

ATTACHMENT 24

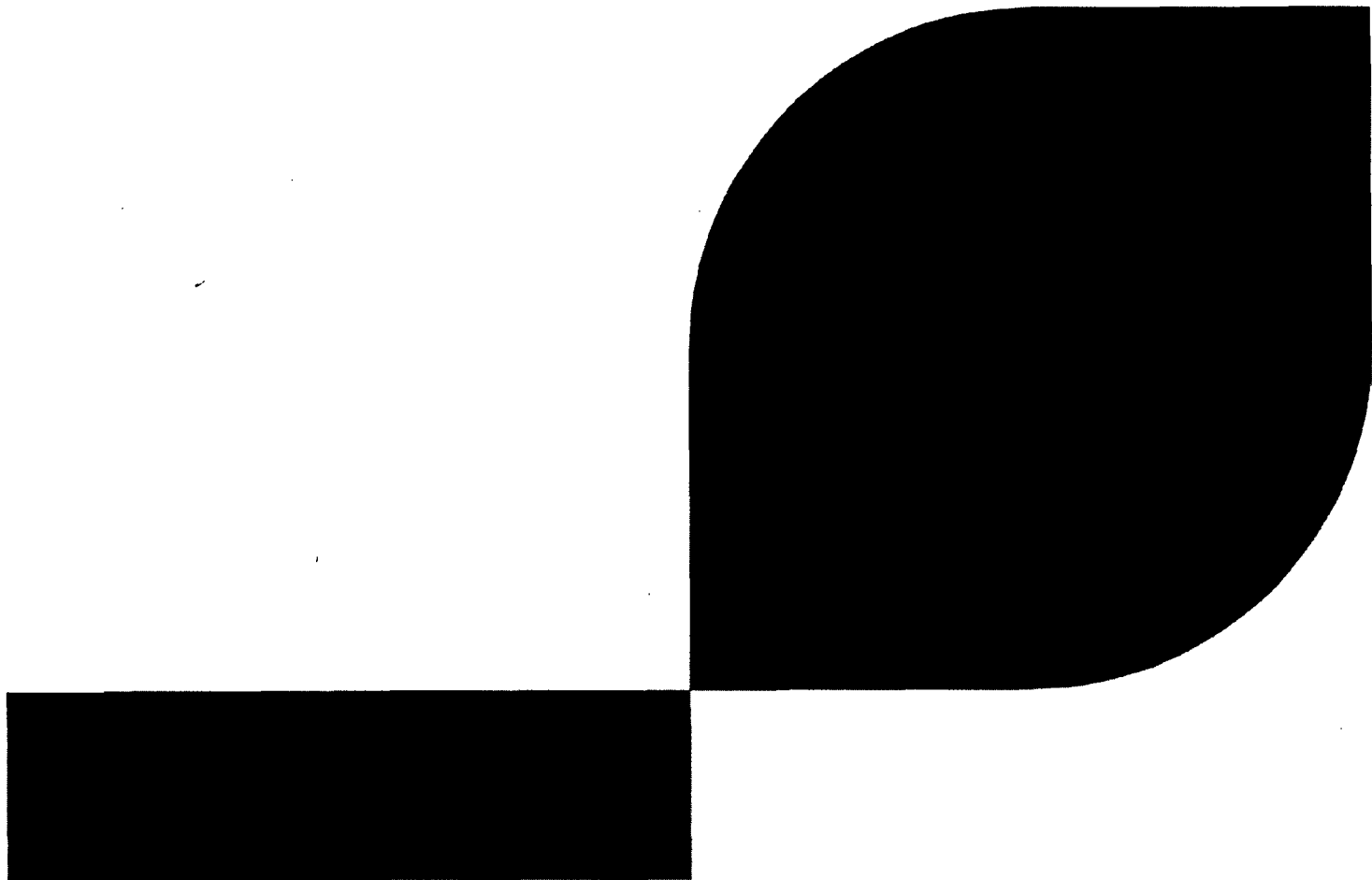
**Browns Ferry Nuclear Plant (BFN)
Units 1, 2, and 3**

Technical Specifications (TS) Change 478

**Addition of Analytical Methodologies to Technical Specification 5.6.5.b for Browns Ferry
1, 2, & 3, and Revision of Technical Specification 2.1.1.2 for Browns Ferry Unit 2, in
Support of ATRIUM-10 XM Fuel Use at Browns Ferry**

**Equilibrium Fuel Cycle Design Report
(Non-Proprietary)**

Attached is the non proprietary version of the equilibrium fuel cycle design report.



ANP-3148(NP)
Revision 0

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

August 2012

AREVA NP Inc.

ANP-3148(NP)
Revision 0

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

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AREVA NP Inc.

ANP-3148(NP)
Revision 0

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Nature of Changes

Item	Page	Description and Justification
1.	All	This is the initial release.

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Nomenclature

ACE	AREVA NP Critical Power Correlation
BOC	beginning of cycle
BOL	beginning of life
BWR	boiling water reactor
CSDM	cold shutdown margin
EOC	end of cycle
EOFP	end of full power capability
FFTR	final feedwater temperature reduction
GWd/MTU	gigawatt days per metric ton of initial uranium
HEXR	hot excess reactivity
LHGR	linear heat generation rate
MCPR	minimum critical power ratio
MICROBURN-B2	AREVA NP advanced BWR core simulator methodology with PPR capability
MWd/MTU	megawatt days per metric ton of initial uranium
NRC	Nuclear Regulatory Commission, U.S.
PPR	Pin Power Reconstruction. The PPR methodology accounts for variation in local rod power distributions due to neighboring assemblies and control state. The local rod power distributions are reconstructed based on the actual flux solution for each statepoint.
R Value	the larger of zero or the shutdown margin at BOC minus the minimum calculated shutdown margin in the cycle
SLC	standby liquid control

1.0 Introduction

AREVA NP Inc. (AREVA) has performed a fuel cycle design and fuel management calculations for an ATRIUM™* 10XM equilibrium cycle for Browns Ferry. The equilibrium cycle is arbitrarily given as Cycle 25. These analyses have been performed with the approved AREVA neutronics methodology (References 1 through 4). The CASMO-4 lattice depletion code was used to generate nuclear data including cross sections and local power peaking factors. The MICROBURN-B2 three dimensional core simulator code, combined with the application of the applicable critical power correlation, was used to model the core. The MICROBURN-B2 pin power reconstruction (PPR) model was used to determine the thermal margins presented in this report.

Design results for the Cycle 25 reactor core loading including projected control rod patterns and evaluations of thermal and reactivity margins are presented.

* ATRIUM is a trademark of AREVA NP.

2.0 Summary

The Browns Ferry (BFE) Cycle 25 fresh batch size [] and batch average enrichment [] were determined to meet the energy requirements provided by Tennessee Valley Authority (TVA) (Reference 5). The loading of the Cycle 25 fuel as described in this report results in a projected Cycle 25 full power energy capability of $2,132 \pm 41$ GWd ($15,461 \pm 300$ MWd/MTU). Beyond the full power capability, the cycle has been designed to achieve 172 GWd additional energy via FFTR and coast operation.

In order to obtain optimum operating flexibility, the projected control rod patterns for Cycle 25 were developed to be consistent with a conservative margin to thermal limits. The cycle design calculations also demonstrate adequate hot excess reactivity and cold shutdown margin throughout the cycle. Key results from the design analysis are summarized in Table 2.1. Table 2.2 summarizes the assembly identification range by nuclear fuel type batch for the Cycle 25 design. Figures 2.1 and 2.2 provide a summary of the cycle design step-through projection.

Table 2.1 Browns Ferry Cycle 25 Energy and Key Results Summary

Cycle Energy, GWd (Cycle Exposure, MWd/MTU)	
Cycle 24	
• Best estimate depletion to Nominal EOC 24	2,304 (16,707)
• Short window EOC 24	2,231 (16,180)
• Long window EOC 24	2,352 (17,058)
Cycle 25	
• EOFP Energy	2,132±41 (15,461±300)
• FFTR and coast Energy	172 (1,246)
• EOC Energy	2,304±41 (16,707±300)
Key Results	
BOC CSDM, %Δk/k (based on short EOC 24)	1.61
Minimum CSDM, %Δk/k (based on short EOC 24)	1.61
Cycle Exposure of Minimum CSDM, MWd/MTU (short basis)	0
Cycle R Value, %Δk/k (short basis)	0.00
BOC CSDM, %Δk/k (based on nominal EOC 24)	2.01
Minimum CSDM, %Δk/k (based on nominal EOC 24)	2.01
Cycle Exposure of Minimum CSDM, MWd/MTU (nominal basis)	0
Cycle R Value, %Δk/k (nominal basis)	0.00
BOC CSDM, %Δk/k (based on long EOC 24)	2.29
Minimum CSDM, %Δk/k (based on long EOC 24)	2.29
Cycle Exposure of Minimum CSDM, MWd/MTU (long basis)	0
Cycle R Value, %Δk/k (long basis)	0.00
Minimum SLC SDM, %Δk/k (based on short EOC 24)	1.04
Cycle Exposure of Minimum SLC SDM, MWd/MTU (short basis)	0
Minimum SLC SDM, %Δk/k (based on nominal EOC 24)	1.40
Cycle Exposure of Minimum SLC SDM, MWd/MTU (nominal basis)	0
Minimum SLC SDM, %Δk/k (based on long EOC 24)	1.66
Cycle Exposure of Minimum SLC SDM, MWd/MTU (long basis)	0

Key Results	
BOC HEXR, % Δ k/k (based on short EOC 24)	1.95
Maximum HEXR, % Δ k/k (based on short EOC 24)	2.04
Cycle Exposure of Maximum HEXR, MWd/MTU (short basis)	12,000
BOC HEXR, % Δ k/k (based on nominal EOC 24)	1.61
Maximum HEXR, % Δ k/k (based on nominal EOC 24)	1.69
Cycle Exposure of Maximum HEXR, MWd/MTU (nominal basis)	12,000
BOC HEXR, % Δ k/k (based on long EOC 24)	1.36
Maximum HEXR, % Δ k/k (based on long EOC 24)	1.43
Cycle Exposure of Maximum HEXR, MWd/MTU (long basis)	12,000
Minimum MAPLHGR Margin, %	13.7
Exposure of Minimum MAPLHGR Margin, MWd/MTU	7,500
Minimum LHGR Margin, %	11.7
Exposure of Minimum LHGR Margin, MWd/MTU	0
Minimum CPR Margin, %	9.3
Exposure of Minimum CPR Margin, MWd/MTU	14,581

**Table 2.2 Browns Ferry Cycle 25 Fuel Cycle Design Assembly ID
Range by Nuclear Fuel Type**

Nuclear Fuel Type	Number of Assemblies	Assembly ID Range (Quarter Core)
4	[]	[]
5	[]	[]
6	[]	[]
7	[]	[]
8	[]	[]
9	[]	[]
10	[]	[]
11	[]	[]
12	[]	[]

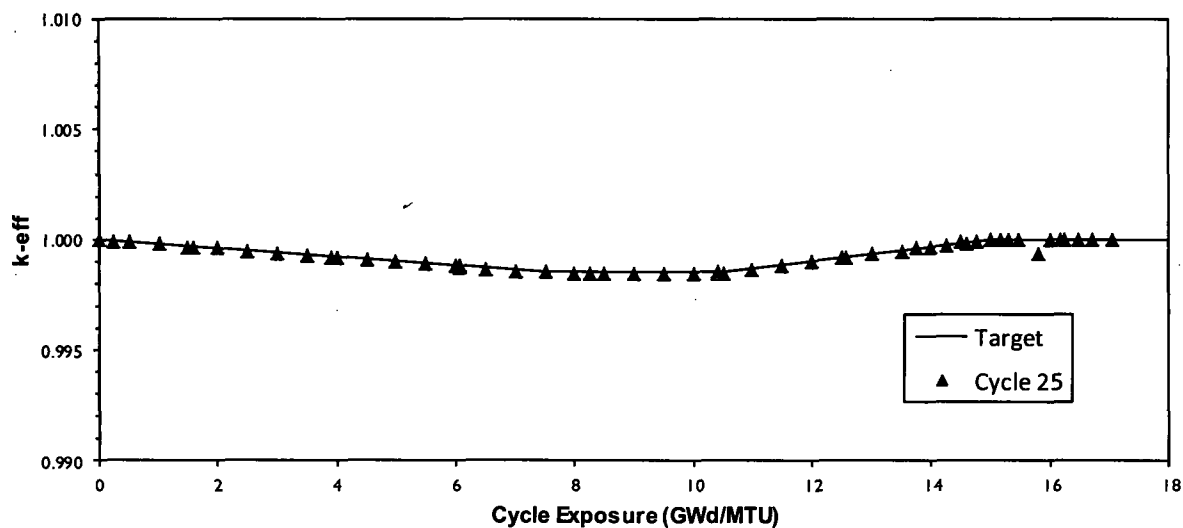


Figure 2.1 Browns Ferry Cycle 25 Design Step-Through k_{eff} versus Cycle Exposure

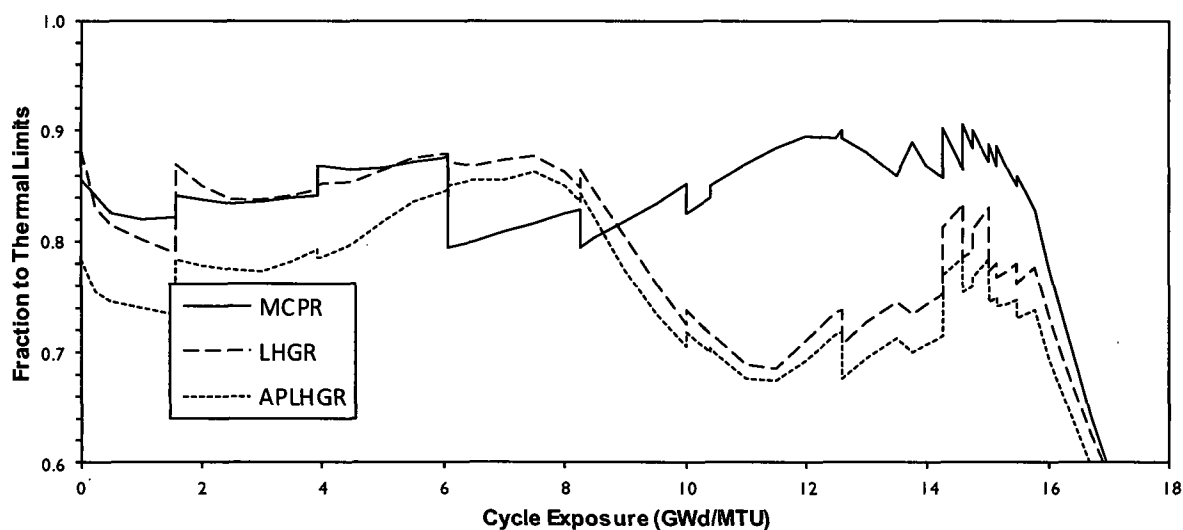


Figure 2.2 Browns Ferry Cycle 25 Design Margin to Thermal Limits versus Cycle Exposure

3.0 Cycle 25 Fuel Cycle Design

3.1 General Description

Elevation views of the BFE Cycle 25 fresh reload fuel design axial enrichment and gadolinia distributions are shown in Appendix B, Figures B.1 through B.3. The loading pattern maintains quarter core symmetry within a scatter load fuel management scheme. This loading in conjunction with the control rod patterns presented in Appendix A shows acceptable power peaking and associated margins to limits for projected Cycle 25 operation. The analyses supporting this fuel cycle design were based on the core parameters shown in Table 3.1. Figures 3.1 and 3.2 along with Table 3.1 define the reference loading pattern used in the fuel cycle design. The specific core location of the fresh assemblies in Cycle 25 is provided in Appendix C. Key results for the cycle are summarized in Table 2.1.

3.2 Control Rod Patterns and Thermal Limits

Projected control rod patterns for Cycle 25 and resultant key operating parameters including thermal margins are shown in Appendix A. The thermal margins presented in this report were determined using the MICROBURN-B2 3D core simulator PPR model to provide adequate margin to thermal limits. A detailed summary of the core parameters resulting from the step-through projection analysis is provided in Tables A.1 and A.2. Limiting results from the step-through are summarized in Table 2.1 and in Figure 2.2. The hot operating target k-eff versus cycle exposure which was determined to be appropriate for Cycle 25 is shown in Table 3.2. The k-eff and margin to limits results from the design cycle depletion are presented graphically in Figures 2.1 and 2.2. The k-eff values presented in Figure 2.1 and in Appendix A are not bias corrected. Selected exposure and radial power distributions from the design step-through are presented in Appendix D. Projected control rod patterns near EOC24 are shown in Appendix E.

3.3 Hot Excess Reactivity and Cold Shutdown Margin

The cycle design calculations demonstrate adequate hot excess reactivity, SLC shutdown margin, and cold shutdown margin throughout the cycle. Key shutdown margin and R-Value results are presented in Table 2.1. The shutdown margin for Cycle 25 is in conformance with the Technical Specification limit of $R + 0.38 \% \Delta k/k$ at BOC. The cold target k-eff versus exposure determined to be appropriate for calculation of cold shutdown margin in Cycle 25 is shown in Table 3.3. The core hot excess reactivity was calculated at full power with all rods out,

102.5 Mlb/hr core flow, with equilibrium xenon. Tables 3.4 through 3.6 summarize the Cycle 25 reactivity margins versus cycle exposure, including the SLC shutdown margin for the cycle.

Table 3.1 Cycle 25 Core Composition and Design Parameters

Fuel Description	Cycle Loaded	Nuclear Fuel Type	Number of Assemblies
ATRIUM []	23	4	[]
ATRIUM []	23	5	[]
ATRIUM []	23	6	[]
ATRIUM []	24	7	[]
ATRIUM []	24	8	[]
ATRIUM []	24	9	[]
ATRIUM []	25	10	[]
ATRIUM []	25	11	[]
ATRIUM []	25	12	[]

Number of Fuel Assemblies in Core	764
Total Number of Fresh Assemblies	280
Total Core Mass, MTU	137.89
Rated Thermal Power Level, MW _t	3,458
Rated Core Flow, Mlb/hr	102.5
Reference Pressure, psia	1,050*
Reference Inlet Subcooling, Btu/lbm	25.44 [†]

* Value is representative of MICROBURN-B2 input for dome pressure at rated conditions and varies depending on core state point.

[†] Value is typically determined by MICROBURN-B2 using a heat balance method based on nominal feedwater temperature and other parameters identified in the cycle specific plant parameters document.

Table 3.2 Browns Ferry Cycle 25 Hot Operating Target k-eff Versus Cycle Exposure

Cycle Exposure (MWd/MTU)	Hot Operating k-eff*
0.0	1.0000
7,500.0	0.9985
10,500.0	0.9985
15,000.0	1.0000
25,000.0	1.0000

Table 3.3 Browns Ferry Cycle 25 Cold Critical Target k-eff Versus Cycle Exposure

Cycle Exposure (MWd/MTU)	Cold Critical k-eff*
0.0	0.9950
6,000.0	0.9940
25,000.0	0.9940

* Values are linearly interpolated between cycle exposure points.

Table 3.4 Browns Ferry Cycle 25 Reactivity Margin Summary

Cycle Exposure (MWd/MTU)	Cold Shutdown Margin* (% $\Delta k/k$)	SLC Cold Shutdown Margin† (% $\Delta k/k$)	Hot Excess Reactivity‡ (% $\Delta k/k$)
0	1.61	1.04	1.95
250	1.82	1.30	1.84
500	2.04	1.50	1.74
1,000	2.31	1.69	1.69
2,000	2.75	1.95	1.65
3,000	3.07	2.20	1.63
4,000	3.37	2.44	1.60
5,000	3.52	2.68	1.60
6,000	3.61	2.85	1.62
7,000	3.68	3.00	1.67
8,000	3.70	3.11	1.73
9,000	3.66	3.18	1.80
10,000	3.46	3.23	1.90
11,000	3.17	3.27	2.00
12,000	2.83	3.32	2.04
13,000	2.58	3.45	1.94
14,000	2.55	3.72	1.59
15,000	2.27	4.26	0.88
15,461	2.20	4.56	0.49

* Based on short window EOC 24.

† Based on short window EOC 24, calculated at 366.0 °F ARO conditions.

‡ Based on short EOC 24.

Table 3.5 Browns Ferry Cycle 25 Reactivity Margin Summary

Cycle Exposure (MWd/MTU)	Cold Shutdown Margin* (% $\Delta k/k$)	SLC Cold Shutdown Margin† (% $\Delta k/k$)	Hot Excess Reactivity‡ (% $\Delta k/k$)
0	2.01	1.40	1.61
250	2.24	1.69	1.48
500	2.48	1.90	1.37
1,000	2.77	2.10	1.31
2,000	3.23	2.37	1.27
3,000	3.55	2.63	1.24
4,000	3.77	2.87	1.22
5,000	3.90	3.10	1.22
6,000	3.98	3.28	1.25
7,000	4.03	3.42	1.31
8,000	4.08	3.51	1.38
9,000	3.97	3.57	1.45
10,000	3.72	3.62	1.55
11,000	3.39	3.67	1.65
12,000	3.05	3.73	1.69
13,000	2.85	3.90	1.55
14,000	2.74	4.23	1.12
15,000	2.45	4.86	0.32
15,461	2.44	5.20	-0.11

* Based on nominal window EOC 24.

† Based on nominal window EOC 24, calculated at 366.0 °F ARO conditions.

‡ Based on nominal EOC 24.

Table 3.6 Browns Ferry Cycle 25 Reactivity Margin Summary

Cycle Exposure (MWd/MTU)	Cold Shutdown Margin* (% $\Delta k/k$)	SLC Cold Shutdown Margin† (% $\Delta k/k$)	Hot Excess Reactivity‡ (% $\Delta k/k$)
0	2.29	1.66	1.36
250	2.54	1.96	1.22
500	2.79	2.17	1.11
1,000	3.09	2.38	1.05
2,000	3.55	2.66	1.00
3,000	3.88	2.92	0.97
4,000	4.04	3.16	0.95
5,000	4.16	3.39	0.95
6,000	4.24	3.56	0.99
7,000	4.28	3.69	1.06
8,000	4.17	3.77	1.13
9,000	4.06	3.83	1.21
10,000	3.90	3.88	1.31
11,000	3.56	3.93	1.41
12,000	3.23	4.02	1.43
13,000	3.06	4.21	1.27
14,000	2.84	4.59	0.79
15,000	2.60	5.28	-0.07
15,461	2.65	5.67	-0.54

* Based on long window EOC 24.

† Based on long window EOC 24, calculated at 366.0 °F ARO conditions.

‡ Based on long EOC 24.

Figure 3.1 Browns Ferry Cycle 25 Reference Loading Pattern

[

]

Fuel Type	Description		Cycle Loaded	No. Per Quarter core	
4	[]	23	[]
5	[]	23	[]
6	[]	23	[]
7	[]	24	[]
8	[]	24	[]
9	[]	24	[]
10	[]	25	[]
11	[]	25	[]
12	[]	25	[]

**Figure 3.2 Browns Ferry Cycle 25 Lower Right Quarter Core Layout
by Fuel Type**

4.0 References

1. EMF-2158(P)(A) Revision 0, *Siemens Power Corporation Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/MICROBURN-B2*, Siemens Power Corporation, October 1999.
2. ANP-10298(P)(A) Revision 0, *ACE/ATRIUM 10XM Critical Power Correlation*, AREVA NP, March 2010.
3. ANP-10298(P)(A) Revision 0, Supplement 1P Revision 0, *Improved K-factor Model for ACE/ATRIUM 10XM Critical Power Correlation*, AREVA NP, December 2011.
4. ANP-3140(P) Revision 0, *Browns Ferry Units 1, 2, and 3 Improved K-factor Model for ACE/ATRIUM 10XM Critical Power Correlation*, AREVA NP, August 2012.
5. 38-9172090-000, TVA document, "Browns Ferry Unit 3 Cycle 17 Reload Requirement Specification (105% OLTP)," BFE-3209 Revision 0, November 2011.

**Appendix A Browns Ferry Cycle 25 Step-Through Depletion Summary, Control Rod
Patterns and Core Average Axial Power and Exposure Distributions**

Table A.1 Browns Ferry Cycle 25 Design Depletion Summary

Cycle Exposure (GWd/MT)	Calculated K-eff	Control Rod Density	Total Core Power MWt	Total Core Flow (Mlb/hr)	Ref. Pressure (psia)	Inlet Sub-Cooling (Btu/lb)	Void Fraction	Core Minimum CPR	Core Maximum LHGR (kW/ft)	Core Maximum APLHGR (kW/ft)
0.000	0.99998	4.86	3458.0	89.36	1050.06	29.38	0.461	1.647	12.45	9.65
0.250	0.99992	4.86	3458.0	93.74	1050.06	27.95	0.446	1.677	11.71	9.12
0.500	0.99987	4.86	3458.0	98.14	1050.06	26.63	0.435	1.709	11.48	9.00
1.000	0.99976	4.86	3458.0	100.16	1050.06	26.06	0.429	1.720	11.31	8.97
1.500	0.99966	4.86	3458.0	99.99	1050.06	26.11	0.426	1.716	11.16	8.92
1.572	0.99965	4.86	3458.0	99.92	1050.06	26.13	0.426	1.716	11.14	8.92
1.573	0.99965	3.51	3458.0	87.28	1050.06	30.12	0.462	1.675	12.27	9.75
2.000	0.99958	3.51	3458.0	87.77	1050.06	29.94	0.458	1.683	12.00	9.72
2.500	0.99947	3.51	3458.0	88.04	1050.06	29.85	0.455	1.692	11.80	9.77
3.000	0.99937	3.51	3458.0	88.12	1050.06	29.82	0.452	1.689	11.80	9.86
3.500	0.99927	3.51	3458.0	88.11	1050.06	29.82	0.451	1.681	11.86	10.00
3.907	0.99918	3.51	3458.0	87.98	1050.06	29.87	0.449	1.675	11.93	10.14
3.908	0.99919	3.78	3458.0	90.37	1050.06	29.04	0.446	1.623	11.99	9.99
4.000	0.99916	3.78	3458.0	90.36	1050.06	29.05	0.446	1.623	12.01	10.00
4.500	0.99906	3.78	3458.0	90.56	1050.06	28.98	0.444	1.631	12.02	10.22
5.000	0.99899	3.78	3458.0	90.20	1050.06	29.10	0.444	1.626	12.18	10.47
5.500	0.99886	3.78	3458.0	89.50	1050.06	29.34	0.445	1.619	12.33	10.69
6.000	0.99881	3.78	3458.0	88.56	1050.06	29.66	0.446	1.610	12.39	10.82
6.075	0.99878	3.78	3458.0	88.30	1050.06	29.76	0.446	1.608	12.40	10.84
6.076	0.99873	3.96	3458.0	95.46	1050.06	27.42	0.441	1.775	12.28	10.90
6.500	0.99865	3.96	3458.0	94.28	1050.06	27.78	0.442	1.762	12.26	10.94
7.000	0.99857	3.96	3458.0	92.63	1050.06	28.30	0.444	1.745	12.32	10.91
7.500	0.99850	3.96	3458.0	91.10	1050.06	28.80	0.445	1.729	12.31	10.93
8.000	0.99847	3.96	3458.0	89.83	1050.06	29.22	0.444	1.712	11.96	10.65
8.243	0.99847	3.96	3458.0	89.08	1050.06	29.48	0.443	1.700	11.70	10.42
8.244	0.99846	4.41	3458.0	95.86	1050.06	27.30	0.429	1.773	11.89	10.49
8.500	0.99846	4.41	3458.0	94.80	1050.06	27.62	0.427	1.756	11.53	10.17
9.000	0.99847	4.41	3458.0	93.19	1050.06	28.12	0.423	1.727	10.85	9.51
9.500	0.99848	4.41	3458.0	91.21	1050.06	28.76	0.419	1.692	10.16	8.96
10.000	0.99846	4.41	3458.0	88.94	1050.06	29.53	0.414	1.655	9.65	8.50
10.001	0.99847	4.59	3458.0	93.60	1050.06	27.99	0.410	1.711	9.83	8.66
10.411	0.99852	4.59	3458.0	91.95	1050.06	28.52	0.405	1.681	9.45	8.37
10.412	0.99847	5.23	3458.0	96.25	1050.06	27.18	0.396	1.660	9.31	8.28
10.500	0.99847	5.23	3458.0	95.76	1050.06	27.33	0.396	1.651	9.24	8.22
11.000	0.99863	5.23	3458.0	94.45	1050.06	27.73	0.388	1.621	8.89	7.92
11.500	0.99882	5.23	3458.0	93.31	1050.06	28.08	0.381	1.593	8.87	8.07
12.000	0.99895	5.23	3458.0	93.03	1050.06	28.17	0.372	1.576	9.18	8.39
12.500	0.99918	5.23	3458.0	94.75	1050.06	27.63	0.361	1.578	9.45	8.65
12.579	0.99916	5.23	3458.0	94.86	1050.06	27.60	0.360	1.577	9.47	8.67
12.580	0.99918	4.32	3458.0	88.47	1050.06	29.69	0.377	1.590	9.08	8.21
13.000	0.99930	4.32	3458.0	91.45	1050.06	28.68	0.365	1.615	9.28	8.41
13.500	0.99946	4.32	3458.0	97.25	1050.06	26.89	0.348	1.654	9.50	8.61
13.750	0.99960	3.78	3458.0	91.74	1050.06	28.59	0.346	1.595	9.32	8.46
13.751	0.99960	3.78	3458.0	91.75	1050.06	28.58	0.345	1.595	9.32	8.46
14.000	0.99963	3.78	3458.0	96.43	1050.06	27.13	0.335	1.633	9.43	8.52
14.250	0.99971	3.78	3458.0	102.48	1050.06	25.44	0.324	1.657	9.57	8.58
14.251	0.99971	3.42	3458.0	91.68	1050.06	28.61	0.333	1.572	10.37	9.21
14.500	0.99985	3.42	3458.0	98.78	1050.06	26.45	0.320	1.626	10.51	9.32
14.580	0.99982	3.42	3458.0	101.07	1050.06	25.82	0.316	1.641	10.53	9.34
14.581	0.99984	2.03	3458.0	94.76	1050.06	27.63	0.337	1.565	9.78	8.94
14.750	0.99989	2.03	3458.0	100.72	1050.06	25.91	0.327	1.604	9.82	8.96
14.751	0.99987	1.71	3458.0	93.93	1050.06	27.89	0.332	1.578	9.81	8.81
15.000	0.99997	1.71	3458.0	102.43	1050.06	25.45	0.317	1.629	10.00	8.94
15.001	0.99998	0.81	3458.0	95.51	1050.06	27.40	0.330	1.599	9.68	8.71
15.150	0.99996	0.81	3458.0	101.07	1050.06	25.82	0.321	1.634	9.74	8.73
15.151	0.99997	0.00	3458.0	95.77	1050.06	27.32	0.332	1.600	9.44	8.71
15.300	0.99997	0.00	3458.0	101.57	1050.06	25.68	0.323	1.638	9.46	8.72
15.461	0.99997	0.00	3458.0	107.63	1050.06	24.16	0.313	1.669	9.49	8.74
15.462	0.99996	0.00	3458.0	96.79	1044.77	32.94	0.310	1.653	9.20	8.49
15.787	0.99935	0.00	3458.0	107.63	1044.77	29.48	0.293	1.713	9.29	8.54
16.010	0.99998	0.00	3222.7	107.63	1039.56	27.27	0.280	1.830	8.78	8.01
16.181	0.99998	0.00	3081.9	107.63	1036.44	25.96	0.272	1.910	8.50	7.73
16.248	0.99997	0.00	3025.2	107.63	1035.19	25.43	0.269	1.944	8.39	7.61
16.474	0.99997	0.00	2838.5	107.63	1031.06	23.70	0.258	2.066	8.02	7.23
16.707	0.99997	0.00	2644.9	107.63	1026.77	21.92	0.246	2.210	7.66	6.87
17.058	0.99997	0.00	2360.3	107.63	1020.48	19.32	0.228	2.437	7.17	6.36

Table A.2 Browns Ferry Cycle 25 Design Depletion Thermal Margin Summary

Cycle Exposure (Gwd/MT)	Calculated K-eff	Control Rod Density	Core Limiting CPR	Fraction of Limiting CPR	Core Limiting LHGR (kW/ft)	Fraction of Limiting LHGR	Core Limiting APLHGR (kW/ft)	Fraction of Limiting APLHGR
0.000	0.99998	4.865	1.647	0.856	12.45	0.883	9.14	0.783
0.250	0.99992	4.865	1.677	0.841	11.71	0.830	8.77	0.754
0.500	0.99987	4.865	1.709	0.825	11.48	0.814	8.62	0.745
1.000	0.99976	4.865	1.720	0.820	11.31	0.802	8.49	0.740
1.500	0.99966	4.865	1.716	0.822	11.16	0.791	8.35	0.735
1.572	0.99965	4.865	1.716	0.822	11.14	0.790	8.33	0.734
1.573	0.99965	3.514	1.675	0.842	12.27	0.870	8.65	0.783
2.000	0.99958	3.514	1.683	0.838	12.00	0.851	8.50	0.777
2.500	0.99947	3.514	1.692	0.833	11.80	0.837	8.40	0.774
3.000	0.99937	3.514	1.689	0.835	11.80	0.837	8.30	0.773
3.500	0.99927	3.514	1.681	0.839	11.86	0.841	10.00	0.781
3.907	0.99918	3.514	1.675	0.842	11.93	0.846	10.14	0.792
3.908	0.99919	3.784	1.623	0.869	11.99	0.851	8.29	0.785
4.000	0.99916	3.784	1.623	0.869	12.01	0.852	8.28	0.785
4.500	0.99906	3.784	1.631	0.865	12.02	0.853	10.22	0.798
5.000	0.99899	3.784	1.626	0.867	12.18	0.864	10.47	0.818
5.500	0.99886	3.784	1.619	0.871	12.33	0.875	10.69	0.835
6.000	0.99881	3.784	1.610	0.876	12.39	0.879	10.82	0.845
6.075	0.99878	3.784	1.608	0.877	12.40	0.879	10.84	0.847
6.076	0.99873	3.964	1.775	0.794	12.28	0.871	10.90	0.851
6.500	0.99865	3.964	1.762	0.800	12.26	0.869	10.94	0.855
7.000	0.99857	3.964	1.745	0.808	12.32	0.874	10.86	0.856
7.500	0.99850	3.964	1.729	0.815	12.31	0.877	10.93	0.863
8.000	0.99847	3.964	1.712	0.824	11.96	0.863	10.65	0.850
8.243	0.99847	3.964	1.700	0.829	11.70	0.849	10.42	0.836
8.244	0.99846	4.414	1.773	0.795	11.89	0.864	10.49	0.843
8.500	0.99846	4.414	1.756	0.803	11.53	0.844	10.17	0.821
9.000	0.99847	4.414	1.727	0.817	10.85	0.805	9.50	0.775
9.500	0.99848	4.414	1.692	0.833	10.14	0.761	7.13	0.734
10.000	0.99846	4.414	1.655	0.852	9.65	0.725	6.78	0.706
10.001	0.99847	4.595	1.711	0.824	9.83	0.739	6.91	0.719
10.411	0.99852	4.595	1.681	0.839	7.34	0.717	6.68	0.701
10.412	0.99847	5.225	1.660	0.850	7.29	0.716	6.71	0.703
10.500	0.99847	5.225	1.651	0.854	7.24	0.712	6.66	0.699
11.000	0.99863	5.225	1.621	0.870	7.11	0.689	6.63	0.677
11.500	0.99882	5.225	1.593	0.885	7.12	0.685	6.54	0.674
12.000	0.99895	5.225	1.576	0.895	7.72	0.711	7.07	0.693
12.500	0.99918	5.225	1.578	0.894	7.91	0.737	7.24	0.716
12.579	0.99916	5.225	1.577	0.900	7.92	0.739	7.25	0.718
12.580	0.99918	4.324	1.590	0.893	7.46	0.708	6.77	0.677
13.000	0.99930	4.324	1.615	0.880	7.59	0.727	6.89	0.694
13.500	0.99946	4.324	1.654	0.859	7.71	0.746	7.00	0.712
13.750	0.99960	3.784	1.595	0.890	7.55	0.735	6.87	0.701
13.751	0.99960	3.784	1.595	0.890	7.55	0.735	6.87	0.701
14.000	0.99963	3.784	1.633	0.869	7.60	0.743	6.91	0.708
14.250	0.99971	3.784	1.657	0.857	7.70	0.752	6.94	0.715
14.251	0.99971	3.423	1.572	0.903	8.93	0.812	7.92	0.768
14.500	0.99985	3.423	1.626	0.873	9.06	0.829	8.02	0.781
14.580	0.99982	3.423	1.641	0.865	9.09	0.833	8.04	0.784
14.581	0.99984	2.027	1.565	0.907	8.07	0.785	7.25	0.755
14.750	0.99989	2.027	1.604	0.885	8.10	0.791	7.26	0.759
14.751	0.99987	1.712	1.578	0.900	8.57	0.810	7.63	0.767
15.000	0.99997	1.712	1.629	0.872	8.73	0.831	7.76	0.783
15.001	0.99998	0.811	1.599	0.888	7.94	0.773	7.14	0.745
15.150	0.99996	0.811	1.634	0.869	7.97	0.779	7.28	0.749
15.151	0.99997	0.000	1.600	0.887	7.86	0.767	7.21	0.741
15.300	0.99997	0.000	1.638	0.867	7.89	0.773	7.23	0.744
15.461	0.99997	0.000	1.669	0.851	7.93	0.780	7.24	0.748
15.462	0.99996	0.000	1.653	0.859	7.75	0.762	6.93	0.730
15.787	0.99935	0.000	1.713	0.829	7.83	0.776	6.98	0.739
16.010	0.99998	0.000	1.830	0.776	7.36	0.733	6.54	0.695
16.181	0.99998	0.000	1.910	0.744	7.06	0.706	6.45	0.672
16.248	0.99997	0.000	1.944	0.731	6.94	0.695	6.35	0.662
16.474	0.99997	0.000	2.066	0.687	6.66	0.660	6.02	0.630
16.707	0.99997	0.000	2.210	0.643	6.29	0.627	5.67	0.597
17.058	0.99997	0.000	2.437	0.583	5.90	0.581	5.30	0.550

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	18688.3			
Exposure: MWd/MTU (Gwd)	0.0 (0.00)					
Delta E: MWd/MTU, (Gwd)	0.0 (0.00)					
Power: MWt	3458.0 (100.00 %)					
Core Pressure: psia	1050.1					
Inlet Subcooling: Btu/lbm	-29.38					
Flow: Mlb/hr	89.36 (87.19 %)					
		Axial Profile	Edit Radial Power			
		N(PRA)	Power Exposure Zone Avg. Max. IR JR			
		Top 25	0.159 4.013 4 0.566 0.807 25 56			
		24	0.441 10.755 5 0.395 0.759 25 54			
		23	0.582 14.081 6 0.427 0.427 21 40			
		22	0.706 16.773 7 1.075 1.317 11 54			
		21	0.776 18.262 8 1.227 1.372 3 58			
		20	0.819 19.150 9 1.212 1.419 1 60			
		19	0.823 19.419 10 1.127 1.360 17 54			
		18	0.826 19.836 11 1.251 1.408 3 60			
		17	0.822 20.110 12 1.238 1.353 13 50			
		16	0.828 20.351			
		15	0.857 20.825			
		14	0.870 20.476			
		13	1.018 19.636			
		12	1.088 20.297			
		11	1.144 20.748			
		10	1.211 21.364			
		9	1.279 21.917			
		8	1.343 22.203			
		7	1.418 22.425			
		6	1.518 22.909			
		5	1.599 22.933*			
		4	1.636* 22.397			
		3	1.598 21.370			
		2	1.293 16.947			
		Bottom 1	0.347 4.915			
			% AXIAL TILT -29.035 -8.408			
			AVG BOT 8ft/12ft 1.1501 1.0458			
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58						
Control Rod Density: %	4.86					
k-effective:	0.99998					
Void Fraction:	0.461					
Core Delta-P: psia	19.988					
Core Plate Delta-P: psia	15.439					
Coolant Temp: Deg-F	548.1					
In Channel Flow: Mlb/hr	78.68	Active Channel Flow: Mlb/hr	75.90			
Total Bypass Flow (%):	12.0	(of total core flow)				
Total Water Rod Flow (%):	3.1	(of total core flow)				
Source Convergence	0.00010					

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.419	9	31	30	1.647	0.856	11	33	9.14	0.783	26.0	9	12.45	0.883	0.0	11
1.408	11	33	30	1.650	0.854	11	31	8.93	0.779	28.1	9	12.36	0.877	0.0	12
1.407	11	31	28	1.701	0.829	11	35	8.84	0.773	28.4	9	12.34	0.875	0.0	10
1.372	8	33	28	1.708	0.826	11	33	8.72	0.768	29.1	8	12.32	0.873	0.0	12
1.368	11	45	22	1.736	0.812	11	43	8.75	0.767	28.6	9	12.31	0.873	0.0	12
1.365	11	43	24	1.747	0.807	10	47	8.92	0.766	26.3	9	12.26	0.869	0.0	12
1.360	10	47	24	1.748	0.807	11	37	8.78	0.765	28.1	9	12.24	0.868	0.0	11
1.358	11	39	16	1.754	0.804	12	43	8.60	0.759	29.5	8	12.23	0.867	0.0	10
1.356	11	37	18	1.756	0.803	12	45	8.66	0.759	28.5	8	12.21	0.866	0.0	12
1.353	12	43	20	1.759	0.802	11	41	8.66	0.758	28.5	9	12.09	0.857	0.0	12

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.1 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 0.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU										18938.5
Exposure: MWd/MTU (Gwd)	250.0 (34.47)											
Delta E: MWd/MTU, (Gwd)	250.0 (34.47)											
Power: MWt	3458.0 (100.00 %)											
Core Pressure: psia	1050.1											
Inlet Subcooling: Btu/lbm	-27.95											
Flow: Mlb/hr	93.74 (91.45 %)											
		Axial Profile Edit Radial Power										
		N(PRA)	Power	Exposure	Zone	Avg.	Max.	IR	JR			
		Top 25	0.166	4.056	4	0.567	0.807	25	56			
		24	0.464	10.876	5	0.396	0.759	25	54			
		23	0.612	14.241	6	0.428	0.428	21	40			
		22	0.741	16.968	7	1.078	1.321	11	54			
		21	0.813	18.476	8	1.229	1.375	3	58			
		20	0.856	19.376	9	1.213	1.422	1	60			
		19	0.858	19.646	10	1.124	1.356	17	54			
		18	0.860	20.063	11	1.250	1.406	3	60			
		17	0.853	20.336	12	1.233	1.347	13	50			
		16	0.856	20.579								
		15	0.883	21.060								
		14	0.892	20.714								
		13	1.040	19.877								
		12	1.108	20.554								
		11	1.160	21.017								
		10	1.220	21.648								
		9	1.281	22.216								
		8	1.336	22.517								
		7	1.398	22.755								
		6	1.483	23.260								
		5	1.545	23.300*								
		4	1.557*	22.770								
		3	1.497	21.731								
		2	1.198	17.237								
		Bottom 1	0.321	4.997								
		% AXIAL TILT -26.083 -8.576										
		AVG BOT 8ft/12ft 1.1341 1.0465										
Control Rod Density: %	4.86											
k-effective:	0.99992											
Void Fraction:	0.446											
Core Delta-P: psia	21.322											
Core Plate Delta-P: psia	16.773											
Coolant Temp: Deg-F	548.1											
In Channel Flow: Mlb/hr	82.65	Active Channel Flow: Mlb/hr 79.79										
Total Bypass Flow (%):	11.8	(of total core flow)										
Total Water Rod Flow (%):	3.1	(of total core flow)										
Source Convergence	0.00009											

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.422	9	31	30	1.677	0.841	11	33	8.77	0.754	26.5	9	43	11.71	0.830	0.7
1.406	11	33	30	1.680	0.839	11	31	8.57	0.751	28.6	9	45	11.70	0.830	0.7
1.405	11	31	28	1.726	0.817	11	35	8.47	0.744	28.9	9	41	11.67	0.828	0.7
1.375	8	33	28	1.733	0.814	11	33	8.36	0.739	29.7	8	45	11.66	0.827	0.7
1.363	11	45	22	1.766	0.798	11	43	8.39	0.738	29.1	9	47	11.61	0.824	0.7
1.361	11	43	24	1.778	0.793	11	37	8.42	0.737	28.6	9	45	11.60	0.822	0.7
1.356	10	47	24	1.785	0.790	11	41	8.36	0.731	28.4	9	31	11.59	0.822	0.7
1.353	11	39	16	1.790	0.788	9	31	8.24	0.730	30.0	8	37	11.59	0.822	0.7
1.353	8	45	24	1.792	0.787	11	37	8.30	0.730	29.0	8	43	11.47	0.813	0.7
1.352	11	37	18	1.792	0.787	11	35	8.29	0.729	29.0	9	39	11.46	0.813	0.7

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.2 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 250.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU										19188.5
Exposure: MWd/MTU (GWd)	500.0 (68.95)											
Delta E: MWd/MTU, (GWd)	250.0 (34.47)											
Power: MWt	3458.0 (100.00 %)											
Core Pressure: psia	1050.1											
Inlet Subcooling: Btu/lbm	-26.63											
Flow: Mlb/hr	98.14 (95.75 %)											
		Axial Profile				Edit	Radial Power					
		N(PRA)	Power	Exposure	Zone	Avg.	Max.	IR	JR			
		Top 25	0.171	4.101	4	0.564	0.805	25	56			
		24	0.477	11.002	5	0.394	0.756	25	54			
		23	0.629	14.407	6	0.425	0.425	21	40			
		22	0.761	17.170	7	1.078	1.323	11	54			
		21	0.833	18.697	8	1.230	1.376	3	58			
		20	0.875	19.609	9	1.216	1.422	1	60			
		19	0.875	19.880	10	1.124	1.358	17	54			
		18	0.875	20.297	11	1.250	1.405	3	60			
		17	0.866	20.568	12	1.235	1.350	13	50			
		16	0.867	20.811								
		15	0.893	21.300								
		14	0.900	20.955								
		13	1.048	20.121								
		12	1.114	20.814								
		11	1.164	21.289								
		10	1.223	21.934								
		9	1.281	22.516								
		8	1.332	22.829								
		7	1.389	23.081								
		6	1.469	23.606								
		5	1.521*	23.659*								
		4	1.520	23.130								
		3	1.451	22.074								
		2	1.154	17.511								
		Bottom 1	0.311	5.075								
			% AXIAL TILT -24.672				-8.710					
			AVG BOT 8ft/12ft 1.1260				1.0471					
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58												
Control Rod Density: %	4.86											
k-effective:	0.99987											
Void Fraction:	0.435											
Core Delta-P: psia	22.755	% AXIAL TILT -24.672										
Core Plate Delta-P: psia	18.205	AVG BOT 8ft/12ft 1.1260										
Coolant Temp: Deg-F	548.2											
In Channel Flow: Mlb/hr	86.64	Active Channel Flow: Mlb/hr				83.69						
Total Bypass Flow (%):	11.7	(of total core flow)										
Total Water Rod Flow (%):	3.0	(of total core flow)										
Source Convergence	0.00008											

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.422	9	31	30	1.709	0.825	11	33	8.62	0.745	27.1	9	43	11.48	0.814	1.4
1.405	11	33	30	1.712	0.824	11	31	8.42	0.741	29.1	9	45	11.47	0.814	1.4
1.404	11	31	28	1.756	0.803	11	35	8.32	0.735	29.4	9	41	11.44	0.812	1.4
1.376	8	33	28	1.763	0.800	11	33	8.20	0.729	30.2	8	45	11.43	0.811	1.4
1.365	11	45	22	1.797	0.785	11	43	8.25	0.729	29.6	9	47	11.39	0.808	1.4
1.363	11	43	24	1.809	0.780	11	37	8.27	0.728	29.1	9	45	11.38	0.807	1.4
1.358	10	47	24	1.815	0.777	11	41	8.08	0.720	30.5	8	37	11.36	0.806	1.4
1.356	8	45	24	1.820	0.775	11	37	8.14	0.720	29.5	8	43	11.31	0.802	1.4
1.355	11	39	16	1.821	0.774	9	31	8.15	0.719	29.5	9	39	11.25	0.798	1.4
1.354	11	37	18	1.823	0.774	11	35	8.25	0.718	27.8	9	47	11.23	0.796	1.4

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.3 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU										19688.5					
Exposure: MWd/MTU (GWd)	1000.0	(137.89)															
Delta E: MWd/MTU, (GWd)	500.0	(68.95)															
Power: MWt	3458.0	(100.00 %)															
Core Pressure: psia	1050.1																
Inlet Subcooling: Btu/lbm	-26.06																
Flow: Mlb/hr	100.16	(97.72 %)															
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29			
3				--	--	--	--	--	--	--					59	:JR	
1			--	--	--	--	--	--	--	--					55		
5			--	--	--	--	--	--	--	--					51		
7	--	--	--	--	--	--	12	--	--	--	--	--	--		47		
9	--	--	--	--	--	--	--	--	--	--	--	--	--		43		
11	--	--	--	--	--	14	--	10	--	14	--	--	--	--	39		
13	--	--	--	--	--	--	--	--	--	--	--	--	--		35		
15	--	--	--	12	--	10	--	--	10	--	12	--	--	--	31		
17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	27		
19	--	--	--	--	--	14	--	10	--	14	--	--	--	--	23		
21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	19		
23	--	--	--	--	--	--	12	--	--	--	--	--	--	--	15		
25			--	--	--	--	--	--	--	--	--	--	--		11		
27			--	--	--	--	--	--	--	--	--	--	--		7		
29			--	--	--	--	--	--	--	--	--	--	--		3		
IR: 2	6	10	14	18	22	26	30	34	38	42	46	50	54	58			
Control Rod Density: %	4.86																
k-effective:	0.99976																
Void Fraction:	0.429																
Core Delta-P: psia	23.414										% AXIAL TILT -23.502						
Core Plate Delta-P: psia	18.863										AVG BOT 8ft/12ft 1.1189						
Coolant Temp: Deg-F	548.2										-8.935						
In Channel Flow: Mlb/hr	88.48										Active Channel Flow: Mlb/hr 85.48						
Total Bypass Flow (%):	11.7										(of total core flow)						
Total Water Rod Flow (%):	3.0										(of total core flow)						
Source Convergence	0.00009																

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.414	9	31	30	1.720	0.820	11	33	8.49	0.740	28.1	9	43	11.31	0.802	2.8
1.407	11	33	30	1.723	0.818	11	31	8.30	0.737	30.1	9	45	11.31	0.802	2.8
1.406	11	31	28	1.764	0.799	11	35	8.20	0.731	30.4	9	41	11.30	0.801	2.8
1.373	11	45	22	1.772	0.796	11	33	8.14	0.726	30.6	9	47	11.27	0.799	2.8
1.370	11	43	24	1.801	0.783	11	43	8.15	0.724	30.1	9	45	11.24	0.797	2.8
1.369	8	33	28	1.813	0.778	11	37	8.06	0.723	31.2	8	45	11.23	0.796	2.8
1.367	10	47	24	1.823	0.773	11	41	8.04	0.716	30.5	9	39	11.20	0.794	2.8
1.364	11	39	16	1.829	0.771	11	37	8.15	0.715	28.8	9	47	11.16	0.791	2.8
1.360	11	37	18	1.830	0.770	11	35	8.00	0.713	30.5	8	43	11.12	0.789	2.8
1.359	12	43	20	1.832	0.770	11	43	7.93	0.713	31.5	8	37	11.07	0.785	2.8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.4 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 1,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU										20188.5			
Exposure: MWd/MTU (Gwd)	1500.0	(206.84)													
Delta E: MWd/MTU, (Gwd)	500.0	(68.95)													
Power: MWt	3458.0	(100.00 %)													
Core Pressure: psia	1050.1														
Inlet Subcooling: Btu/lbm	-26.11														
Flow: Mlb/hr	99.99	(97.55 %)													
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	
1				--	--	--	--	--	--	--	--	--	--	--	59
3			--	--	--	--	--	--	--	--	--	--	--	--	55
5		--	--	--	--	--	--	--	--	--	--	--	--	--	51
7	--	--	--	--	--	--	--	12	--	--	--	--	--	--	47
9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	43
11	--	--	--	--	--	14	--	10	--	14	--	--	--	--	39
13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	35
15	--	--	--	12	--	10	--	--	--	10	--	12	--	--	31
17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	27
19	--	--	--	--	--	14	--	10	--	14	--	--	--	--	23
21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	19
23	--	--	--	--	--	--	12	--	--	--	--	--	--	--	15
25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11
27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7
29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3
IR: 2	6	10	14	18	22	26	30	34	38	42	46	50	54	58	
Control Rod Density: %	4.86														
k-effective:	0.99966														
Void Fraction:	0.426														
Core Delta-P: psia	23.322														
Core Plate Delta-P: psia	18.771														
Coolant Temp: Deg-F	548.2														
In Channel Flow: Mlb/hr	88.35	Active Channel Flow: Mlb/hr										85.36			
Total Bypass Flow (%):	11.6	(of total core flow)													
Total Water Rod Flow (%):	3.0	(of total core flow)													
Source Convergence	0.00009														

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.409	11	33	30	1.716	0.822	11	33	8.35	0.735	29.1	9	43	11.16	0.791	4.2
1.407	11	31	28	1.720	0.820	11	31	8.17	0.733	31.1	9	45	11.14	0.790	4.2
1.405	9	31	30	1.760	0.801	11	35	8.08	0.726	31.4	9	41	11.12	0.789	4.2
1.381	11	45	22	1.768	0.797	11	33	8.03	0.722	31.6	9	47	11.11	0.788	4.2
1.376	10	47	24	1.788	0.788	11	43	8.02	0.719	31.1	9	45	11.09	0.786	4.2
1.376	11	43	24	1.800	0.783	11	37	7.92	0.716	32.1	8	45	11.07	0.785	4.2
1.371	11	39	16	1.816	0.776	11	41	7.93	0.713	31.4	9	39	11.02	0.781	4.2
1.368	12	43	20	1.823	0.773	11	43	8.04	0.712	29.7	9	47	10.99	0.779	4.2
1.366	11	37	18	1.823	0.773	11	35	7.79	0.707	32.4	8	37	10.97	0.778	4.1
1.364	12	41	18	1.825	0.772	11	37	7.86	0.707	31.5	8	43	10.93	0.775	4.1

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.5 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 1,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	20260.9
Exposure: MWd/MTU (GWd)	1572.3 (216.82)		
Delta E: MWd/MTU, (GWd)	72.3 (9.98)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-26.13		
Flow: Mlb/hr	99.92 (97.48 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	4 0.555 0.800 25 56
1		24	5 0.385 0.751 25 54
3		23	6 0.411 0.411 21 40
5		22	7 1.070 1.318 11 54
7		21	8 1.222 1.360 3 58
9		20	9 1.215 1.404 1 60
11		19	10 1.136 1.377 17 54
13		18	11 1.261 1.409 3 60
15		17	12 1.252 1.369 13 50
17		16	
19		15	
21		14	
23		13	
25		12	
27		11	
29		10	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	
Control Rod Density: %	4.86	8	
k-effective:	0.99965	7	
Void Fraction:	0.426	6	
Core Delta-P: psia	23.291	5	
Core Plate Delta-P: psia	18.740	4	
Coolant Temp: Deg-F	548.1	3	
In Channel Flow: Mlb/hr	88.28	2	
Total Bypass Flow (%):	11.6	1	
Total Water Rod Flow (%):	3.0		
Source Convergence	0.00009		
		Bottom	
		% AXIAL TILT	-22.195 -9.143
		AVG BOT 8ft/12ft	1.1109 1.0488
		Active Channel Flow: Mlb/hr	85.30
		(of total core flow)	
		(of total core flow)	

Top Ten Thermal Limits Summary - Sorted by Margin

Power				M CPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.409	11	33	30	1.716	0.822	11	33	8.33	0.734	29.3	9	11.14	0.790	4.4	12
1.407	11	31	28	1.719	0.820	11	31	8.16	0.732	31.3	9	11.12	0.788	4.4	12
1.404	9	31	30	1.759	0.801	11	35	8.06	0.725	31.6	9	11.10	0.787	4.4	10
1.382	11	45	22	1.767	0.798	11	33	8.01	0.722	31.7	9	11.09	0.787	4.4	12
1.377	10	47	24	1.786	0.789	11	43	8.00	0.718	31.2	9	11.07	0.785	4.4	12
1.376	11	43	24	1.798	0.784	11	37	7.90	0.716	32.3	8	11.06	0.784	4.4	12
1.372	11	39	16	1.815	0.777	11	41	7.91	0.712	31.6	9	11.00	0.780	4.4	10
1.369	12	43	20	1.822	0.774	11	43	8.03	0.712	29.9	9	10.96	0.778	4.3	11
1.367	11	37	18	1.822	0.774	11	35	7.77	0.706	32.5	8	10.95	0.777	4.3	12
1.365	12	41	18	1.825	0.773	11	37	7.84	0.706	31.6	8	10.91	0.774	4.3	11

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.6 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 1,572.3 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	20261.6
Exposure: MWd/MTU (Gwd)	1573.3 (216.95)		
Delta E: MWd/MTU, (Gwd)	1.0 (0.14)		
Power: MWT	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-30.12		
Flow: Mlb/hr	87.28 (85.15 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure Zone Avg. Max. IR JR	
		Top 25 0.150 4.303 4 0.552 0.808 25 56	
		24 0.409 11.569 5 0.383 0.755 25 54	
		23 0.538 15.152 6 0.402 0.402 21 40	
		22 0.651 18.071 7 1.083 1.370 7 50	
		21 0.719 19.680 8 1.168 1.372 15 54	
		20 0.768 20.641 9 1.258 1.365 17 60	
		19 0.790 20.909 10 1.142 1.403 17 54	
		18 0.809 21.324 11 1.273 1.416 15 60	
		17 0.829 21.583 12 1.259 1.392 9 50	
		16 0.853 21.825	
		15 0.895 22.341	
		14 0.915 22.002	
		13 1.070 21.175	
		12 1.139 21.932	
		11 1.192 22.455	
		10 1.253 23.157	
		9 1.313 23.795	
		8 1.368 24.158	
		7 1.429 24.464	
		6 1.515 25.065	
		5 1.580 25.165*	
		4 1.606* 24.632	
		3 1.572 23.501	
		2 1.278 18.644	
		Bottom 1 0.356 5.402	
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29			
1			
3			
5			
7			
9			
11			
13			
15			
17			
19			
21			
23			
25			
27			
29			
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	3.51		
k-effective:	0.99965		
Void Fraction:	0.462		
Core Delta-P: psia	19.380	% AXIAL TILT -30.396	-9.144
Core Plate Delta-P: psia	14.836	AVG BOT 8ft/12ft	1.1671 1.0488
Coolant Temp: Deg-F	547.9		
In Channel Flow: Mlb/hr	76.78	Active Channel Flow: Mlb/hr	74.05
Total Bypass Flow (%):	12.0	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.416	11	45	30	1.675	0.842	12	43	8.65	0.783	32.3	8	12.27	0.870	1.2	11
1.414	11	45	26	1.679	0.840	10	47	8.64	0.778	31.6	8	12.14	0.861	3.8	11
1.405	11	47	28	1.683	0.838	12	41	8.88	0.778	28.6	9	12.10	0.858	4.0	11
1.404	11	43	24	1.686	0.836	11	45	8.71	0.778	30.7	9	12.01	0.852	4.3	10
1.403	10	47	24	1.694	0.832	11	45	8.81	0.777	29.3	9	12.00	0.851	4.3	11
1.395	11	45	22	1.694	0.832	11	47	8.66	0.776	31.2	9	11.88	0.843	4.4	12
1.393	11	37	18	1.696	0.831	11	45	8.61	0.775	31.6	8	11.88	0.843	4.0	10
1.392	12	39	20	1.703	0.828	12	39	8.62	0.773	31.3	9	11.86	0.841	4.3	12
1.391	11	43	28	1.712	0.823	12	41	8.54	0.773	32.3	7	11.82	0.838	4.1	11
1.387	12	41	22	1.713	0.823	11	43	8.50	0.766	31.7	9	11.80	0.837	4.1	11

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.7 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 1,573.3 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	20688.5
Exposure: MWd/MTU (Gwd)	2000.0 (275.79)		
Delta E: MWd/MTU, (Gwd)	426.7 (58.83)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.94		
Flow: Mlb/hr	87.77 (85.63 %)		
		Axial Profile	Edit Radial Power
		N(PRA)	Power Exposure Zone Avg. Max. IR JR
		Top 25	0.155 4.373 4 0.549 0.806 25 56
		24	0.420 11.758 5 0.380 0.754 25 54
		23	0.552 15.402 6 0.397 0.397 21 40
		22	0.666 18.374 7 1.080 1.366 7 50
		21	0.734 20.014 8 1.164 1.369 15 54
		20	0.783 20.997 9 1.257 1.361 17 60
		19	0.804 21.276 10 1.147 1.410 17 54
		18	0.821 21.700 11 1.277 1.418 15 60
		17	0.840 21.967 12 1.266 1.397 9 50
		16	0.862 22.220
		15	0.902 22.754
		14	0.920 22.424
		13	1.072 21.603
		12	1.139 22.387
		11	1.190 22.930
		10	1.249 23.656
		9	1.307 24.318
		8	1.359 24.702
		7	1.418 25.033
		6	1.500 25.667
		5	1.562 25.793*
		4	1.585* 25.269
		3	1.549 24.122
		2	1.258 19.148
		Bottom 1	0.352 5.551
			% AXIAL TILT -29.291 -9.438
			AVG BOT 8ft/12ft 1.1607 1.0503
Control Rod Density: %	3.51		
k-effective:	0.99958		
Void Fraction:	0.458		
Core Delta-P: psia	19.509		
Core Plate Delta-P: psia	14.965		
Coolant Temp: Deg-F	547.9		
In Channel Flow: Mlb/hr	77.24	Active Channel Flow: Mlb/hr	74.51
Total Bypass Flow (%):	12.0	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.418	11	45	30	1.683	0.838	12	43	8.50	0.777	33.2	8	45	12.00	0.851	2.4
1.418	11	45	26	1.688	0.835	10	47	8.68	0.772	30.2	9	43	11.87	0.842	5.1
1.410	10	47	24	1.692	0.833	12	41	8.50	0.772	32.5	8	43	11.85	0.841	5.4
1.409	11	47	28	1.695	0.832	11	45	8.57	0.771	31.6	9	41	11.84	0.840	5.3
1.409	11	43	24	1.696	0.831	11	45	8.52	0.770	32.0	9	47	11.78	0.835	5.6
1.401	11	45	22	1.697	0.831	11	47	8.50	0.769	32.2	9	45	11.76	0.834	5.2
1.397	11	37	18	1.705	0.827	11	45	8.46	0.768	32.4	8	39	11.70	0.830	5.5
1.397	12	39	20	1.709	0.825	11	43	8.56	0.767	31.1	9	47	11.69	0.829	5.6
1.394	12	43	20	1.713	0.823	11	43	8.37	0.765	33.1	7	45	11.58	0.822	5.6
1.393	11	43	28	1.715	0.822	12	39	8.40	0.763	32.6	9	47	11.56	0.820	5.3

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.8 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 2,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	21188.5
Exposure: MWd/MTU (Gwd)	2500.0 (344.73)		
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.85		
Flow: Mlb/hr	88.04 (85.89 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.160 4.456 4 0.546 0.804 25 56
		24	0.432 11.987 5 0.376 0.752 25 54
		23	0.566 15.701 6 0.392 0.392 21 40
		22	0.682 18.736 7 1.077 1.361 7 50
		21	0.750 20.413 8 1.161 1.367 15 54
		20	0.797 21.423 9 1.255 1.356 17 60
		19	0.817 21.713 10 1.153 1.419 17 54
		18	0.833 22.146 11 1.281 1.424 15 56
		17	0.850 22.422 12 1.274 1.403 9 50
		16	0.870 22.687
		15	0.908 23.242
		14	0.923 22.921
		13	1.072 22.104
		12	1.136 22.919
		11	1.184 23.486
		10	1.240 24.239
		9	1.296 24.927
		8	1.347 25.335
		7	1.405 25.693
		6	1.486 26.365
		5	1.547 26.520*
		4	1.569* 26.006
		3	1.535 24.841
		2	1.246 19.732
		Bottom 1	0.352 5.725
			% AXIAL TILT -28.226 -9.743
			AVG BOT 8ft/12ft 1.1542 1.0519
Control Rod Density: %	3.51		
k-effective:	0.99947		
Void Fraction:	0.455		
Core Delta-P: psia	19.568		
Core Plate Delta-P: psia	15.024		
Coolant Temp: Deg-F	547.9		
In Channel Flow: Mlb/hr	77.50	Active Channel Flow: Mlb/hr	74.76
Total Bypass Flow (%):	12.0	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00009		

Top Ten Thermal Limits Summary - Sorted by Margin

Power			MCPR				APLHGR						LHGR									
Value	FT	IR	JR	Value	Margin	FT	IR	JR	Value	Margin	Exp.	FT	IR	JR	K	Value	Margin	Exp.	FT	IR	JR	K
1.424	11	45	26	1.692	0.833	12	43	20	8.40	0.774	34.2	8	45	24	4	11.80	0.837	6.9	10	47	24	3
1.422	11	45	30	1.695	0.832	11	45	26	8.58	0.770	31.2	9	43	18	4	11.77	0.835	3.9	11	45	30	3
1.419	10	47	24	1.696	0.832	11	47	28	8.39	0.769	33.5	8	43	22	4	11.72	0.831	6.7	10	49	26	3
1.415	11	47	28	1.696	0.831	11	45	30	8.42	0.768	33.1	9	47	26	4	11.68	0.828	6.6	11	47	28	3
1.414	11	43	24	1.696	0.831	10	47	24	8.45	0.768	32.6	9	41	20	4	11.65	0.826	6.7	11	45	26	3
1.408	11	45	22	1.701	0.829	12	41	18	8.40	0.768	33.2	9	45	20	4	11.62	0.824	7.0	11	45	22	3
1.403	12	39	20	1.702	0.828	11	43	24	8.35	0.765	33.5	8	39	18	4	11.59	0.822	7.1	12	41	18	4
1.402	11	37	18	1.710	0.825	11	43	28	8.32	0.763	33.6	9	47	22	4	11.54	0.818	7.0	12	43	20	4
1.402	12	43	20	1.714	0.823	11	45	22	9.77	0.763	5.5	10	47	24	3	11.49	0.815	7.0	12	45	18	4
1.399	12	41	22	1.718	0.821	11	37	18	8.43	0.763	32.1	9	47	30	4	11.44	0.811	5.9	11	49	30	3

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.9 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 2,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	21688.5
Exposure: MWd/MTU (Gwd)	3000.0 (413.68)		
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.82		
Flow: Mlb/hr	88.12 (85.97 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	4 0.542 0.802 25 56
1		24 0.443 12.222	5 0.373 0.750 25 54
3		23 0.580 16.009	6 0.386 0.386 21 40
5		22 0.696 19.107	7 1.073 1.356 7 50
7		21 0.764 20.820	8 1.156 1.364 15 54
9		20 0.810 21.856	9 1.253 1.352 17 60
11		19 0.828 22.157	10 1.160 1.428 17 54
13		18 0.843 22.598	11 1.284 1.429 15 56
15		17 0.858 22.883	12 1.282 1.410 13 50
17		16 0.877 23.158	
19		15 0.912 23.733	
21		14 0.924 23.420	
23		13 1.070 22.605	
25		12 1.130 23.449	
27		11 1.176 24.038	
29		10 1.231 24.817	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9 1.286 25.531	
		8 1.335 25.963	
		7 1.392 26.347	
		6 1.473 27.058	
		5 1.534 27.241*	
		4 1.557* 26.738	
		3 1.526 25.555	
		2 1.240 20.311	
		Bottom 1 0.352 5.898	
Control Rod Density: %	3.51		
k-effective:	0.99937		
Void Fraction:	0.452		
Core Delta-P: psia	19.570	% AXIAL TILT -27.299 -10.010	
Core Plate Delta-P: psia	15.025	AVG BOT 8ft/12ft 1.1484 1.0532	
Coolant Temp: Deg-F	547.9		
In Channel Flow: Mlb/hr	77.58	Active Channel Flow: Mlb/hr	74.85
Total Bypass Flow (%):	12.0	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00007		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPH				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.429	11	45	26	1.689	0.835	11	45	8.30	0.773	35.2	8	11.80	0.837	8.3	10
1.428	10	47	24	1.691	0.834	11	47	9.86	0.770	6.7	10	11.73	0.832	8.1	10
1.426	11	45	30	1.694	0.832	11	45	8.49	0.769	32.3	9	11.58	0.821	5.3	11
1.421	11	47	28	1.694	0.832	11	43	8.33	0.768	34.2	9	11.54	0.819	8.0	11
1.420	11	43	24	1.701	0.829	12	43	8.33	0.768	34.1	9	11.52	0.817	8.1	11
1.416	11	45	22	1.704	0.828	10	47	8.29	0.767	34.6	8	11.52	0.817	8.5	12
1.410	12	43	20	1.706	0.827	11	43	8.35	0.766	33.7	9	11.50	0.816	8.4	11
1.409	12	39	20	1.710	0.825	12	41	8.26	0.765	34.6	9	11.47	0.814	8.4	12
1.407	11	37	18	1.710	0.824	11	37	8.25	0.762	34.5	8	11.43	0.811	8.4	12
1.405	12	41	22	1.719	0.820	11	45	8.32	0.760	33.1	9	11.38	0.807	7.3	11

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.10 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 3,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWD/MTU	22188.5
Exposure: MWD/MTU (Gwd)	3500.0 (482.63)		
Delta E: MWD/MTU, (Gwd)	500.0 (68.95)		
Power: MWT	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.82		
Flow: Mlb/hr	88.11 (85.96 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.169 4.631 4 0.538 0.799 25 56
		24	0.454 12.462 5 0.370 0.748 25 54
		23	0.593 16.323 6 0.381 0.381 21 40
		22	0.709 19.484 7 1.070 1.351 7 50
		21	0.776 21.234 8 1.152 1.362 15 54
		20	0.821 22.295 9 1.251 1.347 17 60
		19	0.838 22.606 10 1.167 1.437 17 54
		18	0.851 23.055 11 1.288 1.435 15 56
		17	0.865 23.348 12 1.290 1.418 13 50
		16	0.882 23.633
		15	0.915 24.226
		14	0.924 23.918
		13	1.065 23.105
		12	1.123 23.976
		11	1.167 24.586
		10	1.220 25.390
		9	1.274 26.130
		8	1.323 26.585
		7	1.380 26.996
		6	1.461 27.744
		5	1.524 27.956*
		4	1.549* 27.464
		3	1.524 26.267
		2	1.240 20.889
		Bottom 1	0.354 6.072
			% AXIAL TILT -26.501 -10.245
			AVG BOT 8ft/12ft 1.1432 1.0544
Control Rod Density: %	3.51		
k-effective:	0.99927		
Void Fraction:	0.451		
Core Delta-P: psia	19.548		
Core Plate Delta-P: psia	15.004		
Coolant Temp: Deg-F	547.8		
In Channel Flow: Mlb/hr	77.58	Active Channel Flow: Mlb/hr	74.85
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp. FT	IR	Value	Margin	Exp. FT	IR
1.437	10	47	24	1.681	0.839	11	45	10.00	0.781	7.9	10	11.86	0.841	9.7	10
1.435	11	45	26	1.683	0.838	11	47	8.23	0.774	36.2	8	11.80	0.837	9.5	10
1.430	11	45	30	1.687	0.836	11	43	8.43	0.771	33.3	9	11.53	0.818	9.5	11
1.427	11	47	28	1.689	0.835	11	45	8.28	0.771	35.2	9	11.51	0.816	9.2	11
1.425	11	43	24	1.697	0.831	10	47	9.86	0.770	7.7	10	11.48	0.814	9.9	12
1.424	11	45	22	1.703	0.828	11	43	8.27	0.769	35.1	9	11.44	0.812	6.7	11
1.418	12	43	20	1.703	0.828	11	37	8.23	0.769	35.6	9	11.44	0.812	9.6	11
1.415	12	39	20	1.710	0.825	12	43	8.21	0.767	35.6	8	11.44	0.811	9.8	12
1.413	12	41	18	1.714	0.823	11	45	8.27	0.766	34.7	9	11.40	0.809	9.8	12
1.413	11	37	18	1.719	0.820	12	41	8.16	0.762	35.5	8	11.37	0.807	9.8	12

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.11 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 3,500.0 MWD/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	22595.6
Exposure: MWd/MTU (GWd)	3907.0 (538.76)		
Delta E: MWd/MTU, (GWd)	407.0 (56.13)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.87		
Flow: Mlb/hr	87.98 (85.84 %)		
		Axial Profile	Edit Radial Power
		N (PRA)	Power Exposure Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	0.173 4.705 4 0.535 0.798 25 56
1		24	0.462 12.662 5 0.367 0.747 25 54
3		23	0.603 16.584 6 0.377 0.377 21 40
5		22	0.719 19.797 7 1.067 1.347 7 50
7		21	0.786 21.576 8 1.148 1.359 15 54
9		20	0.830 22.658 9 1.250 1.344 17 60
11		19	0.845 22.976 10 1.173 1.444 17 54
13		18	0.857 23.430 11 1.291 1.440 15 56
15		17	0.869 23.728 12 1.297 1.425 13 50
17		16	0.884 24.021
19		15	0.916 24.628
21		14	0.923 24.323
23		13	1.061 23.510
25		12	1.116 24.403
27		11	1.158 25.029
29		10	1.210 25.852
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	1.263 26.613
		8	1.313 27.087
		7	1.371 27.520
		6	1.453 28.299
		5	1.517 28.535*
		4	1.546* 28.054
		3	1.527 26.846
		2	1.244 21.361
		Bottom 1	0.356 6.215
Control Rod Density: %	3.51		
k-effective:	0.99918		
Void Fraction:	0.449		
Core Delta-P: psia	19.499	% AXIAL TILT	-25.934 -10.416
Core Plate Delta-P: psia	14.955	AVG BOT 8ft/12ft	1.1393 1.0552
Coolant Temp: Deg-F	547.8		
In Channel Flow: Mlb/hr	77.48	Active Channel Flow: Mlb/hr	74.76
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.444	10	47	24	1.675	0.842	11	45	10.14	0.792	8.9	10	11.93	0.846	10.9	10
1.440	11	45	26	1.676	0.841	11	47	10.00	0.781	8.7	10	11.87	0.842	10.7	10
1.433	11	45	30	1.681	0.839	11	43	8.18	0.775	37.0	8	11.56	0.820	10.6	11
1.431	11	47	28	1.685	0.837	11	45	8.25	0.774	36.0	9	11.55	0.819	10.3	11
1.430	11	45	22	1.689	0.835	10	47	8.39	0.774	34.1	9	11.50	0.815	10.7	11
1.430	11	43	24	1.697	0.831	11	37	8.36	0.773	34.5	9	11.47	0.814	11.0	12
1.425	12	43	20	1.699	0.830	11	43	8.21	0.773	36.4	9	11.43	0.810	11.0	12
1.421	12	39	20	1.704	0.828	11	45	8.16	0.769	36.4	8	11.40	0.809	10.7	11
1.420	12	41	18	1.716	0.822	12	43	8.22	0.767	35.5	9	11.40	0.808	10.9	12
1.418	12	41	22	1.725	0.817	12	41	8.13	0.765	36.3	9	11.39	0.808	9.8	11

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.12 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 3,907.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	22596.2
Exposure: MWd/MTU (Gwd)	3908.0 (538.89)		
Delta E: MWd/MTU, (Gwd)	1.0 (0.14)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.04		
Flow: Mlb/hr	90.37 (88.17 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure Zone Avg. Max. IR JR	
		Top 25 0.166 4.705 4 0.525 0.789 25 56	
		24 0.442 12.662 5 0.356 0.734 25 54	
		23 0.577 16.585 6 0.351 0.351 21 40	
		22 0.690 19.798 7 1.059 1.373 15 58	
		21 0.757 21.577 8 1.238 1.428 1 48	
		20 0.804 22.659 9 1.171 1.367 17 60	
		19 0.826 22.977 10 1.155 1.404 17 54	
		18 0.848 23.430 11 1.374 1.490 11 60	
		17 0.867 23.729 12 1.171 1.302 21 58	
		16 0.888 24.022	
		15 0.923 24.629	
		14 0.932 24.324	
		13 1.073 23.511	
		12 1.129 24.404	
		11 1.171 25.030	
		10 1.223 25.854	
		9 1.277 26.614	
		8 1.326 27.088	
		7 1.383 27.521	
		6 1.465 28.300	
		5 1.529 28.537*	
		4 1.557* 28.055	
		3 1.537 26.847	
		2 1.251 21.362	
		Bottom 1 0.358 6.215	
		% AXIAL TILT -27.103 -10.416	
		AVG BOT 8ft/12ft 1.1489 1.0552	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	3.78		
k-effective:	0.99919		
Void Fraction:	0.446		
Core Delta-P: psia	20.281		
Core Plate Delta-P: psia	15.736		
Coolant Temp: Deg-F	547.9		
In Channel Flow: Mlb/hr	79.61	Active Channel Flow: Mlb/hr	76.82
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00005		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.490	11	41	30	1.623	0.869	11	31	8.29	0.785	36.9	7	11.99	0.851	7.8	11
1.489	11	43	28	1.627	0.867	11	41	8.48	0.784	34.5	8	11.87	0.842	10.7	10
1.485	11	31	20	1.629	0.866	11	43	8.75	0.783	30.9	8	11.87	0.842	9.5	11
1.485	11	45	30	1.643	0.858	11	33	8.53	0.781	33.5	9	11.85	0.840	5.0	11
1.481	11	33	18	1.651	0.854	11	45	9.99	0.780	7.2	11	11.78	0.836	10.0	11
1.478	11	31	16	1.664	0.848	11	31	9.96	0.778	8.7	10	11.77	0.835	10.9	10
1.460	11	41	26	1.667	0.846	11	41	9.93	0.776	8.3	11	11.77	0.835	9.4	11
1.452	11	35	20	1.673	0.843	11	35	8.22	0.776	36.6	7	11.77	0.835	9.8	11
1.448	11	45	26	1.691	0.834	11	47	9.92	0.775	8.1	11	11.69	0.829	10.4	11
1.446	11	47	28	1.695	0.832	11	45	8.26	0.774	35.9	9	11.65	0.826	9.1	11

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.13 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 3,908.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	22688.5
Exposure: MWd/MTU (Gwd)	4000.0 (551.58)		
Delta E: MWd/MTU, (Gwd)	92.0 (12.68)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.05		
Flow: Mlb/hr	90.36 (88.15 %)		
		Axial Profile	Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	4 0.524 0.789 25 56
1		24	5 0.356 0.734 25 54
3		23	6 0.350 0.350 21 40
5		22	7 1.059 1.372 15 58
7		21	8 1.237 1.427 1 48
9		20	9 1.170 1.366 17 60
11		19	10 1.156 1.406 17 54
13		18	11 1.375 1.491 11 60
15		17	12 1.172 1.303 21 58
17		16	
19		15	
21		14	
23		13	
25		12	
27		11	
29		10	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	
Control Rod Density: %	3.78	8	
k-effective:	0.99916	7	
Void Fraction:	0.446	6	
Core Delta-P: psia	20.293	5	
Core Plate Delta-P: psia	15.748	4	
Coolant Temp: Deg-F	547.9	3	
In Channel Flow: Mlb/hr	79.59	2	
Total Bypass Flow (%):	11.9	Bottom 1	
Total Water Rod Flow (%):	3.1	0.359 6.247	
Source Convergence	0.00010	% AXIAL TILT -27.011 -10.458	
		AVG BOT 8ft/12ft 1.1483 1.0555	
		Active Channel Flow: Mlb/hr 76.80	
		(of total core flow)	
		(of total core flow)	

Top Ten Thermal Limits Summary - Sorted by Margin

Power			MCPR			APLHGR				LHGR			
Value	FT	IR JR	Value	Margin	FT	IR JR	Value	Margin	Exp. FT	Value	Margin	Exp. FT	IR JR K
1.491	11	41 30	1.623	0.869	11	31 20	8.28	0.785	37.1 7	12.01	0.852	8.1 11	31 16 3
1.490	11	43 28	1.627	0.866	11	41 30	8.47	0.784	34.7 8	11.90	0.844	11.0 10	49 26 3
1.486	11	45 30	1.629	0.866	11	43 28	8.74	0.784	31.1 8	11.87	0.842	9.8 11	45 30 3
1.485	11	31 20	1.643	0.858	11	33 18	8.52	0.782	33.7 9	11.84	0.840	5.3 11	31 20 3
1.481	11	33 18	1.651	0.854	11	45 30	10.00	0.781	7.4 11	11.79	0.836	11.2 10	47 24 3
1.479	11	31 16	1.664	0.847	11	31 16	10.00	0.781	8.9 10	11.78	0.836	10.3 11	43 28 3
1.461	11	41 26	1.667	0.846	11	41 26	9.95	0.778	8.5 11	11.78	0.835	10.0 11	47 28 3
1.452	11	35 20	1.673	0.843	11	35 20	9.94	0.776	8.3 11	11.77	0.835	9.7 11	33 18 3
1.449	11	45 26	1.690	0.834	11	47 28	8.21	0.776	36.8 7	11.69	0.829	10.6 11	45 26 3
1.448	11	47 28	1.694	0.832	11	45 26	8.37	0.775	34.6 9	11.65	0.827	9.4 11	33 14 3

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.14 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 4,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	23188.5
Exposure: MWd/MTU (Gwd)	4500.0 (620.52)		
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-28.98		
Flow: Mlb/hr	90.56 (88.35 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.171 4.811 4 0.521 0.788 25 56
		24	0.453 12.946 5 0.353 0.733 25 54
		23	0.592 16.955 6 0.346 0.346 21 40
		22	0.705 20.242 7 1.056 1.367 15 58
		21	0.771 22.063 8 1.230 1.415 1 48
		20	0.817 23.176 9 1.170 1.361 17 60
		19	0.836 23.508 10 1.165 1.416 17 54
		18	0.856 23.975 11 1.377 1.492 13 58
		17	0.873 24.285 12 1.182 1.313 21 58
		16	0.891 24.590
		15	0.923 25.219
		14	0.929 24.919
		13	1.065 24.103
		12	1.118 25.026
		11	1.158 25.675
		10	1.208 26.527
		9	1.261 27.317
		8	1.311 27.818
		7	1.369 28.283
		6	1.453 29.108
		5	1.521 29.381*
		4	1.555* 28.917
		3	1.544 27.698
		2	1.258 22.054
		Bottom 1	0.361 6.425
			% AXIAL TILT -26.306 -10.668
			AVG BOT 8ft/12ft 1.1433 1.0565
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	3.78		
k-effective:	0.99906		
Void Fraction:	0.444		
Core Delta-P: psia	20.344		
Core Plate Delta-P: psia	15.799		
Coolant Temp: Deg-F	547.9		
In Channel Flow: Mlb/hr	79.78	Active Channel Flow: Mlb/hr	76.99
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00010		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.492	11	43	28	1.631	0.865	11	43	10.22	0.798	10.1	10	49	12.02	0.853	12.4
1.489	11	45	30	1.634	0.863	11	41	10.10	0.789	10.3	10	47	11.91	0.845	12.6
1.488	11	41	30	1.645	0.857	11	31	10.08	0.787	9.7	11	47	11.89	0.844	9.5
1.481	11	33	18	1.647	0.856	11	33	8.29	0.786	37.1	7	45	11.85	0.840	10.7
1.480	11	31	20	1.657	0.851	11	45	10.06	0.786	8.6	11	45	11.79	0.836	11.5
1.480	11	31	16	1.671	0.844	11	41	8.47	0.784	34.7	9	47	11.74	0.832	11.7
1.461	11	41	26	1.673	0.843	11	31	8.37	0.782	35.7	9	47	11.70	0.830	11.1
1.455	11	45	26	1.677	0.841	11	35	9.99	0.781	9.8	10	35	11.68	0.829	12.0
1.454	11	47	28	1.691	0.834	11	47	9.98	0.780	10.0	11	45	11.68	0.828	11.8
1.452	11	35	20	1.695	0.832	11	45	8.34	0.780	35.7	8	43	11.67	0.827	11.5

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.15 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 4,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWD/MTU	23688.5
Exposure: MWD/MTU (GWD)	5000.0 (689.47)		
Delta E: MWD/MTU, (GWD)	500.0 (68.95)		
Power: MWT	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.10		
Flow: Mlb/hr	90.20 (88.00 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.175 4.903 4 0.518 0.786 25 56
		24	0.463 13.192 5 0.350 0.732 25 54
		23	0.603 17.276 6 0.342 0.342 21 40
		22	0.716 20.624 7 1.052 1.362 15 58
		21	0.782 22.481 8 1.224 1.406 1 48
		20	0.826 23.618 9 1.168 1.356 17 60
		19	0.843 23.961 10 1.173 1.426 17 54
		18	0.861 24.438 11 1.381 1.494 13 58
		17	0.876 24.757 12 1.191 1.322 21 58
		16	0.892 25.071
		15	0.922 25.716
		14	0.925 25.419
		13	1.056 24.599
		12	1.106 25.546
		11	1.144 26.213
		10	1.193 27.089
		9	1.246 27.904
		8	1.296 28.428
		7	1.357 28.921
		6	1.444 29.786
		5	1.517 30.092*
		4	1.559* 29.646
		3	1.558 28.421
		2	1.273 22.644
		Bottom 1	0.367 6.604
			% AXIAL TILT -25.786 -10.856
			AVG BOT 8ft/12ft 1.1392 1.0575
Control Rod Density: %	3.78		
k-effective:	0.99899		
Void Fraction:	0.444		
Core Delta-P: psia	20.215		
Core Plate Delta-P: psia	15.670		
Coolant Temp: Deg-F	547.9		
In Channel Flow: Mlb/hr	79.46	Active Channel Flow: Mlb/hr	76.69
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power			MCPR				APLHGR						LHGR									
Value	FT	IR	JR	Value	Margin	FT	IR	JR	Value	Margin	Exp.	FT	IR	JR	K	Value	Margin	Exp.	FT	IR	JR	K
1.494	11	43	28	1.626	0.867	11	43	28	10.47	0.818	11.4	10	49	26	3	12.18	0.864	13.9	10	49	26	3
1.493	11	45	30	1.635	0.863	11	41	30	10.33	0.807	11.6	10	47	24	3	12.06	0.855	14.1	10	47	24	3
1.488	11	41	30	1.643	0.858	11	33	18	10.27	0.802	10.9	11	47	28	3	11.91	0.845	12.2	11	45	30	3
1.484	11	33	18	1.647	0.856	11	31	20	10.23	0.800	11.0	10	35	12	3	11.90	0.844	13.4	11	47	28	3
1.483	11	31	16	1.651	0.854	11	45	30	10.19	0.796	9.8	11	45	30	3	11.89	0.844	11.0	11	31	16	3
1.479	11	31	20	1.669	0.845	11	31	16	10.15	0.793	11.2	11	45	26	3	11.83	0.839	13.2	10	35	12	3
1.462	11	41	26	1.669	0.845	11	41	26	8.28	0.792	38.1	7	45	28	3	11.78	0.836	12.7	11	49	30	3
1.461	11	45	26	1.675	0.842	11	35	20	8.39	0.792	36.7	9	47	26	3	11.76	0.834	13.1	11	43	28	3
1.461	11	47	28	1.681	0.839	11	47	28	8.46	0.792	35.7	9	47	30	3	11.75	0.834	13.5	11	45	26	3
1.453	11	35	20	1.686	0.836	11	45	26	10.10	0.789	11.2	10	37	14	3	11.72	0.831	12.5	11	33	18	3

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.16 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 5,000.0 MWD/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	24188.5
Exposure: MWd/MTU (Gwd)	5500.0 (758.42)		
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.34		
Flow: Mlb/hr	89.50 (87.32 %)		
		Axial Profile	Edit Radial Power
		N(PRA)	Power Exposure Zone Avg. Max. IR JR
		Top 25	0.179 4.996 4 0.515 0.785 25 56
		24	0.471 13.442 5 0.347 0.731 25 54
		23	0.613 17.602 6 0.337 0.337 21 40
		22	0.726 21.012 7 1.048 1.356 15 58
		21	0.791 22.904 8 1.217 1.397 1 48
		20	0.833 24.065 9 1.167 1.351 17 60
		19	0.848 24.417 10 1.180 1.434 17 54
		18	0.865 24.904 11 1.384 1.497 13 58
		17	0.878 25.230 12 1.200 1.332 21 58
		16	0.892 25.552
		15	0.919 26.213
		14	0.919 25.917
		13	1.045 25.091
		12	1.092 26.060
		11	1.128 26.745
		10	1.177 27.643
		9	1.230 28.483
		8	1.282 29.031
		7	1.345 29.553
		6	1.436 30.460
		5	1.516 30.801*
		4	1.568 30.377
		3	1.580* 29.153
		2	1.296 23.243
		Bottom 1	0.374 6.787
			% AXIAL TILT -25.422 -11.027
			AVG BOT 8ft/12ft 1.1359 1.0583
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29	59 :JR		
1	55		
3	51		
5	47		
7	43		
9	39		
11	35		
13	31		
15	27		
17	23		
19	19		
21	15		
23	11		
25	7		
27	3		
29			
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	3.78		
k-effective:	0.99886		
Void Fraction:	0.445		
Core Delta-P: psia	19.994		
Core Plate Delta-P: psia	15.449		
Coolant Temp: Deg-F	547.9		
In Channel Flow: Mlb/hr	78.84	Active Channel Flow: Mlb/hr	76.08
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00004		

Top Ten Thermal Limits Summary - Sorted by Margin

Power			MCPR			APLHGR			LHGR		
Value	FT	IR JR	Value	Margin	FT IR JR	Value	Margin	Exp. FT IR JR K	Value	Margin	Exp. FT IR JR K
1.497	11	43 28	1.619	0.871	11 43 28	10.69	0.835	12.6 10 49 26 3	12.33	0.875	15.4 10 49 26 3
1.497	11	45 30	1.632	0.864	11 41 30	10.52	0.822	12.8 10 47 24 3	12.19	0.864	15.5 10 47 24 3
1.488	11	41 30	1.637	0.862	11 33 18	10.49	0.819	12.2 11 47 28 3	12.05	0.855	14.9 11 47 28 3
1.487	11	31 16	1.642	0.859	11 45 30	10.48	0.819	12.2 10 35 12 3	12.03	0.853	13.6 11 45 30 3
1.486	11	33 18	1.645	0.857	11 31 20	10.36	0.809	11.1 11 45 30 3	11.99	0.850	13.2 11 31 16 3
1.478	11	31 20	1.660	0.849	11 31 16	10.34	0.808	12.5 11 45 26 3	11.97	0.849	14.7 10 35 12 3
1.467	11	47 28	1.664	0.847	11 41 26	10.31	0.806	12.5 10 37 14 3	11.95	0.848	14.1 11 49 30 3
1.466	11	45 26	1.668	0.845	11 47 28	10.30	0.805	11.8 11 49 30 3	11.85	0.841	14.3 11 33 14 3
1.464	11	41 26	1.670	0.844	11 35 20	8.43	0.804	37.7 9 47 26 3	11.85	0.840	14.9 11 45 26 3
1.454	11	35 20	1.674	0.842	11 45 26	10.27	0.803	11.7 11 33 14 3	11.82	0.839	14.7 11 43 28 3

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.17 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 5,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	24688.6
Exposure: MWd/MTU (Gwd)	6000.0 (827.36)		
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)		
Power: MWT	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.66		
Flow: Mlb/hr	88.56 (86.40 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	0.182 5.092 4 0.511 0.783 25 56
1		24	0.479 13.697 5 0.344 0.730 25 54
3		23	0.623 17.933 6 0.333 0.333 21 40
5		22	0.735 21.405 7 1.045 1.350 15 58
7		21	0.799 23.332 8 1.211 1.388 1 48
9		20	0.839 24.516 9 1.165 1.345 17 60
11		19	0.853 24.876 10 1.188 1.442 17 54
13		18	0.867 25.371 11 1.388 1.501 15 60
15		17	0.878 25.704 12 1.209 1.341 21 58
17		16	0.890 26.033
19		15	0.915 26.708
21		14	0.912 26.411
23		13	1.034 25.577
25		12	1.078 26.568
27		11	1.113 27.269
29		10	1.160 28.190
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	1.213 29.055
		8	1.267 29.627
		7	1.333 30.179
		6	1.429 31.130
		5	1.516 31.511*
		4	1.579 31.114
		3	1.602* 29.895
		2	1.320 23.852
		Bottom 1	0.382 6.973
Control Rod Density: %	3.78		
k-effective:	0.99881		
Void Fraction:	0.446		
Core Delta-P: psia	19.692	% AXIAL TILT	-25.104 -11.184
Core Plate Delta-P: psia	15.147	AVG BOT 8ft/12ft	1.1328 1.0590
Coolant Temp: Deg-F	547.8		
In Channel Flow: Mlb/hr	77.99	Active Channel Flow: Mlb/hr	75.26
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR					LHGR									
Value	FT	IR	JR	Value	Margin	FT	IR	JR	Value	Margin	Exp.	FT	IR	JR	K	Value	Margin	Exp.	FT	IR	JR	K
1.501	11	45	30	1.610	0.876	11	43	28	10.82	0.845	13.9	10	49	26	3	12.39	0.879	16.9	10	49	26	3
1.499	11	43	28	1.628	0.866	11	33	18	10.67	0.833	13.5	11	47	28	3	12.23	0.868	17.0	10	47	24	3
1.490	11	31	16	1.628	0.866	11	41	30	10.64	0.832	13.5	10	35	12	3	12.14	0.861	16.3	11	47	28	3
1.489	11	33	18	1.630	0.865	11	45	30	10.63	0.831	14.1	10	47	24	3	12.12	0.860	15.1	11	45	30	3
1.488	11	41	30	1.641	0.859	11	31	20	10.53	0.823	13.1	11	49	30	3	12.11	0.859	15.6	11	49	30	3
1.477	11	31	20	1.649	0.855	11	31	16	10.53	0.823	12.3	11	45	30	3	12.08	0.857	14.4	11	31	16	3
1.472	11	47	28	1.653	0.853	11	47	28	10.49	0.819	13.7	11	45	26	3	12.04	0.854	16.1	10	35	12	3
1.471	11	45	26	1.658	0.851	11	41	26	10.48	0.819	12.9	11	33	14	3	11.98	0.849	15.8	11	33	14	3
1.465	11	41	26	1.661	0.849	11	45	26	10.45	0.817	13.7	10	37	14	3	11.95	0.848	15.0	11	31	12	3
1.459	11	33	14	1.663	0.848	11	35	20	8.43	0.812	38.7	9	47	26	3	11.90	0.844	16.6	11	45	26	3

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.18 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 6,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	24763.5
Exposure: MWd/MTU (Gwd)	6075.0 (837.70)		
Delta E: MWd/MTU, (Gwd)	75.0 (10.34)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.76		
Flow: Mlb/hr	88.30 (86.14 %)		
		Axial Profile	Edit Radial Power
		N(PRA)	Power Exposure Zone Avg. Max. IR JR
		Top 25	0.183 5.107 4 0.511 0.783 25 56
		24	0.480 13.736 5 0.344 0.730 25 54
		23	0.624 17.983 6 0.332 0.332 21 40
		22	0.736 21.465 7 1.044 1.349 15 58
		21	0.800 23.396 8 1.210 1.386 1 48
		20	0.840 24.584 9 1.164 1.344 17 60
		19	0.853 24.945 10 1.189 1.443 17 54
		18	0.868 25.441 11 1.389 1.501 15 60
		17	0.878 25.775 12 1.211 1.343 21 58
		16	0.890 26.105
		15	0.914 26.782
		14	0.911 26.485
		13	1.032 25.650
		12	1.075 26.643
		11	1.110 27.347
		10	1.157 28.272
		9	1.211 29.140
		8	1.265 29.716
		7	1.332 30.273
		6	1.428 31.230
		5	1.517 31.617*
		4	1.581 31.224
		3	1.606* 30.007
		2	1.325 23.945
		Bottom 1	0.383 7.001
			% AXIAL TILT -25.086 -11.207
			AVG BOT 8ft/12ft 1.1325 1.0591
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29			
1			59 :JR
3			55
5			51
7			47
9			43
11			39
13			35
15			31
17			27
19			23
21			19
23			15
25			11
27			7
29			3
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	3.78		
k-effective:	0.99878		
Void Fraction:	0.446		
Core Delta-P: psia	19.610		
Core Plate Delta-P: psia	15.065		
Coolant Temp: Deg-F	547.8		
In Channel Flow: Mlb/hr	77.76	Active Channel Flow: Mlb/hr	75.03
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00009		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.501	11	45	30	1.608	0.877	11	43	10.84	0.847	14.1	10	49	12.40	0.879	17.1
1.500	11	43	28	1.625	0.868	11	33	10.69	0.835	13.7	11	47	12.24	0.868	17.2
1.491	11	31	16	1.626	0.867	11	41	10.67	0.833	13.7	10	35	12.16	0.862	16.6
1.489	11	33	18	1.627	0.866	11	45	10.65	0.832	14.3	10	47	12.14	0.861	15.3
1.488	11	41	30	1.640	0.860	11	31	10.57	0.826	13.3	11	49	12.13	0.860	15.8
1.477	11	31	20	1.646	0.856	11	31	10.56	0.825	12.5	11	45	12.10	0.858	14.6
1.473	11	47	28	1.650	0.854	11	47	10.51	0.821	13.1	11	33	12.06	0.855	16.4
1.472	11	45	26	1.655	0.852	11	41	10.51	0.821	13.9	11	45	12.00	0.851	16.0
1.465	11	41	26	1.658	0.851	11	45	10.47	0.818	13.9	10	37	11.98	0.850	15.2
1.460	11	33	14	1.661	0.849	11	35	8.43	0.814	38.9	9	47	11.90	0.844	16.8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.19 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 6,075.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: Mwd/MTU	24764.1	
Exposure: Mwd/MTU (Gwd)	6076.0 (837.84)			
Delta E: Mwd/MTU, (Gwd)	1.0 (0.14)			
Power: MWt	3458.0 (100.00 %)			
Core Pressure: psia	1050.1			
Inlet Subcooling: Btu/lbm	-27.42			
Flow: Mlb/hr	95.46 (93.14 %)			
		Axial Profile	Edit Radial Power	
		N(PRA) Power Exposure	Zone Avg. Max. IR JR	
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25 0.173 5.107	4 0.519 0.785 25 56	
1		24 0.457 13.736	5 0.351 0.735 7 36	
3		23 0.594 17.984	6 0.349 0.349 21 40	
5		22 0.699 21.466	7 1.032 1.300 15 58	
7		21 0.755 23.397	8 1.155 1.336 13 60	
9		20 0.788 24.584	9 1.220 1.320 17 60	
11		19 0.804 24.946	10 1.206 1.456 7 44	
13		18 0.831 25.442	11 1.344 1.461 15 60	
15		17 0.852 25.776	12 1.281 1.370 11 48	
17		16 0.873 26.106		
19		15 0.905 26.783		
21		14 0.909 26.485		
23		13 1.037 25.651		
25		12 1.087 26.644		
27		11 1.127 27.348		
29		10 1.180 28.273		
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9 1.238 29.141		
		8 1.296 29.717		
		7 1.366 30.274		
		6 1.466 31.231		
		5 1.557 31.619*		
		4 1.621 31.226		
		3 1.642* 30.009		
		2 1.352 23.946		
		Bottom 1 0.391 7.002		
Control Rod Density: %	3.96			
k-effective:	0.99873			
Void Fraction:	0.441			
Core Delta-P: psia	22.027	% AXIAL TILT -27.888 -11.207		
Core Plate Delta-P: psia	17.480	AVG BOT 8ft/12ft 1.1507 1.0591		
Coolant Temp: Deg-F	548.1			
In Channel Flow: Mlb/hr	84.15	Active Channel Flow: Mlb/hr	81.23	
Total Bypass Flow (%):	11.9	(of total core flow)		
Total Water Rod Flow (%):	3.1	(of total core flow)		
Source Convergence	0.00010			

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.461	11	45	30	1.775	0.794	11	45	10.90	0.851	13.7	10	35	12.28	0.871	16.4
1.456	10	37	14	1.780	0.792	11	41	10.85	0.848	13.9	10	37	12.20	0.865	16.3
1.452	11	41	30	1.791	0.787	11	37	10.68	0.834	14.1	10	49	12.14	0.861	16.0
1.441	11	33	14	1.800	0.783	11	47	10.56	0.825	13.1	11	33	12.13	0.860	17.1
1.441	11	37	30	1.804	0.782	11	33	10.51	0.821	12.8	11	31	12.06	0.855	15.2
1.441	11	47	28	1.811	0.778	11	33	10.44	0.816	13.3	11	49	11.99	0.850	14.6
1.438	10	35	12	1.814	0.777	10	37	10.40	0.813	13.7	11	47	11.97	0.849	15.9
1.437	11	33	30	1.825	0.772	11	35	8.36	0.809	39.2	9	35	11.95	0.848	16.2
1.431	11	35	16	1.831	0.770	11	31	10.36	0.809	12.6	11	41	11.95	0.847	15.7
1.431	11	31	16	1.832	0.770	11	43	8.26	0.808	40.3	9	39	11.93	0.846	16.3

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.20 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 6,076.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: Mwd/MTU	25188.5
Exposure: Mwd/MTU (Gwd)	6500.0 (896.31)		
Delta E: Mwd/MTU, (Gwd)	424.0 (58.47)		
Power: Mwt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.78		
Flow: Mlb/hr	94.28 (91.98 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure Zone Avg. Max. IR JR	
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25 0.176 5.185 4 0.516 0.784 25 56	
1		24 0.464 13.945 5 0.349 0.734 7 36	
3		23 0.602 18.255 6 0.345 0.345 21 40	
5		22 0.706 21.786 7 1.029 1.295 15 58	
7		21 0.762 23.743 8 1.149 1.329 13 60	
9		20 0.793 24.946 9 1.218 1.315 17 60	
11		19 0.808 25.315 10 1.213 1.462 7 44	
13		18 0.834 25.823 11 1.346 1.464 15 60	
15		17 0.854 26.166 12 1.290 1.379 11 44	
17		16 0.872 26.505	
19		15 0.903 27.196	
21		14 0.904 26.900	
23		13 1.029 26.061	
25		12 1.076 27.073	
27		11 1.114 27.793	
29		10 1.167 28.738	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9 1.225 29.629	
		8 1.285 30.229	
		7 1.358 30.814	
		6 1.462 31.812	
		5 1.558 32.237*	
		4 1.629 31.871	
		3 1.657* 30.661	
		2 1.370 24.484	
		Bottom 1 0.397 7.167	
Control Rod Density: %	3.96		
k-effective:	0.99865		
Void Fraction:	0.442		
Core Delta-P: psia	21.630	% AXIAL TILT	-27.624 -11.378
Core Plate Delta-P: psia	17.084	AVG BOT 8ft/12ft	1.1483 1.0600
Coolant Temp: Deg-F	548.1		
In Channel Flow: Mlb/hr	83.09	Active Channel Flow: Mlb/hr	80.20
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00009		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.464	11	45	30	1.762	0.800	11	45	10.94	0.855	14.8	10	35	12.26	0.869	17.6
1.462	10	37	14	1.773	0.795	11	41	10.87	0.850	15.0	10	37	12.22	0.867	17.6
1.450	11	41	30	1.784	0.790	11	47	10.69	0.836	15.2	10	49	12.15	0.862	17.1
1.446	11	33	14	1.789	0.788	11	37	10.66	0.833	14.2	11	33	12.14	0.861	17.2
1.445	11	47	28	1.794	0.786	11	33	10.66	0.833	13.7	11	41	12.14	0.861	16.6
1.444	10	35	12	1.795	0.786	10	37	10.65	0.832	13.9	11	31	12.13	0.860	16.5
1.436	11	37	30	1.801	0.783	11	33	10.54	0.823	14.4	11	49	12.09	0.857	18.1
1.435	11	35	16	1.809	0.780	11	35	10.48	0.819	14.0	11	49	12.09	0.857	17.2
1.434	11	31	16	1.821	0.774	11	43	8.28	0.817	41.1	9	39	12.04	0.854	15.8
1.433	10	49	26	1.822	0.774	11	31	10.45	0.816	14.7	11	47	12.04	0.854	17.4

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.21 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 6,500.0 MWD/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: Mwd/MTU	25688.6
Exposure: Mwd/MTU (Gwd)	7000.0 (965.26)		
Delta E: Mwd/MTU, (Gwd)	500.0 (68.95)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-28.30		
Flow: Mlb/hr	92.63 (90.37 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	4 0.513 0.782 25 56
1		24 0.472 14.196	5 0.346 0.734 7 36
3		23 0.611 18.581	6 0.341 0.341 21 40
5		22 0.715 22.168	7 1.025 1.289 15 58
7		21 0.770 24.155	8 1.143 1.319 13 60
9		20 0.800 25.375	9 1.215 1.309 17 60
11		19 0.813 25.752	10 1.221 1.468 7 44
13		18 0.838 26.274	11 1.349 1.466 15 60
15		17 0.856 26.627	12 1.301 1.392 11 44
17		16 0.873 26.976	
19		15 0.901 27.683	
21		14 0.900 27.387	
23		13 1.020 26.540	
25		12 1.064 27.574	
27		11 1.101 28.311	
29		10 1.153 29.281	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9 1.212 30.200	
		8 1.274 30.828	
		7 1.350 31.448	
		6 1.458 32.495	
		5 1.559 32.966*	
		4 1.634 32.634	
		3 1.664* 31.436	
		2 1.382 25.126	
		Bottom 1 0.401 7.363	
Control Rod Density: %	3.96		
k-effective:	0.99857		
Void Fraction:	0.444		
Core Delta-P: psia	21.075	% AXIAL TILT -27.205 -11.565	
Core Plate Delta-P: psia	16.529	AVG BOT 8ft/12ft 1.1449 1.0609	
Coolant Temp: Deg-F	548.0		
In Channel Flow: Mlb/hr	81.60	Active Channel Flow: Mlb/hr	78.76
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00007		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.468	10	37	14	1.745	0.808	11	45	10.86	0.856	16.1	10	12.32	0.874	17.9	11
1.466	11	45	30	1.762	0.800	11	41	10.91	0.852	15.0	11	12.26	0.870	18.6	12
1.450	11	33	14	1.765	0.799	11	47	10.78	0.851	16.3	10	12.22	0.867	18.7	12
1.450	10	35	12	1.770	0.797	10	37	10.69	0.837	15.2	11	12.14	0.862	19.1	10
1.448	11	41	30	1.772	0.796	11	33	10.67	0.835	15.2	11	12.11	0.860	19.1	10
1.448	11	47	28	1.780	0.792	11	37	10.56	0.835	16.5	10	12.08	0.857	17.9	11
1.439	11	35	16	1.787	0.789	11	35	10.64	0.834	15.5	11	12.07	0.856	17.5	10
1.438	11	31	16	1.788	0.788	11	33	10.66	0.834	15.2	12	12.07	0.856	18.6	11
1.437	10	49	26	1.801	0.783	11	31	10.62	0.830	15.0	12	12.06	0.855	17.7	12
1.433	11	37	30	1.806	0.781	11	43	8.40	0.826	40.7	9	12.05	0.855	18.8	11

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.22 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 7,000.0 Mwd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: Mwd/MTU	26188.5	
Exposure: Mwd/MTU (Gwd)	7500.0 (1034.20)			
Delta E: Mwd/MTU, (Gwd)	500.0 (68.95)			
Power: Mwt	3458.0 (100.00 %)			
Core Pressure: psia	1050.1			
Inlet Subcooling: Btu/lbm	-28.80			
Flow: Mlb/hr	91.10 (88.88 %)			
		Axial Profile	Edit Radial Power	
		N (PRA)	Power Exposure Zone Avg. Max. IR JR	
		Top 25	0.183 5.376 4 0.511 0.780 25 56	
		24	0.480 14.451 5 0.344 0.733 7 36	
		23	0.622 18.911 6 0.337 0.337 21 40	
		22	0.725 22.555 7 1.022 1.282 15 58	
		21	0.780 24.572 8 1.138 1.310 13 60	
		20	0.809 25.808 9 1.213 1.302 17 60	
		19	0.821 26.193 10 1.227 1.472 7 44	
		18	0.844 26.728 11 1.351 1.467 15 60	
		17	0.861 27.091 12 1.310 1.403 11 44	
		16	0.877 27.448	
		15	0.903 28.169	
		14	0.900 27.872	
		13	1.017 27.016	
		12	1.059 28.070	
		11	1.095 28.825	
		10	1.146 29.819	
		9	1.206 30.765	
		8	1.268 31.422	
		7	1.346 32.079	
		6	1.455 33.176	
		5	1.555 33.694*	
		4	1.626 33.397	
		3	1.649* 32.209	
		2	1.374 25.768	
		Bottom 1	0.398 7.560	
			% AXIAL TILT -26.572 -11.735	
			AVG BOT 8ft/12ft 1.1408 1.0617	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58				
Control Rod Density: %	3.96			
k-effective:	0.99850			
Void Fraction:	0.445			
Core Delta-P: psia	20.563			
Core Plate Delta-P: psia	16.018			
Coolant Temp: Deg-F	548.0			
In Channel Flow: Mlb/hr	80.24	Active Channel Flow: Mlb/hr	77.44	
Total Bypass Flow (%):	11.9	(of total core flow)		
Total Water Rod Flow (%):	3.1	(of total core flow)		
Source Convergence	0.00008			

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp. FT	IR	Value	Margin	Exp. FT	IR
1.472	10	37	14	1.729	0.815	11	45	10.93	0.863	16.3	11	12.31	0.877	19.4	11
1.467	11	45	30	1.746	0.807	11	47	10.72	0.847	16.5	12	12.15	0.871	20.1	12
1.453	10	35	12	1.748	0.807	10	37	10.60	0.845	17.4	10	12.22	0.870	19.3	12
1.453	11	33	14	1.751	0.805	11	33	10.68	0.845	16.5	11	12.12	0.861	19.1	12
1.450	11	47	28	1.751	0.805	11	41	10.66	0.841	16.3	12	12.00	0.856	19.6	11
1.446	11	41	30	1.767	0.798	11	35	10.53	0.840	17.6	10	11.99	0.855	19.5	12
1.442	11	35	16	1.770	0.797	11	37	10.48	0.828	16.5	11	11.89	0.854	20.3	11
1.441	11	31	16	1.775	0.794	11	33	8.20	0.826	43.2	9	11.86	0.853	20.5	10
1.441	10	49	26	1.781	0.792	11	31	10.40	0.824	16.8	11	11.99	0.850	18.9	10
1.434	11	39	16	1.792	0.787	11	43	10.27	0.820	17.8	10	11.85	0.850	20.3	10

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.23 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 7,500.0 Mwd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	26688.6	
Exposure: MWd/MTU (Gwd)	8000.0 (1103.20)			
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)			
Power: Mwt	3458.0 (100.00 %)			
Core Pressure: psia	1050.1			
Inlet Subcooling: Btu/lbm	-29.22			
Flow: Mlb/hr	89.83 (87.64 %)			
		Axial Profile	Edit Radial Power	
		N(PRA) Power Exposure	Zone Avg. Max. IR JR	
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	0.188 5.474 4 0.509 0.779 25 56	
1		24	0.492 14.712 5 0.342 0.733 7 36	
3		23	0.637 19.249 6 0.334 0.334 21 40	
5		22	0.741 22.950 7 1.019 1.277 15 58	
7		21	0.796 24.996 8 1.133 1.303 13 60	
9		20	0.824 26.248 9 1.211 1.296 17 60	
11		19	0.835 26.639 10 1.232 1.474 7 44	
13		18	0.857 27.187 11 1.354 1.468 15 60	
15		17	0.873 27.559 12 1.318 1.410 11 44	
17		16	0.888 27.924	
19		15	0.913 28.659	
21		14	0.907 28.359	
23		13	1.022 27.493	
25		12	1.062 28.566	
27		11	1.096 29.338	
29		10	1.147 30.355	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	1.206 31.330	
		8	1.268 32.016	
		7	1.344 32.708	
		6	1.449 33.856	
		5	1.540 34.419*	
		4	1.597 34.151	
		3	1.600* 32.966	
		2	1.331 26.399	
		Bottom 1	0.386 7.754	
Control Rod Density: %	3.96			
k-effective:	0.99847			
Void Fraction:	0.444			
Core Delta-P: psia	20.097	% AXIAL TILT	-25.342 -11.881	
Core Plate Delta-P: psia	15.551	AVG BOT 8ft/12ft	1.1340 1.0623	
Coolant Temp: Deg-F	547.9			
In Channel Flow: Mlb/hr	79.13	Active Channel Flow: Mlb/hr	76.36	
Total Bypass Flow (%):	11.9	(of total core flow)		
Total Water Rod Flow (%):	3.1	(of total core flow)		
Source Convergence	0.00009			

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.474	10	37	14	1.712	0.824	11	45	10.65	0.850	17.6	11	41	11.96	0.863	20.8
1.468	11	45	30	1.727	0.817	10	37	10.46	0.836	17.7	12	41	11.93	0.860	20.8
1.456	10	35	12	1.728	0.816	11	47	10.38	0.830	17.8	11	49	11.84	0.851	20.5
1.456	11	33	14	1.730	0.815	11	33	10.40	0.829	17.5	12	39	11.82	0.850	20.6
1.452	11	47	28	1.738	0.811	11	41	10.14	0.816	18.7	10	35	11.70	0.845	21.0
1.445	11	41	30	1.746	0.807	11	35	7.99	0.813	44.1	9	39	11.64	0.841	21.0
1.445	11	35	16	1.758	0.802	11	37	10.06	0.811	18.9	10	37	11.61	0.838	20.9
1.444	11	31	16	1.760	0.801	11	31	10.08	0.805	17.8	12	47	11.63	0.835	20.3
1.443	10	49	26	1.761	0.801	11	33	10.07	0.804	17.7	12	49	11.45	0.832	21.7
1.439	11	39	16	1.768	0.798	11	39	7.96	0.803	43.2	9	43	11.52	0.830	20.7

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.24 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 8,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	26931.5
Exposure: MWd/MTU (Gwd)	8242.9 (1136.60)		
Delta E: MWd/MTU, (Gwd)	242.9 (33.49)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-29.48		
Flow: Mlb/hr	89.08 (86.90 %)		
		Axial Profile	Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	4 0.508 0.778 25 56
1		24	5 0.342 0.733 7 36
3		23	6 0.333 0.333 21 40
5		22	7 1.018 1.274 15 58
7		21	8 1.131 1.300 13 60
9		20	9 1.210 1.294 17 60
11		19	10 1.234 1.475 7 44
13		18	11 1.355 1.469 15 60
15		17	12 1.321 1.413 11 44
17		16	
19		15	
21		14	
23		13	
25		12	
27		11	
29		10	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	
		8	
		7	
		6	
		5	
		4	
		3	
		2	
		1	
Control Rod Density: %	3.96	Bottom	1 0.377 7.845
k-effective:	0.99847		
Void Fraction:	0.443		
Core Delta-P: psia	19.829	% AXIAL TILT	-24.547 -11.940
Core Plate Delta-P: psia	15.283	AVG BOT 8ft/12ft	1.1297 1.0626
Coolant Temp: Deg-F	547.8		
In Channel Flow: Mlb/hr	78.47	Active Channel Flow: Mlb/hr	75.72
Total Bypass Flow (%):	11.9	(of total core flow)	
Total Water Rod Flow (%):	3.1	(of total core flow)	
Source Convergence	0.00006		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp. FT	IR	Value	Margin	Exp. FT	IR
1.475	10	37	14	1.700	0.829	11	45	10.42	0.836	18.3	11	11.70	0.849	21.5	11
1.469	11	45	30	1.714	0.823	10	37	10.24	0.822	18.3	12	11.68	0.847	21.5	12
1.457	11	33	14	1.716	0.822	11	47	10.16	0.816	18.4	11	11.59	0.838	21.2	12
1.457	10	35	12	1.717	0.821	11	33	10.18	0.816	18.1	12	11.56	0.837	21.3	12
1.453	11	47	28	1.729	0.815	11	41	7.85	0.802	44.6	9	11.47	0.834	21.7	12
1.446	11	35	16	1.734	0.813	11	35	9.87	0.798	19.3	10	11.38	0.827	21.7	11
1.445	11	31	16	1.748	0.807	11	31	7.84	0.794	43.7	9	11.36	0.825	21.6	12
1.445	11	41	30	1.749	0.806	11	37	9.78	0.792	19.4	10	11.36	0.821	21.0	10
1.444	10	49	26	1.751	0.805	11	33	9.86	0.792	18.4	12	11.27	0.816	21.4	12
1.441	11	39	16	1.753	0.804	11	39	7.66	0.791	45.6	9	11.16	0.816	22.4	11

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.25 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 8,242.9 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	26932.0
Exposure: MWd/MTU (Gwd)	8243.9 (1136.80)		
Delta E: MWd/MTU, (Gwd)	1.0 (0.14)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.30		
Flow: Mlb/hr	95.86 (93.52 %)		
		Axial Profile	Radial Power
		N(PRA) Power Exposure	Edit Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	4 0.506 0.772 25 56
1		24	5 0.343 0.732 25 54
3		23	6 0.341 0.341 21 40
5		22	7 1.017 1.240 21 56
7		21	8 1.181 1.297 15 54
9		20	9 1.148 1.320 13 48
11		19	10 1.232 1.476 17 54
13		18	11 1.319 1.468 15 52
15		17	12 1.365 1.460 13 50
17		16	
19		15	
21		14	
23		13	
25		12	
27		11	
29		10	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	
Control Rod Density: %	4.41	8	
k-effective:	0.99846	7	
Void Fraction:	0.429	6	
Core Delta-P: psia	21.992	5	
Core Plate Delta-P: psia	17.444	4	
Coolant Temp: Deg-F	548.0	3	
In Channel Flow: Mlb/hr	84.59	2	
Total Bypass Flow (%):	11.8	1	
Total Water Rod Flow (%):	3.0		
Source Convergence	0.00006		
		Bottom	
		% AXIAL TILT -23.114 -11.940	
		AVG BOT 8ft/12ft 1.1199 1.0626	
		Active Channel Flow: Mlb/hr	81.70
		(of total core flow)	
		(of total core flow)	

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.476	10	47	24	1.773	0.795	11	45	10.49	0.843	18.4	11	49	11.89	0.864	21.7
1.468	11	45	22	1.785	0.790	10	47	10.40	0.835	18.4	12	47	11.84	0.860	21.7
1.462	10	37	14	1.797	0.785	10	37	10.41	0.835	18.3	11	41	11.83	0.859	21.6
1.460	12	43	20	1.797	0.785	11	39	10.29	0.826	18.3	12	41	11.74	0.852	21.5
1.457	11	39	16	1.833	0.769	11	45	8.13	0.814	42.7	9	47	11.73	0.850	21.5
1.457	12	41	18	1.839	0.767	12	43	10.19	0.814	17.8	12	45	11.65	0.843	21.3
1.453	12	45	18	1.850	0.762	12	41	10.11	0.811	18.3	12	49	11.59	0.840	21.4
1.449	12	43	16	1.851	0.762	11	35	10.10	0.810	18.2	12	43	11.52	0.835	21.4
1.449	12	47	20	1.861	0.758	11	43	7.98	0.808	43.7	9	43	11.50	0.832	21.2
1.439	12	41	14	1.864	0.757	12	45	7.94	0.805	43.8	9	45	11.41	0.829	21.6

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.26 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 8,243.9 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	27188.5
Exposure: MWd/MTU (GWd)	8500.0 (1172.10)		
Delta E: MWd/MTU, (GWd)	256.1 (35.31)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.62		
Flow: Mlb/hr	94.80 (92.48 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25 0.199 5.577	4 0.506 0.772 25 56
1		24 0.522 14.984	5 0.342 0.732 25 54
3		23 0.676 19.600	6 0.340 0.340 21 40
5		22 0.786 23.360	7 1.016 1.240 21 56
7		21 0.845 25.437	8 1.179 1.295 15 54
9		20 0.876 26.706	9 1.148 1.318 13 48
11		19 0.876 27.101	10 1.234 1.477 17 54
13		18 0.892 27.658	11 1.321 1.469 15 52
15		17 0.902 28.037	12 1.367 1.462 13 50
17		16 0.911 28.409	
19		15 0.932 29.156	
21		14 0.920 28.852	
23		13 1.033 27.973	
25		12 1.070 29.065	
27		11 1.102 29.852	
29		10 1.152 30.893	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9 1.209 31.894	
		8 1.267 32.609	
		7 1.335 33.335	
		6 1.428 34.529	
		5 1.496 35.129*	
		4 1.517* 34.880	
		3 1.483 33.686	
		2 1.218 26.993	
		Bottom 1 0.352 7.936	
Control Rod Density: %	4.41	% AXIAL TILT -22.085 -11.979	
k-effective:	0.99846	AVG BOT 8ft/12ft 1.1145 1.0627	
Void Fraction:	0.427		
Core Delta-P: psia	21.628		
Core Plate Delta-P: psia	17.081		
Coolant Temp: Deg-F	547.9		
In Channel Flow: Mlb/hr	83.65	Active Channel Flow: Mlb/hr	80.78
Total Bypass Flow (%):	11.8	(of total core flow)	
Total Water Rod Flow (%):	3.0	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.477	10	47	24	1.756	0.803	11	45	10.17	0.821	19.0	11	49	11.53	0.844	22.4
1.469	11	45	22	1.769	0.797	10	47	10.11	0.815	18.9	11	41	11.46	0.838	22.4
1.464	10	37	14	1.780	0.792	11	39	10.08	0.813	19.0	12	47	11.46	0.837	22.3
1.462	12	43	20	1.780	0.792	10	37	9.98	0.806	19.1	12	41	11.38	0.831	22.2
1.458	12	41	18	1.817	0.776	11	45	7.94	0.800	43.2	9	47	11.37	0.830	22.2
1.458	11	39	16	1.820	0.775	12	43	9.92	0.799	18.8	12	45	11.30	0.823	22.0
1.454	12	45	18	1.831	0.770	12	41	9.88	0.796	18.8	12	43	11.20	0.820	22.6
1.450	12	43	16	1.834	0.769	11	35	7.80	0.794	44.2	9	43	11.22	0.818	22.1
1.450	12	47	20	1.844	0.764	11	43	9.81	0.792	19.0	12	49	11.14	0.814	22.3
1.441	12	41	14	1.845	0.764	12	45	7.75	0.789	44.3	9	45	11.16	0.812	21.9

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.27 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 8,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU										27688.5				
Exposure: MWd/MTU (Gwd)	9000.0	(1241.00)														
Delta E: MWd/MTU, (Gwd)	500.0	(68.95)														
Power: MWt	3458.0	(100.00 %)														
Core Pressure: psia	1050.1															
Inlet Subcooling: Btu/lbm	-28.12															
Flow: Mlb/hr	93.19	(90.92 %)														
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29		
1															59	:JR
3															55	
5															51	
7															47	
9															43	
11															39	
13															35	
15															31	
17															27	
19															23	
21															19	
23															15	
25															11	
27															7	
29															3	
IR: 2	6	10	14	18	22	26	30	34	38	42	46	50	54	58		
												5	1.453*	35.819*		
												4	1.445	35.573		
												3	1.383	34.354		
												2	1.126	27.540		
												Bottom 1	0.325	8.103		
																% AXIAL TILT -19.730 -12.022
																AVG BOT 8ft/12ft 1.1024 1.0629

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.479	10	47	24	1.727	0.817	11	45	9.50	0.775	20.4	12	47	10.85	0.805	24.0
1.471	11	45	22	1.741	0.810	10	47	9.51	0.771	19.7	11	49	10.70	0.790	23.5
1.466	10	37	14	1.750	0.806	11	39	9.44	0.770	20.3	12	41	10.65	0.787	23.6
1.466	12	43	20	1.752	0.805	10	37	9.46	0.767	19.6	11	41	10.64	0.785	23.4
1.461	12	41	18	1.788	0.788	12	43	7.50	0.763	44.1	9	47	10.65	0.785	23.4
1.461	11	39	16	1.789	0.788	11	45	9.35	0.761	20.0	12	45	10.57	0.783	23.9
1.455	12	45	18	1.800	0.783	12	41	7.33	0.760	45.9	9	47	10.59	0.780	23.3
1.452	12	47	20	1.806	0.781	11	35	7.37	0.759	45.3	9	45	8.05	0.776	49.8
1.452	12	43	16	1.812	0.778	12	47	7.35	0.758	45.4	9	43	10.52	0.775	23.3
1.443	12	41	14	1.813	0.778	12	45	9.31	0.758	20.0	12	43	10.49	0.775	23.6

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.28 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 9,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	28188.6
Exposure: MWd/MTU (Gwd)	9500.0 (1310.00)		
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)		
Power: MWT	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-28.76		
Flow: Mlb/hr	91.21 (88.98 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure Zone Avg. Max. IR JR	
		Top 25 0.215 5.797 4 0.503 0.771 25 56	
		24 0.560 15.563 5 0.340 0.732 25 54	
		23 0.725 20.351 6 0.335 0.335 21 40	
		22 0.840 24.234 7 1.013 1.239 21 56	
		21 0.902 26.376 8 1.170 1.290 15 54	
		20 0.933 27.680 9 1.146 1.311 13 48	
		19 0.932 28.075 10 1.243 1.482 17 54	
		18 0.948 28.649 11 1.327 1.474 15 52	
		17 0.958 29.039 12 1.374 1.468 13 50	
		16 0.966 29.421	
		15 0.985 30.189	
		14 0.967 29.869	
		13 1.077 28.959	
		12 1.109 30.084	
		11 1.137 30.899	
		10 1.183 31.985	
		9 1.233 33.037	
		8 1.277 33.799	
		7 1.323 34.580	
		6 1.381 35.846	
		5 1.398* 36.486*	
		4 1.358 36.229	
		3 1.272 34.974	
		2 1.025 28.041	
		Bottom 1 0.296 8.256	
		% AXIAL TILT -16.984 -12.017	
		AVG BOT 8ft/12ft 1.0887 1.0628	
Control Rod Density: %	4.41		
k-effective:	0.99848		
Void Fraction:	0.419		
Core Delta-P: psia	20.293		
Core Plate Delta-P: psia	15.746		
Coolant Temp: Deg-F	547.5		
In Channel Flow: Mlb/hr	80.51	Active Channel Flow: Mlb/hr	77.76
Total Bypass Flow (%):	11.7	(of total core flow)	
Total Water Rod Flow (%):	3.0	(of total core flow)	
Source Convergence	0.00005		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp. FT	IR	Value	Margin	Exp. FT	IR
1.482	10	47	24	1.692	0.833	11	45	7.13	0.734	45.3	9	10.14	0.761	25.3	12
1.474	11	45	22	1.708	0.826	10	47	8.96	0.734	20.8	11	7.68	0.749	50.8	9
1.469	10	37	14	1.716	0.822	11	39	7.00	0.732	46.8	9	10.01	0.748	24.8	12
1.468	12	43	20	1.718	0.821	10	37	8.95	0.732	20.6	12	7.64	0.745	50.8	9
1.464	12	41	18	1.752	0.805	12	43	7.03	0.731	46.3	9	7.56	0.745	51.6	9
1.463	11	39	16	1.756	0.803	11	45	7.03	0.731	46.2	9	9.99	0.745	24.6	11
1.457	12	45	18	1.764	0.800	12	41	8.92	0.730	20.7	11	9.96	0.744	24.8	12
1.455	12	47	20	1.773	0.795	12	47	8.90	0.727	20.6	12	9.96	0.743	24.7	12
1.453	12	43	16	1.774	0.795	11	35	6.97	0.727	46.5	9	9.94	0.740	24.5	11
1.446	12	41	14	1.775	0.794	12	45	6.96	0.727	46.7	9	9.94	0.739	24.3	12

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.29 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 9,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU										28688.6		
Exposure: MWd/MTU (Gwd)	10000.0 (1378.90)													
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)													
Power: MWt	3458.0 (100.00 %)													
Core Pressure: psia	1050.1													
Inlet Subcooling: Btu/lbm	-29.53													
Flow: Mlb/hr	88.94 (86.77 %)													
		Axial Profile										Edit	Radial Power	
		N(PRA)	Power	Exposure	Zone	Avg.	Max.	IR	JR					
Top	25	0.223	5.913	4	0.502	0.771	25	56						
	24	0.580	15.869	5	0.339	0.732	25	54						
	23	0.751	20.746	6	0.333	0.333	21	40						
	22	0.869	24.694	7	1.011	1.239	21	56						
	21	0.933	26.869	8	1.165	1.288	15	54						
	20	0.965	28.191	9	1.145	1.308	13	48						
	19	0.965	28.586	10	1.247	1.486	17	54						
	18	0.981	29.170	11	1.330	1.477	15	52						
	17	0.992	29.565	12	1.377	1.471	13	50						
	16	1.000	29.951											
	15	1.018	30.730											
	13	0.997	30.399											
	15	1.106	29.470											
	17	1.135	30.609											
	19	1.159	31.436											
	21	1.201	32.542											
	23	1.245	33.616											
	25	1.279	34.397											
	27	1.310	35.196											
	29	1.345*	36.483											
IR: 2	6	10	14	18	22	26	30	34	38	42	46	50	54	58
Control Rod Density: %	4.41													
k-effective:	0.99846													
Void Fraction:	0.414													
Core Delta-P: psia	19.461	% AXIAL TILT -14.005 -11.961												
Core Plate Delta-P: psia	14.914	AVG BOT 8ft/12ft 1.0741 1.0624												
Coolant Temp: Deg-F	547.2													
In Channel Flow: Mlb/hr	78.53	Active Channel Flow: Mlb/hr										75.86		
Total Bypass Flow (%):	11.7	(of total core flow)												
Total Water Rod Flow (%):	3.0	(of total core flow)												
Source Convergence	0.00007													

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp. FT	IR	Value	Margin	Exp. FT	IR
1.486	10	47	24	1.655	0.852	11	45	6.78	0.706	46.4	9	9.65	0.725	25.5	12
1.477	11	45	22	1.671	0.844	10	47	6.79	0.704	45.8	9	7.44	0.721	50.2	9
1.473	10	37	14	1.678	0.840	11	39	6.76	0.702	46.2	9	7.40	0.717	50.2	9
1.471	12	43	20	1.681	0.839	10	37	6.75	0.702	46.2	9	7.18	0.715	52.5	9
1.466	12	41	18	1.712	0.823	12	43	8.50	0.701	21.6	12	9.52	0.711	24.8	12
1.466	11	39	16	1.721	0.819	11	45	6.74	0.701	46.3	9	9.47	0.709	25.0	12
1.458	12	45	18	1.724	0.818	12	41	6.73	0.699	46.1	9	7.30	0.708	50.3	9
1.457	12	47	20	1.730	0.815	12	47	8.45	0.697	21.6	12	7.28	0.707	50.5	9
1.455	12	43	16	1.734	0.813	12	45	8.50	0.696	20.8	11	9.47	0.707	24.7	12
1.448	12	41	14	1.738	0.811	11	35	6.88	0.696	43.6	9	9.41	0.707	25.4	12

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.30 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 10,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU										28689.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Exposure: MWd/MTU (Gwd)	10001.0	(1379.10)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Delta E: MWd/MTU, (Gwd)	1.0	(0.14)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Power: MWt	3458.0	(100.00 %)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Core Pressure: psia	1050.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Inlet Subcooling: Btu/lbm	-27.99																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Flow: Mlb/hr	93.60	(91.32 %)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.489	10	47	24	1.711	0.824	11	45	6.91	0.719	46.4	9	47	9.83	0.739	25.5
1.485	11	45	22	1.729	0.816	10	47	6.93	0.717	45.8	9	45	7.58	0.735	50.2
1.481	12	43	20	1.735	0.813	11	39	6.88	0.715	46.2	9	41	7.54	0.731	50.2
1.477	12	41	18	1.738	0.811	10	37	6.95	0.715	45.2	9	47	7.30	0.727	52.5
1.475	10	37	14	1.762	0.800	12	43	8.66	0.714	21.6	12	47	9.70	0.725	24.8
1.474	11	39	16	1.774	0.795	12	41	6.86	0.714	46.3	9	39	9.65	0.722	25.0
1.472	12	45	18	1.778	0.793	12	47	6.86	0.712	46.1	9	43	7.44	0.721	50.3
1.469	12	47	20	1.781	0.792	12	45	8.61	0.710	21.6	12	41	7.41	0.721	50.5
1.468	12	43	16	1.789	0.788	12	43	7.02	0.710	43.6	9	43	9.65	0.721	24.7
1.460	12	41	14	1.790	0.788	12	41	8.66	0.709	20.8	11	49	9.66	0.720	24.6

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.31 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 10,001.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	29099.4
Exposure: MWd/MTU (GWd)	10410.8 (1435.60)		
Delta E: MWd/MTU, (GWd)	409.8 (56.51)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-28.52		
Flow: Mlb/hr	91.95 (89.71 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	0.223 6.009 4 0.500 0.769 25 56
1		24	0.579 16.120 5 0.338 0.731 25 54
3		23	0.748 21.071 6 0.333 0.333 21 40
5		22	0.861 25.069 7 1.009 1.238 21 56
7		21	0.917 27.268 8 1.161 1.287 15 54
9		20	0.952 28.606 9 1.143 1.315 13 48
11		19	0.965 29.007 10 1.254 1.491 17 54
13		18	0.993 29.603 11 1.326 1.487 15 52
15		17	1.013 30.007 12 1.389 1.483 13 50
17		16	1.028 30.400
19		15	1.052 31.189
21		14	1.032 30.850
23		13	1.145 29.905
25		12	1.175 31.055
27		11	1.199 31.893
29		10	1.239 33.015
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	1.278 34.106
		8	1.302 34.898
		7	1.317 35.705
		6	1.330* 37.002
		5	1.290 37.633*
		4	1.196 37.319
		3	1.073 35.971
		2	0.847 28.837
		Bottom 1	0.244 8.498
Control Rod Density: %	4.59		
k-effective:	0.99852		
Void Fraction:	0.405		
Core Delta-P: psia	20.410	% AXIAL TILT	-13.117 -11.902
Core Plate Delta-P: psia	15.862	AVG BOT 8ft/12ft	1.0745 1.0621
Coolant Temp: Deg-F	547.2		
In Channel Flow: Mlb/hr	81.24	Active Channel Flow: Mlb/hr	78.51
Total Bypass Flow (%):	11.6	(of total core flow)	
Total Water Rod Flow (%):	3.0	(of total core flow)	
Source Convergence	0.00009		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.491	10	47	24	1.681	0.839	11	45	6.68	0.701	47.0	9	47	7.34	0.717	51.0
1.487	11	45	22	1.695	0.832	10	47	6.70	0.698	46.5	9	45	7.29	0.713	51.0
1.483	12	43	20	1.706	0.827	11	39	6.73	0.697	45.9	9	47	7.15	0.709	52.1
1.479	12	41	18	1.708	0.825	10	37	6.64	0.696	47.0	9	39	9.35	0.709	26.4
1.478	10	37	14	1.731	0.815	12	43	6.65	0.696	46.9	9	41	7.17	0.703	51.2
1.476	11	39	16	1.743	0.809	12	41	6.64	0.695	46.8	9	43	7.18	0.702	51.0
1.473	12	45	18	1.744	0.808	12	47	6.78	0.691	44.3	9	43	7.17	0.701	50.9
1.472	12	47	20	1.749	0.806	12	45	8.37	0.687	21.0	12	47	7.09	0.700	51.7
1.469	12	43	16	1.755	0.803	12	41	6.55	0.685	46.9	9	45	9.32	0.697	24.9
1.463	12	41	14	1.756	0.803	12	43	8.28	0.683	21.7	11	49	7.23	0.696	49.7

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.32 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 10,410.8 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	29188.6
Exposure: MWd/MTU (Gwd)	10500.0 (1447.90)		
Delta E: MWd/MTU, (Gwd)	88.2 (12.16)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.33		
Flow: Mlb/hr	95.76 (93.42 %)		
		Axial Profile	Radial Power
		N(PRA)	Power Exposure
		Top 25	0.222 6.030
		24	0.578 16.175
		23	0.749 21.142
		22	0.868 25.152
		21	0.934 27.358
		20	0.969 28.699
		19	0.981 29.101
		18	1.009 29.700
		17	1.028 30.105
		16	1.042 30.499
		15	1.064 31.291
		14	1.041 30.950
		13	1.152 30.001
		12	1.180 31.154
		11	1.202 31.993
		10	1.240 33.119
		9	1.277 34.212
		8	1.298 35.006
		7	1.308 35.815
		6	1.316* 37.112
		5	1.269 37.740*
		4	1.170 37.417
		3	1.044 36.059
		2	0.822 28.906
		Bottom 1	0.237 8.519
			% AXIAL TILT -12.067 -11.883
			AVG BOT 8ft/12ft 1.0692 1.0621
Control Rod Density: %	5.23		
k-effective:	0.99847		
Void Fraction:	0.396		
Core Delta-P: psia	21.605		
Core Plate Delta-P: psia	17.055		
Coolant Temp: Deg-F	547.3		
In Channel Flow: Mlb/hr	84.70	Active Channel Flow: Mlb/hr	81.88
Total Bypass Flow (%):	11.5	(of total core flow)	
Total Water Rod Flow (%):	2.9	(of total core flow)	
Source Convergence	0.00009		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.545	10	37	14	1.651	0.854	10	37	6.66	0.699	47.1	9	39	7.24	0.712	51.5
1.528	10	35	12	1.669	0.845	11	33	6.53	0.693	48.1	9	37	7.06	0.704	52.7
1.519	11	37	18	1.672	0.843	11	35	6.52	0.689	47.8	8	37	7.03	0.695	51.9
1.516	11	35	16	1.681	0.839	11	39	6.56	0.684	46.5	8	33	6.88	0.695	53.7
1.513	11	33	14	1.682	0.838	11	37	6.52	0.683	46.9	8	49	9.24	0.691	25.0
1.507	11	39	16	1.682	0.838	10	35	6.47	0.682	47.6	9	35	6.97	0.690	52.1
1.499	12	39	20	1.705	0.827	11	45	6.65	0.681	44.8	9	47	9.18	0.688	25.2
1.499	11	45	30	1.712	0.824	11	47	6.46	0.678	47.0	8	39	7.05	0.688	50.8
1.498	11	31	12	1.716	0.822	11	31	8.22	0.673	20.8	12	39	6.86	0.688	53.0
1.497	11	47	28	1.719	0.820	11	31	8.18	0.673	21.3	10	37	9.16	0.687	25.2

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.34 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 10,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	29688.6
Exposure: MWd/MTU (GWd)	11000.0 (1516.80)		
Delta E: MWd/MTU, (GWd)	500.0 (68.95)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.73		
Flow: Mlb/hr	94.45 (92.14 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1	3 5 7 9 11 13 15 17 19 21 23 25 27 29	Top 25	0.231 6.150 4 0.496 0.800 5 36
1	59 :JR	24	0.599 16.491 5 0.328 0.752 7 36
3	55	23	0.775 21.551 6 0.298 0.298 21 40
5	51	22	0.899 25.628 7 1.029 1.322 7 50
7	47	21	0.967 27.869 8 1.124 1.331 7 46
9	43	20	1.005 29.231 9 1.169 1.308 17 60
11	39	19	1.019 29.641 10 1.266 1.548 7 44
13	35	18	1.049 30.255 11 1.402 1.520 7 48
15	31	17	1.069 30.671 12 1.294 1.500 9 50
17	27	16	1.083 31.073
19	23	15	1.105 31.876
21	19	14	1.078 31.522
23	15	13	1.188 30.548
25	11	12	1.212 31.713
27	7	11	1.229 32.562
29	3	10	1.260 33.703
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	1.287 34.812
		8	1.293* 35.613
		7	1.282 36.420
		6	1.261 37.715
		5	1.186 38.314*
		4	1.064 37.940
		3	0.928 36.519
		2	0.723 29.266
		Bottom 1	0.209 8.629
Control Rod Density: %	5.23	% AXIAL TILT	-8.632 -11.743
k-effective:	0.99863	AVG BOT 8ft/12ft	1.0530 1.0614
Void Fraction:	0.388		
Core Delta-P: psia	21.070		
Core Plate Delta-P: psia	16.520		
Coolant Temp: Deg-F	547.0		
In Channel Flow: Mlb/hr	83.58	Active Channel Flow: Mlb/hr	80.81
Total Bypass Flow (%):	11.5	(of total core flow)	
Total Water Rod Flow (%):	2.9	(of total core flow)	
Source Convergence	0.00010		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.548	10	37	14	1.621	0.870	10	37	6.63	0.677	44.6	9	39	7.11	0.689	50.2
1.531	10	35	12	1.648	0.855	11	33	6.53	0.672	45.2	8	37	6.94	0.683	51.4
1.520	11	37	18	1.650	0.855	10	35	6.39	0.670	46.9	9	37	6.97	0.682	50.9
1.518	11	35	16	1.650	0.854	11	35	6.44	0.664	45.4	9	35	7.04	0.677	49.6
1.516	11	33	14	1.655	0.852	11	39	6.45	0.663	45.1	8	39	6.91	0.675	50.9
1.510	11	39	16	1.662	0.848	11	37	6.38	0.661	46.0	8	49	7.00	0.672	49.4
1.501	11	31	12	1.685	0.837	11	45	6.39	0.660	45.6	8	33	6.87	0.668	50.4
1.500	12	39	20	1.690	0.834	11	47	6.46	0.660	44.4	9	41	8.82	0.667	26.1
1.499	11	45	30	1.691	0.834	12	39	6.48	0.657	43.8	9	47	6.92	0.667	49.8
1.498	11	47	28	1.694	0.832	11	31	6.40	0.655	44.7	9	47	8.76	0.663	26.2

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.35 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 11,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	30188.6
Exposure: MWd/MTU (Gwd)	11500.0 (1585.80)		
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-28.08		
Flow: Mlb/hr	93.31 (91.04 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.238 6.274 4 0.495 0.800 5 36
		24	0.618 16.817 5 0.327 0.752 7 36
		23	0.799 21.973 6 0.297 0.297 21 40
		22	0.928 26.119 7 1.027 1.316 7 50
		21	0.999 28.398 8 1.120 1.329 7 46
		20	1.040 29.782 9 1.167 1.304 17 60
		19	1.056 30.201 10 1.271 1.551 7 44
		18	1.089 30.831 11 1.403 1.522 7 48
		17	1.111 31.259 12 1.299 1.499 9 50
		16	1.125 31.668
		15	1.146 32.483
		14	1.114 32.113
		13	1.223 31.112
		12	1.243 32.288
		11	1.253 33.142
		10	1.276 34.297
		9	1.291* 35.415
		8	1.281 36.215
		7	1.248 37.012
		6	1.203 38.292
		5	1.104 38.850*
		4	0.966 38.414
		3	0.827 36.928
		2	0.639 29.583
		Bottom 1	0.184 8.726
		% AXIAL TILT	-5.258 -11.551
		AVG BOT 8ft/12ft	1.0372 1.0605
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	5.23		
k-effective:	0.99882		
Void Fraction:	0.381		
Core Delta-P: psia	20.629		
Core Plate Delta-P: psia	16.080		
Coolant Temp: Deg-F	546.7		
In Channel Flow: Mlb/hr	82.60	Active Channel Flow: Mlb/hr	79.88
Total Bypass Flow (%):	11.5	(of total core flow)	
Total Water Rod Flow (%):	2.9	(of total core flow)	
Source Convergence	0.00009		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp. FT	IR	Value	Margin	Exp. FT	IR
1.551	10	37	14	1.593	0.885	10	37	6.54	0.674	45.4	9	7.12	0.685	49.6	9
1.536	10	35	12	1.617	0.872	10	35	6.55	0.670	44.6	8	7.49	0.683	45.0	8
1.522	11	37	18	1.628	0.866	11	33	6.40	0.666	46.4	9	6.96	0.680	50.8	9
1.521	11	35	16	1.629	0.865	11	35	6.45	0.662	45.0	9	6.87	0.678	51.8	9
1.521	11	33	14	1.632	0.864	11	39	6.46	0.661	44.8	8	7.29	0.678	46.6	8
1.514	11	39	16	1.644	0.858	11	37	6.37	0.658	45.6	8	7.06	0.676	49.2	9
1.507	11	31	12	1.662	0.849	11	45	6.38	0.656	45.2	8	7.26	0.669	45.7	8
1.501	11	47	28	1.666	0.846	12	39	6.46	0.655	43.8	9	7.15	0.665	46.7	7
1.500	11	45	30	1.669	0.845	11	31	6.48	0.654	43.4	9	6.78	0.665	51.3	9
1.499	12	39	20	1.669	0.845	11	47	6.31	0.651	45.5	9	6.92	0.664	49.4	8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.36 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 11,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	30688.6
Exposure: MWd/MTU (GWd)	12000.0 (1654.70)		
Delta E: MWd/MTU, (GWd)	500.0 (68.95)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-28.17		
Flow: Mlb/hr	93.03 (90.76 %)		
		Axial Profile	Edit Radial Power
		N(PRA)	Power Exposure Zone Avg. Max. IR JR
		Top 25	0.246 6.403 4 0.494 0.800 5 36
		24	0.636 17.153 5 0.326 0.753 7 36
		23	0.823 22.408 6 0.295 0.295 21 40
		22	0.957 26.626 7 1.026 1.310 7 50
		21	1.031 28.944 8 1.116 1.326 7 46
		20	1.076 30.352 9 1.165 1.301 1 44
		19	1.095 30.781 10 1.278 1.553 7 44
		18	1.130 31.430 11 1.404 1.525 3 44
		17	1.153 31.870 12 1.304 1.497 9 50
		16	1.167 32.287
		15	1.186 33.113
		14	1.150 32.724
		13	1.258 31.692
		12	1.273 32.876
		11	1.276 33.734
		10	1.289 34.897
		9	1.291* 36.019
		8	1.263 36.810
		7	1.208 37.587
		6	1.139 38.839
		5	1.021 39.347*
		4	0.872 38.844
		3	0.734 37.292
		2	0.564 29.864
		Bottom 1	0.163 8.812
			% AXIAL TILT -1.872 -11.309
			AVG BOT 8ft/12ft 1.0213 1.0594
Control Rod Density: %	5.23		
k-effective:	0.99895		
Void Fraction:	0.372		
Core Delta-P: psia	20.460		
Core Plate Delta-P: psia	15.910		
Coolant Temp: Deg-F	546.5		
In Channel Flow: Mlb/hr	82.39	Active Channel Flow: Mlb/hr	79.69
Total Bypass Flow (%):	11.4	(of total core flow)	
Total Water Rod Flow (%):	2.9	(of total core flow)	
Source Convergence	0.00006		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	JR	K	Value
1.553	10	37	14	1.576	0.895	10	37	7.07	0.693	40.5	8	37	16	15	7.72
1.539	10	35	12	1.592	0.885	10	35	6.84	0.684	42.4	8	39	18	15	7.50
1.525	11	33	14	1.609	0.876	11	33	6.58	0.674	44.8	9	39	14	9	7.46
1.524	11	35	16	1.611	0.875	11	35	6.79	0.673	41.6	8	33	12	15	7.45
1.523	11	37	18	1.617	0.872	11	39	6.71	0.673	42.6	7	45	28	15	7.35
1.518	11	39	16	1.628	0.866	11	37	6.93	0.668	38.7	7	37	20	15	7.36
1.514	11	31	12	1.641	0.859	11	31	8.39	0.668	17.3	10	37	14	15	7.16
1.504	11	47	28	1.643	0.858	11	45	6.76	0.666	41.1	8	35	18	15	6.95
1.502	11	45	30	1.651	0.854	11	47	6.44	0.666	45.8	9	37	12	9	7.02
1.497	12	39	20	1.654	0.852	12	39	6.67	0.664	41.9	8	49	28	15	7.37

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.37 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 12,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU										31188.6
Exposure: MWd/MTU (Gwd)	12500.0 (1723.70)											
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)											
Power: MWt	3458.0 (100.00 %)											
Core Pressure: psia	1050.1											
Inlet Subcooling: Btu/lbm	-27.63											
Flow: Mlb/hr	94.75 (92.44 %)											
		Axial Profile		Edit	Radial Power							
		N(PRA)	Power	Exposure	Zone	Avg.	Max.	IR	JR			
		Top	25	0.253	6.535	4	0.492	0.800	5	36		
			24	0.657	17.500	5	0.324	0.752	7	36		
			23	0.849	22.856	6	0.293	0.293	21	40		
			22	0.988	27.149	7	1.025	1.307	5	40		
			21	1.065	29.508	8	1.111	1.323	7	46		
			20	1.113	30.942	9	1.164	1.298	1	44		
			19	1.134	31.382	10	1.285	1.554	7	44		
			18	1.171	32.051	11	1.405	1.529	3	44		
			17	1.194	32.503	12	1.310	1.493	9	50		
			16	1.206	32.927							
			15	1.224	33.763							
			14	1.183	33.353							
			13	1.292	32.289							
			12	1.302*	33.479							
			11	1.297	34.336							
			10	1.300	35.502							
			9	1.287	36.622							
			8	1.241	37.396							
			7	1.163	38.142							
			6	1.072	39.357							
			5	0.937	39.805*							
			4	0.782	39.232							
			3	0.648	37.614							
			2	0.495	30.111							
		Bottom	1	0.143	8.887							
				% AXIAL TILT	1.550	-11.020						
				AVG BOT 8ft/12ft	1.0047	1.0581						

Top Ten Thermal Limits Summary - Sorted by Margin

Power			MCPR			APLHGR			LHGR		
Value	FT	IR JR	Value	Margin	FT IR JR	Value	Margin	Exp. FT IR JR K	Value	Margin	Exp. FT IR JR K
1.554	10	37 14	1.578	0.894	10 37 14	7.24	0.716	41.4 8 37 16 15	7.91	0.737	46.7 8 37 16 15
1.543	10	35 12	1.587	0.888	10 35 12	7.00	0.706	43.3 8 39 18 15	7.69	0.729	48.4 8 39 18 15
1.529	11	33 14	1.608	0.877	11 33 14	6.99	0.699	42.4 8 33 12 15	7.67	0.720	47.4 8 33 12 15
1.525	11	35 16	1.612	0.875	11 35 16	6.89	0.696	43.5 7 45 28 15	7.64	0.718	47.5 8 35 18 15
1.523	11	37 18	1.616	0.873	11 39 16	8.65	0.694	18.3 10 37 14 15	7.55	0.717	48.5 7 45 28 15
1.521	11	39 16	1.630	0.865	11 31 12	6.87	0.689	42.8 8 49 28 15	7.58	0.715	47.9 8 49 28 15
1.520	11	31 12	1.630	0.865	11 37 18	6.92	0.688	41.9 8 35 18 15	7.56	0.703	46.6 7 33 16 15
1.507	11	47 28	1.642	0.859	11 45 30	7.07	0.687	39.6 7 37 20 15	7.59	0.701	46.1 8 45 24 15
1.503	11	45 30	1.651	0.854	10 49 26	6.76	0.681	43.2 7 33 16 15	7.41	0.701	48.1 8 43 30 15
1.498	11	49 30	1.652	0.854	11 47 28	8.49	0.680	18.1 11 39 16 15	7.60	0.699	45.6 9 35 14 15

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.38 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 12,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	31267.3
Exposure: MWd/MTU (Gwd)	12578.8 (1734.50)		
Delta E: MWd/MTU, (Gwd)	78.8 (10.86)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.60		
Flow: Mlb/hr	94.86 (92.54 %)		
		Axial Profile	Edit Radial Power
		N(PRA)	Power Exposure Zone Avg. Max. IR JR
		Top 25	0.254 6.556 4 0.492 0.800 5 36
		24	0.659 17.555 5 0.324 0.753 7 36
		23	0.852 22.928 6 0.293 0.293 21 40
		22	0.991 27.233 7 1.025 1.306 5 40
		21	1.069 29.598 8 1.110 1.321 7 46
		20	1.118 31.036 9 1.163 1.297 1 44
		19	1.139 31.479 10 1.286 1.554 7 44
		18	1.176 32.150 11 1.405 1.529 3 44
		17	1.199 32.604 12 1.311 1.492 9 50
		16	1.211 33.029
		15	1.228 33.867
		14	1.187 33.454
		13	1.296 32.384
		12	1.305* 33.575
		11	1.299 34.432
		10	1.300 35.598
		9	1.286 36.717
		8	1.237 37.487
		7	1.157 38.227
		6	1.065 39.436
		5	0.928 39.874*
		4	0.774 39.289
		3	0.640 37.662
		2	0.489 30.147
		Bottom 1	0.141 8.898
			% AXIAL TILT 1.944 -10.971
			AVG BOT 8ft/12ft 1.0028 1.0579
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29			
1			59 :JR
3			55
5			51
7			47
9			43
11			39
13			35
15			31
17			27
19			23
21			19
23			15
25			11
27			7
29			3
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	5.23		
k-effective:	0.99916		
Void Fraction:	0.360		
Core Delta-P: psia	20.934		
Core Plate Delta-P: psia	16.384		
Coolant Temp: Deg-F	546.3		
In Channel Flow: Mlb/hr	84.10	Active Channel Flow: Mlb/hr	81.38
Total Bypass Flow (%):	11.3	(of total core flow)	
Total Water Rod Flow (%):	2.9	(of total core flow)	
Source Convergence	0.00006		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.554	10	37	14	1.577	0.900	10	37	7.25	0.718	41.5	8	37	7.92	0.739	46.9
1.543	10	35	12	1.586	0.895	10	35	7.01	0.707	43.4	8	39	7.70	0.732	48.5
1.529	11	33	14	1.608	0.883	11	33	7.01	0.702	42.5	8	33	7.69	0.723	47.6
1.525	11	35	16	1.612	0.881	11	35	6.90	0.698	43.6	7	45	7.65	0.720	47.7
1.523	11	37	18	1.615	0.879	11	39	8.67	0.697	18.5	10	37	7.56	0.720	48.7
1.522	11	39	16	1.628	0.872	11	31	6.89	0.692	42.9	8	49	7.59	0.717	48.0
1.521	11	31	12	1.629	0.872	11	37	6.93	0.689	42.0	8	35	7.58	0.706	46.7
1.507	11	47	28	1.641	0.865	11	45	7.08	0.689	39.7	7	37	7.60	0.704	46.2
1.504	11	45	30	1.650	0.861	10	49	6.77	0.684	43.4	7	33	7.42	0.703	48.2
1.498	11	49	30	1.651	0.860	11	47	8.52	0.683	18.3	11	39	7.62	0.701	45.7

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.39 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 12,578.8 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	31267.9	
Exposure: MWd/MTU (GWd)	12579.8 (1734.70)			
Delta E: MWd/MTU, (GWd)	1.0 (0.14)			
Power: MWt	3458.0 (100.00 %)			
Core Pressure: psia	1050.1			
Inlet Subcooling: Btu/lbm	-29.69			
Flow: Mlb/hr	88.47 (86.31 %)			
		Axial Profile	Edit Radial Power	
		N(PRA) Power Exposure	Zone Avg. Max. IR JR	
		Top 25	0.239 6.556 4 0.495 0.771 25 56	
		24	0.617 17.556 5 0.331 0.730 25 54	
		23	0.798 22.929 6 0.322 0.322 21 40	
		22	0.934 27.234 7 1.001 1.246 21 56	
		21	1.016 29.599 8 1.087 1.288 3 58	
		20	1.077 31.038 9 1.222 1.306 13 48	
		19	1.110 31.480 10 1.277 1.468 17 54	
		18	1.155 32.152 11 1.332 1.521 1 58	
		17	1.184 32.606 12 1.413 1.498 13 50	
		16	1.203 33.031	
		15	1.224 33.868	
		14	1.188 33.455	
		13	1.299 32.385	
		12	1.309* 33.576	
		11	1.304 34.433	
		10	1.306 35.599	
		9	1.294 36.718	
		8	1.251 37.488	
		7	1.181 38.228	
		6	1.101 39.437	
		5	0.978 39.874*	
		4	0.833 39.290	
		3	0.702 37.662	
		2	0.541 30.147	
		Bottom 1	0.157 8.898	
			% AXIAL TILT -0.897 -10.970	
			AVG BOT 8ft/12ft 1.0220 1.0579	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58				
Control Rod Density: %	4.32			
k-effective:	0.99918			
Void Fraction:	0.377			
Core Delta-P: psia	19.015			
Core Plate Delta-P: psia	14.468			
Coolant Temp: Deg-F	546.2			
In Channel Flow: Mlb/hr	78.30	Active Channel Flow: Mlb/hr	75.71	
Total Bypass Flow (%):	11.5	(of total core flow)		
Total Water Rod Flow (%):	2.9	(of total core flow)		
Source Convergence	0.00010			

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.521	11	31	28	1.590	0.893	11	31	6.77	0.677	42.5	8	7.46	0.708	48.5	8
1.517	11	33	30	1.590	0.893	11	33	6.69	0.675	43.4	8	7.48	0.704	47.8	8
1.498	12	43	20	1.613	0.880	12	43	6.57	0.668	44.1	9	7.20	0.680	48.0	8
1.492	12	45	18	1.619	0.877	12	41	6.57	0.666	43.8	9	7.09	0.678	49.1	9
1.491	12	47	20	1.626	0.874	12	47	6.71	0.664	41.5	9	7.15	0.678	48.3	9
1.488	12	41	18	1.629	0.871	12	45	6.42	0.663	45.5	9	7.45	0.676	44.4	8
1.477	12	43	16	1.631	0.870	10	47	6.51	0.662	44.0	9	7.24	0.676	47.0	8
1.476	11	35	28	1.635	0.869	11	33	6.58	0.661	42.9	8	7.02	0.675	49.6	9
1.476	11	45	22	1.638	0.867	11	45	6.71	0.660	40.8	8	7.36	0.674	45.2	8
1.475	11	33	26	1.641	0.866	11	35	6.67	0.660	41.4	8	7.15	0.672	47.6	8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.40 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 12,579.8 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	31688.6
Exposure: MWd/MTU (Gwd)	13000.0 (1792.60)		
Delta E: MWd/MTU, (Gwd)	420.2 (57.95)		
Power: MWT	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-28.68		
Flow: Mlb/hr	91.45 (89.22 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.247 6.665 4 0.493 0.770 25 56
		24	0.639 17.839 5 0.330 0.729 25 54
		23	0.826 23.295 6 0.320 0.320 21 40
		22	0.966 27.663 7 1.001 1.247 21 56
		21	1.051 30.067 8 1.083 1.280 3 58
		20	1.114 31.534 9 1.221 1.303 13 48
		19	1.147 31.992 10 1.284 1.469 17 54
		18	1.192 32.684 11 1.332 1.516 1 58
		17	1.220 33.151 12 1.417 1.498 13 50
		16	1.235 33.583
		15	1.254 34.430
		14	1.214 34.000
		13	1.326 32.901
		12	1.333* 34.095
		11	1.320 34.949
		10	1.313 36.114
		9	1.288 37.226
		8	1.229 37.976
		7	1.140 38.685
		6	1.041 39.858
		5	0.905 40.245*
		4	0.755 39.602
		3	0.627 37.923
		2	0.481 30.347
		Bottom 1	0.140 8.960
			% AXIAL TILT 2.243 -10.725
			AVG BOT 8ft/12ft 1.0059 1.0568
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	4.32		
k-effective:	0.99930		
Void Fraction:	0.365		
Core Delta-P: psia	19.867		
Core Plate Delta-P: psia	15.320		
Coolant Temp: Deg-F	546.1		
In Channel Flow: Mlb/hr	81.02	Active Channel Flow: Mlb/hr	78.38
Total Bypass Flow (%):	11.4	(of total core flow)	
Total Water Rod Flow (%):	2.9	(of total core flow)	
Source Convergence	0.00010		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	JR	K	Value
1.516	11	31	28	1.615	0.880	11	31	6.89	0.694	43.2	8	43	22	15	7.59
1.511	11	33	30	1.617	0.878	11	33	6.80	0.691	44.1	8	39	18	15	7.62
1.498	12	43	20	1.629	0.872	12	41	6.73	0.681	43.6	8	49	28	15	7.37
1.497	12	47	20	1.631	0.871	12	43	7.10	0.679	37.9	9	45	20	15	7.60
1.495	12	45	18	1.635	0.868	12	47	6.85	0.678	41.5	8	45	24	15	7.33
1.487	12	41	18	1.639	0.866	12	45	7.13	0.677	37.2	9	43	18	15	7.37
1.479	11	45	22	1.640	0.866	10	47	6.79	0.676	42.1	8	33	28	15	7.50
1.478	12	43	16	1.651	0.860	12	43	8.41	0.676	18.5	11	45	22	15	7.67
1.472	11	35	28	1.651	0.860	11	45	8.37	0.676	19.1	10	47	24	15	7.73
1.472	12	41	14	1.658	0.857	12	41	8.35	0.674	19.1	11	39	16	15	7.58

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.41 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 13,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	32188.6
Exposure: MWd/MTU (Gwd)	13500.0 (1861.60)		
Delta E: MWd/MTU, (Gwd)	500.0 (68.95)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-26.89		
Flow: Mlb/hr	97.25 (94.88 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	0.258 6.799 4 0.491 0.769 25 56
1		24	0.669 18.189 5 0.327 0.729 25 54
3		23	0.864 23.748 6 0.317 0.317 21 40
5		22	1.009 28.194 7 1.001 1.250 21 56
7		21	1.094 30.643 8 1.079 1.271 3 58
9		20	1.159 32.146 9 1.220 1.302 13 48
11		19	1.190 32.622 10 1.293 1.469 17 54
13		18	1.233 33.338 11 1.332 1.511 1 58
15		17	1.257 33.819 12 1.423 1.506 17 50
17		16	1.267 34.258
19		15	1.283 35.114
21		14	1.239 34.661
23		13	1.354 33.528
25		12	1.357* 34.725
27		11	1.336 35.570
29		10	1.316 36.729
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	1.277 37.826
		8	1.198 38.543
		7	1.087 39.206
		6	0.970 40.328
		5	0.821 40.649*
		4	0.670 39.935
		3	0.550 38.197
		2	0.420 30.558
		Bottom 1	0.122 9.024
Control Rod Density: %	4.32		
k-effective:	0.99946		
Void Fraction:	0.348		
Core Delta-P: psia	21.640	% AXIAL TILT	5.900 -10.389
Core Plate Delta-P: psia	17.092	AVG BOT 8ft/12ft	0.9862 1.0553
Coolant Temp: Deg-F	546.2		
In Channel Flow: Mlb/hr	86.30	Active Channel Flow: Mlb/hr	83.54
Total Bypass Flow (%):	11.3	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00010		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.511	11	31	28	1.654	0.859	12	47	7.00	0.712	44.1	8	7.71	0.746	50.1	8
1.506	12	47	20	1.655	0.858	12	41	6.89	0.707	44.9	8	7.76	0.745	49.4	8
1.504	11	33	30	1.659	0.856	12	43	6.87	0.701	44.4	8	7.54	0.726	49.7	8
1.501	12	45	18	1.660	0.855	11	31	8.61	0.698	19.5	11	7.50	0.718	49.2	8
1.497	12	43	20	1.660	0.855	12	45	7.24	0.698	38.8	9	7.73	0.715	46.1	8
1.485	12	41	18	1.664	0.854	10	47	6.97	0.696	42.4	8	7.50	0.713	48.6	8
1.483	11	45	22	1.664	0.853	11	33	8.54	0.695	20.1	10	7.78	0.713	45.4	9
1.482	12	43	16	1.674	0.848	12	43	6.83	0.694	44.0	8	7.81	0.712	44.8	9
1.477	12	41	14	1.674	0.848	11	45	7.25	0.694	38.1	9	7.89	0.711	43.8	9
1.469	10	47	24	1.677	0.847	11	39	8.51	0.693	20.2	11	7.61	0.710	46.9	8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.42 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 13,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	32438.1
Exposure: MWd/MTU (Gwd)	13750.0 (1896.00)		
Delta E: MWd/MTU, (Gwd)	250.0 (34.47)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-28.59		
Flow: Mlb/hr	91.74 (89.50 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	0.298 6.867 4 0.485 0.760 25 56
1		24	0.772 18.369 5 0.323 0.720 25 54
3		23	0.985 23.980 6 0.313 0.313 21 40
5		22	1.128 28.466 7 0.995 1.235 21 56
7		21	1.180 30.938 8 1.095 1.272 3 58
9		20	1.220 32.458 9 1.213 1.289 13 48
11		19	1.230 32.943 10 1.278 1.460 17 54
13		18	1.255 33.671 11 1.352 1.512 1 58
15		17	1.262 34.158 12 1.408 1.487 17 50
17		16	1.259 34.600
19		15	1.263 35.460
21		14	1.213 34.995
23		13	1.322* 33.845
25		12	1.321 35.042
27		11	1.295 35.883
29		10	1.270 37.037
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	1.226 38.125
		8	1.144 38.824
		7	1.032 39.460
		6	0.914 40.555
		5	0.769 40.841*
		4	0.624 40.092
		3	0.511 38.326
		2	0.390 30.655
		Bottom 1	0.113 9.054
Control Rod Density: %	3.78	% AXIAL TILT	10.368 -10.210
k-effective:	0.99960	AVG BOT 8ft/12ft	0.9515 1.0545
Void Fraction:	0.346		
Core Delta-P: psia	19.758		
Core Plate Delta-P: psia	15.211		
Coolant Temp: Deg-F	545.7		
In Channel Flow: Mlb/hr	81.39	Active Channel Flow: Mlb/hr	78.78
Total Bypass Flow (%):	11.3	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00006		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.512	11	31	28	1.595	0.890	11	31	6.87	0.701	44.5	8	7.55	0.735	50.6	8
1.503	11	33	30	1.601	0.887	11	33	6.75	0.696	45.4	8	7.60	0.734	49.9	8
1.487	12	47	20	1.611	0.881	12	47	6.74	0.691	44.8	8	7.40	0.716	50.1	8
1.487	12	43	20	1.612	0.881	12	41	6.83	0.689	43.4	8	7.42	0.709	49.0	8
1.482	12	45	18	1.615	0.880	12	43	8.46	0.689	20.1	11	7.36	0.709	49.7	8
1.476	11	45	22	1.618	0.877	12	45	7.10	0.687	39.2	9	7.58	0.705	46.6	8
1.475	12	41	18	1.625	0.874	10	47	6.84	0.686	42.8	8	7.63	0.703	45.8	9
1.473	11	33	26	1.626	0.873	11	45	6.71	0.685	44.5	8	7.64	0.700	45.3	9
1.473	11	35	28	1.629	0.872	11	33	8.37	0.684	20.6	10	7.73	0.700	44.3	9
1.462	12	43	16	1.631	0.871	11	39	8.35	0.683	20.7	11	7.46	0.700	47.3	8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.43 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 13,750.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	32439.6
Exposure: MWd/MTU (Gwd)	13751.0 (1896.20)		
Delta E: MWd/MTU, (Gwd)	1.0 (0.14)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-28.58		
Flow: Mlb/hr	91.75 (89.51 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	4 0.485 0.760 25 56
1		24	5 0.323 0.720 25 54
3		23	6 0.313 0.313 21 40
5		22	7 0.995 1.235 21 56
7		21	8 1.095 1.272 3 58
9		20	9 1.213 1.289 13 48
11		19	10 1.278 1.460 17 54
13		18	11 1.352 1.512 1 58
15		17	12 1.408 1.487 17 50
17		16	
19		15	
21		14	
23		13	
25		12	
27		11	
29		10	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	
Control Rod Density: %	3.78	8	
k-effective:	0.99960	7	
Void Fraction:	0.345	6	
Core Delta-P: psia	19.761	5	
Core Plate Delta-P: psia	15.214	4	
Coolant Temp: Deg-F	545.7	3	
In Channel Flow: Mlb/hr	81.40	2	
Total Bypass Flow (%):	11.3	1	
Total Water Rod Flow (%):	2.8		
Source Convergence	0.00006		
		Bottom	
		% AXIAL TILT	
		AVG BOT 8ft/12ft	
		Active Channel Flow: Mlb/hr	
		(of total core flow)	
		(of total core flow)	

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.512	11	31	28	1.595	0.890	11	31	6.87	0.701	44.5	8	7.55	0.735	50.6	8
1.503	11	33	30	1.601	0.887	11	33	6.75	0.696	45.4	8	7.60	0.734	49.9	8
1.487	12	47	20	1.611	0.881	12	47	6.74	0.691	44.8	8	7.40	0.716	50.1	8
1.487	12	43	20	1.612	0.881	12	41	6.83	0.689	43.4	8	7.42	0.709	49.0	8
1.482	12	45	18	1.615	0.879	12	43	8.46	0.689	20.1	11	7.36	0.709	49.7	8
1.476	11	45	22	1.618	0.877	12	45	7.10	0.687	39.2	9	7.58	0.705	46.6	8
1.475	12	41	18	1.625	0.874	10	47	6.84	0.686	42.8	8	7.63	0.703	45.8	9
1.473	11	33	26	1.626	0.873	11	45	6.71	0.685	44.5	8	7.64	0.700	45.3	9
1.473	11	35	28	1.629	0.872	11	33	8.37	0.685	20.6	10	7.73	0.700	44.3	9
1.462	12	43	16	1.631	0.871	11	39	8.35	0.683	20.7	11	7.46	0.700	47.3	8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.44 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 13,751.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	32688.6
Exposure: MWd/MTU (Gwd)	14000.0 (1930.50)		
Delta E: MWd/MTU, (Gwd)	249.0 (34.34)		
Power: MWT	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.13		
Flow: Mlb/hr	96.43 (94.08 %)		
		Axial Profile	Radial Power
		N(PRA)	Power Exposure Zone Avg. Max. IR JR
		Top 25	0.303 6.947 4 0.483 0.759 25 56
		24	0.789 18.578 5 0.322 0.720 25 54
		23	1.007 24.247 6 0.311 0.311 21 40
		22	1.152 28.772 7 0.995 1.236 21 56
		21	1.203 31.258 8 1.093 1.266 3 58
		20	1.242 32.790 9 1.213 1.289 13 48
		19	1.250 33.278 10 1.283 1.460 17 54
		18	1.273 34.011 11 1.352 1.508 1 58
		17	1.277 34.500 12 1.411 1.493 17 50
		16	1.270 34.941
		15	1.274 35.802
		14	1.222 35.324
		13	1.334* 34.156
		12	1.332 35.352
		11	1.302 36.187
		10	1.272 37.335
		9	1.220 38.411
		8	1.128 39.089
		7	1.006 39.699
		6	0.879 40.765
		5	0.730 41.016*
		4	0.588 40.234
		3	0.479 38.441
		2	0.364 30.743
		Bottom 1	0.106 9.081
		% AXIAL TILT	12.075 -9.994
		AVG BOT 8ft/12ft	0.9417 1.0535
Control Rod Density: %	3.78		
k-effective:	0.99963		
Void Fraction:	0.335		
Core Delta-P: psia	21.205		
Core Plate Delta-P: psia	16.659		
Coolant Temp: Deg-F	545.8		
In Channel Flow: Mlb/hr	85.66	Active Channel Flow: Mlb/hr	82.95
Total Bypass Flow (%):	11.2	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.508	11	31	28	1.633	0.869	12	47	6.91	0.708	44.9	8	43	7.60	0.743	51.1
1.498	11	33	30	1.634	0.869	11	31	6.78	0.702	45.8	8	39	7.65	0.743	50.4
1.493	12	47	20	1.638	0.867	12	41	6.79	0.699	45.2	8	49	7.46	0.726	50.6
1.487	12	43	20	1.640	0.866	12	43	8.52	0.697	20.6	11	45	7.43	0.719	50.1
1.486	12	45	18	1.641	0.865	11	33	6.86	0.696	43.8	8	33	7.47	0.718	49.5
1.479	11	45	22	1.642	0.865	12	45	7.15	0.695	39.6	9	45	7.71	0.714	46.3
1.474	12	41	18	1.648	0.862	11	45	6.88	0.693	43.2	8	45	7.63	0.713	47.0
1.470	11	33	26	1.649	0.861	10	47	6.76	0.693	44.9	8	33	7.79	0.709	44.7
1.469	11	35	28	1.653	0.859	11	39	8.43	0.692	21.1	10	47	7.62	0.709	46.7
1.465	12	43	16	1.658	0.857	12	43	8.40	0.690	21.2	11	39	7.70	0.709	45.8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.45 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 14,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	32938.6
Exposure: MWd/MTU (GWd)	14250.0 (1965.00)		
Delta E: MWd/MTU, (GWd)	250.0 (34.47)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-25.44		
Flow: Mlb/hr	102.48 (99.98 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.309 7.028 4 0.481 0.758 25 56
		24	0.807 18.792 5 0.320 0.719 25 54
		23	1.029 24.519 6 0.309 0.309 21 40
		22	1.176 29.085 7 0.995 1.239 21 56
		21	1.226 31.585 8 1.090 1.261 3 58
		20	1.264 33.128 9 1.214 1.289 13 48
		19	1.269 33.618 10 1.288 1.461 17 54
		18	1.289 34.357 11 1.351 1.504 1 58
		17	1.291 34.847 12 1.416 1.500 17 50
		16	1.281 35.285
		15	1.283 36.147
		14	1.230 35.655
		13	1.346* 34.469
		12	1.342 35.665
		11	1.308 36.492
		10	1.272 37.632
		9	1.211 38.695
		8	1.109 39.351
		7	0.977 39.930
		6	0.844 40.967
		5	0.693 41.183*
		4	0.553 40.367
		3	0.449 38.549
		2	0.341 30.826
		Bottom 1	0.099 9.106
		% AXIAL TILT	13.766 -9.767
		AVG BOT 8ft/12ft	0.9319 1.0523
Control Rod Density: %	3.78		
k-effective:	0.99971		
Void Fraction:	0.324		
Core Delta-P: psia	23.147		
Core Plate Delta-P: psia	18.599		
Coolant Temp: Deg-F	546.0		
In Channel Flow: Mlb/hr	91.16	Active Channel Flow: Mlb/hr	88.33
Total Bypass Flow (%):	11.1	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.504	11	31	28	1.657	0.857	12	47	6.94	0.715	45.3	8	7.70	0.752	50.8	8
1.500	12	47	20	1.665	0.853	12	41	6.81	0.708	46.2	8	7.64	0.752	51.5	8
1.493	11	33	30	1.667	0.852	12	45	6.84	0.707	45.7	8	7.53	0.736	51.0	8
1.490	12	45	18	1.668	0.852	12	43	8.58	0.705	21.1	11	7.49	0.729	50.6	8
1.487	12	43	20	1.671	0.850	11	45	7.20	0.702	40.1	9	7.79	0.726	46.8	9
1.481	11	45	22	1.676	0.848	10	47	6.89	0.702	44.2	8	7.51	0.725	49.9	8
1.474	12	41	18	1.676	0.847	11	31	6.81	0.701	45.3	8	7.67	0.720	47.5	8
1.470	11	49	20	1.677	0.847	11	39	6.92	0.700	43.7	8	7.69	0.720	47.2	9
1.468	12	43	16	1.684	0.843	12	43	8.49	0.700	21.7	10	7.85	0.719	45.2	9
1.466	12	41	14	1.686	0.842	11	33	6.98	0.698	42.4	9	7.75	0.717	46.2	9

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.46 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 14,250.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	32939.1
Exposure: MWd/MTU (GWd)	14251.0 (1965.10)		
Delta E: MWd/MTU, (GWd)	1.0 (0.14)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-28.61		
Flow: Mlb/hr	91.68 (89.44 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.321 7.028 4 0.477 0.750 25 56
		24	0.831 18.793 5 0.318 0.711 25 54
		23	1.062 24.520 6 0.307 0.307 21 40
		22	1.228 29.087 7 0.989 1.222 21 56
		21	1.304 31.586 8 1.108 1.268 3 58
		20	1.340* 33.129 9 1.207 1.277 13 48
		19	1.315 33.619 10 1.268 1.453 17 54
		18	1.312 34.358 11 1.372 1.508 1 58
		17	1.295 34.848 12 1.397 1.478 13 50
		16	1.272 35.287
		15	1.262 36.149
		14	1.203 35.656
		13	1.308 34.471
		12	1.300 35.666
		11	1.265 36.493
		10	1.231 37.633
		9	1.174 38.696
		8	1.079 39.352
		7	0.956 39.931
		6	0.829 40.967
		5	0.684 41.183*
		4	0.547 40.368
		3	0.445 38.550
		2	0.339 30.826
		Bottom 1	0.098 9.107
		% AXIAL TILT	16.026 -9.766
		AVG BOT 8ft/12ft	0.9112 1.0523
Control Rod Density: %	3.42		
k-effective:	0.99971		
Void Fraction:	0.333		
Core Delta-P: psia	19.583		
Core Plate Delta-P: psia	15.037		
Coolant Temp: Deg-F	545.4		
In Channel Flow: Mlb/hr	81.43	Active Channel Flow: Mlb/hr	78.85
Total Bypass Flow (%):	11.2	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00007		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.508	11	31	28	1.572	0.903	11	31	7.92	0.768	39.4	8	8.93	0.812	44.6	8
1.497	11	33	30	1.583	0.897	11	33	7.91	0.767	39.5	8	8.93	0.812	44.6	8
1.478	12	43	20	1.596	0.889	12	47	7.65	0.751	40.6	8	8.52	0.785	45.8	8
1.477	11	33	26	1.597	0.889	12	41	7.62	0.747	40.6	8	8.46	0.781	46.0	8
1.476	12	47	20	1.599	0.888	12	43	9.21	0.739	18.2	11	7.98	0.760	48.7	8
1.476	11	35	28	1.600	0.888	11	33	9.13	0.733	18.4	11	8.01	0.757	48.1	8
1.474	11	45	22	1.601	0.887	11	45	9.16	0.733	18.1	11	10.37	0.750	21.1	11
1.468	12	45	18	1.606	0.884	11	39	9.15	0.733	18.1	11	10.36	0.748	20.9	11
1.465	12	41	18	1.607	0.884	12	45	7.36	0.730	41.6	8	10.29	0.746	21.3	11
1.453	10	47	24	1.608	0.883	11	35	7.40	0.728	41.0	8	10.33	0.745	20.8	11

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.47 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 14,251.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	33188.6
Exposure: MWd/MTU (GWd)	14500.0 (1999.50)		
Delta E: MWd/MTU, (GWd)	249.0 (34.34)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-26.45		
Flow: Mlb/hr	98.78 (96.37 %)		
		Axial Profile	Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.327 7.114 4 0.475 0.748 25 56
		24	0.850 19.017 5 0.315 0.710 25 54
		23	1.086 24.807 6 0.304 0.304 21 40
		22	1.254 29.419 7 0.989 1.225 21 56
		21	1.329 31.939 8 1.105 1.262 3 58
		20	1.363* 33.492 9 1.208 1.279 15 50
		19	1.334 33.975 10 1.274 1.455 17 54
		18	1.328 34.713 11 1.371 1.503 1 58
		17	1.308 35.198 12 1.402 1.483 17 50
		16	1.281 35.630
		15	1.271 36.489
		14	1.211 35.980
		13	1.320 34.777
		12	1.311 35.970
		11	1.272 36.789
		10	1.231 37.920
		9	1.166 38.969
		8	1.060 39.601
		7	0.926 40.151
		6	0.792 41.156
		5	0.646 41.338*
		4	0.513 40.491
		3	0.415 38.649
		2	0.315 30.902
		Bottom 1	0.092 9.130
			% AXIAL TILT 17.759 -9.514
			AVG BOT 8ft/12ft 0.9010 1.0510
Control Rod Density: %	3.42		
k-effective:	0.99985		
Void Fraction:	0.320		
Core Delta-P: psia	21.838		
Core Plate Delta-P: psia	17.291		
Coolant Temp: Deg-F	545.6		
In Channel Flow: Mlb/hr	87.85	Active Channel Flow: Mlb/hr	85.12
Total Bypass Flow (%):	11.1	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00009		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.503	11	31	28	1.626	0.873	11	31	8.02	0.781	39.9	8	9.06	0.829	45.2	8
1.492	11	33	30	1.632	0.870	12	47	8.00	0.780	39.9	8	9.06	0.828	45.1	8
1.483	12	47	20	1.638	0.867	12	41	7.71	0.760	41.1	8	8.60	0.797	46.3	8
1.479	12	43	20	1.639	0.867	11	45	7.67	0.756	41.1	8	8.53	0.792	46.5	8
1.476	11	45	22	1.639	0.867	11	33	9.32	0.751	18.8	11	8.07	0.773	49.2	8
1.473	12	45	18	1.639	0.866	12	43	9.23	0.744	18.9	11	8.11	0.771	48.5	8
1.472	11	33	26	1.644	0.864	12	45	7.47	0.744	42.1	8	10.51	0.764	21.7	11
1.471	11	35	28	1.647	0.862	11	39	9.25	0.744	18.6	11	10.49	0.761	21.5	11
1.466	12	41	18	1.650	0.860	10	47	9.25	0.744	18.6	11	8.41	0.761	44.2	8
1.455	10	47	24	1.652	0.859	11	33	7.51	0.743	41.4	8	10.42	0.759	22.0	11

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.48 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 14,500.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	33268.5
Exposure: MWd/MTU (Gwd)	14579.9 (2010.50)		
Delta E: MWd/MTU, (Gwd)	79.9 (11.02)		
Power: MWT	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-25.82		
Flow: Mlb/hr	101.07 (98.61 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.328 7.141 4 0.474 0.748 25 56
		24	0.856 19.090 5 0.315 0.710 25 54
		23	1.093 24.901 6 0.304 0.304 21 40
		22	1.262 29.527 7 0.989 1.226 21 56
		21	1.335 32.054 8 1.105 1.260 3 58
		20	1.369* 33.609 9 1.208 1.279 15 50
		19	1.339 34.090 10 1.276 1.455 17 54
		18	1.332 34.828 11 1.370 1.502 1 58
		17	1.311 35.311 12 1.403 1.486 17 50
		16	1.284 35.740
		15	1.273 36.598
		14	1.212 36.085
		13	1.322 34.876
		12	1.313 36.069
		11	1.273 36.884
		10	1.231 38.012
		9	1.163 39.056
		8	1.054 39.680
		7	0.918 40.219
		6	0.783 41.215
		5	0.636 41.386*
		4	0.505 40.529
		3	0.408 38.680
		2	0.310 30.925
		Bottom 1	0.090 9.137
		% AXIAL TILT	18.207 -9.431
		AVG BOT 8ft/12ft	0.8983 1.0506
Control Rod Density: %	3.42		
k-effective:	0.99982		
Void Fraction:	0.316		
Core Delta-P: psia	22.559		
Core Plate Delta-P: psia	18.013		
Coolant Temp: Deg-F	545.7		
In Channel Flow: Mlb/hr	89.94	Active Channel Flow: Mlb/hr	87.16
Total Bypass Flow (%):	11.0	(of total core flow)	
Total Water Rod Flow (%):	2.7	(of total core flow)	
Source Convergence	0.00010		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.502	11	31	28	1.641	0.865	12	47	8.04	0.784	40.0	8	9.09	0.833	45.3	8
1.490	11	33	30	1.641	0.865	11	31	8.02	0.783	40.1	8	9.08	0.832	45.3	8
1.486	12	47	20	1.648	0.862	11	45	7.72	0.762	41.3	8	8.61	0.799	46.5	8
1.479	12	43	20	1.649	0.861	12	41	7.67	0.758	41.2	8	8.53	0.794	46.6	8
1.477	11	45	22	1.650	0.861	12	43	9.34	0.753	19.0	11	8.33	0.777	46.9	8
1.474	12	45	18	1.654	0.859	12	45	7.50	0.748	42.2	8	8.13	0.774	48.7	8
1.471	11	33	26	1.655	0.858	11	33	7.54	0.747	41.6	8	10.53	0.767	22.0	11
1.470	11	35	28	1.656	0.857	11	39	9.24	0.746	19.1	11	8.44	0.765	44.3	8
1.465	12	41	18	1.660	0.855	10	47	9.27	0.746	18.8	11	10.51	0.764	21.8	11
1.458	11	49	20	1.667	0.852	11	33	9.26	0.746	18.8	11	8.46	0.762	43.8	8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.49 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 14,579.9 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	33269.1
Exposure: MWd/MTU (Gwd)	14580.9 (2010.60)		
Delta E: MWd/MTU, (Gwd)	1.0 (0.14)		
Power: MWT	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.63		
Flow: Mlb/hr	94.76 (92.45 %)		
		Axial Profile	Edit Radial Power
		N (PRA)	Power Exposure Zone Avg. Max. IR JR
		Top 25	0.286 7.142 4 0.468 0.742 5 36
		24	0.743 19.091 5 0.311 0.703 7 36
		23	0.950 24.902 6 0.299 0.299 21 40
		22	1.103 29.529 7 0.997 1.291 7 50
		21	1.179 32.055 8 1.108 1.298 1 48
		20	1.237 33.611 9 1.199 1.285 9 52
		19	1.259 34.092 10 1.267 1.484 7 44
		18	1.290 34.829 11 1.382 1.528 1 46
		17	1.299 35.312 12 1.402 1.492 13 50
		16	1.294 35.742
		15	1.298 36.600
		14	1.250 36.086
		13	1.367* 34.877
		12	1.361 36.070
		11	1.323 36.885
		10	1.283 38.013
		9	1.221 39.057
		8	1.123 39.681
		7	0.998 40.220
		6	0.872 41.216
		5	0.726 41.387*
		4	0.586 40.530
		3	0.479 38.680
		2	0.367 30.925
		Bottom 1	0.107 9.137
		% AXIAL TILT	11.609 -9.430
		AVG BOT 8ft/12ft	0.9502 1.0506
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29			
1			
3			
5			
7			
9			
11			
13			
15			
17			
19			
21			
23			
25			
27			
29			
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	2.03		
k-effective:	0.99984		
Void Fraction:	0.337		
Core Delta-P: psia	20.705		
Core Plate Delta-P: psia	16.163		
Coolant Temp: Deg-F	545.7		
In Channel Flow: Mlb/hr	84.12	Active Channel Flow: Mlb/hr	81.45
Total Bypass Flow (%):	11.2	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00007		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.528	11	31	16	1.565	0.907	11	31	7.25	0.755	46.4	7	33	8.07	0.785	50.5
1.520	11	33	18	1.574	0.902	11	33	7.41	0.755	44.4	8	35	7.96	0.785	51.7
1.507	11	37	18	1.590	0.893	11	37	7.36	0.754	44.8	8	37	7.88	0.782	52.2
1.504	11	35	16	1.594	0.891	11	39	7.20	0.752	46.7	8	39	8.00	0.779	50.6
1.498	11	35	20	1.595	0.890	11	35	7.43	0.749	43.3	8	31	8.01	0.771	49.7
1.497	11	37	22	1.604	0.885	12	41	7.15	0.741	45.9	8	43	7.81	0.768	51.4
1.497	11	39	16	1.607	0.884	11	33	7.37	0.740	42.9	7	37	7.79	0.763	51.2
1.493	11	33	14	1.611	0.881	11	35	7.21	0.731	43.8	8	33	8.06	0.756	47.4
1.492	12	43	20	1.613	0.880	12	43	8.81	0.731	22.3	11	35	7.82	0.754	49.8
1.491	11	31	20	1.616	0.879	11	37	8.78	0.729	22.4	11	37	7.94	0.744	47.3

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.50 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 14,580.9 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	33438.6
Exposure: MWd/MTU (GWd)	14750.0 (2033.90)		
Delta E: MWd/MTU, (GWd)	169.1 (23.31)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-25.91		
Flow: Mlb/hr	100.72 (98.26 %)		
		Axial Profile	Radial Power
		Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		N(PRA)	
1		Top 25	0.291 7.194 4 0.467 0.740 5 36
3		24	0.757 19.227 5 0.309 0.701 7 36
5		23	0.968 25.076 6 0.298 0.298 21 40
7		22	1.122 29.731 7 0.997 1.289 7 50
9		21	1.196 32.271 8 1.107 1.295 1 48
11		20	1.252 33.838 9 1.200 1.283 9 52
13		19	1.272 34.323 10 1.271 1.484 7 44
15		18	1.300 35.065 11 1.381 1.527 1 46
17		17	1.307 35.550 12 1.405 1.492 13 50
19		16	1.300 35.978
21		15	1.303 36.837
23		14	1.254 36.314
25		13	1.374* 35.094
27		12	1.367 36.286
29		11	1.327 37.095
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		10	1.283 38.216
		9	1.215 39.250
		8	1.110 39.858
		7	0.978 40.377
		6	0.848 41.352
		5	0.700 41.499*
		4	0.562 40.620
		3	0.459 38.754
		2	0.351 30.982
		Bottom 1	0.103 9.155
Control Rod Density: %	2.03		
k-effective:	0.99989		
Void Fraction:	0.327		
Core Delta-P: psia	22.607	% AXIAL TILT	12.782 -9.286
Core Plate Delta-P: psia	18.065	AVG BOT 8ft/12ft	0.9431 1.0499
Coolant Temp: Deg-F	545.9		
In Channel Flow: Mlb/hr	89.53	Active Channel Flow: Mlb/hr	86.73
Total Bypass Flow (%):	11.1	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00010		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.527	11	31	16	1.604	0.885	11	31	7.26	0.759	46.7	7	33	8.10	0.791	50.8
1.518	11	33	18	1.613	0.880	11	33	7.42	0.759	44.7	8	35	7.99	0.791	52.0
1.505	11	37	18	1.627	0.873	11	39	7.38	0.758	45.1	8	37	7.91	0.788	52.5
1.502	11	35	16	1.628	0.872	11	37	7.21	0.756	47.0	8	39	8.02	0.784	51.0
1.497	11	39	16	1.633	0.870	11	35	7.44	0.753	43.6	8	31	8.04	0.777	50.0
1.496	11	35	20	1.638	0.867	12	41	7.17	0.746	46.2	8	43	7.85	0.774	51.8
1.495	11	37	22	1.645	0.863	11	33	7.38	0.743	43.2	7	37	7.83	0.770	51.5
1.492	12	43	20	1.648	0.862	12	43	7.22	0.734	44.1	8	33	8.09	0.762	47.8
1.492	11	33	14	1.650	0.860	11	35	8.82	0.734	22.7	11	35	7.87	0.761	50.1
1.490	12	41	18	1.652	0.860	11	45	7.06	0.734	46.1	8	33	7.74	0.749	50.1

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.51 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 14,750.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	33439.1
Exposure: MWd/MTU (Gwd)	14751.0 (2034.10)		
Delta E: MWd/MTU, (Gwd)	1.0 (0.14)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.89		
Flow: Mlb/hr	93.93 (91.64 %)		
		Axial Profile	Edit Radial Power
		N (PRA)	Power Exposure Zone Avg. Max. IR JR
		Top 25	0.302 7.194 4 0.463 0.729 5 36
		24	0.783 19.228 5 0.307 0.691 25 54
		23	0.999 25.077 6 0.295 0.295 21 40
		22	1.159 29.732 7 0.989 1.284 7 50
		21	1.237 32.272 8 1.124 1.284 1 48
		20	1.287 33.839 9 1.195 1.285 9 52
		19	1.298 34.324 10 1.255 1.461 7 44
		18	1.312 35.067 11 1.400 1.507 1 46
		17	1.307 35.551 12 1.388 1.482 11 52
		16	1.292 35.980
		15	1.289 36.839
		14	1.236 36.316
		13	1.350* 35.095
		12	1.341 36.287
		11	1.300 37.096
		10	1.257 38.217
		9	1.193 39.251
		8	1.092 39.859
		7	0.965 40.378
		6	0.839 41.353
		5	0.695 41.500*
		4	0.559 40.621
		3	0.457 38.755
		2	0.350 30.982
		Bottom 1	0.102 9.155
			% AXIAL TILT 14.178 -9.285
			AVG BOT 8ft/12ft 0.9302 1.0499
Control Rod Density: %	1.71		
k-effective:	0.99987		
Void Fraction:	0.332		
Core Delta-P: psia	20.380		
Core Plate Delta-P: psia	15.838		
Coolant Temp: Deg-F	545.5		
In Channel Flow: Mlb/hr	83.41	Active Channel Flow: Mlb/hr	80.77
Total Bypass Flow (%):	11.2	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.507	11	31	16	1.578	0.900	11	31	7.63	0.767	42.9	8	43	8.57	0.810	48.1
1.505	11	33	18	1.582	0.898	11	33	7.31	0.748	44.7	8	35	7.96	0.777	50.8
1.498	11	37	22	1.593	0.891	11	37	7.14	0.746	46.7	7	33	7.85	0.777	52.0
1.491	11	37	18	1.599	0.888	11	37	7.11	0.745	47.0	8	39	7.78	0.775	52.5
1.490	11	35	20	1.604	0.886	11	39	7.25	0.745	45.1	8	37	7.89	0.772	51.0
1.483	11	31	20	1.604	0.885	11	39	7.27	0.743	44.6	8	43	7.76	0.766	51.8
1.483	11	35	16	1.608	0.883	11	35	7.34	0.742	43.6	8	31	7.90	0.764	50.0
1.482	11	45	22	1.609	0.883	11	35	7.30	0.735	43.2	7	37	8.04	0.758	47.8
1.482	12	41	22	1.609	0.882	12	41	7.33	0.733	42.5	8	45	7.66	0.753	51.5
1.481	11	39	24	1.610	0.882	11	45	7.14	0.727	44.1	8	33	7.99	0.753	47.8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.52 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 14,751.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU										33688.6
Exposure: MWd/MTU (GWd)	15000.0 (2068.40)											
Delta E: MWd/MTU, (GWd)	249.0 (34.34)											
Power: MWt	3458.0 (100.00 %)											
Core Pressure: psia	1050.1											
Inlet Subcooling: Btu/lbm	-25.45											
Flow: Mlb/hr	102.43 (99.93 %)											
		Axial Profile				Edit	Radial Power					
		N(PRA)	Power	Exposure	Zone	Avg.	Max.	IR	JR			
		Top 25	0.310	7.275	4	0.460	0.726	5	36			
		24	0.808	19.441	5	0.304	0.689	25	54			
		23	1.031	25.348	6	0.292	0.292	21	40			
		22	1.194	30.047	7	0.989	1.280	7	50			
		21	1.269	32.608	8	1.122	1.279	1	48			
		20	1.316	34.188	9	1.196	1.282	9	52			
		19	1.321	34.676	10	1.260	1.460	7	44			
		18	1.330	35.422	11	1.400	1.505	1	46			
		17	1.321	35.904	12	1.393	1.481	13	50			
		16	1.302	36.328								
		15	1.296	37.186								
		14	1.242	36.649								
		13	1.359*	35.411								
		12	1.349	36.600								
		11	1.304	37.399								
		10	1.255	38.510								
		9	1.181	39.527								
		8	1.069	40.111								
		7	0.932	40.599								
		6	0.798	41.543								
		5	0.652	41.657*								
		4	0.520	40.747								
		3	0.423	38.857								
		2	0.323	31.060								
		Bottom 1	0.095	9.179								
		% AXIAL TILT		16.234	-9.053							
		AVG BOT 8ft/12ft		0.9174	1.0487							
Control Rod Density: %	1.71											
k-effective:	0.99997											
Void Fraction:	0.317											
Core Delta-P: psia	23.091	% AXIAL TILT										
Core Plate Delta-P: psia	18.549	AVG BOT 8ft/12ft										
Coolant Temp: Deg-F	545.8											
In Channel Flow: Mlb/hr	91.13	Active Channel Flow: Mlb/hr				88.31						
Total Bypass Flow (%):	11.0	(of total core flow)										
Total Water Rod Flow (%):	2.8	(of total core flow)										
Source Convergence	0.00008											

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.505	11	31	16	1.629	0.872	11	31	7.76	0.783	43.4	8	43	8.73	0.831	48.6
1.501	11	33	18	1.635	0.869	11	33	7.40	0.754	44.3	8	43	7.90	0.787	52.5
1.496	11	37	22	1.644	0.864	11	37	7.33	0.753	45.1	8	35	8.01	0.787	51.3
1.488	11	37	18	1.649	0.861	11	39	7.28	0.753	45.8	8	39	7.83	0.784	53.0
1.485	11	35	20	1.651	0.860	11	37	7.17	0.753	47.1	7	33	7.94	0.781	51.4
1.484	11	45	22	1.652	0.860	11	39	7.28	0.752	45.6	8	37	8.02	0.779	50.4
1.481	12	43	20	1.652	0.860	11	45	7.37	0.748	44.0	8	31	7.96	0.774	50.5
1.480	11	31	20	1.656	0.857	11	43	7.50	0.746	42.0	8	45	8.24	0.772	47.3
1.480	11	35	16	1.657	0.857	12	41	7.32	0.741	43.6	7	37	7.98	0.766	49.3
1.480	11	39	24	1.657	0.857	12	43	8.94	0.734	21.1	11	41	7.72	0.764	51.9

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.53 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 15,000.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	33689.2
Exposure: MWd/MTU (Gwd)	15001.0 (2068.50)		
Delta E: MWd/MTU, (Gwd)	1.0 (0.14)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.40		
Flow: Mlb/hr	95.51 (93.18 %)		
		Axial Profile	Edit Radial Power
		N(PRA)	Power Exposure Zone Avg. Max. IR JR
		Top 25	0.298 7.275 4 0.453 0.719 25 56
		24	0.773 19.441 5 0.300 0.682 25 54
		23	0.987 25.349 6 0.287 0.287 21 40
		22	1.146 30.049 7 0.979 1.286 11 54
		21	1.227 32.609 8 1.145 1.264 13 56
		20	1.284 34.190 9 1.186 1.281 9 52
		19	1.300 34.677 10 1.239 1.450 17 54
		18	1.317 35.423 11 1.427 1.498 9 54
		17	1.314 35.906 12 1.370 1.478 11 52
		16	1.299 36.329
		15	1.297 37.187
		14	1.245 36.650
		13	1.363* 35.412
		12	1.352 36.601
		11	1.309 37.400
		10	1.262 38.511
		9	1.194 39.528
		8	1.090 40.112
		7	0.961 40.599
		6	0.833 41.544
		5	0.689 41.658*
		4	0.555 40.747
		3	0.455 38.858
		2	0.349 31.061
		Bottom 1	0.102 9.179
		% AXIAL TILT	14.106 -9.052
		AVG BOT 8ft/12ft	0.9325 1.0487
Control Rod Density: %	0.81		
k-effective:	0.99998		
Void Fraction:	0.330		
Core Delta-P: psia	20.887		
Core Plate Delta-P: psia	16.348		
Coolant Temp: Deg-F	545.5		
In Channel Flow: Mlb/hr	84.83	Active Channel Flow: Mlb/hr	82.15
Total Bypass Flow (%):	11.2	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00007		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.498	11	39	24	1.599	0.888	11	39	7.14	0.745	46.6	8	43	7.94	0.773	50.6
1.493	11	37	22	1.605	0.885	11	43	7.25	0.742	44.8	8	43	8.05	0.772	49.3
1.490	11	43	24	1.611	0.881	11	37	7.23	0.742	44.9	8	45	7.74	0.770	52.5
1.479	11	33	18	1.618	0.878	11	41	7.21	0.741	45.1	8	35	7.84	0.770	51.3
1.478	12	41	22	1.622	0.875	11	31	7.01	0.739	47.5	8	39	7.69	0.769	52.9
1.478	11	31	16	1.623	0.875	11	33	7.01	0.738	47.3	7	45	7.75	0.769	52.2
1.475	11	45	22	1.625	0.874	12	41	7.02	0.737	47.1	7	33	7.85	0.768	51.1
1.474	11	41	26	1.629	0.872	11	45	7.13	0.736	45.6	8	37	7.68	0.768	52.8
1.471	11	35	20	1.632	0.870	11	37	7.34	0.735	42.6	7	41	7.77	0.765	51.6
1.468	11	43	28	1.637	0.867	11	43	7.24	0.735	44.0	8	31	7.80	0.758	50.5

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.54 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 15,001.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	33838.6
Exposure: MWd/MTU (Gwd)	15150.0 (2089.10)		
Delta E: MWd/MTU, (Gwd)	149.0 (20.55)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-25.82		
Flow: Mlb/hr	101.07 (98.61 %)		
		Axial Profile	Edit Radial Power
		N (PRA)	Power Exposure Zone Avg. Max. IR JR
		Top 25	0.302 7.323 4 0.452 0.717 25 56
		24	0.786 19.566 5 0.298 0.681 25 54
		23	1.003 25.508 6 0.286 0.286 21 40
		22	1.164 30.234 7 0.979 1.284 11 54
		21	1.243 32.807 8 1.144 1.262 13 56
		20	1.298 34.397 9 1.187 1.280 9 52
		19	1.311 34.887 10 1.243 1.450 17 54
		18	1.326 35.636 11 1.427 1.496 9 54
		17	1.320 36.118 12 1.373 1.477 11 52
		16	1.304 36.539
		15	1.301 37.396
		14	1.248 36.850
		13	1.368* 35.602
		12	1.358 36.790
		11	1.312 37.583
		10	1.262 38.687
		9	1.189 39.695
		8	1.078 40.263
		7	0.944 40.732
		6	0.812 41.659
		5	0.667 41.752*
		4	0.535 40.823
		3	0.437 38.919
		2	0.335 31.108
		Bottom 1	0.098 9.194
		% AXIAL TILT	15.151 -8.918
		AVG BOT 8ft/12ft	0.9260 1.0480
Control Rod Density: %	0.81		
k-effective:	0.99996		
Void Fraction:	0.321		
Core Delta-P: psia	22.668		
Core Plate Delta-P: psia	18.129		
Coolant Temp: Deg-F	545.8		
In Channel Flow: Mlb/hr	89.88	Active Channel Flow: Mlb/hr	87.08
Total Bypass Flow (%):	11.1	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00010		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.496	11	39	24	1.634	0.869	11	39	7.28	0.749	45.3	8	43	7.97	0.779	50.9
1.492	11	37	22	1.638	0.867	11	43	7.25	0.745	45.2	8	45	8.09	0.778	49.6
1.489	11	43	24	1.646	0.863	11	37	7.26	0.745	45.0	8	43	7.77	0.776	52.8
1.478	11	31	16	1.652	0.860	11	41	7.22	0.744	45.4	8	35	7.88	0.776	51.6
1.478	11	33	18	1.655	0.858	11	31	7.16	0.743	46.1	8	39	7.72	0.775	53.2
1.477	12	41	22	1.657	0.857	11	33	7.04	0.741	47.4	7	33	7.78	0.775	52.5
1.476	11	45	22	1.658	0.856	11	45	7.02	0.741	47.6	7	45	7.87	0.773	51.4
1.472	11	41	26	1.660	0.856	12	41	7.15	0.740	45.8	8	37	7.71	0.772	53.1
1.469	11	35	20	1.664	0.853	11	37	7.26	0.739	44.3	8	31	7.80	0.771	51.8
1.466	11	43	28	1.672	0.849	12	43	7.35	0.739	42.9	7	41	7.83	0.764	50.8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.55 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 15,150.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	33839.1
Exposure: MWd/MTU (Gwd)	15151.0 (2089.20)		
Delta E: MWd/MTU, (Gwd)	1.0 (0.14)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-27.32		
Flow: Mlb/hr	95.77 (93.43 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	0.290 7.323 4 0.445 0.706 25 56
1		24	0.751 19.567 5 0.294 0.670 25 54
3		23	0.958 25.509 6 0.281 0.281 21 40
5		22	1.114 30.235 7 0.965 1.281 11 54
7		21	1.193 32.809 8 1.167 1.275 5 56
9		20	1.252 34.398 9 1.180 1.277 9 52
11		19	1.274 34.888 10 1.221 1.429 17 54
13		18	1.302 35.637 11 1.455 1.506 9 54
15		17	1.307 36.119 12 1.351 1.466 11 52
17		16	1.299 36.540
19		15	1.301 37.397
21		14	1.253 36.852
23		13	1.375* 35.603
25		12	1.365 36.792
27		11	1.322 37.584
29		10	1.274 38.688
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	1.205 39.696
		8	1.101 40.264
		7	0.975 40.733
		6	0.850 41.660
		5	0.710 41.753*
		4	0.578 40.824
		3	0.477 38.920
		2	0.367 31.109
		Bottom 1	0.108 9.194
Control Rod Density: %	0.00	% AXIAL TILT	12.534 -8.917
k-effective:	0.99997	AVG BOT 8ft/12ft	0.9445 1.0480
Void Fraction:	0.332		
Core Delta-P: psia	21.029		
Core Plate Delta-P: psia	16.492		
Coolant Temp: Deg-F	545.6		
In Channel Flow: Mlb/hr	85.03	Active Channel Flow: Mlb/hr	82.33
Total Bypass Flow (%):	11.2	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00009		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.506	11	39	24	1.600	0.887	11	39	7.21	0.741	45.0	8	43	7.86	0.767	50.9
1.498	11	37	26	1.617	0.878	11	37	7.06	0.739	46.9	8	43	7.79	0.765	51.4
1.498	11	31	28	1.624	0.874	11	41	7.33	0.736	42.9	7	41	7.63	0.765	53.1
1.497	11	37	22	1.627	0.873	11	43	7.14	0.736	45.4	8	35	7.65	0.764	52.8
1.493	11	35	28	1.629	0.871	11	31	7.14	0.735	45.2	8	45	7.74	0.763	51.6
1.492	11	33	26	1.631	0.870	11	33	6.95	0.733	47.6	7	45	7.65	0.762	52.5
1.489	11	33	30	1.633	0.869	11	37	7.19	0.732	44.3	8	31	7.59	0.762	53.2
1.483	11	35	24	1.635	0.868	11	35	7.03	0.732	46.4	8	43	7.69	0.760	51.9
1.480	11	41	26	1.641	0.865	11	33	7.17	0.732	44.4	8	39	7.98	0.758	48.5
1.478	11	43	24	1.645	0.863	11	33	6.92	0.732	47.7	8	39	7.74	0.757	51.0

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.56 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 15,151.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	33988.6
Exposure: MWd/MTU (GWd)	15300.0 (2109.80)		
Delta E: MWd/MTU, (GWd)	149.0 (20.55)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1050.1		
Inlet Subcooling: Btu/lbm	-25.68		
Flow: Mlb/hr	101.57 (99.10 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	0.295 7.369 4 0.443 0.705 25 56
1		24	0.766 19.688 5 0.292 0.669 25 54
3		23	0.977 25.663 6 0.280 0.280 21 40
5		22	1.133 30.415 7 0.966 1.280 11 54
7		21	1.211 33.001 8 1.165 1.271 5 56
9		20	1.268 34.601 9 1.181 1.275 9 52
11		19	1.287 35.094 10 1.225 1.430 17 54
13		18	1.312 35.847 11 1.454 1.505 9 54
15		17	1.314 36.330 12 1.355 1.465 11 52
17		16	1.303 36.749
19		15	1.305 37.607
21		14	1.256 37.054
23		13	1.380* 35.796
25		12	1.370 36.982
27		11	1.324 37.769
29		10	1.273 38.866
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	1.199 39.863
		8	1.089 40.417
		7	0.956 40.868
		6	0.828 41.777
		5	0.686 41.850*
		4	0.556 40.903
		3	0.457 38.985
		2	0.352 31.159
		Bottom 1	0.104 9.210
Control Rod Density: %	0.00	% AXIAL TILT	13.681 -8.790
k-effective:	0.99997	AVG BOT 8ft/12ft	0.9374 1.0474
Void Fraction:	0.323		
Core Delta-P: psia	22.894		
Core Plate Delta-P: psia	18.357		
Coolant Temp: Deg-F	545.8		
In Channel Flow: Mlb/hr	90.30	Active Channel Flow: Mlb/hr	87.48
Total Bypass Flow (%):	11.1	(of total core flow)	
Total Water Rod Flow (%):	2.8	(of total core flow)	
Source Convergence	0.00006		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.505	11	39	24	1.638	0.867	11	39	7.23	0.744	45.3	8	7.89	0.773	51.2	8
1.495	11	37	22	1.654	0.858	11	37	7.07	0.743	47.1	8	7.82	0.771	51.7	8
1.495	11	37	26	1.661	0.855	11	41	7.16	0.739	45.7	8	7.69	0.771	53.0	7
1.493	11	31	28	1.661	0.855	11	43	7.34	0.739	43.2	7	7.66	0.770	53.4	7
1.489	11	35	28	1.675	0.848	11	31	7.16	0.739	45.5	8	7.78	0.769	51.9	8
1.488	11	33	26	1.676	0.847	11	37	6.96	0.737	47.8	7	7.69	0.768	52.8	8
1.484	11	33	30	1.677	0.847	11	33	7.21	0.736	44.5	8	7.62	0.768	53.5	8
1.480	11	35	24	1.681	0.845	11	33	6.94	0.735	48.0	8	7.72	0.766	52.1	8
1.477	11	41	26	1.681	0.845	11	35	7.03	0.734	46.7	8	8.01	0.763	48.8	7
1.477	11	43	24	1.683	0.844	12	41	7.18	0.734	44.7	8	7.76	0.762	51.3	8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.57 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 15,300.0 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	34151.0
Exposure: MWd/MTU (GWd)	15462.4 (2132.20)		
Delta E: MWd/MTU, (GWd)	1.0 (0.14)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1044.8		
Inlet Subcooling: Btu/lbm	-32.94		
Flow: Mlb/hr	96.79 (94.42 %)		
		Axial Profile	Radial Power
		N(PRA) Power Exposure	Edit Zone Avg. Max. IR JR
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25	4 0.448 0.713 25 56
1		24	5 0.294 0.678 25 54
3		23	6 0.280 0.280 21 40
5		22	7 0.971 1.271 11 54
7		21	8 1.161 1.261 5 56
9		20	9 1.180 1.267 9 52
11		19	10 1.232 1.424 17 54
13		18	11 1.445 1.493 9 54
15		17	12 1.356 1.455 11 52
17		16	
19		15	
21		14	
23		13	
25		12	
27		11	
29		10	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9	
Control Rod Density: %	0.00	8	
k-effective:	0.99996	7	
Void Fraction:	0.310	6	
Core Delta-P: psia	20.990	5	
Core Plate Delta-P: psia	16.424	4	
Coolant Temp: Deg-F	543.1	3	
In Channel Flow: Mlb/hr	86.10	2	
Total Bypass Flow (%):	11.0	1	
Total Water Rod Flow (%):	2.8		
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.493	11	39	24	1.653	0.859	11	39	6.93	0.730	47.4	8	7.75	0.762	51.5	8
1.484	11	37	22	1.670	0.850	11	37	7.06	0.729	45.6	8	7.55	0.760	53.4	7
1.482	11	37	26	1.676	0.847	11	43	7.02	0.727	45.7	8	7.52	0.759	53.7	7
1.478	11	31	28	1.677	0.847	11	41	7.00	0.726	45.9	8	7.65	0.759	52.2	8
1.475	11	35	28	1.692	0.839	11	37	7.17	0.724	43.4	7	7.66	0.758	52.0	8
1.474	11	33	26	1.695	0.838	11	31	6.82	0.724	48.1	7	7.49	0.757	53.8	8
1.469	11	33	30	1.695	0.838	11	33	6.81	0.723	48.3	8	7.55	0.757	53.1	8
1.468	11	35	24	1.696	0.837	11	33	7.05	0.722	44.8	8	7.57	0.753	52.4	8
1.467	11	43	24	1.696	0.837	11	31	6.82	0.722	47.9	7	7.83	0.749	49.1	7
1.465	11	41	26	1.699	0.836	11	45	6.92	0.721	46.4	8	7.48	0.748	52.8	8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.59 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 15,462.4 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	34476.0
Exposure: MWd/MTU (Gwd)	15787.4 (2177.00)		
Delta E: MWd/MTU, (Gwd)	325.0 (44.82)		
Power: MWt	3458.0 (100.00 %)		
Core Pressure: psia	1044.8		
Inlet Subcooling: Btu/lbm	-29.48		
Flow: Mlb/hr	107.63 (105.00 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure Zone	Avg. Max. IR JR
		Top 25	0.300 7.522 4 0.445 0.711 25 56
		24	0.786 20.091 5 0.291 0.675 25 54
		23	1.000 26.177 6 0.278 0.278 21 40
		22	1.155 31.012 7 0.971 1.269 11 54
		21	1.225 33.637 8 1.159 1.256 5 56
		20	1.275 35.265 9 1.181 1.265 9 52
		19	1.285 35.767 10 1.238 1.427 17 54
		18	1.304 36.532 11 1.444 1.491 9 54
		17	1.302 37.014 12 1.361 1.454 11 52
		16	1.289 37.428
		15	1.294 38.288
		14	1.252 37.712
		13	1.392 36.427
		12	1.394* 37.613
		11	1.353 38.381
		10	1.303 39.456
		9	1.222 40.419
		8	1.098 40.920
		7	0.945 41.306
		6	0.801 42.152
		5	0.651 42.158*
		4	0.522 41.151
		3	0.427 39.187
		2	0.329 31.315
		Bottom 1	0.097 9.258
		% AXIAL TILT	14.088 -8.380
		AVG BOT 8ft/12ft	0.9332 1.0454
Control Rod Density: %	0.00		
k-effective:	0.99935		
Void Fraction:	0.293		
Core Delta-P: psia	24.580		
Core Plate Delta-P: psia	20.017		
Coolant Temp: Deg-F	543.7		
In Channel Flow: Mlb/hr	95.94	Active Channel Flow: Mlb/hr	93.06
Total Bypass Flow (%):	10.9	(of total core flow)	
Total Water Rod Flow (%):	2.7	(of total core flow)	
Source Convergence	0.00010		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR						LHGR							
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	JR	K	Value	Margin	Exp.	FT	IR	JR	K
1.491	11	39	24	1.713	0.829	11	39	6.98	0.739	48.0	8	43	22	15	7.83	0.776	52.1	8	45	24	15
1.481	11	37	22	1.728	0.822	11	43	7.11	0.738	46.1	8	43	26	15	7.63	0.773	53.9	7	33	16	15
1.479	11	37	26	1.729	0.821	11	37	7.08	0.736	46.3	8	45	24	15	7.59	0.772	54.2	7	45	28	15
1.473	11	31	28	1.733	0.819	11	41	7.04	0.734	46.5	8	35	18	15	7.72	0.772	52.8	8	37	16	15
1.469	11	35	28	1.744	0.814	11	45	7.22	0.733	44.0	7	41	24	15	7.73	0.771	52.6	8	43	26	15
1.469	11	33	26	1.750	0.812	11	31	6.87	0.733	48.6	7	45	28	15	7.63	0.770	53.7	8	43	22	15
1.467	11	43	24	1.752	0.810	11	33	6.85	0.732	48.8	8	39	18	15	7.55	0.769	54.4	8	39	18	15
1.464	11	35	24	1.755	0.809	12	41	7.10	0.731	45.4	8	31	18	15	7.64	0.766	53.0	8	35	18	15
1.463	11	33	30	1.757	0.808	11	37	6.87	0.731	48.5	7	33	16	15	7.90	0.762	49.7	7	41	24	15
1.463	11	41	26	1.760	0.807	11	43	6.97	0.730	46.9	8	37	16	15	7.55	0.760	53.4	8	43	30	15

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.60 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 15,787.4 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	34699.0
Exposure: MWd/MTU (Gwd)	16010.4 (2207.70)		
Delta E: MWd/MTU, (Gwd)	223.0 (30.75)		
Power: MWt	3222.7 (93.19 %)		
Core Pressure: psia	1039.6		
Inlet Subcooling: Btu/lbm	-27.27		
Flow: Mlb/hr	107.63 (105.00 %)		
		Axial Profile	Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.308 7.594 4 0.442 0.708 25 56
		24	0.813 20.282 5 0.288 0.672 25 54
		23	1.033 26.420 6 0.276 0.276 21 40
		22	1.190 31.293 7 0.971 1.269 11 54
		21	1.257 33.934 8 1.157 1.254 5 56
		20	1.303 35.575 9 1.183 1.264 9 52
		19	1.308 36.079 10 1.241 1.429 17 54
		18	1.323 36.848 11 1.444 1.490 9 54
		17	1.316 37.329 12 1.365 1.453 11 52
		16	1.298 37.740
		15	1.300 38.600
		14	1.256 38.013
		13	1.398 36.718
		12	1.399* 37.905
		11	1.353 38.663
		10	1.294 39.727
		9	1.203 40.672
		8	1.069 41.146
		7	0.909 41.499
		6	0.762 42.315*
		5	0.616 42.290
		4	0.491 41.256
		3	0.401 39.274
		2	0.308 31.381
		Bottom 1	0.091 9.279
		% AXIAL TILT	16.141 -8.185
		AVG BOT 8ft/12ft	0.9203 1.0444
Control Rod Density: %	0.00		
k-effective:	0.99998		
Void Fraction:	0.280		
Core Delta-P: psia	24.285		
Core Plate Delta-P: psia	19.726		
Coolant Temp: Deg-F	543.4		
In Channel Flow: Mlb/hr	96.12	Active Channel Flow: Mlb/hr	93.29
Total Bypass Flow (%):	10.7	(of total core flow)	
Total Water Rod Flow (%):	2.6	(of total core flow)	
Source Convergence	0.00010		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.490	11	39	24	1.830	0.776	11	39	6.54	0.695	48.4	8	43	7.36	0.733	52.5
1.481	11	37	22	1.845	0.770	11	43	6.66	0.695	46.5	8	43	7.17	0.730	54.4
1.478	11	37	26	1.849	0.768	11	37	6.64	0.693	46.7	8	45	7.13	0.728	54.6
1.471	11	31	28	1.851	0.767	11	41	6.60	0.691	46.9	8	35	7.25	0.728	53.2
1.468	11	35	28	1.858	0.764	11	45	6.76	0.690	44.4	7	41	7.26	0.728	53.0
1.468	11	33	26	1.869	0.760	11	31	6.44	0.690	49.0	7	45	7.17	0.727	54.1
1.467	11	43	24	1.872	0.759	11	33	6.66	0.689	45.8	8	31	7.09	0.726	54.8
1.462	11	35	24	1.876	0.757	11	39	6.58	0.689	46.8	8	39	7.18	0.723	53.4
1.462	11	41	26	1.876	0.757	12	41	6.44	0.688	48.8	7	33	7.43	0.719	50.1
1.461	11	33	30	1.881	0.755	11	37	6.53	0.686	47.3	8	37	7.22	0.718	52.5

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.61 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 16,010.4 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	34936.2	
Exposure: MWd/MTU (GWd)	16247.6 (2240.40)			
Delta E: MWd/MTU, (GWd)	67.1 (9.25)			
Power: Mwt	3025.2 (87.48 %)			
Core Pressure: psia	1035.2			
Inlet Subcooling: Btu/lbm	-25.43			
Flow: Mlb/hr	107.63 (105.00 %)			
		Axial Profile	Edit Radial Power	
		N(PRA) Power Exposure	Zone Avg. Max. IR JR	
		Top 25	0.317 7.672 4 0.440 0.706 25 56	
		24	0.838 20.492 5 0.287 0.670 25 54	
		23	1.065 26.687 6 0.274 0.274 21 40	
		22	1.223 31.601 7 0.970 1.268 11 54	
		21	1.286 34.259 8 1.156 1.251 5 56	
		20	1.327 35.911 9 1.184 1.262 9 52	
		19	1.327 36.416 10 1.245 1.431 17 54	
		18	1.338 37.188 11 1.443 1.489 9 54	
		17	1.326 37.667 12 1.369 1.452 11 52	
		16	1.304 38.073	
		15	1.304 38.933	
		14	1.258 38.335	
		13	1.401* 37.029	
		12	1.400 38.215	
		11	1.349 38.963	
		10	1.283 40.013	
		9	1.184 40.937	
		8	1.042 41.380	
		7	0.879 41.698	
		6	0.731 42.480*	
		5	0.588 42.424	
		4	0.468 41.363	
		3	0.382 39.360	
		2	0.294 31.447	
		Bottom 1	0.087 9.300	
		% AXIAL TILT	17.908 -7.968	
		AVG BOT 8ft/12ft	0.9087 1.0433	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58				
Control Rod Density: %	0.00			
k-effective:	0.99997			
Void Fraction:	0.269			
Core Delta-P: psia	24.038			
Core Plate Delta-P: psia	19.484			
Coolant Temp: Deg-F	543.2			
In Channel Flow: Mlb/hr	96.26	Active Channel Flow: Mlb/hr	93.49	
Total Bypass Flow (%):	10.6	(of total core flow)		
Total Water Rod Flow (%):	2.6	(of total core flow)		
Source Convergence	0.00008			

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.489	11	39	24	1.944	0.731	11	39	6.35	0.662	46.5	8	43	6.94	0.695	53.0
1.479	11	37	22	1.957	0.725	11	43	6.47	0.658	44.2	8	45	6.76	0.692	54.8
1.476	11	37	26	1.965	0.723	11	37	6.27	0.657	46.9	8	43	7.00	0.691	51.8
1.469	11	31	28	1.965	0.722	11	41	6.24	0.656	47.3	8	39	6.94	0.691	52.5
1.467	11	43	24	1.967	0.722	11	45	6.21	0.653	47.3	8	35	6.72	0.690	55.1
1.466	11	35	28	1.983	0.716	11	31	6.36	0.652	44.8	7	41	6.83	0.690	53.7
1.465	11	33	26	1.986	0.715	11	49	6.36	0.652	44.8	8	37	6.85	0.690	53.4
1.460	11	41	26	1.987	0.715	11	33	6.06	0.652	49.4	7	45	6.77	0.685	53.9
1.460	11	35	24	1.987	0.715	11	39	6.27	0.651	46.2	8	31	7.00	0.682	50.6
1.458	11	33	30	1.989	0.714	12	47	6.06	0.651	49.2	7	33	6.81	0.681	52.9

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.63 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 16,247.6 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	35162.3
Exposure: MWd/MTU (GWd)	16473.7 (2271.60)		
Delta E: MWd/MTU, (GWd)	226.1 (31.18)		
Power: MWt	2838.5 (82.08 %)		
Core Pressure: psia	1031.1		
Inlet Subcooling: Btu/lbm	-23.70		
Flow: Mlb/hr	107.63 (105.00 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.326 7.750 4 0.438 0.704 25 56
		24	0.865 20.699 5 0.285 0.669 25 54
		23	1.097 26.949 6 0.273 0.273 21 40
		22	1.256 31.903 7 0.970 1.266 11 54
		21	1.315 34.575 8 1.154 1.248 5 56
		20	1.352 36.237 9 1.184 1.261 9 52
		19	1.346 36.742 10 1.249 1.433 17 54
		18	1.352 37.516 11 1.443 1.488 9 54
		17	1.335 37.992 12 1.372 1.452 17 50
		16	1.309 38.391
		15	1.306 39.252
		14	1.258 38.642
		13	1.402* 37.326
		12	1.399 38.511
		11	1.343 39.248
		10	1.269 40.283
		9	1.163 41.186
		8	1.015 41.598
		7	0.849 41.880
		6	0.702 42.632*
		5	0.563 42.546
		4	0.448 41.460
		3	0.366 39.439
		2	0.281 31.508
		Bottom 1	0.083 9.319
		% AXIAL TILT	19.638 -7.752
		AVG BOT 8ft/12ft	0.8971 1.0422
Control Rod Density: %	0.00		
k-effective:	0.99997		
Void Fraction:	0.258		
Core Delta-P: psia	23.807		
Core Plate Delta-P: psia	19.257		
Coolant Temp: Deg-F	543.0		
In Channel Flow: Mlb/hr	96.40	Active Channel Flow: Mlb/hr	93.68
Total Bypass Flow (%):	10.4	(of total core flow)	
Total Water Rod Flow (%):	2.5	(of total core flow)	
Source Convergence	0.00008		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.488	11	39	24	2.066	0.687	11	39	6.02	0.630	46.9	8	43	6.66	0.660	52.2
1.478	11	37	22	2.080	0.683	11	43	6.13	0.627	44.6	8	45	6.59	0.660	53.0
1.474	11	37	26	2.085	0.681	11	45	5.91	0.624	47.6	8	39	6.80	0.658	50.1
1.467	11	31	28	2.088	0.680	11	41	6.03	0.621	45.2	8	37	6.36	0.655	55.2
1.467	11	43	24	2.090	0.679	11	37	5.89	0.620	47.3	8	43	6.70	0.654	50.8
1.463	11	35	28	2.094	0.678	11	49	5.85	0.617	47.5	7	45	6.32	0.653	55.5
1.463	11	33	26	2.105	0.674	12	47	5.83	0.616	47.7	8	35	6.45	0.653	53.9
1.459	11	45	22	2.107	0.674	11	39	5.98	0.615	45.2	7	41	6.37	0.648	54.3
1.458	11	41	26	2.107	0.674	11	31	5.89	0.615	46.6	8	31	6.59	0.645	51.0
1.458	11	35	24	2.111	0.673	11	33	5.69	0.614	49.6	7	33	6.41	0.645	53.3

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.64 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 16,473.7 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU				35395.8			
Exposure: MWd/MTU (Gwd)	16707.2 (2303.80)								
Delta E: MWd/MTU, (Gwd)	233.4 (32.19)								
Power: MWt	2644.9 (76.49 %)								
Core Pressure: psia	1026.8								
Inlet Subcooling: Btu/lbm	-21.92								
Flow: Mlb/hr.	107.63 (105.00 %)								
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Axial Profile				Edit	Radial Power		
		N(PRA)	Power	Exposure	Zone	Avg.	Max.	IR	JR
		Top 25	0.336	7.832	4	0.436	0.702	25	56
		24	0.894	20.919	5	0.283	0.667	25	54
		23	1.133	27.228	6	0.272	0.272	21	40
		22	1.292	32.223	7	0.970	1.265	11	54
		21	1.347	34.909	8	1.153	1.245	5	56
		20	1.379	36.581	9	1.185	1.259	9	52
		19	1.367	37.084	10	1.253	1.435	17	54
		18	1.367	37.859	11	1.442	1.487	9	54
		17	1.344	38.329	12	1.376	1.457	17	50
		16	1.313	38.722					
		15	1.307	39.581					
		14	1.257	38.959					
		13	1.402*	37.632					
		12	1.396	38.817					
		11	1.333	39.540					
		10	1.252	40.558					
		9	1.138	41.437					
		8	0.985	41.816					
		7	0.818	42.062					
		6	0.673	42.782*					
		5	0.539	42.666					
		4	0.428	41.555					
		3	0.350	39.517					
		2	0.269	31.568					
		Bottom 1	0.080	9.337					
		% AXIAL TILT		21.506	-7.520				
		AVG BOT 8ft/12ft		0.8843	1.0410				
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58									
Control Rod Density: %	0.00								
k-effective:	0.99997								
Void Fraction:	0.246								
Core Delta-P: psia	23.569								
Core Plate Delta-P: psia	19.023								
Coolant Temp: Deg-F	542.8								
In Channel Flow: Mlb/hr	96.54	Active Channel Flow: Mlb/hr				93.87			
Total Bypass Flow (%):	10.3	(of total core flow)							
Total Water Rod Flow (%):	2.5	(of total core flow)							
Source Convergence	0.00009								

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp. FT	IR	Value	Margin	Exp. FT	IR
1.487	11	39	24	2.210	0.643	11	39	5.67	0.597	47.3	8	6.29	0.627	52.7	8
1.476	11	37	22	2.221	0.639	11	49	5.78	0.594	45.0	8	6.22	0.626	53.4	8
1.472	11	37	26	2.223	0.639	11	45	5.57	0.591	48.1	8	6.42	0.625	50.6	8
1.467	11	43	24	2.223	0.639	11	43	5.69	0.587	45.6	8	6.33	0.621	51.3	8
1.464	11	31	28	2.233	0.636	11	41	5.61	0.585	46.6	8	6.20	0.617	52.5	8
1.460	11	45	22	2.237	0.635	11	37	5.51	0.584	47.9	7	5.95	0.615	55.6	7
1.460	11	35	28	2.238	0.634	12	47	5.55	0.581	46.9	8	6.11	0.615	53.4	7
1.460	11	33	26	2.243	0.633	11	39	5.48	0.580	47.8	7	6.12	0.613	52.9	8
1.457	12	47	20	2.247	0.632	12	41	5.74	0.579	43.3	7	6.10	0.611	52.9	8
1.457	11	41	26	2.248	0.632	12	43	6.82	0.576	24.5	11	6.00	0.606	53.7	8

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.65 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 16,707.2 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	25	Core Average Exposure: MWd/MTU	35746.8
Exposure: MWd/MTU (Gwd)	17058.3 (2352.20)		
Delta E: MWd/MTU, (Gwd)	351.1 (48.41)		
Power: MWt	2360.3 (68.26 %)		
Core Pressure: psia	1020.5		
Inlet Subcooling: Btu/lbm	-19.32		
Flow: Mlb/hr	107.63 (105.00 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.352 7.960 4 0.432 0.699 25 56
		24	0.944 21.265 5 0.280 0.664 25 54
		23	1.193 27.666 6 0.269 0.269 21 40
		22	1.354 32.723 7 0.970 1.263 11 54
		21	1.401 35.428 8 1.150 1.240 5 56
		20	1.425* 37.112 9 1.187 1.256 9 52
		19	1.402 37.608 10 1.259 1.438 17 54
		18	1.393 38.382 11 1.441 1.484 9 54
		17	1.360 38.842 12 1.382 1.465 17 50
		16	1.320 39.220
		15	1.308 40.076
		14	1.253 39.434
		13	1.398 38.092
		12	1.387 39.274
		11	1.313 39.975
		10	1.219 40.964
		9	1.094 41.804
		8	0.935 42.131
		7	0.768 42.323
		6	0.629 42.996*
		5	0.502 42.837
		4	0.398 41.691
		3	0.326 39.628
		2	0.251 31.653
		Bottom 1	0.074 9.364
			% AXIAL TILT 24.609 -7.153
			AVG BOT 8ft/12ft 0.8626 1.0391
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	0.00		
k-effective:	0.99997		
Void Fraction:	0.228		
Core Delta-P: psia	23.221		
Core Plate Delta-P: psia	18.681		
Coolant Temp: Deg-F	542.6		
In Channel Flow: Mlb/hr	96.76	Active Channel Flow: Mlb/hr	94.17
Total Bypass Flow (%):	10.1	(of total core flow)	
Total Water Rod Flow (%):	2.4	(of total core flow)	
Source Convergence	0.00009		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	Value	Margin	Exp.	FT
1.484	11	39	24	2.437	0.583	11	49	5.30	0.550	45.9	8	5.90	0.581	51.6	8
1.473	11	37	22	2.445	0.581	11	45	5.24	0.546	46.5	8	5.92	0.580	51.1	8
1.468	11	37	26	2.452	0.579	12	47	5.41	0.546	43.3	8	5.86	0.575	51.3	8
1.466	11	43	24	2.461	0.577	11	39	5.34	0.541	43.8	8	5.77	0.570	52.0	8
1.465	12	47	20	2.464	0.576	11	39	5.09	0.535	47.2	8	5.65	0.567	53.2	8
1.464	11	49	20	2.470	0.575	12	41	6.36	0.534	23.7	11	5.57	0.565	54.1	7
1.463	11	45	22	2.471	0.575	12	43	5.01	0.534	48.5	7	5.56	0.563	53.9	7
1.460	11	31	28	2.475	0.574	11	43	5.04	0.531	47.5	8	5.58	0.563	53.6	8
1.456	11	33	26	2.477	0.573	10	47	4.98	0.530	48.5	7	5.57	0.562	53.6	8
1.456	11	35	28	2.483	0.572	11	41	6.26	0.530	24.7	10	5.99	0.557	46.5	9

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 0

* Thermal limit file:

Figure A.66 Browns Ferry Cycle 25 Control Rod Pattern and Axial Distributions at 17,058.3 MWd/MTU

Appendix B Elevation Views of the Browns Ferry Cycle 25 Fresh Reload Batch Fuel Assemblies

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AREVA NP Inc.

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Figure B.2 Elevation View for the Browns Ferry Cycle 25 Fresh Fuel Reload Batch BFE ATRIUM 10XM [] Fuel Assembly Design

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AREVA NP Inc.

Appendix C Browns Ferry Cycle 25 Fresh Fuel Locations

**Table C.1 Browns Ferry Cycle 25 Reload Fuel Identification and
Locations (Core Coordinates)**

Assembly Type: ATRIUM 10XM
Bundle Description: []
Number Loaded: []*

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* Each fuel assembly ID is shown four times due to expansion from quarter core to full core geometry.

Appendix D Browns Ferry Cycle 25 Radial Exposure and Power Distributions

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Figure D.1 Browns Ferry Cycle 25 BOC Exposure Distribution (GWd/MTU)

Figure D.2 Browns Ferry Cycle 25 EOC Exposure Distribution (GWd/MTU)

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**Figure D.3 Browns Ferry Cycle 25 EOC Assembly Peak Rod Exposure Distribution
(GWd/MTU)**

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**Figure D.4 Browns Ferry Cycle 25 EOC Assembly Peak Pellet Exposure Distribution
(GWd/MTU)**

	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59
30	1.419	1.408	1.321	1.040	1.023	1.268	1.250	1.006	0.973	1.202	1.179	1.150	1.035	0.660	0.352
28	1.407	1.372	1.352	1.296	1.292	1.313	1.314	1.246	1.254	1.223	1.196	1.127	0.989	0.645	0.339
26	1.326	1.349	1.336	1.296	1.290	1.337	1.347	1.344	1.290	1.305	1.242	1.098	0.807	0.596	0.323
24	1.020	1.287	1.292	1.049	1.061	1.317	1.365	1.351	1.360	1.257	1.182	1.059	0.759	0.507	0.290
22	1.004	1.273	1.288	1.059	1.060	1.298	1.332	1.368	1.294	1.248	1.142	1.035	0.738	0.481	0.260
20	1.257	1.304	1.328	1.310	1.295	1.312	1.353	1.327	1.289	1.224	1.148	1.005	0.818	0.451	0.232
18	1.243	1.304	1.335	1.356	1.326	1.349	1.346	1.319	1.242	1.178	1.068	0.954	0.639	0.386	0.199
16	0.997	1.234	1.332	1.337	1.358	1.317	1.315	1.255	1.223	1.130	1.037	0.841	0.508	0.300	
14	0.964	1.242	1.266	1.347	1.284	1.280	1.226	1.221	1.203	1.089	0.926	0.587	0.357		
12	1.192	1.213	1.292	1.231	1.235	1.214	1.172	1.126	1.080	0.962	0.628	0.384	0.220		
10	1.170	1.186	1.229	1.169	1.127	1.139	1.060	1.032	0.925	0.623	0.427				
8	1.140	1.117	1.087	1.049	1.026	0.997	0.949	0.839	0.586	0.384					
6	1.026	0.979	0.797	0.752	0.733	0.813	0.634	0.500	0.364	0.221					
4	0.654	0.635	0.566	0.507	0.485	0.448	0.375	0.294							
2	0.349	0.332	0.312	0.285	0.260	0.228	0.196								

**Figure D.5 Browns Ferry Cycle 25 Radial Power Distribution
at 0.0 MWd/MTU**

	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59
30	1.233	1.479	1.241	1.455	1.204	1.436	1.219	1.450	1.199	1.388	1.122	1.227	0.868	0.488	0.235
28	1.488	1.252	1.484	1.246	1.221	1.227	1.461	1.208	1.421	1.166	1.322	1.225	0.840	0.481	0.230
26	1.256	1.484	1.267	1.492	1.251	1.475	1.253	1.445	1.192	1.395	1.176	1.210	0.704	0.449	0.219
24	1.457	1.231	1.477	1.260	1.503	1.278	1.476	1.238	1.431	1.174	1.320	1.191	0.668	0.381	0.200
22	1.210	1.200	1.236	1.493	1.274	1.464	1.240	1.458	1.207	1.392	1.124	1.167	0.655	0.362	0.183
20	1.462	1.228	1.462	1.257	1.444	1.229	1.448	1.237	1.434	1.409	1.307	1.107	0.702	0.334	0.162
18	1.248	1.464	1.242	1.449	1.216	1.433	1.233	1.417	1.184	1.338	1.015	0.844	0.514	0.275	0.133
16	1.461	1.208	1.434	1.218	1.431	1.203	1.392	1.150	1.314	1.228	1.084	0.694	0.375	0.207	
14	1.201	1.418	1.173	1.411	1.186	1.395	1.149	1.303	1.058	0.913	0.756	0.452	0.252		
12	1.387	1.163	1.383	1.148	1.368	1.385	1.316	1.214	0.902	0.741	0.456	0.269	0.149		
10	1.120	1.317	1.166	1.305	1.105	1.288	1.000	1.071	0.749	0.451	0.279				
8	1.223	1.220	1.201	1.179	1.154	1.093	0.833	0.686	0.448	0.267					
6	0.863	0.834	0.697	0.661	0.648	0.694	0.506	0.367	0.254	0.149					
4	0.485	0.475	0.428	0.380	0.362	0.330	0.266	0.202							
2	0.234	0.226	0.213	0.197	0.182	0.158	0.131								

**Figure D.6 Browns Ferry Cycle 25 Radial Power Distribution
at 15,461.4 MWd/MTU (EOFP)**

**Appendix E Browns Ferry Cycle 24 EOC Projection Control Rod Patterns and Core
Average Axial Power and Exposure Distributions**

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	24	Core Average Exposure: MWd/MTU	34869.3
Exposure: MWd/MTU (GWd)	16180.5 (2231.20)		
Delta E: MWd/MTU, (GWd)	170.1 (23.46)		
Power: MWt	3087.2 (89.28 %)		
Core Pressure: psia	1036.6		
Inlet Subcooling: Btu/lbm	-26.01		
Flow: Mlb/hr	107.63 (105.00 %)		
		Axial Profile	Edit Radial Power
		N (PRA) Power Exposure Zone Avg. Max. IR JR	
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29		Top 25 0.313 7.662 4 0.440 0.706 25 56	
1		24 0.826 20.463 5 0.287 0.671 25 54	
3		23 1.049 26.648 6 0.275 0.275 21 40	
5		22 1.206 31.554 7 0.970 1.268 11 54	
7		21 1.270 34.206 8 1.157 1.253 5 56	
9		20 1.313 35.850 9 1.183 1.264 9 52	
11		19 1.315 36.348 10 1.243 1.430 17 54	
13		18 1.328 37.111 11 1.444 1.491 9 54	
15		17 1.319 37.582 12 1.368 1.453 11 52	
17		16 1.300 37.981	
19		15 1.302 38.834	
21		14 1.258 38.233	
23		13 1.403 36.926	
25		12 1.403* 38.108	
27		11 1.355 38.857	
29		10 1.292 39.910	
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58		9 1.196 40.841	
		8 1.057 41.295	
		7 0.894 41.625	
		6 0.745 42.420*	
		5 0.600 42.374	
		4 0.477 41.321	
		3 0.390 39.322	
		2 0.300 31.415	
		Bottom 1 0.088 9.289	
Control Rod Density: %	0.00	% AXIAL TILT	16.955 -7.978
k-effective:	0.99983	AVG BOT 8ft/12ft	0.9152 1.0433
Void Fraction:	0.273		
Core Delta-P: psia	24.124		
Core Plate Delta-P: psia	19.568		
Coolant Temp: Deg-F	543.3		
In Channel Flow: Mlb/hr	96.21	Active Channel Flow: Mlb/hr	93.42
Total Bypass Flow (%):	10.6	(of total core flow)	
Total Water Rod Flow (%):	2.6	(of total core flow)	
Source Convergence	0.00045		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.491	8	39	24	1.908	0.744	8	39	6.43	0.670	46.3	5	43	7.07	0.706	52.8
1.481	8	37	22	1.923	0.738	8	43	6.39	0.669	46.9	5	43	6.88	0.703	54.6
1.478	8	37	26	1.929	0.736	8	37	6.37	0.667	47.0	5	45	6.84	0.702	55.0
1.472	8	31	28	1.930	0.736	8	41	6.33	0.665	47.2	5	35	6.97	0.702	53.4
1.468	8	35	28	1.934	0.734	8	45	6.32	0.664	47.1	5	39	6.96	0.702	53.5
1.468	8	33	26	1.948	0.729	8	31	6.49	0.664	44.7	4	41	6.88	0.701	54.4
1.467	8	43	24	1.952	0.728	8	33	6.17	0.663	49.3	4	45	6.80	0.699	55.1
1.462	8	35	24	1.954	0.727	8	39	6.39	0.663	46.0	5	31	6.89	0.697	53.8
1.461	8	41	26	1.956	0.726	8	49	6.18	0.662	49.1	4	33	7.13	0.693	50.4
1.461	8	33	30	1.957	0.726	9	47	6.26	0.660	47.6	5	37	6.93	0.692	52.7

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 3

* Thermal limit file:

Figure E.1 Browns Ferry Cycle 24 Control Rod Pattern and Axial Distributions at 16,180.5 MWd/MTU

Browns Ferry ATRIUM™ 10XM Equilibrium Cycle Design Summary

Cycle:	24	Core Average Exposure: MWd/MTU	35395.9
Exposure: MWd/MTU (GWd)	16707.2 (2303.80)		
Delta E: MWd/MTU, (GWd)	233.4 (32.19)		
Power: MWt	2640.1 (76.35 %)		
Core Pressure: psia	1026.7		
Inlet Subcooling: Btu/lbm	-21.89		
Flow: Mlb/hr	107.63 (105.00 %)		
		Axial Profile	Edit Radial Power
		N(PRA) Power Exposure	Zone Avg. Max. IR JR
		Top 25	0.335 7.843 4 0.435 0.701 25 56
		24	0.891 20.948 5 0.283 0.666 25 54
		23	1.129 27.263 6 0.271 0.271 21 40
		22	1.288 32.261 7 0.970 1.266 11 54
		21	1.342 34.946 8 1.153 1.247 5 56
		20	1.375 36.613 9 1.185 1.260 9 52
		19	1.363 37.109 10 1.252 1.434 17 54
		18	1.365 37.876 11 1.443 1.488 9 54
		17	1.343 38.339 12 1.376 1.457 17 50
		16	1.313 38.723
		15	1.308 39.576
		14	1.258 38.948
		13	1.405* 37.618
		12	1.400 38.799
		11	1.337 39.521
		10	1.256 40.539
		9	1.142 41.418
		8	0.988 41.799
		7	0.820 42.047
		6	0.675 42.769*
		5	0.540 42.655
		4	0.429 41.544
		3	0.350 39.504
		2	0.270 31.554
		Bottom 1	0.080 9.333
		% AXIAL TILT	21.296 -7.473
		AVG BOT 8ft/12ft	0.8860 1.0407
IR: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58			
Control Rod Density: %	0.00		
k-effective:	1.00004		
Void Fraction:	0.246		
Core Delta-P: psia	23.568		
Core Plate Delta-P: psia	19.022		
Coolant Temp: Deg-F	542.8		
In Channel Flow: Mlb/hr	96.55	Active Channel Flow: Mlb/hr	93.88
Total Bypass Flow (%):	10.3	(of total core flow)	
Total Water Rod Flow (%):	2.5	(of total core flow)	
Source Convergence	0.00044		

Top Ten Thermal Limits Summary - Sorted by Margin

Power				MCPR				APLHGR				LHGR			
Value	FT	IR	JR	Value	Margin	FT	IR	Value	Margin	Exp.	FT	IR	Value	Margin	Exp.
1.488	8	39	24	2.214	0.641	8	39	5.65	0.594	47.3	5	43	6.26	0.625	52.7
1.478	8	37	22	2.227	0.638	8	49	5.76	0.592	45.1	5	45	6.19	0.623	53.4
1.474	8	37	26	2.228	0.637	8	45	5.55	0.588	48.1	5	39	6.40	0.623	50.6
1.467	8	43	24	2.228	0.637	8	43	5.66	0.585	45.6	5	37	6.30	0.618	51.3
1.466	8	31	28	2.238	0.635	8	41	5.58	0.583	46.6	5	43	6.17	0.615	52.6
1.462	8	33	26	2.241	0.634	8	37	5.49	0.581	47.9	4	45	5.94	0.614	55.6
1.462	8	35	28	2.245	0.632	9	47	5.53	0.579	46.9	5	35	6.09	0.613	53.4
1.461	8	45	22	2.250	0.631	8	39	5.46	0.578	47.8	4	33	6.10	0.611	52.9
1.457	8	41	26	2.254	0.630	9	41	5.72	0.577	43.3	4	41	6.08	0.608	53.0
1.457	8	35	24	2.255	0.630	9	43	5.49	0.576	47.0	5	31	6.16	0.606	51.4

* LHGR calculated with pin-power reconstruction

* CPR calculated with pin-power reconstruction & CPR limit type 3

* Thermal limit file:

Figure E.2 Browns Ferry Cycle 24 Control Rod Pattern and Axial Distributions at 16,707.2 MWd/MTU

