

冷却材ボイド係数の制御棒挿入長依存について

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動力炉・核燃料開発事業団 (Power Reactor and Nuclear Fuel Development Corporation)

冷却材ボイド係数の制御棒挿入長依存について

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要 旨

制御棒挿入時および制御棒引抜き時の冷却材ボイド係数の解析を行い、冷却材ボイド係数が制御棒挿入により負側に移行することを確認するとともに、そのメカニズムを解明するために「ふげん」炉心を対象にして検討した。

「ふげん」第4サイクルBOC炉心では、制御棒パターンを変更して冷却材ボイド係数を測定しているため解析も第4サイクルBOCを対象にした。

解析は、詳細解析コードシステムPHLOXを用いて行った。

冷却材ボイド係数解析に必要な熱水力的諸量は、LPMの読取値から軸方向16点の出力分布を作成し、これを用いてHAPIコードにより求めた。この熱水力的諸量および燃焼度分布より三次元の格子定数を作成し、三次元炉心計算により再循環ポンプ切替前後の固有値を求めた。この値から、冷却材ボイド係数を導出した。今回の解析研究から次のことが明らかになった。

- (1) 制御棒を半挿入(～41%)させた場合の冷却材ボイド係数は制御棒浅挿入(～65%)の場合に比べ、約 $1.5 \times 10^{-5} \Delta K/K/\%$ ボイド負側に移行する。
- (2) さらに、制御棒を深挿入(～26%)させた場合冷却材ボイド係数は、制御棒浅挿入に比べ約 $3 \times 10^{-5} \Delta K/K/\%$ ボイド負側に移行する。
- (3) 上記(1), (2)の結果より制御棒パターン改善により冷却材ボイド係数を改善するためには、制御棒により出力分布を大幅に変化させ、出力ピーキングを大きくし中性子のもれを増大させればよい。

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** ATR本部

Dependence of Coolant Void Coefficient on Control Rod
Insertion Length

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Abstract

The analysis of coolant void coefficient for the FUGEN core has been done in order to clarify the phenomena of shifting the coefficient to negative side by inserting control rods.

The beginning of 4th cycle core of FUGEN (BOC) was chosen because the coolant void coefficient was measured by changing the control rod pattern for that core.

The analysis has been made by use of the detailed core calculation code system "PHLOX".

Thermohydraulic characteristics for the analysis of coolant void coefficient have been derived from the axial power distribution obtained by the actual readings of local power monitor (LPM) with the use of thermohydraulic code HAPI - II. Three dimensional cell constants have been obtained by use of both the thermohydraulic characteristics and the burnup distribution. The core eigenvalue before or after the changing of recirculation pump (RCP) speed has been obtained from the three dimensional core calculation. The coolant void coefficient has been derived from these eigenvalues.

The followings have been obtained from the present analysis:

- (1) The value of coolant void coefficient when the control rods are halfly inserted ($\sim 41\%$) shifts to negative side about $1.5 \times 10^{-5} \Delta k/k/\%$ void as compared with the value when the control rods are shallowly inserted ($\sim 65\%$).
- (2) The value of coolant void coefficient when the control rods are deeply inserted ($\sim 26\%$) shifts to negative side about $3 \times 10^{-5} \Delta k/k/\%$ void as compared with the value when the control rods are shallowly inserted ($\sim 65\%$).

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- (3) From the above two facts it is clear that the reasonable value of the coolant void coefficient can be obtained by increasing the value of power peaking factor through the big change of power distribution and through large leakage of neutrons by use of the reasonable control rod pattern.

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1. はじめに

ATR実証炉は、ウラン燃料を炉心のほぼ半数程度装荷できる設計になっている。この場合ウラン燃料装荷割合を制限しているのは、主として低出力時の安定性の確保（起動時における安定性の確保）の観点から低出力時の冷却材ボイド係数の値である。

ウラン燃料の冷却材ボイド係数の値はプルトニウム燃料のそれより正側に移行する。これは主としてプルトニウムの熱中性子エネルギー領域の0.3eV共鳴中性子の振舞に起因していることがDCA実験および解析評価により明らかとなった^{(1),(2)}。従って、ウラン燃料のみでプルトニウム燃料なみの冷却材ボイド係数の値を得るには、単に濃縮度の増加だけでは本質的に解決できない。これを改善するためには、運転法の改善（起動時の制御棒パターン改善）、燃料クラスタ内中性子束分布の変動（ポイズン棒の利用）あるいは減速材対燃料体積比の減少（燃料棒径の増加）等が考えられるが、後者二項目についてはかなりの研究開発要素を含んでいるため早期に解決できるものではない。

このような観点から、ここでは起動時の制御棒パターン改善により低出力時の冷却材ボイド係数の値が負側に移行することを確認すること、およびそのメカニズムを解明することを試みる。

2. 解析方法

2.1 概要

解析は重水臨界実験室(DCA)で開発したPHLOXコードにより行った。^{(3), (4)} 対象炉心は第4サイクルBOCの制御棒深挿入(25%)と浅挿入(65%)である。冷却材ボイド係数の解析は、同じコードを用い第2サイクルBOC(制御棒65%)および第3サイクルBOC(制御棒25%)炉心について行い、良好な結果を得ている⁽⁵⁾。従って手法および解析モデル等は前回の報告書に詳述されているのでここでは、特に第4サイクルBOC特有のものについては詳述し、その他については前回と重複するので概略記述にとどめる。

2.2 方法

冷却材ボイド係数の解析は次の手順で行った。

- (1) 第4サイクルBOCにおけるLPM読取値より、軸方向16点の値を推定し、出力分布を作成する。
- (2) HAPIコードを用い、(1)で作成した出力分布を用い3次元冷却材ボイド率分布、燃料平均温度、冷却材温度を求める。
- (3) (2)の結果を用い、WIMSコードで冷却材ボイド率依存の格子定数(PHLOXライブラリー)を作成する。
- (4) PHLOXコードにおいて、HAPIコードで計算した3次元冷却材ボイド率分布を用いて、内挿により、軸方向16セグメントの格子定数を作成し3次元拡散計算により再循環ポンプ切替前後の K_{eff} を求める。この場合、燃焼度分布は「ふげん」運転管理のセキュリティ・テープより取り出し、また制御棒引抜率はEロッド4本の平均値を使用する。再循環ポンプ切替前後の K_{eff} の差と炉心平均冷却材ボイド率の差より冷却材ボイド係数の解析値を算出する。

2.3 解析条件

第1表に第4サイクルBOCの再循環ポンプ切替時データを示す。また第1図には第4サイクルBOCの燃料配置及び制御棒位置を示す。HAPIコードの計算に必要な出力分布は、第4サイクルBOCの定格出力時PCM値を参考にしながらポンプ切替時の軸方向4点のLPM値から軸方向全セグメント16点を推定して求めた。

第2表にHAPIコードの計算条件を示す。ただし冷却材の入口圧力は、第3表に示す蒸気ドラム圧力の値を用いて求めた。このようにして求めた温度結果を第4表に示す。

第4サイクルからBタイプのプルトニウム燃料が初めて装荷されたためライブラリーとしては燃焼度0GWD/TプルトニウムBタイプのものが今までに追加された。

3. 解析結果および検討

前節で記述した計算条件により PHLOX コードを用い固有値 (K_{eff}) を計算した結果を第 6 表に示す。

第 6 表より E 制御棒が深く挿入された場合 ($E=25\%$) の方が、浅く挿入された場合 ($E=65\%$) より冷却ボイド係数は約 $1.5 \times 10^{-5} \Delta K/K/\%$ ボイド負側に移行することが認められた。また、軸方向制御棒位置が再循環ポンプ切替前後で異なることを考慮して、制御棒位置を変えた場合で再循環ポンプを切替えた冷却材ボイド係数の計算結果は、両者でほとんど差がないことが第 6 表の結果から認められた。しかし、再循環ポンプを固定して、制御棒位置を変えた場合とは異なった値となるが測定条件に近いのは前者の場合であるため、前者の方が測定値に近い値を示す。

制御棒が深く挿入された方が、浅く挿入された場合より冷却材ボイド係数が負側となる原因は、制御棒が深く挿入された場合の出力分布は、第 2 図および第 3 図に示すように制御棒が浅く挿入された場合の出力分布より下ぶくらみとなり、冷却材ボイド率が高い (第 4 図, 第 5 図参照) 炉心上方での反応度への寄与が小さいためである。

上記現象をより詳細に解明するために、第 4 サイクル BOC 炉心で仮想的に全 M, J, E 制御棒を深挿入 (26.4% 引抜き) 又は浅挿入 (67.2% 引抜き) した場合の冷却ボイド係数を求めた。

第 7 表に結算結果を示す。同表から全 M, J, E 制御棒深挿入における冷却材ボイド係数は、前記と同様浅挿入の場合より大きく負側 ($\sim 5.5 \times 10^{-5} \Delta K/K/\%$ ボイド) に移行することが認められる。冷却材ボイド係数を制御棒全挿入 (第 6 表参照) と M, J, E 制御棒深挿入の場合 (第 7 表参照) とを比較すると M, J 制御棒全挿入の場合の方が冷却材ボイド係数は負側となっている。これは 2 つのケースで制御棒ワースが異なっており、M, J 制御棒全挿入の場合と同じワースになるように M, J, E 制御棒以外の制御棒を半挿入すれば、その方が冷却材ボイド係数は負側になると考えられる。これを確認するためにさらに広範囲に制御棒位置を移動させた場合の冷却材ボイド係数を求めた。対象炉心は第 6 サイクル BOC を選んだ。これは第 6 サイクル BOC 炉心で制御棒半挿入実験を行ったためである。制御棒位置を仮想的に種々変えるため温度条件, 流量, 蒸気ドラム圧力等の条件は、今回の解析対象炉心である第 4 サイクル BOC のものを共通に用いた。選んだ制御棒位置は浅挿入 (通常運転時), 半挿入, 深挿入および全挿入である。

計算手法は従来と同様であるが、今回は制御棒を大幅に移動させているため、 ^{10}B 濃度による調整を行い固有値 K_{eff} を 0.99 になるようにした。

計算結果を第 8 表に示す。第 8 表から次のことが明らかである。A, B, D の 3 ケースを比較すると、M, J, C ロッドが半挿入されるとボイド係数は負側に ($\sim 1 \times 10^{-5} \Delta K/K/\%$ ボイド) 移行する

が、さらにEロッドを半挿入するとより負側に移行する。従って今回の解析でも制御棒を半挿入することによりボイド係数が負側に移行することが明らかである。次にケースBとケースCを比較してみると、ケースCの方がケースBよりボイド係数がより負側に移行している。すなわち制御棒全挿入の方が半挿入に比べより負側移行の傾向を示す。制御棒を深挿入(ケースE)するとなお負側に移行する。従って第8表からボイド係数が一番小さな値を示すのは制御棒を深挿入した場合であることがわかる。

上記5ケースの場合のPHLOX出力結果である軸方向および径方向出力分布を第6図から第15図に示す。

これらの図から明らかなように当然のことながら制御棒を挿入した場合軸方向出力ピーキングが大きくなる。BケースとDケースの場合Bケースの方が軸方向出力ピーキングが大きい(第8図, 第9図, 第12図, 第13図参照)。これはBケースの方が半挿入された制御棒本数が多いためである。従ってボイド係数もBケースの方が負側になっている。ところがBケースとCケースを比較した場合Cケースの方が軸方向出力ピーキングが小さいにもかかわらずボイド係数は負側となっている。

Cケースの場合、制御棒が全挿入されているため軸方向出力ピーキングが小さくなっている。

しかし径方向出力ピーキングはCケースの場合Bケースに比べ大きく、しかもピーキングの発生位置は外側にずれている。このため中性子束の体系外にむかった勾配がより大きくなり体系外へのもれが大きくなる。従って、制御棒が半挿入されたBケースよりも制御棒が全挿入されたCケースの方がボイド係数がより負側に移行する。

Eケースの場合制御棒が深挿入されているため軸方向出力ピーキングがかなり大きくなっている。従ってこの場合、今までの検討によりボイド係数は負側になることは明らかである。

以上の考察から単なる制御棒操作のみによりボイド係数を負側に移行させるには、制御棒を深挿入し、中性子束のもれを大きくすればよいことが判明した。この場合制御棒値を大きくする制御棒配置をしなければならない。

また、制御棒値はボイド率依存性をもっているため、ボイド率の大きい方の炉心では制御棒反応度は大きくなり、炉心の固有値は低くなる。

その上制御棒値のボイド率依存性は制御棒隣接格子の燃料タイプに関係なく、ボイド率に対してほぼ直線的に変化するため、制御棒挿入時の反応度および制御棒の配置等により、ボイド係数に対する制御棒パターン依存性は比較的容易に推定できる。

このように出力分布が冷却材ボイド係数の値にかなり影響を与えることが判明した。また出力分布は、制御棒パターン、冷却材ボイド率分布および燃焼度分布等に大きく依存する。従って正確な出力分布を求めるためには、正確なボイド率分布、燃焼度分布が与えられていなければならない。正しい出力分布評価には、ボイドによるスペクトル効果を燃焼度に入れておかな

ければならないことは、既にDCAにおけるふげん実績等の解析研究で明らかになっている⁽⁶⁾。

このような観点からボイドによるスペクトル効果を、燃焼度にとり入れた場合の冷却材ボイド係数の影響を考察してみる。

計算体系は今回解析対象とした第4サイクルBOC炉心である。計算では燃焼期間中の平均ボイド率を、指定燃焼度点において必要な格子条件で格子計算を実行し、ライブラリーを作成した。このライブラリーより再循環ポンプ切替前後の条件で炉心計算を行い、ボイド係数を算出した。計算条件は下記の通りである。

(イ) 格子燃焼計算

最大燃焼度：12GWD/TM

燃焼ステップ：1GWD/TM

¹⁰B 濃度：臨界サーチを行う。

冷却材ボイド率：0, 25, 50%

燃料タイプ：Pu(A), U(A), SP(A), Pu(B), U(B)

温度条件等：A779に準ずる。

(ロ) 格子計算

燃焼度：2, 4, 8, 12GWD/TM

¹⁰B 濃度：2, 4, 6 ppm

冷却材ボイド率	$\left\{ \begin{array}{l} 0, 20 \text{ (燃焼度期間でのボイド率 } 0\%) \\ 0, 20, 40 \text{ (" " } 25\%) \\ 0, 20, 40, 60 \text{ (" " } 50\%) \end{array} \right.$
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燃料タイプ：Pu(A), U(A), SP(A), Pu(B), U(B)

X_e濃度条件等：45%出力時条件

(ハ) 炉心計算

ボイドのスペクトル効果は以下のように考慮した。

1～5ノード：燃焼期間でのボイド率 0%

6～9ノード：" 25%

10～16ノード：" 50%

以上の格子計算結果を第9表および第10表に示す。第10表の結果をPHLOXライブラリー形式にまとめたものを付録1に示す。

炉心ボイド係数計算結果を第11表に示す。

なお、第11表にはボイドのスペクトル燃焼効果が入っていない場合の結果もあわせて示してある。同表からボイドのスペクトル燃焼効果を考慮すると、ボイド係数として約 $0.5 \sim 0.8 \times 10^{-5} \Delta K/K/\%$ ボイド負側に移行することがわかる。

同様にしてDCAでこれまで解析評価したボイド係数についても、ボイドのスペクトル燃焼効果を考慮するとどのようになるかを表にまとめた。その結果を第12表に示す。同表から第2サイクル、第3サイクル、いずれの場合もスペクトル効果を考慮するとボイド係数が $0.7 \sim 0.9 \times 10^{-5} \Delta K/K/\%$ ボイド正側に移行することがわかる。この傾向は前述の第4サイクルBOCの結果と逆傾向ではあるが値としては、ほぼ同じ程度である。既に行った出力分布の解析評価のところで考察したようにボイドのスペクトル燃焼効果を考慮すると軸方向出力分布の下ぶくれ傾向が緩和される。すなわち、軸方向上部に出力がより発生するようになる。換言すると、ボイド率の高い軸方向上部にインポートランスが移動するため、ボイド係数が正側の炉心ではより正側に移行する。しかし、制御棒が全挿入されている第4サイクルBOCではこの傾向が逆である。

この傾向については、ボイド係数の変動幅が小さいことおよび出力分布がボイド係数に与える影響等の微妙な問題があるので今後も検討を続けていく必要がある。

4. 結 論

今回の解析により低出力時の冷却材ボイド係数を改善するためには、起動時の制御棒パターンを改善することにより可能であることが判明した。これは、制御棒挿入により軸方向および径方向の出力ピーキングを増大させ、体系外への熱中性子のもれを増大させるためである。また、今回の解析結果から次のことが定量的に明らかになった。

- (1) 「ふげん」第4サイクルBOCを対象にした場合、制御棒を半挿入(～41%)した場合の冷却材ボイド係数は、制御棒浅挿入(～65%)に比べ約 $1.5 \times 10^{-5} \Delta K/K/\%$ ボイド負側に移行する。
- (2) さらに制御棒を深挿入(～26%)させた場合冷却材ボイド係数は、制御棒浅挿入に比べ、約 $3 \times 10^{-5} \Delta K/K/\%$ ボイド負側に移行する。

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Table 1 Measured Data of the Core Changing Control Rod Pattern

Control Rod Pattern		Deep Insertion of E-Rod (~25%)								Shallow Insertion of E-Rod (~65%)							
Date		1981 / 10 / 12 / 10 a.m.								1981 / 10 / 17 / 4°55' p.m.							
RCP Pattern		Low				High				Low				High			
Thermal Power (MW)		236 (42.4%)								229 (41.0%)							
Coolant Temperature (°C) (Derived from Lower Header)		272.8				278.3				273.1				278.5			
Moderator Temperature (°C)		Inlet: 47.8 , Outlet: 53.5								Inlet: 47.8 , Outlet: 53.5							
¹⁰ B Concentration (ppm)		5.0								5.8							
Position of Control Rod (%)	Quadrant	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	E	27.8	25.4	23.8	23.2	27.8	27.1	26.0	24.6	68.1	63.6	64.9	61.4	71.2	66.7	67.7	62.9
	C	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	74.9	74.9	75.0	75.5	74.9	74.9	75.0	75.5
	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	M	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-
	Others	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 2 Data for Calculation of HAPI Code

Input Data	RCP	E-Rod (25%)	E-Rod (65%)	Supplement
Core		1/4 Core	1/4 Core	
Thermal power (MWth)		59.0 (42.4%)	57.1 (41.0%)	Rated power = 557 MWth (100%)
Inlet pressure of coolant (kg/cm ²)	Low	69.5	69.5	Derived from the condition that pressure of steam drum is equal to measured value
	High	74.5	74.3	
Inlet enthalpy (kcal/kg)	Low	286.5	286.3	Derived from the steam table by use of the calculated inlet pressure of coolant and measured inlet temperature
	High	293.2	293.5	
Flow rate of core (ton/h)	Low	1121.55	1171.95	[(A)+(B)] / 4 for a quarter core
	High	2363.35	2370.40	

Table 3 Comparison of Steam Drum Pressure between Calculation and Measurement

Position of E-Rod (%)	RCP	Measured Pressure*	Calculated Pressure
25	Low	67.25	67.28
	High	67.20	67.28
65	Low	67.15	67.15
	High	67.00	66.99

(kg/cm²)

* Averaged Value between Drum A and Drum B

Table 4 Computational Results of HAPI Code

E-Rod (%)	RCP	Fuel Temperature (°C)	Coolant Temperature (°C)	
25	Low	424.8	281.4	
	High	425.4	283.1	
65	Low	419.8	281.0	
	High	420.6	282.9	
Average	-	422.7	282.1	These values are used for WIMS calculation

Table 5 Input Condition for Producing PHLOX Library

Item	E (25)	E (65)	Supplement
Coolant Temperature (t)	282.0	282.0	
Moderator Temperature (°C)	50.65	50.65	Averaged measured value between inlet and outlet
Fuel Temperature (t)	423.0	423.0	Result of HAPI code
Concentration of ¹⁰ B (ppm)	5.0	5.8	
Void Fraction (%)	0,20,40,60	0,20,40,60	
Burn up (GWD/T)	0,2,4,8,12	0,2,4,8,12	For Pu(B): 0 GWD/T only
Fuel Type	Pu(A),U(A),SP(A) Pu(B)	Pu(A),U(A),SP(A) Pu(B)	

Table 6 Results of Coolant Void Coefficient (4th BOC)

Core Condition					Results of Calculation		
Power (%)	Position of C/R (%)	Void Fraction (%)	C/R (L/H)	RCP (L/H)	K _{eff}	Void Coefficient (x10 ⁻⁵ ΔK/K/%)	
42.4	E: 25.0	RCP-H 15.05	H*	L	0.988170	-	
				H	0.988014	1.3	
	M: 0.0 J: 0.0 C: 75.0	RCP-L 27.12	L*	L	0.987775	-	
				H	0.987626	1.3	
				L	H*	0.988170	-
					L*	0.987775	3.3
	ΔV 12.07	H*	H	H*	0.988014	-	
				L*	0.987626	3.3	
41.0	E: 65.0	RCP-H 15.16	H**	L	0.987981	-	
				H	0.987727	2.8	
	M: 0.0 J: 0.0 C: 75.1	RCP-L 24.49	L**	L	0.987576	-	
				H	0.987330	2.7	
				L	H**	0.987981	-
					L**	0.987576	4.4
	ΔV 9.33	H**	H	H**	0.987727	-	
				L**	0.987330	4.3	

* E C/R: 26.4% for H
25.1% for L

** E C/R: 67.1% for H
64.5% for L

Table 7 Results of Coolant Void Coefficient by Changing Positions of Control Rods

Core Condition					K _{eff}	Void Coefficient (x10 ⁻⁵ Δk/k/% Void)	
Power (%)	10 _B (ppm)	Position of C/R	Void Fraction (%)	RCP (Low/High)			
42.4	5.0	E=26.4	15.05	High	0.998504	2.2	
		M=26.4					
		J=26.4	27.12	Low			0.998773
		C=75.0					
41.0	5.8	E=67.1	15.16	High	1.008075	7.7	
		M=67.1					
		J=67.1	24.49	Low			1.008803
		C=75.1					

Table 8 Dependence of Void Coefficient on Control Rod Length

Case	Core Condition						Results	
	Power (%)	^{10}B (ppm)	C/R (%)	RCP (L/H)	Void Fraction (%)	Void Fraction Difference (%)	K_{eff}	Void Coefficient ($\times 10^{-5} \Delta K/K/\% \text{ Void}$)
A (Standard)	41.0	6.24	E:65.0 C:75.0	L	26.74	10.15	0.988859	0.98
				H	16.59		0.988761	
B (C/R Half)	42.4	5.49	M:41.1 J:41.1 E:41.1 C:41.1	L	35.61	14.36	0.988708	- 0.53
				H	21.25		0.988783	
C (J Rod Full)	41.0	5.01	J:0.0 E:65.0 C:75.0	L	27.28	10.37	0.990719	-1.91
				H	16.91		0.990915	
D (E Rod Shallow)	42.4	5.75	M:41.1 J:41.1 E:65.0 C:41.1	L	33.77	14.16	0.988257	- 0.03
				H	19.61		0.988261	
E (C/R Deep)	42.4	4.55	M:25.69 J:25.69 E:25.69 C:25.69	L	35.68	14.38	0.990205	- 2.03
				H	21.30		0.990494	

Table 9 Cell Burnup Calculation Results (K_{eff})

(i) Type A Plutonium Fuel

Burn-up (GWD/TM)	Pu(A)		
	0%	25%	50%
0	1.013435	1.011217	1.009785
1	1.011028	1.010517	1.010433
2	1.008695	1.009476	1.010567
3	1.007720	1.009665	1.011810
4	1.005601	1.008637	1.011755
5	1.004563	1.008592	1.012570
6	0.995251	1.000223	1.005058
7	0.977234	0.983121	0.988838
8	0.959897	0.966606	0.973136
9	0.943316	0.950802	0.958076
10	0.927518	0.935701	0.943646
11	0.912494	0.921294	0.929843
12	0.898234	0.907608	0.916694

(ii) Type A Uranium Fuel

Burn-up (GWD/TM)	U(A)		
	0%	25%	50%
0	1.005970	1.008604	1.012461
1	1.004741	1.008366	1.012407
2	1.005017	1.008862	1.012951
3	1.004884	1.009089	1.013370
4	1.003648	1.008253	1.012843
5	1.003174	1.008303	1.013310
6	1.002681	1.008359	1.013822
7	1.002329	1.008576	1.014501
8	0.996576	1.003388	1.009810
9	0.979639	0.987005	0.994017
10	0.962975	0.970915	0.978503
11	0.946746	0.955242	0.963391
12	0.930987	0.940025	0.948716

Continued

(iii) Type A Special Fuel

Burn-up (GWD/TM)	SP(A)		
	0%	25%	50%
0	1.006116	1.010530	1.016425
1	1.005406	1.011276	1.017294
2	1.005331	1.011498	1.017589
3	1.005651	1.012106	1.018308
4	1.004807	1.011572	1.017935
5	1.003306	1.010352	1.016949
6	1.002778	1.010187	1.017047
7	1.002118	1.009932	1.017082
8	0.999992	1.008176	1.015630
9	0.982837	0.991416	0.999272
10	0.965610	0.974568	0.982856
11	0.948427	0.957813	0.966513
12	0.931368	0.941179	0.950315

(iv) Type B Plutonium Fuel

Burn-up (GWD/TM)	Pu(B)		
	0%	25%	50%
0	1.018230	1.011062	1.005620
1	1.016396	1.011145	1.007202
2	1.015189	1.010959	1.007964
3	1.013361	1.010109	1.007998
4	1.012401	1.010086	1.008849
5	1.012203	1.010844	1.010452
6	1.010919	1.010447	1.010876
7	1.010266	1.010704	1.011902
8	1.009300	1.010591	1.012519
9	1.007889	1.010004	1.012642
10	1.007121	1.010028	1.013296
11	1.007034	1.010686	1.014549
12	0.995469	0.999917	1.004480

Continued

(v) Type B Uranium Fuel

Burn-up (GWD/TM)	U(B)		
	0%	25%	50%
0	1.012583	1.011084	1.011464
1	1.011796	1.010740	1.012045
2	1.009778	1.010201	1.011725
3	1.008784	1.009799	1.011625
4	1.008104	1.009724	1.011932
5	1.007243	1.009483	1.012155
6	1.006460	1.009321	1.012483
7	1.005846	1.009335	1.013014
8	1.004337	1.008413	1.012625
9	1.004219	1.008933	1.013681
10	1.003236	1.008561	1.013824
11	1.002547	1.008481	1.014243
12	1.003572	1.010130	1.016354

Table 10 Cell Calculation Results (K_{eff})
(i) Type A Plutonium Fuel

10 _B (ppm)	Void Fraction (%)	Void Spectrum (%)	Pu(A)			
			2 GWD/TM	4 GWD/TM	8 GWD/TM	12 GWD/TM
2	0	0	1.085269	1.045529	0.971779	0.909069
		25	1.087189	1.049392	0.979051	0.918902
		50	1.089375	1.053644	0.986866	0.929362
	20	0	1.086929	1.047183	0.973438	0.910627
		25	1.088813	1.050976	0.980587	0.920314
		50	1.090959	1.055151	0.988265	0.930604
	40	0				
		25	1.090381	1.052496	0.982022	0.921569
		50	1.092483	1.056586	0.989551	0.931668
	60	0				
		25				
		50	1.094535	1.058509	0.991239	0.933020
4	0	0	1.059231	1.020055	0.947411	0.885982
		25	1.061155	1.023914	0.954649	0.895551
		50	1.063340	1.028158	0.962428	0.905939
	20	0	1.060833	1.021638	0.948983	0.887255
		25	1.062722	1.025431	0.956105	0.896880
		50	1.064870	1.029602	0.963755	0.907108
	40	0				
		25	1.064366	1.027010	0.957592	0.898172
		50	1.066472	1.031101	0.965093	0.908225
	60	0				
		25				
		50	1.068773	1.033272	0.967007	0.909786
6	0	0	1.035156	0.996497	0.924918	0.864337
		25	1.037080	1.000347	0.932117	0.874030
		50	1.039263	1.004579	0.939852	0.884341
	20	0	1.036619	0.997943	0.926343	0.865648
		25	1.038511	1.001731	0.933432	0.875206
		50	1.040658	1.005894	0.941045	0.885365
	40	0				
		25	1.040139	1.003298	0.934888	0.876470
		50	1.042246	1.007383	0.942367	0.886462
	60	0				
		25				
		50	1.044678	1.009681	0.944397	0.888130

Continued

(ii) Type A Uranium Fuel

10 _B (ppm)	Void Fraction (%)	Void Spectrum (%)	U(A)			
			2 GWD/TM	4 GWD/TM	8 GWD/TM	12 GWD/TM
2	0	0	1.106239	1.075195	1.007616	0.941282
		25	1.107172	1.077495	1.012838	0.949294
		50	1.108153	1.080032	1.018568	0.957953
	20	0	1.112175	1.080093	1.011356	0.944342
		25	1.113062	1.082319	1.016465	0.952215
		50	1.113998	1.084783	1.022076	0.960725
	40	0				
		25	1.118969	1.087073	1.019963	0.954958
		50	1.119856	1.089456	1.025441	0.963304
	60	0				
		25				
		50	1.126222	1.094510	1.029127	0.966138
4	0	5	1.076817	1.046871	0.981060	0.916278
		25	1.077784	1.049206	0.986292	0.924257
		50	1.078800	1.051777	0.992044	0.932878
	20	0	1.082509	1.051562	0.984624	0.919167
		25	1.083434	1.053828	0.989750	0.927017
		50	1.084408	1.056331	0.995376	0.935500
	40	0				
		25	1.089241	1.058507	0.993207	0.929729
		50	1.090169	1.060933	0.998707	0.938056
	60	0				
		25				
		50	1.096631	1.066110	1.002528	0.941030
6	0	0	1.049753	1.020802	0.956624	0.893283
		25	1.050750	1.023164	0.961858	0.901222
		50	1.051795	1.025761	0.967591	0.909798
	20	0	1.055094	1.025192	0.959925	0.895931
		25	1.056051	1.027490	0.965070	0.903749
		50	1.057057	1.030023	0.970700	0.912195
	40	0				
		25	1.061670	1.032016	0.968401	0.906353
		50	1.062633	1.034477	0.973913	0.914653
	60	0				
		25				
		50	1.069081	1.039665	0.977764	0.917673

Continued

(iii) Type A Special Fuel

10 _B (ppm)	Void Fraction (%)	Void Spectrum (%)	SP(A)			
			2 GWD/TM	4 GWD/TM	8 GWD/TM	12 GWD/TM
2	0	0	1.099751	1.071279	1.005600	0.936111
		25	1.100406	1.072858	1.009287	0.942048
		50	1.101063	1.074557	1.013322	0.948512
	20	0	1.108243	1.078986	1.012233	0.942022
		25	1.108870	1.080521	1.015854	0.947880
		50	1.109501	1.082176	1.019821	0.954261
	40	0				
		25	1.117368	1.088119	1.022254	0.953478
		50	1.117969	1.089725	1.026143	0.959763
	60	0				
		25				
		50	1.126668	1.097379	1.032425	0.965115
4	0	0	1.069013	1.041472	0.977387	0.909398
		25	1.069692	1.043079	0.981088	0.915315
		50	1.070398	1.044804	0.985134	0.921757
	20	0	1.077248	1.048935	0.983813	0.915114
		25	1.077902	1.050501	0.987452	0.920960
		50	1.078560	1.052186	0.991436	0.927326
	40	0				
		25	1.086293	1.058023	0.993782	0.926476
		50	1.086924	1.059662	0.997694	0.932755
	60	0				
		25				
		50	1.095699	1.067405	1.004071	0.938191
6	0	0	1.040810	1.014087	0.951499	0.884917
		25	1.041510	1.015716	0.955206	0.890809
		50	1.042214	1.017461	0.959256	0.897221
	20	0	1.048659	1.021238	0.957636	0.890357
		25	1.049354	1.022829	0.961287	0.896184
		50	1.050035	1.024538	0.965280	0.902528
	40	0				
		25	1.057531	1.030167	0.967459	0.901555
		50	1.058187	1.031834	0.971385	0.907818
	60	0				
		25				
		50	1.066933	1.039563	0.977757	0.913245

Continued

(iv) Type B Plutonium Fuel

10 _B (ppm)	Void Fraction (%)	Void Spectrum (%)	Pu(B)			
			2 GWD/TM	4 GWD/TM	8 GWD/TM	12 GWD/TM
2	0	0	1.169411	1.136064	1.071936	1.009792
		25	1.170423	1.138352	1.076916	1.017430
		50	1.171623	1.140883	1.082195	1.025400
	20	0	1.168215	1.134914	1.070994	1.009147
		25	1.169213	1.137170	1.075898	1.016660
		50	1.170397	1.139665	1.081085	1.024490
	40	0				
		25	1.168145	1.136129	1.075299	1.016007
		50	1.169309	1.138584	1.080112	1.023686
	60	0				
		25				
		50	1.169163	1.138423	1.080024	1.023704
4	0	0	1.145039	1.112014	1.048485	0.986966
		25	1.146058	1.114306	1.053457	0.994575
		50	1.147260	1.116837	1.058726	1.002516
	20	0	1.143938	1.110951	1.047603	0.986365
		25	1.144942	1.113213	1.052502	0.993854
		50	1.146129	1.115709	1.057689	1.001669
	40	0				
		25	1.144092	1.112384	1.051811	0.993383
		50	1.145260	1.114842	1.056909	1.001039
	60	0				
		25				
		50	1.145487	1.115044	1.057178	1.001397
6	0	0	1.122349	1.089626	1.026685	0.965804
		25	1.123371	1.091918	1.031644	0.973379
		50	1.124575	1.094447	1.036900	0.981286
	20	0	1.121256	1.088565	1.025801	0.965169
		25	1.122265	1.090828	1.030691	0.972631
		50	1.123453	1.093324	1.035867	0.980410
	40	0				
		25	1.121537	1.090126	1.030105	0.972241
		50	1.122707	1.092585	1.035196	0.979880
	60	0				
		25				
		50	1.123192	1.093043	1.035709	0.980467

Continued

(v) Type B Uranium Fuel

10 _B (ppm)	Void Fraction (%)	Void Spectrum (%)	U(B)			
			2 GWD/TM	4 GWD/TM	8 GWD/TM	12 GWD/TM
2	0	0	1.176388	1.145754	1.081233	1.015564
		25	1.176806	1.147177	1.085019	1.021915
		50	1.177267	1.148784	1.089203	1.028794
	20	0	1.181307	1.149837	1.084341	1.018157
		25	1.181682	1.151192	1.088019	1.024370
		50	1.182104	1.152733	1.092094	1.031104
	40	0				
		25	1.186542	1.155127	1.090905	1.026718
		50	1.186921	1.156596	1.094859	1.033291
	60	0				
		25				
		50	1.192259	1.160899	1.098074	1.035896
4	0	0	1.147009	1.117275	1.054212	0.989826
		25	1.147470	1.118750	1.058041	0.996192
		50	1.147975	1.120407	1.062265	1.003082
	20	0	1.151744	1.121211	1.057191	0.992301
		25	1.152166	1.122621	1.060920	0.998537
		50	1.152634	1.124216	1.065040	1.005290
	40	0				
		25	1.157015	1.126559	1.063831	1.000899
		50	1.157442	1.128085	1.067838	1.007499
	60	0				
		25				
		50	1.162977	1.132596	1.071254	1.010295
6	0	0	1.119879	1.090967	1.029262	0.966066
		25	1.120379	1.092486	1.033124	0.972436
		50	1.120922	1.094185	1.037378	0.979326
	20	0	1.124343	1.094661	1.032025	0.968356
		25	1.124805	1.096119	1.035793	0.974604
		50	1.125313	1.097760	1.039949	0.981364
	40	0				
		25	1.129541	1.099976	1.038648	0.976909
		50	1.130010	1.101552	1.042696	0.983526
	60	0				
		25				
		50	1.135614	1.106157	1.046210	0.986413

Table 11 Void Coefficient with Void Spectrum Effect
(4th Cycle BOC of FUGEN)

Core Condition					Results of Calculation	
Power (%)	^{10}B (ppm)	Position of C/R (%)	Void Fraction (%)	RCP L/H	K_{eff}	Void Coefficient ($\times 10^{-5} \Delta K/K\%V$)
42.4	5.0	E: 25.1 M: 0.0 J: 0.0 C: 75.0	RCP-H 15.05	L	0.985538	0.5 (1.3)*
			RCP-L 27.12 ΔV 12.07	H	0.985477	
41.0	5.8	E: 64.5 M: 0.0 J: 0.0 C: 75.1	RCP-H 15.16	L	0.985921	2.2 (2.7)*
			RCP-L 24.49 ΔV 9.33	H	0.985720	

* See Table 6 (No void spectrum effect)

Table 12 Summary of Void Coefficient with Void Spectrum Effect

Core Condition						Results of Calculation	
Power (%)	¹⁰ B (ppm)	C/R (%)	Void Fraction (%)	C/R (L or H)	RCP (L or H)	K _{eff}	Void Coefficient (x10 ⁻⁵ ΔK/K/%V)
42.4	2.15 (BOC of 2nd Cycle)	E:65.0 C:75.0	RCP-H 16.11 RCP-L 26.25 ΔV:10.14	L	L	0.987686	-
					H	0.987046	6.4 (5.7)*
				H (E:68.8%)	L	0.988407	-
				L	L	0.987686	7.2
				H	H	0.987745	7.0
46.6	2.50 (BOC of 3rd Cycle)	E:25.6 C:46.3	RCP-H 18.76 RCP-L 27.44 ΔV:8.68	L	L	0.987318	-
					H	0.986915	4.7 (3.8)*
				H (E:27.2%)	L	0.987607	-
				L	L	0.987318	3.3
42.4	5.00 (BOC of 4th Cycle)	E:25.1 C:75.0 M: 0 J: 0	RCP-H 15.05 RCP-L 27.12 ΔV:12.07	L	L	0.985538	-
					H	0.985477	0.5 (1.3)*
				H (E:26.4%)	L	0.985914	-
				L	L	0.985538	3.2
41.0	5.80 (BOC of 4th Cycle)	E:64.5 C:75.1 M: 0 J: 0	RCP-H 15.16 RCP-L 24.49 ΔV:9.33	L	L	0.985921	-
					H	0.985720	2.2 (2.7)*
				H (E:67.1%)	L	0.986373	-
				L	L	0.985538	4.9

* () shows the results of old library.

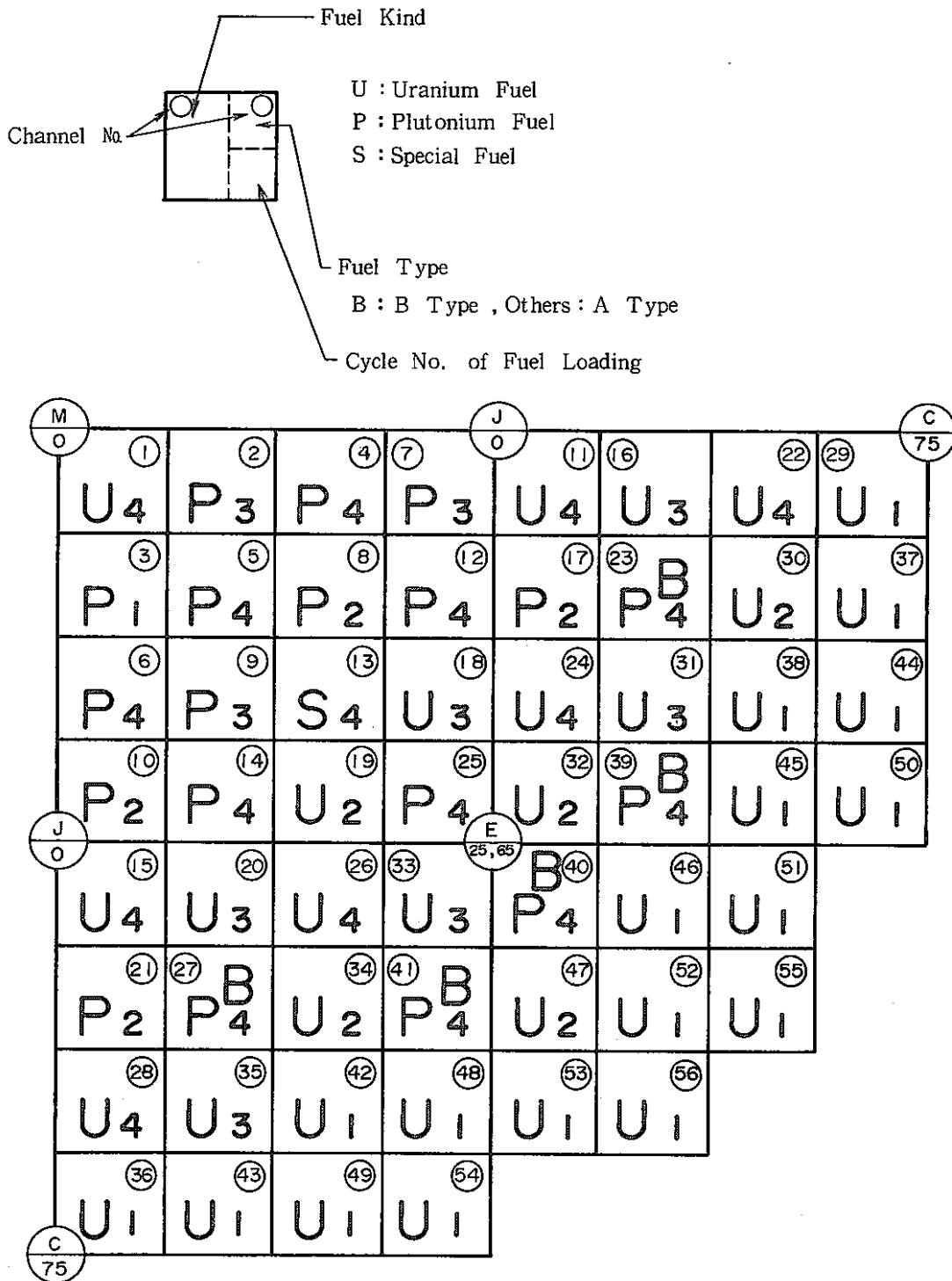


Fig. 1 Fuel and Control Rod Arrangement of 4th BOC Core

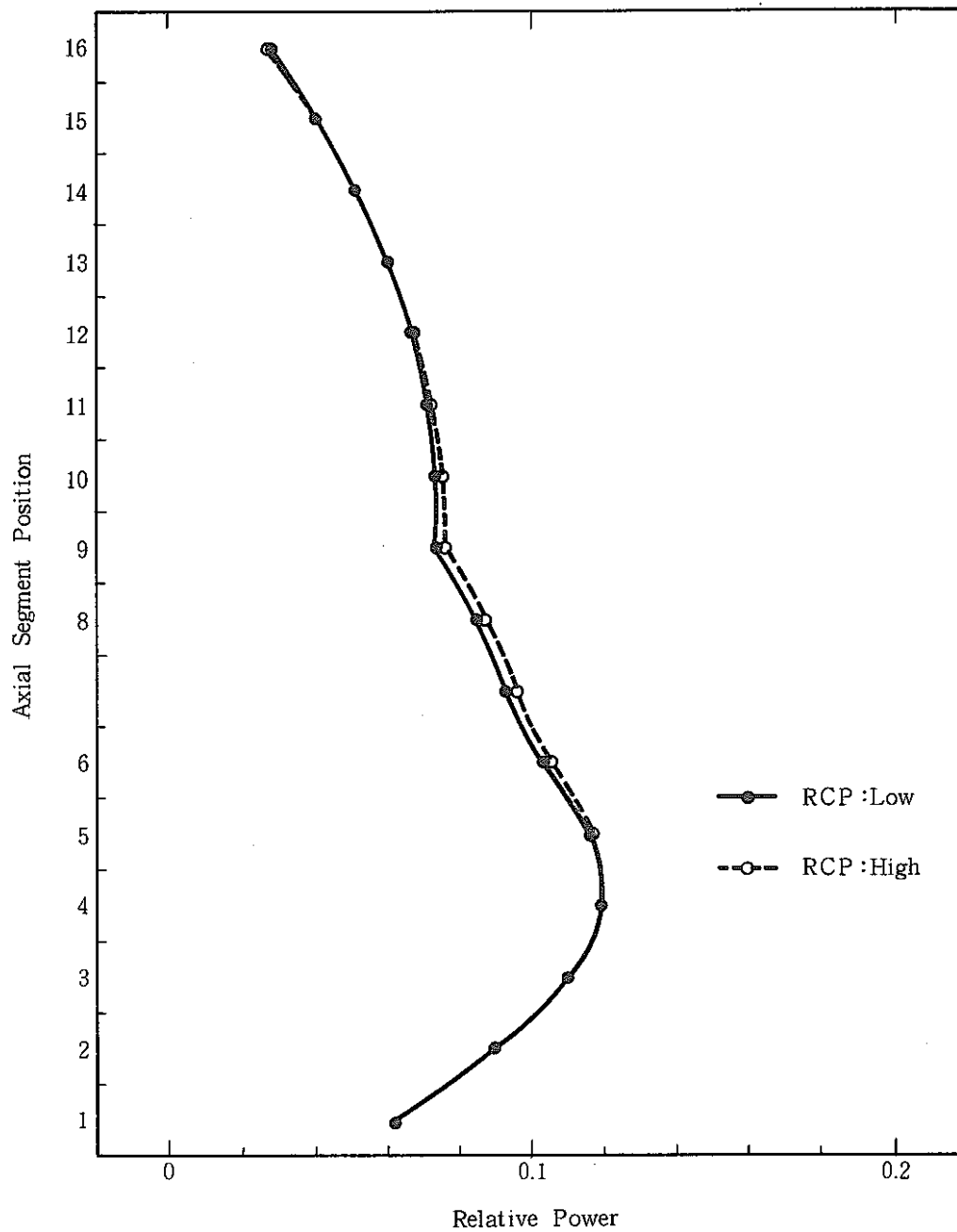


Fig. 2 Axial Power Distribution (E Rod: 25%, Channel 25)

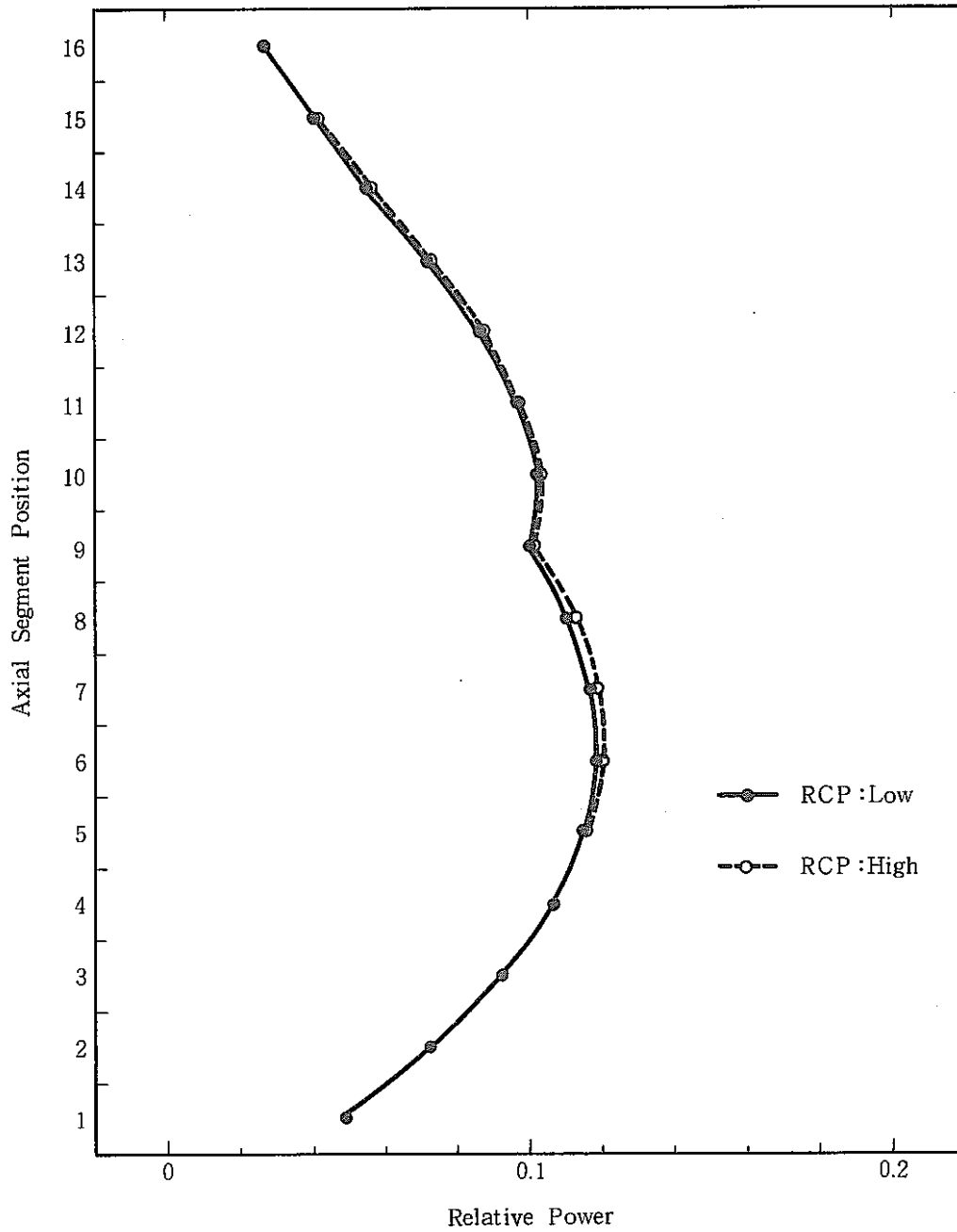


Fig. 3 Axial Power Distribution (E Rod: 65%, Channel 25)

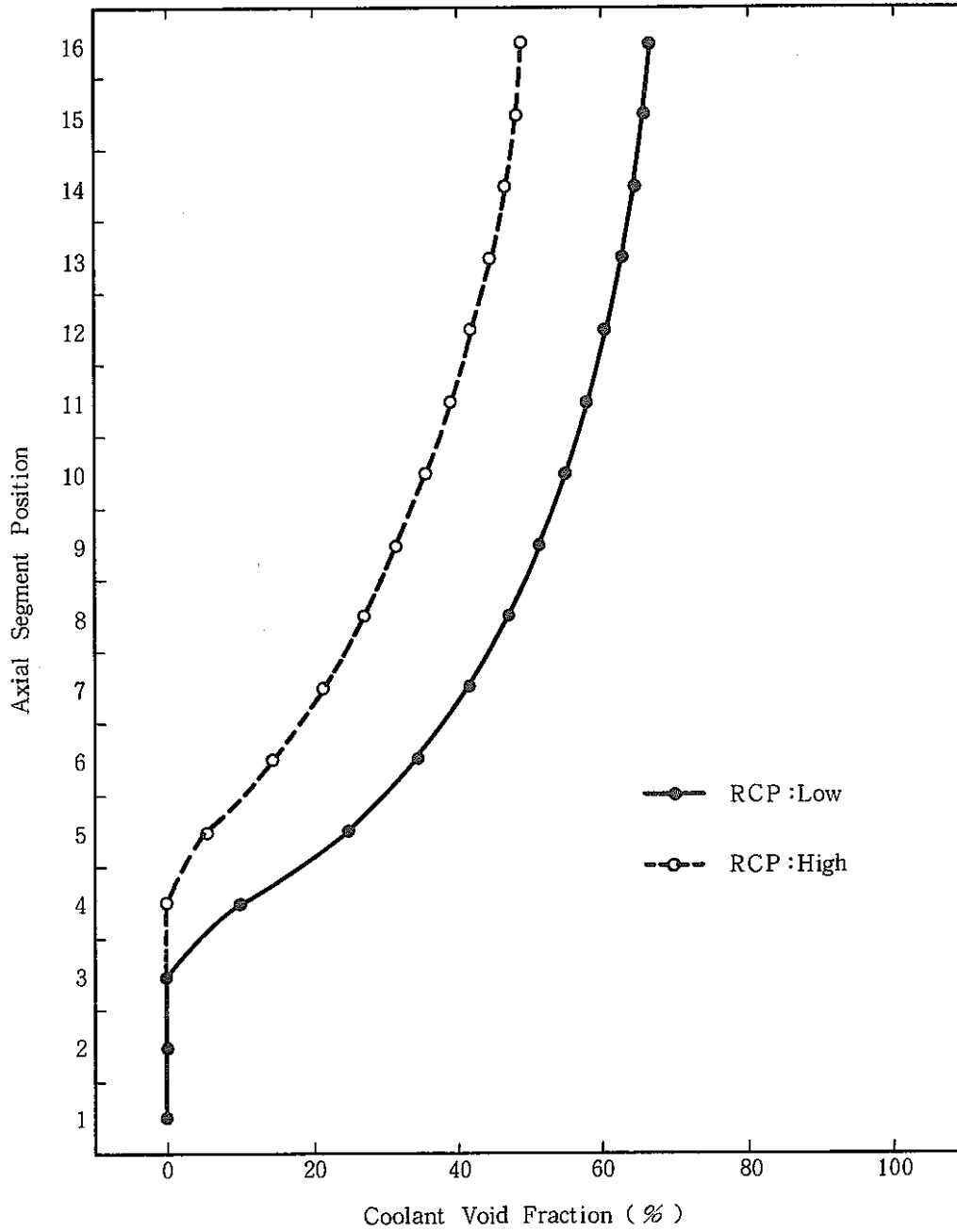


Fig. 4 Axial Coolant Void Fraction Distribution
(E Rod: 25%, Channel 25)

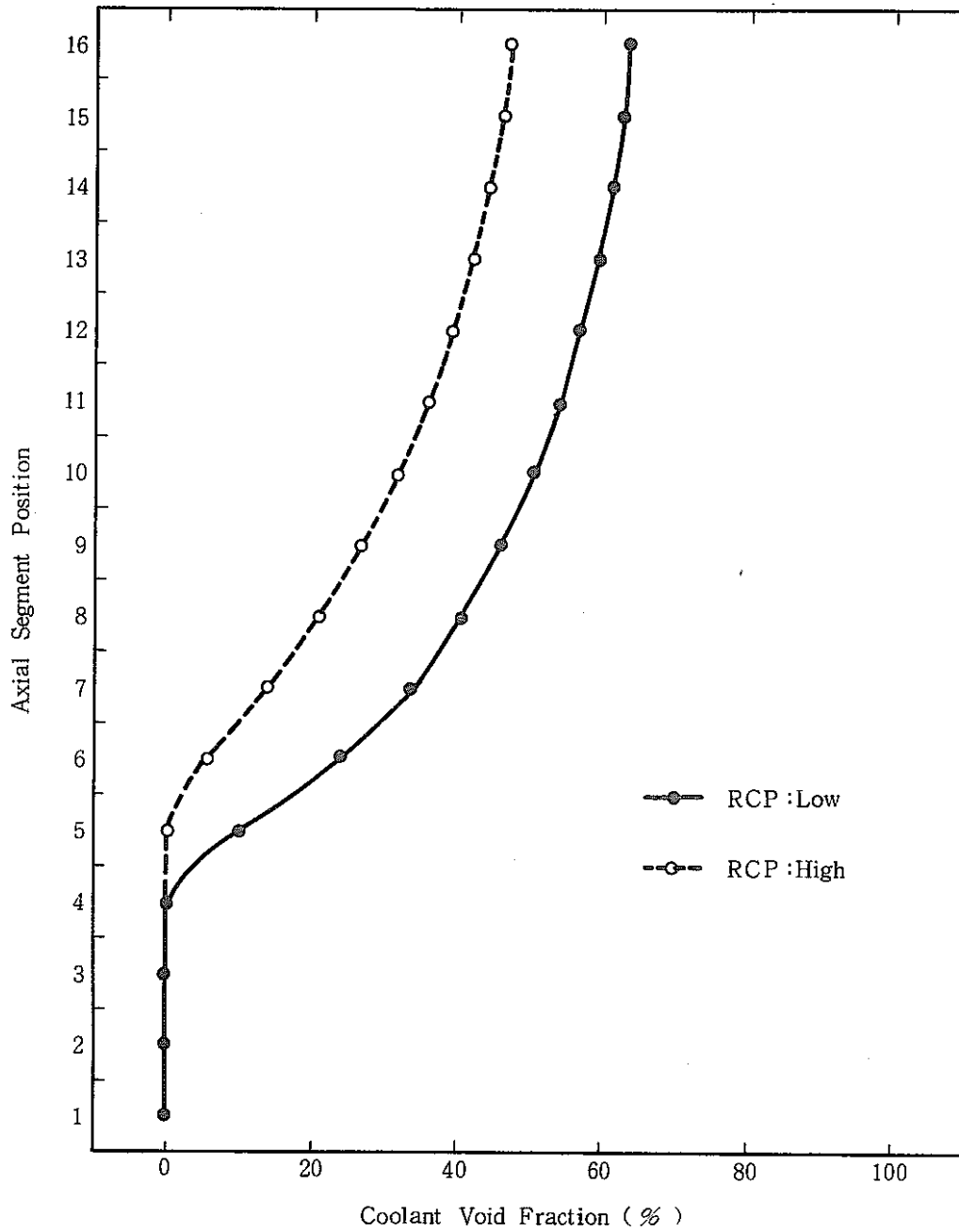


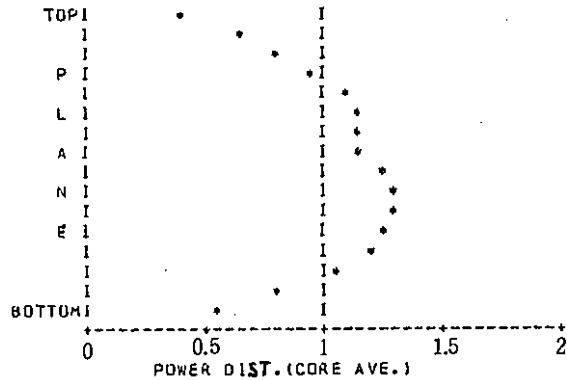
Fig. 5 Axial Coolant Void Fraction Distribution
(E Rod: 65%, Channel 25)

NO660C LOW POWER (P= 41.0%)
 B10= 6.24PPM , TH00= 50.7C , C/R= E65.04 C75.0%

*** POWER EDIT ***

K-EFFECTIVE 0.988859
 THERMAL POWER 57.09 (MW)
 RELATIVE POWER 41.00 (%)
 POWER PEAKING 1.79536(4, 3, 6)
 RADIAL POWER PEAKING 1.40192(4, 1)

AXIAL POWER DISTRIBUTION		
K	PN	P (MW)
PLANE 16	0.41213	1.471
15	0.63610	2.270
14	0.82095	2.929
13	0.97004	3.461
12	1.07920	3.851
11	1.14642	4.091
10	1.17235	4.187
9	1.14361	4.081
8	1.22435	4.404
7	1.27709	4.557
6	1.25646	4.590
5	1.25786	4.488
4	1.17763	4.202
3	1.03590	3.695
2	0.82076	2.929
PLANE 1	0.52856	1.886
TOTAL	16.00000	57.093



CHANNEL POWER PEAKING PNI(I,J)									
I	J	1	2	3	4	5	6	7	8
1	1	1.10010	0.95802	1.00244	0.97355	1.09719	0.98673	0.89096	0.73579
2	1	1.15984	1.00151	1.39324	1.00522	1.38259	1.13243	0.86294	0.84682
3	1	1.00976	0.94813	0.92224	1.04201	1.06418	0.98375	1.10890	0.65732
4	1	1.40192	1.00038	1.38461	0.96052	1.31378	1.11289	1.02939	0.79812
5	1	1.10114	1.04529	1.06223	0.97744	1.08224	1.10075	0.91303	0.00000
6	1	1.31210	1.15622	1.22596	1.08388	0.84207	0.88742	0.54928	0.00000
7	1	0.90118	0.59064	1.10145	0.95438	0.84143	0.52197	0.00000	0.00000
8	1	0.73603	0.54013	0.81143	0.57379	0.00000	0.00000	0.00000	0.00000

CHANNEL POWER DISTRIBUTION P(I,J) (MW) (AXIALLY INTEGRATED)									
I	J	1	2	3	4	5	6	7	8
1	1	1.122	0.977	1.022	0.993	1.119	1.006	0.908	0.750
2	1	1.182	1.021	1.420	1.025	1.410	1.155	0.880	0.863
3	1	1.027	0.957	0.940	1.062	1.085	1.003	1.131	0.874
4	1	1.429	1.020	1.412	0.979	1.339	1.135	1.049	0.814
5	1	1.123	1.066	1.084	0.997	1.103	1.122	0.931	0.000
6	1	1.338	1.179	1.260	1.105	0.858	0.905	0.560	0.000
7	1	0.919	0.908	1.123	0.983	0.858	0.532	0.000	0.000
8	1	0.752	0.657	0.827	0.585	0.000	0.000	0.000	0.000

Fig. 6 Power Distribution (Case: A, Pump: Low)

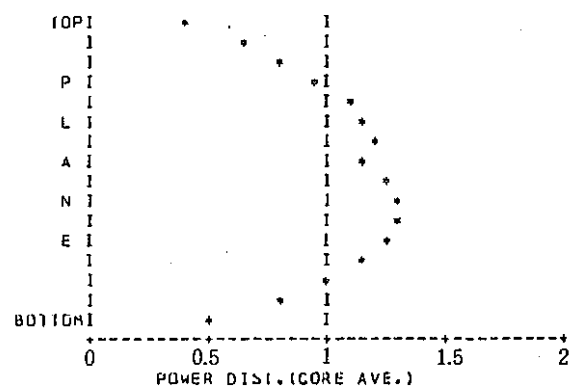
ND680C HIGH POWER (P= 41.00)
 B10= 6.24PPM , IMOD= 50.7C , C/A= E65.04 C75.0X

*** POWER EDIT ***

K-EFFECTIVE 0.988761
 THERMAL POWER 57.09 (MW)
 RELATIVE POWER 41.00 (X)
 POWER PEAKING 1.80798(2, 5, 6)
 RADIAL POWER PEAKING 1.40304(4, 1)

AXIAL POWER DISTRIBUTION

K	PN	P (MW)
PLANE 16	0.41030	1.464
15	0.63663	2.272
14	0.82306	2.937
13	0.97204	3.472
12	1.06329	3.865
11	1.15191	4.110
10	1.18006	4.211
9	1.15545	4.123
8	1.24294	4.435
7	1.28338	4.581
6	1.28656	4.591
5	1.24838	4.456
4	1.16485	4.157
3	1.02413	3.654
2	0.81190	2.897
PLANE 1	0.52292	1.866
TOTAL	16.00000	57.093



CHANNEL POWER PEAKING PN(I,J)

I	J	1	2	3	4	5	6	7	8
1	1	1.08842	0.94864	0.99715	0.97183	1.09772	0.98839	0.88762	0.72826
2	1	1.14840	0.99415	1.13918	1.00507	1.39170	1.14146	0.86316	0.84088
3	1	1.00205	0.94229	0.91702	1.04118	1.06912	0.99026	1.11550	0.85470
4	1	1.40304	0.99649	1.38250	0.96376	1.32925	1.12575	1.03603	0.79496
5	1	1.05964	1.04523	1.06456	0.96140	1.09372	1.11371	0.91460	0.00000
6	1	1.31770	1.16136	1.24108	1.08599	0.84407	0.88900	0.54664	0.00000
7	1	0.89846	0.88818	1.10245	0.96509	0.83822	0.51822	0.00000	0.00000
8	1	0.73039	0.63315	0.80621	0.56868	0.00000	0.00000	0.00000	0.00000

CHANNEL POWER DISTRIBUTION P(I,J) (MW) (AXIALLY INTEGRATED)

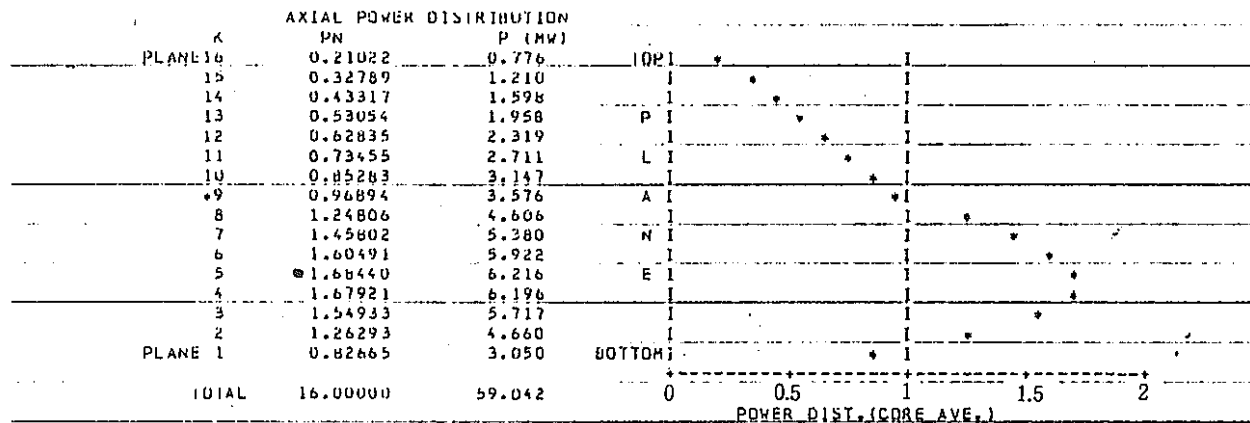
I	J	1	2	3	4	5	6	7	8
1	1	1.110	0.967	1.017	0.991	1.119	1.008	0.905	0.742
2	1	1.171	1.014	1.419	1.025	1.419	1.164	0.850	0.857
3	1	1.022	0.961	0.935	1.061	1.090	1.010	1.137	0.871
4	1	1.430	1.018	1.411	0.983	1.355	1.148	1.056	0.810
5	1	1.121	1.066	1.085	1.001	1.115	1.135	0.932	0.000
6	1	1.343	1.164	1.265	1.107	0.861	0.906	0.557	0.000
7	1	0.916	0.906	1.124	0.984	0.855	0.528	0.000	0.000
8	1	0.745	0.649	0.822	0.580	0.000	0.000	0.000	0.000

Fig. 7 Power Distribution (Case: A, Pump: High)

NO680C LOW POWER (P= 42.4%)
 B10= 5.49PPM , IMOD= 50.7C , C/R= E41.1% C41.1% M41.1% J41.1%

*** POWER EDIT ***

K-EFFECTIVE 0.988708
 THERMAL POWER 59.04 (MW)
 RELATIVE POWER 42.40 (%)
 POWER PEAKING 2.32238(4, 3, 5)
 RADIAL POWER PEAKING 1.35954(4, 3)



CHANNEL POWER PEAKING PN(I,J)

I	J	1	2	3	4	5	6	7	8
1	1	1.01430	0.91211	0.95479	0.91140	1.03508	0.97293	0.89833	0.74166
2	1	1.10248	0.96586	1.34922	0.97199	1.34691	1.14064	0.88660	0.88113
3	1	0.98021	0.92454	0.90863	1.02599	1.05748	1.00191	1.15213	0.91029
4	1	1.30162	0.96760	1.35954	0.94050	1.29562	1.13983	1.07976	0.85664
5	1	1.03985	1.02377	1.05870	0.96924	1.08593	1.13867	0.96900	0.00000
6	1	1.29619	1.16662	1.26270	1.10844	0.86973	0.93197	0.58863	0.00000
7	1	0.90822	0.91319	1.14337	1.01406	0.89350	0.55946	0.00000	0.00000
8	1	0.74311	0.87160	0.85873	0.61460	0.00000	0.00000	0.00000	0.00000

CHANNEL POWER DISTRIBUTION P(I,J) (MW) (AXIALLY INTEGRATED)

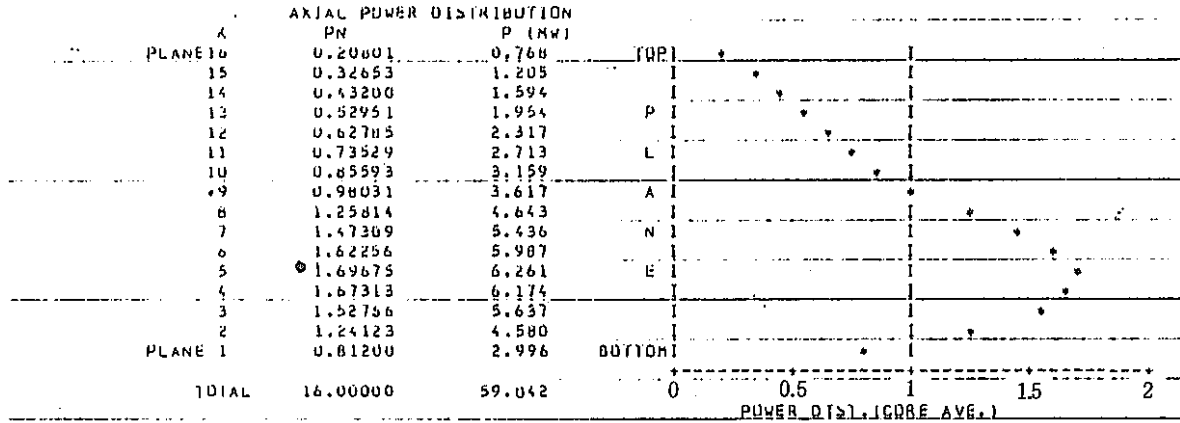
I	J	1	2	3	4	5	6	7	8
1	1	1.069	0.962	1.007	0.961	1.092	1.026	0.947	0.782
2	1	1.162	1.018	1.423	1.025	1.422	1.203	0.935	0.929
3	1	1.012	0.975	0.958	1.082	1.115	1.056	1.215	0.960
4	1	1.372	1.020	1.433	0.992	1.366	0.992	1.138	0.903
5	1	1.096	1.079	1.116	1.022	1.145	1.201	1.022	0.000
6	1	1.367	1.230	1.331	1.169	0.917	0.983	0.621	0.000
7	1	0.958	0.963	1.205	1.069	0.942	0.590	0.000	0.000
8	1	0.783	0.919	0.905	0.648	0.000	0.000	0.000	0.000

Fig. 8 Power Distribution (Case: B, Pump: Low)

NO680C HIGH POWER (P= 42.4K)
 G10= 5.49PPM , TMOU= 50.7C , C/R= E41.1% C41.1% M41.1% J41.1%

*** POWER EDIT ***

K-EFFECTIVE 0.958783
 THERMAL POWER 59.04 (MW)
 RELATIVE POWER 42.40 (C)
 POWER PEAKING 2.355611 (4, 5)
 RADIAL POWER PEAKING 1.363151 (4, 3)



CHANNEL POWER PEAKING PN(I, J)

I	J	1	2	3	4	5	6	7	8
1	1	1.00051	0.89956	0.95053	0.91474	1.03933	0.97516	0.89322	0.73367
2	1	1.08674	0.95802	1.34781	0.97414	1.35065	1.14605	0.88484	0.87111
3	1	0.95233	0.91541	0.90025	1.02500	1.06422	1.01132	1.15938	0.90398
4	1	1.30547	0.96489	1.36315	0.95035	1.32208	1.15475	1.08632	0.84996
5	1	1.04247	1.02306	1.06094	0.97949	1.10062	1.15160	0.96800	0.00000
6	1	1.30056	1.17024	1.26824	1.11401	0.87155	0.93258	0.88372	0.00000
7	1	0.90353	0.91131	1.14777	1.01378	0.88717	0.55403	0.00000	0.00000
8	1	0.73343	0.86075	0.85047	0.60682	0.00000	0.00000	0.00000	0.00000

CHANNEL POWER DISTRIBUTION P(I, J) (MW) (AXIALLY INTEGRATED)

I	J	1	2	3	4	5	6	7	8
1	1	1.055	0.948	1.002	0.964	1.096	1.020	0.942	0.774
2	1	1.146	1.010	1.421	1.027	1.432	1.208	0.933	0.918
3	1	1.004	0.965	0.949	1.081	1.122	1.066	1.222	0.953
4	1	1.376	1.017	1.437	1.002	1.395	1.217	1.145	0.896
5	1	1.099	1.079	1.119	1.033	1.160	1.214	1.021	0.000
6	1	1.371	1.234	1.337	1.175	0.919	0.983	0.615	0.000
7	1	0.953	0.961	1.210	1.069	0.935	0.584	0.000	0.000
8	1	0.773	0.908	0.897	0.640	0.000	0.000	0.000	0.000

Fig. 9 Power Distribution (Case: B, Pump: High)

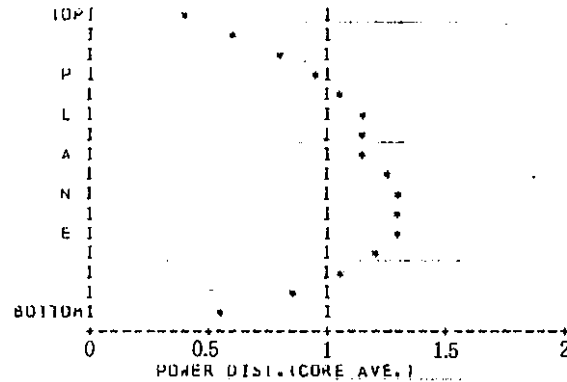
K066JC LOW POWER (P= 41.04)
 BU= 5.01PPM, IMCU= 50.7L, C/M= E65.06 C75.0X J 0.04

*** POWER EDIT ***

NEFFECTIVE 0.990719
 INTERNAL POWER 57.09 (MW)
 RELATIVE POWER 41.00 (4)
 POWER PEAKING 1.597401 (4, 5, 6)
 RADIAL POWER PEAKING 1.394331 (4, 5)

AXIAL POWER DISTRIBUTION

K	PK	P (MW)
PLANE 15	0.39125	1.396
15	0.60549	2.161
14	0.78656	2.807
13	0.92717	3.344
12	1.05134	3.751
11	1.12537	4.016
10	1.15906	4.139
9	1.13745	4.059
8	1.24012	4.425
7	1.29328	4.615
6	1.31085	4.676
5	1.28634	4.597
4	1.21121	4.322
3	1.06755	3.809
2	0.84713	3.023
PLANE 1	0.54704	1.952
TOTAL	16.00000	57.092



CHANNEL POWER PEAKING PN(I,J)

I	J	1	2	3	4	5	6	7	8
1	1	1.06660	0.86186	0.64793	0.76079	0.87691	0.89913	0.90482	0.80003
2	1	1.04366	0.90441	1.22970	0.88346	1.25435	1.11387	0.90755	0.94193
3	1	0.85136	0.85068	0.86759	1.01202	1.07147	1.03544	1.21318	0.97767
4	1	1.07349	0.87824	1.34405	0.96314	1.39428	1.22507	1.16420	0.93226
5	1	0.87404	0.94425	1.06762	1.03842	1.19415	1.24900	1.06044	0.00000
6	1	1.19382	1.12273	1.29245	1.18277	0.95093	1.02737	0.65104	0.00000
7	1	0.91209	0.92682	1.19199	1.08327	0.97511	0.61789	0.00000	0.00000
8	1	0.79936	0.92526	0.91332	0.66163	0.00000	0.00000	0.00000	0.00000

CHANNEL POWER DISTRIBUTION P(I,J) (MW) (AXIALLY INTEGRATED)

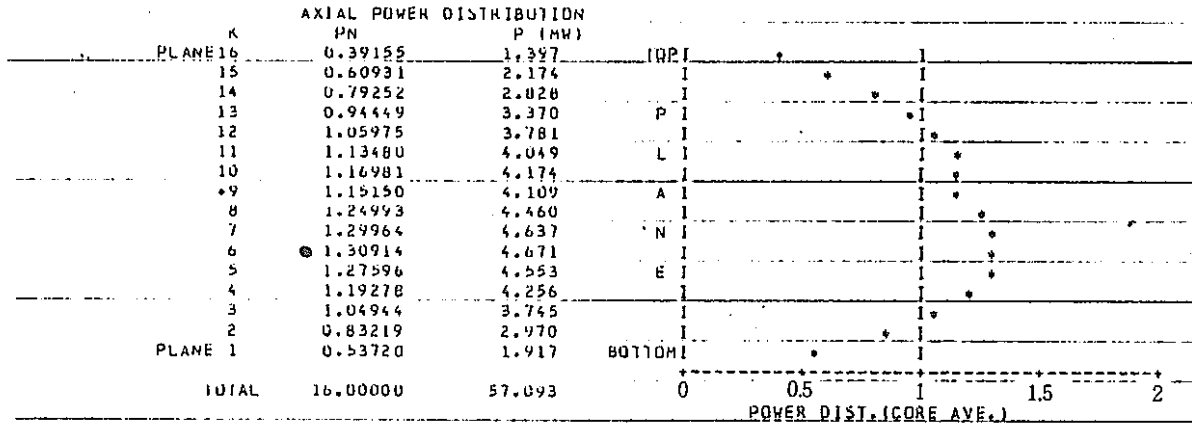
I	J	1	2	3	4	5	6	7	8
1	1	1.026	0.879	0.864	0.776	0.394	0.917	0.922	0.816
2	1	1.064	0.922	1.275	0.901	1.279	1.136	0.925	0.960
3	1	0.888	0.867	0.885	1.032	1.092	1.056	1.237	0.997
4	1	1.094	0.895	1.370	1.002	1.422	1.249	1.187	0.950
5	1	0.891	0.962	1.086	1.059	1.217	1.273	1.081	0.600
6	1	1.217	1.155	1.316	1.206	0.969	1.047	0.664	0.000
7	1	0.930	0.947	1.215	1.104	0.994	0.630	0.000	0.000
8	1	0.815	0.942	0.921	0.675	0.000	0.000	0.000	0.000

Fig. 10 Power Distribution (Case: C, Pump: Low)

NO680C HIGH POWER (P= 41.0%)
 BIU= 5.01PPM , IMOD= 50.7C , C/A= E65.0% E75.0% J 0.04

*** POWER EDIT ***

K-EFFECTIVE 0.990915
 THERMAL POWER 57.09 (MW)
 RELATIVE POWER 41.00 (%)
 POWER PEAKING 1.93075(4, 5, 6)
 RADIAL POWER PEAKING 1.41351(4, 5)



CHANNEL POWER PEAKING PN(I,J)

I	J	1	2	3	4	5	6	7	8
1	0.99334	0.85113	0.83992	0.75838	0.87609	0.90046	0.90323	0.79123	
2	1.03049	0.89595	1.24649	0.88161	1.26003	1.11937	0.90990	0.93474	
3	0.84220	0.84247	0.86050	1.01050	1.07655	1.04234	1.22252	0.97421	
4	1.06902	0.87296	1.34071	0.98687	1.41251	1.24080	1.17362	0.92823	
5	0.87816	0.94248	1.06660	1.04368	1.20866	1.26541	1.06337	0.00000	
6	1.19781	1.13756	1.29956	1.19072	0.95586	1.03116	0.64829	0.00000	
7	0.90979	0.92930	1.19911	1.08625	0.97163	0.61369	0.00000	0.00000	
8	0.79026	0.91717	0.90783	0.65603	0.00000	0.00000	0.00000	0.00000	

CHANNEL POWER DISTRIBUTION P(I,J) (MW) (AXIALLY INTEGRATED)

I	J	1	2	3	4	5	6	7	8
1	1.013	0.668	0.856	0.773	0.895	0.918	0.921	0.807	
2	1.051	0.913	1.271	0.899	1.285	1.141	0.928	0.953	
3	0.859	0.859	0.877	1.030	1.098	1.063	1.246	0.993	
4	1.090	0.890	1.367	1.006	1.441	1.265	1.197	0.946	
5	0.893	0.961	1.087	1.064	1.232	1.290	1.084	0.000	
6	1.221	1.160	1.325	1.214	0.975	1.051	0.661	0.000	
7	0.928	0.947	1.223	1.107	0.991	0.626	0.000	0.000	
8	0.806	0.935	0.925	0.669	0.000	0.000	0.000	0.000	

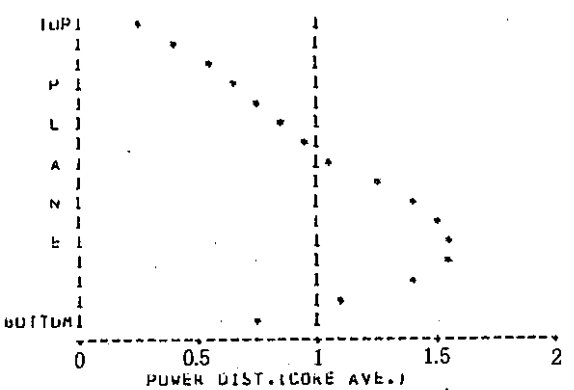
Fig. 11 Power Distribution (Case: C, Pump: High)

NUSSUC LOW POWER (P= 42.44)
 n10= 5.75PPM , TMOU= 50.70 , C/K= 665.07 C41.11 M41.1Y J41.1Y

*** POWER EDIT ***

K-EFFECTIVE 0.498257
 THERMAL POWER 59.04 (MW)
 RELATIVE POWER 42.40 (4)
 POWER PEAKING 2.128521 (4, 3, 5)
 RADIAL POWER PEAKING 1.386211 (4, 3)

AXIAL POWER DISTRIBUTION		
PLANE	PN	P (MW)
16	0.25305	0.934
15	0.39642	1.463
14	0.52719	1.945
13	0.65162	2.405
12	0.76743	2.832
11	0.87333	3.222
10	0.97081	3.592
9	1.04242	3.847
8	1.26055	4.652
7	1.41352	5.217
6	1.51261	5.585
5	1.55806	5.749
4	1.52321	5.639
3	1.39007	5.130
2	1.12233	4.142
PLANE 1	0.73057	2.697
TOTAL	16.00000	59.042



CHANNEL POWER PEAKING P(1,J)									
1	J	1	2	3	4	5	6	7	8
1		0.96945	0.87546	0.92194	0.89257	1.01234	0.95481	0.87742	0.72118
2		1.06325	0.94151	1.33241	0.96540	1.34555	1.13137	0.87335	0.86295
3		0.92599	0.90712	0.90634	1.04150	1.07971	1.01496	1.15188	0.90152
4		1.27502	0.95992	1.28621	0.98952	1.37540	1.17598	1.09642	0.95790
5		1.01390	1.01250	1.07688	1.02255	1.15174	1.19063	0.98809	0.00000
6		1.26672	1.15132	1.26892	1.13789	0.90089	0.96002	0.60079	0.00000
7		0.58541	0.85729	1.13732	1.02179	0.90528	0.57186	0.00000	0.00000
8		0.72021	0.85137	0.84763	0.61286	0.00000	0.00000	0.00000	0.00000

CHANNEL POWER DISTRIBUTION P(1,J) (MW) (AXIALLY INTEGRATED)									
1	J	1	2	3	4	5	6	7	8
1		1.022	0.927	0.983	0.541	1.067	1.007	0.925	0.760
2		1.121	0.993	1.405	1.018	1.419	1.193	0.921	0.910
3		0.937	0.956	0.956	1.093	1.139	1.070	1.214	0.950
4		1.344	1.012	1.462	1.043	1.451	1.240	1.156	0.905
5		1.065	1.068	1.135	1.078	1.214	1.245	1.042	0.000
6		1.236	1.214	1.338	1.200	0.950	1.012	0.633	0.000
7		0.934	0.546	1.199	1.077	0.959	0.603	0.000	0.000
8		0.759	0.893	0.894	0.646	0.000	0.000	0.000	0.000

Fig. 12 Power Distribution (Case: D, Pump: Low)

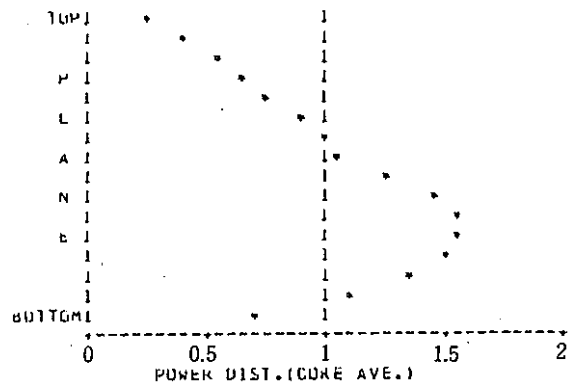
NUBBUC HIGH PLWER (P= 42.44)
 B10= 5.75PPM ; /MUU= 50.70 ; C/R= 665.00 C41.10 M41.10 J41.14

*** POWER EDIT ***

NEFFECTIVE 0.988261
 THERMAL POWER 59.04 (MW)
 RELATIVE POWER 42.40 (%)
 POWER PEAKING 2.18341(4, 3, 5)
 RADIAL POWER PEAKING 1.39452(4, 5)

AXIAL POWER DISTRIBUTION

PLANE	PN	P (MW)	TOP
16	0.25193	0.930	1
15	0.39723	1.466	1
14	0.52506	1.952	1
13	0.65412	2.414	1
12	0.77074	2.844	1
11	0.87759	3.240	1
10	0.97742	3.607	1
9	1.05547	3.899	1
8	1.27182	4.693	1
7	1.42209	5.270	1
6	1.52754	5.637	1
5	1.56161	5.763	1
4	1.51291	5.593	1
3	1.36307	5.037	1
2	1.10105	4.063	1
PLANE 1	0.71695	2.646	1
TOTAL	16.00000	59.042	



CHANNEL POWER PEAKING PNI(I,J)

I	J	1	2	3	4	5	6	7	8
1	1	0.96027	0.85615	0.92183	0.85984	1.01796	0.95465	0.87390	0.71214
2	1	1.04715	0.92954	1.32563	0.95284	1.35393	1.13981	0.87543	0.85397
3	1	0.92539	0.89700	0.89858	1.04218	1.08823	1.02242	1.16356	0.89740
4	1	1.27537	0.95556	1.38792	0.99233	1.39452	1.19024	1.10399	0.85368
5	1	1.02047	1.01543	1.08172	1.02731	1.16676	1.19606	0.98838	0.00000
6	1	1.27084	1.15532	1.27557	1.14432	0.90645	0.96233	0.59725	0.00000
7	1	0.98154	0.89598	1.14291	1.02275	0.50364	0.56568	0.00000	0.00000
8	1	0.71260	0.84174	0.84213	0.60652	0.00000	0.00000	0.00000	0.00000

CHANNEL POWER DISTRIBUTION P(I,J) (MW) (AXIALLY INTEGRATED)

I	J	1	2	3	4	5	6	7	8
1	1	1.012	0.913	0.972	0.938	1.073	1.007	0.921	0.751
2	1	1.104	0.920	1.398	1.015	1.427	1.202	0.923	0.500
3	1	0.576	0.946	0.947	1.099	1.147	1.078	1.227	0.946
4	1	1.345	1.007	1.463	1.046	1.470	1.255	1.164	0.900
5	1	1.076	1.071	1.140	1.083	1.232	1.261	1.042	0.000
6	1	1.340	1.219	1.345	1.206	0.956	1.015	0.630	0.000
7	1	0.929	0.945	1.205	1.078	0.953	0.596	0.000	0.000
8	1	0.751	0.587	0.988	0.639	0.000	0.000	0.000	0.000

Fig. 13 Power Distribution (Case: D, Pump: High)

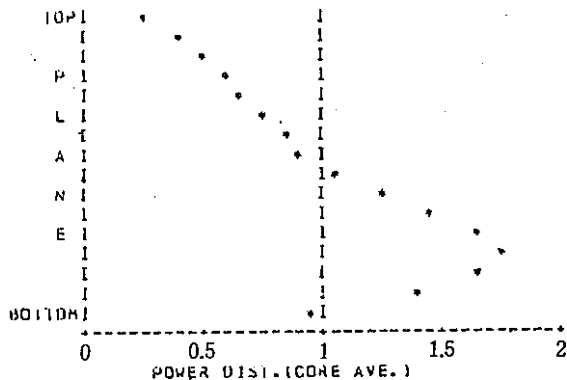
NOORUC LOW POWER (P= 42.44)
 B10= 4.55PPM , IMOD= 50.7C , C/R= 825.7% C25.7% M25.7% J25.7%

*** POWER EDIT ***

K-EFFECTIVE 0.990205
 THERMAL POWER 59.04 (MW)
 RELATIVE POWER 42.40 (C)
 POWER PEAKING 2.359221 (4, 3, 4)
 RADIAL POWER PEAKING 1.323451 (4, 3)

AXIAL POWER DISTRIBUTION

K	PN	P (MW)
PLANE 10	0.25106	0.946
15	0.38583	1.424
14	0.49655	1.840
13	0.59232	2.186
12	0.67468	2.490
11	0.75226	2.776
10	0.82664	3.050
9	0.88153	3.253
8	1.06757	3.939
7	1.24545	4.596
6	1.43590	5.299
5	1.64054	6.054
4	1.72779	6.413
3	1.67274	6.175
2	1.40267	5.176
PLANE 1	0.93433	3.448
TOTAL	16.00000	59.042



CHANNEL POWER PEAKING PN(I,J)

I	J	1	2	3	4	5	6	7	8
1	1	0.94692	0.87259	0.92014	0.86827	0.99247	0.96679	0.90933	0.75205
2	1	1.05420	0.93332	1.31638	0.94836	1.32704	1.15341	0.91367	0.91819
3	1	0.92460	0.90062	0.89152	1.00542	1.04742	1.01964	1.19941	0.96559
4	1	1.22754	0.94223	1.32845	0.90981	1.25568	1.15560	1.12774	0.91542
5	1	0.94569	1.00810	1.04769	0.94644	1.06743	1.15776	1.01450	0.00000
6	1	1.27761	1.17424	1.27484	1.12069	0.86516	0.96588	0.62337	0.00000
7	1	0.91378	0.93297	1.18191	1.05183	0.93629	0.59259	0.00000	0.00000
8	1	0.75169	0.90368	0.90609	0.65396	0.00000	0.00000	0.00000	0.00000

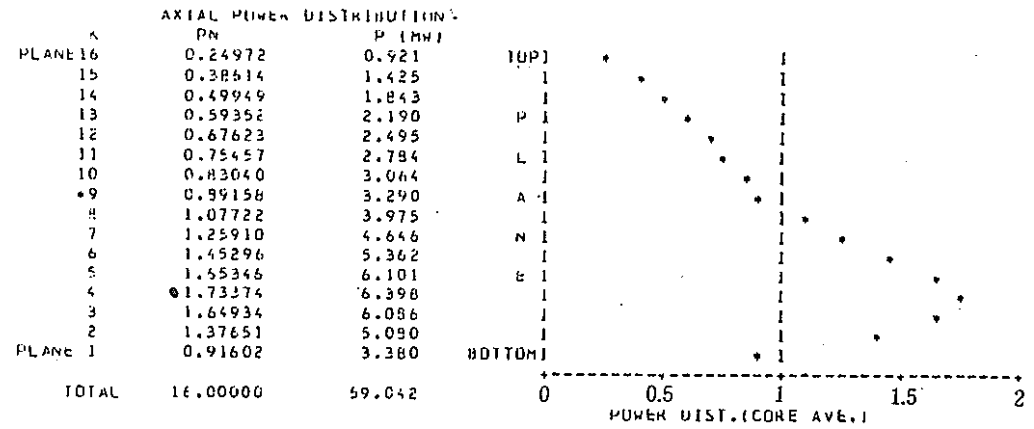
CHANNEL POWER DISTRIBUTION P(I,J) (MW) (AXIALLY INTEGRATED)

I	J	1	2	3	4	5	6	7	8
1	1	0.996	0.920	0.970	0.915	1.047	1.019	0.959	0.793
2	1	1.111	0.999	1.385	1.000	1.399	1.216	0.963	0.968
3	1	0.975	0.950	0.940	1.060	1.104	1.075	1.265	1.010
4	1	1.294	0.993	1.401	0.959	1.324	1.218	1.189	0.965
5	1	1.050	1.063	1.105	0.998	1.125	1.221	1.070	0.000
6	1	1.347	1.236	1.344	1.182	0.933	1.018	0.657	0.000
7	1	0.963	0.934	1.246	1.109	0.987	0.625	0.000	0.000
8	1	0.743	0.953	0.955	0.689	0.000	0.000	0.000	0.000

Fig. 14 Power Distribution (Case: E, Pump: Low)

NU540C HIGH POWER (P= 42.4C)
 H10= 4.55PPM , THOU= 50.7C , C/K= E25.74 C25.74 M25.74 J25.74

*** POWER UNIT ***
 K-EFFECTIVE 0.490494
 THERMAL POWER 59.04 (MW)
 RELATIVE POWER 42.4C (4)
 POWER PEAKING 2.37920(2, 5, 4)
 AXIAL POWER PEAKING 1.33473(2, 5)



CHANNEL POWER PEAKING PN(I,J)

I	J	1	2	3	4	5	6	7	8
1	0.92639	0.86237	0.91285	0.86875	0.99763	0.96658	0.90414	0.74353	
2	1.02902	0.92924	1.31359	0.94656	1.23473	1.15733	0.91151	0.90752	
3	0.91651	0.89467	0.88520	1.00232	1.05124	1.02521	1.20587	0.95976	
4	1.22227	0.93976	1.33150	0.91583	1.27471	1.16772	1.13457	0.90801	
5	1.00943	1.00763	1.05030	0.95400	1.09119	1.16996	1.01625	0.00000	
6	1.23491	1.18150	1.22782	1.12736	0.89501	0.96531	0.61823	0.00000	
7	0.91379	0.92857	1.19049	1.05367	0.92967	0.58577	0.00000	0.00000	
8	0.74359	0.59405	0.39235	0.64638	0.00000	0.00000	0.00000	0.00000	

CHANNEL POWER DISTRIBUTION P(I,J) (MW) (AXIALLY INTEGRATED)

I	J	1	2	3	4	5	6	7	8
1	0.577	0.909	0.962	0.916	1.052	1.019	0.552	0.784	
2	1.095	0.950	1.395	0.999	1.407	1.220	0.961	0.957	
3	0.556	0.942	0.933	1.057	1.108	1.081	1.271	1.011	
4	1.295	0.551	1.404	0.566	1.344	1.231	1.196	0.957	
5	1.059	1.062	1.107	1.005	1.140	1.234	1.071	0.000	
6	1.354	1.246	1.358	1.189	0.934	1.019	0.652	0.000	
7	0.962	0.987	1.255	1.111	0.980	0.618	0.000	0.000	
8	0.744	0.543	0.947	0.621	0.000	0.000	0.000	0.000	

Fig. 15 Power Distribution (Case: E, Pump: High)

Appendix 1 PHLOX Library with Void Spectrum Effect

LIBRARY TYPE = 1 (0%)

FUEL TYPE	U10 (PPM)	VOID (%)	EXPOSURE (GWD/TH)	K-EFF	LPF	NG	D	SIGR	SIGA	NU-SIGF	SIGF	FLUX
PU-A	2	0	2	1.00527	1.100	1	1.50436E+00	9.22275E-03	2.98044E-03	1.39336E-03	5.00932E-04	8.11127E+01
							1.08370E+00	9.78666E-03	1.26141E-02	4.62889E-03	7.42029E+01	
PU-A	2	0	4	1.04553	1.084	1	1.50455E+00	9.19166E-03	3.02211E-03	1.34490E-03	4.89352E-04	8.10931E+01
							1.08274E+00	9.58437E-03	1.19426E-02	4.36391E-03	7.55525E+01	
PU-A	2	0	8	0.97170	1.056	1	1.50493E+00	9.14260E-03	3.07486E-03	1.25666E-03	4.53921E-04	8.10648E+01
							1.08079E+00	9.22385E-03	1.07389E-02	3.88701E-03	7.80118E+01	
PU-A	2	0	12	0.90907	1.040	1	1.50531E+00	9.10333E-03	3.11605E-03	1.18442E-03	4.25005E-04	8.10487E+01
							1.07923E+00	8.95670E-03	9.79163E-03	3.50800E-03	7.99490E+01	
PU-A	2	20	2	1.08693	1.099	1	1.50795E+00	8.51096E-03	2.92907E-03	1.36489E-03	4.98835E-04	8.64404E+01
							1.09541E+00	9.80000E-03	1.27774E-02	4.69007E-03	7.29441E+01	
PU-A	2	20	4	1.04718	1.082	1	1.50815E+00	8.40081E-03	2.96079E-03	1.31636E-03	4.79230E-04	8.64257E+01
							1.09457E+00	9.59575E-03	1.20981E-02	4.42184E-03	7.41958E+01	
PU-A	2	20	8	0.97344	1.054	1	1.50857E+00	8.43314E-03	3.01064E-03	1.22825E-03	4.43857E-04	8.64047E+01
							1.09296E+00	9.23001E-03	1.08781E-02	3.93827E-03	7.66467E+01	
PU-A	2	20	12	0.91063	1.038	1	1.50897E+00	8.39507E-03	3.04991E-03	1.15622E-03	4.15022E-04	8.63918E+01
							1.09167E+00	8.95780E-03	9.91608E-03	3.55327E-03	7.85578E+01	
PU-A	4	0	2	1.05923	1.097	1	1.50834E+00	9.21702E-03	2.99601E-03	1.39383E-03	5.09102E-04	8.10995E+01
							1.08407E+00	1.01375E-02	1.27260E-02	4.66922E-03	7.16949E+01	
PU-A	4	0	4	1.02006	1.080	1	1.50853E+00	9.18593E-03	3.02964E-03	1.34536E-03	4.89519E-04	8.10802E+01
							1.08303E+00	9.93343E-03	1.20499E-02	4.40247E-03	7.28826E+01	
PU-A	4	0	8	0.94741	1.053	1	1.50892E+00	9.13689E-03	3.08236E-03	1.25710E-03	4.54081E-04	8.10520E+01
							1.08107E+00	9.56858E-03	1.08363E-02	3.92182E-03	7.51883E+01	
PU-A	4	0	12	0.88578	1.037	1	1.50829E+00	9.09764E-03	3.12355E-03	1.18485E-03	4.25159E-04	8.10357E+01
							1.07950E+00	9.29778E-03	9.80081E-03	3.53967E-03	7.69952E+01	
PU-A	4	20	2	1.06083	1.097	1	1.50792E+00	8.50512E-03	2.93645E-03	1.36526E-03	4.98965E-04	8.64278E+01
							1.09583E+00	1.01359E-02	1.28699E-02	4.72325E-03	7.05059E+01	
PU-A	4	20	4	1.02164	1.080	1	1.50813E+00	8.47497E-03	2.96815E-03	1.31671E-03	4.79358E-04	8.64132E+01
							1.09408E+00	9.92961E-03	1.21862E-02	4.45337E-03	7.16813E+01	
PU-A	4	20	8	0.94898	1.051	1	1.50855E+00	8.42732E-03	3.01798E-03	1.22860E-03	4.43981E-04	8.63923E+01
							1.09337E+00	9.56022E-03	1.09583E-02	3.96686E-03	7.39705E+01	
PU-A	4	20	12	0.88725	1.036	1	1.50896E+00	8.38927E-03	3.05721E-03	1.15656E-03	4.15141E-04	8.63795E+01
							1.09208E+00	9.28527E-03	9.99023E-03	3.57954E-03	7.57710E+01	
PU-A	6	0	2	1.03516	1.094	1	1.50832E+00	9.21129E-03	3.00353E-03	1.39429E-03	5.09267E-04	8.10867E+01
							1.08436E+00	1.04860E-02	1.28381E-02	4.70962E-03	6.92941E+01	
PU-A	6	0	4	0.99650	1.077	1	1.50845E+00	9.18024E-03	3.03717E-03	1.34581E-03	4.89682E-04	8.10671E+01
							1.08331E+00	1.02788E-02	1.21555E-02	4.44044E-03	7.04153E+01	
PU-A	6	0	8	0.92492	1.050	1	1.50890E+00	9.13120E-03	3.08987E-03	1.25754E-03	4.54238E-04	8.10390E+01
							1.08132E+00	9.90992E-03	1.09325E-02	3.95621E-03	7.25829E+01	
PU-A	6	0	12	0.86434	1.034	1	1.50827E+00	9.09194E-03	3.13100E-03	1.18527E-03	4.25308E-04	8.10231E+01
							1.07976E+00	9.63627E-03	9.96984E-03	3.57130E-03	7.42766E+01	
PU-A	6	20	2	1.03662	1.094	1	1.50790E+00	8.49926E-03	2.94382E-03	1.36561E-03	4.99094E-04	8.64154E+01
							1.09624E+00	1.04693E-02	1.29622E-02	4.75637E-03	8.82384E+01	
PU-A	6	20	4	0.99794	1.077	1	1.50811E+00	8.46915E-03	2.97550E-03	1.31707E-03	4.79483E-04	8.64007E+01
							1.09539E+00	1.02605E-02	1.22735E-02	4.48465E-03	6.93477E+01	
PU-A	6	20	8	0.92634	1.049	1	1.50853E+00	8.42151E-03	3.02529E-03	1.22894E-03	4.44103E-04	8.63800E+01
							1.09377E+00	9.88751E-03	1.10379E-02	3.99522E-03	7.15018E+01	
PU-A	6	20	12	0.86565	1.033	1	1.50894E+00	8.38347E-03	3.06450E-03	1.15689E-03	4.15258E-04	8.63672E+01
							1.09247E+00	9.60982E-03	1.08637E-02	3.60559E-03	7.31932E+01	
U -A	2	0	2	1.10624	1.130	1	1.50839E+00	9.54284E-03	2.64495E-03	1.41359E-03	5.41401E-04	8.13148E+01
							1.07775E+00	8.79737E-03	1.11468E-02	4.58595E-03	8.55439E+01	
U -A	2	0	4	1.07520	1.109	1	1.50887E+00	9.46920E-03	2.77190E-03	1.35985E-03	5.17875E-04	8.12826E+01
							1.07796E+00	8.86850E-03	1.10249E-02	4.53588E-03	8.41857E+01	
U -A	2	0	8	1.00762	1.050	1	1.50824E+00	9.35238E-03	2.84480E-03	1.26224E-03	4.75284E-04	8.12281E+01
							1.07755E+00	8.81420E-03	1.04173E-02	4.28593E-03	8.36004E+01	
U -A	2	0	12	0.94128	0.990	1	1.50856E+00	9.27162E-03	2.92999E-03	1.17950E-03	4.39163E-04	8.11891E+01
							1.07675E+00	8.67538E-03	9.66775E-03	3.97755E-03	8.41458E+01	

LIBRARY TYPE = 1 (0%)

FUEL TYPE	B10 (PPM)	VOID (%)	EXPOSURE (GWD/TH)	K-EFF	LPF	WG	D	SIGR	SIGA	NU-SIGF	SIGF	FLUX
U -A	2	20	2	1.11217	1.131	1	1.59797E+00	8.81654E-03	2.60135E-03	1.38709E-03	5.31985E-04	8.66590E+01
						2	1.09120E+00		8.78440E-03	1.12910E-02	4.64571E-03	8.43313E+01
U -A	2	20	4	1.08809	1.110	1	1.59818E+00	8.74508E-03	2.67598E-03	1.33286E-03	5.08282E-04	8.66243E+01
						2	1.09119E+00		8.85825E-03	1.11687E-02	4.59506E-03	8.29345E+01
U -A	2	20	8	1.01136	1.057	1	1.59862E+00	8.63271E-03	2.79332E-03	1.23511E-03	4.65670E-04	8.65709E+01
						2	1.09064E+00		8.80473E-03	1.05517E-02	4.34123E-03	8.23138E+01
U -A	2	20	12	0.94434	0.991	1	1.59932E+00	8.55521E-03	2.87394E-03	1.15225E-03	4.29521E-04	8.65363E+01
						2	1.08986E+00		8.66434E-03	9.78985E-03	4.02779E-03	8.20451E+01
U -A	4	0	2	1.07602	1.127	1	1.58396E+00	9.53783E-03	2.65259E-03	1.41403E-03	5.41561E-04	8.13015E+01
						2	1.07797E+00		9.13081E-03	1.12339E-02	4.62188E-03	8.24097E+01
U -A	4	0	4	1.04687	1.106	1	1.58485E+00	9.46342E-03	2.72951E-03	1.36028E-03	5.18033E-04	8.12694E+01
						2	1.07818E+00		9.20448E-03	1.11148E-02	4.57286E-03	8.11021E+01
U -A	4	0	8	0.98106	1.053	1	1.58573E+00	9.34663E-03	2.85236E-03	1.26267E-03	4.75437E-04	8.12150E+01
						2	1.07778E+00		9.15134E-03	1.05062E-02	4.32251E-03	8.05104E+01
U -A	4	0	12	0.91628	0.987	1	1.58561E+00	9.26509E-03	2.93751E-03	1.17991E-03	4.39312E-04	8.11761E+01
						2	1.07699E+00		9.01196E-03	9.75302E-03	4.01263E-03	8.09942E+01
U -A	4	20	2	1.08251	1.128	1	1.59795E+00	8.81056E-03	2.60085E-03	1.38743E-03	5.32106E-04	8.66463E+01
						2	1.09158E+00		9.10396E-03	1.13615E-02	4.67436E-03	8.13554E+01
U -A	4	20	4	1.05156	1.108	1	1.59816E+00	8.73914E-03	2.68344E-03	1.33319E-03	5.08401E-04	8.66117E+01
						2	1.09157E+00		9.18028E-03	1.12412E-02	4.62488E-03	8.00091E+01
U -A	4	20	8	0.98462	1.054	1	1.59880E+00	8.67682E-03	2.80073E-03	1.23544E-03	4.65787E-04	8.65584E+01
						2	1.09102E+00		9.12827E-03	1.06245E-02	4.37118E-03	7.93808E+01
U -A	4	20	12	0.91917	0.988	1	1.59931E+00	8.54935E-03	2.88130E-03	1.15257E-03	4.29636E-04	8.65239E+01
						2	1.09025E+00		8.98759E-03	9.86823E-03	4.05675E-03	7.98512E+01
U -A	6	0	2	1.04975	1.123	1	1.58395E+00	9.53117E-03	2.66020E-03	1.41445E-03	5.41725E-04	8.12888E+01
						2	1.07817E+00		9.46278E-03	1.13229E-02	4.65847E-03	7.95054E+01
U -A	6	0	4	1.02080	1.103	1	1.58483E+00	9.45759E-03	2.73708E-03	1.36070E-03	5.18193E-04	8.12560E+01
						2	1.07839E+00		9.53858E-03	1.12057E-02	4.61026E-03	7.82478E+01
U -A	6	0	8	0.95662	1.050	1	1.58521E+00	9.34085E-03	2.85988E-03	1.26308E-03	4.75590E-04	8.12024E+01
						2	1.07800E+00		9.48621E-03	1.05955E-02	4.35925E-03	7.76551E+01
U -A	6	0	12	0.89328	0.984	1	1.58559E+00	9.26014E-03	2.94500E-03	1.18031E-03	4.39459E-04	8.11637E+01
						2	1.07771E+00		9.34615E-03	9.83846E-03	4.04778E-03	7.80860E+01
U -A	6	20	2	1.05509	1.176	1	1.59793E+00	8.80468E-03	2.61634E-03	1.38776E-03	5.32225E-04	8.66337E+01
						2	1.09194E+00		9.47061E-03	1.14306E-02	4.70279E-03	7.86022E+01
U -A	6	20	4	1.02519	1.105	1	1.59815E+00	8.73321E-03	2.69089E-03	1.33352E-03	5.08519E-04	8.65992E+01
						2	1.09194E+00		9.49939E-03	1.13131E-02	4.65446E-03	7.73013E+01
U -A	6	20	8	0.95993	1.051	1	1.59859E+00	8.62094E-03	2.80811E-03	1.23576E-03	4.65902E-04	8.65460E+01
						2	1.09140E+00		9.44883E-03	1.06966E-02	4.40085E-03	7.66695E+01
U -A	6	20	12	0.89593	0.985	1	1.59929E+00	8.54350E-03	2.88864E-03	1.15288E-03	4.29747E-04	8.65116E+01
						2	1.09062E+00		9.30802E-03	9.93011E-03	4.08549E-03	7.70852E+01
SP-A	2	0	2	1.09975	1.302	1	1.58288E+00	1.00628E-02	2.23075E-03	1.14948E-03	4.41405E-04	8.06087E+01
						2	1.06643E+00		8.53766E-03	1.05191E-02	4.23933E-03	9.21880E+01
SP-A	2	0	4	1.07128	1.309	1	1.58297E+00	1.00132E-02	2.28743E-03	1.10081E-03	4.19445E-04	8.06091E+01
						2	1.06621E+00		8.56906E-03	1.03522E-02	4.10647E-03	9.13371E+01
SP-A	2	0	8	1.00560	1.316	1	1.58319E+00	9.92036E-03	2.37919E-03	1.00833E-03	3.70704E-04	8.06058E+01
						2	1.06522E+00		8.47093E-03	9.71893E-03	3.76070E-03	9.15213E+01
SP-A	2	0	12	0.93611	1.322	1	1.58342E+00	9.85138E-03	2.44621E-03	9.25415E-04	3.42064E-04	8.06112E+01
						2	1.06386E+00		8.28463E-03	8.92193E-03	3.38001E-03	9.29012E+01
SP-A	2	20	2	1.10824	1.301	1	1.59537E+00	9.41016E-03	2.21254E-03	1.13386E-03	4.35913E-04	8.52004E+01
						2	1.07787E+00		8.54400E-03	1.06888E-02	4.30807E-03	9.09158E+01
SP-A	2	20	4	1.07899	1.309	1	1.59548E+00	9.36170E-03	2.26064E-03	1.08491E-03	4.13035E-04	8.51966E+01
						2	1.07757E+00		8.58021E-03	1.05173E-02	4.17255E-03	9.01224E+01
SP-A	2	20	8	1.01223	1.315	1	1.59571E+00	9.27183E-03	2.35023E-03	9.92365E-04	3.73067E-04	8.51875E+01
						2	1.07653E+00		8.47933E-03	9.87071E-03	3.82038E-03	9.02957E+01
SP-A	2	20	12	0.94702	1.321	1	1.59596E+00	9.20554E-03	2.41504E-03	9.89403E-04	3.37208E-04	8.51901E+01
						2	1.07524E+00		8.28763E-03	9.05664E-03	3.43195E-03	9.16921E+01

LIBRARY TYPE = 1 (0%)

FUEL TYPE	B10 (PPH)	VOID (%)	EXPOSURE (GWD/TH)	K-EFF	CF	NG	D	SIGR	SIGA	NU-SIGF	SIGF	FLUX
SP-A	4	0	2	1.06901	1.299	1	1.58286E+00	1.00570E-02	2.24609E-03	1.14956E-03	4.41440E-04	8.05978E+01
						2	1.06642E+00		8.86967E-03	1.06020E-02	4.27247E-03	8.86679E+01
SP-A	4	0	4	1.04147	1.306	1	1.58295F+00	1.00073E-02	2.29475E-03	1.10088E-03	4.19478E-04	8.05984E+01
						2	1.06620E+00		8.90257E-03	1.04361E-02	4.13930E-03	8.79117E+01
SP-A	4	0	8	0.97739	1.314	1	1.58318E+00	9.91456E-03	2.38647E-03	1.00841E-03	3.78735E-04	8.05951E+01
						2	1.06521F+00		8.80411E-03	9.79982E-03	3.79164E-03	8.80551E+01
SP-A	4	0	12	0.90940	1.319	1	1.58340E+00	9.84561E-03	2.45346E-03	9.25491E-04	3.42894E-04	8.06005E+01
						2	1.06386E+00		8.61627E-03	8.99775E-03	3.40836E-03	8.93263F+01
SP-A	4	20	2	1.07725	1.299	1	1.59535F+00	9.40422F-03	2.21986E-03	1.13392E-03	4.35939E-04	8.51893E+01
						2	1.07801E+00		8.86825E-03	1.07563E-02	4.33495E-03	8.76322F+01
SP-A	4	20	4	1.04894	1.306	1	1.59546F+00	9.35581E-03	2.26796E-03	1.00498E-03	4.13860E-04	8.51851F+01
						2	1.07772E+00		8.89993E-03	1.05848E-02	4.19892E-03	8.6A751E+01
SP-A	4	20	8	0.98381	1.313	1	1.59570F+00	9.26594E-03	2.35744E-03	9.92427E-04	3.73092E-04	8.51765F+01
						2	1.07668E+00		8.80044E-03	9.93018E-03	3.84599E-03	8.69975E+01
SP-A	4	20	12	0.91511	1.318	1	1.59594E+00	9.19968E-03	2.42225E-03	9.09466E-04	3.37232E-04	8.51792E+01
						2	1.07538E+00		8.60769E-03	9.12048E-03	3.45571E-03	8.82778F+01
SP-A	6	0	2	1.04081	1.295	1	1.58285E+00	1.00511E-02	2.25336E-03	1.14960E-03	4.41471E-04	8.05881F+01
						2	1.06630E+00		9.20175E-03	1.06886E-02	4.30710E-03	8.54611E+01
SP-A	6	0	4	1.01409	1.303	1	1.58294E+00	1.00015E-02	2.30205E-03	1.10095E-03	4.19510E-04	8.05878F+01
						2	1.06618E+00		9.23343E-03	1.05202E-02	4.17234E-03	8.47540E+01
SP-A	6	0	8	0.95150	1.311	1	1.58316E+00	9.90870E-03	2.39369E-03	1.00846E-03	3.78763E-04	8.05853E+01
						2	1.06519E+00		9.13633E-03	9.88281E-03	3.82331E-03	8.48469E+01
SP-A	6	0	12	0.88492	1.317	1	1.58338E+00	9.83978E-03	2.46065E-03	9.25549E-04	3.42920E-04	8.05906E+01
						2	1.06383E+00		8.94654E-03	9.07504E-03	3.43726E-03	8.60240F+01
SP-A	6	20	2	1.04866	1.296	1	1.59533E+00	9.39833E-03	2.27220E-03	1.13399E-03	4.35964E-04	8.51778E+01
						2	1.07815E+00		9.18335E-03	1.08210E-02	4.36107E-03	8.44121F+01
SP-A	6	20	4	1.02124	1.304	1	1.59544E+00	9.34990E-03	2.27525E-03	1.08504E-03	4.13886E-04	8.51742E+01
						2	1.07785F+00		9.21784E-03	1.06535E-02	4.22571E-03	8.38658F+01
SP-A	6	20	8	0.95764	1.311	1	1.59568E+00	9.26007E-03	2.36471E-03	9.92488E-04	3.73117E-04	8.51656E+01
						2	1.07682E+00		9.11874E-03	1.00054E-02	3.87152E-03	8.39439F+01
SP-A	6	20	12	0.89836	1.316	1	1.59592E+00	9.19384E-03	2.42945E-03	9.09528E-04	3.37256E-04	8.51684F+01
						2	1.07552E+00		8.92488E-03	9.18401E-03	3.47935E-03	8.51300E+01
PU-R	2	0	2	1.16941	1.164	1	1.58439F+00	8.93446E-03	3.31809E-03	1.76608E-03	6.35765E-04	8.07957F+01
						2	1.09324E+00		1.13490E-02	1.59944E-02	5.73972E-03	6.19629F+01
PU-R	2	0	4	1.13606	1.143	1	1.58459E+00	8.91646E-03	3.33759E-03	1.70418E-03	6.12630E-04	8.07854E+01
						2	1.09222E+00		1.11238E-02	1.52785E-02	5.47746E-03	6.30639E+01
PU-R	2	0	8	1.07194	1.099	1	1.58500F+00	8.88891E-03	3.36772E-03	1.58816E-03	5.69260E-04	8.07682F+01
						2	1.09010E+00		1.06770E-02	1.39092E-02	4.97337E-03	6.54476E+01
PU-R	2	0	12	1.00979	1.060	1	1.58544E+00	8.87066E-03	3.38790E-03	1.48075E-03	5.29169E-04	8.07559E+01
						2	1.08797E+00		1.07510E-02	1.26287E-02	4.49963E-03	6.79697E+01
PU-R	2	20	2	1.16822	1.164	1	1.59846E+00	8.23887E-03	3.24978E-03	1.73492E-03	6.24758E-04	8.60281E+01
						2	1.10286E+00		1.13906E-02	1.61955E-02	5.81328E-03	6.06172F+01
PU-R	2	20	4	1.13491	1.142	1	1.59867E+00	8.22116E-03	3.26762E-03	1.67302E-03	6.01623E-04	8.60265E+01
						2	1.10206F+00		1.11646E-02	1.54733E-02	5.54050E-03	6.16924E+01
PU-R	2	20	8	1.07899	1.098	1	1.59910E+00	8.19381E-03	3.29485E-03	1.55692E-03	5.58224E-04	8.60266F+01
						2	1.10038E+00		1.07139E-02	1.40899E-02	5.03902E-03	6.40342E+01
PU-R	2	20	12	1.00915	1.058	1	1.59956F+00	8.17514E-03	3.31282E-03	1.44985E-03	5.18260E-04	8.60319F+01
						2	1.09869E+00		1.02847E-02	1.27962E-02	4.56015E-03	6.65177E+01
PU-R	4	0	2	1.14504	1.161	1	1.58437E+00	8.92885E-03	3.32564E-03	1.76660E-03	6.35970E-04	8.07822F+01
						2	1.09360E+00		1.17161E-02	1.61321E-02	5.78855E-03	6.00004E+01
PU-R	4	0	4	1.11201	1.139	1	1.58457E+00	8.91084E-03	3.34510E-03	1.70475E-03	6.12833E-04	8.07721E+01
						2	1.09258E+00		1.14889E-02	1.54118E-02	5.52470E-03	6.10384E+01
PU-R	4	0	8	1.04844	1.096	1	1.58498E+00	8.88330E-03	3.37524E-03	1.58872E-03	5.69450E-04	8.07547E+01
						2	1.09045E+00		1.10367E-02	1.40311E-02	5.01650E-03	6.32939F+01
PU-R	4	0	12	0.98697	1.056	1	1.58539E+00	8.86505E-03	3.39541E-03	1.48129E-03	5.29361E-04	8.07425E+01
						2	1.08830E+00		1.06068E-02	1.27407E-02	4.53919E-03	6.56762F+01

LIBRARY TYPE = 1 (0%)

FUEL TYPE	H10 (PPH)	VOID (%)	EXPOSURE (GWD/TH)	K-EFF	LPF	NG	D	SIGR	SIGA	NU-SIGF	SIGF	FLUX
PU-R	4	20	2	1.14394	1.161	1	1.59844E+00	8.23314E-03	3.25711E-03	1.73536E-03	6.24912E-04	8.60154E+01
						2	1.10331E+00		1.17400E-02	1.63090E-02	5.85338E-03	5.87839E+01
PU-R	4	20	4	1.11095	1.139	1	1.59865E+00	8.21543E-03	3.27493E-03	1.67345E-03	6.01776E-04	8.60138E+01
						2	1.10250E+00		1.15126E-02	1.55424E-02	5.58711E-03	5.98024E+01
PU-R	4	20	8	1.04760	1.095	1	1.59909E+00	8.18809E-03	3.30215E-03	1.55735E-03	5.58374E-04	8.60139E+01
						2	1.10083E+00		1.10576E-02	1.41904E-02	5.07450E-03	6.20204E+01
PU-R	4	20	12	0.98636	1.055	1	1.59954E+00	8.16943E-03	3.32010E-03	1.45027E-03	5.10406E-04	8.60193E+01
						2	1.09915E+00		1.06243E-02	1.28887E-02	4.59275E-03	6.43680E+01
PU-R	6	0	2	1.12735	1.150	1	1.58435E+00	8.92322E-03	3.33314E-03	1.76722E-03	6.36168E-04	8.07691E+01
						2	1.09396E+00		1.20810E-02	1.62702E-02	5.83748E-03	5.81657E+01
PU-R	6	0	4	1.08963	1.136	1	1.58455E+00	8.90524E-03	3.35262E-03	1.70531E-03	6.13031E-04	8.07587E+01
						2	1.09292E+00		1.18506E-02	1.55432E-02	5.57124E-03	5.91537E+01
PU-R	6	0	8	1.02669	1.093	1	1.58496E+00	8.87771E-03	3.38275E-03	1.58927E-03	5.69652E-04	8.07413E+01
						2	1.09078E+00		1.13933E-02	1.41521E-02	5.05928E-03	6.12920E+01
PU-R	6	0	12	0.96580	1.053	1	1.58537E+00	8.85944E-03	3.40287E-03	1.48181E-03	5.29547E-04	8.07295E+01
						2	1.08883E+00		1.09593E-02	1.28526E-02	4.57869E-03	6.35432E+01
PU-R	6	20	2	1.12126	1.159	1	1.59842E+00	8.22740E-03	3.26441E-03	1.73578E-03	6.25064E-04	8.60029E+01
						2	1.10375E+00		1.20884E-02	1.64222E-02	5.89340E-03	5.70673E+01
PU-R	6	20	4	1.08856	1.136	1	1.59863E+00	8.20972E-03	3.28223E-03	1.67388E-03	6.01926E-04	8.60012E+01
						2	1.10294E+00		1.18576E-02	1.56906E-02	5.62532E-03	5.80373E+01
PU-R	6	20	8	1.02580	1.093	1	1.59907E+00	8.18239E-03	3.30942E-03	1.55776E-03	5.58521E-04	8.60014E+01
						2	1.10176E+00		1.13984E-02	1.42902E-02	5.10969E-03	6.01410E+01
PU-R	6	20	12	0.96517	1.052	1	1.59952E+00	8.16372E-03	3.32736E-03	1.45067E-03	5.18549E-04	8.60068E+01
						2	1.09956E+00		1.09610E-02	1.29004E-02	4.62507E-03	6.23675E+01
U -R	2	0	2	1.17639	1.150	1	1.58469E+00	9.47887E-03	2.72782E-03	1.59528E-03	6.16160E-04	8.11791E+01
						2	1.08162E+00		9.38241E-03	1.26568E-02	5.20727E-03	7.96280E+01
U -R	2	0	4	1.14575	1.134	1	1.58486E+00	9.41951E-03	2.78883E-03	1.53333E-03	5.89542E-04	8.11605E+01
						2	1.08165E+00		9.42500E-03	1.24854E-02	5.13674E-03	7.87619E+01
U -R	2	0	8	1.08123	1.092	1	1.58523E+00	9.31724E-03	2.89444E-03	1.41899E-03	5.40459E-04	8.11263E+01
						2	1.08107E+00		9.39593E-03	1.18466E-02	4.87393E-03	7.85269E+01
U -R	2	0	12	1.01556	1.037	1	1.58561E+00	9.24392E-03	2.97037E-03	1.31790E-03	4.92700E-04	8.11006E+01
						2	1.08002E+00		9.16261E-03	1.10152E-02	4.53192E-03	7.94206E+01
U -R	2	20	2	1.18131	1.152	1	1.59791E+00	8.75526E-03	2.68396E-03	1.56854E-03	6.06636E-04	8.64878E+01
						2	1.09446E+00		9.38052E-03	1.28210E-02	5.27479E-03	7.83589E+01
U -R	2	20	4	1.14984	1.135	1	1.59812E+00	8.69751E-03	2.74310E-03	1.50611E-03	5.79847E-04	8.64688E+01
						2	1.09433E+00		9.42556E-03	1.26487E-02	5.20392E-03	7.74631E+01
U -R	2	20	8	1.08434	1.093	1	1.59856E+00	8.59918E-03	2.84349E-03	1.39114E-03	5.30547E-04	8.64396E+01
						2	1.09364E+00		9.34811E-03	1.20030E-02	4.93828E-03	7.71909E+01
U -R	2	20	12	1.01816	1.037	1	1.59926E+00	8.52802E-03	2.91490E-03	1.29000E-03	4.87161E-04	8.64214E+01
						2	1.09265E+00		9.16241E-03	1.11590E-02	4.59106E-03	7.80726E+01
U -R	4	0	2	1.14701	1.146	1	1.58467E+00	9.47303E-03	2.73545E-03	1.59575E-03	6.16340E-04	8.11661E+01
						2	1.08185E+00		9.72294E-03	1.27574E-02	5.24864E-03	7.68236E+01
U -R	4	0	4	1.11728	1.130	1	1.58485E+00	9.41370E-03	2.79644E-03	1.53379E-03	5.89719E-04	8.11476E+01
						2	1.08184E+00		9.76724E-03	1.25872E-02	5.17862E-03	7.59876E+01
U -R	4	0	8	1.05421	1.088	1	1.58521E+00	9.31147E-03	2.88280E-03	1.41944E-03	5.40629E-04	8.11134E+01
						2	1.08131E+00		9.68890E-03	1.19466E-02	4.91509E-03	7.57334E+01
U -R	4	0	12	0.98983	1.033	1	1.58599E+00	9.23818E-03	2.97790E-03	1.31834E-03	4.97234E-04	8.10878E+01
						2	1.08027E+00		9.50436E-03	1.11107E-02	4.57119E-03	7.65522E+01
U -R	4	20	2	1.15174	1.149	1	1.59790E+00	8.74932E-03	2.69146E-03	1.56890E-03	6.06764E-04	8.64750E+01
						2	1.09485E+00		9.70448E-03	1.28988E-02	5.30682E-03	7.57233E+01
U -R	4	20	4	1.12121	1.132	1	1.59810E+00	8.69157E-03	2.75058E-03	1.50647E-03	5.79982E-04	8.64562E+01
						2	1.09472E+00		9.75238E-03	1.27298E-02	5.23731E-03	7.48475E+01
U -R	4	20	6	1.05719	1.090	1	1.59855E+00	8.59330E-03	2.85090E-03	1.39148E-03	5.30672E-04	8.64270E+01
						2	1.09404E+00		9.67544E-03	1.28830E-02	4.97119E-03	7.45604E+01
U -R	4	20	12	0.99230	1.034	1	1.59924E+00	8.52296E-03	2.92235E-03	1.29034E-03	4.87288E-04	8.64098E+01
						2	1.09305E+00		9.48968E-03	1.12368E-02	4.62309E-03	7.53623E+01

LIBRARY TYPE = 1 (0%)

FUEL TYPE	H10 (PPM)	VOID (%)	EXPOSURE (GWD/TR)	K-EFF	LPF	NG	D	SIGR	SIGA	NU-SIGF	SIGF	FLUX
U -R	6	0	2	1.11988	1.143	1	1.58466E+00	9.46720E-03	2.74306E-03	1.59620E-03	6.16519E-04	8.11533E+01
						2	1.04208E+00		1.00609E-02	1.28581E-02	5.29006E-03	7.42261E+01
U -R	6	0	4	1.09097	1.127	1	1.58483E+00	9.40789E-03	2.80402E-03	1.53424E-03	5.09893E-04	8.11348E+01
						2	1.08213E+00		1.01068E-02	1.26889E-02	5.22047E-03	7.34178E+01
U -R	6	0	8	1.02926	1.085	1	1.58519E+00	9.30571E-03	2.90954E-03	1.41988E-03	5.40796E-04	8.11006E+01
						2	1.08155E+00		1.00289E-02	1.20461E-02	4.95602E-03	7.31497E+01
U -R	6	0	12	0.96607	1.030	1	1.58550E+00	9.23247E-03	2.98543E-03	1.31877E-03	4.97391E-04	8.10740E+01
						2	1.08051E+00		9.84233E-03	1.12045E-02	4.60976E-03	7.39081E+01
U -R	6	20	2	1.12434	1.146	1	1.59788E+00	8.74330E-03	2.69895E-03	1.56925E-03	6.06901E-04	8.64625E+01
						2	1.09523E+00		1.00265E-02	1.29776E-02	5.33924E-03	7.32693E+01
U -R	6	20	4	1.09466	1.129	1	1.59809E+00	8.68566E-03	2.75803E-03	1.50682E-03	5.00107E-04	8.64436E+01
						2	1.09510E+00		1.00756E-02	1.28094E-02	5.27005E-03	7.24234E+01
U -R	6	20	8	1.03203	1.087	1	1.59853E+00	8.58743E-03	2.85830E-03	1.39182E-03	5.30795E-04	8.64145E+01
						2	1.09442E+00		9.99992E-03	1.21624E-02	5.00387E-03	7.21199E+01
U -R	6	20	12	0.96836	1.031	1	1.59923E+00	8.51712E-03	2.92970E-03	1.29068E-03	4.87408E-04	8.63966E+01
						2	1.09343E+00		9.81368E-03	1.13136E-02	4.65467E-03	7.28529E+01

LIBRARY TYPE = 2 (25%)

FUEL TYPE	HTO (PPH)	VOID (%)	EXPOSURE (GWD/TH)	K-EFF	LPF	NG	D	SIGR	SIGA	WH-SIGF	SIGF	FLUX
PU-A	2	0	2	1.08719	1.102	1	1.58436E+00	9.22233E-03	2.48879E-03	1.39633E-03	5.09941E-04	8.11129E+01
						2	1.08388E+00		9.00822E-03	1.26642E-02	4.64549E-03	7.41191E+01
PU-A	2	0	4	1.04939	1.087	1	1.58454E+00	9.19066E-03	3.07290E-03	1.35024E-03	4.91180E-04	8.10937E+01
						2	1.08294E+00		9.62440E-03	1.20375E-02	4.39579E-03	7.52355E+01
PU-A	2	0	8	0.97905	1.062	1	1.58492E+00	9.14027E-03	3.07689E-03	1.26539E-03	4.56950E-04	8.10661E+01
						2	1.08114E+00		9.29226E-03	1.09026E-02	3.94314E-03	7.74283E+01
PU-A	2	0	12	0.91890	1.048	1	1.58529E+00	9.09980E-03	3.11920E-03	1.19534E-03	4.28824E-04	8.10503E+01
						2	1.07969E+00		9.04338E-03	9.99865E-03	3.57994E-03	7.91576E+01
PU-A	2	20	2	1.08881	1.101	1	1.59793E+00	8.51063E-03	2.92949E-03	1.36787E-03	4.99847E-04	8.64395E+01
						2	1.09550E+00		9.02177E-03	1.28279E-02	4.70679E-03	7.27815E+01
PII-A	2	20	4	1.05098	1.086	1	1.59814E+00	8.47996E-03	2.96178E-03	1.32171E-03	4.81061E-04	8.64242E+01
						2	1.09472E+00		9.63619E-03	1.21937E-02	4.45397E-03	7.38819E+01
PU-A	2	20	8	0.98059	1.061	1	1.59855E+00	8.43110E-03	3.01286E-03	1.23700E-03	4.46893E-04	8.64027E+01
						2	1.09324E+00		9.29924E-03	1.10432E-02	3.99490E-03	7.60554E+01
PU-A	2	20	12	0.92031	1.046	1	1.59895E+00	8.39197E-03	3.05325E-03	1.16716E-03	4.18849E-04	8.63890E+01
						2	1.09204E+00		9.04568E-03	1.01251E-02	3.62592E-03	7.77777E+01
PU-A	2	40	2	1.09038	1.090	1	1.61549E+00	7.80350E-03	2.85767E-03	1.33730E-03	4.89019E-04	9.25789E+01
						2	1.11091E+00		9.87621E-03	1.30525E-02	4.79103E-03	7.10733E+01
PII-A	2	40	4	1.05250	1.045	1	1.61571E+00	7.77443E-03	2.88780E-03	1.29119E-03	4.70274E-04	9.25662E+01
						2	1.11039E+00		9.68788E-03	1.24074E-02	4.53366E-03	7.21542E+01
PU-A	2	40	8	0.98202	1.057	1	1.61615E+00	7.72786E-03	2.93560E-03	1.20671E-03	4.36149E-04	9.25500E+01
						2	1.10890E+00		9.34523E-03	1.12358E-02	4.06594E-03	7.42954E+01
PU-A	2	40	12	0.92157	1.042	1	1.61657E+00	7.69062E-03	2.97384E-03	1.13720E-03	4.08248E-04	9.25466E+01
						2	1.10808E+00		9.08638E-03	1.02491E-02	3.68929E-03	7.59477E+01
PU-A	4	0	2	1.06115	1.099	1	1.58434E+00	9.21662E-03	2.99636E-03	1.39681E-03	5.10110E-04	8.10996E+01
						2	1.08418E+00		1.01593E-02	1.27765E-02	4.68595E-03	7.15416E+01
PU-A	4	0	4	1.02391	1.084	1	1.58452E+00	9.18493E-03	3.05805E-03	1.35070E-03	4.91347E-04	8.10808E+01
						2	1.08323E+00		9.97392E-03	1.21456E-02	4.43463E-03	7.25838E+01
PU-A	4	0	8	0.95465	1.059	1	1.58490E+00	9.13456E-03	3.08439E-03	1.26584E-03	4.57110E-04	8.10533E+01
						2	1.08142E+00		9.63776E-03	1.10013E-02	3.97842E-03	7.46393E+01
PII-A	4	0	12	0.89555	1.045	1	1.58527E+00	9.09411E-03	3.12670E-03	1.19577E-03	4.28978E-04	8.10373E+01
						2	1.07996E+00		9.38543E-03	1.00896E-02	3.61222E-03	7.62609E+01
PII-A	4	20	2	1.06272	1.099	1	1.59791E+00	8.50479E-03	2.93688E-03	1.36824E-03	4.99976E-04	8.64269E+01
						2	1.09591E+00		1.01580E-02	1.29208E-02	4.74012E-03	7.03518E+01
PII-A	4	20	4	1.02543	1.083	1	1.59812E+00	8.47413E-03	2.96915E-03	1.32207E-03	4.81189E-04	8.64117E+01
						2	1.09514E+00		9.97046E-03	1.22825E-02	4.48574E-03	7.13839E+01
PU-A	4	20	8	0.95611	1.058	1	1.59853E+00	8.42529E-03	3.02019E-03	1.23735E-03	4.47017E-04	8.63903E+01
						2	1.09365E+00		9.63013E-03	1.11246E-02	4.02388E-03	7.34239E+01
PU-A	4	20	12	0.89688	1.044	1	1.59894E+00	8.38016E-03	3.06056E-03	1.16750E-03	4.18969E-04	8.63767E+01
						2	1.09245E+00		9.37400E-03	1.02007E-02	3.65270E-03	7.50355E+01
PU-A	4	40	2	1.06437	1.096	1	1.61547E+00	7.79760E-03	2.86489E-03	1.33765E-03	4.89112E-04	9.25665E+01
						2	1.11444E+00		1.01970E-02	1.31252E-02	4.81692E-03	6.88114E+01
PII-A	4	40	4	1.02701	1.080	1	1.61569E+00	7.76855E-03	2.89499E-03	1.29145E-03	4.78417E-04	9.25539E+01
						2	1.11093E+00		1.00071E-02	1.24770E-02	4.55841E-03	6.98264E+01
PU-A	4	40	8	0.95759	1.055	1	1.61614E+00	7.72800E-03	2.94276E-03	1.20696E-03	4.36240E-04	9.25377E+01
						2	1.10942E+00		9.66161E-03	1.12999E-02	4.08864E-03	7.18388E+01
PU-A	4	40	12	0.89817	1.040	1	1.61655E+00	7.68478E-03	2.98097E-03	1.13745E-03	4.08329E-04	9.25245E+01
						2	1.10860E+00		9.40064E-03	1.03589E-02	3.71038E-03	7.34336E+01
PII-A	6	0	2	1.03708	1.096	1	1.58432E+00	9.21089E-03	3.08388E-03	1.39726E-03	5.10276E-04	8.10869E+01
						2	1.08447E+00		1.05080E-02	1.28891E-02	4.78251E-03	6.91480E+01
PU-A	6	0	4	1.00035	1.081	1	1.58451E+00	9.17924E-03	3.03804E-03	1.35116E-03	4.91510E-04	8.10677E+01
						2	1.08352E+00		1.03197E-02	1.22570E-02	4.47288E-03	7.01330E+01
PU-A	6	0	8	0.93212	1.056	1	1.58489E+00	9.12688E-03	3.07189E-03	1.26628E-03	4.57267E-04	8.10403E+01
						2	1.08169E+00		9.97968E-03	1.10987E-02	4.01321E-03	7.20660E+01
PU-A	6	0	12	0.87403	1.043	1	1.58526E+00	9.08041E-03	3.14415E-03	1.19619E-03	4.29128E-04	8.10248E+01
						2	1.08023E+00		9.72488E-03	1.01883E-02	3.64444E-03	7.35844E+01

LITURARY TYPE = 2 (25%)

FUEL TYPE	U10 (PPM)	VOID (%)	EXPOSURE (GWD/1M)	K-EFF	LPF	NG	D	SIGR	SIGA	NU-SIGF	SIGF	FLUX
PU-A	6	20	2	1.03851	1.096	1	1.59709E+00	0.49894E-03	2.94424E-03	1.36859E-03	5.00105E-04	8.64146E+01
						2	1.09632E+00		1.04915E-02	1.30134E-02	4.77333E-03	6.80928E+01
PU-A	6	20	4	1.00173	1.081	1	1.59811E+00	0.46831E-03	2.97650E-03	1.32242E-03	4.81315E-04	8.63993E+01
						2	1.09555E+00		1.03018E-02	1.23706E-02	4.51725E-03	6.90662E+01
PU-A	6	20	8	0.93343	1.056	1	1.59852E+00	0.41949E-03	3.02750E-03	1.23769E-03	4.47138E-04	8.63779E+01
						2	1.09405E+00		9.95809E-03	1.12053E-02	4.05262E-03	7.09842E+01
PU-A	6	20	12	0.87521	1.042	1	1.59892E+00	0.38037E-03	3.06784E-03	1.16782E-03	4.19086E-04	8.63645E+01
						2	1.09285E+00		9.69941E-03	1.02757E-02	3.67925E-03	7.24988E+01
PU-A	6	40	2	1.04014	1.094	1	1.61546E+00	7.79171E-03	2.87209E-03	1.33790E-03	4.89203E-04	9.25541E+01
						2	1.11197E+00		1.05150E-02	1.31973E-02	4.84261E-03	6.67020E+01
PU-A	6	40	4	1.00330	1.078	1	1.61567E+00	7.76268E-03	2.90218E-03	1.29171E-03	4.70408E-04	9.25416E+01
						2	1.11140E+00		1.03242E-02	1.25468E-02	4.58322E-03	6.76553E+01
PU-A	6	40	6	0.93489	1.053	1	1.61612E+00	7.71615E-03	2.94991E-03	1.20721E-03	4.36330E-04	9.25255E+01
						2	1.10993E+00		9.97526E-03	1.13635E-02	4.11114E-03	6.95935E+01
PU-A	6	40	12	0.87647	1.038	1	1.61654E+00	7.67095E-03	2.98809E-03	1.13769E-03	4.08416E-04	9.25123E+01
						2	1.10911E+00		9.71216E-03	1.04182E-02	3.73129E-03	7.10539E+01
U -A	2	0	2	1.10717	1.130	1	1.58398E+00	9.54144E-03	2.64645E-03	1.41540E-03	5.42097E-04	8.13138E+01
						2	1.07784E+00		8.81597E-03	1.11888E-02	4.60002E-03	8.53530E+01
U -A	2	0	4	1.07749	1.110	1	1.58447E+00	9.46704E-03	2.72422E-03	1.36351E-03	5.19288E-04	8.12811E+01
						2	1.07813E+00		8.90094E-03	1.10909E-02	4.56303E-03	8.38634E+01
U -A	2	0	6	1.01204	1.058	1	1.58523E+00	9.34934E-03	2.84798E-03	1.26921E-03	4.77976E-04	8.12264E+01
						2	1.07784E+00		8.86498E-03	1.05406E-02	4.33663E-03	8.30561E+01
U -A	2	0	12	0.94929	0.995	1	1.58562E+00	9.26781E-03	2.93380E-03	1.18885E-03	4.42777E-04	8.11883E+01
						2	1.07715E+00		8.74935E-03	9.83778E-03	4.04750E-03	8.34113E+01
U -A	2	20	2	1.11306	1.131	1	1.59796E+00	8.81520E-03	2.60786E-03	1.38890E-03	5.32683E-04	8.66573E+01
						2	1.09127E+00		8.80329E-03	1.13264E-02	4.65992E-03	8.41393E+01
U -A	2	20	4	1.08232	1.111	1	1.59818E+00	8.74306E-03	2.67831E-03	1.33652E-03	5.09699E-04	8.66215E+01
						2	1.09132E+00		8.89116E-03	1.12353E-02	4.62246E-03	8.26111E+01
U -A	2	20	6	1.01646	1.059	1	1.59861E+00	8.62991E-03	2.79656E-03	1.24207E-03	4.68365E-04	8.65669E+01
						2	1.09087E+00		8.86122E-03	1.06762E-02	4.39244E-03	8.17679E+01
U -A	2	20	12	0.95222	0.995	1	1.59931E+00	8.55175E-03	2.87786E-03	1.16162E-03	4.33145E-04	8.65319E+01
						2	1.09018E+00		8.73943E-03	9.96163E-03	4.09847E-03	8.21084E+01
U -A	2	40	2	1.11897	1.131	1	1.61602E+00	8.08970E-03	2.54992E-03	1.36065E-03	5.22625E-04	9.28222E+01
						2	1.10869E+00		8.82623E-03	1.15275E-02	4.74267E-03	8.24726E+01
U -A	2	40	4	1.08707	1.110	1	1.61620E+00	8.02045E-03	2.62247E-03	1.30768E-03	4.99422E-04	9.27814E+01
						2	1.10844E+00		8.91702E-03	1.14337E-02	4.70411E-03	8.09191E+01
U -A	2	40	6	1.01996	1.057	1	1.61660E+00	7.91350E-03	2.73393E-03	1.21301E-03	4.58804E-04	9.27243E+01
						2	1.10780E+00		8.88804E-03	1.08620E-02	4.46889E-03	8.00542E+01
U -A	2	40	12	0.95496	0.993	1	1.61783E+00	7.83993E-03	2.80995E-03	1.13265E-03	4.22883E-04	9.26909E+01
						2	1.10713E+00		8.76428E-03	1.01310E-02	4.16815E-03	8.03863E+01
U -A	4	0	2	1.07778	1.127	1	1.58396E+00	9.53563E-03	2.65410E-03	1.41584E-03	5.42257E-04	8.13005E+01
						2	1.07806E+00		9.14965E-03	1.12685E-02	4.63610E-03	8.22298E+01
U -A	4	0	4	1.04921	1.106	1	1.58485E+00	9.46125E-03	2.73183E-03	1.36394E-03	5.19446E-04	8.12679E+01
						2	1.07635E+00		9.23733E-03	1.11814E-02	4.60028E-03	8.07985E+01
U -A	4	0	6	0.98629	1.055	1	1.58522E+00	9.34359E-03	2.85555E-03	1.26963E-03	4.78129E-04	8.12133E+01
						2	1.07808E+00		9.20764E-03	1.06306E-02	4.37367E-03	7.99985E+01
U -A	4	0	12	0.92426	0.992	1	1.58540E+00	9.26288E-03	2.94133E-03	1.18927E-03	4.42925E-04	8.11753E+01
						2	1.07739E+00		9.08678E-03	9.92452E-03	4.08319E-03	8.03044E+01
U -A	4	20	2	1.08343	1.128	1	1.59795E+00	8.80923E-03	2.61036E-03	1.30924E-03	5.32803E-04	8.66446E+01
						2	1.09165E+00		9.12307E-03	1.13964E-02	4.88871E-03	8.11741E+01
U -A	4	20	4	1.05383	1.106	1	1.59816E+00	8.73712E-03	2.68578E-03	1.33685E-03	5.09810E-04	8.66089E+01
						2	1.09171E+00		9.21357E-03	1.13084E-02	4.65253E-03	7.97040E+01
U -A	4	20	6	0.98975	1.056	1	1.59859E+00	8.67482E-03	2.88396E-03	1.24240E-03	4.60482E-04	8.65544E+01
						2	1.09176E+00		9.18530E-03	1.07499E-02	4.42276E-03	7.88671E+01
U -A	4	20	12	0.92702	0.992	1	1.59929E+00	8.54590E-03	2.88522E-03	1.16194E-03	4.33260E-04	8.65195E+01
						2	1.09057E+00		9.06343E-03	1.00333E-02	4.12793E-03	7.91584E+01

LIBRARY TYPE = 2 (25%)

FUEL TYPE	U10 (PPM)	VOTD (%)	EXPOSURE (GWD/TM)	K-EFF	LPF	HG	D	SIGR	SIGA	NU-SIGF	SIGF	FLUX
U -A	4	40	2	1.00924	1.129	1	1.06101E+00	0.00364E-03	2.55729E-03	1.36009E-03	5.22707E-04	9.20097E+01
						2	1.10921E+00		9.13150E-03	1.15700E-02	4.76370E-03	7.96933E+01
U -A	4	40	4	1.05851	1.100	1	1.06161E+00	0.01444E-03	2.62900E-03	1.30792E-03	4.99506E-04	9.27689E+01
						2	1.10896E+00		9.22500E-03	1.14086E-02	4.72668E-03	7.81952E+01
U -A	4	40	8	0.99321	1.055	1	1.06165E+00	7.90755E-03	2.74119E-03	1.21324E-03	4.58126E-04	9.27120E+01
						2	1.10832E+00		9.19002E-03	1.09107E-02	4.49223E-03	7.73346E+01
U -A	4	40	12	0.92973	0.991	1	1.06170E+00	7.83400E-03	2.81716E-03	1.13289E-03	4.22971E-04	9.26786E+01
						2	1.10765E+00		9.07461E-03	1.01071E-02	4.19122E-03	7.76164E+01
U -A	6	0	2	1.05075	1.123	1	1.05839E+00	9.52977E-03	2.66170E-03	1.41626E-03	5.42421E-04	0.12870E+01
						2	1.07826E+00		9.48107E-03	1.13579E-02	4.67285E-03	7.93355E+01
U -A	6	0	4	1.02316	1.105	1	1.05840E+00	9.45542E-03	2.73940E-03	1.36436E-03	5.19605E-04	8.12553E+01
						2	1.07856E+00		9.57104E-03	1.12730E-02	4.63796E-03	7.79609E+01
U -A	6	0	8	0.96106	1.052	1	1.05852E+00	9.33781E-03	2.86307E-03	1.27004E-03	4.78282E-04	0.12008E+01
						2	1.07830E+00		9.54317E-03	1.07210E-02	4.41007E-03	7.71723E+01
U -A	6	0	12	0.90122	0.990	1	1.05855E+00	9.25633E-03	2.94001E-03	1.18966E-03	4.43073E-04	0.11628E+01
						2	1.07762E+00		9.42177E-03	1.00114E-02	4.11892E-03	7.74365E+01
U -A	6	20	2	1.05605	1.126	1	1.05979E+00	8.80320E-03	2.61785E-03	1.38956E-03	5.32922E-04	0.66320E+01
						2	1.09202E+00		9.43994E-03	1.14658E-02	4.71727E-03	7.84305E+01
U -A	6	20	4	1.02749	1.105	1	1.05981E+00	8.73119E-03	2.69322E-03	1.33718E-03	5.09435E-04	0.65964E+01
						2	1.09208E+00		9.53304E-03	1.13809E-02	4.60235E-03	7.70139E+01
U -A	6	20	8	0.96507	1.053	1	1.05985E+00	8.61812E-03	2.81135E-03	1.24272E-03	4.60602E-04	0.65422E+01
						2	1.09164E+00		9.50609E-03	1.08236E-02	4.45307E-03	7.61807E+01
U -A	6	20	12	0.90375	0.990	1	1.05992E+00	8.54005E-03	2.89256E-03	1.16226E-03	4.33372E-04	0.65073E+01
						2	1.09095E+00		9.38450E-03	1.01043E-02	4.15714E-03	7.64324E+01
U -A	6	40	2	1.06167	1.126	1	1.06159E+00	8.07760E-03	2.56465E-03	1.36112E-03	5.22790E-04	9.27971E+01
						2	1.10972E+00		9.43407E-03	1.16297E-02	4.78471E-03	7.71128E+01
U -A	6	40	4	1.03202	1.105	1	1.06161E+00	8.00844E-03	2.63711E-03	1.50815E-03	4.99509E-04	9.27564E+01
						2	1.10947E+00		9.53024E-03	1.15430E-02	4.74906E-03	7.56660E+01
U -A	6	40	8	0.96840	1.053	1	1.06165E+00	7.90160E-03	2.74043E-03	1.21340E-03	4.58209E-04	9.26997E+01
						2	1.10882E+00		9.50526E-03	1.09749E-02	4.51537E-03	7.48108E+01
U -A	6	40	12	0.90635	0.990	1	1.06170E+00	7.82810E-03	2.82436E-03	1.13313E-03	4.23053E-04	9.26664E+01
						2	1.10816E+00		9.38209E-03	1.02475E-02	4.21404E-03	7.50496E+01
SP-A	2	0	2	1.10041	1.302	1	1.06200E+00	1.00620E-02	2.23961E-03	1.15049E-03	4.41758E-04	0.06002E+01
						2	1.06649E+00		8.54989E-03	1.05411E-02	4.24639E-03	9.19021E+01
SP-A	2	0	4	1.07206	1.310	1	1.06297E+00	1.00110E-02	2.28885E-03	1.10284E-03	4.20158E-04	0.06083E+01
						2	1.06631E+00		8.59083E-03	1.03949E-02	4.12061E-03	9.10966E+01
SP-A	2	0	8	1.00929	1.319	1	1.06319E+00	9.91854E-03	2.38112E-03	1.01233E-03	3.80133E-04	0.06046E+01
						2	1.06561E+00		8.50913E-03	9.00019E-03	3.78856E-03	9.10995E+01
SP-A	2	0	12	0.94205	1.326	1	1.06341E+00	9.84919E-03	2.44853E-03	9.31029E-04	3.44891E-04	0.06099E+01
						2	1.06413E+00		8.33703E-03	9.03759E-03	3.42043E-03	9.23069E+01
SP-A	2	20	2	1.10887	1.302	1	1.05957E+00	9.40939E-03	2.21340E-03	1.13488E-03	4.36266E-04	8.51995E+01
						2	1.07791E+00		8.56149E-03	1.07111E-02	4.31525E-03	9.07773E+01
SP-A	2	20	4	1.08052	1.310	1	1.05954E+00	9.36044E-03	2.26208E-03	1.08694E-03	4.14550E-04	8.51950E+01
						2	1.07765E+00		8.60225E-03	1.05604E-02	4.18683E-03	8.98818E+01
SP-A	2	20	8	1.01585	1.319	1	1.05957E+00	9.27012E-03	2.35218E-03	9.46366E-04	3.74496E-04	8.51853E+01
						2	1.07669E+00		8.51829E-03	9.95318E-03	3.64857E-03	8.98711E+01
SP-A	2	20	12	0.94788	1.325	1	1.05959E+00	9.20349E-03	2.41740E-03	9.15024E-04	3.59238E-04	8.51874E+01
						2	1.07545E+00		8.34124E-03	9.17421E-03	3.47305E-03	9.10915E+01
SP-A	2	40	2	1.11737	1.300	1	1.06023E+00	8.75586E-03	2.18224E-03	1.11838E-03	4.30460E-04	9.03955E+01
						2	1.09251E+00		8.60591E-03	1.09311E-02	4.40446E-03	8.91475E+01
SP-A	2	40	4	1.08812	1.300	1	1.06031E+00	8.70838E-03	2.23013E-03	1.07010E-03	4.08598E-04	9.03658E+01
						2	1.09215E+00		8.64556E-03	1.07733E-02	4.27219E-03	8.82581E+01
SP-A	2	40	8	1.02225	1.310	1	1.06050E+00	8.62163E-03	2.31740E-03	9.79353E-04	3.68478E-04	9.03684E+01
						2	1.09111E+00		8.55790E-03	1.01484E-02	3.92540E-03	8.82470E+01
SP-A	2	40	12	0.95348	1.322	1	1.06072E+00	8.55622E-03	2.37997E-03	8.98091E-04	3.35252E-04	9.03664E+01
						2	1.08994E+00		8.37373E-03	9.34702E-03	3.53986E-03	8.94905E+01

LIBRARY TYPE = 2 (25%)

FUEL TYPE	B/D (PPI)	VOID (%)	EXPOSURE (GWD/TID)	K-EFF	LPF	UG	D	SIGN	SIGA	NU-SIGF	SIGF	FLUX
SP-A	4	0	2	1.06969	1.299	1	1.58286E+00	1.00562F-02	2.24695E-03	1.15057E-03	4.41793E-04	0.05973E+01
						2	1.06648E+00		0.88207E-03	1.06243E-02	4.27963E-03	0.85385E+01
SP-A	4	0	4	1.04308	1.307	1	1.58295E+00	1.00060F-02	2.29618E-03	1.10291E-03	4.20191E-04	0.05975E+01
						2	1.06631E+00		0.92446E-03	1.04792E-02	4.15360E-03	0.76071E+01
SP-A	4	0	8	0.98109	1.316	1	1.58317E+00	9.91275E-03	2.38841E-03	1.01241E-03	3.80165E-04	0.05939E+01
						2	1.06540E+00		0.84278E-03	9.88187E-03	3.01969E-03	0.76591F+01
SP-A	4	0	12	0.91537	1.323	1	1.58339E+00	9.84342F-03	2.45578E-03	9.31105E-04	3.44921E-04	0.05992E+01
						2	1.06412E+00		0.66927E-03	9.11446E-03	3.44915E-03	0.87681E+01
SP-A	4	20	2	1.07790	1.299	1	1.59535E+00	9.40346E-03	2.22073E-03	1.13494E-03	4.36292F-04	0.51084F+01
						2	1.07806E+00		0.80089E-03	1.07788E-02	4.34221E-03	0.75030E+01
SP-A	4	20	4	1.05050	1.307	1	1.59546E+00	9.35456E-03	2.26939E-03	1.00701E-03	4.14575E-04	0.51835E+01
						2	1.07781E+00		0.92222E-03	1.06284E-02	4.21334E-03	0.66485F+01
SP-A	4	20	8	0.98745	1.316	1	1.59569E+00	9.26424F-03	2.35943E-03	9.96428E-04	3.74522E-04	0.51743F+01
						2	1.07684E+00		0.83981E-03	1.00213F-02	3.07442E-03	0.65935F+01
SP-A	4	20	12	0.92046	1.322	1	1.59593E+00	9.19764F-03	2.42461E-03	9.15087E-04	3.39262E-04	0.51765E+01
						2	1.07561E+00		0.66168E-03	9.23879E-03	3.49706E-03	0.77146E+01
SP-A	4	40	2	1.06629	1.298	1	1.60621E+00	0.74987F-03	2.10954E-03	1.11842E-03	4.30474F-04	0.03037E+01
						2	1.09280E+00		0.91163E-03	1.09821E-02	4.42464E-03	0.60731E+01
SP-A	4	40	4	1.05807	1.306	1	1.60629E+00	0.70240E-03	2.23739E-03	1.07015E-03	4.08615E-04	0.03734E+01
						2	1.09242E+00		0.95376E-03	1.08273E-02	4.29309F-03	0.52027E+01
SP-A	4	40	8	0.94378	1.314	1	1.60648E+00	0.61571E-03	2.32461E-03	9.79401E-04	3.68495E-04	0.03560F+01
						2	1.09141E+00		0.86663E-03	1.02021F-02	3.94562E-03	0.51578F+01
SP-A	4	40	12	0.92648	1.321	1	1.60670E+00	0.55232E-03	2.38714E-03	0.98141E-04	3.33270E-04	0.03550E+01
						2	1.09076E+00		0.60252E-03	9.39935E-03	3.55917E-03	0.62946E+01
SP-A	6	0	2	1.04151	1.296	1	1.58284E+00	1.00503E-02	2.25422E-03	1.15062E-03	4.41824E-04	0.05876E+01
						2	1.06644E+00		0.21434E-03	1.07112E-02	4.31435E-03	0.53389E+01
SP-A	6	0	4	1.01577	1.305	1	1.58293E+00	1.00002F-02	2.30347E-03	1.10290E-03	4.20223E-04	0.05070E+01
						2	1.06629E+00		0.25560E-03	1.05637E-02	4.18672E-03	0.45421E+01
SP-A	6	0	8	0.95571	1.313	1	1.58315E+00	9.90689E-03	2.39562E-03	1.01246E-03	3.80193E-04	0.05041E+01
						2	1.06538E+00		0.17546E-03	9.96566E-03	3.85164E-03	0.44741E+01
SP-A	6	0	12	0.89081	1.320	1	1.58337E+00	9.83758E-03	2.46297E-03	9.31162E-04	3.44947E-04	0.05894E+01
						2	1.06410E+00		0.00016E-03	9.19203E-03	3.47842E-03	0.54993E+01
SP-A	6	20	2	1.04935	1.297	1	1.59533E+00	9.39752E-03	2.22004E-03	1.13499E-03	4.36318E-04	0.51774E+01
						2	1.07819E+00		0.19765E-03	1.08466E-02	4.36919E-03	0.44750E+01
SP-A	6	20	4	1.02283	1.305	1	1.59544E+00	9.34865E-03	2.27660E-03	1.08707E-03	4.14600E-04	0.51776F+01
						2	1.07794E+00		0.24038E-03	1.06975E-02	4.24026E-03	0.36518E+01
SP-A	6	20	8	0.96129	1.314	1	1.59567E+00	9.25837E-03	2.36666E-03	9.96488E-04	3.74547E-04	0.51634E+01
						2	1.07698E+00		0.15852E-03	1.00892E-02	3.90018E-03	0.35677E+01
SP-A	6	20	12	0.89618	1.320	1	1.59591E+00	9.19179E-03	2.43181E-03	9.15148E-04	3.39286E-04	0.51657E+01
						2	1.07575E+00		0.97941E-03	9.30323E-03	3.52102E-03	0.46000E+01
SP-A	6	40	2	1.05753	1.296	1	1.60628E+00	0.74390E-03	2.19603E-03	1.11847E-03	4.30488E-04	0.03719E+01
						2	1.09309E+00		0.21448E-03	1.10326E-02	4.44466E-03	0.32237E+01
SP-A	6	40	4	1.03017	1.304	1	1.60627E+00	0.69645E-03	2.24465E-03	1.07019E-03	4.00630E-04	0.03617F+01
						2	1.09270E+00		0.25853E-03	1.08802E-02	4.31356E-03	0.23789E+01
SP-A	6	40	8	0.96746	1.312	1	1.60647E+00	0.60978E-03	2.33102E-03	9.79447E-04	3.68513E-04	0.03454E+01
						2	1.09169E+00		0.17305E-03	1.02561E-02	3.96592E-03	0.22950E+01
SP-A	6	40	12	0.90155	1.319	1	1.60668E+00	0.54644F-03	2.39430E-03	0.98191E-04	3.33208E-04	0.03435E+01
						2	1.09054E+00		0.98807E-03	9.45088E-03	3.57619E-03	0.33443E+01
PU-R	2	0	2	1.17042	1.165	1	1.58438E+00	0.93400E-03	3.31871F-03	1.76924E-03	6.36832F-04	0.07946F+01
						2	1.07331F+00		1.13623F-02	1.60254E-02	5.75006E-03	0.18874F+01
PU-R	2	0	4	1.13835	1.145	1	1.58459E+00	0.91500E-03	3.33875F-03	1.71008F-03	6.14629E-04	0.07838F+01
						2	1.09235F+00		1.11505E-02	1.53447E-02	5.49946E-03	0.29080F+01
PU-R	2	0	8	1.07692	1.104	1	1.58499E+00	0.88693E-03	3.56984F-03	1.59839E-03	5.72754E-04	0.07666E+01
						2	1.09036E+00		1.07305E-02	1.40436E-02	5.01875E-03	0.51101E+01
PU-R	2	0	12	1.01743	1.067	1	1.58539E+00	0.86750F-03	3.39106E-03	1.49417E-03	5.35787E-04	0.07555F+01
						2	1.08835E+00		1.03294E-02	1.28223E-02	4.56582E-03	0.74426E+01

LIBRARY TYPE = 2 (25%)

FUEL TYPE	BLU (PPH)	VOID (%)	EXPOSURE (GWD/TH)	K-EFF	LPF	MG	D	SIGK	SIGA	NU-SIGK	SIGF	FLUX
PU-B	2	20	2	1.16921	1.165	1	1.59845F+00	8.23845E-03	3.25044E-03	1.73806E-03	6.25817E-04	8.60263E+01
							1.10291E+00		1.14040E-02	1.62272E-02	5.82369E-03	6.05426E+01
PU-B	2	20	4	1.13717	1.144	1	1.59866E+00	8.22030E-03	3.26886E-03	1.67891E-03	6.03619E-04	8.60233E+01
							1.10216E+00		1.11915E-02	1.55401E-02	5.57073E-03	6.15374E+01
PU-B	2	20	8	1.07590	1.103	1	1.59989E+00	8.19205E-03	3.29714E-03	1.56714E-03	5.61716E-04	8.60221E+01
							1.10059E+00		1.07679E-02	1.42253E-02	5.08474E-03	6.37008E+01
PU-B	2	20	12	1.01666	1.065	1	1.59954E+00	8.17239E-03	3.31609E-03	1.46319E-03	5.22849E-04	8.60271E+01
							1.09900E+00		1.03630E-02	1.29912E-02	4.62606E-03	6.59967E+01
PU-B	2	40	2	1.16814	1.163	1	1.61511E+00	7.54962E-03	3.16749E-03	1.70352E-03	6.13608E-04	9.20476E+01
							1.11543E+00		1.14958E-02	1.65090E-02	5.92669E-03	5.08911E+01
PU-B	2	40	4	1.13613	1.141	1	1.61536E+00	7.53215E-03	3.18432E-03	1.64483E-03	5.91568E-04	9.20519E+01
							1.11498E+00		1.12820E-02	1.58128E-02	5.67023E-03	5.98553E+01
PU-B	2	40	8	1.07501	1.099	1	1.61611E+00	7.50489E-03	3.20953E-03	1.53327E-03	5.49739E-04	9.20676E+01
							1.11403E+00		1.08552E-02	1.44810E-02	5.17760E-03	6.19578E+01
PU-B	2	40	12	1.01601	1.061	1	1.61662E+00	7.48574E-03	3.22617E-03	1.42976E-03	5.11042E-04	9.20884E+01
							1.11305E+00		1.04458E-02	1.32294E-02	4.71291E-03	6.41922E+01
PU-B	4	0	2	1.14606	1.162	1	1.58437E+00	8.92038E-03	3.32627E-03	1.76982E-03	6.37037E-04	8.07810E+01
							1.09367E+00		1.17296E-02	1.61640E-02	5.79899E-03	5.99285E+01
PU-B	4	0	4	1.11931	1.141	1	1.58457E+00	8.90988E-03	3.34627E-03	1.71065E-03	6.14832E-04	8.07705E+01
							1.09271E+00		1.15161E-02	1.54787E-02	5.54688E-03	6.08895E+01
PU-B	4	0	8	1.05346	1.101	1	1.58497E+00	8.88133E-03	3.37373E-03	1.59895E-03	5.72953E-04	8.07531E+01
							1.09071E+00		1.10908E-02	1.41666E-02	5.06224E-03	6.29752E+01
PU-B	4	0	12	0.99457	1.064	1	1.58538E+00	8.86189E-03	3.39851E-03	1.49471E-03	5.33974E-04	8.07421E+01
							1.08869E+00		1.06852E-02	1.29358E-02	4.60590E-03	6.51778E+01
PU-B	4	20	2	1.14494	1.162	1	1.59844E+00	8.23272E-03	3.25776E-03	1.73849E-03	6.25971E-04	8.60136E+01
							1.10336E+00		1.17544E-02	1.63410E-02	5.86388E-03	5.87127E+01
PU-B	4	20	4	1.11321	1.141	1	1.59865E+00	8.21457E-03	3.27618E-03	1.67934E-03	6.03772E-04	8.60107E+01
							1.10261E+00		1.15398E-02	1.56496E-02	5.60442E-03	5.96551E+01
PU-B	4	20	8	1.05250	1.100	1	1.59907E+00	8.18634E-03	3.30443E-03	1.56757E-03	5.61866E-04	8.60094E+01
							1.10103E+00		1.11121E-02	1.43268E-02	5.12052E-03	6.17041E+01
PU-B	4	20	12	0.99385	1.063	1	1.59952E+00	8.16668E-03	3.32336E-03	1.46360E-03	5.22995E-04	8.60146E+01
							1.09944E+00		1.07034E-02	1.30851E-02	4.65990E-03	6.38746E+01
PU-B	4	40	2	1.14409	1.160	1	1.61510E+00	7.54385E-03	3.17461E-03	1.70383E-03	6.13716E-04	9.20353E+01
							1.11596E+00		1.10287E-02	1.65976E-02	5.95784E-03	5.72054E+01
PU-B	4	40	4	1.11238	1.139	1	1.61534E+00	7.52639E-03	3.19143E-03	1.64514E-03	5.91677E-04	9.20396E+01
							1.11551E+00		1.16131E-02	1.58982E-02	5.70027E-03	5.81196E+01
PU-B	4	40	8	1.05181	1.097	1	1.61610E+00	7.49914E-03	3.21661E-03	1.53357E-03	5.49847E-04	9.20553E+01
							1.11457E+00		1.11829E-02	1.45603E-02	5.20544E-03	6.01146E+01
PU-B	4	40	12	0.99338	1.058	1	1.61660E+00	7.48000E-03	3.23323E-03	1.43086E-03	5.11147E-04	9.20762E+01
							1.11359E+00		1.07703E-02	1.33029E-02	4.73869E-03	6.27364E+01
PU-B	6	0	2	1.12337	1.158	1	1.58435E+00	8.92276E-03	3.33377E-03	1.77038E-03	6.37236E-04	8.07679E+01
							1.09403E+00		1.20946E-02	1.63023E-02	5.84800E-03	5.80973E+01
PU-B	6	0	4	1.09192	1.138	1	1.58455E+00	8.90428E-03	3.35378E-03	1.71121E-03	6.15030E-04	8.07571E+01
							1.09306E+00		1.18779E-02	1.56106E-02	5.59361E-03	5.90122E+01
PU-B	6	0	8	1.05164	1.098	1	1.58496E+00	8.87573E-03	3.38487E-03	1.59950E-03	5.73147E-04	8.07398E+01
							1.09185E+00		1.14480E-02	1.42886E-02	5.10539E-03	6.09885E+01
PU-B	6	0	12	0.97338	1.061	1	1.58536E+00	8.85628E-03	3.40597E-03	1.49524E-03	5.34165E-04	8.07290E+01
							1.08902E+00		1.10386E-02	1.30492E-02	4.64593E-03	6.30707E+01
PU-B	6	20	2	1.12227	1.160	1	1.59842E+00	8.22698E-03	3.26587E-03	1.73892E-03	6.26124E-04	8.60010E+01
							1.10388E+00		1.21021E-02	1.64545E-02	5.90397E-03	5.69995E+01
PU-B	6	20	4	1.09083	1.139	1	1.59863E+00	8.20886E-03	3.28347E-03	1.67977E-03	6.03922E-04	8.59980E+01
							1.10305E+00		1.18851E-02	1.57585E-02	5.64779E-03	5.78470E+01
PU-B	6	20	8	1.03069	1.097	1	1.59906E+00	8.18063E-03	3.31171E-03	1.56798E-03	5.62014E-04	8.59969E+01
							1.10147E+00		1.14534E-02	1.44274E-02	5.15601E-03	5.98402E+01
PU-B	6	20	12	0.97263	1.060	1	1.59950E+00	8.16097E-03	3.33062E-03	1.46401E-03	5.23139E-04	8.60022E+01
							1.09981E+00		1.10411E-02	1.31784E-02	4.69276E-03	6.18973E+01

LIBRARY TYPE = ? (25%)

FULL TYPE	BITO (PPH)	VOID (%)	EXPOSURE (GWD/TG)	K-EFF	LF	HG	D	SIGR	SIGA	NU-SIGF	SIGF	FLUX
PU-R	6	40	2	1.12154	1.154	1	1.61508E+00	7.53800E-03	3.14172E-03	1.70413E-03	6.13422E-04	9.20229E+01
						2	1.11646E+00		1.21593E-02	1.66861E-02	5.98499E-03	5.56205E+01
PU-R	6	40	4	1.09013	1.136	1	1.61532E+00	7.52063E-03	3.19852E-03	1.64544E-03	5.91783E-04	9.20272E+01
						2	1.11603E+00		1.19415E-02	1.59430E-02	5.73006E-03	5.64910E+01
PU-R	6	40	8	1.03011	1.094	1	1.61608E+00	7.49340E-03	3.22360E-03	1.53387E-03	5.49953E-04	9.20431E+01
						2	1.11509E+00		1.15079E-02	1.46389E-02	5.23306E-03	5.83079E+01
PU-R	6	40	12	0.97224	1.050	1	1.61658E+00	7.47427E-03	3.24029E-03	1.43035E-03	5.11251E-04	9.20640E+01
						2	1.11411E+00		1.10920E-02	1.33757E-02	4.76426E-03	6.04036E+01
U-R	2	0	2	1.17681	1.150	1	1.58469E+00	9.47733E-03	2.72956E-03	1.59714E-03	6.16879E-04	8.11775E+01
						2	1.08170E+00		9.39491E-03	1.26060E-02	5.21925E-03	7.94678E+01
U-R	2	0	4	1.14718	1.133	1	1.58487E+00	9.41689E-03	2.79173E-03	1.53707E-03	5.90995E-04	8.11582E+01
						2	1.08180E+00		9.45491E-03	1.25426E-02	5.16026E-03	7.84940E+01
U-R	2	0	8	1.08502	1.092	1	1.58522E+00	9.31360E-03	2.80851E-03	1.42629E-03	5.43296E-04	8.11227E+01
						2	1.08134E+00		9.39745E-03	1.19563E-02	4.91910E-03	7.80707E+01
U-R	2	0	12	1.02191	1.039	1	1.58551E+00	9.23942E-03	2.97526E-03	1.32805E-03	5.01017E-04	8.10972E+01
						2	1.08039E+00		9.23274E-03	1.11728E-02	4.59676E-03	7.87856E+01
U-R	2	20	2	1.18160	1.151	1	1.59791E+00	8.75378E-03	2.68569E-03	1.57039E-03	6.07353E-04	8.64456E+01
						2	1.09453E+00		9.39824E-03	1.28503E-02	5.20887E-03	7.81985E+01
U-R	2	20	4	1.15119	1.135	1	1.59812E+00	8.69506E-03	2.74599E-03	1.50985E-03	5.01298E-04	8.64650E+01
						2	1.09443E+00		9.45604E-03	1.27065E-02	5.22773E-03	7.71925E+01
U-R	2	20	8	1.08802	1.093	1	1.59856E+00	8.59575E-03	2.84759E-03	1.39842E-03	5.33382E-04	8.64341E+01
						2	1.09385E+00		9.40030E-03	1.21137E-02	4.98383E-03	7.67340E+01
U-R	2	20	12	1.02437	1.039	1	1.59925E+00	8.52468E-03	2.91988E-03	1.30012E-03	4.91098E-04	8.64146E+01
						2	1.09295E+00		9.23356E-03	1.13181E-02	4.65653E-03	7.74375E+01
U-R	2	40	2	1.18654	1.151	1	1.61580E+00	8.03118E-03	2.63221E-03	1.54147E-03	5.97011E-04	9.26054E+01
						2	1.11105E+00		9.43562E-03	1.30785E-02	5.38078E-03	7.65031E+01
U-R	2	40	4	1.15513	1.134	1	1.61607E+00	7.97461E-03	2.69030E-03	1.48063E-03	5.70859E-04	9.25824E+01
						2	1.11073E+00		9.49612E-03	1.29328E-02	5.32085E-03	7.54730E+01
U-R	2	40	8	1.09091	1.092	1	1.61647E+00	7.88099E-03	2.78559E-03	1.36835E-03	5.22706E-04	9.25525E+01
						2	1.10999E+00		9.44110E-03	1.23287E-02	5.07233E-03	7.49964E+01
U-R	2	40	12	1.02672	1.037	1	1.61691E+00	7.81417E-03	2.85255E-03	1.27007E-03	4.80391E-04	9.25405E+01
						2	1.10917E+00		9.27268E-03	1.15101E-02	4.73883E-03	7.56828E+01
U-R	4	0	2	1.14747	1.146	1	1.58467E+00	9.47150E-03	2.73719E-03	1.59761E-03	6.17060E-04	8.11645E+01
						2	1.08194E+00		9.74069E-03	1.27869E-02	5.26078E-03	7.66732E+01
U-R	4	0	4	1.11875	1.130	1	1.58485E+00	9.41108E-03	2.79933E-03	1.53753E-03	5.91170E-04	8.11453E+01
						2	1.08205E+00		9.79755E-03	1.26450E-02	5.20241E-03	7.57330E+01
U-R	4	0	8	1.05804	1.089	1	1.58521E+00	9.30783E-03	2.90607E-03	1.42674E-03	5.43466E-04	8.11098E+01
						2	1.08158E+00		9.74106E-03	1.20575E-02	4.96071E-03	7.53027E+01
U-R	4	0	12	0.99619	1.035	1	1.58559E+00	9.23368E-03	2.90270E-03	1.32849E-03	5.01182E-04	8.10843E+01
						2	1.08065E+00		9.57531E-03	1.12697E-02	4.63661E-03	7.59538E+01
U-R	4	20	2	1.15217	1.148	1	1.59790E+00	8.74784E-03	2.69319E-03	1.57075E-03	6.07482E-04	8.64729E+01
						2	1.09492E+00		9.72248E-03	1.29286E-02	5.31406E-03	7.55708E+01
U-R	4	20	4	1.12262	1.132	1	1.59810E+00	8.68912E-03	2.75346E-03	1.51021E-03	5.81433E-04	8.64525E+01
						2	1.09484E+00		9.78312E-03	1.27881E-02	5.26130E-03	7.45919E+01
U-R	4	20	8	1.06092	1.090	1	1.59854E+00	8.54987E-03	2.85496E-03	1.39877E-03	5.33507E-04	8.64215E+01
						2	1.09425E+00		9.72828E-03	1.21947E-02	5.01716E-03	7.41277E+01
U-R	4	20	12	0.99854	1.036	1	1.59923E+00	8.51882E-03	2.92725E-03	1.38046E-03	4.91224E-04	8.64023E+01
						2	1.09335E+00		9.56157E-03	1.13972E-02	4.68906E-03	7.47628E+01
U-R	4	40	2	1.15702	1.149	1	1.61586E+00	8.02516E-03	2.63957E-03	1.54172E-03	5.97099E-04	9.25978E+01
						2	1.11157E+00		9.74442E-03	1.31357E-02	5.40427E-03	7.40520E+01
U-R	4	40	4	1.12656	1.132	1	1.61605E+00	7.96861E-03	2.69762E-03	1.48808E-03	5.70947E-04	9.25699E+01
						2	1.11125E+00		9.80726E-03	1.29929E-02	5.34555E-03	7.30531E+01
U-R	4	40	8	1.06383	1.089	1	1.61645E+00	7.87505E-03	2.79284E-03	1.36878E-03	5.22794E-04	9.25401E+01
						2	1.11051E+00		9.75406E-03	1.23904E-02	5.09768E-03	7.25653E+01
U-R	4	40	12	1.00090	1.035	1	1.61690E+00	7.80826E-03	2.85476E-03	1.27032E-03	4.80479E-04	9.25282E+01
						2	1.10969E+00		9.58571E-03	1.15787E-02	4.76376E-03	7.31875E+01

LITERARY TYPE = 2 (25%)

FULL TYPE	BIT (PPH)	VOID (%)	EXPOSURE (GUD/TN)	K-EFF	LPE	NG	D	SIGR	SIGA	NU-SIGR	SIGF	FLUX
U-R	6	0	2	1.12030	1.143	1	1.50445E+00	9.46566E-03	2.74479E-03	1.59006E-03	6.17239E-04	8.11517E+01
						2	1.08217E+00		1.00789E-02	1.28880E-02	5.30236E-03	7.40822E+01
U-R	6	0	4	1.09249	1.127	1	1.50443E+00	9.40520E-03	2.80691E-03	1.53790E-03	5.91344E-04	8.11325E+01
						2	1.08220E+00		1.01375E-02	1.27474E-02	5.24452E-03	7.31763E+01
U-R	6	0	6	1.03312	1.085	1	1.50519E+00	9.30207E-03	2.91360E-03	1.42710E-03	5.43633E-04	8.10971E+01
						2	1.08184E+00		1.00015E-02	1.21570E-02	5.00198E-03	7.27422E+01
U-R	6	0	12	0.97244	1.032	1	1.58557E+00	9.22790E-03	2.99031E-03	1.32092E-03	5.01339E-04	8.10713E+01
						2	1.08009E+00		9.91408E-03	1.13649E-02	4.67576E-03	7.33425E+01
U-R	6	20	2	1.12401	1.145	1	1.59780E+00	8.74180E-03	2.70068E-03	1.57110E-03	6.07618E-04	8.64603E+01
						2	1.09530E+00		1.00448E-02	1.30077E-02	5.35162E-03	7.31242E+01
U-R	6	20	4	1.09612	1.129	1	1.59800E+00	8.68321E-03	2.76091E-03	1.51055E-03	5.81559E-04	8.64390E+01
						2	1.09522E+00		1.01067E-02	1.28683E-02	5.29426E-03	7.21818E+01
U-R	6	20	6	1.03579	1.087	1	1.59853E+00	8.58401E-03	2.86236E-03	1.39911E-03	5.33629E-04	8.64090E+01
						2	1.09464E+00		1.00533E-02	1.22750E-02	5.05021E-03	7.17098E+01
U-R	6	20	12	0.97460	1.033	1	1.59921E+00	8.51290E-03	2.93461E-03	1.30079E-03	4.91345E-04	8.63899E+01
						2	1.09374E+00		9.88620E-03	1.14751E-02	4.72112E-03	7.22860E+01
U-R	6	40	2	1.12954	1.146	1	1.61585E+00	8.01914E-03	2.64692E-03	1.54196E-03	5.97185E-04	9.25802E+01
						2	1.11208E+00		1.00505E-02	1.31923E-02	5.42759E-03	7.17697E+01
U-R	6	40	4	1.09998	1.129	1	1.61604E+00	7.96263E-03	2.70493E-03	1.48112E-03	5.71033E-04	9.25574E+01
						2	1.11176E+00		1.01157E-02	1.30525E-02	5.37006E-03	7.07977E+01
U-R	6	40	6	1.03865	1.087	1	1.61644E+00	7.86912E-03	2.80009E-03	1.36903E-03	5.27880E-04	9.25278E+01
						2	1.11102E+00		1.00643E-02	1.24515E-02	5.12282E-03	7.03021E+01
U-R	6	40	12	0.97691	1.032	1	1.61688E+00	7.80237E-03	2.84696E-03	1.27056E-03	4.80565E-04	9.25159E+01
						2	1.11019E+00		9.89605E-03	1.16389E-02	4.78851E-03	7.08668E+01

LIBRARY TYPE = 3 (50%)

FUEL TYPE	DIU (PPM)	VOID (%)	EXPOSURE (GWD/TA)	K-EFF	LPF	WG	U	SIGR	SIGA	NIU-SIGF	SIGF	FLUX
PU-A	2	0	2	1.00937	1.104	1	1.58435E+00	9.27202E-03	2.98893E-03	1.39924E-03	5.10922E-04	8.11139E+01
						2	1.08399E+00		9.83189E-03	1.27203E-02	4.66416E-03	7.39417E+01
PU-A	2	0	4	1.05304	1.092	1	1.58454E+00	9.10975E-03	3.02350E-03	1.35546E-03	4.92953E-04	8.10958E+01
						2	1.08315E+00		9.66836E-03	1.21424E-02	4.43110E-03	7.48934E+01
PU-A	2	0	8	0.98607	1.071	1	1.58491E+00	9.13803E-03	3.07842E-03	1.27393E-03	4.59890E-04	8.10701E+01
						2	1.08150E+00		9.36725E-03	1.10817E-02	4.00454E-03	7.68046E+01
PU-A	2	0	12	0.92936	1.059	1	1.58528E+00	9.09628E-03	3.12177E-03	1.20605E-03	4.32542E-04	8.10555E+01
						2	1.08017E+00		9.13838E-03	1.02245E-02	3.65826E-03	7.83231E+01
PU-A	2	20	2	1.09096	1.104	1	1.59792E+00	8.51040E-03	2.92973E-03	1.37080E-03	5.00834E-04	8.64392E+01
						2	1.09558E+00		9.84563E-03	1.28844E-02	4.72558E-03	7.26069E+01
PU-A	2	20	4	1.05515	1.091	1	1.59813E+00	8.47926E-03	2.96248E-03	1.32695E-03	4.82844E-04	8.64239E+01
						2	1.09489E+00		9.68054E-03	1.22994E-02	4.48953E-03	7.35426E+01
PU-A	2	20	8	0.98826	1.069	1	1.59853E+00	8.42922E-03	3.01463E-03	1.24550E-03	4.49849E-04	8.64028E+01
						2	1.09352E+00		9.37521E-03	1.12240E-02	4.05687E-03	7.54326E+01
PU-A	2	20	12	0.93060	1.056	1	1.59893E+00	8.38898E-03	3.05611E-03	1.17792E-03	4.22588E-04	8.63890E+01
						2	1.09243E+00		9.14181E-03	1.03530E-02	3.70494E-03	7.69462E+01
PU-A	2	40	2	1.09248	1.101	1	1.61548E+00	7.88533E-03	2.85881E-03	1.34831E-03	4.90088E-04	9.25772E+01
						2	1.11096E+00		9.90026E-03	1.31095E-02	4.80997E-03	7.09017E+01
PU-A	2	40	4	1.05659	1.087	1	1.61569E+00	7.77386E-03	2.88866E-03	1.29645E-03	4.72013E-04	9.25634E+01
						2	1.11049E+00		9.73265E-03	1.25140E-02	4.56953E-03	7.18204E+01
PU-A	2	40	8	0.98955	1.066	1	1.61612E+00	7.72629E-03	2.93763E-03	1.21530E-03	4.39113E-04	9.25453E+01
						2	1.10908E+00		9.42187E-03	1.14183E-02	4.12846E-03	7.36827E+01
PU-A	2	40	12	0.93167	1.054	1	1.61653E+00	7.68810E-03	2.97695E-03	1.14798E-03	4.11987E-04	9.25305E+01
						2	1.10832E+00		9.18383E-03	1.05296E-02	3.76920E-03	7.51757E+01
PU-A	2	60	2	1.09454	1.094	1	1.62962E+00	7.10356E-03	2.76803E-03	1.30687E-03	4.78110E-04	9.97688E+01
						2	1.13194E+00		1.00139E-02	1.34234E-02	4.92786E-03	6.87626E+01
PU-A	2	60	4	1.05851	1.081	1	1.62982E+00	7.07626E-03	2.79624E-03	1.26389E-03	4.60150E-04	9.97557E+01
						2	1.13184E+00		9.84365E-03	1.28140E-02	4.68157E-03	6.96543E+01
PU-A	2	60	8	0.99124	1.059	1	1.63014E+00	7.03210E-03	2.84147E-03	1.18227E-03	4.27384E-04	9.97384E+01
						2	1.13164E+00		9.52630E-03	1.16904E-02	4.22895E-03	7.14747E+01
PU-A	2	60	12	0.93307	1.046	1	1.63053E+00	6.99647E-03	2.87828E-03	1.11544E-03	4.00456E-04	9.97212E+01
						2	1.13146E+00		9.28194E-03	1.07761E-02	3.85918E-03	7.29409E+01
PU-A	4	0	2	1.06334	1.101	1	1.58433E+00	9.21631E-03	2.99650E-03	1.39972E-03	5.11092E-04	8.11006E+01
						2	1.08429E+00		1.01832E-02	1.28331E-02	4.70478E-03	7.13743E+01
PU-A	4	0	4	1.02816	1.089	1	1.58452E+00	9.18403E-03	3.03103E-03	1.35592E-03	4.93120E-04	8.10829E+01
						2	1.08344E+00		1.00184E-02	1.22514E-02	4.47024E-03	7.22615E+01
PU-A	4	0	8	0.96243	1.068	1	1.58489E+00	9.13231E-03	3.08592E-03	1.27438E-03	4.60051E-04	8.10572E+01
						2	1.08179E+00		9.71350E-03	1.11820E-02	4.04033E-03	7.40513E+01
PU-A	4	0	12	0.90594	1.056	1	1.58526E+00	9.09060E-03	3.12927E-03	1.20648E-03	4.32697E-04	8.10425E+01
						2	1.08844E+00		9.48145E-03	1.03173E-02	3.69117E-03	7.54765E+01
PU-A	4	20	2	1.06487	1.101	1	1.59791E+00	8.58456E-03	2.93711E-03	1.37116E-03	5.00965E-04	8.64267E+01
						2	1.09600E+00		1.01820E-02	1.29777E-02	4.75903E-03	7.01862E+01
PU-A	4	20	4	1.02960	1.088	1	1.59811E+00	8.47343E-03	2.96984E-03	1.32731E-03	4.82927E-04	8.64114E+01
						2	1.09531E+00		1.00152E-02	1.23889E-02	4.52154E-03	7.10647E+01
PU-A	4	20	8	0.96375	1.067	1	1.59852E+00	8.42340E-03	3.02197E-03	1.24593E-03	4.49973E-04	8.63905E+01
						2	1.09394E+00		9.70662E-03	1.13064E-02	4.08619E-03	7.28384E+01
PU-A	4	20	12	0.90711	1.055	1	1.59891E+00	8.38318E-03	3.06341E-03	1.17825E-03	4.22707E-04	8.63766E+01
						2	1.09284E+00		9.47103E-03	1.04301E-02	3.73224E-03	7.42541E+01
PU-A	4	40	2	1.06647	1.099	1	1.61566E+00	7.79743E-03	2.86523E-03	1.34058E-03	4.90101E-04	9.25648E+01
						2	1.11158E+00		1.02213E-02	1.31026E-02	4.83598E-03	6.86480E+01
PU-A	4	40	4	1.03110	1.085	1	1.61567E+00	7.76798E-03	2.89586E-03	1.29671E-03	4.72106E-04	9.25510E+01
						2	1.11103E+00		1.00522E-02	1.25842E-02	4.59447E-03	6.95107E+01
PU-A	4	40	8	0.96589	1.064	1	1.61611E+00	7.72044E-03	2.94478E-03	1.21556E-03	4.39204E-04	9.25331E+01
						2	1.10960E+00		9.73888E-03	1.14834E-02	4.15169E-03	7.12603E+01
PU-A	4	40	12	0.90822	1.052	1	1.61651E+00	7.68226E-03	2.98488E-03	1.14823E-03	4.12076E-04	9.25184E+01
						2	1.10885E+00		9.49887E-03	1.05986E-02	3.79071E-03	7.26596E+01

LIBRARY TYPE = 3 (50%)

FUEL TYPE	HU (PPH)	VOLUME (%)	EXPOSURE (GWD/TN)	K-EFF	LPF	NG	D	SIGR	SIGA	NU-SIGF	SIGF	FLUX
PU-A	4	60	2	1.06877	1.095	1	1.62960E+00	7.09767E-03	2.77509E-03	1.30704E-03	4.78170E-04	9.97560E+01
						2	1.13255E+00		1.03189E-02	1.34753E-02	4.94608E-03	6.66975E+01
PU-A	4	60	4	1.03327	1.079	1	1.67980E+00	7.07041E-03	2.80524E-03	1.26325E-03	4.60207E-04	9.97430E+01
						2	1.13245E+00		1.01475E-02	1.28640E-02	4.69915E-03	6.75377E+01
PU-A	4	60	8	0.96701	1.057	1	1.63013E+00	7.07627E-03	2.84847E-03	1.18244E-03	4.27446E-04	9.97257E+01
						2	1.13225E+00		9.82828E-03	1.17372E-02	4.24534E-03	6.92483E+01
PU-A	4	60	12	0.90979	1.045	1	1.63052E+00	6.99066E-03	2.88524E-03	1.11561E-03	4.00517E-04	9.97085E+01
						2	1.13208E+00		9.58233E-03	1.08205E-02	4.87469E-03	7.06245E+01
PU-A	6	0	2	1.03926	1.090	1	1.58432E+00	9.21058E-03	3.00402E-03	1.40017E-03	5.11257E-04	8.10876E+01
						2	1.08458E+00		1.05322E-02	1.29462E-02	4.74549E-03	6.09899E+01
PU-A	6	0	4	1.00458	1.086	1	1.58450E+00	9.17633E-03	3.03856E-03	1.35638E-03	4.93283E-04	8.10698E+01
						2	1.08372E+00		1.03647E-02	1.23587E-02	4.50877E-03	6.98295E+01
PU-A	6	0	8	0.93985	1.065	1	1.58467E+00	9.12663E-03	3.09342E-03	1.27482E-03	4.60208E-04	8.10443E+01
						2	1.08206E+00		1.00563E-02	1.12808E-02	4.07561E-03	7.15111E+01
PU-A	6	0	12	0.88434	1.054	1	1.58524E+00	9.08490E-03	3.13672E-03	1.20690E-03	4.32847E-04	8.10294E+01
						2	1.08071E+00		9.87194E-03	1.04090E-02	4.72402E-03	7.28451E+01
PU-A	6	20	2	1.04066	1.098	1	1.59789E+00	8.49871E-03	2.94440E-03	1.37152E-03	5.01092E-04	8.64145E+01
						2	1.09641E+00		1.05158E-02	1.30707E-02	4.79239E-03	6.79356E+01
PU-A	6	20	4	1.00589	1.086	1	1.59809E+00	8.46761E-03	2.97719E-03	1.32766E-03	4.83097E-04	8.63989E+01
						2	1.09571E+00		1.03470E-02	1.24777E-02	4.55330E-03	6.87631E+01
PU-A	6	20	8	0.94105	1.064	1	1.59850E+00	8.41760E-03	3.02928E-03	1.24627E-03	4.50094E-04	8.63780E+01
						2	1.09435E+00		1.00353E-02	1.13884E-02	4.11535E-03	7.04320E+01
PU-A	6	20	12	0.88536	1.053	1	1.59889E+00	8.37739E-03	3.07070E-03	1.17858E-03	4.22824E-04	8.63644E+01
						2	1.09324E+00		9.79733E-03	1.05066E-02	4.75930E-03	7.17613E+01
PU-A	6	40	2	1.04225	1.096	1	1.61545E+00	7.79154E-03	2.87243E-03	1.34083E-03	4.90193E-04	9.25525E+01
						2	1.11202E+00		1.05395E-02	1.32550E-02	4.86176E-03	6.65480E+01
PU-A	6	40	4	1.00738	1.083	1	1.61566E+00	7.76211E-03	2.90304E-03	1.29696E-03	4.72197E-04	9.25387E+01
						2	1.11155E+00		1.03690E-02	1.26538E-02	4.61920E-03	6.73600E+01
PU-A	6	40	8	0.94237	1.062	1	1.61609E+00	7.71459E-03	2.95193E-03	1.21581E-03	4.39293E-04	9.25209E+01
						2	1.11011E+00		1.00531E-02	1.15479E-02	4.17432E-03	6.90070E+01
PU-A	6	40	12	0.88646	1.050	1	1.61649E+00	7.67643E-03	2.99120E-03	1.14847E-03	4.12163E-04	9.25062E+01
						2	1.10936E+00		9.81116E-03	1.06511E-02	4.81204E-03	7.03221E+01
PU-A	6	60	2	1.04468	1.091	1	1.62958E+00	7.09179E-03	2.78214E-03	1.30721E-03	4.78229E-04	9.97432E+01
						2	1.13315E+00		1.06213E-02	1.35267E-02	4.96415E-03	6.47658E+01
PU-A	6	60	4	1.00968	1.077	1	1.62976E+00	7.06455E-03	2.81027E-03	1.26342E-03	4.60267E-04	9.97302E+01
						2	1.13305E+00		1.04489E-02	1.29137E-02	4.71656E-03	6.55569E+01
PU-A	6	60	8	0.94440	1.055	1	1.63011E+00	7.07046E-03	2.85543E-03	1.18261E-03	4.27903E-04	9.97130E+01
						2	1.13286E+00		1.01276E-02	1.17836E-02	4.26161E-03	6.71707E+01
PU-A	6	60	12	0.88813	1.043	1	1.63050E+00	6.98485E-03	2.89220E-03	1.11578E-03	4.00577E-04	9.96959E+01
						2	1.13268E+00		9.88015E-03	1.08644E-02	4.80005E-03	6.84654E+01
U -A	2	0	2	1.10815	1.130	1	1.58396E+00	9.54029E-03	2.64760E-03	1.41717E-03	5.42781E-04	8.13135E+01
						2	1.07790E+00		8.83548E-03	1.12166E-02	4.61475E-03	6.51553E+01
U -A	2	0	4	1.08803	1.111	1	1.58486E+00	9.46541E-03	2.72580E-03	1.36717E-03	5.20701E-04	8.12810E+01
						2	1.07829E+00		8.93552E-03	1.11616E-02	4.59214E-03	6.35298E+01
U -A	2	0	8	1.01857	1.062	1	1.58523E+00	9.34688E-03	2.85023E-03	1.27615E-03	4.80655E-04	8.12722E+01
						2	1.07812E+00		8.93077E-03	1.06750E-02	4.39226E-03	6.24795E+01
U -A	2	0	12	0.95795	1.082	1	1.58561E+00	9.26443E-03	2.93672E-03	1.19814E-03	4.46348E-04	8.11985E+01
						2	1.07757E+00		8.83007E-03	1.00237E-02	4.12400E-03	6.26351E+01
U -A	2	20	2	1.11400	1.132	1	1.59796E+00	8.81415E-03	2.60403E-03	1.39068E-03	5.33372E-04	8.66562E+01
						2	1.09135E+00		8.82296E-03	1.13671E-02	4.07462E-03	6.39430E+01
U -A	2	20	4	1.08478	1.112	1	1.59817E+00	8.74159E-03	2.87995E-03	1.34020E-03	5.11121E-04	8.66198E+01
						2	1.09146E+00		8.97621E-03	1.13067E-02	4.65184E-03	6.22769E+01
U -A	2	20	8	1.02208	1.062	1	1.59860E+00	8.62769E-03	2.79893E-03	1.24985E-03	4.71056E-04	8.65651E+01
						2	1.09111E+00		8.92242E-03	1.08120E-02	4.44833E-03	6.11955E+01
U -A	2	20	12	0.96073	1.082	1	1.59929E+00	8.54879E-03	2.88809E-03	1.17096E-03	4.36738E-04	8.65294E+01
						2	1.07052E+00		8.82122E-03	1.01494E-02	4.17570E-03	6.13315E+01

LIBRARY TYPE = 3 (50%)

FUEL TYPE	H10 (PPH)	VOID (%)	EXPOSURE (GWD/100)	K-EFF	LMF	NC	D	SIGR	SIGA	NU-SIGI	SIGF	FLUA
U -A	2	40	2	1.11986	1.132	1	1.61602E+00	6.08869F-03	2.55109E-03	1.36243E-03	5.23313E-04	9.28205E+01
						2	1.10873E+00		6.84622E-03	1.15636E-02	4.75754E-03	8.22776F+01
U -A	2	40	4	1.08946	1.111	1	1.61619F+00	8.01912F-03	2.62415E-03	1.31137E-03	5.00850E-04	9.27779F+01
						2	1.10852F+00		8.95257E-03	1.15059E+02	4.73380E-03	8.05871F+01
U -A	2	40	8	1.02544	1.061	1	1.61658E+00	7.91156F-03	2.73643E-03	1.21999E-03	4.60739E-04	9.27189E+01
						2	1.10795E+00		8.95012E-03	1.09993E-02	4.52540E-03	7.94859F+01
U -A	2	40	12	0.96330	1.000	1	1.61700E+00	7.83730F-03	2.81325E-03	1.14201E-03	4.26492E-04	9.26841E+01
						2	1.10735E+00		8.84744E-03	1.03211E-02	4.24638E-03	7.96130E+01
U -A	2	60	2	1.12622	1.126	1	1.63047F+00	7.36544F-03	2.48412E-03	1.33178E-03	5.12364E-04	1.00053F+02
						2	1.13342F+00		8.92180E-03	1.18474E-02	4.87433E-03	8.00550F+01
U -A	2	60	4	1.09451	1.107	1	1.63059F+00	7.29980E-03	2.55347E-03	1.27996E-03	4.89620E-04	1.00001F+02
						2	1.13337E+00		9.03134E-03	1.17851E-02	4.84869E-03	7.83627E+01
U -A	2	60	8	1.02913	1.056	1	1.63088E+00	7.20073E-03	2.65716E-03	1.18805E-03	4.49337E-04	9.99354E+01
						2	1.13248E+00		9.02949E-03	1.12604E-02	4.63283E-03	7.72717F+01
U -A	2	60	12	0.96614	0.995	1	1.63125E+00	7.13245E-03	2.72787E-03	1.11061E-03	4.15344E-04	9.90972E+01
						2	1.13193E+00		8.92461E-03	1.05602E-02	4.34476E-03	7.73983F+01
U -A	4	0	2	1.07880	1.177	1	1.58396E+00	9.53344E-03	2.65525E-03	1.41761E-03	5.42941E-04	8.13002E+01
						2	1.07816E+00		9.16930E-03	1.13043E-02	4.65082E-03	8.20464F+01
U -A	4	0	4	1.05170	1.103	1	1.58485E+00	9.45962E-03	2.73342E-03	1.36760E-03	5.20858E-04	8.12678F+01
						2	1.07852E+00		9.27234E-03	1.12529E-02	4.62969E-03	8.04844F+01
U -A	4	0	8	0.99704	1.058	1	1.58521E+00	9.34110F-03	2.85777E-03	1.27657E-03	4.80811E-04	8.12145E+01
						2	1.07838E+00		9.26955E-03	1.07675E-02	4.42988E-03	7.94541E+01
U -A	4	0	12	0.93288	0.999	1	1.58559E+00	9.25870E-03	2.94425E-03	1.19855E-03	4.46496E-04	8.11774E+01
						2	1.07781F+00		9.16839E-03	1.01120E-02	4.16032E-03	7.95757E+01
U -A	4	20	2	1.03441	1.179	1	1.59794F+00	8.80817F-03	2.61153E-03	1.39102F-03	5.33492E-04	8.66435F+01
						2	1.09172E+00		9.14297E-03	1.14324E-02	4.70355F-03	8.09897F+01
U -A	4	20	4	1.05633	1.109	1	1.59815E+00	8.73565E-03	2.68741E-03	1.34053E-03	5.11240E-04	8.66072E+01
						2	1.09184E+00		9.24899E-03	1.13804E-02	4.68215E-03	7.93889E+01
U -A	4	20	8	0.99538	1.060	1	1.59854E+00	8.62181E-03	2.80633E-03	1.24937E-03	4.71173E-04	8.65526E+01
						2	1.09150E+00		9.24712E-03	1.08867E-02	4.47407E-03	7.83269F+01
U -A	4	20	12	0.93550	0.999	1	1.59927E+00	8.54294E-03	2.88833E-03	1.17120E-03	4.36852E-04	8.65175F+01
						2	1.09091E+00		9.14598E-03	1.02222E-02	4.20569F-03	7.84282E+01
U -A	4	40	2	1.09017	1.179	1	1.61600E+00	8.08263E-03	2.55846E-03	1.36267E-03	5.23397E-04	9.28079E+01
						2	1.10925E+00		9.15189E-03	1.16155E-02	4.77886E-03	7.95075F+01
U -A	4	40	4	1.06093	1.109	1	1.61618E+00	8.01310E-03	2.63148E-03	1.31161F-03	5.00934E-04	9.27654F+01
						2	1.10904E+00		9.26091E-03	1.15613E-02	4.75659E-03	7.78814E+01
U -A	4	40	8	0.99871	1.059	1	1.61656E+00	7.90561E-03	2.74368F-03	1.22023E-03	4.60823E-04	9.27065E+01
						2	1.10847E+00		9.26065E-03	1.10569E-02	4.54909E-03	7.67972E+01
U -A	4	40	12	0.93806	0.998	1	1.61699F+00	7.83139E-03	2.82045E-03	1.14225E-03	4.26576E-04	9.26719E+01
						2	1.10787F+00		9.15834E-03	1.03781E-02	4.26982E-03	7.68891F+01
U -A	4	60	2	1.09663	1.126	1	1.63045E+00	7.35937E-03	2.49138E-03	1.33193F-03	5.12415E-04	1.00040E+02
						2	1.13407E+00		9.21212E-03	1.18793F-02	4.88744E-03	7.75014E+01
U -A	4	60	4	1.06611	1.105	1	1.63057E+00	7.29386E-03	2.56067E-03	1.28011E-03	4.89672E-04	9.99881E+01
						2	1.13402F+00		9.32461E-03	1.18213E-02	4.86356F-03	7.58675E+01
U -A	4	60	8	1.00253	1.054	1	1.63086F+00	7.19478F-03	2.66428E-03	1.18821E-03	4.49391E-04	9.99225E+01
						2	1.13313E+00		9.32525E+03	1.13000F-02	4.64911E-03	7.47923F+01
U -A	4	60	12	0.94103	0.993	1	1.63123E+00	7.12654E-03	2.73493E-03	1.11077E-03	4.15399E-04	9.98844E+01
						2	1.13257E+00		9.22111E-03	1.06005F-02	4.36136E-03	7.48819E+01
U -A	6	0	2	1.05179	1.174	1	1.58394E+00	9.52863F-03	2.66285E-03	1.41803E-03	5.43105E-04	8.12870E+01
						2	1.07836E+00		9.58176E-03	1.13940F-02	4.68774E-03	7.91620E+01
U -A	6	0	4	1.02576	1.104	1	1.58485E+00	9.45380F-03	2.74908E-03	1.36882E-03	5.21017E-04	8.12552E+01
						2	1.07873F+00		9.60728E-03	1.13452F-02	4.66765F-03	7.76644F+01
U -A	6	0	8	0.96759	1.055	1	1.58519E+00	9.33335F-03	2.86532E-03	1.27098E-03	4.80960E-04	8.12015E+01
						2	1.07861F+00		9.60498F-03	1.08580F-02	4.46724E-03	7.66853F+01
U -A	6	0	12	0.90980	0.996	1	1.58557E+00	9.25295F-03	2.95173E-03	1.19895E-03	4.46643E-04	8.11658E+01
						2	1.07804F+00		9.58428F-03	1.02004F-02	4.19671E-03	7.67502F+01

LITERARY TYPE = 3 (50%)

FUEL TYPE	H10 (PPM)	VOID (%)	EXPOSURE (GW/D/TM)	K-EFF	1PF	WG	U	SIGR	SIGA	NU-SIGF	SIGF	FLUX
U-A	6	20	2	1.05706	1.126	1	1.59795E+00	8.80222E-03	2.61902E-03	1.39135E-03	5.33611E-04	8.66509E+01
						2	1.09209E+00		9.46006E-03	1.15022E-02	4.73226E-03	7.42561E+01
U-A	6	20	4	1.03002	1.106	1	1.59013E+00	8.72972E-03	2.69486E-03	1.34086E-03	5.11356E-04	8.65947E+01
						2	1.09221E+00		9.56885E-03	1.14535E-02	4.71222E-03	7.67160E+01
U-A	6	20	8	0.97070	1.057	1	1.59857E+00	8.61591E-03	2.81371E-03	1.24969E-03	4.71292E-04	8.65403E+01
						2	1.09188E+00		9.56932E-03	1.09614E-02	4.50979E-03	7.56707E+01
U-A	6	20	12	0.91220	0.997	1	1.59925E+00	8.53709E-03	2.89567E-03	1.17159E-03	4.36964E-04	8.65052E+01
						2	1.09129E+00		9.46788E-03	1.02946E-02	4.23545E-03	7.57424E+01
U-A	6	40	2	1.06263	1.127	1	1.61599E+00	8.07659E-03	2.56582E-03	1.36291E-03	5.23480E-04	9.27954E+01
						2	1.10976E+00		9.45445E-03	1.16664E-02	4.79982E-03	7.69383E+01
U-A	6	40	4	1.03448	1.107	1	1.61616E+00	8.00710E-03	2.63879E-03	1.31184E-03	5.01017E-04	9.27530E+01
						2	1.10955E+00		9.54644E-03	1.16162E-02	4.77918E-03	7.53688E+01
U-A	6	40	8	0.97391	1.056	1	1.61655E+00	7.89966E-03	2.75092E-03	1.22046E-03	4.60906E-04	9.26942E+01
						2	1.10897E+00		9.54044E-03	1.11140E-02	4.57257E-03	7.43025E+01
U-A	6	40	12	0.91465	0.990	1	1.61697E+00	7.82549E-03	2.82765E-03	1.14246E-03	4.26658E-04	9.26597E+01
						2	1.10837E+00		9.46651E-03	1.04346E-02	4.29308E-03	7.43614E+01
U-A	6	60	2	1.06908	1.124	1	1.63043E+00	7.55335E-03	2.49858E-03	1.33207E-03	5.12455E-04	1.00027E+02
						2	1.13471E+00		9.49975E-03	1.19107E-02	4.90035E-03	7.51240E+01
U-A	6	60	4	1.03966	1.104	1	1.63055E+00	7.20784E-03	2.56786E-03	1.28026E-03	4.09723E-04	9.99751E+01
						2	1.13466E+00		9.61534E-03	1.18571E-02	4.87831E-03	7.35425E+01
U-A	6	60	8	0.97776	1.052	1	1.63084E+00	7.18886E-03	2.67135E-03	1.18835E-03	4.49438E-04	9.99988E+01
						2	1.13375E+00		9.61644E-03	1.13391E-02	4.66523E-03	7.24013E+01
U-A	6	60	12	0.91767	0.991	1	1.63121E+00	7.12067E-03	2.74195E-03	1.11093E-03	4.15449E-04	9.98718E+01
						2	1.13319E+00		9.51504E-03	1.06405E-02	4.37780E-03	7.25395E+01
SP-A	2	0	2	1.10106	1.303	1	1.59288E+00	1.00614E-02	2.24027E-03	1.15150E-03	4.42106E-04	8.06081E+01
						2	1.06654E+00		8.56250E-03	1.05634E-02	4.25359E-03	9.18427E+01
SP-A	2	0	4	1.07456	1.312	1	1.59206E+00	1.00188E-02	2.24986E-03	1.10491E-03	4.20084E-04	8.06081E+01
						2	1.06642E+00		8.61347E-03	1.04396E-02	4.13538E-03	9.08532E+01
SP-A	2	0	8	1.01332	1.323	1	1.58318E+00	9.91715E-03	2.38246E-03	1.01648E-03	3.81607E-04	8.06047E+01
						2	1.06568E+00		8.55036E-03	9.88829E-03	3.81856E-03	9.06565E+01
SP-A	2	0	12	0.94851	1.331	1	1.58340E+00	9.84735E-03	2.45028E-03	9.36882E-04	3.46987E-04	8.06100E+01
						2	1.06441E+00		8.39404E-03	9.16390E-03	3.46431E-03	9.16738E+01
SP-A	2	20	2	1.10950	1.303	1	1.59536E+00	9.40877E-03	2.21408E-03	1.13588E-03	4.36615E-04	8.51991E+01
						2	1.07796E+00		8.57433E-03	1.07337E-02	4.32255E-03	9.06372E+01
SP-A	2	20	4	1.08218	1.312	1	1.59547E+00	9.35949E-03	2.26310E-03	1.08902E-03	4.15278E-04	8.51943E+01
						2	1.07774E+00		8.62546E-03	1.06059E-02	4.20189E-03	8.96357E+01
SP-A	2	20	8	1.01982	1.322	1	1.59570E+00	9.26885E-03	2.35355E-03	1.00052E-03	3.75974E-04	8.51842E+01
						2	1.07686E+00		8.56020E-03	1.00425E-02	3.87900E-03	8.94260E+01
SP-A	2	20	12	0.95426	1.330	1	1.59594E+00	9.20180E-03	2.41921E-03	9.20886E-04	3.41338E-04	8.51861E+01
						2	1.07578E+00		8.39910E-03	9.30216E-03	3.51751E-03	9.04561E+01
SP-A	2	40	2	1.11797	1.301	1	1.60823E+00	8.75527E-03	2.18291E-03	1.11939E-03	4.30009E-04	9.03946E+01
						2	1.07925E+00		8.61931E-03	1.09545E-02	4.41204E-03	8.90046E+01
SP-A	2	40	4	1.08972	1.310	1	1.60830E+00	8.70750E-03	2.23116E-03	1.07219E-03	4.09320E-04	9.03834E+01
						2	1.09219E+00		8.66925E-03	1.08195E-02	4.28749E-03	8.80108E+01
SP-A	2	40	8	1.02614	1.320	1	1.60849E+00	8.62047E-03	2.31881E-03	9.83510E-04	3.69954E-04	9.03659E+01
						2	1.09124E+00		8.60074E-03	1.02392E-02	3.95634E-03	8.78811E+01
SP-A	2	40	12	0.95976	1.326	1	1.60870E+00	8.55670E-03	2.38185E-03	9.03960E-04	3.35355E-04	9.03630E+01
						2	1.07815E+00		8.43305E-03	9.47732E-03	3.58515E-03	8.88530E+01
SP-A	2	60	2	1.12667	1.290	1	1.62323E+00	8.10038E-03	2.14443E-03	1.10167E-03	4.24549E-04	9.63378E+01
						2	1.11208E+00		8.70854E-03	1.12435E-02	4.52936E-03	8.88517E+01
SP-A	2	60	4	1.09738	1.307	1	1.62328E+00	8.05435E-03	2.19159E-03	1.05402E-03	4.02887E-04	9.63195E+01
						2	1.11868E+00		8.75820E-03	1.11083E-02	4.40030E-03	8.58634E+01
SP-A	2	60	8	1.03243	1.316	1	1.62334E+00	7.97195E-03	2.27552E-03	9.64983E-04	3.63368E-04	9.62919E+01
						2	1.10949E+00		8.68321E-03	1.04946E-02	4.05711E-03	8.56866E+01
SP-A	2	60	12	0.96512	1.324	1	1.62352E+00	7.91205E-03	2.33535E-03	8.85768E-04	3.28909E-04	9.62828E+01
						2	1.10874E+00		8.50670E-03	9.70350E-03	3.67287E-03	8.67710E+01

LIBRARY IYPF = 3 (50%)

FUEL IYPF	H10 (PPH)	VOID (%)	EXPOSURE (GWD/100)	K-EFF	LPE	WG	D	SIGR	SIGA	NO-SIGF	SIGF	FLUX
SP-A	4	0	2	1.07040	1.300	1	1.58286F+00	1.00554E-02	2.24757E-03	1.15155E-03	4.42138E-04	0.05980E+01
						2	1.06652F+00	8.89703E-03	1.06496E-02	4.28803E-03	8.83864E+01	
SP-A	4	0	4	1.04480	1.300	1	1.58295F+00	1.00050E-02	2.29714E-03	1.10499E-03	4.20918E-04	0.05974E+01
						2	1.66041F+00	8.94754E-03	1.05245E-02	4.16859E-03	8.74570E+01	
SP-A	4	0	6	0.98513	1.320	1	1.58316F+00	9.91136E-03	2.38974E-03	1.01656E-03	5.81638E-04	0.05939E+01
						2	1.66560F+00	8.81449E-03	9.97079E-03	5.84998E-03	8.72436E+01	
SP-A	4	0	12	0.92176	1.320	1	1.58338E+00	9.84150E-03	2.45754E-03	9.36958E-04	5.47017E-04	0.05993E+01
						2	1.66440F+00	8.72693E-03	9.24190E-03	5.49342E-03	8.81750E+01	
SP-A	4	20	2	1.07856	1.300	1	1.59535F+00	9.40283E-03	2.22140E-03	1.13594E-03	4.36641E-04	0.51879E+01
						2	1.07811F+00	8.89387E-03	1.08016E-02	4.34958E-03	8.73712E+01	
SP-A	4	20	4	1.05219	1.300	1	1.59545E+00	9.35560E-03	2.27041E-03	1.08909E-03	4.15303E-04	0.51829E+01
						2	1.07789F+00	8.94569E-03	1.06743E-02	4.22854E-03	8.64154E+01	
SP-A	4	20	6	0.99144	1.320	1	1.59568F+00	9.26298E-03	2.36880E-03	1.00059E-03	5.75998E-04	0.51732E+01
						2	1.07701E+00	8.88224E-03	1.01114E-02	3.90510E-03	8.61753E+01	
SP-A	4	20	12	0.92733	1.320	1	1.59592F+00	9.19594E-03	2.42642E-03	9.20949E-04	5.41362E-04	0.51752E+01
						2	1.07586F+00	8.72036E-03	9.36791E-03	3.54193E-03	8.71169E+01	
SP-A	4	40	2	1.08692	1.290	1	1.60621F+00	8.74929E-03	2.19021E-03	1.11945E-03	4.30824E-04	0.03828E+01
						2	1.09284F+00	8.92487E-03	1.10853E-02	4.43213E-03	8.59410E+01	
SP-A	4	40	4	1.05966	1.300	1	1.60629F+00	8.70152E-03	2.23843E-03	1.07223E-03	4.09345E-04	0.03719E+01
						2	1.09248E+00	8.97768E-03	1.08739E-02	4.30851E-03	8.49709E+01	
SP-A	4	40	6	0.99769	1.310	1	1.60647E+00	8.61456E-03	2.32603E-03	9.83558E-04	3.62970E-04	0.03543E+01
						2	1.09154F+00	8.90986E-03	1.02936E-02	3.97676E-03	8.47395E+01	
SP-A	4	40	12	0.93275	1.320	1	1.60668F+00	8.55079E-03	2.38902E-03	9.84010E-04	3.35373E-04	0.03517E+01
						2	1.09044F+00	8.74236E-03	9.53049E-03	3.60475E-03	8.56956E+01	
SP-A	4	60	2	1.09570	1.290	1	1.62321F+00	8.89435E-03	2.15169E-03	1.10168E-03	4.24552E-04	0.63254E+01
						2	1.11161F+00	9.00121E-03	1.12783E-02	4.54300E-03	8.40031E+01	
SP-A	4	60	4	1.06740	1.305	1	1.62328F+00	8.84834E-03	2.19881E-03	1.05404E-03	4.02892E-04	0.63071E+01
						2	1.11108E+00	9.05300E-03	1.11382E-02	4.41474E-03	8.30441E+01	
SP-A	4	60	8	1.00407	1.315	1	1.62332F+00	7.96600E-03	2.28268E-03	9.65010E-04	5.63377E-04	0.62797E+01
						2	1.11009E+00	8.97975E-03	1.05345E-02	4.07192E-03	8.28347E+01	
SP-A	4	60	12	0.93819	1.325	1	1.62350E+00	7.90614E-03	2.34247E-03	8.85881E-04	3.28920E-04	0.62707E+01
						2	1.10914E+00	8.80342E-03	9.74321E-03	3.68732E-03	8.38259E+01	
SP-A	6	0	2	1.04221	1.297	1	1.58284E+00	1.00496E-02	2.25488E-03	1.15162E-03	4.42171E-04	0.05875E+01
						2	1.06649E+00	9.27225E-03	1.07339E-02	4.32170E-03	8.52156E+01	
SP-A	6	0	4	1.01746	1.307	1	1.58293F+00	9.99916E-03	2.30448E-03	1.10506E-03	4.20950E-04	0.05868E+01
						2	1.06639F+00	9.27896F-03	1.06095E-02	4.20187E-03	8.43253E+01	
SP-A	6	0	8	0.95926	1.317	1	1.58315E+00	9.90550E-03	2.39695F-03	1.01661E-03	5.81666E-04	0.05841E+01
						2	1.06558F+00	9.21767E-03	1.00554E-02	3.88221E-03	8.40830E+01	
SP-A	6	0	12	0.89722	1.326	1	1.58330E+00	9.83575E-03	2.46473F-03	9.37015E-04	3.47043E-04	0.05894E+01
						2	1.06438F+00	9.05847E-03	9.32142E-03	3.52309E-03	8.49420F+01	
SP-A	6	20	2	1.05004	1.296	1	1.59535F+00	9.39689E-03	2.22871E-03	1.13600E-03	4.36867E-04	0.51770E+01
						2	1.07824F+00	9.21075E-03	1.08696E-02	4.37663E-03	8.43508E+01	
SP-A	6	20	4	1.02454	1.307	1	1.59545F+00	9.34769F-03	2.27770E-03	1.08915E-03	4.15328E-04	0.51719E+01
						2	1.07805F+00	9.26411E-03	1.07438E-02	4.25559F-03	8.34318E+01	
SP-A	6	20	6	0.96528	1.317	1	1.59546F+00	9.25710E-03	2.36804E-03	1.00064E-03	3.76023E-04	0.51623F+01
						2	1.07715F+00	9.20139E-03	1.01800E-02	3.93112E-03	8.31722F+01	
SP-A	6	20	12	0.90253	1.326	1	1.59590E+00	9.19010E-03	2.43362E-03	9.21010E-04	5.41386E-04	0.51644E+01
						2	1.07680F+00	9.03867E-03	9.43333E-03	5.56622E-03	8.40376F+01	
SP-A	6	40	2	1.05819	1.297	1	1.60619F+00	8.74331F-03	2.19758E-03	1.11947E-03	4.30838E-04	0.03710E+01
						2	1.09310F+00	9.22819E-03	1.10564E-02	4.45239F-03	8.30957F+01	
SP-A	6	40	4	1.03133	1.306	1	1.60627F+00	8.69557E-03	2.24569F-03	1.07227E-03	4.09360E-04	0.03602E+01
						2	1.09277E+00	9.28266E-03	1.09271E-02	4.32910E-03	8.21586E+01	
SP-A	6	40	6	0.97159	1.316	1	1.60665F+00	8.60863F-03	2.33233F-03	9.83604E-04	3.69889E-04	0.03429E+01
						2	1.09182F+00	9.21666E-03	1.03481F-02	3.99728E-03	8.18989F+01	
SP-A	6	40	12	0.90782	1.324	1	1.60667F+00	8.54491E-03	2.39619F-03	9.04060F-04	3.35391E-04	0.03402E+01
						2	1.09073E+00	9.04842E-03	9.58289F-03	3.62405E-03	8.27798E+01	

LIBRARY TYPE = 3 (50%)

FUEL TYPE	B1U (PPM)	VOID (%)	EXPOSURE (GWD/TN)	K-EFF	LIF	MG	D	SIGK	SIGA	NU-SIGF	SIGF	FLUX
SP-A	6	60	2	1.00693	1.295	1	1.02319E+00	8.00033E-03	2.15094E-03	1.10170E-03	4.24555E-04	9.63129E+01
						2	1.11200E+00		9.29112E-03	1.13120E-02	4.55652E-03	8.13562E+01
SP-A	6	60	4	1.03956	1.303	1	1.07324E+00	8.04237E-03	2.20602E-03	1.05405E-03	4.02093E-04	9.62947E+01
						2	1.11147E+00		9.34475E-03	1.11753E-02	4.42091E-03	8.04259E+01
SP-A	6	60	8	0.97776	1.315	1	1.02330E+00	7.96007E-03	2.20982E-03	9.65035E-04	3.63382E-04	9.62674E+01
						2	1.11047E+00		9.27333E-03	1.05739E-02	4.08650E-03	8.01877E+01
SP-A	6	60	12	0.91325	1.321	1	1.07348E+00	7.90023E-03	2.34958E-03	8.85034E-04	3.28931E-04	9.62585E+01
						2	1.10952E+00		9.09750E-03	9.70267E-03	3.70168E-03	8.10929E+01
PU-B	2	0	2	1.17162	1.166	1	1.50430E+00	8.93363E-03	3.31917E-03	1.77215E-03	6.37011E-04	8.07938E+01
						2	1.09353E+00		1.13770E-02	1.60625E-02	5.76217E-03	6.10051E+01
PU-B	2	0	4	1.14088	1.140	1	1.50458E+00	8.91468E-03	3.33961E-03	1.71549E-03	6.16455E-04	8.07033E+01
						2	1.09248E+00		1.11802E-02	1.54192E-02	5.52429E-03	6.27371E+01
PU-B	2	0	8	1.00720	1.111	1	1.50497E+00	8.80515E-03	3.37146E-03	1.60774E-03	5.75934E-04	8.07671E+01
						2	1.09063E+00		1.07095E-02	1.41907E-02	5.06853E-03	6.47470E+01
PU-B	2	0	12	1.02540	1.078	1	1.50530E+00	8.86449E-03	3.39337E-03	1.50604E-03	5.37993E-04	8.07586E+01
						2	1.08075E+00		1.04144E-02	1.30319E-02	4.63761E-03	6.60013E+01
PU-B	2	20	2	1.17040	1.167	1	1.50845E+00	8.23010E-03	3.25094E-03	1.74095E-03	6.26789E-04	8.60250E+01
						2	1.10296E+00		1.14189E-02	1.02642E-02	5.83549E-03	8.04615E+01
PU-B	2	20	4	1.13966	1.147	1	1.50865E+00	8.21957E-03	3.26983E-03	1.68432E-03	6.05447E-04	8.60213E+01
						2	1.10226E+00		1.12214E-02	1.56150E-02	5.59573E-03	6.13690E+01
PU-B	2	20	8	1.06100	1.110	1	1.50907E+00	8.19049E-03	3.29896E-03	1.57652E-03	5.64906E-04	8.60195E+01
						2	1.10080E+00		1.08273E-02	1.43735E-02	5.13403E-03	6.33439E+01
PU-B	2	20	12	1.02449	1.076	1	1.50951E+00	8.16945E-03	3.31075E-03	1.47546E-03	5.27055E-04	8.60252E+01
						2	1.09937E+00		1.04407E-02	1.32023E-02	4.69914E-03	6.54421E+01
PU-B	2	40	2	1.16931	1.164	1	1.01511E+00	7.54934E-03	3.16801E-03	1.70632E-03	6.14550E-04	9.20455E+01
						2	1.11546E+00		1.15108E-02	1.65463E-02	5.93899E-03	5.00122E+01
PU-B	2	40	4	1.13058	1.144	1	1.01534E+00	7.53152E-03	3.18538E-03	1.65021E-03	5.93384E-04	9.20479E+01
						2	1.11504E+00		1.13121E-02	1.58085E-02	5.69544E-03	5.96910E+01
PU-B	2	40	8	1.00011	1.106	1	1.01600E+00	7.50354E-03	3.21156E-03	1.54265E-03	5.52933E-04	9.20612E+01
						2	1.11416E+00		1.09150E-02	1.46303E-02	5.22011E-03	6.16003E+01
PU-B	2	40	12	1.02369	1.071	1	1.01658E+00	7.48358E-03	3.22910E-03	1.44420E-03	5.15246E-04	9.20009E+01
						2	1.11323E+00		1.05322E-02	1.34423E-02	4.70501E-03	6.36563E+01
PU-B	2	60	2	1.16916	1.150	1	1.02094E+00	6.87078E-03	3.06360E-03	1.66647E-03	6.00443E-04	9.90004E+01
						2	1.13210E+00		1.16760E-02	1.69476E-02	6.00566E-03	5.68102E+01
PU-B	2	60	4	1.13042	1.137	1	1.02917E+00	6.85309E-03	3.07950E-03	1.61136E-03	5.79631E-04	9.90966E+01
						2	1.13211E+00		1.14764E-02	1.62704E-02	5.83767E-03	5.76466E+01
PU-B	2	60	8	1.00002	1.098	1	1.02968E+00	6.82763E-03	3.10271E-03	1.50491E-03	5.39574E-04	9.91246E+01
						2	1.13210E+00		1.10760E-02	1.49976E-02	5.36149E-03	5.94668E+01
PU-B	2	60	12	1.02370	1.062	1	1.03018E+00	6.80889E-03	3.11778E-03	1.40493E-03	5.02131E-04	9.91597E+01
						2	1.13207E+00		1.06881E-02	1.37857E-02	4.90906E-03	6.14630E+01
PU-B	4	0	2	1.14726	1.163	1	1.50436E+00	8.92002E-03	3.32673E-03	1.77273E-03	6.30016E-04	8.07003E+01
						2	1.09374E+00		1.17445E-02	1.62009E-02	5.01119E-03	5.98505E+01
PU-B	4	0	4	1.11604	1.144	1	1.50457E+00	8.90905E-03	3.34713E-03	1.71606E-03	6.16658E-04	8.07706E+01
						2	1.09204E+00		1.15461E-02	1.55537E-02	5.57191E-03	6.07275E+01
PU-B	4	0	8	1.05873	1.100	1	1.50495E+00	8.87955E-03	3.37099E-03	1.60031E-03	5.76133E-04	8.07536E+01
						2	1.09098E+00		1.11504E-02	1.43147E-02	5.11240E-03	6.26315E+01
PU-B	4	0	12	1.00252	1.074	1	1.50536E+00	8.85089E-03	3.40088E-03	1.50697E-03	5.30175E-04	8.07452E+01
						2	1.09097E+00		1.07712E-02	1.31471E-02	4.67826E-03	6.46461E+01
PU-B	4	20	2	1.14613	1.164	1	1.50844E+00	8.23237E-03	3.25026E-03	1.74138E-03	6.26942E-04	8.60124E+01
						2	1.10342E+00		1.17693E-02	1.63701E-02	5.87615E-03	5.86577E+01
PU-B	4	20	4	1.11571	1.144	1	1.50864E+00	8.21304E-03	3.27714E-03	1.68476E-03	6.05600E-04	8.60006E+01
						2	1.10271E+00		1.15699E-02	1.57251E-02	5.63458E-03	5.94952E+01
PU-B	4	20	8	1.05769	1.107	1	1.50906E+00	8.18477E-03	3.30425E-03	1.57694E-03	5.65056E-04	8.60069E+01
						2	1.10124E+00		1.11720E-02	1.44757E-02	5.17094E-03	6.13646E+01
PU-B	4	20	12	1.00167	1.073	1	1.50949E+00	8.16413E-03	3.32603E-03	1.47580E-03	5.73202E-04	8.60128E+01
						2	1.09975E+00		1.07901E-02	1.32978E-02	4.73275E-03	6.33409E+01

LIBRARY TYPE = 3 (50%)

FULL TYPE	BIT (PPH)	VOL (%)	EXPOSURE (CuD/Tr)	K-EFF	LF	NR	0	SIGR	SIGA	HI-SIGF	SIGF	FLUX
PU-P	4	40	2	1.14526	1.162	1	1.01505F+00	7.54357E-03	5.17512E-03	1.70063E-03	6.14658E-04	9.20331E+01
						2	1.11599E+00		1.10437E-02	1.66350E-02	5.97020E-03	5.71302E+01
PU-P	4	40	4	1.11684	1.142	1	1.01533E+00	7.52576E-03	5.19249E-03	1.65052E-03	5.93492E-04	9.20356E+01
						2	1.11555E+00		1.16437E-02	1.59746E-02	5.72571E-03	5.79620E+01
PU-P	4	40	6	1.05691	1.104	1	1.01607E+00	7.49779E-03	5.21066E-03	1.54296E-03	5.53041E-04	9.20489E+01
						2	1.11469E+00		1.12432E-02	1.47103E-02	5.25620E-03	5.97074E+01
PU-P	4	40	12	1.00104	1.069	1	1.01656E+00	7.47704E-03	5.23616E-03	1.44232E-03	5.15351E-04	9.20607E+01
						2	1.11377E+00		1.00574E-02	1.35168E-02	4.41194E-03	6.17223E+01
PU-P	4	60	2	1.14549	1.150	1	1.02092E+00	6.86504E-03	5.07053E-03	1.66666E-03	6.00509E-04	9.90757E+01
						2	1.13267E+00		1.19909E-02	1.70102E-02	6.10749E-03	5.52857E+01
PU-P	4	60	4	1.11504	1.135	1	1.02916E+00	6.84616E-03	5.08641E-03	1.61156E-03	5.79699E-04	9.90839E+01
						2	1.13266E+00		1.17900E-02	1.63391E-02	5.85802E-03	5.60801E+01
PU-P	4	60	8	1.05718	1.096	1	1.02966E+00	6.82192E-03	5.10959E-03	1.50511E-03	5.39643E-04	9.91120E+01
						2	1.13266E+00		1.13871E-02	1.50545E-02	5.30130E-03	5.78289E+01
PU-P	4	60	12	1.00140	1.061	1	1.03016E+00	6.80319E-03	5.12465E-03	1.40513E-03	5.02200E-04	9.91471E+01
						2	1.13265E+00		1.09967E-02	1.38389E-02	4.92041E-03	5.97066E+01
PU-P	6	0	2	1.12457	1.160	1	1.05043E+00	8.92239E-03	5.33423E-03	1.77329E-03	6.38214E-04	8.07672E+01
						2	1.09909E+00		1.21096E-02	1.63395E-02	5.66030E-03	5.80231E+01
PU-P	6	0	4	1.09445	1.141	1	1.05045E+00	8.90345E-03	5.35465E-03	1.71662E-03	6.16056E-04	8.07566E+01
						2	1.09319E+00		1.19082E-02	1.56862E-02	5.61882E-03	5.88591E+01
PU-P	6	0	8	1.03690	1.104	1	1.05094E+00	8.87395E-03	5.38649E-03	1.60085E-03	5.76327E-04	8.07402E+01
						2	1.09132E+00		1.15082E-02	1.44379E-02	5.15593E-03	6.06622E+01
PU-P	6	0	12	0.98129	1.071	1	1.05053E+00	8.85328E-03	5.40834E-03	1.50749E-03	5.38362E-04	8.07322E+01
						2	1.08943E+00		1.11253E-02	1.32620E-02	4.71882E-03	6.25680E+01
PU-P	6	20	2	1.12345	1.161	1	1.05984E+00	8.22665E-03	5.26556E-03	1.74181E-03	6.27095E-04	8.59998E+01
						2	1.10386E+00		1.21172E-02	1.64918E-02	5.91631E-03	5.69261E+01
PU-P	6	20	4	1.09332	1.142	1	1.05906E+00	8.20813E-03	5.24444E-03	1.60510E-03	6.05750E-04	8.59959E+01
						2	1.10315E+00		1.18915E-02	1.58342E-02	5.67311E-03	5.77446E+01
PU-P	6	20	8	1.03587	1.104	1	1.05904E+00	8.17907E-03	5.31353E-03	1.57736E-03	5.65204E-04	8.59943E+01
						2	1.10160E+00		1.15136E-02	1.45772E-02	5.20674E-03	5.95185E+01
PU-P	6	20	12	0.98041	1.070	1	1.05904E+00	8.15643E-03	5.33320E-03	1.47620E-03	5.27345E-04	8.60003E+01
						2	1.10017E+00		1.11205E-02	1.33924E-02	4.76606E-03	6.13976E+01
PU-P	6	40	2	1.12771	1.159	1	1.06150E+00	7.53781E-03	5.18223E-03	1.70693E-03	6.14763E-04	9.20208E+01
						2	1.11650E+00		1.21740E-02	1.67231E-02	6.00116E-03	5.55510E+01
PU-P	6	40	4	1.09250	1.140	1	1.06153E+00	7.52000E-03	5.19958E-03	1.65082E-03	5.93596E-04	9.20232E+01
						2	1.11609E+00		1.19721E-02	1.60594E-02	5.75551E-03	5.63426E+01
PU-P	6	40	6	1.03520	1.101	1	1.06160E+00	7.49206E-03	5.22572E-03	1.54326E-03	5.53147E-04	9.20366E+01
						2	1.11521E+00		1.15686E-02	1.47896E-02	5.28407E-03	5.80715E+01
PU-P	6	40	12	0.97988	1.067	1	1.06165E+00	7.47212E-03	5.24321E-03	1.44262E-03	5.15455E-04	9.20564E+01
						2	1.11429E+00		1.11797E-02	1.35907E-02	4.83786E-03	5.99146E+01
PU-P	6	60	2	1.12319	1.154	1	1.02891E+00	6.85930E-03	5.07745E-03	1.60685E-03	6.00574E-04	9.90631E+01
						2	1.13323E+00		1.23033E-02	1.70724E-02	6.12916E-03	5.30485E+01
PU-P	6	60	4	1.09304	1.134	1	1.02914E+00	6.84244E-03	5.09332E-03	1.61175E-03	5.79765E-04	9.90713E+01
						2	1.13324E+00		1.21011E-02	1.63993E-02	5.47980E-03	5.46052E+01
PU-P	6	60	6	1.03571	1.094	1	1.02965E+00	6.81621E-03	5.11648E-03	1.50530E-03	5.39711E-04	9.90904E+01
						2	1.13325E+00		1.16956E-02	1.51109E-02	5.40095E-03	5.67702E+01
PU-P	6	60	12	0.98047	1.059	1	1.03015E+00	6.79750E-03	5.13151E-03	1.40532E-03	5.02268E-04	9.91346E+01
						2	1.13323E+00		1.13028E-02	1.38917E-02	4.94680E-03	5.80568E+01
U -R	2	0	2	1.17727	1.150	1	1.05046E+00	9.47604E-03	2.73092E-03	1.59093E-03	6.17572E-04	8.11767E+01
						2	1.08179E+00		9.41797E-03	1.27160E-02	5.23161E-03	7.93064E+01
U -R	2	0	4	1.14078	1.134	1	1.05048E+00	9.41493E-03	2.79386E-03	1.54075E-03	5.92423E-04	8.11567E+01
						2	1.08195E+00		9.40655E-03	1.26035E-02	5.18532E-03	7.02106E+01
U -R	2	0	6	1.06920	1.094	1	1.05052E+00	9.31067E-03	2.90152E-03	1.43345E-03	5.46077E-04	8.11215E+01
						2	1.08141E+00		9.45299E-03	1.20756E-02	4.96814E-03	7.75939E+01
U -R	2	0	12	1.02879	1.043	1	1.05060E+00	9.23552E-03	2.97905E-03	1.33793E-03	5.06052E-04	8.10970E+01
						2	1.08077E+00		9.30882E-03	1.13444E-02	4.66733E-03	7.81202E+01

LIOPART TYPE = 3 (50%)

FULL TYPE	B10 (PPH)	VOL% (%)	EXPOSURE (GWD/Td)	K-EFF	LF	WG	D	SIGN	SIGN	NU-SIGN	SIGN	FLUX
U -R	2	20	2	1.10210	1.152	1	1.59791E+00	8.75258E-03	2.68706E-03	1.57218E-03	6.08047E-04	8.64841E+01
						2	1.09459E+00		9.41655E-03	1.28807E-02	5.29936E-03	7.80379E+01
U -P	2	20	4	1.15273	1.135	1	1.59811E+00	8.69320E-03	2.74813E-03	1.51354E-03	5.07730E-04	8.64624E+01
						2	1.09454E+00		9.48836E-03	1.27683E-02	5.25314E-03	7.69152E+01
U -R	2	20	8	1.09209	1.095	1	1.59855E+00	8.59310E-03	2.85064E-03	1.40561E-03	5.36173E-04	8.64301E+01
						2	1.09407E+00		9.45653E-03	1.22339E-02	5.03329E-03	7.62594E+01
U -R	2	20	12	1.03110	1.044	1	1.59723E+00	8.52118E-03	2.92380E-03	1.31002E-03	4.94941E-04	8.64106E+01
						2	1.09325E+00		9.31061E-03	1.14912E-02	4.72774E-03	7.67735E+01
U -R	2	40	2	1.10692	1.151	1	1.61587E+00	8.04006E-03	2.63358E-03	1.54326E-03	5.97706E-04	9.26029E+01
						2	1.11109E+00		9.45426E-03	1.31092E-02	5.59341E-03	7.63422E+01
U -R	2	40	4	1.15660	1.135	1	1.61606E+00	7.97289E-03	2.69245E-03	1.48431E-03	5.72292E-04	9.25782E+01
						2	1.11079E+00		9.52867E-03	1.29949E-02	5.34640E-03	7.52000E+01
U -R	2	40	6	1.09406	1.094	1	1.61645E+00	7.87855E-03	2.78873E-03	1.37572E-03	5.25499E-04	9.25457E+01
						2	1.11012E+00		9.49815E-03	1.24582E-02	5.12232E-03	7.45264E+01
U -R	2	40	12	1.03329	1.042	1	1.61609E+00	7.81101E-03	2.85657E-03	1.27996E-03	4.84231E-04	9.25321E+01
						2	1.10936E+00		9.35086E-03	1.16931E-02	4.81085E-03	7.50249E+01
U -R	2	60	2	1.19226	1.149	1	1.63030E+00	7.31031E-03	2.56539E-03	1.51114E-03	5.86142E-04	9.97702E+01
						2	1.13433E+00		9.54823E-03	1.34308E-02	5.52571E-03	7.41337E+01
U -R	2	60	4	1.16090	1.131	1	1.63044E+00	7.25606E-03	2.62169E-03	1.45214E-03	5.60735E-04	9.97464E+01
						2	1.13426E+00		9.62598E-03	1.33135E-02	5.47748E-03	7.29806E+01
U -R	2	60	8	1.09807	1.089	1	1.63075E+00	7.16917E-03	2.71020E-03	1.34290E-03	5.13725E-04	9.97128E+01
						2	1.13335E+00		9.59670E-03	1.27540E-02	5.24731E-03	7.23055E+01
U -R	2	60	12	1.03590	1.036	1	1.63113E+00	7.10755E-03	2.77150E-03	1.24692E-03	4.72402E-04	9.97031E+01
						2	1.13274E+00		9.44699E-03	1.19759E-02	4.92722E-03	7.27981E+01
U -R	4	0	2	1.14798	1.146	1	1.58467E+00	9.47021E-03	2.73055E-03	1.59439E-03	6.17752E-04	8.11637E+01
						2	1.08203E+00		9.75099E-03	1.28173E-02	5.27328E-03	7.65206E+01
U -R	4	0	4	1.12041	1.136	1	1.58484E+00	9.40912E-03	2.80147E-03	1.54121E-03	5.92599E-04	8.11437E+01
						2	1.08220E+00		9.82961E-03	1.27066E-02	5.22773E-03	7.54728E+01
U -R	4	0	6	1.06227	1.091	1	1.58520E+00	9.38491E-03	2.90908E-03	1.43390E-03	5.46247E-04	8.11086E+01
						2	1.08186E+00		9.79726E-03	1.21778E-02	5.01021E-03	7.40528E+01
U -R	4	0	12	1.00308	1.040	1	1.58558E+00	9.22970E-03	2.98657E-03	1.33837E-03	5.05016E-04	8.10841E+01
						2	1.08103E+00		9.65226E-03	1.14428E-02	4.70780E-03	7.53271E+01
U -R	4	20	2	1.15263	1.149	1	1.59780E+00	8.74663E-03	2.69456E-03	1.57254E-03	6.08176E-04	8.64713E+01
						2	1.09498E+00		9.74102E-03	1.29592E-02	5.33167E-03	7.54176E+01
U -R	4	20	4	1.12422	1.132	1	1.59810E+00	8.68726E-03	2.75560E-03	1.51389E-03	5.82865E-04	8.64499E+01
						2	1.09495E+00		9.81556E-03	1.28501E-02	5.28681E-03	7.43312E+01
U -R	4	20	8	1.06504	1.092	1	1.59853E+00	8.58173E-03	2.85805E-03	1.40596E-03	5.36298E-04	8.64175E+01
						2	1.09446E+00		9.78515E-03	1.23159E-02	5.06704E-03	7.36777E+01
U -R	4	20	12	1.00529	1.041	1	1.59921E+00	8.51532E-03	2.93117E-03	1.31036E-03	4.95067E-04	8.63982E+01
						2	1.09365E+00		9.63939E-03	1.15715E-02	4.76079E-03	7.41351E+01
U -R	4	40	2	1.15744	1.149	1	1.61586E+00	8.02403E-03	2.64094E-03	1.54350E-03	5.97793E-04	9.25904E+01
						2	1.11161E+00		9.76327E-03	1.31667E-02	5.41703E-03	7.38991E+01
U -R	4	40	4	1.12809	1.132	1	1.61604E+00	7.96689E-03	2.69977E-03	1.48456E-03	5.72379E-04	9.25657E+01
						2	1.11131E+00		9.84015E-03	1.30555E-02	5.37130E-03	7.27940E+01
U -R	4	40	6	1.06784	1.091	1	1.61644E+00	7.87262E-03	2.79599E-03	1.37597E-03	5.25587E-04	9.25333E+01
						2	1.11064E+00		9.81162E-03	1.25127E-02	5.14880E-03	7.21191E+01
U -R	4	40	12	1.00750	1.039	1	1.61687E+00	7.80511E-03	2.86378E-03	1.28821E-03	4.88431E-04	9.25197E+01
						2	1.10988E+00		9.66455E-03	1.17548E-02	4.83620E-03	7.25646E+01
U -R	4	60	2	1.16298	1.147	1	1.63028E+00	7.30429E-03	2.57258E-03	1.51127E-03	5.86177E-04	9.97653E+01
						2	1.13497E+00		9.84084E-03	1.34655E-02	5.54000E-03	7.18966E+01
U -R	4	60	4	1.13260	1.129	1	1.63042E+00	7.25005E-03	2.62888E-03	1.45229E-03	5.68785E-04	9.97334E+01
						2	1.13491E+00		9.92140E-03	1.33523E-02	5.49343E-03	7.07746E+01
U -R	4	60	6	1.07125	1.087	1	1.63073E+00	7.16324E-03	2.71731E-03	1.34305E-03	5.13778E-04	9.96999E+01
						2	1.13399E+00		9.89444E-03	1.27959E-02	5.26456E-03	7.00983E+01
U -R	4	60	12	1.01029	1.034	1	1.63111E+00	7.19166E-03	2.77864E-03	1.24708E-03	4.72458E-04	9.96903E+01
						2	1.13337E+00		9.74540E-03	1.20105E-02	4.94474E-03	7.05389E+01

LIBRARY TYPE = 3 (50%)

FULL TYPE	B10 (PPH)	VOID (%)	EXPOSURE (GWD/TU)	K-EFF	LPF	UG	D	SIGR	SIGA	MI-SIGF	SIGF	FLUX
U -P	6	0	2	1.12097	1.143	1	1.58465E+00	9.46438E-03	2.74616E-03	1.59985E-03	6.17931E-04	8.11510E+01
						2	1.68275E+00		1.00975E-02	1.29188E-02	5.31501E-03	7.39375E+01
U -R	6	0	4	1.09418	1.127	1	1.58402E+00	9.40331E-03	2.60905E-03	1.54166E-03	5.92774E-04	8.11310E+01
						2	1.08243E+00		1.01700E-02	1.28096E-02	5.27011E-03	7.29297E+01
U -B	6	0	8	1.03734	1.087	1	1.58518E+00	9.29914E-03	2.91661E-03	1.43434E-03	5.46414E-04	8.10959E+01
						2	1.68212E+00		1.01383E-02	1.22793E-02	5.05194E-03	7.23166E+01
U -R	6	0	12	0.97933	1.036	1	1.58556E+00	9.27408E-03	2.99410E-03	1.33881E-03	5.05173E-04	8.10711E+01
						2	1.68128E+00		9.99189E-03	1.15394E-02	4.74756E-03	7.27493E+01
U -B	6	20	2	1.12531	1.146	1	1.59788E+00	8.74067E-03	2.70205E-03	1.57289E-03	6.08312E-04	8.64586E+01
						2	1.69536E+00		1.00635E-02	1.30387E-02	5.36437E-03	7.29787E+01
U -R	6	20	4	1.09776	1.130	1	1.59808E+00	8.68135E-03	2.76305E-03	1.51424E-03	5.02990E-04	8.64373E+01
						2	1.69534E+00		1.01395E-02	1.29309E-02	5.32001E-03	7.19344E+01
U -B	6	20	6	1.03995	1.089	1	1.59851E+00	8.58136E-03	2.86545E-03	1.40630E-03	5.36421E-04	8.64050E+01
						2	1.69485E+00		1.01108E-02	1.23972E-02	5.10049E-03	7.12832E+01
U -R	6	20	12	0.98136	1.038	1	1.59920E+00	8.50948E-03	2.93852E-03	1.31070E-03	4.95187E-04	8.63858E+01
						2	1.69484E+00		9.96487E-03	1.16507E-02	4.79337E-03	7.16929E+01
U -B	6	40	2	1.13001	1.147	1	1.61584E+00	8.01801E-03	2.64829E-03	1.56375E-03	5.97879E-04	9.25778E+01
						2	1.11212E+00		1.00695E-02	1.32236E-02	5.44045E-03	7.16243E+01
U -R	6	40	4	1.10155	1.130	1	1.61603E+00	7.96091E-03	2.70708E-03	1.48480E-03	5.72465E-04	9.25532E+01
						2	1.11182E+00		1.01489E-02	1.31156E-02	5.39602E-03	7.05513E+01
U -B	6	40	6	1.04270	1.089	1	1.61642E+00	7.86669E-03	2.80323E-03	1.37621E-03	5.25673E-04	9.25209E+01
						2	1.11115E+00		1.01223E-02	1.25746E-02	5.17346E-03	6.98786E+01
U -R	6	40	12	0.98353	1.037	1	1.61686E+00	7.79922E-03	2.87098E-03	1.28845E-03	4.84405E-04	9.25075E+01
						2	1.11039E+00		9.97550E-03	1.18159E-02	4.86134E-03	7.02768E+01
U -B	6	60	2	1.13561	1.145	1	1.63026E+00	7.29826E-03	2.57980E-03	1.51141E-03	5.86224E-04	9.97523E+01
						2	1.13560E+00		1.01311E-02	1.35003E-02	5.55431E-03	6.98035E+01
U -R	6	60	4	1.10616	1.127	1	1.63040E+00	7.24489E-03	2.63602E-03	1.45242E-03	5.60823E-04	9.97206E+01
						2	1.13554E+00		1.02141E-02	1.33905E-02	5.50915E-03	6.87137E+01
U -B	6	60	6	1.04621	1.085	1	1.63071E+00	7.15731E-03	2.72441E-03	1.34321E-03	5.18831E-04	9.96871E+01
						2	1.13461E+00		1.01897E-02	1.28375E-02	5.28167E-03	6.88040E+01
U -R	6	60	12	0.98641	1.032	1	1.63189E+00	7.09578E-03	2.78568E-03	1.24725E-03	4.72512E-04	9.96770E+01
						2	1.13399E+00		1.00413E-02	1.20608E-02	4.96212E-03	6.84281E+01