2.7      13  -10   4  -5 110 -111      imp:n=1 u=4 $ Fuel Plate 1 (Leftmost)  Lowest Aluminum Region
579 4012 102 -2.7      13  -10   4  -5 111 -112      imp:n=1 u=4 $ Fuel Plate 1 (Leftmost)  Lower Aluminum Region
580 4013 102 -2.7      11  -10   4  -5 112 -113      imp:n=1 u=4 $ Fuel Plate 1 (Leftmost)  Left Aluminum Wall
581 4014 102 -2.7      12  -11 -15  -5 112 -113      imp:n=1 u=4 $ Fuel Plate 1 (Leftmost)  Upper Aluminum Spacer
582 4015 103 -2.881093 12  -11 -14 15 112 -113      imp:n=1 u=4 $ Fuel Plate 1 (Leftmost) Fuel
583 4016 102 -2.7      12  -11 14   4 112 -113      imp:n=1 u=4 $ Fuel Plate 1 (Leftmost)  Right Aluminum Wall
584 4017 102 -2.7      13  -12   4  -5 112 -113      imp:n=1 u=4 $ Fuel Plate 1 (Leftmost)  Lower Aluminum Spacer
585 4018 102 -2.7      13  -10   4  -5 113 -114      imp:n=1 u=4 $ Fuel Plate 1 (Leftmost)  Upper Aluminum Region
586 4019 102 -2.7      13  -10   4  -5 114 -115      imp:n=1 u=4 $ Fuel Plate 1 (Leftmost) Highest Aluminum Region
```

```
587 c
588 4022 102 -2.7      13  -10   4  -5 111 -112      trcl 2 imp:n=1 u=4 $ Fuel Plate 2
589 4023 102 -2.7      11  -10   4  -5 112 -113      trcl 2 imp:n=1 u=4 $ Fuel Plate 2
590 4024 102 -2.7      12  -11 -15  -5 112 -113      trcl 2 imp:n=1 u=4 $ Fuel Plate 2
591 4025 103 -2.881093 12  -11 -14 15 112 -113      trcl 2 imp:n=1 u=4 $ Fuel Plate 2
592 4026 102 -2.7      12  -11 14   4 112 -113      trcl 2 imp:n=1 u=4 $ Fuel Plate 2
593 4027 102 -2.7      13  -12   4  -5 112 -113      trcl 2 imp:n=1 u=4 $ Fuel Plate 2
594 4028 102 -2.7      13  -10   4  -5 113 -114      trcl 2 imp:n=1 u=4 $ Fuel Plate 2
```

```
595 c
596 4032      like 4022 but      trcl 3 imp:n=1 u=4 $ Fuel Plate 3
597 4033      like 4023 but      trcl 3 imp:n=1 u=4 $ Fuel Plate 3
```

598	4034	like 4024 but	trcl 3	imp:n=1 u=4	\$ Fuel Plate 3
599	4035	like 4025 but	trcl 3	imp:n=1 u=4	\$ Fuel Plate 3
600	4036	like 4026 but	trcl 3	imp:n=1 u=4	\$ Fuel Plate 3
601	4037	like 4027 but	trcl 3	imp:n=1 u=4	\$ Fuel Plate 3
602	4038	like 4028 but	trcl 3	imp:n=1 u=4	\$ Fuel Plate 3
603	c				
604	4042	like 4022 but	trcl 4	imp:n=1 u=4	\$ Fuel Plate 4
605	4043	like 4023 but	trcl 4	imp:n=1 u=4	\$ Fuel Plate 4
606	4044	like 4024 but	trcl 4	imp:n=1 u=4	\$ Fuel Plate 4
607	4045	like 4025 but	trcl 4	imp:n=1 u=4	\$ Fuel Plate 4
608	4046	like 4026 but	trcl 4	imp:n=1 u=4	\$ Fuel Plate 4
609	4047	like 4027 but	trcl 4	imp:n=1 u=4	\$ Fuel Plate 4
610	4048	like 4028 but	trcl 4	imp:n=1 u=4	\$ Fuel Plate 4
611	c				
612	4052	like 4022 but	trcl 5	imp:n=1 u=4	\$ Fuel Plate 5
613	4053	like 4023 but	trcl 5	imp:n=1 u=4	\$ Fuel Plate 5
614	4054	like 4024 but	trcl 5	imp:n=1 u=4	\$ Fuel Plate 5
615	4055	like 4025 but	trcl 5	imp:n=1 u=4	\$ Fuel Plate 5
616	4056	like 4026 but	trcl 5	imp:n=1 u=4	\$ Fuel Plate 5
617	4057	like 4027 but	trcl 5	imp:n=1 u=4	\$ Fuel Plate 5
618	4058	like 4028 but	trcl 5	imp:n=1 u=4	\$ Fuel Plate 5
619	c				
620	4062	like 4022 but	trcl 6	imp:n=1 u=4	\$ Fuel Plate 6
621	4063	like 4023 but	trcl 6	imp:n=1 u=4	\$ Fuel Plate 6
622	4064	like 4024 but	trcl 6	imp:n=1 u=4	\$ Fuel Plate 6
623	4065	like 4025 but	trcl 6	imp:n=1 u=4	\$ Fuel Plate 6
624	4066	like 4026 but	trcl 6	imp:n=1 u=4	\$ Fuel Plate 6
625	4067	like 4027 but	trcl 6	imp:n=1 u=4	\$ Fuel Plate 6
626	4068	like 4028 but	trcl 6	imp:n=1 u=4	\$ Fuel Plate 6
627	c				
628	4072	like 4022 but	trcl 7	imp:n=1 u=4	\$ Fuel Plate 7
629	4073	like 4023 but	trcl 7	imp:n=1 u=4	\$ Fuel Plate 7
630	4074	like 4024 but	trcl 7	imp:n=1 u=4	\$ Fuel Plate 7
631	4075	like 4025 but	trcl 7	imp:n=1 u=4	\$ Fuel Plate 7
632	4076	like 4026 but	trcl 7	imp:n=1 u=4	\$ Fuel Plate 7
633	4077	like 4027 but	trcl 7	imp:n=1 u=4	\$ Fuel Plate 7
634	4078	like 4028 but	trcl 7	imp:n=1 u=4	\$ Fuel Plate 7
635	c				
636	4082	like 4022 but	trcl 8	imp:n=1 u=4	\$ Fuel Plate 8
637	4083	like 4023 but	trcl 8	imp:n=1 u=4	\$ Fuel Plate 8
638	4084	like 4024 but	trcl 8	imp:n=1 u=4	\$ Fuel Plate 8
639	4085	like 4025 but	trcl 8	imp:n=1 u=4	\$ Fuel Plate 8
640	4086	like 4026 but	trcl 8	imp:n=1 u=4	\$ Fuel Plate 8
641	4087	like 4027 but	trcl 8	imp:n=1 u=4	\$ Fuel Plate 8
642	4088	like 4028 but	trcl 8	imp:n=1 u=4	\$ Fuel Plate 8
643	c				

644	4092	like 4022 but	trcl 9	imp:n=1 u=4	\$ Fuel Plate 9
645	4093	like 4023 but	trcl 9	imp:n=1 u=4	\$ Fuel Plate 9
646	4094	like 4024 but	trcl 9	imp:n=1 u=4	\$ Fuel Plate 9
647	4095	like 4025 but	trcl 9	imp:n=1 u=4	\$ Fuel Plate 9
648	4096	like 4026 but	trcl 9	imp:n=1 u=4	\$ Fuel Plate 9
649	4097	like 4027 but	trcl 9	imp:n=1 u=4	\$ Fuel Plate 9
650	4098	like 4028 but	trcl 9	imp:n=1 u=4	\$ Fuel Plate 9
651	c				
652	4102	like 4022 but	trcl 10	imp:n=1 u=4	\$ Fuel Plate 10
653	4103	like 4023 but	trcl 10	imp:n=1 u=4	\$ Fuel Plate 10
654	4104	like 4024 but	trcl 10	imp:n=1 u=4	\$ Fuel Plate 10
655	4105	like 4025 but	trcl 10	imp:n=1 u=4	\$ Fuel Plate 10
656	4106	like 4026 but	trcl 10	imp:n=1 u=4	\$ Fuel Plate 10
657	4107	like 4027 but	trcl 10	imp:n=1 u=4	\$ Fuel Plate 10
658	4108	like 4028 but	trcl 10	imp:n=1 u=4	\$ Fuel Plate 10
659	c				
660	4112	like 4022 but	trcl 11	imp:n=1 u=4	\$ Fuel Plate 11
661	4113	like 4023 but	trcl 11	imp:n=1 u=4	\$ Fuel Plate 11
662	4114	like 4024 but	trcl 11	imp:n=1 u=4	\$ Fuel Plate 11
663	4115	like 4025 but	trcl 11	imp:n=1 u=4	\$ Fuel Plate 11
664	4116	like 4026 but	trcl 11	imp:n=1 u=4	\$ Fuel Plate 11
665	4117	like 4027 but	trcl 11	imp:n=1 u=4	\$ Fuel Plate 11
666	4118	like 4028 but	trcl 11	imp:n=1 u=4	\$ Fuel Plate 11
667	c				
668	4122	like 4022 but	trcl 12	imp:n=1 u=4	\$ Fuel Plate 12
669	4123	like 4023 but	trcl 12	imp:n=1 u=4	\$ Fuel Plate 12
670	4124	like 4024 but	trcl 12	imp:n=1 u=4	\$ Fuel Plate 12
671	4125	like 4025 but	trcl 12	imp:n=1 u=4	\$ Fuel Plate 12
672	4126	like 4026 but	trcl 12	imp:n=1 u=4	\$ Fuel Plate 12
673	4127	like 4027 but	trcl 12	imp:n=1 u=4	\$ Fuel Plate 12
674	4128	like 4028 but	trcl 12	imp:n=1 u=4	\$ Fuel Plate 12
675	c				
676	4132	like 4022 but	trcl 13	imp:n=1 u=4	\$ Fuel Plate 13
677	4133	like 4023 but	trcl 13	imp:n=1 u=4	\$ Fuel Plate 13
678	4134	like 4024 but	trcl 13	imp:n=1 u=4	\$ Fuel Plate 13
679	4135	like 4025 but	trcl 13	imp:n=1 u=4	\$ Fuel Plate 13
680	4136	like 4026 but	trcl 13	imp:n=1 u=4	\$ Fuel Plate 13
681	4137	like 4027 but	trcl 13	imp:n=1 u=4	\$ Fuel Plate 13
682	4138	like 4028 but	trcl 13	imp:n=1 u=4	\$ Fuel Plate 13
683	c				
684	4142	like 4022 but	trcl 14	imp:n=1 u=4	\$ Fuel Plate 14
685	4143	like 4023 but	trcl 14	imp:n=1 u=4	\$ Fuel Plate 14
686	4144	like 4024 but	trcl 14	imp:n=1 u=4	\$ Fuel Plate 14
687	4145	like 4025 but	trcl 14	imp:n=1 u=4	\$ Fuel Plate 14
688	4146	like 4026 but	trcl 14	imp:n=1 u=4	\$ Fuel Plate 14
689	4147	like 4027 but	trcl 14	imp:n=1 u=4	\$ Fuel Plate 14

690	4148		like 4028 but		trcl 14	imp:n=1 u=4	\$ Fuel Plate 14
691	c						
692	4152		like 4022 but		trcl 15	imp:n=1 u=4	\$ Fuel Plate 15
693	4153		like 4023 but		trcl 15	imp:n=1 u=4	\$ Fuel Plate 15
694	4154		like 4024 but		trcl 15	imp:n=1 u=4	\$ Fuel Plate 15
695	4155		like 4025 but		trcl 15	imp:n=1 u=4	\$ Fuel Plate 15
696	4156		like 4026 but		trcl 15	imp:n=1 u=4	\$ Fuel Plate 15
697	4157		like 4027 but		trcl 15	imp:n=1 u=4	\$ Fuel Plate 15
698	4158		like 4028 but		trcl 15	imp:n=1 u=4	\$ Fuel Plate 15
699	c						
700	4162		like 4022 but		trcl 16	imp:n=1 u=4	\$ Fuel Plate 16
701	4163		like 4023 but		trcl 16	imp:n=1 u=4	\$ Fuel Plate 16
702	4164		like 4024 but		trcl 16	imp:n=1 u=4	\$ Fuel Plate 16
703	4165		like 4025 but		trcl 16	imp:n=1 u=4	\$ Fuel Plate 16
704	4166		like 4026 but		trcl 16	imp:n=1 u=4	\$ Fuel Plate 16
705	4167		like 4027 but		trcl 16	imp:n=1 u=4	\$ Fuel Plate 16
706	4168		like 4028 but		trcl 16	imp:n=1 u=4	\$ Fuel Plate 16
707	c						
708	4172		like 4022 but		trcl 17	imp:n=1 u=4	\$ Fuel Plate 17
709	4173		like 4023 but		trcl 17	imp:n=1 u=4	\$ Fuel Plate 17
710	4174		like 4024 but		trcl 17	imp:n=1 u=4	\$ Fuel Plate 17
711	4175		like 4025 but		trcl 17	imp:n=1 u=4	\$ Fuel Plate 17
712	4176		like 4026 but		trcl 17	imp:n=1 u=4	\$ Fuel Plate 17
713	4177		like 4027 but		trcl 17	imp:n=1 u=4	\$ Fuel Plate 17
714	4178		like 4028 but		trcl 17	imp:n=1 u=4	\$ Fuel Plate 17
715	c						
716	4181	102 -2.7		13 -10 4 -5 110 -111	trcl 18	imp:n=1 u=4	\$ Fuel Plate 18
717	4182		like 4022 but		trcl 18	imp:n=1 u=4	\$ Fuel Plate 18
718	4183		like 4023 but		trcl 18	imp:n=1 u=4	\$ Fuel Plate 18
719	4184		like 4024 but		trcl 18	imp:n=1 u=4	\$ Fuel Plate 18
720	4185		like 4025 but		trcl 18	imp:n=1 u=4	\$ Fuel Plate 18
721	4186		like 4026 but		trcl 18	imp:n=1 u=4	\$ Fuel Plate 18
722	4187		like 4027 but		trcl 18	imp:n=1 u=4	\$ Fuel Plate 18
723	4188		like 4028 but		trcl 18	imp:n=1 u=4	\$ Fuel Plate 18
724	4189	102 -2.7		13 -10 4 -5 114 -115	trcl 18	imp:n=1 u=4	\$ Fuel Plate 18
725	c						
726	4192		like 4022 but		trcl 19	imp:n=1 u=4	\$ Fuel Plate 19 (Trailing)
727	4193		like 4023 but		trcl 19	imp:n=1 u=4	\$ Fuel Plate 19 (Trailing)
728	4194		like 4024 but		trcl 19	imp:n=1 u=4	\$ Fuel Plate 19 (Trailing)
729	4195		like 4025 but		trcl 19	imp:n=1 u=4	\$ Fuel Plate 19 (Trailing)
730	4196		like 4026 but		trcl 19	imp:n=1 u=4	\$ Fuel Plate 19 (Trailing)
731	4197		like 4027 but		trcl 19	imp:n=1 u=4	\$ Fuel Plate 19 (Trailing)
732	4198		like 4028 but		trcl 19	imp:n=1 u=4	\$ Fuel Plate 19 (Trailing)
733	c						
734	4300	101 -0.9931					\$ Water
735			#4001 #4002				

```
736          #4011 #4012 #4013 #4014 #4015 #4016 #4017 #4018 #4019
737          #4022 #4023 #4024 #4025 #4026 #4027 #4028
738          #4032 #4033 #4034 #4035 #4036 #4037 #4038
739          #4042 #4043 #4044 #4045 #4046 #4047 #4048
740          #4052 #4053 #4054 #4055 #4056 #4057 #4058
741          #4062 #4063 #4064 #4065 #4066 #4067 #4068
742          #4072 #4073 #4074 #4075 #4076 #4077 #4078
743          #4082 #4083 #4084 #4085 #4086 #4087 #4088
744          #4092 #4093 #4094 #4095 #4096 #4097 #4098
745          #4102 #4103 #4104 #4105 #4106 #4107 #4108
746          #4112 #4113 #4114 #4115 #4116 #4117 #4118
747          #4122 #4123 #4124 #4125 #4126 #4127 #4128
748          #4132 #4133 #4134 #4135 #4136 #4137 #4138
749          #4142 #4143 #4144 #4145 #4146 #4147 #4148
750          #4152 #4153 #4154 #4155 #4156 #4157 #4158
751          #4162 #4163 #4164 #4165 #4166 #4167 #4168
752          #4172 #4173 #4174 #4175 #4176 #4177 #4178
753          #4181 #4182 #4183 #4184 #4185 #4186 #4187 #4188 #4189
754          #4192 #4193 #4194 #4195 #4196 #4197 #4198
755                                           imp:n=1 u=4
756 c
757 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
758 c
759 c   Front Control Rod In Fuel Assembly (Ahead of M-48/49-H)
760 c
761 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
762 c
763 5001 102 -2.7      1  -2  3  -4   110 -115      imp:n=1 u=5 $ Lower Side Plate
764 5002 102 -2.7      1  -2  5  -6   110 -115      imp:n=1 u=5 $ Upper Side Plate
765 c
766 5012 102 -2.7      13 -10  4  -5  111 -112      imp:n=1 u=5 $ Fuel Plate 1 (Leftmost)
767 5013 102 -2.7      11 -10  4  -5  112 -113      imp:n=1 u=5 $ Fuel Plate 1 (Leftmost)
768 5014 102 -2.7      12 -11 -15  -5  112 -113      imp:n=1 u=5 $ Fuel Plate 1 (Leftmost)
769 5015 103 -2.881093 12 -11 -14  15  112 -113      imp:n=1 u=5 $ Fuel Plate 1 (Leftmost)
770 5016 102 -2.7      12 -11  14   4  112 -113      imp:n=1 u=5 $ Fuel Plate 1 (Leftmost)
771 5017 102 -2.7      13 -12  4  -5  112 -113      imp:n=1 u=5 $ Fuel Plate 1 (Leftmost)
772 5018 102 -2.7      13 -10  4  -5  113 -114      imp:n=1 u=5 $ Fuel Plate 1 (Leftmost)
773 c
774 5022 102 -2.7      13 -10  4  -5  111 -112      trcl  2  imp:n=1 u=5 $ Fuel Plate 2
775 5023 102 -2.7      11 -10  4  -5  112 -113      trcl  2  imp:n=1 u=5 $ Fuel Plate 2
776 5024 102 -2.7      12 -11 -15  -5  112 -113      trcl  2  imp:n=1 u=5 $ Fuel Plate 2
777 5025 103 -2.881093 12 -11 -14  15  112 -113      trcl  2  imp:n=1 u=5 $ Fuel Plate 2
778 5026 102 -2.7      12 -11  14   4  112 -113      trcl  2  imp:n=1 u=5 $ Fuel Plate 2
779 5027 102 -2.7      13 -12  4  -5  112 -113      trcl  2  imp:n=1 u=5 $ Fuel Plate 2
780 5028 102 -2.7      13 -10  4  -5  113 -114      trcl  2  imp:n=1 u=5 $ Fuel Plate 2
781 c
```

782	5032		like 5022 but	trcl	3	imp:n=1 u=5	\$ Fuel Plate 3
783	5033		like 5023 but	trcl	3	imp:n=1 u=5	\$ Fuel Plate 3
784	5034		like 5024 but	trcl	3	imp:n=1 u=5	\$ Fuel Plate 3
785	5035		like 5025 but	trcl	3	imp:n=1 u=5	\$ Fuel Plate 3
786	5036		like 5026 but	trcl	3	imp:n=1 u=5	\$ Fuel Plate 3
787	5037		like 5027 but	trcl	3	imp:n=1 u=5	\$ Fuel Plate 3
788	5038		like 5028 but	trcl	3	imp:n=1 u=5	\$ Fuel Plate 3
789	c						
790	5042		like 5022 but	trcl	4	imp:n=1 u=5	\$ Fuel Plate 4
791	5043		like 5023 but	trcl	4	imp:n=1 u=5	\$ Fuel Plate 4
792	5044		like 5024 but	trcl	4	imp:n=1 u=5	\$ Fuel Plate 4
793	5045		like 5025 but	trcl	4	imp:n=1 u=5	\$ Fuel Plate 4
794	5046		like 5026 but	trcl	4	imp:n=1 u=5	\$ Fuel Plate 4
795	5047		like 5027 but	trcl	4	imp:n=1 u=5	\$ Fuel Plate 4
796	5048		like 5028 but	trcl	4	imp:n=1 u=5	\$ Fuel Plate 4
797	c						
798	5400	102 -2.7	30 -31 4 -5	111 -114		imp:n=1 u=5	\$ Left Control Rod Channel Wall
799	c						
800	5501	105 -11.34	-40	122 -124	trcl	200	imp:n=1 u=5 \$ Upper Lead
801	5502	102 -2.7	40 -41	122 -124	trcl	200	imp:n=1 u=5 \$ Upper Lead Sleeve
802	5503	104 -1.6	41 -42 61 -62 44	121 -123	trcl	200	imp:n=1 u=5 \$ Upper B4C Region
803	5504	102 -2.7	42 -43 60 -63 44	121 -123	trcl	200	imp:n=1 u=5 \$ Upper Control Rod Sleeve
804	5505	104 -1.6	-41	121 -122	trcl	200	imp:n=1 u=5 \$ B4C Below Upper Lead and Lead Sleeve
805	c						
806	5601	105 -11.34	-50	122 -124	trcl	200	imp:n=1 u=5 \$ Lower Lead
807	5602	102 -2.7	50 -51	122 -124	trcl	200	imp:n=1 u=5 \$ Lower Lead Sleeve
808	5603	104 -1.6	51 -52 61 -62 -54	121 -123	trcl	200	imp:n=1 u=5 \$ Lower B4C Region
809	5604	102 -2.7	52 -53 60 -63 -54	121 -123	trcl	200	imp:n=1 u=5 \$ Upper Control Rod Sleeve
810	5605	104 -1.6	-51	121 -122	trcl	200	imp:n=1 u=5 \$ B4C Below Lower Lead and Lead Sleeve
811	c						
812	5701	102 -2.7	60 -61 54 -44	121 -123	trcl	200	imp:n=1 u=5 \$ Left Control Rod Sleeve
813	5702	104 -1.6	61 -62 41 51 54 -44	121 -123	trcl	200	imp:n=1 u=5 \$ Central B4C Region
814	5703	102 -2.7	62 -63 54 -44	121 -123	trcl	200	imp:n=1 u=5 \$ Right Control Rod Sleeve
815	c						
816	5801	102 -2.7	44 -43	120 -121	trcl	200	imp:n=1 u=5 \$ Bottom Cap Below Control Rod Upper End
817	5802	102 -2.7	60 -63 54 -44	120 -121	trcl	200	imp:n=1 u=5 \$ Bottom Cap Below Control Rod Central Region
818	5803	102 -2.7	-54 -53	120 -121	trcl	200	imp:n=1 u=5 \$ Bottom Cap Below Control Rod Lower End
819	c						
820	5901	102 -2.7	41 44 -43	123 -125	trcl	200	imp:n=1 u=5 \$ Top Cap Above Control Rod Upper End
821	5902	102 -2.7	41 51 60 -63 54 -44	123 -125	trcl	200	imp:n=1 u=5 \$ Top Cap Above Control Rod Central Region
822	5903	102 -2.7	51 -54 -53	123 -125	trcl	200	imp:n=1 u=5 \$ Top Cap Above Control Rod Lower End
823	5904	102 -2.7	-41	124 -125	trcl	200	imp:n=1 u=5 \$ Top Cap Above Control Rod Lower End
824	5905	102 -2.7	-51	124 -125	trcl	200	imp:n=1 u=5 \$ Top Cap Above Control Rod Lower End
825	c						
826	5401	102 -2.7	32 -33 4 -5	111 -114		imp:n=1 u=5	\$ Right Control Rod Channel Wall
827	c						

828	5142	like 5022 but	trcl	14	imp:n=1 u=5	\$ Fuel Plate 14
829	5143	like 5023 but	trcl	14	imp:n=1 u=5	\$ Fuel Plate 14
830	5144	like 5024 but	trcl	14	imp:n=1 u=5	\$ Fuel Plate 14
831	5145	like 5025 but	trcl	14	imp:n=1 u=5	\$ Fuel Plate 14
832	5146	like 5026 but	trcl	14	imp:n=1 u=5	\$ Fuel Plate 14
833	5147	like 5027 but	trcl	14	imp:n=1 u=5	\$ Fuel Plate 14
834	5148	like 5028 but	trcl	14	imp:n=1 u=5	\$ Fuel Plate 14
835	c					
836	5152	like 5022 but	trcl	15	imp:n=1 u=5	\$ Fuel Plate 15
837	5153	like 5023 but	trcl	15	imp:n=1 u=5	\$ Fuel Plate 15
838	5154	like 5024 but	trcl	15	imp:n=1 u=5	\$ Fuel Plate 15
839	5155	like 5025 but	trcl	15	imp:n=1 u=5	\$ Fuel Plate 15
840	5156	like 5026 but	trcl	15	imp:n=1 u=5	\$ Fuel Plate 15
841	5157	like 5027 but	trcl	15	imp:n=1 u=5	\$ Fuel Plate 15
842	5158	like 5028 but	trcl	15	imp:n=1 u=5	\$ Fuel Plate 15
843	c					
844	5162	like 5022 but	trcl	16	imp:n=1 u=5	\$ Fuel Plate 16
845	5163	like 5023 but	trcl	16	imp:n=1 u=5	\$ Fuel Plate 16
846	5164	like 5024 but	trcl	16	imp:n=1 u=5	\$ Fuel Plate 16
847	5165	like 5025 but	trcl	16	imp:n=1 u=5	\$ Fuel Plate 16
848	5166	like 5026 but	trcl	16	imp:n=1 u=5	\$ Fuel Plate 16
849	5167	like 5027 but	trcl	16	imp:n=1 u=5	\$ Fuel Plate 16
850	5168	like 5028 but	trcl	16	imp:n=1 u=5	\$ Fuel Plate 16
851	c					
852	5172	like 5022 but	trcl	17	imp:n=1 u=5	\$ Fuel Plate 17
853	5173	like 5023 but	trcl	17	imp:n=1 u=5	\$ Fuel Plate 17
854	5174	like 5024 but	trcl	17	imp:n=1 u=5	\$ Fuel Plate 17
855	5175	like 5025 but	trcl	17	imp:n=1 u=5	\$ Fuel Plate 17
856	5176	like 5026 but	trcl	17	imp:n=1 u=5	\$ Fuel Plate 17
857	5177	like 5027 but	trcl	17	imp:n=1 u=5	\$ Fuel Plate 17
858	5178	like 5028 but	trcl	17	imp:n=1 u=5	\$ Fuel Plate 17
859	c					
860	5182	like 5022 but	trcl	18	imp:n=1 u=5	\$ Fuel Plate 18
861	5183	like 5023 but	trcl	18	imp:n=1 u=5	\$ Fuel Plate 18
862	5184	like 5024 but	trcl	18	imp:n=1 u=5	\$ Fuel Plate 18
863	5185	like 5025 but	trcl	18	imp:n=1 u=5	\$ Fuel Plate 18
864	5186	like 5026 but	trcl	18	imp:n=1 u=5	\$ Fuel Plate 18
865	5187	like 5027 but	trcl	18	imp:n=1 u=5	\$ Fuel Plate 18
866	5188	like 5028 but	trcl	18	imp:n=1 u=5	\$ Fuel Plate 18
867	c					
868	5191 102 -2.7	13 -10 4 -5 110 -111	trcl	19	imp:n=1 u=5	\$ Fuel Plate 19 (Trailing)
869	5192	like 5022 but	trcl	19	imp:n=1 u=5	\$ Fuel Plate 19 (Trailing)
870	5193	like 5023 but	trcl	19	imp:n=1 u=5	\$ Fuel Plate 19 (Trailing)
871	5194	like 5024 but	trcl	19	imp:n=1 u=5	\$ Fuel Plate 19 (Trailing)
872	5195 103 -3.898175	12 -11 -14 15 112 -113	trcl	19	imp:n=1 u=5	\$ Fuel Plate 19 (Trailing)
873	5196	like 5026 but	trcl	19	imp:n=1 u=5	\$ Fuel Plate 19 (Trailing)

920	6028 102 -2.7	13 -10	4 -5	113 -114	trcl 2	imp:n=1 u=6	\$ Fuel Plate 2
921	c						
922	6032		like 6022	but	trcl 3	imp:n=1 u=6	\$ Fuel Plate 3
923	6033		like 6023	but	trcl 3	imp:n=1 u=6	\$ Fuel Plate 3
924	6034		like 6024	but	trcl 3	imp:n=1 u=6	\$ Fuel Plate 3
925	6035		like 6025	but	trcl 3	imp:n=1 u=6	\$ Fuel Plate 3
926	6036		like 6026	but	trcl 3	imp:n=1 u=6	\$ Fuel Plate 3
927	6037		like 6027	but	trcl 3	imp:n=1 u=6	\$ Fuel Plate 3
928	6038		like 6028	but	trcl 3	imp:n=1 u=6	\$ Fuel Plate 3
929	c						
930	6042		like 6022	but	trcl 4	imp:n=1 u=6	\$ Fuel Plate 4
931	6043		like 6023	but	trcl 4	imp:n=1 u=6	\$ Fuel Plate 4
932	6044		like 6024	but	trcl 4	imp:n=1 u=6	\$ Fuel Plate 4
933	6045		like 6025	but	trcl 4	imp:n=1 u=6	\$ Fuel Plate 4
934	6046		like 6026	but	trcl 4	imp:n=1 u=6	\$ Fuel Plate 4
935	6047		like 6027	but	trcl 4	imp:n=1 u=6	\$ Fuel Plate 4
936	6048		like 6028	but	trcl 4	imp:n=1 u=6	\$ Fuel Plate 4
937	c						
938	6400 102 -2.7	30 -31	4 -5	111 -114		imp:n=1 u=6	\$ Left Control Rod Channel Wall
939	c						
940	6501 105 -11.34	-40		122 -124	trcl 200	imp:n=1 u=6	\$ Upper Lead
941	6502 102 -2.7	40 -41		122 -124	trcl 200	imp:n=1 u=6	\$ Upper Lead Sleeve
942	6503 104 -1.6	41 -42	61 -62	44 121 -123	trcl 200	imp:n=1 u=6	\$ Upper B4C Region
943	6504 102 -2.7	42 -43	60 -63	44 121 -123	trcl 200	imp:n=1 u=6	\$ Upper Control Rod Sleeve
944	6505 104 -1.6	-41		121 -122	trcl 200	imp:n=1 u=6	\$ B4C Below Upper Lead and Lead Sleeve
945	c						
946	6601 105 -11.34	-50		122 -124	trcl 200	imp:n=1 u=6	\$ Lower Lead
947	6602 102 -2.7	50 -51		122 -124	trcl 200	imp:n=1 u=6	\$ Lower Lead Sleeve
948	6603 104 -1.6	51 -52	61 -62	-54 121 -123	trcl 200	imp:n=1 u=6	\$ Lower B4C Region
949	6604 102 -2.7	52 -53	60 -63	-54 121 -123	trcl 200	imp:n=1 u=6	\$ Upper Control Rod Sleeve
950	6605 104 -1.6	-51		121 -122	trcl 200	imp:n=1 u=6	\$ B4C Below Lower Lead and Lead Sleeve
951	c						
952	6701 102 -2.7	60 -61	54 -44	121 -123	trcl 200	imp:n=1 u=6	\$ Left Control Rod Sleeve
953	6702 104 -1.6	61 -62	41 51 54 -44	121 -123	trcl 200	imp:n=1 u=6	\$ Central B4C Region
954	6703 102 -2.7	62 -63	54 -44	121 -123	trcl 200	imp:n=1 u=6	\$ Right Control Rod Sleeve
955	c						
956	6801 102 -2.7	44 -43		120 -121	trcl 200	imp:n=1 u=6	\$ Bottom Cap Below Control Rod Upper End
957	6802 102 -2.7	60 -63	54 -44	120 -121	trcl 200	imp:n=1 u=6	\$ Bottom Cap Below Control Rod Central Region
958	6803 102 -2.7	-54 -53		120 -121	trcl 200	imp:n=1 u=6	\$ Bottom Cap Below Control Rod Lower End
959	c						
960	6901 102 -2.7	41 44 -43		123 -125	trcl 200	imp:n=1 u=6	\$ Top Cap Above Control Rod Upper End
961	6902 102 -2.7	41 51 60 -63	54 -44	123 -125	trcl 200	imp:n=1 u=6	\$ Top Cap Above Control Rod Central Region
962	6903 102 -2.7	51 -54 -53		123 -125	trcl 200	imp:n=1 u=6	\$ Top Cap Above Control Rod Lower End
963	6904 102 -2.7	-41		124 -125	trcl 200	imp:n=1 u=6	\$ Top Cap Above Control Rod Lower End
964	6905 102 -2.7	-51		124 -125	trcl 200	imp:n=1 u=6	\$ Top Cap Above Control Rod Lower End
965	c						

966	6401 102 -2.7	32 -33 4 -5	111 -114		imp:n=1 u=6 \$ Right Control Rod Channel Wall
967	c				
968	6142	like 6022 but	trcl 14	imp:n=1 u=6 \$ Fuel Plate 14	
969	6143	like 6023 but	trcl 14	imp:n=1 u=6 \$ Fuel Plate 14	
970	6144	like 6024 but	trcl 14	imp:n=1 u=6 \$ Fuel Plate 14	
971	6145	like 6025 but	trcl 14	imp:n=1 u=6 \$ Fuel Plate 14	
972	6146	like 6026 but	trcl 14	imp:n=1 u=6 \$ Fuel Plate 14	
973	6147	like 6027 but	trcl 14	imp:n=1 u=6 \$ Fuel Plate 14	
974	6148	like 6028 but	trcl 14	imp:n=1 u=6 \$ Fuel Plate 14	
975	c				
976	6152	like 6022 but	trcl 15	imp:n=1 u=6 \$ Fuel Plate 15	
977	6153	like 6023 but	trcl 15	imp:n=1 u=6 \$ Fuel Plate 15	
978	6154	like 6024 but	trcl 15	imp:n=1 u=6 \$ Fuel Plate 15	
979	6155	like 6025 but	trcl 15	imp:n=1 u=6 \$ Fuel Plate 15	
980	6156	like 6026 but	trcl 15	imp:n=1 u=6 \$ Fuel Plate 15	
981	6157	like 6027 but	trcl 15	imp:n=1 u=6 \$ Fuel Plate 15	
982	6158	like 6028 but	trcl 15	imp:n=1 u=6 \$ Fuel Plate 15	
983	c				
984	6162	like 6022 but	trcl 16	imp:n=1 u=6 \$ Fuel Plate 16	
985	6163	like 6023 but	trcl 16	imp:n=1 u=6 \$ Fuel Plate 16	
986	6164	like 6024 but	trcl 16	imp:n=1 u=6 \$ Fuel Plate 16	
987	6165	like 6025 but	trcl 16	imp:n=1 u=6 \$ Fuel Plate 16	
988	6166	like 6026 but	trcl 16	imp:n=1 u=6 \$ Fuel Plate 16	
989	6167	like 6027 but	trcl 16	imp:n=1 u=6 \$ Fuel Plate 16	
990	6168	like 6028 but	trcl 16	imp:n=1 u=6 \$ Fuel Plate 16	
991	c				
992	6172	like 6022 but	trcl 17	imp:n=1 u=6 \$ Fuel Plate 17	
993	6173	like 6023 but	trcl 17	imp:n=1 u=6 \$ Fuel Plate 17	
994	6174	like 6024 but	trcl 17	imp:n=1 u=6 \$ Fuel Plate 17	
995	6175	like 6025 but	trcl 17	imp:n=1 u=6 \$ Fuel Plate 17	
996	6176	like 6026 but	trcl 17	imp:n=1 u=6 \$ Fuel Plate 17	
997	6177	like 6027 but	trcl 17	imp:n=1 u=6 \$ Fuel Plate 17	
998	6178	like 6028 but	trcl 17	imp:n=1 u=6 \$ Fuel Plate 17	
999	c				
1000	6182	like 6022 but	trcl 18	imp:n=1 u=6 \$ Fuel Plate 18	
1001	6183	like 6023 but	trcl 18	imp:n=1 u=6 \$ Fuel Plate 18	
1002	6184	like 6024 but	trcl 18	imp:n=1 u=6 \$ Fuel Plate 18	
1003	6185	like 6025 but	trcl 18	imp:n=1 u=6 \$ Fuel Plate 18	
1004	6186	like 6026 but	trcl 18	imp:n=1 u=6 \$ Fuel Plate 18	
1005	6187	like 6027 but	trcl 18	imp:n=1 u=6 \$ Fuel Plate 18	
1006	6188	like 6028 but	trcl 18	imp:n=1 u=6 \$ Fuel Plate 18	
1007	c				
1008	6191 102 -2.7	13 -10 4 -5 110 -111	trcl 19	imp:n=1 u=6 \$ Fuel Plate 19 (Trailing)	
1009	6192	like 6022 but	trcl 19	imp:n=1 u=6 \$ Fuel Plate 19 (Trailing)	
1010	6193	like 6023 but	trcl 19	imp:n=1 u=6 \$ Fuel Plate 19 (Trailing)	
1011	6194	like 6024 but	trcl 19	imp:n=1 u=6 \$ Fuel Plate 19 (Trailing)	

1012	6195							like 6025 but			trcl 19	imp:n=1 u=6	\$ Fuel Plate 19 (Trailing)
1013	6196							like 6026 but			trcl 19	imp:n=1 u=6	\$ Fuel Plate 19 (Trailing)
1014	6197							like 6027 but			trcl 19	imp:n=1 u=6	\$ Fuel Plate 19 (Trailing)
1015	6198							like 6028 but			trcl 19	imp:n=1 u=6	\$ Fuel Plate 19 (Trailing)
1016	6199 102 -2.7	13	-10	4	-5	114	-115				trcl 19	imp:n=1 u=6	\$ Fuel Plate 19 (Trailing)
1017	c												
1018	6300 101 -0.9931												\$ Water
1019		#6001	#6002										
1020		#6012	#6013	#6014	#6015	#6016	#6017	#6018					
1021		#6022	#6023	#6024	#6025	#6026	#6027	#6028					
1022		#6032	#6033	#6034	#6035	#6036	#6037	#6038					
1023		#6042	#6043	#6044	#6045	#6046	#6047	#6048					
1024		#6142	#6143	#6144	#6145	#6146	#6147	#6148					
1025		#6152	#6153	#6154	#6155	#6156	#6157	#6158					
1026		#6162	#6163	#6164	#6165	#6166	#6167	#6168					
1027		#6172	#6173	#6174	#6175	#6176	#6177	#6178					
1028		#6182	#6183	#6184	#6185	#6186	#6187	#6188					
1029		#6191	#6192	#6193	#6194	#6195	#6196	#6197	#6198	#6199			
1030		#6400	#6401										
1031		#6501	#6502	#6503	#6504	#6505							
1032		#6601	#6602	#6603	#6604	#6605							
1033		#6701	#6702	#6703									
1034		#6801	#6802	#6803									
1035		#6901	#6902	#6903	#6904	#6905					imp:n=1 u=6		
1036	c												
1037	c ccc												
1038	c												
1039	c Regulating Rod Fuel Assembly												
1040	c												
1041	c ccc												
1042	c												
1043	7001 102 -2.7	1	-2	3	-4	110	-115					imp:n=1 u=7	\$ Lower Side Plate
1044	7002 102 -2.7	1	-2	5	-6	110	-115					imp:n=1 u=7	\$ Upper Side Plate
1045	c												
1046	7012 102 -2.7	13	-10	4	-5	111	-112					imp:n=1 u=7	\$ Fuel Plate 1 (Leftmost)
1047	7013 102 -2.7	11	-10	4	-5	112	-113					imp:n=1 u=7	\$ Fuel Plate 1 (Leftmost)
1048	7014 102 -2.7	12	-11	-15	-5	112	-113					imp:n=1 u=7	\$ Fuel Plate 1 (Leftmost)
1049	7015 103 -2.881093	12	-11	-14	15	112	-113					imp:n=1 u=7	\$ Fuel Plate 1 (Leftmost)
1050	7016 102 -2.7	12	-11	14	4	112	-113					imp:n=1 u=7	\$ Fuel Plate 1 (Leftmost)
1051	7017 102 -2.7	13	-12	4	-5	112	-113					imp:n=1 u=7	\$ Fuel Plate 1 (Leftmost)
1052	7018 102 -2.7	13	-10	4	-5	113	-114					imp:n=1 u=7	\$ Fuel Plate 1 (Leftmost)
1053	c												
1054	7022 102 -2.7	13	-10	4	-5	111	-112				trcl 2	imp:n=1 u=7	\$ Fuel Plate 2
1055	7023 102 -2.7	11	-10	4	-5	112	-113				trcl 2	imp:n=1 u=7	\$ Fuel Plate 2
1056	7024 102 -2.7	12	-11	-15	-5	112	-113				trcl 2	imp:n=1 u=7	\$ Fuel Plate 2
1057	7025 103 -2.881093	12	-11	-14	15	112	-113				trcl 2	imp:n=1 u=7	\$ Fuel Plate 2

1058	7026	102	-2.7	12	-11	14	4	112	-113	trcl	2	imp:n=1	u=7	\$ Fuel Plate 2	
1059	7027	102	-2.7	13	-12	4	-5	112	-113	trcl	2	imp:n=1	u=7	\$ Fuel Plate 2	
1060	7028	102	-2.7	13	-10	4	-5	113	-114	trcl	2	imp:n=1	u=7	\$ Fuel Plate 2	
1061	c														
1062	7032					like	7022	but		trcl	3	imp:n=1	u=7	\$ Fuel Plate 3	
1063	7033					like	7023	but		trcl	3	imp:n=1	u=7	\$ Fuel Plate 3	
1064	7034					like	7024	but		trcl	3	imp:n=1	u=7	\$ Fuel Plate 3	
1065	7035					like	7025	but		trcl	3	imp:n=1	u=7	\$ Fuel Plate 3	
1066	7036					like	7026	but		trcl	3	imp:n=1	u=7	\$ Fuel Plate 3	
1067	7037					like	7027	but		trcl	3	imp:n=1	u=7	\$ Fuel Plate 3	
1068	7038					like	7028	but		trcl	3	imp:n=1	u=7	\$ Fuel Plate 3	
1069	c														
1070	7042					like	7022	but		trcl	4	imp:n=1	u=7	\$ Fuel Plate 4	
1071	7043					like	7023	but		trcl	4	imp:n=1	u=7	\$ Fuel Plate 4	
1072	7044					like	7024	but		trcl	4	imp:n=1	u=7	\$ Fuel Plate 4	
1073	7045					like	7025	but		trcl	4	imp:n=1	u=7	\$ Fuel Plate 4	
1074	7046					like	7026	but		trcl	4	imp:n=1	u=7	\$ Fuel Plate 4	
1075	7047					like	7027	but		trcl	4	imp:n=1	u=7	\$ Fuel Plate 4	
1076	7048					like	7028	but		trcl	4	imp:n=1	u=7	\$ Fuel Plate 4	
1077	c														
1078	7400	102	-2.7	30	-31	4	-5	111	-114	trcl	210	imp:n=1	u=7	\$ Left Regulating Rod Channel Wall	
1079	c														
1080	7503	101	-0.9931	-42	61	-62	44					imp:n=1	u=7	\$ Upper Water Region	
1081	7504	106	-7.96	42	-43	60	-63	44	130	-131	trcl	210	imp:n=1	u=7	\$ Upper Regulating Rod Sleeve
1082	c														
1083	7603	101	-0.9931	-52	61	-62	-54					imp:n=1	u=7	\$ Lower Water Region	
1084	7604	106	-7.96	52	-53	60	-63	-54	130	-131	trcl	210	imp:n=1	u=7	\$ Lower Regulating Rod Sleeve
1085	c														
1086	7701	106	-7.96	60	-61	54	-44	130	-131	trcl	210	imp:n=1	u=7	\$ Left Regulating Rod Sleeve	
1087	7702	101	-0.9931	61	-62		54	-44				imp:n=1	u=7	\$ Central Water Region	
1088	7703	106	-7.96	62	-63	54	-44	130	-131	trcl	210	imp:n=1	u=7	\$ Right Regulating Rod Sleeve	
1089	c														
1090	7401	102	-2.7	32	-33	4	-5	111	-114	trcl	210	imp:n=1	u=7	\$ Right Regulating Rod Channel Wall	
1091	c														
1092	7142					like	7022	but		trcl	14	imp:n=1	u=7	\$ Fuel Plate 14	
1093	7143					like	7023	but		trcl	14	imp:n=1	u=7	\$ Fuel Plate 14	
1094	7144					like	7024	but		trcl	14	imp:n=1	u=7	\$ Fuel Plate 14	
1095	7145					like	7025	but		trcl	14	imp:n=1	u=7	\$ Fuel Plate 14	
1096	7146					like	7026	but		trcl	14	imp:n=1	u=7	\$ Fuel Plate 14	
1097	7147					like	7027	but		trcl	14	imp:n=1	u=7	\$ Fuel Plate 14	
1098	7148					like	7028	but		trcl	14	imp:n=1	u=7	\$ Fuel Plate 14	
1099	c														
1100	7152					like	7022	but		trcl	15	imp:n=1	u=7	\$ Fuel Plate 15	
1101	7153					like	7023	but		trcl	15	imp:n=1	u=7	\$ Fuel Plate 15	
1102	7154					like	7024	but		trcl	15	imp:n=1	u=7	\$ Fuel Plate 15	
1103	7155					like	7025	but		trcl	15	imp:n=1	u=7	\$ Fuel Plate 15	

1104	7156		like 7026 but	trcl	15	imp:n=1 u=7	\$ Fuel Plate 15
1105	7157		like 7027 but	trcl	15	imp:n=1 u=7	\$ Fuel Plate 15
1106	7158		like 7028 but	trcl	15	imp:n=1 u=7	\$ Fuel Plate 15
1107	c						
1108	7162		like 7022 but	trcl	16	imp:n=1 u=7	\$ Fuel Plate 16
1109	7163		like 7023 but	trcl	16	imp:n=1 u=7	\$ Fuel Plate 16
1110	7164		like 7024 but	trcl	16	imp:n=1 u=7	\$ Fuel Plate 16
1111	7165		like 7025 but	trcl	16	imp:n=1 u=7	\$ Fuel Plate 16
1112	7166		like 7026 but	trcl	16	imp:n=1 u=7	\$ Fuel Plate 16
1113	7167		like 7027 but	trcl	16	imp:n=1 u=7	\$ Fuel Plate 16
1114	7168		like 7028 but	trcl	16	imp:n=1 u=7	\$ Fuel Plate 16
1115	c						
1116	7172		like 7022 but	trcl	17	imp:n=1 u=7	\$ Fuel Plate 17
1117	7173		like 7023 but	trcl	17	imp:n=1 u=7	\$ Fuel Plate 17
1118	7174		like 7024 but	trcl	17	imp:n=1 u=7	\$ Fuel Plate 17
1119	7175		like 7025 but	trcl	17	imp:n=1 u=7	\$ Fuel Plate 17
1120	7176		like 7026 but	trcl	17	imp:n=1 u=7	\$ Fuel Plate 17
1121	7177		like 7027 but	trcl	17	imp:n=1 u=7	\$ Fuel Plate 17
1122	7178		like 7028 but	trcl	17	imp:n=1 u=7	\$ Fuel Plate 17
1123	c						
1124	7182		like 7022 but	trcl	18	imp:n=1 u=7	\$ Fuel Plate 18
1125	7183		like 7023 but	trcl	18	imp:n=1 u=7	\$ Fuel Plate 18
1126	7184		like 7024 but	trcl	18	imp:n=1 u=7	\$ Fuel Plate 18
1127	7185		like 7025 but	trcl	18	imp:n=1 u=7	\$ Fuel Plate 18
1128	7186		like 7026 but	trcl	18	imp:n=1 u=7	\$ Fuel Plate 18
1129	7187		like 7027 but	trcl	18	imp:n=1 u=7	\$ Fuel Plate 18
1130	7188		like 7028 but	trcl	18	imp:n=1 u=7	\$ Fuel Plate 18
1131	c						
1132	7191	102 -2.7	13 -10 4 -5 110 -111	trcl	19	imp:n=1 u=7	\$ Fuel Plate 19 (Trailing)
1133	7192		like 7022 but	trcl	19	imp:n=1 u=7	\$ Fuel Plate 19 (Trailing)
1134	7193		like 7023 but	trcl	19	imp:n=1 u=7	\$ Fuel Plate 19 (Trailing)
1135	7194		like 7024 but	trcl	19	imp:n=1 u=7	\$ Fuel Plate 19 (Trailing)
1136	7195		like 7025 but	trcl	19	imp:n=1 u=7	\$ Fuel Plate 19 (Trailing)
1137	7196		like 7026 but	trcl	19	imp:n=1 u=7	\$ Fuel Plate 19 (Trailing)
1138	7197		like 7027 but	trcl	19	imp:n=1 u=7	\$ Fuel Plate 19 (Trailing)
1139	7198		like 7028 but	trcl	19	imp:n=1 u=7	\$ Fuel Plate 19 (Trailing)
1140	7199	102 -2.7	13 -10 4 -5 114 -115	trcl	19	imp:n=1 u=7	\$ Fuel Plate 19 (Trailing)
1141	c						
1142	7300	101 -0.9931					\$ Water
1143		#7001	#7002				
1144		#7012	#7013 #7014 #7015 #7016 #7017 #7018				
1145		#7022	#7023 #7024 #7025 #7026 #7027 #7028				
1146		#7032	#7033 #7034 #7035 #7036 #7037 #7038				
1147		#7042	#7043 #7044 #7045 #7046 #7047 #7048				
1148		#7142	#7143 #7144 #7145 #7146 #7147 #7148				
1149		#7152	#7153 #7154 #7155 #7156 #7157 #7158				

1150		#7162 #7163 #7164 #7165 #7166 #7167 #7168	
1151		#7172 #7173 #7174 #7175 #7176 #7177 #7178	
1152		#7182 #7183 #7184 #7185 #7186 #7187 #7188	
1153		#7191 #7192 #7193 #7194 #7195 #7196 #7197 #7198 #7199	
1154		#7400 #7401	
1155		#7503 #7504	
1156		#7603 #7604	
1157		#7701 #7702 #7703	imp:n=1 u=7
1158	C		
1159	C	CC	
1160	C		
1161	C	M-48/49-H Assembly (19 Fuel Plates)	
1162	C		
1163	C	CC	
1164	C		
1165	8001 102 -2.7	1 -2 3 -4 110 -115	imp:n=1 u=8 \$ Lower Side Plate
1166	8002 102 -2.7	1 -2 5 -6 110 -115	imp:n=1 u=8 \$ Upper Side Plate
1167	C		
1168	8011 102 -2.7	13 -10 4 -5 110 -111	imp:n=1 u=8 \$ Fuel Plate 1 (Leftmost)
1169	8012 102 -2.7	13 -10 4 -5 111 -112	imp:n=1 u=8 \$ Fuel Plate 1 (Leftmost)
1170	8013 102 -2.7	11 -10 4 -5 112 -113	imp:n=1 u=8 \$ Fuel Plate 1 (Leftmost)
1171	8014 102 -2.7	12 -11 -15 -5 112 -113	imp:n=1 u=8 \$ Fuel Plate 1 (Leftmost)
1172	8015 103 -3.898175	12 -11 -14 15 112 -113	imp:n=1 u=8 \$ Fuel Plate 1 (Leftmost)
1173	8016 102 -2.7	12 -11 14 4 112 -113	imp:n=1 u=8 \$ Fuel Plate 1 (Leftmost)
1174	8017 102 -2.7	13 -12 4 -5 112 -113	imp:n=1 u=8 \$ Fuel Plate 1 (Leftmost)
1175	8018 102 -2.7	13 -10 4 -5 113 -114	imp:n=1 u=8 \$ Fuel Plate 1 (Leftmost)
1176	8019 102 -2.7	13 -10 4 -5 114 -115	imp:n=1 u=8 \$ Fuel Plate 1 (Leftmost)
1177	C		
1178	8022 102 -2.7	13 -10 4 -5 111 -112	trcl 102 imp:n=1 u=8 \$ Fuel Plate 2
1179	8023 102 -2.7	11 -10 4 -5 112 -113	trcl 102 imp:n=1 u=8 \$ Fuel Plate 2
1180	8024 102 -2.7	12 -11 -15 -5 112 -113	trcl 102 imp:n=1 u=8 \$ Fuel Plate 2
1181	8025 103 -3.898175	12 -11 -14 15 112 -113	trcl 102 imp:n=1 u=8 \$ Fuel Plate 2
1182	8026 102 -2.7	12 -11 14 4 112 -113	trcl 102 imp:n=1 u=8 \$ Fuel Plate 2
1183	8027 102 -2.7	13 -12 4 -5 112 -113	trcl 102 imp:n=1 u=8 \$ Fuel Plate 2
1184	8028 102 -2.7	13 -10 4 -5 113 -114	trcl 102 imp:n=1 u=8 \$ Fuel Plate 2
1185	C		
1186	8032	like 8022 but	trcl 103 imp:n=1 u=8 \$ Fuel Plate 3
1187	8033	like 8023 but	trcl 103 imp:n=1 u=8 \$ Fuel Plate 3
1188	8034	like 8024 but	trcl 103 imp:n=1 u=8 \$ Fuel Plate 3
1189	8035	like 8025 but	trcl 103 imp:n=1 u=8 \$ Fuel Plate 3
1190	8036	like 8026 but	trcl 103 imp:n=1 u=8 \$ Fuel Plate 3
1191	8037	like 8027 but	trcl 103 imp:n=1 u=8 \$ Fuel Plate 3
1192	8038	like 8028 but	trcl 103 imp:n=1 u=8 \$ Fuel Plate 3
1193	C		
1194	8042	like 8022 but	trcl 104 imp:n=1 u=8 \$ Fuel Plate 4
1195	8043	like 8023 but	trcl 104 imp:n=1 u=8 \$ Fuel Plate 4

1196	8044	like 8024 but	trcl 104	imp:n=1 u=8	\$ Fuel Plate 4
1197	8045	like 8025 but	trcl 104	imp:n=1 u=8	\$ Fuel Plate 4
1198	8046	like 8026 but	trcl 104	imp:n=1 u=8	\$ Fuel Plate 4
1199	8047	like 8027 but	trcl 104	imp:n=1 u=8	\$ Fuel Plate 4
1200	8048	like 8028 but	trcl 104	imp:n=1 u=8	\$ Fuel Plate 4
1201	c				
1202	8052	like 8022 but	trcl 105	imp:n=1 u=8	\$ Fuel Plate 5
1203	8053	like 8023 but	trcl 105	imp:n=1 u=8	\$ Fuel Plate 5
1204	8054	like 8024 but	trcl 105	imp:n=1 u=8	\$ Fuel Plate 5
1205	8055	like 8025 but	trcl 105	imp:n=1 u=8	\$ Fuel Plate 5
1206	8056	like 8026 but	trcl 105	imp:n=1 u=8	\$ Fuel Plate 5
1207	8057	like 8027 but	trcl 105	imp:n=1 u=8	\$ Fuel Plate 5
1208	8058	like 8028 but	trcl 105	imp:n=1 u=8	\$ Fuel Plate 5
1209	c				
1210	8062	like 8022 but	trcl 106	imp:n=1 u=8	\$ Fuel Plate 6
1211	8063	like 8023 but	trcl 106	imp:n=1 u=8	\$ Fuel Plate 6
1212	8064	like 8024 but	trcl 106	imp:n=1 u=8	\$ Fuel Plate 6
1213	8065	like 8025 but	trcl 106	imp:n=1 u=8	\$ Fuel Plate 6
1214	8066	like 8026 but	trcl 106	imp:n=1 u=8	\$ Fuel Plate 6
1215	8067	like 8027 but	trcl 106	imp:n=1 u=8	\$ Fuel Plate 6
1216	8068	like 8028 but	trcl 106	imp:n=1 u=8	\$ Fuel Plate 6
1217	c				
1218	8072	like 8022 but	trcl 107	imp:n=1 u=8	\$ Fuel Plate 7
1219	8073	like 8023 but	trcl 107	imp:n=1 u=8	\$ Fuel Plate 7
1220	8074	like 8024 but	trcl 107	imp:n=1 u=8	\$ Fuel Plate 7
1221	8075	like 8025 but	trcl 107	imp:n=1 u=8	\$ Fuel Plate 7
1222	8076	like 8026 but	trcl 107	imp:n=1 u=8	\$ Fuel Plate 7
1223	8077	like 8027 but	trcl 107	imp:n=1 u=8	\$ Fuel Plate 7
1224	8078	like 8028 but	trcl 107	imp:n=1 u=8	\$ Fuel Plate 7
1225	c				
1226	8082	like 8022 but	trcl 108	imp:n=1 u=8	\$ Fuel Plate 8
1227	8083	like 8023 but	trcl 108	imp:n=1 u=8	\$ Fuel Plate 8
1228	8084	like 8024 but	trcl 108	imp:n=1 u=8	\$ Fuel Plate 8
1229	8085	like 8025 but	trcl 108	imp:n=1 u=8	\$ Fuel Plate 8
1230	8086	like 8026 but	trcl 108	imp:n=1 u=8	\$ Fuel Plate 8
1231	8087	like 8027 but	trcl 108	imp:n=1 u=8	\$ Fuel Plate 8
1232	8088	like 8028 but	trcl 108	imp:n=1 u=8	\$ Fuel Plate 8
1233	c				
1234	8092	like 8022 but	trcl 109	imp:n=1 u=8	\$ Fuel Plate 9
1235	8093	like 8023 but	trcl 109	imp:n=1 u=8	\$ Fuel Plate 9
1236	8094	like 8024 but	trcl 109	imp:n=1 u=8	\$ Fuel Plate 9
1237	8095	like 8025 but	trcl 109	imp:n=1 u=8	\$ Fuel Plate 9
1238	8096	like 8026 but	trcl 109	imp:n=1 u=8	\$ Fuel Plate 9
1239	8097	like 8027 but	trcl 109	imp:n=1 u=8	\$ Fuel Plate 9
1240	8098	like 8028 but	trcl 109	imp:n=1 u=8	\$ Fuel Plate 9
1241	c				

1242	8102	like 8022 but	trcl 110	imp:n=1 u=8	\$ Fuel Plate 10
1243	8103	like 8023 but	trcl 110	imp:n=1 u=8	\$ Fuel Plate 10
1244	8104	like 8024 but	trcl 110	imp:n=1 u=8	\$ Fuel Plate 10
1245	8105	like 8025 but	trcl 110	imp:n=1 u=8	\$ Fuel Plate 10
1246	8106	like 8026 but	trcl 110	imp:n=1 u=8	\$ Fuel Plate 10
1247	8107	like 8027 but	trcl 110	imp:n=1 u=8	\$ Fuel Plate 10
1248	8108	like 8028 but	trcl 110	imp:n=1 u=8	\$ Fuel Plate 10
1249	c				
1250	8112	like 8022 but	trcl 111	imp:n=1 u=8	\$ Fuel Plate 11
1251	8113	like 8023 but	trcl 111	imp:n=1 u=8	\$ Fuel Plate 11
1252	8114	like 8024 but	trcl 111	imp:n=1 u=8	\$ Fuel Plate 11
1253	8115	like 8025 but	trcl 111	imp:n=1 u=8	\$ Fuel Plate 11
1254	8116	like 8026 but	trcl 111	imp:n=1 u=8	\$ Fuel Plate 11
1255	8117	like 8027 but	trcl 111	imp:n=1 u=8	\$ Fuel Plate 11
1256	8118	like 8028 but	trcl 111	imp:n=1 u=8	\$ Fuel Plate 11
1257	c				
1258	8122	like 8022 but	trcl 112	imp:n=1 u=8	\$ Fuel Plate 12
1259	8123	like 8023 but	trcl 112	imp:n=1 u=8	\$ Fuel Plate 12
1260	8124	like 8024 but	trcl 112	imp:n=1 u=8	\$ Fuel Plate 12
1261	8125	like 8025 but	trcl 112	imp:n=1 u=8	\$ Fuel Plate 12
1262	8126	like 8026 but	trcl 112	imp:n=1 u=8	\$ Fuel Plate 12
1263	8127	like 8027 but	trcl 112	imp:n=1 u=8	\$ Fuel Plate 12
1264	8128	like 8028 but	trcl 112	imp:n=1 u=8	\$ Fuel Plate 12
1265	c				
1266	8132	like 8022 but	trcl 113	imp:n=1 u=8	\$ Fuel Plate 13
1267	8133	like 8023 but	trcl 113	imp:n=1 u=8	\$ Fuel Plate 13
1268	8134	like 8024 but	trcl 113	imp:n=1 u=8	\$ Fuel Plate 13
1269	8135	like 8025 but	trcl 113	imp:n=1 u=8	\$ Fuel Plate 13
1270	8136	like 8026 but	trcl 113	imp:n=1 u=8	\$ Fuel Plate 13
1271	8137	like 8027 but	trcl 113	imp:n=1 u=8	\$ Fuel Plate 13
1272	8138	like 8028 but	trcl 113	imp:n=1 u=8	\$ Fuel Plate 13
1273	c				
1274	8142	like 8022 but	trcl 114	imp:n=1 u=8	\$ Fuel Plate 14
1275	8143	like 8023 but	trcl 114	imp:n=1 u=8	\$ Fuel Plate 14
1276	8144	like 8024 but	trcl 114	imp:n=1 u=8	\$ Fuel Plate 14
1277	8145	like 8025 but	trcl 114	imp:n=1 u=8	\$ Fuel Plate 14
1278	8146	like 8026 but	trcl 114	imp:n=1 u=8	\$ Fuel Plate 14
1279	8147	like 8027 but	trcl 114	imp:n=1 u=8	\$ Fuel Plate 14
1280	8148	like 8028 but	trcl 114	imp:n=1 u=8	\$ Fuel Plate 14
1281	c				
1282	8152	like 8022 but	trcl 115	imp:n=1 u=8	\$ Fuel Plate 15
1283	8153	like 8023 but	trcl 115	imp:n=1 u=8	\$ Fuel Plate 15
1284	8154	like 8024 but	trcl 115	imp:n=1 u=8	\$ Fuel Plate 15
1285	8155	like 8025 but	trcl 115	imp:n=1 u=8	\$ Fuel Plate 15
1286	8156	like 8026 but	trcl 115	imp:n=1 u=8	\$ Fuel Plate 15
1287	8157	like 8027 but	trcl 115	imp:n=1 u=8	\$ Fuel Plate 15

1288	8158		like 8028 but	trcl 115	imp:n=1 u=8	\$ Fuel Plate 15
1289	c					
1290	8162		like 8022 but	trcl 116	imp:n=1 u=8	\$ Fuel Plate 16
1291	8163		like 8023 but	trcl 116	imp:n=1 u=8	\$ Fuel Plate 16
1292	8164		like 8024 but	trcl 116	imp:n=1 u=8	\$ Fuel Plate 16
1293	8165		like 8025 but	trcl 116	imp:n=1 u=8	\$ Fuel Plate 16
1294	8166		like 8026 but	trcl 116	imp:n=1 u=8	\$ Fuel Plate 16
1295	8167		like 8027 but	trcl 116	imp:n=1 u=8	\$ Fuel Plate 16
1296	8168		like 8028 but	trcl 116	imp:n=1 u=8	\$ Fuel Plate 16
1297	c					
1298	8172		like 8022 but	trcl 117	imp:n=1 u=8	\$ Fuel Plate 17
1299	8173		like 8023 but	trcl 117	imp:n=1 u=8	\$ Fuel Plate 17
1300	8174		like 8024 but	trcl 117	imp:n=1 u=8	\$ Fuel Plate 17
1301	8175		like 8025 but	trcl 117	imp:n=1 u=8	\$ Fuel Plate 17
1302	8176		like 8026 but	trcl 117	imp:n=1 u=8	\$ Fuel Plate 17
1303	8177		like 8027 but	trcl 117	imp:n=1 u=8	\$ Fuel Plate 17
1304	8178		like 8028 but	trcl 117	imp:n=1 u=8	\$ Fuel Plate 17
1305	c					
1306	8182		like 8022 but	trcl 118	imp:n=1 u=8	\$ Fuel Plate 18
1307	8183		like 8023 but	trcl 118	imp:n=1 u=8	\$ Fuel Plate 18
1308	8184		like 8024 but	trcl 118	imp:n=1 u=8	\$ Fuel Plate 18
1309	8185		like 8025 but	trcl 118	imp:n=1 u=8	\$ Fuel Plate 18
1310	8186		like 8026 but	trcl 118	imp:n=1 u=8	\$ Fuel Plate 18
1311	8187		like 8027 but	trcl 118	imp:n=1 u=8	\$ Fuel Plate 18
1312	8188		like 8028 but	trcl 118	imp:n=1 u=8	\$ Fuel Plate 18
1313	c					
1314	8191	102 -2.7	13 -10 4 -5 110 -111	trcl 119	imp:n=1 u=8	\$ Fuel Plate 19
1315	8192		like 8022 but	trcl 119	imp:n=1 u=8	\$ Fuel Plate 19
1316	8193		like 8023 but	trcl 119	imp:n=1 u=8	\$ Fuel Plate 19
1317	8194		like 8024 but	trcl 119	imp:n=1 u=8	\$ Fuel Plate 19
1318	8195		like 8025 but	trcl 119	imp:n=1 u=8	\$ Fuel Plate 19
1319	8196		like 8026 but	trcl 119	imp:n=1 u=8	\$ Fuel Plate 19
1320	8197		like 8027 but	trcl 119	imp:n=1 u=8	\$ Fuel Plate 19
1321	8198		like 8028 but	trcl 119	imp:n=1 u=8	\$ Fuel Plate 19
1322	8199	102 -2.7	13 -10 4 -5 114 -115	trcl 119	imp:n=1 u=8	\$ Fuel Plate 19
1323	c					
1324	8202		like 8022 but	trcl 120	imp:n=1 u=8	\$ Fuel Plate 20 (Trailing)
1325	8203		like 8023 but	trcl 120	imp:n=1 u=8	\$ Fuel Plate 20 (Trailing)
1326	8204		like 8024 but	trcl 120	imp:n=1 u=8	\$ Fuel Plate 20 (Trailing)
1327	8205		like 8025 but	trcl 120	imp:n=1 u=8	\$ Fuel Plate 20 (Trailing)
1328	8206		like 8026 but	trcl 120	imp:n=1 u=8	\$ Fuel Plate 20 (Trailing)
1329	8207		like 8027 but	trcl 120	imp:n=1 u=8	\$ Fuel Plate 20 (Trailing)
1330	8208		like 8028 but	trcl 120	imp:n=1 u=8	\$ Fuel Plate 20 (Trailing)
1331	c					
1332	8300	101 -0.9931				\$ Water
1333			#8001 #8002			

1334 #8011 #8012 #8013 #8014 #8015 #8016 #8017 #8018 #8019
1335 #8022 #8023 #8024 #8025 #8026 #8027 #8028
1336 #8032 #8033 #8034 #8035 #8036 #8037 #8038
1337 #8042 #8043 #8044 #8045 #8046 #8047 #8048
1338 #8052 #8053 #8054 #8055 #8056 #8057 #8058
1339 #8062 #8063 #8064 #8065 #8066 #8067 #8068
1340 #8072 #8073 #8074 #8075 #8076 #8077 #8078
1341 #8082 #8083 #8084 #8085 #8086 #8087 #8088
1342 #8092 #8093 #8094 #8095 #8096 #8097 #8098
1343 #8102 #8103 #8104 #8105 #8106 #8107 #8108
1344 #8112 #8113 #8114 #8115 #8116 #8117 #8118
1345 #8122 #8123 #8124 #8125 #8126 #8127 #8128
1346 #8132 #8133 #8134 #8135 #8136 #8137 #8138
1347 #8142 #8143 #8144 #8145 #8146 #8147 #8148
1348 #8152 #8153 #8154 #8155 #8156 #8157 #8158
1349 #8162 #8163 #8164 #8165 #8166 #8167 #8168
1350 #8172 #8173 #8174 #8175 #8176 #8177 #8178
1351 #8182 #8183 #8184 #8185 #8186 #8187 #8188
1352 #8191 #8192 #8193 #8194 #8195 #8196 #8197 #8198 #8199
1353 #8202 #8203 #8204 #8205 #8206 #8207 #8208

1354 imp:n=1 u=8

1355 c
1356 c
1357 c
1358 c Trailing Fuel Plate For Use Near Core Face Simulator
1359 c
1360 c

1361 c
1362 9191 102 -2.7 13 -10 4 -5 110 -111 trcl 19 imp:n=1 u=9 \$ Fuel Plate 19 (Trailing)
1363 9192 like 1022 but trcl 19 imp:n=1 u=9 \$ Fuel Plate 19 (Trailing)
1364 9193 like 1023 but trcl 19 imp:n=1 u=9 \$ Fuel Plate 19 (Trailing)
1365 9194 like 1024 but trcl 19 imp:n=1 u=9 \$ Fuel Plate 19 (Trailing)
1366 9195 like 1025 but trcl 19 imp:n=1 u=9 \$ Fuel Plate 19 (Trailing)
1367 9196 like 1026 but trcl 19 imp:n=1 u=9 \$ Fuel Plate 19 (Trailing)
1368 9197 like 1027 but trcl 19 imp:n=1 u=9 \$ Fuel Plate 19 (Trailing)
1369 9198 like 1028 but trcl 19 imp:n=1 u=9 \$ Fuel Plate 19 (Trailing)
1370 9199 102 -2.7 13 -10 4 -5 114 -115 trcl 19 imp:n=1 u=9 \$ Fuel Plate 19 (Trailing)

1371 c
1372 9200 101 -0.9931 #9191 #9192 #9193 #9194 #9195 #9196 #9197 #9198 #9199
1373 imp:n=1 u=9
1374 c
1375 c
1376 c
1377 c Core Lattice
1378 c
1379 c

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1380 c
1381 10000 0      100 -101 102 -103 lat=1 fill= -2:2 -2:2 0:0
1382      3 1 1 1 1
1383      3 7 8 5 4
1384      3 1 2 1 1
1385      3 6 8 5 4
1386      3 1 1 1 1                               imp:n=1 u=10
1387 10001 0      100 -101 102 -103 lat=1 fill=9           imp:n=1 u=11
1388 c
1389 10100 0      200 -201 202 -203 -99999           fill=10 imp:n=1
1390 10101 0      210 -200 202 -203 -99999           fill=11 imp:n=1
1391 c
1392 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
1393 c
1394 c Ex-Core Components
1395 c
1396 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
1397 c
1398 30000 102 -2.7      301 -302 311 -312 320 -330           imp:n=1  $ Aluminum Core Face Simulator
1399 40000 107 -8.0      401 -402 411 -412 420 -430           imp:n=1  $ Stainless Steel Thermal Shield
1400 50000 108 -7.85     501 -502 511 -512 420 -430           imp:n=1  $ Carbon Steel Pressure Vessel Simulator
1401      #74000 #74001 #74002 #74003
1402      #75000 #75001 #75002 #75003
1403      #76000 #76001 #76002 #76003
1404      #74000 #74001 #74002 #74003
1405      #83001 #83002 #83003
1406      #85001 #85002 #85003                               imp:n=1
1407 60001 102 -2.7      6101 -6102 6111 -6112 420 -430           imp:n=1  $ Aluminum Void Box Right Wall
1408 60002 102 -2.7      6201 -6202 6211 -6212 420 -430           imp:n=1  $ Aluminum Void Box Left Wall
1409 60003 102 -2.7      6301 -6302 6311 -6312 420 -430           imp:n=1  $ Aluminum Void Box Bottom Wall
1410 60004 102 -2.7      6401 -6402 6411 -6412 420 -430           imp:n=1  $ Aluminum Void Box Top Wall
1411 60005 102 -2.7      6202 -6101 6312 -6411 420 -6020           imp:n=1  $ Aluminum Void Box Lower Wall
1412 60006 102 -2.7      6202 -6101 6312 -6411 6030 -430           imp:n=1  $ Aluminum Void Box Upper Wall
1413      #77001 #77002 #77003                               imp:n=1
1414 60010 109 -0.001205 6202 -6101 6312 -6411 6020 -6030           imp:n=1  $ Void within Void Box
1415      #77000 #77001 #77002 #77003                               imp:n=1
1416 c
1417 71000 110 -1.19     -7103                               imp:n=1  $ Experiment Tube A1 F4 Tally Volume
1418 72000 110 -1.19     -7203                               imp:n=1  $ Experiment Tube A2 F4 Tally Volume
1419 73000 110 -1.19     -7303                               imp:n=1  $ Experiment Tube A3 F4 Tally Volume
1420 74000 108 -7.85     -7403                               imp:n=1  $ Experiment Tube A4 F4 Tally Volume
1421 75000 108 -7.85     -7503                               imp:n=1  $ Experiment Tube A5 F4 Tally Volume
1422 76000 108 -7.85     -7603                               imp:n=1  $ Experiment Tube A6 F4 Tally Volume
1423 77000 109 -0.001205 -7703                               imp:n=1  $ Experiment Tube A7 F4 Tally Volume
1424 78000 110 -1.19     -7803                               imp:n=1  $ Experiment Tube A8 F4 Tally Volume
1425 c

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1426	71001 110 -1.19	7103 -7101	7004 -99999	imp:n=1	\$ Experiment Tube A1 Interior
1427	72001 110 -1.19	7203 -7201	7004 -99999	imp:n=1	\$ Experiment Tube A2 Interior
1428	73001 110 -1.19	7303 -7301	7004 -99999	imp:n=1	\$ Experiment Tube A3 Interior
1429	74001 108 -7.85	7403 -7401	7004 -99999	imp:n=1	\$ Experiment Tube A4 Interior
1430	75001 108 -7.85	7503 -7501	7004 -99999	imp:n=1	\$ Experiment Tube A5 Interior
1431	76001 108 -7.85	7603 -7601	7004 -99999	imp:n=1	\$ Experiment Tube A6 Interior
1432	77001 109 -0.001205	7703 -7701	7004 -99999	imp:n=1	\$ Experiment Tube A7 Interior
1433	78001 110 -1.19	7803 -7801	7002 -99999	imp:n=1	\$ Experiment Tube A8 Interior
1434	83001 108 -7.85	7703 -8301	7006 -99999	imp:n=1	\$ Experiment Tube B3 Interior
1435	85001 108 -7.85	7803 -8501	7006 -99999	imp:n=1	\$ Experiment Tube B5 Interior
1436	c				
1437	71002 102 -2.7	7101 -7102	7004 -99999	imp:n=1	\$ Experiment Tube A1 Wall
1438	72002 102 -2.7	7201 -7202	7004 -99999	imp:n=1	\$ Experiment Tube A2 Wall
1439	73002 102 -2.7	7301 -7302	7004 -99999	imp:n=1	\$ Experiment Tube A3 Wall
1440	74002 102 -2.7	7401 -7402	7004 -99999	imp:n=1	\$ Experiment Tube A4 Wall
1441	75002 102 -2.7	7501 -7502	7004 -99999	imp:n=1	\$ Experiment Tube A5 Wall
1442	76002 102 -2.7	7601 -7602	7004 -99999	imp:n=1	\$ Experiment Tube A6 Wall
1443	77002 102 -2.7	7701 -7702	7004 -99999	imp:n=1	\$ Experiment Tube A7 Wall
1444	78002 102 -2.7	7801 -7802	7002 -99999	imp:n=1	\$ Experiment Tube A8 Wall
1445	83002 102 -2.7	8301 -8302	7006 -99999	imp:n=1	\$ Experiment Tube B3 Wall
1446	85002 102 -2.7	8501 -8502	7006 -99999	imp:n=1	\$ Experiment Tube B5 Wall
1447	c				
1448	71003 102 -2.7	-7102 7003 -7004 -99999	imp:n=1	\$ Experiment Tube A1 Bottom	
1449	72003 102 -2.7	-7202 7003 -7004 -99999	imp:n=1	\$ Experiment Tube A2 Bottom	
1450	73003 102 -2.7	-7302 7003 -7004 -99999	imp:n=1	\$ Experiment Tube A3 Bottom	
1451	74003 102 -2.7	-7402 7003 -7004 -99999	imp:n=1	\$ Experiment Tube A4 Bottom	
1452	75003 102 -2.7	-7502 7003 -7004 -99999	imp:n=1	\$ Experiment Tube A5 Bottom	
1453	76003 102 -2.7	-7602 7003 -7004 -99999	imp:n=1	\$ Experiment Tube A6 Bottom	
1454	77003 102 -2.7	-7702 7003 -7004 -99999	imp:n=1	\$ Experiment Tube A7 Bottom	
1455	78003 102 -2.7	-7802 7001 -7002 -99999	imp:n=1	\$ Experiment Tube A8 Bottom	
1456	83003 102 -2.7	-8302 7005 -7006 -99999	imp:n=1	\$ Experiment Tube B3 Bottom	
1457	85003 102 -2.7	-8502 7005 -7006 -99999	imp:n=1	\$ Experiment Tube B5 Bottom	
1458	c				
1459	90000 101 -0.9931 -99999			\$ Fill with Water...	
1460		#10100 #10101		\$... Except Core	
1461		#30000		\$... Except Aluminum Core Face Simulator	
1462		#40000		\$... Except Stainless Steel Thermal Shield	
1463		#50000		\$... Except Carbon Steel Pressure Vessel Simulator	
1464		#60001		\$... Except Aluminum Void Box Right Wall	
1465		#60002		\$... Except Aluminum Void Box Left Wall	
1466		#60003		\$... Except Aluminum Void Box Bottom Wall	
1467		#60004		\$... Except Aluminum Void Box Top Wall	
1468		#60005		\$... Except Aluminum Void Box Lower Wall	
1469		#60006		\$... Except Aluminum Void Box Upper Wall	
1470		#60010		\$... Except Void within Void Box	
1471		#71000 #71001 #71002 #71003		\$... and Except All Experiment Tubes	

1472		#72000 #72001 #72002 #72003	
1473		#73000 #73001 #73002 #73003	
1474		#74000 #74001 #74002 #74003	
1475		#75000 #75001 #75002 #75003	
1476		#76000 #76001 #76002 #76003	
1477		#77000 #77001 #77002 #77003	
1478		#78000 #78001 #78002 #78003	
1479		#83001 #83002 #83003	
1480		#85001 #85002 #85003	imp:n=1
1481	c		
1482	99999	0 99999	imp:n=0 \$ Graveyard
1483			
1484	c		
1485	c	cc	
1486	c		
1487	c	Surface Definitions	
1488	c		
1489	c	cc	
1490	c		
1491	1	px -4.0245	\$ Fuel Plate Left Boundary
1492	2	px 4.0245	\$ Fuel Plate Right Boundary
1493	3	py -3.805	\$ Bottom Fuel Plate Lower Boundary
1494	4	py -3.327	\$ Bottom Fuel Plate Upper Boundary
1495	5	py 3.327	\$ Top Fuel Plate Lower Boundary
1496	6	py 3.805	\$ Top Fuel Plate Upper Boundary
1497	c		
1498	10	c/z 9.9175 0.0 14.122	\$ Leftmost Fuel Plate Left Cladding Left Boundary
1499	11	c/z 9.9175 0.0 14.071	\$ Leftmost Fuel Plate Left Cladding Right Boundary
1500	12	c/z 9.9175 0.0 14.021	\$ Leftmost Fuel Plate Right Cladding Left Boundary
1501	13	c/z 9.9175 0.0 13.97	\$ Leftmost Fuel Plate Right Cladding Right Boundary
1502	14	p 0.013 -0.048 0.0 0.1056735	\$ Leftmost Fuel Plate Uranium Upper Cutoff
1503	15	p -0.013 -0.048 0.0 -0.1056735	\$ Leftmost Fuel Plate Uranium Lower Cutoff
1504	c		
1505	20	c/z 17.9275 0.0 14.122	\$ Rightmost Fuel Plate Left Cladding Left Boundary
1506	21	c/z 17.9275 0.0 14.071	\$ Rightmost Fuel Plate Left Cladding Right Boundary
1507	22	c/z 17.9275 0.0 14.021	\$ Rightmost Fuel Plate Right Cladding Left Boundary
1508	23	c/z 17.9275 0.0 13.97	\$ Rightmost Fuel Plate Right Cladding Right Boundary
1509	24	p 0.013 -0.048 0.0 0.21031	\$ Rightmost Fuel Plate Uranium Upper Cutoff
1510	25	p -0.013 -0.048 0.0 -0.21031	\$ Rightmost Fuel Plate Uranium Lower Cutoff
1511	c		
1512	30	px -2.18567	\$ Left Control Rod Channel Wall Left Boundary
1513	31	px -1.86817	\$ Left Control Rod Channel Wall Right Boundary
1514	32	px 0.98933	\$ Right Control Rod Channel Wall Left Boundary
1515	33	px 1.30683	\$ Right Control Rod Channel Wall Right Boundary
1516	c		
1517	40	c/z -0.43942 1.58115 0.5461	\$ Upper Control Rod Lead Sleeve Inner Wall

1518	41	c/z	-0.43942	1.58115	0.635	\$ Upper Control Rod Lead Sleeve Outer Wall
1519	42	c/z	-0.43942	1.58115	1.11125	\$ Upper Control Rod Sleeve Inner Wall
1520	43	c/z	-0.43942	1.58115	1.27635	\$ Upper Control Rod Sleeve Outer Wall
1521	44	py		1.58115		\$ Upper Control Rod Cutting Plane
1522	c					
1523	50	c/z	-0.43942	-1.58115	0.5461	\$ Lower Control Rod Lead Sleeve Inner Wall
1524	51	c/z	-0.43942	-1.58115	0.635	\$ Lower Control Rod Lead Sleeve Outer Wall
1525	52	c/z	-0.43942	-1.58115	1.11125	\$ Lower Control Rod Sleeve Inner Wall
1526	53	c/z	-0.43942	-1.58115	1.27635	\$ Lower Control Rod Sleeve Outer Wall
1527	54	py		-1.58115		\$ Lower Control Rod Cutting Plane
1528	c					
1529	60	px	-1.71127			\$ Left Control Rod Sleeve Outer Wall
1530	61	px	-1.54617			\$ Left Control Rod Sleeve Inner Wall
1531	62	px	0.67183			\$ Right Control Rod Sleeve Inner Wall
1532	63	px	0.83693			\$ Right Control Rod Sleeve Outer Wall
1533	c					
1534	100	px	-4.05			\$ Left Side of Fuel Assembly Cell
1535	101	px	4.05			\$ Right Side of Fuel Assembly Cell
1536	102	py	-3.855			\$ Top Side of Fuel Assembly Cell
1537	103	py	3.855			\$ Bottom Side of Fuel Assembly Cell
1538	c					
1539	110	pz	-36.35375			\$ Lower Boundary of Al Ends of End Plates
1540	111	pz	-31.27375			\$ Lower Boundary of Al Ends of All Plates
1541	112	pz	-30.00375			\$ Lower Boundary of Fuel
1542	113	pz	30.00375			\$ Upper Boundary of Fuel
1543	114	pz	31.27375			\$ Upper Boundary of Al Ends of All Plates
1544	115	pz	36.35375			\$ Upper Boundary of Al Ends of End Plates
1545	c					
1546	120	pz	13.17			\$ Control Rod Axial Planes
1547	121	pz	15.71			\$ Control Rod Axial Planes
1548	122	pz	16.82125			\$ Control Rod Axial Planes
1549	123	pz	78.73375			\$ Control Rod Axial Planes
1550	124	pz	80.3225			\$ Control Rod Axial Planes
1551	125	pz	88.09995			\$ Control Rod Axial Planes
1552	c					
1553	130	pz	5.89			\$ Regulating Rod Axial Planes
1554	131	pz	63.335			\$ Regulating Rod Axial Planes
1555	c					
1556	200	px	-20.25			\$ Left Edge of Main Core Array
1557	201	px	20.25			\$ Right Edge of Main Core Array
1558	202	py	-19.275			\$ Top Edge of Main Core Array
1559	203	py	19.275			\$ Bottom Edge of Main Core Array
1560	c					
1561	210	px	-20.41			\$ Left Edge of True Core Array
1562	c					
1563	301	px	-23.07			\$ Left Side of Aluminum Core Face Simulator

1564	302	px	-20.57	\$ Right Side of Aluminum Core Face Simulator
1565	311	py	-45.72	\$ Bottom Side of Aluminum Core Face Simulator
1566	312	py	45.72	\$ Top Side of Aluminum Core Face Simulator
1567	320	pz	-44.7675	\$ Aluminum Core Face Simulator Lower Extent
1568	330	pz	44.7675	\$ Aluminum Core Face Simulator Upper Extent
1569	C			
1570	401	px	-40.95	\$ Left Side of Stainless Steel Thermal Shield
1571	402	px	-35.05	\$ Right Side of Stainless Steel Thermal Shield
1572	411	py	-34.29	\$ Bottom Side of Stainless Steel Thermal Shield
1573	412	py	34.29	\$ Top Side of Stainless Steel Thermal Shield
1574	420	pz	-34.29	\$ Thermal Shield, RPV, and Bottom Void Box Wall Lower Extent
1575	430	pz	34.29	\$ Thermal Shield, RPV, and Top Void Box Wall Upper Extent
1576	C			
1577	501	px	-76.18	\$ Left Side of Carbon Steel Pressure Vessel Simulator
1578	502	px	-53.68	\$ Right Side of Carbon Steel Pressure Vessel Simulator
1579	511	py	-34.29	\$ Bottom Side of Carbon Steel Pressure Vessel Simulator
1580	512	py	34.29	\$ Top Side of Carbon Steel Pressure Vessel Simulator
1581	C			
1582	6020	pz	-33.9725	\$ Bottom Void Box Wall Lower Extent
1583	6030	pz	33.9725	\$ Top Void Box Wall Upper Extent
1584	6101	px	-76.4975	\$ Left Side of Aluminum Void Box Right Wall
1585	6102	px	-76.18	\$ Right Side of Aluminum Void Box Right Wall
1586	6111	py	-34.29	\$ Bottom Side of Aluminum Void Box Right Wall
1587	6112	py	34.29	\$ Top Side of Aluminum Void Box Right Wall
1588	C			
1589	6201	px	-106.66	\$ Left Side of Aluminum Void Box Left Wall
1590	6202	px	-106.343	\$ Right Side of Aluminum Void Box Left Wall
1591	6211	py	-34.29	\$ Bottom Side of Aluminum Void Box Left Wall
1592	6212	py	34.29	\$ Top Side of Aluminum Void Box Left Wall
1593	C			
1594	6301	px	-106.343	\$ Left Side of Aluminum Void Box Bottom Wall
1595	6302	px	-76.4975	\$ Right Side of Aluminum Void Box Bottom Wall
1596	6311	py	-34.29	\$ Bottom Side of Aluminum Void Box Bottom Wall
1597	6312	py	-33.9725	\$ Top Side of Aluminum Void Box Bottom Wall
1598	C			
1599	6401	px	-106.343	\$ Left Side of Aluminum Void Box Top Wall
1600	6402	px	-76.4975	\$ Right Side of Aluminum Void Box Top Wall
1601	6411	py	33.9725	\$ Bottom Side of Aluminum Void Box Top Wall
1602	6412	py	34.29	\$ Top Side of Aluminum Void Box Top Wall
1603	C			
1604	7001	pz	-34.29	\$ Lower Planes for Experiment Tubes (See NUREG/CR-7045 PCA VITAMIN-B7 Input)
1605	7002	pz	-33.65	\$ Lower Planes for Experiment Tubes (See NUREG/CR-7045 PCA VITAMIN-B7 Input)
1606	7003	pz	-32.69	\$ Lower Planes for Experiment Tubes (See NUREG/CR-7045 PCA VITAMIN-B7 Input)
1607	7004	pz	-32.05	\$ Lower Planes for Experiment Tubes (See NUREG/CR-7045 PCA VITAMIN-B7 Input)
1608	7005	pz	-18.74	\$ Lower Planes for Experiment Tubes (See NUREG/CR-7045 PCA VITAMIN-B7 Input)
1609	7006	pz	-18.1	\$ Lower Planes for Experiment Tubes (See NUREG/CR-7045 PCA VITAMIN-B7 Input)

1610	C					
1611	7101	c/z	-32.57	0.0	2.33	\$ Experiment Tube A1 Interior Wall
1612	7102	c/z	-32.57	0.0	2.475	\$ Experiment Tube A1 Exterior Wall (Shrunk Slightly To Avoid Tangent Surface)
1613	7103	s	-32.57	0.0	0.0 1.0	\$ F4 Tally Volume
1614	C					
1615	7201	c/z	-44.37	0.0	2.33	\$ Experiment Tube A2 Interior Wall
1616	7202	c/z	-44.37	0.0	2.48	\$ Experiment Tube A2 Exterior Wall
1617	7203	s	-44.37	0.0	0.0 1.0	\$ F4 Tally Volume
1618	C					
1619	7301	c/z	-50.27	0.0	2.33	\$ Experiment Tube A3 Interior Wall
1620	7302	c/z	-50.27	0.0	2.48	\$ Experiment Tube A3 Exterior Wall
1621	7303	s	-50.27	0.0	0.0 1.0	\$ F4 Tally Volume
1622	C					
1623	7401	c/z	-60.07	0.0	2.33	\$ Experiment Tube A4 Interior Wall
1624	7402	c/z	-60.07	0.0	2.48	\$ Experiment Tube A4 Exterior Wall
1625	7403	s	-60.07	0.0	0.0 1.0	\$ F4 Tally Volume
1626	C					
1627	7501	c/z	-65.27	0.0	2.33	\$ Experiment Tube A5 Interior Wall
1628	7502	c/z	-65.27	0.0	2.48	\$ Experiment Tube A5 Exterior Wall
1629	7503	s	-65.27	0.0	0.0 1.0	\$ F4 Tally Volume
1630	C					
1631	7601	c/z	-70.67	0.0	2.33	\$ Experiment Tube A6 Interior Wall
1632	7602	c/z	-70.67	0.0	2.48	\$ Experiment Tube A6 Exterior Wall
1633	7603	s	-70.67	0.0	0.0 1.0	\$ F4 Tally Volume
1634	C					
1635	7701	c/z	-79.67	0.0	2.33	\$ Experiment Tube A7 Interior Wall
1636	7702	c/z	-79.67	0.0	2.48	\$ Experiment Tube A7 Exterior Wall
1637	7703	s	-79.67	0.0	0.0 1.0	\$ F4 Tally Volume
1638	C					
1639	7801	c/z	-111.77	0.0	4.505	\$ Experiment Tube A8 Interior Wall
1640	7802	c/z	-111.77	0.0	4.715	\$ Experiment Tube A8 Exterior Wall
1641	7803	s	-111.77	0.0	0.0 1.0	\$ F4 Tally Volume
1642	C					
1643	8301	c/z	-60.07	10.16	2.33	\$ Experiment Tube B3 Interior Wall
1644	8302	c/z	-60.07	10.16	2.48	\$ Experiment Tube B3 Exterior Wall
1645	C					
1646	8501	c/z	-60.07	-10.16	3.085	\$ Experiment Tube B5 Interior Wall
1647	8502	c/z	-60.07	-10.16	3.295	\$ Experiment Tube B5 Exterior Wall
1648	C					
1649	99999	rpp	-150	150	-100 100 -100 150	
1650						
1651	C					
1652	C	cc				
1653	C	Coordinate Transforms				
1654	C	cc				
1655	C					

1656 c Standard Fuel Assembly (18 Plates + 1 Trailing)

1657 c

1658 tr2 0.445 0 0 1 0 0 0 1 0 0 0 1 1

1659 tr3 0.890 0 0 1 0 0 0 1 0 0 0 1 1

1660 tr4 1.335 0 0 1 0 0 0 1 0 0 0 1 1

1661 tr5 1.780 0 0 1 0 0 0 1 0 0 0 1 1

1662 tr6 2.225 0 0 1 0 0 0 1 0 0 0 1 1

1663 tr7 2.670 0 0 1 0 0 0 1 0 0 0 1 1

1664 tr8 3.115 0 0 1 0 0 0 1 0 0 0 1 1

1665 tr9 3.560 0 0 1 0 0 0 1 0 0 0 1 1

1666 tr10 4.005 0 0 1 0 0 0 1 0 0 0 1 1

1667 tr11 4.450 0 0 1 0 0 0 1 0 0 0 1 1

1668 tr12 4.895 0 0 1 0 0 0 1 0 0 0 1 1

1669 tr13 5.340 0 0 1 0 0 0 1 0 0 0 1 1

1670 tr14 5.785 0 0 1 0 0 0 1 0 0 0 1 1

1671 tr15 6.230 0 0 1 0 0 0 1 0 0 0 1 1

1672 tr16 6.675 0 0 1 0 0 0 1 0 0 0 1 1

1673 tr17 7.120 0 0 1 0 0 0 1 0 0 0 1 1

1674 tr18 7.565 0 0 1 0 0 0 1 0 0 0 1 1

1675 tr19 8.100 0 0 1 0 0 0 1 0 0 0 1 1

1676 c

1677 c M-48/49-H Assembly (19 Plates + 1 Trailing)

1678 c

1679 tr102 0.422 0 0 1 0 0 0 1 0 0 0 1 1

1680 tr103 0.843 0 0 1 0 0 0 1 0 0 0 1 1

1681 tr104 1.265 0 0 1 0 0 0 1 0 0 0 1 1

1682 tr105 1.686 0 0 1 0 0 0 1 0 0 0 1 1

1683 tr106 2.108 0 0 1 0 0 0 1 0 0 0 1 1

1684 tr107 2.529 0 0 1 0 0 0 1 0 0 0 1 1

1685 tr108 2.951 0 0 1 0 0 0 1 0 0 0 1 1

1686 tr109 3.373 0 0 1 0 0 0 1 0 0 0 1 1

1687 tr110 3.794 0 0 1 0 0 0 1 0 0 0 1 1

1688 tr111 4.216 0 0 1 0 0 0 1 0 0 0 1 1

1689 tr112 4.637 0 0 1 0 0 0 1 0 0 0 1 1

1690 tr113 5.059 0 0 1 0 0 0 1 0 0 0 1 1

1691 tr114 5.481 0 0 1 0 0 0 1 0 0 0 1 1

1692 tr115 5.902 0 0 1 0 0 0 1 0 0 0 1 1

1693 tr116 6.324 0 0 1 0 0 0 1 0 0 0 1 1

1694 tr117 6.745 0 0 1 0 0 0 1 0 0 0 1 1

1695 tr118 7.167 0 0 1 0 0 0 1 0 0 0 1 1

1696 tr119 7.588 0 0 1 0 0 0 1 0 0 0 1 1

1697 tr120 8.100 0 0 1 0 0 0 1 0 0 0 1 1

1698 c

1699 c Control Rod Translation

1700 c

1701 tr200 0 0 0 1 0 0 0 1 0 0 0 1 1

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1702 c
1703 c Regulating Rod Translation
1704 c
1705 tr210 0 0 0 1 0 0 0 1 0 0 0 1 1
1706 c
1707 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
1708 c Physics
1709 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
1710 c
1711 mode n
1712 c
1713 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
1714 c Material Definitions
1715 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
1716 c
1717 m101 1001 2 $ Water
1718 8016 1 $ Density at 37.7 deg-C: 0.9931 g/cc (http://www.wolframalpha.com/input/?i=density+of+water+37.7+C)
1719 mt101 lwtr.01t $ Use: Page 2, NUREG/CR-6454, Composition: Assumed
1720 c
1721 m102 13027 -1.0000 $ Aluminum
1722 c $ Density: 2.70 g/cc
1723 c $ Use: Page 2, NUREG/CR-6454, Composition: Assumed
1724 c
1725 m103 13027 -85.0584 $ Fuel
1726 92235 -13.8957 $ Standard Density: 2.880193 g/cc (C. Edgar Thesis)
1727 92238 -1.0459 $ M-48/49-H Density: 3.898175 g/cc (Scaled from C. Edgar Thesis Based on NUREG-7045 Density Factor)
1728 c $ Use: Page 2, NUREG/CR-6454, Composition: C. Edgar Thesis
1729 c
1730 m104 5010 -14.3802 $ B4C
1731 5011 -57.8823 $ Density: 1.6 g/cc (C. Edgar Thesis)
1732 6012 -27.7375 $ Use: Page 2, NUREG/CR-6454, Composition: C. Edgar Thesis
1733 c
1734 m105 82206 -24.1 $ Lead
1735 82207 -22.1 $ Density: 11.34 g/cc (C. Edgar Thesis)
1736 82208 -53.8 $ Use: Page 2, NUREG/CR-6454, Composition: C. Edgar Thesis
1737 c
1738 m106 6000 0.08 $ Stainless Steel 347
1739 7014 0.1 $ Density: 7.96 g/cc (NUREG/CR-7045 PCA VITAMIN-B7 Input)
1740 14000 0.75 $ Use: Page 2, NUREG/CR-6454, Composition: NUREG/CR-7045 PCA VITAMIN-B7 Input
1741 15031 2.0
1742 16000 0.03
1743 24000 18.0
1744 28000 11.0
1745 26000 68.04
1746 c
1747 m107 6012 -0.000297 $ Stainless Steel 304L

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1748	6013	-0.000003	\$ Density: 8.0 g/cc (Page 5, NUREG/CR-6454)
1749	25055	-0.020000	\$ Use: Page 2, NUREG/CR-6454; Composition: Page 5, NUREG/CR-6454
1750	14028	-0.009223	
1751	14029	-0.000467	
1752	14030	-0.000310	
1753	24050	-0.008256	
1754	24052	-0.159199	
1755	24053	-0.018052	
1756	24054	-0.004494	
1757	28058	-0.068077	
1758	28060	-0.026223	
1759	28061	-0.001140	
1760	28062	-0.003634	
1761	28064	-0.000926	
1762	26054	-0.039728	
1763	26056	-0.623652	
1764	26057	-0.014403	
1765	26058	-0.001917	
1766	c		
1767	m108	15031	-0.000400 \$ Carbon Steel
1768	16032	-0.000475	\$ Density: 7.85 g/cc (Page 5, NUREG/CR-6454)
1769	16033	-0.000004	\$ Use Page 2, NUREG/CR-6454; Composition: Page 5, NUREG/CR-6454)
1770	16034	-0.000021	
1771	6012	-0.002472	
1772	6013	-0.000028	
1773	26054	-0.058251	
1774	26056	-0.914329	
1775	26057	-0.000051	
1776	26058	-0.000007	
1777	c		
1778	m109	6000	-0.000124 \$ Air
1779	7014	-0.755268	\$ Density: 0.001205 g/cc (PNNL-15870, Rev. 1)
1780	8016	-0.231781	\$ Use: Page 5, NUREG/CR-6545; Composition: PNNL-15870, Rev. 1)
1781	18000	-0.012827	
1782	c		
1783	m110	1001	-0.080538 \$ Plexiglass (Lucite)
1784	6000	-0.599848	\$ Density: 1.19 g/cc (PNNL-15870, Rev. 1)
1785	8016	-0.319614	\$ Use: Page 4, NUREG/CR-6545; Composition: PNNL-15870, Rev. 1)
1786	c		
1787	m201	13027	-1.0 \$ Al-27 Material for Reaction Multiplier
1788	m202	28058	-1.0 \$ Ni-58 Material for Reaction Multiplier
1789	m203	45103	-1.0 \$ Rh-103 Material for Reaction Multiplier
1790	m204	49115	-1.0 \$ In-115 Material for Reaction Multiplier
1791	m205	92238	-1.0 \$ U-238 Material for Reaction Multiplier
1792	m206	93237	-1.0 \$ Np-237 Material for Reaction Multiplier
1793	c		

1794	m301	13027.26y	-1.0					\$ Al-27 (531dos, ENDF/B-V) Dosimetry XS for Reaction Multiplier		
1795	m302	28058.26y	-1.0					\$ Ni-58 (531dos, ENDF/B-V) Dosimetry XS for Reaction Multiplier		
1796	m303	45103.30y	-1.0					\$ Rh-103 (111dos, LLNL/ACTL) Dosimetry XS for Reaction Multiplier		
1797	m304	49115.26y	-1.0					\$ In-115 (532dos, ENDF/B-V) Dosimetry XS for Reaction Multiplier		
1798	m305	92238.30y	-1.0					\$ U-238 (111dos, LLNL/ACTL) Dosimetry XS for Reaction Multiplier		
1799	m306	93237.30y	-1.0					\$ Np-237 (111dos, LLNL/ACTL) Dosimetry XS for Reaction Multiplier		
1800	c									
1801	c ccc									
1802	c Source Definition									
1803	c ccc									
1804	c									
1805	ksrc									
1806		-19.100	-15.420	-30.000	-18.655	-15.420	-30.000	-18.210	-15.420	-30.000
1807		-17.765	-15.420	-30.000	-17.320	-15.420	-30.000	-16.875	-15.420	-30.000
1808		-16.430	-15.420	-30.000	-15.985	-15.420	-30.000	-15.540	-15.420	-30.000
1809		-15.095	-15.420	-30.000	-14.650	-15.420	-30.000	-14.205	-15.420	-30.000
1810		-13.760	-15.420	-30.000	-13.315	-15.420	-30.000	-12.870	-15.420	-30.000
1811		-12.425	-15.420	-30.000	-11.990	-15.420	-30.000	-10.945	-15.420	-30.000
1812		-10.500	-15.420	-30.000	-10.055	-15.420	-30.000	-9.610	-15.420	-30.000
1813		-9.165	-15.420	-30.000	-8.720	-15.420	-30.000	-8.275	-15.420	-30.000
1814		-7.830	-15.420	-30.000	-7.385	-15.420	-30.000	-6.940	-15.420	-30.000
1815		-6.495	-15.420	-30.000	-6.050	-15.420	-30.000	-5.605	-15.420	-30.000
1816		-5.160	-15.420	-30.000	-4.715	-15.420	-30.000	-3.680	-15.420	-30.000
1817		-3.235	-15.420	-30.000	-2.790	-15.420	-30.000	-2.345	-15.420	-30.000
1818		-1.900	-15.420	-30.000	-1.455	-15.420	-30.000	-1.010	-15.420	-30.000
1819		-0.565	-15.420	-30.000	-0.120	-15.420	-30.000	0.325	-15.420	-30.000
1820		0.770	-15.420	-30.000	1.215	-15.420	-30.000	1.660	-15.420	-30.000
1821		2.105	-15.420	-30.000	2.550	-15.420	-30.000	2.995	-15.420	-30.000
1822		4.030	-15.420	-30.000	4.475	-15.420	-30.000	4.920	-15.420	-30.000
1823		5.365	-15.420	-30.000	5.810	-15.420	-30.000	6.255	-15.420	-30.000
1824		6.700	-15.420	-30.000	7.145	-15.420	-30.000	7.590	-15.420	-30.000
1825		8.035	-15.420	-30.000	8.480	-15.420	-30.000	8.925	-15.420	-30.000
1826		9.370	-15.420	-30.000	9.815	-15.420	-30.000	10.260	-15.420	-30.000
1827		10.705	-15.420	-30.000	11.150	-15.420	-30.000	11.600	-15.420	-30.000
1828		12.630	-15.420	-30.000	13.075	-15.420	-30.000	13.520	-15.420	-30.000
1829		13.965	-15.420	-30.000	14.410	-15.420	-30.000	14.855	-15.420	-30.000
1830		15.300	-15.420	-30.000	15.745	-15.420	-30.000	16.190	-15.420	-30.000
1831		16.635	-15.420	-30.000	17.080	-15.420	-30.000	17.525	-15.420	-30.000
1832		17.970	-15.420	-30.000	18.415	-15.420	-30.000	-19.100	-7.710	-30.000
1833		-18.655	-7.710	-30.000	-18.210	-7.710	-30.000	-17.765	-7.710	-30.000
1834		-17.320	-7.710	-30.000	-16.875	-7.710	-30.000	-16.430	-7.710	-30.000
1835		-15.985	-7.710	-30.000	-15.540	-7.710	-30.000	-15.095	-7.710	-30.000
1836		-14.650	-7.710	-30.000	-14.205	-7.710	-30.000	-13.760	-7.710	-30.000
1837		-13.315	-7.710	-30.000	-12.870	-7.710	-30.000	-12.425	-7.710	-30.000
1838		-3.700	-7.710	-30.000	-3.278	-7.710	-30.000	-2.857	-7.710	-30.000
1839		-2.435	-7.710	-30.000	-2.014	-7.710	-30.000	-1.592	-7.710	-30.000

1840	-1.171	-7.710	-30.000	-0.749	-7.710	-30.000	-0.327	-7.710	-30.000
1841	0.094	-7.710	-30.000	0.516	-7.710	-30.000	0.937	-7.710	-30.000
1842	1.359	-7.710	-30.000	1.781	-7.710	-30.000	2.202	-7.710	-30.000
1843	2.624	-7.710	-30.000	3.045	-7.710	-30.000	3.467	-7.710	-30.000
1844	3.888	-7.710	-30.000	11.740	-7.710	-30.000	12.185	-7.710	-30.000
1845	12.630	-7.710	-30.000	13.075	-7.710	-30.000	13.520	-7.710	-30.000
1846	13.965	-7.710	-30.000	14.410	-7.710	-30.000	14.855	-7.710	-30.000
1847	15.300	-7.710	-30.000	15.745	-7.710	-30.000	16.190	-7.710	-30.000
1848	16.635	-7.710	-30.000	17.080	-7.710	-30.000	17.525	-7.710	-30.000
1849	17.970	-7.710	-30.000	18.415	-7.710	-30.000	-19.100	0.000	-30.000
1850	-18.655	0.000	-30.000	-18.210	0.000	-30.000	-17.765	0.000	-30.000
1851	-17.320	0.000	-30.000	-16.875	0.000	-30.000	-16.430	0.000	-30.000
1852	-15.985	0.000	-30.000	-15.540	0.000	-30.000	-15.095	0.000	-30.000
1853	-14.650	0.000	-30.000	-14.205	0.000	-30.000	-13.760	0.000	-30.000
1854	-13.315	0.000	-30.000	-12.870	0.000	-30.000	-12.425	0.000	-30.000
1855	-11.390	0.000	-30.000	-10.945	0.000	-30.000	-10.500	0.000	-30.000
1856	-10.055	0.000	-30.000	-9.610	0.000	-30.000	-9.165	0.000	-30.000
1857	-8.720	0.000	-30.000	-8.275	0.000	-30.000	-7.830	0.000	-30.000
1858	-7.385	0.000	-30.000	-6.940	0.000	-30.000	-6.495	0.000	-30.000
1859	-6.050	0.000	-30.000	-5.605	0.000	-30.000	-5.160	0.000	-30.000
1860	-4.715	0.000	-30.000	-3.680	0.000	-30.000	-3.235	0.000	-30.000
1861	-2.790	0.000	-30.000	-2.345	0.000	-30.000	-1.900	0.000	-30.000
1862	-1.455	0.000	-30.000	-1.010	0.000	-30.000	-0.565	0.000	-30.000
1863	-0.120	0.000	-30.000	0.325	0.000	-30.000	0.770	0.000	-30.000
1864	1.215	0.000	-30.000	1.660	0.000	-30.000	2.105	0.000	-30.000
1865	2.550	0.000	-30.000	2.995	0.000	-30.000	4.030	0.000	-30.000
1866	4.475	0.000	-30.000	4.920	0.000	-30.000	5.365	0.000	-30.000
1867	5.810	0.000	-30.000	6.255	0.000	-30.000	6.700	0.000	-30.000
1868	7.145	0.000	-30.000	7.590	0.000	-30.000	8.035	0.000	-30.000
1869	8.480	0.000	-30.000	8.925	0.000	-30.000	9.370	0.000	-30.000
1870	9.815	0.000	-30.000	10.260	0.000	-30.000	10.705	0.000	-30.000
1871	11.740	0.000	-30.000	12.185	0.000	-30.000	12.630	0.000	-30.000
1872	13.075	0.000	-30.000	13.520	0.000	-30.000	13.965	0.000	-30.000
1873	14.410	0.000	-30.000	14.855	0.000	-30.000	15.300	0.000	-30.000
1874	15.745	0.000	-30.000	16.190	0.000	-30.000	16.635	0.000	-30.000
1875	17.080	0.000	-30.000	17.525	0.000	-30.000	17.970	0.000	-30.000
1876	18.415	0.000	-30.000	-19.100	7.710	-30.000	-18.655	7.710	-30.000
1877	-18.210	7.710	-30.000	-17.765	7.710	-30.000	-17.320	7.710	-30.000
1878	-16.875	7.710	-30.000	-16.430	7.710	-30.000	-15.985	7.710	-30.000
1879	-15.540	7.710	-30.000	-15.095	7.710	-30.000	-14.650	7.710	-30.000
1880	-14.205	7.710	-30.000	-13.760	7.710	-30.000	-13.315	7.710	-30.000
1881	-12.870	7.710	-30.000	-12.425	7.710	-30.000	-3.700	7.710	-30.000
1882	-3.278	7.710	-30.000	-2.857	7.710	-30.000	-2.435	7.710	-30.000
1883	-2.014	7.710	-30.000	-1.592	7.710	-30.000	-1.171	7.710	-30.000
1884	-0.749	7.710	-30.000	-0.327	7.710	-30.000	0.094	7.710	-30.000
1885	0.516	7.710	-30.000	0.937	7.710	-30.000	1.359	7.710	-30.000

1886	1.781	7.710	-30.000	2.202	7.710	-30.000	2.624	7.710	-30.000
1887	3.045	7.710	-30.000	3.467	7.710	-30.000	3.888	7.710	-30.000
1888	11.740	7.710	-30.000	12.185	7.710	-30.000	12.630	7.710	-30.000
1889	13.075	7.710	-30.000	13.520	7.710	-30.000	13.965	7.710	-30.000
1890	14.410	7.710	-30.000	14.855	7.710	-30.000	15.300	7.710	-30.000
1891	15.745	7.710	-30.000	16.190	7.710	-30.000	16.635	7.710	-30.000
1892	17.080	7.710	-30.000	17.525	7.710	-30.000	17.970	7.710	-30.000
1893	18.415	7.710	-30.000	-19.100	15.420	-30.000	-18.655	15.420	-30.000
1894	-18.210	15.420	-30.000	-17.765	15.420	-30.000	-17.320	15.420	-30.000
1895	-16.875	15.420	-30.000	-16.430	15.420	-30.000	-15.985	15.420	-30.000
1896	-15.540	15.420	-30.000	-15.095	15.420	-30.000	-14.650	15.420	-30.000
1897	-14.205	15.420	-30.000	-13.760	15.420	-30.000	-13.315	15.420	-30.000
1898	-12.870	15.420	-30.000	-12.425	15.420	-30.000	-11.990	15.420	-30.000
1899	-10.945	15.420	-30.000	-10.500	15.420	-30.000	-10.055	15.420	-30.000
1900	-9.610	15.420	-30.000	-9.165	15.420	-30.000	-8.720	15.420	-30.000
1901	-8.275	15.420	-30.000	-7.830	15.420	-30.000	-7.385	15.420	-30.000
1902	-6.940	15.420	-30.000	-6.495	15.420	-30.000	-6.050	15.420	-30.000
1903	-5.605	15.420	-30.000	-5.160	15.420	-30.000	-4.715	15.420	-30.000
1904	-3.680	15.420	-30.000	-3.235	15.420	-30.000	-2.790	15.420	-30.000
1905	-2.345	15.420	-30.000	-1.900	15.420	-30.000	-1.455	15.420	-30.000
1906	-1.010	15.420	-30.000	-0.565	15.420	-30.000	-0.120	15.420	-30.000
1907	0.325	15.420	-30.000	0.770	15.420	-30.000	1.215	15.420	-30.000
1908	1.660	15.420	-30.000	2.105	15.420	-30.000	2.550	15.420	-30.000
1909	2.995	15.420	-30.000	4.030	15.420	-30.000	4.475	15.420	-30.000
1910	4.920	15.420	-30.000	5.365	15.420	-30.000	5.810	15.420	-30.000
1911	6.255	15.420	-30.000	6.700	15.420	-30.000	7.145	15.420	-30.000
1912	7.590	15.420	-30.000	8.035	15.420	-30.000	8.480	15.420	-30.000
1913	8.925	15.420	-30.000	9.370	15.420	-30.000	9.815	15.420	-30.000
1914	10.260	15.420	-30.000	10.705	15.420	-30.000	11.740	15.420	-30.000
1915	12.185	15.420	-30.000	12.630	15.420	-30.000	13.075	15.420	-30.000
1916	13.520	15.420	-30.000	13.965	15.420	-30.000	14.410	15.420	-30.000
1917	14.855	15.420	-30.000	15.300	15.420	-30.000	15.745	15.420	-30.000
1918	16.190	15.420	-30.000	16.635	15.420	-30.000	17.080	15.420	-30.000
1919	17.525	15.420	-30.000	17.970	15.420	-30.000	18.415	15.420	-30.000
1920	-19.100	-15.420	-15.000	-18.655	-15.420	-15.000	-18.210	-15.420	-15.000
1921	-17.765	-15.420	-15.000	-17.320	-15.420	-15.000	-16.875	-15.420	-15.000
1922	-16.430	-15.420	-15.000	-15.985	-15.420	-15.000	-15.540	-15.420	-15.000
1923	-15.095	-15.420	-15.000	-14.650	-15.420	-15.000	-14.205	-15.420	-15.000
1924	-13.760	-15.420	-15.000	-13.315	-15.420	-15.000	-12.870	-15.420	-15.000
1925	-12.425	-15.420	-15.000	-11.990	-15.420	-15.000	-10.945	-15.420	-15.000
1926	-10.500	-15.420	-15.000	-10.055	-15.420	-15.000	-9.610	-15.420	-15.000
1927	-9.165	-15.420	-15.000	-8.720	-15.420	-15.000	-8.275	-15.420	-15.000
1928	-7.830	-15.420	-15.000	-7.385	-15.420	-15.000	-6.940	-15.420	-15.000
1929	-6.495	-15.420	-15.000	-6.050	-15.420	-15.000	-5.605	-15.420	-15.000
1930	-5.160	-15.420	-15.000	-4.715	-15.420	-15.000	-3.680	-15.420	-15.000
1931	-3.235	-15.420	-15.000	-2.790	-15.420	-15.000	-2.345	-15.420	-15.000

1932	-1.900	-15.420	-15.000	-1.455	-15.420	-15.000	-1.010	-15.420	-15.000
1933	-0.565	-15.420	-15.000	-0.120	-15.420	-15.000	0.325	-15.420	-15.000
1934	0.770	-15.420	-15.000	1.215	-15.420	-15.000	1.660	-15.420	-15.000
1935	2.105	-15.420	-15.000	2.550	-15.420	-15.000	2.995	-15.420	-15.000
1936	4.030	-15.420	-15.000	4.475	-15.420	-15.000	4.920	-15.420	-15.000
1937	5.365	-15.420	-15.000	5.810	-15.420	-15.000	6.255	-15.420	-15.000
1938	6.700	-15.420	-15.000	7.145	-15.420	-15.000	7.590	-15.420	-15.000
1939	8.035	-15.420	-15.000	8.480	-15.420	-15.000	8.925	-15.420	-15.000
1940	9.370	-15.420	-15.000	9.815	-15.420	-15.000	10.260	-15.420	-15.000
1941	10.705	-15.420	-15.000	11.740	-15.420	-15.000	12.185	-15.420	-15.000
1942	12.630	-15.420	-15.000	13.075	-15.420	-15.000	13.520	-15.420	-15.000
1943	13.965	-15.420	-15.000	14.410	-15.420	-15.000	14.855	-15.420	-15.000
1944	15.300	-15.420	-15.000	15.745	-15.420	-15.000	16.190	-15.420	-15.000
1945	16.635	-15.420	-15.000	17.080	-15.420	-15.000	17.525	-15.420	-15.000
1946	17.970	-15.420	-15.000	18.415	-15.420	-15.000	-19.100	-7.710	-15.000
1947	-18.655	-7.710	-15.000	-18.210	-7.710	-15.000	-17.765	-7.710	-15.000
1948	-17.320	-7.710	-15.000	-16.875	-7.710	-15.000	-16.430	-7.710	-15.000
1949	-15.985	-7.710	-15.000	-15.540	-7.710	-15.000	-15.095	-7.710	-15.000
1950	-14.650	-7.710	-15.000	-14.205	-7.710	-15.000	-13.760	-7.710	-15.000
1951	-13.315	-7.710	-15.000	-12.870	-7.710	-15.000	-12.425	-7.710	-15.000
1952	-3.700	-7.710	-15.000	-3.278	-7.710	-15.000	-2.857	-7.710	-15.000
1953	-2.435	-7.710	-15.000	-2.014	-7.710	-15.000	-1.592	-7.710	-15.000
1954	-1.171	-7.710	-15.000	-0.749	-7.710	-15.000	-0.327	-7.710	-15.000
1955	0.094	-7.710	-15.000	0.516	-7.710	-15.000	0.937	-7.710	-15.000
1956	1.359	-7.710	-15.000	1.781	-7.710	-15.000	2.202	-7.710	-15.000
1957	2.624	-7.710	-15.000	3.045	-7.710	-15.000	3.467	-7.710	-15.000
1958	3.888	-7.710	-15.000	11.740	-7.710	-15.000	12.185	-7.710	-15.000
1959	12.630	-7.710	-15.000	13.075	-7.710	-15.000	13.520	-7.710	-15.000
1960	13.965	-7.710	-15.000	14.410	-7.710	-15.000	14.855	-7.710	-15.000
1961	15.300	-7.710	-15.000	15.745	-7.710	-15.000	16.190	-7.710	-15.000
1962	16.635	-7.710	-15.000	17.080	-7.710	-15.000	17.525	-7.710	-15.000
1963	17.970	-7.710	-15.000	18.415	-7.710	-15.000	-19.100	0.000	-15.000
1964	-18.655	0.000	-15.000	-18.210	0.000	-15.000	-17.765	0.000	-15.000
1965	-17.320	0.000	-15.000	-16.875	0.000	-15.000	-16.430	0.000	-15.000
1966	-15.985	0.000	-15.000	-15.540	0.000	-15.000	-15.095	0.000	-15.000
1967	-14.650	0.000	-15.000	-14.205	0.000	-15.000	-13.760	0.000	-15.000
1968	-13.315	0.000	-15.000	-12.870	0.000	-15.000	-12.425	0.000	-15.000
1969	-11.390	0.000	-15.000	-10.945	0.000	-15.000	-10.500	0.000	-15.000
1970	-10.055	0.000	-15.000	-9.610	0.000	-15.000	-9.165	0.000	-15.000
1971	-8.720	0.000	-15.000	-8.275	0.000	-15.000	-7.830	0.000	-15.000
1972	-7.385	0.000	-15.000	-6.940	0.000	-15.000	-6.495	0.000	-15.000
1973	-6.050	0.000	-15.000	-5.605	0.000	-15.000	-5.160	0.000	-15.000
1974	-4.715	0.000	-15.000	-3.680	0.000	-15.000	-3.235	0.000	-15.000
1975	-2.790	0.000	-15.000	-2.345	0.000	-15.000	-1.900	0.000	-15.000
1976	-1.455	0.000	-15.000	-1.010	0.000	-15.000	-0.565	0.000	-15.000
1977	-0.120	0.000	-15.000	0.325	0.000	-15.000	0.770	0.000	-15.000

1978	1.215	0.000	-15.000	1.660	0.000	-15.000	2.105	0.000	-15.000
1979	2.550	0.000	-15.000	2.995	0.000	-15.000	4.030	0.000	-15.000
1980	4.475	0.000	-15.000	4.920	0.000	-15.000	5.365	0.000	-15.000
1981	5.810	0.000	-15.000	6.255	0.000	-15.000	6.700	0.000	-15.000
1982	7.145	0.000	-15.000	7.590	0.000	-15.000	8.035	0.000	-15.000
1983	8.480	0.000	-15.000	8.925	0.000	-15.000	9.370	0.000	-15.000
1984	9.815	0.000	-15.000	10.260	0.000	-15.000	10.705	0.000	-15.000
1985	11.740	0.000	-15.000	12.185	0.000	-15.000	12.630	0.000	-15.000
1986	13.075	0.000	-15.000	13.520	0.000	-15.000	13.965	0.000	-15.000
1987	14.410	0.000	-15.000	14.855	0.000	-15.000	15.300	0.000	-15.000
1988	15.745	0.000	-15.000	16.190	0.000	-15.000	16.635	0.000	-15.000
1989	17.080	0.000	-15.000	17.525	0.000	-15.000	17.970	0.000	-15.000
1990	18.415	0.000	-15.000	-19.100	7.710	-15.000	-18.655	7.710	-15.000
1991	-18.210	7.710	-15.000	-17.765	7.710	-15.000	-17.320	7.710	-15.000
1992	-16.875	7.710	-15.000	-16.430	7.710	-15.000	-15.985	7.710	-15.000
1993	-15.540	7.710	-15.000	-15.095	7.710	-15.000	-14.650	7.710	-15.000
1994	-14.205	7.710	-15.000	-13.760	7.710	-15.000	-13.315	7.710	-15.000
1995	-12.870	7.710	-15.000	-12.425	7.710	-15.000	-3.700	7.710	-15.000
1996	-3.278	7.710	-15.000	-2.857	7.710	-15.000	-2.435	7.710	-15.000
1997	-2.014	7.710	-15.000	-1.592	7.710	-15.000	-1.171	7.710	-15.000
1998	-0.749	7.710	-15.000	-0.327	7.710	-15.000	0.094	7.710	-15.000
1999	0.516	7.710	-15.000	0.937	7.710	-15.000	1.359	7.710	-15.000
2000	1.781	7.710	-15.000	2.202	7.710	-15.000	2.624	7.710	-15.000
2001	3.045	7.710	-15.000	3.467	7.710	-15.000	3.888	7.710	-15.000
2002	11.740	7.710	-15.000	12.185	7.710	-15.000	12.630	7.710	-15.000
2003	13.075	7.710	-15.000	13.520	7.710	-15.000	13.965	7.710	-15.000
2004	14.410	7.710	-15.000	14.855	7.710	-15.000	15.300	7.710	-15.000
2005	15.745	7.710	-15.000	16.190	7.710	-15.000	16.635	7.710	-15.000
2006	17.080	7.710	-15.000	17.525	7.710	-15.000	17.970	7.710	-15.000
2007	18.415	7.710	-15.000	-19.100	15.420	-15.000	-18.655	15.420	-15.000
2008	-18.210	15.420	-15.000	-17.765	15.420	-15.000	-17.320	15.420	-15.000
2009	-16.875	15.420	-15.000	-16.430	15.420	-15.000	-15.985	15.420	-15.000
2010	-15.540	15.420	-15.000	-15.095	15.420	-15.000	-14.650	15.420	-15.000
2011	-14.205	15.420	-15.000	-13.760	15.420	-15.000	-13.315	15.420	-15.000
2012	-12.870	15.420	-15.000	-12.425	15.420	-15.000	-11.390	15.420	-15.000
2013	-10.945	15.420	-15.000	-10.500	15.420	-15.000	-10.055	15.420	-15.000
2014	-9.610	15.420	-15.000	-9.165	15.420	-15.000	-8.720	15.420	-15.000
2015	-8.275	15.420	-15.000	-7.830	15.420	-15.000	-7.385	15.420	-15.000
2016	-6.940	15.420	-15.000	-6.495	15.420	-15.000	-6.050	15.420	-15.000
2017	-5.605	15.420	-15.000	-5.160	15.420	-15.000	-4.715	15.420	-15.000
2018	-3.680	15.420	-15.000	-3.235	15.420	-15.000	-2.790	15.420	-15.000
2019	-2.345	15.420	-15.000	-1.900	15.420	-15.000	-1.455	15.420	-15.000
2020	-1.010	15.420	-15.000	-0.565	15.420	-15.000	-0.120	15.420	-15.000
2021	0.325	15.420	-15.000	0.770	15.420	-15.000	1.215	15.420	-15.000
2022	1.660	15.420	-15.000	2.105	15.420	-15.000	2.550	15.420	-15.000
2023	2.995	15.420	-15.000	4.030	15.420	-15.000	4.475	15.420	-15.000

2024	4.920	15.420	-15.000	5.365	15.420	-15.000	5.810	15.420	-15.000
2025	6.255	15.420	-15.000	6.700	15.420	-15.000	7.145	15.420	-15.000
2026	7.590	15.420	-15.000	8.035	15.420	-15.000	8.480	15.420	-15.000
2027	8.925	15.420	-15.000	9.370	15.420	-15.000	9.815	15.420	-15.000
2028	10.260	15.420	-15.000	10.705	15.420	-15.000	11.740	15.420	-15.000
2029	12.185	15.420	-15.000	12.630	15.420	-15.000	13.075	15.420	-15.000
2030	13.520	15.420	-15.000	13.965	15.420	-15.000	14.410	15.420	-15.000
2031	14.855	15.420	-15.000	15.300	15.420	-15.000	15.745	15.420	-15.000
2032	16.190	15.420	-15.000	16.635	15.420	-15.000	17.080	15.420	-15.000
2033	17.525	15.420	-15.000	17.970	15.420	-15.000	18.415	15.420	-15.000
2034	-19.100	-15.420	0.000	-18.655	-15.420	0.000	-18.210	-15.420	0.000
2035	-17.765	-15.420	0.000	-17.320	-15.420	0.000	-16.875	-15.420	0.000
2036	-16.430	-15.420	0.000	-15.985	-15.420	0.000	-15.540	-15.420	0.000
2037	-15.095	-15.420	0.000	-14.650	-15.420	0.000	-14.205	-15.420	0.000
2038	-13.760	-15.420	0.000	-13.315	-15.420	0.000	-12.870	-15.420	0.000
2039	-12.425	-15.420	0.000	-11.390	-15.420	0.000	-10.945	-15.420	0.000
2040	-10.500	-15.420	0.000	-10.055	-15.420	0.000	-9.610	-15.420	0.000
2041	-9.165	-15.420	0.000	-8.720	-15.420	0.000	-8.275	-15.420	0.000
2042	-7.830	-15.420	0.000	-7.385	-15.420	0.000	-6.940	-15.420	0.000
2043	-6.495	-15.420	0.000	-6.050	-15.420	0.000	-5.605	-15.420	0.000
2044	-5.160	-15.420	0.000	-4.715	-15.420	0.000	-3.680	-15.420	0.000
2045	-3.235	-15.420	0.000	-2.790	-15.420	0.000	-2.345	-15.420	0.000
2046	-1.900	-15.420	0.000	-1.455	-15.420	0.000	-1.010	-15.420	0.000
2047	-0.565	-15.420	0.000	-0.120	-15.420	0.000	0.325	-15.420	0.000
2048	0.770	-15.420	0.000	1.215	-15.420	0.000	1.660	-15.420	0.000
2049	2.105	-15.420	0.000	2.550	-15.420	0.000	2.995	-15.420	0.000
2050	4.030	-15.420	0.000	4.475	-15.420	0.000	4.920	-15.420	0.000
2051	5.365	-15.420	0.000	5.810	-15.420	0.000	6.255	-15.420	0.000
2052	6.700	-15.420	0.000	7.145	-15.420	0.000	7.590	-15.420	0.000
2053	8.035	-15.420	0.000	8.480	-15.420	0.000	8.925	-15.420	0.000
2054	9.370	-15.420	0.000	9.815	-15.420	0.000	10.260	-15.420	0.000
2055	10.705	-15.420	0.000	11.740	-15.420	0.000	12.185	-15.420	0.000
2056	12.630	-15.420	0.000	13.075	-15.420	0.000	13.520	-15.420	0.000
2057	13.965	-15.420	0.000	14.410	-15.420	0.000	14.855	-15.420	0.000
2058	15.300	-15.420	0.000	15.745	-15.420	0.000	16.190	-15.420	0.000
2059	16.635	-15.420	0.000	17.080	-15.420	0.000	17.525	-15.420	0.000
2060	17.970	-15.420	0.000	18.415	-15.420	0.000	-19.100	-7.710	0.000
2061	-18.655	-7.710	0.000	-18.210	-7.710	0.000	-17.765	-7.710	0.000
2062	-17.320	-7.710	0.000	-16.875	-7.710	0.000	-16.430	-7.710	0.000
2063	-15.985	-7.710	0.000	-15.540	-7.710	0.000	-15.095	-7.710	0.000
2064	-14.650	-7.710	0.000	-14.205	-7.710	0.000	-13.760	-7.710	0.000
2065	-13.315	-7.710	0.000	-12.870	-7.710	0.000	-12.425	-7.710	0.000
2066	-3.700	-7.710	0.000	-3.278	-7.710	0.000	-2.857	-7.710	0.000
2067	-2.435	-7.710	0.000	-2.014	-7.710	0.000	-1.592	-7.710	0.000
2068	-1.171	-7.710	0.000	-0.749	-7.710	0.000	-0.327	-7.710	0.000
2069	0.094	-7.710	0.000	0.516	-7.710	0.000	0.937	-7.710	0.000

2070	1.359	-7.710	0.000	1.781	-7.710	0.000	2.202	-7.710	0.000
2071	2.624	-7.710	0.000	3.045	-7.710	0.000	3.467	-7.710	0.000
2072	3.888	-7.710	0.000	11.740	-7.710	0.000	12.185	-7.710	0.000
2073	12.630	-7.710	0.000	13.075	-7.710	0.000	13.520	-7.710	0.000
2074	13.965	-7.710	0.000	14.410	-7.710	0.000	14.855	-7.710	0.000
2075	15.300	-7.710	0.000	15.745	-7.710	0.000	16.190	-7.710	0.000
2076	16.635	-7.710	0.000	17.080	-7.710	0.000	17.525	-7.710	0.000
2077	17.970	-7.710	0.000	18.415	-7.710	0.000	-19.100	0.000	0.000
2078	-18.655	0.000	0.000	-18.210	0.000	0.000	-17.765	0.000	0.000
2079	-17.320	0.000	0.000	-16.875	0.000	0.000	-16.430	0.000	0.000
2080	-15.985	0.000	0.000	-15.540	0.000	0.000	-15.095	0.000	0.000
2081	-14.650	0.000	0.000	-14.205	0.000	0.000	-13.760	0.000	0.000
2082	-13.315	0.000	0.000	-12.870	0.000	0.000	-12.425	0.000	0.000
2083	-11.390	0.000	0.000	-10.945	0.000	0.000	-10.500	0.000	0.000
2084	-10.055	0.000	0.000	-9.610	0.000	0.000	-9.165	0.000	0.000
2085	-8.720	0.000	0.000	-8.275	0.000	0.000	-7.830	0.000	0.000
2086	-7.385	0.000	0.000	-6.940	0.000	0.000	-6.495	0.000	0.000
2087	-6.050	0.000	0.000	-5.605	0.000	0.000	-5.160	0.000	0.000
2088	-4.715	0.000	0.000	-3.680	0.000	0.000	-3.235	0.000	0.000
2089	-2.790	0.000	0.000	-2.345	0.000	0.000	-1.900	0.000	0.000
2090	-1.455	0.000	0.000	-1.010	0.000	0.000	-0.565	0.000	0.000
2091	-0.120	0.000	0.000	0.325	0.000	0.000	0.770	0.000	0.000
2092	1.215	0.000	0.000	1.660	0.000	0.000	2.105	0.000	0.000
2093	2.550	0.000	0.000	2.995	0.000	0.000	4.030	0.000	0.000
2094	4.475	0.000	0.000	4.920	0.000	0.000	5.365	0.000	0.000
2095	5.810	0.000	0.000	6.255	0.000	0.000	6.700	0.000	0.000
2096	7.145	0.000	0.000	7.590	0.000	0.000	8.035	0.000	0.000
2097	8.480	0.000	0.000	8.925	0.000	0.000	9.370	0.000	0.000
2098	9.815	0.000	0.000	10.260	0.000	0.000	10.705	0.000	0.000
2099	11.740	0.000	0.000	12.185	0.000	0.000	12.630	0.000	0.000
2100	13.075	0.000	0.000	13.520	0.000	0.000	13.965	0.000	0.000
2101	14.410	0.000	0.000	14.855	0.000	0.000	15.300	0.000	0.000
2102	15.745	0.000	0.000	16.190	0.000	0.000	16.635	0.000	0.000
2103	17.080	0.000	0.000	17.525	0.000	0.000	17.970	0.000	0.000
2104	18.415	0.000	0.000	-19.100	7.710	0.000	-18.655	7.710	0.000
2105	-18.210	7.710	0.000	-17.765	7.710	0.000	-17.320	7.710	0.000
2106	-16.875	7.710	0.000	-16.430	7.710	0.000	-15.985	7.710	0.000
2107	-15.540	7.710	0.000	-15.095	7.710	0.000	-14.650	7.710	0.000
2108	-14.205	7.710	0.000	-13.760	7.710	0.000	-13.315	7.710	0.000
2109	-12.870	7.710	0.000	-12.425	7.710	0.000	-3.700	7.710	0.000
2110	-3.278	7.710	0.000	-2.857	7.710	0.000	-2.435	7.710	0.000
2111	-2.014	7.710	0.000	-1.592	7.710	0.000	-1.171	7.710	0.000
2112	-0.749	7.710	0.000	-0.327	7.710	0.000	0.094	7.710	0.000
2113	0.516	7.710	0.000	0.937	7.710	0.000	1.359	7.710	0.000
2114	1.781	7.710	0.000	2.202	7.710	0.000	2.624	7.710	0.000
2115	3.045	7.710	0.000	3.467	7.710	0.000	3.888	7.710	0.000

2116	11.740	7.710	0.000	12.185	7.710	0.000	12.630	7.710	0.000
2117	13.075	7.710	0.000	13.520	7.710	0.000	13.965	7.710	0.000
2118	14.410	7.710	0.000	14.855	7.710	0.000	15.300	7.710	0.000
2119	15.745	7.710	0.000	16.190	7.710	0.000	16.635	7.710	0.000
2120	17.080	7.710	0.000	17.525	7.710	0.000	17.970	7.710	0.000
2121	18.415	7.710	0.000	-19.100	15.420	0.000	-18.655	15.420	0.000
2122	-18.210	15.420	0.000	-17.765	15.420	0.000	-17.320	15.420	0.000
2123	-16.875	15.420	0.000	-16.430	15.420	0.000	-15.985	15.420	0.000
2124	-15.540	15.420	0.000	-15.095	15.420	0.000	-14.650	15.420	0.000
2125	-14.205	15.420	0.000	-13.760	15.420	0.000	-13.315	15.420	0.000
2126	-12.870	15.420	0.000	-12.425	15.420	0.000	-11.990	15.420	0.000
2127	-10.945	15.420	0.000	-10.500	15.420	0.000	-10.055	15.420	0.000
2128	-9.610	15.420	0.000	-9.165	15.420	0.000	-8.720	15.420	0.000
2129	-8.275	15.420	0.000	-7.830	15.420	0.000	-7.385	15.420	0.000
2130	-6.940	15.420	0.000	-6.495	15.420	0.000	-6.050	15.420	0.000
2131	-5.605	15.420	0.000	-5.160	15.420	0.000	-4.715	15.420	0.000
2132	-3.680	15.420	0.000	-3.235	15.420	0.000	-2.790	15.420	0.000
2133	-2.345	15.420	0.000	-1.900	15.420	0.000	-1.455	15.420	0.000
2134	-1.010	15.420	0.000	-0.565	15.420	0.000	-0.120	15.420	0.000
2135	0.325	15.420	0.000	0.770	15.420	0.000	1.215	15.420	0.000
2136	1.660	15.420	0.000	2.105	15.420	0.000	2.550	15.420	0.000
2137	2.995	15.420	0.000	4.030	15.420	0.000	4.475	15.420	0.000
2138	4.920	15.420	0.000	5.365	15.420	0.000	5.810	15.420	0.000
2139	6.255	15.420	0.000	6.700	15.420	0.000	7.145	15.420	0.000
2140	7.590	15.420	0.000	8.035	15.420	0.000	8.480	15.420	0.000
2141	8.925	15.420	0.000	9.370	15.420	0.000	9.815	15.420	0.000
2142	10.260	15.420	0.000	10.705	15.420	0.000	11.740	15.420	0.000
2143	12.185	15.420	0.000	12.630	15.420	0.000	13.075	15.420	0.000
2144	13.520	15.420	0.000	13.965	15.420	0.000	14.410	15.420	0.000
2145	14.855	15.420	0.000	15.300	15.420	0.000	15.745	15.420	0.000
2146	16.190	15.420	0.000	16.635	15.420	0.000	17.080	15.420	0.000
2147	17.525	15.420	0.000	17.970	15.420	0.000	18.415	15.420	0.000
2148	-19.100	-15.420	15.000	-18.655	-15.420	15.000	-18.210	-15.420	15.000
2149	-17.765	-15.420	15.000	-17.320	-15.420	15.000	-16.875	-15.420	15.000
2150	-16.430	-15.420	15.000	-15.985	-15.420	15.000	-15.540	-15.420	15.000
2151	-15.095	-15.420	15.000	-14.650	-15.420	15.000	-14.205	-15.420	15.000
2152	-13.760	-15.420	15.000	-13.315	-15.420	15.000	-12.870	-15.420	15.000
2153	-12.425	-15.420	15.000	-11.990	-15.420	15.000	-10.945	-15.420	15.000
2154	-10.500	-15.420	15.000	-10.055	-15.420	15.000	-9.610	-15.420	15.000
2155	-9.165	-15.420	15.000	-8.720	-15.420	15.000	-8.275	-15.420	15.000
2156	-7.830	-15.420	15.000	-7.385	-15.420	15.000	-6.940	-15.420	15.000
2157	-6.495	-15.420	15.000	-6.050	-15.420	15.000	-5.605	-15.420	15.000
2158	-5.160	-15.420	15.000	-4.715	-15.420	15.000	-3.680	-15.420	15.000
2159	-3.235	-15.420	15.000	-2.790	-15.420	15.000	-2.345	-15.420	15.000
2160	-1.900	-15.420	15.000	-1.455	-15.420	15.000	-1.010	-15.420	15.000
2161	-0.565	-15.420	15.000	-0.120	-15.420	15.000	0.325	-15.420	15.000

2162	0.770	-15.420	15.000	1.215	-15.420	15.000	1.660	-15.420	15.000
2163	2.105	-15.420	15.000	2.550	-15.420	15.000	2.995	-15.420	15.000
2164	4.030	-15.420	15.000	4.475	-15.420	15.000	4.920	-15.420	15.000
2165	5.365	-15.420	15.000	5.810	-15.420	15.000	6.255	-15.420	15.000
2166	6.700	-15.420	15.000	7.145	-15.420	15.000	7.590	-15.420	15.000
2167	8.035	-15.420	15.000	8.480	-15.420	15.000	8.925	-15.420	15.000
2168	9.370	-15.420	15.000	9.815	-15.420	15.000	10.260	-15.420	15.000
2169	10.705	-15.420	15.000	11.150	-15.420	15.000	11.645	-15.420	15.000
2170	12.040	-15.420	15.000	12.485	-15.420	15.000	12.980	-15.420	15.000
2171	13.375	-15.420	15.000	13.930	-15.420	15.000	14.315	-15.420	15.000
2172	14.710	-15.420	15.000	15.265	-15.420	15.000	15.650	-15.420	15.000
2173	16.045	-15.420	15.000	16.600	-15.420	15.000	17.095	-15.420	15.000
2174	17.380	-15.420	15.000	17.935	-15.420	15.000	-19.100	-7.710	15.000
2175	-18.655	-7.710	15.000	-18.210	-7.710	15.000	-17.765	-7.710	15.000
2176	-17.320	-7.710	15.000	-16.875	-7.710	15.000	-16.430	-7.710	15.000
2177	-15.985	-7.710	15.000	-15.540	-7.710	15.000	-15.095	-7.710	15.000
2178	-14.650	-7.710	15.000	-14.205	-7.710	15.000	-13.760	-7.710	15.000
2179	-13.315	-7.710	15.000	-12.870	-7.710	15.000	-12.425	-7.710	15.000
2180	-3.700	-7.710	15.000	-3.278	-7.710	15.000	-2.857	-7.710	15.000
2181	-2.435	-7.710	15.000	-2.014	-7.710	15.000	-1.592	-7.710	15.000
2182	-1.171	-7.710	15.000	-0.749	-7.710	15.000	-0.327	-7.710	15.000
2183	0.094	-7.710	15.000	0.516	-7.710	15.000	0.937	-7.710	15.000
2184	1.359	-7.710	15.000	1.781	-7.710	15.000	2.202	-7.710	15.000
2185	2.624	-7.710	15.000	3.045	-7.710	15.000	3.467	-7.710	15.000
2186	3.888	-7.710	15.000	11.740	-7.710	15.000	12.185	-7.710	15.000
2187	12.630	-7.710	15.000	13.075	-7.710	15.000	13.520	-7.710	15.000
2188	13.965	-7.710	15.000	14.410	-7.710	15.000	14.855	-7.710	15.000
2189	15.300	-7.710	15.000	15.745	-7.710	15.000	16.190	-7.710	15.000
2190	16.635	-7.710	15.000	17.080	-7.710	15.000	17.525	-7.710	15.000
2191	17.970	-7.710	15.000	18.415	-7.710	15.000	-19.100	0.000	15.000
2192	-18.655	0.000	15.000	-18.210	0.000	15.000	-17.765	0.000	15.000
2193	-17.320	0.000	15.000	-16.875	0.000	15.000	-16.430	0.000	15.000
2194	-15.985	0.000	15.000	-15.540	0.000	15.000	-15.095	0.000	15.000
2195	-14.650	0.000	15.000	-14.205	0.000	15.000	-13.760	0.000	15.000
2196	-13.315	0.000	15.000	-12.870	0.000	15.000	-12.425	0.000	15.000
2197	-11.390	0.000	15.000	-10.945	0.000	15.000	-10.500	0.000	15.000
2198	-10.055	0.000	15.000	-9.610	0.000	15.000	-9.165	0.000	15.000
2199	-8.720	0.000	15.000	-8.275	0.000	15.000	-7.830	0.000	15.000
2200	-7.385	0.000	15.000	-6.940	0.000	15.000	-6.495	0.000	15.000
2201	-6.050	0.000	15.000	-5.605	0.000	15.000	-5.160	0.000	15.000
2202	-4.715	0.000	15.000	-3.680	0.000	15.000	-3.235	0.000	15.000
2203	-2.790	0.000	15.000	-2.345	0.000	15.000	-1.900	0.000	15.000
2204	-1.455	0.000	15.000	-1.010	0.000	15.000	-0.565	0.000	15.000
2205	-0.120	0.000	15.000	0.325	0.000	15.000	0.770	0.000	15.000
2206	1.215	0.000	15.000	1.660	0.000	15.000	2.105	0.000	15.000
2207	2.550	0.000	15.000	2.995	0.000	15.000	4.030	0.000	15.000

2208	4.475	0.000	15.000	4.920	0.000	15.000	5.365	0.000	15.000
2209	5.810	0.000	15.000	6.255	0.000	15.000	6.700	0.000	15.000
2210	7.145	0.000	15.000	7.590	0.000	15.000	8.035	0.000	15.000
2211	8.480	0.000	15.000	8.925	0.000	15.000	9.370	0.000	15.000
2212	9.815	0.000	15.000	10.260	0.000	15.000	10.705	0.000	15.000
2213	11.740	0.000	15.000	12.185	0.000	15.000	12.630	0.000	15.000
2214	13.075	0.000	15.000	13.520	0.000	15.000	13.965	0.000	15.000
2215	14.410	0.000	15.000	14.855	0.000	15.000	15.300	0.000	15.000
2216	15.745	0.000	15.000	16.190	0.000	15.000	16.635	0.000	15.000
2217	17.080	0.000	15.000	17.525	0.000	15.000	17.970	0.000	15.000
2218	18.415	0.000	15.000	-19.100	7.710	15.000	-18.655	7.710	15.000
2219	-18.210	7.710	15.000	-17.765	7.710	15.000	-17.320	7.710	15.000
2220	-16.875	7.710	15.000	-16.430	7.710	15.000	-15.985	7.710	15.000
2221	-15.540	7.710	15.000	-15.095	7.710	15.000	-14.650	7.710	15.000
2222	-14.205	7.710	15.000	-13.760	7.710	15.000	-13.315	7.710	15.000
2223	-12.870	7.710	15.000	-12.425	7.710	15.000	-3.700	7.710	15.000
2224	-3.278	7.710	15.000	-2.857	7.710	15.000	-2.435	7.710	15.000
2225	-2.014	7.710	15.000	-1.592	7.710	15.000	-1.171	7.710	15.000
2226	-0.749	7.710	15.000	-0.327	7.710	15.000	0.094	7.710	15.000
2227	0.516	7.710	15.000	0.937	7.710	15.000	1.359	7.710	15.000
2228	1.781	7.710	15.000	2.202	7.710	15.000	2.624	7.710	15.000
2229	3.045	7.710	15.000	3.467	7.710	15.000	3.888	7.710	15.000
2230	11.740	7.710	15.000	12.185	7.710	15.000	12.630	7.710	15.000
2231	13.075	7.710	15.000	13.520	7.710	15.000	13.965	7.710	15.000
2232	14.410	7.710	15.000	14.855	7.710	15.000	15.300	7.710	15.000
2233	15.745	7.710	15.000	16.190	7.710	15.000	16.635	7.710	15.000
2234	17.080	7.710	15.000	17.525	7.710	15.000	17.970	7.710	15.000
2235	18.415	7.710	15.000	-19.100	15.420	15.000	-18.655	15.420	15.000
2236	-18.210	15.420	15.000	-17.765	15.420	15.000	-17.320	15.420	15.000
2237	-16.875	15.420	15.000	-16.430	15.420	15.000	-15.985	15.420	15.000
2238	-15.540	15.420	15.000	-15.095	15.420	15.000	-14.650	15.420	15.000
2239	-14.205	15.420	15.000	-13.760	15.420	15.000	-13.315	15.420	15.000
2240	-12.870	15.420	15.000	-12.425	15.420	15.000	-11.390	15.420	15.000
2241	-10.945	15.420	15.000	-10.500	15.420	15.000	-10.055	15.420	15.000
2242	-9.610	15.420	15.000	-9.165	15.420	15.000	-8.720	15.420	15.000
2243	-8.275	15.420	15.000	-7.830	15.420	15.000	-7.385	15.420	15.000
2244	-6.940	15.420	15.000	-6.495	15.420	15.000	-6.050	15.420	15.000
2245	-5.605	15.420	15.000	-5.160	15.420	15.000	-4.715	15.420	15.000
2246	-3.680	15.420	15.000	-3.235	15.420	15.000	-2.790	15.420	15.000
2247	-2.345	15.420	15.000	-1.900	15.420	15.000	-1.455	15.420	15.000
2248	-1.010	15.420	15.000	-0.565	15.420	15.000	-0.120	15.420	15.000
2249	0.325	15.420	15.000	0.770	15.420	15.000	1.215	15.420	15.000
2250	1.660	15.420	15.000	2.105	15.420	15.000	2.550	15.420	15.000
2251	2.995	15.420	15.000	4.030	15.420	15.000	4.475	15.420	15.000
2252	4.920	15.420	15.000	5.365	15.420	15.000	5.810	15.420	15.000
2253	6.255	15.420	15.000	6.700	15.420	15.000	7.145	15.420	15.000

2254	7.590	15.420	15.000	8.035	15.420	15.000	8.480	15.420	15.000
2255	8.925	15.420	15.000	9.370	15.420	15.000	9.815	15.420	15.000
2256	10.260	15.420	15.000	10.705	15.420	15.000	11.740	15.420	15.000
2257	12.185	15.420	15.000	12.630	15.420	15.000	13.075	15.420	15.000
2258	13.520	15.420	15.000	13.965	15.420	15.000	14.410	15.420	15.000
2259	14.855	15.420	15.000	15.300	15.420	15.000	15.745	15.420	15.000
2260	16.190	15.420	15.000	16.635	15.420	15.000	17.080	15.420	15.000
2261	17.525	15.420	15.000	17.970	15.420	15.000	18.415	15.420	15.000
2262	-19.100	-15.420	30.000	-18.655	-15.420	30.000	-18.210	-15.420	30.000
2263	-17.765	-15.420	30.000	-17.320	-15.420	30.000	-16.875	-15.420	30.000
2264	-16.430	-15.420	30.000	-15.985	-15.420	30.000	-15.540	-15.420	30.000
2265	-15.095	-15.420	30.000	-14.650	-15.420	30.000	-14.205	-15.420	30.000
2266	-13.760	-15.420	30.000	-13.315	-15.420	30.000	-12.870	-15.420	30.000
2267	-12.425	-15.420	30.000	-11.390	-15.420	30.000	-10.945	-15.420	30.000
2268	-10.500	-15.420	30.000	-10.055	-15.420	30.000	-9.610	-15.420	30.000
2269	-9.165	-15.420	30.000	-8.720	-15.420	30.000	-8.275	-15.420	30.000
2270	-7.830	-15.420	30.000	-7.385	-15.420	30.000	-6.940	-15.420	30.000
2271	-6.495	-15.420	30.000	-6.050	-15.420	30.000	-5.605	-15.420	30.000
2272	-5.160	-15.420	30.000	-4.715	-15.420	30.000	-3.680	-15.420	30.000
2273	-3.235	-15.420	30.000	-2.790	-15.420	30.000	-2.345	-15.420	30.000
2274	-1.900	-15.420	30.000	-1.455	-15.420	30.000	-1.010	-15.420	30.000
2275	-0.565	-15.420	30.000	-0.120	-15.420	30.000	0.325	-15.420	30.000
2276	0.770	-15.420	30.000	1.215	-15.420	30.000	1.660	-15.420	30.000
2277	2.105	-15.420	30.000	2.550	-15.420	30.000	2.995	-15.420	30.000
2278	4.030	-15.420	30.000	4.475	-15.420	30.000	4.920	-15.420	30.000
2279	5.365	-15.420	30.000	5.810	-15.420	30.000	6.255	-15.420	30.000
2280	6.700	-15.420	30.000	7.145	-15.420	30.000	7.590	-15.420	30.000
2281	8.035	-15.420	30.000	8.480	-15.420	30.000	8.925	-15.420	30.000
2282	9.370	-15.420	30.000	9.815	-15.420	30.000	10.260	-15.420	30.000
2283	10.705	-15.420	30.000	11.740	-15.420	30.000	12.185	-15.420	30.000
2284	12.630	-15.420	30.000	13.075	-15.420	30.000	13.520	-15.420	30.000
2285	13.965	-15.420	30.000	14.410	-15.420	30.000	14.855	-15.420	30.000
2286	15.300	-15.420	30.000	15.745	-15.420	30.000	16.190	-15.420	30.000
2287	16.635	-15.420	30.000	17.080	-15.420	30.000	17.525	-15.420	30.000
2288	17.970	-15.420	30.000	18.415	-15.420	30.000	-19.100	-7.710	30.000
2289	-18.655	-7.710	30.000	-18.210	-7.710	30.000	-17.765	-7.710	30.000
2290	-17.320	-7.710	30.000	-16.875	-7.710	30.000	-16.430	-7.710	30.000
2291	-15.985	-7.710	30.000	-15.540	-7.710	30.000	-15.095	-7.710	30.000
2292	-14.650	-7.710	30.000	-14.205	-7.710	30.000	-13.760	-7.710	30.000
2293	-13.315	-7.710	30.000	-12.870	-7.710	30.000	-12.425	-7.710	30.000
2294	-3.700	-7.710	30.000	-3.278	-7.710	30.000	-2.857	-7.710	30.000
2295	-2.435	-7.710	30.000	-2.014	-7.710	30.000	-1.592	-7.710	30.000
2296	-1.171	-7.710	30.000	-0.749	-7.710	30.000	-0.327	-7.710	30.000
2297	0.094	-7.710	30.000	0.516	-7.710	30.000	0.937	-7.710	30.000
2298	1.359	-7.710	30.000	1.781	-7.710	30.000	2.202	-7.710	30.000
2299	2.624	-7.710	30.000	3.045	-7.710	30.000	3.467	-7.710	30.000

2300	3.888	-7.710	30.000	11.740	-7.710	30.000	12.185	-7.710	30.000
2301	12.630	-7.710	30.000	13.075	-7.710	30.000	13.520	-7.710	30.000
2302	13.965	-7.710	30.000	14.410	-7.710	30.000	14.855	-7.710	30.000
2303	15.300	-7.710	30.000	15.745	-7.710	30.000	16.190	-7.710	30.000
2304	16.635	-7.710	30.000	17.080	-7.710	30.000	17.525	-7.710	30.000
2305	17.970	-7.710	30.000	18.415	-7.710	30.000	-19.100	0.000	30.000
2306	-18.655	0.000	30.000	-18.210	0.000	30.000	-17.765	0.000	30.000
2307	-17.320	0.000	30.000	-16.875	0.000	30.000	-16.430	0.000	30.000
2308	-15.985	0.000	30.000	-15.540	0.000	30.000	-15.095	0.000	30.000
2309	-14.650	0.000	30.000	-14.205	0.000	30.000	-13.760	0.000	30.000
2310	-13.315	0.000	30.000	-12.870	0.000	30.000	-12.425	0.000	30.000
2311	-11.390	0.000	30.000	-10.945	0.000	30.000	-10.500	0.000	30.000
2312	-10.055	0.000	30.000	-9.610	0.000	30.000	-9.165	0.000	30.000
2313	-8.720	0.000	30.000	-8.275	0.000	30.000	-7.830	0.000	30.000
2314	-7.385	0.000	30.000	-6.940	0.000	30.000	-6.495	0.000	30.000
2315	-6.050	0.000	30.000	-5.605	0.000	30.000	-5.160	0.000	30.000
2316	-4.715	0.000	30.000	-3.680	0.000	30.000	-3.235	0.000	30.000
2317	-2.790	0.000	30.000	-2.345	0.000	30.000	-1.900	0.000	30.000
2318	-1.455	0.000	30.000	-1.010	0.000	30.000	-0.565	0.000	30.000
2319	-0.120	0.000	30.000	0.325	0.000	30.000	0.770	0.000	30.000
2320	1.215	0.000	30.000	1.660	0.000	30.000	2.105	0.000	30.000
2321	2.550	0.000	30.000	2.995	0.000	30.000	4.030	0.000	30.000
2322	4.475	0.000	30.000	4.920	0.000	30.000	5.365	0.000	30.000
2323	5.810	0.000	30.000	6.255	0.000	30.000	6.700	0.000	30.000
2324	7.145	0.000	30.000	7.590	0.000	30.000	8.035	0.000	30.000
2325	8.480	0.000	30.000	8.925	0.000	30.000	9.370	0.000	30.000
2326	9.815	0.000	30.000	10.260	0.000	30.000	10.705	0.000	30.000
2327	11.740	0.000	30.000	12.185	0.000	30.000	12.630	0.000	30.000
2328	13.075	0.000	30.000	13.520	0.000	30.000	13.965	0.000	30.000
2329	14.410	0.000	30.000	14.855	0.000	30.000	15.300	0.000	30.000
2330	15.745	0.000	30.000	16.190	0.000	30.000	16.635	0.000	30.000
2331	17.080	0.000	30.000	17.525	0.000	30.000	17.970	0.000	30.000
2332	18.415	0.000	30.000	-19.100	7.710	30.000	-18.655	7.710	30.000
2333	-18.210	7.710	30.000	-17.765	7.710	30.000	-17.320	7.710	30.000
2334	-16.875	7.710	30.000	-16.430	7.710	30.000	-15.985	7.710	30.000
2335	-15.540	7.710	30.000	-15.095	7.710	30.000	-14.650	7.710	30.000
2336	-14.205	7.710	30.000	-13.760	7.710	30.000	-13.315	7.710	30.000
2337	-12.870	7.710	30.000	-12.425	7.710	30.000	-3.700	7.710	30.000
2338	-3.278	7.710	30.000	-2.857	7.710	30.000	-2.435	7.710	30.000
2339	-2.014	7.710	30.000	-1.592	7.710	30.000	-1.171	7.710	30.000
2340	-0.749	7.710	30.000	-0.327	7.710	30.000	0.094	7.710	30.000
2341	0.516	7.710	30.000	0.937	7.710	30.000	1.359	7.710	30.000
2342	1.781	7.710	30.000	2.202	7.710	30.000	2.624	7.710	30.000
2343	3.045	7.710	30.000	3.467	7.710	30.000	3.888	7.710	30.000
2344	11.740	7.710	30.000	12.185	7.710	30.000	12.630	7.710	30.000
2345	13.075	7.710	30.000	13.520	7.710	30.000	13.965	7.710	30.000

2346	14.410	7.710	30.000	14.855	7.710	30.000	15.300	7.710	30.000
2347	15.745	7.710	30.000	16.190	7.710	30.000	16.635	7.710	30.000
2348	17.080	7.710	30.000	17.525	7.710	30.000	17.970	7.710	30.000
2349	18.415	7.710	30.000	-19.100	15.420	30.000	-18.655	15.420	30.000
2350	-18.210	15.420	30.000	-17.765	15.420	30.000	-17.320	15.420	30.000
2351	-16.875	15.420	30.000	-16.430	15.420	30.000	-15.985	15.420	30.000
2352	-15.540	15.420	30.000	-15.095	15.420	30.000	-14.650	15.420	30.000
2353	-14.205	15.420	30.000	-13.760	15.420	30.000	-13.315	15.420	30.000
2354	-12.870	15.420	30.000	-12.425	15.420	30.000	-11.990	15.420	30.000
2355	-10.945	15.420	30.000	-10.500	15.420	30.000	-10.055	15.420	30.000
2356	-9.610	15.420	30.000	-9.165	15.420	30.000	-8.720	15.420	30.000
2357	-8.275	15.420	30.000	-7.830	15.420	30.000	-7.385	15.420	30.000
2358	-6.940	15.420	30.000	-6.495	15.420	30.000	-6.050	15.420	30.000
2359	-5.605	15.420	30.000	-5.160	15.420	30.000	-4.715	15.420	30.000
2360	-3.680	15.420	30.000	-3.235	15.420	30.000	-2.790	15.420	30.000
2361	-2.345	15.420	30.000	-1.900	15.420	30.000	-1.455	15.420	30.000
2362	-1.010	15.420	30.000	-0.565	15.420	30.000	-0.120	15.420	30.000
2363	0.325	15.420	30.000	0.770	15.420	30.000	1.215	15.420	30.000
2364	1.660	15.420	30.000	2.105	15.420	30.000	2.550	15.420	30.000
2365	2.995	15.420	30.000	4.030	15.420	30.000	4.475	15.420	30.000
2366	4.920	15.420	30.000	5.365	15.420	30.000	5.810	15.420	30.000
2367	6.255	15.420	30.000	6.700	15.420	30.000	7.145	15.420	30.000
2368	7.590	15.420	30.000	8.035	15.420	30.000	8.480	15.420	30.000
2369	8.925	15.420	30.000	9.370	15.420	30.000	9.815	15.420	30.000
2370	10.260	15.420	30.000	10.705	15.420	30.000	11.140	15.420	30.000
2371	12.185	15.420	30.000	12.630	15.420	30.000	13.075	15.420	30.000
2372	13.520	15.420	30.000	13.965	15.420	30.000	14.410	15.420	30.000
2373	14.855	15.420	30.000	15.300	15.420	30.000	15.745	15.420	30.000
2374	16.190	15.420	30.000	16.635	15.420	30.000	17.080	15.420	30.000
2375	17.525	15.420	30.000	17.970	15.420	30.000	18.415	15.420	30.000
2376	c								
2377	c ccc								
2378	c Neutron Tallies								
2379	c ccc								
2380	c								
2381	fmesh4:n geom = xyz								
2382	out = col								
2383	origin = -20.41 -19.275 -36.35375								
2384	iints = 20 20								
2385	imesh = 0.0 20.25								
2386	jints = 20 20								
2387	jmesh = 0.0 19.257								
2388	kints = 36 36								
2389	kmesh = 0.0 36.35375								
2390	c								
2391	fmesh14:n geom = xyz								


```
2392 out = col
2393 origin = -20.41 -19.275 -36.35375
2394 iints = 1 1 1 1 1
2395 imesh = -12.15 -4.05 4.05 12.15 20.25
2396 jints = 1 1 1 1 1
2397 jmesh = -11.565 -3.855 3.855 11.565 19.275
2398 kints = 2 2
2399 kmesh = 0.0 36.35375
2400 c
2401 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
2402 c Print & Go
2403 c ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
2404 c
2405 rand gen=2 seed=12345
2406 print
2407 kcode 10000 1.000 50 250
```

As a result of running the MCNP input file in Listing 1 with MCNP6.2, the expected results are:

Listing 2: ORNL PCA *k*-eigenvalue Calculation Results Summary

1	the col/abs/trk-len keff, one standard deviation, and 68, 95, and 99 percent intervals for each active half of the problem are:					
2						
3	problem	keff	standard deviation	68% confidence	95% confidence	99% confidence
4						
5	first half	0.99986	0.00079	0.99907 to 1.00065	0.99828 to 1.00144	0.99777 to 1.00195
6	second half	0.99923	0.00081	0.99842 to 1.00005	0.99761 to 1.00085	0.99708 to 1.00138
7	final result	0.99950	0.00056	0.99894 to 1.00006	0.99838 to 1.00062	0.99802 to 1.00099
8						
9	the first and second half values of k(collision/absorption/track length) appear to be the same at the 68 percent confidence level.					