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Determination of the Accuracy of Utility Spent Fuel Burnup Records (Interim Report)

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Technical Report

Determination of the Accuracy of Utility Spent Fuel Burnup Records – Interim Report

TR-109929

Interim Report, May 1998

Prepared for
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REPORT SUMMARY

This report summarizes the results of an initial investigation into the uncertainties associated with the burnup records maintained by nuclear power plants. The results indicate that there is an overall uncertainty of about 2 percent in the burnup records, which must be accounted for in spent fuel applications.

Background

Operators of Pressurized Water Reactors maintain records of the assembly average burnup for each assembly at their plants. The assembly burnup records are currently used by commercial reactor operators and vendors for special nuclear material accountability, placement of spent fuel in storage pools, and dry storage cask design and analysis. The uncertainty of a particular burnup record depends on the uncertainty of the method used to develop the record. Such records are based on core neutronic analysis coupled with measured in-core detector data. An NRC-licensable burnup credit methodology being developed by the Department of Energy will require that utilities provide data on burnup uncertainty in reactor records.

Objectives

To identify a specific methodology and possible alternatives for determining the average uncertainty in reactor burnup records; to facilitate discussion and lead development of a utility consensus on the methodologies appropriate to each reactor type and to illustrate these methodologies with typical records.

Approach

The project team used three cycles of plant in-core detector data for a PWR to determine assembly power and burnup distributions. They used a standard nodal code to calculate three cycles of assembly power distributions. They used the relative differences between the measured and calculated nodal code data to statistically determine the uncertainty of the burnup records.

Results

Based on burnup records at a typical Westinghouse PWR, the uncertainty in the assembly average reaction rate in instrumented locations was found to be 2.21%. This value represents a direct comparison between measurement and calculation and allows determination of the uncertainty in average power distribution. Interpolating for all

locations, the uncertainty in relative assembly power was calculated to be 1.79%. The difference in the two uncertainty values is not considered important, but their similarity does indicate the robustness of both the conversion from reaction rate to power and the translation from instrumented locations to un-instrumented locations. The uncertainty in burnup evaluated over three cycles of operation decreases in uncertainty with an increase in residence time or burnup. For assemblies discharged after one cycle of burnup, the uncertainty is 1.90%: after two cycles of burnup, the uncertainty is 0.98%: and after three cycles of burnup the uncertainty is 1.02%. This decrease in uncertainty after two cycles of burnup is indicative of the self-correcting nature of burnup.

EPRI Perspective

During the past ten years, EPRI has supported various projects aimed at obtaining regulatory acceptance for the burnup credit concept in the design of spent fuel storage and transportation systems. These projects included the documentation of spent fuel burnup measurements with the FORK system (EPRI reports TR-103591 and TR-106305) and development of a more advanced system capable of measuring burnup independently of utility burnup records, the FORK+ system (TR-108759). The present project has been initiated to estimate the uncertainties present in utility burnup records and to support estimates for burnup uncertainty included in DOE's "Topical Report on Actinide-Only Burnup Credit for PWR Spent Nuclear Fuel Packages." Revision 1 of that Topical Report was submitted to the NRC in May 1997 and is expected to be approved by the end of 1998. The DOE report assumes that the uncertainty in plant burnup records is at most 5%. A technically sound measurement-based methodology for quantifying the actual uncertainty level for various reactor types is needed. The results of the present study on one reactor type indicate that the 5% uncertainty assumption exceeds the uncertainties actually present in utility burnup records. In anticipation of NRC approval of the burnup credit concept, EPRI plans to support the licensing of a Dry Storage and Transportation System that incorporates the burnup credit method.

TR-109929

Interest Categories

Spent fuel storage and transportation
Fuel assembly reliability and performance

Key Words

Burnup credit
Burnup records
Criticality
SIMULATE-3
Reaction rates
Burnup

ABSTRACT

In order to develop a NRC-licensable burnup credit methodology, the pedigree and uncertainty of commercial spent nuclear fuel assembly burnup records needs to be established. Typically the assembly average burnup for each assembly is maintained in the plant records. It is anticipated that the repository for the disposal of spent fuel will utilize burnup credit and will require knowledge of the uncertainty of reactor burnup records. The uncertainty of the assembly average burnup record depends on the uncertainty of the method used to develop the record. Such records are generally based on core neutronic analysis coupled with analysis of in-core power detector data. This report evaluates the uncertainties in the burnup of fuel assemblies utilizing in-core measurements and core neutronic calculations for a Westinghouse PWR.

To quantify the uncertainty, three cycles of in-core movable detector data were used. The data represents a first cycle of operation, a transition cycle and a low leakage cycle. These three cycles of data provide a true test of the uncertainty methodology. Three separate sets of results were used to characterize the burnup uncertainty of the fuel assemblies.

- The first set of results compared the measured and calculated reaction rates in instrumented assemblies and determined the uncertainty in the reaction rates. The use of reaction rates provides a direct comparison between measurement and calculation in the instrumented locations prior to conversion to power and burnup. This uncertainty is indicative of the uncertainty in the burnup. The results show that uncertainty in the average reaction rate for the instrumented locations is 2.21%.

- The second set of results determined the uncertainty in relative assembly power for both the instrumented and un-instrumented assemblies. The uncertainty is found to be 1.79%. The similarity in the first and second set of results validates the robustness of both the conversion of reaction rates to assembly power and the translation from instrumented to un-instrumented assemblies.

- The third set of results determined the burnup uncertainty of the discharged fuel in each cycle. The uncertainty in burnup evaluated over three cycles of operation demonstrates a decrease in uncertainty with an increase in residence time or burnup. For assemblies discharged after one cycle of burnup, the uncertainty is 1.90%, after two cycles of burnup, the uncertainty is 0.98% and three cycle of

burnup is 1.02%. This decrease in uncertainty after two cycles of burnup is indicative of the self-correcting nature of burnup.

ACKNOWLEDGMENTS

The authors wish to thank Mike Tremblay and Joe Gorski for the technical assistance provided in analysis of the in-core data. The authors also wish to thank Dale Lancaster and Mitch Crosswaite for their discussions, which led to the initiation of this project. Special thanks go to Barrie McLeod for his thoughtful insights and constructive comments in the review of this report.

Finally, the support of Odelli Ozer and Joe Yedidia of EPRI throughout the course of this program, their comments and guidance are gratefully acknowledged.

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INTRODUCTION

Typically the assembly average burnup for each assembly is maintained in the plant records. The assembly burnup records are currently used by commercial reactor operators and vendors for a number of purposes, including; 1) special nuclear material accountability; 2) placement of spent fuel in storage pools and; 3) dry storage cask design/analyses. It is anticipated that the repository for the disposal of spent fuel will utilize burnup credit and will require knowledge of the uncertainty of reactor burnup records. The uncertainty of a particular burnup record depends on the uncertainty of the method used to develop the record. Such records are generally based on core neutronics analysis coupled with in-core power detector data. In May of 1997, the DOE submitted to the NRC, DOE/RW-0472 Rev. 1, "Topical Report on Actinide-Only Burnup Credit for PWR Spent Nuclear Fuel Packages."[1] Based on that report, the DOE indicates at most a 5% uncertainty for plant burnup records.

A NRC-licensable burnup credit methodology being developed by the Department of Energy (DOE) will require that the utilities provide data on burnup uncertainty in reactor records. The loading curve presented in the Topical Report does not include an allowance for burnup record uncertainty. Therefore, the utility is responsible for quantifying and accounting for burnup uncertainty prior to cask loading. The objective of this report is to identify a specific methodology and possible alternatives for determining the average uncertainty in the reactor burnup records.

It is neither necessary nor practical to measure 100% of the fuel assemblies. However, if only a fraction of the fuel assemblies are measured, such measurements are relative, rather than absolute measurements. Neutronic calculations are required to convert the relative measurements to absolute. Therefore, the only method that can be used to determine the burnup uncertainty in both instrumented and un-instrumented locations must rely on a utilization of measured and calculated data with the assumption that the differences in calculational methods are comparable in both the instrumented and un-instrumented locations. This approach also addresses the uncertainty associated with converting the measured signals to relative assembly power in the instrumented locations and generating relative assembly power in un-instrumented locations by distance weighting. By comparing the measured signal responses to the modern nodal code responses, it is possible to determine a total uncertainty prior to conversion to relative assembly power. This total uncertainty includes the uncertainty in both the

measurement and calculational methods. The uncertainty in the measurements can be determined independently from the reproducibility of the measured signals.

The current generation of neutronic codes are based on advanced nodal methods. Therefore, the primary focus of this project is to determine the uncertainty in the burnup calculation in a nodal code. This report evaluates the uncertainty associated with the plant burnup records and the uncertainty associated with the analytical methodology.

2

PLANT DESCRIPTION

2.1 General

To illustrate the approach to determine the uncertainty in the assembly burnup, a Westinghouse design plant with movable in-core instrumentation was chosen for this analysis. The reactor contains four coolant loops with a thermal power of 3411 MW and the core consists of 193 fuel assemblies with a 17x17 rod array. The rod array consists of 264 fuel rods, 24 control rod guide tubes and a center instrument thimble. The fuel rods are constructed of slightly enriched UO2 fuel pellets with Zircaloy cladding. The cycles of data chosen contained borosilicate glass and Integral Fuel Burnable Absorber (IFBA) rods to help regulate the local peaking and reduce the soluble boron concentrations at the beginning of the cycle.

The core has a set of 57 control rods called Rod Cluster Controlled Assemblies (RCCA). These rods contain a silver, indium, cadmium alloy that is used as the neutron absorber material. Each cluster is composed of 24 fingers, which fit into the 24 guide tubes. The 24 guide tubes are symmetrically positioned within the assembly. During normal full power operation, all of the control rods are essentially removed and reactivity control is maintained by altering the soluble boron concentration.

To provide a solid basis for the burnup uncertainty methodology, three cycles of operation were chosen. The three cycles consists of an initial cycle, a transition second cycle and a low leakage third cycle. Figures 2-1 through 2-3 display the batch loading for the three cycles.

The initial cycle, Cycle 1, consisted of all fresh fuel with borosilicate glass as the burnable absorber and operated for a cycle average burnup of 12,715 MWD/MTU. Sixty assemblies were discharged from Cycle 1. In Cycle 2, the borosilicate glass burnable absorber was removed from the once burned fuel and the fresh fuel contained IFBA rods. The fuel loading for this cycle had a higher enrichment than the first cycle. Cycle 2 operated for a cycle average burnup of 12,159 MWD/MTU and discharged 76 assemblies. Cycle 3 loading provided a further increase in fuel enrichment and continued the use of IFBA rods. Cycle 3 operated for a cycle average burnup of 16,820 MWD/MTU and discharged 72 assemblies.

2.2 Movable In-Core Instrumentation

In-core instrument thimbles are inserted into 58 assemblies within the core. Figure 2-4 displays the core location of the instrument tubes. The thimbles are inserted from the bottom of the core after the assemblies are loaded. The in-core detectors are used to perform surveillance on the power distribution within the core. Local radial and axial power peaking and quadrant tilts are some of the information monitored with this system.

Six miniature movable fission chamber detectors can be remotely positioned to enter the core through the 58 thimbles. The drive system for the insertion of the movable miniature detectors consist of six drive assemblies, five path transfer assemblies, and ten path transfer assemblies, as shown in Figure 2-5. The detectors are driven into the reactor core through conduits extending from the bottom of the reactor vessel through the concrete shield area and then up to a thimble seal table. The drive system pushes hollow helical wrapped drive cables into the core with the miniature detectors attached to the leading ends of the cables with a small diameter sheathed coaxial cable threaded through the hollow centers back to the trailing end of the drive cables.

Once the detectors are inserted into the core, flux maps are obtained by recording the signal from the movable miniature detectors as they traverse the selected instrument thimbles from top to bottom. This signal is proportional to the neutron flux at the detector and is recorded in volts. Detector plateau curves are generated at the start of a detector mapping to calibrate the voltage range for the current reactor conditions. Cross calibration of the six detectors occurs by insertion into the common thimble. The signal is recorded every 6 centimeters for a total of 61 axial measurements per thimble.

During the flux mapping operation, the reactor power level and control rod positions are maintained constant. The power level and control rod positions are recorded along with the detector signals for post-processing.

2.3 Measured In-Core Data

During each cycle, the plant performed an in-core flux map approximately every 30 effective full power days. For each core map, all control rods were removed except Bank D, which remains partially inserted at the top of the core. A control rod bank is considered fully withdrawn when at position 226. Appendix A present the reactor condition at the time of the in-core map. The movable in-core detector signals contained in the flux map data files were converted into reaction rates and relative assembly power utilizing the Westinghouse in-core analysis methodology.

2.4 Measurement of Thermal Power

The nodal computer codes that calculate power distributions and burnup are based on the presumption that absolute core power is a known, common denominator for all reactors. Thus, a comparison of calculated and measured data and their uncertainty requires knowledge of core power level and its uncertainty. Specifically the random uncertainty in the core thermal power is one of the components that needs to be appropriately added to the total uncertainty in fuel burnup. However, the measurement of total core thermal power for calculation of burnup increments is done at least daily and each measurement has a random measurement uncertainty of about 1%2. The statistical error in total measured power from, for example, 100 days, gives a factor of ten reduction in the single 1% uncertainty to about 0.1%. This work has therefore not included an explicit calculation of the burnup uncertainty contribution from the measurement uncertainty associated with total core power.

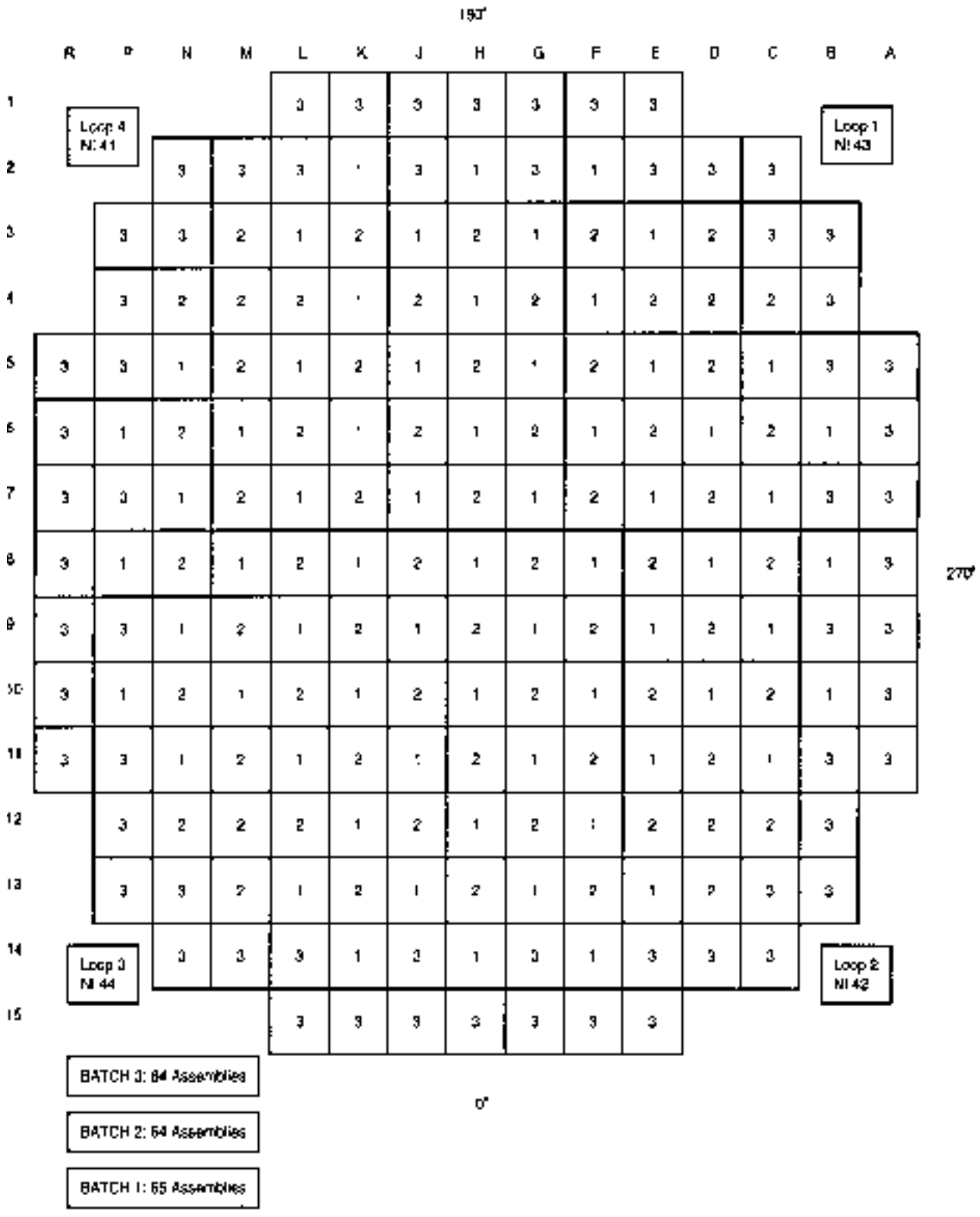

Figure 2-1
Cycle 1 Batch Loading Pattern

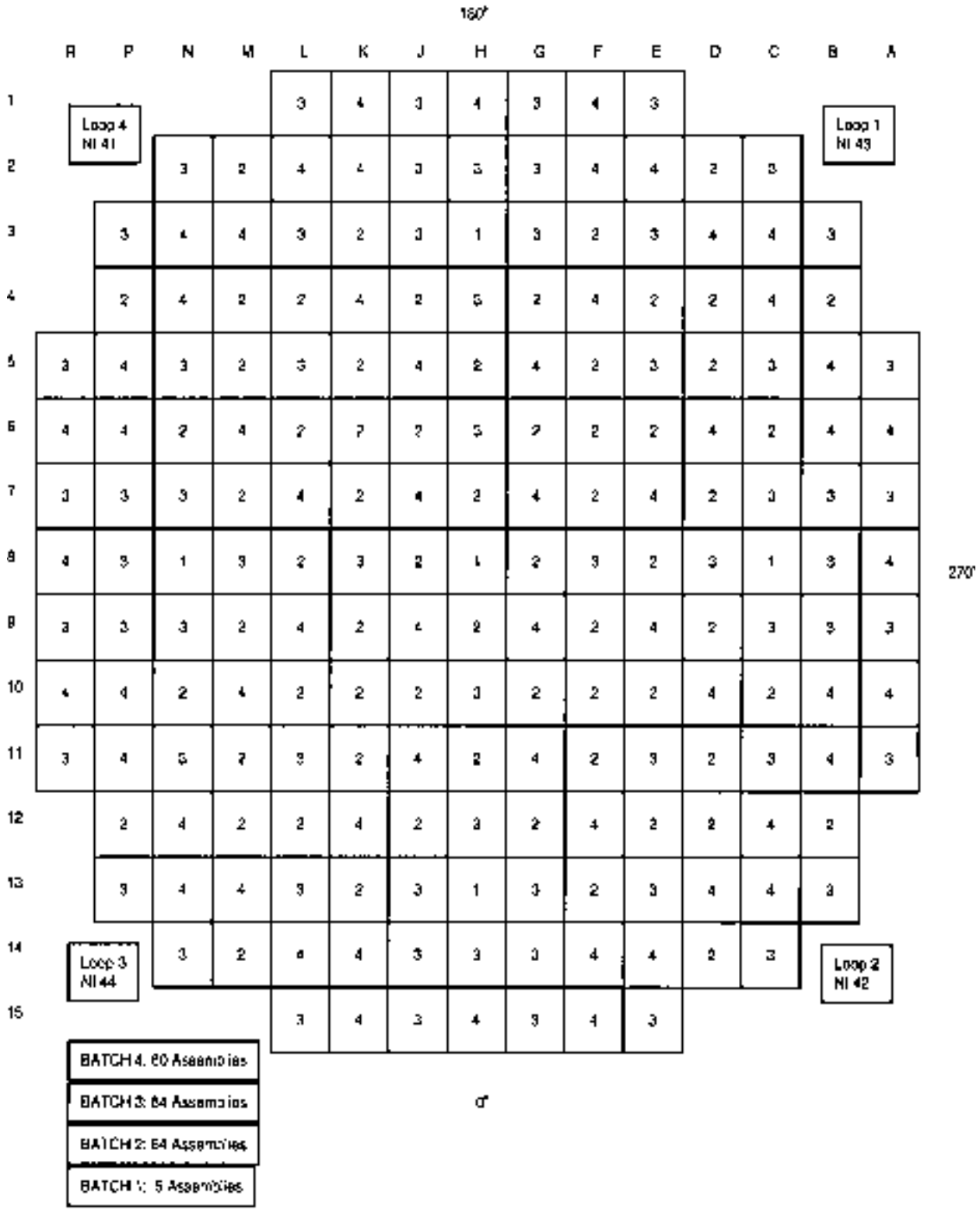

Figure 2-2
Cycle 2 Batch Loading Pattern

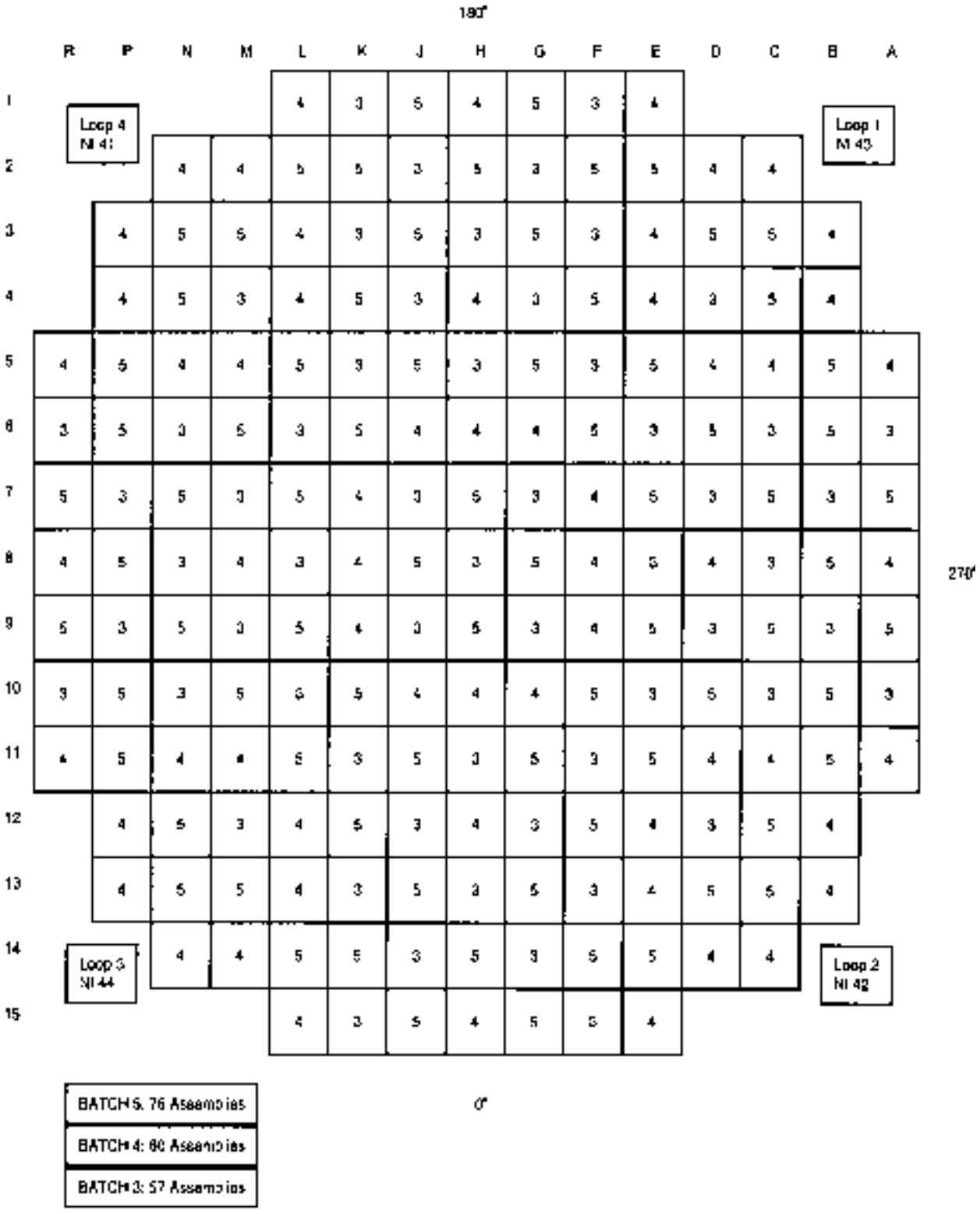

Figure 2-3
Cycle 3 Batch Loading Pattern

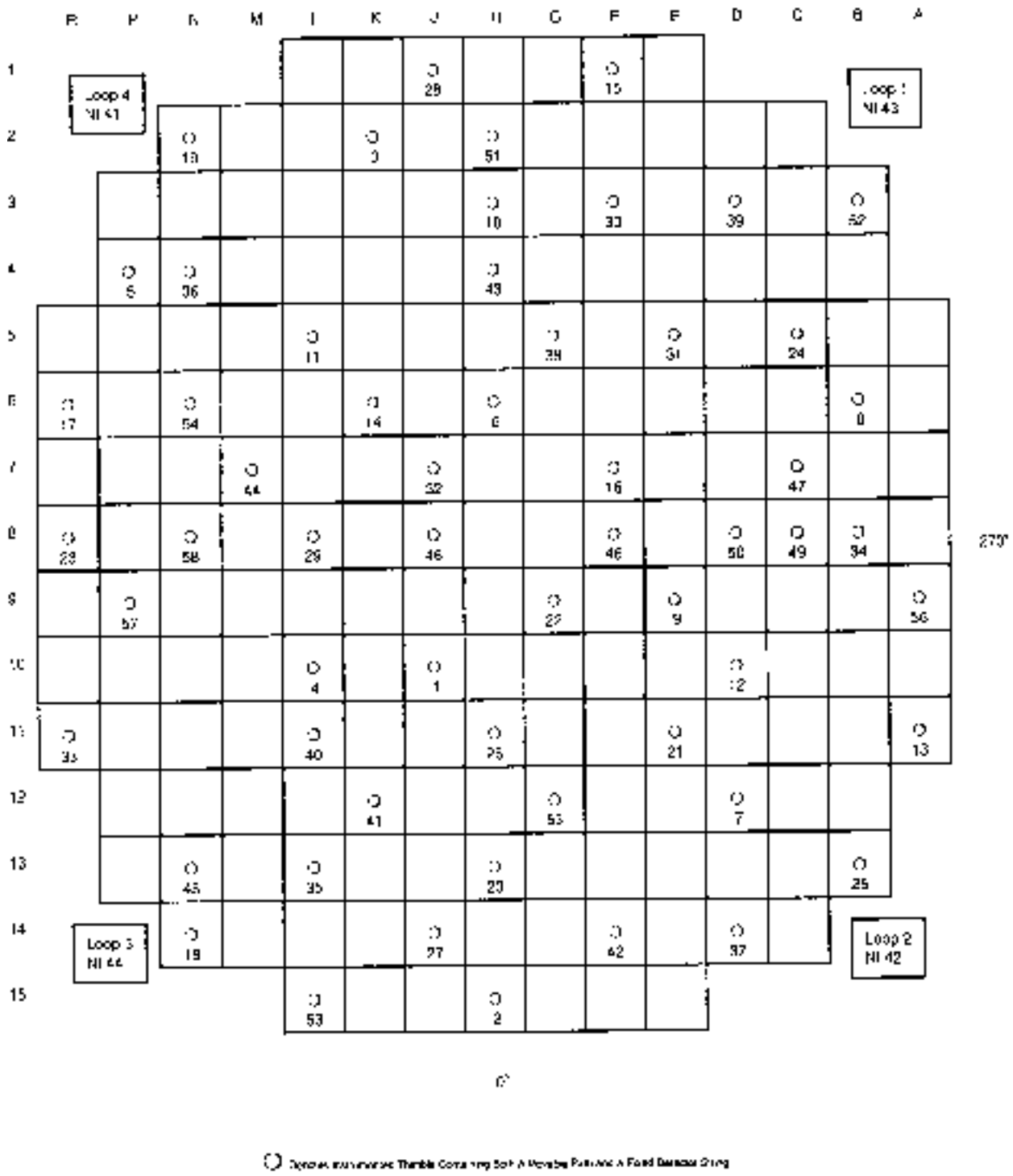

Figure 2-4
Radial Locations of Instrument Thimbles

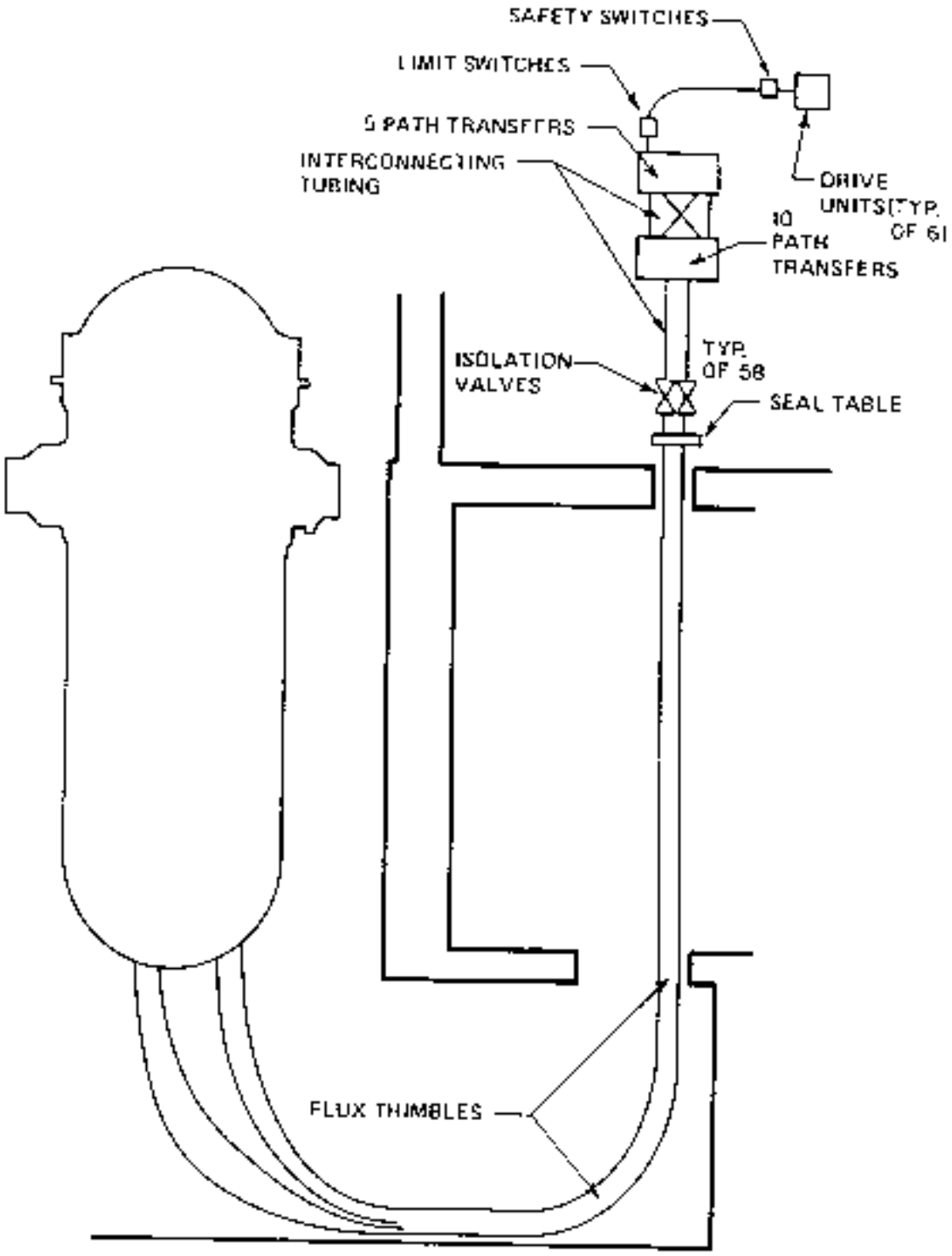

Figure 2-5
Movable Detector Drive Assemblies

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ANALYSIS/METHODOLOGY OVERVIEW

3.1 General

Assembly burnup is calculated from measured data: core power level, duration at that power level, and the assembly relative power. The first two values can be readily measured. The assembly relative power on the other hand is not readily available. It appears initially that two methods can be utilized to determine the relative assembly power. The first method utilizes direct measurements by a movable detector inside an assembly. In this measurement, the detector returns a signal that is proportional to neutron reaction rates that are closely related to the relative power. This method is very accurate in the locations where the detector measurements are taken. Unfortunately, the measurements are only performed in instrumented locations. These measured results must also be applicable to the un-instrumented assemblies, but there is no basis for making such correlation without reliance on calculation. Therefore, this method is not sufficient.

The second method utilizes measurement and analytical tools to calculate the relative powers and is the basic method that can be used to determine burnup uncertainty in both the instrumented and un-instrumented assemblies. Currently, the utility industry relies on advanced nodal methods for analysis of relative assembly power distributions. Since nodal methods allow for the calculation of the three dimensional core wide power distributions, assembly burnups can be easily calculated. Therefore, the uncertainty in the burnup records can be determined by comparing the calculated and measured reaction rates at the instrumented locations and using analytical methods and nearby measurements to infer "measurements" in the un-instrumented locations. The basic calculational process is as follows:

- Using trapezoidal integration, axially integrate the pointwise measured reaction rates to produce measured assembly average reaction rates. Axially integrate the pointwise calculated reaction rates to produce calculated assembly average reaction rates.

- Determine the measurement reproducibility (i.e., uncertainty) by comparing all duplicate measurements and using the calculated values as a convenient frame of

reference. These data are used only as a confirmation of the total of measurement uncertainty.

- Convert the measured assembly average reaction rates into measured relative assembly powers using calculated conversion factors to interpret the measurements. From these data, determine the uncertainty in measured and calculated reaction rates.

- Determine the relative assembly power in the un-instrumented assemblies by using the calculated power distribution, the ratio between measured and calculated relative assembly power in the instrumented assemblies and distance weighting. The uncertainty in relative assembly power is the percent difference between measured and calculated relative assembly power.

- Convert and time-integrate the measured and calculated assembly power into measured and calculated burnup. The uncertainty in assembly average burnup is the percent difference between measured and calculated burnup at the end of each cycle.

The statistical evaluation is as follows:

- For all measured and calculated assembly data analyzed, determine the percent difference as calculation minus measurement divided by measurement times 100%.

- Determine the arithmetic mean and standard deviation for the group of assemblies being evaluated. The standard deviation is the measure of data uncertainty at the one-sigma level. The equation is provided in Section 4.

- Determine the one-sided tolerance to provide a 95% probability with a 95% confidence. The equation for the one-sided tolerance is provided in Section 4.

With this as a basic description, to perform the uncertainty evaluation required both neutronic and data analysis codes. The codes were used to determine the reaction rate, relative assembly power and burnup uncertainties. The neutronic codes, CASMO-3[3] and SIMULATE-3[4], calculate relative neutron reaction rates, relative assembly power in three dimensions utilizing nodal methods. The data analysis code INCORE-3[5] utilize the Westinghouse in-core methodology to take the raw detector signals and convert them into reaction rates and relative assembly power with data constants derived from SIMULATE-3. For this project, a set of post-processing codes was developed to compare the results from SIMULATE-3 and INCORE-3. Below are short descriptions of the methodology utilized in these codes.

3.2 CASMO-3/SIMULATE-3 Methodology

CASMO-3 performs burnup calculation on an entire fuel assembly. This code handles geometry consisting of cylindrical fuel rods with varying compositions in a square pitch array. It allows for the modeling of IFBA rods, water gaps, water holes, and control rods. CASMO-3 utilizes multi-group transport theory to calculate the two-dimensional space energy distribution of flux within a lattice. It performs the depletion calculation and produces effective two-group cross sections, homogenized over the assembly. CASMO-3 also generates assembly discontinuity factors for use in SIMULATE-3.

The CASMO-3 model uses 40 neutron energy groups. The base library uses the standard ENDF/B-IV cross section set with some ENDF/B-V fission spectrum updates. It can calculate both gamma and neutron detector responses. In addition to solving the transport equation for fuel assembly lattices, CASMO-3 can also calculate the effective two-group cross sections for the baffle and reflector regions.

SIMULATE-3 is a three-dimensional nodal analysis code, which models the steady state neutronics and thermal-hydraulic behavior of the core. SIMULATE-3 uses the QPANDA6 model, which solves the three-dimensional, two-group neutron diffusion equation. The QPANDA methodology also assumes that the flux distribution is comprised of two pieces: global shapes (homogeneous smooth flux distribution) and local shapes (heterogeneous assembly flux distributions). This assumption allows assembly discontinuity factors to be edited from the same CASMO-3 calculations that produces the two-group cross sections. When used in the QPANDA model, the assembly discontinuity factors alter the neutron currents between nodes, effectively eliminating spatial homogenization differences.

3.2.1 CASMO-3/SIMULATE-3 Model

Cross sections, for use in SIMULATE-3, were generated for each fuel assembly and for the baffle and reflector utilizing CASMO-3. SIMULATE-3 models were constructed for all three cycles. The core was modeled in SIMULATE-3 with four nodes per assembly radially and 24 nodes axially. For each node in the model, SIMULATE-3 calculates relative powers, burnup distributions, and detector reaction rates. The model also has an option for axial reconstruction of the power distributions and reaction rates, allowing for 15 axial sub-divisions per node. Performing this operation allows for a total of 360 calculated axial reaction rates and relative powers.

Each cycle was depleted from beginning of cycle to the end of cycle in steps corresponding to the in-core measurements. At the end of a cycle, a restart file was created. The information contained in the restart files was then shuffled into the next cycle. Depletion of the cycles was performed with a reactivity search utilizing soluble

boron. At each depletion state in which an in-core run was performed, SIMULATE-3 was set up to collect and redirect the calculated detector reaction rates and relative power by node to a summary file for later statistical processing.

3.3 INCORE-3 Methodology

The INCORE-3 code processes information obtained by in-core instrumentation in Westinghouse PWRs and converts the instrument signals into reaction rates. Conversion of the raw detector signals follows the methodology developed by Westinghouse.

Raw detector data is obtained for 61 axial positions from the movable in-core detectors in an instrumented location. INCORE-3 reads the raw detector data, scans for erroneous signals, and performs a validity check on the background levels, detector calibration factors, and duplicate traces. INCORE-3 then corrects the raw data for background levels and relative detector sensitivity and determines measured reaction rates in the instrumented locations. INCORE-3 then computes relative assembly power utilizing the measured reaction rates, the calculated reaction rates and the relative assembly power calculated by SIMULATE-3.

Once the measured relative assembly power for the instrumented location is calculated, the code then uses distance weighting of the data from the nearest instrumented assemblies to determine the relative assembly power for un-instrumented assemblies.

3.3.1 INCORE-3 Model

INCORE-3 was run for all the cases listed in Appendix A. INCORE-3 performed the analysis for 61axial measured signals in each of the instrumented locations. The stored output files were compared with SIMULATE-3 results utilizing the post-processing codes described below. These output files contain reaction rates for the instrumented locations, data to determine detector reproducibility, relative assembly power, cycle burnup, and power level of the reactor.

3.4 Post-Processing Codes

As part of this project, two post-processing codes were developed in FORTRAN to analyze the data from SIMULATE-3 and INCORE-3. The first code called UNCERT, calculates detector reproducibility uncertainty and reaction rate uncertainty. A second code called BURN2D calculates the burnup in each fuel assembly and generates the burnup uncertainty.

3.4.1 UNCERT

The *UNCERT* code is designed to read the INCORE-3 output files that contain the reaction rate and relative assembly power data and the corresponding SIMULATE-3 summary files for each flux map. A normalization is performed on the SIMULATE-3 and INCORE-3 reaction rates separately. From these normalized reaction rates, *UNCERT* calculates relative differences and the mean and standard deviations for the relative differences. *UNCERT* also performs statistical analysis on axial regions of the core. The equations used in the statistical analysis are provided in Section 4. The uncertainty calculated utilizing the reaction rates is representative of the uncertainty in the burnup. The comparison of measured and calculated reaction rates provides a direct comparison of measurement to calculation.

UNCERT checks the INCORE-3 output files for duplicate traces to determine the reproducibility uncertainty. Relative differences are calculated for the duplicate traces, along with the mean and standard deviation for all the duplicate traces. The statistics for the duplicate traces are also generated for axial regions of the core. Figure 3-1 displays a flow chart of the *UNCERT* code.

3.4.2 BURN2D

In order to calculate burnup, it is necessary to determine the relative assembly power. The relative assembly power is defined as the power in a node divided by the volume of the node, over the power of the core divided by the volume of the core. *BURN2D* reads the relative assembly power from the INCORE-3 output files for both measured and SIMULATE-3 values. *BURN2D* also reads the core average burnup for each case.

Using the "measured" and calculated relative assembly power for each assembly and the cycle average burnup, the assembly burnup can be determined. The following equation is utilized to calculate the assembly burnup,

$$BU_i(n) = BU_i(n-1) + \Delta BU * P_i(n) \qquad \text{(eq. 3-1)}$$

where P_i is the relative power in assembly *i*, for step *n*. ΔBU is the change in the cycle average burnup from step *n*-1 to step *n*. The product of the relative assembly power and the change in the cycle average burnup are accumulated for each assembly. From this equation, both the measured and calculated relative assembly power can be utilized to determine measured and calculated assembly burnup values.

The "measured" and calculated assembly burnup values are used to calculate relative differences for each fuel assembly. Statistical analysis is then performed by the *BURN2D* code to determine the mean, standard deviation, and root mean square of the relative differences. A flow chart of the *BURN2D* code is presented in Figure 3-2.

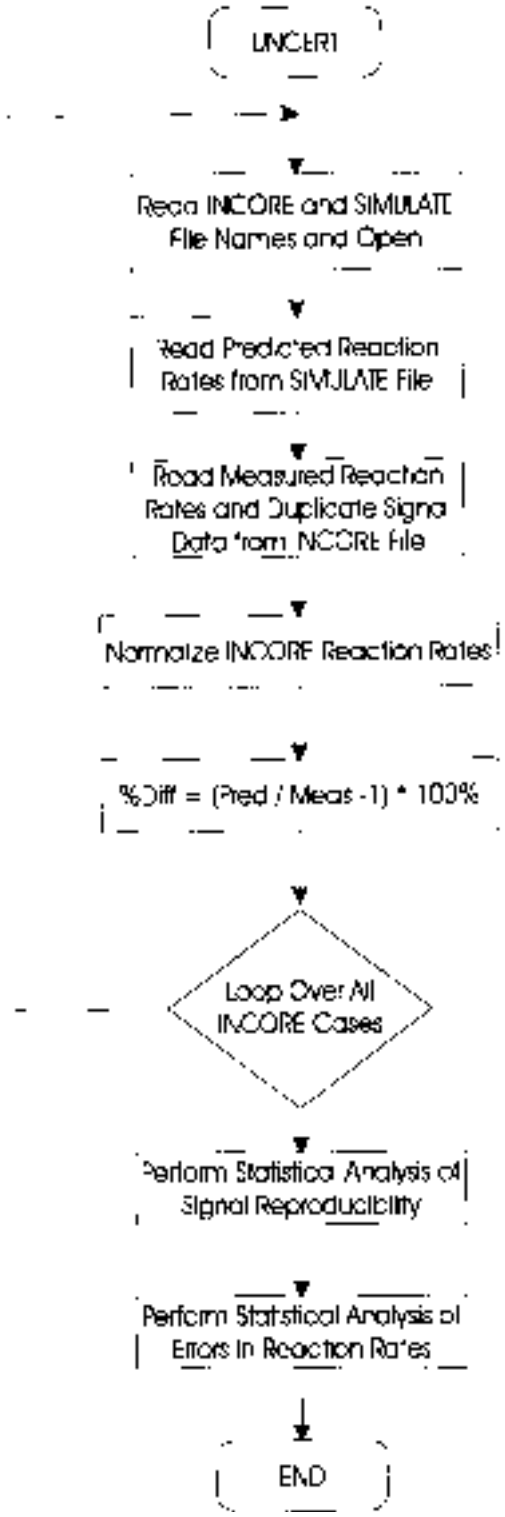

Figure 3-1
Flow Chart of UNCERT

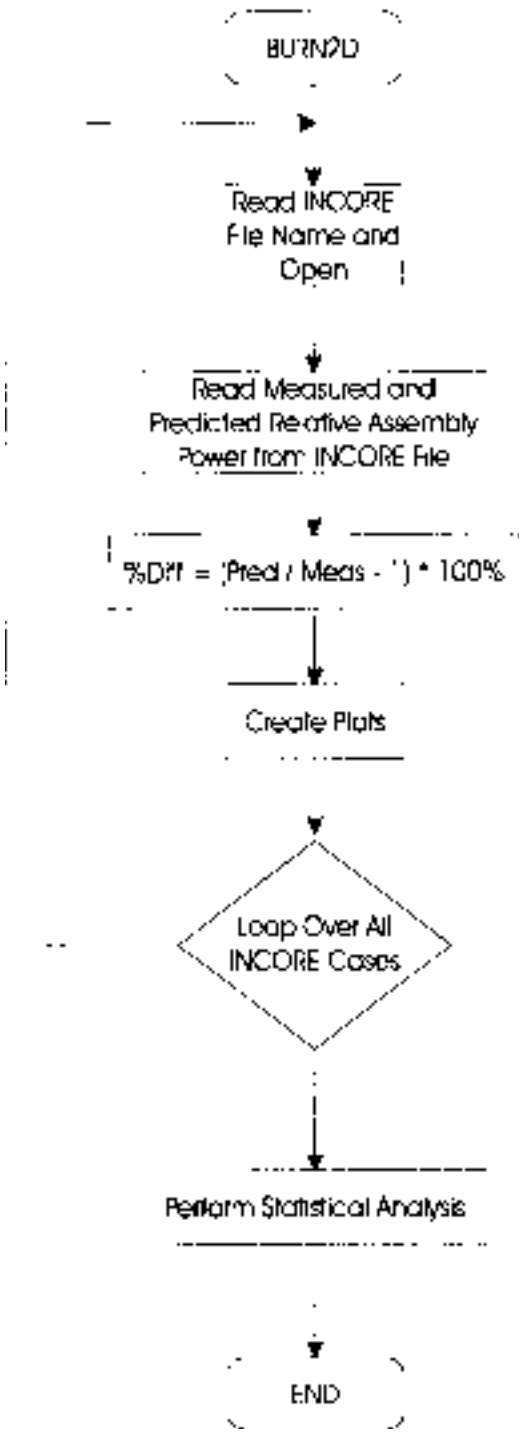

Figure 3-2
Flow Chart of BURN2D

4

RESULTS

4.1 General

This report quantifies the uncertainty associated with the plant burnup records by evaluating the uncertainty associated with the assembly average reaction rates, relative assembly power and assembly average burnup values. It then quantifies the axial uncertainty in the burnup distribution. The axial uncertainty can be used to evaluate the reactivity effects of lower burnup on the ends of the assemblies.

To determine the statistical significance of the uncertainties, the basic statistics utilized in this analysis are presented. The first quantity defined is the percent difference.

$$\text{Percent Difference} = \frac{(\text{Calc.} - \text{Meas.}) * 100\%}{\text{Meas.}} \qquad \text{(eq. 4-1)}$$

The second quantity is the standard deviation. In this report the standard deviation is defined as,

$$\sigma = \sqrt{\frac{\sum_{i-1}^{n} (R_i - M)^2}{n-1}} \qquad \text{(eq. 4-2)}$$

where R_i represents the difference for assembly location *i*, *M* is the arithmetic mean of the difference, and *n* represents the number of assembly locations. When evaluating only measured locations, *n* is 58 (less if there are missing traces) and when evaluating all locations, *n* is 193.

In the case of the burnup records, the area of concern is the over-prediction of burnup. Therefore, a one-sided tolerance provides the appropriate level of probability and confidence required. In this case, a tolerance can be applied to ensure that 95% of the measurements occurs on one side of the normal distribution. Since the distribution is assumed to be normal, the 95% one-sided tolerance can be defined to include 95% of the error distribution. Therefore, the one-sided tolerance is calculated assuming a 95%

confidence interval. Equation 1 shows an approximation for the 95% one-sided tolerance factor (K).[7-8]

$$K = \frac{K_{1-T} + \sqrt{K_{1-T}^2 - ab}}{a} \qquad \text{(eq. 4-3)}$$

where,

$$a = 1 - \frac{K_a^2}{2(n-1)} \qquad b = K_{1-T}^2 - \frac{K_a^2}{n} \qquad \text{(eq. 4-4)}$$

and,

$$K_a = K_{0.05} = 1.645 \qquad K_{1-T} = K_{1-.95} = 1.645 \qquad \text{(eq. 4-5)}$$

n = Number of data points

In this analysis, a 95% confidence is defined as being 95% certain of an interval containing the true mean. The 95% tolerance is defined as an interval that contains at least 95% of the measured points. $K\sigma$ denotes the 95% probability with a 95% confidence level. K represents the tolerance factor determined from the number of data points and s represents the standard deviation of the sample population.

4.2 Movable Detector Reproducibility

The movable detector reproducibility is a measure of the uncertainty associated with repeated measurements of a single detector in a given location. These data provide a confirmation of the total measurement uncertainty. For each in-core flux map performed, a number of duplicate traces are obtained for reproducibility purposes at given thimble locations and at different times during the flux map. The movable detector reproducibility is a good indication of the accuracy of the measured data. In the three cycles of data analyzed, there were 441 pairs of duplicate traces. Since the reaction rate and burnup uncertainties are dependent on the plant measured data, the movable detector reproducibility is presented in conjunction with those uncertainty values of interest.

The code *UNCERT* reads the INCORE-3 output files and checks for duplicate traces. For each set of duplicate traces, *UNCERT* calculates the difference in reaction rates between the duplicate traces, the mean of the differences, the standard deviation and root mean square. The statistical information is then transferred to an *UNCERT* generated output file. Table 4-1 is a listing of the *UNCERT* detector reproducibility results.

Table 4-1
Detector Reproducibility Uncertainty

Duplicate Traces	Mean	Standard Deviation	RMS Error
441	-0.147%	0.748%	0.761%

4.3 Uncertainty in Instrumented Locations

This section quantifies the uncertainty associated with the instrumented locations only. The approach is to quantify the uncertainty associated with the measured reaction rates. These data provide a direct comparison between measurement and calculation prior to conversion to relative assembly power.

To calculate the uncertainty for the assembly average reaction rates, the measured and calculated reaction rates for each of the instrumented locations are utilized. The difference between the measured and calculated values is determined. This process is performed by *UNCERT* using the output files from INCORE-3 and SIMULATE-3 for the three cycles of in-core flux maps. The mean and standard deviations are then computed from the differences. Since SIMULATE-3 was run at the measured core power level, any uncertainty in core power level will be included implicitly in the error of the reaction rates. Appendix B presents the normalized assembly average reaction rates for all the in-core runs. If no data was measured for a detector location, a zero is presented in the figures in Appendix B. These detector locations were also excluded from the statistical analysis.

Table 4-2 presents the results obtained from the *UNCERT* code for the uncertainty in assembly average reaction rate. The first column of data in Table 4-2 contains the number of traces utilized in determining the standard deviation (σ). For this calculation, the number of traces is equal to the number of instrumented locations times the number of in-core flux maps, minus the number of instrumented locations not measured. The next column contains the mean of the measured reaction rates. The one-sided tolerance factor, *K*, is calculated by Equation 1 using the number of traces. The standard deviation for an infinite set of data (σ_∞) is approximated by,

$$\sigma_\infty = \frac{K\sigma}{K_\infty} = \frac{K\sigma}{1.645} \qquad \text{(eq. 4-6)}$$

The final column contains the $K\sigma$ or the uncertainty with a 95% probability and a 95% confidence level.

The total uncertainty is determined to be 2.21%. This uncertainty implicitly contains the detector reproducibility error in the measured data. These values indicate uncertainty between calculation and measurement prior to conversion to relative power and then to burnup.

Table 4-2
Uncertainty in the Assembly Average Reaction Rates

Description	Number of Traces	Mean	σ	K	σ_4	Kσ
Movable Detector Reproducibility	441	-0.147%	0.748%	1.771	0.805%	1.325%
Uncertainty in Average Reaction Rate	2127	0.082%	1.300%	1.701	1.344%	2.211%

4.4 Uncertainty in Relative Assembly Power

The previous section is concerned with the instrumented locations only. However, the burnup of all assemblies in the core is required for the plant records. To determine the burnup requires knowledge of the relative assembly power distribution. INCORE-3 determines the relative assembly power in the un-instrumented assemblies by using the calculated power distribution, the ratio between measured and calculated relative assembly power in the instrumented assemblies and distance weighting.

To analyze for the uncertainty in the relative assembly power, the *BURN2D* code is used. The output files from INCORE-3 contain both measured and SIMULATE-3 calculated relative assembly power for every location in the core. The *BURN2D* code calculates the differences in relative assembly power for each assembly and for each in-core flux map. Appendix C presents the full core "measured" and calculated relative assembly power for each in-core flux map. From the data in Appendix C, the mean, standard deviation and root mean square of the differences are then calculated for all assemblies in the core. The analysis assumes that all the data is statistically independent. The analysis also assumed equal weight for each flux map.

Table 4-3 presents the statistics for the uncertainty in the assembly average power utilizing all the assemblies in the core. In Table 4-3, the number of samples for the uncertainty in the average assembly burnup is calculated by taking the 38 in-core flux maps times the 193 assemblies in the core. The assembly average power uncertainty of 1.79% is nearly equal to the uncertainty in the reaction rates obtained for the instrumented locations (2.2%). The similarity in the numbers is indicative of the robustness of the distance weighting method to generate "measured" values in un-instrumented locations. In addition the accuracy of modern nodal codes to calculate the power distribution and hence the burnup distribution is evident.

Table 4-3
Uncertainty in Assembly Average Power for all Locations

Description	Number of Traces	Mean	σ	K	σ_4	Kσ
Movable Detector Reproducibility	441	-0.147%	0.748%	1.771	0.805%	1.325%
Uncertainty in Average Reaction Rate	7334	0.016%	1.069%	1.675	1.088%	1.791%

4.5 Assembly Burnup by Cycle

The three initial cycles of core operations, which are the basis for this analysis, cover the startup cycle, a transition cycle, and a near-equilibrium cycle. At the end of each cycle approximately 1/3 of the fuel assemblies in the core are discharged. The remaining fuel is rearranged within the core, and the empty locations are filled with the new assemblies to make up the fuel loading for the next cycle. There is no requirement that assemblies from instrumented locations in one cycle be repositioned into instrumented locations in the next cycle. Since only about 30% of core locations are instrumented, an average of about 30% of the assemblies in each loading will be instrumented in any one cycle. In general, for fuel assemblies that are in the core for three cycles, approximately 34% of the assemblies have never been located in an instrumented location. Of the remaining assemblies, 44% were instrumented during one of the cycles, 19% were instrumented for two of the cycles and only 3% were instrumented for all three cycles.

From the perspective of burnup uncertainty, only a small quantity of measured data is available for fuel assemblies that have been instrumented in-core for multiple cycles. The approach that has been taken in this work is to characterize individual assembly discharge burnup and their uncertainties by discharge batch and by cycles of residence time. In addition, because the measured data in the instrumented locations is use to calculate "measured" data in the un-instrumented locations, it is possible also to simply add both the calculated and the "measured" burnup increments from cycle to cycle and obtain the calculated and "measured" discharge burnup. These differences are used as the measure of burnup uncertainty. An alternative that was not used in this work would be to add the burnup uncertainty in each time step, in quadrature. Appendix D contains the three end-of-cycle burnup maps used to determine the discharge burnup uncertainty.

Table 4-4 provides the results of the foregoing evaluation of the mean burnup uncertainty of individual fuel assemblies as a function of the number of in-core cycles. The data was not weighted for different cycle lengths, all data was given equal weight. As expected, these data show that the uncertainty in assembly average burnup decreases as the in-core residence time increases.

Table 4-4
Burnup Uncertainty of Discharged Assemblies

Description	Number of Traces	Mean	σ	K	σ_4	Kσ
Discharged at End of Cycle 1	60	-0.077%	0.941%	2.017	1.154%	1.898%
Discharged at End of Cycle 2	76	-0.176%	0.496%	1.970	0.594%	0.977%
Discharged at End of Cycle 3	57	0.207%	0.504%	2.028	0.621%	1.022%

For comparison, assemblies that have both one and two cycles of burnup, regardless of discharge, can also be evaluated. There are 329 assemblies with one cycle of burnup, 193 in Cycle 1, 60 in Cycle 2 and 76 in Cycle 3. There are 193 assemblies with two cycles of burnup, 133 in Cycle 2 and 60 in Cycle 3. Those assemblies with three cycles of burnup were discharged at the end of Cycle 3 and are presented above. Table 4-5 provides the burnup uncertainty for all fuel assemblies with one and two cycles of burnup.

Table 4-5
Burnup Uncertainty for Assemblies Receiving One and Two Cycles of Burnup

Description	Number of Traces	Mean	σ	K	σ_4	Kσ
Once Burned Fuel	329	0.028%	0.843%	1.792	0.918%	1.511%
Twice Burned Fuel	193	0.064%	0.614%	1.840	0.687%	1.130%

4.6 Axial Uncertainty

The axial distribution of burnup uncertainty is determined to allow for the evaluation of reactivity effects in the ends of the assemblies[9]. This section examines axial uncertainty in reaction rates in the 58 instrumented locations. The axial distribution of the core is divided into the top 20%, middle 60% and bottom 20%. The axial detector reproducibility and the reaction rate uncertainties are provided.

The uncertainty for the top 20% of the core is calculated by trapezoidal integration of the first 13 axial detector measurements for all the instrumented locations and calculating the average reaction rate. The difference between SIMULATE-3 and

INCORE-3 region average reaction rate and standard deviation is calculated for all of the in-core flux maps using the *UNCERT* code. The reproducibility is determined in the same manner. Table 4-6 presents the uncertainty for the top 20% of the core. The reaction rate uncertainty is 6.14% in this region of the core. The higher uncertainty is due to the shape of the flux and the positioning of the detector.

In the calculation of the uncertainty for the middle 60% of the core, the INCORE-3 reaction rates for axial locations 13 through 49 are integrated and compared to the corresponding region averaged SIMULATE-3 reaction rates for all in-core flux maps. Table 4-7 presents the uncertainty for the middle 60% of the core where the uncertainty in reaction rate for the three cycles is 2.50%. As expected, the uncertainty is lower in the middle of the core.

In the calculation of the uncertainties for the bottom 20% of the core, detector measurements 49 through 61 are integrated. The uncertainty for the bottom 20% of the core is presented in Table 4-8. In the bottom of the core, the detector reproducibility has nearly the same performance as the top 20% of the core. The uncertainty in reaction rates for this region is 6.68% and is similar to the top 20%.

The low uncertainty in the reproducibility provides confidence in both the measurement and calculation. As shown earlier, the uncertainty in reaction rate is indicative of the uncertainty in burnup; therefore, the burnup uncertainty by axial region was not calculated.

Table 4-6
Axial Reaction Rate Uncertainty for the Top 20% of the Core

Description	Number of Traces	Mean	σ	K	σ_4	Kσ
Movable Detector Reproducibility in the Top 20%	441	-0.232%	1.304%	1.771	1.404%	2.309%
Reaction Rate Uncertainty in the Top 20%	2127	-3.095%	3.610%	1.701	3.733%	6.141%

Table 4-7
Axial Reaction Rate Uncertainty for the Middle 60% of the Core

Description	Number of Traces	Mean	σ	K	σ_4	Kσ
Movable Detector Reproducibility in the Middle 60%	441	-0.142%	0.726%	1.771	0.782%	1.286%
Reaction Rate Uncertainty in the Middle 60%	2127	0.017%	1.468%	1.701	1.518%	2.497%

Table 4-8
Axial Reaction Rate Uncertainty for the Bottom 20% of the Core

Description	Number of Traces	Mean	σ	K	σ_4	Kσ
Movable Detector Reproducibility in the Bottom 20%	441	-0.060%	1.210%	1.771	1.303%	2.143%
Reaction Rate Uncertainty in the Bottom 20%	2127	3.254%	3.925%	1.701	4.059%	6.676%

5

CONCLUSION

This report evaluated the uncertainty associated with the reactor burnup records. Three separate sets of results were used to characterize the burnup uncertainty: uncertainty in reaction rates, uncertainty in relative assembly power and axial variability in uncertainty.

In this study, the assembly average reaction rate uncertainty in the instrumented locations is found to be 2.21%. The use of reaction rate provides a direct comparison between measurement and calculation in the instrumented locations prior to the conversion to relative assembly power and subsequently burnup. The use of the instrumented locations eliminates any uncertainty associated with the generation of data for un-instrumented locations using distance weighting from nearest neighbors. When converted to relative assembly power, the uncertainty is 1.79%. The closeness of the values provides confidence in the conversion to relative assembly power and eventually burnup. The magnitude of this value is indicative of the accuracy of the distance weighting technique and the accuracy of the advance nodal codes for predicting assembly power and ultimately burnup. The uncertainty in burnup evaluated over three cycles of operation demonstrates a decrease in uncertainty with an increase in residence time or burnup. For assemblies discharged after one cycle of burnup, the uncertainty is 1.90%, after two cycles of burnup, the uncertainty is 0.97% and after three cycle of burnup is 1.02%. This decrease in uncertainty after two cycles of burnup is indicative of the self-correcting nature of burnup.

Since transportation and storage are concerned with end effects, an evaluation of the axial distribution of the uncertainty was performed in the instrumented locations. In this analysis, 6.14 and 6.68% uncertainty is obtained at the top and bottom ends of the assemblies, respectively. The axial distribution of uncertainty and calculated axial profiles[10] provide a basis to determine the magnitude of the end effects.

This project was focused on movable in-core detector measurements where measurements can be obtained along the complete axial profile. A further study should be performed for plants utilizing fixed in-core detectors to determine the uncertainty associated with the burnup records generated in this manner.

6

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A

MEASURED DATA

The tables in this Appendix present the conditions at the time of the measurement. The first column provides the name of the flux map file with the CY indicating the cycle number. The second column provides the rated core power in%, where 100% is 3411 MWt. The third column provides the cycle average burnup in MWD/MTU. The fourth column provides the position of control bank D in steps, where 226 steps is fully withdrawn. The final column provides the boron concentration in ppm, where N/A indicates the value was not available.

Table A-1
Cycle 1 In-Core Measurements

Flux Map Data File	Rated Core Power (Percent)	Burnup (MWD/MTU)	Bank D Control Position	Soluble Boron Concentration (ppm)
CY1-FM01	78.00	470.0	191	N/A
CY1-FM02	90.00	626.0	200	N/A
CY1-FM03	100.00	913.0	212	N/A
CY1-FM04	100.00	1935.0	204	727
CY1-FM05	93.00	2953.0	203	727
CY1-FM06	100.00	3463.0	213	697
CY1-FM07	100.00	4369.0	221	642
CY1-FM08	100.00	4852.0	228	599
CY1-FM09	100.00	5998.0	220	519
CY1-FM10	100.00	7216.0	228	440
CY1-FM11	100.00	8234.0	228	359
CY1-FM12	100.00	9270.0	223	288
CY1-FM13	100.00	10566.0	223	189
CY1-FM14	100.00	11577.0	220	100
CY1-FM15	100.00	12714.0	226	14

Table A-2
Cycle 2 In-Core Measurements

Flux Map Data File	Rated Core Power (Percent)	Burnup (MWD/MTU)	Bank D Control Position	Soluble Boron Concentration (ppm)
CY2-FM01	100.00	420.3	192	838
CY2-FM02	99.90	690.4	216	829
CY2-FM03	99.90	1720.0	228	807
CY2-FM04	99.90	2974.4	221	752
CY2-FM05	100.00	4000.0	228	683
CY2-FM06	100.00	5110.0	226	603
CY2-FM07	100.00	6175.0	228	523
CY2-FM08	100.00	7471.0	226	410
CY2-FM09	100.00	8543.6	228	314
CY2-FM10	100.00	9840.5	230	190
CY2-FM11	100.00	11059.7	226	77

Table A-3
Cycle 3 In-Core Measurements

Flux Map Data File	Rated Core Power (Percent)	Burnup (MWD/MTU)	Bank D Control Position	Soluble Boron Concentration (ppm)
CY3-FM01	99.96	277.6	214	1020
CY3-FM02	99.98	1099.0	230	1047
CY3-FM03	100.00	2206.8	229	1070
CY3-FM04	100.00	3189.0	227	1055
CY3-FM05	100.00	4259.4	226	1022
CY3-FM06	100.00	5402.0	225	976
CY3-FM07	100.00	6577.5	225	894
CY3-FM08	100.00	7649.0	226	827
CY3-FM09	100.00	8909.9	227	727
CY3-FM10	100.00	9881.0	229	644
CY3-FM11	100.00	11211.2	231	N/A
CY3-FM12	100.00	13200.0	230	336

B

MEASURED AND SIMULATE-3 ASSEMBLY AVERAGE REACTION RATE VALUES FOR INSTRUMENTED LOCATIONS

The figures in this Appendix present the measured and calculated assembly average reaction rate values for the instrumented locations. The measured and calculated reaction rates have been normalized to the same value. The reaction rates in these figures were used to determine the reaction rate uncertainty in the instrumented locations. The header on each figure indicates the flux map number and burnup corresponding to the tables in Appendix A.

FLUX MAP: CY1-FM01
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 470.0 MWD/MTU

					0.635 0.654 2.888			0.619 0.622 0.563					
		0.524 0.525 0.097			1.177 1.185 0.616		1.157 1.145 -0.977						
							0.932 0.952 2.182		1.110 1.112 0.174		0.752 0.765 1.802		0.523 0.525 -0.661
	0.721 0.728 0.874	0.748 0.765 2.193					1.390 1.378 -1.559						
				1.349 1.345 -0.324				1.419 1.408 -0.774		1.386 1.345 -1.524		1.267 1.238 -2.298		
0.606 0.622 2.644		1.110 1.112 0.118			1.436 1.437 -2.046		1.405 1.382 -1.743						1.183 1.183 0.030	
			1.007 1.019 1.181			1.340 1.343 0.209			1.026 1.035 0.875			1.318 1.296 -1.672		
0.621 0.637 2.609		0.929 0.952 2.468		1.032 1.044 1.193		0.930 0.947 1.848			1.413 1.382 -2.238		1.391 1.376 -0.981	0.934 0.952 2.015	1.147 1.145 -0.134	
	0.679 0.698 2.703							1.360 1.343 -1.212		1.419 1.408 -0.831				0.639 0.654 2.214
				1.019 1.029 0.937		1.027 1.035 0.772					1.381 1.349 -2.299			
0.509 0.521 2.404				1.356 1.345 -0.796			1.024 1.044 1.973			1.374 1.345 -2.120				0.528 0.521 -1.350
					1.360 1.343 -1.393			1.001 1.019 1.760			1.058 1.046 -1.137			
		0.781 0.771 1.401		1.242 1.238 -0.320			0.940 0.952 1.333						0.524 0.525 0.161	
		0.525 0.525 -0.135				0.680 0.698 2.839			1.198 1.183 -1.204		0.728 0.728 0.244			
				0.507 0.521 2.850			0.621 0.637 2.567				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-1
Flux Map: CY1-FM01, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY1-FM02
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 626.0 MWD/MTU

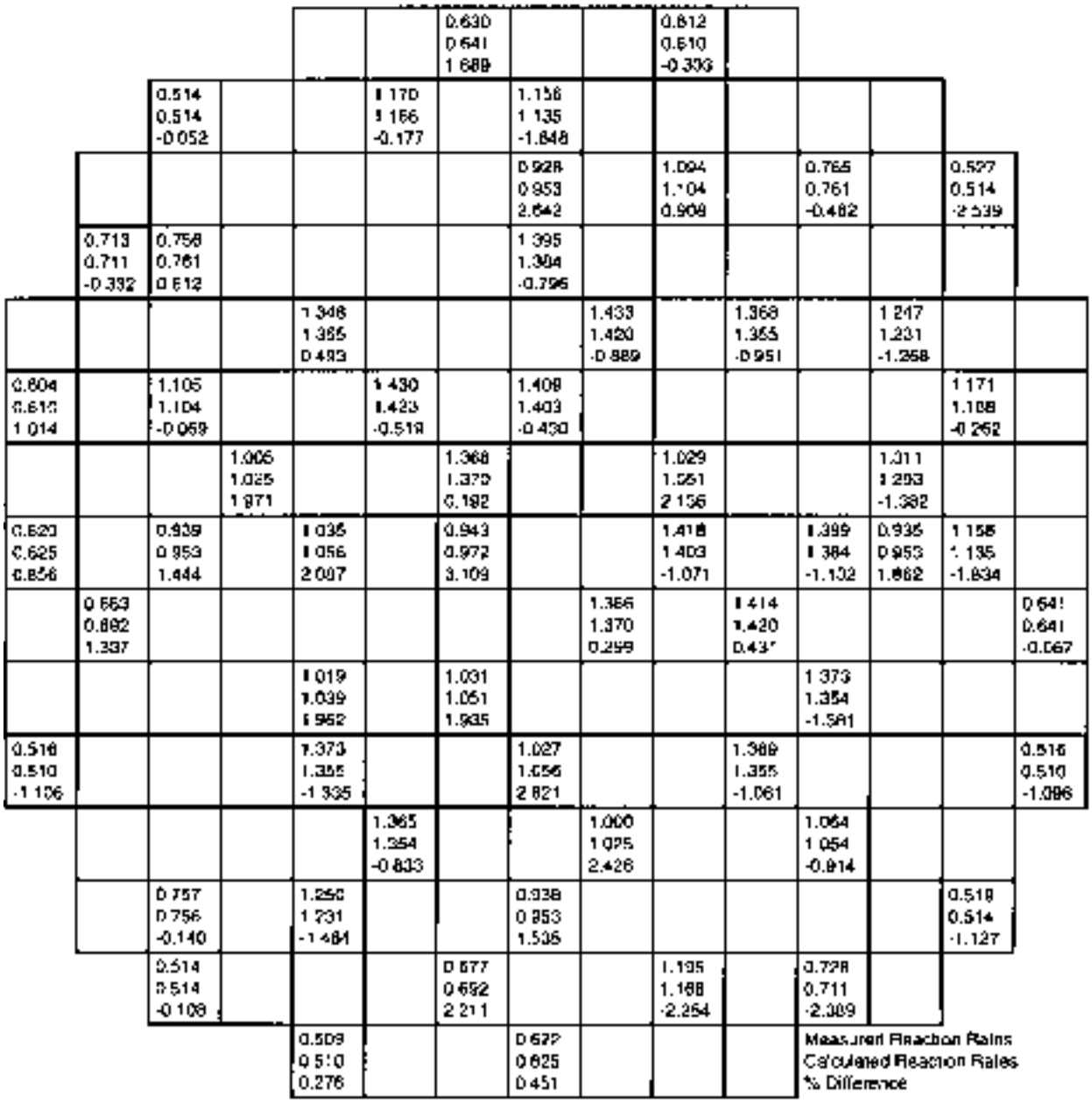

Figure B-2
Flux Map: CY1-FM02, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY1-FM03
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 913.0 MWD/MTU

					0.627 0.634 1.089			0.603 0.602 -0.070						
		0.507 0.507 -0.026			1.159 1.155 -0.276		1.143 1.126 -1.300							
							0.924 0.956 3.432		1.038 1.099 0.117		0.760 0.784 3.539		0.519 0.507 -2.258	
	0.701 0.701 -0.016	0.758 0.784 0.791					1.400 1.383 -1.249							
				1.349 1.359 0.730				1.434 1.423 -0.743		1.389 1.359 -2.155		1.258 1.228 -2.525		
0.586 0.602 1.052		1.101 1.099 -0.157			1.430 1.428 -0.146		1.414 1.413 -0.073						1.148 1.155 0.513	
			1.014 1.030 1.630			1.386 1.386 0.016			1.048 1.064 1.725			1.307 1.268 -1.423		
0.615 0.619 0.635		0.935 0.956 2.185		1.047 1.065 1.743		0.989 0.995 2.718			1.415 1.413 -0.136		1.293 1.363 5.196	0.938 0.958 1.917	1.154 1.128 -2.268	
	0.679 0.692 1.833							1.389 1.368 -0.975		1.412 1.420 0.603				0.852 0.834 0.256
				1.029 1.048 1.817		1.045 1.064 1.753					1.377 1.354 -1.674			
0.505 0.503 -0.312				1.372 1.359 -0.961			1.038 1.065 2.588			1.380 1.359 -1.527				0.510 0.503 -1.401
					1.386 1.354 -0.919			1.007 1.030 2.349			1.073 1.056 -0.658			
		0.747 0.748 0.206		1.242 1.226 -1.263			0.941 0.956 1.620						0.515 0.507 -1.637	
		0.504 0.507 0.603				0.692 0.697 1.510			1.176 1.155 -1.755		0.715 0.730 2.002			
				0.501 0.503 0.502			0.611 0.619 1.291				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-3
Flux Map: CY1-FM03, Measured and Calculated Assembly Average Reaction Rates

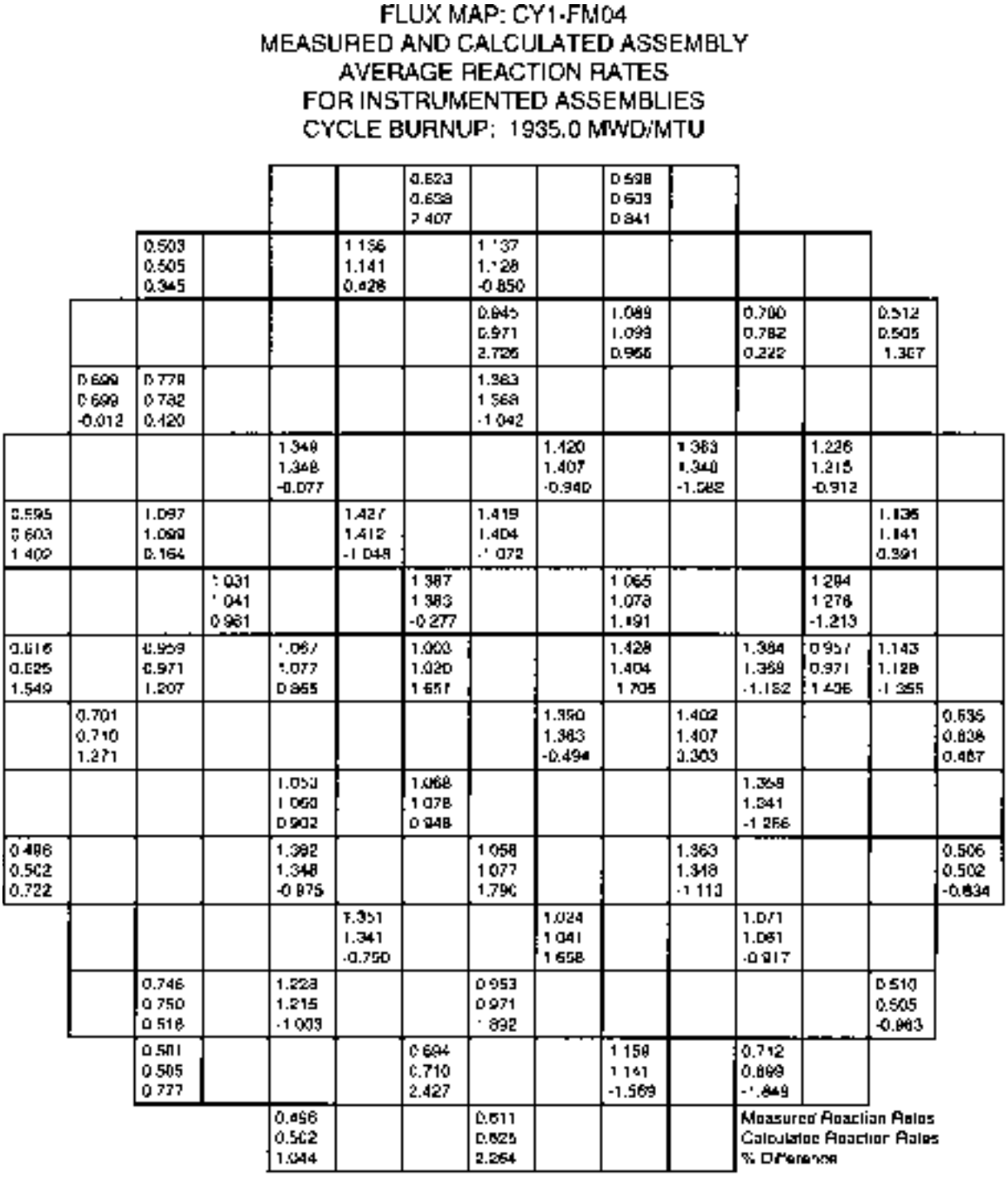

Figure B-4
Flux Map: CY1-FM04, Measured and Calculated Assembly Average Reaction Rates

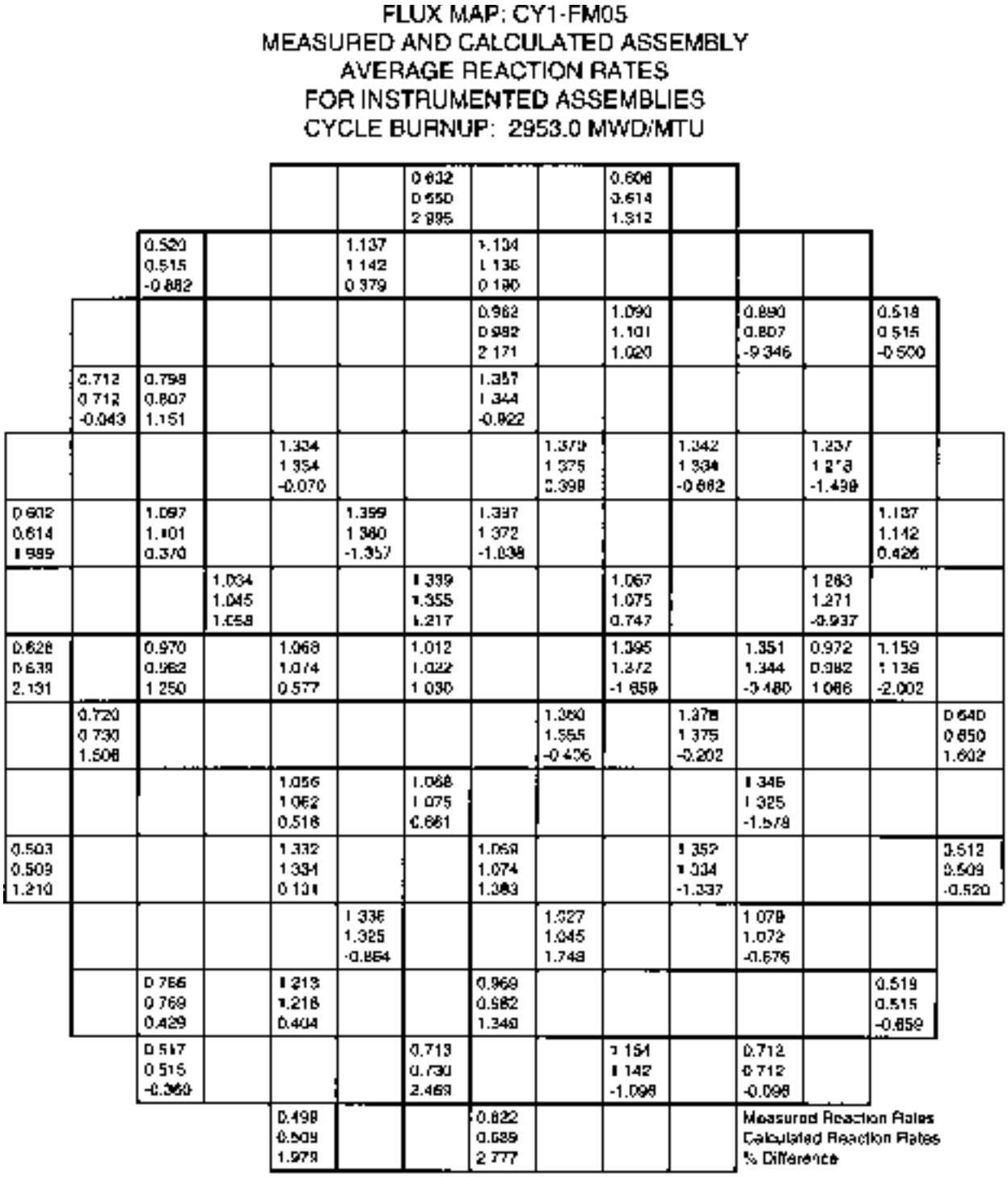

Figure B-5
Flux Map: CY1-FM05, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY1-FM06
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 3463.0 MWD/MTU

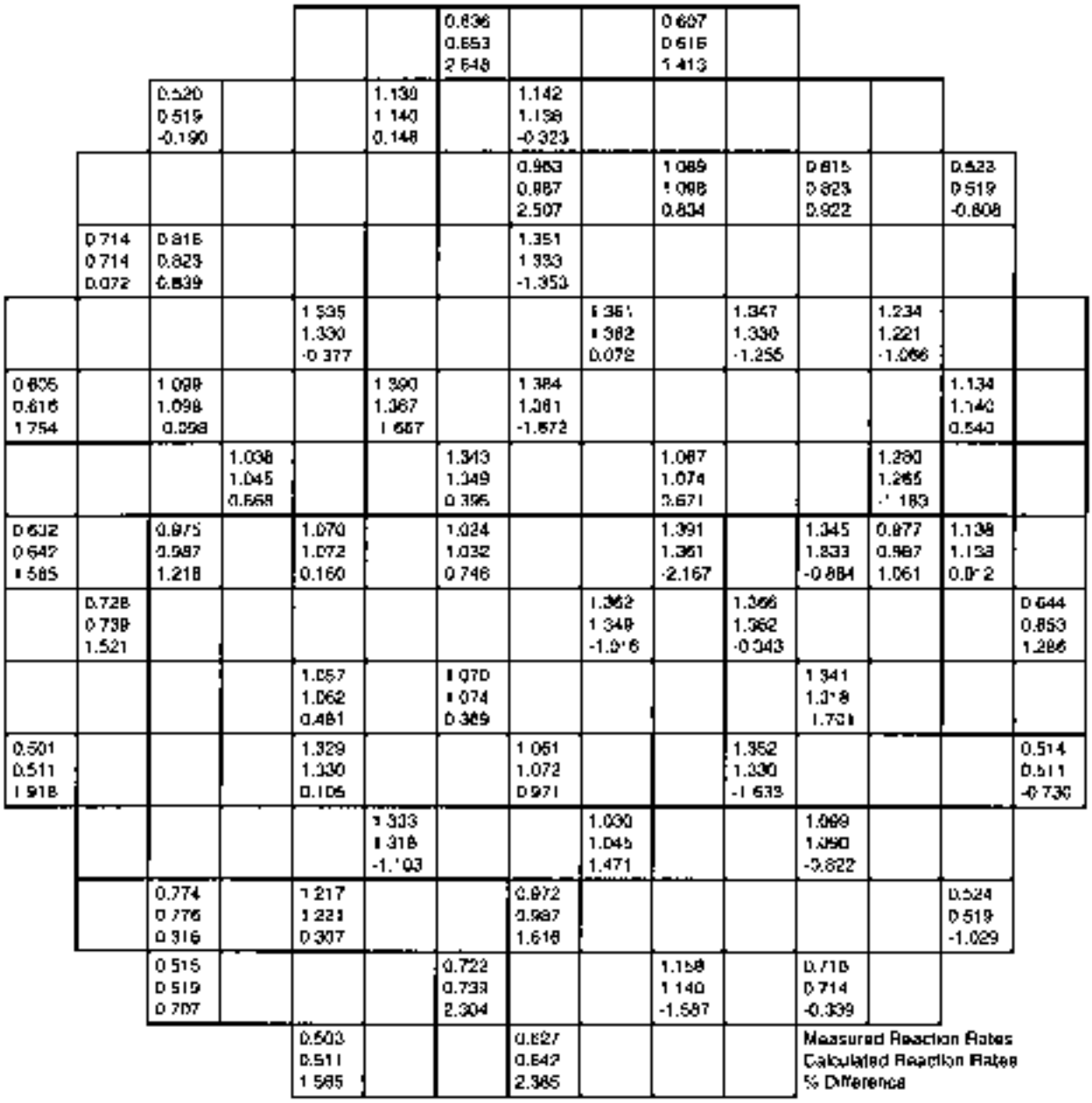

Figure B-6
Flux Map: CY1-FM06, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY1-FM07
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 4369.0 MWD/MTU

					0.639 0.660 3.200			0.631 0.622 1.743					
		0.527 0.527 0.108			1.137 1.141 0.355		1.141 1.143 0.173						
							0.975 0.993 1.927		1.067 1.099 1.152		0.840 0.849 1.064		0.526 0.527 -0.213
	0.724 0.723 -0.184	0.838 0.849 1.273					1.332 1.316 -1.179						
				1.301 1.322 -0.737				1.334 1.340 0.412		1.336 1.322 -1.107		1.246 1.225 -1.693		
0.611 0.627 1.727		1.098 1.099 0.100			1.371 1.345 -1.892		1.369 1.339 -2.202						1.134 1.141 0.588	
			1.041 1.044 0.314			1.323 1.339 0.538			1.066 1.066 0.155			1.273 1.259 -1.111		
0.638 0.849 1.856		0.987 0.983 1.128		1.057 1.065 -0.171		1.033 1.033 0.008			1.369 1.339 2.190		1.326 1.316 0.748	0.984 0.993 0.970	1.149 1.143 -0.481	
	0.741 0.754 1.875							1.344 1.330 -1.057		1.348 1.340 -0.647				0.659 0.660 1.500
				1.060 1.060 0.029		1.068 1.069 -0.052					1.329 1.307 -1.612			
0.502 0.515 2.755				1.319 1.322 0.218			1.058 1.065 0.634			1.343 1.322 -1.800				0.517 0.515 0.377
					1.321 1.307 -1.041			1.030 1.044 1.352			1.121 1.110 1.305			
		0.799 0.798 0.198		1.216 1.225 0.677			0.979 0.983 1.519						0.532 0.527 -0.957	
		0.521 0.527 1.230				0.756 0.754 2.584			1.155 1.141 -1.243		0.724 0.723 -0.205			
				0.505 0.515 2.054			0.632 0.649 2.751				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-7
Flux Map: CY1-FM07, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY1-FM08
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 4852.0 MWD/MTU

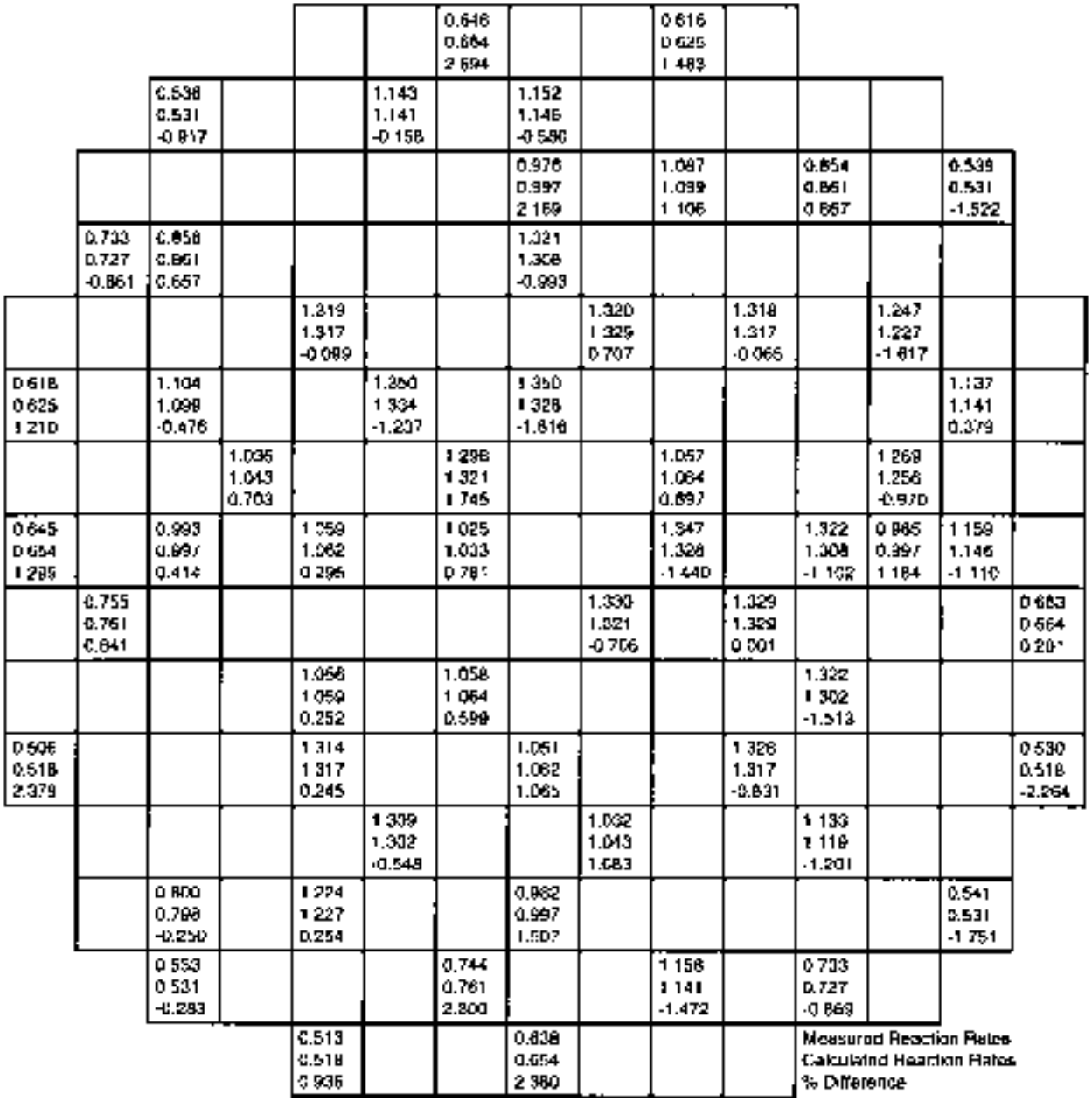

Figure B-8
Flux Map: CY1-FM08, Measured and Calculated Assembly Average Reaction Rates

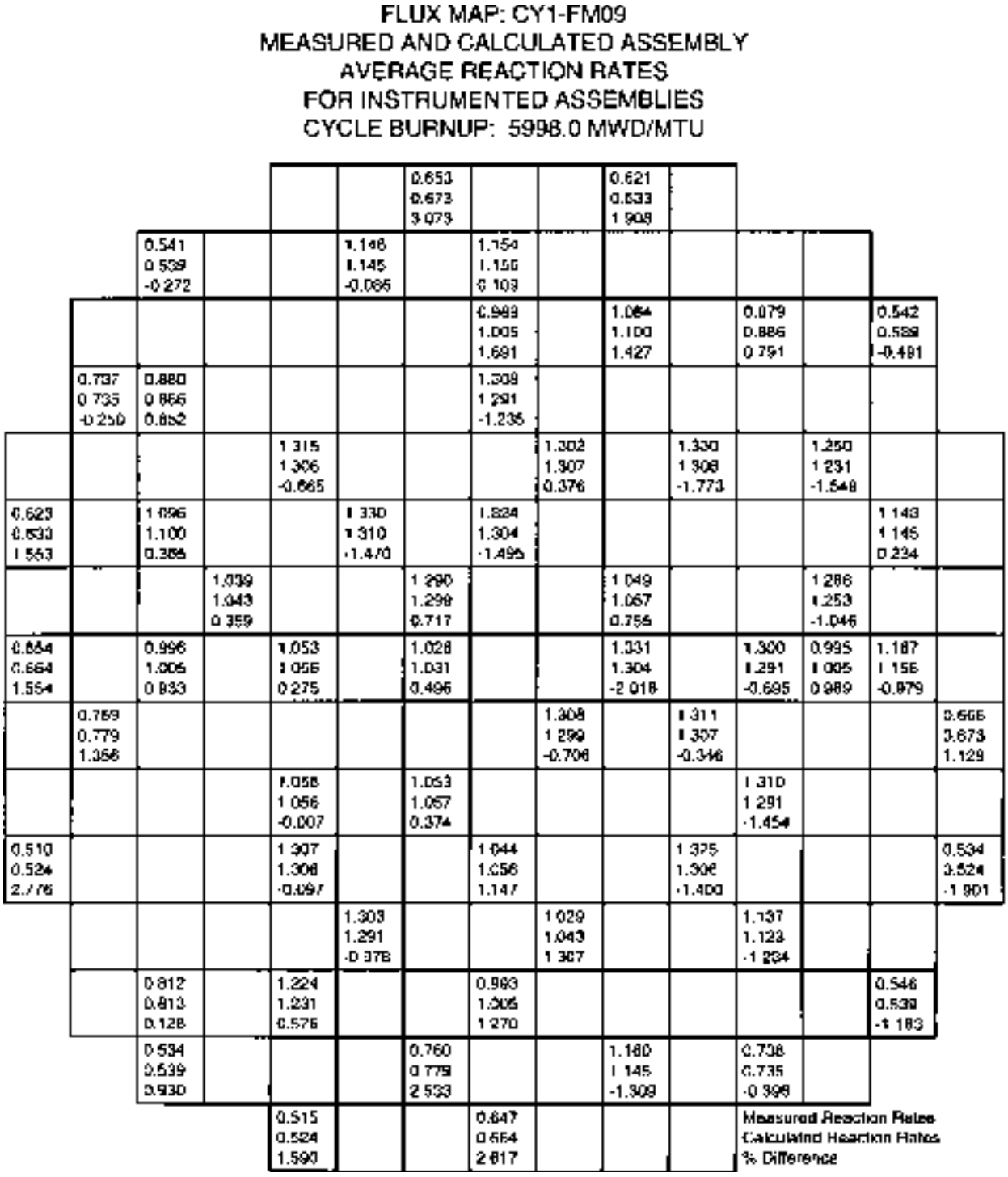

Figure B-9
Flux Map: CY1-FM09, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY1-FM10
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 7216.0 MWD/MTU

						0.663 0.682 2.859			0.627 0.640 1.999					
		0.553 0.547 -1.017			1.146 1.149 0.052		1.165 1.164 -0.146							
							0.991 1.013 2.264		1.081 1.099 1.569		0.805 0.812 0.775		0.547 0.547 0.113	
	0.744 0.744 0.034	0.909 0.912 0.363					1.287 1.275 -0.931							
				1.301 1.256 -0.616				1.292 1.284 -0.630		1.319 1.296 -1.797		1.255 1.236 -1.488		
0.629 0.643 1.665		1.093 1.098 0.462			1.303 1.287 -1.247		1.302 1.281 -1.655						1.142 1.149 0.620	
			1.035 1.041 0.506			1.295 1.278 -0.578			1.041 1.049 0.707			1.259 1.246 -0.845		
0.663 0.673 1.527		1.002 1.013 1.043		1.046 1.046 0.205		1.024 1.029 0.439			1.301 1.281 -1.584		1.284 1.275 -0.683	1.003 1.013 0.971	1.175 1.184 -0.960	
	0.764 0.796 1.565							1.297 1.278 -1.515		1.287 1.284 -0.211				0.672 0.682 1.512
				1.049 1.052 0.293		1.044 1.043 0.489					1.295 1.280 -1.165			
0.513 0.529 3.003				1.298 1.290 -0.656			1.039 1.048 0.864			1.312 1.295 -1.239				0.537 0.529 -1.592
					1.290 1.280 -0.801			1.027 1.041 1.442			1.148 1.138 -0.822			
		0.828 0.828 0.070		1.246 1.236 -0.757			0.957 1.013 1.580						0.554 0.547 -1.230	
		0.545 0.547 0.411				0.779 0.796 2.199			1.152 1.149 -1.105		0.747 0.744 -0.359			
				0.519 0.529 1.984			0.654 0.673 2.874				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-10
Flux Map: CY1-FM10, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY1-FM11
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 8234.0 MWD/MTU

					0.669 0.689 2.995			0.632 0.648 2.242						
		0.562 0.554 0.201			1.162 1.153 -0.752		1.173 1.172 -0.074							
							1.003 1.019 1.600		1.076 1.100 2.236		0.927 0.933 0.649		0.563 0.554 0.131	
	0.753 0.750 -0.415	0.927 0.933 0.633					1.274 1.263 -0.853							
				1.305 1.287 -1.448				1.274 1.258 -0.466		1.305 1.287 -1.402		1.254 1.239 -1.228		
0.634 0.646 1.800		1.095 1.100 0.449			1.282 1.269 -0.951		1.287 1.253 -1.693						1.156 1.153 -0.260	
			1.034 1.040 0.587			1.262 1.251 -0.880			1.032 1.041 0.861			1.257 1.245 -0.809		
0.669 0.680 1.681		1.008 1.019 1.089		1.038 1.042 0.362		1.020 1.025 0.451			1.283 1.263 -1.594		1.271 1.263 -0.653	1.010 1.019 0.845	1.185 1.172 -1.149	
	0.799 0.811 1.445							1.276 1.261 -1.207		1.279 1.268 -0.871				0.680 0.689 1.244
				1.047 1.048 0.122		1.034 1.041 0.712					1.285 1.270 -1.160			
0.516 0.533 3.407				1.285 1.287 0.114			1.029 1.042 1.338			1.302 1.287 -1.228				0.545 0.533 -2.112
					1.277 1.270 -0.552			1.023 1.040 1.665			1.170 1.146 -2.040			
		0.838 0.840 0.236		1.246 1.239 -0.598			1.001 1.019 1.796						0.563 0.554 -1.577	
		0.550 0.554 0.626				0.791 0.811 2.557			1.166 1.153 -1.164		0.753 0.750 -0.394			
				0.521 0.533 2.349			0.863 0.880 2.603				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-11
Flux Map: CY1-FM11, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY1-FM12
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 9270.0 MWD/MTU

						0.677 0.696 2.774			0.636 0.651 2.090					
		0.564 0.558 -1.062			1.150 1.157 0.578		1.176 1.179 0.067							
							1.006 1.024 1.746		1.078 1.102 2.231		0.942 0.949 0.787		0.558 0.558 0.048	
	0.755 0.756 0.127	0.950 0.949 -0.060					1.251 1.254 -0.609							
				1.295 1.278 -1.311				1.259 1.254 -0.418		1.292 1.278 -1.098		1.258 1.241 -1.368		
0.642 0.651 1.353		1.097 1.102 0.459			1.272 1.255 -1.345		1.267 1.246 -1.497						1.156 1.157 0.077	
			1.034 1.038 0.393			1.256 1.247 -0.758			1.025 1.034 0.908			1.256 1.245 -0.902		
0.677 0.697 1.611		1.015 1.024 0.846		1.034 1.036 0.210		1.017 1.021 0.371			1.268 1.240 -1.604		1.265 1.254 -0.948	1.017 1.024 0.668	1.169 1.179 -0.801	
	0.809 0.824 1.898							1.264 1.247 -1.363		1.261 1.254 -0.610				0.689 0.696 1.165
				1.033 1.044 1.041		1.027 1.034 0.748					1.261 1.263 -1.421			
0.522 0.536 3.025				1.291 1.278 -1.051			1.025 1.036 1.106			1.296 1.278 -1.375				0.551 0.536 -2.850
					1.269 1.283 0.464			1.022 1.030 1.555			1.166 1.148 -1.523			
		0.845 0.848 0.430		1.246 1.241 -0.582			1.007 1.024 1.653						0.589 0.558 -1.960	
		0.553 0.556 0.039				0.807 0.824 2.165			1.169 1.157 -1.054		0.759 0.755 -0.469			
				0.525 0.538 2.397			0.865 0.887 3.331				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-12
Flux Map: CY1-FM12, Measured and Calculated Assembly Average Reaction Rates

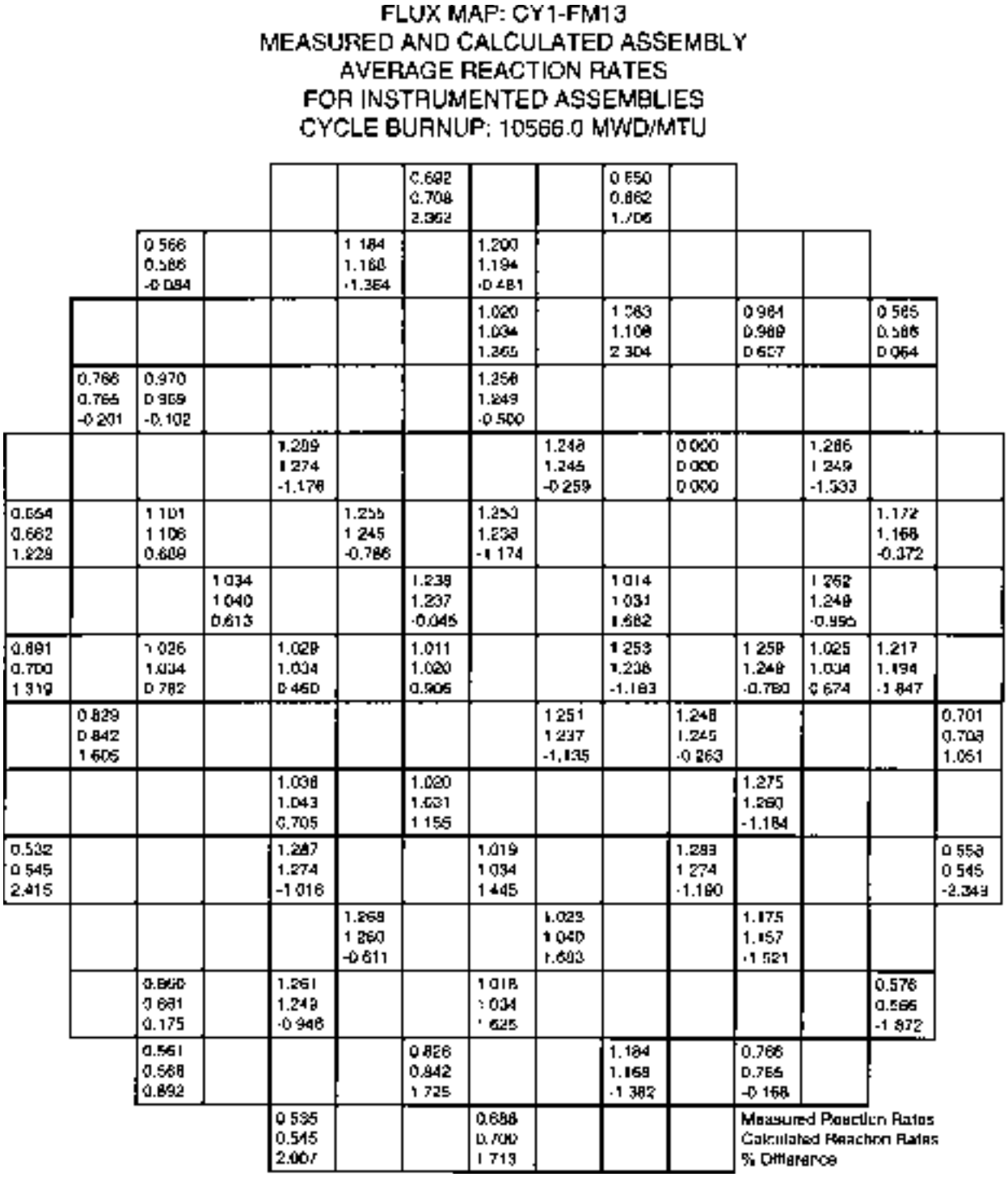

Figure B-13
Flux Map: CY1-FM13, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY1-FM14
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 11577.0 MWD/MTU

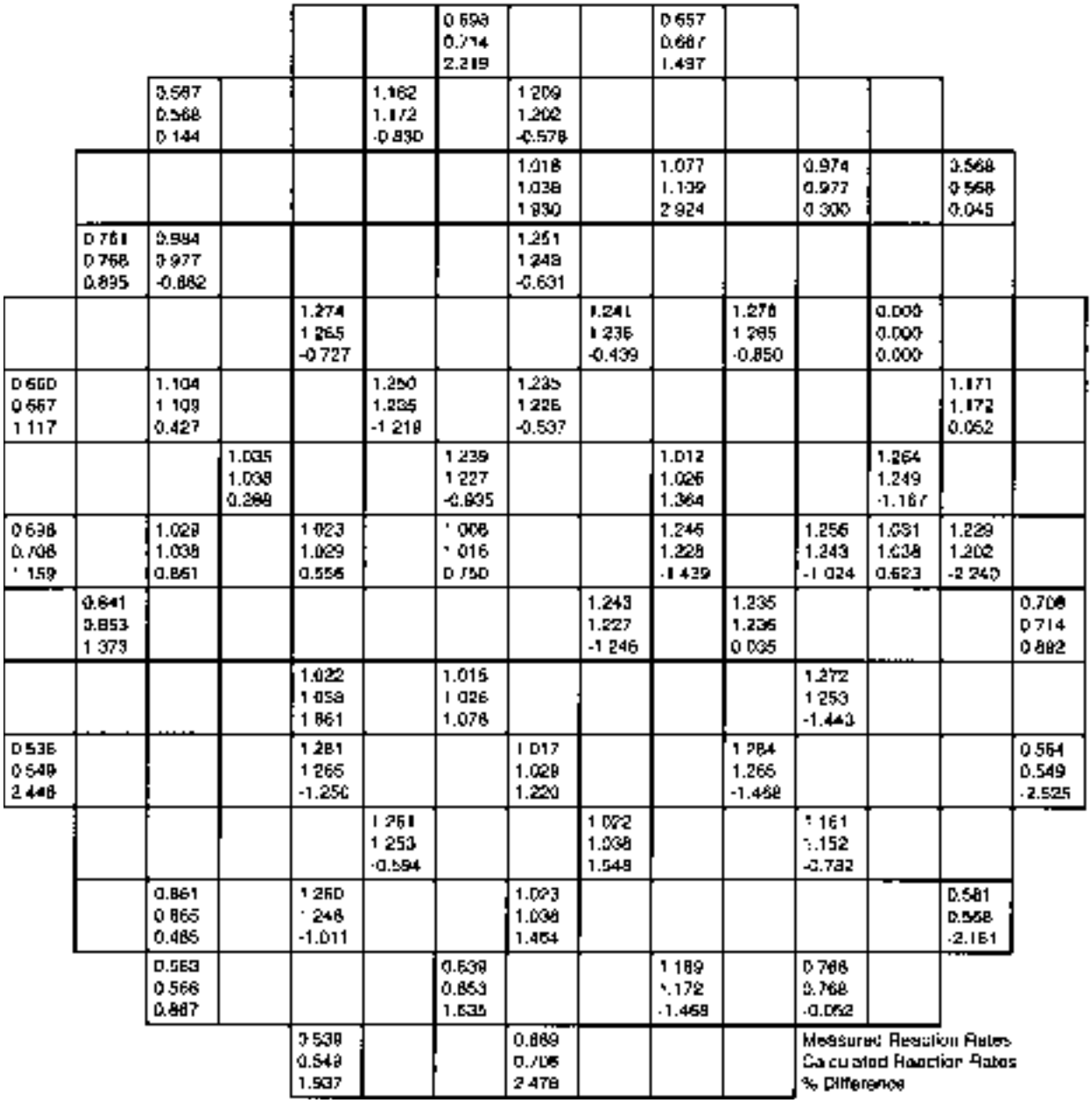

Figure B-14
Flux Map: CY1-FM14, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY1-FM15
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 12714.0 MWD/MTU

						0.699 0.717 2.483			0.659 0.670 1.573					
		0.573 0.570 -0.578			1.185 1.171 -1.164		1.200 1.203 -0.421							
							1.028 1.035 0.645		1.065 1.105 3.799		0.975 0.982 0.685		0.570 0.570 0.000	
	0.768 0.763 0.005	0.908 0.982 -0.578					1.238 1.231 -0.596							
				1.280 1.253 -2.104				1.226 1.221 -0.390		1.258 1.259 -0.419		1.252 1.244 -0.660		
0.667 0.670 1.093		1.098 1.105 0.642			1.238 1.219 -1.106		1.227 1.213 -1.113						1.182 1.171 -0.889	
			1.024 1.030 0.531			1.215 1.214 -0.112			0.999 1.015 1.671			1.256 1.243 -1.027		
0.899 0.709 1.570		1.025 1.035 0.949		1.007 1.019 1.186		1.001 1.009 0.763			1.231 1.213 -1.471		1.243 1.231 -0.982	1.027 1.035 0.779	1.223 1.203 -1.669	
	0.846 0.858 1.341							1.221 1.214 -0.619		1.238 1.224 -1.370				0.711 0.717 0.868
				1.015 1.029 0.902		1.001 1.015 1.409					1.252 1.242 -1.598			
0.529 0.552 4.264				1.267 1.253 -1.134			0.996 1.019 2.365			1.271 1.253 -1.420				0.567 0.552 -2.564
					1.248 1.242 -0.504			1.014 1.030 1.600			1.170 1.155 -1.295			
		0.862 0.887 2.850		1.255 1.244 -0.892			1.016 1.026 1.023						0.580 0.570 -1.775	
		0.582 0.570 1.273				0.842 0.858 1.812			1.187 1.171 -1.297		0.769 0.768 0.015			
				0.541 0.552 2.059			0.700 0.709 1.294				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-15
Flux Map: CY1-FM15, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY2-FM01
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 420.3 MWD/MTU

						0.790 0.806 1.904			0.808 0.823 1.915					
		0.398 0.399 0.747			1.020 1.038 1.707		1.122 1.126 0.419							
							1.317 1.320 0.234		1.155 1.159 3.012		0.938 0.952 1.506		0.398 0.399 0.803	
	0.640 0.651 1.705	0.953 0.952 -0.096					1.162 1.142 -1.732							
				1.094 1.078 -1.446				1.154 1.157 0.280		1.091 1.078 -0.300		1.029 1.042 1.313		
0.816 0.823 0.958		1.185 1.169 -1.328			1.153 1.138 -1.284		1.160 1.136 -1.824						1.014 1.038 2.344	
			1.244 1.218 -2.077			1.155 1.106 -2.547			1.229 1.215 -1.114			1.112 1.120 0.741		
0.902 0.897 -0.542		1.365 1.320 -3.293		1.262 1.250 -0.106		1.139 1.133 -0.590			1.148 1.138 -0.830		1.151 1.142 -0.829	1.329 1.320 -0.718	1.140 1.126 -1.210	
	1.089 1.083 -0.527							1.126 1.106 -1.704		1.151 1.157 0.513				0.795 0.805 1.250
				1.182 1.178 -0.318		1.231 1.215 -1.300					1.126 1.113 -1.179			
0.523 0.523 -0.061				1.101 1.078 -2.120			1.249 1.260 0.998			1.074 1.078 0.362				0.522 0.523 0.107
					1.114 1.113 -0.069			1.207 1.218 0.923			1.000 1.019 1.818			
		0.778 0.787 0.925		1.029 1.042 1.313			1.309 1.320 0.800						0.394 0.399 1.345	
		0.392 0.399 1.795				0.000 0.000 0.000			1.035 1.039 0.310		0.634 0.651 2.779			
				0.507 0.523 3.057			0.691 0.697 0.631				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-16
Flux Map: CY2-FM01, Measured and Calculated Assembly Average Reaction Rates

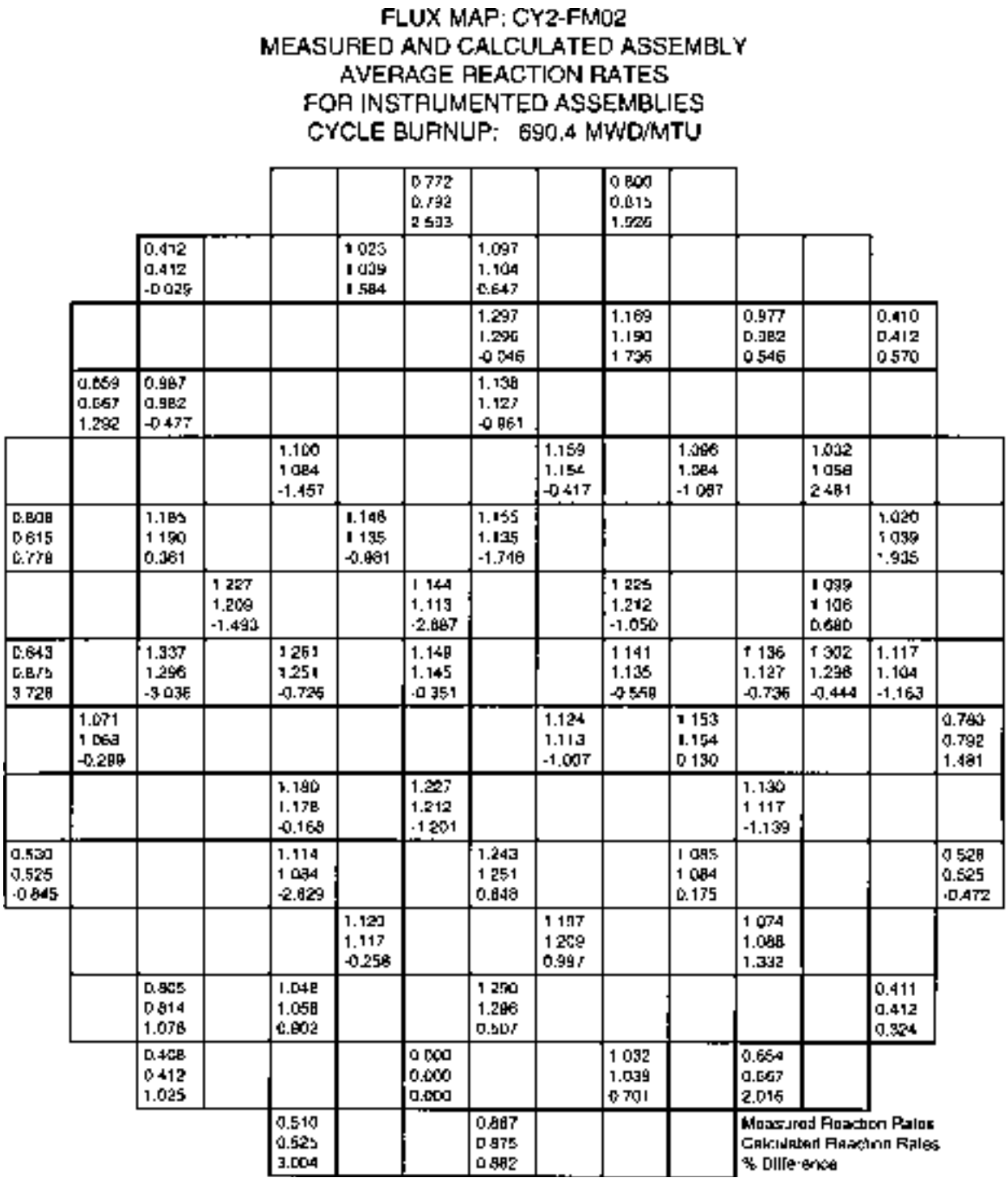

Figure B-17
Flux Map: CY2-FM02, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY2-FM03
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 1720.0 MWD/MTU

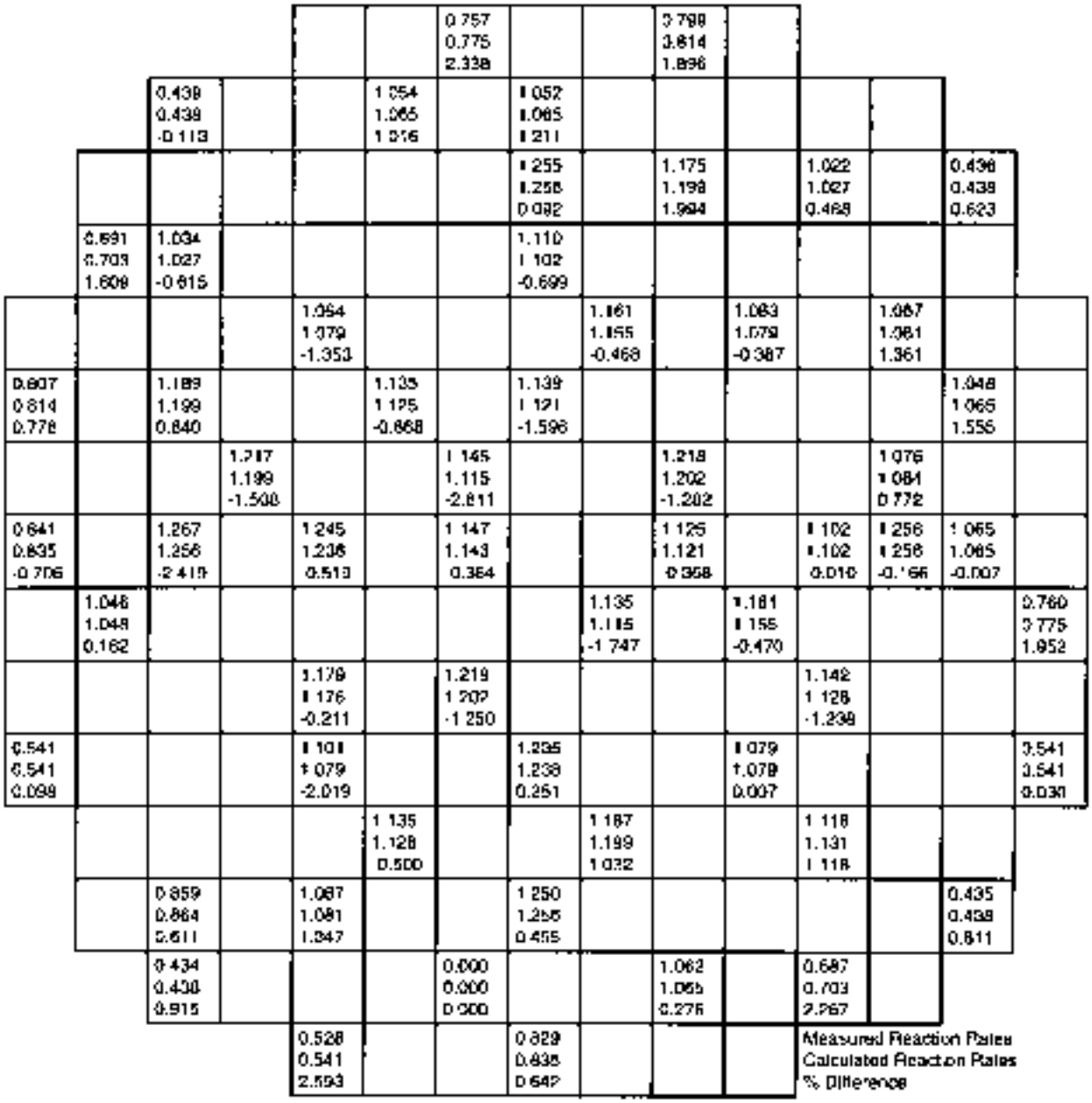

Figure B-18
Flux Map: CY2-FM03, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY2-FM04
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 2974.4 MWD/MTU

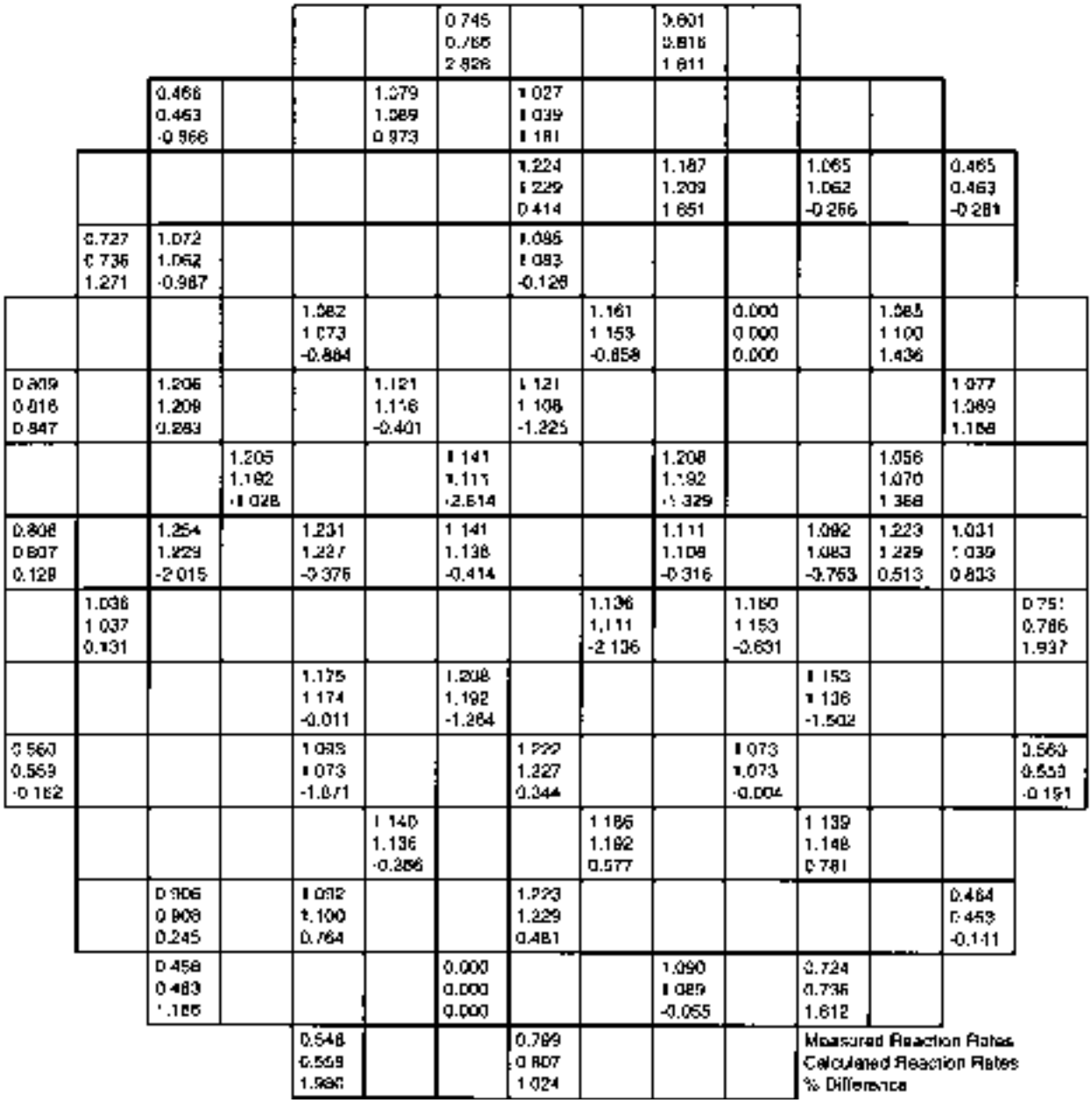

Figure B-19
Flux Map: CY2-FM04, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY2-FM05
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 4000.0 MWD/MTU

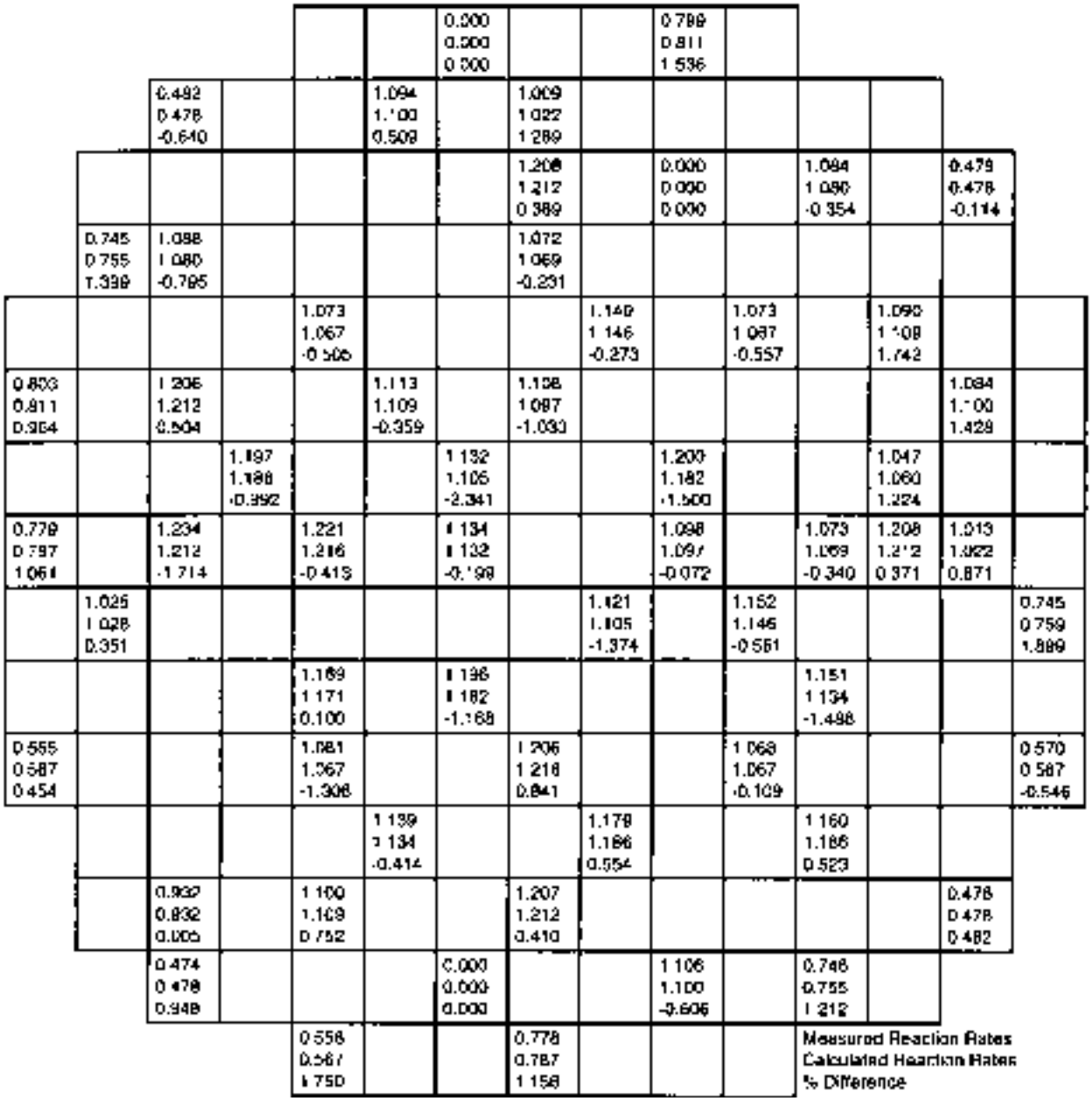

Figure B-20
Flux Map: CY2-FM05, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY2-FM06
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 5110.0 MWD/MTU

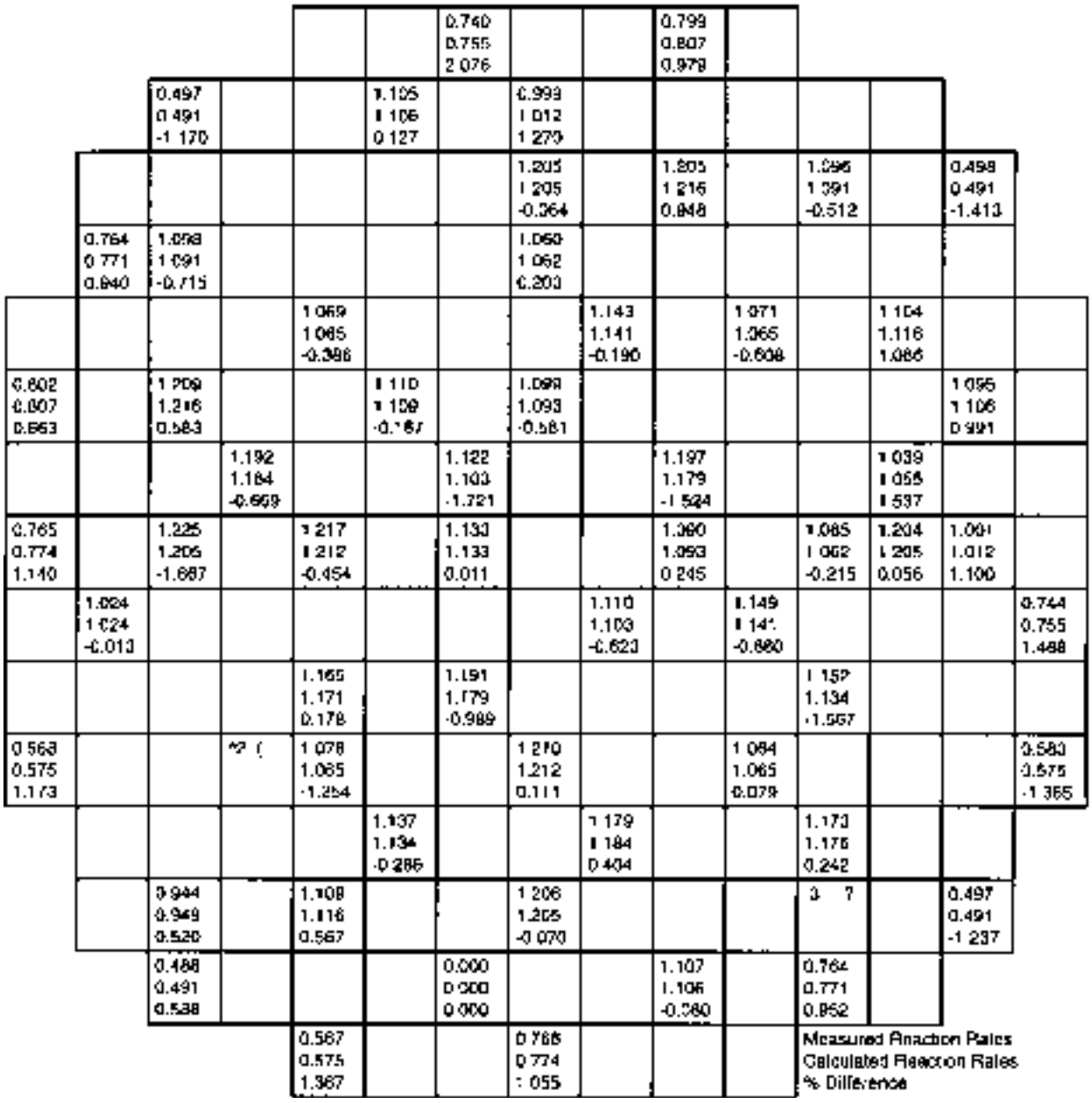

Figure B-21
Flux Map: CY2-FM06, Measured and Calculated Assembly Average Reaction Rates

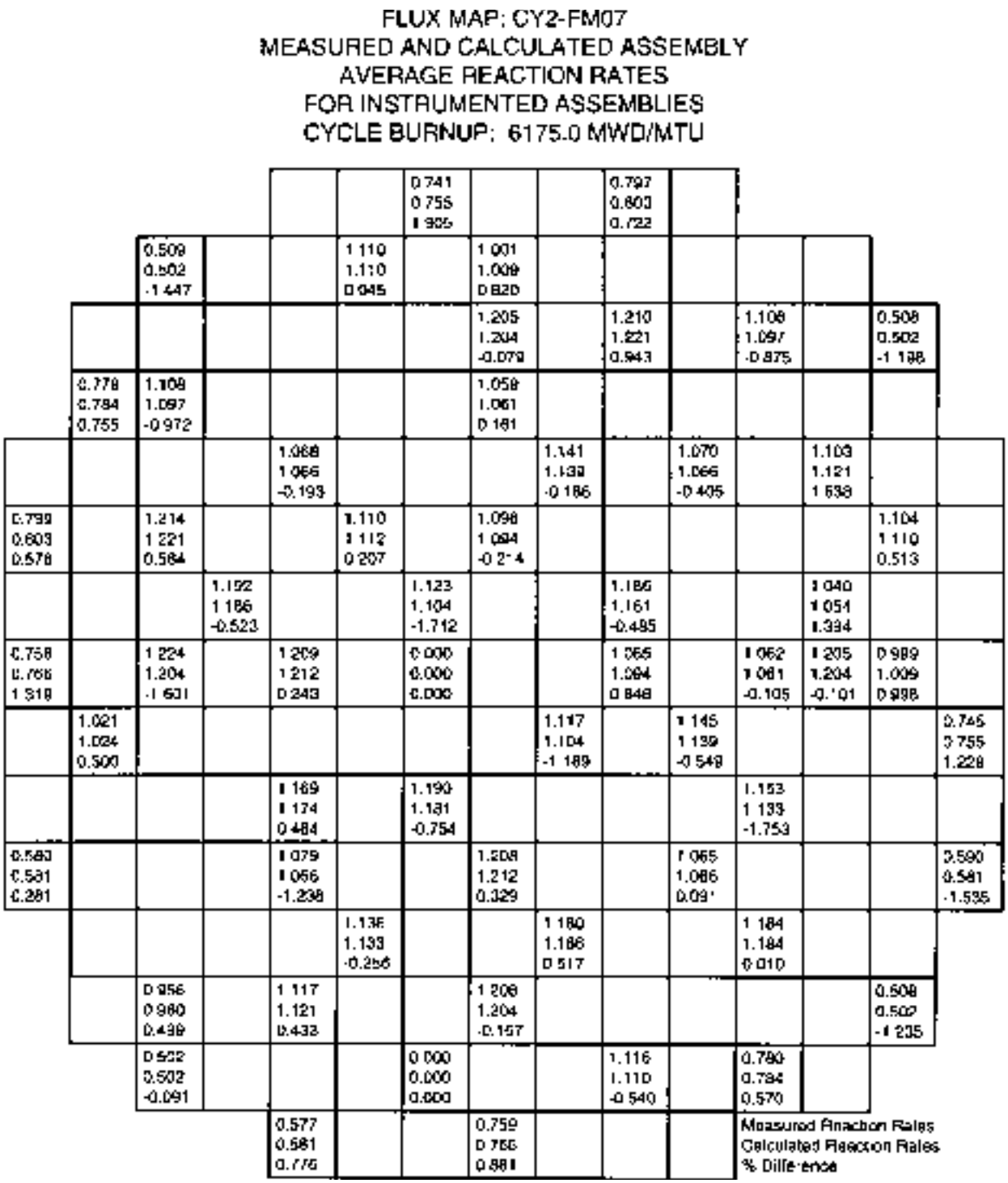

Figure B-22
Flux Map: CY2-FM07, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY2-FM08
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 7471.3 MWD/MTU

					0.745 0.757 1.615			0.795 0.801 0.561						
		0.525 0.513 -2.439			1.114 1.111 -0.242		1.000 1.010 0.995							
							1.211 1.209 0.211		1.219 1.227 0.670		1.111 1.389 1.032		0.521 0.513 1.530	
	0.793 0.798 0.518	1.109 1.099 -0.885					1.051 1.060 0.195							
				1.067 1.069 0.171				1.137 1.136 -0.106		1.072 1.069 -0.328		1.118 1.127 0.860		
0.798 0.801 0.634		1.221 1.227 0.527			1.115 1.119 0.363		1.095 1.099 0.393						1.103 1.111 0.742	
			1.192 1.190 -0.178			1.122 1.104 -1.547			1.196 1.166 -0.832			1.045 1.057 1.172		
0.752 0.762 1.300		1.227 1.209 -1.509		1.209 1.215 0.497		0.000 0.000 0.000			1.067 1.069 1.121		1.063 1.063 0.024	1.206 1.209 0.045	1.002 1.010 0.866	
	1.022 1.027 0.447							1.116 1.104 -1.069		1.136 1.135 -0.125				0.749 0.757 1.057
				1.172 1.180 0.705		1.190 1.186 -0.370					1.152 1.131 -1.755			
0.586 0.588 0.462				1.090 1.069 -1.100			0.000 0.000 0.000			1.066 1.069 0.258				0.593 0.588 -0.758
					1.133 1.131 -0.129			1.184 1.180 0.522			1.191 1.193 0.138			
		0.963 0.969 0.558		1.121 1.127 0.618			1.212 1.209 -0.293						0.521 0.513 -1.641	
		0.520 0.513 -1.510				0.000 0.000 0.000			1.122 1.111 -0.907		0.798 0.798 -0.062			
				0.584 0.588 0.685			0.756 0.762 0.831				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-23
Flux Map: CY2-FM08, Measured and Calculated Assembly Average Reaction Rates

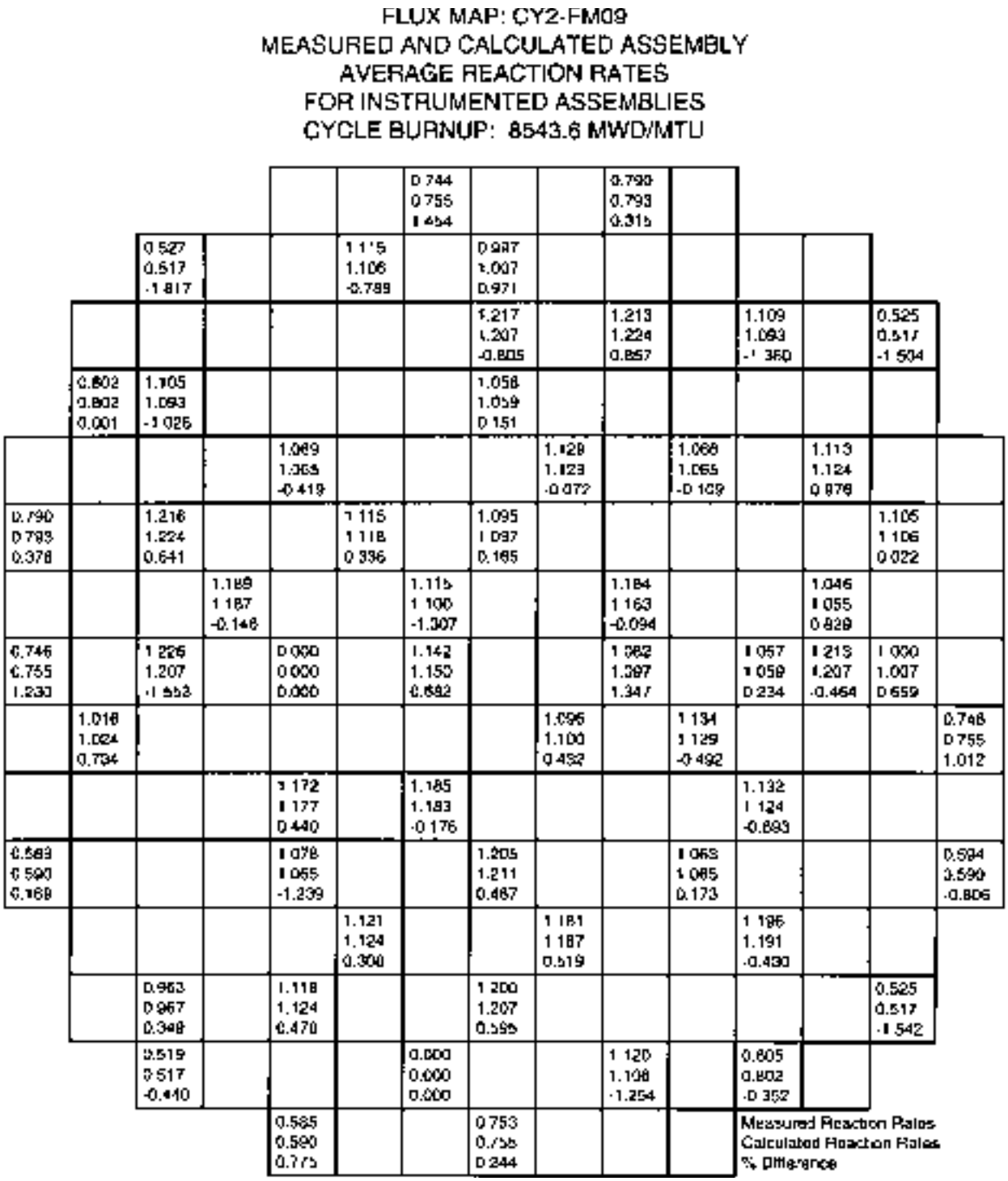

Figure B-24
Flux Map: CY2-FM09, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY2-FM10
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 9840.5 MWD/MTU

						0.747 0.756 1.287			0.766 0.769 0.362					
		0.533 0.523 -1.780			1.137 1.130 -0.632		0.998 1.008 0.840							
							1.219 1.211 -0.646		0.000 0.000 0.000		0.000 0.000 0.000		0.521 0.523 0.542	
	0.809 0.803 -0.087	0.000 0.000 0.000					1.061 1.060 -0.157							
				1.065 1.064 -0.044				0.000 0.000 0.000		1.066 1.064 -0.205		1.115 1.122 0.629		
0.785 0.788 0.452		1.217 1.222 0.448			1.120 1.121 0.022		1.092 1.095 0.410						1.098 1.100 0.314	
			1.199 1.187 -0.521			1.109 1.097 -1.350			1.162 1.163 0.102			1.050 1.055 0.453		
0.743 0.752 1.174		1.235 1.211 -1.914		1.201 1.209 0.669		0.000 0.000 0.000			1.090 1.096 0.511		1.087 1.080 -0.741	1.222 1.211 -0.898	1.001 1.008 0.645	
	1.019 1.023 0.342							1.102 1.097 -0.513		1.124 1.122 -0.122				0.749 0.756 0.917
				1.171 1.176 0.613		1.184 1.183 -0.066					1.125 1.116 -0.817			
0.592 0.593 0.108				0.000 0.000 0.000			1.206 1.209 0.251			1.067 1.064 -0.264				0.597 0.593 -0.793
					1.121 1.118 -0.124			1.181 1.187 0.511			1.196 1.190 -0.461			
		0.961 0.965 0.410		0.000 0.000 0.000			1.207 1.211 0.362						0.532 0.523 -1.524	
		0.000 0.000 0.000				0.000 0.000 0.000			1.100 1.100 -0.711		0.000 0.000 0.000			
				0.588 0.593 0.735			0.746 0.752 0.727				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-25
Flux Map: CY2-FM10, Measured and Calculated Assembly Average Reaction Rates

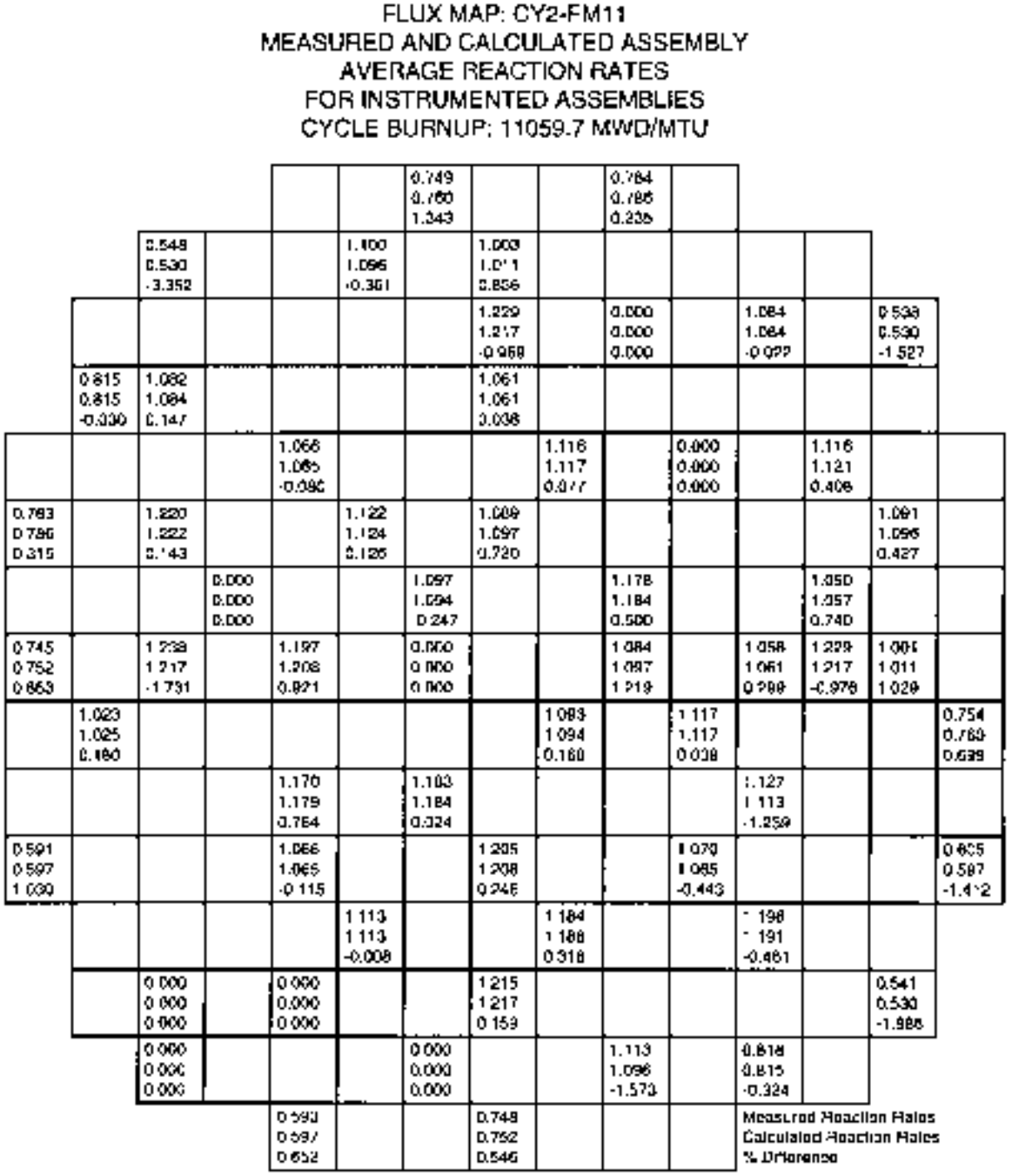

Figure B-26
Flux Map: CY2-FM11, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY3-FM01
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 277.6 MWD/MTU

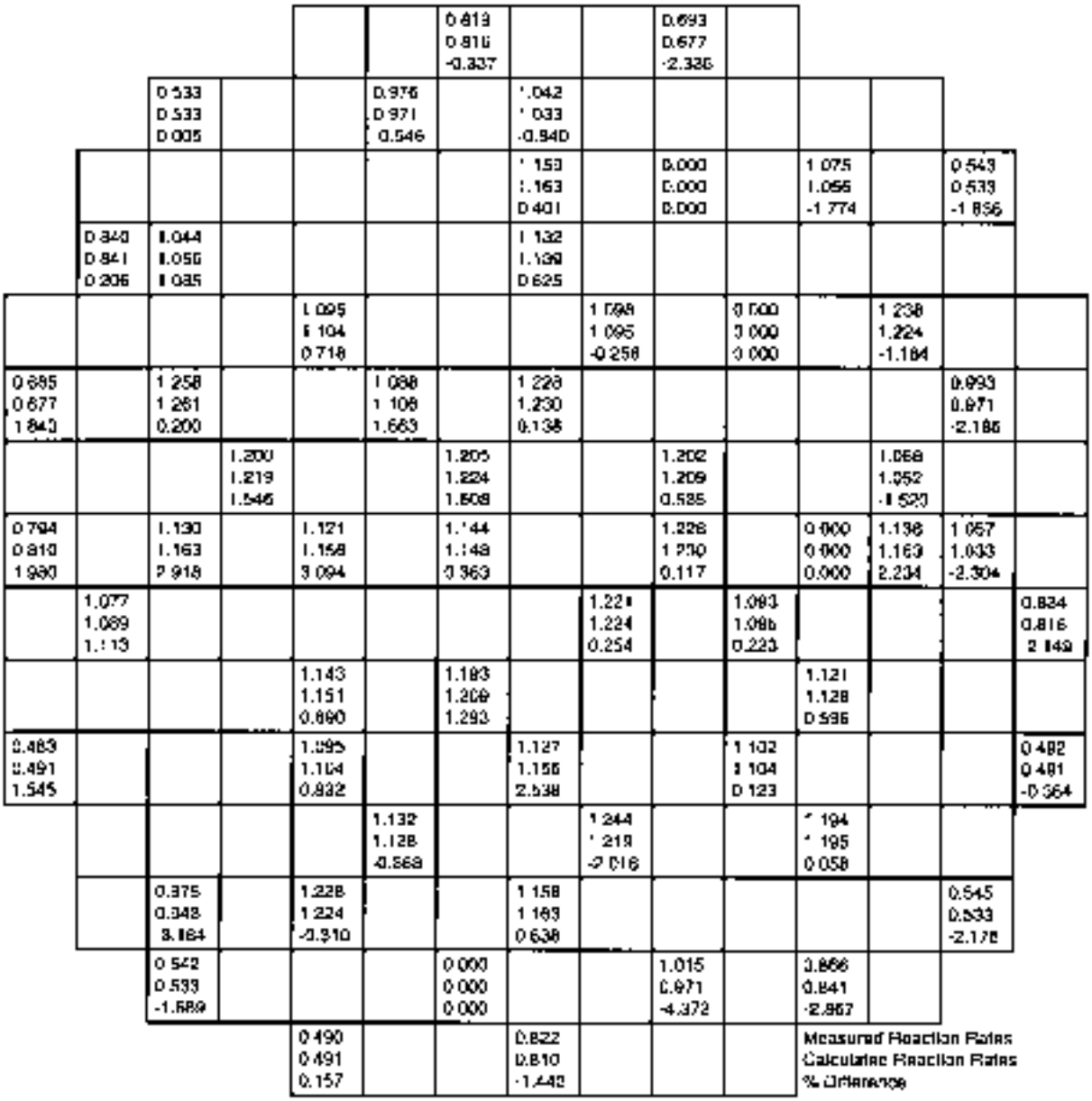

Figure B-27
Flux Map: CY3-FM01, Measured and Calculated Assembly Average Reaction Rates

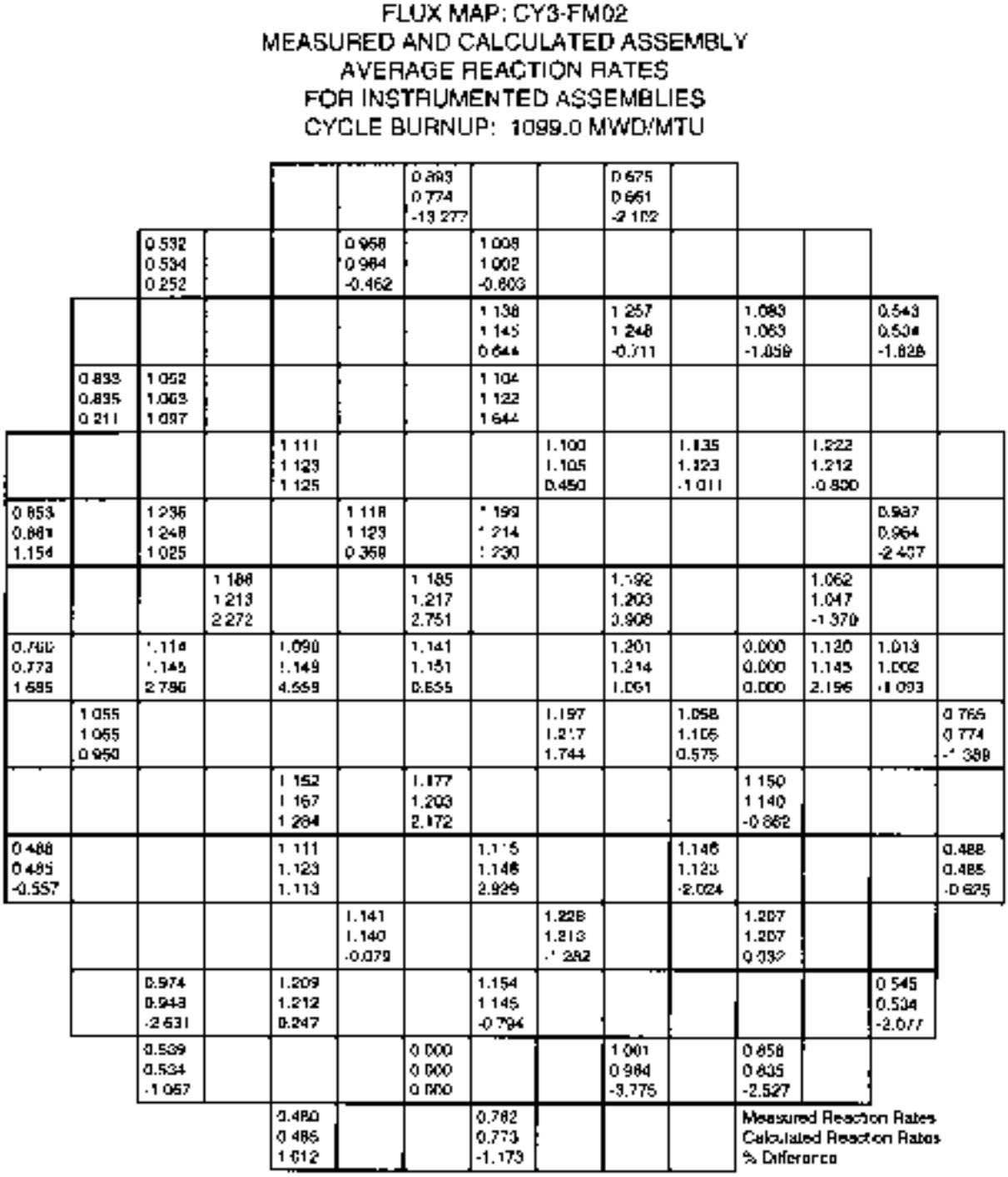

Figure B-28
Flux Map: CY3-FM02, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY3-FM03
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 2206.8 MWD/MTU

						0.748 0.744 -0.300			0.655 0.652 -0.452					
		0.523 0.535 2.458			0.981 0.970 -1.121		1.009 0.988 -1.706							
							1.140 1.138 -0.196		1.274 1.248 -2.060		1.105 1.077 -2.458		0.544 0.535 -1.831	
	0.830 0.831 0.611	1.078 1.077 -0.055					1.091 1.110 1.696							
				1.148 1.151 0.209				1.125 1.122 -0.268		1.169 1.151 -1.490		1.219 1.205 -1.097		
0.635 0.652 2.725		1.240 1.248 0.684			1.129 1.146 1.481		1.195 1.195 0.882						0.998 0.970 -2.801	
			1.201 1.218 1.272			1.182 1.207 2.079			1.175 1.197 1.866			1.079 1.057 -1.513		
0.735 0.745 1.336		1.136 1.138 2.852		1.108 1.144 3.193		1.145 1.151 0.481			1.191 1.196 0.486		0.000 0.000 0.000	1.125 1.138 1.121	1.004 0.985 -1.741	
	1.044 1.054 0.945							1.187 1.207 1.637		1.119 1.122 0.242				0.751 0.744 -0.887
				1.186 1.192 0.470		1.178 1.197 1.603					1.180 1.183 0.400			
0.495 0.493 -0.549				1.150 1.151 0.172			1.111 1.144 2.989			1.153 1.151 0.184				0.460 0.463 0.469
					1.176 1.163 1.084			1.222 1.216 0.478			1.215 1.208 0.553			
		0.980 0.958 2.282		1.212 1.206 0.491			1.127 1.136 0.956						0.549 0.535 2.395	
		0.532 0.535 0.710				0.000 0.000 0.000			0.896 0.870 2.642		0.857 0.831 3.032			
				0.478 0.463 3.038			0.757 0.745 1.647				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-29
Flux Map: CY3-FM03, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY3-FM04
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 3189.0 MWD/MTU

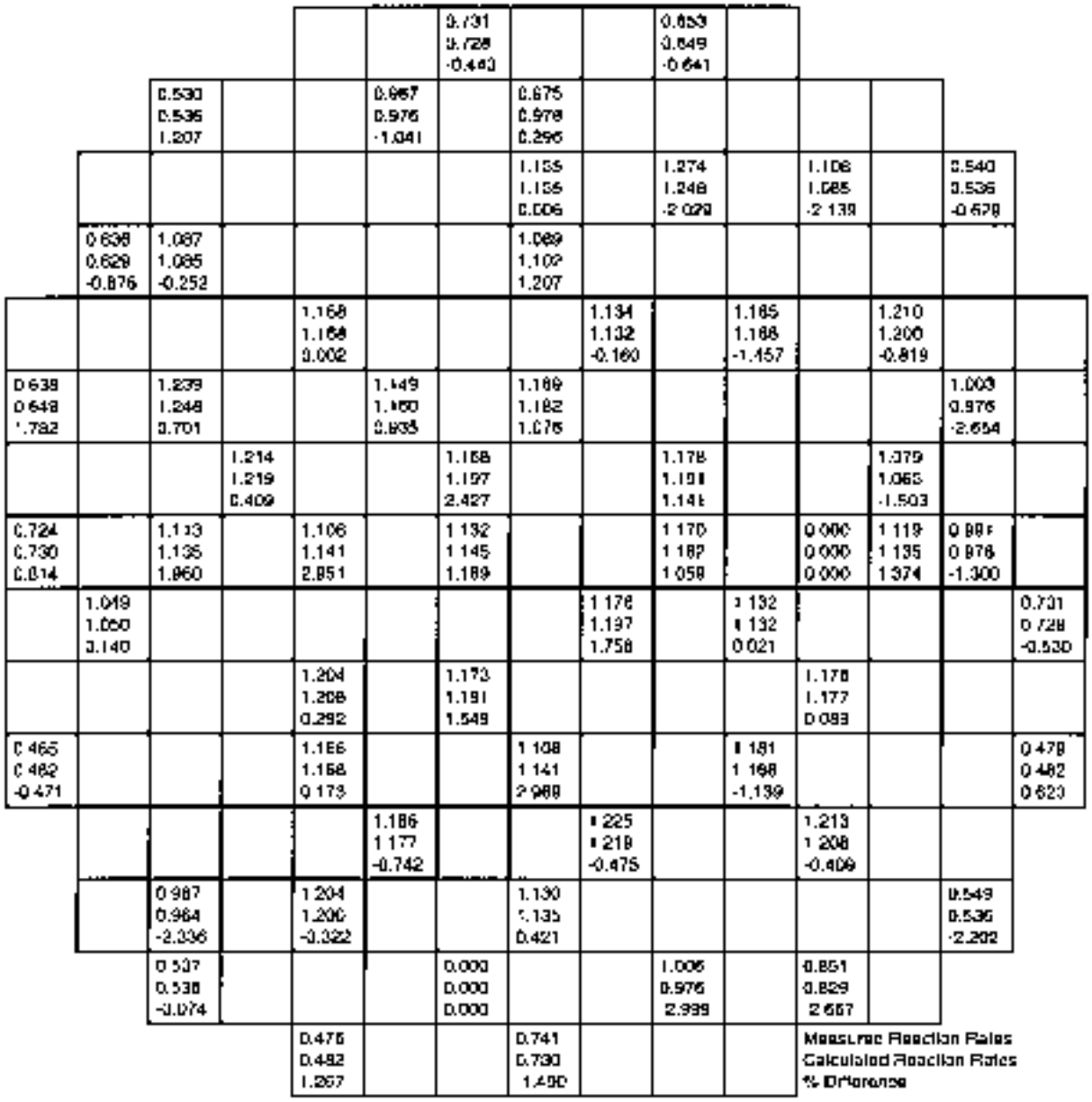

Figure B-30
Flux Map: CY3-FM04, Measured and Calculated Assembly Average Reaction Rates

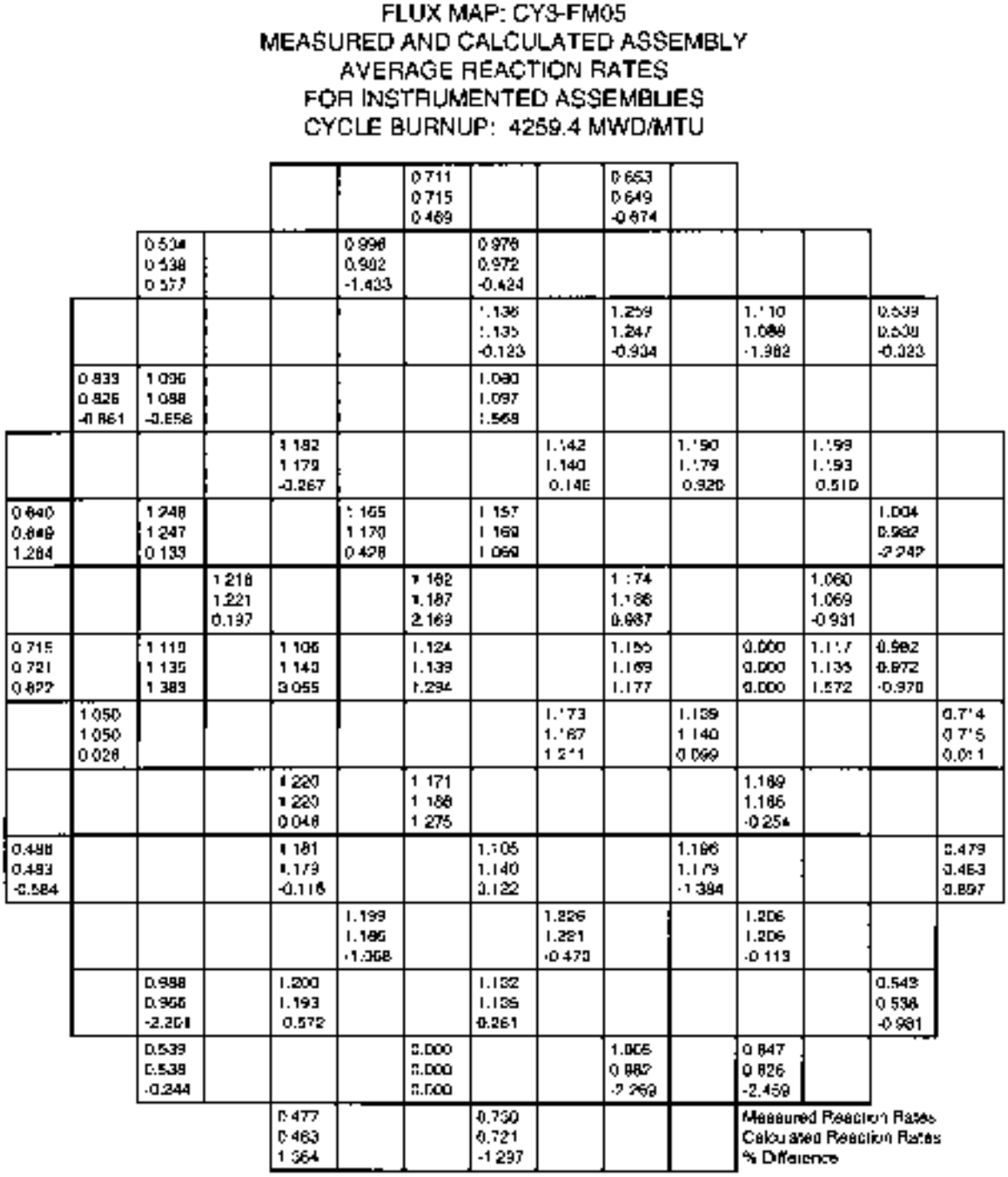

Figure B-31
Flux Map: CY3-FM05, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY3-FM06
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 5402.0 MWD/MTU

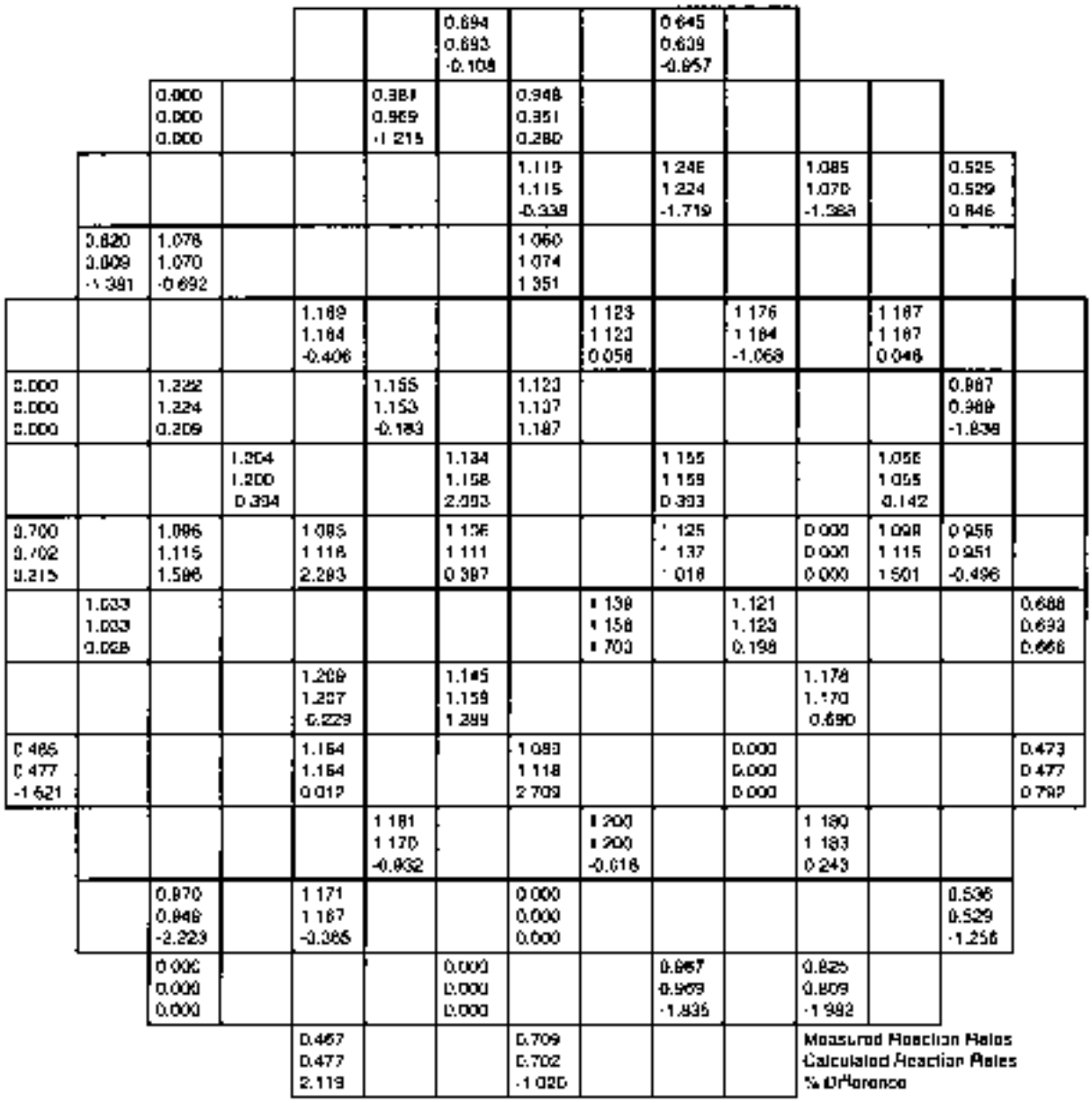

Figure B-32
Flux Map: CY3-FM06, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY3-FM07
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 6577.5 MWD/MTU

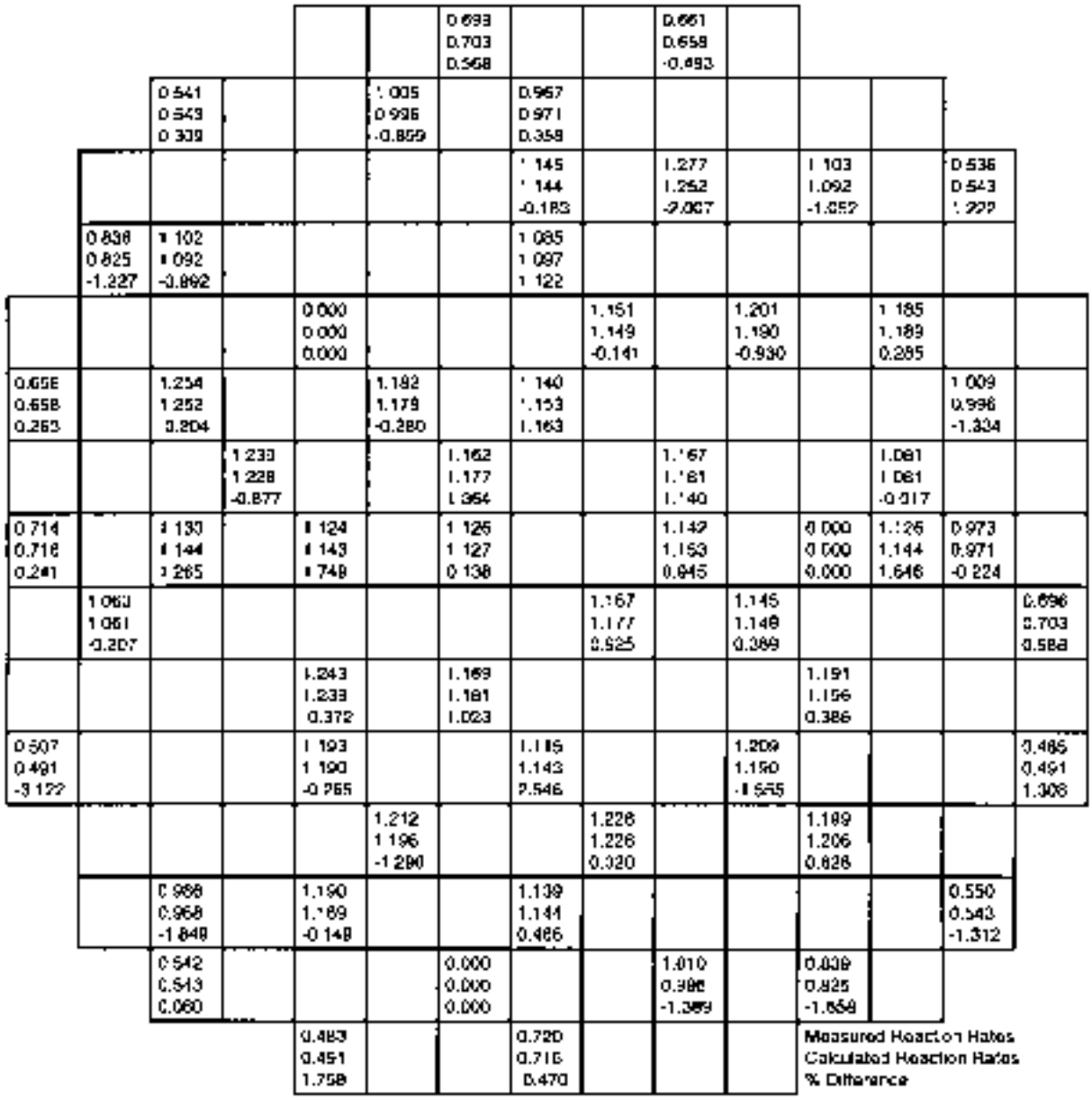

Figure B-33
Flux Map: CY3-FM07, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY3-FM08
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 7649.0 MWD/MTU

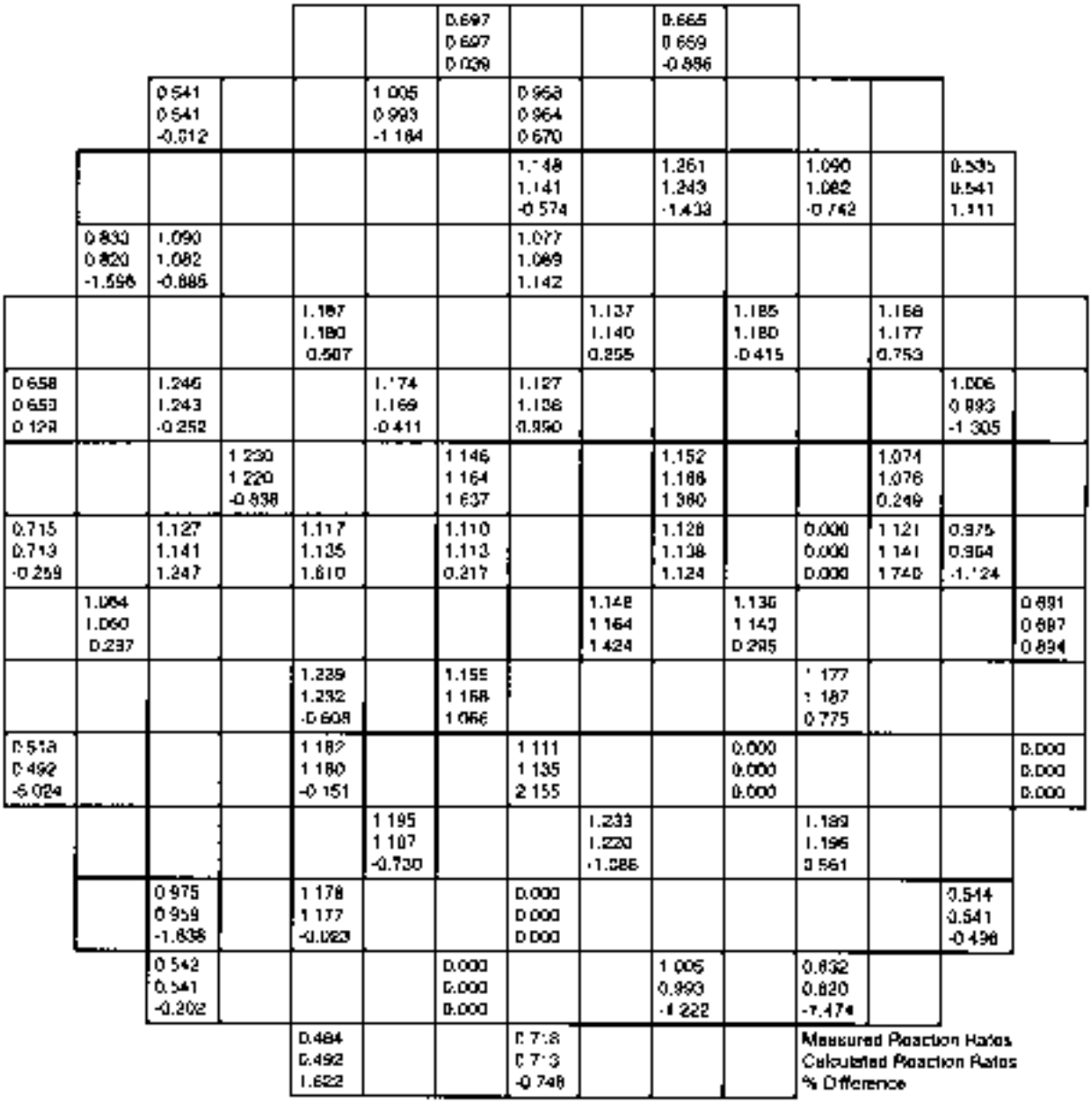

Figure B-34
Flux Map: CY3-FM08, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY3-FM09
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 8909.9 MWD/MTU

						0.632 0.730 1.141			0.672 0.669 -0.466					
		0.588 0.546 -3.839			1.015 1.001 -1.436		0.975 0.970 -0.579							
							1.156 1.150 -0.510		1.250 1.247 -0.081		1.000 1.083 -0.446		0.562 0.548 0.782	
	0.938 0.823 -1.603	1.089 1.083 -1.464					1.093 1.092 1.133							
				1.185 1.179 -0.517				1.135 1.140 0.375		1.166 1.179 1.145		1.158 1.177 1.663		
0.667 0.669 0.358		1.256 1.247 -0.726			1.179 1.168 -0.920		1.129 1.135 0.527						1.009 1.001 -0.806	
			1.237 1.224 -1.095			1.144 1.184 1.703			1.150 1.168 1.391			1.078 1.092 0.516		
0.714 0.719 0.697		1.138 1.150 0.992		1.114 1.139 2.232		1.109 1.109 0.037			1.121 1.135 1.237		0.000 0.000 0.000	1.131 1.150 1.688	0.967 0.970 0.240	
	1.076 1.072 -0.323							1.151 1.164 1.141		1.139 1.140 0.160				0.692 0.700 1.092
				1.245 1.235 -0.786		1.157 1.168 0.784					1.209 1.186 -1.854			
0.504 0.500 -0.839				1.179 1.179 -0.014			1.112 1.139 2.449			1.161 1.179 -0.183				0.501 0.500 -0.353
					1.191 1.186 -0.403			1.221 1.224 0.211			1.190 1.197 0.575			
		0.974 0.953 1.502		1.179 1.177 -0.146			1.148 1.150 0.150						0.549 0.546 -0.558	
		0.572 0.546 -4.547				0.000 0.000 0.000			1.009 1.001 -0.859		0.834 0.823 -1.392			
				0.493 0.500 1.351			0.724 0.719 -0.697				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-35
Flux Map: CY3-FM09, Measured and Calculated Assembly Average Reaction Rates

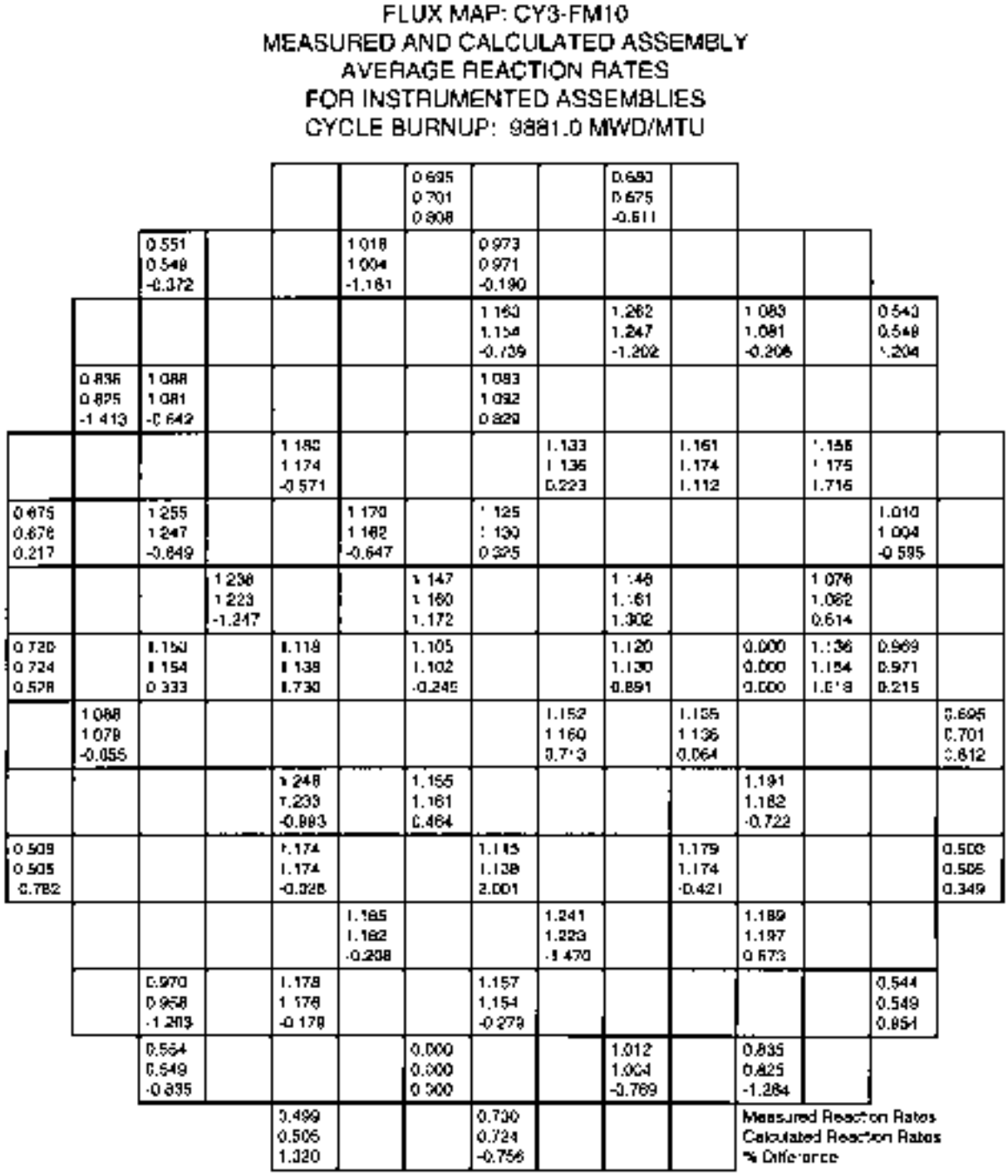

Figure B-36
Flux Map: CY3-FM10, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY3-FM11
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 11211.2 MWD/MTU

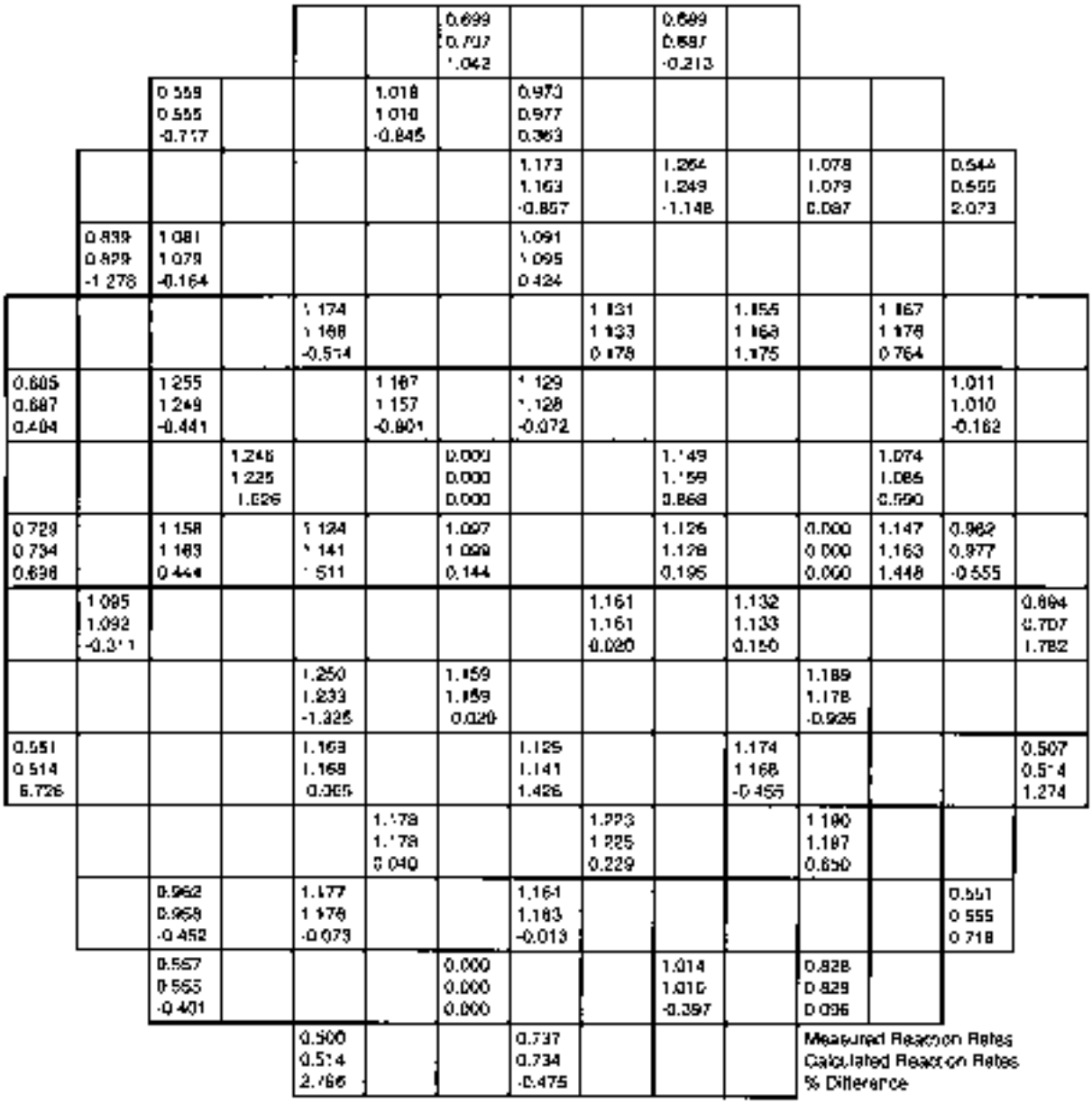

Figure B-37
Flux Map: CY3-FM11, Measured and Calculated Assembly Average Reaction Rates

FLUX MAP: CY3-FM12
MEASURED AND CALCULATED ASSEMBLY
AVERAGE REACTION RATES
FOR INSTRUMENTED ASSEMBLIES
CYCLE BURNUP: 13200.0 MWD/MTU

					0.714 0.710 -0.550			0.708 0.700 -1.129						
		0.554 0.563 1.549			1.319 1.311 -0.654		0.964 0.977 1.381							
							1.185 1.166 -1.626		1.265 1.244 -1.670		1.068 1.073 0.812		0.547 0.563 2.800	
	0.844 0.832 -1.406	0.000 0.000 0.000					1.089 1.089 0.271							
				1.159 1.154 -0.432				1.118 1.122 0.435		1.149 1.154 0.409		1.180 1.172 1.007		
0.705 0.700 -0.751		1.243 1.244 0.136			1.150 1.144 -0.524		1.128 1.122 -0.599						1.010 1.011 0.070	
			1.242 1.219 1.799			0.000 0.000 0.000			1.151 1.152 0.054			1.055 1.079 1.312		
0.753 0.744 -1.296		1.160 1.166 0.52*		1.138 1.140 0.146		1.085 1.092 0.658			1.111 1.122 1.017		0.000 0.000 0.000	1.155 1.168 0.997	0.981 0.977 -0.411	
	1.107 1.101 -0.570							1.160 1.159 -0.069		1.122 1.122 0.037				0.701 0.710 1.372
				1.248 1.228 1.780		1.155 1.152 -0.221					1.164 1.164 0.018			
0.000 0.000 0.000				0.000 0.000 0.000			1.127 1.140 1.179			1.159 1.154 -0.418				0.520 0.524 0.679
					1.158 1.164 0.526			1.217 1.219 0.209			1.189 1.195 0.477			
		0.953 0.955 0.140		0.000 0.000 0.000			1.168 1.168 -0.134						0.558 0.563 0.740	
		0.598 0.583 -0.841				0.000 0.000 0.000			1.011 1.011 -0.054		0.837 0.832 -0.548			
				0.507 0.524 3.409			0.754 0.744 -1.409				Measured Reaction Rates Calculated Reaction Rates % Difference			

Figure B-38
Flux Map: CY3-FM12, Measured and Calculated Assembly Average Reaction Rates

C

MEASURED AND CALCULATED RELATIVE ASSEMBLY POWER

The figures in this Appendix present the measured and calculated relative assembly power values for the instrumented and un-instrumented locations. The power distributions in these figures were used to determine the relative assembly power uncertainty and were used to determine the end-of-cycle assembly average burnup values. The header on each figure indicates the flux map number and burnup corresponding to the tables in Appendix A.

FLUX MAP: CY1-FM01
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 470.0 MWD/MTU

				0.664 0.668 0.241	0.707 0.798 1.394	0.824 0.837 1.591	0.811 0.816 0.604	0.843 0.837 -0.357	0.795 0.798 0.302	0.664 0.666 0.295			
		0.670 0.670 -0.134	0.945 0.943 -0.138	1.081 1.084 0.259	0.892 0.889 0.657	0.956 0.963 0.753	0.861 0.860 -0.116	0.962 0.963 0.094	0.897 0.889 0.147	1.078 1.084 0.603	0.923 0.943 1.594	0.667 0.670 0.330	
	0.665 0.670 0.737	1.039 1.048 0.808	0.830 0.837 0.916	0.933 0.942 0.288	1.207 1.211 0.257	0.990 0.990 -0.071	1.123 1.129 0.543	0.991 0.990 -0.101	1.211 1.211 -0.008	0.935 0.942 0.727	0.825 0.837 1.479	1.044 1.048 0.316	0.678 0.670 -0.868
	0.935 0.943 0.812	0.823 0.837 1.713	1.117 1.131 1.262	1.094 1.089 -0.457	1.043 1.037 -0.556	1.215 1.211 -0.313	1.072 1.061 -0.989	1.218 1.211 -0.452	1.046 1.037 -0.822	1.092 1.089 -0.320	1.140 1.131 -0.816	0.845 0.837 -0.808	0.959 0.943 -1.575
0.668 0.666 1.525	1.072 1.064 1.082	0.934 0.942 0.803	1.065 1.069 0.911	1.043 1.035 -0.834	1.241 1.223 -1.427	1.107 1.085 -2.041	1.262 1.241 -1.617	1.089 1.085 -1.292	1.240 1.223 -1.378	1.063 1.035 -1.719	1.112 1.089 -2.113	0.862 0.842 -2.100	1.099 1.084 -1.365	0.668 0.666 -0.240
0.760 0.798 2.372	0.878 0.888 1.139	1.209 1.211 0.116	1.035 1.037 0.164	1.233 1.220 -0.919	1.109 1.084 -1.695	1.248 1.230 -1.435	1.000 1.064 -1.527	1.241 1.230 -0.942	1.090 1.084 -0.553	1.232 1.223 0.755	1.059 1.087 -2.059	1.230 1.211 -1.553	0.896 0.888 -0.848	0.800 0.798 -0.250
0.818 0.837 2.311	0.947 0.963 1.689	0.980 0.990 1.031	1.189 1.211 0.967	1.084 1.085 0.065	1.231 1.230 -0.130	1.036 1.033 -0.251	1.108 1.105 -0.238	1.044 1.033 -1.054	1.231 1.230 -0.097	1.094 1.085 -0.841	1.220 1.211 -0.754	0.999 0.990 -0.951	0.967 0.963 -0.393	0.840 0.837 -0.357
0.756 0.816 2.256	0.841 0.860 2.264	1.106 1.129 2.334	1.047 1.061 1.356	1.230 1.241 0.943	1.053 1.064 0.997	1.098 1.105 1.265	0.951 0.952 0.085	1.119 1.105 -1.278	1.081 1.064 -1.619	1.256 1.241 -1.478	1.070 1.061 -0.813	1.125 1.129 0.293	0.859 0.860 0.035	0.810 0.816 0.715
0.816 0.837 2.324	0.941 0.963 2.370	0.967 0.990 2.316	1.186 1.211 1.271	1.076 1.085 0.816	1.218 1.230 0.905	1.021 1.033 1.128	1.134 1.105 0.045	1.050 1.033 -1.810	1.250 1.230 -1.853	1.101 1.085 -1.489	1.223 1.211 -1.006	0.994 0.990 -0.433	0.954 0.963 0.985	0.825 0.837 1.467
0.781 0.798 2.241	0.868 0.888 2.292	1.182 1.211 2.454	1.037 1.037 0.000	1.219 1.223 0.312	1.002 1.084 0.194	1.220 1.230 0.754	1.058 1.064 0.444	1.231 1.230 -0.138	1.102 1.084 1.015	1.248 1.223 -1.980	1.051 1.037 -2.980	1.242 1.211 -2.529	0.887 0.888 0.079	0.788 0.798 0.088
0.852 0.888 2.005	1.062 1.084 2.062	0.923 0.942 2.015	1.092 1.089 -0.256	1.042 1.035 -0.739	1.229 1.223 -0.513	1.081 1.085 0.398	1.222 1.241 1.521	1.058 1.085 1.620	1.232 1.223 -0.763	1.058 1.035 -2.183	1.111 1.089 -2.016	0.980 0.942 -1.896	1.102 1.084 -1.633	0.877 0.888 -1.854
	0.928 0.943 1.681	0.827 0.837 1.245	1.133 1.131 -0.159	1.100 1.089 -1.045	1.051 1.037 -1.369	1.203 1.211 0.124	1.048 1.061 1.444	1.193 1.211 1.467	1.038 1.037 -0.116	1.108 1.089 -1.759	1.144 1.131 -1.145	0.844 0.837 -0.782	0.950 0.943 -0.716	
	0.655 0.670 0.618	1.038 1.048 0.898	0.838 0.837 0.191	0.949 0.942 -0.727	1.213 1.211 -0.206	0.982 0.990 0.805	1.114 1.129 1.329	0.984 0.990 0.549	1.214 1.211 -0.264	0.952 0.942 -1.103	0.844 0.837 -0.794	1.053 1.048 -0.551	0.670 0.670 -0.075	
		0.869 0.670 0.030	0.938 0.943 0.504	1.075 1.084 0.855	0.875 0.889 1.495	0.943 0.963 2.131	0.844 0.860 1.848	0.960 0.963 0.323	0.902 0.889 -1.488	1.095 1.064 -1.004	0.943 0.943 -0.454	0.672 0.670 -0.298	
				0.651 0.666 2.352	0.790 0.798 0.872	0.818 0.837 2.295	0.799 0.816 2.166	0.832 0.837 0.601	0.810 0.798 -1.457	0.673 0.666 -0.996	Measured Relative Power Calculated Relative Power % Difference		

Figure C-1
Flux Map: CY1-FM01, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM02
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 626.0 MWD/MTU

				0.853 0.851 -0.291	0.777 0.782 0.656	0.815 0.821 0.737	0.803 0.802 -0.224	0.829 0.821 -1.049	0.785 0.782 -0.352	0.854 0.851 -0.398			
		0.855 0.854 -0.169	0.925 0.924 -0.173	1.068 1.065 -0.281	0.879 0.880 0.057	0.952 0.955 0.203	0.860 0.856 -0.562	0.955 0.955 0.031	0.878 0.880 0.228	1.066 1.065 -0.019	0.928 0.924 -0.485	0.864 0.854 -1.090	
	0.654 0.654 -0.001	1.026 1.026 0.035	0.831 0.832 0.193	0.942 0.940 -0.265	1.209 1.206 -0.281	0.991 0.992 0.081	1.118 1.130 0.992	0.988 0.992 0.374	1.196 1.206 0.836	0.938 0.940 0.160	0.837 0.832 -0.502	1.043 1.026 -1.532	0.672 0.654 -2.664	
	0.925 0.924 -0.164	0.830 0.832 0.350	1.129 1.136 0.502	1.091 1.095 0.431	1.041 1.046 0.394	1.212 1.215 0.536	1.074 1.072 -0.196	1.217 1.219 0.164	1.048 1.046 -0.258	1.090 1.095 -0.446	1.148 1.136 -0.993	0.845 0.832 -1.491	0.948 0.924 -2.099	
0.649 0.651 0.354	1.064 1.065 0.150	0.939 0.940 0.043	1.092 1.095 0.293	1.044 1.047 0.239	1.237 1.236 -0.089	1.108 1.101 -0.632	1.257 1.257 -0.766	1.110 1.101 -0.873	1.248 1.236 -1.001	1.058 1.047 -1.051	1.108 1.095 -1.191	0.951 0.940 -1.139	1.074 1.065 -0.829	0.654 0.851 -0.367
0.775 0.782 0.942	0.876 0.880 0.388	1.203 1.206 0.216	1.038 1.046 0.792	1.231 1.236 0.422	1.136 1.103 -0.316	1.254 1.251 -0.303	1.081 1.086 -0.458	1.252 1.251 0.008	1.100 1.103 0.245	1.233 1.236 0.235	1.059 1.046 -1.275	1.218 1.206 -1.042	0.886 0.880 -0.666	0.785 0.782 -0.357
0.814 0.821 0.823	0.948 0.955 0.717	0.982 0.992 1.029	1.200 1.219 1.558	1.087 1.101 1.279	1.239 1.251 0.912	1.054 1.059 0.465	1.127 1.134 0.648	1.055 1.059 0.370	1.234 1.251 1.312	1.099 1.101 0.155	1.225 1.219 0.539	1.001 0.992 0.879	0.962 0.955 -0.696	0.830 0.821 -1.166
0.795 0.802 0.818	0.845 0.855 1.117	1.114 1.133 1.409	1.053 1.072 1.747	1.232 1.257 1.996	1.056 1.086 1.886	1.109 1.134 2.397	0.977 0.989 1.270	1.132 1.134 0.203	1.088 1.086 -0.211	1.259 1.257 -0.135	1.077 1.072 -0.520	1.128 1.130 0.142	0.854 0.855 -1.030	0.813 0.802 -1.062
0.813 0.821 0.997	0.944 0.955 1.209	0.979 0.992 1.307	1.198 1.219 1.753	1.080 1.101 1.954	1.224 1.251 2.215	1.039 1.059 2.459	1.117 1.134 1.531	1.059 1.059 -0.019	1.253 1.251 -0.178	1.104 1.101 -0.290	1.222 1.219 -0.295	0.997 0.992 -0.512	0.959 0.955 -0.334	0.825 0.821 -0.497
0.784 0.782 -0.191	0.878 0.880 0.228	1.190 1.206 1.277	1.041 1.046 0.490	1.223 1.236 1.098	1.092 1.103 0.998	1.226 1.251 2.040	1.087 1.086 1.762	1.235 1.251 1.280	1.105 1.103 -0.190	1.245 1.236 -0.763	1.058 1.046 -1.153	1.224 1.206 -1.478	0.886 0.880 -0.689	0.788 0.782 -0.686
0.659 0.651 -1.228	1.079 1.065 -1.224	0.951 0.940 -1.219	1.096 1.095 -0.055	1.054 1.047 -0.693	1.235 1.236 0.081	1.085 1.101 1.447	1.226 1.257 2.552	1.073 1.101 2.553	1.233 1.236 0.258	1.090 1.047 -1.217	1.110 1.095 -1.271	0.952 0.940 -1.333	1.078 1.065 -1.215	0.659 0.651 -1.213
	0.930 0.924 -0.720	0.834 0.832 -0.228	1.149 1.136 -1.097	1.110 1.095 -1.289	1.057 1.046 1.037	1.209 1.219 0.827	1.049 1.072 2.184	1.192 1.219 2.265	1.057 1.046 -0.849	1.109 1.095 -1.173	1.148 1.136 -1.028	0.843 0.832 -1.210	0.935 0.924 -1.230	
	0.855 0.854 -0.233	1.029 1.026 -0.204	0.838 0.832 -0.692	0.953 0.940 -1.336	1.210 1.206 -0.355	0.961 0.992 1.060	1.111 1.130 1.671	0.986 0.992 0.731	1.211 1.206 -0.454	0.959 0.940 -2.013	0.846 0.832 -1.605	1.043 1.026 -1.592	0.662 0.654 -1.253	
		0.656 0.851 -0.229	0.928 0.924 -0.431	1.073 1.065 -0.690	0.876 0.880 0.466	0.939 0.955 1.756	0.844 0.856 1.282	0.960 0.955 -0.479	0.901 0.880 -2.353	1.092 1.065 -2.418	0.947 0.924 -2.461	0.667 0.654 -1.964		
				0.850 0.851 0.154	0.775 0.782 0.994	0.811 0.821 1.221	0.796 0.802 0.640	0.927 0.821 -0.810	0.801 0.782 -2.347	0.667 0.651 -2.412	Measured Relative Power Calculated Relative Power % Difference		

Figure C-2
Flux Map: CY1-FM02, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM03
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 913.0 MWD/MTU

				0.642 0.633 -0.390	0.767 0.769 0.248	0.805 0.808 0.360	0.793 0.790 -0.252	0.814 0.808 -0.576	0.771 0.769 -0.169	0.640 0.639 -0.172				
		0.643 0.642 -0.156	0.909 0.908 -0.154	1.054 1.050 -0.389	0.675 0.674 -0.171	0.947 0.951 0.380	0.854 0.853 -0.140	0.949 0.951 0.242	0.875 0.874 -0.091	1.049 1.050 0.095	0.904 0.908 0.454	0.649 0.642 -1.033		
	0.641 0.642 0.094	1.010 1.012 0.158	0.832 0.835 0.264	0.944 0.941 -0.307	1.205 1.200 -0.398	0.990 0.993 0.313	1.113 1.130 1.492	0.990 0.993 0.364	1.200 1.200 -0.008	0.939 0.941 0.213	0.831 0.835 0.445	1.023 1.012 -1.036	0.658 0.642 -2.476	
	0.908 0.908 0.066	0.830 0.835 0.506	1.141 1.150 0.718	1.097 1.104 0.656	1.045 1.052 0.641	1.215 1.222 0.563	1.061 1.077 -0.342	1.221 1.222 0.041	1.062 1.052 -0.914	1.113 1.104 -0.818	1.164 1.150 -1.283	0.649 0.835 -1.605	0.632 0.908 -2.512	
0.636 0.639 0.503	1.047 1.050 0.287	0.939 0.941 0.117	1.100 1.104 0.382	1.061 1.057 0.485	1.240 1.243 0.210	1.117 1.110 -0.573	1.274 1.264 -0.769	1.119 1.110 -0.795	1.262 1.243 -0.529	1.061 1.057 -0.239	1.131 1.104 -0.413	0.960 0.941 -0.051	1.062 1.050 -1.111	0.637 0.639 0.393
0.762 0.769 0.945	0.871 0.874 0.321	1.189 1.200 0.842	1.045 1.052 0.622	1.236 1.243 0.558	1.115 1.114 0.072	1.264 1.263 0.134	1.104 1.101 0.236	1.262 1.263 0.071	1.117 1.114 -0.251	1.251 1.243 -0.655	1.075 1.052 -2.122	1.215 1.200 -1.251	0.877 0.874 -0.375	0.766 0.769 0.391
0.802 0.808 0.756	0.543 0.551 0.806	0.983 0.993 1.059	1.205 1.222 1.386	1.098 1.110 1.102	1.252 1.263 0.806	1.074 1.078 0.362	1.152 1.159 0.606	1.072 1.078 0.569	1.247 1.263 1.202	1.106 1.110 0.226	1.229 1.222 -0.570	1.002 0.993 -0.878	0.957 0.951 -0.617	0.816 0.808 -0.992
0.785 0.760 0.726	0.841 0.853 1.427	1.106 1.130 1.940	1.059 1.077 1.757	1.214 1.261 1.824	1.084 1.101 1.559	1.136 1.159 2.007	1.020 1.027 0.738	1.159 1.159 0.000	1.100 1.101 0.138	1.283 1.264 0.193	1.003 1.077 -0.526	1.128 1.130 0.089	0.854 0.853 -1.227	0.800 0.790 -1.150
0.769 0.808 1.115	0.836 0.951 1.592	0.975 0.953 1.897	1.200 1.222 1.917	1.092 1.110 1.676	1.239 1.263 1.921	1.055 1.078 2.170	1.149 1.155 0.862	1.087 1.078 -0.609	1.264 1.263 -0.142	1.110 1.110 0.000	1.225 1.222 -0.294	1.000 0.993 -0.680	0.955 0.951 -0.388	0.811 0.808 -0.358
0.766 0.769 0.418	0.867 0.874 0.784	1.175 1.200 1.721	1.046 1.052 0.554	1.230 1.243 1.057	1.104 1.114 0.961	1.240 1.263 1.923	1.087 1.101 1.260	1.257 1.263 0.482	1.121 1.114 -0.624	1.254 1.243 -0.893	1.066 1.052 -1.369	1.221 1.200 -1.768	0.881 0.874 -0.761	0.775 0.769 -0.781
0.642 0.639 -0.483	1.055 1.050 -0.493	0.945 0.941 -0.497	1.103 1.104 0.082	1.062 1.057 -0.499	1.242 1.243 0.089	1.097 1.110 1.248	1.235 1.264 2.331	1.084 1.110 2.370	1.243 1.243 -0.032	1.073 1.057 -1.482	1.118 1.104 -1.332	0.952 0.941 -1.187	1.067 1.050 -1.575	0.649 0.639 1.571
	0.910 0.908 -0.165	0.833 0.835 0.144	1.150 1.150 -0.785	1.117 1.104 -1.137	1.060 1.052 -1.072	1.213 1.222 0.742	1.055 1.077 2.095	1.198 1.222 2.180	1.048 1.052 0.612	1.116 1.104 -1.111	1.159 1.150 -0.809	0.845 0.835 -1.184	0.925 0.908 -1.796	
	0.840 0.642 0.201	1.010 1.012 0.220	0.837 0.835 -0.322	0.953 0.941 -1.280	1.208 1.200 -0.574	0.908 0.993 0.791	1.112 1.130 1.610	0.985 0.993 0.863	1.202 1.200 -0.191	0.955 0.941 -1.539	0.846 0.835 -1.359	1.029 1.012 -1.814	0.655 0.642 -1.970	
		0.639 0.642 0.407	0.909 0.908 -0.055	1.056 1.050 -0.521	0.872 0.874 0.252	0.938 0.951 1.375	0.842 0.853 1.355	0.951 0.951 -0.011	0.891 0.874 -1.886	1.072 1.050 -1.997	0.928 0.908 -2.113	0.655 0.642 -2.045		
				0.637 0.639 0.330	0.769 0.769 0.760	0.798 0.808 1.278	0.781 0.790 1.203	0.809 0.808 -0.124	0.784 0.769 -1.875	0.652 0.639 -1.992	Measured Relative Power Calculated Relative Power % Difference			

Figure C-3
Flux Map: CY1-FM03, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM04
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 1935.0 MWD/MTU

				0.625 0.627 0.272	0.750 0.759 1.214	0.730 0.801 1.382	0.782 0.786 0.550	0.801 0.801 -0.025	0.754 0.758 0.580	0.622 0.677 0.691				
		0.628 0.628 0.207	0.831 0.837 0.202	1.034 1.037 0.281	0.858 0.873 0.611	0.953 0.982 0.871	0.881 0.982 0.169	0.956 0.982 0.508	0.866 0.873 0.750	1.031 1.037 0.582	0.890 0.892 0.247	0.633 0.628 -0.631		
	0.629 0.629 0.127	0.998 1.000 0.190	0.848 0.849 0.319	0.942 0.944 0.287	1.186 1.189 0.278	0.998 0.999 0.962	1.121 1.134 1.160	0.994 0.999 0.513	1.180 1.189 0.805	0.939 0.944 0.511	0.847 0.849 0.224	1.007 1.000 -0.886	0.639 0.628 -1.602	
	0.892 0.892 0.000	0.846 0.849 0.295	1.139 1.142 0.272	1.116 1.113 -0.144	1.059 1.056 -0.189	1.217 1.222 0.337	1.096 1.081 -0.451	1.221 1.222 0.008	1.060 1.056 -0.349	1.115 1.113 -0.215	1.148 1.142 0.551	0.858 0.849 0.818	0.904 0.892 -1.283	
0.622 0.627 0.675	1.033 1.037 0.339	0.943 0.944 0.117	1.112 1.113 0.063	1.068 1.064 -0.365	1.253 1.244 -0.718	1.129 1.114 -1.232	1.280 1.265 -1.188	1.127 1.114 -1.145	1.259 1.244 -1.138	1.077 1.064 -1.237	1.125 1.113 -1.120	0.952 0.944 -0.778	1.041 1.037 0.384	0.625 0.627 0.224
0.743 0.758 1.254	0.968 0.973 0.622	1.189 1.189 0.143	1.054 1.056 0.237	1.249 1.244 -0.329	1.130 1.113 -0.947	1.279 1.265 -0.946	1.123 1.111 -1.077	1.274 1.265 -0.589	1.122 1.113 -0.241	1.247 1.244 -0.257	1.069 1.056 -1.169	1.198 1.189 -0.710	0.875 0.873 -0.206	0.757 0.758 0.238
0.790 0.801 1.319	0.953 0.962 0.934	0.993 0.999 0.624	1.213 1.222 0.709	1.112 1.114 0.225	1.266 1.265 0.024	1.095 1.093 -0.237	1.181 1.179 -0.161	1.098 1.093 -0.474	1.262 1.266 0.357	1.120 1.114 -0.516	1.230 1.222 -0.658	1.007 0.999 -0.785	0.988 0.962 -0.476	0.808 0.801 -0.845
0.776 0.795 1.340	0.852 0.862 1.197	1.122 1.134 1.052	1.072 1.061 0.877	1.255 1.265 0.749	1.102 1.111 0.769	1.165 1.179 1.184	1.039 1.043 0.375	1.186 1.179 0.632	1.122 1.111 -0.965	1.273 1.265 -0.623	1.089 1.081 -0.680	1.134 1.134 -0.018	0.869 0.862 -0.782	0.792 0.795 -0.544
0.791 0.801 1.226	0.961 0.962 1.136	0.968 0.999 1.103	1.211 1.222 0.864	1.106 1.114 0.769	1.264 1.266 1.013	1.079 1.093 1.260	1.173 1.179 0.486	1.102 1.093 -0.817	1.276 1.266 -0.778	1.120 1.114 -0.536	1.227 1.222 -0.484	1.005 0.999 -0.587	0.963 0.962 -0.135	0.802 0.801 -0.087
0.753 0.759 0.764	0.865 0.873 0.867	1.177 1.189 1.068	1.056 1.056 0.009	1.240 1.244 -0.356	1.116 1.119 0.305	1.254 1.266 0.973	1.103 1.111 0.753	1.262 1.266 0.333	1.125 1.119 -0.560	1.255 1.244 -0.837	1.069 1.056 -1.160	1.207 1.189 -1.434	0.876 0.873 -0.398	0.762 0.759 -0.381
0.623 0.627 0.562	1.031 1.037 0.563	0.939 0.944 0.564	1.116 1.113 -0.238	1.071 1.064 -0.691	1.247 1.244 -0.265	1.107 1.114 0.650	1.246 1.265 1.509	1.097 1.114 1.577	1.245 1.244 -0.120	1.076 1.064 -1.161	1.125 1.113 -1.076	0.954 0.944 -1.017	1.047 1.037 -0.984	0.633 0.627 -0.995
	0.887 0.892 0.552	0.844 0.849 0.521	1.146 1.142 -0.549	1.124 1.113 -1.002	1.067 1.056 -0.993	1.214 1.222 0.601	1.064 1.081 1.654	1.203 1.222 1.555	1.053 1.056 0.332	1.123 1.113 0.909	1.150 1.142 -0.637	0.858 0.849 -0.818	0.902 0.892 -1.053	
	0.626 0.629 0.575	0.891 1.000 0.553	0.849 0.849 -0.024	0.954 0.944 -1.048	1.182 1.189 -0.185	0.907 0.999 1.226	1.114 1.134 1.805	0.932 0.999 0.726	1.185 1.189 0.477	0.858 0.944 -1.430	0.860 0.849 -1.268	1.012 1.000 -1.215	0.637 0.628 -1.100	
		0.626 0.629 0.537	0.890 0.892 0.281	1.038 1.037 -0.108	0.866 0.873 0.843	0.941 0.982 2.156	0.845 0.982 2.047	0.958 0.982 0.397	0.868 0.873 -1.731	1.058 1.037 -1.846	0.910 0.892 -1.956	0.640 0.628 -1.590		
				0.621 0.627 0.886	0.748 0.759 1.457	0.704 0.801 2.169	0.773 0.786 2.133	0.797 0.801 0.477	0.772 0.759 -1.722	0.639 0.627 -1.848	Measured Relative Power Calculated Relative Power % Difference			

Figure C-4
Flux Map: CY1-FM04, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM05
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 2953.0 MWD/MTU

				0.627 0.629 0.303	0.752 0.764 1.609	0.791 0.808 2.097	0.780 0.795 1.506	0.802 0.808 0.811	0.754 0.764 1.326	0.621 0.629 1.306				
		0.641 0.636 -0.873	0.906 0.899 -0.883	1.038 1.042 0.318	0.873 0.880 0.779	0.967 0.980 1.313	0.887 0.875 0.934	0.970 0.980 1.052	0.870 0.880 1.150	1.069 1.042 -2.535	0.989 0.858 -8.162	0.899 0.836 -5.034		
	0.635 0.636 0.126	1.012 1.013 0.140	0.874 0.878 0.217	0.950 0.953 0.326	1.179 1.183 0.305	0.996 1.000 0.523	1.122 1.135 1.132	0.993 1.000 0.705	1.171 1.183 0.902	0.897 0.953 -4.364	0.964 0.876 -9.180	1.067 1.013 -5.041	0.639 0.636 -0.503	
	0.699 0.698 0.313	0.887 0.876 1.015	1.137 1.147 0.853	1.125 1.122 -0.053	1.053 1.054 0.095	1.207 1.210 0.257	1.072 1.070 -0.233	1.205 1.210 0.415	1.046 1.051 0.286	1.156 1.122 -2.907	1.204 1.147 -4.709	0.909 0.876 -3.643	0.907 0.898 -0.916	
0.622 0.629 1.156	1.033 1.042 0.823	0.948 0.953 0.601	1.117 1.122 0.465	1.064 1.060 -0.329	1.240 1.230 -0.774	1.113 1.097 -1.464	1.258 1.245 -0.892	1.100 1.097 -0.264	1.235 1.230 -0.203	1.068 1.060 -0.712	1.185 1.122 -5.128	0.965 0.953 -1.182	1.049 1.042 -0.582	0.627 0.629 0.335
0.749 0.764 2.003	0.970 0.980 1.161	1.177 1.183 0.459	1.048 1.051 0.478	1.234 1.230 -0.316	1.114 1.104 -0.845	1.256 1.246 -0.733	1.105 1.093 -1.104	1.251 1.246 -0.416	1.099 1.101 0.182	1.231 1.230 -0.097	1.063 1.051 -1.060	1.161 1.153 -0.722	0.901 0.890 -1.148	0.761 0.764 0.341
0.792 0.808 2.039	0.966 0.980 1.407	0.991 1.000 0.857	1.199 1.210 0.901	1.095 1.097 0.201	1.242 1.246 0.274	1.074 1.078 0.436	1.171 1.171 0.017	1.087 1.078 -0.764	1.244 1.246 0.145	1.101 1.097 -0.390	1.214 1.210 -0.321	1.006 1.000 -0.618	0.905 0.980 -0.546	0.815 0.808 -0.883
0.780 0.795 1.962	0.861 0.875 1.602	1.121 1.135 1.240	1.050 1.070 0.949	1.236 1.245 0.653	1.083 1.053 0.942	1.156 1.171 1.140	1.026 1.033 0.653	1.178 1.171 -0.603	1.104 1.093 -0.960	1.252 1.245 -0.567	1.073 1.070 -0.328	1.135 1.135 0.092	0.883 0.875 -0.951	0.798 0.795 -0.266
0.794 0.808 1.776	0.965 0.980 1.544	0.986 1.000 1.359	1.201 1.210 0.755	1.091 1.097 0.522	1.237 1.246 0.711	1.069 1.078 0.889	1.167 1.171 0.340	1.095 1.078 -0.663	1.256 1.246 -0.820	1.105 1.097 -0.724	1.216 1.210 -0.493	1.007 1.000 -0.686	0.979 0.980 0.051	0.901 0.808 -10.274
0.754 0.764 1.286	0.868 0.880 1.348	1.165 1.183 1.493	1.049 1.051 0.324	1.225 1.230 0.392	1.097 1.104 0.438	1.236 1.246 0.777	1.096 1.093 0.628	1.242 1.246 0.322	1.109 1.101 -0.712	1.244 1.230 -1.117	1.066 1.051 -1.405	1.202 1.183 -1.663	0.876 0.880 0.458	0.760 0.764 0.473
0.622 0.629 1.126	1.030 1.042 1.146	0.943 0.953 1.146	1.119 1.122 0.277	1.060 1.060 0.028	1.230 1.230 -0.016	1.092 1.097 0.486	1.228 1.245 1.335	1.080 1.097 1.555	1.231 1.230 -0.106	1.073 1.060 -1.211	1.134 1.122 -1.023	0.962 0.953 -0.953	1.048 1.042 -0.582	0.632 0.629 -0.501
	0.891 0.898 0.853	0.871 0.876 0.563	1.143 1.147 0.368	1.124 1.122 -0.142	1.058 1.051 -0.577	1.205 1.210 0.398	1.054 1.070 1.479	1.191 1.210 1.604	1.047 1.051 0.401	1.130 1.122 -0.715	1.151 1.147 -0.330	0.878 0.876 -0.241	0.904 0.898 -0.620	
	0.835 0.836 0.173	1.010 1.013 0.367	0.873 0.876 0.286	0.952 0.953 0.168	1.177 1.183 0.433	0.989 1.000 1.133	1.117 1.135 1.557	0.992 1.000 0.796	1.183 1.183 0.000	0.957 0.953 -0.428	0.078 0.876 -0.046	1.016 1.013 -0.305	0.640 0.636 -0.656	
		0.637 0.636 -0.141	0.893 0.898 0.537	1.030 1.042 1.155	0.865 0.880 1.697	0.958 0.980 2.329	0.956 0.975 2.172	0.973 0.980 0.676	0.880 0.880 -1.179	1.046 1.042 -0.620	0.869 0.898 -0.045	0.836 0.836 -0.298		
				0.617 0.629 1.898	0.748 0.764 2.139	0.790 0.808 2.580	0.775 0.795 2.673	0.800 0.808 1.063	0.773 0.764 -1.177	0.633 0.629 -0.632	Measured Relative Power Calculated Relative Power % Difference			

Figure C-5
Flux Map: CY1-FM05, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM06
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 3463.0 MWD/MTU

				0.628 0.628 0.000	0.754 0.783 1.233	0.795 0.808 1.648	0.788 0.798 0.988	0.803 0.808 0.548	0.754 0.763 1.287	0.620 0.628 1.291				
		0.639 0.637 -0.313	0.900 0.898 -0.311	1.043 1.043 -0.000	0.877 0.881 0.433	0.977 0.987 0.993	0.874 0.879 0.526	0.979 0.987 0.838	0.873 0.881 0.997	1.030 1.040 1.000	0.898 0.898 1.024	0.637 0.637 0.031		
	0.636 0.637 0.173	1.015 1.017 0.207	0.889 0.891 0.304	0.950 0.959 0.000	1.177 1.177 -0.008	0.996 0.999 0.271	1.121 1.133 1.070	0.994 0.999 0.453	1.169 1.177 0.710	0.950 0.958 0.852	0.892 0.891 1.008	1.017 1.017 1.028	0.643 0.637 -0.939	
	0.896 0.898 0.212	0.885 0.891 0.700	1.158 1.162 0.371	1.137 1.131 0.528	1.055 1.049 0.550	1.203 1.204 0.033	1.071 1.064 -0.598	1.202 1.204 0.116	1.061 1.049 -0.190	1.132 1.131 -0.115	1.167 1.162 -0.420	0.698 0.691 -0.481	0.907 0.898 -1.025	
0.622 0.628 0.949	1.035 1.040 0.512	0.956 0.958 0.241	1.131 1.131 -0.018	1.069 1.060 -0.795	1.239 1.224 -1.243	1.109 1.089 1.734	1.250 1.235 1.216	1.097 1.069 -0.548	1.234 1.224 -0.802	1.076 1.060 -1.450	1.146 1.131 -1.326	0.967 0.958 -0.910	1.044 1.040 -0.412	0.628 0.628 0.368
0.751 0.763 1.624	0.875 0.881 0.697	1.178 1.177 -0.085	1.060 1.049 -0.025	1.234 1.224 -0.778	1.110 1.094 -1.388	1.253 1.238 -1.215	1.102 1.068 -1.238	1.246 1.238 -0.628	1.097 1.094 -0.248	1.232 1.224 -0.625	1.064 1.049 -1.328	1.166 1.177 -0.725	0.692 0.881 -0.108	0.761 0.763 0.368
0.796 0.808 1.546	0.577 0.567 0.562	0.594 0.599 0.473	1.199 1.204 0.442	1.093 1.069 -0.329	1.243 1.238 -0.382	1.079 1.076 -0.232	1.161 1.176 -0.432	1.068 1.076 -0.040	1.240 1.238 -0.169	1.096 1.089 -0.619	1.212 1.204 -0.668	1.005 0.999 -0.657	0.868 0.567 -0.132	0.807 0.808 0.124
0.705 0.766 1.439	0.068 0.879 1.326	1.121 1.133 1.079	1.056 1.064 0.539	1.234 1.235 0.073	1.084 1.088 0.223	1.169 1.176 0.616	1.047 1.047 0.010	1.190 1.176 -1.135	1.104 1.088 -1.494	1.248 1.235 -1.002	1.072 1.064 -0.718	1.133 1.138 0.371	0.879 0.879 0.057	0.792 0.796 0.492
0.756 0.808 1.444	0.873 0.987 1.377	0.986 0.999 1.267	1.198 1.204 0.484	1.087 1.089 0.175	1.234 1.236 0.324	1.071 1.076 0.485	1.178 1.176 -0.204	1.092 1.076 -1.392	1.255 1.236 -1.386	1.101 1.088 -1.063	1.213 1.204 -0.783	1.003 0.999 -0.419	0.861 0.987 0.522	0.801 0.808 0.312
0.754 0.763 1.651	0.867 0.881 1.591	1.161 1.177 1.413	1.047 1.049 0.191	1.221 1.224 0.270	1.092 1.094 0.211	1.234 1.238 0.332	1.087 1.068 0.055	1.243 1.238 -0.370	1.107 1.094 -1.183	1.242 1.224 -1.425	1.067 1.049 -1.677	1.200 1.177 1.884	0.880 0.881 0.148	0.762 0.763 0.157
0.817 0.628 1.833	1.021 1.040 1.831	0.941 0.950 1.820	1.130 1.131 0.115	1.062 1.060 -0.160	1.227 1.224 -0.277	1.009 1.009 0.020	1.225 1.235 0.793	1.078 1.089 1.057	1.230 1.224 -0.520	1.078 1.060 -1.606	1.146 1.131 -1.361	0.959 0.958 -1.185	1.049 1.040 -0.811	0.833 0.628 -0.606
	0.898 0.898 1.001	0.809 0.891 0.315	1.181 1.162 0.155	1.135 1.131 -0.398	1.058 1.049 -0.878	1.202 1.204 0.133	1.051 1.064 1.209	1.188 1.204 1.287	1.043 1.049 0.010	1.143 1.131 -1.095	1.170 1.162 -0.841	0.698 0.691 -0.713	0.907 0.898 -1.001	
	0.635 0.637 0.441	1.013 1.017 0.305	0.890 0.891 0.363	0.959 0.958 -0.063	1.175 1.177 0.170	0.999 0.999 1.011	1.115 1.133 1.605	0.993 0.999 0.574	1.183 1.177 -0.482	0.967 0.958 -0.859	0.695 0.691 -0.381	1.024 1.017 -0.713	0.645 0.637 -1.148	
		0.634 0.637 0.521	0.892 0.898 0.639	1.032 1.040 0.834	0.853 0.881 1.392	0.966 0.987 2.111	0.667 0.679 1.996	0.963 0.987 0.366	0.897 0.881 -1.758	1.052 1.040 -1.093	0.901 0.898 -0.422	0.642 0.637 0.732		
				0.619 0.628 1.487	0.750 0.763 1.787	0.790 0.808 2.240	0.779 0.796 2.250	0.803 0.808 0.580	0.777 0.763 -1.750	0.635 0.628 -1.087	Measured Relative Power Calculated Relative Power % Difference			

Figure C-6
Flux Map: CY1-FM06, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM07
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 4369.0 MWD/MTU

				0.629 0.631 0.252	0.756 0.758 1.642	0.786 0.813 2.162	0.780 0.803 1.531	0.806 0.813 0.357	0.756 0.758 1.642	0.631 0.631 1.644				
		0.644 0.644 -0.062	0.904 0.905 -0.056	1.042 1.044 0.230	0.879 0.886 0.726	0.989 1.002 1.235	0.880 0.887 0.857	0.992 1.002 1.006	0.874 0.886 1.304	1.032 1.044 1.202	0.894 0.903 0.973	0.642 0.644 0.280		
	0.643 0.644 0.187	1.026 1.029 0.332	0.911 0.916 0.549	0.963 0.965 0.229	1.169 1.172 0.302	0.895 0.898 0.312	1.123 1.133 0.837	0.893 0.898 0.524	1.160 1.172 0.991	0.956 0.965 0.984	0.906 0.916 0.970	1.026 1.029 0.282	0.646 0.644 -0.397	
		0.903 0.903 0.033	0.909 0.916 0.825	1.170 1.173 0.308	1.149 1.139 -0.889	1.054 1.044 -0.892	1.184 1.193 -0.067	1.059 1.054 -0.510	1.190 1.193 0.235	1.043 1.044 0.096	1.138 1.139 0.035	1.179 1.173 -0.534	0.922 0.916 -0.597	0.912 0.903 -0.987	
0.626 0.631 0.815	1.039 1.044 0.520	0.982 0.985 0.322	1.139 1.139 -0.014	1.069 1.057 -1.114	1.230 1.212 -1.496	1.096 1.075 -1.943	1.233 1.218 -1.176	1.079 1.075 -0.426	1.218 1.212 -0.533	1.070 1.057 -1.280	1.157 1.139 -1.548	0.979 0.965 -1.420	1.052 1.044 -0.894	0.628 0.631 0.448
0.755 0.758 1.655	0.879 0.808 0.705	1.172 1.172 -0.017	1.048 1.044 -0.162	1.225 1.212 -1.063	1.096 1.079 -1.542	1.238 1.221 -1.381	1.090 1.079 -1.578	1.231 1.221 -0.804	1.083 1.079 -0.305	1.221 1.212 -0.737	1.060 1.044 -1.463	1.182 1.172 -0.897	0.887 0.886 -0.169	0.764 0.758 0.458
0.799 0.813 1.689	0.991 1.002 1.090	0.984 0.998 0.382	1.191 1.193 0.193	1.091 1.075 -0.610	1.228 1.221 -0.594	1.093 1.065 -0.974	1.179 1.170 -0.772	1.080 1.065 -1.359	1.228 1.221 -0.554	1.085 1.075 -0.967	1.200 1.193 -0.600	1.004 0.998 -0.657	1.004 1.002 -0.239	0.813 0.813 -0.066
0.788 0.803 1.737	0.974 0.987 1.499	1.122 1.139 0.990	1.051 1.054 0.285	1.221 1.218 -0.216	1.074 1.073 -0.056	1.169 1.170 0.094	1.048 1.045 -0.277	1.185 1.179 -1.324	1.091 1.073 -1.614	1.232 1.218 -1.112	1.061 1.054 -0.651	1.133 1.139 -0.525	0.989 0.997 -0.202	0.800 0.803 0.363
0.799 0.813 1.740	0.985 1.002 1.644	0.984 0.998 1.382	1.191 1.193 0.169	1.077 1.075 -0.241	1.229 1.221 -0.108	1.088 1.065 -0.131	1.176 1.170 -0.578	1.080 1.065 -1.417	1.229 1.221 -1.469	1.088 1.075 -1.177	1.203 1.193 -0.790	1.003 0.998 -0.489	0.997 1.002 0.502	0.804 0.813 1.019
0.751 0.758 2.265	0.967 0.886 2.522	1.151 1.172 1.754	1.045 1.044 0.057	1.213 1.212 -0.391	1.091 1.079 -0.111	1.222 1.221 -0.074	1.076 1.073 -0.279	1.227 1.221 -0.521	1.093 1.079 -1.271	1.250 1.212 -1.458	1.061 1.044 -1.620	1.193 1.172 -1.781	0.632 0.886 0.431	0.764 0.758 -0.445
0.615 0.631 2.620	1.018 1.044 2.624	0.940 0.965 2.627	1.139 1.139 -0.026	1.069 1.057 -0.170	1.217 1.212 -0.403	1.077 1.075 -0.223	1.212 1.218 0.476	1.066 1.075 0.844	1.218 1.212 -0.533	1.074 1.057 -1.638	1.156 1.139 -1.489	0.978 0.965 -1.349	1.050 1.044 -0.595	0.634 0.631 0.505
	0.891 0.903 1.347	0.915 0.916 0.067	1.171 1.173 0.231	1.141 1.139 -0.202	1.052 1.044 -0.741	1.193 1.193 0.042	1.043 1.054 1.026	1.180 1.193 1.136	1.045 1.044 -0.029	1.154 1.139 -1.351	1.186 1.173 -1.088	0.925 0.916 -1.026	0.911 0.903 -0.957	
	0.641 0.644 0.464	1.026 1.029 0.322	0.912 0.916 0.516	0.963 0.965 0.229	1.167 1.172 0.306	0.897 0.898 1.004	1.116 1.133 1.524	0.892 0.898 0.595	1.175 1.172 -0.306	0.974 0.965 -0.863	0.922 0.916 -0.640	1.038 1.029 -0.839	0.651 0.644 -1.139	
		0.639 0.644 0.814	0.895 0.903 0.916	1.032 1.044 1.231	0.871 0.886 1.734	0.979 1.002 2.319	0.865 0.887 2.153	0.995 1.002 0.532	0.898 0.886 -1.381	1.054 1.044 -0.864	0.906 0.903 -0.342	0.648 0.644 -0.679		
				0.619 0.631 1.923	0.752 0.758 2.156	0.798 0.813 2.536	0.782 0.803 2.587	0.805 0.813 0.919	0.778 0.758 -1.375	0.638 0.631 -0.865	Measured Relative Power Calculated Relative Power % Difference			

Figure C-7
Flux Map: CY1-FM07, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM08
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 4852.0 MWD/MTU

				0.634 0.632 -0.205	0.761 0.770 1.169	0.802 0.816 1.658	0.798 0.806 0.977	0.811 0.816 0.567	0.759 0.770 1.409	0.624 0.632 1.411			
		0.654 0.647 -0.994	0.915 0.905 -0.984	1.043 1.047 0.210	0.885 0.888 0.282	1.000 1.009 0.890	0.688 0.691 0.383	1.000 1.009 0.820	0.677 0.688 1.208	1.035 1.047 1.082	0.898 0.906 0.635	0.650 0.647 -0.400	
	0.651 0.647 -0.523	1.038 1.034 -0.404	0.930 0.928 -0.183	0.970 0.968 -0.206	1.171 1.169 -0.205	0.995 0.997 0.221	1.122 1.132 0.945	0.992 0.997 0.534	1.157 1.169 1.011	0.959 0.968 0.928	0.921 0.928 0.836	1.038 1.034 -0.395	0.650 0.647 -1.586
	0.911 0.906 -0.625	0.926 0.928 0.238	1.174 1.178 0.307	1.144 1.143 -0.140	1.013 1.011 -0.144	1.185 1.189 0.228	1.051 1.049 -0.190	1.182 1.188 0.508	1.036 1.041 0.570	1.137 1.143 0.501	1.180 1.178 -0.188	0.937 0.928 -0.318	0.921 0.906 -1.619	
0.631 0.632 0.238	1.047 1.047 -0.057	0.971 0.968 -0.247	1.143 1.143 -0.044	1.058 1.055 -0.350	1.215 1.206 -0.708	1.062 1.058 -1.349	1.219 1.210 -0.705	1.067 1.058 -0.828	1.203 1.206 0.283	1.056 1.055 -0.104	1.153 1.143 -0.885	0.981 0.963 -1.905	1.054 1.047 -0.674	0.630 0.632 0.333
0.761 0.770 1.143	0.885 0.888 0.382	1.173 1.169 -0.358	1.042 1.041 -0.029	1.211 1.206 -0.363	1.079 1.072 -0.658	1.218 1.213 -0.451	1.075 1.066 0.837	1.216 1.213 0.230	1.067 1.072 0.422	1.204 1.206 0.159	1.051 1.041 -0.932	1.178 1.169 -0.730	0.889 0.888 -0.180	0.767 0.770 0.326
0.806 0.816 1.179	1.003 1.009 0.528	0.996 0.997 0.110	1.184 1.188 0.355	1.068 1.063 -0.047	1.209 1.213 0.269	1.061 1.059 -0.094	1.165 1.167 0.155	1.066 1.059 -0.704	1.212 1.213 0.116	1.074 1.068 -0.540	1.194 1.188 -0.527	1.003 0.997 -0.578	1.012 1.009 -0.287	0.819 0.816 -0.403
0.797 0.806 1.142	0.886 0.891 0.569	1.157 1.152 -0.435	1.045 1.049 0.383	1.207 1.210 0.202	1.056 1.066 0.766	1.156 1.167 0.917	1.037 1.043 0.540	1.175 1.167 -0.681	1.075 1.068 -0.655	1.216 1.210 -0.516	1.055 1.049 -0.616	1.132 1.132 0.027	0.896 0.891 -0.569	0.810 0.806 -0.518
0.808 0.816 0.978	1.004 1.009 0.559	0.992 0.997 0.534	1.186 1.188 0.228	1.066 1.068 0.178	1.208 1.213 0.389	1.062 1.059 0.539	1.166 1.167 0.034	1.068 1.059 -0.899	1.222 1.213 -0.777	1.074 1.068 -0.596	1.195 1.188 -0.544	1.002 0.997 -0.539	1.010 1.009 -0.099	0.817 0.816 -0.122
0.757 0.770 1.664	0.876 0.888 1.405	1.160 1.169 0.750	1.040 1.041 0.179	1.204 1.206 0.174	1.069 1.072 0.309	1.206 1.213 0.606	1.062 1.066 0.348	1.214 1.213 -0.049	1.078 1.072 -0.557	1.218 1.206 -0.814	1.054 1.041 -1.214	1.187 1.169 -1.534	0.898 0.888 -1.114	0.779 0.770 -1.117
0.816 0.632 2.330	1.023 1.047 2.337	0.946 0.968 2.348	1.140 1.143 0.184	1.054 1.055 0.076	1.206 1.206 0.041	1.064 1.068 0.395	1.199 1.210 0.917	1.057 1.060 0.974	1.207 1.206 -0.108	1.066 1.055 -1.041	1.157 1.143 -1.235	0.982 0.968 -1.415	1.071 1.047 -2.295	0.647 0.632 -2.302
	0.897 0.906 0.991	0.932 0.928 -0.354	1.178 1.178 0.025	1.143 1.143 -0.052	1.045 1.041 -0.335	1.193 1.189 0.457	1.037 1.049 1.129	1.176 1.189 1.046	1.039 1.041 0.192	1.155 1.143 -1.091	1.193 1.178 -1.224	0.943 0.928 -1.527	0.924 0.906 -2.023	
	0.650 0.647 -0.354	1.038 1.034 -0.356	0.930 0.928 -0.151	0.968 0.968 0.072	1.160 1.169 0.439	0.985 0.997 1.167	1.116 1.132 1.470	0.982 0.997 0.464	1.174 1.169 -0.454	0.961 0.968 1.274	0.939 0.928 -1.160	1.049 1.034 -1.439	0.669 0.647 -1.820	
		0.650 0.647 -0.354	0.905 0.906 0.055	1.041 1.047 0.557	0.877 0.888 1.231	0.988 1.009 2.035	0.874 0.891 1.979	1.004 1.009 0.438	0.901 0.888 -1.520	1.060 1.047 -1.284	0.915 0.906 -1.006	0.656 0.647 -1.358	
				0.627 0.632 0.693	0.759 0.770 1.436	0.798 0.816 2.257	0.768 0.806 2.284	0.810 0.816 0.679	0.762 0.770 1.522	0.641 0.632 -1.265	Measured Relative Power Calculated Relative Power % Difference		

Figure C-8
Flux Map: CY1-FM08, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM09
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 5998.0 MWD/MTU

				0.638 0.637 -0.188	0.767 0.777 1.369	0.808 0.824 2.018	0.804 0.816 1.479	0.815 0.824 1.137	0.783 0.777 0.888	0.625 0.637 1.909			
		0.658 0.656 -0.390	0.816 0.812 -0.371	1.056 1.053 -0.189	0.891 0.895 0.359	1.018 1.029 1.061	0.896 0.903 0.770	1.018 1.029 1.090	0.881 0.895 1.576	1.059 1.053 1.329	0.905 0.912 0.816	0.655 0.655 0.107	
	0.656 0.655 -0.048	1.047 1.047 0.029	0.956 0.957 0.146	0.977 0.975 -0.194	1.165 1.162 -0.197	0.996 0.997 0.141	1.125 1.133 0.720	0.992 0.997 0.545	1.148 1.162 1.290	0.985 0.975 1.057	0.949 0.957 0.971	1.046 1.047 0.106	0.659 0.655 -0.591
	0.813 0.812 -0.000	0.953 0.957 0.441	1.100 1.100 0.068	1.158 1.149 -0.795	1.043 1.035 -0.805	1.179 1.176 -0.178	1.043 1.037 -0.585	1.174 1.176 0.222	1.035 1.035 0.000	1.151 1.149 -0.200	1.189 1.180 -0.748	0.963 0.957 -0.633	0.922 0.912 1.031
0.632 0.637 0.743	1.048 1.053 0.449	0.973 0.976 0.236	1.149 1.149 -0.070	1.056 1.048 -0.954	1.206 1.191 -1.235	1.068 1.051 -1.583	1.202 1.191 -0.990	1.355 1.351 -0.360	1.202 1.191 -0.890	1.389 1.048 -1.918	1.170 1.149 -1.795	0.989 0.875 -1.345	1.061 1.053 -0.773	0.637 0.657 0.110
0.766 0.777 1.541	0.887 0.895 0.880	1.160 1.162 0.241	1.035 1.035 -0.029	1.201 1.151 -0.841	1.067 1.054 -1.200	1.264 1.152 0.955	1.060 1.048 1.035	1.197 1.192 -0.401	1.057 1.054 -0.255	1.202 1.191 -0.866	1.051 1.035 -1.579	1.173 1.162 -0.904	0.898 0.895 -0.356	0.776 0.777 0.129
0.811 0.824 1.541	1.019 1.029 1.031	0.993 0.997 0.443	1.173 1.176 0.315	1.054 1.051 -0.285	1.195 1.192 -0.218	1.048 1.043 -0.058	1.160 1.156 -0.338	1.052 1.043 -0.903	1.193 1.192 -0.042	1.058 1.051 -0.662	1.183 1.176 -0.524	1.003 0.997 -0.658	1.033 1.029 -0.397	0.826 0.824 -0.259
0.801 0.816 1.492	0.992 0.903 1.233	1.123 1.133 0.020	1.033 1.037 0.418	1.189 1.191 0.177	1.044 1.048 0.354	1.151 1.156 0.443	1.029 1.029 0.058	1.187 1.158 -0.985	1.083 1.048 -1.355	1.201 1.191 -0.858	1.040 1.037 -0.556	1.133 1.133 -0.026	0.907 0.903 -0.463	0.817 0.816 -0.024
0.812 0.824 1.416	1.016 1.029 1.269	0.985 0.997 1.075	1.173 1.176 0.298	1.051 1.051 0.029	1.190 1.192 0.185	1.039 1.043 0.346	1.158 1.156 -0.164	1.055 1.043 -1.156	1.207 1.192 -1.226	1.051 1.051 -0.952	1.184 1.176 -0.642	1.002 0.997 -0.519	1.027 1.029 0.214	0.819 0.824 0.647
0.761 0.777 2.142	0.978 0.895 1.881	1.147 1.152 1.298	1.037 1.035 -0.164	1.193 1.191 -0.143	1.054 1.054 -0.009	1.187 1.192 0.413	1.046 1.048 0.249	1.193 1.192 -0.092	1.085 1.054 -0.885	1.208 1.191 -1.235	1.050 1.035 -1.429	1.181 1.162 -1.582	0.899 0.895 -0.476	0.781 0.777 -0.474
0.620 0.637 2.724	1.025 1.053 2.733	0.948 0.975 2.728	1.151 1.149 -0.161	1.052 1.040 -0.342	1.196 1.191 -0.388	1.049 1.051 0.191	1.179 1.191 0.950	1.039 1.051 1.126	1.196 1.191 -0.418	1.064 1.048 -1.466	1.165 1.149 -1.391	0.988 0.975 1.305	1.073 1.053 -1.038	0.650 0.637 -1.939
	0.900 0.912 1.423	0.956 0.957 0.145	1.179 1.160 0.113	1.152 1.149 -0.255	1.040 1.035 0.748	1.174 1.176 0.179	1.025 1.037 1.141	1.163 1.176 1.178	1.034 1.035 0.048	1.164 1.149 -1.281	1.154 1.160 1.131	0.969 0.957 -1.136	0.927 0.912 -1.554	
	0.650 0.655 0.429	1.044 1.047 0.307	0.953 0.957 0.441	0.974 0.975 0.185	1.158 1.162 0.397	0.997 0.997 1.034	1.117 1.133 1.358	0.992 0.997 0.494	1.166 1.162 -0.334	0.985 0.975 -0.965	0.964 0.957 -0.747	1.057 1.047 -0.985	0.664 0.655 -1.280	
		0.651 0.655 0.660	0.905 0.912 0.791	1.042 1.053 1.008	0.831 0.895 1.601	1.006 1.029 2.296	0.864 0.903 2.092	1.024 1.029 0.498	0.908 0.895 -1.421	1.063 1.053 -0.950	0.917 0.912 -0.488	0.861 0.655 -0.817	
				0.638 0.637 1.546	0.762 0.777 1.941	0.803 0.824 2.539	0.796 0.816 2.576	0.817 0.824 0.891	0.789 0.777 -1.420	0.643 0.637 -0.940	Measured Relative Power Calculated Relative Power % Difference		

Figure C-9
Flux Map: CY1-FM09, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM10
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 7216.0 MWD/MTU

				0.643 0.642 -0.062	0.774 0.784 1.317	0.817 0.832 1.824	0.816 0.826 1.226	0.823 0.837 0.998	0.770 0.784 1.910	0.631 0.642 1.903				
		0.672 0.664 -1.161	0.930 0.919 -1.161	1.059 1.059 -0.057	0.696 0.900 0.448	1.037 1.048 1.051	0.907 0.913 0.651	1.038 1.048 1.163	0.869 0.900 1.662	1.045 1.059 1.311	0.914 0.919 0.613	0.662 0.664 0.287		
	0.666 0.664 -0.045	1.064 1.060 -0.395	0.990 0.985 -0.405	0.963 0.962 -0.051	1.157 1.156 -0.052	0.992 0.996 0.369	1.120 1.132 1.054	0.968 0.996 0.769	1.140 1.156 1.439	0.972 0.962 1.018	0.979 0.985 0.613	1.057 1.060 0.284	0.664 0.664 -0.045	
	0.620 0.619 -0.054	0.964 0.985 0.022	1.190 1.188 0.176	1.162 1.154 -0.537	1.035 1.028 0.686	1.161 1.164 0.258	1.030 1.026 -0.369	1.162 1.164 0.215	1.030 1.028 -0.175	1.156 1.154 -0.190	1.197 1.188 -0.768	0.990 0.965 -0.485	0.925 0.919 -0.681	
0.637 0.642 0.848	1.054 1.059 0.427	0.980 0.962 -0.163	1.156 1.154 -0.130	1.050 1.042 -0.801	1.169 1.176 1.010	1.049 1.056 1.354	1.185 1.172 -1.156	1.044 1.056 0.910	1.192 1.176 -1.367	1.062 1.042 -1.874	1.174 1.154 -1.720	0.994 0.962 -1.187	1.064 1.059 -0.536	0.639 0.642 0.516
0.772 0.784 1.567	0.892 0.900 0.853	1.152 1.156 0.338	1.027 1.028 0.078	1.184 1.176 -0.659	1.049 1.037 -1.125	1.187 1.172 -1.230	1.046 1.031 -1.405	1.181 1.172 -0.753	1.043 1.037 -0.537	1.187 1.176 -0.878	1.043 1.026 -1.468	1.164 1.156 -0.678	0.901 0.900 -0.033	0.760 0.764 0.513
0.820 0.832 1.477	1.057 1.048 -0.851	0.950 0.996 0.535	1.160 1.164 0.397	1.057 1.056 -0.188	1.178 1.172 -0.501	1.056 1.028 -0.715	1.154 1.145 -0.814	1.036 1.028 -0.772	1.172 1.172 0.034	1.040 1.035 -0.490	1.169 1.164 -0.428	1.001 0.996 -0.510	1.060 1.048 -0.248	0.834 0.832 -0.280
0.814 0.826 1.400	0.904 0.913 1.231	1.122 1.132 0.901	1.024 1.026 0.450	1.170 1.172 0.137	1.032 1.031 -0.049	1.144 1.145 0.052	1.027 1.021 -0.565	1.157 1.145 -1.053	1.043 1.031 -1.093	1.178 1.172 -0.528	1.031 1.028 -0.466	1.132 1.132 -0.027	0.915 0.913 -0.415	0.825 0.826 0.146
0.820 0.832 1.390	1.034 1.048 1.335	0.984 0.996 1.158	1.160 1.164 0.379	1.034 1.025 0.116	1.170 1.172 0.214	1.025 1.028 0.303	1.151 1.145 -0.487	1.045 1.028 -1.608	1.185 1.172 -1.160	1.042 1.035 -0.662	1.170 1.164 -0.479	1.000 0.996 -0.460	1.044 1.048 0.328	0.824 0.832 0.922
0.767 0.784 2.309	0.882 0.900 2.051	1.140 1.156 1.400	1.028 1.028 0.039	1.176 1.176 0.085	1.036 1.037 0.165	1.167 1.172 0.420	1.032 1.031 -0.029	1.180 1.172 -0.627	1.049 1.037 -1.066	1.188 1.176 -0.980	1.040 1.028 -1.125	1.171 1.156 -1.272	0.902 0.900 -0.144	0.786 0.784 -0.153
0.824 0.842 2.965	1.028 1.059 2.967	0.954 0.902 2.967	1.154 1.154 -0.017	1.044 1.042 -0.162	1.179 1.176 -0.204	1.033 1.035 0.174	1.163 1.172 0.783	1.024 1.035 1.035	1.173 1.176 -0.246	1.055 1.042 -1.251	1.168 1.154 -1.182	0.903 0.962 -1.116	1.076 1.059 -1.626	0.653 0.642 -1.623
	0.906 0.919 1.423	0.996 0.995 -0.071	1.192 1.188 -0.344	1.161 1.154 -0.620	1.036 1.028 0.762	1.151 1.154 0.276	1.014 1.025 1.163	1.150 1.164 1.235	1.025 1.028 0.195	1.167 1.154 -1.131	1.200 1.188 -1.016	0.996 0.985 -1.124	0.939 0.919 -1.479	
	0.664 0.664 0.062	1.060 1.060 0.009	0.988 0.985 -0.263	0.990 0.982 -0.848	1.158 1.156 -0.112	0.996 0.996 1.035	1.115 1.132 1.516	0.989 0.996 0.668	1.158 1.156 -0.181	0.991 0.962 -0.908	0.993 0.985 -0.756	1.071 1.060 -1.016	0.673 0.664 -1.381	
		0.663 0.664 0.181	0.915 0.919 0.316	1.053 1.059 0.532	0.893 0.900 1.157	1.027 1.048 2.055	0.894 0.913 2.069	1.040 1.048 0.711	0.911 0.900 -1.207	1.069 1.059 -0.890	0.924 0.919 -0.563	0.670 0.664 -0.919		
				0.630 0.642 1.962	0.769 0.784 1.969	0.812 0.832 2.376	0.805 0.826 2.610	0.823 0.832 1.057	0.794 0.784 -1.209	0.818 0.842 -0.895	Measured Relative Power Calculated Relative Power % Difference			

Figure C-10
Flux Map: CY1-FM10, Measured and Calculated Relative Assembly Power

FLUX MAP. CY1-FM11
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 8234.0 MWD/MTU

				0.663 0.648 -0.842	0.784 0.791 0.905	0.825 0.839 1.721	0.824 0.835 1.262	0.829 0.839 1.194	0.774 0.791 2.195	0.634 0.648 2.199				
		0.670 0.671 0.134	0.624 0.625 0.141	1.073 1.064 -0.840	0.909 0.906 -0.220	1.057 1.064 0.719	0.916 0.922 0.557	1.061 1.064 1.246	0.887 0.906 2.164	1.047 1.064 1.814	0.620 0.625 0.532	0.669 0.671 0.299		
	0.672 0.671 -0.045	1.069 1.070 0.064	1.003 1.007 0.319	0.995 0.987 -0.844	1.161 1.152 -0.844	0.996 0.996 0.010	1.123 1.131 0.694	0.988 0.996 0.810	1.128 1.152 2.127	0.974 0.987 1.324	1.001 1.007 0.529	1.066 1.070 0.300	0.671 0.671 0.060	
	0.928 0.925 -0.317	1.004 1.007 0.249	1.156 1.191 -0.359	1.174 1.156 -1.559	1.038 1.022 -1.560	1.154 1.154 0.043	1.022 1.016 -0.411	1.151 1.154 0.295	1.020 1.022 0.235	1.154 1.156 0.130	1.196 1.191 -0.609	1.010 1.007 -0.388	0.930 0.925 -0.485	
0.843 0.848 0.609	1.059 1.064 0.425	0.985 0.987 0.162	1.160 1.156 -0.405	1.051 1.036 -1.455	1.179 1.164 -1.272	1.036 1.022 -1.303	1.170 1.156 -1.183	1.331 1.322 -0.834	1.176 1.164 -1.037	1.052 1.036 -1.512	1.172 1.156 -1.399	0.998 0.987 -1.112	1.073 1.064 -0.811	0.850 0.848 -0.330
0.777 0.791 1.827	0.897 0.906 1.062	1.147 1.152 0.375	1.023 1.022 -0.108	1.173 1.164 -0.810	1.034 1.024 -0.957	1.166 1.156 -1.045	1.033 1.016 -1.472	1.164 1.156 -0.747	1.027 1.024 -0.311	1.171 1.164 -0.581	1.035 1.022 -1.265	1.162 1.152 -0.869	0.912 0.906 -0.581	0.794 0.791 -0.340
0.825 0.839 1.697	1.052 1.065 1.159	0.990 0.996 0.596	1.149 1.154 0.505	1.022 1.022 0.020	1.158 1.156 -0.216	1.019 1.015 -0.392	1.142 1.134 -0.709	1.023 1.015 -0.772	1.154 1.158 0.185	1.027 1.022 -0.409	1.160 1.154 -0.457	1.002 0.996 -0.549	1.071 1.065 -0.561	0.846 0.839 -0.792
0.822 0.835 1.598	0.810 0.822 1.564	1.121 1.131 0.919	1.012 1.018 0.563	1.153 1.156 0.312	1.016 1.018 0.187	1.132 1.134 0.212	1.013 1.011 -0.286	1.144 1.134 -0.900	1.020 1.018 -1.109	1.165 1.156 -0.772	1.023 1.018 -0.547	1.132 1.131 -0.108	0.827 0.822 -0.563	0.835 0.835 -0.064
0.827 0.839 1.438	1.051 1.065 1.294	0.985 0.996 1.117	1.150 1.154 0.391	1.021 1.022 0.147	1.152 1.156 0.295	1.011 1.015 0.455	1.137 1.134 -0.264	1.029 1.015 -1.032	1.171 1.158 -1.307	1.033 1.022 -1.064	1.162 1.154 -0.863	1.001 0.998 -0.510	1.063 1.065 0.132	0.834 0.839 0.572
0.773 0.791 2.403	0.800 0.906 2.110	1.137 1.152 1.311	1.022 1.022 0.000	1.164 1.164 0.009	1.022 1.024 0.215	1.140 1.156 0.697	1.014 1.019 0.395	1.150 1.156 -0.242	1.026 1.024 -1.187	1.178 1.164 -1.172	1.035 1.022 -1.208	1.166 1.152 -1.226	0.912 0.906 -0.603	0.796 0.791 -0.603
0.827 0.648 3.258	1.030 1.064 3.261	0.956 0.987 3.265	1.156 1.156 0.000	1.037 1.036 0.087	1.164 1.164 -0.052	1.017 1.022 0.511	1.143 1.156 1.199	1.009 1.022 1.410	1.165 1.164 -0.137	1.051 1.036 -1.437	1.174 1.156 -1.576	1.004 0.987 -1.684	1.088 1.064 -2.251	0.683 0.648 -2.246
	0.910 0.925 1.653	1.005 1.007 0.098	1.193 1.191 -0.184	1.161 1.156 -0.431	1.028 1.022 -0.535	1.149 1.154 0.534	1.003 1.018 1.496	1.137 1.154 1.539	1.019 1.022 0.314	1.178 1.156 -1.748	1.215 1.191 -2.000	1.027 1.007 -1.987	0.944 0.925 -1.950	
	0.663 0.671 0.299	1.067 1.070 0.215	1.007 1.007 -0.060	0.993 0.987 -0.844	1.150 1.152 0.148	0.983 0.996 1.323	1.112 1.131 1.754	0.987 0.996 0.851	1.153 1.152 -0.095	1.000 0.987 -1.320	1.020 1.007 -1.362	1.086 1.070 -1.518	0.683 0.671 -1.742	
		0.668 0.671 0.449	0.920 0.925 0.543	1.058 1.064 0.748	0.694 0.906 1.132	1.041 1.064 2.307	0.902 0.922 2.179	1.068 1.064 0.862	0.918 0.906 -1.263	1.074 1.064 -0.913	0.930 0.925 -0.349	0.678 0.671 -1.047		
				0.634 0.648 2.209	0.774 0.791 2.268	0.819 0.839 2.454	0.814 0.835 2.468	0.832 0.839 0.850	0.802 0.791 -1.260	0.654 0.648 -0.903	Measured Relative Power Calculated Relative Power % Difference			

Figure C-11
Flux Map: CY1-FM11, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM12
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 9270.0 MWD/MTU

				0.651 0.654 0.507	0.787 0.799 1.615	0.831 0.848 1.985	0.833 0.845 1.358	0.838 0.848 1.182	0.783 0.799 2.043	0.641 0.654 2.044				
		0.685 0.678 -1.123	0.941 0.931 -1.115	1.054 1.059 0.508	0.935 0.913 0.906	1.059 1.082 1.198	0.925 0.931 0.735	1.058 1.082 1.311	0.895 0.913 2.046	1.052 1.069 1.635	0.923 0.931 0.823	0.875 0.878 0.415		
	0.680 0.678 -0.309	1.082 1.078 -0.407	1.039 1.027 -0.581	0.988 0.991 0.497	1.141 1.147 0.499	0.992 0.998 0.464	1.121 1.131 0.880	0.987 0.998 0.911	1.124 1.147 2.046	0.977 0.991 1.423	1.018 1.027 0.815	1.073 1.078 0.413	0.878 0.878 0.015	
	0.930 0.931 0.043	1.027 1.027 0.000	1.197 1.189 -0.635	1.173 1.155 -1.484	1.002 1.017 1.492	1.142 1.144 0.219	1.013 1.010 0.286	1.140 1.144 0.342	1.014 1.017 0.247	1.152 1.155 0.295	1.195 1.189 -0.494	1.031 1.027 -0.378	0.937 0.931 -0.619	
0.649 0.654 0.801	1.065 1.069 0.575	0.990 0.991 0.111	1.162 1.155 0.542	1.045 1.023 -1.488	1.168 1.151 -1.507	1.025 1.011 -1.357	1.153 1.141 -1.067	1.019 1.011 -0.844	1.162 1.151 -0.964	1.043 1.029 -1.285	1.171 1.155 -1.383	1.003 0.991 -1.216	1.077 1.069 -0.743	0.854 0.654 0.000
0.789 0.799 1.305	0.906 0.913 0.795	1.144 1.147 0.262	1.019 1.017 -0.226	1.163 1.151 -1.066	1.026 1.012 -1.432	1.156 1.139 -1.419	1.020 1.005 -1.461	1.147 1.139 -0.680	1.014 1.012 -0.256	1.156 1.151 -0.441	1.030 1.017 -1.282	1.157 1.147 -0.856	0.918 0.913 -0.383	0.799 0.799 0.000
0.836 0.848 1.412	1.071 1.082 1.061	0.992 0.996 0.423	1.141 1.144 0.263	1.014 1.011 -0.316	1.147 1.139 -0.680	1.013 1.003 -0.938	1.133 1.123 -0.944	1.011 1.003 -0.742	1.138 1.139 0.141	1.017 1.011 -0.590	1.152 1.144 -0.680	1.003 0.996 -0.678	1.086 1.082 -0.414	0.851 0.848 -0.445
0.831 0.845 1.575	0.919 0.931 1.393	1.121 1.131 0.865	1.007 1.010 0.308	1.140 1.141 0.070	1.007 1.006 -0.159	1.123 1.123 -0.045	1.006 0.999 -0.666	1.135 1.123 -1.094	1.018 1.006 -1.238	1.151 1.141 -0.895	1.018 1.010 -0.795	1.133 1.131 -0.177	0.935 0.931 -0.385	0.844 0.845 0.130
0.834 0.848 1.651	1.064 1.082 1.654	0.983 0.956 1.332	1.136 1.144 0.589	1.006 1.011 0.477	1.134 1.139 0.450	0.959 1.003 0.420	1.127 1.125 -0.425	1.120 1.003 -1.647	1.156 1.139 -1.429	1.022 1.011 -1.125	1.154 1.144 -0.668	1.003 0.996 -0.638	1.079 1.082 0.260	0.841 0.848 0.773
0.780 0.799 2.501	0.892 0.913 2.332	1.126 1.147 1.874	1.016 1.017 0.010	1.146 1.151 0.410	1.009 1.012 0.226	1.132 1.139 0.645	1.004 1.005 0.128	1.146 1.139 -0.569	1.025 1.012 -1.336	1.186 1.151 -1.346	1.032 1.017 -1.511	1.166 1.147 -1.646	0.918 0.913 -0.564	0.805 0.799 -0.671
0.835 0.854 2.359	1.039 1.068 2.958	0.982 0.991 2.951	1.159 1.155 -0.345	1.037 1.029 -0.720	1.153 1.151 -0.251	1.007 1.011 0.377	1.130 1.141 0.965	0.938 1.011 1.191	1.154 1.151 -0.229	1.046 1.029 -1.559	1.173 1.155 -1.561	1.007 0.991 -1.560	1.096 1.069 -2.418	0.970 0.854 -2.447
	0.915 0.931 1.692	1.022 1.027 0.440	1.195 1.189 -0.502	1.165 1.155 -0.867	1.024 1.017 -0.761	1.139 1.144 0.455	0.997 1.013 1.324	1.129 1.144 1.391	1.015 1.017 0.188	1.173 1.155 -1.509	1.207 1.189 -1.463	1.044 1.027 -1.695	0.951 0.931 -2.176	
	0.674 0.678 0.593	1.072 1.078 0.522	1.026 1.027 0.107	0.998 0.991 -0.692	1.146 1.147 0.044	0.984 0.936 1.203	1.112 1.131 1.673	0.998 0.998 0.021	1.148 1.147 -0.076	1.001 0.991 -1.049	1.037 1.027 -0.993	1.093 1.078 -1.409	0.892 0.878 -1.585	
		0.670 0.678 0.713	0.924 0.931 0.714	1.061 1.069 0.792	0.901 0.913 1.355	1.059 1.082 2.231	0.910 0.931 2.329	1.072 1.082 0.914	0.923 0.913 -1.126	1.078 1.069 -0.825	0.936 0.931 -0.524	0.886 0.878 -1.137		
				0.639 0.654 2.315	0.792 0.799 2.252	0.826 0.848 2.689	0.820 0.845 3.038	0.838 0.848 1.363	0.808 0.799 -1.128	0.660 0.654 -0.819	Measured Relative Power Calculated Relative Power % Difference			

Figure C-12
Flux Map: CY1-FM12, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM13
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 10566.0 MWD/MTU

				0.672 0.662 -1.444	0.836 0.829 0.447	0.847 0.858 1.340	0.849 0.856 0.919	0.852 0.858 0.763	0.736 0.809 1.636	0.651 0.662 1.705			
		0.686 0.686 -0.067	0.937 0.937 -0.075	1.091 1.075 -1.458	0.927 0.920 -0.776	1.035 1.039 0.347	0.939 0.942 0.255	1.088 1.089 1.002	0.903 0.920 1.939	1.059 1.075 1.530	0.930 0.937 0.791	0.683 0.686 0.395	
	0.686 0.686 -0.102	1.085 1.084 -0.003	1.045 1.045 -0.038	1.009 0.994 -1.457	1.158 1.141 -1.459	0.999 0.997 -0.210	1.123 1.128 0.561	0.926 0.997 0.740	1.117 1.141 2.184	0.980 0.994 1.449	1.037 1.045 0.713	1.080 1.004 -0.388	0.685 0.688 0.358
	0.938 0.937 -0.126	1.045 1.045 -0.038	1.194 1.107 -0.553	1.168 1.152 -1.327	1.024 1.011 -1.328	1.132 1.133 0.124	1.005 1.003 -0.269	1.129 1.133 0.372	1.000 1.011 1.070	1.136 1.152 1.453	1.189 1.187 -0.202	1.048 1.045 -0.381	0.942 0.937 -0.563	
0.658 0.662 0.638	1.071 1.075 0.345	0.993 0.994 0.161	1.157 1.152 -0.389	1.035 1.022 -1.266	1.150 1.136 -1.140	1.010 1.000 -0.950	1.135 1.125 -0.828	1.006 1.000 -0.626	1.142 1.136 -0.464	1.037 1.022 -1.427	1.169 1.152 -1.429	1.007 0.994 -1.261	1.085 1.075 -0.958	0.665 0.662 -0.466
0.800 0.809 1.213	0.912 0.920 0.888	1.135 1.141 0.555	1.010 1.011 0.040	1.145 1.136 -0.776	1.009 1.000 -0.892	1.132 1.123 -0.829	1.004 0.993 -1.036	1.126 1.123 -0.267	0.993 1.000 0.715	1.119 1.136 1.564	1.024 1.011 -1.280	1.153 1.141 -1.015	0.927 0.920 -0.723	0.813 0.809 -0.467
0.847 0.858 1.293	1.089 1.099 0.948	0.991 0.997 0.595	1.128 1.133 0.505	0.993 1.000 0.041	1.124 1.123 -0.096	0.995 0.997 0.261	1.114 1.110 -0.359	0.994 0.997 0.161	1.113 1.123 0.662	1.000 1.000 0.050	1.140 1.133 -0.570	1.008 0.997 -0.825	1.108 1.099 -0.794	0.868 0.858 -1.186
0.845 0.858 1.361	0.930 0.942 1.247	1.120 1.129 0.800	0.988 1.003 0.501	1.122 1.125 0.309	0.989 0.993 0.374	1.104 1.110 0.607	0.991 0.990 -0.091	1.117 1.110 -0.502	1.000 0.993 -0.730	1.131 1.125 -0.469	1.009 1.003 -0.624	1.132 1.129 -0.230	0.951 0.942 -0.957	0.860 0.856 -0.419
0.845 0.858 1.502	1.089 1.099 1.486	0.985 0.997 1.197	1.129 1.133 0.532	0.998 1.000 0.432	1.115 1.123 0.700	0.983 0.992 0.967	1.110 1.110 0.009	1.005 0.992 -1.313	1.123 1.123 -1.040	1.008 1.000 -0.764	1.140 1.133 -0.596	1.004 0.997 -0.707	1.100 1.099 -0.100	0.853 0.858 0.551
0.793 0.809 2.061	0.902 0.920 1.973	1.123 1.141 1.664	1.012 1.011 -0.158	1.135 1.136 0.141	0.997 1.000 0.281	1.110 1.123 1.099	0.988 0.993 0.506	1.125 1.123 -0.240	1.010 1.000 -1.038	1.146 1.136 -1.045	1.029 1.011 -1.783	1.157 1.141 -1.331	0.927 0.920 -0.691	0.815 0.809 -0.607
0.647 0.662 2.365	1.050 1.075 2.352	0.971 0.994 2.357	1.158 1.152 -0.456	1.030 1.022 -0.787	1.139 1.136 -0.237	0.993 1.000 0.665	1.131 1.125 1.296	0.986 1.000 1.430	1.138 1.136 -0.158	1.036 1.022 -1.351	1.168 1.152 -1.361	1.008 0.994 -1.389	1.101 1.075 -2.406	0.678 0.662 -2.402
	0.625 0.937 1.365	1.043 1.045 0.182	1.195 1.107 -0.686	1.164 1.152 -0.998	1.019 1.011 -0.863	1.128 1.133 0.514	0.988 1.003 1.467	1.117 1.133 1.523	1.007 1.011 0.326	1.158 1.152 -0.478	1.204 1.187 -1.404	1.052 1.045 -0.610	0.957 0.937 -2.091	
	0.683 0.686 0.469	1.081 1.084 0.352	1.046 1.045 -0.086	1.004 0.994 -0.936	1.144 1.141 -0.201	0.987 0.997 1.033	1.112 1.129 1.601	0.990 0.997 0.737	1.144 1.141 -0.238	1.205 0.994 -1.015	1.053 1.045 -0.788	1.098 1.084 -1.239	0.689 0.686 -1.675	
		0.681 0.686 0.720	0.532 0.937 0.526	1.070 1.075 0.430	0.811 0.920 0.959	1.080 1.059 1.768	0.926 0.942 1.595	1.096 1.089 0.379	0.934 0.920 -1.479	1.084 1.075 -0.821	0.936 0.937 0.149	0.692 0.686 -0.682		
				0.650 0.662 1.855	0.754 0.809 1.901	0.843 0.858 1.767	0.842 0.856 1.710	0.855 0.858 0.351	0.821 0.809 -1.473	0.688 0.662 -0.809	Measured Relative Power Calculated Relative Power % Difference		

Figure C-13
Flux Map: CY1-FM13, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM14
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 11577.0 MWD/MTU

				0.676 0.663 -0.933	0.813 0.817 0.603	0.655 0.666 1.250	0.860 0.866 0.733	0.862 0.865 0.545	0.805 0.817 1.439	0.660 0.669 1.440				
		0.691 0.691 0.029	0.940 0.940 0.021	1.038 1.078 -0.928	0.929 0.926 -0.387	1.107 1.112 0.497	0.948 0.961 1.232	1.093 1.112 1.846	0.907 0.926 2.095	1.062 1.078 1.535	0.936 0.940 0.406	0.690 0.691 0.159		
	0.690 0.691 0.203	1.087 1.087 0.037	1.057 1.054 -0.284	1.005 0.995 -0.935	1.148 1.138 -0.937	0.999 0.999 0.030	1.119 1.129 0.649	0.969 0.999 1.021	1.107 1.138 2.792	0.980 0.996 1.561	1.049 1.054 0.400	1.085 1.087 0.168	0.692 0.691 -0.072	
	0.935 0.940 0.567	1.066 1.054 -0.237	1.189 1.180 -0.690	1.158 1.148 -0.881	1.015 1.007 -0.808	1.129 1.126 0.276	1.002 0.999 -0.270	1.121 1.126 0.509	1.000 1.007 0.630	1.142 1.148 0.490	1.163 1.160 -0.263	1.052 1.054 0.171	0.941 0.940 -0.074	
0.853 0.869 0.996	1.079 1.078 0.457	0.995 0.996 0.121	1.153 1.148 -0.466	1.027 1.016 -0.934	1.140 1.126 -1.176	1.003 0.993 -0.937	1.124 1.115 -0.739	1.000 0.993 -0.630	1.136 1.126 -0.830	1.027 1.016 -1.013	1.159 1.148 -1.018	0.997 0.996 -0.079	1.079 1.078 -0.065	0.870 0.869 -0.060
0.809 0.817 1.051	0.520 0.526 0.663	1.135 1.138 0.273	1.007 1.007 -0.050	1.136 1.126 -0.819	1.005 0.992 1.313	1.124 1.112 -1.103	0.994 0.986 0.785	1.114 1.112 0.199	0.992 0.992 0.020	1.127 1.126 -0.090	1.018 1.007 -1.150	1.146 1.138 -0.638	0.929 0.929 -0.301	0.818 0.817 -0.073
0.857 0.866 1.097	1.103 1.112 0.816	0.996 0.999 0.422	1.123 1.126 -0.312	0.995 0.993 -0.171	1.117 1.112 -0.528	0.993 0.986 -0.806	1.107 1.102 -0.506	0.987 0.986 -0.203	1.105 1.112 0.552	0.997 0.993 -0.351	1.135 1.126 -0.793	1.009 0.999 -0.011	1.122 1.112 -0.908	0.877 0.866 -1.220
0.856 0.866 1.160	0.940 0.950 1.106	1.120 1.129 0.795	0.954 0.999 0.473	1.112 1.115 0.360	0.985 0.986 0.112	1.099 1.102 0.273	0.987 0.982 -0.468	1.115 1.102 -0.628	0.996 0.986 -0.944	1.122 1.115 -0.597	1.007 0.999 -0.785	1.134 1.129 -0.511	0.963 0.950 -1.319	0.873 0.866 -0.779
0.855 0.866 1.274	1.098 1.112 1.275	0.998 0.999 1.053	1.116 1.126 0.905	0.991 0.993 0.945	1.102 1.112 0.899	0.977 0.985 0.829	1.103 1.102 -0.118	1.000 0.985 -1.460	1.124 1.112 -1.103	1.000 0.993 -0.710	1.135 1.126 -0.714	1.009 0.999 -1.011	1.117 1.112 -0.430	0.884 0.866 0.255
0.832 0.817 1.971	0.810 0.826 1.883	1.122 1.138 1.390	1.004 1.007 0.979	1.117 1.126 0.806	0.987 0.992 0.597	1.101 1.112 0.981	0.982 0.986 0.358	1.116 1.112 -0.412	1.003 0.992 -1.067	1.139 1.126 -1.150	1.021 1.007 -1.401	1.156 1.138 -1.617	0.934 0.926 -0.910	0.825 0.817 -0.909
0.854 0.869 2.366	1.053 1.078 2.374	0.973 0.996 2.375	1.150 1.148 -0.217	1.024 1.016 -0.742	1.126 1.126 -0.133	0.986 0.993 0.547	1.103 1.115 1.124	0.980 0.993 1.285	1.130 1.126 -0.354	1.031 1.016 -1.454	1.162 1.148 -1.239	1.007 0.998 -1.053	1.107 1.078 -2.593	0.887 0.869 -2.591
	0.927 0.940 1.446	1.048 1.054 0.568	1.108 1.180 6.548	1.160 1.148 -1.086	1.018 1.007 0.405	1.122 1.126 0.401	0.996 0.999 1.329	1.111 1.126 1.414	1.005 1.007 0.168	1.160 1.148 -1.052	1.169 1.180 0.715	1.057 1.054 -1.346	0.953 0.940 -2.409	
	0.687 0.691 0.626	1.001 1.087 0.592	1.054 1.054 0.000	1.008 0.996 -1.024	1.141 1.138 -0.254	0.990 0.999 0.919	1.113 1.129 1.455	0.993 0.999 0.645	1.141 1.138 -0.315	1.003 0.996 -0.698	1.056 1.054 -0.256	1.099 1.087 -1.082	0.707 0.691 -2.277	
		0.696 0.691 0.699	0.935 0.940 0.524	1.074 1.078 0.382	0.919 0.926 0.805	1.093 1.112 1.748	0.933 0.961 1.843	1.107 1.112 0.452	0.941 0.926 -1.573	1.087 1.078 -0.800	0.940 0.940 -0.032	0.699 0.691 -0.974		
				0.657 0.663 1.872	0.803 0.817 1.793	0.849 0.866 2.061	0.846 0.866 2.304	0.860 0.865 0.744	0.831 0.817 -1.585	0.675 0.669 -0.800	Measured Relative Power Calculated Relative Power % Difference			

Figure C-14
Flux Map: CY1-FM14, Measured and Calculated Relative Assembly Power

FLUX MAP: CY1-FM15
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 12714.0 MWD/MTU

				0.669 0.677 -1.255	0.821 0.825 0.512	0.862 0.873 1.346	0.868 0.874 0.689	0.868 0.873 0.634	0.843 0.825 -1.468	0.667 0.677 1.499			
		0.702 0.697 -0.627	0.950 0.944 -0.632	1.095 1.061 -1.280	0.937 0.931 -0.630	1.118 1.121 0.232	0.956 0.956 0.094	1.109 1.121 1.100	0.907 0.931 2.580	1.061 1.061 1.904	0.939 0.944 0.585	0.896 0.897 0.259	
	0.700 0.697 -0.429	1.095 1.089 0.511	1.068 1.061 0.665	1.010 0.998 -1.257	1.148 1.134 1.253	1.003 0.999 -0.403	1.125 1.126 0.080	0.950 0.959 0.939	1.093 1.134 3.784	0.977 0.998 2.108	1.055 1.061 0.559	1.087 1.089 0.258	0.899 0.897 -0.043
	0.946 0.944 -0.243	1.067 1.061 -0.567	1.196 1.180 -1.338	1.169 1.143 -2.215	1.026 1.003 -2.213	1.121 1.119 -0.187	0.999 0.995 -0.420	1.113 1.119 0.512	0.991 1.003 1.190	1.132 1.143 1.007	1.162 1.160 -0.161	1.063 1.061 -0.179	0.948 0.944 -0.389	
0.673 0.677 0.550	1.079 1.081 0.157	0.999 0.996 -0.090	1.155 1.143 -0.970	1.093 1.072 -2.033	1.136 1.117 -1.707	0.997 0.987 -1.023	1.114 1.106 -0.790	0.993 0.987 -0.624	1.125 1.117 -0.499	1.016 1.012 -0.521	1.151 1.143 -0.680	1.006 0.996 -0.835	1.091 1.081 -0.890	0.883 0.877 -0.966
0.817 0.825 1.016	0.824 0.831 0.779	1.126 1.134 0.592	1.006 1.003 -0.239	1.130 1.117 -1.150	0.996 0.986 -1.193	1.111 1.102 -0.855	0.989 0.980 -0.930	1.104 1.102 -0.217	0.983 0.986 0.338	1.113 1.117 0.341	1.017 1.003 -0.611	1.145 1.134 -0.952	0.940 0.931 -0.959	0.833 0.825 -0.972
0.883 0.873 1.217	1.110 1.121 0.955	0.963 0.969 0.594	1.112 1.119 0.578	0.905 0.907 0.223	1.102 1.102 -0.054	0.903 0.900 -0.285	1.080 1.095 -0.329	0.902 0.980 -0.183	1.093 1.102 0.814	0.908 0.887 -0.142	1.128 1.115 -0.040	1.008 0.999 -0.893	1.122 1.121 -0.928	0.886 0.873 -1.389
0.862 0.874 1.392	0.946 0.956 1.153	1.117 1.126 0.815	0.987 0.995 0.760	1.095 1.106 0.991	0.975 0.980 0.575	1.090 1.095 0.450	0.981 0.981 0.070	1.095 1.095 -0.409	0.980 0.980 -0.890	1.115 1.106 -0.816	1.003 0.995 -0.827	1.130 1.126 -0.310	0.956 0.956 -0.963	0.879 0.874 -0.546
0.862 0.873 1.311	1.106 1.121 1.173	0.989 0.989 1.001	1.109 1.119 0.911	0.976 0.987 0.961	1.091 1.102 0.962	0.970 0.980 0.969	1.092 1.095 0.293	0.988 0.980 -0.820	1.115 1.102 -1.228	1.002 0.987 -1.448	1.130 1.119 -1.018	1.006 0.999 -0.844	1.124 1.121 -0.231	0.871 0.873 0.276
0.832 0.825 2.908	0.909 0.931 2.409	1.120 1.134 1.196	1.003 1.003 -0.030	1.113 1.117 0.359	0.981 0.986 0.459	1.086 1.102 1.464	0.973 0.980 1.114	1.098 1.102 0.529	0.998 0.986 -1.222	1.135 1.117 -1.551	1.020 1.003 -1.618	1.153 1.134 -1.674	0.941 0.931 -1.031	0.834 0.825 -1.032
0.650 0.677 4.171	1.038 1.081 4.172	0.958 0.998 4.156	1.148 1.143 -0.353	1.020 1.012 -0.736	1.118 1.117 -0.089	0.976 0.987 1.137	1.094 1.106 1.064	0.969 0.987 1.857	1.120 1.117 -0.295	1.028 1.012 -1.537	1.161 1.143 -1.550	1.013 0.998 -1.559	1.112 1.081 -2.752	0.896 0.877 -2.141
	0.923 0.944 2.253	1.057 1.051 0.416	1.187 1.180 -0.623	1.154 1.143 -0.953	1.011 1.003 -0.752	1.109 1.119 0.838	0.978 0.995 1.728	1.101 1.119 1.599	1.001 1.003 0.200	1.161 1.143 -1.402	1.197 1.180 -1.453	1.078 1.061 -1.595	0.965 0.944 -2.216	
	0.692 0.697 0.751	1.089 1.089 0.510	1.060 1.061 0.085	1.007 0.990 -0.953	1.136 1.134 -0.167	0.989 0.999 0.990	1.109 1.126 1.515	0.992 0.999 0.716	1.136 1.134 -0.202	1.006 0.998 -0.973	1.069 1.061 -0.767	1.102 1.089 -1.197	0.710 0.697 -1.816	
		0.690 0.697 1.029	0.938 0.944 0.683	1.076 1.061 0.446	0.922 0.931 0.943	1.104 1.121 1.558	0.943 0.956 1.442	1.119 1.121 0.184	0.944 0.931 -1.377	1.089 1.061 -0.734	0.945 0.944 -0.095	0.703 0.697 -0.811		
				0.664 0.677 1.973	0.810 0.825 1.839	0.861 0.873 1.405	0.863 0.874 1.251	0.873 0.873 0.080	0.837 0.825 -1.375	0.682 0.677 -0.733	Measured Relative Power Calculated Relative Power % Difference		

Figure C-15
Flux Map: CY1-FM15, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM01
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 420.3 MWD/MTU

				0.525 0.533 1.540	0.879 0.893 1.650	0.618 0.628 1.471	0.965 0.975 1.005	0.618 0.628 1.246	0.877 0.894 1.950	0.524 0.534 1.929				
		0.407 0.410 0.660	0.549 0.552 0.656	1.020 1.036 1.539	1.169 1.187 1.574	1.134 1.145 0.940	1.179 1.184 0.430	1.133 1.146 1.165	1.161 1.189 2.404	1.016 1.039 2.175	0.543 0.553 1.730	0.405 0.410 1.210		
	0.406 0.410 0.911	0.888 0.895 0.732	1.092 1.097 0.366	1.058 1.074 1.541	0.978 0.993 1.534	1.179 1.179 -0.042	0.896 0.894 -0.323	1.174 1.180 0.468	0.967 0.996 2.905	1.052 1.077 2.309	1.080 1.098 1.686	0.884 0.895 1.198	0.407 0.410 0.713	
	0.545 0.553 1.338	1.093 1.098 0.467	0.881 0.676 -0.511	0.974 0.958 -1.551	1.307 1.287 -1.553	1.051 1.039 -1.141	1.233 1.218 -1.257	1.041 1.041 0.058	1.280 1.294 1.102	0.964 0.965 1.174	0.868 0.878 0.960	1.084 1.097 1.162	0.548 0.552 0.840	
0.527 0.534 1.310	1.030 1.038 0.826	1.071 1.077 0.532	0.971 0.965 -0.507	1.159 1.141 -1.581	1.023 1.007 -1.544	1.368 1.343 -1.884	1.102 1.068 -1.315	1.360 1.343 -0.511	1.014 1.012 -0.148	1.146 1.141 -0.438	0.956 0.958 0.304	1.061 1.074 1.225	1.020 1.036 1.608	0.522 0.533 2.166
0.865 0.884 2.194	1.182 1.189 0.592	0.998 0.996 -0.241	1.309 1.294 -1.192	1.030 1.012 -1.730	1.005 0.988 -1.701	1.422 1.398 -2.095	1.216 1.184 -1.950	1.107 1.096 -1.039	0.894 0.888 -0.593	1.015 1.007 -0.759	1.283 1.287 0.338	0.982 0.993 1.172	1.167 1.187 1.722	0.874 0.893 2.185
0.827 0.828 0.181	1.155 1.146 -0.771	1.202 1.180 -1.800	1.061 1.041 -1.957	1.352 1.343 -1.068	1.112 1.096 -1.430	1.307 1.280 -2.091	0.999 0.980 -1.932	1.268 1.280 -1.394	1.111 1.098 -1.134	1.357 1.343 -1.083	1.044 1.039 -0.453	1.178 1.179 0.084	1.144 1.145 -0.122	0.825 0.828 0.376
0.981 0.975 -0.642	1.204 1.184 -1.653	0.920 0.894 -2.901	1.243 1.218 -2.043	1.095 1.083 -0.657	1.207 1.194 -1.053	0.991 0.980 -1.160	0.758 0.746 -1.518	0.953 0.980 -1.339	1.206 1.194 -0.971	1.065 1.088 -0.675	1.226 1.218 -0.653	0.901 0.894 -0.810	1.193 1.184 -0.748	0.976 0.975 -0.143
0.854 0.828 -0.672	1.158 1.145 -1.148	1.204 1.179 -2.128	1.056 1.039 -1.609	1.351 1.343 -0.629	1.108 1.096 -0.875	1.254 1.280 -2.120	0.994 0.980 -1.399	1.305 1.280 -1.637	1.105 1.096 -0.824	1.346 1.343 -0.201	1.049 1.041 -0.715	1.184 1.180 -1.149	1.150 1.146 -0.357	0.823 0.828 0.644
0.897 0.863 -0.473	1.194 1.187 -0.545	1.000 0.963 -0.710	1.306 1.287 -1.490	1.020 1.007 -1.255	1.003 0.988 -1.495	1.108 1.096 -1.137	1.203 1.194 -0.798	1.107 1.098 -0.795	0.992 0.988 -0.363	1.014 1.012 0.207	1.304 1.294 -0.782	1.009 0.996 -1.309	1.181 1.189 0.601	0.889 0.894 0.585
0.536 0.533 -0.293	1.040 1.036 -0.327	1.077 1.074 -0.297	0.975 0.958 -1.713	1.161 1.141 -1.672	1.025 1.012 -1.210	1.348 1.343 -0.364	1.084 1.088 0.341	1.334 1.343 0.614	1.003 1.007 0.429	1.137 1.141 0.378	0.961 0.965 0.478	1.070 1.077 0.598	1.037 1.038 0.125	0.533 0.534 0.131
	0.550 0.552 0.345	1.085 1.097 1.060	0.876 0.876 0.034	0.869 0.865 -0.382	1.287 1.284 -0.254	1.036 1.041 0.308	1.210 1.218 0.620	1.033 1.039 0.590	1.282 1.287 0.408	0.945 0.958 1.375	0.860 0.878 1.898	1.077 1.090 1.950	0.548 0.553 0.821	
	0.405 0.410 1.335	0.884 0.895 1.210	1.084 1.096 1.320	1.086 1.077 1.042	0.990 0.986 0.588	1.177 1.100 0.272	0.888 0.894 0.574	1.174 1.179 0.426	0.991 0.993 0.252	1.058 1.074 1.734	1.068 1.097 2.525	0.877 0.885 2.006	0.405 0.410 1.310	
		0.404 0.410 1.586	0.543 0.553 1.788	1.018 1.038 2.185	1.183 1.189 2.192	1.140 1.148 0.553	1.178 1.184 0.560	1.141 1.145 0.359	1.186 1.187 0.127	1.022 1.036 1.360	0.538 0.552 2.601	0.402 0.410 2.067		
				0.518 0.534 3.091	0.880 0.894 3.066	0.824 0.820 0.546	0.969 0.975 0.547	0.825 0.829 0.364	0.892 0.893 0.157	0.526 0.533 1.350	Measured Relative Power Calculated Relative Power % Difference			

Figure C-16
Flux Map: CY2-FM01, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM02
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 690.4 MWD/MTU

				0.525 0.535 1.711	0.669 0.689 2.208	0.795 0.814 2.237	0.933 0.954 1.684	0.800 0.814 1.699	0.669 0.690 2.476	0.523 0.536 2.467				
		0.423 0.422 -0.047	0.564 0.564 -0.035	1.031 1.049 1.697	1.169 1.191 1.682	1.110 1.124 1.270	1.148 1.156 0.732	1.114 1.125 1.024	1.169 1.193 2.019	1.034 1.051 1.645	0.559 0.565 0.929	0.419 0.423 0.763		
	0.420 0.423 0.500	0.924 0.927 0.292	1.135 1.134 -0.071	1.067 1.085 1.696	0.972 0.988 1.687	1.157 1.158 0.112	0.678 0.675 -0.364	1.157 1.159 0.225	0.975 0.991 1.599	1.075 1.088 1.256	1.125 1.135 0.925	0.920 0.927 0.750	0.420 0.422 0.572	
	0.559 0.565 0.565	1.133 1.135 0.221	0.940 0.933 -0.756	0.967 0.971 -1.561	1.313 1.291 -1.658	1.035 1.026 -0.870	1.207 1.196 -0.844	1.030 1.027 -0.272	1.296 1.298 0.108	0.975 0.977 0.206	0.927 0.933 0.526	1.119 1.134 1.350	0.567 0.564 1.275	
0.529 0.536 1.305	1.043 1.051 0.729	1.064 1.068 0.369	0.564 0.577 -0.671	1.161 1.142 -1.627	1.016 1.000 -1.584	1.360 1.338 -1.625	1.087 1.079 -1.297	1.350 1.339 -0.883	1.014 1.005 -0.897	1.157 1.142 -1.262	0.966 0.971 0.486	1.062 1.065 2.242	1.027 1.049 2.142	0.524 0.535 2.040
0.673 0.690 1.321	1.184 1.193 0.760	0.993 0.991 -0.151	1.311 1.299 -1.037	1.022 1.005 -1.664	0.995 0.978 -1.738	1.112 1.068 -2.184	1.206 1.182 -2.031	1.101 1.086 -1.345	0.989 0.976 -1.072	1.013 1.000 -1.283	1.285 1.291 0.467	0.973 0.968 1.563	1.169 1.191 1.830	0.671 0.689 2.067
0.793 0.814 2.726	1.120 1.125 0.500	1.179 1.159 -1.679	1.045 1.027 -1.686	1.358 1.339 -1.458	1.104 1.066 -1.657	1.315 1.286 -2.243	1.005 0.984 -2.090	1.305 1.286 -1.464	1.102 1.086 -1.243	1.353 1.336 -1.123	1.030 1.026 -0.398	1.157 1.156 0.086	1.122 1.124 0.187	0.810 0.814 0.407
0.923 0.954 3.314	1.156 1.155 0.035	0.969 0.975 2.703	1.221 1.196 -2.096	1.006 1.073 -1.206	1.199 1.182 -1.435	0.987 0.984 -1.234	0.789 0.787 -1.478	0.986 0.984 -1.165	1.183 1.182 -0.947	1.002 1.073 0.777	1.203 1.198 -0.540	0.981 0.975 -0.692	1.163 1.155 -0.542	0.952 0.954 0.291
0.759 0.814 1.840	1.127 1.124 -0.195	1.187 1.156 -1.914	1.045 1.026 -1.838	1.352 1.328 -1.050	1.100 1.088 -1.118	1.301 1.286 -1.176	0.996 0.984 -1.205	1.301 1.286 -1.163	1.094 1.086 -0.731	1.344 1.339 -0.417	1.035 1.027 -0.754	1.171 1.159 -1.016	1.126 1.125 -0.036	0.805 0.814 1.156
0.894 0.889 -0.548	1.197 1.191 -0.501	0.992 0.986 -0.393	1.314 1.291 -1.738	1.015 1.000 -1.458	0.995 0.978 -1.738	1.100 1.086 -1.300	1.191 1.182 -0.622	1.095 1.086 -0.594	0.982 0.978 -0.438	1.010 1.005 -0.426	1.309 1.298 -0.839	1.003 0.991 -1.206	1.184 1.183 0.726	0.883 0.890 0.713
0.539 0.535 -0.650	1.356 1.349 -0.663	1.093 1.085 -0.659	0.992 0.971 -2.087	1.187 1.142 -2.116	1.020 1.005 -1.490	1.048 1.038 -0.587	1.073 1.073 0.047	1.333 1.330 0.405	0.990 1.000 0.190	1.141 1.142 0.114	0.975 0.977 0.287	1.093 1.088 0.452	1.053 1.051 -0.218	0.537 0.535 -0.223
	0.562 0.564 0.392	1.117 1.134 1.495	0.934 0.933 -0.171	0.985 0.977 -0.772	1.304 1.298 -0.521	1.027 1.027 -0.019	1.192 1.196 0.327	1.021 1.026 0.441	1.297 1.291 0.287	0.951 0.971 1.982	0.917 0.933 1.690	1.120 1.135 1.368	0.564 0.565 0.142	
	0.417 0.422 1.295	0.914 0.927 1.412	1.122 1.135 1.185	1.081 1.088 0.703	0.988 0.991 0.304	1.150 1.158 0.062	0.873 0.875 0.206	1.153 1.158 0.442	0.982 0.988 0.662	1.058 1.085 1.601	1.112 1.134 1.979	0.915 0.927 1.312	0.421 0.423 0.390	
		0.418 0.423 1.173	0.556 0.565 1.638	1.079 1.051 2.088	1.168 1.193 2.088	1.117 1.125 0.716	1.148 1.158 0.723	1.118 1.124 0.744	1.181 1.191 0.804	1.035 1.049 1.339	0.564 0.564 1.860	0.417 0.422 1.247		
				0.519 0.536 3.277	0.882 0.890 3.249	0.804 0.814 1.307	0.942 0.954 1.308	0.805 0.814 1.093	0.681 0.689 0.828	0.528 0.535 1.345	Measured Relative Power Calculated Relative Power % Difference			

Figure C-17
Flux Map: CY2-FM02, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM03
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 1720.0 MWD/MTU

				0.541 0.548 0.613	0.872 0.885 1.549	0.774 0.788 1.887	0.895 0.910 1.732	0.777 0.783 1.532	0.870 0.890 1.804	0.537 0.546 1.807				
		0.447 0.445 -0.358	0.590 0.587 -0.373	1.077 1.085 0.817	1.205 1.218 1.087	1.079 1.091 1.159	1.092 1.104 1.099	1.079 1.092 1.233	1.197 1.219 1.890	1.072 1.087 1.400	0.585 0.588 0.444	0.443 0.445 0.408		
	0.444 0.445 0.338	0.979 0.979 0.020	1.189 1.183 -0.518	1.089 1.099 0.825	0.981 0.989 0.816	1.123 1.127 0.294	0.844 0.845 0.107	1.120 1.128 0.661	0.972 0.991 1.965	1.088 1.101 1.195	1.179 1.184 0.450	0.975 0.978 0.410	0.443 0.445 0.381	
	0.582 0.588 1.014	1.186 1.184 -0.143	0.962 0.953 -0.986	0.988 0.975 -1.386	1.328 1.308 -1.387	1.014 1.010 -0.404	1.169 1.161 -0.540	1.011 1.012 0.049	1.307 1.314 0.520	0.978 0.961 -0.523	0.950 0.963 0.369	1.175 1.183 0.681	0.584 0.587 0.559	
0.541 0.548 1.036	1.080 1.087 0.667	1.096 1.101 0.417	0.936 0.961 -0.536	1.145 1.130 -1.282	1.005 0.993 -1.135	1.359 1.344 -1.002	1.066 1.055 -0.958	1.354 1.345 -0.709	1.002 0.998 -0.459	1.135 1.130 -0.423	0.872 0.875 0.319	1.086 1.098 1.123	1.072 1.085 1.212	0.539 0.546 1.356
0.880 0.886 0.693	1.210 1.219 0.744	0.987 0.991 0.375	1.322 1.314 -0.556	1.010 0.998 -1.237	0.978 0.906 -1.217	1.090 1.072 -1.636	1.179 1.161 -1.603	1.082 1.070 -1.082	0.973 0.956 -0.730	1.000 0.993 -0.710	1.302 1.308 0.422	0.979 0.988 1.011	1.203 1.218 1.205	0.873 0.885 1.363
0.789 0.789 -0.038	1.097 1.092 -0.447	1.140 1.126 -1.088	1.025 1.012 -1.230	1.358 1.345 -1.000	1.063 1.070 -1.210	1.318 1.294 -1.851	0.993 0.976 -1.652	1.307 1.294 -1.056	1.082 1.072 -0.943	1.352 1.344 -0.592	1.009 1.010 0.159	1.122 1.127 0.426	1.068 1.091 0.479	0.763 0.788 0.638
0.916 0.910 -0.600	1.115 1.104 -1.058	0.862 0.845 -1.949	1.179 1.161 -1.525	1.063 1.055 -0.734	1.173 1.161 -1.023	0.985 0.976 -0.893	0.799 0.788 -1.414	0.987 0.976 -1.084	1.169 1.161 -0.702	1.960 1.055 -0.462	1.182 1.181 -0.043	0.845 0.845 -0.035	1.101 1.104 0.245	0.902 0.910 0.820
0.791 0.788 -0.354	1.096 1.091 -0.458	1.140 1.127 -1.210	1.023 1.010 -1.232	1.352 1.344 -0.614	1.080 1.072 -0.732	1.304 1.294 -0.836	0.988 0.976 -1.194	1.313 1.294 -1.463	1.078 1.070 -0.871	1.352 1.345 -0.540	1.017 1.012 -0.541	1.132 1.128 -0.369	1.085 1.092 0.627	0.775 0.789 1.558
0.886 0.885 -0.045	1.218 1.219 -0.016	0.988 0.989 0.061	1.324 1.308 -1.253	1.003 0.993 -0.997	0.979 0.968 -1.257	1.091 1.070 -1.927	1.171 1.161 -0.854	1.092 1.072 -0.915	0.973 0.968 0.750	1.004 0.998 -0.618	1.327 1.314 -0.995	1.004 0.991 -1.315	1.208 1.219 0.959	0.877 0.886 0.988
0.546 0.546 -0.110	1.087 1.085 -0.120	1.130 1.038 -0.118	0.989 0.975 -1.486	1.148 1.130 -1.576	1.010 0.998 -1.209	1.352 1.345 -0.564	1.054 1.055 0.086	1.337 1.344 0.501	0.990 0.993 0.313	1.131 1.130 -0.062	0.982 0.981 -0.092	1.102 1.101 -0.127	1.008 1.087 0.037	0.548 0.548 0.037
	0.586 0.587 0.239	1.176 1.183 0.570	0.954 0.953 -0.094	0.986 0.981 -0.497	1.322 1.314 -0.590	1.013 1.012 -0.009	1.158 1.161 0.405	1.004 1.010 0.658	1.302 1.300 0.453	0.970 0.975 0.526	0.945 0.953 0.878	1.174 1.184 0.895	0.588 0.588 0.333	
	0.442 0.445 0.658	0.979 0.979 0.617	1.174 1.184 0.877	1.090 1.101 0.928	0.988 0.991 0.294	1.120 1.128 -0.018	0.841 0.845 0.499	1.121 1.127 0.482	0.985 0.993 0.376	1.087 1.098 1.086	1.165 1.183 1.569	0.967 0.979 1.199	0.442 0.445 0.658	
		0.442 0.445 0.701	0.581 0.588 1.240	1.088 1.097 1.932	1.196 1.219 1.940	1.096 1.092 0.525	1.099 1.104 0.528	1.088 1.091 0.340	1.217 1.218 0.082	1.074 1.085 1.060	0.575 0.587 2.103	0.438 0.445 1.483		
				0.503 0.546 2.591	0.863 0.886 2.594	0.784 0.789 0.000	0.905 0.910 0.597	0.765 0.783 0.382	0.884 0.885 0.079	0.540 0.546 1.074	Measured Relative Power Calculated Relative Power % Difference			

Figure C-18
Flux Map: CY2-FM03, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM04
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 2974.4 MWD/MTU

				0.556 0.561 0.917	0.878 0.894 1.857	0.758 0.775 2.255	0.869 0.886 1.856	0.763 0.776 1.611	0.877 0.894 1.972	0.551 0.562 1.979				
		0.471 0.468 -0.637	0.614 0.610 -0.635	1.115 1.125 0.924	1.235 1.251 1.263	1.054 1.069 1.366	1.053 1.066 1.196	1.056 1.069 1.269	1.229 1.252 1.872	1.113 1.126 1.177	0.612 0.611 -0.180	0.469 0.468 -0.213		
	0.468 0.468 0.065	1.034 1.032 -0.222	1.237 1.227 -0.788	1.097 1.107 0.930	0.979 0.968 -0.930	1.094 1.100 0.521	0.820 0.823 0.376	1.092 1.101 0.796	0.973 0.990 1.758	1.100 1.109 0.782	1.231 1.226 -0.187	1.034 1.032 -0.203	0.469 0.468 -0.258	
	0.606 0.611 0.792	1.233 1.226 -0.597	0.969 0.960 -0.949	0.981 0.971 -0.999	1.332 1.349 -0.990	0.993 0.993 0.020	1.131 1.129 -0.177	0.993 0.995 0.141	1.315 1.324 0.700	0.969 0.976 0.784	0.956 0.960 0.387	1.223 1.227 0.288	0.608 0.610 0.362	
0.555 0.562 1.135	1.121 1.126 0.473	1.108 1.109 0.072	0.983 0.976 -0.631	1.122 1.112 -0.919	0.988 0.980 -0.769	1.352 1.343 -0.710	1.041 1.032 -0.778	1.353 1.343 -0.761	0.962 0.954 -0.765	1.099 1.112 1.210	0.960 0.971 1.209	1.094 1.107 1.189	1.112 1.125 1.160	0.555 0.561 1.158
0.886 0.894 1.305	1.245 1.252 0.595	0.950 0.950 -0.030	1.332 1.324 0.593	0.953 0.964 0.855	0.957 0.946 0.941	1.360 1.349 -0.533	1.148 1.131 -1.481	1.059 1.048 -1.123	0.958 0.948 -1.075	0.988 0.980 -1.269	1.300 1.319 1.187	0.976 0.986 1.167	1.287 1.251 1.140	0.884 0.894 1.120
0.771 0.776 0.610	1.071 1.069 -0.187	1.112 1.105 -1.007	1.005 0.995 -0.975	1.353 1.343 -0.710	1.060 1.048 -1.161	1.315 1.290 -1.679	0.975 0.959 -1.651	1.304 1.290 -1.061	1.061 1.049 -1.093	1.355 1.343 -0.915	0.991 0.983 0.232	1.092 1.100 0.786	1.059 1.069 0.906	0.766 0.775 0.950
0.884 0.886 0.215	1.072 1.066 -0.615	0.837 0.823 -1.625	1.143 1.129 -1.225	1.036 1.032 -0.378	1.143 1.131 -1.093	0.969 0.959 -1.073	0.781 0.778 -1.644	0.972 0.959 -1.337	1.141 1.131 -0.866	1.041 1.032 -0.788	1.133 1.129 -0.353	0.820 0.823 0.402	1.056 1.066 0.918	0.874 0.886 1.378
0.774 0.776 0.142	1.071 1.069 -0.261	1.112 1.100 -1.035	1.004 0.990 -1.046	1.349 1.343 -0.504	1.057 1.049 -0.747	1.303 1.290 -0.583	0.974 0.959 -1.500	1.315 1.290 -1.894	1.058 1.048 -1.183	1.354 1.343 -0.812	1.003 0.995 -0.758	1.104 1.101 -0.236	1.057 1.069 1.125	0.762 0.776 1.758
0.895 0.894 -0.123	1.252 1.251 -0.364	0.987 0.989 0.051	1.334 1.319 -1.154	0.989 0.980 -0.890	0.960 0.948 -1.250	1.059 1.048 -1.114	1.143 1.131 -1.024	1.062 1.048 -1.196	0.958 0.948 -1.035	0.992 0.984 -0.796	1.340 1.324 -1.201	1.005 0.990 -1.552	1.240 1.252 0.968	0.888 0.894 0.971
0.559 0.561 -0.249	1.128 1.125 -0.239	1.109 1.107 -0.216	0.985 0.971 -1.391	1.129 1.112 -1.479	0.985 0.984 -1.115	1.350 1.343 -0.533	1.032 1.032 0.010	1.339 1.343 0.299	0.979 0.980 0.092	1.114 1.112 -0.182	0.979 0.976 -0.215	1.112 1.109 -0.261	1.127 1.128 0.088	0.562 0.562 0.018
	0.610 0.610 0.002	1.223 1.227 0.304	0.963 0.960 -0.212	0.982 0.978 -0.570	1.331 1.324 -0.481	0.995 0.995 0.000	1.125 1.129 0.320	0.990 0.993 0.333	1.317 1.319 0.144	0.967 0.971 0.466	0.952 0.960 0.798	1.222 1.228 0.548	0.611 0.611 -0.065	
	0.465 0.469 0.710	1.026 1.032 0.585	1.219 1.228 0.730	1.103 1.103 0.535	0.980 0.990 0.152	1.100 1.101 0.045	0.820 0.823 0.378	1.097 1.100 0.237	0.987 0.989 0.071	1.098 1.107 0.811	1.212 1.227 1.246	1.025 1.032 0.693	0.469 0.469 -0.085	
		0.464 0.469 1.014	0.604 0.611 1.126	1.110 1.126 1.441	1.234 1.252 1.442	1.061 1.069 0.763	1.058 1.066 0.766	1.064 1.069 0.404	1.252 1.251 -0.104	1.117 1.125 0.689	0.601 0.610 1.497	0.464 0.468 0.818		
				0.550 0.562 2.166	0.876 0.894 2.147	0.767 0.776 1.154	0.876 0.886 1.142	0.771 0.775 0.573	0.895 0.894 -0.101	0.557 0.561 0.662	Measured Relative Power Calculated Relative Power % Difference			

Figure C-19
Flux Map: CY2-FM04, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM05
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 4000.0 MWD/MTU

				0.567 0.569 0.398	0.889 0.893 0.894	0.761 0.767 0.802	0.858 0.869 1.212	0.757 0.767 1.361	0.890 0.893 1.477	0.561 0.569 1.490				
		0.487 0.483 -0.801	0.630 0.625 -0.794	1.138 1.143 0.395	1.259 1.264 0.397	1.048 1.056 0.715	1.034 1.045 1.035	1.045 1.056 1.072	1.247 1.265 1.476	1.139 1.144 0.545	0.627 0.625 -0.367	0.485 0.483 -0.330		
	0.483 0.483 0.083	1.053 1.050 -0.245	1.250 1.250 -0.801	1.107 1.111 0.398	0.985 0.988 0.398	1.092 1.097 0.462	0.810 0.814 0.469	1.092 1.097 0.471	0.986 0.990 0.448	1.117 1.113 -0.376	1.256 1.251 -0.366	1.053 1.050 -0.320	0.484 0.483 -0.268	
	0.620 0.625 0.855	1.255 1.251 -0.303	0.977 0.970 -0.696	0.978 0.973 -0.532	1.329 1.322 -0.534	0.985 0.988 0.051	1.113 1.112 -0.106	0.988 0.987 -0.071	1.333 1.327 -0.428	0.983 0.978 -0.499	0.969 0.970 0.113	1.245 1.250 0.434	0.622 0.625 0.466	
0.563 0.569 1.101	1.139 1.144 0.554	1.110 1.113 0.225	0.981 0.978 -0.326	1.113 1.105 -0.504	0.990 0.975 -0.449	1.346 1.339 -0.550	1.026 1.021 -0.525	1.344 1.339 -0.387	0.984 0.979 -0.427	1.111 1.105 -0.585	0.968 0.973 0.465	1.095 1.111 1.483	1.127 1.143 1.420	0.561 0.569 1.300
0.635 0.623 0.904	1.257 1.265 0.684	0.988 0.990 0.182	1.332 1.327 0.353	0.985 0.979 0.559	0.948 0.941 -0.696	1.052 1.039 -1.265	1.130 1.117 -1.142	1.045 1.036 -0.932	0.949 0.941 -0.730	0.984 0.975 -0.894	1.513 1.522 0.693	0.975 0.988 1.333	1.248 1.264 1.322	0.881 0.893 1.317
0.760 0.767 0.961	1.054 1.056 0.171	1.096 1.087 -0.748	0.905 0.987 -0.844	1.347 1.339 -0.546	1.046 1.036 -0.937	1.303 1.283 -1.575	0.967 0.964 -1.314	1.299 1.288 -0.878	1.049 1.038 -1.038	1.348 1.339 -0.675	0.962 0.986 0.407	1.077 1.087 0.854	1.048 1.056 0.966	0.759 0.767 1.054
0.861 0.869 0.883	1.047 1.045 -0.153	0.824 0.814 -1.274	1.124 1.112 -1.050	1.027 1.021 -0.585	1.127 1.117 -0.879	0.961 0.954 -0.718	0.789 0.780 -1.191	0.962 0.954 -0.894	1.123 1.117 -0.534	1.026 1.021 -0.526	1.113 1.112 -0.054	0.810 0.814 0.481	1.036 1.045 0.898	0.858 0.869 1.283
0.762 0.767 0.630	1.065 1.056 0.057	1.095 1.087 -0.722	0.894 0.886 -0.805	1.314 1.339 -0.307	1.044 1.036 -0.546	1.297 1.288 -0.694	0.963 0.954 -0.986	1.303 1.288 -1.167	1.044 1.036 -0.580	1.347 1.339 -0.594	0.993 0.987 -0.564	1.089 1.087 -0.101	1.045 1.056 1.052	0.766 0.767 1.508
0.890 0.893 0.292	1.261 1.264 0.278	0.985 0.988 0.253	1.332 1.282 -0.736	0.981 0.975 -0.551	0.650 0.641 -0.905	1.045 1.036 0.632	1.122 1.117 0.525	1.343 1.338 -0.498	0.948 0.941 -0.696	0.387 0.379 -0.740	1.342 1.327 -1.140	1.006 0.990 -1.492	1.256 1.266 0.580	0.888 0.893 0.586
0.567 0.569 0.353	1.139 1.143 0.360	1.107 1.111 0.361	0.982 0.973 -0.907	1.116 1.106 -0.995	0.986 0.979 -0.630	1.342 1.339 -0.268	1.017 1.021 0.423	1.331 1.339 0.586	0.975 0.975 0.082	1.136 1.105 -0.262	0.982 0.978 -0.397	1.119 1.113 -0.536	1.151 1.144 -0.599	0.573 0.569 -0.594
	0.621 0.625 0.180	1.251 1.250 -0.040	0.973 0.970 -0.206	0.981 0.978 -0.367	1.332 1.327 -0.390	0.985 0.907 0.283	1.106 1.112 0.561	0.901 0.908 0.459	1.320 1.322 0.167	0.971 0.973 0.154	0.967 0.970 0.341	1.248 1.251 0.408	0.625 0.625 -0.032	
	0.401 0.403 0.312	1.058 1.060 0.161	1.245 1.251 0.458	1.107 1.113 0.479	0.905 0.890 0.121	1.088 1.097 0.101	0.810 0.814 0.459	1.095 1.097 0.129	0.991 0.988 -0.262	1.108 1.111 0.288	1.240 1.250 0.798	1.054 1.060 0.607	0.482 0.483 0.353	
		0.490 0.493 0.624	0.620 0.625 0.806	1.101 1.144 1.195	1.250 1.265 1.192	1.048 1.056 0.802	1.037 1.045 0.791	1.054 1.056 0.171	1.273 1.264 -0.715	1.141 1.143 0.202	0.618 0.625 1.150	0.479 0.483 0.814		
				0.560 0.569 1.697	0.878 0.893 1.708	0.758 0.767 1.121	0.859 0.869 1.117	0.764 0.767 0.353	0.899 0.893 -0.773	0.568 0.569 0.194	Measured Relative Power Calculated Relative Power % Difference			

Figure C-20
Flux Map: CY2-FM05, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM06
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 5110.0 MWD/MTU

				0.576 0.576 0.000	0.684 0.693 1.053	0.750 0.762 1.640	0.844 0.859 1.670	0.754 0.762 1.087	0.685 0.693 0.960	0.571 0.577 0.953				
		0.502 0.496 -1.105	0.644 0.637 -1.180	1.155 1.156 0.069	1.269 1.274 0.426	1.037 1.046 0.907	1.019 1.030 1.119	1.038 1.046 0.829	1.262 1.274 0.969	1.152 1.157 0.451	0.640 0.637 -0.562	0.501 0.498 -0.697		
	0.497 0.496 -0.201	1.086 1.081 -0.479	1.277 1.265 -0.979	1.111 1.112 0.072	0.988 0.989 0.071	1.073 1.077 0.345	0.907 0.909 0.260	1.071 1.078 0.579	0.981 0.990 0.969	1.111 1.113 0.169	1.272 1.265 -0.556	1.092 1.081 -0.986	0.503 0.498 -1.430	
	0.633 0.637 0.621	1.270 1.265 -0.382	0.980 0.974 -0.592	0.978 0.973 -0.346	1.328 1.324 -0.348	0.979 0.980 0.123	1.099 1.100 0.109	0.979 0.981 0.194	1.326 1.328 0.166	0.978 0.977 -0.123	0.976 0.974 -0.154	1.268 1.265 -0.245	0.640 0.637 -0.485	
0.572 0.577 0.769	1.159 1.157 0.399	1.111 1.113 0.180	0.979 0.977 -0.194	1.102 1.098 -0.309	0.974 0.972 -0.246	1.337 1.335 -0.172	1.015 1.013 -0.137	1.337 1.335 -0.194	0.979 0.975 -0.388	1.104 1.098 -0.570	0.971 0.973 0.134	1.102 1.112 0.871	1.146 1.156 0.890	0.571 0.576 0.923
0.888 0.893 0.553	1.266 1.274 0.624	0.986 0.990 0.366	1.329 1.328 -0.112	0.979 0.975 -0.358	0.941 0.937 -0.415	1.039 1.030 -0.818	1.114 1.106 -0.709	1.035 1.028 -0.657	0.944 0.937 0.794	0.881 0.872 0.897	1.316 1.324 0.578	0.978 0.989 1.084	1.261 1.274 0.999	0.895 0.893 -0.938
0.755 0.762 0.940	1.044 1.046 0.201	1.064 1.078 0.572	0.987 0.981 -0.598	1.141 1.135 -0.448	1.035 1.028 -0.647	1.301 1.267 -1.084	0.959 0.951 -0.865	1.296 1.287 -0.679	1.041 1.030 -0.990	1.342 1.335 -0.559	0.975 0.960 0.462	1.067 1.077 0.956	1.036 1.046 0.955	0.755 0.762 1.007
0.850 0.859 1.000	1.032 1.030 -0.174	0.819 0.809 -1.245	1.110 1.100 -0.918	1.018 1.013 -0.511	1.113 1.106 -0.629	0.856 0.851 -0.419	0.769 0.764 -0.697	0.856 0.851 -0.513	1.109 1.106 -0.269	1.017 1.013 -0.442	1.100 1.100 0.000	0.806 0.809 0.422	1.020 1.030 1.020	0.848 0.859 1.258
0.758 0.762 0.567	1.048 1.046 -0.124	1.006 1.077 -0.865	0.987 0.980 -0.749	1.139 1.135 -0.299	1.034 1.030 -0.396	1.263 1.267 0.503	0.956 0.951 -0.554	1.293 1.287 -0.480	1.032 1.028 -0.368	1.343 1.335 -0.625	0.988 0.981 -0.648	1.079 1.078 -0.130	1.036 1.046 0.984	0.752 0.762 1.437
0.888 0.893 0.585	1.269 1.274 0.386	0.989 0.989 -0.091	1.334 1.324 -0.578	0.976 0.972 -0.379	0.944 0.937 -0.731	1.036 1.028 -0.791	1.111 1.106 -0.495	1.034 1.030 -0.339	0.941 0.937 -0.404	0.982 0.975 -0.793	1.344 1.328 -1.191	1.006 0.990 -1.561	1.274 1.274 0.047	0.893 0.893 0.045
0.570 0.576 1.052	1.144 1.156 1.057	1.130 1.112 -1.663	0.980 0.973 -0.765	1.108 1.098 -0.867	0.982 0.975 -0.689	1.340 1.335 -0.410	1.013 1.013 -0.049	1.332 1.335 0.188	0.970 0.972 0.186	1.099 1.098 -0.127	0.981 0.977 -0.418	1.121 1.113 -0.678	1.173 1.157 -1.381	0.585 0.577 -1.385
	0.632 0.637 0.792	1.258 1.265 0.501	0.975 0.974 -0.051	0.980 0.977 -0.316	1.332 1.328 -0.308	0.982 0.981 -0.112	1.099 1.100 0.118	0.978 0.980 0.205	1.321 1.324 0.220	0.971 0.973 0.175	0.972 0.974 0.226	1.270 1.265 -0.370	0.645 0.637 -1.287	
	0.493 0.496 0.547	1.078 1.081 0.530	1.250 1.265 0.556	1.108 1.112 0.415	0.989 0.989 0.131	1.079 1.078 -0.139	0.909 0.909 0.025	1.076 1.077 0.065	0.988 0.989 0.040	1.109 1.113 0.325	1.258 1.265 0.557	1.083 1.081 -0.165	0.502 0.498 -1.214	
		0.493 0.496 0.588	0.632 0.637 0.744	1.146 1.157 0.977	1.252 1.274 0.975	1.041 1.046 0.557	1.025 1.030 0.556	1.043 1.046 0.268	1.275 1.274 -0.141	1.152 1.156 0.365	0.631 0.637 0.872	0.496 0.496 -0.020		
				0.569 0.577 1.371	0.981 0.993 1.334	0.754 0.762 1.154	0.849 0.859 1.155	0.758 0.762 0.607	0.695 0.693 -0.134	0.574 0.576 0.318	Measured Relative Power Calculated Relative Power % Difference			

Figure C-21
Flux Map: CY2-FM06, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM07
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 6175.0 MWD/MTU

				0.582 0.582 0.017	0.884 0.883 1.041	0.743 0.760 1.576	0.841 0.853 1.463	0.754 0.761 0.809	0.886 0.893 0.787	0.578 0.582 0.779				
		0.514 0.507 -1.459	0.655 0.645 -1.466	1.164 1.164 0.003	1.273 1.278 0.377	1.032 1.040 0.795	1.013 1.022 0.849	1.034 1.041 0.668	1.267 1.278 0.878	1.161 1.164 0.278	0.651 0.648 -0.890	0.517 0.507 -1.055		
	0.503 0.507 -0.893	1.102 1.094 -0.699	1.287 1.271 -1.236	1.111 1.111 0.008	0.988 0.988 0.010	1.068 1.071 0.253	0.807 0.809 0.198	1.069 1.071 0.207	0.990 0.989 0.990	1.112 1.112 0.036	1.283 1.271 -0.887	1.106 1.094 -1.056	0.513 0.507 -1.209	
	0.643 0.645 0.389	1.278 1.271 -0.571	0.983 0.976 -0.851	0.974 0.972 -0.175	1.324 1.322 -0.166	0.976 0.977 0.123	1.091 1.092 0.119	0.978 0.978 0.215	1.323 1.326 0.242	0.978 0.976 -0.133	0.977 0.976 -0.031	1.271 1.271 0.009	0.648 0.645 -0.477	
0.578 0.582 0.709	1.160 1.164 0.310	1.111 1.112 0.072	0.978 0.976 -0.184	1.094 1.093 -0.082	0.970 0.970 0.052	1.329 1.331 0.135	1.008 1.008 -0.020	1.332 1.331 -0.113	0.976 0.973 -0.287	1.097 1.093 -0.374	0.967 0.972 0.579	1.096 1.111 1.369	1.152 1.164 1.018	0.580 0.582 0.463
0.887 0.893 0.631	1.270 1.278 0.630	0.985 0.969 -0.436	1.326 1.326 0.023	0.974 0.973 -0.092	0.996 0.996 -0.085	1.031 1.026 -0.495	1.104 1.100 -0.359	1.026 1.024 -0.185	0.998 0.996 -0.277	0.973 0.970 -0.328	1.311 1.322 0.862	0.977 0.963 -1.456	1.268 1.278 0.769	0.889 0.893 0.484
0.753 0.761 0.996	1.038 1.041 0.260	1.076 1.071 -0.455	0.981 0.979 -0.346	1.330 1.331 0.023	1.029 1.024 -0.428	1.301 1.267 -1.114	0.960 0.951 -0.885	1.286 1.287 0.132	1.026 1.026 0.010	1.329 1.334 0.158	0.972 0.977 0.494	1.062 1.071 0.885	1.032 1.040 0.785	0.765 0.780 0.755
0.843 0.853 1.174	1.021 1.022 0.049	0.818 0.809 -1.078	1.096 1.092 -0.555	1.006 1.008 0.179	1.105 1.100 -0.507	0.987 0.951 -3.633	0.800 0.769 -3.874	0.953 0.951 -0.136	1.097 1.100 0.283	1.007 1.008 0.040	1.091 1.092 0.082	0.906 0.909 0.372	1.012 1.022 0.939	0.849 0.859 1.210
0.754 0.760 0.882	1.038 1.040 0.212	1.077 1.075 -0.594	0.981 0.977 -0.367	1.327 1.331 0.224	1.027 1.026 -0.078	1.296 1.267 -0.579	0.960 0.951 -0.927	1.296 1.287 -0.741	1.027 1.024 -0.244	1.338 1.331 -0.441	0.984 0.978 -0.630	1.073 1.071 -0.188	1.031 1.041 0.882	0.750 0.761 1.346
0.891 0.893 0.281	1.274 1.278 0.308	0.985 0.988 -0.368	1.328 1.322 -0.422	0.972 0.970 -0.175	0.940 0.936 -0.521	1.029 1.024 -0.466	1.104 1.100 -0.399	1.031 1.026 -0.466	0.940 0.936 -0.521	0.980 0.978 -0.224	1.349 1.328 -1.273	1.007 0.988 -1.726	1.279 1.278 -0.137	0.894 0.893 -0.112
0.581 0.582 0.224	1.161 1.164 0.215	1.129 1.111 0.216	0.975 0.972 -0.654	1.122 1.093 -0.799	0.978 0.973 -0.532	1.333 1.331 -0.165	1.005 1.008 0.249	1.325 1.331 0.445	0.967 0.970 0.269	1.095 1.093 -0.174	0.981 0.978 -0.320	1.122 1.112 -0.838	1.183 1.164 -1.589	0.592 0.582 -1.588
	0.643 0.645 0.309	1.284 1.271 0.568	0.977 0.976 -0.082	0.979 0.976 -0.337	1.330 1.328 -0.276	0.978 0.976 -0.210	1.089 1.092 0.265	0.973 0.977 0.390	1.319 1.322 0.335	0.971 0.972 0.093	0.975 0.976 0.082	1.277 1.271 -0.462	0.655 0.645 -1.360	
	0.505 0.507 0.297	1.090 1.094 0.404	1.267 1.271 0.347	1.109 1.112 0.316	0.988 0.988 0.101	1.073 1.071 -0.149	0.809 0.809 0.012	1.071 1.071 0.009	0.990 0.988 -0.131	1.111 1.111 0.027	1.267 1.271 0.324	1.097 1.094 -0.310	0.513 0.507 -1.209	
		0.506 0.507 0.079	0.643 0.645 0.373	1.157 1.164 0.579	1.270 1.278 0.582	1.036 1.041 0.405	1.018 1.022 0.413	1.040 1.040 0.000	1.285 1.278 -0.578	1.164 1.164 0.000	0.642 0.645 0.592	0.507 0.507 -0.177		
				0.578 0.582 0.725	0.887 0.893 0.722	0.753 0.761 0.999	0.845 0.853 0.973	0.758 0.760 0.290	0.890 0.893 -0.568	0.582 0.582 0.000	Measured Relative Power Calculated Relative Power % Difference			

Figure C-22
Flux Map: CY2-FM07, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM08
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 7471.3 MWD/MTU

				0.530 0.589 -0.220	0.886 0.893 0.711	0.751 0.761 1.278	0.840 0.851 1.345	0.755 0.761 0.795	0.887 0.893 0.608	0.585 0.589 0.615				
		0.533 0.517 -2.376	0.670 0.654 -2.373	1.170 1.167 -0.222	1.276 1.277 0.110	1.035 1.038 0.631	1.008 1.017 0.883	1.030 1.036 0.602	1.269 1.278 0.670	1.168 1.167 0.103	0.681 0.655 -1.013	0.524 0.517 -1.241		
	0.521 0.517 -0.729	1.115 1.103 -1.066	1.293 1.272 -1.624	1.111 1.108 -0.216	0.990 0.988 -0.222	1.065 1.067 0.188	0.811 0.812 0.148	1.063 1.067 0.423	0.982 0.989 0.723	1.111 1.109 -0.153	1.285 1.272 -1.019	1.117 1.103 -1.245	0.525 0.517 -1.467	
	0.653 0.655 0.214	1.279 1.272 -0.539	0.982 0.970 -1.418	0.970 0.972 0.206	1.315 1.318 0.205	0.975 0.975 0.062	1.096 1.097 0.111	0.974 0.976 0.174	1.319 1.321 0.197	0.979 0.976 -0.215	0.980 0.978 -0.255	1.277 1.272 -0.384	0.658 0.654 -0.617	
0.585 0.589 0.632	1.164 1.167 0.266	1.109 1.103 -0.535	0.976 0.976 0.010	1.086 1.083 0.259	0.966 0.963 0.331	1.320 1.325 0.373	1.002 1.004 0.210	1.324 1.325 0.076	0.973 0.972 -0.164	1.092 1.089 -0.293	0.970 0.972 0.278	1.093 1.108 0.648	1.158 1.167 0.812	0.585 0.589 0.770
0.687 0.893 0.688	1.269 1.278 0.638	0.984 0.989 0.457	1.318 1.321 0.235	0.970 0.972 0.217	0.935 0.936 0.107	1.025 1.024 -0.214	1.094 1.095 0.064	1.022 1.022 0.000	0.939 0.936 -0.351	0.973 0.969 -0.421	1.511 1.318 0.572	0.979 0.968 0.929	1.287 1.277 0.637	0.888 0.893 0.768
0.753 0.761 1.022	1.034 1.038 0.261	1.071 1.067 -0.327	0.977 0.976 -0.113	1.321 1.325 0.265	1.025 1.022 -0.273	1.298 1.298 -0.024	0.960 0.964 -0.552	1.263 1.266 0.226	1.026 1.024 -0.185	1.323 1.325 0.113	0.971 0.975 0.474	1.058 1.067 0.903	1.028 1.036 0.788	0.755 0.761 0.848
0.841 0.851 1.188	1.016 1.017 0.108	0.820 0.812 -0.951	1.091 1.067 -0.358	1.000 1.004 0.380	1.099 1.095 -0.364	0.969 0.964 -1.527	0.809 0.799 -1.285	0.856 0.854 -0.115	1.090 1.085 0.422	1.002 1.004 0.200	1.085 1.087 0.184	0.809 0.812 0.356	1.008 1.017 0.823	0.843 0.851 1.006
0.754 0.761 0.915	1.033 1.038 0.300	1.072 1.067 -0.504	0.977 0.975 -0.164	1.318 1.325 0.493	1.021 1.024 0.215	1.290 1.286 0.318	0.962 0.954 0.743	1.255 1.266 0.649	1.022 1.022 0.020	1.326 1.325 -0.113	0.980 0.976 -0.452	1.069 1.067 -0.159	1.029 1.036 0.768	0.758 0.761 1.076
0.888 0.893 0.464	1.271 1.277 0.460	0.984 0.988 0.468	1.220 1.218 -0.158	0.968 0.969 0.124	0.936 0.936 -0.224	1.025 1.022 -0.322	1.102 1.095 -0.629	1.034 1.024 -1.044	0.939 0.936 -0.277	0.977 0.972 -0.522	1.337 1.321 -1.204	1.007 0.989 -1.778	1.275 1.278 0.196	0.891 0.893 0.181
0.566 0.589 0.495	1.161 1.167 0.499	1.103 1.106 0.499	0.976 0.972 -0.420	1.096 1.089 -0.621	0.975 0.972 -0.318	1.326 1.325 -0.249	1.003 1.004 0.090	1.316 1.325 0.501	0.965 0.968 0.303	1.090 1.089 -0.046	0.980 0.978 -0.449	1.118 1.109 -0.814	1.175 1.167 -0.698	0.593 0.589 -0.691
	0.651 0.654 0.522	1.285 1.272 0.561	0.977 0.978 0.041	0.978 0.976 -0.194	1.324 1.321 -0.165	0.978 0.976 -0.174	1.008 1.087 0.129	0.972 0.975 0.350	1.313 1.318 0.411	0.970 0.972 0.227	0.978 0.978 0.195	1.279 1.272 -0.563	0.663 0.655 -1.208	
	0.519 0.517 -0.269	1.102 1.103 0.092	1.271 1.272 0.055	1.104 1.109 0.527	0.987 0.985 0.253	1.069 1.067 -0.196	0.813 0.812 -0.093	1.058 1.057 -0.140	0.991 0.988 -0.313	1.111 1.108 -0.252	1.271 1.272 0.071	1.109 1.103 -0.613	0.525 0.517 -1.560	
		0.532 0.517 -2.976	0.555 0.555 -0.031	1.159 1.167 0.681	1.269 1.278 0.686	1.033 1.036 0.318	1.013 1.017 0.328	1.038 1.036 -0.183	1.269 1.277 -0.685	1.172 1.167 -0.461	0.655 0.654 -0.048	0.521 0.517 -0.691		
				0.585 0.589 0.718	0.886 0.893 0.722	0.754 0.761 0.875	0.844 0.851 0.877	0.760 0.761 0.145	0.901 0.893 -0.808	0.592 0.589 -0.458	Measured Relative Power Calculated Relative Power % Difference			

Figure C-23
Flux Map: CY2-FM08, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM09
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 8543.6 MWD/MTU

				0.598 0.594 -0.618	0.808 0.892 0.368	0.754 0.763 1.007	0.841 0.852 1.272	0.758 0.763 0.647	0.888 0.892 0.382	0.592 0.594 0.398				
		0.535 0.526 -1.764	0.673 0.661 -1.764	1.177 1.167 -0.824	1.200 1.275 -0.398	1.031 1.034 0.319	1.008 1.015 0.724	1.030 1.034 0.447	1.267 1.275 0.647	1.168 1.167 -0.034	0.670 0.661 -1.359	0.533 0.526 -1.425		
	0.530 0.526 -0.830	1.118 1.106 -1.029	1.288 1.270 -1.405	1.114 1.105 -0.817	0.988 0.988 -0.823	1.067 1.065 -0.150	0.819 0.817 -0.232	1.062 1.065 0.301	0.990 0.988 0.018	1.108 1.106 -0.235	1.288 1.270 -1.367	1.122 1.106 -1.417	0.534 0.526 -1.461	
	0.662 0.661 -0.211	1.280 1.270 -0.781	0.985 0.978 -0.751	0.976 0.972 -0.359	1.319 1.314 -0.356	0.977 0.975 -0.154	1.085 1.084 -0.026	0.975 0.976 0.092	1.313 1.317 0.343	0.977 0.975 -0.154	0.981 0.978 -0.296	1.275 1.270 -0.431	0.684 0.681 -0.452	
0.592 0.594 0.287	1.167 1.167 0.034	1.107 1.106 -0.117	0.979 0.975 -0.245	1.098 1.097 -0.220	0.989 0.989 0.031	1.318 1.320 0.288	1.002 1.003 0.110	1.319 1.320 0.008	0.973 0.972 -0.082	1.087 1.087 -0.046	0.987 0.972 0.475	1.098 1.105 0.812	1.161 1.167 0.491	0.594 0.594 0.000
0.838 0.892 0.439	1.268 1.275 0.576	0.983 0.989 0.559	1.315 1.317 0.129	0.972 0.972 -0.010	0.937 0.938 0.032	1.025 1.022 -0.244	1.093 1.092 -0.101	1.020 1.021 0.069	0.938 0.939 0.011	0.969 0.969 0.021	1.306 1.314 0.597	0.982 0.988 0.611	1.272 1.275 0.275	0.892 0.892 0.000
0.756 0.763 0.866	1.002 1.034 0.233	1.069 1.065 -0.385	0.978 0.976 -0.194	1.319 1.320 0.105	1.022 1.021 -0.127	1.292 1.295 0.534	0.959 0.967 0.219	1.279 1.285 0.465	1.018 1.022 0.403	1.313 1.320 0.533	0.972 0.975 0.309	1.060 1.065 0.472	1.031 1.034 0.390	0.760 0.763 0.342
0.841 0.852 1.212	1.013 1.015 0.188	0.625 0.817 -0.946	1.093 1.084 -0.835	1.004 1.003 -0.100	1.093 1.092 -0.101	0.965 0.967 0.272	0.807 0.808 0.062	0.951 0.957 0.654	1.084 1.092 0.775	0.599 1.003 0.330	1.063 1.064 0.139	0.816 0.817 0.066	1.009 1.015 0.565	0.844 0.852 0.868
0.755 0.763 1.033	1.029 1.034 0.496	1.069 1.065 -0.374	0.561 0.975 -0.642	1.317 1.320 0.235	1.019 1.022 0.294	1.261 1.265 0.320	0.953 0.957 0.376	1.276 1.285 0.816	1.016 1.021 0.433	1.322 1.320 -0.174	0.979 0.976 -0.317	1.066 1.065 -0.068	1.026 1.034 0.584	0.755 0.763 1.020
0.868 0.892 0.450	1.268 1.275 0.536	0.960 0.966 0.765	1.319 1.314 -0.358	0.970 0.969 -0.103	0.940 0.938 -0.288	1.021 1.021 0.010	1.089 1.092 0.285	1.017 1.022 0.501	0.937 0.938 0.064	0.975 0.972 -0.318	1.324 1.317 -0.514	0.986 0.989 -0.693	1.273 1.275 0.157	0.891 0.892 0.157
0.593 0.594 0.219	1.185 1.167 0.215	1.103 1.105 0.209	0.978 0.972 -0.593	1.094 1.087 -0.686	0.974 0.972 -0.235	1.316 1.320 0.243	0.958 1.003 0.461	1.313 1.320 0.549	0.966 0.969 0.352	1.087 1.087 0.000	0.978 0.975 -0.269	1.112 1.106 -0.522	1.176 1.167 -0.765	0.599 0.594 -0.752
	0.659 0.661 0.304	1.265 1.270 0.379	0.979 0.978 -0.092	0.976 0.975 -0.113	1.316 1.317 0.122	0.971 0.976 0.484	1.078 1.084 0.575	0.970 0.975 0.547	1.309 1.314 0.405	0.973 0.972 -0.062	0.980 0.978 -0.255	1.281 1.270 -0.843	0.689 0.681 -1.196	
	0.525 0.526 0.038	1.104 1.106 0.190	1.267 1.270 0.229	1.100 1.105 0.500	0.984 0.988 0.437	1.060 1.065 0.508	0.812 0.817 0.628	1.064 1.065 0.094	0.993 0.988 -0.544	1.112 1.105 -0.656	1.274 1.270 -0.330	1.115 1.106 -0.825	0.534 0.526 -1.518	
		0.597 0.526 -0.228	0.659 0.681 0.258	1.159 1.167 0.681	1.287 1.275 -0.678	1.029 1.034 0.498	1.010 1.015 0.495	1.037 1.034 -0.257	1.292 1.275 -1.285	1.178 1.167 -0.789	0.663 0.661 -0.317	0.530 0.526 -0.811		
				0.509 0.594 0.901	0.805 0.892 0.813	0.760 0.763 0.329	0.848 0.852 0.330	0.765 0.763 -0.353	0.904 0.892 -1.283	0.593 0.594 0.201	Measured Relative Power Calculated Relative Power % Difference			

Figure C-24
Flux Map: CY2-FM09, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM10
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 9840.5 MWD/MTU

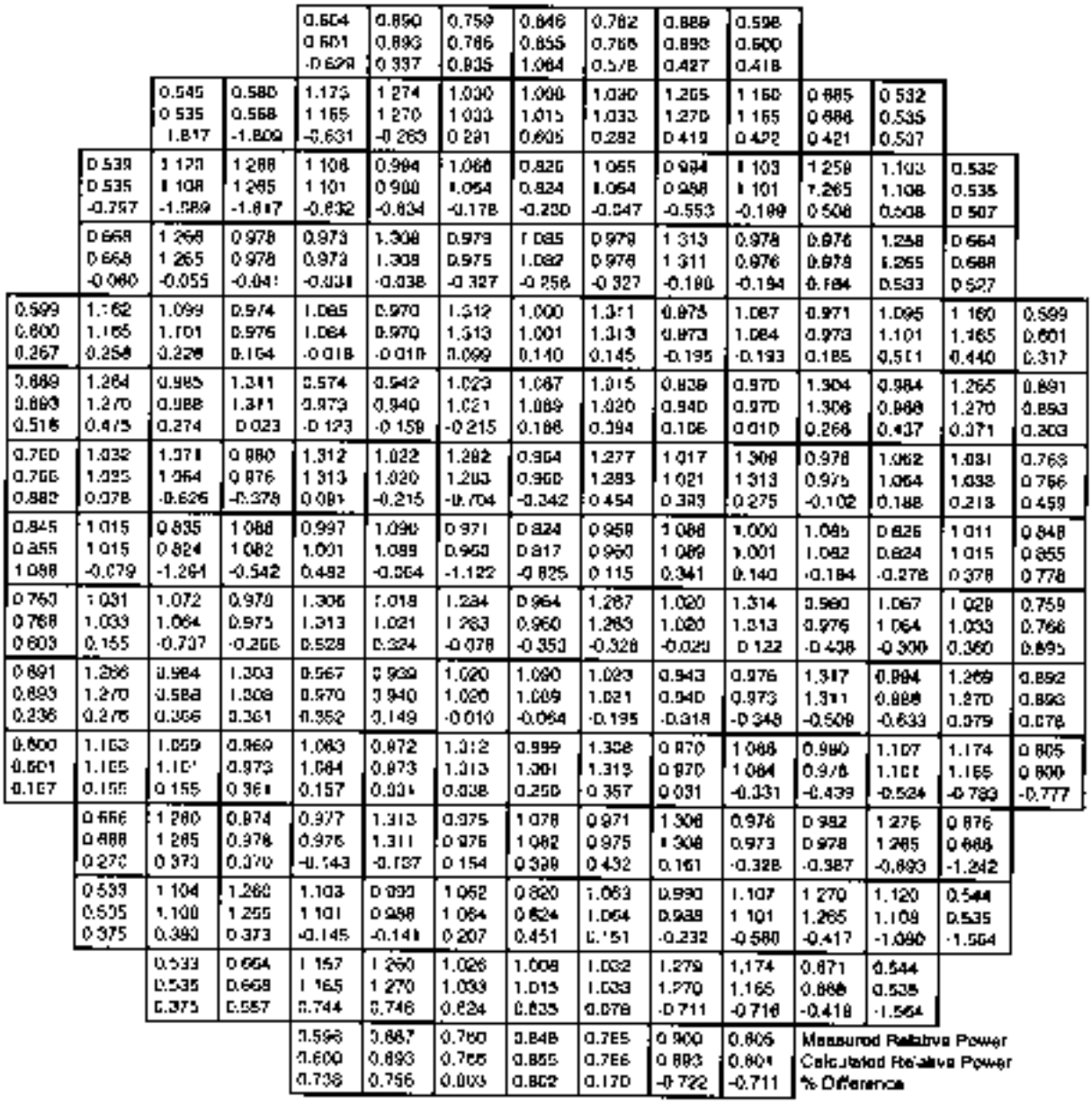

Figure C-25
Flux Map: CY2-FM10, Measured and Calculated Relative Assembly Power

FLUX MAP: CY2-FM11
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 11059.7 MWD/MTU

				0.610 0.608 -0.410	0.891 0.895 0.403	0.764 0.771 1.035	0.850 0.860 1.165	0.767 0.771 0.495	0.893 0.895 0.268	0.606 0.608 0.281				
		0.563 0.545 -3.354	0.538 0.675 -3.352	1.168 1.163 -0.411	1.266 1.265 -0.095	1.028 1.032 0.301	1.011 1.018 0.534	1.031 1.032 0.128	1.261 1.265 0.278	1.161 1.163 0.121	0.675 0.675 -0.044	0.549 0.545 -0.783		
	0.553 0.545 -0.564	1.122 1.109 -1.212	1.250 1.259 +1.640	1.101 1.096 -0.418	0.991 0.987 -0.414	1.060 1.063 0.197	0.834 0.831 -0.408	1.065 1.064 -0.131	0.997 0.988 -0.923	1.097 1.097 -0.036	1.260 1.259 -0.032	1.118 1.109 -0.787	0.553 0.545 -1.519	
	0.674 0.675 0.030	1.258 1.259 0.100	0.977 0.978 0.041	0.979 0.973 -0.072	1.302 1.301 -0.077	0.979 0.976 -0.347	1.083 1.081 -0.139	0.978 0.976 -0.204	1.303 1.303 0.048	0.976 0.975 -0.041	0.976 0.978 0.133	1.263 1.259 -0.309	0.680 0.675 -0.750	
0.606 0.608 0.214	1.161 1.163 0.138	1.098 1.097 0.100	0.975 0.975 0.031	1.083 1.082 -0.037	0.970 0.970 0.041	1.301 1.305 0.315	0.997 1.000 0.271	1.303 1.305 0.153	0.972 0.973 0.041	1.078 1.082 0.371	0.969 0.973 0.371	1.092 1.096 0.368	1.159 1.163 0.371	0.605 0.608 0.300
0.892 0.895 0.359	1.262 1.265 0.238	0.997 0.998 0.111	1.300 1.300 0.031	0.972 0.973 0.041	0.941 0.942 0.064	1.018 1.020 0.206	1.081 1.088 0.463	1.014 1.018 0.454	0.938 0.942 0.405	0.964 0.970 0.643	1.294 1.301 0.549	0.982 0.997 0.499	1.260 1.265 0.421	0.892 0.895 0.370
0.766 0.771 0.652	1.033 1.032 -0.077	1.072 1.064 -0.753	0.978 0.976 -0.225	1.297 1.305 0.609	1.016 1.018 0.207	1.280 1.279 -0.039	0.961 0.963 0.230	1.269 1.279 0.836	1.012 1.020 0.781	1.296 1.305 0.718	0.974 0.976 0.144	1.059 1.063 0.408	1.028 1.032 0.378	0.766 0.771 0.678
0.853 0.863 0.797	1.018 1.016 -0.206	0.842 0.831 -1.353	1.085 1.081 -0.367	0.991 1.001 0.928	1.081 1.088 0.435	0.966 0.963 -0.236	0.827 0.826 -0.046	0.967 0.963 0.679	1.077 1.086 0.628	0.994 1.000 0.533	1.080 1.081 0.111	0.832 0.831 -0.156	1.010 1.016 0.584	0.852 0.860 0.880
0.767 0.771 0.547	1.033 1.032 -0.310	1.072 1.063 -0.774	0.977 0.976 -0.102	1.298 1.305 0.710	1.015 1.020 0.473	1.279 1.279 0.016	0.962 0.963 0.104	1.275 1.279 0.361	1.014 1.018 0.464	1.305 1.305 0.039	0.961 0.976 -0.439	1.067 1.064 -0.281	1.028 1.032 0.399	0.765 0.771 0.810
0.889 0.895 0.663	1.259 1.265 0.517	0.995 0.997 0.152	1.298 1.301 0.231	0.967 0.973 0.541	0.940 0.942 0.160	1.016 1.018 0.069	1.084 1.086 0.138	1.018 1.020 0.206	0.943 0.942 -0.095	0.978 0.973 -0.572	1.316 1.303 -0.950	1.000 0.989 -1.259	1.269 1.265 -0.331	0.898 0.895 -0.334
0.601 0.608 1.049	1.151 1.163 1.042	1.085 1.095 1.041	0.971 0.973 0.134	1.082 1.082 0.018	0.972 0.973 0.062	1.304 1.305 0.092	0.998 1.000 0.210	1.302 1.305 0.253	0.972 0.970 -0.154	1.068 1.082 0.570	0.983 0.975 -0.723	1.108 1.097 -0.850	1.179 1.163 -1.407	0.616 0.608 -1.385
	0.668 0.675 1.033	1.246 1.259 1.043	0.979 0.978 -0.112	0.976 0.975 -0.002	1.304 1.303 -0.054	0.975 0.976 0.113	1.079 1.081 0.241	0.973 0.976 0.247	1.301 1.301 -0.038	0.977 0.973 -0.430	0.982 0.978 -0.430	1.273 1.259 -1.078	0.667 0.675 1.147	
	0.539 0.545 1.039	1.097 1.109 1.039	1.261 1.259 -0.111	1.097 1.097 -0.038	0.988 0.988 -0.040	1.062 1.064 0.104	0.829 0.831 0.217	1.066 1.063 -0.272	0.986 0.987 0.054	1.105 1.096 -0.787	1.264 1.259 -0.356	1.120 1.109 -1.035	0.555 0.545 -1.580	
		0.541 0.545 0.665	0.870 0.875 0.556	1.155 1.163 0.658	1.256 1.265 0.681	1.026 1.032 0.409	1.012 1.018 0.415	1.037 1.032 -0.434	1.285 1.265 -1.533	1.174 1.163 0.964	0.877 0.875 -0.281	0.550 0.545 -1.000		
				0.604 0.608 0.653	0.889 0.895 0.694	0.766 0.771 0.626	0.854 0.860 0.620	0.774 0.771 -0.323	0.910 0.895 -1.637	0.618 0.608 -1.945	Measured Relative Power Calculated Relative Power % Difference			

Figure C-26
Flux Map: CY2-FM11, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM01
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 277.6 MWD/MTU

				0.455 0.452 -0.572	0.575 0.573 -0.331	0.865 0.863 -0.266	0.755 0.752 -0.424	0.878 0.863 -1.618	0.587 0.574 -2.216	0.464 0.453 -2.243			
		0.494 0.495 0.263	0.781 0.783 0.243	1.152 1.145 -0.580	1.136 1.130 -0.493	0.865 0.863 -0.289	1.240 1.235 -0.403	0.871 0.863 -0.815	1.159 1.132 -2.328	1.160 1.149 -1.804	0.799 0.785 -1.357	0.503 0.498 -1.471	
	0.492 0.498 0.752	1.097 1.108 0.602	1.214 1.225 0.873	1.149 1.142 -0.583	1.071 1.065 -0.579	1.232 1.233 0.016	0.928 0.930 0.302	1.232 1.234 0.195	1.062 1.067 0.509	1.163 1.147 -1.350	1.248 1.231 -1.346	1.122 1.108 -1.470	0.503 0.495 -1.590
	0.779 0.785 0.783	1.215 1.231 1.300	0.956 0.969 1.255	1.121 1.130 0.839	1.212 1.222 0.825	1.018 1.024 0.619	1.067 1.073 0.534	1.023 1.026 0.313	1.227 1.224 -0.212	1.150 1.134 -1.348	0.981 0.969 -1.294	1.242 1.225 -1.392	0.794 0.783 -1.478	
0.447 0.453 1.364	1.137 1.148 1.029	1.138 1.147 0.817	1.124 1.134 0.872	1.163 1.154 0.961	0.929 0.941 1.237	1.176 1.186 0.876	0.910 0.912 0.242	1.187 1.187 -0.008	0.544 0.542 -0.233	1.210 1.194 -1.305	1.145 1.130 -1.284	1.159 1.142 -1.449	1.166 1.145 -1.750	0.463 0.452 -2.295
0.563 0.574 1.973	1.120 1.132 1.134	1.061 1.067 0.556	1.213 1.224 0.923	0.929 0.942 1.324	1.177 1.195 1.546	1.114 1.127 1.212	1.166 1.171 0.394	1.124 1.127 0.214	1.191 1.195 0.353	0.934 0.941 0.771	1.239 1.222 -1.428	1.083 1.065 -1.690	1.153 1.130 -1.978	0.589 0.573 -2.720
0.846 0.863 2.067	0.848 0.863 1.676	1.214 1.234 1.639	1.008 1.028 1.806	1.162 1.167 2.160	1.107 1.127 1.716	0.962 0.995 1.263	1.245 1.256 0.835	0.990 0.995 0.441	1.120 1.127 0.631	1.160 1.186 0.534	1.024 1.024 0.020	1.246 1.233 -1.044	0.873 0.863 -1.190	0.862 0.863 -2.155
0.737 0.762 1.867	1.209 1.235 2.100	0.907 0.930 2.524	1.046 1.070 2.571	0.907 0.912 2.807	1.151 1.171 1.738	1.246 1.256 0.746	0.917 0.924 0.785	1.251 1.256 0.408	1.167 1.171 0.326	0.909 0.912 0.374	1.067 1.073 0.558	0.824 0.930 0.682	1.250 1.235 -1.240	0.767 0.752 -1.970
0.849 0.863 1.649	0.849 0.863 1.566	1.209 1.233 2.070	1.002 1.024 2.226	1.165 1.156 1.820	1.112 1.127 1.376	0.986 0.995 0.913	1.247 1.256 0.682	0.992 0.995 0.313	1.123 1.127 0.267	1.183 1.187 0.321	1.016 1.026 0.965	1.228 1.234 0.505	0.871 0.863 -0.961	0.880 0.863 -1.875
0.505 0.573 1.981	1.115 1.130 1.300	1.053 1.065 1.130	1.213 1.222 0.726	0.934 0.941 0.674	1.184 1.195 0.872	1.109 1.127 1.596	1.153 1.171 1.526	1.113 1.127 1.249	1.182 1.195 0.277	0.936 0.942 0.384	1.217 1.224 0.587	1.059 1.067 0.717	1.144 1.132 -0.997	0.578 0.574 -1.001
0.445 0.452 1.549	1.128 1.145 1.543	1.125 1.142 1.547	1.122 1.130 0.781	1.186 1.184 0.700	0.936 0.942 0.586	1.171 1.187 1.358	0.897 0.912 1.650	1.184 1.186 0.152	0.948 0.941 -0.759	1.189 1.194 0.428	1.127 1.134 0.639	1.130 1.147 0.844	1.150 1.148 -0.174	0.454 0.453 -0.176
	0.708 0.703 -0.647	1.280 1.225 -2.739	0.974 0.969 -0.595	1.131 1.134 0.248	1.224 1.224 -0.033	1.017 1.026 0.840	1.069 1.073 0.340	1.035 1.024 -1.006	1.236 1.222 -1.179	1.124 1.130 0.505	0.961 0.969 0.738	1.234 1.231 -0.227	0.794 0.785 -1.133	
	0.506 0.495 -2.135	1.133 1.136 0.400	1.248 1.231 -1.364	1.147 1.147 -0.017	1.068 1.067 -0.112	1.230 1.234 0.317	0.928 0.930 0.215	1.254 1.233 -1.722	1.103 1.085 -3.481	1.167 1.142 -2.142	1.237 1.225 -0.986	1.121 1.108 -1.320	0.505 0.496 -1.802	
		0.534 0.496 -1.647	0.793 0.785 -0.971	1.146 1.148 0.201	1.130 1.132 0.212	0.856 0.863 -0.254	1.238 1.235 -0.275	0.881 0.863 -2.022	1.182 1.130 -4.407	1.188 1.145 -3.618	0.805 0.783 -2.818	0.507 0.495 -2.385	
				0.451 0.453 0.377	0.571 0.574 0.403	0.874 0.863 -1.256	0.761 0.752 -1.281	0.696 0.863 -2.587	0.599 0.573 -4.407	0.469 0.452 -3.632	Measured Relative Power Calculated Relative Power % Difference		

Figure C-27
Flux Map: CY3-FM01, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM02
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 1099.0 MWD/MTU

				0.448 0.447 -0.490	0.604 0.560 -7.300	0.914 0.825 -9.696	0.774 0.710 -7.266	0.837 0.828 -1.385	0.572 0.581 -2.009	0.450 0.440 -2.010			
		0.494 0.495 0.223	0.775 0.777 0.232	1.145 1.139 -0.507	1.168 1.132 -3.075	0.880 0.845 -4.066	1.238 1.200 -2.305	0.850 0.845 -0.586	1.149 1.134 -1.314	1.159 1.142 -1.466	0.794 0.780 -1.776	0.504 0.496 -1.705	
	0.490 0.496 0.547	1.109 1.118 0.595	1.208 1.245 0.704	1.137 1.131 -0.510	1.060 1.058 -0.506	1.207 1.242 0.404	0.911 0.918 0.702	1.240 1.243 0.298	1.066 1.060 -0.600	1.150 1.136 -1.182	1.273 1.251 -1.775	1.135 1.118 -1.718	0.503 0.495 -1.669
	0.775 0.780 0.523	1.239 1.251 0.985	0.963 0.975 1.225	1.118 1.130 1.281	1.236 1.252 1.286	1.009 1.023 1.338	1.045 1.060 1.397	1.017 1.024 0.718	1.258 1.255 -0.318	1.146 1.134 -1.056	0.988 0.975 -1.296	1.263 1.245 -1.441	0.788 0.777 -1.395	
0.445 0.448 0.655	1.132 1.142 0.919	1.125 1.135 0.942	1.120 1.134 1.205	1.219 1.239 1.157	0.948 0.957 0.918	1.199 1.219 1.235	0.898 0.909 1.248	1.203 1.214 0.908	0.959 0.957 -0.136	1.243 1.233 -0.853	1.141 1.130 -0.946	1.148 1.131 -1.300	1.160 1.139 -1.751	0.458 0.447 -2.443
0.554 0.561 1.249	1.120 1.134 1.187	1.045 1.060 1.358	1.234 1.255 1.637	0.945 0.957 1.291	1.219 1.231 1.009	1.108 1.124 1.610	1.142 1.159 1.497	1.112 1.123 1.035	1.228 1.231 0.383	0.957 0.957 -0.031	1.266 1.252 -1.087	1.075 1.058 -1.600	1.158 1.132 -2.068	0.574 0.560 -2.458
0.810 0.826 1.524	0.831 0.845 1.770	1.217 1.240 2.127	0.998 1.024 2.575	1.182 1.214 2.724	1.099 1.123 2.184	0.971 0.992 2.090	1.252 1.275 1.861	0.979 0.992 1.235	1.111 1.124 1.152	1.199 1.213 1.176	1.021 1.023 0.166	1.252 1.242 -0.791	0.852 0.845 -0.857	0.840 0.825 -1.715
0.705 0.718 1.857	1.165 1.208 3.690	0.895 0.918 2.514	1.026 1.060 3.315	0.872 0.909 4.279	1.127 1.159 2.866	1.257 1.275 1.496	0.921 0.938 1.846	1.257 1.275 1.448	1.145 1.159 1.231	0.900 0.909 1.011	1.052 1.060 0.761	0.909 0.918 0.957	1.214 1.208 -0.488	0.726 0.716 -1.102
0.814 0.825 1.368	0.833 0.845 1.405	1.219 1.242 1.929	0.993 1.023 2.949	1.178 1.213 2.979	1.098 1.124 2.541	0.975 0.992 1.703	1.253 1.275 1.786	0.974 0.992 1.776	1.109 1.123 1.281	1.207 1.214 0.580	1.016 1.024 0.589	1.259 1.243 0.420	0.847 0.845 -0.238	0.836 0.826 -1.196
0.560 0.560 0.000	1.128 1.132 0.284	1.047 1.056 0.893	1.236 1.252 1.294	0.944 0.957 1.302	1.211 1.231 1.677	1.096 1.123 2.462	1.131 1.159 2.502	1.097 1.124 2.387	1.226 1.231 0.228	0.963 0.957 -0.633	1.263 1.256 -0.581	1.087 1.060 -0.731	1.143 1.134 -0.831	0.566 0.561 0.831
0.450 0.447 -0.666	1.147 1.139 -0.680	1.139 1.131 -0.695	1.116 1.130 1.290	1.219 1.239 1.107	0.946 0.957 1.141	1.161 1.214 1.999	0.989 0.909 2.273	1.203 1.213 0.948	0.973 0.957 -1.525	1.250 1.233 -1.384	1.148 1.134 -0.822	1.139 1.138 -0.281	1.147 1.142 -0.410	0.450 0.446 -0.400
	0.790 0.777 -1.603	1.277 1.245 -2.514	0.978 0.975 -0.307	1.127 1.134 0.577	1.251 1.255 0.304	1.017 1.024 0.698	1.058 1.060 0.331	1.028 1.023 -0.564	1.272 1.252 -1.526	1.140 1.130 -0.868	0.977 0.975 -0.215	1.260 1.251 -0.754	0.780 0.780 -1.341	
	0.504 0.495 -1.683	1.140 1.116 -2.166	1.264 1.251 -1.052	1.132 1.136 0.353	1.057 1.060 0.236	1.248 1.240 -0.386	0.925 0.918 -0.811	1.284 1.242 -1.756	1.088 1.050 -2.776	1.158 1.131 -2.154	1.261 1.245 -1.269	1.134 1.118 -1.588	0.508 0.496 -1.996	
		0.505 0.496 -1.353	0.784 0.780 -0.536	1.133 1.142 0.821	1.125 1.134 0.818	0.853 0.845 -0.879	1.218 1.200 -0.976	0.863 0.845 -2.109	1.177 1.132 -3.824	1.178 1.139 -3.261	0.799 0.777 -2.704	0.507 0.495 -2.425		
				0.448 0.446 1.242	0.554 0.561 1.227	0.835 0.828 -1.054	0.725 0.718 -1.048	0.844 0.825 -2.227	0.582 0.560 -3.830	0.462 0.447 -3.245	Measured Relative Power Calculated Relative Power % Difference		

Figure C-28
Flux Map: CY3-FM02, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM03
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 2206.9 MWD/MTU

				0.446 0.443 -1.118	0.554 0.550 -0.632	0.802 0.797 -0.524	0.685 0.689 -0.649	0.805 0.798 -0.845	0.553 0.551 -0.362	0.445 0.444 -0.382				
		0.482 0.484 2.489	0.752 0.771 2.485	1.153 1.140 -1.128	1.155 1.144 -0.952	0.837 0.830 -0.765	1.203 1.190 -1.031	0.839 0.831 -1.025	1.159 1.148 -1.147	1.160 1.142 -1.551	0.792 0.773 -2.349	0.505 0.495 -1.981		
	0.492 0.495 0.568	1.121 1.130 0.921	1.252 1.267 1.254	1.130 1.117 -1.124	1.063 1.051 -1.119	1.282 1.260 -0.206	0.905 0.905 0.022	1.267 1.261 -0.521	1.074 1.053 -1.915	1.148 1.121 -2.138	1.303 1.273 -2.348	1.153 1.130 -1.970	0.502 0.494 -1.613	
	0.776 0.773 -0.297	1.270 1.270 -0.066	0.967 0.969 0.136	1.120 1.125 0.393	1.201 1.206 0.338	1.009 1.019 1.051	1.030 1.042 1.185	1.020 1.021 0.098	1.304 1.288 -1.189	1.148 1.128 -1.754	0.987 0.969 -1.753	1.289 1.267 -1.722	0.788 0.771 -1.507	
0.438 0.444 1.440	1.135 1.147 0.686	1.119 1.121 0.214	1.123 1.128 0.427	1.264 1.272 0.625	0.959 0.969 1.032	1.222 1.241 1.530	0.890 0.893 0.355	1.237 1.242 0.412	0.976 0.970 -0.576	1.289 1.272 -1.303	1.140 1.125 -1.333	1.136 1.117 -1.620	1.164 1.140 -2.068	0.456 0.443 -2.767
0.536 0.551 2.817	1.126 1.148 1.812	1.043 1.053 0.939	1.276 1.288 0.940	0.959 0.970 1.137	1.246 1.256 1.558	1.092 1.110 1.648	1.124 1.136 1.077	1.100 1.110 0.928	1.260 1.268 0.452	0.958 0.969 0.093	1.304 1.298 -1.342	1.071 1.051 -1.846	1.172 1.144 -2.364	0.568 0.556 -2.790
0.781 0.790 2.190	0.814 0.801 2.039	1.239 1.261 1.751	1.002 1.021 1.816	1.215 1.242 2.220	1.088 1.110 1.976	0.959 0.975 1.721	1.264 1.282 1.384	0.962 0.975 1.362	1.091 1.110 1.778	1.222 1.241 1.522	1.022 1.019 -0.283	1.274 1.260 -1.123	0.841 0.830 -1.319	0.815 0.797 -2.184
0.679 0.693 1.472	1.168 1.190 1.866	0.884 0.905 2.455	1.015 1.042 2.610	0.872 0.893 3.062	1.112 1.135 2.085	1.268 1.282 1.041	0.917 0.930 1.439	1.263 1.282 1.448	1.124 1.136 1.041	0.890 0.899 0.977	1.039 1.042 0.241	0.904 0.905 0.210	1.202 1.190 -0.940	0.697 0.686 -1.133
0.787 0.797 1.295	0.819 0.830 1.417	1.235 1.260 2.009	0.997 1.019 2.208	1.217 1.241 1.964	1.093 1.110 1.601	0.963 0.975 1.246	1.263 1.282 1.467	0.961 0.975 1.551	1.099 1.110 0.555	1.239 1.242 0.226	1.020 1.021 0.029	1.265 1.261 -0.316	0.835 0.831 -0.503	0.805 0.798 -0.845
0.550 0.560 0.065	1.140 1.144 0.324	1.041 1.051 1.038	1.282 1.288 0.320	0.965 0.969 0.415	1.255 1.268 0.661	1.087 1.110 2.060	1.110 1.136 2.315	1.085 1.110 2.360	1.257 1.266 0.732	0.972 0.970 -0.287	1.299 1.288 -0.808	1.067 1.053 -1.258	1.148 1.146 -0.028	0.551 0.561 -0.018
0.446 0.443 -0.650	1.147 1.140 -0.654	1.125 1.117 -0.649	1.122 1.125 0.232	1.272 1.272 -0.018	0.968 0.970 0.217	1.222 1.242 1.579	0.877 0.899 2.427	1.224 1.241 1.356	0.871 0.869 -0.185	1.275 1.272 -0.259	1.134 1.128 -0.564	1.131 1.121 -0.858	1.135 1.142 0.652	0.441 0.444 0.635
	0.782 0.771 -1.406	1.255 1.267 -2.154	0.978 0.969 -0.849	1.133 1.128 -0.441	1.258 1.268 -0.709	1.042 1.021 0.860	1.229 1.042 1.273	1.016 1.019 0.335	1.289 1.286 -0.258	1.127 1.125 -0.222	0.978 0.969 -0.990	1.288 1.273 -1.188	0.781 0.773 -1.049	
	0.499 0.494 -0.972	1.146 1.130 -1.448	1.282 1.273 -0.718	1.127 1.121 -0.497	1.060 1.053 -0.670	1.256 1.261 0.246	0.898 0.905 0.824	1.265 1.260 -0.466	1.070 1.051 -1.738	1.141 1.117 -2.086	1.281 1.267 -1.813	1.153 1.130 -1.978	0.506 0.495 -2.232	
		0.494 0.495 0.162	0.774 0.773 -0.065	1.136 1.142 0.351	1.142 1.146 0.350	0.832 0.831 -0.168	1.182 1.190 -0.168	0.840 0.830 -1.202	1.175 1.144 -2.638	1.170 1.140 -2.897	0.798 0.771 -3.152	0.508 0.494 -2.774		
				0.439 0.441 1.093	0.545 0.551 1.101	0.809 0.798 -1.409	0.699 0.698 -1.416	0.813 0.797 -1.931	0.565 0.550 -2.635	0.456 0.443 -2.893	Measured Relative Power Calculated Relative Power % Difference			

Figure C-29
Flux Map: CY3-FM03, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM04
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 3189.0 MWD/MTU

				0.446 0.442 -1.031	0.550 0.546 -0.673	0.786 0.782 -0.293	0.673 0.674 0.089	0.784 0.783 -0.115	0.550 0.547 0.545	0.445 0.442 -0.539				
		0.488 0.494 1.250	0.758 0.767 1.240	1.152 1.140 -1.033	1.166 1.155 -0.901	0.825 0.823 -0.206	1.177 1.181 0.306	0.827 0.824 -0.375	1.171 1.157 -1.221	1.160 1.142 -1.492	0.785 0.769 -2.038	0.501 0.495 -1.317		
	0.454 0.455 0.040	1.135 1.137 0.212	1.274 1.281 0.542	1.118 1.107 -1.029	1.056 1.047 -1.030	1.270 1.273 0.236	0.855 0.859 0.496	1.276 1.274 -0.133	1.069 1.049 -1.899	1.133 1.110 -1.960	1.313 1.286 -2.028	1.152 1.137 -1.319	0.497 0.494 -0.584	
	0.774 0.769 -0.569	1.280 1.286 0.465	0.965 0.965 0.010	1.117 1.119 0.170	1.306 1.309 0.168	1.006 1.317 0.873	1.021 1.031 0.950	1.017 1.018 0.039	1.326 1.311 -1.161	1.141 1.122 -1.692	0.979 0.965 -1.531	1.297 1.281 -1.211	0.773 0.767 -0.789	
0.439 0.442 0.797	1.136 1.142 0.551	1.110 1.110 0.072	1.119 1.122 0.268	1.283 1.298 0.340	0.970 0.976 0.660	1.243 1.259 1.271	0.884 0.892 0.894	1.254 1.260 0.423	0.903 0.970 -0.631	1.315 1.298 -1.293	1.132 1.110 -1.175	1.122 1.107 -1.337	1.151 1.140 -1.050	0.454 0.442 -2.645
0.537 0.547 1.881	1.141 1.157 1.358	1.061 1.045 0.788	1.303 1.311 0.552	0.970 0.976 0.529	1.273 1.288 1.210	1.081 1.099 1.547	1.103 1.117 1.242	1.099 1.098 0.835	1.286 1.288 0.187	0.978 0.975 -0.194	1.325 1.309 -1.268	1.065 1.047 -1.718	1.181 1.155 -2.228	0.561 0.546 -2.637
0.772 0.783 1.425	0.812 0.824 1.441	1.259 1.274 1.151	1.027 1.018 1.179	1.235 1.260 1.938	1.077 1.098 2.016	0.943 0.962 2.004	1.258 1.281 1.758	0.950 0.982 1.295	1.084 1.098 1.347	1.242 1.259 1.320	1.018 1.017 -0.245	1.286 1.273 -1.050	0.832 0.823 -1.129	0.797 0.782 -1.881
0.668 0.674 0.838	1.158 1.181 1.978	0.885 0.898 1.560	1.011 1.031 1.908	0.959 0.992 2.647	1.092 1.117 2.327	1.280 1.281 1.659	0.905 0.922 1.878	1.282 1.281 1.508	1.104 1.117 1.205	0.684 0.692 0.894	1.028 1.031 0.243	0.895 0.899 0.425	1.188 1.181 -0.596	0.673 0.674 0.786
0.778 0.782 0.591	0.818 0.823 0.599	1.258 1.273 1.128	0.998 1.017 1.849	1.237 1.259 1.738	1.081 1.099 1.637	0.947 0.962 1.552	1.259 1.281 1.692	0.945 0.962 1.767	1.086 1.099 1.105	1.255 1.260 0.375	1.012 1.018 0.573	1.269 1.274 0.362	0.825 0.824 -0.156	0.787 0.783 -0.483
0.547 0.546 -0.183	1.156 1.155 -0.087	1.045 1.047 0.182	1.304 1.309 0.368	0.972 0.976 0.391	1.277 1.288 0.854	1.077 1.098 1.968	1.092 1.117 2.280	1.073 1.098 2.404	1.283 1.288 0.358	0.978 0.976 -0.164	1.309 1.311 0.064	1.048 1.049 0.267	1.154 1.157 0.217	0.548 0.547 0.201
0.444 0.442 -0.451	1.145 1.140 -0.469	1.112 1.107 -0.459	1.115 1.119 0.350	1.295 1.298 0.216	0.973 0.976 0.370	1.239 1.260 1.622	0.872 0.892 2.352	1.242 1.259 1.312	0.963 0.976 -0.753	1.306 1.298 -0.681	1.125 1.122 -0.338	1.110 1.110 -0.009	1.133 1.142 0.784	0.439 0.442 0.797
	0.778 0.767 -1.337	1.310 1.261 -2.191	0.971 0.965 -0.690	1.123 1.122 -0.134	1.315 1.311 -0.357	1.009 1.018 0.832	1.020 1.031 1.049	1.015 1.017 0.227	1.317 1.309 -0.676	1.125 1.119 -0.639	0.969 0.965 -0.423	1.300 1.285 -1.031	0.775 0.769 -0.879	
	0.500 0.494 -1.240	1.156 1.137 -1.660	1.298 1.286 -0.855	1.113 1.110 -0.252	1.063 1.049 -1.370	1.273 1.274 0.086	0.886 0.899 1.369	1.283 1.273 -0.772	1.068 1.047 -1.948	1.129 1.107 -1.993	1.300 1.281 -1.492	1.157 1.137 -1.711	0.505 0.496 -2.021	
		0.467 0.695 -0.443	0.771 0.769 -0.195	1.135 1.142 0.617	1.150 1.157 0.618	0.857 0.824 -0.390	1.186 1.181 -0.396	0.936 0.923 -1.484	1.191 1.155 -2.990	1.173 1.140 -2.822	0.788 0.787 -2.652	0.506 0.494 -2.372		
				0.436 0.442 1.444	0.539 0.547 1.428	0.793 0.783 -1.324	0.583 0.974 -1.339	0.789 0.782 -2.029	0.583 0.546 -2.963	0.454 0.442 -2.816	Measured Relative Power Calculated Relative Power % Difference			

Figure C-30
Flux Map: CY3-FM04, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM05
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 4259.4 MWD/MTU

				0.448 0.442 -1.383	0.548 0.545 -0.365	0.771 0.772 0.195	0.663 0.664 0.191	0.778 0.773 -0.425	0.549 0.546 -0.510	0.445 0.443 -0.496			
		0.490 0.484 0.734	0.758 0.764 0.725	1.155 1.139 1.377	1.178 1.166 -1.010	0.822 0.820 -0.292	1.177 1.176 -0.119	0.824 0.820 -0.401	1.175 1.168 -0.630	1.154 1.141 -1.049	0.780 0.765 -1.872	0.500 0.495 -1.021	
	0.436 0.435 -0.222	1.142 1.141 -0.114	1.298 1.289 0.078	1.111 1.098 -1.268	1.058 1.043 -1.371	1.285 1.285 -0.059	0.893 0.895 0.201	1.295 1.286 0.038	1.053 1.045 -0.760	1.114 1.100 -1.310	1.318 1.294 -1.865	1.153 1.141 -1.024	0.495 0.494 -0.162
	0.771 0.765 -0.823	1.307 1.294 -0.576	0.969 0.960 -0.384	1.114 1.112 -0.126	1.327 1.325 -0.121	1.008 1.015 0.935	1.011 1.022 1.078	1.013 1.018 0.508	1.334 1.327 -0.532	1.127 1.115 -1.091	0.971 0.960 -1.215	1.301 1.298 -0.899	0.767 0.764 -0.391
0.440 0.443 0.568	1.141 1.141 0.061	1.102 1.100 -0.254	1.118 1.115 -0.125	1.318 1.317 0.015	0.979 0.981 0.255	1.258 1.273 1.168	0.679 0.687 0.967	1.268 1.274 0.465	0.985 0.982 -0.375	1.327 1.317 -0.776	1.121 1.112 -0.741	1.107 1.098 -0.976	1.150 1.139 -1.453	0.452 0.442 -2.191
0.538 0.546 1.430	1.157 1.168 0.873	1.041 1.045 0.325	1.324 1.327 0.219	0.979 0.982 0.285	1.295 1.305 0.790	1.074 1.093 1.397	1.087 1.100 1.205	1.080 1.088 0.767	1.301 1.305 0.277	0.981 0.981 0.041	1.035 1.025 -0.794	1.057 1.043 -1.268	1.187 1.168 -1.769	0.558 0.545 -2.170
0.764 0.773 1.192	0.612 0.620 1.034	1.277 1.286 0.705	1.007 1.016 0.674	1.255 1.274 1.487	1.060 1.038 1.644	0.933 0.951 1.832	1.256 1.277 1.696	0.939 0.951 1.248	1.075 1.069 1.246	1.257 1.273 1.273	1.014 1.015 0.138	1.293 1.285 -0.627	0.828 0.820 -0.783	0.784 0.772 -1.530
0.659 0.664 0.820	1.168 1.178 0.849	0.886 0.895 1.073	1.005 1.022 1.671	0.864 0.887 2.665	1.075 1.100 2.334	1.256 1.277 1.672	0.899 0.915 1.701	1.260 1.277 1.325	1.067 1.100 1.186	0.879 0.887 0.910	1.017 1.022 0.482	0.889 0.885 0.052	1.179 1.176 0.297	0.666 0.664 -0.330
0.768 0.772 0.580	0.616 0.620 0.466	1.275 1.285 0.782	0.999 1.015 1.571	1.252 1.273 1.637	1.072 1.089 1.539	0.937 0.951 1.441	1.259 1.277 1.422	0.936 0.951 1.376	1.077 1.088 1.002	1.269 1.274 0.386	1.011 1.016 0.485	1.281 1.286 0.383	0.819 0.820 0.163	0.773 0.773 0.013
0.547 0.545 -0.292	1.158 1.166 0.171	1.042 1.043 0.154	1.324 1.325 0.068	0.980 0.981 0.082	1.298 1.305 0.563	1.069 1.088 1.748	1.078 1.100 2.087	1.068 1.089 2.168	1.308 1.305 0.130	0.985 0.982 -0.355	1.329 1.327 -0.203	1.046 1.045 -0.088	1.161 1.166 0.586	0.543 0.546 0.589
0.445 0.442 -0.652	1.146 1.139 -0.637	1.103 1.096 -0.635	1.112 1.112 0.063	1.318 1.317 -0.091	0.981 0.982 0.051	1.255 1.274 1.474	0.866 0.887 2.412	1.255 1.273 1.416	0.990 0.981 -0.899	1.326 1.317 -0.681	1.120 1.115 -0.447	1.100 1.100 -0.045	1.131 1.141 0.884	0.438 0.443 0.981
	0.774 0.764 -1.382	1.317 1.289 -2.118	0.968 0.960 -0.859	1.120 1.115 -0.438	1.306 1.327 0.669	1.009 1.016 0.654	1.012 1.022 1.048	1.012 1.015 0.257	1.335 1.325 -0.749	1.119 1.112 -0.625	0.962 0.950 -1.239	1.299 1.294 -0.423	0.768 0.765 -0.052	
	0.500 0.494 -1.259	1.180 1.141 -1.638	1.307 1.294 -0.956	1.106 1.100 -0.525	1.052 1.045 -0.675	1.298 1.295 -0.194	0.893 0.895 0.173	1.293 1.285 -0.619	1.050 1.043 -1.464	1.114 1.098 -1.598	1.306 1.289 -1.286	1.153 1.141 -1.075	0.496 0.495 -0.762	
		0.497 0.495 -0.523	0.767 0.755 -0.287	1.136 1.141 0.494	1.102 1.168 0.482	0.824 0.820 -0.495	1.181 1.178 -0.423	0.830 0.820 -1.168	1.192 1.168 -2.206	1.167 1.139 -2.374	0.783 0.764 -2.527	0.503 0.494 -1.789	
				0.436 0.443 1.444	0.539 0.546 1.430	0.782 0.773 -1.164	0.672 0.664 -1.161	0.785 0.772 -1.583	0.558 0.545 -2.205	0.453 0.442 -2.365	Measured Relative Power Calculated Relative Power % Difference		

Figure C-31
Flux Map: CY3-FM05, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM06
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 5402.0 MWD/MTU

				D 443 D 444 -1.157	D 550 D 547 -0.491	D 767 D 767 D 000	D 658 D 658 D 305	D 760 D 767 -0 260	D 552 D 548 -0 761	D 448 D 445 -0.759				
		D.493 D.495 -0 542	D.770 D 762 -1 142	1.152 1.139 -1 145	1 137 1 178 -0.810	D 621 D 619 -0 183	1 169 1 173 D 299	0.823 D 829 -0 425	1 192 1.178 -1.183	1.155 1.141 -1 228	0.773 0.763 -1.345	0.497 0.496 -0.201		
	0.500 0.496 -0 939	1 153 1 143 -0 850	1 304 1 295 -0 844	1 100 1 088 -1 145	1.052 1.040 -1 150	1 293 1.295 0.147	0 891 0.894 0.292	1.297 1.296 -0 100	1.058 1.041 -1 587	1.107 1.090 -1.464	1.317 1.300 -1.336	1.145 1.143 -0.201	0.491 0.495 0.958	
	0.771 0.763 -1.025	1.310 1.300 -0.763	0.960 0.955 -0.465	1.108 1.106 -0.208	1.339 1.336 -0.209	1.005 1.013 0.836	1.006 1.016 1.024	1.012 1.014 0.158	1.349 1.337 -0 838	1.122 1.108 1.222	0.963 0.955 -0 831	1.297 1.295 -0 139	0.757 0.762 0.541	
0.450 0.445 -1 134	1.147 1.141 -0 567	1.095 1.090 -0 420	1.110 1.108 -0 180	1.331 1.329 -0 180	0.965 0.964 -0 122	1.270 1.262 -0.953	0.875 0.884 1.052	1.275 1.283 0.628	0.988 0.985 -0 294	1.341 1.329 -0 873	1.111 1.106 -0 488	1.092 1.068 -0 378	1.150 1.139 -0 922	0.452 0.444 -1 788
0.545 0.548 0.477	1.174 1.178 0.941	1.039 1.041 0.941	1.338 1.357 -0 022	0.986 0.986 -0 157	1.312 1.315 0 282	1.067 1.079 1.172	1.072 1.086 1.306	1.071 1 079 0 747	1.315 1 315 0 061	0.987 0.984 -0 274	1.340 1.336 -0.338	1.047 1.040 -0 640	1.191 1.176 -1.251	0.557 0.547 -1 759
0.763 0.767 0.485	0.813 0.820 0 874	1 286 1 296 0.82	1.009 1.014 0.946	1.273 1.283 0.786	1.065 1.079 1.267	0.827 0.841 1.543	1.253 1.272 1.486	0.832 0.841 0.988	1.071 1.079 0.709	1.272 1.282 0.828	1.006 1.013 0.668	1.286 1.295 -0.009	0.822 0.819 -0.259	0.775 0.787 -1.045
0.855 0.858 0.612	1.164 1.173 0.798	0.003 0.094 1.223	1.003 1.016 1.326	0.087 0.804 1.349	1.080 1.086 1.095	1.280 1.272 0.969	0.895 0.938 1.430	1.258 1.272 1.258	1.075 1.086 1 051	0.877 0.884 0.741	1.008 1.016 0.804	0.885 0.834 0.971	1.170 1.178 0.731	0 656 0 658 0 920
0.765 0.767 0.301	0.818 0.819 0.429	1.203 1.295 0 959	1.000 1.013 1.351	1.268 1.282 1.128	1.068 1.079 1.058	0.932 0.941 0 938	1.255 1.272 1 347	0.925 0.941 1 730	1 066 1 078 1 144	1 278 1 293 0 393	1 010 1 014 0 388	1 290 1 296 0 434	0 814 0 820 0 688	0 762 0 787 0.735
0.552 0 547 -0.634	1 183 1 178 -0.566	1 039 1 040 0 125	1.336 1 336 -0.007	0 995 0 984 -0.071	1 309 1 315 0 520	1 051 1 079 1 678	1 054 1 088 2 058	1 055 1 079 2 265	1 301 1.315 1 130	0 985 0.985 -0.061	1 342 1.337 -0.360	1 047 1.041 -0.544	1.168 1.178 1.012	0.542 0.548 1.014
0.451 0 444 -1.529	1 157 1 139 -1.521	1 105 1 088 -1.530	1 105 1 106 0 054	1 329 1 329 -0.045	0 984 0 985 0 091	1 288 1 283 1.351	0 885 0 884 2.209	1 284 1.282 1.449	0.983 0.984 0.071	1.330 1.329 -0.105	1.109 1.108 -0.108	1.092 1.090 -0.101	1.129 1.141 1.054	0.440 0.445 1.045
	0 775 0.762 -1.793	1.322 1.295 -2.057	0 962 0 955 -0.707	1.111 1.108 -0.279	1.345 1.337 -0.558	1.007 1.014 0.695	1.002 1.016 1.443	1.007 1.013 0.566	1.335 1.336 0.067	1.102 1.105 0.345	0.952 0.955 0.347	1.303 1 300 -0 215	0 764 0 763 -0.157	
	0.506 0.495 -2.057	1.167 1.143 -2.057	1.315 1 300 -1.156	1.094 1.090 -0.338	1.047 1.041 -0 516	1.306 1.296 -0 736	0.893 0 894 0.067	1.304 1.295 -0 706	1.061 1.040 -1 009	1.100 1.088 -1 130	1.306 1.295 -0.819	1.153 1.143 -0.893	0.501 0.496 -0.988	
		0.505 0.496 -2.075	0.763 0.763 -0 013	1.129 1.141 1.054	1.365 1.378 1.066	0.826 0.820 -0.751	1 162 1.173 -0 753	0.831 0.819 -1 360	1.196 1.176 -1 762	1.161 1.139 -1.861	0.777 0.782 -1.057	0.503 0.495 -1.570		
				0 434 0 445 2 395	0.535 0.548 2.393	0.773 0.767 -0 750	0.863 0.858 -0 754	0.776 0.787 -1.185	0.557 0.547 -1.759	0.453 0.444 -1.877	Measured Relative Power Calculated Relative Power % Difference			

Figure C-32
Flux Map: CY3-FM06, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM07
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 6577.5 MWD/MTU

				0.452 0.448 -0.841	0.551 0.551 -0.036	0.763 0.766 0.485	0.653 0.657 0.643	0.767 0.766 -0.013	0.554 0.552 -0.397	0.450 0.448 -0.378				
		0.495 0.497 0.303	0.758 0.760 0.303	1.148 1.139 -0.826	1.193 1.186 -0.545	0.821 0.822 0.110	1.168 1.174 0.436	0.825 0.822 -0.376	1.201 1.187 -1.141	1.153 1.140 -1.083	0.769 0.761 -0.976	0.497 0.497 0.121		
	0.501 0.497 -0.639	1.149 1.142 -0.523	1.301 1.297 -0.306	1.088 1.081 -0.636	1.047 1.038 -0.872	1.301 1.303 0.185	0.892 0.895 0.291	1.307 1.304 -0.222	1.059 1.039 -1.888	1.098 1.082 -1.430	1.314 1.301 -0.974	1.141 1.142 0.114	0.491 0.497 1.222	
	0.770 0.761 -1.079	1.314 1.301 -0.987	0.960 0.951 -0.917	1.109 1.098 -0.920	1.352 1.341 -0.838	1.005 1.012 0.697	1.004 1.012 0.807	1.013 1.013 -0.049	1.358 1.342 -1.011	1.113 1.100 -1.159	0.957 0.951 -0.606	1.298 1.297 0.100	0.755 0.760 0.755	
0.450 0.443 -0.245	1.146 1.140 -0.506	1.090 1.082 -0.661	1.106 1.100 -0.497	1.336 1.334 -0.120	0.986 0.985 -0.122	1.277 1.288 0.822	0.874 0.882 0.858	1.283 1.288 0.405	0.989 0.985 -0.384	1.344 1.334 -0.750	1.102 1.098 -0.345	1.082 1.080 -0.157	1.146 1.139 -0.594	0.454 0.448 -1.278
0.543 0.552 0.964	1.186 1.187 0.143	1.041 1.039 -0.202	1.347 1.342 -0.408	0.983 0.985 0.374	1.318 1.320 0.167	1.061 1.071 0.905	1.062 1.075 1.167	1.061 1.070 0.848	1.316 1.320 0.327	0.984 0.985 0.091	1.344 1.341 -0.201	1.042 1.038 -0.365	1.197 1.198 -0.861	0.559 0.551 -1.272
0.763 0.766 0.393	0.618 0.622 0.514	1.301 1.304 0.184	1.013 1.013 -0.030	1.283 1.288 0.390	1.061 1.070 0.848	0.924 0.933 1.050	1.252 1.266 1.110	0.922 0.933 1.260	1.067 1.071 0.286	1.272 1.288 1.250	1.004 1.012 0.777	1.301 1.303 0.177	0.822 0.822 -0.012	0.771 0.766 -0.674
0.655 0.657 0.336	1.167 1.174 0.574	0.868 0.895 3.034	1.004 1.012 0.847	0.870 0.882 1.414	1.062 1.075 1.196	1.259 1.266 0.556	0.896 0.903 0.848	1.252 1.266 1.151	1.069 1.075 0.582	0.873 0.882 0.982	1.003 1.012 0.887	0.886 0.896 1.084	1.169 1.174 0.428	0.853 0.867 0.586
0.765 0.766 0.170	0.620 0.622 0.279	1.295 1.303 0.649	1.002 1.012 0.998	1.277 1.288 0.806	1.063 1.071 0.762	0.927 0.933 0.701	1.255 1.266 0.835	0.924 0.933 1.061	1.061 1.070 0.905	1.280 1.288 0.617	1.004 1.013 0.847	1.263 1.304 0.851	0.815 0.822 0.871	0.759 0.766 0.975
0.561 0.551 -1.782	1.202 1.186 -1.299	1.039 1.036 -0.057	1.344 1.341 -0.231	0.987 0.985 -0.223	1.316 1.320 0.289	1.055 1.070 1.412	1.057 1.075 1.684	1.053 1.071 1.739	1.320 1.320 0.053	0.987 0.985 -0.122	1.339 1.342 0.224	1.034 1.039 0.532	1.171 1.187 1.349	0.544 0.552 1.341
0.462 0.448 -2.987	1.174 1.139 -2.985	1.113 1.080 -2.985	1.100 1.098 -0.173	1.358 1.334 -0.284	0.987 0.985 -0.192	1.274 1.288 1.063	0.864 0.882 2.048	1.270 1.288 1.306	0.983 0.985 0.176	1.345 1.334 -0.781	1.101 1.100 -0.045	1.076 1.082 0.532	1.124 1.140 1.485	0.442 0.449 1.494
	0.779 0.760 -2.339	1.319 1.297 -1.720	0.957 0.951 -0.627	1.105 1.100 -0.434	1.353 1.342 -0.828	1.000 1.013 1.400	1.001 1.012 1.115	1.008 1.012 0.506	1.348 1.341 -0.527	1.102 1.038 -0.845	0.948 0.951 0.348	1.302 1.301 -0.108	0.782 0.761 -0.144	
	0.502 0.497 -0.957	1.157 1.142 -1.288	1.309 1.301 -0.625	1.085 1.082 -0.249	1.345 1.339 -0.593	1.306 1.304 -0.146	0.891 0.895 0.494	1.304 1.303 -0.100	1.048 1.038 -0.727	1.088 1.080 -0.790	1.304 1.297 -0.514	1.151 1.142 -0.846	0.504 0.497 -1.251	
		0.459 0.497 8.321	0.761 0.761 0.059	1.130 1.140 0.938	1.176 1.187 0.935	0.821 0.822 0.146	1.172 1.174 0.154	0.826 0.822 -0.460	1.202 1.186 -1.322	1.157 1.139 -1.530	0.774 0.760 -1.732	0.504 0.497 -1.526		
				0.440 0.449 1.955	0.541 0.552 1.941	0.769 0.786 -0.266	0.659 0.657 -0.268	0.772 0.768 -0.725	0.559 0.551 -1.325	0.455 0.448 -1.538	Measured Relative Power Calculated Relative Power % Difference			

Figure C-33
Flux Map: CY3-FM07, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM08
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 7649.0 MWD/MTU

				0.456 0.453 -1.092	0.559 0.557 -0.447	0.768 0.769 0.104	0.856 0.860 0.516	0.770 0.769 -0.104	0.561 0.557 -0.749	0.456 0.453 -0.745				
		0.499 0.500 0.060	0.760 0.761 0.053	1.152 1.140 -1.102	1.206 1.195 -0.671	0.827 0.826 -0.109	1.171 1.176 0.478	0.829 0.826 -0.314	1.208 1.195 -1.035	1.151 1.141 -0.903	0.787 0.782 -0.652	0.499 0.500 0.201		
	0.504 0.500 -0.735	1.148 1.141 -0.559	1.301 1.297 -0.277	1.086 1.074 -1.105	1.040 1.036 -1.097	1.300 1.309 0.704	0.898 0.897 0.134	1.311 1.309 -0.084	1.051 1.037 -1.313	1.097 1.078 -0.884	1.309 1.301 -0.649	1.138 1.141 0.204	0.494 0.500 1.174	
	0.771 0.762 -1.194	1.311 1.301 -0.778	0.953 0.948 -0.535	1.097 1.092 -0.465	1.348 1.342 -0.475	1.025 1.019 0.567	1.002 1.019 0.909	1.019 1.011 0.119	1.349 1.342 -0.549	1.101 1.094 -0.690	0.949 0.948 -0.137	1.291 1.297 0.441	0.753 0.761 0.982	
0.455 0.453 -0.440	1.147 1.141 -0.549	1.083 1.076 -0.628	1.098 1.094 -0.401	1.340 1.334 -0.433	0.988 0.984 -0.364	1.279 1.286 0.711	0.872 0.880 0.928	1.281 1.288 0.640	0.984 0.984 0.051	1.338 1.334 -0.277	1.089 1.092 0.220	1.070 1.074 0.355	1.143 1.140 -0.269	0.456 0.453 -1.221
0.555 0.557 0.252	1.195 1.195 0.058	1.040 1.037 -0.231	1.348 1.342 -0.438	0.989 0.984 -0.465	1.320 1.320 0.023	1.054 1.063 0.892	1.053 1.065 1.120	1.053 1.063 0.979	1.311 1.320 0.694	0.979 0.984 0.511	1.338 1.342 0.254	1.037 1.038 -0.058	1.203 1.195 -0.698	0.564 0.557 -1.224
0.760 0.769 0.104	0.823 0.828 0.364	1.307 1.309 0.176	1.011 1.011 -0.030	1.205 1.209 0.311	1.053 1.063 0.892	0.918 0.928 1.222	1.245 1.260 1.197	0.915 0.928 1.377	1.047 1.063 1.538	1.270 1.288 1.473	1.001 1.010 0.989	1.306 1.309 0.245	0.827 0.826 -0.157	0.778 0.760 -1.106
0.650 0.650 -0.061	1.172 1.176 0.384	0.890 0.897 0.831	1.002 1.010 0.809	0.959 0.980 2.312	1.052 1.055 1.274	1.251 1.260 0.728	0.889 0.900 1.170	1.241 1.260 1.490	1.052 1.065 1.264	0.871 0.890 1.045	1.000 1.010 1.000	0.838 0.897 1.098	1.177 1.178 0.059	0.658 0.650 0.048
0.770 0.769 -0.117	0.825 0.828 0.373	1.301 1.309 0.592	1.007 1.010 0.639	1.281 1.288 0.617	1.056 1.063 0.730	0.920 0.928 0.837	1.245 1.260 1.158	0.914 0.928 1.564	1.051 1.063 1.103	1.281 1.289 0.632	1.001 1.011 0.999	1.300 1.309 0.754	0.822 0.826 0.523	0.784 0.769 -0.707
0.574 0.557 -2.997	1.222 1.195 -2.209	1.039 1.038 -0.193	1.346 1.342 -0.306	0.988 0.984 -0.385	1.316 1.320 0.281	1.048 1.063 1.461	1.047 1.065 1.748	1.043 1.063 1.907	1.307 1.320 1.018	0.978 0.984 0.675	1.331 1.342 0.841	1.028 1.037 0.944	1.183 1.195 1.052	0.581 0.557 -4.089
0.476 0.453 -4.853	1.190 1.140 -4.830	1.129 1.074 -4.836	1.094 1.092 -0.219	1.337 1.334 -0.195	0.984 0.984 -0.020	1.274 1.289 1.162	0.866 0.880 1.640	1.280 1.288 0.633	0.694 0.684 -0.936	1.323 1.334 0.824	1.085 1.094 0.830	1.067 1.078 0.824	1.145 1.141 -0.349	0.448 0.453 1.094
	0.786 0.761 -3.231	1.317 1.297 -1.503	0.963 0.948 -0.483	1.095 1.094 -0.164	1.347 1.342 -0.386	1.005 1.011 0.617	1.009 1.019 0.936	1.015 1.019 0.414	1.355 1.342 -0.998	1.084 1.092 0.710	0.941 0.948 0.712	1.297 1.301 0.270	0.764 0.762 -0.353	
	0.504 0.500 -0.912	1.155 1.141 -1.180	1.309 1.301 -0.543	1.077 1.076 -0.037	1.040 1.037 -0.240	1.317 1.309 -0.569	0.906 0.897 -0.993	1.323 1.309 -1.059	1.046 1.038 -1.079	1.081 1.074 -0.666	1.303 1.297 -0.422	1.146 1.141 -0.384	0.502 0.500 -0.339	
		0.502 0.500 -0.398	0.761 0.762 0.079	1.130 1.141 0.983	1.184 1.195 0.900	0.831 0.826 -0.500	1.183 1.176 -0.524	0.834 0.826 -0.888	1.209 1.195 -1.142	1.155 1.140 -1.333	0.772 0.761 -1.528	0.505 0.500 -1.050		
				0.445 0.453 1.669	0.547 0.557 1.903	0.773 0.769 -0.530	0.883 0.880 -0.529	0.775 0.769 -0.787	0.563 0.557 -1.137	0.458 0.453 -1.329	Measured Relative Power Calculated Relative Power % Difference			

Figure C-34
Flux Map: CY3-FM08, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM09
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 8909.9 MWD/MTU

				0.466 0.460 -1.373	0.565 0.564 -0.053	0.770 0.774 0.538	0.652 0.655 0.378	0.778 0.774 -0.424	0.587 0.564 -0.371	0.461 0.460 -0.366				
		0.523 0.504 -3.745	0.752 0.752 -3.751	1.157 1.141 -1.374	1.215 1.204 -0.906	0.834 0.832 -0.252	1.184 1.181 -0.245	0.838 0.832 -0.514	1.211 1.204 -0.553	1.148 1.142 -0.497	0.768 0.763 -0.379	0.503 0.504 0.219		
	0.518 0.504 -2.234	1.168 1.140 -2.355	1.330 1.296 -2.601	1.093 1.088 -1.367	1.049 1.035 -1.372	1.318 1.314 -0.266	0.902 0.901 -0.144	1.317 1.314 -0.197	1.043 1.035 -0.746	1.078 1.070 -0.587	1.304 1.299 -0.383	1.138 1.140 0.237	0.499 0.504 0.881	
	0.775 0.763 -1.599	1.319 1.299 -1.479	0.955 0.945 -1.037	1.089 1.084 -0.477	1.345 1.339 -0.476	1.003 1.008 0.528	1.000 1.007 0.770	1.007 1.009 0.229	1.337 1.339 0.157	1.084 1.086 0.148	0.939 0.945 0.618	1.286 1.298 0.754	0.754 0.762 1.128	
0.462 0.460 -0.412	1.152 1.142 0.885	1.083 1.070 1.191	1.094 1.036 0.795	1.337 1.333 -0.338	0.988 0.982 0.048	1.282 1.287 0.367	0.872 0.879 0.780	1.280 1.287 0.595	0.974 0.982 0.801	1.315 1.330 1.187	1.070 1.084 1.348	1.056 1.058 1.098	1.137 1.141 0.389	0.489 0.460 -0.734
0.562 0.564 0.481	1.205 1.204 -0.066	1.042 1.035 -0.681	1.349 1.339 -0.719	0.989 0.982 -0.736	1.321 1.316 -0.356	1.049 1.055 0.572	1.048 1.057 0.830	1.046 1.055 0.822	1.502 1.516 1.114	0.968 0.982 1.342	1.324 1.339 1.095	1.030 1.035 0.437	1.208 1.204 -0.199	0.589 0.564 -0.739
0.769 0.774 0.715	0.628 0.632 0.459	1.318 1.314 -0.182	1.012 1.009 -0.247	1.284 1.287 0.257	1.048 1.055 0.612	0.913 0.923 1.062	1.241 1.253 0.975	0.912 0.923 1.228	1.040 1.055 1.510	1.268 1.287 1.459	0.998 1.008 1.072	1.306 1.314 0.590	0.829 0.832 0.374	0.776 0.774 -0.218
0.660 0.665 0.727	1.174 1.181 0.596	0.896 0.901 0.547	0.999 1.007 0.760	0.864 0.879 1.713	1.042 1.057 1.391	1.246 1.253 0.554	0.885 0.896 0.980	1.236 1.253 1.367	1.044 1.057 1.216	0.870 0.879 0.977	0.998 1.007 0.952	0.890 0.901 1.247	1.173 1.181 0.708	0.660 0.665 0.773
0.771 0.774 0.383	0.031 0.832 0.156	1.308 1.314 0.420	1.000 1.008 0.890	1.277 1.287 -0.799	1.048 1.055 0.658	0.918 0.923 0.501	1.243 1.253 0.829	0.911 0.923 1.284	1.045 1.055 0.938	1.286 1.287 0.078	1.010 1.009 -0.120	1.310 1.314 0.282	0.824 0.832 1.082	0.766 0.774 1.070
0.568 0.564 -0.539	1.210 1.204 -0.473	1.037 1.035 -0.212	1.344 1.339 -0.387	0.987 0.982 -0.517	1.315 1.316 0.068	1.043 1.055 1.170	1.040 1.057 1.606	1.036 1.055 1.814	1.310 1.316 0.450	0.987 0.982 -0.577	1.356 1.339 -1.224	1.054 1.035 -1.765	1.199 1.204 0.434	0.562 0.564 0.427
0.464 0.460 -0.841	1.151 1.141 -0.660	1.077 1.066 -0.854	1.087 1.084 -0.287	1.352 1.330 -0.165	0.982 0.982 -0.051	1.272 1.287 1.171	0.862 0.879 1.981	1.269 1.287 1.403	0.981 0.982 0.020	1.334 1.330 -0.270	1.090 1.008 -0.413	1.076 1.070 -0.548	1.146 1.142 -0.366	0.481 0.460 -0.388
	0.771 0.762 -1.129	1.314 1.266 -1.403	0.950 0.945 -0.495	1.097 1.008 -0.129	1.342 1.339 -0.231	1.002 1.009 0.678	0.997 1.007 1.012	1.003 1.008 0.598	1.337 1.339 0.090	1.081 1.084 0.277	0.940 0.945 0.543	1.296 1.299 0.239	0.766 0.763 -0.392	
	0.518 0.504 -2.685	1.165 1.140 -2.120	1.022 1.295 -1.732	1.071 1.070 -0.131	1.037 1.035 -0.202	1.314 1.314 0.000	0.898 0.901 0.222	1.314 1.314 -0.050	1.039 1.035 -0.356	1.074 1.068 -0.503	1.300 1.298 -0.164	1.145 1.140 -0.384	0.506 0.504 -0.435	
		0.524 0.504 -3.725	0.775 0.763 -1.465	1.135 1.142 0.617	1.197 1.204 0.627	0.833 0.832 -0.120	1.183 1.181 -0.118	0.835 0.832 -0.395	1.214 1.204 -0.791	1.154 1.141 -1.107	0.773 0.762 -1.397	0.509 0.504 -1.002		
				0.454 0.460 1.345	0.557 0.564 1.378	0.778 0.774 -0.463	0.668 0.665 -0.464	0.779 0.774 -0.803	0.569 0.564 -0.791	0.465 0.460 -1.097	Measured Relative Power Calculated Relative Power % Difference			

Figure C-35
Flux Map: CY3-FM09, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM10
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 9881.0 MWD/MTU

				0.671 0.665 -1.210	0.572 0.571 -0.122	0.776 0.780 0.464	0.668 0.670 0.375	0.783 0.780 -0.434	0.574 0.571 -0.575	0.468 0.466 -0.576				
		0.509 0.508 -0.235	0.766 0.765 -0.222	1.157 1.143 -1.193	1.220 1.210 -0.811	0.839 0.837 -0.250	1.186 1.185 -0.135	0.842 0.837 -0.606	1.221 1.210 -0.876	1.151 1.143 -0.690	0.767 0.766 -0.222	0.506 0.508 0.554		
	0.512 0.508 -0.781	1.149 1.141 -0.662	1.301 1.295 -0.446	1.078 1.065 -1.197	1.046 1.034 -1.195	1.320 1.316 -0.341	0.908 0.904 -0.397	1.321 1.316 -0.401	1.046 1.034 -1.166	1.074 1.066 -0.699	1.301 1.298 -0.223	1.135 1.141 0.555	0.501 0.508 1.357	
	0.774 0.766 -1.124	1.309 1.298 -0.795	0.949 0.943 -0.590	1.084 1.079 -0.529	1.342 1.335 -0.514	1.005 1.007 0.219	1.001 1.006 0.460	1.006 1.007 0.069	1.336 1.335 -0.075	1.078 1.080 0.065	0.937 0.943 0.726	1.282 1.295 0.990	0.754 0.765 1.459	
0.486 0.486 -0.385	1.151 1.143 -0.643	1.075 1.068 -0.600	1.087 1.080 -0.589	1.332 1.325 -0.540	0.981 0.979 -0.569	1.280 1.283 0.211	0.873 0.870 -0.515	1.279 1.283 0.368	0.972 0.978 0.700	1.310 1.325 1.160	1.064 1.079 1.381	1.052 1.065 1.267	1.137 1.143 0.482	0.468 0.465 -0.619
0.570 0.571 0.246	1.213 1.210 -0.181	1.042 1.034 -0.720	1.048 1.035 -0.810	0.908 0.979 -0.740	1.315 1.311 -0.335	1.048 1.048 0.335	1.044 1.050 0.527	1.042 1.048 0.614	1.298 1.311 0.978	0.968 0.970 1.262	1.320 1.335 1.121	1.028 1.034 0.515	1.211 1.210 -0.099	0.575 0.571 -0.609
0.778 0.780 0.438	0.836 0.837 0.168	1.322 1.316 -0.476	1.013 1.007 -0.533	1.283 1.283 0.031	1.043 1.048 0.438	0.913 0.919 0.635	1.240 1.246 0.557	0.910 0.910 0.988	1.036 1.049 1.294	1.258 1.283 1.223	0.998 1.007 1.044	1.308 1.316 0.573	0.834 0.837 0.380	0.782 0.780 -0.205
0.668 0.670 0.359	1.184 1.185 0.068	0.904 0.904 -0.033	1.003 1.005 0.209	0.857 0.878 1.234	1.041 1.050 0.894	1.245 1.246 0.129	0.899 0.893 0.495	1.234 1.249 1.021	1.040 1.050 0.923	0.871 0.878 0.758	0.997 1.008 0.883	0.893 0.904 1.187	1.178 1.185 0.603	0.668 0.670 0.595
0.781 0.780 -0.090	0.840 0.837 -0.416	1.319 1.316 -0.205	1.003 1.007 0.389	1.278 1.283 0.383	1.048 1.049 0.268	0.918 0.919 0.153	1.241 1.246 0.411	0.912 0.919 0.812	1.042 1.048 0.614	1.282 1.283 0.101	1.005 1.007 0.209	1.309 1.316 0.542	0.830 0.837 0.860	0.773 0.780 0.840
0.575 0.571 -0.678	1.219 1.210 -0.722	1.042 1.034 -0.818	1.042 1.035 -0.551	0.988 0.979 -0.730	1.313 1.311 -0.160	1.040 1.048 0.788	1.038 1.050 1.146	1.036 1.049 1.304	1.309 1.311 0.160	0.982 0.979 -0.328	1.342 1.335 -0.538	1.041 1.034 -0.701	1.201 1.210 0.758	0.567 0.571 0.759
0.468 0.465 -0.598	1.150 1.143 -0.592	1.071 1.065 -0.578	1.083 1.079 -0.388	1.328 1.325 -0.211	0.980 0.979 -0.143	1.272 1.283 0.863	0.867 0.878 1.258	1.260 1.283 1.842	0.967 0.979 -0.831	1.309 1.325 -0.283	1.062 1.080 -0.129	1.067 1.066 -0.019	1.137 1.143 0.536	0.463 0.466 0.540
	0.771 0.765 -0.860	1.310 1.295 -1.145	0.947 0.943 -0.412	1.081 1.060 -0.092	1.337 1.335 -0.142	1.003 1.007 0.449	1.005 1.006 0.100	1.015 1.007 -0.769	1.316 1.335 1.023	1.077 1.079 0.149	0.939 0.943 0.450	1.287 1.288 0.878	0.759 0.765 0.896	
	0.513 0.508 -0.938	1.153 1.141 -1.024	1.306 1.298 -0.635	1.068 1.066 -0.122	1.036 1.034 -0.145	1.319 1.316 -0.197	0.906 0.904 -0.441	1.327 1.316 -0.844	1.045 1.034 -1.091	1.070 1.066 -0.495	1.299 1.295 -0.338	1.138 1.141 0.272	0.502 0.508 1.154	
		0.512 0.508 -0.761	0.767 0.765 -0.157	1.135 1.143 0.656	1.202 1.210 0.690	0.841 0.837 -0.428	1.190 1.185 -0.437	0.842 0.837 -0.594	1.220 1.210 -0.803	1.155 1.143 -1.065	0.775 0.765 -1.316	0.510 0.508 -0.314		
				0.459 0.466 1.526	0.563 0.571 1.511	0.785 0.780 -0.662	0.674 0.670 -0.667	0.786 0.780 -0.713	0.575 0.571 -0.799	0.471 0.465 -1.064	Measured Relative Power Calculated Relative Power % Difference			

Figure C-36
Flux Map: CY3-FM10, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM11
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 11211.2 MWD/MTU

				0.478 0.475 -0.794	0.560 0.561 -0.207	0.769 0.769 -0.779	0.674 0.679 0.802	0.768 0.769 0.140	0.561 0.561 -0.017	0.475 0.475 -0.021			
		0.517 0.514 -0.657	0.773 0.768 -0.647	1.154 1.145 -0.789	1.222 1.217 -0.434	0.844 0.841 0.071	1.187 1.191 0.278	0.847 0.844 -0.295	1.224 1.217 -0.547	1.146 1.145 -0.305	0.767 0.769 0.169	0.509 0.514 1.161	
	0.518 0.514 -0.676	1.146 1.140 -0.558	1.296 1.291 -0.360	1.068 1.069 -0.707	1.040 1.032 -0.799	1.320 1.317 -0.220	0.911 0.908 -0.296	1.322 1.316 -0.349	1.043 1.032 -1.064	1.086 1.081 -0.450	1.292 1.284 0.178	1.127 1.140 1.154	0.503 0.514 2.146
	0.775 0.769 0.877	1.296 1.294 0.323	0.943 0.941 0.233	1.076 1.071 0.455	1.333 1.327 0.458	1.005 1.005 -0.030	1.003 1.005 0.169	1.307 1.305 -0.160	1.327 1.327 0.008	1.059 1.072 0.284	0.935 0.941 0.642	1.279 1.291 0.962	0.757 0.768 1.533	
0.475 0.475 -0.129	1.149 1.145 -0.322	1.066 1.061 -0.490	1.075 1.072 -0.316	1.323 1.316 -0.507	0.981 0.975 -0.602	1.279 1.278 -0.086	0.875 0.877 0.251	1.275 1.278 0.259	0.967 0.975 0.744	1.300 1.316 1.236	1.061 1.071 0.971	1.054 1.059 0.560	1.141 1.145 0.298	0.475 0.475 -0.105
0.577 0.581 0.509	1.216 1.217 0.115	1.038 1.032 -0.578	1.338 1.327 -0.829	0.983 0.975 -0.854	1.312 1.303 -0.701	1.046 1.042 -0.363	1.043 1.043 0.067	1.038 1.042 0.366	1.292 1.303 0.844	0.984 0.975 -0.101	1.314 1.327 0.974	1.027 1.032 0.526	1.215 1.217 0.181	0.581 0.581 -0.103
0.703 0.709 0.715	0.041 0.844 0.404	1.324 1.318 -0.461	1.013 1.005 -0.721	1.201 1.278 -0.200	1.039 1.042 0.221	0.917 0.918 -0.120	1.238 1.240 0.135	0.912 0.918 0.494	1.033 1.042 0.823	1.288 1.278 -0.690	0.993 1.005 1.249	1.307 1.317 0.765	0.841 0.844 0.392	0.792 0.789 -0.328
0.675 0.679 0.552	1.188 1.191 0.330	0.907 0.908 0.121	1.003 1.005 0.180	0.868 0.877 1.032	1.034 1.043 0.899	1.237 1.240 0.226	0.891 0.892 0.180	1.235 1.240 0.405	1.039 1.043 0.385	0.873 0.877 0.447	0.994 1.005 1.018	0.939 0.908 1.057	1.187 1.191 0.337	0.674 0.679 0.697
0.787 0.789 0.305	0.844 0.844 0.071	1.315 1.317 0.175	1.002 1.005 0.299	1.276 1.278 0.149	1.040 1.042 0.144	0.915 0.918 0.131	1.238 1.240 0.128	0.915 0.918 0.147	1.039 1.042 0.212	1.278 1.278 0.083	1.004 1.005 0.149	1.315 1.318 0.213	0.836 0.844 0.932	0.777 0.789 1.505
0.605 0.581 -4.064	1.255 1.217 -2.996	1.034 1.032 -0.213	1.337 1.327 -0.741	0.984 0.975 -0.955	1.309 1.303 -0.451	1.038 1.042 0.308	1.037 1.043 0.598	1.035 1.042 0.698	1.303 1.303 -0.015	0.978 0.975 -0.358	1.336 1.327 -0.659	1.042 1.032 -0.812	1.197 1.217 1.687	0.571 0.581 1.699
0.500 0.475 5.050	1.226 1.145 -6.640	1.135 1.059 -6.644	1.077 1.071 -0.529	1.319 1.316 -0.250	0.977 0.975 -0.235	1.271 1.278 0.590	0.869 0.877 1.095	1.267 1.278 0.884	0.976 0.975 -0.128	1.320 1.316 -0.303	1.074 1.072 -0.196	1.052 1.061 0.885	1.129 1.145 1.408	0.468 0.475 1.411
	0.797 0.769 -3.576	1.297 1.291 -0.461	0.942 0.941 -0.149	1.072 1.072 0.001	1.327 1.327 0.038	1.000 1.005 0.490	0.998 1.005 0.631	1.001 1.005 0.430	1.327 1.327 -0.015	1.069 1.071 0.178	0.936 0.941 0.534	1.284 1.294 0.818	0.780 0.769 1.110	
	0.516 0.514 -0.330	1.144 1.140 -0.350	1.297 1.294 -0.216	1.061 1.061 -0.019	1.032 1.032 0.010	1.316 1.318 0.091	0.907 0.908 0.143	1.317 1.317 0.046	1.033 1.032 -0.097	1.057 1.059 0.199	1.285 1.291 0.467	1.132 1.140 0.654	0.510 0.514 0.922	
		0.516 0.514 -0.252	0.765 0.769 0.484	1.128 1.145 1.428	1.200 1.217 1.425	0.845 0.844 -0.118	1.192 1.191 -0.117	0.846 0.844 -0.201	1.221 1.217 -0.344	1.145 1.145 -0.070	0.767 0.768 0.183	0.512 0.514 0.489		
				0.461 0.475 2.928	0.564 0.561 -0.541	0.792 0.769 -0.341	0.681 0.679 -0.330	0.792 0.769 -0.341	0.583 0.561 -0.343	0.475 0.475 -0.084	Measured Relative Power Calculated Relative Power % Difference		

Figure C-37
Flux Map: CY3-FM11, Measured and Calculated Relative Assembly Power

FLUX MAP: CY3-FM12
MEASURED AND CALCULATED
RELATIVE ASSEMBLY POWER
CYCLE BURNUP: 13200.0 MWD/MTU

				0.494 0.489 -0.912	0.500 0.596 -0.748	0.807 0.804 -0.347	0.690 0.693 0.377	0.804 0.804 -0.099	0.602 0.596 -1.098	0.494 0.489 -1.093			
		0.518 0.526 1.564	0.765 0.776 1.570	1.156 1.147 -0.918	1.231 1.223 -0.659	0.857 0.853 -0.374	1.190 1.196 0.437	0.856 0.853 -0.594	1.240 1.223 -1.357	1.156 1.147 -0.736	0.772 0.777 0.563	0.517 0.526 1.701	
	0.527 0.526 -0.171	1.138 1.141 0.316	1.267 1.287 1.562	1.064 1.054 -0.921	1.038 1.028 -0.915	1.318 1.313 -0.379	0.918 0.911 -0.730	1.321 1.313 -0.558	1.046 1.028 -1.673	1.061 1.056 -0.556	1.262 1.269 0.583	1.122 1.141 1.683	0.512 0.526 2.815
	0.788 0.777 -1.396	1.308 1.289 -1.392	0.945 0.941 -0.497	1.067 1.062 -0.505	1.318 1.312 -0.501	1.006 1.000 -0.537	1.002 1.001 -0.100	1.005 1.000 -0.497	1.318 1.312 -0.485	1.065 1.063 -0.188	0.835 0.841 0.599	1.270 1.287 1.346	0.761 0.776 1.897	
0.494 0.489 -1.013	1.156 1.147 -0.753	1.060 1.055 -0.509	1.066 1.063 -0.244	1.307 1.301 -0.512	0.974 0.969 -0.534	1.270 1.267 -0.197	0.977 0.978 0.114	1.264 1.267 0.277	0.965 0.969 0.373	1.296 1.301 0.338	1.056 1.062 0.587	1.046 1.054 0.707	1.142 1.147 0.429	0.489 0.489 0.000
0.800 0.596 -0.717	1.227 1.223 -0.302	1.031 1.028 -0.213	1.322 1.312 -0.741	0.976 0.969 -0.659	1.286 1.269 -0.548	1.039 1.034 -0.433	1.039 1.037 -0.163	1.033 1.034 0.058	1.286 1.269 0.248	0.987 0.969 0.228	1.301 1.312 0.815	1.021 1.028 0.705	1.219 1.223 0.320	0.596 0.596 0.000
0.812 0.804 -0.998	0.858 0.853 -0.550	1.310 1.313 0.299	1.010 1.000 -0.970	1.277 1.267 -0.752	1.034 1.034 0.000	0.918 0.918 0.000	1.234 1.235 0.073	0.914 0.918 0.230	1.031 1.034 0.301	1.261 1.267 0.460	0.988 1.000 1.132	1.302 1.313 0.830	0.850 0.853 0.400	0.806 0.804 -0.236
0.701 0.693 -1.127	1.201 1.196 -0.441	0.911 0.911 -0.022	1.005 1.001 -0.368	0.990 0.978 -0.205	1.033 1.037 0.387	1.227 1.235 0.628	0.894 0.897 0.358	1.230 1.235 0.374	1.031 1.037 0.582	0.874 0.878 0.393	0.993 1.001 0.765	0.905 0.911 0.741	1.133 1.136 0.225	0.690 0.693 0.443
0.811 0.804 -0.900	0.858 0.853 -0.490	1.313 1.313 -0.030	1.004 1.000 -0.368	1.278 1.267 -0.822	1.038 1.034 -0.306	0.914 0.918 0.186	1.233 1.235 0.105	0.915 0.918 0.142	1.031 1.034 0.320	1.265 1.267 0.158	0.989 1.000 0.771	1.309 1.313 0.260	0.848 0.853 0.578	0.795 0.804 1.018
0.598 0.596 -0.334	1.230 1.223 -0.546	1.034 1.028 -0.542	1.335 1.312 -1.767	0.988 0.969 -1.774	1.302 1.269 -1.006	1.034 1.034 0.019	1.034 1.037 0.309	1.030 1.034 0.466	1.291 1.269 -0.170	0.971 0.969 -0.155	1.313 1.312 -0.061	1.028 1.028 0.019	1.211 1.223 1.016	0.590 0.596 1.017
0.492 0.489 -0.529	1.150 1.147 -0.238	1.053 1.056 0.104	1.091 1.062 -1.767	1.312 1.301 -0.831	0.973 0.969 -0.391	1.261 1.267 0.476	0.871 0.878 0.804	1.259 1.267 0.691	0.971 0.969 -0.208	1.304 1.301 -0.261	1.063 1.063 0.009	1.052 1.055 0.257	1.139 1.147 0.685	0.490 0.489 -0.680
	0.776 0.776 0.116	1.285 1.287 0.109	0.940 0.941 0.108	1.059 1.063 0.520	1.305 1.312 0.521	0.995 1.000 0.512	0.997 1.001 0.401	0.997 1.000 0.291	1.313 1.312 -0.084	1.062 1.062 0.000	0.938 0.941 0.320	1.262 1.269 0.609	0.771 0.777 0.726	
	0.527 0.526 -0.209	1.142 1.141 -0.061	1.292 1.289 -0.201	1.048 1.055 0.624	1.023 1.028 0.528	1.311 1.313 0.114	0.912 0.911 -0.099	1.313 1.313 -0.015	1.028 1.028 0.019	1.054 1.054 -0.057	1.268 1.267 -0.023	1.138 1.141 0.299	0.522 0.526 0.766	
		0.529 0.529 -0.454	0.771 0.777 0.752	1.109 1.147 3.417	1.183 1.223 3.424	0.860 0.853 -0.788	1.205 1.196 -0.772	0.858 0.853 -0.501	1.225 1.223 -0.122	1.151 1.147 -0.330	0.781 0.776 -0.538	0.526 0.526 -0.019	
				0.473 0.489 3.428	0.576 0.596 3.420	0.815 0.804 -1.375	0.703 0.693 -1.368	0.811 0.804 -0.851	0.597 0.596 -0.117	0.491 0.489 -0.326	Measured Relative Power Calculated Relative Power % Difference		

Figure C-38
Flux Map: CY3-FM12, Measured and Calculated Relative Assembly Power

D

ASSEMBLY BURNUP DISTRIBUTION AT THE END OF EACH CYCLE

The figures in this Appendix present the measured and calculated assembly average burnup values for the instrumented and un-instrumented locations. The power distributions from Appendix C were used to determine the assembly average burnup. The assembly average burnup values were used to determine the end-of-cycle burnup uncertainty. The header on each figure indicates the flux map number and burnup corresponding to the tables in Appendix A.

FLUX MAP: CY1-FM15
MEASURED AND CALCULATED
AVERAGE ASSEMBLY BURNUP
CYCLE BURNUP: 12714.0 MWD/MTU

				8.259 8.230 0.349	9.814 10.022 1.985	10.435 10.608 1.648	10.406 10.516 1.057	10.534 10.608 0.700	9.873 10.022 1.533	8.198 8.230 1.501				
		8.473 8.439 -0.411	11.745 11.697 -0.409	13.524 13.478 -0.342	11.432 11.451 0.166	13.130 13.236 0.810	11.563 11.555 0.454	13.106 13.236 0.936	11.273 11.451 1.584	13.346 13.478 0.987	11.716 11.697 -0.167	8.464 8.439 -0.304		
	8.413 8.439 -0.053	13.392 13.366 -0.041	12.270 12.265 -0.038	12.443 12.401 -0.347	14.816 14.767 -0.330	12.660 12.679 0.148	14.264 14.380 0.813	12.552 12.679 0.686	14.529 14.767 1.635	12.310 12.401 0.734	12.280 12.265 -0.123	13.428 13.366 -0.309	8.477 8.439 -0.453	
	11.695 11.697 0.017	12.236 12.265 0.243	14.934 14.915 -0.124	14.620 14.469 -0.901	13.206 13.067 -0.899	14.849 14.866 0.109	13.187 13.134 -0.402	14.825 14.866 0.273	13.356 13.087 -0.739	14.488 14.469 0.005	15.045 14.915 -0.849	12.953 12.265 -0.712	11.795 11.697 -0.839	
8.165 8.230 0.795	13.421 13.478 0.427	12.377 12.401 0.188	14.518 14.468 -0.202	13.353 13.221 -0.985	15.162 15.009 -1.141	13.456 13.276 -1.340	15.167 15.014 -1.011	13.366 13.276 -0.676	15.129 15.009 -0.792	13.394 13.221 -1.269	14.889 14.468 -1.362	12.540 12.401 -1.114	13.571 13.478 -0.685	8.231 8.230 -0.018
9.879 10.021 1.443	11.358 11.451 0.827	14.727 14.767 0.267	13.083 13.087 0.030	15.116 15.009 -0.709	13.452 13.302 -1.112	15.157 15.004 -1.010	13.364 13.209 -1.161	15.078 15.004 -0.495	13.311 13.302 -0.067	15.042 15.009 -0.215	13.259 13.087 -1.298	14.896 14.767 -0.857	11.496 11.451 -0.402	10.023 10.021 -0.017
10.455 10.607 1.459	13.103 13.236 1.021	12.607 12.678 0.565	14.789 14.666 0.519	13.280 13.275 -0.037	15.052 15.004 -0.199	13.151 13.115 -0.280	14.548 14.482 -0.415	13.157 13.115 -0.523	14.365 15.004 0.256	13.336 13.275 -0.456	14.351 14.666 -0.572	12.772 12.678 -0.732	13.307 13.236 -0.535	10.583 10.607 -0.710
10.363 10.516 1.471	11.407 11.555 1.302	14.240 14.379 0.975	13.052 13.134 0.627	14.952 15.014 0.414	13.156 13.209 0.407	14.403 14.482 0.552	12.883 12.877 -0.049	14.803 14.482 -0.827	13.352 13.209 -1.068	15.123 15.014 -0.723	13.217 13.134 -0.630	14.395 14.379 -0.110	11.633 11.555 -0.666	10.536 10.516 -0.205
10.454 10.607 1.467	13.053 13.236 1.389	12.525 12.678 1.215	14.772 14.666 0.632	13.215 13.275 0.459	14.917 15.004 0.586	13.022 13.115 0.708	14.468 14.482 0.042	13.275 13.115 -1.206	15.175 15.004 -1.129	13.395 13.275 -0.896	14.985 14.666 -0.850	12.757 12.678 -0.620	13.225 13.236 0.084	10.547 10.607 0.570
9.825 10.021 1.995	11.244 11.451 1.842	14.554 14.767 1.461	13.081 13.087 0.048	14.970 15.009 0.258	13.265 13.302 0.272	14.890 15.004 0.765	13.155 13.209 0.411	15.022 15.004 -0.121	13.440 13.302 -1.029	15.130 15.009 -1.153	13.273 13.087 -1.399	15.003 14.767 -1.574	11.500 11.451 -0.425	10.064 10.021 -0.425
8.039 8.230 2.375	13.166 13.478 2.368	12.113 12.401 2.374	14.510 14.468 -0.147	13.279 13.221 -0.431	15.059 15.009 -0.198	13.214 13.276 0.466	14.836 15.014 1.198	13.097 13.276 1.361	15.051 15.009 -0.276	13.412 13.221 -1.425	14.689 14.468 -1.364	12.565 12.401 -1.311	13.727 13.478 -1.812	8.382 8.230 -1.820
	11.544 11.697 1.323	12.231 12.265 0.283	14.958 14.915 -0.288	14.586 14.469 -0.670	13.191 13.067 -0.789	14.803 14.866 0.421	12.954 13.134 1.394	14.656 14.866 1.428	13.059 13.087 0.213	14.674 14.469 -1.282	15.084 14.915 -1.121	12.422 12.265 -1.265	11.890 11.697 -1.625	
	8.404 8.439 0.410	13.338 13.366 0.359	12.257 12.265 0.071	12.472 12.401 -0.573	14.762 14.767 0.032	12.541 12.679 1.078	14.158 14.380 1.568	12.592 12.679 0.699	14.803 14.767 -0.243	12.527 12.401 -1.006	12.363 12.265 -0.791	13.533 13.366 -1.088	8.357 8.439 -1.456	
		8.096 8.439 0.507	11.635 11.697 0.529	13.396 13.478 0.615	11.312 11.451 1.231	12.971 13.236 2.042	11.333 11.555 1.957	13.171 13.236 0.492	11.617 11.451 -1.427	13.513 13.478 -0.387	11.761 11.697 -0.542	8.519 8.439 -0.940		
				8.087 8.230 1.770	9.833 10.022 1.919	10.379 10.608 2.199	10.284 10.516 2.250	10.533 10.608 0.708	10.166 10.022 -1.417	8.312 8.230 -0.983	Measured Burnup (MWD/MTU) Calculated Burnup (MWD/MTU) % Difference			

Figure D-1
Flux Map: CY1-FM15, Measured and Calculated Average Assembly Burnup

FLUX MAP: CY2-FM11
MEASURED AND CALCULATED
AVERAGE ASSEMBLY BURNUP
CYCLE BURNUP: 11059.7 MWD/MTU

				6.335 6.388 0.075	9.780 9.871 0.921	8.414 8.533 1.419	9.508 9.642 1.419	8.449 8.534 1.008	9.774 9.873 1.017	8.337 8.401 0.998				
		5.595 5.509 -1.528	7.142 7.035 -1.504	12.827 12.636 0.077	13.874 13.977 0.383	11.567 11.652 0.739	11.448 11.548 0.867	11.568 11.654 0.742	13.787 13.933 1.053	12.572 12.543 0.561	7.059 7.038 -0.298	5.538 5.511 -0.501		
	5.531 5.514 -0.368	11.662 11.786 -0.841	13.840 13.750 -1.154	12.194 12.206 0.096	10.920 10.930 0.096	11.982 12.000 0.156	9.118 9.119 0.039	11.960 12.006 0.387	10.861 10.944 0.762	12.193 12.221 0.231	13.796 13.756 -0.269	11.844 11.786 -0.498	5.548 5.509 -0.705	
	7.009 7.038 0.406	13.797 13.756 -0.296	10.755 10.696 -0.543	10.000 10.750 -0.468	14.592 14.524 -0.467	10.922 10.901 -0.194	12.286 12.265 -0.174	10.914 10.916 0.017	14.540 14.570 0.209	10.791 10.796 0.048	10.687 10.696 0.084	13.733 13.750 0.125	7.034 7.035 0.005	
6.356 6.401 0.697	12.597 12.643 0.360	12.202 12.221 0.155	10.821 10.755 -0.231	12.217 12.155 -0.418	10.828 10.784 -0.315	14.728 14.692 -0.239	11.287 11.267 -0.261	14.725 14.693 -0.220	10.865 10.831 -0.309	12.181 12.168 -0.122	10.732 10.750 0.440	12.088 12.206 0.975	12.524 12.836 0.900	6.347 6.398 0.794
9.806 9.873 0.682	13.853 13.933 0.576	10.915 10.944 0.266	14.599 14.570 -0.200	10.876 10.831 -0.412	10.456 10.451 -0.047	11.550 11.467 -0.782	12.300 12.305 0.043	11.490 11.448 -0.366	10.494 10.451 0.372	10.844 10.794 0.405	14.434 14.524 0.459	10.830 10.930 0.622	13.806 13.927 0.928	9.781 9.871 0.958
8.467 8.534 0.786	11.651 11.654 0.031	12.096 12.006 -0.738	10.984 10.916 -0.619	14.750 14.693 -0.254	11.516 11.448 -0.591	14.387 14.224 -1.134	10.710 10.517 -0.865	14.257 14.224 -0.235	11.537 11.457 -0.346	14.715 14.632 -0.168	10.878 10.904 0.233	11.928 12.030 0.936	11.582 11.652 0.607	8.472 8.533 0.722
9.568 9.642 0.776	11.580 11.548 -0.275	9.249 9.119 -1.405	12.376 12.265 -0.895	11.276 11.267 -0.095	12.369 12.305 -0.514	10.709 10.617 -0.859	8.878 8.793 -0.955	10.653 10.617 -0.342	12.310 12.305 -0.037	11.284 11.267 -0.145	12.273 12.265 -0.063	9.108 9.119 0.114	11.478 11.548 0.607	9.547 9.642 0.992
8.486 8.533 0.556	11.654 11.652 -0.016	12.103 12.000 -0.847	10.975 10.904 -0.657	14.691 14.652 0.007	11.488 11.467 -0.178	14.289 14.224 0.457	10.690 10.617 -0.686	14.323 14.224 0.691	11.482 11.448 0.300	14.748 14.693 0.364	10.975 10.916 0.542	12.039 12.006 0.270	11.578 11.654 0.679	8.430 8.534 1.237
9.845 9.871 0.264	13.891 13.927 0.251	10.906 10.950 0.210	14.597 14.574 -0.504	10.828 10.794 -0.307	10.515 10.451 -0.592	11.510 11.448 -0.541	12.358 12.305 -0.430	11.522 11.467 -0.473	10.497 10.451 -0.442	10.894 10.831 -0.574	14.715 14.570 -0.984	11.082 10.944 -1.332	13.892 13.933 0.292	9.844 9.879 0.298
8.378 8.396 0.217	12.597 12.636 0.313	12.189 12.206 0.309	10.824 10.750 -0.689	12.266 12.166 -0.817	10.894 10.831 -0.574	14.725 14.693 -0.219	11.248 11.267 0.166	14.692 14.692 0.413	10.775 10.794 0.177	12.186 12.168 -0.166	10.834 10.796 -0.347	12.284 12.221 -0.510	12.740 12.643 -0.765	8.450 8.401 -0.762
	7.008 7.035 0.428	13.677 13.750 0.528	10.703 10.688 -0.055	10.029 10.786 -0.303	14.608 14.570 -0.256	10.900 10.916 0.068	12.222 12.265 0.349	10.860 10.904 0.406	14.487 14.524 0.252	10.733 10.750 0.153	10.672 10.690 0.239	13.782 13.756 -0.192	7.097 7.038 -0.837	
	5.485 5.509 0.450	11.728 11.786 0.498	13.698 13.756 0.424	12.172 12.221 0.406	10.927 10.944 0.158	12.000 12.006 0.055	9.093 9.113 0.291	11.988 12.030 0.101	10.950 10.930 -0.176	12.193 12.206 0.108	13.698 13.750 0.452	11.802 11.786 -0.138	5.561 5.511 -0.903	
		5.492 5.511 0.344	6.990 7.038 0.674	12.514 12.643 1.030	13.785 13.933 1.038	11.531 11.654 0.549	11.484 11.548 0.562	11.644 11.652 0.072	14.013 13.927 -0.618	12.640 12.636 -0.027	6.993 7.035 0.590	5.517 5.503 -0.140		
				6.315 6.401 1.341	9.740 9.879 1.398	8.453 8.534 0.843	9.562 9.642 0.843	8.513 8.533 0.237	9.931 9.871 -0.611	8.400 8.399 -0.036	Measured Burnup (MWD/MTU) Calculated Burnup (MWD/MTU) % Difference			

Figure D-2
Flux Map: CY2-FM11, Measured and Calculated Relative Assembly Burnup

FLUX MAP: CY3-FM12
MEASURED AND CALCULATED
AVERAGE ASSEMBLY BURNUP
CYCLE BURNUP: 13200.0 MWD/MTU

				8.108 8.046 -0.025	7.504 7.443 -0.810	10.441 10.379 -0.591	8.959 8.936 -0.258	10.447 10.381 -0.648	7.499 7.447 -0.695	6.092 6.050 -0.693				
		6.640 6.649 0.129	10.821 10.830 0.089	15.225 15.098 -0.027	15.807 15.658 -0.943	11.062 11.009 -0.482	15.664 15.653 -0.070	11.068 11.012 -0.510	15.823 15.669 -1.035	15.235 15.087 -0.972	10.232 10.145 -0.852	6.656 6.655 -0.028		
	8.667 8.655 -0.487	15.066 15.018 -0.328	16.967 16.968 0.006	14.441 14.293 -1.025	13.862 13.721 -1.024	17.107 17.094 -0.077	11.926 11.924 -0.015	17.145 17.103 -0.249	13.817 13.733 -1.321	14.489 14.327 -1.116	17.165 17.021 -0.844	15.023 15.016 -0.044	8.597 8.649 0.786	
	10.236 10.145 -0.885	17.132 17.021 -0.651	12.613 12.573 -0.318	14.484 14.454 -0.206	17.432 17.394 -0.215	13.260 13.345 0.469	13.342 13.435 0.698	13.346 13.353 0.052	17.500 17.406 -0.523	14.586 14.460 -0.727	12.618 12.573 -0.356	16.960 16.966 0.048	10.078 10.130 0.514	
8.056 8.050 -0.103	15.125 15.087 -0.252	14.378 14.327 -0.355	14.469 14.460 -0.136	17.276 17.255 -0.122	12.686 12.678 -0.063	16.842 16.747 0.831	11.802 11.804 0.706	16.879 16.754 0.453	12.875 12.802 0.054	17.279 17.255 -0.140	14.455 14.454 -0.006	14.310 14.293 -0.116	15.155 15.069 -0.573	6.124 6.048 -1.277
7.396 7.447 0.692	15.807 15.669 0.366	13.728 13.733 0.037	17.435 17.406 -0.155	12.903 12.882 -0.160	17.072 17.105 0.194	14.029 14.134 0.744	14.145 14.258 0.798	14.034 14.128 0.668	17.020 17.105 0.498	12.928 12.878 0.404	17.391 17.394 0.016	13.774 13.721 0.391	15.765 15.658 -0.865	7.540 7.448 -1.261
13.316 13.361 0.337	13.936 14.012 0.538	17.041 17.103 0.361	13.319 13.353 0.253	16.547 16.754 0.641	13.982 14.128 1.045	12.266 12.397 1.072	16.462 16.627 1.001	12.276 12.397 0.987	13.979 14.134 1.108	16.558 16.747 1.084	13.258 13.345 0.656	17.086 17.094 0.048	11.032 11.009 -0.210	10.479 10.379 -0.954
8.896 8.936 0.447	15.552 15.653 0.651	11.816 11.924 0.918	13.792 13.435 1.078	11.486 11.684 1.720	14.051 14.258 1.475	10.490 10.627 0.830	11.852 11.974 1.030	10.450 10.627 1.078	14.123 14.258 0.961	11.583 11.684 0.781	13.337 13.435 0.738	11.822 11.924 0.864	15.649 15.653 0.025	8.930 8.896 -0.383
10.361 10.379 0.173	10.976 11.009 0.298	16.977 17.094 0.691	13.206 13.345 1.047	16.607 16.747 0.846	14.018 14.134 0.838	12.300 12.397 0.788	16.478 16.627 0.916	12.264 12.397 1.085	14.015 14.128 0.809	16.703 16.754 0.305	13.301 13.353 0.390	17.039 17.103 0.371	10.963 11.012 0.449	10.336 10.381 0.438
7.526 7.443 -1.100	15.784 15.658 -0.801	13.720 13.721 0.006	17.450 17.394 -0.319	12.925 12.878 -0.367	17.073 17.105 0.196	13.953 14.128 1.255	14.040 14.258 1.568	13.904 14.134 1.653	17.049 17.105 0.331	12.907 12.669 -0.195	17.453 17.403 -0.287	13.733 13.739 -0.380	15.558 15.669 0.713	7.395 7.447 0.707
8.151 8.046 -1.875	15.355 15.069 -1.865	14.548 14.293 -1.756	14.488 14.454 -0.245	17.278 17.255 -0.141	12.879 12.882 0.022	16.588 16.754 1.136	11.481 11.684 1.769	16.577 16.747 1.027	12.944 12.878 -0.509	17.315 17.255 -0.347	14.503 14.480 -0.164	14.326 14.327 0.010	14.997 15.087 0.604	8.007 8.050 0.721
	10.294 10.130 -1.596	17.214 16.966 -1.426	12.631 12.573 -0.460	14.489 14.480 -0.062	17.449 17.406 -0.232	13.270 13.353 0.625	13.328 13.435 0.802	13.323 13.345 0.162	17.473 17.394 -0.453	14.461 14.454 -0.052	12.545 12.573 0.225	17.021 17.021 0.000	10.153 10.145 -0.075	
	8.727 8.649 -1.157	15.210 15.018 -1.276	17.151 17.021 -0.781	14.339 14.327 -0.085	13.760 13.730 -0.198	17.124 17.103 -0.123	11.922 11.924 0.020	17.181 17.094 -0.507	13.803 13.721 -1.031	14.480 14.293 -1.952	17.077 16.966 -0.636	15.105 15.016 -0.598	8.690 8.655 -0.528	
		8.717 8.655 -0.938	10.153 10.145 -0.001	14.910 15.087 1.185	15.483 15.669 1.200	11.057 11.012 -0.406	15.717 15.653 0.406	11.108 11.309 0.889	15.855 15.658 -1.469	15.310 15.069 -1.580	10.259 10.130 -1.644	8.726 8.649 -1.176		
				5.931 5.050 2.005	7.301 7.447 1.995	10.473 10.381 -0.879	9.015 8.936 -0.880	10.500 10.379 -1.151	7.556 7.443 -1.492	6.141 6.046 -1.553	Measured Burnup (MWD/MTU) Calculated Burnup (MWD/MTU) % Difference			

Figure D-3
Flux Map: CY3-FM12, Measured and Calculated Relative Assembly Burnup

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