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

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

NP-971
Research Project 1020-2

Final Report, April 1981

Prepared by

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## NOTICE



Prepared by
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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.*

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## ABSTRACT

*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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**CYCLE 3 DATA** **Page**

## LIST OF DATA SETS (Continued)

# 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 $130 \times 10^3$ 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:

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

#### 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 $\Delta P$ 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)<br>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 689 |
| 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 426 | 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 363 | 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)**

| I / J | BUNDLE IDENTIFICATION 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 | LJ6186 | 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 418 | 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

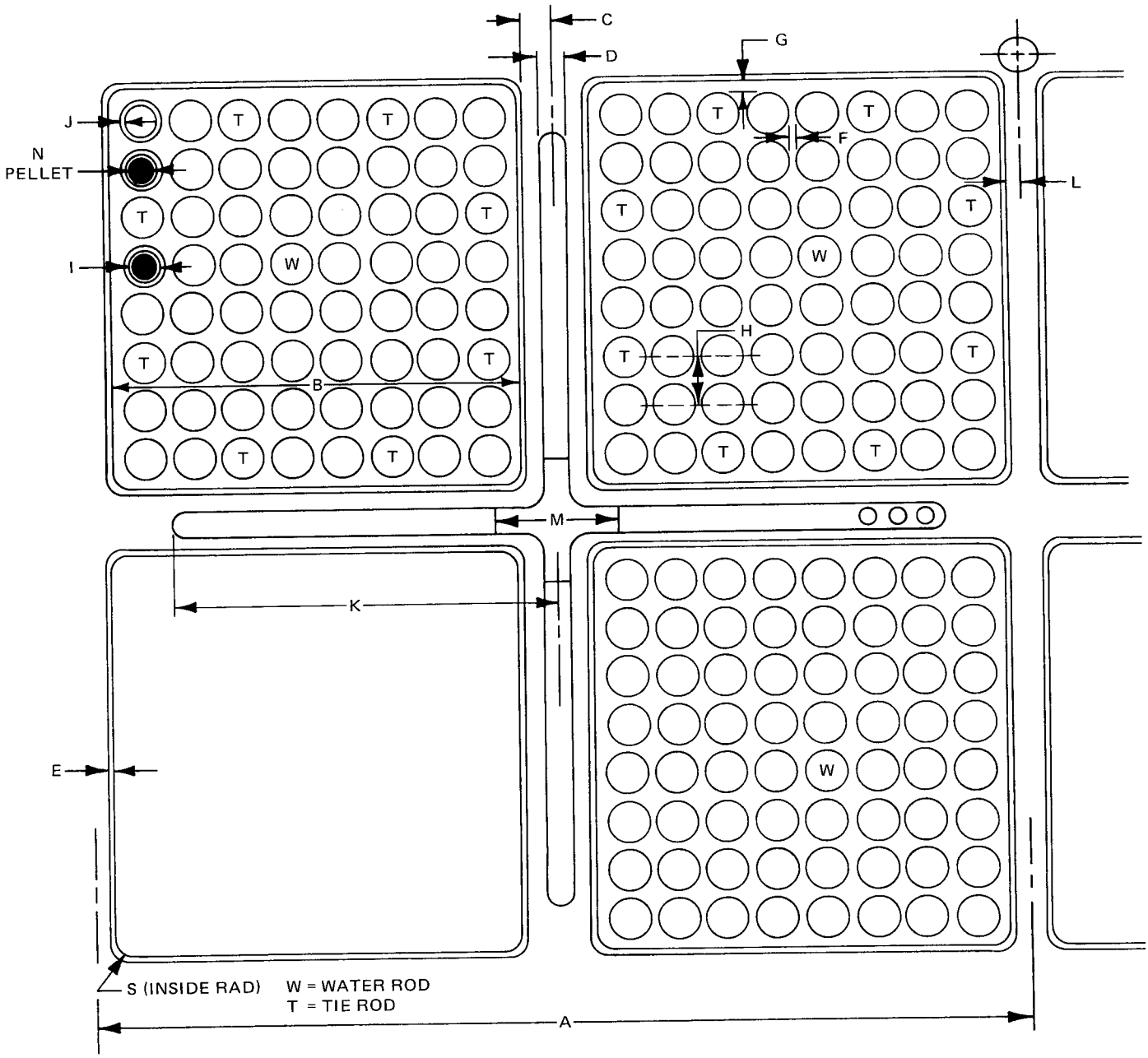
WIDE-WIDE CORNER

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | 3 | T<br>2 | 2 | 2 | T<br>2 | 2 | 3 |
| 3 | 2 | 1 | G<br>5 | 1 | 1 | 1 | 2 |
| T<br>2 | 1 | 1 | 1 | 1 | 1 | G<br>5 | T<br>1 |
| 2 | G<br>5 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | 1 | 1 | 1 | WS | 1 | 1 | 1 |
| T<br>2 | 1 | 1 | 1 | 1 | 1 | 1 | T<br>1 |
| 2 | 1 | G<br>5 | 1 | 1 | 1 | G<br>5 | 1 |
| 3 | 2 | T<br>1 | 1 | 1 | T<br>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

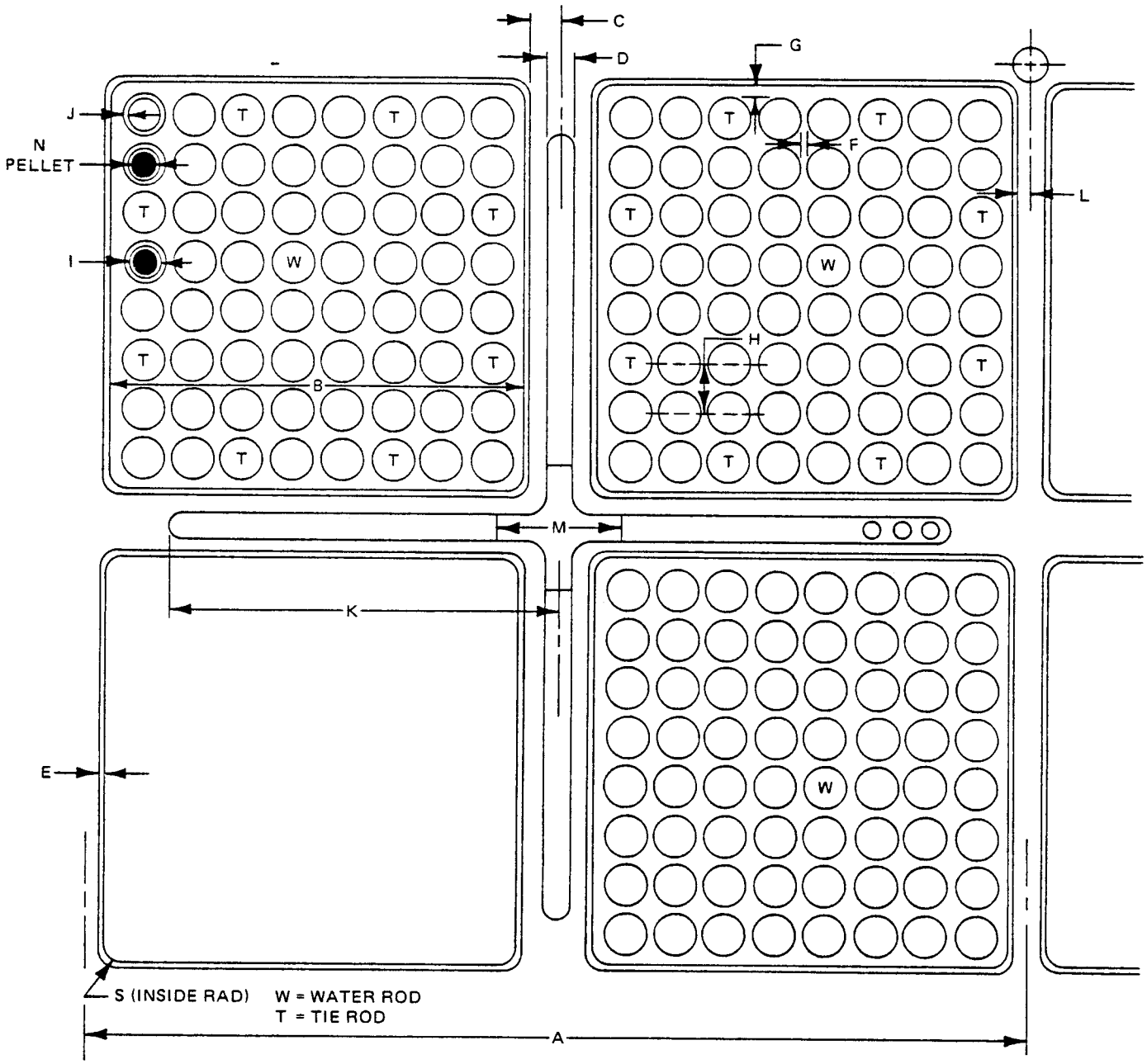
*Figure 1. Bundle Design for Type 7 8×8 $UO_2$ Reload 2*




| 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 | | | | | | | 0.380 | |
| | | | | | | | | | | |

*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*

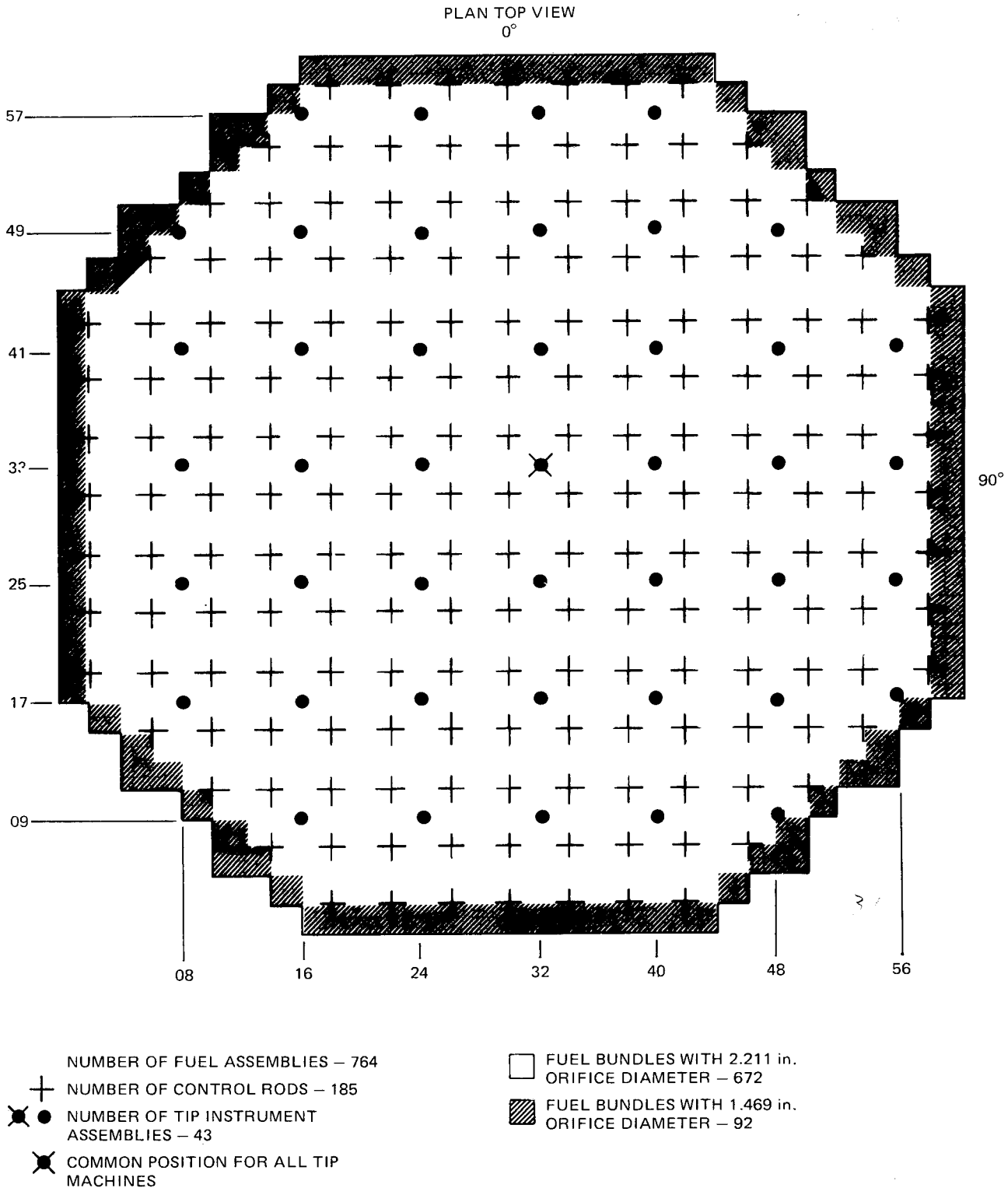



*Figure 4. Core Orificing and TIP System Arrangement*

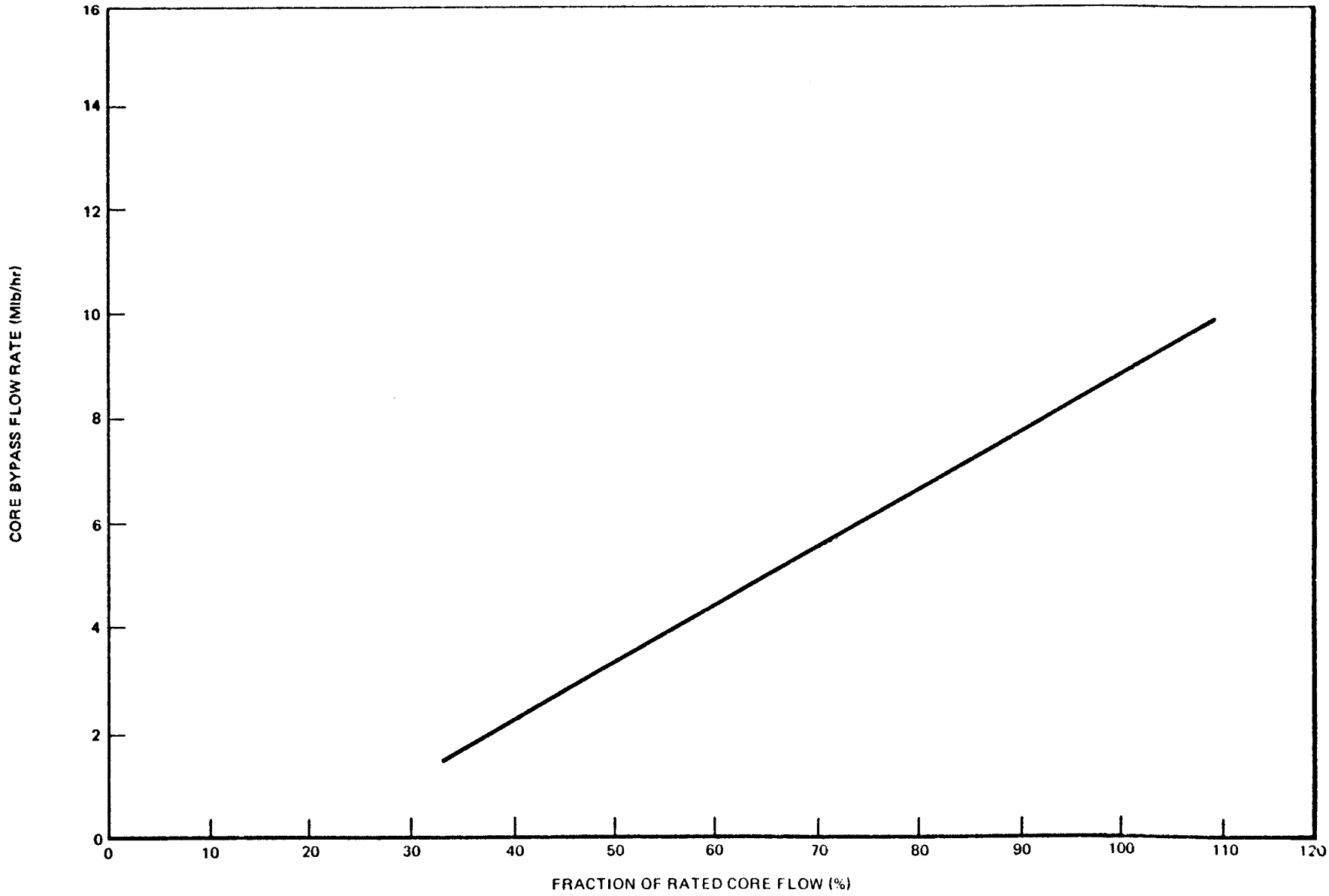



*Figure 5. Core Bypass Flow for Cycle 3*

| | 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, 30-39, 30-23, 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<br>02-27, 26-59, 58-35, 34-03 |
| GROUP 8 RODS: | 06-15, 14-55, 54-47, 46-07,<br>14-07, 06-47, 46-55, 54-15 |
| GROUP 9 RODS: | 06-39, 54-23, 22-55, 38-07,<br>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,<br>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,<br>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,<br>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,<br>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)*

| | STEPS | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GROUP | 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*

| | 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 | | | | | | | | | | | | | | |
| 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)*

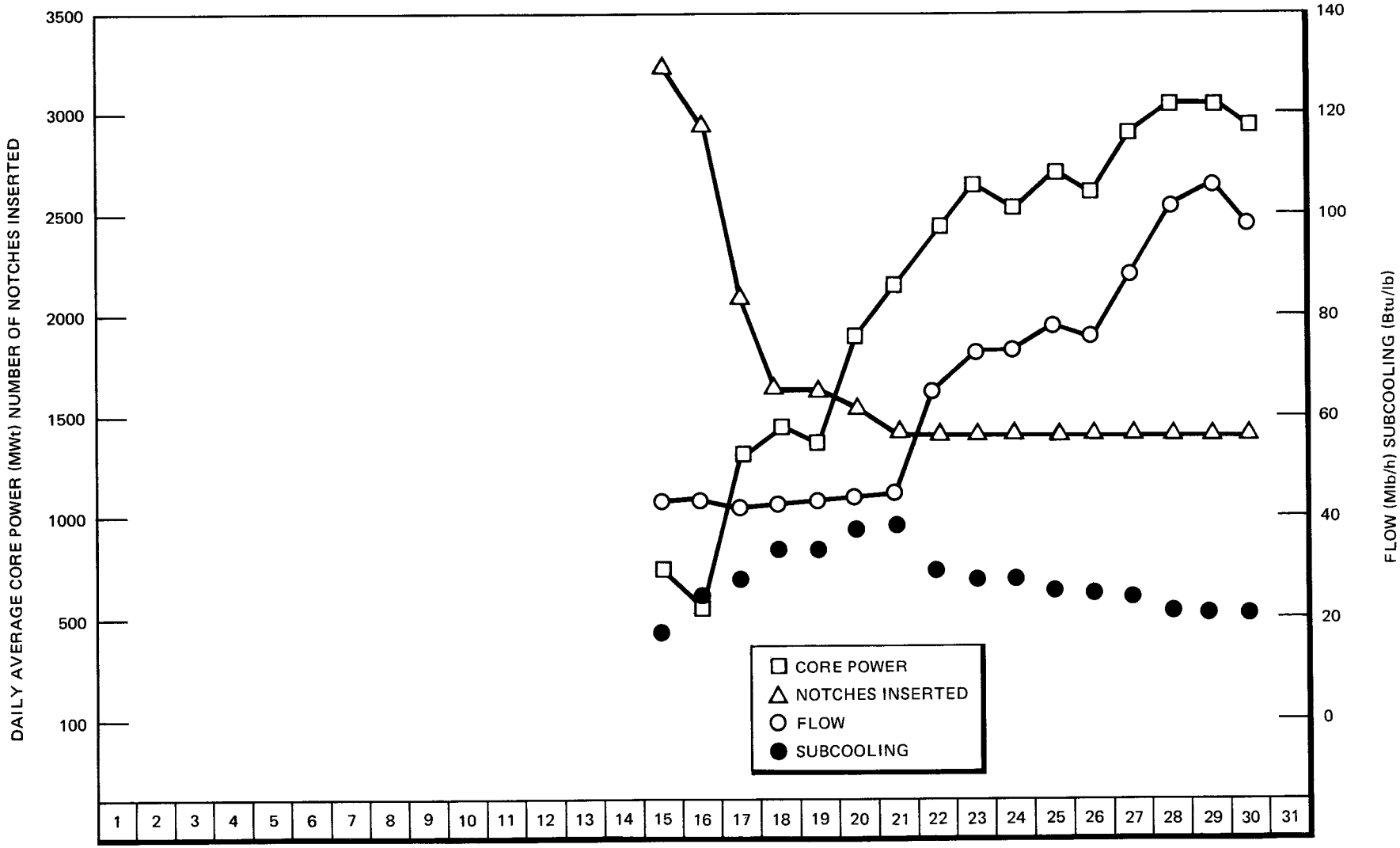



*Figure 14. Data Summaries, September 1977*

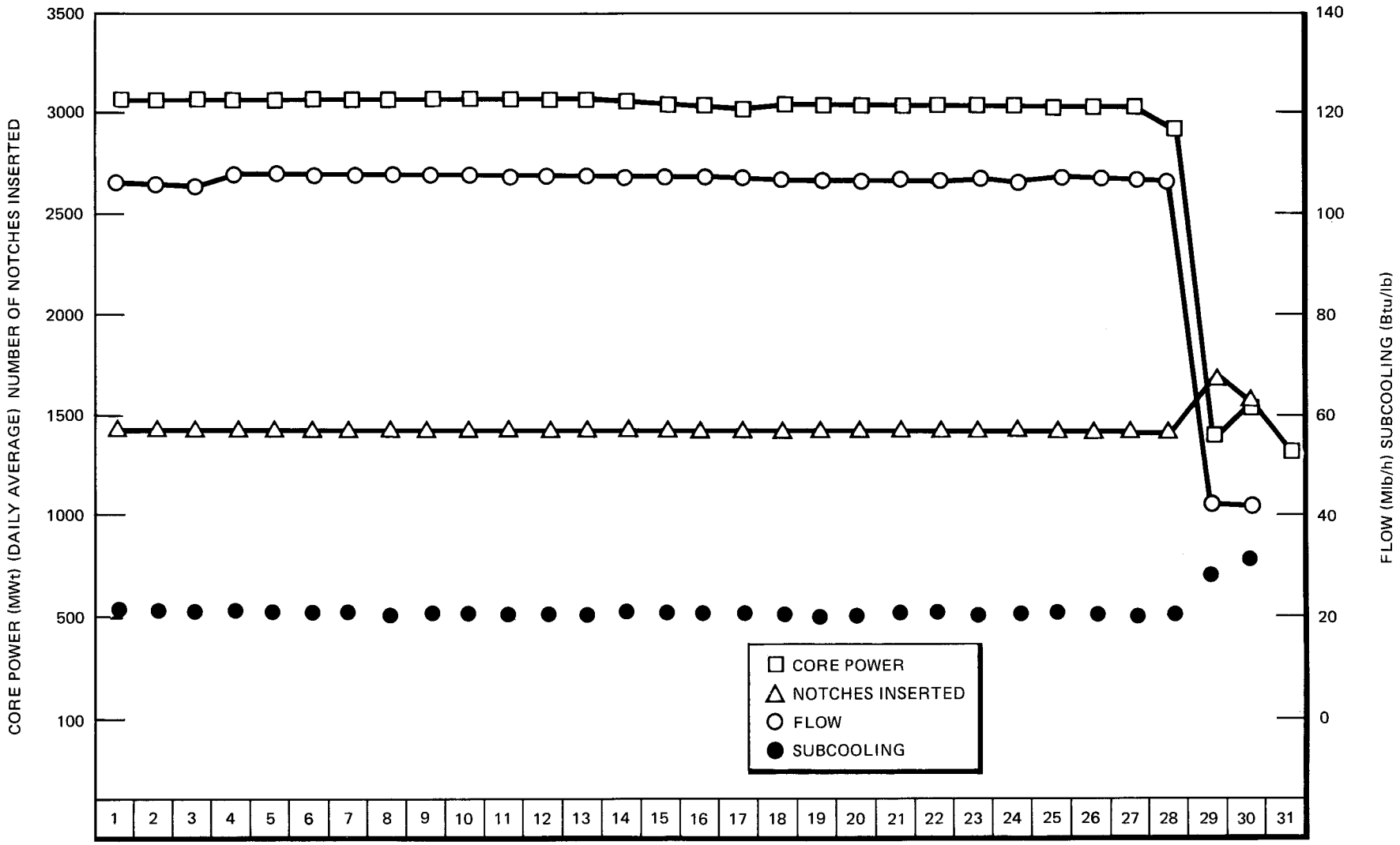



*Figure 15. Data Summaries, October 1977*

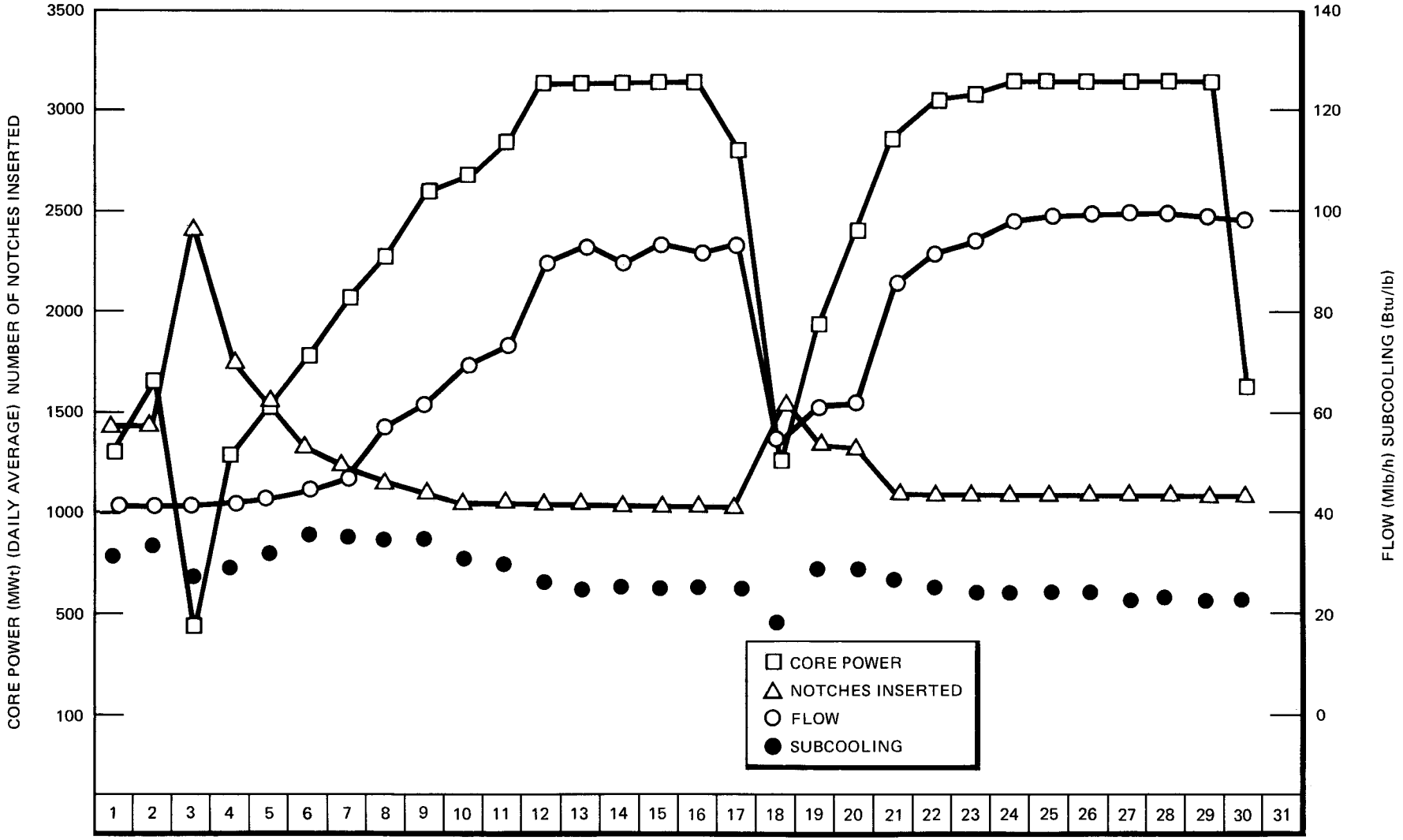



*Figure 16. Data Summaries, November 1977*

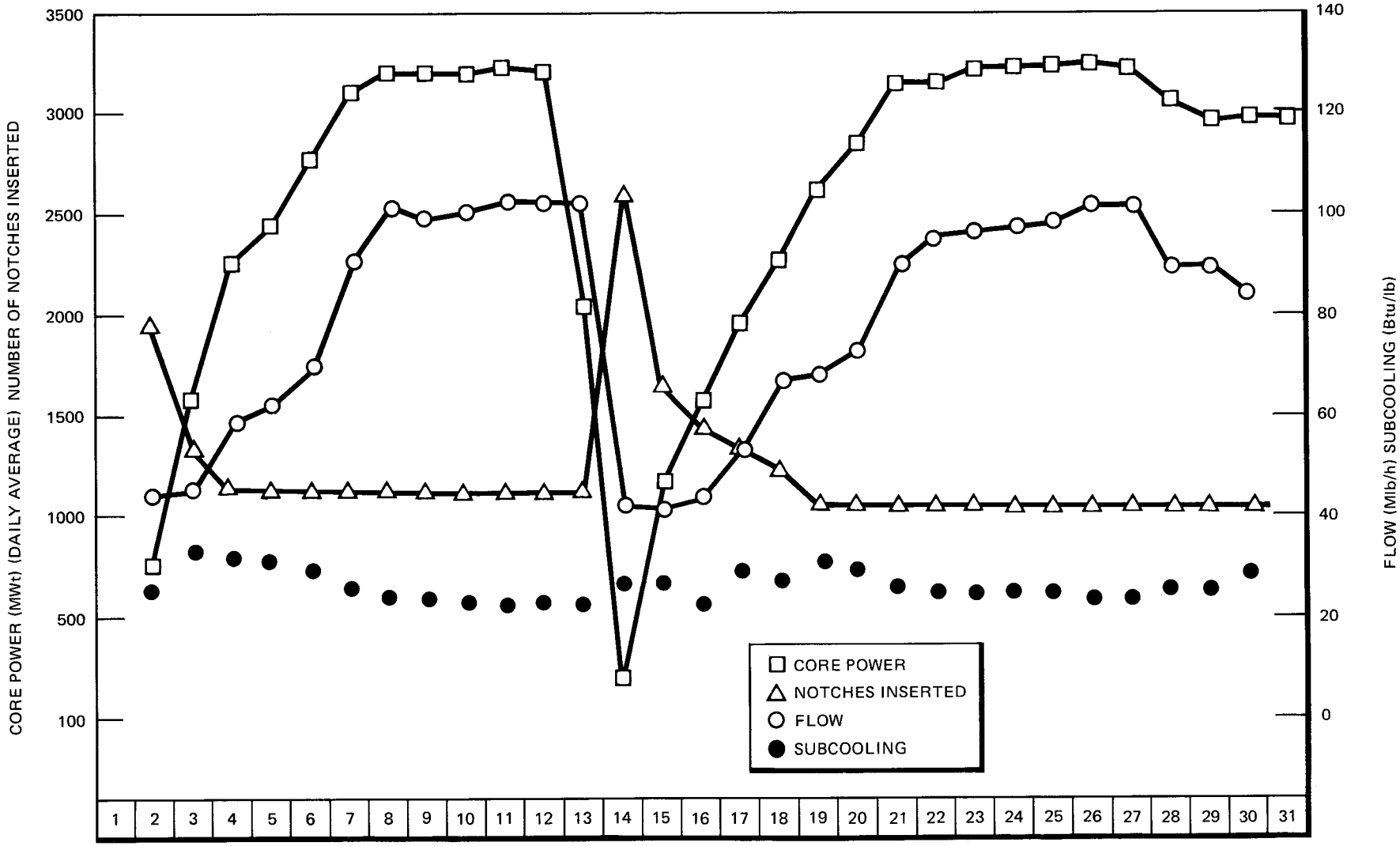



*Figure 17. Data Summaries, December 1977*

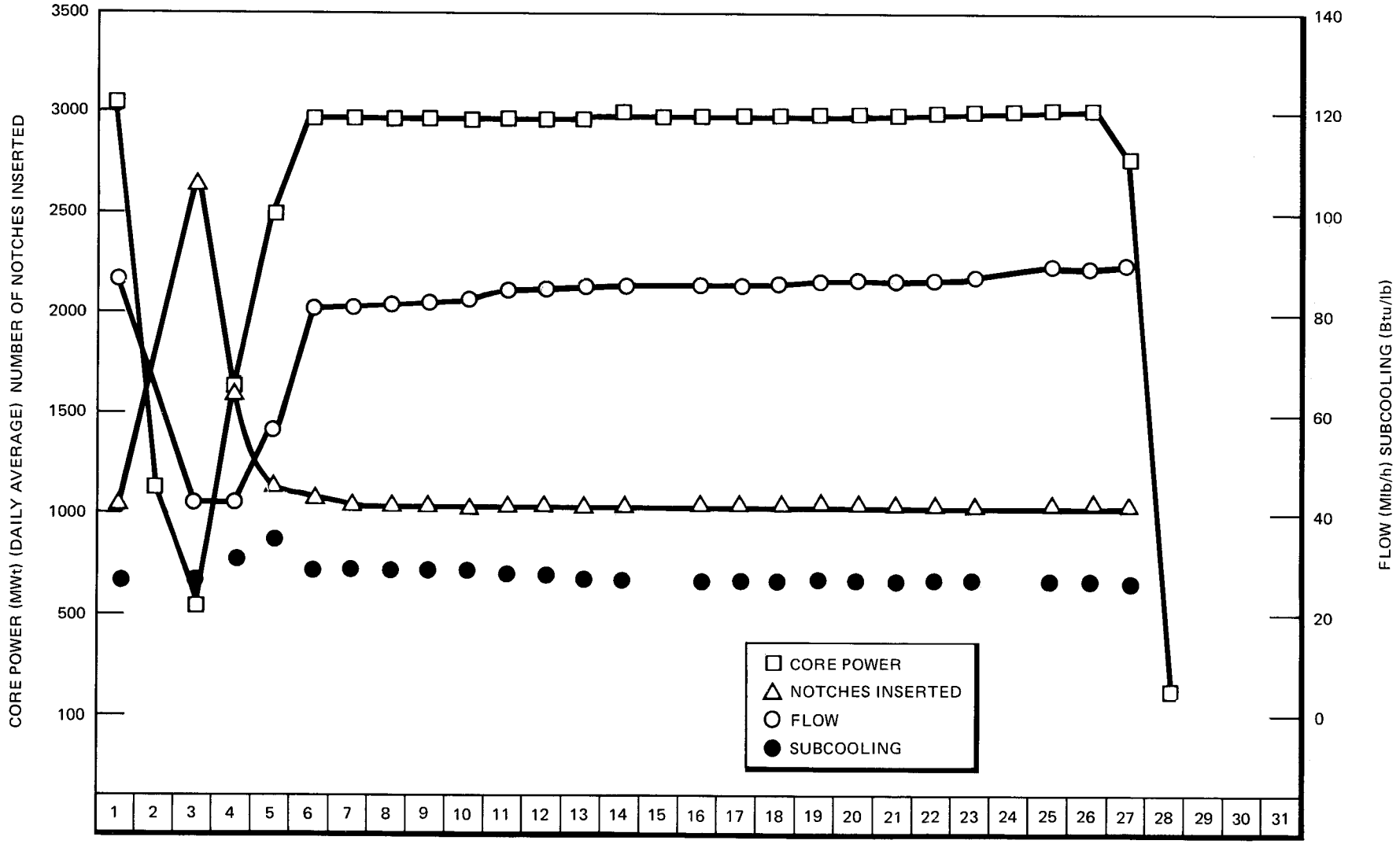



*Figure 18. Data Summaries, January 1978*

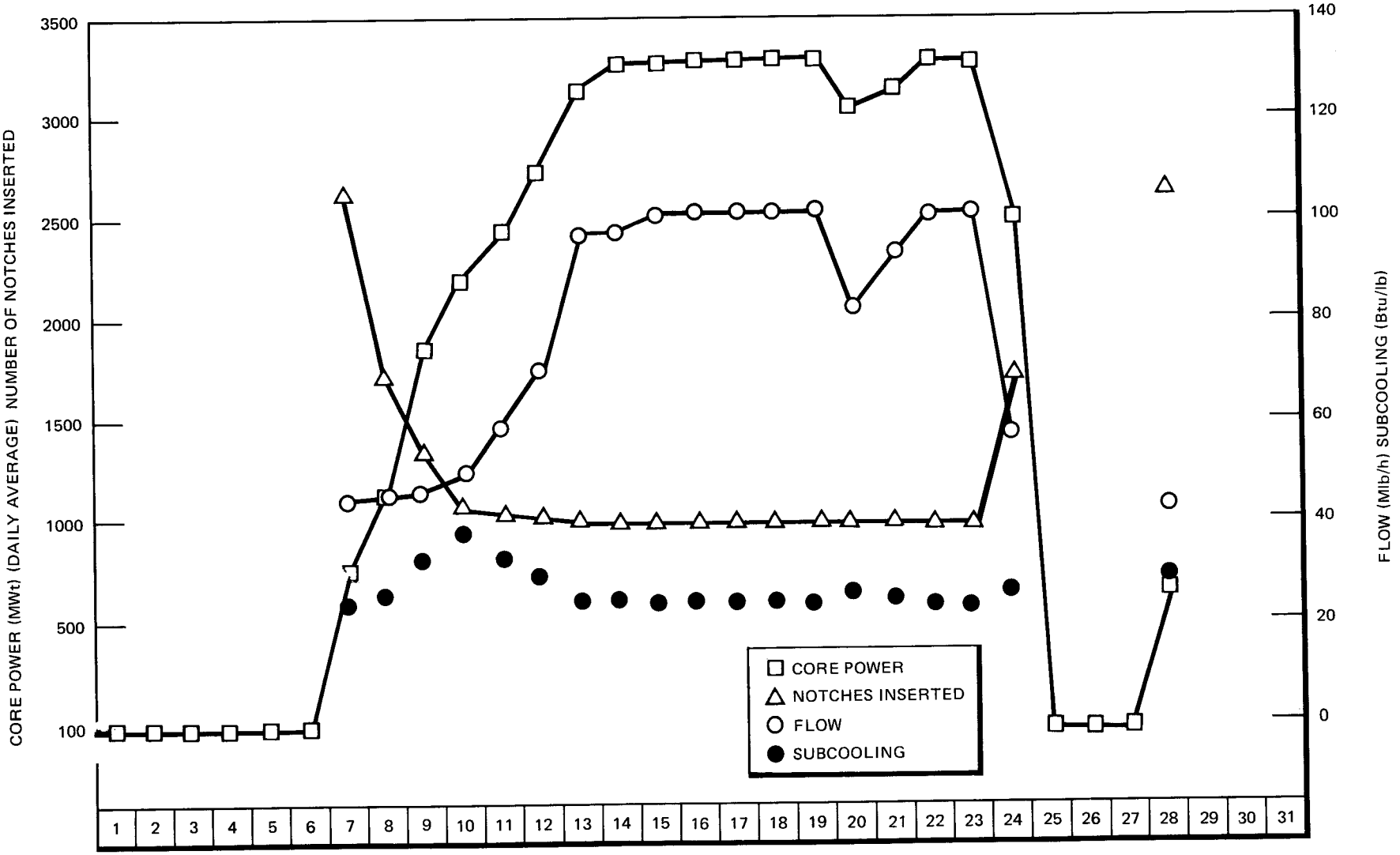



*Figure 19. Data Summaries, February 1978*

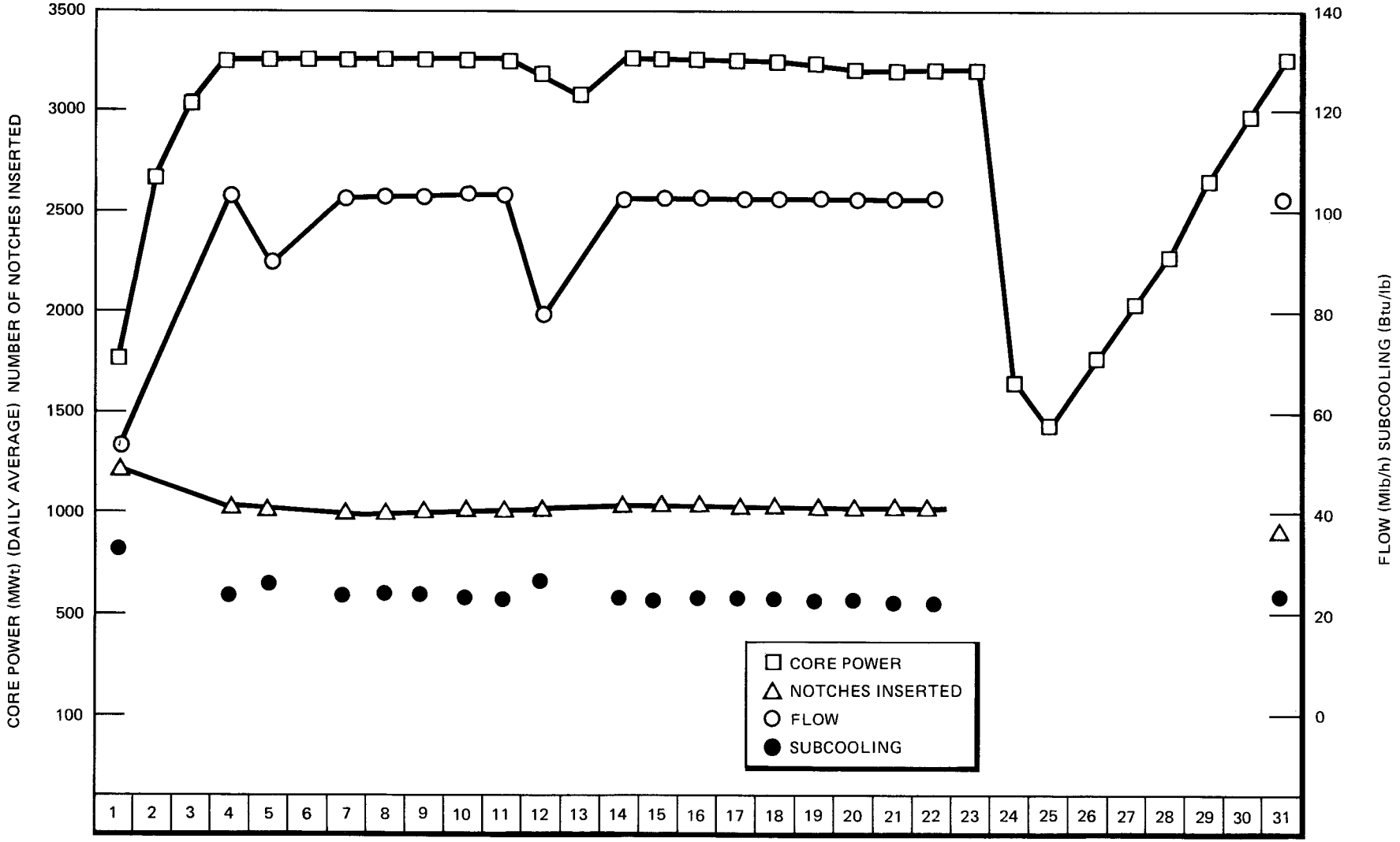



*Figure 20. Data Summaries, March 1978*

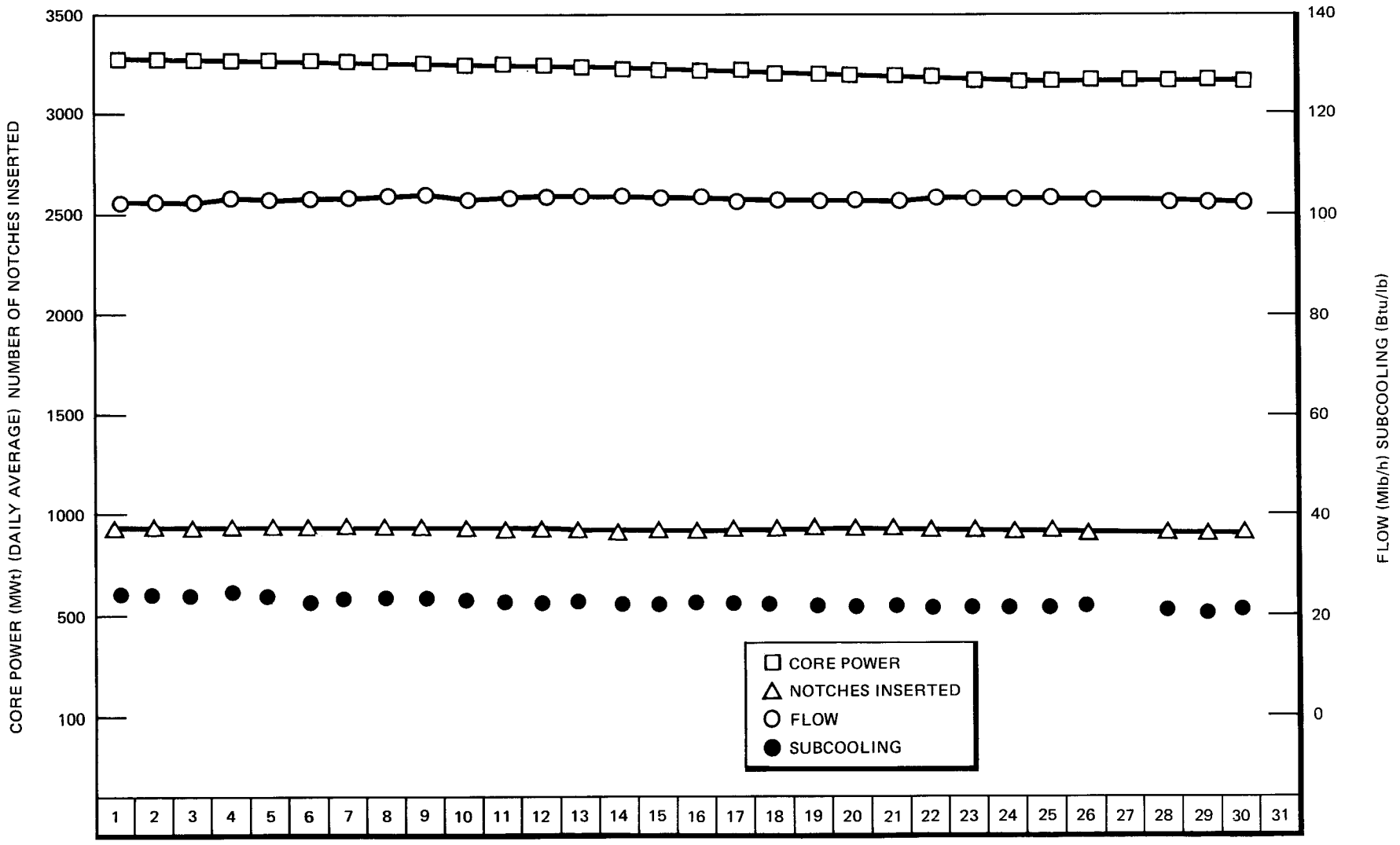



*Figure 21. Data Summaries, April 1978*

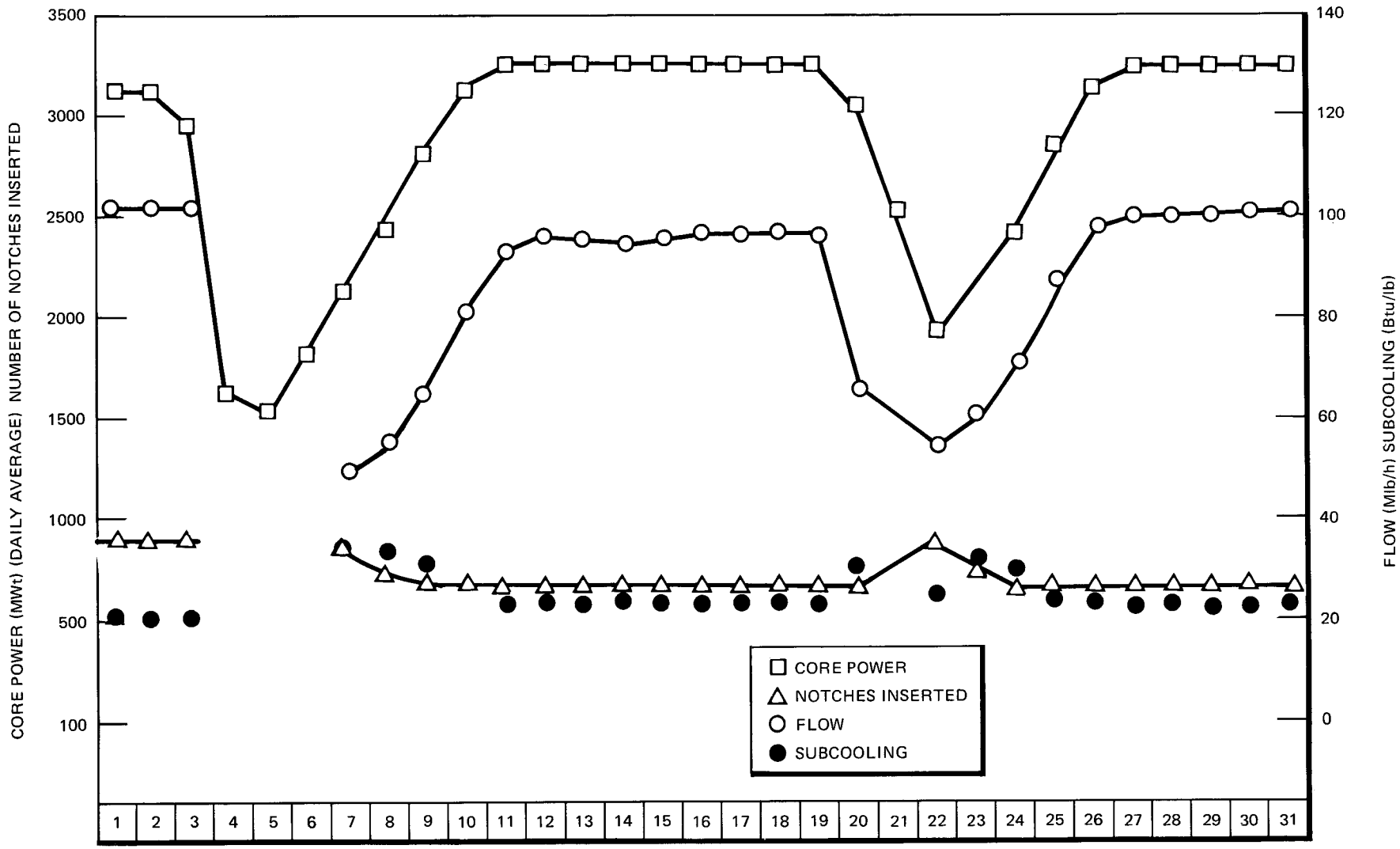



*Figure 22. Data Summaries, May 1978*

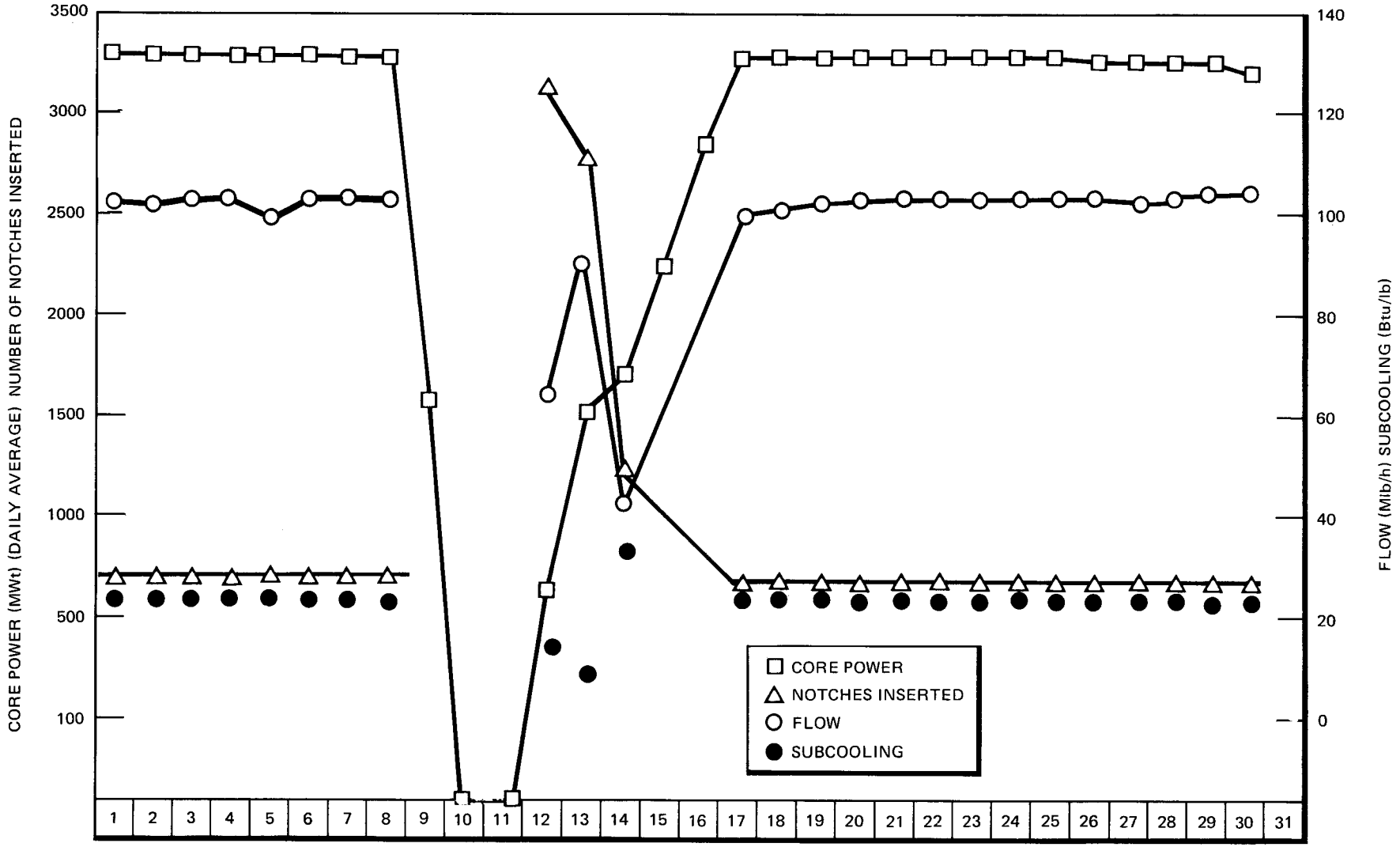



*Figure 23. Data Summaries, June 1978*

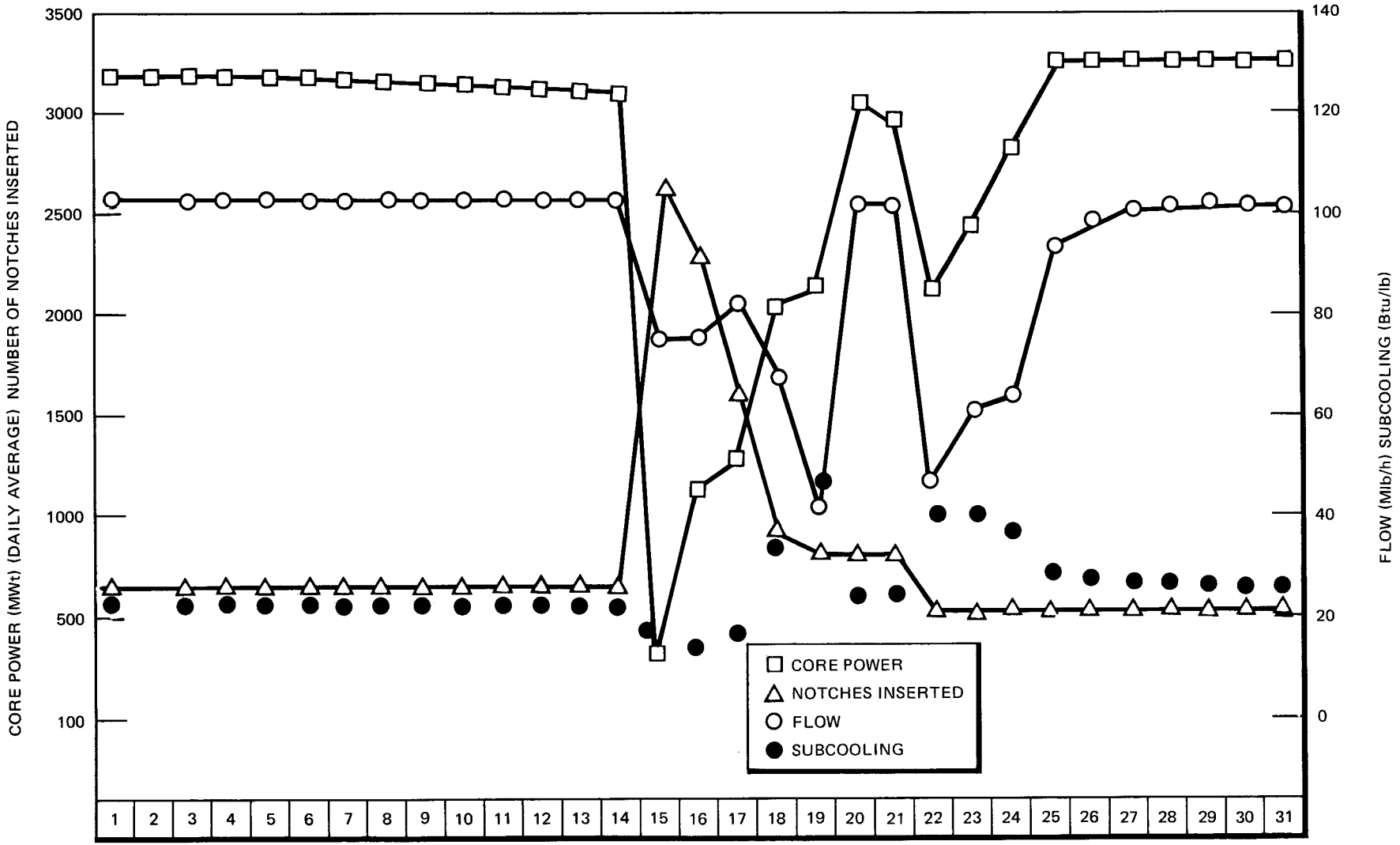



*Figure 24. Data Summaries, July 1978*

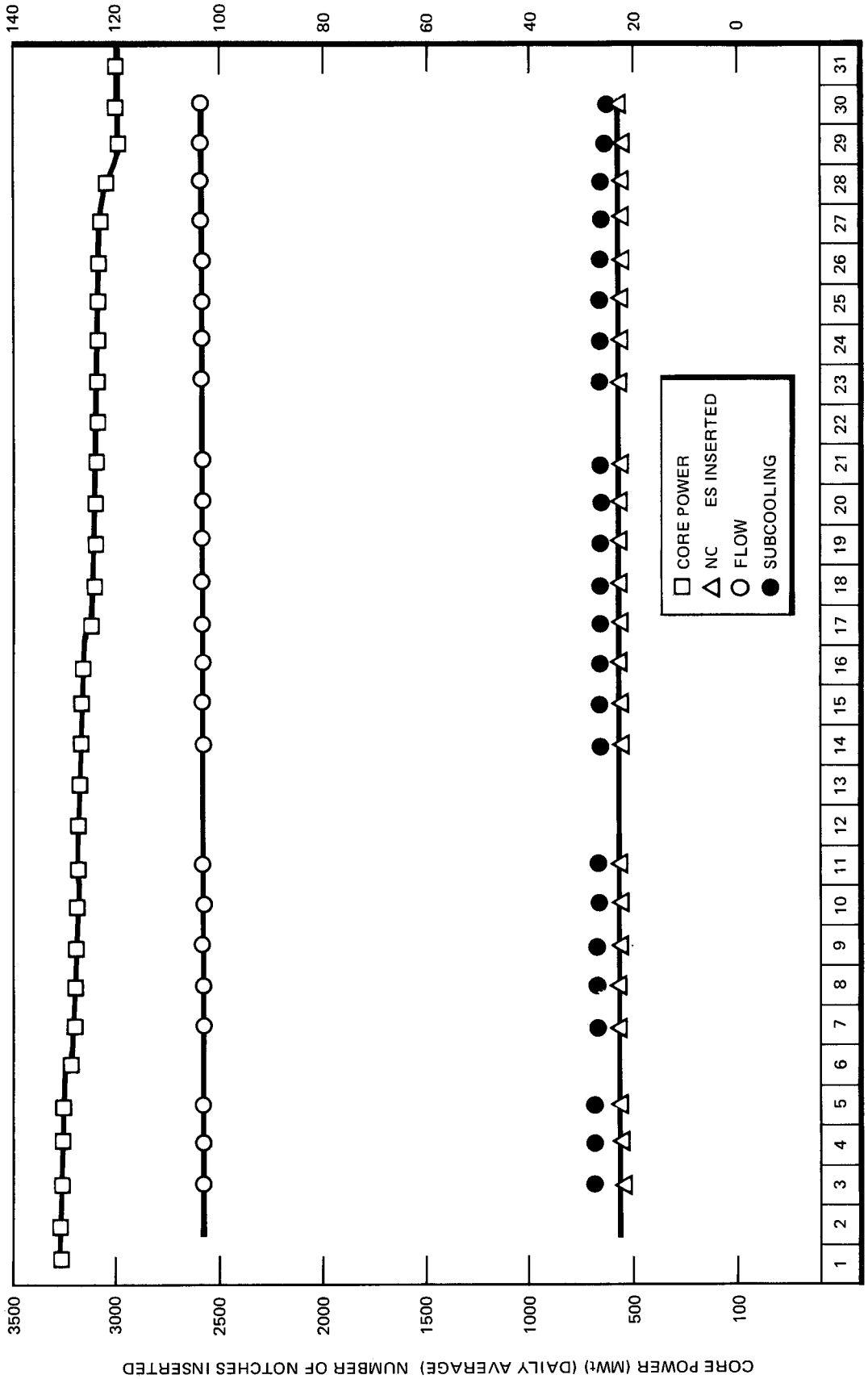



*Figure 25. Data Summaries, August 1978*

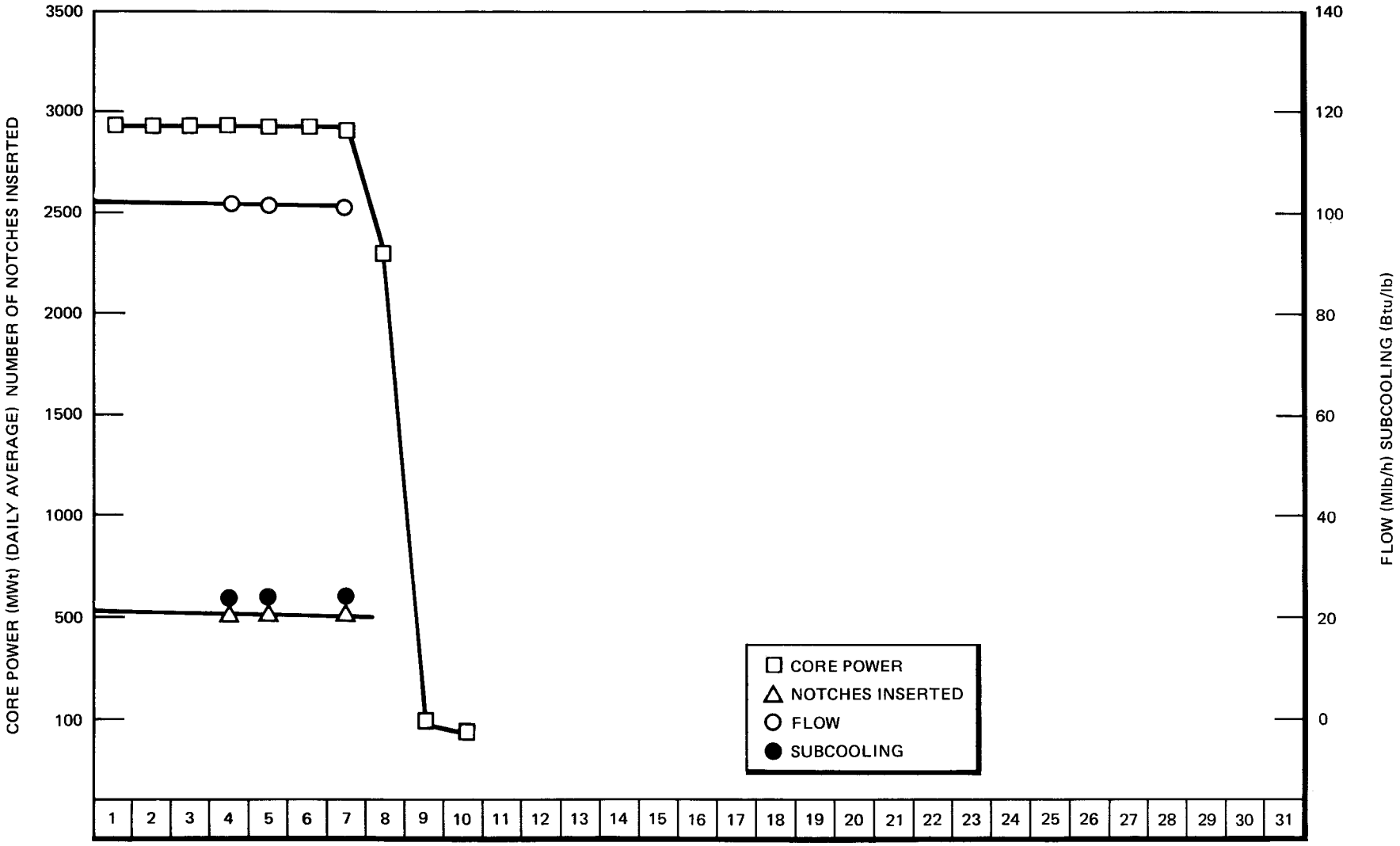



*Figure 26. Data Summaries, September 1978*

**DATA SET 38, 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 | 108.2 | 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 | 111.8 | 113.5 | 121.9 | 121.1 | 132.8 | 135.2 | 124.8 | 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 | 138.8 | 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 | 123.5 | 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 |
| 825 | 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 | 98.8 | 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 | 21.8 |
| 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 | 107.8 | 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 | 76.8 | 93.1 | 102.2 | 108.0 | 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 | **38.6** |
| 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 | 122.9 | 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 | 119.8 | 126.1 | 119.9 | 111.0 | 89.2 | 67.6 | **44.6** |
| 4817 | 51.6 | 90.1 | 118.1 | 137.6 | 153.8 | 160.2 | 158.0 | 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 | 60.3 | **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 | 30.6 | **17.5** |
| 825 | 70.4 | 108.1 | 124.2 | 139.2 | 139.8 | 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, 3188 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 | 116.8 | **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** | 87.8 | 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 | **86.6** |
| | 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 | 124.6 | 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 | **87.5** |
| | 79.8 | 74.3 | 73.2 | 74.4 | 69.5 | 69.8 | 67.2 | 62.1 | 53.9 | 44.0 | 33.2 | **19.1** |
| **825** | 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 | 108.8 | 110.7 | 103.9 | 105.3 | 106.9 | 99.4 | 88.1 | 79.9 | 56.1 | **33.2** |
| **1625** | 91.1 | 128.8 | 137.1 | 140.4 | 131.5 | 118.3 | 107.7 | 104.7 | 100.7 | 94.9 | 97.1 | **96.5** |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | 83.3 | 132.1 | 152.5 | 160.2 | 158.8 | 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 | 38.6 |
| 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 | 88.8 | 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 | 92.8 | 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 | 66.4 | 56.8 | 37.3 | 21.6 |

**DATA SET 41, JANUARY 11, 1978**

**Reactor Conditions**

Core Average Exposure, 10948 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 | 148.9 | 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 | 68.3 | 107.7 | 123.9 | 139.2 | 148.0 | 144.1 | 134.4 | 133.5 | 122.5 | 114.2 | 108.8 | 104.2 |
| | 98.7 | 91.6 | 92.6 | 94.0 | 88.3 | 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 | 66.0 | 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 | 125.6 | 126.3 |
| | 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 | 66.4 | 100.8 | 118.3 | 130.4 | 135.1 | 135.0 | 131.9 | 138.8 | 129.6 | 122.8 | 118.4 | 116.3 |
| | 111.1 | 100.5 | 101.8 | 103.7 | 96.4 | 99.1 | 99.0 | 93.2 | 82.6 | 74.5 | 53.8 | 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 | 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 | 48.2 |
| 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 | 65.4 | 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 | 92.8 | 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 | 48.6 | **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 | 121.6 | 120.0 | 123.0 | 123.3 |
| | 117.9 | 108.4 | 112.6 | 113.3 | 105.2 | 104.0 | 102.0 | 94.5 | 80.7 | 72.5 | 52.5 | 31.6 |
| **1625** | 75.7 | 106.5 | 115.6 | 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 | 95.2 | 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 | 108.7 | 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 | 103.9 |
| | 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 | 79.7 |
| | 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 | 83.5 | 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 | 20.5 |
| 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 |
| | 138.6 | 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 | 108.7 | 106.4 | 101.5 | 102.9 |
| | 100.3 | 94.8 | 101.5 | 108.4 | 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 | 138.5 | 130.2 | 114.0 | 110.3 | 101.0 | 95.1 | 91.9 | 90.1 |
| | 88.2 | 87.1 | 95.0 | 101.7 | 99.5 | 100.6 | 97.1 | 85.4 | 74.7 | 59.4 | 44.9 | 26.1 |
| 1617 | 68.4 | 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 | 118.2 | 106.4 | 94.1 | 73.1 | 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 | 57.1 | 101.1 | 130.7 | 146.5 | 148.3 | 142.8 | 134.1 | 130.3 | 125.4 | 119.1 | 116.3 | 116.6 |
| | 117.1 | 112.0 | 122.6 | 131.6 | 130.7 | 130.9 | 130.4 | 120.0 | 103.1 | 85.3 | 63.1 | 39.0 |
| 5617 | 46.5 | 73.3 | 88.0 | 99.0 | 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 |
| 825 | 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 | 53.2 | 32.3 |
| 1625 | 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 | 110.8 | 111.7 | 104.1 | 109.6 | 110.9 | 104.9 | 96.8 | 78.5 | 63.3 | **43.0** |
| 2425 | 52.8 | 93.9 | 110.1 | 117.8 | 109.7 | 113.4 | 103.3 | 110.2 | 105.2 | 102.8 | 104.9 | **110.7** |
| | 115.1 | 117.0 | 120.8 | 117.6 | 122.6 | 124.0 | 122.9 | 117.2 | 104.9 | 88.4 | 71.6 | **45.8** |
| 3225 | 47.4 | 77.0 | 94.3 | 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 | 55.0 | 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 | 128.8 | 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 | 69.4 | 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 | 116.5 | 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 | 67.9 | 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 | 78.8 | 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 | 108.7 | 103.3 | 99.5 | 98.5 |
| | 91.9 | 87.3 | 91.3 | 95.8 | 94.7 | 98.2 | 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 | 43.6 |
| 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 | 78.8 | 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 | 71.8 | 56.8 | 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 | 78.8 | 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 | 96.8 | 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 | 94.6 |
| | 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 | 119.7 | 111.3 | 104.5 | 102.2 |
| | 93.0 | 88.0 | 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 | 138.8 | 128.6 | 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 | 138.6 | 147.8 | 151.6 | 147.9 | 150.9 | 141.0 | 130.5 | 126.3 | 122.6 |
| | 118.4 | 109.1 | 110.1 | 109.4 | 100.2 | 98.8 | 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 | 128.1 | 122.0 | 117.9 | 119.4 | 112.5 | 104.6 | 108.4 | 108.6 |
| | 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 | 59.2 | 93.7 | 111.3 | 121.2 | 116.9 | 111.3 | 105.7 | 102.4 | 98.5 | 94.0 | 95.9 | 105.6 |
| | 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 | 108.6 | 124.9 | 138.2 | 139.4 | 132.9 | 125.1 | 125.2 | 116.8 | 110.2 | 111.4 | 111.2 |
| | 109.8 | 104.9 | 108.7 | 111.9 | 105.2 | 110.2 | 110.8 | 106.1 | 97.7 | 80.0 | 62.7 | 39.6 |
| 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 | 75.1 |
| | 71.7 | 66.9 | 66.8 | 67.5 | 63.9 | 64.7 | 63.9 | 56.9 | 50.8 | 41.3 | 31.3 | 17.4 |
| 825 | 57.4 | 90.0 | 112.7 | 130.4 | 141.8 | 135.6 | 125.8 | 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 | 53.2 | 32.3 |
| 1625 | 78.7 | 112.1 | 123.5 | 137.4 | 138.1 | 138.7 | 130.4 | 132.0 | 124.8 | 119.3 | 115.9 | 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 | 109.8 |
| | 104.9 | 101.7 | 104.8 | 109.5 | 106.4 | 110.1 | 111.0 | 104.6 | 94.0 | 86.9 | 62.3 | 40.0 |
| 4825 | 80.1 | 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 | 37.6 |
| 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 | 66.8 | 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 | 88.1 | 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 | 95.2 | 91.9 | 89.9 |
| | 85.3 | 80.6 | 84.9 | 91.8 | 89.2 | 92.3 | 93.2 | 81.4 | 7. 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 | 29.3 | 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 | 29.9 |
| **40 9** | 77.6 | 119.8 | 136.0 | 139.9 | 134.5 | 124.3 | 113.8 | 115.1 | 113.8 | 113.3 | 113.9 | 113.9 |
| | 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 | 99.5 | 96.0 | 86.7 | 77.8 | 61.9 | 47.8 | 34.8 |
| **4817** | 52.1 | 87.6 | 105.3 | 115.9 | 118.1 | 116.0 | 118.7 | 125.4 | 125.7 | 120.0 | 117.2 | 116.1 |
| | 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** | 52.4 | 81.0 | 92.5 | 97.2 | 96.1 | 90.7 | 85.6 | 85.1 | 81.6 | 78.4 | 76.7 | 75.2 |
| | 71.2 | 64.2 | 63.2 | 62.3 | 57.7 | 57.5 | 54.4 | 49.1 | 43.3 | 35.6 | 27.2 | 15.8 |
| **825** | 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 | 116.0 | 114.4 | 114.0 | 116.2 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | 138.3 | 131.6 | 122.2 | 111.6 | 112.3 | 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 | 94.3 | 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 | 109.9 | 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 | 114.3 |
| | 108.0 | 101.1 | 98.7 | 97.3 | 87.1 | 83.9 | 78.7 | 69.0 | 58.4 | 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 | 125.9 |
| | 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 | 94.4 | 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 | 118.5 | 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 | 88.7 | 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 | 118.3 | 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 | 88.1 | 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 | 63.6 | 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 | 50.3 | 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 | 78.3 | 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 49, 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 |
| | 118.3 | 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 | 118.1 | 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 |
| 0817 | 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 |
| | 88.1 | 80.9 | 79.4 | 78.6 | 72.6 | 72.1 | 68.4 | 61.5 | 54.7 | 44.4 | 33.9 | 19.5 |
| 0825 | 59.0 | 91.6 | 106.0 | 121.0 | 125.4 | 131.8 | 136.8 | 146.1 | 141.7 | 139.3 | 134.9 | 136.8 |
| | 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 | 116.4 |
| | 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.

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