Core Design and Operating Data for Cycle 3 of Peach Bottom 2

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Prepared by:
General Electric Company
San Jose, California

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ELECTRIC POWER RESEARCH INSTITUTE

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Research Project 1020-2

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Prepared by

GENERAL ELECTRIC COMPANY
Nuclear Energy Engineering Division
175 Curtner Avenue
San Jose, California 95125

Principal Investigators
G. L. Holloway
L. M. Shiraishi

Prepared for

Electric Power Research Institute
3412 Hillview Avenue
Palo Alto, California 94304

EPRI Project Manager
R. N. Whitesel

Analysis and Testing Program
Nuclear Power Division

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EPRI PERSPECTIVE

Project Description

This report under RP1020-2 is a compilation of reactor design and operating data for Cycle 3 of the Peach Bottom-2 boiling water reactor (BWR). It is a continuation of the reactor design and operating data report for Cycles 1 and 2 documented in EPRI Topical Report NP-563.

Project Objective

The project was aimed at measuring the stability of a BWR core at low flow when subjected to small pressure oscillations. The data from such tests are important not only for the licensing of BWR plants but also as reference data for the qualification of reactor stability prediction computer codes.

Project Results

The data in this report were collected to facilitate analyses of the stability tests performed at Peach Bottom 2 on four different occasions during Cycle 3 operations. A companion report, Low Flow Stability Tests at Peach Bottom Atomic Power Station Unit 2 During Cycle 3, *EPRI Final Report NP-972, contains the test data.*

These data will be of use to fuel management engineers in the qualification of reactor core analysis methods. The information contained in these reports will be used in the qualification of the BWR stability prediction computer code being developed under RP1384.

Robert N. Whitesel, Project Manager
Nuclear Power Division

FOREWORD

This report is a compilation of reactor design and operating data for Cycle 3 of the Peach Bottom-2 BWR. It is a companion report to EPRI NP-563, Core Design and Operating Data for Cycles 1 and 2 of Peach Bottom 2.

As with NP-563, this report has been prepared to facilitate analysis of tests performed on the nuclear steam supply system. In this instance, a series of stability tests were run at various points during Cycle 3 (September 1977 through September 1978) as a follow-on program for similar tests performed at the end of Cycle 2. The test data for this series of stability tests is documented in Low Flow Stability Tests at Peach Bottom Atomic Power Station Unit 2 During Cycle 3, *EPRI NP-972.*

Bruce W. Crawford
Program Manager
Nuclear Energy Engineering Division
General Electric Company

Robert N. Whitesel
Project Manager
Electric Power Research Institute

ABSTRAC

This report contains the data needed to define the fuel characteristics and reactor operation for Cycle 3 of the Peach Bottom 2 reactor. This report is intended to provide reference quality data for use in the qualification of reactor core analysis methods and to provide the basis for the assessment of the irradiation environment during Cycle 3.

The design data includes fuel assembly description, core component arrangements, control rod descriptions, and core loading patterns which are peculiar to the Cycle 3 operation and which have not been described in previous EPRI reports. Operating data is compiled for 13 state points during Cycle 3. Each state point includes core average exposure, thermal power, pressure, inlet subcooling, control configuration and axial in-core detector readings.

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1. INTRODUCTION

Information regarding the core design and operation of the Peach Bottom 2 reactor during Cycle 3 is presented in this final report. The fuel and core design data has been extracted from appropriate reports, drawings, and other data sources. The operating data was obtained from the operating logs of the Peach Bottom-2 process computer. An earlier topical report, *Core Design and Operating Data for Cycles 1 and 2 of Peach Bottom 2*, June 1978 (EPRI NP-563) contains additional generic design information regarding the reactor vessel internals, component arrangement, piping systems, etc., and should be useful in understanding the irradiation environment of the Cycle 3 core.

Compilation of the data in this report was a joint effort of the General Electric Company, the Philadelphia Electric Company and the Electric Power Research Institute.

2. DATA

2.1 REACTOR DESIGN DATA FOR CYCLE 3 OF PEACH BOTTOM 2

2.1.1 Fuel Assembly Descriptions

At the end of the second reactor cycle (Cycle 2), 172 initial load 7 · 7 fuel bundles were discharged and replaced by 8 · 8 fuel of 2.74 wt % U-235 enrichment. Each of these Reload-2 fuel bundles contains five 3.0 wt % Gd_2O_3 rods for control augmentation. Except for channel dimensions, these reload bundles are similar to the Type 4 Reload-1 bundles; the Reload-2 fuel consists of 139 bundles with channels of 0.100-inch wall thickness and 33 bundles with channels of 0.080-inch wall thickness. Figure 1 shows the nuclear bundle design which is used for either Reload-2 channel wall thickness, and Figures 2 and 3 show the Reload-2 fuel assembly lattice for the 0.100-inch and 0.080-inch channels, respectively.

Tables 1 through 3 summarize fuel rod arrays, fuel rod pitch, rod-to-channel spacing, gap thicknesses, control augmentation characteristics, U weights, channel characteristics, and water/UO_2 volume ratios for the initial and the reload assemblies.

Table 4 provides core loading, assembly pitch, fuel pin pitch, spacer data, average fuel compositions, and fuel weights for all fuel assemblies during Cycles 1, 2, and 3.

Table 5 includes pellet and stack densities, Gd_2O_3 and UO_2 weights, pellet lengths, pellet o.d., cladding o.d., cladding thickness, and gas plenum lengths for Reload-2 fuel. Report EPRI NP-563 contains similar information for initial and Reload-1 fuel.

Table 6 includes spacer weights, end plug weights, upper and lower tie plate weights, fission gas plenum material weights, the alloy compositions recommended for nuclear analyses, and spacer placement identification.

2.1.2 Control Rod Descriptions

Table 7 contains physical data for the control rods including shape, pitch, stroke, control material, etc.

2.1.3 Core Descriptions

Table 8 identifies the total number of fuel assemblies, number of fuel assembly types, heat transfer surface area, total weight of U in the core, and other pertinent core characteristics for Cycles 1, 2, and 3.

Tables 9 and 10 present the bundle type and identification core loading array for Cycle 3.

Figure 4 is a core plan view showing the core orificing and TIP system arrangement.

2.1.4 Nuclear Instrumentation Data

Peach Bottom 2 is equipped with a system of Traversing In-Core Probe (TIP) detectors and fixed Local Power Range Monitor (LPRM) detectors designed to provide an accurate representation of the spatial distribution of the neutron flux. The TIP detectors travel through a set of 43 vertical tubes which are distributed uniformly throughout the core with the planar density of one detector per 4 square feet. Figure 4 shows the core location and coordinate identification of the TIP strings.

The TIP measures the axial neutron flux distribution in the water gap by use of a 1-in.-long U-235 fission chamber attached to a cable and motor which allows the chamber to be positioned at any point along the axial length of up to 10 core positions for each TIP machine. There are five TIP machines in the Peach Bottom 2 reactor. The TIP values reported in the data sets for 6-in. intervals represent the weighted average value of seven measurements made at 1-in. intervals (five interior measurements which are given twice the weighting as the two end points). A total of 145 measurements is made for each core position resulting in 24 values of 6 inches each.

The TIP data is normalized to the common position. The common position normalization is determined experimentally by traversing the common position with each TIP machine. The normalization is determined so that all the TIP machines produce the same readings when operated in the common position. The axially averaged TIP reading for the common position is usually defined to be 100. The TIP data given in the data sets was obtained from the process computer, and thus represents the whole core normalized full power adjusted readings.

2.1.5 Thermal Hydraulics

The hydraulic characteristics of 7×7 and 8×8 fuel assemblies are presented in Figures 44 through 47 of topical report EPRI NP-563 as functions of active coolant flow, active coolant power, and subcooling. This data may be applied over a pressure range of 1035 ± 100 psia. Bundle pressure drop is somewhat insensitive to axial power distribution. The data is based on a distribution peaked at the middle with a peak-to-average value of 1.5. With a bundle flow of 130×10^3 lb/h, bottom-peaked axial (3/8 point of active fuel length) will yield a pressure drop about 0.66 psi larger. A top-peaked axial yields essentially the same pressure drop as the middle-peaked axial.

The pressure drop characteristics of the central and peripheral region orifices are presented as functions of active coolant flow on Figures 48 through 53 of EPRI NP-563. The location of the orifice zones is given in Figure 4. It should be noted that all the 8×8 reload fuel had holes drilled in the lower tie plate for bypass flow augmentation, whereas there are no holes in the 7×7 lower tie plates.

The total core bypass flow for Cycle 3 is shown in Figure 5.

2.2 OPERATING DATA FOR CYCLE 3 OF PEACH BOTTOM 2

2.2.1 Rod Withdrawal Group Designation

Figures 6 through 13 show the control rod group designations for Cycle 3.

2.2.2 Benchmark Operating Data for Cycle 3

Representative reactor operating states during Cycle 3 are presented as Data Sets 38 through 50. Most of the data sets contain the following information: date, core average exposure, core thermal power, dome pressure, core flow, inlet subcooling, control configuration, and complete axial TIP distribution data for all 43 LPRM string locations. The TIP data are the commonly normalized TIP readings at 6-in. intervals up the length of the assembly. The TIP data reads from the bottom to the top of the core, i.e., the first entry is for the bottom 6-in. node. Exposure can be accumulated by using the calculated core power distribution for each of the data sets provided to advance to the next operating state. When a control rod sequence change is encountered between data sets, the exposure may be advanced to the sequence exchange date, and the data set after the exchange used to advance the exposure to the date of the data set immediately following the exchange date. Experience has shown that taking exposure steps finer than 700 MWd/t does not significantly add to the tracking accuracy (see Table 11).

Most data was taken during steady-state operation. The reactor had been operating for at least 48 hours with essentially constant power, flow, and rod pattern before the data was accumulated. Cases where only non-steady state data was available are identified.

Core thermal power, inlet subcooling, and recirculation flow rate are important to the reactor data evaluation. The values for these items were taken directly from process computer PI output. The PI output does not contain the detailed data used to calculate the output values and the detailed data are normally not available from the plant data (i.e., special edits must be requested or special readings taken). Therefore, the detailed data cannot be provided. However, the method used by the process computer to compute the values is given here.

2.2.3 Non-Steady State Data from Cycles 1 and 2

In the previous topical report, EPRI NP-563, data sets were reported as representing steady-state conditions, steady state being defined as operation in an "essentially" constant power, flow, and control rod pattern condition for at least 48 hours prior to the recording of the data set. Closer inspection of the reactor logs, however, has revealed that some data sets do not satisfy the criteria of steady state. These are identified as Data Sets 1, 2, 3, and 4 of Cycle 1, and Data Sets 23, 25, and 26 of Cycle 2.

2.2.3.1 Core Thermal Power

The core thermal power is obtained from the process computer which performs an energy balance on a system composed of the reactor vessel, recirculation loop piping, and cleanup demineralizer piping. Flows entering the system are the reactor feedwater flow, which is assumed to enter in three branches, and the control rod drive system flow. The only flow assumed to be leaving the system is the primary steam flow. Nonflow power inputs are the fission power (core thermal power) and recirculation pumping power; nonflow power losses are the radiative power loss and the net power transferred across the boundary of the cleanup demineralizer loop. Analytically, the energy balance is:

$$\text{Core Power, MWt} = \frac{W_{fw}(h_s - h_{fw}) + W_{cr}(h_s - h_{cr})}{C_1} + Q_{cu} + Q_r - Q_p$$

where:

W_{fw} = feedwater flow rate entering reactor at top of downcomer, Mlb/h

h_s = enthalpy of steam leaving the reactor vessel, Btu/lb

h_{fw} = feedwater enthalpy, Btu/lb

W_{cr} = control rod drive system flow, Mlb/h

h_{cr} = enthalpy of control rod drive system flow, Btu/lb

Q_p = power added to downcomer fluid by recirculation pumps, MW

Q_r = radiative power loss, MW

Q_{cu} = power removed from downcomer fluid by cleanup demineralizer system, MW

C_1 = conversion constant = 3.413 MBtu/MWh

2.2.3.2 Core Inlet Subcooling

The core inlet subcooling is obtained from the process computer by performing an energy balance on the core downcomer (the volume between the core shroud and the vessel wall, and including the external recirculation and cleanup loops) yielding:

$$W_T h_o = W_{rl} h_f + W_{rs} h_g + W_{fw} h_{fw} + W_{cr} h_{cr} + (Q_p - Q_{cu})\, C_1$$

where:

W_T = flow rate entering core inlet plenum, Mlb/h

h_o = core inlet enthalpy (enthalpy of W_T) Btu/lb

W_{rl} = flow rate of saturated liquid entering downcomer, Mlb/h

h_f = saturated liquid enthalpy, Btu/lb

W_{rs} = flow rate of saturated steam entering downcomer (i.e. "carryunder"), Mlb/h

h_g = saturated steam enthalpy, Btu/lb

and other terms are defined as above.

The total flow entering the inlet plenum is

$$W_T = W_{rf} + W_{rs} + W_{fw} + W_{cr}$$

2.2.3.3 Recirculation Flow

The reactor core flow rate is monitored by the process computer by direct measurement of differential pressure across the jet pump diffusers. For illustrative purposes, the 20 jet pumps can be divided into 4 groups of 5 each. In each group, one jet pump contains a diffuser with two static pressure taps. The remaining four units contain only one pressure tap. The "double-tapped units" are calibrated by test prior to installation to determine the relationship between flow and differential pressure over the range of expected operating flow rates. This information is used to perform in-reactor calibration of the "top tap-to-lower plenum" pressure difference of all 20 jet pumps. After this calibration procedure has been completed, the total core flow is measured by electrically analyzing the signal from the single tap-to-lower plenum pressure transducers on all 20 jet pumps. The resulting total core flow rate output signal is displayed on the reactor control board. In addition, the 20 single tap and 4 double tap ΔP signals described above are available in the control room.

2.3 OPERATING DATA SUMMARY

Figures 14 through 26 present operating data summaries for each month during Cycle 3. The data presented include daily values of power level, flow, subcooling, and rod notch inventory (rod notches inserted).

2.3.1 Control Blade Position

Control blade insertion is calibrated in notches, where one notch equals 3 inches. Position of the control blade is described by the number of notches withdrawn. Thus, 0 notch implies full insertion and 48 notches implies full withdrawal. Total travel of the control blade is 144 inches, the same as the length of the active fuel. At full blade insertion (0 notch), the top of the control material is 1 inch below the top of the active fuel. At full blade withdrawal, the top of the control material is 1 inch below the bottom of the active fuel. Since the physical notches in the control rod drive are 6 inches apart, the control blade notch position is always even. For the control patterns shown, the numbers shown indicate notches withdrawn and no notch number implies a fully withdrawn blade or a notch position of 48 for power operating patterns and a fully inserted blade or a notch position of 00 for cold critical patterns.

Table 1
INITIAL FUEL DESCRIPTION

	Type 1	Type 2	Type 3
Fuel Assembly			
Number of Fuel Assemblies per Batch	168	263	333
Fuel Rod Array	7x7	7x7	7x7
Fuel Rod Pitch, in	0.738	0.738	0.738
Peripheral-Rod-to-Channel Spacing, in	0.1435	0.1435	0.1435
1/2 Width of Wide Water Gap, in	0.375	0.375	0.375
1/2 Width of Narrow Water Gap, in	0.188	0.188	0.188
Cladding Length, in	160	160	160
Bundle Average Enrichment (wt % U-235 in Total U)	1.10	2.50	2.50
Control Augmentation			
Type	NONE	Fuel Rods Containing Gd_2O_3	Fuel Rods Containing Gd_2O_3
Number		4	5
Control Length, in		144(3), 60(1)	144(3), 108(1), 36(1)
Control Material		3.0 wt % Gd_2O_3	3.0 wt % Gd_2O_3(3) 4.0 wt % Gd_2O_3(2)
Weight of U per Fuel Assembly			
lb	432.3	412.4	412.1
kg	196.1	187.1	186.9
Channel			
Outside Dimensions, in	5.438 x 5.438	5.438 x 5.438	5.438 x 5.438
Thickness, in	0.080	0.080	0.080
Inside Corner Radius, in	0.38	0.38	0.38
Material	Zr-4	Zr-4	Zr-4
Water-UO_2 Volume Ratio (cold)	2.43	2.53	2.53

Table 2
RELOAD-1 FUEL DESCRIPTION

Fuel Assembly	Type 4		Type 5	Type 6
Number of Fuel Assemblies per Batch	60	8	116	4
Fuel Rod Array	8x8	8x8	8x8	8x8
Fuel Rod Pitch, in	0.640	0.640	0.640	0.640
Peripheral-Rod-to-Channel Spacing, in.	0.153	0.153	0.153	0.163
1/2 Width of Wide Water Gap, in.....	0.355	0.335	0.355	0.355
1/2 Width of Narrow Water Gap, in.....	0.167	0.147	0.167	0.167
Cladding Length, in	160	160	160	160
Bundle Average Enrichment (wt % U-235 in total U).....	2.74	2.74	2.74	2.60
Control Augmentation				
Type	Fuel Rods Containing Gd_2O_3			
Number.....	5	5	5	5
Control Length, in	144	144	144	144
Control Material.....	3.0% Gd_2O_3	3.0% Gd_2O_3	2.0% Gd_2O_3	2.0% Gd_2O_3
Weight of U per Fuel Assembly				
lb	403.8	403.8	404.2	402.6
kg	183.2	183.2	183.3	182.6
Channel				
Outside Dimensions, in.....	5.478 x 5.478	5.518 x 5.518	5.478 x 5.478	5.478 x 5.478
Thickness, in.....	0.100	0.120	0.100	0.100
Inside Corner Radius, in.....	0.38	0.38	0.38	0.38
Material.....	Zr-4	Zr-4	Zr-4	Zr-4
Water/UO_2 Volume Ratio (cold).....	2.56	2.51	2.56	2.75

Table 3
RELOAD-2 FUEL DESCRIPTION

Fuel Assembly	Type 7	
Number of Fuel Assemblies per Batch	139	33
Fuel Rod Array	8×8	8×8
Fuel Rod Pitch, in.	0.640	0.640
Peripheral-Rod-to-Channel Spacing, in. ..	0.153	0.153
1/2 Width of Wide Water Gap, in.	0.355	0.375
1/2 Width of Narrow Water Gap, in.	0.167	0.187
Cladding Length, in.	160	160
Bundle Average Enrichment (wt % U-235 in total U)	2.74	2.74
Control Augmentation		
Type		Fuel Rod containing Gd_2O_3
Number	5	5
Control Length, in.	144	144
Control Material	3.0% Gd_2O_3	3.0% Gd_2O_3
Weight of Upper Fuel Assembly		
lb	403.8	403.8
kg	183.2	183.2
Channel		
Outside Dimensions, in.	5.478 × 5.478	5.438 × 5.438
Thickness, in.	0.100	0.080
Inside Corner Radius, in.	0.38	0.38
Material	Zr-4	Zr-4
Water/UO_2 Volume Ratio (cold)	2.56	2.60

Table 4
FUEL ASSEMBLY DATA

	Initial Load			Reload 1	Reload 1	LTA Special	Reload 2
Assembly Type	1	2	3	4	5	6	7
No. of Assemblies, Initial Core	168	263	333	0	0	0	0
No. of Assemblies, Cycle 2	0	261	315	68[a]	116	4	0
No. of Assemblies, Cycle 3	0	245	159	68	116	4	172[b]
Geometry	7×7	7×7	7×7	8×8	8×8	8×8	8×8
Assembly Pitch, in.	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Fuel Rod Pitch,	0.738	0.738	0.738	0.640	0.640	0.640	0.640
Fuel Rods per Assembly	49	49	49	63	63	62	63
Instrument Rods per Assembly	0	0	0	0	0	0	0
Water Rods per Assembly	0	0	0	1	1	2	1
Burnable Poison Positions	0	4	5	5	5	5	5
No. of Spacer Grids	7	7	7	7	7	7	7
Inconel per Grid, lb	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Zr-4 per Grid, lb	0.537	0.537	0.537	0.614	0.614	0.614	0.614
Spacer Width, in.	1.625	1.625	1.625	1.625	1.625	1.625	1.625
Assembly Average Fuel Composition							
Gd_2O_3, gm	0	441	547	490	328	313	490
UO_2, kg	222.44	212.21	212.06	207.78	208.00	207.14	207.78
Total Fuel, kg	222.44	212.65	212.61	208.27	208.33	207.45	208.27

[a] 60 assemblies channeled with 0.100-in.-thick channels, 8 with 0.120-in.-thick channels.
[b] 139 assemblies channeled with 0.100-in.-thick channels, 33 with 0.080-in.-thick channels.

Table 5
ASSEMBLY TYPE 7 DENSITY, LENGTH, etc., DATA

Rod Type	Number of Rods	Pellet Density UO_2 (gm/cc)	Pellet Density $UO_2 + Gd_2O_3$ (gm/cc)	Stack Density (gm/cc)	Gd_2O_3 (gm)	UO_2 (gm)	Stack Length (in.)
1	39	10.42	—	10.32	0	3309	144
2	14	10.42	—	10.32	0	3309	144
3	4	10.42	—	10.32	0	3309	144
4	1	10.42	—	10.32	0	3309	144
5	5	—	10.29	10.19	98	3172	144
WS	1	—	—	—	0	0	—

Pellet o.d. = 0.416 inch all rods
Cladding = Zircaloy-2, 0.493-inch o.d. × 0.034-inch wall, all rods
Gas Plenum Length = 16.0 inches except water rod

Gd_2O_3 is rod type 5 runs full 144 inches
Water rod has holes drilled top and bottom to provide water flow and little or no boiling
Water rod is also spacer positioning rod

Table 6
FUEL ASSSEMBLY HARDWARE WEIGHTS

	7x7 Initial Assemblies		8x8 Reload Assemblies		LTA Reload Assemblies	
Spacers	**Quantity**	**Pounds**	**Quantity**	**Pounds**	**Quantity**	**Pounds**
Zircaloy-4	7	3.757	7	4.299	7	4.299
Inconel	112	0.717	112	0.717	112	0.717
End Plugs						
Zircaloy-2	98	3.565	128	4.098	128	5.260
Lower Tie Plate						
Type-304 Stainless Steel	1	9.612	1	10.545	1	10.545
Inconel Finger Springs	4	0.106	4	0.106	4	0.106
Upper Tie Plate Assembly with Hardware						
Type-304 Stainless Steel	1	4.222	1	4.409	1	4.409
Fission Gas Plenum						
Spring, Type-302 Stainless Steel	49	4.073	63	4.151[a]	62	2.425
Getter, Zirconium Alloy	49	0.972	63	1.360	62	1.338

Wt % Alloy Compositions for Nuclear Analyses

Metal	Zircaloy-2	Zircaloy-4	Type-304 Stainless Steel	Inconel-X
Zr	98.30	98.24		
Fe	0.14	0.21	67.34	9.0
Sn	1.40	1.45		
Ni	0.06		9.50	70.0
Cr	0.10	0.10	19.50	16.77
Ti				2.50
Mn			1.50	0.50
C			0.08	0.03
Si			2.00	0.30
S			0.04	
P			0.04	
Al				0.90

Spacer Placement

There are seven spacers in the initial and reload fuel assemblies. Their center positions above the bottom of the active fuel in inches are 18.9, 39.0, 59.2, 79.3, 99.5, 119.6, and 139.7. Each spacer is 1.625 inches long.

[a] 2.43 for 80-mil channels.

Table 7
CONTROL ROD DATA

Movable Control Rods

Shape	Cruciform
Pitch, in	12.0
Stroke, in	144
Control Length, in	143.0
Control Material	B_4C granules in Type-304 stainless steel tubes and sheath
Material Density	70% of Theoretical
Number of Control Material Tubes per Rod	84
Tube Dimensions	0.188 in. o.d. by 0.025 in. wall
Control Blade Half Span, in.	4.875
Control Blade Full Thickness, in	0.3120
Control Blade Tip Radius, in	0.156
Sheath Thickness, in	0.056
Central Structure Wing Length, in	0 7815
Blank Tubes per Wing (Adjacent to Central Structure)	None

Table 8
CORE DESCRIPTION

	Cycle 1	Cycle 2	Cycle 3
Total Number of Fuel Assemblies	764	764	764
Number of Fuel Assembly Types	3	6	7
Number of Fuel Assemblies of Each Type	See Table 3	See Table 3	See Table 3
Total Number of Control Elements	185	185	185
Number of Control Element Types	1	1	1
Number of Control Elements of Each Type	185	185	185
Total Number of In-Core Flux Monitors	43	43	43
Heat Transfer Surface Area, ft^2	66,214	68,266	70,142
Average Linear Heat Rate, kW/ft	7.04	6.57	6.29
Total Weight of U in Core, short tons	159.2	156.7	156.5
Core			
Core Lattice Pitch, in.	12.0	12.0	12.0
Water/UO_2 Volume Ratio (cold)	2.51	2.54	2.55

Table 9
CYCLE 3 BUNDLE TYPES AND IDENTIFICATION

PH 001 to PH 168	7×7	UO_2	1.10 wt %	Type 1 Fuel Without Gd_2O_3
PH 169 to PH 431	7×7	UO_2	2.50 wt %	Type 2 With Gd_2O_3 in 4 Rods
PH 432 to PH 764	7×7	UO_2	2.50 wt %	Type 3 With Gd_2O_3 in 5 Rods
LJ3213 to LJ3280	8×8	UO_2	2.74 wt %	Type 4 With 3% Gd_2O_3 in 5 Rods
LJ3098 to LJ3212, LJ3454	8×8	UO_2	2.74 wt %	Type 5 With 2% Gd_2O_3 in 5 Rods
LJLTA1 to LJLTA4	8×8	UO_2	2.73 wt %	Type 6 With 2% Gd_2O_3 in 5 Rods
	8×8	UO_2	0.71 wt %	in center, and No Gd_2O_3 in ends
LJ3506-LJ3553, LJ6120-LJ6243	8×8	UO_2	2.74 wt %	Type 7 With 3% Gd_2O_3 in 5 Rods

Table 10
CYCLE 3 BUNDLE LOCATION

BUNDLE IDENTIFICATION

I / J	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1									PH 493	PH 502	PH 424	PH 378	PH 748	PH 541	PH 442
2								PH 576	PH 368	LJ3127	PH 358	LJ3275	PH 392	LJ3506	LJ3117
3						PH 551	PH 503	PH 284	LJ3507	PH 315	LJ3539	PH 423	LJ3540	LJ3222	LJ3541
4						PH 738	LJ3106	LJ3508	LJ3112	LJ3542	LJ3108	LJ3543	PH 179	LJ3544	PH 429
5					PH 755	PH 396	LJ3509	PH 350	LJ3545	PH 524	LJ3546	PH 285	LJ3547	PH 264	LJ3213
6			PH 633	PH 560	PH 367	LJ3510	PH 173	LJ3116	PH 337	LJ3115	PH 544	LJ3100	PH 554	LJ3215	PH 217
7			PH 187	LJ3124	LJ3511	PH 530	LJ3548	PH 351	LJ3549	PH 202	LJ3550	PH 410	LJ3551	PH 325	LJ3219
8		PH 511	PH 404	LJ3512	PH 344	LJ3217	PH 422	PH 237	PH 448	LJ3220	PH 637	LJ3101	PH 546	LJ3099	PH 303
9	PH 712	PH 250	LJ3513	LJ3136	LJ3552	PH 281	LJ3553	PH 734	LJ6120	PH 752	LJ6121	PH 278	LJ6122	PH 467	LJ3227
10	PH 577	LJ3144	PH 309	LJ6123	PH 513	LJ3135	PH 210	LJ3126	PH 183	LJLTA2	PH 574	LJ3110	PH 691	LJ3114	PH 430
11	PH 261	PH 394	LJ6124	LJ3143	LJ6125	PH 624	LJ6126	PH 267	LJ6127	PH 427	LJ6128	PH 320	LJ6129	PH 206	LJ3233
12	PH 662	LJ3231	PH 406	LJ6130	PH 222	LJ3154	PH 562	LJ3107	PH 478	LJ3142	PH 255	LJ3122	PH 306	LJ3111	PH 722
13	PH 538	PH 233	LJ6131	PH 296	LJ6132	PH 234	LJ6133	PH 605	LJ6134	PH 293	LJ6135	PH 399	LJ6136	PH 486	LJ3235
14	PH 195	LJ3514	LJ3226	LJ6137	PH 682	LJ3156	PH 310	LJ3166	PH 328	LJ3132	PH 180	LJ3140	PH 174	LJ3098	PH 460
15	PH 709	LJ3150	LJ6138	PH 348	LJ3241	PH 416	LJ3232	PH 263	LJ3242	PH 687	LJ3234	PH 326	LJ3243	PH 249	PH 213
16	PH 565	LJ3151	LJ6139	PH 340	LJ3247	PH 256	LJ3254	PH 297	LJ3248	PH 757	LJ3249	PH 397	LJ3255	PH 248	PH 417
17	PH 382	LJ3515	LJ3272	LJ6140	PH 718	LJ3158	PH 334	LJ3148	PH 403	LJ3134	PH 211	LJ3174	PH 401	LJ3210	PH 452
18	PH 525	PH 243	LJ6141	PH 371	LJ6142	PH 386	LJ6143	PH 715	LJ6144	PH 300	LJ6145	PH 683	LJ6146	PH 651	LJ3257
19	PH 543	LJ3253	PH 405	LJ6147	PH 289	LJ3160	PH 604	LJ3162	PH 621	LJ3168	PH 324	LJ3182	PH 327	LJ3204	PH 389
20	PH 273	PH 369	LJ6148	LJ3169	LJ6149	PH 535	LJ6150	PH 247	LJ6151	PH 317	LJ6152	PH 352	LJ6153	PH 304	LJ3264
21	PH 443	LJ3170	PH 415	LJ6154	PH 469	LJ3177	PH 242	LJ3163	PH 276	LJLTA3	PH 449	LJ3205	PH 231	LJ3211	PH 262
22	PH 724	PH 283	LJ3516	LJ3178	LJ6155	PH 176	LJ6156	PH 517	LJ6157	PH 522	LJ6158	PH 431	LJ6159	PH 492	LJ3265
23		PH 457	PH 225	LJ3517	PH 425	LJ3269	PH 388	PH 241	PH 500	LJ3279	PH 688	LJ3192	PH 432	LJ3212	PH 238
24			PH 203	LJ3184	LJ3518	PH 531	LJ6160	PH 395	LJ6161	PH 223	LJ6162	PH 370	LJ6163	PH 331	LJ3271
25			PH 701	PH 759	PH 372	LJ6164	PH 332	LJ3186	PH 214	LJ3195	PH 471	LJ3194	PH 520	LJ3270	PH 345
26					PH 641	PH 398	LJ3519	PH 414	LJ6165	PH 667	LJ6166	PH 338	LJ6167	PH 227	LJ3273
27						PH 730	LJ3176	LJ3520	LJ3202	LJ6168	LJ3206	LJ6169	PH 349	LJ6170	PH 312
28						PH 713	PH 514	PH 232	LJ3521	PH 290	LJ6171	PH 353	LJ6172	LJ3277	LJ6173
29								PH 578	PH 342	LJ3187	PH 218	LJ3263	PH 286	LJ3522	LJ3196
30									PH 681	PH 610	PH 321	PH 308	PH 584	PH 444	PH 623

Table 10
CYCLE 3 BUNDLE LOCATION (Continued)

BUNDLE IDENTIFICATION

I / J	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	PH 669	PH 556	PH 207	PH 307	PH 246	PH 512	PH 620								
2	LJ3118	LJ3523	PH 343	LJ3223	PH 175	LJ3128	PH 420	PH 509							
3	LJ6174	LJ3225	LJ6175	PH 365	LJ6176	PH 407	LJ3524	PH 362	PH 586	PH 453					
4	PH 389	LJ6177	PH 292	LJ6178	LJ3109	LJ6179	LJ3113	LJ3525	LJ3139	PH 690					
5	LJ3214	PH 319	LJ6180	PH 393	LJ6181	PH 711	LJ6182	PH 178	LJ3526	PH 216	PH 750				
6	PH 244	LJ3216	PH 717	LJ3103	PH 608	LJ3120	PH 347	LJ3119	PH 260	LJ6183	PH 413	PH 647	PH 726		
7	LJ3228	PH 402	LJ6184	PH 198	LJ6185	PH 254	LJ6186	PH 229	LJ6187	PH 529	LJ3527	LJ3131	PH 188		
8	PH 170	LJ3102	PH 550	LJ3121	PH 496	LJ3237	PH 728	PH 221	PH 209	LJ3238	PH 291	LJ3528	PH 355	PH 760	
9	LJ3221	PH 447	LJ6188	PH 411	LJ6189	PH 445	LJ6190	PH 523	LJ6191	PH 236	LJ6192	LJ3137	LJ3529	PH 294	PH 539
10	PH 186	LJ3104	PH 377	LJ3147	PH 753	LJLTA4	PH 330	LJ3129	PH 314	LJ3138	PH 583	LJ6193	PH 302	LJ3145	PH 723
11	LJ3229	PH 288	LJ6194	PH 172	LJ6195	PH 381	LJ6196	PH 384	LJ6197	PH 720	LJ6198	LJ3146	LJ6199	PH 366	PH 380
12	PH 622	LJ3133	PH 272	LJ3123	PH 316	LJ3165	PH 657	LJ3153	PH 674	LJ3155	PH 239	LJ6200	PH 359	LJ3240	PH 470
13	LJ3236	PH 649	LJ6201	PH 385	LJ6202	PH 271	LJ6203	PH 702	LJ6204	PH 193	LJ6205	PH 353	LJ6206	PH 354	PH 745
14	PH 603	LJ3105	PH 269	LJ3141	PH 197	LJ3149	PH 275	LJ3159	PH 182	LJ3157	PH 542	LJ6207	LJ3239	LJ3530	PH 171
15	PH 280	PH 313	LJ3230	PH 189	LJ3244	PH 573	LJ3224	PH 205	LJ3245	PH 251	LJ3246	PH 375	LJ6208	LJ3152	PH 643
16	PH 282	PH 311	LJ3268	PH 266	LJ3250	PH 716	LJ3276	PH 259	LJ3251	PH 184	LJ3252	PH 253	LJ6209	LJ3171	PH 762
17	PH 456	LJ3454	PH 208	LJ3175	PH 318	LJ3201	PH 387	LJ3167	PH 346	LJ3161	PH 635	LJ6210	LJ3261	LJ3531	PH 376
18	LJ3258	PH 569	LJ6211	PH 446	LJ6212	PH 201	LJ6213	PH 597	LJ6214	PH 265	LJ6215	PH 361	LJ6216	PH 245	PH 507
19	PH 614	LJ3209	PH 379	LJ3193	PH 383	LJ3173	PH 477	LJ3164	PH 527	LJ3191	PH 181	LJ6217	PH 298	LJ3262	PH 736
20	LJ3267	PH 364	LJ6218	PH 185	LJ6219	PH 339	LJ6220	PH 169	LJ6221	PH 491	LJ6222	LJ3172	LJ6223	PH 287	PH 727
21	PH 274	LJ3130	PH 409	LJ3208	PH 686	LJLTA1	PH 425	LJ3199	PH 177	LJ3180	PH 731	LJ6224	PH 295	LJ3179	PH 564
22	LJ3266	PH 450	LJ6225	PH 360	LJ6226	PH 747	LJ6227	PH 660	LJ6228	PH 220	LJ6229	LJ3189	LJ3532	PH 341	PH 533
23	PH 419	LJ3125	PH 441	LJ3185	PH 534	LJ3259	PH 680	PH 215	PH 228	LJ3260	PH 240	LJ3533	PH 299	PH 668	
24	LJ3256	PH 212	LJ6230	PH 219	LJ6231	PH 235	LJ6232	PH 301	LJ6233	PH 580	LJ3534	LJ3181	PH 204		
25	PH 421	LJ3218	PH 671	LJ3190	PH 497	LJ3200	PH 305	LJ3198	PH 335	LJ6234	PH 224	PH 593	PH 676		
26	LJ3280	PH 226	LJ6235	PH 400	LJ6236	PH 719	LJ6237	PH 279	LJ3535	PH 374	PH 582				
27	PH 390	LJ6238	PH 257	LJ6239	LJ3207	LJ6240	LJ3203	LJ3536	LJ3183	PH 685					
28	LJ6241	LJ3274	LJ6242	PH 391	LJ6243	PH 416	LJ3537	PH 412	PH 552	PH 631					
29	LJ3197	LJ3538	PH 428	LJ3278	PH 252	LJ3188	PH 373	PH 725							
30	PH 526	PH 548	PH 581	PH 333	PH 196	PH 732	PH 626								

Table 11
BURN STEP INFORMATION

Date	Core Exposure (MWd/t)	Rod Pattern	Number of Data Sets
September 7, 1977	9018	B	1
October 27, 1977	9780	A	1
December 14, 1977	10,482	B	1
February 7, 1978	11,254	A	2
March 24, 1978	12,042	B	2
May 4, 1978	12,828	A	1
June 10, 1978	13,511	B	2
July 15, 1978	14,157	A	2
September 9, 1978	15,174	EOC-3	

2.74 wt% U-235 BUNDLE AVERAGE

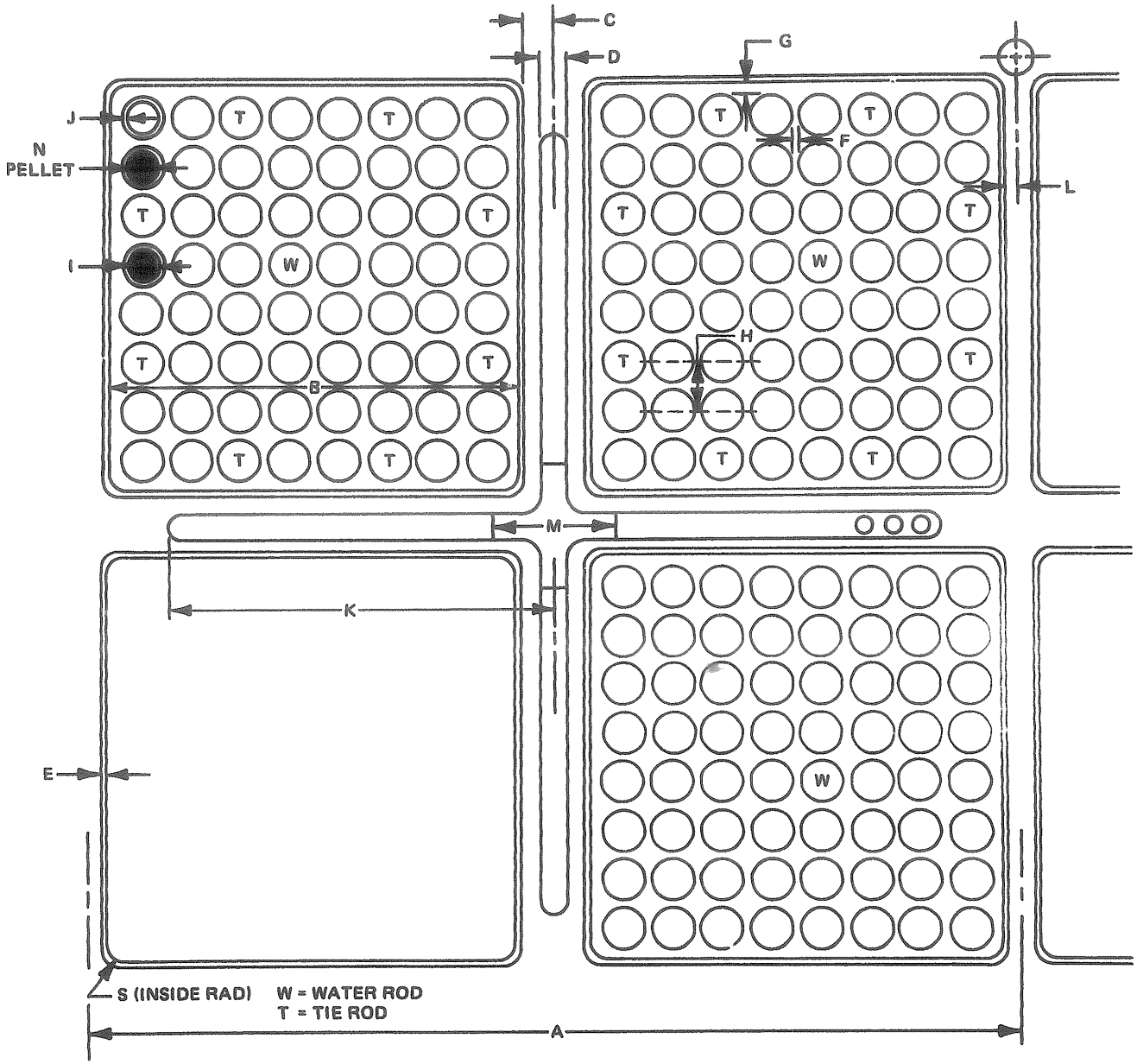
WIDE-WIDE CORNER

4	3	T 2	2	2	T 2	2	3
3	2	1	G 5	1	1	1	2
T 2	1	1	1	1	1	G 5	T 1
2	G 5	1	1	1	1	1	1
2	1	1	1	WS	1	1	1
T 2	1	1	1	1	1	1	T 1
2	1	G 5	1	1	1	G 5	1
3	2	T 1	1	1	T 1	1	2

ROD TYPE	ENRICHMENT wt% U-235	Gd_2O_3 wt%	NUMBER OF RODS
1	3.01	0	39
2	2.22	0	14
3	1.87	0	4
4	1.45	0	1
5	3.01	3.0	5
WS	–	0	1

WS – SPACER POSITIONING WATER ROD
T – TIE RODS
G – GADOLINIUM RODS

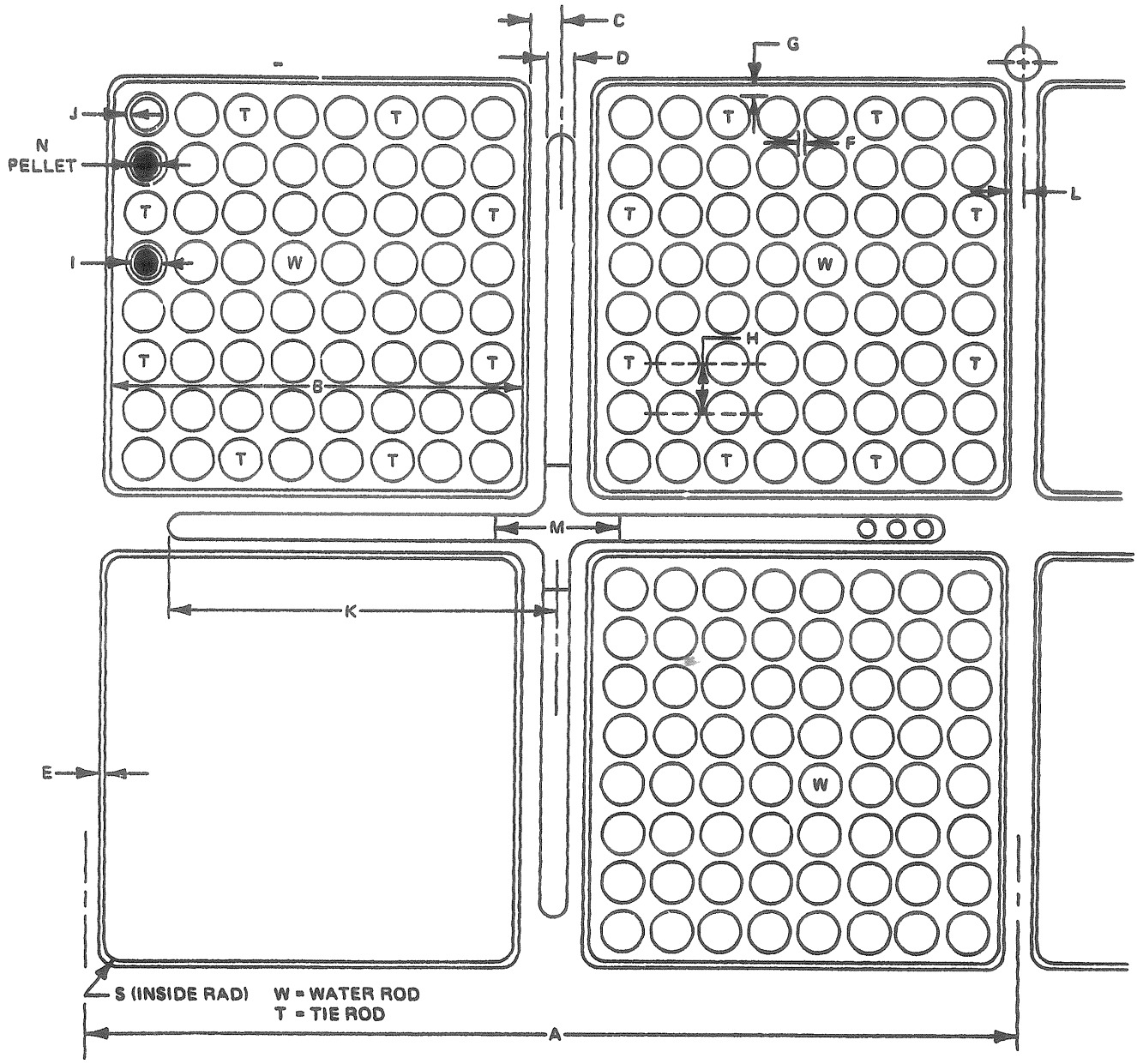
Figure 1. Bundle Design for Type 7 8×8 UO_2 Reload 2



DIM. IDENTIFICATION	A	B	C	D	E	F	G	H	I	J
DIM. INCHES	12.0	5.278	0.355		0.100	0.147	0.153	0.640		

DIM. IDENTIFICATION	K	L	M	N	O	P	Q	R	S	
DIM. INCHES		0.167							0.390	

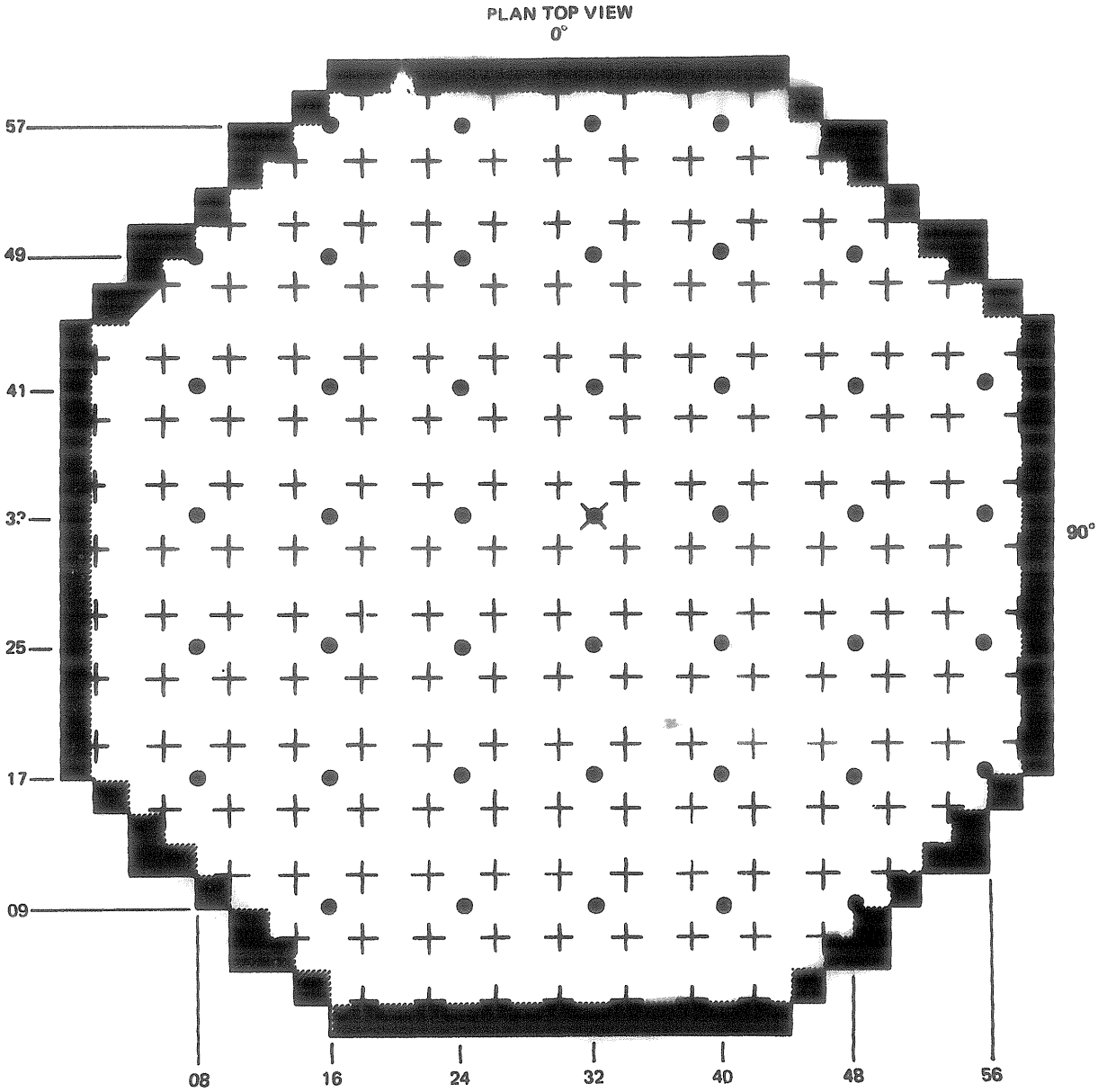
Figure 2. Reload-2 Fuel Assembly Lattice for 100-mil Channels



DIM. IDENTIFICATION	A	B	C	D	E	F	G	H	I	J
DIM. INCHES	12.0	5.278	0.375		0.080	0.147	0.153	0.640		

DIM. IDENTIFICATION	K	L	M	N	O	P	Q	R	S	
DIM. INCHES		0.187							0.380	

Figure 3. Reload-2 Fuel Assembly Lattice for 80-mil Channels



NUMBER OF FUEL ASSEMBLIES – 764

NUMBER OF CONTROL RODS – 185

NUMBER OF TIP INSTRUMENT ASSEMBLIES – 43

COMMON POSITION FOR ALL TIP MACHINES

FUEL BUNDLES WITH 2.211 in. ORIFICE DIAMETER – 672

FUEL BUNDLES WITH 1.469 in. ORIFICE DIAMETER – 92

Figure 4. Core Orificing and TIP System Arrangement

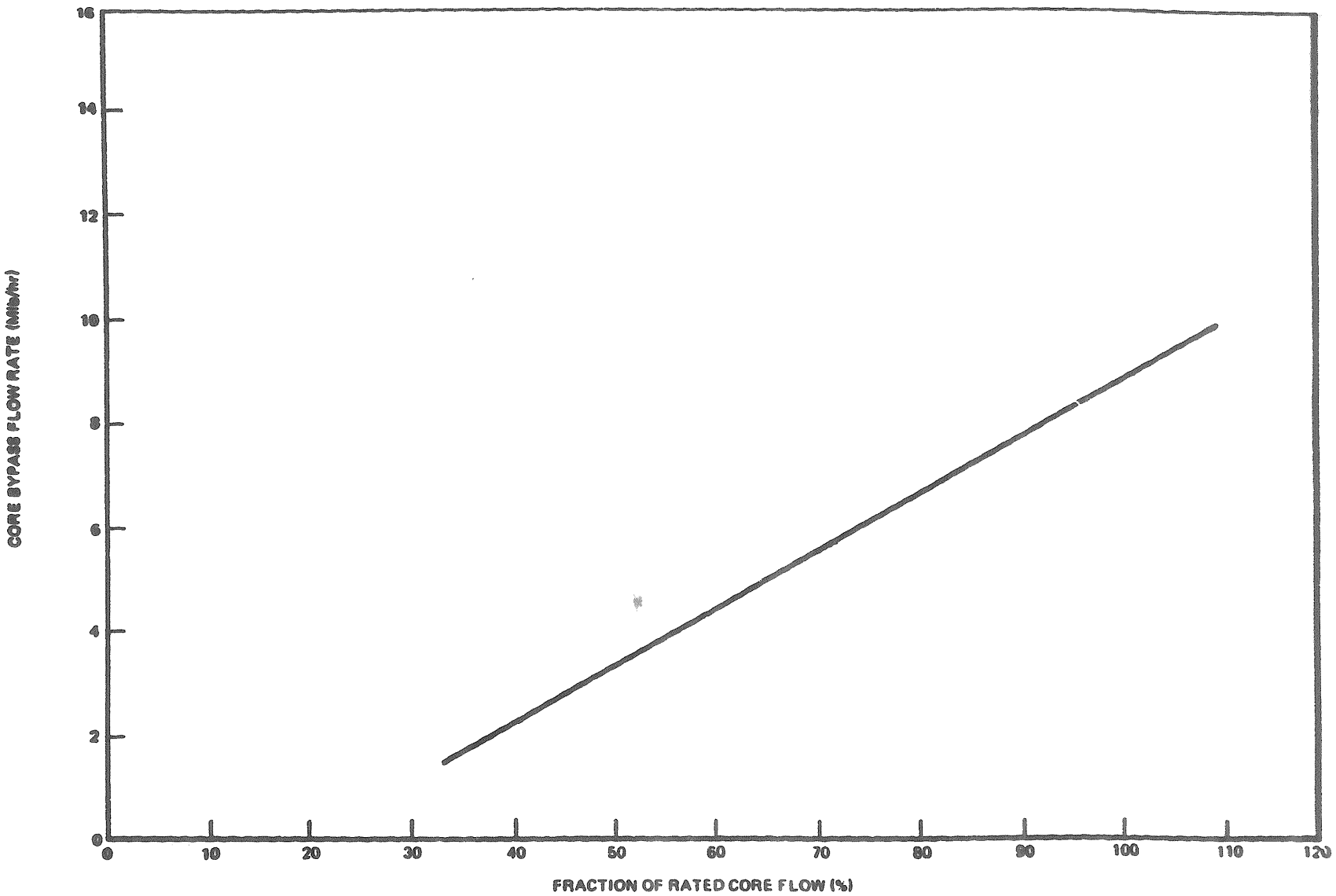


Figure 5. Core Bypass Flow for Cycle 3

	STEPS															
GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	48															
2	48															
3	48															
4	48															
5		48														
6		48														
7		48														
8		48														
9			8	14	20	28	32	36	40	44	48					
10			8	12	16	20	26	32	36	40	44	48				
11				4	8	14	18	24	30	32	36	42	48	(Includes Group 15 up to 30% power)		
12			4	8	12	16	22	28	32	36	40	44	48			
13			4	8	10	12	14	16	20	24	26	32	36	40		
14					4	10	16	20	26	30	32	36	40	48		
15				4	8	14	18	24	30	32	36	42	48			
16						4	8	14	22	26	30	38	44	48		
17								4	8	10	12	14	16	18	20	22
18								6	12	16	18	20	24	28		
19							4	8	14	18	20	24	28	32		
20							6	10	16	20	24	28	32	36	40	
21									4	6	8	-	-		10	

Figure 6. Control Rod Group Withdrawal for Sequence A1

GROUP 1 RODS:	26-31, 34-39, 42-31, 34-23, 26-15, 18-23, 10-31, 18-39, 26-47, 42-47, 50-39, 50-23, 42-15, 34-07, 18-07, 10-15, 02-23, 02-39, 10-47, 18-55, 34-55, 58-31
GROUP 2 RODS:	34-31, 26-23, 18-31, 26-39, 34-47, 42-39, 50-31, 42-23, 34-15, 18-15, 10-23, 10-39, 18-47, 26-55, 42-55, 50-47, 58-39, 58-23, 50-15, 42-07, 26-07, 02-31
GROUP 3 RODS:	30-35, 38-27, 30-19, 22-27, 14-35, 22-43, 30-51, 38-43, 46-35, 54-27, 46-19, 38-11, 22-11, 14-19, 06-27, 06-43, 14-51, 22-59, 38-59, 46-51, 54-43, 30-03
GROUP 4 RODS:	30-27, 22-35, 30-43, 38-35, 46-27, 38-19, 30-11, 22-19, 14-27, 14-43, 22-51, 46-43, 54-35, 54-19, 46-11, 38-03, 22-03, 14-11, 06-19, 06-35, 30-59, 38-51
GROUP 5 RODS:	18-59, 42-03, 18-03, 42-59, 02-43, 58-19, 58-43, 02-19
GROUP 6 RODS:	10-51, 50-51, 50-11, 10-11
GROUP 7 RODS:	02-35, 34-59, 58-27, 26-03 02-27, 26-59, 58-35, 34-03
GROUP 8 RODS:	06-15, 14-55, 54-47, 46-07, 14-07, 06-47, 46-55, 54-15
GROUP 9 RODS:	06-39, 54-23, 22-55, 38-07, 06-23, 54-39, 38-55, 22-07
GROUP 10 RODS:	30-39, 30-23, 22-31, 38-31
GROUP 11 RODS:	22-39, 38-23, 22-23, 38-39
GROUP 12 RODS:	14-47, 46-15, 14-15, 46-47
GROUP 13 RODS:	06-31, 54-31, 30-55, 30-07
GROUP 14 RODS:	14-39, 46-23, 22-47, 38-15, 14-23, 46-39, 22-15, 38-47
GROUP 15 RODS:	30-31
GROUP 16 RODS:	14-31, 46-31, 30-47, 30-15
GROUP 17 RODS:	10-43, 50-19, 50-43, 10-19, 18-51, 42-11, 18-11, 42-51
GROUP 18 RODS:	26-35, 34-27, 34-35, 26-27
GROUP 19 RODS:	26-51, 34-11, 10-27, 50-35, 34-51, 26-11, 10-35, 50-27
GROUP 20 RODS:	18-19, 42-43, 18-43, 42-19
GROUP 21 RODS:	18-35, 42-27, 26-43, 34-19, 18-27, 42-35, 26-19, 34-43

100% to 50% Rod Density

1. Withdraw rods in Groups 1 and 2 individually in order given.
2. Withdraw rods in Groups 3 and 4 by bank, to the positions shown, keeping rods of a group within the listed notch positions.

50% Rod Density to low power alarm point (30% of rated thermal power)

1. Rods shall only be moved (inserted or withdrawn) one notch per selection.
2. The maximum difference in axial rod positions between any two rods in each group is required to be within two notches. Do not proceed to any other group until this criterion is satisfied.

Low Power Alarm Point (30% rated) To Rated Power

It is permissible to adjust control positions for optimum power shaping.

Figure 7. Sequence A1 Control Group Designation

GROUP	STEPS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	48																
2	48																
3	48																
4	48																
5		48															
6		48															
7A			6	12	16	20	26	30	34	40						(Includes 7B below 30% power)	
7B			6	12	16	20	26	30	34	40	48						
8A					4	8	12	14	16	-	-	-	-	-	18	(Includes 8B below 30% power)	
8B					4	8	12	14	16	-	24	32	40	48			
9			8	14	20	24	30	36	40	44	48						
10A			6	10	14	18	22	26	32	36	42	48	(Includes 10B below 30% power)				
10B			6	10	14	18	22	26	32	36	42	48					
11			8	14	20	24	30	36	40	44	48						
12					6	12	16	20	24	28	32	36	38	40			
13					6	12	16	20	24	28	32	36	38				
14			4	6	10	16	20	24	28	32	36	42	48				
15			4	6	10	16	20	24	28	32	36	42	48				
16A					4	10	14	18	22	26	30	36	42	48	(Includes 16B below 30% power)		
16B					4	10	14	18	22	26	30	36	42	48			
17A				4	8	14	18	22	26	30	34	40	48	(Includes 17B below 30% power)			
17B				4	8	14	18	22	26	30	34	40	48				
18							4	6	8	10	14	16	18				
19A									4	6	8	10	12	(Includes 19B below 30% power)			
19B									4	6	8	10					
20							4	6	8	10	12	14					
21A						4	8	10	14	18	22	26	28	32	(Includes 21B below 30% power)		
21B						4	8	10	14	18	22	26	28	30			
22A						6	10	12	16	20	24	28	30	32	36	(Includes 22B below 30% power)	
22B						6	10	12	16	20	24	28	32	36	40		

Figure 8. Control Rod Group Withdrawal for Sequence B1

GROUP 1 RODS:	14-31, 46-31, 30-47, 30-15, 30-31, 14-47, 46-47, 14-15, 46-15, 22-39, 38-39, 22-23, 38-23, 06-39, 22-55 38-55, 54-39, 54-23, 38-07, 22-07, 06-23
GROUP 2 RODS:	22-31, 38-31, 30-39, 30-23, 14-39, 46-39, 22-15, 22-47, 46-23, 14-23, 38-15, 38-47, 06-31, 30-55, 54-31, 30-07, 06-47, 54-47, 54-15, 06-15, 14-55, 46-55, 46-07, 14-07
GROUP 3 RODS:	26-27, 42-27, 34-35, 34-19, 18-35, 50-35, 18-19, 42-43, 42-11, 18-51, 10-27, 50-19, 26-43, 10-43, 34-51, 26-11, 02-19, 26-59, 58-43, 34-03, 02-35, 42-59, 58-27, 18-03, 50-51, 10-11
GROUP 4 RODS:	26-35, 42-35, 26-19, 42-19, 10-35, 50-27, 18-27, 26-51, 34-27, 34-43, 34-11, 18-43, 50-43, 18-11, 42-51, 10-19, 26-03, 02-27, 34-59, 58-35, 42-03, 02-43, 18-59, 58-19, 10-51, 50-11
GROUP 5 RODS:	02-39, 58-39, 02-23, 58-23
GROUP 6 RODS:	22-03, 22-59, 38-59, 38-03
GROUP 7A RODS:	26-55, 26-07, 34-55, 34-07
GROUP 7B RODS:	02-31, 58-31
GROUP 8A RODS:	06-35, 54-35, 06-27, 54-27
GROUP 8B RODS:	30-59, 30-03
GROUP 9 RODS:	10-47, 10-15, 50-47, 50-15
GROUP 10A RODS:	26-39, 26-23, 34-39, 34-23
GROUP 10B RODS:	18-31, 42-31
GROUP 11 RODS:	18-55, 18-07, 42-55, 42-07
GROUP 12 RODS:	06-43, 54-43, 06-19, 54-19
GROUP 13 RODS:	14-51, 46-51, 14-11, 46-11
GROUP 14 RODS:	18-47, 42-47, 18-15, 42-15
GROUP 15 RODS:	10-39, 50-39, 10-23, 50-23
GROUP 16A RODS:	26-31, 34-31
GROUP 16B RODS:	18-39, 42-39, 18-23, 42-23
GROUP 17A RODS:	26-47, 26-15, 34-47, 34-15
GROUP 17B RODS:	10-31, 50-31
GROUP 18 RODS:	22-51, 22-11, 38-51, 38-11

100% to 50% Rod Density

1. Withdraw rods in Groups 1 and 2 individually in order given.
2. Withdraw rods in Groups 3 and 4 by bank, to the positions shown, keeping rods of a group within the listed notch positions.

50% Rod Density to Low Power Alarm Point (30% of rated thermal power)

1. Rods shall only be moved (inserted or withdrawn) one notch per selection.
2. The maximum difference in axial rod positions between any two rods in each group is required to be within two notches. Do not proceed to any other group until this criterion is satisfied.

Low Power Alarm Point (30% rated) to Rated Power

It is permissible to adjust control positions for optimum power shaping.

Figure 9. Sequence B1 Control Group Designation

GROUP 19A RODS: 22-35, 38-35, 22-27, 38-27

GROUP 19B RODS: 30-43, 30-19

GROUP 20 RODS: 14-43, 46-43, 14-19, 46-19

GROUP 21A RODS: 30-51, 30-11

GROUP 21B RODS: 14-35, 46-35, 14-27, 46-27

GROUP 22A RODS: 22-43, 22-19, 38-43, 38-19

GROUP 22B RODS: 30-35, 30-27

Figure 9. Sequence B1 Control Group Designation (Continued)

GROUP	STEPS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1	48														
2	48														
3	48														
4	48														
5		48													
6		48													
7		48													
8		48													
9			8	14	20	26	32	36	40	44	48				
10			6	10	16	20	26	30	38	44	48				
11			6	8	12	16	22	28	32	40	48				
12					6	10	16	22	28	36	42	48			
13					4	8	14	20	24	32	40	48			
14						6	12	16	22	28	32	38	44	48	
15							6	10	16	20	24	28	34	40	
16						6	10	14	20	24	30	36	44	48	
17									4	8	12	16	18	20	
18							4	8	12	18	26	32	36	40	
19						4	8	12	18	26	34	44	48		(Includes Group 21 below 30% power)
20										4	8	12	14	16	
21						4	8	12	18	26	32	40	44	48	

Figure 10. Control Rod Group Withdrawal for Sequence A2

GROUP 1 RODS:	26-31, 34-39, 42-31, 34-23, 26-15, 18-23, 10-31, 18-39, 26-47, 42-47, 50-39, 50-23, 42-15, 34-07, 18-07, 10-15, 02-23, 02-39, 10-47, 18-55, 34-55, 58-31
GROUP 2 RODS:	34-31, 26-23, 18-31, 26-39, 34-47, 42-39, 50-31, 42-23, 34-15, 18-15, 10-23, 10-39, 18-47, 26-55, 42-55, 50-47, 58-39, 58-23, 50-15, 42-07, 26-07, 02-31
GROUP 3 RODS:	30-35, 38-27, 30-19, 22-27, 14-35, 22-43, 30-51, 38-43, 46-35, 54-27, 46-19, 38-11, 22-11, 14-19, 06-27, 06-43, 14-51, 22-59, 38-59, 46-51, 54-43, 30-03
GROUP 4 RODS:	30-27, 22-35, 30-43, 38-35, 46-27, 38-19, 30-11, 22-19, 14-27, 14-43, 22-51, 46-43, 54-35, 54-19, 46-11, 38-03, 22-03, 14-11, 06-19, 06-35, 30-59, 38-51
GROUP 5 RODS:	18-59, 42-03, 18-03, 42-59, 02-43, 58-19, 58-43, 02-19
GROUP 6 RODS:	10-51, 50-51, 50-11, 10-11
GROUP 7 RODS:	02-35, 34-59, 58-27, 26-03, 02-27, 26-59, 58-35, 34-03
GROUP 8 RODS:	06-15, 14-55, 54-47, 46-07, 14-07, 06-47, 46-55, 54-15
GROUP 9 RODS:	10-43, 50-19, 50-43, 10-19, 18-51, 42-11, 18-11, 42-51
GROUP 10 RODS:	26-51, 34-11, 10-27, 50-35, 34-51, 26-11, 10-35, 50-27
GROUP 11 RODS:	18-19, 42-43, 18-43, 42-19
GROUP 12 RODS:	18-35, 42-27, 26-43, 34-19, 18-27, 42-35, 26-19, 34-43
GROUP 13 RODS:	26-35, 34-27, 34-35, 26-27
GROUP 14 RODS:	06-39, 54-23, 22-55, 38-07, 06-23, 54-39, 38-55, 22-07
GROUP 15 RODS:	06-31, 54-31, 30-55, 30-07
GROUP 16 RODS:	14-47, 46-15, 14-15, 46-47
GROUP 17 RODS:	14-39, 46-23, 22-47, 38-15, 14-23, 46-39, 22-15, 38-47
GROUP 18 RODS:	14-31, 46-31, 30-47, 30-15
GROUP 19 RODS:	22-39, 38-23, 22-23, 38-39
GROUP 20 RODS:	30-39, 30-23, 22-31, 38-31
GROUP 21 RODS:	30-31

100% to 50% rod density

1. Withdraw rods in Groups 1 and 2 individually in order given.
2. Withdraw rods in Groups 3 and 4 by bank, to the positions shown, keeping rods of a group within the listed notch positions.

50% rod density to low power alarm point (30% of rated thermal power)

1. Rods shall only be moved (inserted or withdrawn) one notch per selection.
2. The maximum difference in axial rod positions between any two rods in each group is required to be within two notches. Do not proceed to any other group until this criterion is satisfied.

Low power alarm point (30% rated) to rated power

It is permissible to adjust control positions for optimum power shaping

Figure 11. Sequence A2 Control Group Designation

GROUP	STEPS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	48															
2	48															
3	48															
4	48															
5		48														
6		48														
7A			8	12	16	20	24	32	36	40	40	48	(Includes 7B below 30% power)			
7B			8	12	16	20	24	32	36	40	48					
8A					4	6	8	14	20	24	26	28	28	(Includes 8B below 30% power)		
8B					4	6	8	14	20	24	32	44	48			
9			10	14	20	24	28	36	40	44	48					
10A			6	8	12	14	18	22	26	30	34	44	48	(Includes 10B below 30% power)		
10B			6	8	12	14	18	22	26	30	34	34	34	38	42	
11			10	14	20	24	28	36	40	44	48					
12				4	6	8	14	18	24	30	34	48				
13				4	6	8	14	18	24	30	34	48				
14			6	8	10	16	22	26	32	36	44	48				
15			6	8	10	16	22	26	32	36	44	48				
16A				4	6	8	10	16	20	26	30	40	48	(Includes 16B below 30% power)		
16B				4	6	8	10	16	20	26	30	40	48			
17A			4	6	8	10	20	24	30	34	40	48	(Includes 17B below 30% power)			
17B			4	6	8	10	20	24	30	34	40	48				
18									4	8	12	16	20			
19A												4	6	-	8	(Includes 19B below 30% power)
19B												4	-	-	6	
20									4	6	-	8	-	-	10	
21A						4	6	8	12	14	20	22	26	(Includes 21B below 30% Power)		
21B						4	6	8	12	14	16	18	20			
22A							4	6	8	12	22	28	36	40	(Includes 22B below 30% Power)	
22B							4	6	8	12	18	20	26			

Figure 12. Control Rod Group Withdrawal for Sequence B2

GROUP 1 RODS:	14-31, 46-31, 30-47, 30-15, 30-31, 14-47, 46-47, 14-15, 46-15, 22-39, 38-39, 22-23, 38-23, 06-39, 22-55, 38-55, 54-39, 54-23, 38-07, 22-07, 06-23
GROUP 2 RODS:	22-31, 38-31, 30-39, 30-23, 14-39, 46-39, 22-15, 22-47, 46-23, 14-23, 38-15, 38-47, 06-31, 30-55, 54-31, 30-07, 06-47, 54-47, 54-15, 06-15, 14-55, 46-55, 46-07, 14-07
GROUP 3 RODS:	26-27, 42-27, 34-35, 34-19, 18-35, 50-35, 18-19, 42-43, 42-11, 18-51, 10-27, 50-19, 26-43, 10-43, 34-51, 26-11, 02-19, 26-59, 58-43, 34-03, 02-35, 42-59, 58-27, 18-03, 50-51, 10-11
GROUP 4 RODS:	26-35, 42-35, 26-19, 42-19, 10-35, 50-27, 18-27, 26-51, 34-27, 34-43, 34-11, 18-43, 50-43, 18-11, 42-51, 10-19, 26-03, 02-27, 34-59, 58-35, 42-03, 02-43, 18-59, 58-19, 10-51, 50-11
GROUP 5 RODS:	02-39, 58-39, 02-23, 58-23
GROUP 6 RODS:	22-03, 22-59, 38-59, 38-03
GROUP 7A RODS:	06-35, 54-35, 06-27, 54-27
GROUP 7B RODS:	30-59, 30-03
GROUP 8A RODS:	26-55, 26-07, 34-55, 34-07
GROUP 8B RODS:	02-31, 58-31
GROUP 9 RODS:	14-51, 46-51, 14-11, 46-11
GROUP 10A RODS:	22-35, 38-35, 22-27, 38-27
GROUP 10B RODS:	30-43, 30-19
GROUP 11 RODS:	06-43, 54-43, 06-19, 54-19
GROUP 12 RODS:	18-55, 18-07, 42-55, 42-07
GROUP 13 RODS:	10-47, 10-15, 50-47, 50-15
GROUP 14 RODS:	14-43, 46-43, 14-19, 46-19
GROUP 15 RODS:	22-51, 22-11, 38-51, 38-11
GROUP 16A RODS:	30-35, 30-27
GROUP 16B RODS:	22-43, 22-19, 38-43, 38-19
GROUP 17A RODS:	14-35, 46-35, 14-27, 46-27
GROUP 17B RODS:	30-51, 30-11
GROUP 18 RODS:	10-39, 50-39, 10-23, 50-23

100% to 50% rod density

1. Withdraw rods in Groups 1 and 2 individually in order given.
2. Withdraw rods in Groups 3 and 4 by bank, to the positions shown, keeping rods of a group within the listed notch positions.

50% rod density to low power alarm point (30% of rated thermal power)

1. Rods shall only be moved (inserted or withdrawn) one notch per selection.
2. The maximum difference in axial rod positions between any two rods in each group is required to be within two notches. Do not proceed to any other group until this criterion is satisfied.

Low power alarm point (30% rated) to rated power

It is permissible to adjust control positions for optimum power shaping.

Figure 13. Sequence B2 Control Group Designation

GROUP 19A RODS: 26-39, 26-23, 34-39, 34-23

GROUP 19B RODS: 18-31, 42-31

GROUP 20 RODS: 18-47, 42-47, 18-15, 42-15

GROUP 21A RODS: 10-31, 50-31

GROUP 21B RODS: 26-47, 26-15, 34-47, 34-15

GROUP 22A RODS: 18-39, 42-39, 18-23, 42-23

GROUP 22B RODS: 26-31, 34-31

Figure 13. Sequence B2 Control Group Designation (Continued)

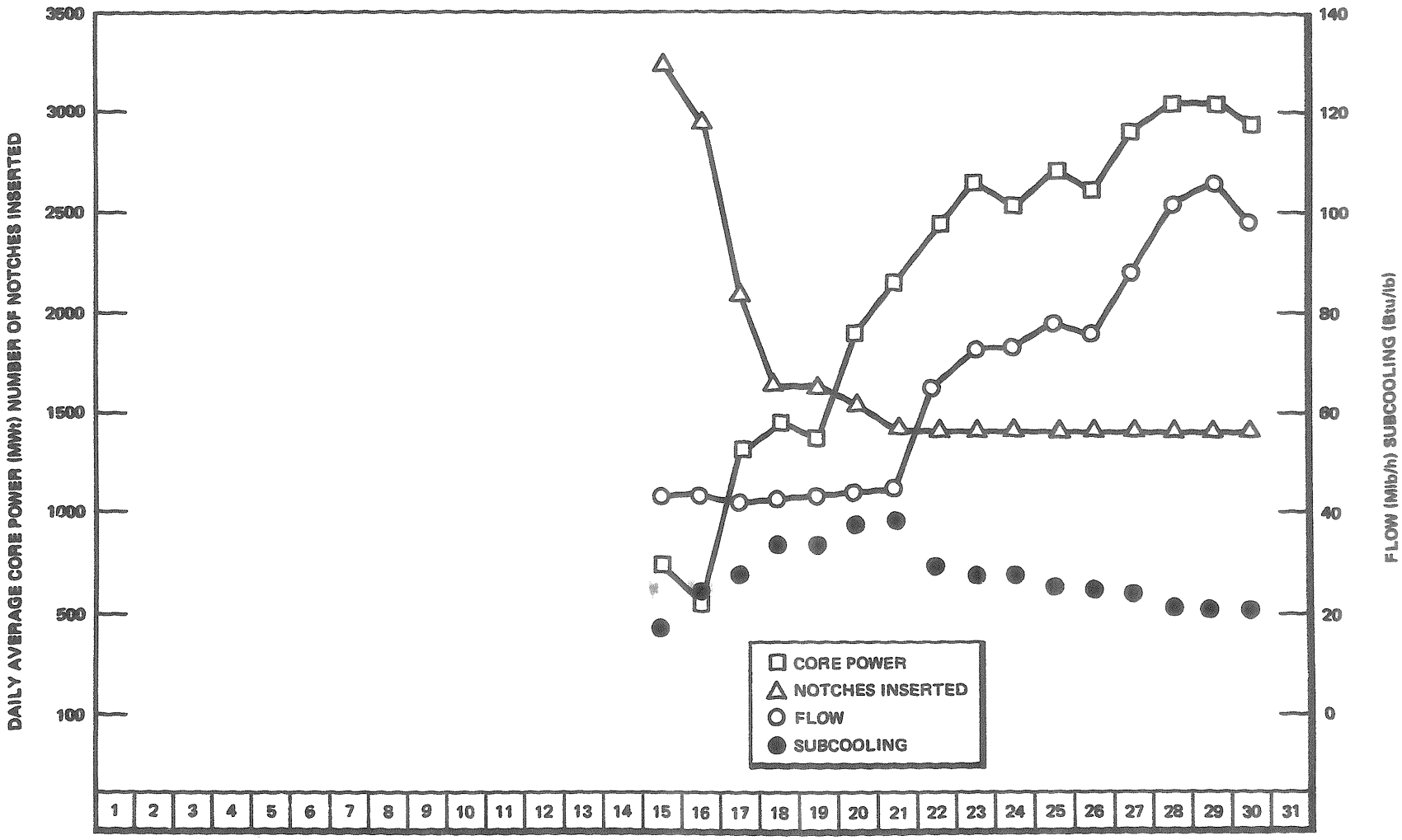


Figure 14. Data Summaries, September 1977

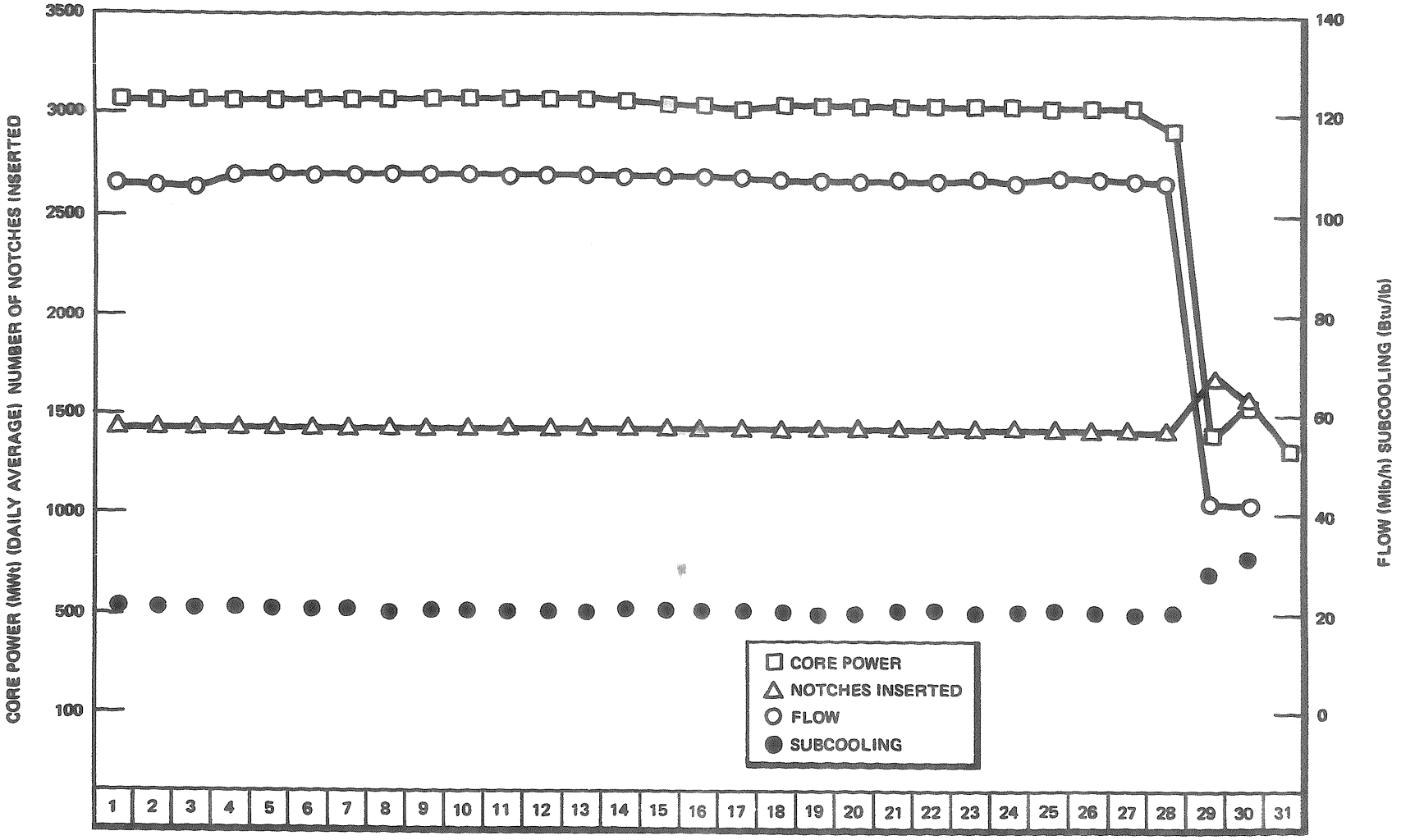


Figure 15. Data Summaries, October 1977

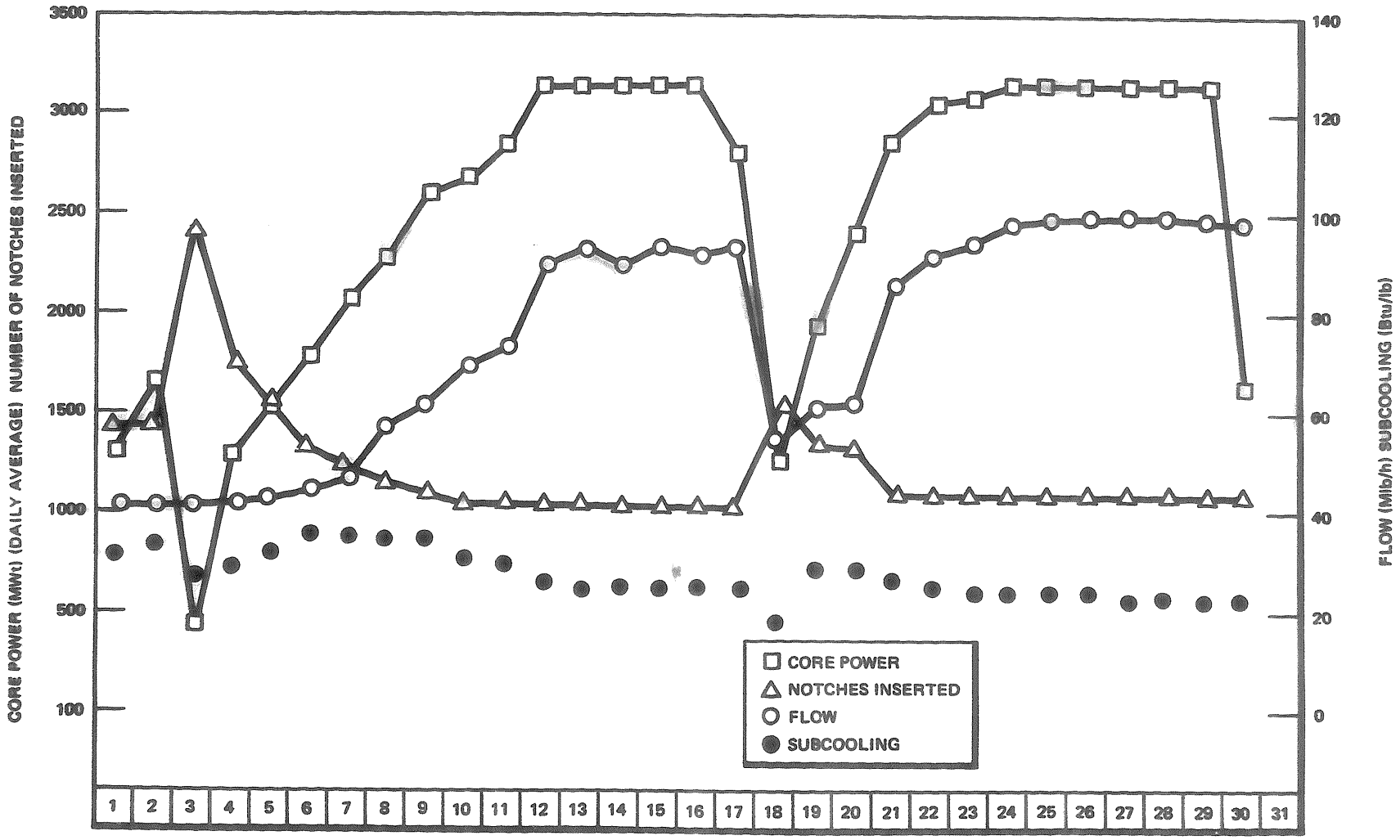


Figure 16. Data Summaries, November 1977

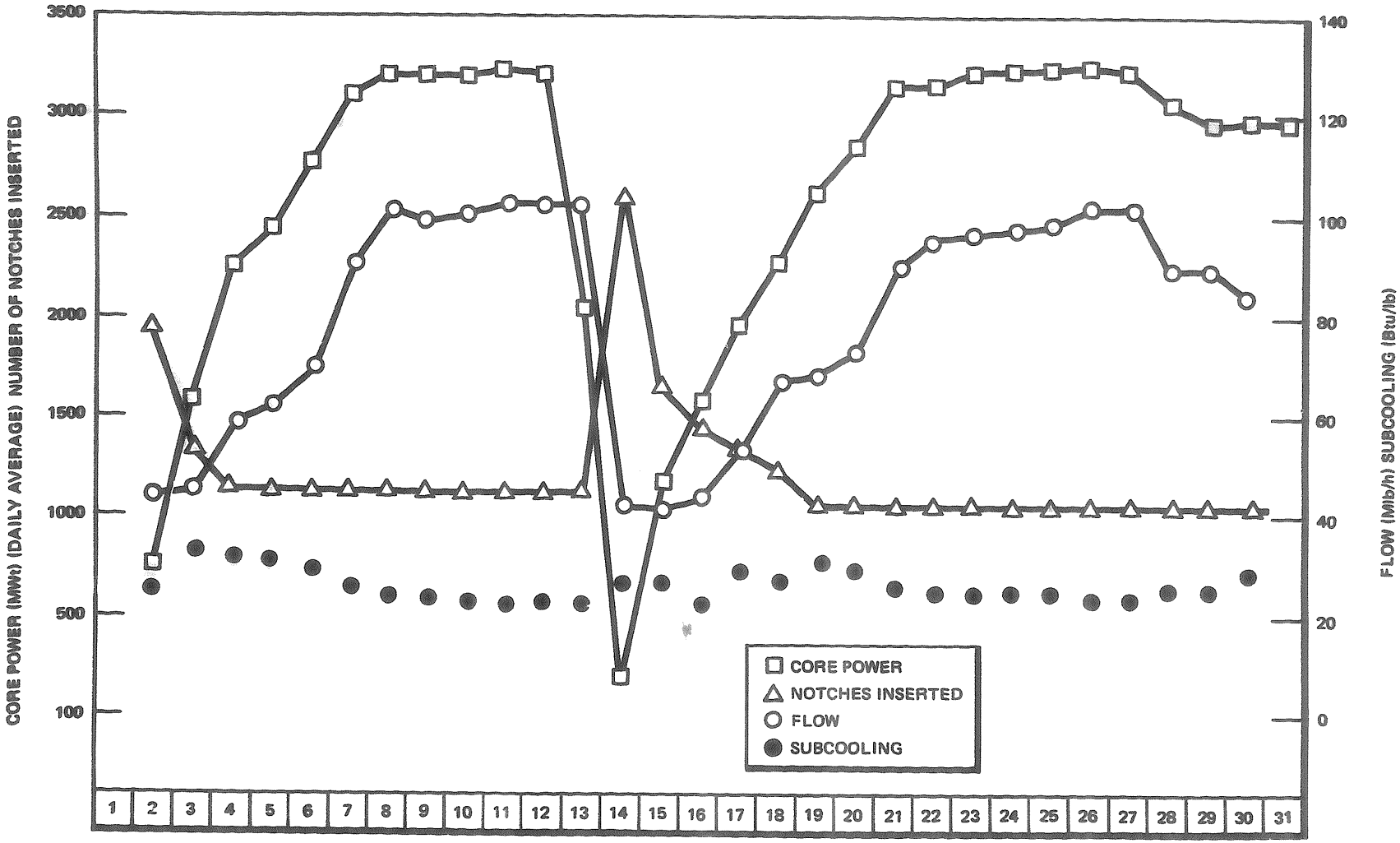


Figure 17. Data Summaries, December 1977

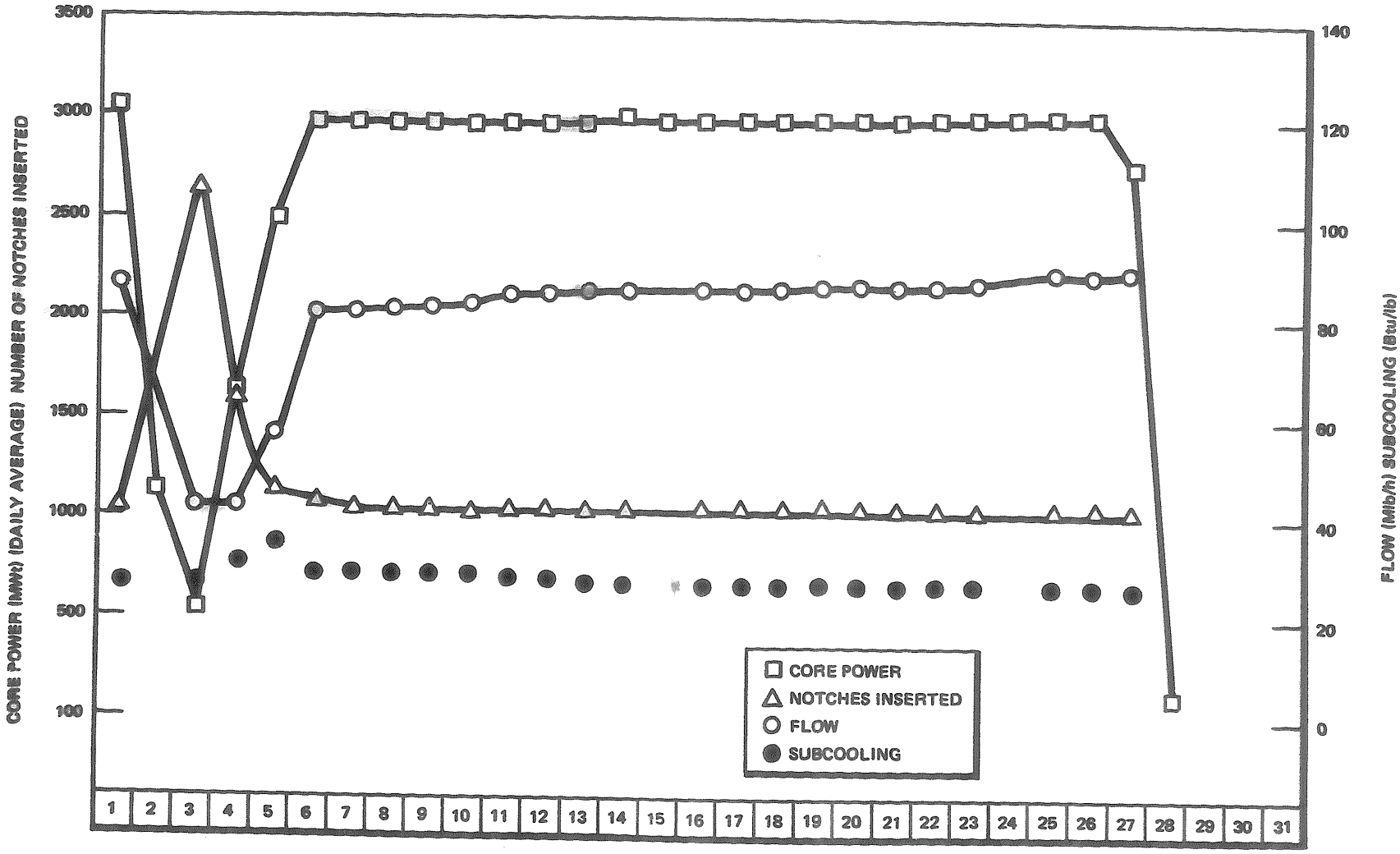


Figure 18. Data Summaries, January 1978

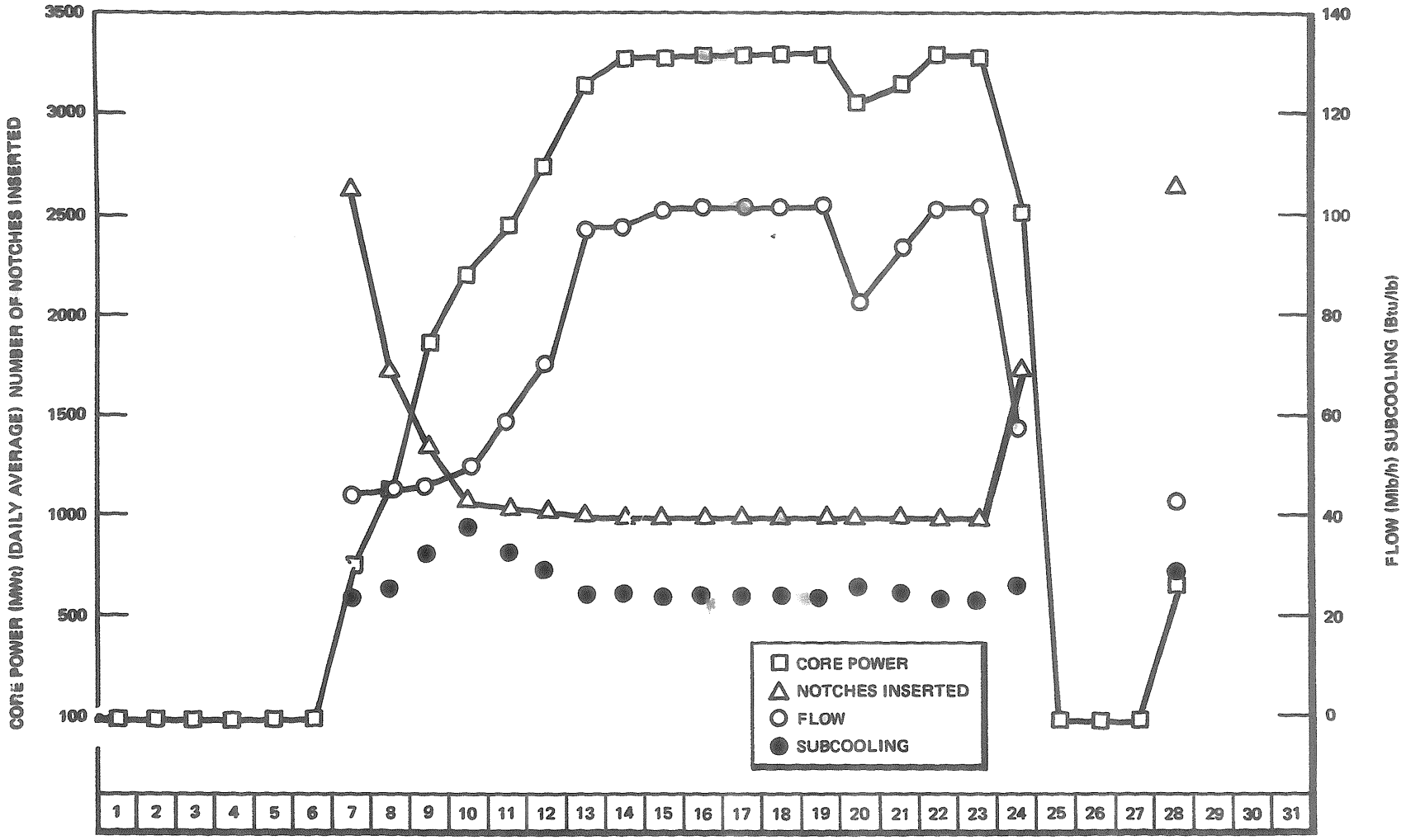


Figure 19. Data Summaries, February 1978

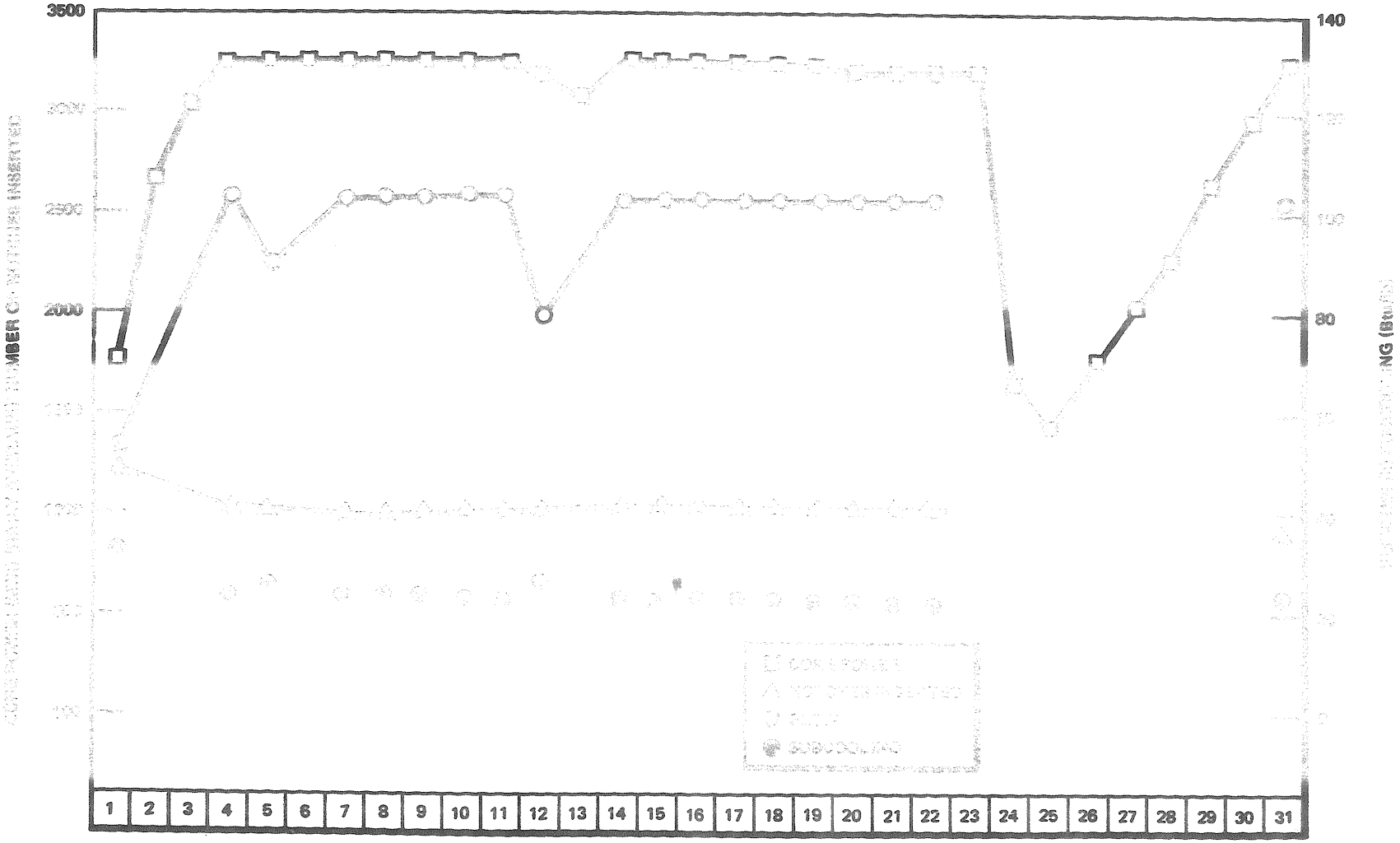


Figure 20. Data Summaries, March 1978

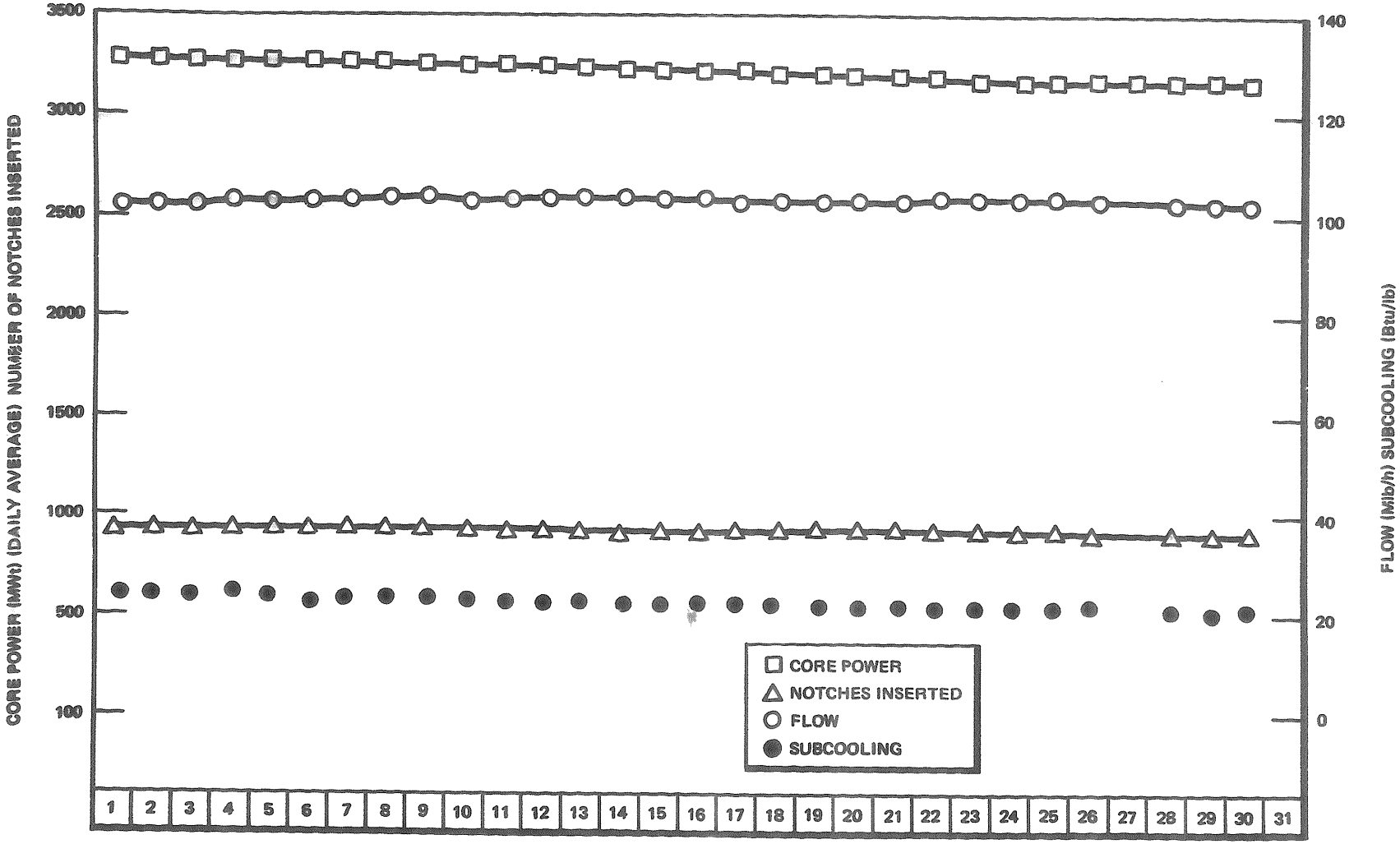


Figure 21. Data Summaries, April 1978

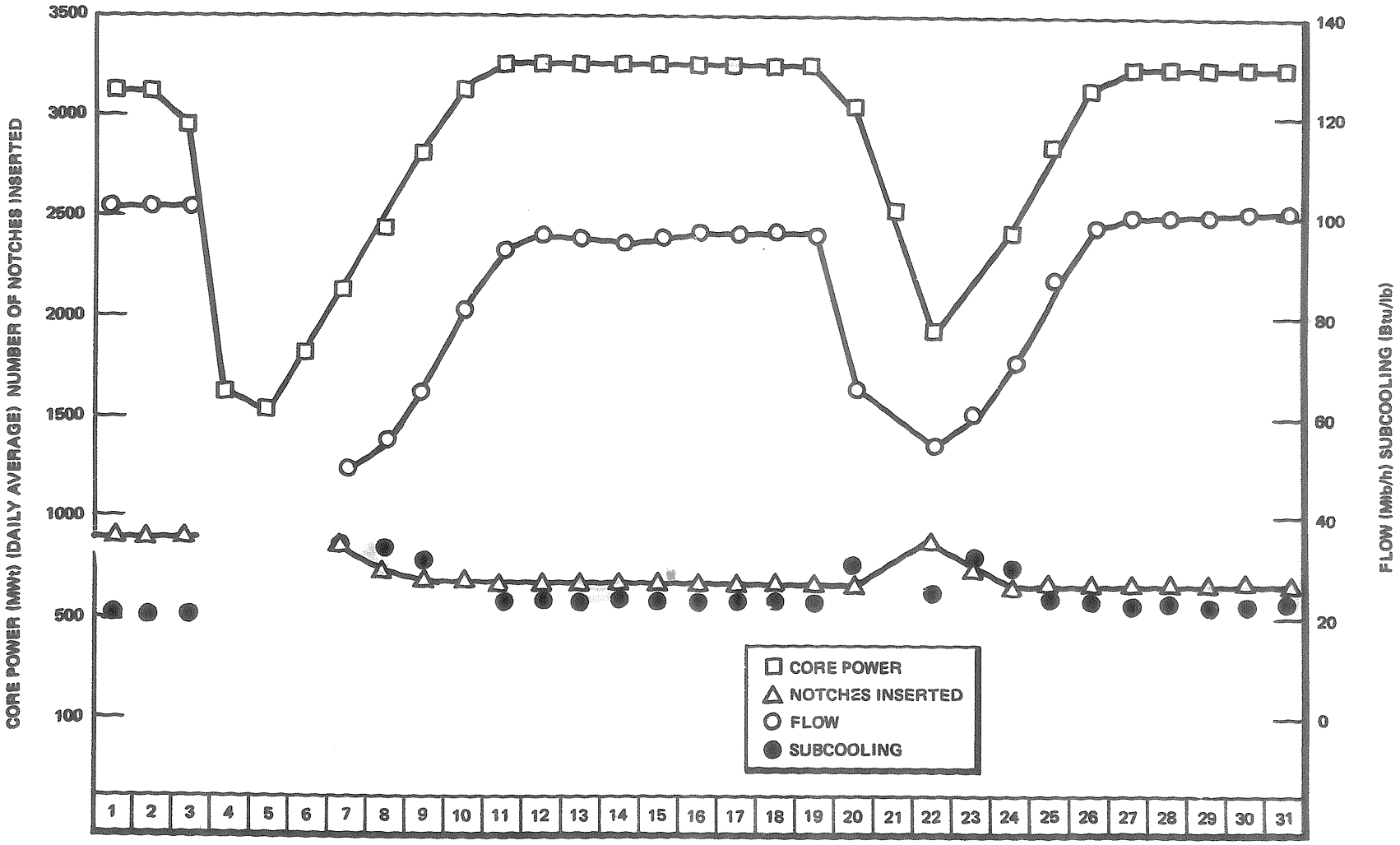


Figure 22. Data Summaries, May 1978

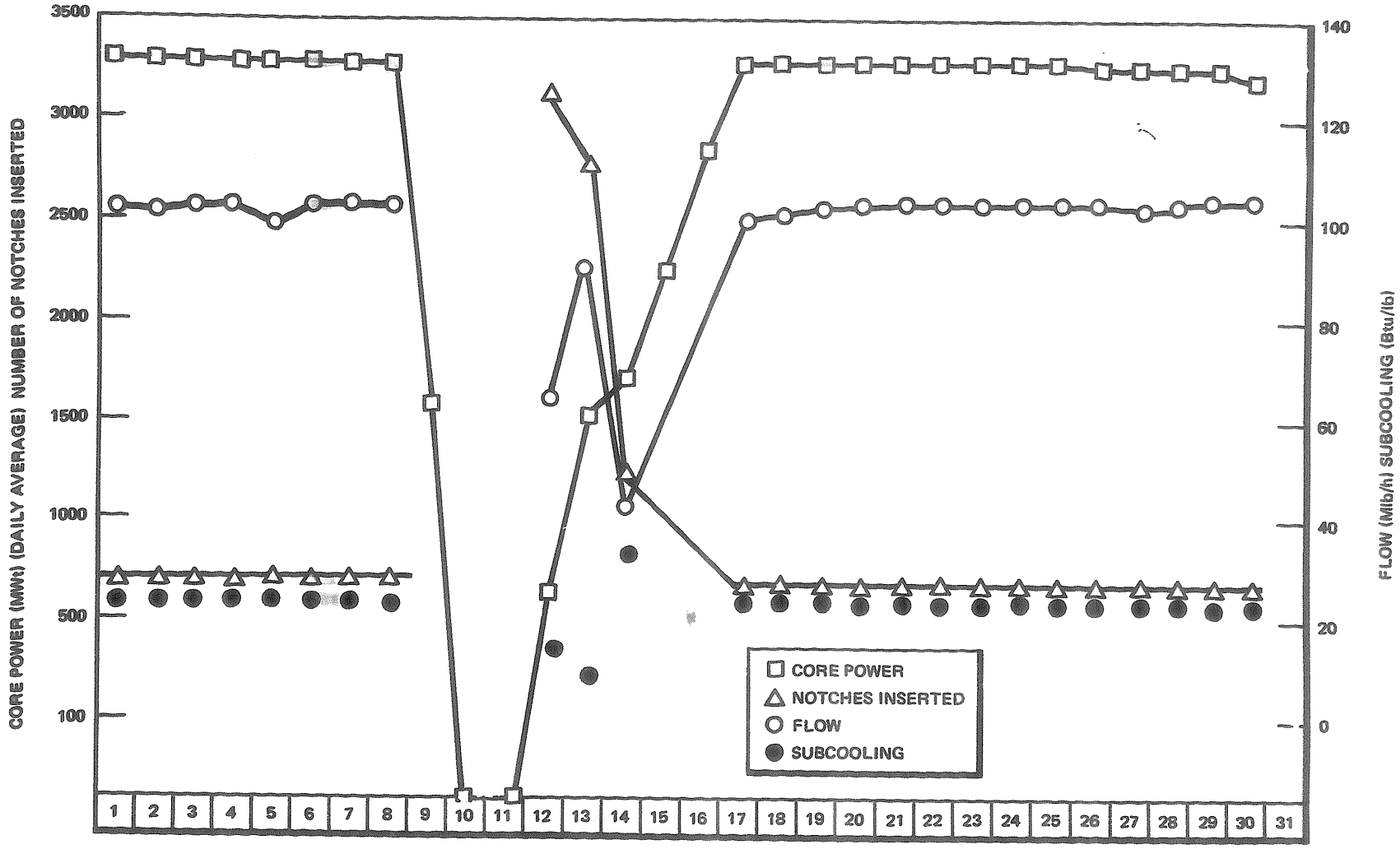


Figure 23. Data Summaries, June 1978

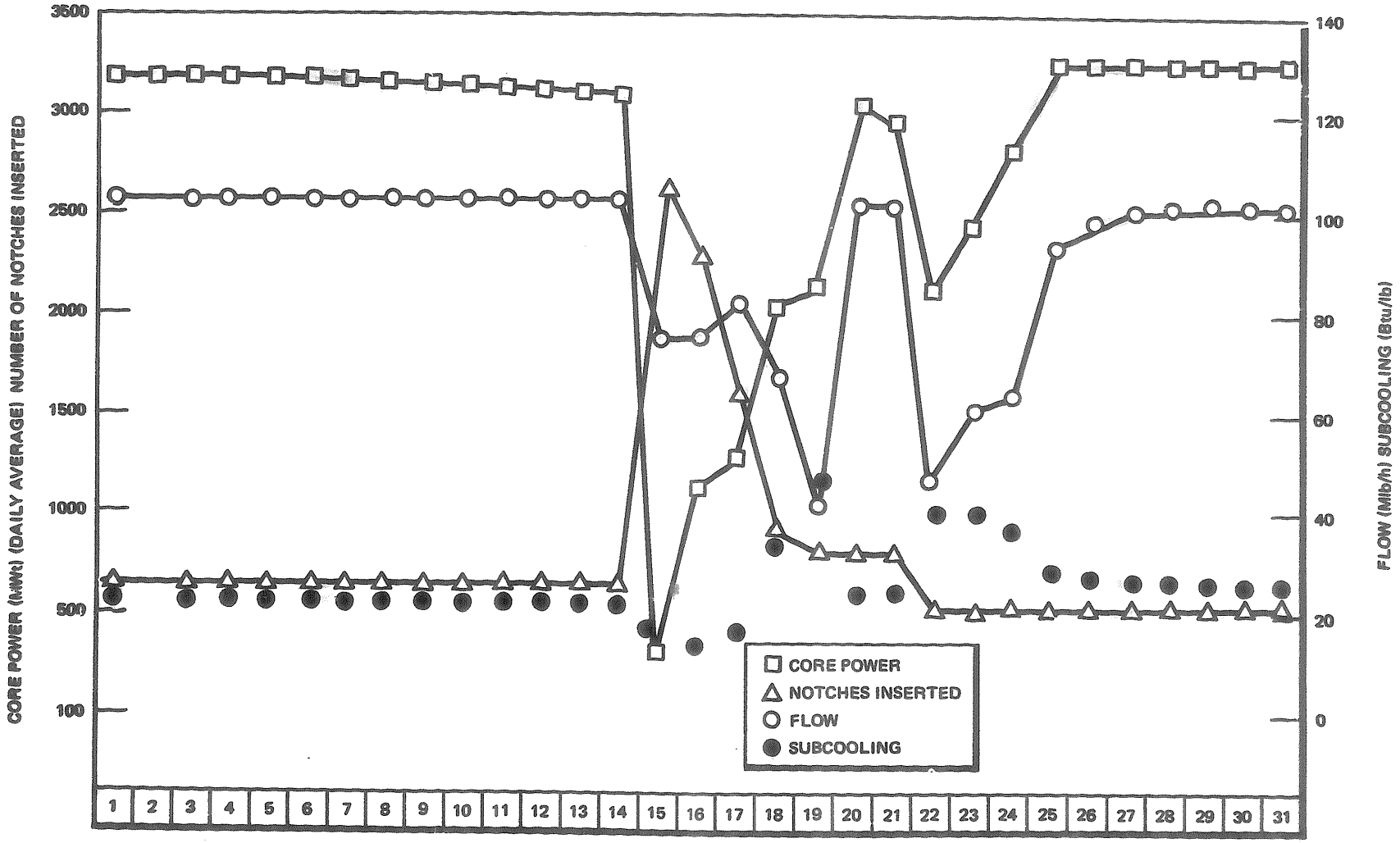


Figure 24. Data Summaries, July 1978

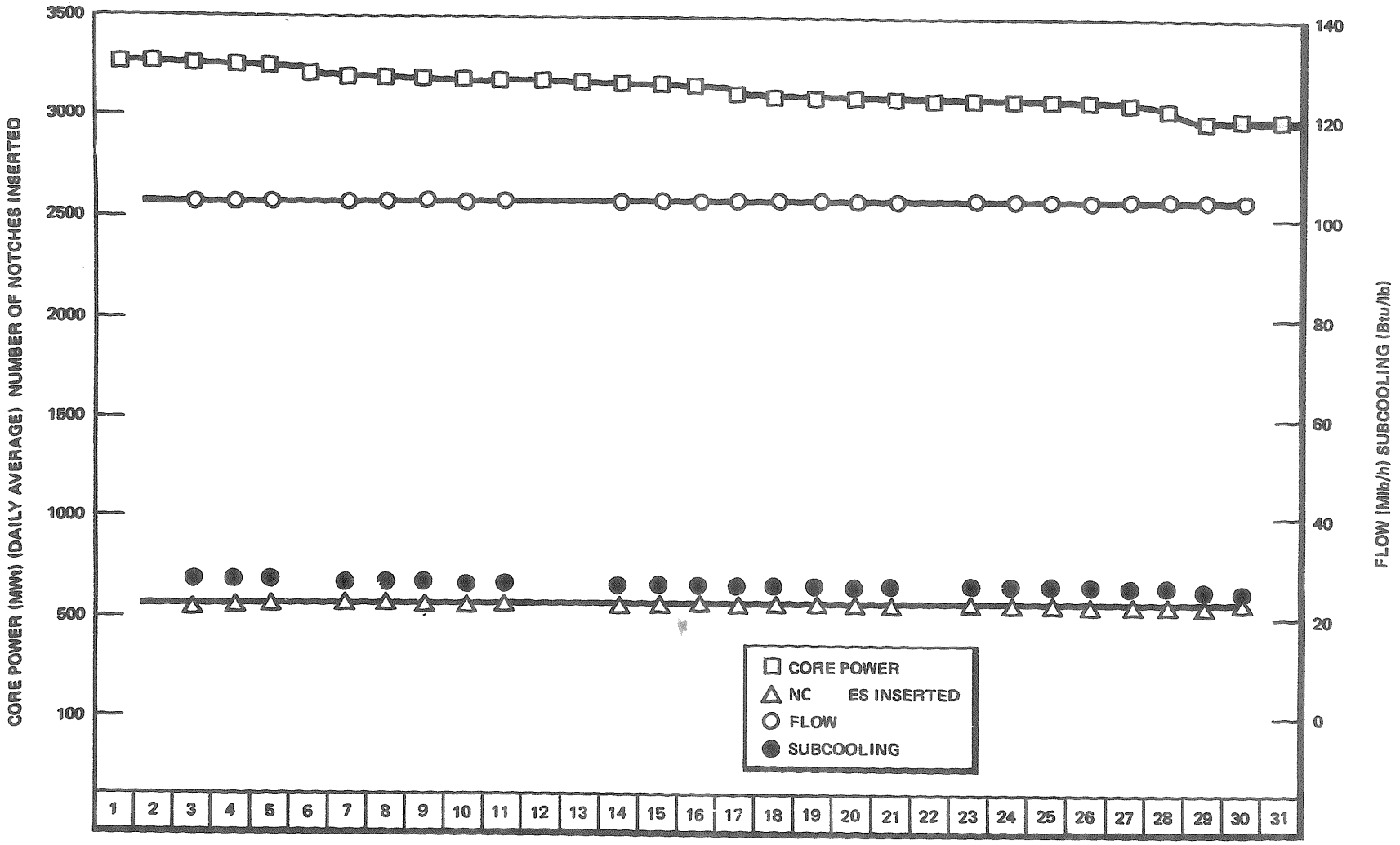


Figure 25. Data Summaries, August 1978

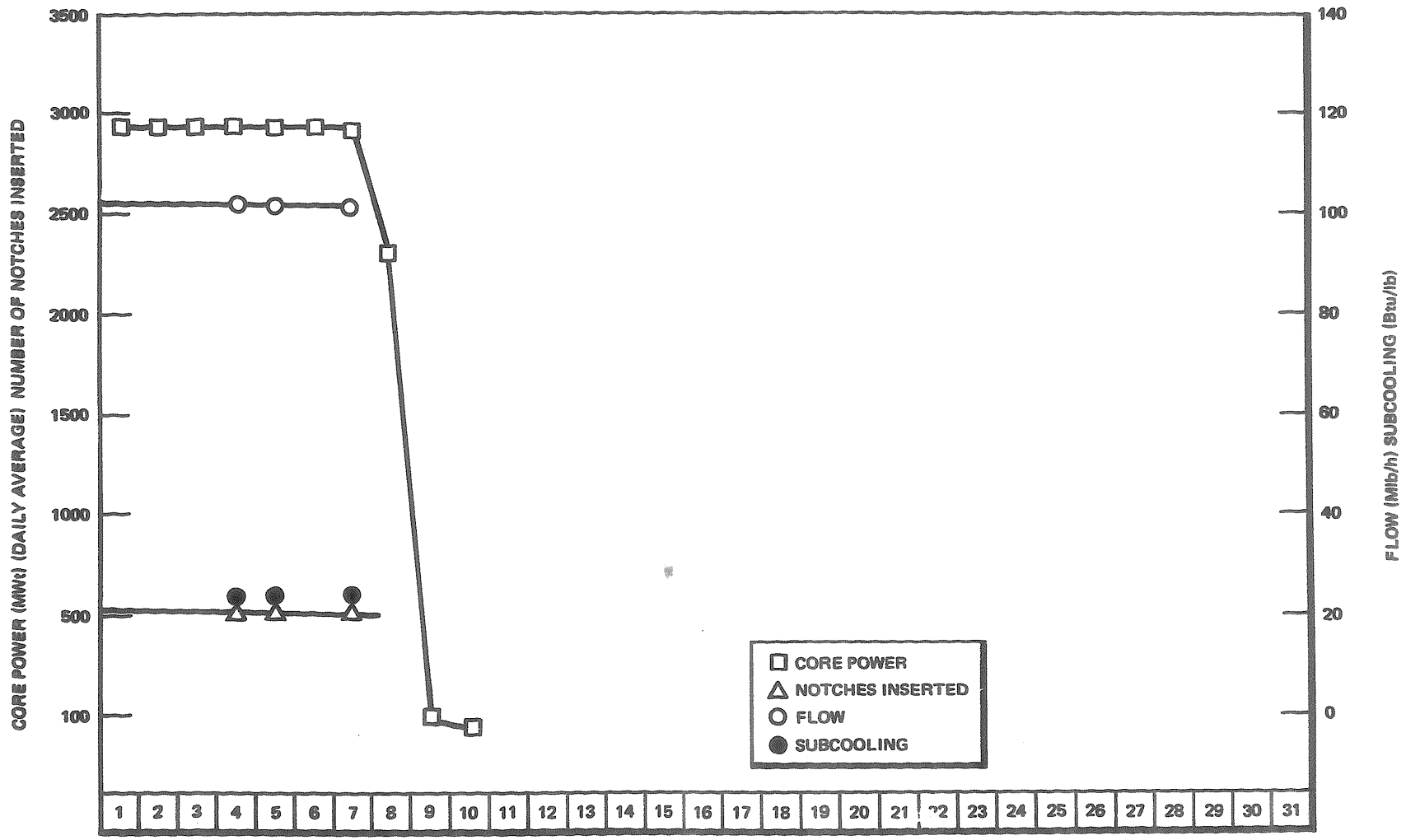


Figure 26. Data Summaries, September 1978

DATA SET 39, SEPTEMBER 29, 1977

Reactor Conditions

Core Average Exposure, 9220 MWd/t
Core Thermal Power, 3076 MWt
Dome Pressure, p, 1019 psia
Core Flow, 107.1 Mlb/h
Inlet Subcooling at P, 21.6 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	48	48	40	48	40	48	48	48	48	48	48
48	48	48	36	48	28	48	24	48	28	48	36	48	48	48
48	48	26	48	14	48	12	48	12	48	14	48	26	48	48
48	48	48	40	48	42	48	38	48	42	48	40	48	48	48
48	48	10	48	14	48	06	48	06	48	14	48	10	48	48
48	38	48	42	48	42	48	38	48	42	48	42	48	38	48
48	48	18	48	08	48	14	48	14	48	08	48	18	48	48
48	38	48	42	48	42	48	38	48	42	48	42	48	38	48
48	48	10	48	14	48	06	48	06	48	14	48	10	48	48
48	48	48	40	48	42	48	38	48	42	48	40	48	48	48
48	48	26	48	14	48	12	48	12	48	14	48	26	48	48
48	48	48	36	48	28	48	24	48	28	48	36	48	48	48
48	48	48	48	48	48	40	48	40	48	48	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution, Bottom to Top of Core

16 9	40.8	68.4	84.2	97.6	105.9	112.0	115.9	123.9	121.5	118.0	119.5	121.4
	115.5	107.2	106.2	110.2	102.2	102.0	100.5	90.1	77.5	62.0	46.0	25.9
24 9	38.5	60.1	74.4	92.1	102.8	106.8	107.7	108.0	107.3	109.3	116.7	124.4
	123.1	116.8	120.6	124.7	115.4	118.4	116.0	104.5	90.2	72.0	55.7	31.8
32 9	30.9	54.8	75.8	96.5	112.4	120.5	117.0	119.4	115.4	111.3	111.7	122.0
	127.9	125.2	133.4	133.2	127.1	124.8	125.4	115.1	99.5	81.3	61.6	39.2
40 9	44.7	75.3	92.7	106.2	111.2	108.9	106.7	106.6	107.3	107.4	115.3	117.1
	115.9	107.8	112.4	113.1	104.7	105.1	103.7	93.8	81.2	66.2	50.5	29.4
48 9	21.6	36.3	44.9	52.1	60.0	67.3	77.0	87.4	89.6	90.5	95.2	94.8
	93.2	90.3	89.0	90.2	84.3	85.7	83.6	73.6	63.7	56.6	37.9	21.9
817	44.6	73.5	89.1	103.1	108.5	105.4	102.7	105.1	100.9	100.1	103.7	111.3
	111.5	106.5	110.1	110.2	103.1	103.3	100.4	90.6	76.7	61.6	46.0	26.2
1617	35.6	54.2	67.7	83.7	96.6	103.8	109.3	114.7	112.0	112.8	114.6	117.1
	112.0	111.6	113.5	121.9	121.1	132.6	135.2	124.6	109.4	85.3	63.0	40.8
2417	35.5	59.9	78.0	94.3	105.2	106.8	105.0	107.8	107.0	103.2	105.9	108.6
	104.6	101.2	105.1	109.5	107.9	117.4	123.9	119.0	106.4	89.3	69.9	41.1
3217	35.3	58.6	73.3	88.3	101.3	109.2	110.3	116.0	109.3	100.5	102.3	100.5
	98.3	92.1	98.6	103.0	104.0	115.0	121.1	116.3	106.2	91.1	71.7	45.4
4017	36.6	60.3	77.7	97.5	106.3	111.6	115.2	115.1	112.9	108.1	111.3	109.5
	109.6	107.3	111.8	121.6	123.5	135.3	136.6	128.8	117.2	92.6	69.7	43.9
4817	30.4	54.2	74.7	92.9	108.6	117.7	119.8	126.6	124.0	122.0	126.8	136.2
	137.3	129.5	136.6	138.9	134.9	134.9	135.7	125.6	109.9	89.2	67.6	39.2
5617	36.2	57.5	70.2	77.7	80.8	78.8	78.4	78.9	75.7	75.3	76.9	77.4
	74.7	71.4	71.4	72.2	70.2	70.1	68.9	63.0	55.5	44.4	34.0	19.5
625	37.3	60.6	74.6	89.2	99.7	109.5	112.1	112.8	107.8	98.7	98.6	97.1
	97.5	90.4	95.1	98.1	93.9	96.8	104.7	101.3	93.0	86.3	60.3	34.8
1625	43.6	69.0	90.8	113.2	119.6	118.4	115.5	115.9	107.9	104.5	103.1	103.8

	99.8	99.8	104.5	113.1	114.8	126.2	131.4	120.6	108.9	87.0	68.4	44.2
2425	35.2	62.0	84.0	104.7	119.1	121.9	121.2	121.0	112.9	107.1	105.6	105.9
	101.8	95.8	100.8	104.2	104.9	110.9	115.7	111.0	101.4	91.8	72.7	49.7
3225	37.3	62.3	79.4	96.9	115.0	127.9	133.3	139.2	135.5	128.9	123.9	119.0
	116.8	111.3	114.4	119.7	118.0	124.0	125.4	121.3	110.4	94.4	74.2	47.0
4025	41.3	69.5	89.2	107.6	114.5	112.7	109.2	106.1	100.4	95.0	93.0	91.2
	89.1	88.2	92.0	102.3	105.6	118.2	124.7	118.9	109.5	102.3	71.1	42.6
4825	43.4	68.9	87.2	107.1	116.4	112.9	107.9	108.9	102.5	99.4	99.2	98.3
	96.0	94.9	98.7	103.7	103.3	110.8	117.7	112.0	105.0	83.0	63.7	39.4
5625	42.0	68.7	84.2	98.9	113.8	121.9	118.5	119.0	111.0	106.1	102.2	100.9
	98.5	93.8	95.1	96.6	91.1	92.2	90.6	82.2	71.9	62.8	41.9	21.6
833	37.7	63.0	84.9	102.4	116.5	127.0	127.6	130.4	122.0	116.4	108.7	107.5
	107.2	103.1	112.0	120.9	119.7	122.5	122.7	113.0	95.8	78.0	59.9	36.2
1633	36.7	65.5	88.7	109.1	124.3	120.9	113.0	113.2	102.6	98.8	96.1	93.7
	92.4	88.6	93.1	99.3	97.5	102.0	108.1	107.7	100.5	91.3	71.5	48.7
2433	38.4	66.4	89.1	112.9	124.7	127.2	121.2	121.2	112.5	105.1	103.8	101.8
	98.3	95.6	102.5	108.6	112.9	125.0	131.5	125.6	113.5	92.9	73.4	46.4
3233	41.1	63.5	74.7	90.5	105.1	115.6	119.1	119.3	113.5	107.6	108.6	104.7
	99.8	98.4	104.6	113.9	115.4	127.8	131.9	123.0	112.2	91.0	73.1	45.9
4033	52.6	86.8	109.1	130.4	133.6	129.9	122.8	119.6	111.4	102.9	102.3	101.1
	97.7	97.0	100.6	107.5	108.1	115.1	118.6	115.3	109.2	89.5	71.2	47.7
4833	49.0	81.8	104.2	130.3	137.0	135.9	124.2	123.2	113.6	104.6	104.6	105.2
	102.2	104.1	113.1	122.6	117.8	126.3	126.9	117.7	105.3	83.0	63.6	40.7
5633	38.8	66.7	83.4	105.8	120.0	129.4	126.8	126.2	114.8	104.4	101.0	98.0
	92.1	88.2	91.5	92.6	86.4	88.9	86.3	77.3	66.5	52.6	38.5	22.7
841	47.8	79.0	97.2	110.3	115.6	114.2	106.7	106.4	103.0	95.4	95.5	95.0
	89.9	87.4	89.3	92.0	86.6	91.4	93.9	90.1	81.3	65.2	50.6	30.2
1641	37.5	56.0	68.4	85.0	95.4	99.6	101.3	98.8	94.9	94.1	94.9	93.0
	89.7	92.4	97.4	103.1	105.3	120.2	123.5	113.1	105.4	85.9	65.9	44.3
2441	33.9	59.4	79.8	99.2	113.6	117.8	118.6	119.6	113.9	109.2	107.7	108.4
	106.9	101.3	105.8	110.5	110.1	117.1	120.7	115.0	105.7	91.3	74.5	46.9
3241	37.5	61.5	75.3	92.7	107.1	117.0	118.4	119.9	113.1	105.5	104.2	102.6
	100.7	94.6	98.0	102.8	99.7	105.2	109.6	104.4	97.8	84.9	68.0	44.5
4041	40.8	64.4	80.6	99.0	106.0	108.3	104.9	107.5	102.7	98.9	99.4	97.4
	94.6	94.9	101.1	109.5	113.5	125.7	133.0	123.9	112.8	90.4	71.5	45.0
4841	37.7	60.2	76.5	93.2	105.9	112.5	109.8	110.7	109.3	103.4	102.5	101.3
	102.8	99.3	103.6	108.0	103.5	110.3	114.3	111.7	101.3	83.8	65.4	36.4
5641	55.5	89.0	109.2	122.9	128.1	126.0	119.3	119.2	111.3	104.6	104.4	100.9
	98.6	92.3	95.3	97.6	90.9	93.2	89.6	82.1	71.9	55.5	40.9	22.6
849	27.9	40.1	47.8	54.5	58.9	61.0	64.5	69.4	73.3	79.8	91.5	98.1
	98.9	101.0	96.8	96.4	89.6	89.3	84.0	73.1	64.3	49.2	35.5	22.2
1649	39.7	59.5	70.2	84.0	93.7	102.2	116.2	120.2	121.6	121.6	124.0	126.6
	120.8	120.4	121.3	125.9	125.1	132.2	132.2	119.3	103.0	78.1	56.9	36.2
2449	32.8	53.8	65.8	77.4	85.8	87.2	87.4	90.8	93.4	98.7	106.0	113.3
	113.5	108.8	112.6	117.8	112.3	120.3	126.2	119.7	105.5	87.2	66.9	42.7
3249	39.1	59.8	71.4	85.3	91.8	94.3	94.6	98.6	94.1	93.0	98.9	106.4
	109.1	110.8	114.1	116.6	112.6	123.9	126.0	115.7	103.5	81.6	60.0	43.9
4049	44.1	63.5	72.9	83.9	87.3	90.0	92.9	95.1	96.0	103.5	110.9	116.2
	111.9	109.6	116.0	119.9	121.7	130.6	128.9	116.7	104.7	79.5	59.0	41.7
4849	27.0	41.8	49.8	59.3	66.5	74.0	81.5	88.1	90.1	91.0	100.1	105.1
	107.9	104.9	103.2	105.5	101.4	105.9	100.6	91.5	80.3	63.3	47.7	28.9
1657	36.1	56.4	65.2	70.8	74.5	76.9	75.3	78.0	76.4	75.7	77.2	77.3
	74.5	70.4	70.6	71.9	66.8	67.6	65.7	59.8	53.1	42.8	33.0	19.2
2457	41.3	66.8	81.5	100.6	111.1	111.9	108.3	108.2	103.8	96.9	98.3	99.9
	98.1	93.2	93.2	93.3	87.0	88.8	87.3	78.5	68.0	54.4	41.3	23.8
3257	40.9	67.3	85.7	110.2	124.2	123.7	114.7	115.0	109.4	104.1	105.5	103.4
	98.0	95.6	95.8	97.3	89.0	89.5	85.7	76.0	66.2	57.1	39.7	22.2
4057	50.5	82.4	98.0	112.3	116.6	115.2	111.0	108.7	105.6	99.7	104.4	105.1
	103.8	98.4	100.5	101.5	96.6	95.6	92.9	83.5	71.3	62.7	42.6	23.5

DATA SET 39, NOVEMBER 16, 1977

Reactor Conditions

Core Average Exposure, 10038 MWd/t
Core Thermal Power, 3127 MWt
Dome Pressure, P, 1015 psia
Core Flow, 94.6 Mlb/h
Inlet Subcooling at P, 25.2 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	48	38	48	30	48	38	48	48	48	48	48
48	48	48	48	40	48	48	48	48	48	40	48	48	48	48
48	48	48	34	48	12	48	14	48	12	48	34	48	48	48
48	48	40	48	48	48	48	48	48	48	48	48	40	48	48
48	38	48	12	48	12	48	18	48	12	48	12	48	38	48
48	48	48	48	48	48	32	48	32	48	48	48	48	48	48
48	30	48	14	48	18	48	06	48	18	48	14	48	30	48
48	48	48	48	48	48	32	48	32	48	48	48	48	48	48
48	38	48	12	48	12	48	18	48	12	48	12	48	38	48
48	48	40	48	48	48	48	48	48	48	48	48	40	48	48
48	48	48	34	48	12	48	14	48	12	48	34	48	48	48
48	48	48	48	40	48	48	48	48	48	40	48	48	48	48
48	48	48	48	48	38	48	30	48	38	48	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution, Bottom to Top of Core

16 9	59.8	97.4	119.6	142.8	151.6	152.5	142.4	140.0	130.9	121.0	115.1	111.5
	104.7	96.9	97.9	95.8	87.5	88.2	86.5	78.1	67.7	54.6	41.1	22.8
24 9	76.2	113.2	130.1	146.6	146.9	142.1	133.8	132.0	121.5	113.6	110.0	109.4
	104.7	97.9	100.0	102.4	97.4	100.8	99.5	89.8	79.8	63.4	49.4	30.1
32 9	72.5	120.2	147.8	156.9	154.6	142.5	128.3	125.9	120.6	120.3	120.7	123.1
	119.2	111.0	112.6	112.6	109.4	109.0	110.3	104.4	91.0	75.8	57.9	36.8
40 9	52.7	87.6	107.8	131.0	148.1	155.8	145.0	143.4	134.9	121.6	115.7	113.3
	106.3	97.2	97.8	98.9	92.5	91.9	90.5	83.4	73.1	60.7	46.2	28.3
48 9	46.5	76.6	93.1	102.2	106.0	106.3	102.3	102.3	97.6	93.2	90.9	87.1
	82.9	77.3	76.2	77.0	71.1	70.6	69.8	63.3	54.1	48.7	33.2	19.3
817	60.0	99.2	122.7	145.4	159.3	155.7	148.0	145.0	132.3	123.0	117.8	111.2
	104.8	96.9	97.7	96.6	89.4	89.1	85.8	76.8	65.9	52.3	39.9	23.8
1617	78.5	112.8	126.2	137.9	134.6	131.0	134.4	142.8	136.6	126.8	124.8	123.4
	115.2	110.6	113.3	116.5	110.4	117.3	116.8	107.5	96.8	76.7	57.6	36.6
2417	91.4	135.5	145.8	151.6	141.0	128.1	109.6	106.6	99.6	96.1	95.8	96.7
	94.2	91.8	96.7	103.9	104.1	115.8	123.6	119.5	107.0	89.8	70.6	42.0
3217	94.5	143.3	153.9	155.2	138.7	120.9	105.3	100.9	90.8	85.8	83.4	83.6
	81.9	80.8	90.2	99.6	101.7	115.1	122.6	117.1	106.4	89.2	71.6	46.1
4017	80.8	122.8	137.5	148.3	144.0	136.7	129.3	126.0	117.3	109.2	109.4	107.9
	103.8	100.1	104.8	110.2	108.7	118.8	126.1	119.9	111.0	89.2	67.6	44.6
4817	51.6	90.1	118.1	137.6	153.6	160.2	156.0	162.5	154.6	148.5	142.5	138.0
	128.5	121.3	123.8	125.6	120.4	121.4	120.8	113.5	98.3	80.6	65.3	36.9
5617	44.7	71.6	89.1	101.9	107.3	105.9	102.0	101.7	95.3	89.1	87.0	82.7
	77.5	71.3	68.9	69.4	64.9	65.7	63.1	57.5	50.1	40.3	33.6	17.8
625	70.4	108.1	124.2	139.2	139.6	142.4	134.1	132.1	122.4	115.1	112.0	113.7
	107.5	99.4	101.5	104.2	96.7	99.9	100.4	93.3	82.8	74.5	53.1	30.7
1625	91.7	130.0	135.8	143.5	131.9	118.8	103.9	102.3	97.3	93.4	94.8	93.4

	93.6	92.9	97.4	106.1	106.9	120.1	126.3	118.7	108.7	86.0	67.1	43.4
2425	55.5	88.1	101.8	104.5	103.8	97.7	91.8	97.7	98.9	102.1	105.1	107.9
	108.9	108.0	116.3	124.0	126.4	137.8	144.8	140.1	124.2	104.5	81.5	51.4
3225	54.2	84.8	96.2	102.8	100.2	97.6	96.3	105.0	113.7	118.1	121.0	124.5
	129.5	128.5	143.6	156.9	156.7	164.8	166.3	155.1	134.8	109.9	83.2	51.8
4025	81.5	119.2	129.3	131.3	120.0	108.2	97.4	96.4	90.2	88.3	89.6	89.3
	87.4	88.1	96.1	105.5	107.8	120.9	130.2	125.7	116.5	107.5	75.7	46.7
4825	92.9	130.2	136.8	145.7	136.4	126.3	117.0	115.3	105.9	101.4	99.8	99.3
	95.4	93.9	96.3	100.6	99.0	110.3	115.6	109.2	100.3	79.4	60.8	39.8
5625	55.2	90.3	108.9	124.9	134.2	139.1	135.4	137.7	127.8	121.2	114.2	115.6
	109.5	102.9	101.2	103.2	93.9	93.0	88.8	79.8	68.4	60.2	39.5	22.6
833	82.0	130.0	147.0	155.8	154.4	145.3	131.7	130.1	129.4	130.5	129.0	129.4
	125.2	113.6	116.8	116.5	109.6	110.5	109.9	101.3	87.2	72.6	55.3	35.4
1633	76.8	122.3	140.0	135.8	132.5	119.0	103.0	94.9	90.6	84.5	82.9	85.6
	85.8	83.7	91.5	100.1	104.7	116.0	126.3	122.3	110.0	94.6	74.6	51.0
2433	47.5	75.4	87.3	91.8	90.9	88.8	87.9	96.2	102.3	100.8	107.0	110.7
	112.0	112.9	124.3	139.5	140.8	149.2	149.4	142.2	126.9	104.0	81.4	51.5
3233	45.8	65.8	71.0	75.0	75.0	76.1	80.9	92.8	101.8	107.3	115.6	116.4
	115.4	118.4	125.8	134.1	128.5	135.4	135.8	127.9	119.7	101.7	82.1	52.2
4033	94.4	137.0	144.3	142.6	132.2	119.9	106.8	102.6	98.2	94.4	96.1	98.8
	98.1	103.3	116.5	132.9	135.1	142.4	145.1	135.1	121.4	97.0	76.0	52.9
4833	99.8	141.5	151.6	152.4	148.7	132.6	118.5	115.9	107.9	102.5	102.9	102.8
	101.2	99.4	103.4	111.5	112.5	122.7	127.3	118.1	106.8	84.0	63.6	42.3
5633	61.9	100.0	118.7	130.1	128.8	123.3	113.3	113.0	114.1	109.3	117.2	110.2
	103.9	97.9	99.7	97.0	89.0	89.3	85.6	74.6	64.7	51.3	37.9	22.6
841	55.2	88.4	107.3	130.9	146.6	154.4	153.0	143.4	135.7	118.5	109.9	109.1
	101.2	93.5	95.6	95.8	89.5	90.8	90.4	80.6	70.9	56.7	43.8	26.8
1641	83.8	111.0	118.0	125.7	120.1	111.2	104.3	100.0	95.3	89.0	91.4	89.5
	84.4	85.0	88.4	93.1	94.0	107.5	113.1	104.2	97.3	78.2	59.4	46.6
2441	75.2	119.3	134.0	136.5	131.5	120.3	108.3	103.7	98.9	95.7	96.9	99.1
	97.9	96.4	105.6	115.6	117.8	130.8	140.9	138.2	124.8	103.4	80.8	51.9
3241	89.1	130.2	137.1	137.9	128 2	114.6	98.3	95.6	90.9	85.4	86.7	89.7
	90.7	92.1	106.2	121.0	124.0	134.3	136.7	128.8	116.3	95.5	75.8	48.4
4041	96.6	136.3	145.0	144.1	134.0	121.2	110.0	103.5	97.2	93.4	95.5	92.6
	90.7	90.8	97.6	103.6	104.4	120.1	128.2	123.9	114.1	92.7	74.0	46.3
4841	63.0	98.2	115.7	133.8	144.8	139.9	134.9	131.4	122.7	113.2	110.5	107.9
	104.3	99.0	101.0	103.6	100.0	106.5	110.0	104.4	94.2	77.7	60.8	38.2
5641	57.3	91.8	109.0	129.3	143.6	151.6	143.9	143.0	132.2	122.4	121.0	116.4
	108.3	100.0	99.6	100.6	92.6	91.8	88.2	78.4	67.2	51.6	38.3	21.2
849	55.8	85.5	100.2	112.1	113.3	114.4	114.1	111.6	104.0	100.4	96.0	91.4
	86.0	82.5	79.8	78.8	73.5	73.1	68.4	59.6	53.1	40.5	30.0	18.2
1649	65.3	97.7	118.5	142.9	152.9	154.2	152.9	156.5	146.3	135.3	133.2	127.4
	119.9	114.9	112.9	114.4	107.7	110.8	108.6	96.6	85.6	65.6	48.5	32.3
2449	83.5	125.8	139.3	144.9	139.9	132.2	114.3	108.3	104.6	96.8	94.1	94.0
	90.4	87.6	92.4	97.2	94.7	104.6	109.6	103.6	94.5	77.1	58.8	37.4
3249	105.1	150.5	156.4	153.4	137.8	123.7	111.1	104.8	100.9	94.0	94.1	94.0
	92.0	89.5	93.1	100.9	102.1	111.7	114.5	105.7	95.8	77.0	59.3	40.9
4049	75.7	108.9	125.6	143.0	146.9	141.3	135.3	131.8	121.6	113.6	109.3	105.0
	100.2	98.3	101.0	103.0	101.1	110.3	111.0	101.8	90.8	70.8	52.8	38.6
4849	64.4	96.8	112.1	125.4	127.7	124.5	125.4	131.3	122.4	113.8	110.4	104.3
	96.4	88.9	89.9	90.8	85.0	86.4	83.3	75.2	66.5	53.6	41.3	24.8
1657	41.2	65.9	78.9	91.5	95.7	93.9	90.3	91.1	85.8	79.4	77.2	73.9
	70.5	64.7	63.8	64.2	59.8	60.4	57.7	51.7	46.7	37.8	28.7	17.1
2457	54.7	85.4	97.1	112.1	118.6	122.1	116.5	116.6	110.3	101.4	101.3	99.3
	91.6	86.8	87.7	86.7	79.5	79.6	78.2	69.8	61.6	48.0	35.0	22.0
3257	56.3	90.6	108.4	121.5	119.7	112.4	102.5	100.6	101.1	103.7	105.9	101.9
	96.6	90.3	91.2	90.5	83.7	83.1	79.6	71.4	62.4	54.5	36.7	21.3
4057	52.4	83.0	96.4	114.3	123.7	132.8	131.5	128.6	118.0	109.7	107.3	104.2
	95.6	92.1	91.4	91.2	84.7	85.0	81.9	71.6	61.4	52.3	34.5	19.6

DATA SET 40, DECEMBER 8, 1977

Reactor Conditions

Core Average Exposure, 10388 MWd/t
Core Thermal Power, 3168 MWt
Dome Pressure, P, 1013 psia
Core Flow, 99.6 Mlb/h
Inlet Subcooling at P, 24.1 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	48	38	48	30	48	38	48	48	48	48	48
48	48	48	48	40	48	48	48	48	48	40	48	48	48	48
48	48	48	28	48	12	48	14	48	12	48	28	48	48	48
48	48	40	48	48	48	48	48	48	48	48	48	40	48	48
48	38	48	12	48	12	48	16	48	12	48	12	48	38	48
48	48	48	48	48	48	32	48	32	48	48	48	48	48	48
48	30	48	14	48	16	48	6	48	16	48	14	48	30	48
48	48	48	48	48	48	32	48	32	48	48	48	48	48	48
48	38	48	12	48	12	48	16	48	12	48	12	48	38	48
48	48	40	48	48	48	48	48	48	48	48	48	40	48	48
48	48	48	28	48	12	48	14	48	12	48	28	48	48	48
48	48	48	48	40	48	48	48	48	48	40	48	48	48	48
48	48	48	48	48	38	48	30	48	38	48	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution, Bottom to Top of Core

16 9	58.9	98.2	120.9	143.3	153.6	152.8	141.3	136.7	127.0	118.4	116.3	116.7
	111.6	100.8	103.3	104.1	95.0	94.5	93.0	84.4	73.5	58.6	44.2	25.4
24 9	77.3	118.0	134.3	145.2	146.8	145.2	136.0	133.2	124.2	119.3	116.6	115.0
	111.8	104.9	106.1	110.1	103.9	107.5	105.3	96.0	85.0	68.0	53.2	31.4
32 9	73.5	123.9	152.6	158.5	154.8	144.0	131.8	127.4	124.3	124.8	124.1	127.1
	122.7	113.9	116.9	118.6	114.2	113.5	114.3	110.4	95.9	80.6	61.2	39.1
40 9	52.4	85.2	105.8	128.5	147.0	157.0	147.2	146.4	133.4	121.9	119.6	116.3
	111.1	104.3	102.9	104.7	96.9	97.7	97.7	89.1	77.7	63.4	49.5	29.8
48 9	46.5	76.2	91.5	101.7	106.0	101.6	99.7	98.0	94.6	92.1	90.0	91.3
	87.8	83.1	83.1	82.5	77.6	77.7	76.6	69.3	60.2	53.0	36.0	20.8
817	61.0	99.6	122.3	149.1	157.9	154.6	145.5	141.2	130.1	123.0	119.1	115.9
	111.4	102.0	104.4	104.0	96.7	96.0	92.2	82.6	71.2	56.7	42.9	24.7
1617	77.8	111.2	120.8	129.8	129.0	121.3	117.7	118.4	116.1	116.1	124.4	124.0
	123.6	117.6	120.0	125.3	119.4	125.4	125.2	115.4	103.0	81.4	61.2	42.5
2417	67.8	133.9	147.2	149.4	141.0	126.9	111.6	107.0	102.2	96.4	95.7	98.0
	96.3	93.1	98.9	106.9	107.2	119.8	129.0	123.2	113.3	93.4	74.5	46.3
3217	94.0	138.9	150.1	149.2	141.5	119.9	107.1	100.0	92.6	86.2	82.8	86.8
	84.6	81.8	89.1	100.1	104.8	117.3	125.4	121.9	111.1	94.5	75.6	48.3
4017	79.2	120.5	134.9	146.4	142.1	134.5	124.8	121.8	113.7	107.8	110.2	110.0
	107.4	106.0	109.8	117.0	114.8	127.5	134.4	125.6	116.4	93.3	72.3	46.7
4817	51.2	90.4	115.5	134.9	148.7	150.4	146.7	141.7	137.8	137.1	139.1	145.1
	140.7	128.8	133.5	134.9	130.3	131.1	130.4	121.6	105.7	85.5	64.5	38.7
5617	45.1	71.5	87.6	100.7	106.9	106.1	104.2	102.9	98.6	90.4	86.5	87.8
	79.8	74.3	73.2	74.4	69.5	69.8	67.2	62.1	53.9	44.0	33.2	19.1
625	70.0	108.9	125.0	140.8	147.4	146.5	135.1	135.6	131.7	121.9	117.2	120.2
	112.4	103.8	106.8	110.7	103.9	105.3	106.9	99.4	88.1	79.9	56.1	33.2
1625	81.1	128.6	137.1	140.4	131.5	118.3	107.7	104.7	100.7	94.9	87.1	86.5

	96.3	96.3	100.1	108.8	111.3	125.3	132.8	124.7	116.8	91.2	71.5	47.6
2425	54.3	85.3	98.1	102.6	100.2	95.4	90.8	98.3	100.7	101.5	104.2	107.1
	108.6	105.4	112.9	123.2	124.6	139.1	149.2	143.9	129.0	110.7	86.3	54.1
3225	52.3	82.5	93.8	98.2	98.4	95.8	95.8	105.7	112.0	116.5	120.9	124.7
	126.0	125.0	134.1	149.0	156.4	165.7	171.9	159.7	143.2	113.9	88.7	54.1
4025	79.4	117.2	125.3	126.0	117.4	110.3	98.3	96.1	91.2	88.6	90.1	89.5
	90.0	89.3	97.7	106.9	109.3	123.6	133.5	130.4	121.9	113.2	79.2	48.7
4825	90.6	128.7	138.7	142.6	139.6	129.6	115.2	115.7	110.4	105.1	104.1	103.4
	99.7	98.3	101.0	106.8	104.9	116.3	123.6	116.5	107.4	84.4	64.7	43.8
5625	56.6	92.7	111.1	128.0	136.1	142.4	138.2	137.7	129.1	124.0	122.3	120.7
	113.5	105.5	107.1	105.7	97.3	97.5	93.9	85.8	72.4	63.4	42.4	23.9
833	63.3	132.1	152.5	160.2	156.8	144.3	132.8	135.4	132.3	132.9	129.8	131.4
	127.1	118.4	120.2	121.4	113.1	115.5	113.9	105.1	92.0	74.9	57.6	36.1
1633	76.9	121.7	138.0	137.9	131.0	118.3	102.0	96.1	92.1	85.4	85.4	86.9
	88.2	85.4	91.9	99.9	105.7	117.8	129.7	127.3	113.7	98.9	78.0	53.8
2433	47.2	73.1	83.4	89.8	90.4	88.0	87.8	95.7	100.5	104.8	109.4	111.1
	111.0	111.4	119.0	133.7	141.0	150.0	155.8	149.0	133.9	110.8	87.4	55.4
3233	40.5	60.8	66.7	70.9	71.7	72.7	76.7	89.4	99.8	107.7	115.5	117.0
	114.9	115.7	122.2	129.9	129.8	136.8	140.9	134.3	126.5	112.4	91.1	56.4
4033	91.0	129.5	137.8	140.9	131.7	117.1	107.4	102.6	98.4	94.6	97.1	99.3
	99.1	100.5	111.1	126.1	134.4	145.9	150.2	139.9	129.1	101.5	80.3	55.1
4833	98.9	140.6	149.6	154.8	146.7	135.0	119.6	116.4	108.7	103.1	102.9	107.5
	104.7	101.1	106.7	114.6	116.5	127.7	132.9	124.0	112.2	88.3	66.8	45.8
5633	61.8	100.7	117.5	130.1	129.7	122.1	114.2	113.7	111.6	111.9	113.0	112.7
	107.6	101.0	100.3	100.8	91.7	92.5	87.8	78.2	67.7	52.7	39.6	23.8
841	54.4	87.5	109.6	133.7	149.4	157.5	153.8	150.3	138.1	122.2	117.3	112.9
	106.3	97.5	100.5	101.6	93.5	96.9	94.6	85.5	74.7	60.0	46.2	27.9
1641	81.9	111.6	118.3	122.4	117.3	108.2	103.0	100.1	92.7	89.6	92.7	91.5
	90.3	91.9	95.2	100.3	101.0	113.5	120.0	111.7	104.8	83.4	63.7	50.9
2441	72.9	114.5	128.1	133.8	128.0	116.3	106.7	102.7	99.9	95.5	97.5	97.4
	99.2	96.8	105.0	115.6	119.4	132.9	147.7	142.3	129.1	109.8	85.0	56.7
3241	86.1	124.3	131.1	133.1	122.4	109.0	97.2	94.6	89.9	84.6	86.0	87.1
	88.2	89.0	98.7	114.8	120.9	132.9	139.1	132.8	121.2	100.0	79.2	51.5
4041	93.5	129.8	136.9	141.3	130.7	116.4	107.3	103.2	96.6	91.5	93.9	94.3
	92.2	90.6	98.3	105.8	107.6	122.7	133.6	127.0	119.9	96.1	76.2	48.6
4841	62.2	93.5	109.7	129.6	138.9	134.8	128.8	126.4	117.9	110.9	111.2	107.9
	107.8	101.9	105.1	108.0	104.3	110.8	114.8	108.7	98.9	80.6	64.2	38.8
5641	55.5	88.8	108.0	127.2	141.5	144.7	146.5	142.4	131.8	126.4	121.1	117.9
	111.0	103.7	104.3	104.1	96.0	94.7	92.2	82.5	71.3	55.0	40.2	23.0
849	54.7	83.6	97.6	109.1	114.2	111.3	106.1	106.7	100.1	97.4	98.4	96.6
	89.4	87.5	85.7	84.8	79.2	79.0	74.6	64.8	57.6	43.9	32.1	19.8
1649	63.8	96.5	115.8	138.9	145.3	142.2	136.2	136.4	130.4	127.4	132.1	134.5
	126.5	123.6	124.9	122.3	117.3	119.2	116.9	104.5	93.8	71.0	52.7	36.2
2449	83.6	126.0	139.6	146.7	141.3	130.8	114.6	111.9	107.5	98.0	98.0	97.8
	95.4	91.9	96.6	100.7	100.5	110.4	115.9	109.6	99.9	81.2	62.2	40.1
3249	104.8	146.6	152.4	153.4	140.2	123.4	108.8	105.2	100.6	94.6	96.1	95.6
	93.7	90.1	94.6	102.5	103.4	114.2	118.8	108.6	98.8	79.9	62.3	42.8
4049	73.3	104.7	122.3	142.7	143.0	136.2	132.5	128.2	117.7	110.1	110.3	108.7
	103.5	103.9	106.3	108.2	107.8	114.7	116.6	108.7	96.5	75.4	56.1	42.0
4849	63.0	94.6	109.7	122.7	121.4	115.4	110.2	108.4	104.9	103.6	110.0	109.4
	102.5	94.4	98.0	99.3	91.2	93.7	91.8	82.7	73.2	59.0	44.9	27.9
1657	40.7	65.2	78.0	86.6	91.6	95.5	91.9	90.3	85.0	81.1	78.6	75.9
	72.5	67.7	68.0	68.3	62.6	63.7	61.3	55.7	49.8	41.0	31.0	17.7
2457	55.4	84.5	99.1	115.1	120.8	119.8	120.3	120.6	112.3	103.1	104.0	101.0
	96.7	90.9	91.0	90.9	83.9	84.6	82.6	74.2	65.2	50.5	37.3	23.4
3257	57.7	93.1	108.8	122.3	121.1	114.1	104.8	105.6	103.6	106.0	107.0	105.1
	100.9	92.6	93.3	94.0	86.7	87.4	84.0	75.8	64.8	57.6	38.7	22.3
4057	52.7	82.9	98.5	113.9	123.2	134.2	133.4	129.6	119.0	112.9	110.4	109.0
	101.5	96.4	96.2	97.1	89.7	90.2	86.6	76.6	68.4	56.8	37.9	21.8

DATA SET 41, JANUARY 11, 1978

Reactor Conditions

Core Average Exposure, 10946 MWd/t
Core Thermal Power, 2958 MWt
Dome Pressure, P, 1010 psia
Core Flow, 84.3 Mlb/h
Inlet Subcooling at P, 28.2 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	48	48	42	48	42	48	48	48	48	48	48
48	48	48	32	48	20	48	22	48	20	48	32	48	48	48
48	48	48	48	48	48	44	48	44	48	48	48	48	48	48
48	38	48	14	48	32	48	10	48	32	48	14	48	38	48
48	48	48	48	48	48	44	48	44	48	48	48	48	48	48
48	34	48	12	48	12	48	14	48	12	48	12	48	34	48
48	48	40	48	36	48	42	48	42	48	36	48	40	48	48
48	34	48	12	48	12	48	14	48	12	48	12	48	34	48
48	48	48	48	48	48	44	48	44	48	48	48	48	48	48
48	38	48	14	48	32	48	10	48	32	48	14	48	38	48
48	48	48	48	48	48	44	48	44	48	48	48	48	48	48
48	48	48	32	48	20	48	22	48	20	48	32	48	48	48
48	48	48	48	48	48	42	48	42	48	48	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution, Bottom to Top

16 9	68.2	106.9	123.3	133.5	128.8	120.7	111.3	113.7	112.9	110.5	111.9	108.4
	106.6	100.5	102.3	102.3	96.3	95.8	93.8	84.8	73.5	59.0	44.5	25.6
24 9	62.7	101.0	124.1	143.5	140.7	127.8	118.7	112.0	102.2	94.6	97.0	96.0
	98.6	101.5	110.8	119.6	114.2	113.7	110.9	98.6	86.1	68.6	53.1	31.4
32 9	53.5	95.2	126.4	146.9	157.8	144.0	129.6	119.6	110.0	105.4	101.0	102.9
	108.8	112.1	122.0	125.0	121.4	119.5	117.0	109.8	94.6	78.7	60.1	38.3
40 9	76.3	118.8	136.6	145.1	143.3	125.5	109.7	105.5	99.8	92.8	90.5	92.8
	93.3	96.3	103.6	108.1	103.2	101.4	100.4	89.9	77.2	63.0	48.0	30.6
48 9	38.0	60.9	70.5	75.8	78.4	77.3	76.3	82.0	87.5	90.1	93.6	93.3
	87.9	83.2	84.3	84.6	79.5	79.4	77.6	68.8	60.2	53.8	36.7	21.3
817	66.3	107.7	123.9	139.2	146.0	144.1	134.4	133.5	122.5	114.2	106.8	104.2
	98.7	91.6	92.6	94.0	86.3	90.8	87.3	78.0	67.4	54.1	41.2	23.8
1617	86.4	120.1	129.0	133.9	131.4	121.3	116.8	115.8	112.7	106.1	108.9	109.2
	106.1	104.3	107.5	111.5	111.4	120.9	120.3	109.9	99.5	78.6	58.9	39.1
2417	86.0	106.7	129.4	139.8	138.7	127.3	116.7	123.9	121.9	119.0	118.1	123.4
	122.4	118.6	122.3	125.3	118.6	120.3	119.4	110.1	98.7	82.5	65.5	42.4
3217	68.5	109.5	130.7	140.5	134.5	123.0	109.0	105.4	101.0	94.1	92.1	95.3
	94.0	91.3	97.0	102.1	99.3	103.3	108.5	106.8	99.7	85.4	69.2	45.7
4017	82.2	125.6	139.8	147.5	140.9	132.6	123.9	128.5	125.9	123.5	125.5	126.9
	123.5	122.2	125.0	129.7	125.9	128.0	125.4	114.3	103.6	82.7	63.6	42.7
4817	72.3	121.9	143.7	153.5	152.6	143.4	132.8	130.6	122.9	118.2	113.0	113.2
	110.3	102.3	105.9	111.9	112.6	120.8	123.4	115.1	100.7	82.6	61.9	37.3
5617	33.9	53.1	63.9	75.4	86.8	96.1	98.3	100.5	95.7	91.9	90.0	84.6
	78.6	72.5	71.0	71.9	67.4	66.9	65.6	59.1	52.9	42.6	31.6	18.3
825	68.4	100.8	118.3	130.4	135.1	135.0	131.9	138.8	129.6	122.8	118.4	118.3
	111.1	100.5	101.8	103.7	98.4	99.1	99.0	93.2	82.6	74.5	59.8	31.7
1625	78.9	110.1	121.2	128.4	124.1	116.8	110.6	110.2	103.8	100.3	101.8	101.6

	97.2	93.7	96.6	103.8	103.5	116.8	121.5	114.2	106.4	84.6	66.4	45.1
2425	54.2	90.3	114.6	125.2	126.6	121.9	113.0	114.6	108.9	103.1	103.4	103.6
	100.8	96.3	101.4	106.5	106.6	116.9	126.5	124.2	113.5	98.0	77.5	51.2
3225	58.7	99.0	121.4	135.3	136.5	129.4	122.0	120.6	112.9	108.8	108.7	109.5
	108.0	105.8	111.7	118.3	123.1	136.3	146.6	142.0	126.7	102.9	80.8	48.2
4025	69.5	106.1	116.2	120.0	117.5	112.5	102.5	102.0	97.3	93.6	93.8	92.0
	89.9	88.1	92.0	98.7	99.7	111.5	122.1	119.2	110.2	103.3	73.8	46.3
4825	81.8	116.0	124.5	132.8	129.2	122.5	112.3	112.9	107.3	101.6	100.5	100.3
	93.5	92.8	94.0	97.0	96.2	106.8	111.9	106.4	98.0	77.5	60.7	39.6
5625	53.5	84.6	101.4	114.3	119.3	125.2	128.2	135.2	133.3	126.6	124.4	119.9
	112.2	103.7	101.7	101.2	93.7	91.9	88.6	79.8	67.3	60.4	39.9	23.1
833	52.2	86.2	105.3	129.6	145.7	152.3	150.2	157.7	156.3	148.7	139.4	134.4
	125.8	115.7	114.2	113.8	105.4	107.5	106.4	97.0	86.1	71.2	55.0	34.5
1633	43.8	70.6	86.5	93.0	98.9	103.1	102.9	107.1	102.4	98.3	92.9	94.6
	91.7	84.3	89.0	93.5	94.2	103.2	115.7	119.1	108.9	95.6	77.0	49.8
2433	47.1	76.7	96.7	113.4	120.2	118.1	111.2	108.1	103.8	98.6	96.2	93.7
	94.3	90.9	97.5	102.9	106.0	121.0	132.7	133.5	123.8	101.5	80.6	52.8
3233	48.1	77.1	93.9	108.7	114.3	110.3	104.4	103.2	95.9	92.3	93.7	94.1
	91.7	90.1	96.6	106.4	112.4	127.4	136.8	134.1	123.6	105.7	84.5	54.8
4033	58.2	85.9	95.7	106.2	110.2	113.4	111.7	113.4	109.3	103.9	104.1	101.4
	98.3	95.9	100.7	107.8	110.6	125.3	134.1	130.5	121.0	97.8	77.7	52.4
4833	58.4	87.3	102.5	122.6	131.6	130.0	128.4	128.9	119.8	114.6	114.0	110.2
	106.1	100.4	101.4	105.4	104.9	115.6	123.1	118.2	106.0	85.1	66.2	44.4
5633	51.7	84.0	102.0	116.6	122.0	127.1	130.5	136.7	130.9	119.7	119.6	111.3
	103.6	94.9	93.9	94.3	85.9	86.7	80.9	72.7	62.9	49.2	37.3	22.8
841	77.2	118.2	133.4	147.7	153.3	149.4	137.6	131.0	1[illegible]2	111.4	106.0	101.3
	96.5	88.7	90.3	92.2	87.1	89.3	88.8	79.9	[illegible].2	56.7	43.5	26.9
1641	83.0	110.1	116.1	120.0	112.7	104.9	97.7	95.4	90.8	86.5	88.2	88.0
	83.6	84.9	89.2	95.1	99.9	109.4	112.7	102.3	95.5	76.5	58.7	47.4
2441	57.8	95.5	117.8	131.4	131.6	124.2	117.1	121.3	122.2	120.6	120.7	119.9
	119.6	114.1	119.3	125.6	122.9	127.8	130.0	124.6	109.7	93.3	73.8	46.2
3241	65.0	102.3	119.1	131.2	125.0	118.2	109.1	107.5	100.6	94.4	94.3	93.8
	93.6	91.6	95.8	102.1	99.9	108.5	115.8	115.2	108.4	91.3	73.6	48.6
4041	87.0	122.6	130.4	134.6	127.1	119.0	111.5	114.8	113.5	111.9	113.5	113.3
	108.6	106.9	110.5	117.6	115.2	121.1	123.1	114.7	103.6	84.4	67.0	44.7
4841	81.3	118.7	131.0	140.3	137.9	128.7	116.4	115.6	108.2	102.8	98.5	98.2
	95.1	92.7	95.5	99.4	100.8	108.5	110.9	103.4	94.4	76.9	61.6	36.6
5641	54.6	85.4	102.7	118.7	131.2	141.4	141.4	138.2	131.8	123.4	117.7	114.0
	105.4	101.8	100.5	98.5	90.6	90.9	87.6	78.2	68.3	52.2	39.1	21.9
849	57.5	86.1	96.5	105.3	105.3	104.1	101.4	101.0	95.8	92.5	91.6	88.2
	82.5	79.8	78.9	79.0	74.4	75.5	71.0	62.2	55.0	42.5	31.6	19.7
1649	87.5	129.1	138.2	144.6	134.7	124.6	118.2	122.8	121.7	118.1	120.1	120.0
	115.0	113.9	116.8	117.6	112.4	115.1	111.8	99.7	88.1	67.4	49.6	32.9
2449	65.5	105.4	123.3	137.3	133.6	120.8	109.0	107.1	98.5	94.9	96.1	99.7
	100.7	106.0	118.7	126.1	116.0	119.4	117.3	106.5	94.2	75.4	58.5	37.5
3249	76.7	116.5	132.4	143.5	133.2	123.0	108.0	103.7	97.1	92.5	94.5	98.1
	102.5	109.4	115.3	118.4	112.1	115.6	113.6	101.6	92.8	74.2	57.7	41.7
4049	95.6	129.8	139.6	146.1	134.7	121.5	112.5	109.6	105.1	101.3	105.0	104.2
	104.9	111.3	117.9	122.5	116.7	121.1	116.0	102.2	89.8	70.0	52.0	39.3
4849	67.7	101.3	110.9	119.8	117.4	108.3	103.7	103.9	105.1	100.2	98.5	96.1
	92.2	87.9	86.2	90.6	85.3	89.7	86.5	78.5	69.6	56.2	43.6	27.3
1657	49.2	74.6	85.2	88.8	88.3	82.4	77.4	77.5	72.3	70.2	71.3	69.7
	67.5	65.0	66.1	67.5	63.8	64.2	61.1	55.7	49.4	40.7	30.7	18.6
2457	85.4	101.9	120.2	136.8	132.9	119.8	107.1	101.1	91.4	85.5	85.2	84.1
	83.6	81.6	85.1	87.4	82.2	83.7	80.0	71.0	62.5	48.7	36.0	22.3
3257	62.7	103.2	132.4	153.8	150.6	134.9	116.7	109.7	99.0	90.7	87.3	88.3
	85.2	83.8	87.0	88.8	83.9	84.4	80.5	71.9	62.4	55.0	36.5	21.9
4057	78.0	116.9	130.2	137.5	132.1	119.3	106.0	102.5	95.9	90.8	88.8	87.9
	86.9	87.5	90.5	92.9	87.1	88.1	84.3	74.1	64.1	54.3	35.7	21.3

DATA SET 42, MARCH 7, 1978

Reactor Conditions

Core Average Exposure, 11704 MWd/t
Core Thermal Power, 3266 MWt
Dome Pressure, P, 1023 psia
Core Flow, 102.3 Mlb/h
Inlet Subcooling at P, 24.25 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	48	42	48	38	48	42	48	48	48	48	48
48	48	48	48	18	48	30	48	30	48	18	48	48	48	48
48	48	48	44	48	48	48	42	48	48	48	44	48	48	48
48	48	18	48	34	48	10	48	10	48	34	48	18	48	48
48	42	48	48	48	48	48	42	48	48	48	48	48	42	48
48	48	30	48	10	48	22	48	22	48	10	48	30	48	48
48	38	48	42	48	42	48	42	48	42	48	42	48	38	48
48	48	30	48	10	48	22	48	22	48	10	48	30	48	48
48	42	48	48	48	48	48	42	48	48	48	48	48	42	48
48	48	18	48	34	48	10	48	10	48	34	48	18	48	48
48	48	48	44	48	48	48	42	48	48	48	44	48	48	48
48	48	48	48	18	48	30	48	30	48	18	48	48	48	48
48	48	48	48	48	42	48	38	48	42	48	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution, Bottom to Top of Core

16 9	62.1	100.2	116.5	131.0	129.7	121.1	108.4	105.0	97.3	91.1	89.5	87.3
	85.2	85.3	91.7	98.5	96.1	97.2	95.6	85.5	73.2	59.2	44.1	24.8
24 9	55.2	89.0	109.7	129.4	133.2	131.4	121.4	118.9	118.6	118.8	118.2	121.3
	118.1	108.0	109.5	112.1	102.8	102.7	99.1	89.2	77.1	63.0	49.0	28.8
32 9	43.9	75.9	101.0	118.4	133.8	142.8	137.6	140.2	140.7	140.7	137.7	141.6
	134.0	121.6	120.9	121.1	112.5	107.6	105.4	98.7	85.8	71.5	55.1	36.9
40 9	51.7	87.5	113.9	131.3	134.7	128.1	116.7	111.3	107.1	100.5	98.1	99.6
	97.8	93.1	97.5	104.4	101.2	99.1	97.8	88.8	76.1	63.0	46.6	30.0
48 9	48.9	79.6	92.3	99.4	100.6	95.6	87.0	86.1	81.9	76.3	75.2	74.7
	74.9	70.7	74.9	77.3	74.7	77.6	75.1	69.4	59.6	52.4	36.8	21.4
817	64.9	103.0	124.1	136.1	135.8	124.4	110.1	108.2	97.6	89.7	89.4	87.1
	84.4	84.2	92.0	99.4	97.8	99.4	96.0	84.6	73.5	57.6	43.1	24.5
1617	68.0	102.2	118.3	128.7	128.0	125.2	125.1	130.3	126.5	118.5	121.2	120.8
	116.5	114.0	120.9	122.2	115.4	119.5	116.4	103.8	93.0	72.6	55.8	37.3
2417	70.2	108.0	122.4	130.4	125.9	122.2	114.8	115.8	109.3	108.6	111.0	112.0
	109.4	102.8	103.9	104.9	100.2	102.3	106.5	102.3	93.4	79.5	63.7	39.8
3217	53.8	83.9	101.2	117.4	120.5	115.4	106.1	109.5	105.2	101.5	98.8	99.3
	96.0	90.2	93.2	96.0	91.4	94.2	99.4	98.0	92.6	79.9	65.1	42.2
4017	73.5	111.5	123.8	136.9	135.2	131.5	131.5	134.9	131.2	128.1	127.7	127.9
	122.4	118.4	122.0	126.5	118.2	119.9	117.5	108.3	97.0	78.2	60.4	40.5
4817	56.5	101.0	128.1	143.4	145.6	139.9	130.9	127.9	121.1	116.8	112.6	114.2
	112.1	109.4	118.0	127.4	128.5	129.6	126.9	115.9	100.5	81.6	61.8	36.8
5617	45.3	71.7	86.3	94.2	96.7	93.7	89.5	87.6	78.5	75.2	73.8	72.2
	69.0	67.3	68.5	70.2	68.3	68.5	67.3	60.8	54.0	43.5	32.6	18.5
825	49.6	80.0	101.9	123.6	130.8	130.4	123.9	121.5	121.5	120.0	123.0	123.3
	117.9	108.4	112.6	113.3	105.2	104.0	102.0	94.3	80.7	72.5	52.5	31.6
1625	75.7	106.5	115.8	125.0	124.3	116.9	111.0	110.8	111.7	110.9	110.8	113.2

	108.7	105.1	108.4	108.7	102.4	106.0	110.1	102.9	96.6	77.8	60.7	42.7
2425	59.7	94.7	111.6	119.5	119.3	113.2	107.2	108.3	102.5	99.0	102.6	107.9
	111.2	112.1	120.1	125.0	118.4	120.1	120.8	112.4	102.2	87.5	68.9	47.4
3225	43.6	78.7	96.9	113.2	118.2	117.5	113.5	115.3	111.3	108.0	113.4	119.9
	127.7	134.0	143.5	147.7	139.6	140.0	140.7	129.5	113.9	94.9	73.1	47.5
4025	65.9	99.0	110.7	117.2	115.4	109.6	102.9	102.6	99.5	95.3	97.6	98.4
	97.8	95.0	99.9	103.8	99.5	105.1	109.6	108.0	101.5	93.9	67.1	43.0
4825	69.7	99.4	112.2	121.4	122.1	115.6	108.5	113.8	116.5	116.4	122.3	124.0
	119.5	116.3	116.7	117.3	109.8	112.6	110.8	100.9	90.7	71.4	56.3	38.4
5625	52.1	88.7	110.3	134.0	147.2	140.4	131.6	131.3	123.9	120.3	116.7	112.8
	109.3	104.5	104.1	102.5	93.8	94.1	88.1	79.9	67.2	60.3	40.3	22.1
833	49.4	81.9	104.6	120.9	136.9	145.7	143.4	144.8	144.8	144.6	145.6	144.1
	140.7	128.0	125.6	125.4	113.4	110.9	107.5	96.2	83.7	68.0	52.5	33.1
1633	44.1	73.3	92.2	107.0	113.6	111.9	104.9	103.1	102.1	100.2	99.6	100.3
	100.7	94.5	97.6	98.8	93.2	96.1	102.0	102.8	93.5	83.9	68.1	46.9
2433	45.1	74.1	92.0	105.8	111.0	113.0	105.4	104.7	103.3	101.4	100.6	105.8
	115.1	120.0	127.9	131.7	126.1	128.5	129.7	121.1	107.5	90.3	72.4	46.2
3233	42.6	66.3	79.8	90.7	96.6	97.4	94.7	95.9	93.7	93.6	99.7	107.6
	116.7	122.8	133.4	139.1	130.8	129.8	128.9	119.6	107.5	91.1	74.1	47.7
4033	55.9	86.2	101.6	116.6	119.8	116.6	112.0	111.6	106.6	101.8	103.7	107.3
	105.2	103.7	109.0	112.6	107.4	112.0	115.2	112.4	105.9	86.7	69.9	48.1
4833	55.5	84.1	101.6	121.0	126.4	124.9	122.7	122.9	127.2	128.7	134.7	135.7
	131.0	124.4	125.6	126.3	116.7	119.3	117.4	108.2	97.6	76.4	59.8	39.6
5633	53.3	87.7	107.4	127.6	140.8	144.9	139.3	133.2	125.7	118.2	113.6	111.6
	104.8	98.6	96.4	96.8	87.2	84.5	82.5	72.9	61.0	48.4	36.3	22.3
841	55.2	88.4	113.5	130.7	138.4	134.0	122.7	115.5	107.3	101.6	96.6	95.1
	91.9	89.8	95.7	103.1	98.1	99.7	98.3	86.0	75.3	59.0	45.5	28.8
1641	75.9	101.6	109.2	116.3	113.0	108.9	109.6	114.7	109.9	105.0	106.7	105.9
	101.3	101.2	105.4	107.2	101.7	105.9	104.7	94.8	86.6	69.5	53.7	44.1
2441	60.9	97.0	113.4	119.8	122.0	117.5	112.4	112.2	108.3	105.9	105.3	108.1
	108.3	105.6	109.1	114.1	110.2	113.8	119.1	116.6	104.9	89.2	70.5	47.2
3241	52.8	79.5	94.4	109.0	113.3	109.9	104.0	101.7	96.3	93.3	93.8	95.3
	94.2	93.3	96.0	102.3	97.0	103.3	110.1	108.5	100.5	86.6	69.3	45.3
4041	78.2	110.8	119.9	125.8	121.0	118.7	118.1	122.4	120.5	115.5	115.4	116.7
	112.6	109.7	112.3	117.0	109.8	113.2	113.6	105.4	96.3	78.7	63.4	41.6
4841	70.1	103.9	115.4	129.8	127.1	121.8	112.9	113.4	109.5	105.8	105.2	108.1
	109.0	103.8	111.2	119.8	114.6	116.2	112.7	103.4	90.4	74.4	58.8	37.9
5641	58.7	91.2	115.0	136.4	139.7	136.4	129.3	123.0	113.6	109.4	105.2	108.9
	101.3	98.3	97.4	100.5	94.4	93.9	90.8	79.6	70.0	52.9	39.2	23.0
849	57.4	85.5	96.3	105.9	102.5	98.7	93.5	91.7	84.6	79.3	80.3	78.7
	76.4	75.7	77.8	80.9	77.6	77.5	73.6	64.3	56.8	43.7	32.1	19.1
1649	68.2	106.3	123.8	138.1	133.5	125.4	117.6	116.9	108.9	103.4	104.3	104.6
	101.6	102.7	112.4	119.9	115.0	118.9	114.2	101.5	88.1	67.7	50.6	33.3
2449	65.2	100.2	113.5	126.1	127.0	120.0	111.2	112.8	115.1	115.9	119.0	120.9
	115.6	108.8	113.4	116.2	106.1	106.5	105.4	97.3	86.2	70.3	55.2	34.6
3249	58.7	86.7	102.0	118.0	121.5	116.1	114.0	117.3	118.9	119.8	122.4	121.4
	117.9	112.6	110.7	111.8	100.6	102.1	101.1	92.6	83.8	67.8	53.1	39.4
4049	73.9	109.5	122.5	135.7	129.8	118.8	113.8	114.3	108.4	101.7	104.8	105.7
	103.0	103.3	110.9	118.6	113.5	115.8	112.9	102.2	90.2	69.7	54.3	36.1
4849	71.3	110.9	129.0	139.1	133.4	119.3	108.8	103.1	94.4	86.5	84.9	84.5
	81.2	80.8	84.5	88.0	86.5	88.7	86.5	77.0	69.1	55.7	42.7	27.2
1657	40.5	64.4	75.0	82.3	85.6	81.7	75.9	75.6	70.2	65.5	65.8	64.8
	62.3	59.8	62.6	65.2	62.0	63.2	61.4	56.3	50.0	40.6	31.0	17.4
2457	51.2	79.8	101.5	121.4	126.4	121.2	113.2	112.3	104.7	98.2	96.9	95.6
	88.4	84.4	85.7	85.0	77.8	79.0	76.8	67.4	60.1	47.1	35.1	21.0
3257	49.7	63.5	100.8	123.1	132.3	135.5	128.2	125.1	119.5	111.2	109.6	105.3
	93.8	91.5	91.2	90.3	82.1	81.3	77.8	69.3	59.8	52.8	35.6	20.6
4057	51.4	81.7	102.8	124.0	126.2	124.5	116.1	113.1	106.3	97.0	95.9	94.2
	90.7	88.9	89.7	92.7	87.1	87.7	83.8	74.3	63.9	54.6	36.2	19.8

DATA SET 43, MARCH 23, 1978

Reactor Conditions

Core Average Exposure, 12032 MWd/t
Core Thermal Power, 3182 MWt
Dome Pressure, P, 1023 psia
Core Flow, 102.6 Mlb/h
Inlet Subcooling at P, 23.67 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	48	42	48	38	48	42	48	48	48	48	48
48	48	48	48	18	48	30	48	30	48	18	48	48	48	48
48	48	48	44	48	48	48	42	48	48	48	44	48	48	48
48	48	18	48	34	48	10	48	10	48	34	48	18	48	48
48	42	48	48	48	48	48	42	48	48	48	48	48	42	48
48	48	30	48	10	48	22	48	22	48	10	48	30	48	48
48	38	48	42	48	42	48	42	48	42	48	42	48	38	48
48	48	30	48	10	48	22	48	22	48	10	48	30	48	48
48	42	48	48	48	48	48	42	48	48	48	48	48	42	48
48	48	18	48	34	48	10	48	10	48	34	48	18	48	48
48	48	48	44	48	48	48	42	48	48	48	44	48	48	48
48	48	48	48	18	48	30	48	30	48	18	48	48	48	48
48	48	48	48	48	42	48	38	48	42	48	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution, Bottom to Top of Core

16 9	63.2	102.1	120.0	132.0	134.7	126.3	112.0	109.5	100.7	92.4	90.9	92.1
	88.7	87.8	95.5	103.0	97.7	98.3	97.8	87.6	76.3	60.3	45.4	24.9
24 9	56.8	91.6	114.3	133.0	141.4	132.9	123.0	123.1	123.4	121.5	123.7	124.4
	119.7	112.8	113.3	115.0	106.4	106.9	102.1	91.2	79.6	64.1	49.9	29.2
32 9	44.3	77.3	102.6	121.1	139.2	143.3	140.1	145.8	145.7	143.6	142.5	145.8
	136.6	126.9	122.9	123.2	115.0	109.3	106.4	101.4	86.9	73.2	57.0	37.7
40 9	53.6	90.3	115.1	135.1	140.7	133.9	122.2	116.6	106.7	106.4	101.5	102.9
	100.3	94.8	101.5	106.4	103.6	102.4	100.9	89.7	77.6	63.8	49.9	31.4
48 9	50.0	81.5	94.6	104.8	103.3	97.6	91.2	90.6	82.8	79.1	77.9	77.1
	76.8	73.1	77.8	80.5	77.3	79.2	77.2	70.7	60.1	54.3	37.5	22.2
817	67.9	107.7	126.0	142.1	138.8	130.2	114.0	110.3	101.0	95.1	91.9	90.1
	86.2	87.1	95.0	101.7	99.5	100.6	97.1	85.4	74.7	59.4	44.9	26.1
1617	66.4	102.4	120.9	130.5	129.6	124.9	128.8	134.3	128.1	124.4	122.5	123.4
	121.8	117.5	121.8	123.5	117.9	120.8	116.2	106.4	94.1	79.1	56.9	37.5
2417	70.1	107.4	122.1	130.2	127.7	122.6	115.7	116.7	115.7	110.5	114.3	114.8
	112.0	106.6	106.7	108.3	101.4	105.0	108.9	105.7	95.5	81.2	65.8	42.4
3217	53.2	83.4	100.2	114.1	120.5	116.4	108.6	111.2	109.5	101.4	102.9	101.0
	100.8	93.9	95.8	99.1	93.5	97.6	103.0	101.2	95.0	83.7	68.4	44.9
4017	73.9	111.2	125.6	135.5	136.3	134.8	132.6	139.0	135.6	129.7	128.8	129.9
	126.7	121.4	124.8	128.8	121.0	122.8	119.9	110.4	100.3	80.5	62.4	41.1
4817	87.1	101.1	130.7	146.5	148.3	142.8	134.1	130.3	125.4	119.1	116.9	118.6
	117.1	112.0	122.6	131.8	130.7	130.9	130.4	120.0	109.1	85.3	63.1	39.0
5617	46.5	73.3	85.0	89.0	100.8	99.3	93.3	90.3	81.3	76.7	75.6	75.9
	71.8	68.7	69.8	73.1	70.3	70.6	69.8	62.6	55.3	44.8	33.8	19.0
625	50.4	82.3	106.5	129.7	136.5	135.3	127.6	128.4	125.9	126.9	126.7	127.3
	120.4	114.5	114.3	114.6	107.2	106.7	103.8	95.8	82.1	74.7	55.2	32.3
1825	74.6	106.3	115.4	124.9	125.3	117.5	112.6	118.6	112.5	111.9	111.9	114.5

	111.2	109.5	[illegible]	[illegible]	104.1	109.6	110.9	104.9	96.8	[illegible]	63.3	43.0
2425	58.8	93.9	[illegible]	[illegible]	[illegible]	115.4	123.3	110.2	105.2	102.8	104.9	110.7
	115.1	117.0	[illegible]	[illegible]	122.6	124.0	122.9	117.2	104.9	[illegible]	71.6	45.6
3225	47.4	77.0	94.5	109.3	114.7	115.6	114.6	115.7	114.3	112.3	119.1	123.6
	131.7	136.6	146.5	150.3	143.3	144.0	142.6	132.4	117.0	96.6	74.7	47.1
4025	64.4	97.1	107.1	115.6	116.9	108.6	101.1	103.4	100.6	99.1	103.5	102.5
	99.2	97.6	101.9	107.0	101.4	106.6	113.5	110.7	102.2	97.3	69.2	44.6
4825	70.5	103.7	114.1	123.6	124.2	117.9	113.7	117.6	116.7	121.7	128.0	128.2
	123.1	118.2	120.0	121.9	113.1	114.3	115.0	103.9	94.2	73.6	58.6	37.2
5625	54.0	90.3	114.3	140.9	151.6	145.5	139.7	132.8	129.9	121.4	119.5	117.2
	111.9	105.9	103.8	105.1	96.2	94.9	92.0	80.4	68.0	61.0	40.2	22.7
833	51.6	83.4	103.9	122.7	140.7	148.0	147.2	148.8	150.3	149.4	152.2	152.4
	143.4	130.6	129.7	127.6	117.0	111.3	108.0	99.0	83.4	69.5	53.7	33.8
1633	43.3	72.6	93.3	104.5	112.3	111.2	106.2	107.4	104.0	103.3	101.9	104.1
	104.3	97.1	99.8	102.0	97.0	98.2	104.8	105.1	96.9	86.1	70.0	50.2
2433	43.8	70.8	87.3	102.3	109.6	109.4	104.0	104.3	101.7	100.9	103.1	108.8
	115.4	120.7	129.6	132.6	126.6	130.0	128.9	122.5	110.2	93.1	73.7	48.1
3233	40.8	63.4	76.6	86.7	92.2	92.6	92.7	96.0	94.5	96.0	101.6	108.3
	117.4	123.9	135.3	139.8	131.6	132.3	130.4	121.2	109.6	93.5	74.8	48.9
4033	54.5	83.0	98.7	114.5	118.7	115.8	112.6	112.1	107.2	105.2	105.9	108.9
	106.6	106.8	110.0	115.0	108.6	114.7	118.9	115.3	108.3	90.3	72.9	50.1
4833	54.9	83.9	100.8	120.2	125.3	123.7	123.8	126.2	127.1	131.9	139.3	139.2
	135.1	127.3	127.5	128.3	118.6	121.4	121.2	110.7	98.9	79.4	62.3	41.0
5633	54.5	90.8	110.9	132.4	146.9	145.8	143.3	139.9	131.0	121.5	118.7	113.3
	108.6	100.0	99.8	99.9	89.2	85.6	84.1	74.7	62.7	50.2	37.3	23.7
841	56.6	91.9	118.3	137.9	140.8	136.3	123.1	122.3	115.1	104.3	100.1	100.3
	96.2	91.2	97.7	106.6	101.1	102.6	99.0	88.5	76.0	60.2	46.5	28.2
1641	75.5	102.6	109.6	119.5	115.7	109.9	113.5	119.3	113.2	108.0	111.5	111.9
	105.2	105.3	109.5	110.1	102.6	109.0	106.9	97.5	89.1	72.0	55.8	44.5
2441	60.2	95.2	111.7	120.4	122.6	118.3	113.1	114.4	112.2	109.9	110.3	111.5
	112.7	107.8	115.5	118.2	114.7	117.1	121.2	119.6	107.4	91.9	73.6	48.4
3241	51.0	77.4	92.3	106.6	110.0	108.0	103.9	104.3	99.5	94.4	96.6	97.7
	97.0	95.7	99.2	103.5	98.7	105.0	112.2	109.0	103.2	89.0	71.2	45.3
4041	76.7	107.7	117.4	124.1	121.6	119.1	120.7	125.2	123.7	117.9	121.0	118.8
	114.4	112.3	116.0	119.2	110.8	115.8	116.8	108.7	98.6	81.4	66.1	41.4
4841	71.0	105.2	120.7	131.8	129.9	123.0	115.1	117.9	112.4	109.8	109.3	111.3
	110.0	106.7	117.0	122.4	118.5	119.3	118.0	106.5	93.1	77.1	61.4	38.0
5641	58.6	94.6	119.9	143.9	147.0	143.0	134.1	126.8	120.2	113.1	111.6	109.9
	103.4	100.2	102.2	103.9	96.4	96.8	93.4	82.2	71.2	54.6	40.7	23.5
849	59.2	88.7	100.0	109.9	108.3	102.5	96.3	93.2	88.3	85.1	83.0	81.9
	78.1	79.1	80.0	82.7	79.8	80.0	74.7	66.5	58.1	45.4	33.5	20.8
1649	69.9	109.7	126.8	142.6	139.1	131.1	123.1	122.6	113.7	105.8	108.4	108.0
	105.1	107.7	114.6	124.3	118.7	120.8	117.5	104.4	91.0	70.3	52.5	33.8
2449	66.8	101.7	116.6	128.2	126.8	124.0	113.3	117.2	116.9	119.2	124.6	124.1
	119.2	113.4	117.4	118.3	108.8	110.2	108.7	99.5	87.7	71.9	55.9	37.3
3249	58.2	86.8	101.4	116.4	120.9	117.1	114.3	118.4	121.4	120.4	124.6	124.7
	120.4	113.3	112.7	112.9	102.9	105.4	103.2	94.0	85.9	68.9	54.6	40.9
4049	76.0	110.6	122.6	135.1	135.2	126.7	117.5	116.3	109.5	107.3	107.5	108.1
	104.7	106.5	112.2	121.7	116.5	117.9	115.6	102.2	91.7	71.0	54.8	37.0
4849	74.1	114.5	132.2	143.7	139.2	125.3	111.7	106.6	97.4	89.5	87.8	86.4
	84.6	82.2	87.7	91.8	88.2	90.9	87.9	79.5	71.4	56.9	44.0	28.0
1657	42.2	66.6	77.8	85.0	88.9	84.5	78.8	76.9	72.4	68.7	67.7	65.2
	64.9	62.8	64.8	66.0	63.3	65.5	63.7	56.7	50.6	41.6	32.1	18.6
2457	52.6	83.4	105.7	126.8	132.7	125.4	115.8	115.0	111.0	101.7	102.0	99.9
	95.2	87.6	88.6	89.6	81.5	81.4	78.0	70.3	61.4	48.7	36.4	23.4
3257	51.6	85.5	102.9	125.9	135.2	139.2	131.1	128.3	121.8	115.3	112.9	109.4
	101.4	94.8	94.0	91.6	85.0	82.8	79.4	70.2	60.6	53.6	36.4	21.1
4057	53.4	85.2	106.5	127.9	134.2	127.0	117.2	116.0	106.4	99.0	99.3	98.4
	93.4	90.6	93.2	94.4	87.8	90.0	83.9	75.0	64.6	59.0	36.4	21.6

DATA SET 44, APRIL 4, 1978

Reactor Conditions

Core Average Exposure, 12230 MWd/t
Core Thermal Power, 3222 MWt
Dome Pressure, P, 1021 psia
Core Flow, 102.0 Mlb/h
Inlet Subcooling at P, 24.02 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	38	48	36	48	36	48	38	48	48	48	48
48	48	48	48	48	42	48	48	48	42	48	48	48	48	48
48	48	30	48	10	48	24	48	24	48	10	48	30	48	48
48	48	48	48	48	48	48	44	48	48	48	48	48	48	48
48	48	16	48	38	48	16	48	16	48	38	48	16	48	48
48	40	48	48	48	42	48	48	48	42	48	48	48	40	48
48	48	32	48	12	48	32	48	32	48	12	48	32	48	48
48	40	48	48	48	42	48	48	48	42	48	48	48	40	48
48	48	16	48	38	48	16	48	16	48	38	48	16	48	48
48	48	48	48	48	48	48	44	48	48	48	48	48	48	48
48	48	30	48	10	48	24	48	24	48	10	48	30	48	48
48	48	48	48	48	42	48	48	48	42	48	48	48	48	48
48	48	48	48	38	48	36	48	36	48	38	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution, Bottom to Top of Core

16 9	57.7	93.0	114.4	132.8	138.2	141.3	136.2	134.1	124.0	113.8	107.6	107.0
	98.9	90.5	89.2	88.2	80.1	80.5	79.3	72.2	63.8	50.9	38.4	22.1
24 9	54.9	88.0	107.5	131.2	141.9	141.6	137.6	142.9	135.6	120.7	118.9	116.9
	114.2	103.5	104.9	104.9	95.7	93.3	90.7	80.8	70.3	56.7	44.7	26.5
32 9	63.2	109.2	131.0	144.2	153.9	153.1	148.1	151.3	146.1	132.8	126.3	126.4
	122.6	111.5	110.5	110.5	103.3	97.4	94.8	89.0	76.6	63.6	49.4	33.0
40 9	51.2	86.1	110.2	135.6	149.2	151.0	139.4	140.3	130.9	119.4	111.2	109.7
	104.0	94.3	93.6	93.6	84.8	82.8	81.3	75.0	64.8	52.9	41.9	25.9
48 9	43.6	69.7	84.0	92.7	96.3	92.9	89.3	94.3	88.9	82.8	83.7	82.5
	79.0	72.4	72.5	72.1	67.5	66.8	65.4	60.5	51.4	47.5	32.4	19.5
817	72.0	113.4	130.0	135.1	130.7	119.6	106.1	103.5	102.6	100.3	101.9	99.7
	95.9	89.5	91.3	92.3	85.5	85.7	84.0	74.7	64.8	51.9	38.8	23.0
1617	81.3	114.3	122.0	128.6	127.3	119.2	112.6	114.2	107.8	101.9	104.9	105.3
	98.3	96.3	97.5	98.3	93.4	98.9	101.9	95.8	88.9	69.9	53.4	36.4
2417	89.4	106.0	120.8	129.5	126.6	121.0	110.4	111.4	101.7	99.9	103.5	109.5
	114.0	110.5	118.5	118.7	111.4	111.3	109.3	100.7	88.6	74.1	59.3	37.3
3217	61.4	96.4	115.2	121.2	119.8	111.2	99.7	99.6	94.2	88.2	91.2	99.2
	104.1	103.2	107.7	113.9	107.5	106.0	104.8	98.9	89.1	75.1	61.2	39.7
4017	72.8	107.9	123.2	135.1	133.6	129.2	120.2	117.4	110.2	104.9	105.8	106.8
	103.5	100.1	104.0	106.8	101.6	105.3	106.2	102.7	94.1	76.3	59.4	38.8
4817	87.9	113.3	135.5	142.4	140.7	132.2	122.0	120.6	120.0	118.3	118.6	121.2
	118.1	107.8	111.0	114.0	109.4	111.7	110.3	102.5	89.4	73.9	55.9	35.5
5617	50.7	76.6	89.4	98.0	95.0	92.0	84.3	82.6	76.9	74.0	74.0	72.7
	69.5	64.8	64.8	65.2	62.1	62.7	60.4	55.9	48.6	40.1	30.2	17.5
825	55.6	89.1	104.6	126.5	134.6	131.6	123.3	115.5	106.7	103.3	98.5	96.5
	91.9	87.3	91.3	95.8	94.7	96.2	97.4	90.4	79.2	72.6	51.4	30.0
1625	80.2	111.6	122.0	134.4	135.1	133.5	124.9	123.8	118.5	113.0	113.3	112.2

	107.7	103.1	107.0	110.1	104.0	105.8	104.8	95.1	85.5	69.2	55.0	37.4
2425	48.8	79.3	97.0	113.2	121.1	117.5	113.7	115.2	111.5	108.9	109.4	108.9
	105.8	102.3	106.3	114.1	114.5	118.5	118.6	111.4	97.3	83.1	65.4	43.8
3225	63.7	99.2	111.7	117.2	119.9	115.1	110.4	113.5	109.6	109.2	112.0	113.0
	112.5	109.5	117.3	127.9	130.3	133.2	133.0	124.0	108.0	89.8	70.0	45.1
4025	55.4	85.5	101.6	118.5	127.4	128.8	121.5	121.3	115.5	109.1	107.4	107.6
	102.1	99.0	102.6	107.7	103.5	107.0	108.9	101.7	91.7	84.5	60.3	39.7
4825	79.1	111.8	120.0	128.0	123.3	118.0	110.9	107.1	103.1	98.7	100.0	98.3
	95.5	92.4	96.1	102.1	101.7	106.3	107.4	97.5	88.2	69.2	54.7	35.4
5625	57.8	92.7	112.7	129.5	142.5	139.2	127.3	123.4	114.9	106.4	101.9	99.1
	93.0	89.4	90.3	91.0	85.6	85.6	81.9	75.8	62.7	55.8	37.9	21.7
833	57.1	89.6	110.1	132.4	147.6	149.2	140.7	145.6	139.2	133.3	128.9	125.8
	119.0	108.9	109.8	110.4	102.0	101.9	99.9	90.6	78.6	64.7	50.4	33.1
1633	62.1	99.3	114.0	113.3	116.7	111.5	103.5	101.9	98.8	94.5	91.1	95.8
	91.4	86.5	88.9	91.4	89.8	92.6	100.5	98.4	88.5	78.3	63.6	43.8
2433	46.9	74.5	91.0	105.7	114.0	114.1	111.3	119.3	119.7	120.5	120.1	120.2
	114.9	110.2	114.5	115.7	112.5	114.1	116.4	109.7	97.9	82.1	65.1	44.0
3233	61.1	91.4	99.2	104.3	103.0	101.9	100.3	107.5	112.0	112.6	115.4	116.2
	112.7	108.3	112.3	116.1	110.3	111.4	111.6	105.5	96.2	82.2	66.4	42.4
4033	59.3	90.0	104.4	123.1	125.6	124.4	116.7	116.4	114.4	109.3	109.1	107.3
	104.2	100.9	104.4	108.4	107.2	111.3	115.7	109.0	99.3	80.8	65.4	44.2
4833	78.4	111.3	123.6	127.5	126.8	121.1	114.1	118.6	118.9	114.7	115.0	117.4
	110.8	107.0	107.7	112.4	106.9	109.8	108.6	101.2	90.9	71.6	56.6	37.6
5633	58.4	93.6	119.0	142.7	151.6	142.3	132.0	129.5	116.6	105.6	100.6	96.9
	90.5	84.0	85.4	85.0	78.6	77.8	75.6	67.7	58.6	46.3	34.8	21.7
841	77.5	118.5	136.6	145.6	138.1	128.4	115.7	107.7	96.0	89.4	87.8	85.0
	82.6	76.6	81.5	88.4	85.4	87.4	88.7	80.0	69.7	55.7	43.0	25.9
1641	79.0	106.3	115.7	122.7	125.3	121.1	114.6	111.5	104.2	97.7	99.6	97.1
	90.8	91.7	94.7	95.6	90.6	96.6	95.8	85.9	79.7	64.5	49.9	41.1
2441	60.8	96.6	113.5	122.4	124.2	118.8	113.4	111.2	105.3	101.0	101.8	103.5
	103.2	100.1	108.0	117.3	118.5	122.8	124.4	115.8	99.6	84.1	67.3	43.5
3241	60.7	92.0	106.6	114.7	111.5	105.5	99.6	98.5	91.7	87.3	89.7	92.9
	92.9	92.0	99.4	109.1	109.2	114.6	115.0	106.8	96.1	80.0	64.4	41.2
4041	77.3	109.8	121.8	135.2	135.7	132.2	124.6	123.3	114.3	109.4	108.3	109.2
	103.5	101.7	105.5	109.4	103.9	107.5	107.6	100.1	90.4	73.9	58.6	39.9
4841	77.5	115.4	126.9	134.2	131.6	122.4	110.8	109.0	104.3	98.0	97.2	99.1
	95.1	92.5	97.5	103.3	102.6	106.4	105.5	95.9	85.8	70.2	56.3	34.0
5641	78.3	117.6	131.9	147.9	143.8	127.5	123.1	115.3	104.9	98.1	96.2	94.8
	89.9	86.3	87.9	89.9	83.4	85.1	83.1	74.2	64.5	50.0	37.2	20.9
849	41.6	60.3	68.3	75.5	75.2	74.5	73.9	78.3	84.5	89.5	93.9	91.1
	86.6	82.5	80.8	79.9	74.2	73.7	69.1	60.1	53.6	41.9	31.1	18.6
1649	75.0	111.1	125.0	138.0	136.5	129.9	123.8	118.8	112.3	106.0	105.8	103.8
	97.6	93.0	93.2	92.4	87.3	90.4	92.7	86.1	78.7	61.8	47.2	30.4
2449	57.3	89.1	108.1	126.5	131.1	126.8	116.5	112.6	108.3	103.4	105.4	108.9
	109.6	107.1	109.9	111.2	100.9	102.1	100.4	91.3	80.7	64.9	51.1	33.9
3249	82.8	115.8	122.9	127.2	126.0	119.2	108.9	108.7	104.8	97.3	101.5	107.0
	107.6	107.3	109.0	110.3	98.6	100.4	98.2	88.1	77.9	63.5	50.2	35.9
4049	63.1	95.6	115.4	135.6	139.3	131.7	123.3	120.8	111.7	104.6	103.1	103.3
	98.0	94.6	95.3	96.5	90.1	93.7	96.5	90.7	82.8	65.8	49.9	35.3
4849	63.4	94.3	106.7	113.8	111.2	103.8	97.5	94.2	93.8	91.3	94.1	92.0
	87.2	83.0	81.9	82.6	77.7	79.7	77.7	70.7	63.6	52.6	40.7	24.8
1657	27.5	43.3	52.4	62.3	74.2	85.0	86.3	89.0	84.4	80.6	76.5	73.2
	68.0	63.3	62.2	61.5	57.3	57.5	54.3	49.4	44.4	36.4	28.3	16.3
2457	49.7	77.2	91.1	102.8	111.0	118.0	120.7	120.9	112.8	105.5	100.7	98.2
	88.9	83.0	82.3	81.2	73.3	72.5	69.0	61.6	53.2	43.2	32.5	19.6
3257	55.7	89.0	108.8	123.6	128.2	130.6	127.3	133.4	122.1	111.6	107.8	103.2
	96.1	87.3	86.0	85.1	77.1	75.4	71.5	63.5	54.8	47.8	32.7	19.3
4057	45.7	71.2	85.9	105.1	118.6	126.3	124.3	125.2	118.7	111.3	104.6	102.8
	93.0	86.0	87.2	86.7	78.5	78.2	74.3	66.2	56.3	48.6	32.2	19.7

DATA SET 45, APRIL 26, 1978

Reactor Conditions

Core Average Exposure, 12679 MWd/t
Core Thermal Power, 3144 MWt
Dome Pressure, P, 1015 psia
Core Flow, 102.5 Mlb/h
Inlet Subcooling at P, 23.31 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	38	48	36	48	36	48	38	48	48	48	48
48	48	48	48	48	42	48	48	48	42	48	48	48	48	48
48	48	30	48	10	48	24	48	24	48	10	48	30	48	48
48	48	48	48	48	48	48	44	48	48	48	48	48	48	48
48	48	16	48	38	48	16	48	16	48	38	48	16	48	48
48	40	48	48	48	42	48	48	48	42	48	48	48	40	48
48	48	32	48	12	48	32	48	32	48	12	48	32	48	48
48	40	48	48	48	42	48	48	48	42	48	48	48	40	48
48	48	16	48	38	48	16	48	16	48	38	48	16	48	48
48	48	48	48	48	48	48	44	48	48	48	48	48	48	48
48	48	30	48	10	48	24	48	24	48	10	48	30	48	48
48	48	48	48	48	42	48	48	48	42	48	48	48	48	48
48	48	48	48	38	48	36	48	36	48	38	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution, Bottom to Top of Core

16 9	60.5	96.2	115.5	138.3	150.1	148.5	139.9	138.6	126.6	119.4	114.7	111.3
	104.3	94.5	94.0	92.2	84.3	83.4	83.3	74.7	65.5	53.7	40.4	24.1
24 9	56.3	91.7	114.2	136.6	147.8	151.6	147.9	150.9	141.0	130.5	126.3	122.8
	118.4	109.1	110.1	109.4	100.2	98.5	95.3	84.2	72.8	59.4	46.8	28.4
32 9	64.4	107.4	130.2	145.3	152.4	156.7	154.2	155.6	151.1	141.1	134.2	132.9
	126.3	118.1	114.4	114.0	106.3	100.6	98.7	91.8	79.1	66.4	52.1	34.5
40 9	53.8	90.0	116.6	141.2	155.5	159.9	146.8	148.3	137.2	124.8	117.3	116.1
	108.7	99.3	98.2	96.8	89.0	86.4	84.7	77.1	67.0	55.5	43.5	27.8
48 9	44.6	72.9	87.1	95.9	101.8	100.0	94.4	96.6	91.9	88.3	87.8	85.6
	83.1	76.4	76.9	74.6	69.0	69.8	67.4	62.2	54.7	48.7	34.2	19.4
817	76.0	116.7	135.5	143.4	139.7	123.5	111.0	109.1	107.9	105.8	106.0	105.6
	100.1	93.8	96.7	96.4	89.6	88.8	87.7	78.2	67.0	53.4	41.4	24.7
1617	81.8	115.6	124.0	133.9	126.1	122.0	117.9	119.4	112.5	104.6	108.4	108.8
	103.1	98.7	100.3	101.0	97.9	101.7	103.3	98.6	90.3	72.2	54.1	38.4
2417	68.6	105.1	120.3	133.2	127.6	123.6	112.3	112.0	103.7	102.8	107.2	113.6
	119.1	116.8	121.9	123.4	114.5	114.3	112.8	104.0	91.8	77.9	61.9	38.2
3217	88.2	99.7	111.3	121.2	116.9	111.3	105.7	102.4	98.5	94.0	95.9	106.6
	108.0	107.0	112.3	116.8	109.0	109.3	109.6	103.0	90.4	77.9	64.0	41.1
4017	71.1	106.6	124.9	136.2	139.4	132.9	125.1	125.2	116.8	110.2	111.4	111.2
	109.8	104.9	106.7	111.9	105.2	110.2	110.6	106.1	97.7	80.0	62.7	39.8
4817	70.1	116.8	137.5	148.5	147.3	138.4	128.1	126.6	125.0	124.4	123.6	126.8
	122.3	114.5	115.0	119.6	115.1	115.1	115.3	105.7	93.1	76.6	58.2	36.0
5617	51.6	80.8	94.0	103.2	98.1	93.0	88.4	85.2	80.3	77.3	75.9	76.1
	71.7	66.9	66.8	67.5	63.9	64.7	63.9	56.9	50.8	41.3	31.3	17.4
625	57.4	90.0	112.7	130.4	141.8	135.6	125.6	122.3	114.9	106.9	103.9	104.2
	96.6	90.5	96.3	102.3	99.4	103.9	101.7	94.8	81.8	74.7	63.2	32.3
1625	78.7	112.1	123.5	137.4	138.1	136.7	130.4	132.0	124.8	119.3	116.9	119.2

	113.2	108.6	111.9	114.1	107.7	110.4	107.1	98.9	88.4	71.8	57.4	39.7
2425	48.2	77.2	95.6	110.6	120.1	117.8	117.8	119.2	117.8	110.9	112.1	112.2
	110.9	106.3	111.7	116.7	116.7	122.1	121.0	113.4	100.0	85.5	68.8	43.8
3225	61.1	92.1	105.7	112.4	115.0	111.6	109.5	112.8	112.0	111.7	115.3	116.7
	115.4	113.6	121.2	129.3	131.6	138.1	137.6	127.6	110.4	91.0	71.7	43.6
4025	53.6	84.2	100.9	116.9	127.3	130.2	123.7	123.7	118.5	112.4	111.0	109.6
	104.9	101.7	104.8	109.5	106.4	110.1	111.0	104.6	94.0	86.9	62.3	40.0
4625	60.1	110.8	119.9	129.7	126.4	117.1	112.9	113.5	111.0	101.4	103.2	102.0
	98.5	96.4	101.8	106.1	104.6	110.5	110.7	100.7	89.7	71.1	55.8	37.8
5625	60.6	97.9	114.2	133.1	143.0	143.3	132.0	124.9	118.6	111.6	108.5	103.7
	98.4	93.3	93.7	94.6	87.7	86.7	85.6	76.9	65.4	58.1	38.9	22.2
833	58.1	90.9	114.6	136.2	151.1	152.9	140.2	146.0	144.5	137.6	132.6	130.0
	123.8	112.4	113.6	113.3	106.3	103.8	102.0	93.4	81.1	66.6	52.4	33.5
1633	60.8	95.9	111.1	117.1	117.1	112.0	104.4	104.5	102.4	98.2	95.6	95.9
	94.2	88.3	91.4	95.6	91.2	95.5	101.7	101.9	90.7	81.3	65.4	45.6
2433	44.7	71.1	87.9	100.9	109.6	111.9	110.1	118.1	121.9	120.9	120.4	119.8
	118.0	113.1	115.4	120.0	114.1	118.1	118.1	109.9	99.7	83.2	66.5	42.7
3233	57.6	85.0	92.5	96.5	98.4	97.4	99.6	106.7	112.5	113.6	116.9	117.4
	115.1	110.2	114.6	118.6	111.2	115.0	115.2	108.9	98.6	84.8	68.6	45.6
4033	57.0	86.9	101.7	116.5	122.5	123.1	118.4	119.2	117.3	112.2	112.5	111.8
	109.3	104.0	107.0	110.9	109.8	115.1	118.1	111.2	101.9	83.4	66.5	45.0
4833	77.0	109.6	119.5	125.5	127.6	126.1	118.9	123.2	123.4	119.6	117.1	121.9
	114.9	109.2	112.3	116.0	109.5	113.2	114.2	106.5	94.0	75.0	59.4	38.3
5633	60.0	99.2	122.5	148.2	155.2	152.3	138.2	130.3	120.4	111.1	106.5	100.5
	92.7	88.4	86.1	89.5	81.8	80.8	78.9	70.0	59.8	47.2	36.1	21.8
841	78.7	124.9	142.6	152.3	146.5	134.3	116.0	111.6	10[illegible]	95.2	91.9	89.9
	85.3	80.6	84.9	91.8	89.2	92.3	93.2	81.4	7[illegible].2	57.6	44.9	27.1
1641	79.3	106.5	114.7	125.9	127.2	122.5	116.6	116.2	111.1	101.5	104.3	101.5
	94.3	95.3	100.2	100.3	94.4	100.7	98.5	89.3	83.0	66.7	52.2	41.7
2441	59.3	95.2	110.3	119.7	124.4	120.8	113.5	113.7	107.7	104.9	105.9	107.3
	107.7	102.6	111.0	120.3	121.3	126.7	127.5	118.2	103.3	87.6	69.4	45.3
3241	58.4	88.2	102.2	109.0	108.6	104.6	98.8	98.5	93.7	89.7	91.7	94.5
	94.6	92.5	101.8	110.2	111.3	117.0	118.3	109.4	97.5	83.1	66.5	43.3
4041	76.9	109.5	122.2	133.5	135.5	135.6	130.9	127.9	119.9	113.8	113.8	112.9
	109.1	104.8	108.4	114.0	107.2	111.1	112.0	103.4	93.1	76.2	60.8	40.0
4841	80.0	116.7	127.0	138.0	134.4	126.4	116.3	114.1	110.2	101.7	102.4	103.0
	100.7	95.9	102.6	109.3	106.6	108.7	108.8	99.7	87.8	73.2	58.2	37.1
5641	79.5	121.6	141.3	147.9	146.3	136.1	124.5	117.0	107.9	104.3	99.3	98.6
	95.7	89.8	91.5	93.8	87.2	88.2	85.1	76.6	67.0	51.3	39.0	22.0
849	43.5	63.1	71.2	78.3	78.2	77.3	77.3	83.3	87.7	93.2	96.6	95.0
	89.7	86.3	84.5	82.6	77.0	76.3	71.4	61.9	55.9	43.6	32.1	19.7
1649	77.4	114.3	128.9	142.9	142.6	133.7	126.2	124.2	117.4	108.9	112.3	108.6
	101.0	96.3	95.5	97.2	89.5	93.3	94.8	89.5	81.0	63.9	48.3	31.9
2449	57.2	90.9	108.9	126.7	132.2	130.9	120.5	120.7	110.8	108.5	109.1	114.1
	116.3	110.9	115.7	114.6	105.3	105.9	103.8	94.1	84.0	67.6	53.4	34.4
3249	80.5	114.3	120.2	128.2	124.5	117.8	111.2	110.6	105.2	100.2	105.2	112.4
	111.9	110.4	112.5	111.5	102.0	101.9	100.4	89.9	80.6	64.5	52.2	37.9
4049	63.9	96.5	118.0	138.0	139.9	134.9	130.7	123.9	117.7	110.2	107.3	106.6
	101.3	97.5	99.0	100.6	91.8	97.3	98.7	92.3	85.6	67.4	52.3	35.1
4849	66.8	99.6	110.6	117.3	113.7	107.9	99.6	98.5	97.4	97.2	97.0	98.0
	91.3	85.4	85.6	86.8	79.9	82.6	81.0	72.8	65.2	53.1	42.0	25.7
1657	27.9	44.3	54.9	65.6	76.7	85.3	90.7	94.2	87.5	81.3	81.4	76.5
	72.1	66.0	64.7	64.4	58.7	59.3	56.6	51.7	45.8	38.1	28.3	17.6
2457	51.5	78.9	92.3	107.6	116.4	122.6	123.4	124.5	121.3	108.6	104.4	103.3
	94.9	84.8	85.1	84.4	74.4	74.6	72.5	64.8	56.6	44.0	33.7	20.7
3257	58.2	93.7	111.7	129.6	135.4	135.8	133.9	133.3	128.4	118.8	112.9	108.1
	99.9	91.0	89.9	87.9	81.2	79.0	74.7	66.1	56.6	50.8	34.3	20.3
4057	46.6	73.2	89.6	108.8	125.7	131.5	132.0	132.4	127.5	114.7	110.1	106.4
	98.5	92.2	90.9	90.0	81.8	81.6	77.3	67.6	58.6	50.7	34.0	19.7

DATA SET 46, MAY 12, 1978

Reactor Conditions

Core Average Exposure, 12460 MWd/t
Core Thermal Power, 3277 MWt
Dome Pressure, P, 1022 psia
Core Flow, 95.6 Mlb/h
Inlet Subcooling at P, 26.07 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	48	38	48	34	48	38	48	48	48	48	48
48	48	48	48	40	48	48	48	48	48	40	48	48	48	48
48	48	48	34	48	20	48	38	48	20	48	34	48	48	48
48	48	40	48	48	48	48	48	48	48	48	48	40	48	48
48	38	48	20	48	40	48	14	48	40	48	20	48	38	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	34	48	38	48	14	48	38	48	14	48	38	48	34	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	38	48	20	48	40	48	14	48	40	48	20	48	38	48
48	48	40	48	48	48	48	48	48	48	48	48	40	48	48
48	48	48	34	48	20	48	38	48	20	48	34	48	48	48
48	48	48	48	40	48	48	48	48	48	40	48	48	48	48
48	48	48	48	48	38	48	34	48	38	48	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution

No TIP data available for this data set.

DATA SET 47, JUNE 16, 1978

Reactor Conditions

Core Average Exposure, 13607 MWd/t
Core Thermal Power, 3286 MWt
Dome Pressure, P, 1027 psia
Core Flow, 97.4 Mlb/h
Inlet Subcooling at P, 25.82 Btu/lb
Non-Steady State Conditions

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	48	48	40	48	40	48	48	48	48	48	48
48	48	48	38	48	30	48	38	48	30	48	38	48	48	48
48	48	34	48	48	48	48	48	48	48	48	48	34	48	48
48	48	48	12	48	34	48	26	48	34	48	12	48	48	48
48	48	44	48	48	48	48	48	48	48	48	48	44	48	48
48	30	48	42	48	28	48	44	48	28	48	42	48	30	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	30	48	42	48	28	48	44	48	28	48	42	48	30	48
48	48	44	48	48	48	48	48	48	48	48	48	44	48	48
48	48	48	12	48	34	48	26	48	34	48	12	48	48	48
48	48	34	48	48	48	48	48	48	48	48	48	34	48	48
48	48	48	38	48	30	48	38	48	30	48	38	48	48	48
48	48	48	48	48	48	40	48	40	48	48	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution, Bottom to Top of Core

16 9	72.8	114.4	131.6	143.6	142.8	140.6	131.9	130.5	122.9	115.8	112.8	109.8
	104.3	93.5	91.7	89.2	80.7	78.4	74.7	66.7	56.6	45.7	35.0	20.6
24 9	64.7	99.2	117.5	134.0	140.5	134.6	126.2	127.5	124.3	121.7	123.5	122.6
	116.4	106.2	103.8	102.2	91.9	88.8	85.6	74.8	64.1	50.6	39.8	24.2
32 9	51.7	87.2	110.8	133.1	155.1	163.9	156.5	155.4	144.2	137.0	128.8	127.4
	123.5	111.5	106.9	104.8	96.8	90.5	88.0	80.6	69.9	58.3	45.7	29.8
40 9	77.6	119.8	136.0	139.9	134.5	124.3	113.8	115.1	113.8	113.3	113.9	113.8
	106.6	98.2	96.6	94.6	85.1	80.4	77.6	69.9	59.4	48.0	37.4	24.3
48 9	32.7	53.6	64.6	74.3	84.3	93.2	98.5	103.4	100.6	96.4	93.6	90.1
	85.8	78.1	75.8	74.9	67.6	66.4	62.9	56.3	48.4	44.3	30.5	17.6
817	75.5	115.2	129.1	136.1	128.9	119.7	113.6	117.7	113.5	106.8	102.0	99.4
	93.1	85.5	84.9	82.9	75.5	73.3	70.7	63.3	55.1	44.5	34.4	20.9
1617	77.5	108.0	115.7	123.5	121.2	119.7	117.5	118.1	115.6	111.0	109.9	109.4
	101.5	95.5	93.9	93.0	85.2	87.2	88.0	82.9	76.8	60.7	46.6	32.9
2417	81.4	120.5	132.0	135.4	131.5	126.0	124.0	132.2	130.8	126.7	132.7	132.1
	126.0	115.1	113.4	109.8	99.6	95.7	91.7	82.7	72.4	60.2	48.3	31.2
3217	79.0	112.5	119.9	121.7	118.7	111.1	104.0	106.4	104.5	103.1	106.3	112.0
	109.4	104.0	103.0	102.3	93.0	89.1	86.4	80.1	70.3	60.0	49.2	33.3
4017	79.8	117.3	128.6	137.0	133.6	132.0	129.5	135.8	132.0	129.0	130.5	127.4
	122.0	113.5	112.1	111.0	101.0	98.5	96.0	86.7	77.8	61.9	47.8	34.8
4817	82.1	87.6	105.3	115.9	118.1	116.0	118.7	125.4	125.7	120.0	117.2	118.1
	109.6	99.7	98.8	97.9	92.6	92.3	93.3	90.1	80.2	67.0	52.0	30.7
5617	82.4	81.0	92.5	97.2	96.1	90.7	85.6	85.1	81.6	78.4	76.7	76.2
	71.2	64.2	63.2	62.3	57.7	57.5	54.4	49.1	43.3	35.6	27.2	15.8
625	69.8	111.9	133.1	143.7	134.9	122.4	110.4	109.3	109.7	110.6	112.3	114.1
	108.2	100.7	100.5	99.6	89.2	87.0	85.2	77.4	66.9	61.1	43.1	25.7
1625	90.8	128.7	142.1	152.7	146.7	136.7	123.1	122.2	118.0	114.4	114.0	118.2

	110.2	104.1	103.8	102.6	92.8	91.7	88.2	79.1	70.1	57.3	45.0	32.5
2425	82.7	125.4	138.6	139.5	131.8	122.2	111.6	112.9	112.1	114.8	121.0	127.1
	125.1	115.8	114.8	111.0	102.2	98.3	94.9	85.8	75.0	63.8	51.0	34.7
3225	84.3	144.1	157.6	162.0	153.3	139.4	127.9	128.9	123.9	124.7	127.8	131.8
	129.9	122.8	122.4	121.1	109.5	106.4	102.7	92.3	80.0	65.4	51.3	34.1
4025	81.1	116.7	124.2	126.3	120.7	111.1	100.7	101.2	101.6	104.4	109.8	111.7
	108.2	101.5	103.4	102.4	94.1	92.9	91.3	83.7	74.8	69.6	49.3	32.8
4825	79.2	119.3	138.7	150.4	145.2	135.0	121.5	121.7	114.5	110.3	112.4	111.0
	104.8	100.4	98.9	97.6	88.5	89.9	87.9	79.2	70.7	56.3	44.2	30.4
5625	65.4	100.8	112.4	118.9	114.1	107.2	99.1	101.2	102.5	109.3	113.7	114.8
	108.0	101.1	96.7	97.3	87.1	83.9	78.7	69.0	56.4	51.6	35.0	19.9
833	83.1	126.0	143.4	150.4	144.7	132.3	116.6	118.4	120.7	123.4	125.1	125.8
	121.9	112.4	110.3	107.3	95.8	94.4	88.9	80.1	67.8	56.0	43.1	27.8
1633	75.9	117.6	137.0	143.7	141.5	130.8	115.5	111.7	107.7	105.6	101.6	105.2
	102.8	97.3	98.3	97.0	89.3	85.6	84.8	79.3	68.9	59.9	48.8	34.5
2433	84.3	123.3	133.2	132.8	125.0	114.1	100.8	101.7	102.3	104.5	113.1	117.5
	117.0	109.6	111.4	108.9	99.9	97.8	95.7	87.5	77.7	63.4	51.0	34.2
3233	90.8	133.7	145.9	146.6	137.1	123.0	110.4	109.4	106.1	104.0	106.0	109.2
	106.2	100.0	101.1	100.3	92.4	89.9	88.0	80.7	73.1	61.8	50.8	33.9
4033	84.4	129.8	134.9	138.6	129.7	119.6	109.1	109.1	107.8	112.8	121.4	124.5
	122.0	114.8	113.2	113.4	105.4	103.0	96.6	87.3	77.6	62.9	50.7	35.9
4833	91.5	128.2	141.2	154.4	148.9	136.5	123.8	124.0	118.5	113.4	114.2	115.6
	111.7	105.0	105.5	104.0	95.9	95.1	93.4	83.5	73.8	59.3	46.4	32.6
5633	68.7	103.6	115.4	120.5	113.9	104.9	95.8	97.3	97.8	101.3	105.0	104.8
	100.7	91.8	92.1	88.7	80.4	78.7	72.6	63.3	54.1	42.5	32.2	19.7
841	89.9	139.1	162.4	165.8	153.8	136.4	120.0	114.1	108.2	99.9	96.6	95.4
	89.5	83.7	84.2	83.3	75.7	74.7	73.3	65.1	56.7	45.3	35.5	23.3
1641	83.5	111.1	115.4	121.2	114.6	106.9	100.1	100.5	94.4	90.2	91.5	89.9
	84.6	81.2	82.7	80.8	75.6	79.6	80.8	76.2	70.9	57.0	44.2	37.2
2441	75.5	115.2	129.1	132.0	128.1	122.6	116.5	124.7	126.0	124.4	125.8	128.5
	125.0	116.9	118.2	116.7	106.8	104.4	99.7	91.3	78.7	65.9	52.4	35.8
3241	88.3	120.4	125.6	126.4	118.2	109.3	102.1	104.7	101.7	100.3	106.7	111.6
	110.8	106.1	105.7	105.0	95.7	94.4	91.2	83.1	73.8	61.5	50.2	33.7
4041	86.7	122.6	129.7	130.6	123.4	116.4	115.3	121.8	119.1	114.3	114.8	117.1
	111.1	103.9	104.7	103.6	94.2	94.9	92.1	83.7	75.1	60.4	49.1	33.3
4841	69.3	106.4	125.8	136.6	133.0	124.0	114.2	113.1	107.5	103.1	102.6	101.3
	96.5	91.3	91.0	89.7	82.0	83.5	83.5	79.9	72.7	60.4	48.5	30.4
5641	84.9	127.4	137.0	145.2	135.4	122.2	110.8	110.9	106.4	101.4	104.5	101.8
	96.9	91.7	90.7	88.6	80.5	78.9	72.7	64.3	56.5	44.0	32.8	19.4
849	39.1	57.0	64.6	72.0	76.9	82.4	92.3	100.7	99.7	97.6	96.6	90.9
	84.1	79.5	75.0	72.9	67.1	65.4	60.6	53.4	47.6	37.0	27.1	18.0
1649	81.6	116.8	125.9	138.2	140.7	138.1	136.4	134.9	127.9	122.2	120.8	117.5
	109.6	103.2	101.3	98.2	89.5	89.6	85.6	75.9	66.5	51.7	38.8	28.8
2449	77.0	112.7	123.1	130.9	131.0	122.8	115.3	119.8	120.7	120.1	123.7	120.9
	114.2	106.9	106.1	105.1	93.7	92.3	87.9	78.5	69.9	55.3	43.1	30.4
3249	83.7	112.9	121.1	129.1	130.5	128.4	122.1	125.3	116.3	113.8	113.0	113.2
	106.7	102.6	99.4	97.3	87.9	86.9	83.2	74.2	66.4	54.1	43.0	32.6
4049	89.4	123.1	134.2	143.7	134.2	125.7	120.1	124.2	125.5	124.1	127.5	123.6
	114.4	109.7	107.6	105.6	94.8	93.5	90.1	79.3	69.8	54.5	41.7	31.0
4849	47.2	69.5	79.3	91.0	100.0	107.1	111.4	118.1	112.3	104.5	102.3	97.1
	90.2	82.2	80.3	79.1	72.9	73.2	70.9	63.5	57.0	46.0	36.5	23.0
1657	49.9	74.5	86.1	92.6	91.5	86.1	81.6	81.7	77.2	75.2	72.6	71.6
	66.3	62.2	60.8	58.9	54.4	53.6	50.5	45.1	40.2	32.4	24.9	14.9
2457	63.8	94.7	108.5	126.0	127.2	120.5	112.1	109.4	101.9	95.2	94.2	92.1
	85.4	78.8	78.7	76.3	68.8	68.0	64.3	57.4	50.9	38.9	28.9	19.7
3257	64.0	101.8	123.3	144.6	151.0	144.7	128.4	125.0	114.3	104.8	101.2	97.4
	89.3	82.9	81.3	80.2	72.4	70.4	66.8	57.7	50.1	43.5	29.3	18.6
4057	76.3	114.7	127.2	134.3	126.7	119.5	112.4	110.1	106.6	101.2	101.1	96.6
	89.7	85.6	85.3	83.0	74.9	74.1	69.1	58.6	51.2	43.6	28.6	17.8

DATA SET 48, JULY 1, 1978

Reactor Conditions

Core Average Exposure, 13897 MWd/t
Core Thermal Power, 3171 MWt
Dome Pressure, P, 1022 psia
Core Flow, 102.5 Mlb/h
Inlet Subcooling at P, 23.65 Btu/lb

Control Configuration

Legend 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	48	48	40	48	40	48	48	48	48	48	48
48	48	48	38	48	30	48	38	48	30	48	38	48	48	48
48	48	34	48	48	48	48	48	48	48	48	48	34	48	48
48	48	48	12	48	34	48	26	48	34	48	12	48	48	48
48	48	44	48	48	48	48	48	48	48	48	48	44	48	48
48	30	48	48	48	28	48	44	48	28	48	48	48	30	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	30	48	48	48	28	48	44	48	28	48	48	48	30	48
48	48	44	48	48	48	48	48	48	48	48	48	44	48	48
48	48	48	12	48	34	48	26	48	34	48	12	48	48	48
48	48	34	48	48	48	48	48	48	48	48	48	34	48	48
48	48	48	38	48	30	48	38	48	30	48	38	48	48	48
48	48	48	48	48	48	40	48	40	48	48	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution

No TIP data available for this data set.

DATA SET 48, JULY 20, 1978

Reactor Conditions

Core Average Exposure, 14203 MWd/t
Core Thermal Power, 3070 MWt
Dome Pressure, P, 1023 psia
Core Flow, 102.3 Mlb/h
Inlet Subcooling at P, 26.88 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	48	48	36	48	26	48	36	48	48	48	48	48
48	48	48	48	40	48	48	48	48	48	40	48	48	48	48
48	48	48	28	48	10	48	40	48	10	48	28	48	48	48
48	48	40	48	48	48	48	48	48	48	48	48	40	48	48
48	36	48	10	48	38	48	20	48	38	48	10	48	36	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	26	48	40	48	20	48	44	48	20	48	40	48	26	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	36	48	10	48	38	48	20	48	38	48	10	48	36	48
48	48	40	48	48	48	48	48	48	48	48	48	40	48	48
48	48	48	28	48	10	48	40	48	10	48	28	48	48	48
48	48	48	48	40	48	48	48	48	48	40	48	48	48	48
48	48	48	48	48	36	48	26	48	36	48	48	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution, Bottom to Top of Core

1609	58.4	94.6	113.3	137.2	148.0	152.0	140.1	143.2	137.4	131.2	127.9	124.9
	119.1	110.0	109.2	103.5	95.8	93.9	91.6	83.1	72.1	57.8	44.4	26.6
2409	67.1	103.5	120.1	125.8	127.6	136.7	133.8	138.0	134.5	125.3	124.6	122.2
	116.3	112.2	109.7	110.7	102.3	102.0	99.7	90.7	79.1	64.6	51.8	31.5
3209	59.5	96.8	117.2	126.2	129.6	129.3	119.0	120.1	116.1	117.0	119.7	129.2
	129.4	119.4	120.5	120.3	112.7	107.9	106.8	101.0	89.1	74.5	58.9	38.4
4009	51.4	79.5	97.4	115.5	132.6	144.2	151.6	161.2	145.2	136.6	133.5	129.0
	117.9	109.1	107.5	106.8	97.1	94.5	91.5	82.6	73.0	58.6	46.1	29.3
4809	40.8	67.5	83.0	93.0	97.2	99.6	98.0	101.8	100.1	97.7	98.8	99.7
	94.5	86.9	88.0	87.0	79.8	78.6	76.7	69.7	60.2	53.8	37.2	22.2
0617	59.5	93.8	111.6	135.7	151.0	152.9	146.4	150.0	146.6	135.8	129.3	129.3
	119.6	110.8	107.4	109.4	97.5	94.2	88.8	81.3	68.8	55.9	42.2	25.7
1617	63.0	90.3	99.9	109.8	114.7	113.9	121.3	126.6	124.3	129.2	133.6	135.8
	128.8	123.0	118.7	118.6	110.1	110.5	110.2	101.4	92.3	72.8	56.2	40.3
2417	69.0	103.9	117.6	125.0	130.2	129.2	125.9	127.1	120.6	114.7	113.3	111.0
	108.9	99.6	102.0	101.0	94.1	97.1	101.6	98.7	91.3	76.5	62.8	39.2
3217	67.4	99.0	113.0	121.8	128.3	128.8	124.0	123.4	120.2	113.0	107.0	104.5
	100.5	95.8	98.7	101.1	93.4	95.7	96.9	92.8	84.0	73.2	59.7	40.8
4017	59.2	91.6	104.3	118.1	124.1	126.1	125.9	129.3	122.9	121.2	122.5	120.7
	117.1	108.5	108.3	110.0	103.7	106.3	108.7	106.3	97.5	82.3	64.2	42.9
4817	42.8	73.5	93.1	107.5	125.4	133.3	136.3	145.0	143.3	143.4	147.7	149.5
	145.2	135.2	134.3	133.0	125.3	122.7	119.2	112.8	96.3	79.4	61.6	38.1
5617	37.6	59.1	71.5	81.2	88.9	93.8	95.8	100.2	98.8	99.2	98.1	95.5
	86.1	80.9	79.4	76.6	72.6	72.1	68.4	61.5	54.7	44.4	33.9	19.5
0625	59.0	91.6	106.0	121.0	125.4	131.8	136.8	146.1	141.7	139.3	134.9	136.6
	128.8	119.6	119.0	119.6	106.0	104.7	103.8	95.1	83.8	76.6	55.0	34.2
1625	70.7	99.3	109.2	120.1	121.5	121.6	122.7	122.7	118.5	116.0	114.7	118.4
	109.9	105.9	105.2	106.4	97.5	100.8	102.2	98.5	92.0	74.9	59.2	41.9

2425	65.5	102.0	119.2	128.6	135.6	137.8	134.8	137.6	132.0	125.1	123.5	122.6
	117.9	110.9	116.7	118.8	110.5	109.2	108.4	100.5	90.4	77.3	62.8	39.6
3225	69.0	103.2	115.5	120.0	121.1	121.8	119.6	123.0	117.4	116.1	118.2	117.3
	119.9	119.2	127.8	132.9	126.5	126.2	123.9	113.9	101.0	83.4	65.1	43.3
4025	64.8	95.7	107.1	115.4	120.9	126.5	122.7	125.7	118.6	115.1	114.2	110.8
	106.5	102.1	105.3	107.8	103.5	102.9	104.4	97.8	89.3	84.8	60.1	39.2
4825	66.6	93.6	101.6	111.3	117.3	116.5	119.9	121.3	118.6	112.8	116.0	114.9
	108.8	106.3	106.4	104.7	95.2	98.3	101.9	99.0	91.7	72.7	57.9	39.5
5625	49.2	76.2	89.5	101.1	110.0	118.2	122.4	138.1	135.0	131.2	126.9	131.8
	126.9	116.2	114.6	116.0	104.3	100.7	96.5	85.8	72.4	64.1	43.7	25.3
0833	69.0	109.6	124.6	134.5	140.2	137.7	134.3	138.0	132.5	130.1	133.3	137.4
	141.1	131.3	126.7	127.5	116.2	112.8	108.7	97.9	86.0	69.8	56.2	35.4
1633	57.6	89.4	104.5	115.1	124.3	124.2	120.7	120.5	114.6	111.0	105.9	109.2
	107.2	100.4	102.8	103.8	97.8	96.6	99.6	94.7	85.3	74.3	61.2	45.0
2433	65.7	98.6	110.5	114.2	118.4	115.6	110.7	110.0	107.4	103.3	104.5	105.8
	105.6	105.7	113.6	121.2	114.5	116.3	114.7	107.6	95.3	79.8	64.6	41.8
3233	72.0	104.2	117.3	120.6	118.3	115.2	112.0	109.8	106.2	102.5	107.1	105.1
	105.0	103.2	107.5	112.1	103.7	106.4	105.6	98.5	89.9	75.9	61.5	40.7
4033	71.7	101.3	109.3	117.9	118.5	115.6	117.3	115.1	113.6	107.9	110.5	109.7
	111.1	111.0	118.0	122.6	117.8	118.3	114.0	104.5	94.2	77.0	62.8	42.0
4833	67.9	96.4	109.4	123.6	135.1	131.3	129.6	133.0	129.0	122.5	121.9	127.5
	120.2	115.9	115.3	116.2	109.2	112.3	109.9	103.3	93.0	73.0	59.3	39.5
5633	56.3	87.3	101.9	111.6	111.4	109.6	107.0	109.6	103.1	101.8	111.4	118.2
	115.6	109.3	111.1	108.6	97.8	95.4	90.6	81.7	69.2	55.0	41.3	25.3
0841	51.4	79.5	97.4	115.5	132.6	144.2	151.6	161.2	145.2	136.6	133.5	129.0
	117.9	109.1	107.5	106.8	97.1	94.5	91.5	82.6	73.0	58.6	46.1	29.3
1641	66.1	88.2	96.2	107.2	109.4	109.8	112.4	112.3	109.2	106.1	107.2	106.7
	99.2	97.9	97.1	97.2	93.0	96.9	98.5	95.1	91.0	73.1	56.3	47.8
2441	62.1	97.2	111.7	123.3	132.4	140.0	137.4	137.4	133.0	125.0	125.0	124.5
	120.7	115.2	116.1	120.6	112.7	113.2	115.3	107.7	94.3	80.4	64.9	42.1
3241	68.6	97.7	105.7	109.7	111.3	111.8	108.3	108.0	102.4	97.1	96.5	98.1
	95.0	95.0	104.4	107.9	102.3	104.6	105.6	97.9	88.7	75.4	62.1	40.8
4041	69.5	96.5	106.0	116.9	123.9	130.2	129.6	131.8	125.2	120.3	119.5	117.4
	112.6	105.2	109.3	111.6	101.5	105.6	106.4	99.0	89.8	74.4	61.2	40.3
4841	47.5	71.9	83.0	99.3	110.9	120.2	124.3	127.5	126.0	124.8	124.2	122.6
	119.6	109.6	112.5	110.7	101.5	101.3	102.9	99.3	91.1	76.9	62.2	40.6
5641	45.4	67.5	80.8	93.8	102.6	116.7	134.4	141.7	138.9	135.8	135.2	131.4
	126.2	119.8	114.4	113.2	101.1	98.6	95.1	84.4	73.7	56.1	42.3	24.3
0849	53.0	77.3	90.2	103.0	108.1	109.7	111.5	114.4	110.3	107.7	109.5	104.3
	98.6	90.8	89.0	88.4	80.0	78.5	73.9	64.5	56.7	44.0	31.8	21.4
1649	55.9	82.6	96.1	119.5	129.7	133.6	139.9	144.1	137.3	139.5	145.2	144.4
	134.7	124.2	122.9	119.9	110.5	110.9	106.6	96.4	86.3	67.1	49.7	35.3
2449	65.6	97.6	111.3	124.0	128.4	126.3	125.7	121.3	111.7	111.7	109.8	107.4
	102.2	97.7	99.0	98.2	92.9	94.1	98.2	94.9	88.0	71.3	57.2	36.9
3249	75.3	104.2	111.5	122.6	130.5	126.2	122.3	119.0	112.6	108.6	109.6	107.0
	103.5	99.9	101.7	100.8	92.2	94.8	94.0	86.1	80.2	65.4	52.9	38.8
4049	54.4	80.6	94.4	110.0	119.3	128.4	128.4	126.6	121.8	117.9	116.6	113.8
	107.5	104.9	103.2	102.5	95.1	99.5	101.5	96.0	89.1	69.3	54.2	38.8
4849	55.9	82.4	94.5	109.9	112.7	109.7	105.4	105.2	106.4	104.9	108.6	112.1
	105.5	96.4	96.4	96.8	87.7	89.9	87.4	78.0	69.3	55.6	43.4	27.5
1657	37.9	58.4	68.2	77.1	84.1	86.5	88.9	93.1	91.3	86.7	86.1	85.2
	79.1	74.7	72.8	71.1	65.4	65.6	64.0	57.3	51.0	42.0	32.4	18.9
2457	50.4	74.0	84.1	91.3	95.6	101.4	109.6	113.7	107.9	104.8	106.5	105.3
	101.5	95.3	94.7	91.3	86.2	84.8	82.7	73.1	65.5	51.2	37.9	24.8
3257	55.1	84.8	95.2	105.9	107.0	101.0	96.2	98.6	95.3	94.7	102.6	110.9
	108.1	105.2	103.2	101.5	93.8	90.9	86.8	77.4	67.5	58.9	39.0	23.6
4057	44.0	66.0	75.8	86.7	97.1	106.6	122.4	128.8	126.0	121.1	121.9	117.0
	109.4	103.6	101.1	100.7	91.3	91.7	89.2	77.1	66.4	57.5	37.6	22.3

DATA SET 50, AUGUST 10, 1978

Reactor Conditions

Core Average Exposure, 14718 MWd/t
Core Thermal Power, 3143 MWt
Dome Pressure, P, 1020 psia
Core Flow, 102.8 Mlb/h
Inlet Subcooling at P, 27.12 Btu/lb

Control Configuration

Legend: 48, Full Out; 0, Full In

48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	40	48	38	48	34	48	38	48	40	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	40	48	36	48	22	48	42	48	22	48	36	48	40	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	38	48	22	48	42	48	36	48	42	48	22	48	38	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	34	48	42	48	36	48	48	48	36	48	42	48	34	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	38	48	22	48	42	48	36	48	42	48	22	48	38	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	40	48	36	48	22	48	42	48	22	48	36	48	40	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
48	48	48	40	48	38	48	34	48	38	48	40	48	48	48
48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

Axial TIP Distribution

No TIP data available for this data set.