Table 4-128. Burnup and TH Feedback Parameters by Axial Node for Assembly I10 (Cont'd)

Axial	Burnup	DP2 to SP33	
Node	SP33	T-Fuel	Spec.Vol
1	26.655	933.1	0.0233
2	36.299	1066.7	0.0232
3	41.700	1087.4	0.0231
4	43.650	1078.6	0.0230
5	44.270	1066.2	0.0229
6	44.436	1056.1	0.0228
7	44.461	1049.1	0.0227
8	44.452	1044.3	0.0226
9	44.443	1041.1	0.0225
10	44.448	1039.0	0.0224
11	44.468	1037.9	0.0223
12	44.496	1038.1	0.0222
13	44.509	1040.2	0.0221
14	44.445	1045.4	0.0220
15	44.100	1053.6	0.0219
16	42.798	1061.0	0.0218
17	38.690	1045.5	0.0217
18	27.501	949.5	0.0216

Table 4-129. Burnup and TH Feedback Parameters by Axial Node for Assembly I10a

Axial	Burnup	SP28 to SP29		Burnup	SP29 to SP30		Burnup	SP30 to SP31	
Node	SP29	T-Fuel	Spec.Vol	SP30	T-Fuel	Spec.Vol	SP31	T-Fuel	Spec.Vol
1	3.622	1126.8	0.0239	5.113	1133.8	0.0239	8.902	1127.6	0.0240
2	4.985	1415.8	0.0238	7.023	1403.8	0.0238	12.158	1374.8	0.0239
3	6.038	1548.9	0.0237	8.461	1513.5	0.0237	14.452	1463.0	0.0237
4	6.600	1612.0	0.0235	9.199	1557.7	0.0235	15.521	1484.7	0.0236
5	6.895	1637.2	0.0234	9.568	1567.6	0.0234	15.993	1484.4	0.0234
6	7.054	1645.8	0.0232	9.758	1568.4	0.0232	16.204	1479.0	0.0232
7	7.142	1648.0	0.0230	9.858	1565.9	0.0231	16.303	1473.2	0.0231
8	7.190	1647.2	0.0229	9.910	1562.5	0.0229	16.354	1468.5	0.0229
9	7.213	1644.9	0.0227	9.936	1559.4	0.0228	16.387	1465.1	0.0228
10	7.224	1642.1	0.0226	9.950	1556.9	0.0226	16.418	1463.0	0.0226
11	7.224	1639.1	0.0225	9.956	1555.1	0.0225	16.451	1462.4	0.0225
12	7.207	1635.4	0.0223	9.945	1554.0	0.0224	16.478	1463.2	0.0224
13	7.156	1629.5	0.0222	9.895	1552.8	0.0222	16.472	1465.5	0.0222
14	7.045	1619.1	0.0221	9.774	1549.8	0.0221	16.385	1468.4	0.0221
15	6.836	1599.6	0.0219	9.526	1541.4	0.0220	16.122	1468.9	0.0220
16	6.443	1554.5	0.0218	9.022	1517.1	0.0218	15.450	1457.9	0.0219
17	5.698	1458.8	0.0217	8.013	1438.7	0.0217	13.867	1403.8	0.0217
18	4.158	1244.6	0.0216	5.843	1240.0	0.0216	10.113	1221.6	0.0216

Statepoint	EFPD / Cycle
SP28	0.0 / Cy9
SP29	158.8 / Cy9
SP30	219.0 / Cy9
SP31	363.1 / Cy9
DP2	403.4 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-129. Burnup and TH Feedback Parameters by Axial Node for Assembly I10a (Cont'd)

Axial	Burnup	SP31 to SP32		Burnup	SP32 to DP1		Burnup	DP1 to DP2	
Node	SP32	T-Fuel	Spec.Vol	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol
1	14.501	1113.4	0.0239	18.510	935.1	0.0236	23.223	952.1	0.0236
2	19.552	1340.4	0.0238	25.499	1121.7	0.0235	32.069	1112.2	0.0235
3	22.764	1379.6	0.0237	29.912	1186.2	0.0234	37.389	1159.3	0.0234
4	24.021	1372.7	0.0235	31.783	1216.1	0.0233	39.535	1169.2	0.0232
5	24.460	1358.5	0.0233	32.532	1229.5	0.0232	40.320	1164.9	0.0231
6	24.607	1347.0	0.0232	32.843	1235.1	0.0230	40.605	1157.7	0.0230
7	24.663	1338.6	0.0230	32.989	1236.6	0.0229	40.723	1151.3	0.0228
8	24.697	1333.1	0.0229	33.069	1235.6	0.0227	40.786	1146.2	0.0227
9	24.735	1329.7	0.0228	33.121	1232.8	0.0226	40.838	1142.6	0.0226
10	24.787	1327.7	0.0226	33.167	1228.9	0.0225	40.901	1140.6	0.0225
11	24.860	1327.1	0.0225	33.221	1224.6	0.0224	40.997	1140.5	0.0224
12	24.945	1328.1	0.0224	33.282	1220.4	0.0222	41.133	1142.9	0.0222
13	25.018	1331.4	0.0222	33.306	1214.5	0.0221	41.252	1147.3	0.0221
14	25.028	1337.5	0.0221	33.179	1202.3	0.0220	41.201	1150.9	0.0220
15	24.842	1345.6	0.0220	32.708	1180.6	0.0219	40.743	1151.1	0.0219
16	24.039	1351.7	0.0219	31.377	1145.3	0.0218	39.242	1140.7	0.0218
17	21.655	1333.6	0.0217	27.963	1082.2	0.0217	35.100	1093.8	0.0217
18	15.818	1192.5	0.0216	19.878	940.0	0.0216	24.769	972.4	0.0216

Axial	Burnup	DP2 to SP33	
Node	SP33	T-Fuel	Spec.Vol
1	27.665	955.6	0.0235
2	37.885	1108.8	0.0234
3	43.713	1133.1	0.0233
4	45.896	1124.1	0.0231
5	46.604	1110.1	0.0230
6	46.818	1098.9	0.0229
7	46.892	1091.4	0.0228
8	46.932	1086.4	0.0227
9	46.975	1083.1	0.0226
10	47.040	1081.0	0.0224
11	47.148	1080.1	0.0223
12	47.312	1081.4	0.0222
13	47.483	1085.4	0.0221
14	47.507	1091.7	0.0220
15	47.145	1100.9	0.0219
16	45.684	1108.8	0.0218
17	41.199	1091.4	0.0217
18	29.222	979.3	0.0216

Statepoint	EFPD / Cycle
SP31	363.1 / Cy9
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-130. Burnup and TH Feedback Parameters by Axial Node for Assembly I12

Axial	Burnup	SP28 to SP29		Burnup	SP29 to SP30		Burnup	SP30 to SP31	
Node	SP29	T-Fuel	Spec.Vol	SP30	T-Fuel	Spec.Vol	SP31	T-Fuel	Spec.Vol
1	3.476	1112.5	0.0239	4.931	1122.6	0.0240	8.637	1121.9	0.0240
2	4.912	1411.2	0.0238	6.940	1401.3	0.0239	12.049	1373.6	0.0239
3	6.058	1555.8	0.0237	8.499	1519.2	0.0237	14.515	1465.7	0.0237
4	6.670	1623.9	0.0236	9.298	1564.1	0.0236	15.654	1486.4	0.0236
5	6.974	1647.2	0.0234	9.672	1572.3	0.0234	16.110	1483.5	0.0234
6	7.141	1655.8	0.0232	9.867	1571.9	0.0233	16.315	1476.5	0.0232
7	7.241	1658.7	0.0231	9.979	1569.3	0.0231	16.425	1470.2	0.0231
8	7.299	1658.7	0.0229	10.043	1566.2	0.0229	16.490	1465.3	0.0229
9	7.330	1657.1	0.0228	10.079	1563.4	0.0228	16.535	1462.0	0.0228
10	7.345	1654.9	0.0226	10.100	1561.3	0.0227	16.576	1460.1	0.0227
11	7.351	1652.8	0.0225	10.115	1560.2	0.0225	16.626	1459.9	0.0225
12	7.362	1652.0	0.0224	10.142	1561.1	0.0224	16.711	1462.0	0.0224
13	7.366	1652.1	0.0222	10.169	1564.1	0.0222	16.825	1467.3	0.0222
14	7.284	1644.7	0.0221	10.090	1564.3	0.0221	16.810	1472.6	0.0221
15	7.071	1625.5	0.0220	9.842	1557.3	0.0220	16.563	1474.9	0.0220
16	6.647	1583.1	0.0218	9.302	1533.4	0.0218	15.857	1465.1	0.0219
17	5.844	1480.4	0.0217	8.217	1455.6	0.0217	14.177	1413.2	0.0217
18	4.221	1254.8	0.0216	5.932	1248.0	0.0216	10.249	1225.9	0.0216

Axial	Burnup	SP31 to SP32		Burnup	SP32 to DP1		Burnup	DP1 to DP2	
Node	SP32	T-Fuel	Spec.Vol	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol
1	14.106	1115.4	0.0239	18.039	925.1	0.0235	22.638	942.9	0.0235
2	19.321	1344.5	0.0238	25.100	1102.9	0.0234	31.455	1095.0	0.0234
3	22.720	1381.9	0.0237	29.592	1159.2	0.0233	36.777	1134.9	0.0233
4	24.036	1372.4	0.0235	31.452	1184.9	0.0232	38.885	1143.8	0.0231
5	24.431	1356.8	0.0233	32.135	1198.0	0.0230	39.612	1140.8	0.0230
6	24.560	1344.4	0.0232	32.414	1203.2	0.0229	39.871	1134.4	0.0229
7	24.624	1335.9	0.0231	32.549	1203.4	0.0228	39.974	1128.0	0.0228
8	24.671	1330.4	0.0229	32.619	1200.8	0.0226	40.020	1122.7	0.0226
9	24.722	1327.1	0.0228	32.659	1196.3	0.0225	40.050	1118.7	0.0225
10	24.786	1325.3	0.0226	32.685	1190.2	0.0224	40.082	1116.0	0.0224
11	24.881	1325.1	0.0225	32.716	1182.4	0.0223	40.130	1114.5	0.0223
12	25.052	1327.4	0.0224	32.788	1171.8	0.0222	40.228	1113.5	0.0222
13	25.284	1333.3	0.0222	32.879	1157.7	0.0221	40.348	1113.1	0.0221
14	25.377	1340.5	0.0221	32.781	1141.3	0.0220	40.286	1113.8	0.0220
15	25.209	1349.1	0.0220	32.336	1120.2	0.0219	39.841	1113.2	0.0219
16	24.378	1353.2	0.0219	31.043	1089.9	0.0218	38.396	1103.7	0.0218
17	21.904	1337.7	0.0217	27.662	1036.2	0.0217	34.353	1060.7	0.0217
18	15.909	1197.4	0.0216	19.624	908.2	0.0216	24.214	950.7	0.0216

Statepoint	EFPD / Cycle
SP28	0.0 / Cy9
SP29	158.8 / Cy9
SP30	219.0 / Cy9
SP31	363.1 / Cy9
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-130. Burnup and TH Feedback Parameters by Axial Node for Assembly I12 (Cont'd)

Axial	Burnup	DP2 to SP33	
Node	SP33	T-Fuel	Spec.Vol
1	26.955	948.3	0.0234
2	37.064	1090.2	0.0233
3	42.845	1111.6	0.0232
4	44.975	1102.7	0.0231
5	45.628	1090.3	0.0229
6	45.815	1080.0	0.0228
7	45.868	1072.6	0.0227
8	45.887	1067.6	0.0226
9	45.905	1064.3	0.0225
10	45.935	1062.1	0.0224
11	45.989	1060.8	0.0223
12	46.102	1060.4	0.0222
13	46.255	1061.7	0.0221
14	46.259	1066.5	0.0220
15	45.906	1075.0	0.0219
16	44.505	1082.6	0.0218
17	40.147	1066.5	0.0217
18	28.448	963.1	0.0216

Table 4-131. Burnup and TH Feedback Parameters by Axial Node for Assembly I12a

Axial	Burnup	SP28 to SP29		Burnup	SP29 to SP30		Burnup	SP30 to SP31	
Node	SP29	T-Fuel	Spec.Vol	SP30	T-Fuel	Spec.Vol	SP31	T-Fuel	Spec.Vol
1	3.476	1112.5	0.0239	4.931	1122.6	0.0240	8.637	1121.9	0.0240
2	4.912	1411.2	0.0238	6.940	1401.3	0.0239	12.049	1373.6	0.0239
3	6.058	1555.8	0.0237	8.499	1519.2	0.0237	14.515	1465.7	0.0237
4	6.670	1623.9	0.0236	9.298	1564.1	0.0236	15.654	1486.4	0.0236
5	6.974	1647.2	0.0234	9.672	1572.3	0.0234	16.110	1483.5	0.0234
6	7.141	1655.8	0.0232	9.867	1571.9	0.0233	16.315	1476.5	0.0232
7	7.241	1658.7	0.0231	9.979	1569.3	0.0231	16.425	1470.2	0.0231
8	7.299	1658.7	0.0229	10.043	1566.2	0.0229	16.490	1465.3	0.0229
9	7.330	1657.1	0.0228	10.079	1563.4	0.0228	16.535	1462.0	0.0228
10	7.345	1654.9	0.0226	10.100	1561.3	0.0227	16.576	1460.1	0.0227
11	7.351	1652.8	0.0225	10.115	1560.2	0.0225	16.626	1459.9	0.0225
12	7.362	1652.0	0.0224	10.142	1561.1	0.0224	16.711	1462.0	0.0224
13	7.366	1652.1	0.0222	10.169	1564.1	0.0222	16.825	1467.3	0.0222
14	7.284	1644.7	0.0221	10.090	1564.3	0.0221	16.810	1472.6	0.0221
15	7.071	1625.5	0.0220	9.842	1557.3	0.0220	16.563	1474.9	0.0220
16	6.647	1583.1	0.0218	9.302	1533.4	0.0218	15.857	1465.1	0.0219
17	5.844	1480.4	0.0217	8.217	1455.6	0.0217	14.177	1413.2	0.0217
18	4.221	1254.8	0.0216	5.932	1248.0	0.0216	10.249	1225.9	0.0216

Statepoint	EFPD / Cycle
SP28	0.0 / Cy9
SP29	158.8 / Cy9
SP30	219.0 / Cy9
SP31	363.1 / Cy9
DP2	403.4 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-131. Burnup and TH Feedback Parameters by Axial Node for Assembly I12a (Cont'd)

Axial	Burnup	SP31 to SP32		Burnup	SP32 to DP1		Burnup	DP1 to DP2	
Node	SP32	T-Fuel	Spec.Vol	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol
1	14.172	1115.4	0.0239	17.792	945.5	0.0236	22.308	968.5	0.0236
2	19.433	1344.5	0.0238	25.257	1125.5	0.0235	31.835	1120.1	0.0235
3	22.861	1381.9	0.0237	29.985	1185.7	0.0234	37.503	1163.2	0.0234
4	24.193	1372.4	0.0235	31.956	1215.6	0.0233	39.769	1173.8	0.0232
5	24.596	1356.8	0.0233	32.703	1231.8	0.0231	40.580	1171.5	0.0231
6	24.731	1344.4	0.0232	33.023	1239.0	0.0230	40.888	1165.3	0.0230
7	24.800	1335.9	0.0231	33.188	1240.8	0.0229	41.027	1158.9	0.0228
8	24.851	1330.4	0.0229	33.284	1239.4	0.0227	41.105	1153.7	0.0227
9	24.906	1327.1	0.0228	33.347	1236.0	0.0226	41.165	1149.9	0.0226
10	24.974	1325.3	0.0226	33.397	1231.1	0.0225	41.229	1147.5	0.0225
11	25.074	1325.1	0.0225	33.454	1224.8	0.0223	41.316	1146.5	0.0224
12	25.250	1327.4	0.0224	33.555	1215.8	0.0222	41.459	1146.5	0.0222
13	25.487	1333.3	0.0222	33.670	1203.0	0.0221	41.622	1147.2	0.0221
14	25.583	1340.5	0.0221	33.580	1186.6	0.0220	41.580	1148.6	0.0220
15	25.416	1349.1	0.0220	33.112	1163.6	0.0219	41.111	1148.0	0.0219
16	24.578	1353.2	0.0219	31.754	1129.1	0.0218	39.578	1137.1	0.0218
17	22.077	1337.7	0.0217	28.262	1069.8	0.0217	35.367	1091.0	0.0217
18	16.028	1197.4	0.0216	20.033	933.9	0.0216	24.916	970.9	0.0216

Axial	Burnup	DP2 to SP33	
Node	SP33	T-Fuel	Spec.Vol
1	26.825	971.6	0.0235
2	37.708	1115.8	0.0234
3	43.869	1137.1	0.0233
4	46.173	1128.1	0.0232
5	46.914	1115.1	0.0230
6	47.152	1104.3	0.0229
7	47.243	1096.6	0.0228
8	47.295	1091.5	0.0227
9	47.344	1088.0	0.0226
10	47.408	1085.7	0.0224
11	47.503	1084.4	0.0223
12	47.664	1084.3	0.0222
13	47.863	1086.0	0.0221
14	47.890	1091.2	0.0220
15	47.516	1100.2	0.0219
16	46.022	1108.1	0.0218
17	41.467	1090.9	0.0217
18	29.375	978.8	0.0216

Statepoint	EFPD / Cycle
SP31	363.1 / Cy9
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-132. Burnup and TH Feedback Parameters by Axial Node for Assembly I14

Axial	Burnup	SP28 to SP29		Burnup	SP29 to SP30		Burnup	SP30 to SP31	
Node	SP29	T-Fuel	Spec.Vol	SP30	T-Fuel	Spec.Vol	SP31	T-Fuel	Spec.Vol
1	2.625	984.5	0.0234	3.724	998.7	0.0234	6.579	1013.9	0.0234
2	4.154	1287.5	0.0234	5.820	1272.8	0.0233	9.965	1247.6	0.0233
3	5.185	1415.4	0.0233	7.187	1368.6	0.0232	12.015	1312.0	0.0232
4	5.715	1471.9	0.0232	7.855	1402.0	0.0231	12.905	1325.1	0.0231
5	5.990	1495.6	0.0230	8.182	1410.4	0.0230	13.279	1321.5	0.0229
6	6.137	1504.5	0.0229	8.345	1409.6	0.0229	13.435	1314.2	0.0228
7	6.216	1506.7	0.0228	8.428	1406.1	0.0227	13.502	1307.4	0.0227
8	6.258	1505.9	0.0227	8.470	1402.2	0.0226	13.533	1302.1	0.0226
9	6.277	1503.7	0.0225	8.488	1398.9	0.0225	13.548	1298.4	0.0225
10	6.280	1501.0	0.0224	8.493	1396.5	0.0224	13.559	1296.2	0.0224
11	6.272	1498.0	0.0223	8.487	1395.0	0.0223	13.568	1295.5	0.0223
12	6.249	1494.6	0.0222	8.469	1394.4	0.0222	13.576	1296.3	0.0222
13	6.202	1489.7	0.0221	8.425	1394.4	0.0221	13.567	1298.9	0.0221
14	6.104	1480.2	0.0220	8.324	1393.3	0.0220	13.501	1302.9	0.0220
15	5.911	1460.5	0.0219	8.105	1386.7	0.0219	13.288	1305.6	0.0219
16	5.524	1416.9	0.0218	7.630	1363.0	0.0218	12.703	1298.5	0.0218
17	4.708	1315.6	0.0217	6.563	1290.2	0.0217	11.161	1252.2	0.0217
18	2.860	1052.4	0.0216	4.035	1065.5	0.0216	7.070	1073.7	0.0216

Axial	Burnup	SP31 to SP32		Burnup	SP32 to DP1		Burnup	DP1 to DP2	
Node	SP32	T-Fuel	Spec.Vol	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol
1	10.981	1030.0	0.0234	14.185	881.8	0.0232	18.095	913.7	0.0232
2	15.982	1230.5	0.0233	20.780	1048.2	0.0232	26.227	1053.6	0.0231
3	18.743	1265.9	0.0232	24.565	1104.3	0.0231	30.776	1080.3	0.0230
4	19.745	1260.4	0.0231	26.097	1132.7	0.0230	32.540	1084.8	0.0229
5	20.072	1247.7	0.0229	26.699	1146.2	0.0228	33.176	1080.2	0.0228
6	20.166	1236.8	0.0228	26.941	1152.2	0.0227	33.399	1073.8	0.0227
7	20.191	1229.1	0.0227	27.049	1154.2	0.0226	33.486	1068.2	0.0226
8	20.203	1224.2	0.0226	27.105	1153.8	0.0225	33.529	1063.9	0.0225
9	20.219	1221.1	0.0225	27.139	1152.1	0.0224	33.563	1060.9	0.0224
10	20.243	1219.4	0.0224	27.164	1149.4	0.0223	33.604	1059.2	0.0223
11	20.279	1218.8	0.0223	27.189	1146.3	0.0222	33.663	1059.1	0.0222
12	20.328	1219.6	0.0222	27.215	1142.7	0.0221	33.746	1060.9	0.0221
13	20.379	1222.5	0.0221	27.216	1137.2	0.0220	33.819	1064.1	0.0220
14	20.393	1228.4	0.0220	27.110	1126.5	0.0219	33.774	1067.3	0.0219
15	20.246	1237.1	0.0219	26.724	1107.7	0.0218	33.402	1068.7	0.0219
16	19.572	1243.7	0.0218	25.602	1076.2	0.0217	32.144	1062.7	0.0218
17	17.252	1224.2	0.0217	22.409	1023.2	0.0217	28.352	1037.3	0.0217
18	11.268	1081.1	0.0216	14.560	897.6	0.0216	18.632	942.8	0.0216

Statepoint	EFPD / Cycle
SP28	0.0 / Cy9
SP29	158.8 / Cy9
SP30	219.0 / Cy9
SP31	363.1 / Cy9
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-132. Burnup and TH Feedback Parameters by Axial Node for Assembly I14 (Cont'd)

Axial	Burnup	DP2 to SP33	
Node	SP33	T-Fuel	Spec.Vol
1	21.946	938.2	0.0232
2	31.234	1053.4	0.0231
3	36.219	1070.7	0.0230
4	38.020	1064.7	0.0229
5	38.597	1053.6	0.0228
6	38.766	1044.6	0.0227
7	38.819	1038.5	0.0226
8	38.847	1034.6	0.0225
9	38.878	1032.2	0.0224
10	38.924	1030.7	0.0223
11	38.995	1030.4	0.0222
12	39.103	1031.7	0.0221
13	39.220	1035.1	0.0221
14	39.241	1040.8	0.0220
15	38.953	1048.9	0.0219
16	37.731	1055.4	0.0218
17	33.654	1041.6	0.0217
18	22.512	970.6	0.0216

Table 4-133. Burnup and TH Feedback Parameters by Axial Node for Assembly I17

Axial	Burnup	SP28 to SP29		Burnup	SP29 to SP30		Burnup	SP30 to SP31	
Node	SP29	T-Fuel	Spec.Vol	SP30	T-Fuel	Spec.Vol	SP31	T-Fuel	Spec.Vol
1	3.557	1121.1	0.0239	5.036	1131.3	0.0240	8.813	1128.4	0.0240
2	4.940	1413.8	0.0238	6.979	1405.9	0.0239	12.136	1380.0	0.0239
3	6.023	1551.9	0.0237	8.463	1520.5	0.0237	14.512	1471.8	0.0237
4	6.600	1617.0	0.0235	9.222	1564.9	0.0236	15.611	1492.6	0.0236
5	6.884	1640.3	0.0234	9.574	1573.1	0.0234	16.047	1490.4	0.0234
6	7.039	1648.3	0.0232	9.755	1572.9	0.0232	16.240	1483.8	0.0233
7	7.130	1650.7	0.0231	9.858	1570.3	0.0231	16.341	1477.7	0.0231
8	7.181	1650.3	0.0229	9.915	1567.1	0.0229	16.399	1473.0	0.0230
9	7.208	1648.4	0.0228	9.945	1564.2	0.0228	16.438	1469.8	0.0228
10	7.219	1645.9	0.0226	9.961	1561.9	0.0226	16.473	1467.9	0.0227
11	7.223	1643.5	0.0225	9.974	1560.7	0.0225	16.518	1467.6	0.0225
12	7.234	1642.6	0.0223	9.999	1561.3	0.0224	16.602	1469.7	0.0224
13	7.239	1642.6	0.0222	10.027	1564.0	0.0222	16.716	1474.9	0.0223
14	7.161	1635.2	0.0221	9.951	1563.9	0.0221	16.702	1480.0	0.0221
15	6.956	1616.1	0.0220	9.709	1556.4	0.0220	16.456	1481.6	0.0220
16	6.549	1572.8	0.0218	9.188	1532.0	0.0218	15.761	1470.4	0.0219
17	5.777	1473.0	0.0217	8.138	1453.4	0.0217	14.109	1417.3	0.0217
18	4.193	1251.7	0.0216	5.901	1247.4	0.0216	10.228	1228.4	0.0216

Statepoint	EFPD / Cycle
SP28	0.0 / Cy9
SP29	158.8 / Cy9
SP30	219.0 / Cy9
SP31	363.1 / Cy9
DP2	403.4 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-133. Burnup and TH Feedback Parameters by Axial Node for Assembly I17 (Cont'd)

Axial	Burnup	SP31 to SP32		Burnup	SP32 to DP1		Burnup	DP1 to DP2	
Node	SP32	T-Fuel	Spec.Vol	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol
1	14.385	1117.2	0.0240	18.479	942.0	0.0236	23.275	958.3	0.0236
2	19.533	1348.3	0.0238	25.559	1127.6	0.0235	32.215	1118.6	0.0235
3	22.851	1388.2	0.0237	30.060	1189.7	0.0234	37.626	1166.1	0.0234
4	24.131	1379.9	0.0235	31.953	1219.6	0.0233	39.809	1177.3	0.0232
5	24.509	1364.7	0.0234	32.656	1234.9	0.0232	40.570	1174.7	0.0231
6	24.628	1352.7	0.0232	32.946	1241.5	0.0230	40.846	1168.5	0.0230
7	24.684	1344.3	0.0231	33.091	1242.9	0.0229	40.965	1162.2	0.0228
8	24.726	1338.8	0.0229	33.171	1241.2	0.0227	41.027	1157.0	0.0227
9	24.771	1335.5	0.0228	33.220	1237.5	0.0226	41.073	1153.3	0.0226
10	24.831	1333.7	0.0226	33.257	1232.5	0.0225	41.124	1151.0	0.0225
11	24.923	1333.4	0.0225	33.305	1226.0	0.0223	41.202	1150.2	0.0224
12	25.095	1335.6	0.0224	33.403	1217.3	0.0222	41.349	1150.6	0.0222
13	25.329	1341.4	0.0223	33.524	1205.1	0.0221	41.527	1151.8	0.0221
14	25.423	1348.6	0.0221	33.438	1189.1	0.0220	41.491	1153.5	0.0220
15	25.254	1356.9	0.0220	32.972	1166.4	0.0219	41.024	1152.8	0.0219
16	24.423	1360.4	0.0219	31.627	1132.2	0.0218	39.501	1141.7	0.0218
17	21.945	1342.9	0.0217	28.163	1073.1	0.0217	35.313	1095.0	0.0217
18	15.952	1199.7	0.0216	19.986	936.9	0.0216	24.902	974.0	0.0216

Axial	Burnup	DP2 to SP33	
Node	SP33	T-Fuel	Spec.Vol
1	27.766	959.2	0.0235
2	38.084	1113.3	0.0234
3	44.003	1137.3	0.0233
4	46.227	1128.8	0.0232
5	46.916	1115.6	0.0230
6	47.121	1104.8	0.0229
7	47.191	1097.2	0.0228
8	47.228	1092.0	0.0227
9	47.264	1088.6	0.0226
10	47.315	1086.4	0.0225
11	47.403	1085.3	0.0223
12	47.571	1085.5	0.0222
13	47.788	1087.7	0.0221
14	47.824	1093.2	0.0220
15	47.453	1102.2	0.0219
16	45.969	1110.0	0.0218
17	41.433	1092.5	0.0217
18	29.373	979.8	0.0216

Statepoint	EFPD / Cycle
SP31	363.1 / Cy9
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-134. Burnup and TH Feedback Parameters by Axial Node for Assembly I19

Axial	Burnup	SP28 to SP29		Burnup	SP29 to SP30		Burnup	SP30 to SP31	
Node	SP29	T-Fuel	Spec.Vol	SP30	T-Fuel	Spec.Vol	SP31	T-Fuel	Spec.Vol
1	3.129	1060.7	0.0238	4.431	1071.7	0.0238	7.765	1075.7	0.0237
2	4.739	1379.2	0.0237	6.657	1360.1	0.0237	11.415	1323.5	0.0236
3	5.893	1522.5	0.0236	8.202	1469.8	0.0235	13.763	1400.7	0.0235
4	6.492	1586.4	0.0235	8.965	1509.0	0.0234	14.795	1417.9	0.0233
5	6.784	1609.5	0.0233	9.313	1516.2	0.0233	15.188	1412.9	0.0232
6	6.944	1618.0	0.0232	9.492	1514.8	0.0231	15.359	1404.4	0.0231
7	7.041	1620.7	0.0230	9.596	1511.5	0.0230	15.452	1397.3	0.0229
8	7.098	1620.5	0.0229	9.657	1508.0	0.0228	15.507	1392.0	0.0228
9	7.130	1619.1	0.0227	9.693	1505.1	0.0227	15.547	1388.5	0.0227
10	7.148	1617.2	0.0226	9.716	1503.2	0.0226	15.585	1386.7	0.0225
11	7.159	1615.7	0.0224	9.736	1502.5	0.0224	15.635	1386.7	0.0224
12	7.179	1616.1	0.0223	9.774	1504.1	0.0223	15.726	1389.4	0.0223
13	7.197	1617.9	0.0222	9.818	1508.4	0.0222	15.855	1395.6	0.0222
14	7.127	1612.2	0.0221	9.757	1510.2	0.0221	15.862	1401.9	0.0221
15	6.920	1593.5	0.0219	9.523	1504.7	0.0219	15.643	1405.6	0.0219
16	6.482	1548.6	0.0218	8.982	1481.2	0.0218	14.973	1398.2	0.0218
17	5.587	1438.8	0.0217	7.803	1402.0	0.0217	13.252	1346.4	0.0217
18	3.689	1179.7	0.0216	5.186	1179.1	0.0216	8.982	1166.6	0.0216

Axial	Burnup	SP31 to SP32		Burnup	SP32 to DP1		Burnup	DP1 to DP2	
Node	SP32	T-Fuel	Spec.Vol	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol
1	12.759	1073.8	0.0237	16.556	927.8	0.0235	21.100	951.7	0.0235
2	18.169	1291.2	0.0236	23.807	1106.1	0.0235	30.116	1104.1	0.0234
3	21.332	1325.1	0.0234	28.150	1170.9	0.0234	35.343	1141.2	0.0233
4	22.492	1316.5	0.0233	29.937	1204.0	0.0232	37.415	1152.5	0.0232
5	22.815	1300.7	0.0232	30.600	1221.4	0.0231	38.137	1150.2	0.0230
6	22.912	1288.3	0.0230	30.885	1229.4	0.0230	38.410	1144.3	0.0229
7	22.962	1279.9	0.0229	31.037	1232.0	0.0228	38.540	1138.3	0.0228
8	23.002	1274.5	0.0228	31.130	1231.5	0.0227	38.619	1133.5	0.0227
9	23.047	1271.2	0.0226	31.195	1229.1	0.0226	38.684	1130.1	0.0226
10	23.106	1269.3	0.0225	31.249	1225.4	0.0224	38.755	1128.1	0.0224
11	23.198	1268.8	0.0224	31.314	1220.3	0.0223	38.855	1127.5	0.0223
12	23.371	1270.5	0.0223	31.434	1213.1	0.0222	39.027	1128.2	0.0222
13	23.614	1276.0	0.0222	31.581	1202.3	0.0221	39.235	1129.8	0.0221
14	23.721	1283.1	0.0221	31.523	1187.3	0.0220	39.233	1131.9	0.0220
15	23.577	1292.2	0.0220	31.088	1164.7	0.0219	38.806	1131.9	0.0219
16	22.801	1300.1	0.0218	29.789	1129.1	0.0218	37.343	1121.8	0.0218
17	20.294	1285.4	0.0217	26.281	1067.7	0.0217	33.141	1079.7	0.0217
18	14.082	1152.0	0.0216	17.925	933.3	0.0216	22.634	971.9	0.0216

Statepoint	EFPD / Cycle
SP28	0.0 / Cy9
SP29	158.8 / Cy9
SP30	219.0 / Cy9
SP31	363.1 / Cy9
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-134. Burnup and TH Feedback Parameters by Axial Node for Assembly I19 (Cont'd)

Axial	Burnup	DP2 to SP33	
Node	SP33	T-Fuel	Spec.Vol
1	25.446	962.4	0.0234
2	35.768	1099.4	0.0234
3	41.488	1124.0	0.0232
4	43.606	1116.6	0.0231
5	44.266	1104.7	0.0230
6	44.477	1094.7	0.0229
7	44.566	1087.7	0.0228
8	44.625	1083.0	0.0226
9	44.684	1079.9	0.0225
10	44.759	1078.0	0.0224
11	44.870	1077.1	0.0223
12	45.064	1077.5	0.0222
13	45.311	1079.7	0.0221
14	45.379	1085.2	0.0220
15	45.046	1094.0	0.0219
16	43.623	1101.6	0.0218
17	39.097	1085.4	0.0217
18	27.001	987.9	0.0216

Table 4-135. Burnup and TH Feedback Parameters by Axial Node for Assembly I23

Axial	Burnup	SP28 to SP29		Burnup	SP29 to SP30		Burnup	SP30 to SP31	
Node	SP29	T-Fuel	Spec.Vol	SP30	T-Fuel	Spec.Vol	SP31	T-Fuel	Spec.Vol
1	3.306	1087.3	0.0238	4.692	1099.0	0.0239	8.236	1103.1	0.0239
2	4.706	1379.8	0.0237	6.646	1371.1	0.0238	11.541	1349.1	0.0238
3	5.842	1523.1	0.0236	8.184	1487.2	0.0236	13.968	1438.7	0.0236
4	6.449	1590.3	0.0235	8.974	1533.1	0.0235	15.090	1463.0	0.0235
5	6.746	1616.8	0.0233	9.335	1543.7	0.0233	15.527	1460.6	0.0233
6	6.908	1626.3	0.0232	9.522	1543.7	0.0232	15.721	1453.7	0.0232
7	7.007	1629.5	0.0230	9.632	1541.2	0.0230	15.828	1447.4	0.0230
8	7.066	1629.5	0.0229	9.698	1538.4	0.0229	15.895	1442.7	0.0229
9	7.101	1628.3	0.0227	9.738	1535.9	0.0227	15.945	1439.7	0.0228
10	7.121	1626.7	0.0226	9.765	1534.3	0.0226	15.994	1438.2	0.0226
11	7.137	1625.4	0.0225	9.792	1533.9	0.0225	16.057	1438.5	0.0225
12	7.163	1626.1	0.0223	9.837	1535.6	0.0223	16.167	1441.5	0.0224
13	7.187	1628.1	0.0222	9.889	1539.7	0.0222	16.313	1447.6	0.0222
14	7.120	1622.4	0.0221	9.831	1540.9	0.0221	16.326	1453.4	0.0221
15	6.913	1603.9	0.0219	9.592	1534.6	0.0220	16.092	1455.8	0.0220
16	6.479	1556.4	0.0218	9.043	1508.5	0.0218	15.376	1445.8	0.0218
17	5.649	1451.4	0.0217	7.929	1426.5	0.0217	13.668	1389.0	0.0217
18	4.036	1228.3	0.0216	5.671	1223.7	0.0216	9.816	1207.3	0.0216

Statepoint	EFPD / Cycle
SP28	0.0 / Cy9
SP29	158.8 / Cy9
SP30	219.0 / Cy9
SP31	363.1 / Cy9
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-135. Burnup and TH Feedback Parameters by Axial Node for Assembly I23 (Cont'd)

Axial	Burnup	SP31 to SP32		Burnup	SP32 to DP1		Burnup	DP1 to DP2	
Node	SP32	T-Fuel	Spec.Vol	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol
1	13.551	1103.1	0.0239	17.479	931.7	0.0235	22.108	950.4	0.0235
2	18.649	1331.1	0.0238	24.466	1115.5	0.0234	30.911	1108.8	0.0234
3	22.027	1372.0	0.0236	28.995	1176.0	0.0233	36.311	1148.1	0.0233
4	23.341	1364.7	0.0235	30.801	1195.8	0.0232	38.278	1149.9	0.0231
5	23.728	1349.1	0.0233	31.290	1192.7	0.0231	38.602	1131.5	0.0230
6	23.854	1336.3	0.0232	31.516	1196.8	0.0229	38.792	1124.0	0.0229
7	23.923	1327.7	0.0230	31.663	1198.1	0.0228	38.912	1117.9	0.0228
8	23.979	1322.3	0.0229	31.760	1196.7	0.0227	38.991	1112.9	0.0227
9	24.041	1319.1	0.0227	31.832	1193.7	0.0226	39.060	1109.3	0.0226
10	24.119	1317.5	0.0226	31.900	1189.5	0.0225	39.142	1107.1	0.0225
11	24.235	1317.3	0.0225	32.000	1185.3	0.0223	39.284	1107.2	0.0223
12	24.440	1319.7	0.0224	32.277	1188.5	0.0222	39.725	1115.9	0.0222
13	24.714	1325.5	0.0222	32.828	1209.1	0.0221	40.709	1143.7	0.0221
14	24.838	1333.0	0.0221	32.899	1198.0	0.0220	40.869	1147.8	0.0220
15	24.681	1341.9	0.0220	32.462	1175.8	0.0219	40.441	1147.8	0.0219
16	23.828	1349.0	0.0219	31.086	1141.3	0.0218	38.899	1137.8	0.0218
17	21.308	1331.4	0.0217	27.553	1080.1	0.0217	34.652	1092.0	0.0217
18	15.393	1188.3	0.0216	19.413	939.9	0.0216	24.281	973.8	0.0216

Axial	Burnup	DP2 to SP33	
Node	SP33	T-Fuel	Spec.Vol
1	26.485	956.0	0.0234
2	36.643	1102.0	0.0233
3	42.530	1124.8	0.0232
4	44.453	1108.8	0.0231
5	44.612	1083.9	0.0230
6	44.732	1072.5	0.0229
7	44.813	1065.3	0.0227
8	44.872	1060.4	0.0226
9	44.934	1057.1	0.0225
10	45.019	1055.0	0.0224
11	45.179	1054.6	0.0223
12	45.725	1062.0	0.0222
13	46.918	1084.6	0.0221
14	47.160	1091.7	0.0220
15	46.826	1100.7	0.0219
16	45.328	1109.0	0.0218
17	40.744	1092.5	0.0217
18	28.732	983.0	0.0216

Statepoint	EFPD / Cycle
SP31	363.1 / Cy9
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-136. Burnup and TH Feedback Parameters by Axial Node for Assembly I27

Axial	Burnup	SP28 to SP29		Burnup	SP29 to SP30		Burnup	SP30 to SP31	
Node	SP29	T-Fuel	Spec.Vol	SP30	T-Fuel	Spec.Vol	SP31	T-Fuel	Spec.Vol
1	2.305	938.6	0.0233	3.287	954.5	0.0232	5.852	976.7	0.0232
2	3.734	1225.9	0.0232	5.249	1219.9	0.0232	9.044	1206.9	0.0232
3	4.724	1352.0	0.0231	6.562	1316.2	0.0231	11.030	1271.6	0.0231
4	5.235	1407.4	0.0230	7.207	1350.2	0.0230	11.901	1286.6	0.0230
5	5.498	1430.7	0.0229	7.521	1359.3	0.0229	12.270	1284.6	0.0228
6	5.639	1439.7	0.0228	7.679	1359.3	0.0228	12.427	1278.5	0.0227
7	5.718	1442.4	0.0227	7.763	1356.6	0.0227	12.501	1272.6	0.0226
8	5.763	1442.4	0.0226	7.810	1353.5	0.0225	12.541	1268.1	0.0225
9	5.788	1441.1	0.0225	7.837	1350.9	0.0224	12.569	1265.0	0.0224
10	5.800	1439.4	0.0224	7.851	1349.0	0.0223	12.593	1263.3	0.0223
11	5.803	1437.7	0.0223	7.859	1348.2	0.0222	12.620	1263.0	0.0222
12	5.796	1435.8	0.0221	7.858	1348.3	0.0221	12.648	1264.2	0.0221
13	5.765	1432.5	0.0220	7.834	1349.0	0.0220	12.661	1267.0	0.0221
14	5.683	1424.5	0.0219	7.752	1348.3	0.0220	12.614	1270.9	0.0220
15	5.506	1406.1	0.0219	7.550	1341.8	0.0219	12.415	1272.9	0.0219
16	5.141	1364.5	0.0218	7.100	1318.4	0.0218	11.854	1264.6	0.0218
17	4.373	1268.2	0.0217	6.095	1248.5	0.0217	10.390	1219.2	0.0217
18	2.645	1015.8	0.0216	3.732	1029.9	0.0216	6.550	1043.7	0.0216

Axial	Burnup	SP31 to SP32		Burnup	SP32 to DP1		Burnup	DP1 to DP2	
Node	SP32	T-Fuel	Spec.Vol	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol
1	9.872	1006.9	0.0233	13.524	920.1	0.0232	17.843	947.2	0.0232
2	14.620	1200.5	0.0232	19.901	1095.9	0.0232	25.743	1089.9	0.0232
3	17.323	1237.4	0.0231	23.553	1146.3	0.0231	30.106	1114.1	0.0231
4	18.334	1234.1	0.0230	24.998	1167.7	0.0230	31.733	1114.7	0.0230
5	18.674	1222.9	0.0229	25.555	1176.9	0.0228	32.301	1108.4	0.0228
6	18.782	1212.9	0.0228	25.772	1180.0	0.0227	32.485	1101.2	0.0227
7	18.823	1205.9	0.0227	25.860	1179.2	0.0226	32.536	1094.6	0.0226
8	18.851	1201.4	0.0226	25.896	1176.0	0.0225	32.543	1089.3	0.0225
9	18.883	1198.6	0.0225	25.905	1171.0	0.0224	32.537	1085.2	0.0224
10	18.925	1197.1	0.0224	25.899	1164.6	0.0223	32.528	1082.4	0.0223
11	18.980	1196.7	0.0223	25.884	1156.7	0.0222	32.520	1080.6	0.0222
12	19.053	1197.7	0.0222	25.859	1147.0	0.0221	32.512	1079.8	0.0221
13	19.126	1200.6	0.0221	25.803	1135.0	0.0220	32.484	1080.0	0.0220
14	19.153	1206.2	0.0220	25.661	1120.5	0.0219	32.371	1081.2	0.0220
15	19.010	1214.1	0.0219	25.283	1102.0	0.0218	32.000	1081.9	0.0219
16	18.351	1219.0	0.0218	24.245	1075.8	0.0217	30.850	1078.5	0.0218
17	16.131	1196.8	0.0217	21.258	1030.2	0.0217	27.318	1056.7	0.0217
18	10.476	1056.5	0.0216	13.808	906.4	0.0216	18.014	962.2	0.0216

Statepoint	EFPD / Cycle
SP28	0.0 / Cy9
SP29	158.8 / Cy9
SP30	219.0 / Cy9
SP31	363.1 / Cy9
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-136. Burnup and TH Feedback Parameters by Axial Node for Assembly I27 (Cont'd)

Axial	Burnup	DP2 to SP33	
Node	SP33	T-Fuel	Spec.Vol
1	21.977	963.8	0.0233
2	30.986	1077.8	0.0232
3	35.744	1090.8	0.0231
4	37.371	1082.3	0.0229
5	37.858	1070.0	0.0228
6	37.970	1060.1	0.0227
7	37.973	1053.1	0.0226
8	37.953	1048.4	0.0225
9	37.933	1045.3	0.0224
10	37.921	1043.3	0.0223
11	37.919	1042.3	0.0222
12	37.928	1042.5	0.0222
13	37.934	1044.6	0.0221
14	37.886	1049.7	0.0220
15	37.603	1057.9	0.0219
16	36.506	1065.4	0.0218
17	32.720	1055.8	0.0217
18	22.011	987.0	0.0216

Table 4-137. Burnup and TH Feedback Parameters by Axial Node for Assembly I27a

Axial	Burnup	SP28 to SP29		Burnup	SP29 to SP30		Burnup	SP30 to SP31	
Node	SP29	T-Fuel	Spec.Vol	SP30	T-Fuel	Spec.Vol	SP31	T-Fuel	Spec.Vol
1	2.305	938.6	0.0233	3.287	954.5	0.0232	5.852	976.7	0.0232
2	3.734	1225.9	0.0232	5.249	1219.9	0.0232	9.044	1206.9	0.0232
3	4.724	1352.0	0.0231	6.562	1316.2	0.0231	11.030	1271.6	0.0231
4	5.235	1407.4	0.0230	7.207	1350.2	0.0230	11.901	1286.6	0.0230
5	5.498	1430.7	0.0229	7.521	1359.3	0.0229	12.270	1284.6	0.0228
6	5.639	1439.7	0.0228	7.679	1359.3	0.0228	12.427	1278.5	0.0227
7	5.718	1442.4	0.0227	7.763	1356.6	0.0227	12.501	1272.6	0.0226
8	5.763	1442.4	0.0226	7.810	1353.5	0.0225	12.541	1268.1	0.0225
9	5.788	1441.1	0.0225	7.837	1350.9	0.0224	12.569	1265.0	0.0224
10	5.800	1439.4	0.0224	7.851	1349.0	0.0223	12.593	1263.3	0.0223
11	5.803	1437.7	0.0223	7.859	1348.2	0.0222	12.620	1263.0	0.0222
12	5.796	1435.8	0.0221	7.858	1348.3	0.0221	12.648	1264.2	0.0221
13	5.765	1432.5	0.0220	7.834	1349.0	0.0220	12.661	1267.0	0.0221
14	5.683	1424.5	0.0219	7.752	1348.3	0.0220	12.614	1270.9	0.0220
15	5.506	1406.1	0.0219	7.550	1341.8	0.0219	12.415	1272.9	0.0219
16	5.141	1364.5	0.0218	7.100	1318.4	0.0218	11.854	1264.6	0.0218
17	4.373	1268.2	0.0217	6.095	1248.5	0.0217	10.390	1219.2	0.0217
18	2.645	1015.8	0.0216	3.732	1029.9	0.0216	6.550	1043.7	0.0216

Statepoint	EFPD / Cycle
SP28	0.0 / Cy9
SP29	158.8 / Cy9
SP30	219.0 / Cy9
SP31	363.1 / Cy9
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-137. Burnup and TH Feedback Parameters by Axial Node for Assembly I27a (Cont'd)

Axial	Burnup	SP31 to SP32		Burnup	SP32 to DP1		Burnup	DP1 to DP2	
Node	SP32	T-Fuel	Spec.Vol	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol
1	9.875	1006.9	0.0233	13.044	926.9	0.0234	17.073	959.2	0.0234
2	14.626	1200.5	0.0232	19.843	1113.9	0.0234	25.765	1107.2	0.0233
3	17.332	1237.4	0.0231	23.819	1177.8	0.0233	30.619	1136.1	0.0232
4	18.344	1234.1	0.0230	25.448	1209.6	0.0231	32.508	1139.3	0.0231
5	18.685	1222.9	0.0229	26.108	1224.8	0.0230	33.211	1134.2	0.0229
6	18.793	1212.9	0.0228	26.389	1231.4	0.0229	33.474	1127.2	0.0228
7	18.834	1205.9	0.0227	26.527	1233.6	0.0228	33.589	1121.0	0.0227
8	18.863	1201.4	0.0226	26.609	1233.2	0.0226	33.658	1116.2	0.0226
9	18.895	1198.6	0.0225	26.666	1231.4	0.0225	33.718	1113.0	0.0225
10	18.937	1197.1	0.0224	26.713	1228.6	0.0224	33.784	1111.2	0.0224
11	18.993	1196.7	0.0223	26.760	1225.2	0.0223	33.869	1111.0	0.0223
12	19.066	1197.7	0.0222	26.807	1221.0	0.0222	33.975	1112.6	0.0222
13	19.140	1200.6	0.0221	26.821	1214.3	0.0221	34.062	1115.6	0.0221
14	19.166	1206.2	0.0220	26.714	1202.6	0.0220	34.022	1119.0	0.0220
15	19.024	1214.1	0.0219	26.309	1182.4	0.0219	33.639	1121.0	0.0219
16	18.364	1219.0	0.0218	25.150	1147.7	0.0218	32.336	1115.3	0.0218
17	16.141	1196.8	0.0217	21.934	1085.3	0.0217	28.463	1086.4	0.0217
18	10.482	1056.5	0.0216	14.158	940.4	0.0216	18.623	980.9	0.0216

Axial	Burnup	DP2 to SP33	
Node	SP33	T-Fuel	Spec.Vol
1	21.242	978.3	0.0234
2	31.177	1097.0	0.0233
3	36.495	1112.7	0.0232
4	38.422	1105.8	0.0230
5	39.065	1094.0	0.0229
6	39.270	1084.5	0.0228
7	39.349	1078.0	0.0227
8	39.403	1073.8	0.0226
9	39.460	1071.1	0.0225
10	39.531	1069.6	0.0224
11	39.630	1069.1	0.0223
12	39.760	1070.0	0.0222
13	39.890	1073.1	0.0221
14	39.921	1079.1	0.0220
15	39.630	1087.9	0.0219
16	38.368	1095.2	0.0218
17	34.191	1081.4	0.0217
18	22.819	1001.9	0.0216

Statepoint	EFPD / Cycle
SP31	363.1 / Cy9
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-138. Burnup and TH Feedback Parameters by Axial Node for Assembly J4

Axial	Burnup	SP32 to DP1		Burnup	DP1 to DP2		Burnup	DP2 to SP33	
Node	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol	SP33	T-Fuel	Spec.Vol
1	4.329	1206.6	0.0240	9.421	1213.1	0.0241	14.210	1192.8	0.0239
2	6.560	1446.5	0.0239	14.021	1396.1	0.0239	20.689	1323.4	0.0238
3	8.116	1599.0	0.0238	16.890	1485.2	0.0238	24.336	1352.0	0.0237
4	8.942	1666.1	0.0236	18.183	1499.7	0.0236	25.752	1344.8	0.0235
5	9.377	1693.2	0.0234	18.746	1496.1	0.0234	26.263	1329.6	0.0233
6	9.613	1705.0	0.0233	18.999	1488.2	0.0233	26.450	1316.9	0.0232
7	9.742	1709.1	0.0231	19.121	1480.9	0.0231	26.531	1308.3	0.0230
8	9.808	1709.3	0.0229	19.188	1475.6	0.0230	26.582	1303.2	0.0229
9	9.833	1707.1	0.0228	19.231	1472.5	0.0228	26.628	1300.4	0.0228
10	9.827	1703.4	0.0226	19.263	1471.6	0.0227	26.677	1299.2	0.0226
11	9.792	1698.4	0.0225	19.287	1472.9	0.0225	26.730	1299.7	0.0225
12	9.722	1691.3	0.0223	19.295	1476.4	0.0224	26.783	1302.3	0.0224
13	9.602	1680.7	0.0222	19.264	1481.9	0.0222	26.823	1308.0	0.0222
14	9.397	1663.3	0.0221	19.136	1488.4	0.0221	26.801	1318.0	0.0221
15	9.036	1633.3	0.0219	18.771	1492.0	0.0220	26.558	1331.9	0.0220
16	8.364	1572.8	0.0218	17.817	1480.7	0.0218	25.619	1341.9	0.0219
17	7.085	1438.2	0.0217	15.496	1416.8	0.0217	22.770	1317.0	0.0217
18	4.877	1196.3	0.0216	10.813	1218.1	0.0216	16.177	1192.8	0.0216

Table 4-139. Burnup and TH Feedback Parameters by Axial Node for Assembly J6

Axial	Burnup	SP32 to DP1		Burnup	DP1 to DP2		Burnup	DP2 to SP33	
Node	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol	SP33	T-Fuel	Spec.Vol
1	3.947	1159.4	0.0239	8.700	1183.1	0.0239	13.264	1174.3	0.0238
2	6.174	1405.1	0.0238	13.262	1364.8	0.0238	19.657	1306.7	0.0237
3	7.707	1557.3	0.0237	16.042	1450.0	0.0236	23.174	1330.6	0.0236
4	8.530	1629.6	0.0235	17.300	1466.8	0.0235	24.548	1323.3	0.0234
5	8.974	1660.4	0.0234	17.860	1463.0	0.0233	25.062	1308.8	0.0233
6	9.221	1673.2	0.0232	18.120	1454.8	0.0232	25.263	1296.8	0.0231
7	9.361	1678.2	0.0231	18.253	1447.3	0.0230	25.359	1288.7	0.0230
8	9.440	1679.4	0.0229	18.332	1441.8	0.0229	25.425	1283.8	0.0228
9	9.479	1678.3	0.0227	18.389	1438.6	0.0227	25.486	1281.1	0.0227
10	9.488	1675.9	0.0226	18.435	1437.7	0.0226	25.549	1280.0	0.0226
11	9.469	1672.2	0.0224	18.474	1439.1	0.0225	25.616	1280.3	0.0225
12	9.416	1666.4	0.0223	18.496	1442.7	0.0223	25.679	1282.6	0.0223
13	9.309	1656.9	0.0222	18.476	1447.8	0.0222	25.724	1287.9	0.0222
14	9.116	1640.7	0.0220	18.363	1454.3	0.0221	25.710	1297.4	0.0221
15	8.764	1610.6	0.0219	18.017	1458.6	0.0220	25.482	1310.8	0.0220
16	8.094	1545.8	0.0218	17.094	1449.5	0.0218	24.577	1320.7	0.0218
17	6.802	1408.9	0.0217	14.813	1382.3	0.0217	21.801	1302.3	0.0217
18	4.538	1159.0	0.0216	10.105	1187.7	0.0216	15.241	1177.7	0.0216

Statepoint	EFPD / Cycle
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-140. Burnup and TH Feedback Parameters by Axial Node for Assembly J10

Axial	Burnup	SP32 to DP1		Burnup	DP1 to DP2		Burnup	DP2 to SP33	
Node	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol	SP33	T-Fuel	Spec.Vol
1	4.294	1190.2	0.0239	9.295	1196.3	0.0240	13.963	1178.6	0.0239
2	6.526	1433.5	0.0238	13.867	1379.8	0.0239	20.378	1308.7	0.0237
3	8.025	1584.6	0.0237	16.618	1468.2	0.0237	23.878	1336.2	0.0236
4	8.804	1651.5	0.0236	17.826	1483.7	0.0235	25.198	1329.5	0.0234
5	9.209	1677.2	0.0234	18.341	1479.7	0.0234	25.659	1314.8	0.0233
6	9.426	1687.9	0.0232	18.567	1471.8	0.0232	25.819	1302.5	0.0231
7	9.542	1691.2	0.0231	18.671	1464.5	0.0231	25.881	1294.3	0.0230
8	9.598	1690.7	0.0229	18.724	1459.3	0.0229	25.918	1289.4	0.0229
9	9.614	1688.0	0.0228	18.754	1456.2	0.0228	25.950	1286.7	0.0227
10	9.599	1683.7	0.0226	18.772	1455.2	0.0226	25.985	1285.8	0.0226
11	9.555	1678.1	0.0225	18.781	1456.4	0.0225	26.022	1286.3	0.0225
12	9.477	1670.3	0.0223	18.773	1459.6	0.0224	26.058	1288.9	0.0223
13	9.350	1659.2	0.0222	18.729	1464.7	0.0222	26.082	1294.5	0.0222
14	9.146	1642.0	0.0220	18.598	1471.0	0.0221	26.055	1304.2	0.0221
15	8.798	1612.3	0.0219	18.252	1474.7	0.0220	25.829	1317.6	0.0220
16	8.154	1550.5	0.0218	17.347	1464.5	0.0218	24.942	1327.4	0.0218
17	6.903	1418.3	0.0217	15.094	1399.0	0.0217	22.185	1306.4	0.0217
18	4.694	1175.6	0.0216	10.440	1203.0	0.0216	15.665	1182.4	0.0216

Table 4-141. Burnup and TH Feedback Parameters by Axial Node for Assembly J12

Axial	Burnup	SP32 to DP1		Burnup	DP1 to DP2		Burnup	DP2 to SP33	
Node	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol	SP33	T-Fuel	Spec.Vol
1	4.248	1197.9	0.0240	9.283	1208.4	0.0240	14.052	1192.2	0.0239
2	6.397	1429.4	0.0239	13.733	1386.2	0.0239	20.364	1324.7	0.0238
3	7.929	1580.2	0.0237	16.567	1477.0	0.0237	23.987	1353.2	0.0237
4	8.740	1649.5	0.0236	17.834	1491.9	0.0236	25.377	1345.6	0.0235
5	9.153	1674.9	0.0234	18.353	1487.2	0.0234	25.840	1329.5	0.0233
6	9.379	1686.2	0.0233	18.590	1479.1	0.0233	26.013	1316.6	0.0232
7	9.510	1690.7	0.0231	18.715	1471.9	0.0231	26.101	1308.2	0.0230
8	9.582	1691.4	0.0229	18.790	1466.6	0.0230	26.164	1303.1	0.0229
9	9.616	1690.0	0.0228	18.843	1463.5	0.0228	26.223	1300.3	0.0228
10	9.622	1687.3	0.0226	18.889	1462.7	0.0227	26.288	1299.2	0.0226
11	9.608	1683.9	0.0225	18.943	1464.3	0.0225	26.374	1299.9	0.0225
12	9.582	1680.4	0.0223	19.023	1469.1	0.0224	26.511	1303.4	0.0224
13	9.524	1674.9	0.0222	19.102	1476.8	0.0222	26.676	1310.9	0.0222
14	9.356	1660.2	0.0221	19.030	1483.9	0.0221	26.712	1321.3	0.0221
15	9.004	1630.6	0.0219	18.676	1487.5	0.0220	26.479	1335.2	0.0220
16	8.326	1568.9	0.0218	17.711	1475.8	0.0218	25.526	1345.2	0.0219
17	7.045	1434.0	0.0217	15.388	1410.7	0.0217	22.669	1320.3	0.0217
18	4.887	1197.5	0.0216	10.813	1216.6	0.0216	16.190	1194.7	0.0216

Statepoint	EFPD / Cycle
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-142. Burnup and TH Feedback Parameters by Axial Node for Assembly J14

Axial	Burnup	SP32 to DP1		Burnup	DP1 to DP2		Burnup	DP2 to SP33	
Node	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol	SP33	T-Fuel	Spec.Vol
1	3.142	1033.4	0.0234	7.001	1081.8	0.0234	10.795	1098.6	0.0235
2	5.090	1269.7	0.0234	10.977	1257.1	0.0233	16.400	1230.5	0.0234
3	6.363	1403.1	0.0233	13.277	1328.4	0.0232	19.341	1261.1	0.0232
4	7.040	1467.6	0.0231	14.304	1344.2	0.0231	20.474	1252.7	0.0231
5	7.404	1498.2	0.0230	14.755	1341.4	0.0230	20.890	1239.7	0.0230
6	7.606	1512.4	0.0229	14.962	1334.2	0.0229	21.049	1229.3	0.0229
7	7.720	1518.3	0.0228	15.067	1327.7	0.0228	21.124	1222.4	0.0228
8	7.784	1519.9	0.0226	15.128	1322.9	0.0226	21.176	1218.3	0.0227
9	7.817	1519.4	0.0225	15.172	1320.1	0.0225	21.224	1216.1	0.0225
10	7.825	1517.5	0.0224	15.208	1319.4	0.0224	21.275	1215.3	0.0224
11	7.812	1514.4	0.0223	15.240	1320.7	0.0223	21.331	1215.8	0.0223
12	7.772	1509.5	0.0222	15.263	1324.2	0.0222	21.390	1218.0	0.0222
13	7.692	1501.0	0.0221	15.255	1329.6	0.0221	21.440	1222.9	0.0221
14	7.537	1485.5	0.0220	15.168	1336.0	0.0220	21.439	1231.5	0.0220
15	7.244	1455.0	0.0219	14.883	1339.8	0.0219	21.251	1243.5	0.0219
16	6.675	1394.8	0.0218	14.102	1329.0	0.0218	20.475	1253.3	0.0218
17	5.550	1272.5	0.0217	12.137	1267.8	0.0217	18.064	1236.4	0.0217
18	3.543	1034.7	0.0216	8.016	1092.1	0.0216	12.315	1107.6	0.0216

Table 4-143. Burnup and TH Feedback Parameters by Axial Node for Assembly J17

Axial	Burnup	SP32 to DP1		Burnup	DP1 to DP2		Burnup	DP2 to SP33	
Node	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol	SP33	T-Fuel	Spec.Vol
1	4.379	1203.4	0.0240	9.493	1208.6	0.0240	14.275	1190.5	0.0239
2	6.526	1437.1	0.0239	13.941	1389.3	0.0239	20.594	1323.1	0.0238
3	8.034	1588.7	0.0237	16.743	1481.1	0.0238	24.192	1353.7	0.0237
4	8.827	1655.8	0.0236	17.987	1495.6	0.0236	25.559	1346.3	0.0235
5	9.225	1680.2	0.0234	18.485	1490.8	0.0234	25.998	1330.1	0.0233
6	9.439	1690.6	0.0233	18.704	1482.6	0.0233	26.153	1317.1	0.0232
7	9.561	1694.6	0.0231	18.819	1475.3	0.0231	26.231	1308.6	0.0231
8	9.629	1694.9	0.0229	18.889	1470.1	0.0230	26.287	1303.6	0.0229
9	9.659	1693.2	0.0228	18.938	1467.1	0.0228	26.342	1300.8	0.0228
10	9.663	1690.4	0.0226	18.983	1466.3	0.0227	26.406	1299.6	0.0226
11	9.651	1687.2	0.0225	19.041	1468.0	0.0225	26.497	1300.3	0.0225
12	9.633	1684.4	0.0223	19.137	1473.1	0.0224	26.651	1303.9	0.0224
13	9.588	1679.8	0.0222	19.236	1481.2	0.0222	26.837	1311.4	0.0222
14	9.431	1665.8	0.0221	19.181	1488.5	0.0221	26.891	1321.8	0.0221
15	9.084	1636.7	0.0219	18.834	1492.1	0.0220	26.664	1335.7	0.0220
16	8.408	1576.6	0.0218	17.868	1480.2	0.0218	25.710	1345.6	0.0219
17	7.122	1441.6	0.0217	15.533	1415.9	0.0217	22.836	1319.5	0.0217
18	4.946	1203.7	0.0216	10.919	1220.2	0.0216	16.312	1194.7	0.0216

Statepoint	EFPD / Cycle
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-144. Burnup and TH Feedback Parameters by Axial Node for Assembly J19

Axial	Burnup	SP32 to DP1		Burnup	DP1 to DP2		Burnup	DP2 to SP33	
Node	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol	SP33	T-Fuel	Spec.Vol
1	3.870	1138.3	0.0239	8.492	1164.1	0.0238	12.915	1158.5	0.0238
2	6.065	1386.3	0.0238	12.981	1346.5	0.0237	19.226	1294.6	0.0237
3	7.566	1539.1	0.0236	15.696	1431.4	0.0236	22.676	1319.5	0.0235
4	8.358	1611.1	0.0235	16.894	1448.7	0.0234	23.985	1311.1	0.0234
5	8.763	1639.3	0.0233	17.381	1443.5	0.0233	24.421	1296.0	0.0232
6	8.987	1651.6	0.0232	17.607	1434.8	0.0231	24.591	1284.2	0.0231
7	9.122	1657.0	0.0230	17.735	1427.4	0.0230	24.688	1276.5	0.0230
8	9.203	1658.5	0.0229	17.819	1422.2	0.0229	24.764	1271.9	0.0228
9	9.250	1658.1	0.0227	17.886	1419.3	0.0227	24.839	1269.4	0.0227
10	9.272	1656.7	0.0226	17.950	1418.8	0.0226	24.923	1268.4	0.0226
11	9.279	1655.0	0.0224	18.027	1421.0	0.0225	25.033	1269.1	0.0224
12	9.280	1653.9	0.0223	18.140	1426.4	0.0223	25.202	1272.6	0.0223
13	9.255	1651.1	0.0222	18.257	1434.6	0.0222	25.404	1279.7	0.0222
14	9.115	1638.8	0.0220	18.225	1442.5	0.0221	25.475	1289.6	0.0221
15	8.782	1609.5	0.0219	17.909	1447.4	0.0219	25.276	1302.8	0.0220
16	8.106	1545.3	0.0218	16.987	1438.1	0.0218	24.370	1312.7	0.0218
17	6.781	1405.7	0.0217	14.677	1370.9	0.0217	21.568	1295.5	0.0217
18	4.483	1152.0	0.0216	9.945	1177.8	0.0216	14.995	1170.2	0.0216

Table 4-145. Burnup and TH Feedback Parameters by Axial Node for Assembly J20

Axial	Burnup	SP32 to DP1		Burnup	DP1 to DP2		Burnup	DP2 to SP33	
Node	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol	SP33	T-Fuel	Spec.Vol
1	2.966	1008.6	0.0234	6.612	1056.3	0.0233	10.214	1079.0	0.0234
2	5.000	1256.0	0.0233	10.687	1236.2	0.0233	15.915	1210.5	0.0233
3	6.268	1389.4	0.0232	12.940	1304.2	0.0232	18.784	1240.7	0.0232
4	6.936	1452.3	0.0231	13.937	1318.9	0.0230	19.883	1233.7	0.0231
5	7.291	1481.1	0.0230	14.370	1315.8	0.0229	20.282	1221.3	0.0229
6	7.487	1493.3	0.0229	14.567	1308.6	0.0228	20.433	1211.2	0.0228
7	7.599	1498.4	0.0227	14.667	1302.0	0.0227	20.506	1204.4	0.0227
8	7.663	1500.0	0.0226	14.729	1297.3	0.0226	20.560	1200.4	0.0226
9	7.699	1499.7	0.0225	14.776	1294.6	0.0225	20.612	1198.3	0.0225
10	7.713	1498.3	0.0224	14.819	1293.9	0.0224	20.670	1197.4	0.0224
11	7.709	1496.1	0.0223	14.862	1295.3	0.0223	20.737	1197.8	0.0223
12	7.684	1492.6	0.0222	14.903	1299.0	0.0222	20.813	1199.9	0.0222
13	7.620	1486.0	0.0221	14.918	1304.7	0.0221	20.885	1204.6	0.0221
14	7.482	1472.5	0.0219	14.852	1311.4	0.0220	20.902	1212.9	0.0220
15	7.200	1445.2	0.0218	14.584	1315.4	0.0219	20.727	1224.7	0.0219
16	6.636	1387.0	0.0218	13.822	1305.3	0.0218	19.970	1234.2	0.0218
17	5.493	1263.9	0.0217	11.859	1246.5	0.0217	17.567	1215.3	0.0217
18	3.277	999.5	0.0216	7.395	1056.0	0.0216	11.367	1076.6	0.0216

Statepoint	EFPD / Cycle
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Table 4-146. Burnup and TH Feedback Parameters by Axial Node for Assembly J23

Axial	Burnup	SP32 to DP1		Burnup	DP1 to DP2		Burnup	DP2 to SP33	
Node	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol	SP33	T-Fuel	Spec.Vol
1	4.016	1168.4	0.0240	8.804	1185.6	0.0239	13.387	1175.2	0.0238
2	6.296	1418.5	0.0239	13.444	1368.6	0.0238	19.869	1306.7	0.0237
3	7.860	1572.7	0.0237	16.256	1453.5	0.0237	23.415	1329.9	0.0236
4	8.669	1641.9	0.0236	17.471	1467.8	0.0235	24.732	1321.5	0.0234
5	9.073	1666.7	0.0234	17.950	1461.1	0.0233	25.152	1305.4	0.0233
6	9.293	1677.2	0.0232	18.165	1452.0	0.0232	25.306	1293.0	0.0231
7	9.424	1681.5	0.0231	18.285	1444.2	0.0230	25.393	1285.0	0.0230
8	9.504	1682.6	0.0229	18.365	1438.8	0.0229	25.463	1280.1	0.0229
9	9.548	1681.9	0.0228	18.429	1435.6	0.0228	25.533	1277.4	0.0227
10	9.570	1680.4	0.0226	18.493	1434.8	0.0226	25.615	1276.2	0.0226
11	9.580	1678.9	0.0225	18.576	1436.5	0.0225	25.728	1276.6	0.0225
12	9.591	1678.4	0.0223	18.703	1441.8	0.0224	25.910	1279.9	0.0223
13	9.576	1676.4	0.0222	18.840	1449.8	0.0222	26.131	1286.9	0.0222
14	9.444	1664.6	0.0221	18.821	1457.5	0.0221	26.215	1296.6	0.0221
15	9.111	1637.0	0.0219	18.510	1462.6	0.0220	26.021	1309.9	0.0220
16	8.429	1577.2	0.0218	17.585	1454.6	0.0218	25.119	1320.4	0.0218
17	7.085	1437.0	0.0217	15.248	1391.3	0.0217	22.295	1300.6	0.0217
18	4.717	1177.8	0.0216	10.388	1194.3	0.0216	15.575	1179.7	0.0216

Table 4-147. Burnup and TH Feedback Parameters by Axial Node for Assembly J27

Axial	Burnup	SP32 to DP1		Burnup	DP1 to DP2		Burnup	DP2 to SP33	
Node	DP1	T-Fuel	Spec.Vol	DP2	T-Fuel	Spec.Vol	SP33	T-Fuel	Spec.Vol
1	2.710	983.0	0.0232	6.101	1034.4	0.0232	9.550	1066.8	0.0233
2	4.619	1216.9	0.0232	9.918	1206.5	0.0231	14.886	1190.3	0.0232
3	5.821	1339.9	0.0231	12.036	1266.9	0.0230	17.567	1219.4	0.0231
4	6.431	1394.9	0.0230	12.934	1278.1	0.0229	18.548	1211.9	0.0230
5	6.744	1419.3	0.0229	13.307	1273.8	0.0228	18.882	1199.4	0.0228
6	6.911	1429.8	0.0227	13.466	1266.3	0.0227	18.995	1189.5	0.0227
7	7.003	1433.8	0.0226	13.540	1259.5	0.0226	19.042	1183.0	0.0226
8	7.054	1434.5	0.0225	13.583	1254.6	0.0225	19.074	1179.1	0.0225
9	7.080	1433.7	0.0224	13.613	1251.7	0.0224	19.107	1176.9	0.0224
10	7.088	1431.9	0.0223	13.642	1250.7	0.0223	19.147	1176.0	0.0223
11	7.081	1429.6	0.0222	13.674	1251.6	0.0222	19.196	1176.3	0.0223
12	7.056	1426.1	0.0221	13.704	1254.5	0.0221	19.255	1178.1	0.0222
13	6.998	1419.8	0.0220	13.712	1259.3	0.0220	19.310	1182.2	0.0221
14	6.874	1407.0	0.0219	13.650	1265.1	0.0219	19.320	1189.8	0.0220
15	6.624	1381.3	0.0218	13.413	1268.8	0.0219	19.167	1200.5	0.0219
16	6.124	1329.0	0.0217	12.739	1259.4	0.0218	18.497	1209.4	0.0218
17	5.082	1215.1	0.0217	10.952	1205.5	0.0217	16.297	1189.3	0.0217
18	3.024	965.4	0.0216	6.813	1022.3	0.0216	10.519	1052.6	0.0216

Statepoint	EFPD / Cycle
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Burnup - GWd/MTU
T-Fuel - °F
Spec. Vol. - ft^3 / lbm

Control rod insertion time (by axial node) for each assembly with a control rod inserted during core operation is provided in Tables 4-148 through 4-189. This data was also obtained from the core follow calculations based on core operation data. In addition, boron letdown data for cycles 1-10 are also provided in Tables 4-190 through 4-201. Two types of boron data are provided. The first type, in Tables 4-190 through 4-200, are measured values presented at various times during each cycle (EFPD) along with power level and control rod insertion data at the time of the measurement. The power level for these tables are expressed in % of full power (%FP), where full power is defined for each cycle. Control rod insertion data (for rod banks 6, 7, and 8) are expressed as % withdrawn (%WD). For banks 6 and 7, the %WD can be related to position relative to active fuel length by referring to Figure 2-8 (for 0%WD) and Figure 2-9 (for 100%WD). Figures 2-10 and 2-11 provide similar information for bank 8 (APSRs). The second set of data is all-rods-out-critical-boron (AROCB) concentrations at hot full power conditions (Table 4-201). Both sets are based on core operation data for each cycle.

Cycle 1B of Crystal River Unit 3 contained four fuel assemblies from cycle 1 of Oconee Unit 1. Critical boron data for this cycle are provided in Table 4-202.

Table 4-148. Rod Insertion Time by Axial Node for Assembly A1

Axial	Time Rod Inserted (EFPD)		
Node	SP1 to SP2	SP2 to SP3	SP3 to SP4
1	268.80	142.20	29.10
2	268.80	142.20	29.10
3	268.80	142.20	29.10
4	268.80	134.91	12.02
5	268.80	127.78	6.57
6	268.80	126.76	0.00
7	268.80	126.28	0.00
8	268.80	125.99	0.00
9	268.80	125.84	0.00
10	268.80	125.83	0.00
11	268.80	125.96	0.00
12	268.80	126.21	0.00
13	268.77	126.67	0.00
14	265.13	127.51	0.00
15	179.03	116.74	0.00
16	41.67	30.17	0.00
17	0.00	4.67	0.00
18	0.00	0.00	0.00

Table 4-149. Rod Insertion Time by Axial Node for Assembly A5

Axial	Time Rod Inserted (EFPD)	
Node	SP1 to SP2	SP2 to SP3
1	239.78	125.52
2	124.80	117.60
3	5.03	46.54
4	0.00	4.51
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00

Statepoint	EFPD / Cycle
SP1	0.0 / Cy1A
SP2	268.8 / Cy1B
SP3	411.0 / Cy1B
SP4	0.0 / Cy2

Table 4-150. Rod Insertion Time by Axial Node for Assembly A7

Axial	Time Rod Inserted (EFPD)			
Node	SP1 to SP2	SP2 to SP3	SP3 to SP4	SP4 to SP5
1	14.01	142.29	**29.10**	161.25
2	12.97	142.20	**29.10**	125.38
3	12.08	142.25	**29.10**	30.17
4	11.22	134.21	**11.83**	8.45
5	10.52	126.31	**6.47**	3.21
6	9.96	125.18	**0.00**	0.41
7	9.58	124.53	**0.00**	0.00
8	9.37	124.16	**0.00**	0.00
9	9.34	123.87	**0.00**	0.00
10	9.43	123.82	**0.00**	0.00
11	9.70	123.81	**0.00**	0.00
12	10.09	124.00	**0.00**	0.00
13	10.68	124.48	**0.00**	0.00
14	11.72	125.38	**0.00**	0.00
15	2.50	114.68	**0.00**	0.00
16	0.00	28.90	**0.00**	0.00
17	0.00	4.46	**0.00**	0.00
18	0.00	0.00	**0.00**	0.00

Table 4-151. Rod Insertion Time by Axial Node for Assembly A14

Axial	Time Rod Inserted (EFPD)				
Node	SP16 to SP17	SP17 to SP18	SP18 to SP19	SP19 to SP20	SP20 to SP21
1	146.27	10.13	**5.32**	27.11	0.23
2	35.38	0.00	**0.00**	0.00	0.00
3	0.00	0.00	**0.00**	0.00	0.00
4	0.00	0.00	**0.00**	0.00	0.00
5	0.00	0.00	**0.00**	0.00	0.00
6	0.00	0.00	**0.00**	0.00	0.00
7	0.00	0.00	**0.00**	0.00	0.00
8	0.00	0.00	**0.00**	0.00	0.00
9	0.00	0.00	**0.00**	0.00	0.00
10	0.00	0.00	**0.00**	0.00	0.00
11	0.00	0.00	**0.00**	0.00	0.00
12	0.00	0.00	**0.00**	0.00	0.00
13	0.00	0.00	**0.00**	0.00	0.00
14	0.00	0.00	**0.00**	0.00	0.00
15	0.00	0.00	**0.00**	0.00	0.00
16	0.00	0.00	**0.00**	0.00	0.00
17	0.00	0.00	**0.00**	0.00	0.00
18	0.00	0.00	**0.00**	0.00	0.00

Statepoint	EFPD / Cycle	Statepoint	EFPD / Cycle
SP1	**0.0 / Cy1A**	**SP17**	**260.3 / Cy7**
SP2	**268.8 / Cy1B**	**SP18**	**291.0 / Cy7**
SP3	**411.0 / Cy1B**	**SP19**	**319.0 / Cy7**
SP4	**0.0 / Cy2**	**SP20**	**462.3 / Cy7**
SP5	**0.0 / Cy3**	**SP21**	**479.0 / Cy7**
SP16	**0.0 / Cy7**		

Table 4-152. Rod Insertion Time by Axial Node for Assembly A18

Axial Node	Time Rod Inserted (EFPD) SP1 to SP2
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00
7	0.00
8	0.00
9	2.20
10	4.48
11	31.29
12	238.15
13	261.36
14	257.56
15	250.06
16	122.12
17	4.49
18	0.78

Table 4-153. Rod Insertion Time by Axial Node for Assembly A18a

Axial Node	Time Rod Inserted (EFPD) SP1 to SP2
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00
7	0.00
8	0.00
9	2.20
10	4.48
11	31.29
12	238.15
13	261.36
14	257.56
15	250.06
16	122.12
17	4.49
18	0.78

Statepoint	EFPD / Cycle
SP1	0.0 / Cy1A
SP2	268.8 / Cy1B

Table 4-154. Rod Insertion Time by Axial Node for Assembly A18b

Axial Node	Time Rod Inserted (EFPD) SP1 to SP2	SP2 to SP3
1	0.00	0.00
2	0.00	0.00
3	0.00	0.00
4	0.00	0.00
5	0.00	0.00
6	0.00	0.00
7	0.00	0.21
8	0.00	0.46
9	2.20	0.44
10	4.48	6.34
11	31.29	71.70
12	238.15	140.47
13	261.36	140.05
14	257.56	139.51
15	250.06	109.34
16	122.12	16.84
17	4.49	0.00
18	0.78	0.00

Table 4-155. Rod Insertion Time by Axial Node for Assembly A20

Axial Node	Time Rod Inserted (EFPD) SP1 to SP2
1	224.35
2	225.46
3	227.76
4	230.06
5	232.01
6	233.45
7	234.37
8	234.74
9	234.54
10	233.79
11	232.47
12	230.64
13	228.83
14	225.25
15	164.24
16	37.78
17	0.00
18	0.00

Statepoint	EFPD / Cycle
SP1	0.0 / Cy1A
SP2	268.8 / Cy1B
SP3	411.0 / Cy1B

Table 4-156. Rod Insertion Time by Axial Node for Assembly A22

Axial Node	Time Rod Inserted (EFPD) SP1 to SP2	SP2 to SP3
1	240.16	125.38
2	125.32	117.34
3	5.03	46.31
4	0.00	4.49
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00

Table 4-157. Rod Insertion Time by Axial Node for Assembly A23

Axial Node	Time Rod Inserted (EFPD) SP4 to SP5
1	165.61
2	166.50
3	166.50
4	166.50
5	166.56
6	166.56
7	166.50
8	166.50
9	166.50
10	166.50
11	166.56
12	166.50
13	166.50
14	166.20
15	137.89
16	64.84
17	10.12
18	0.99

Statepoint	EFPD / Cycle
SP1	0.0 / Cy1A
SP2	268.8 / Cy1B
SP3	411.0 / Cy1B
SP4	0.0 / Cy2
SP5	0.0 / Cy3

Table 4-158. Rod Insertion Time by Axial Node for Assembly A23a

Axial Node	Time Rod Inserted (EFPD) SP4 to SP5
1	165.65
2	166.50
3	166.50
4	166.45
5	166.50
6	166.55
7	166.50
8	166.45
9	166.50
10	166.50
11	166.50
12	166.45
13	166.50
14	166.26
15	136.66
16	61.87
17	10.02
18	1.06

Table 4-159. Rod Insertion Time by Axial Node for Assembly A25

Axial Node	Time Rod Inserted (EFPD) SP5 to SP6	SP6 to SP7
1	168.38	81.60
2	168.50	81.50
3	168.50	81.50
4	168.44	81.50
5	168.50	81.50
6	168.50	81.50
7	168.50	81.56
8	168.50	81.56
9	168.50	81.50
10	168.50	81.50
11	168.50	81.44
12	168.50	81.50
13	168.50	81.50
14	165.24	76.88
15	111.40	3.04
16	15.24	0.00
17	5.49	0.00
18	0.26	0.00

Statepoint	EFPD / Cycle
SP4	0.0 / Cy2
SP5	0.0 / Cy3
SP6	168.5 / Cy3
SP7	250.0 / Cy3

Table 4-160. Rod Insertion Time by Axial Node for Assembly A25a

Axial Node	Time Rod Inserted (EFPD) SP5 to SP6	SP6 to SP7
1	156.32	71.98
2	76.64	8.99
3	10.17	0.00
4	6.84	0.00
5	0.17	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00

Table 4-161. Rod Insertion Time by Axial Node for Assembly A26

Axial Node	Time Rod Inserted (EFPD) SP1 to SP2	SP2 to SP3
1	13.23	0.00
2	12.27	0.00
3	11.36	0.00
4	10.46	0.00
5	9.73	0.00
6	9.19	0.00
7	8.86	0.20
8	8.67	0.44
9	8.66	0.42
10	8.80	6.32
11	9.16	71.66
12	9.73	140.55
13	10.58	140.21
14	11.95	139.62
15	2.69	109.45
16	0.00	16.83
17	0.00	0.00
18	0.00	0.00

Statepoint	EFPD / Cycle
SP1	0.0 / Cy1A
SP2	268.9 / Cy1B
SP3	411.0 / Cy1B
SP5	0.0 / Cy3
SP6	168.5 / Cy3
SP7	250.0 / Cy3

Table 4-162. Rod Insertion Time by Axial Node for Assembly A28

Axial Node	Time Rod Inserted (EFPD) SP4 to SP5
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00
7	1.93
8	6.55
9	15.29
10	57.78
11	122.85
12	156.14
13	142.18
14	109.13
15	47.29
16	7.78
17	0.00
18	0.00

Table 4-163. Rod Insertion Time by Axial Node for Assembly A29

Axial Node	Time Rod Inserted (EFPD) SP5 to SP6	SP6 to SP7
1	168.59	81.50
2	168.50	81.55
3	168.50	81.50
4	168.50	81.50
5	168.50	81.50
6	168.55	81.50
7	168.50	81.50
8	168.50	81.50
9	168.50	81.50
10	168.50	81.50
11	168.55	81.45
12	168.50	81.50
13	168.50	81.50
14	165.37	76.92
15	114.16	3.00
16	16.44	0.00
17	6.04	0.00
18	0.27	0.00

Statepoint	EFPD / Cycle
SP4	0.0 / Cy2
SP5	0.0 / Cy3
SP6	168.5 / Cy3
SP7	250.0 / Cy3

Table 4-164. Rod Insertion Time by Axial Node for Assembly O1

Axial Node	Time Rod Inserted (EFPD) SP1 to SP2	SP2 to SP3
1	309.60	142.20
2	309.60	142.20
3	309.60	142.20
4	309.60	133.93
5	54.07	126.00
6	0.00	125.02
7	0.00	124.60
8	0.00	124.32
9	0.00	124.16
10	0.00	124.09
11	0.00	124.14
12	0.00	124.22
13	0.00	124.55
14	0.00	125.39
15	0.00	114.38
16	0.00	28.95
17	0.00	4.64
18	0.00	0.00

Table 4-165. Rod Insertion Time by Axial Node for Assembly B8

Axial Node	Time Rod Inserted (EFPD) SP8 to SP9	SP9 to SP10
1	228.10	24.90
2	214.93	24.90
3	59.60	3.71
4	0.96	0.00
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00

Statepoint	EFPD / Cycle
SP1	0.0 / Cy1A
SP2	268.8 / Cy1B
SP3	411.0 / Cy1B
SP8	0.0 / Cy4
SP9	228.1 / Cy4
SP10	253.0 / Cy4

Table 4-166. Rod Insertion Time by Axial Node for Assembly B20

Axial	Time Rod Inserted (EFPD)		
Node	SP5 to SP6	SP6 to SP7	SP7 to SP8
1	156.20	71.87	4.16
2	76.25	8.91	2.59
3	9.87	0.00	0.00
4	6.68	0.00	0.00
5	0.15	0.00	0.00
6	0.00	0.00	0.00
7	0.00	0.00	0.00
8	0.00	0.00	0.00
9	0.00	0.00	0.00
10	0.00	0.00	0.00
11	0.00	0.00	0.00
12	0.00	0.00	0.00
13	0.00	0.00	0.00
14	0.00	0.00	0.00
15	0.00	0.00	0.00
16	0.00	0.00	0.00
17	0.00	0.00	0.00
18	0.00	0.00	0.00

Table 4-167. Rod Insertion Time by Axial Node for Assembly B21

Axial	Time Rod Inserted (EFPD)	
Node	SP8 to SP9	SP9 to SP10
1	228.22	24.80
2	228.10	24.90
3	228.10	24.90
4	228.04	24.90
5	228.10	24.95
6	228.10	24.90
7	228.10	24.90
8	228.10	24.90
9	228.10	24.90
10	228.10	24.90
11	228.10	24.90
12	228.05	24.95
13	228.15	24.85
14	228.10	24.90
15	214.72	24.90
16	52.72	3.90
17	1.17	0.00
18	0.11	0.00

Statepoint	EFPD / Cycle
SP5	0.0 / Cy3
SP6	168.5 / Cy3
SP7	250.0 / Cy3
SP8	0.0 / Cy4
SP9	228.1 / Cy4
SP10	253.0 / Cy4

Table 4-168. Rod Insertion Time by Axial Node for Assembly B25

Axial	Time Rod Inserted (EFPD)		
Node	SP5 to SP6	SP6 to SP7	SP7 to SP8
1	0.00	0.00	0.00
2	0.00	0.00	0.00
3	0.00	0.00	0.00
4	0.00	0.00	0.00
5	0.00	0.00	0.00
6	0.00	0.00	0.00
7	0.67	0.00	0.74
8	6.32	0.00	32.04
9	98.82	46.00	69.99
10	167.14	81.54	73.00
11	168.50	81.50	73.00
12	164.85	81.50	61.42
13	127.51	73.13	14.01
14	14.05	5.95	0.00
15	0.00	0.00	0.00
16	0.00	0.00	0.00
17	0.00	0.00	0.00
18	0.00	0.00	0.00

Table 4-169. Rod Insertion Time by Axial Node for Assembly B27

Axial	Time Rod Inserted (EFPD)	
Node	SP8 to SP9	SP9 to SP10
1	0.00	0.00
2	0.00	0.00
3	0.00	0.00
4	0.37	0.00
5	0.99	0.00
6	1.20	0.00
7	1.44	0.00
8	1.68	0.00
9	4.81	0.00
10	143.86	18.17
11	222.46	24.90
12	221.94	24.90
13	222.15	24.90
14	183.67	20.97
15	10.89	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00

Statepoint	EFPD / Cycle
SP5	0.0 / Cy3
SP6	168.5 / Cy3
SP7	250.0 / Cy3
SP8	0.0 / Cy4
SP9	228.1 / Cy4
SP10	253.0 / Cy4

Table 4-170. Rod Insertion Time by Axial Node for Assembly B28

Axial Node	Time Rod Inserted (EFPD) SP8 to SP9	SP9 to SP10
1	228.10	24.81
2	215.00	24.90
3	59.96	3.71
4	0.91	0.00
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00

Table 4-171. Rod Insertion Time by Axial Node for Assembly B29

Axial Node	Time Rod Inserted (EFPD) SP8 to SP9	SP9 to SP10
1	228.01	24.90
2	228.10	24.90
3	228.05	24.95
4	228.10	24.90
5	228.10	24.90
6	228.06	24.94
7	228.10	24.94
8	228.10	24.90
9	228.10	24.90
10	228.10	24.90
11	228.10	24.90
12	228.10	24.90
13	228.14	24.86
14	228.06	24.94
15	215.12	24.90
16	54.83	3.93
17	1.28	0.00
18	0.12	0.00

Statepoint	EFPD / Cycle
SP8	0.0 / Cy4
SP9	228.1 / Cy4
SP10	253.0 / Cy4

Table 4-172. Rod Insertion Time by Axial Node for Assembly C15

Axial Node	Time Rod Inserted (EFPD) SP11 to SP12
1	89.33
2	60.71
3	4.47
4	0.00
5	0.00
6	0.00
7	0.00
8	0.00
9	0.00
10	0.00
11	0.00
12	0.00
13	0.00
14	0.00
15	0.00
16	0.00
17	0.00
18	0.00

Table 4-173. Rod Insertion Time by Axial Node for Assembly C15a

Axial Node	Time Rod Inserted (EFPD) SP11 to SP12
1	90.17
2	61.24
3	4.50
4	0.00
5	0.00
6	0.00
7	0.00
8	0.00
9	0.00
10	0.00
11	0.00
12	0.00
13	0.00
14	0.00
15	0.00
16	0.00
17	0.00
18	0.00

Statepoint	EFPD / Cycle
SP11	0.0 / Cy5
SP12	388.5 / Cy5

Table 4-174. Rod Insertion Time by Axial Node for Assembly C20

Axial Node	Time Rod Inserted (EFPD) SP22 to SP23	SP23 to SP24	SP24 to SP25	SP25 to SP26	SP26 to SP27
1	24.83	4.04	20.57	1.81	19.48
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00

Table 4-175. Rod Insertion Time by Axial Node for Assembly C21

Axial Node	Time Rod Inserted (EFPD) SP11 to SP12
1	93.20
2	63.00
3	4.58
4	0.00
5	0.00
6	0.00
7	0.00
8	0.00
9	0.00
10	0.00
11	0.00
12	0.00
13	0.00
14	0.00
15	0.00
16	0.00
17	0.00
18	0.00

Statepoint	EFPD / Cycle	Statepoint	EFPD / Cycle
SP11	0.0 / Cy5	SP26	409.6 / Cy8
SP12	388.5 / Cy5	SP27	515.5 / Cy8
SP22	0.0 / Cy8		
SP23	97.6 / Cy8		
SP24	139.8 / Cy8		
SP25	404.0 / Cy8		

Table 4-176. Rod Insertion Time by Axial Node for Assembly D6

Axial Node	Time Rod Inserted (EFPD) SP13 to SP14	SP14 to SP15
1	67.10	17.77
2	2.34	0.00
3	0.00	0.00
4	0.00	0.00
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00

Table 4-177. Rod Insertion Time by Axial Node for Assembly D12

Axial Node	Time Rod Inserted (EFPD) SP11 to SP12
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00
7	4.15
8	75.76
9	305.42
10	388.50
11	388.50
12	360.99
13	164.21
14	12.33
15	0.00
16	0.00
17	0.00
18	0.00

Statepoint	EFPD / Cycle
SP11	0.0 / Cy5
SP12	388.5 / Cy5
SP13	0.0 / Cy6
SP14	96.0 / Cy6
SP15	400.0 / Cy6

Table 4-178. Rod Insertion Time by Axial Node for Assembly E14a

Axial Node	Time Rod Inserted (EFPD) SP13 to SP14	SP14 to SP15
1	67.05	17.47
2	2.34	0.00
3	0.00	0.00
4	0.00	0.00
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00

Table 4-179. Rod Insertion Time by Axial Node for Assembly E17

Axial Node	Time Rod Inserted (EFPD) SP13 to SP14	SP14 to SP15
1	0.00	0.00
2	4.68	0.00
3	32.61	0.00
4	75.80	166.76
5	96.00	285.33
6	96.00	295.87
7	96.00	295.96
8	96.00	296.12
9	96.00	296.28
10	93.68	296.55
11	62.50	296.84
12	23.88	157.42
13	0.00	16.40
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00

Statepoint	EFPD / Cycle
SP13	0.0 / Cy6
SP14	96.0 / Cy6
SP15	400.0 / Cy6

Table 4-180. Rod Insertion Time by Axial Node for Assembly E25

Axial	Time Rod Inserted (EFPD)				
Node	SP16 to SP17	SP17 to SP18	SP18 to SP19	SP19 to SP20	SP20 to SP21
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	4.07	0.00	0.00	0.00	0.00
4	39.28	0.00	0.00	0.00	0.00
5	215.17	26.40	26.88	127.54	14.36
6	254.33	30.70	28.00	143.30	16.70
7	260.30	30.70	28.00	143.30	16.70
8	260.30	30.70	28.00	143.30	16.70
9	260.30	30.70	28.00	143.30	16.70
10	260.30	30.70	28.00	143.30	16.70
11	260.30	30.70	28.00	143.30	16.70
12	214.38	30.70	28.00	143.30	16.70
13	66.21	8.29	4.76	34.39	4.51
14	7.59	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00

Table 4-181. Rod Insertion Time by Axial Node for Assembly F17a

Axial	Time Rod Inserted (EFPD)				
Node	SP16 to SP17	SP17 to SP18	SP18 to SP19	SP19 to SP20	SP20 to SP21
1	147.11	10.10	5.37	27.07	0.26
2	36.81	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00

Statepoint	EFPD / Cycle
SP16	0.0 / Cy7
SP17	260.3 / Cy7
SP18	291.0 / Cy7
SP19	319.0 / Cy7
SP20	462.3 / Cy7
SP21	479.0 / Cy7

Table 4-182. Rod Insertion Time by Axial Node for Assembly F19a

Axial	Time Rod Inserted (EFPD)				
Node	SP22 to SP23	SP23 to SP24	SP24 to SP25	SP25 to SP26	SP26 to SP27
1	24.88	4.06	20.60	1.83	19.43
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00

Table 4-183. Rod Insertion Time by Axial Node for Assembly G17

Axial	Time Rod Inserted (EFPD)				
Node	SP22 to SP23	SP23 to SP24	SP24 to SP25	SP25 to SP26	SP26 to SP27
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	55.34	12.24	76.62	1.62	37.76
5	97.60	42.20	264.20	5.60	103.19
6	97.60	42.20	264.20	5.60	103.13
7	97.60	42.20	264.20	5.60	103.14
8	97.60	42.20	264.20	5.60	103.13
9	97.60	42.20	264.20	5.60	103.13
10	97.60	42.20	264.20	5.60	103.15
11	97.60	42.20	264.20	5.60	103.22
12	53.48	35.45	221.93	4.70	78.37
13	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00

Statepoint	EFPD / Cycle
SP22	0.0 / Cy8
SP23	97.6 / Cy8
SP24	139.8 / Cy8
SP25	404.0 / Cy8
SP26	409.6 / Cy8
SP27	515.5 / Cy8

Table 4-184. Rod Insertion Time by Axial Node for Assembly G27a

Axial Node	Time Rod Inserted (EFPD) SP28 to SP29	SP29 to SP30	SP30 to SP31	SP31 to SP32
1	57.22	14.04	35.99	27.59
2	2.07	0.00	0.00	3.97
3	0.00	0.00	0.00	1.54
4	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00

Table 4-185. Rod Insertion Time by Axial Node for Assembly H12

Axial Node	Time Rod Inserted (EFPD) SP28 to SP29	SP29 to SP30	SP30 to SP31
1	0.00	0.00	0.00
2	0.00	0.00	0.00
3	0.00	0.00	0.00
4	46.98	10.10	25.14
5	158.80	60.20	144.10
6	158.80	60.20	144.10
7	158.80	60.20	144.10
8	158.80	60.20	144.10
9	158.80	60.20	144.10
10	158.80	60.20	144.10
11	158.80	60.20	144.10
12	132.03	57.92	137.61
13	0.00	0.00	0.00
14	0.00	0.00	0.00
15	0.00	0.00	0.00
16	0.00	0.00	0.00
17	0.00	0.00	0.00
18	0.00	0.00	0.00

Statepoint	EFPD / Cycle
SP28	0.0 / Cy9
SP29	158.8 / Cy9
SP30	219.0 / Cy9
SP31	363.1 / Cy9
SP32	0.0 / Cy10

Table 4-186. Rod Insertion Time by Axial Node for Assembly H27a

Axial	Time Rod Inserted (EFPD)		
Node	SP28 to SP29	SP29 to SP30	SP30 to SP31
1	57.33	14.09	36.07
2	2.09	0.00	0.00
3	0.00	0.00	0.00
4	0.00	0.00	0.00
5	0.00	0.00	0.00
6	0.00	0.00	0.00
7	0.00	0.00	0.00
8	0.00	0.00	0.00
9	0.00	0.00	0.00
10	0.00	0.00	0.00
11	0.00	0.00	0.00
12	0.00	0.00	0.00
13	0.00	0.00	0.00
14	0.00	0.00	0.00
15	0.00	0.00	0.00
16	0.00	0.00	0.00
17	0.00	0.00	0.00
18	0.00	0.00	0.00

Table 4-187. Rod Insertion Time by Axial Node for Assembly I12a

Axial	Time Rod Inserted (EFPD)		
Node	SP32 to DP1	DP1 to DP2	DP2 to SP33
1	59.33	34.50	3.88
2	5.35	0.00	0.00
3	0.00	0.00	0.00
4	0.00	0.00	0.00
5	0.00	0.00	0.00
6	0.00	0.00	0.00
7	0.00	0.00	0.00
8	0.00	0.00	0.00
9	0.00	0.00	0.00
10	0.00	0.00	0.00
11	0.00	0.00	0.00
12	0.00	0.00	0.00
13	0.00	0.00	0.00
14	0.00	0.00	0.00
15	0.00	0.00	0.00
16	0.00	0.00	0.00
17	0.00	0.00	0.00
18	0.00	0.00	0.00

Statepoint	EFPD / Cycle	Datapoint	EFPD / Cycle
SP28	0.0 / Cy9	DP1	199.8 / Cy10
SP29	158.8 / Cy9	DP2	403.2 / Cy10
SP30	219.0 / Cy9		
SP31	363.1 / Cy9		
SP32	0.0 / Cy10		
SP33	573.7 / Cy10		

Table 4-188. Rod Insertion Time by Axial Node for Assembly I23

Axial	Time Rod Inserted (EFPD)		
Node	SP32 to DP1	DP1 to DP2	DP2 to SP33
1	0.00	0.00	6.62
2	0.00	0.00	4.46
3	0.00	0.00	2.88
4	52.31	60.74	43.48
5	179.47	203.40	142.19
6	199.80	203.40	141.74
7	199.80	203.40	141.55
8	199.80	203.40	141.48
9	199.80	203.40	138.34
10	199.80	203.40	138.07
11	199.80	203.40	138.42
12	167.06	167.90	100.32
13	17.36	0.00	0.00
14	0.00	0.00	0.00
15	0.00	0.00	0.00
16	0.00	0.00	0.00
17	0.00	0.00	0.00
18	0.00	0.00	0.00

Table 4-189. Rod Insertion Time by Axial Node for Assembly I27a

Axial	Time Rod Inserted (EFPD)		
Node	SP32 to DP1	DP1 to DP2	DP2 to SP33
1	58.70	34.28	3.89
2	5.32	0.00	0.00
3	0.00	0.00	0.00
4	0.00	0.00	0.00
5	0.00	0.00	0.00
6	0.00	0.00	0.00
7	0.00	0.00	0.00
8	0.00	0.00	0.00
9	0.00	0.00	0.00
10	0.00	0.00	0.00
11	0.00	0.00	0.00
12	0.00	0.00	0.00
13	0.00	0.00	0.00
14	0.00	0.00	0.00
15	0.00	0.00	0.00
16	0.00	0.00	0.00
17	0.00	0.00	0.00
18	0.00	0.00	0.00

Datapoint or Statepoint	EFPD / Cycle
SP32	0.0 / Cy10
DP1	199.8 / Cy10
DP2	403.2 / Cy10
SP33	573.7 / Cy10

Table 4-190. Boron Letdown Data for Crystal River Unit 3 - Cycle 1A

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
0.0	16.2	1147	94	19	20
7.2	73.5	968	97	18	8
18.6	99.5	912	91	14	8
55.2	98.9	934	95	17	11
63.8	99.3	909	91	12	10
69.9	98.6	909	89	11	11
94.9	96.4	884	89	11	9
184.7	100.1	705	87	13	0
192.3	99.5	683	90	14	11
216.0	99.6	627	90	13	13
224.8	99.5	610	90	13	11
228.5	99.6	666	92	20	7
238.0	99.9	584	90	16	9
244.0	100.1	575	93	17	9
250.8	99.7	614	93	18	9
254.7	100.2	588	89	15	10

Full power = 2452 MWt

Table 4-191. Boron Letdown Data for Crystal River Unit 3 - Cycle 1B

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
269.4	41.4	843	87	13	35
269.8	39.6	783	93	17	34
272.0	74.9	748	89	15	19
280.2	94.0	558	83	13	11
287.2	94.6	571	86	13	12
306.2	98.5	513	86	13	12
313.2	98.9	441	84	12	11
337.2	95.0	419	86	14	11
345.7	94.1	346	86	11	10
364.2	99.9	309	89	12	12
377.6	99.9	246	86	13	15
389.5	99.8	279	87	13	13
401.7	98.9	290	100	83	22
419.3	97.8	272	100	81	23
427.1	98.1	229	100	81	23
431.8	73.3	231	100	71	20
437.1	72.1	229	100	73	18
440.1	73.3	242	100	73	17

Full power = 2452 MWt

Table 4-192. Boron Letdown Data for Crystal River Unit 3 - Cycle 2

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
0.6	41.4	930	84.2	11.4	35.8
0.8	41.2	930	84.7	12.5	27.7
0.9	41.1	930	85.2	12.5	45.1
2.1	74.9	826	85.6	11.7	32.5
3.0	90.0	809	89.7	12.3	31.9
4.4	100.4	778	89.8	15.4	28.0
11.4	100.0	809	90.5	14.8	23.9
15.8	98.3	735	93.3	18.9	21.8
22.5	99.6	709	89.8	15.3	21.4
29.3	98.6	683	91.7	14.2	21.9
35.3	99.1	666	88.9	13.1	21.7
42.3	99.7	644	89.8	14.1	18.5
50.0	72.5	623	69.8	0.0	21.9
55.8	99.5	614	87.7	12.3	17.2
60.8	100.2	592	88.3	13.0	16.5
69.1	83.7	571	78.3	3.5	19.8
75.2	91.5	558	81.2	6.6	17.3
83.1	99.7	528	87.9	11.0	15.5
89.8	99.9	506	85.0	9.9	12.9
97.8	100.1	480	88.5	10.1	14.9
104.7	99.9	463	87.8	8.9	13.9
116.4	99.9	441	87.8	8.9	12.7
122.5	99.8	406	86.6	11.0	11.3
129.1	99.2	385	86.5	8.3	12.0
135.9	99.3	372	86.0	6.8	11.3
139.9	100.0	346	85.3	6.8	9.2
148.6	91.4	333	79.4	5.9	9.2
156.4	93.4	320	85.5	6.8	19.9
161.4	99.6	316	96.2	18.8	18.2

Full power = 2452 MWt

Table 4-193. Boron Letdown Data for Crystal River Unit 3 - Cycle 3

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
0.7	40.0	1090	86.2	12.3	34.6
2.0	74.1	1020	88.1	12.5	30.5
4.0	99.2	947	90.2	14.5	24.1
6.7	99.7	951	87.3	11.1	25.7
12.6	77.3	908	77.5	5.0	23.6
26.8	96.5	891	88.2	12.4	23.6
32.6	99.1	843	88.0	12.0	23.0
50.7	96.1	822	88.0	14.0	19.0
66.0	98.9	757	91.0	12.9	25.7
69.9	99.4	746	92.2	14.0	26.8
85.0	99.5	692	92.2	13.7	28.3
100.2	97.3	666	94.3	20.4	24.6
111.2	98.0	636	90.1	12.9	24.3
130.5	96.9	562	92.2	17.0	24.5
143.8	97.5	528	96.1	18.9	24.3
163.9	99.3	467	96.2	20.2	21.4
174.0	99.9	432	93.0	18.4	22.7
184.2	99.9	394	92.3	19.4	22.3
212.9	100.0	324	92.9	19.3	23.4
227.5	99.5	272	94.7	19.2	25.7
246.4	99.9	229	92.9	18.3	25.0
262.9	99.8	250	100.0	82.3	27.5
283.8	99.7	190	100.0	82.4	27.2
304.0	100.0	130	100.0	86.4	30.6
322.0	100.0	86	100.0	85.0	30.6

Full power = 2452 MWt

Table 4-194. Boron Letdown Data for Crystal River Unit 3 - Cycle 4

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
0.39	39.9	1038	86.0	8.6	40.2
0.42	40.5	1038	88.2	11.2	27.3
0.49	40.7	1038	76.1	1.1	50.9
2.70	75.5	916	87.5	14.8	21.7
3.90	97.6	916	83.3	9.8	21.2
20.8	99.9	796	84.5	9.4	19.9
27.1	99.7	809	84.2	6.8	20.5
33.7	99.8	817	82.7	7.9	17.1
40.7	100.0	770	83.0	8.7	17.0
46.3	100.0	804	85.2	10.9	20.0
52.3	100.0	761	87.1	11.7	18.1
60.1	94.7	728	84.9	10.2	17.6
68.9	90.2	759	87.3	13.1	20.2
75.1	90.4	729	85.2	11.0	18.1
81.4	90.4	726	86.1	12.6	19.1
87.7	90.4	698	85.8	12.1	19.0
94.0	89.9	678	86.2	12.2	18.4
100.3	90.2	662	85.4	12.0	18.3
108.7	90.5	636	87.2	13.3	16.5
116.3	89.5	622	86.3	12.1	17.3
122.6	90.3	588	88.2	14.0	16.3
128.9	90.3	575	85.3	12.1	16.3
133.4	70.9	606	87.1	11.1	21.4
136.9	70.2	601	90.4	13.6	21.4
142.2	83.9	601	92.0	17.6	20.7
146.6	90.4	528	86.8	14.4	15.7
153.0	92.5	493	86.3	12.3	18.4
159.4	79.8	484	86.3	13.3	18.6
165.8	94.2	471	84.6	11.1	17.2
171.1	94.8	439	89.5	13.1	18.6
177.6	94.2	415	87.3	13.3	17.3
184.3	95.0	394	87.9	14.0	18.9
202.0	97.2	337	88.5	13.3	18.6
221.9	97.3	277	89.0	13.4	18.4
228.1	97.0	255	86.6	12.1	18.9
233.1	97.3	251	89.8	11.2	20.5
238.3	97.5	225	88.9	12.7	17.9
246.1	97.0	203	88.9	12.6	17.8

Full power = 2544 MWt

Table 4-194. Boron Letdown Data for Crystal River Unit 3 - Cycle 4 (Cont'd)

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
252.0	97.1	186	88.9	13.3	16.4
269.4	83.0	246	100.0	74.1	22.3
275.0	97.4	221	100.0	87.1	31.2
282.0	97.3	199	100.0	87.9	30.9
289.0	76.6	201	100.0	75.0	26.8
295.7	97.5	162	100.0	86.2	30.1
302.5	97.1	143	100.0	87.2	30.2
308.3	97.3	125	100.0	87.2	30.2
321.5	93.8	91	100.0	87.3	30.2
328.0	93.3	72	100.0	87.3	28.2
334.5	91.8	56	100.0	88.0	28.2

Full power = 2544 MWt

Table 4-195. Boron Letdown Data for Crystal River Unit 3 - Cycle 5

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
13.7	74.7	1077	100.0	89.0	26.0
23.7	74.3	1064	100.0	87.0	24.0
32.1	73.5	1056	100.0	87.4	20.8
42.2	71.1	1048	100.0	86.9	23.5
57.2	98.0	951	100.0	87.2	25.0
82.9	100.0	908	100.0	87.0	21.0
105.1	97.9	865	100.0	93.9	24.6
131.1	99.0	799	100.0	96.1	24.6
156.5	98.2	744	100.0	98.3	26.8
180.6	98.3	677	100.0	98.2	26.8
210.0	97.1	601	100.0	98.2	24.6
235.9	95.7	528	100.0	98.2	28.9
262.4	99.4	458	100.0	98.3	28.8
282.4	98.2	394	100.0	98.2	28.5
302.1	96.8	355	100.0	98.0	28.6
328.3	95.0	272	100.0	98.7	29.7
354.2	93.3	216	100.0	98.7	32.8
379.9	92.6	148	100.0	98.0	32.9
412.1	93.1	93	100.0	95.8	100.0
431.9	91.8	45	100.0	95.8	100.0
455.3	80.2	3	100.0	97.9	100.0
471.0	64.7	1	100.0	98.9	100.0
483.3	53.6	3	100.0	100.0	100.0

Full power = 2544 MWt

Table 4-196. Boron Letdown Data for Crystal River Unit 3 - Cycle 6

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
9.2	93.4	1017	100.0	92.5	41.5
22.3	95.4	1012	100.0	95.6	37.1
49.8	96.0	995	100.0	93.5	32.6
68.5	94.3	952	100.0	95.3	30.9
84.6	92.8	908	100.0	95.7	32.8
127.3	97.0	778	100.0	97.9	32.7
140.1	95.9	727	100.0	98.2	27.4
184.5	98.3	631	100.0	99.7	29.3
202.8	96.7	567	100.0	98.6	32.7
248.8	96.9	441	100.0	99.9	33.3
274.9	96.7	366	100.0	98.5	32.5
288.2	95.3	337	100.0	100.0	32.6
318.2	91.6	266	100.0	100.0	31.0
331.6	89.6	229	100.0	99.9	33.5
349.7	87.6	183	100.0	99.0	33.5
367.4	87.8	139	100.0	98.5	33.2
373.3	87.7	123	100.0	99.3	32.8
393.3	63.7	156	100.0	93.5	99.9
397.7	64.0	137	100.0	94.7	99.9
405.3	64.9	123	100.0	95.1	100.0

Full power = 2544 MWt

Table 4-197. Boron Letdown Data for Crystal River Unit 3 - Cycle 7

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
7.5	98.1	1478	100.0	88.4	35.1
41.4	99.8	1405	100.0	89.8	21.3
60.3	99.8	1367	100.0	91.7	27.8
81.7	99.7	1333	100.0	94.4	27.8
102.9	99.8	1290	100.0	94.9	28.0
122.3	100.1	1245	100.0	95.9	27.9
139.8	100.0	1204	100.0	93.9	27.9
160.5	99.8	1167	100.0	100.0	27.9
180.8	99.9	1102	100.0	95.9	28.4
202.8	100.3	1040	100.0	96.3	29.1
230.9	100.0	963	100.0	96.9	28.3
251.2	96.8	898	100.0	96.6	27.9
306.7	68.9	803	100.0	98.2	28.5
317.9	66.6	775	100.0	95.6	28.6
345.3	99.9	593	100.0	99.0	28.1
412.3	96.5	398	100.0	96.6	27.9
459.8	97.8	260	100.0	98.2	27.8
485.0	96.5	193	100.0	96.5	28.2

Full power = 2544 MWt

Table 4-198. Boron Letdown Data for Crystal River Unit 3 - Cycle 8

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
11.2	96.9	1537	100.0	97.2	31.5
52.4	95.6	1455	100.0	98.0	32.1
78.0	97.1	1411	100.0	98.9	31.7
111.4	98.3	1332	100.0	97.7	30.4
154.4	99.8	1176	100.0	98.6	31.5
194.8	99.0	1103	100.0	98.6	30.3
234.6	98.8	999	100.0	96.2	30.6
271.5	100.0	887	100.0	99.2	30.3
338.0	97.6	701	100.0	98.9	31.8
390.7	99.4	522	100.0	99.5	31.6
445.7	99.9	394	100.0	95.9	30.3
474.0	99.9	311	100.0	97.3	31.3
513.1	98.4	216	100.0	99.6	32.5

Full power = 2544 MWt

Table 4-199. Boron Letdown Data for Crystal River Unit 3 - Cycle 9

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
22.1	99.7	1608	100.0	95.5	31.6
61.5	99.7	1535	100.0	97.1	30.2
145.7	99.9	1329	100.0	97.0	29.6
192.8	99.8	1201	100.0	96.8	29.6
211.3	100.0	1157	100.0	98.0	30.4
262.0	100.2	994	100.0	97.1	29.4
303.7	100.0	869	100.0	97.1	29.5
345.7	100.0	750	100.0	97.0	30.0
397.9	100.0	577	100.0	97.7	29.5
432.5	99.9	473	100.0	97.9	30.2
452.4	99.9	412	100.0	98.0	30.2
495.4	100.0	283	100.0	96.9	30.2
543.4	100.0	136	100.0	96.1	30.3

Full power = 2544 MWt

Table 4-200. Boron Letdown Data for Crystal River Unit 3 - Cycle 10

EFPD	%FP	ppmB	%WD Bk 6	%WD Bk 7	%WD Bk 8
4.0	99.9	1752	99.8	93.5	29.8
27.3	99.9	1712	99.7	91.6	31.2
48.3	100.0	1660	99.7	96.0	30.5
76.1	100.1	1612	99.7	99.6	30.5
104.5	99.9	1547	99.7	97.9	30.4
124.8	100.1	1497	99.7	95.8	30.3
152.7	100.1	1422	99.7	96.0	30.6
174.0	99.9	1333	99.7	92.9	25.0
199.8	100.1	1259	99.7	95.8	29.9
227.9	99.8	1183	99.6	95.7	30.4
248.7	100.1	1124	99.6	96.1	30.2
276.7	100.0	1040	99.6	95.4	30.2
297.1	99.9	985	99.6	96.2	30.2
326.4	99.8	896	99.6	95.6	30.5
347.6	100.2	830	99.6	97.3	30.5
370.6	100.0	766	99.6	95.7	30.6
403.2	99.9	652	99.7	98.9	30.4
431.9	99.9	555	99.7	97.3	30.8
450.4	96.6	498	99.7	96.4	31.1
470.7	96.8	436	99.7	98.9	32.1
504.9	99.9	302	99.6	97.2	30.5
525.5	100.1	239	99.6	98.4	30.3
560.5	99.7	155	99.6	98.1	99.4
573.7	100.2	120	99.7	97.2	99.4
591.7	99.9	72	99.9	95.6	99.8

Full power = 2544 MWt

Table 4-201. All-Rods-Out-Critical-Boron Data for Crystal River Unit 3

Cycle 1A, AROCB

EFPD	ppmB
10	1080
25	1060
50	1035
75	1010
100	980
125	945
150	900
175	850
200	800
225	740
250	710
268.8	680

Cycle 1B, AROCB

EFPD	ppmB
275	700
300	635
325	565
350	490
375	425
400	350
425	280
440.1	245

Cycle 2, AROCB

EFPD	ppmB
10	880
25	800
50	730
75	660
100	590
125	520
150	450
166.5	415

Cycle 3, AROCB

EFPD	ppmB
10	980
25	960
50	890
75	820
100	745
125	660
150	595
175	510
200	440
225	360
250	295
275	215
300	145
323.0	95

Cycle 4, AROCB

EFPD	ppmB
10	940
25	925
50	860
75	790
100	720
125	660
150	595
175	530
200	460
223	385
250	310
275	250
300	175
325	110
336.6	60

Cycle 5, AROCB

EFPD	ppmB
10	1060
25	1020
50	980
75	920
100	875
125	825
150	765
175	700
200	615
225	550
250	495
275	420
300	350
325	270
350	210
375	160
400	120
425	60
450	40
475	20
484.4	5

Table 4-201. All-Rods-Out-Critical-Boron Data for Crystal River Unit 3 (Cont'd)

Cycle 6, AROCB		Cycle 7, AROCB		Cycle 8, AROCB	
EFPD	ppmB	EFPD	ppmB	EFPD	ppmB
10	1060	10	1500	10	1560
25	1010	25	1445	25	1500
50	985	50	1410	50	1470
75	920	75	1360	75	1400
100	860	100	1305	100	1340
125	785	125	1245	125	1280
150	710	150	1175	150	1205
175	655	175	1100	175	1130
200	600	200	1025	200	1065
225	525	225	950	225	1000
250	450	250	880	250	940
275	375	275	790	275	875
300	305	300	725	300	795
325	230	325	660	325	720
350	155	350	575	350	650
375	100	375	500	375	570
400	70	400	435	400	500
412.1	25	425	375	425	440
		450	290	450	375
		475	215	475	295
		497.9	150	500	220
				525	190
				535.9	170

Table 4-201. All-Rods-Out-Critical-Boron Data for Crystal River Unit 3 (Cont'd)

Cycle 9, AROCB		Cycle 10, AROCB	
EFPD	ppmB	EFPD	ppmB
10	1690	25	1726
25	1610	50	1653
50	1550	75	1579
75	1500	100	1505
100	1445	125	1431
125	1380	150	1358
150	1310	175	1284
175	1225	200	1210
200	1160	225	1136
225	1090	250	1063
250	1015	275	989
275	930	300	915
300	870	325	841
325	780	350	768
350	700	375	694
375	625	400	620
400	550	425	546
425	475	450	473
450	395	475	399
475	310	500	325
500	250	525	251
525	185	550	178
550	130	575	104
557.2	120	600	30

Table 4-202. Critical Boron Data for Oconee Unit 1

Cycle 1	
EFPD	**ppmB***
10	1020
25	1010
50	960
75	905
100	820
125	735
150	655
175	575
200	495
225	415
250	335
275	255
300	175
309.3	145

* **ppmB = AROCB - 100 ppmB**

The 100 ppmb represents control rod insertion during cycle operation.
Full power for Oconee 1 = 2568 MWt

4.2 Statepoint Critical Condition Measurements

Measured critical conditions for 33 reactor startups (or statepoints) are provided in Table 4-203. The data includes the initial startup of the reactor or beginning-of-life (BOL), the beginning-of-cycle (BOC) of each reload core for cycles 2 through 10, and 23 reactor restarts during the first 10 cycles of Crystal River Unit 3. The cycle and statepoint number, along with the effective-full-power-days (EFPD) during the cycle for which the startup occurred, is provided. The elapsed time (in hours) since the reactor was shutdown (downtime) prior to the startup is also given for each statepoint. In addition, Table 4-203 provides the measured soluble boron concentration (ppmB), rod bank positions, and temperature of the moderator or coolant in the reactor (for each statepoint) when criticality was achieved.

Table 4-204 provides shutdown and startup dates for each cycle and statepoint. The cycle shutdown and startup dates can be used in determining the downtime for fuel assemblies that are out of the reactor for one or more cycles and are then reinserted in a later cycle.

Table 4-203. Statepoint Data for Crystal River Unit 3 - Measured Critical Conditions

Cycle(SP)	EFPD	Downtime (Hours)	ppmB	Rod Positions, cm above bottom of fuel Bk 5	Bk 6	Bk 7	Bk 8	T(coolant) (F)
1A(SP1)	0.0	0	1403	WD	WD	WD	150	532
1B(SP2)	268.8	4687	1106	WD*	WD	349	WD	531.5
1B(SP3)	411.0	355	493	342	87	17	163	535
2(SP4)	0.0	2328	1294	WD	WD	WD	150	532
3(SP5)	0.0	3936	1428	WD	WD	331	150	532
3(SP6)	168.5	403	737	237	17	17	150	535
3(SP7)	250.0	296	562	335	87	17	110	537
4(SP8)	0.0	1752	1384	WD	WD	335	150	532
4(SP9)	228.1	364	705	WD	220	17	86	532
4(SP10)	253.0	576	502	314	52	17	107	537
5(SP11)	0.0	3048	1540	WD	WD	359	120	532
5(SP12)	388.5	119	605	WD	WD	310	WD	537
6(SP13)	0.0	3912	1574	WD	WD	314	104	532
6(SP14)	96.0	4054	1211	WD	268	17	136	534
6(SP15)	400.0	250	390	310	52	17	WD	535
7(SP16)	0.0	2712	2033	WD	WD	WD	104	532
7(SP17)	260.3	453	1223	WD	146	17	115	532
7(SP18)	291.0	948	1149	WD	233	17	114	536
7(SP19)	319.0	2628	1048	WD	143	17	115	532
7(SP20)	462.3	53.5	563	335	85	17	115	531
7(SP21)	479.0	173	520	321	59	17	114	535
8(SP22)	0.0	2376	2101	WD	WD	WD	104	532
8(SP23)	97.6	372	1751	WD	227	17	122	535
8(SP24)	139.8	149	1612	WD	122	17	123	535
8(SP25)	404.0	1065	865	331	69	17	122	536
8(SP26)	409.6	117	865	331	69	17	122	536
8(SP27)	515.5	183	675	WD	261	17	WD	536
9(SP28)	0.0	1800	2212	WD	WD	WD	104	532
9(SP29)	158.8	51.5	1572	WD	118	17	122	535
9(SP30)	219.0	1275	1481	WD	181	17	123	535
9(SP31)	363.1	39	963	342	80	17	122	539
10(SP32)	0.0	1320	2326	WD	WD	323	122	532
10(SP33)	573.7	394	516	327	62	17	WD	536

Bk = Rod Bank

WD = Rod Withdrawn

* Bank 5 rod at location C11 (see Figure 3-13) was **uncoupled** and at 17 cm above bottom of fuel.

Table 4-204. Statepoint Data for Crystal River Unit 3 - Shutdown and Startup Dates

Cycle(SP)	EFPD	Shutdown Date	Startup Date
1A(SP1)	0.0	-	14 Jan 1977
1B(SP2)	268.8	03 Mar 1978	15 Sep 1978
1B(SP3)	411.0	03 Mar 1979	18 Mar 1979
2(SP4)*	0.0	23 Apr 1979	29 Jul 1979
3(SP5)*	0.0*	26 Feb 1980	08 Aug 1980
3(SP6)	168.5	17 Feb 1981	06 Mar 1981
3(SP7)	250.0	30 Jun 1981	13 Jul 1981
4(SP8)*	0.0	28 Sep 1981	10 Dec 1981
4(SP9)	228.1	14 Oct 1982	29 Oct 1982
4(SP10)	253.0	26 Nov 1982	20 Dec 1982
5(SP11)*	0.0	19 Mar 1983	24 Jul 1983
5(SP12)	388.5	05 Nov 1984	10 Nov 1984
6(SP13)*	0.0	08 Mar 1985	18 Aug 1985
6(SP14)	96.0	01 Jan 1986	19 Jun 1986
6(SP15)	400.0	21 Aug 1987	01 Sep 1987
7(SP16)*	0.0	18 Sep 1987	08 Jan 1988
7(SP17)	260.3	09 Oct 1988	27 Oct 1988
7(SP18)	291.0	07 Dec 1988	15 Jan 1989
7(SP19)	319.0	26 Feb 1989	16 Jun 1989
7(SP20)	462.3	22 Jan 1990	24 Jan 1990
7(SP21)	479.0	13 Feb 1990	20 Feb 1990
8(SP22)*	0.0	14 Mar 1990	21 Jun 1990
8(SP23)	97.6	10 Oct 1990	25 Oct 1990
8(SP24)	139.8	12 Dec 1990	18 Dec 1990
8(SP25)	404.0	11 Oct 1991	24 Nov 1991
8(SP26)	409.6	03 Dec 1991	08 Dec 1991
8(SP27)	515.5	27 Mar 1992	04 Apr 1992
9(SP28)*	0.0	30 Apr 1992	14 Jul 1992
9(SP29)	158.8	29 Dec 1992	31 Dec 1992
9(SP30)	219.0	04 Mar 1993	26 Apr 1993
9(SP31)	363.1	19 Sep 1993	20 Sep 1993
10(SP32)*	0.0	07 Apr 1994	01 Jun 1994
10(SP33)	573.7	10 Jan 1996	26 Jan 1996
	592.8 (EOC)	16 Feb 1996	
	EOC = end-of-cycle		

* Shutdown date is for previous cycle.

5.0 CONCLUSIONS

The data reported herein is acceptable for quality affecting activities and for use in analyses affecting procurement, construction, or fabrication. The classification analysis for the repository (which includes the waste package) carries TBV-228 because of the preliminary status of the basis for the MGR design. This report conservatively assumes that the resolution of TBV-228 will find the waste package to be quality affecting; consequently, use of any of the data reported herein does not need to carry TBV-228.

6.0 REFERENCES

1. *Quality Assurance Program for Framatome Cogema Fuels*, Document Number: 56-1177617-04, FCF, August 5, 1996.

2. *Classification of the Preliminary MGDS Repository Design*, Document Identifier Number (DI#) B00000000-01717-0200-00134 REV 00, Civilian Radioactive Waste Management System (CRWMS) Management and Operating Contractor (M&O).

3. QAP-2-0 Activity Evaluation, ID No WP-06, *Develop Technical Documents*, CRWMS M&O, August 3, 1997.

4. *Quality Assurance Requirements and Description*, DOE/RW-0333P, REV 7, DOE OCRWM.

5. *CR3 NEMO Depletion and Statepoints (HLW)*, Document Number: 32-1258296-01, FCF.