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**OAK RIDGE
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MARTIN MARIETTA

**HRB-22 Irradiation Phase
Test Data Report**

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Metals and Ceramics Division

HRB-22 IRRADIATION PHASE TEST DATA REPORT

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LIST OF ACRONYMS AND ABBREVIATIONS

CACA-2	Concentration Calculational Code for Experimental Irradiation Capsules
°C	Degrees celsius
EFPD	Effective Full Power Days
fJ	Femtojoule (10^{-15} Joule)
FIMA	Fissions per initial metal atom
HEATING-7	Heat Engineering and Transfer in Nine Geometries (HEATING) computer code, version 7.2
HFIR	High Flux Isotope Reactor
HTGR	High Temperature Gas-Cooled Reactor
HTTR	High Temperature Test Reactor
HV	Hand Valve
I&CD	ORNL Instrument and Controls Division
MeV	10^6 Electron Volts
MIF	Materials Irradiation Facility at the HFIR
mm	Millimeters
MMES	Martin Marietta Energy Systems
MW(t)	Megawatt Thermal Energy
n/m^2	Neutrons per Square Meter
ORNL	Oak Ridge National Laboratory
PIE	Post Irradiation Examination
QA	Quality Assurance
QC	Quality Control
RB	Removable Beryllium
R/B	Release Rate-to-Birth Rate Ratio
R, Z	Azimuthal, Axial Geometry
S/N	Serial Number
T	Temperature
TC	Thermocouple
TCAT	Thermocouple Assembly Tube
W/cc	Watt per cubic centimeter

ABSTRACT

Irradiation capsule HRB-22 was a test capsule containing advanced Japanese fuel for the High Temperature Test Reactor (HTTR). Its function was to obtain fuel performance data at HTTR operating temperatures in an accelerated irradiation environment. The irradiation was performed in the High Flux Isotope Reactor (HFIR) at the Oak Ridge National Laboratory (ORNL). The capsule was irradiated for 88.8 effective full power days in position RB-3B of the removable beryllium (RB) facility. The maximum fuel compact temperature was maintained at or below the allowable limit of 1300 °C for a majority of the irradiation. This report presents the data collected during the irradiation test. Included are test thermocouple and gas flow data, the calculated maximum and volume average temperatures based on the measured graphite temperatures, measured gaseous fission product activity in the purge gas, and associated release rate-to-birth rate (R/B) results. Also included are quality assurance data obtained during the test.

1 INTRODUCTION

Japanese fuel compacts, advanced fuel for the High Temperature Test Reactor (HTTR), were irradiated in capsule HRB-22 in the High Flux Isotope Reactor (HFIR) at ORNL. The irradiation was conducted in position RB-3B of the Removable Beryllium (RB) facility for four reactor operating cycles starting with HFIR cycle 325. The reactor was operated at a nominal power of 85 MW(t) throughout most of the irradiation period. Table I gives the capsule operating history, and Figure 1.1 shows the reactor thermal

Table I HRB-22 Cycle Operating History

HFIR Cycle	Cycle start/end	Power (MW)	Elapsed Calendar Days	Irradiation Length (days)	Cumulative efpd	Shut Down Length (days)
325	4/10/94 21:56:00	85	0			
	5/03/94 09:05:30	0	22.465	22.465	22.465	5.080
326	5/08/94 11:00:00	85	27.544			
	5/20/94 08:28:00 ^(a)	0	39.439	11.894	34.359	4.438
	5/24/94 18:58:00	85	43.876			
	6/03/94 08:28:00	0	53.439	9.563	43.922	23.254
327	6/26/94 14:34:00	85	76.693			
	7/18/94 23:44:30	0	99.075	22.382	66.304	11.718
328	7/30/94 16:59:00	85	110.794			
	8/22/94 6:59:20	0	133.377	22.584	88.888	

^(a) mid cycle shut down

power calculated from the measured coolant water flow and temperature data. A table of the power data is given in Appendix A. The irradiation was conducted during Eastern Daylight Time. The HFIR startup sequence usually takes about 1 hr to obtain full power but the startup time is taken to be the time at which the reactor reaches a nominal 85 MW(t). Thus, the Effective Full Power Days (EFPD) do not include the time required to reach full power. There was a short reactor shut down at the beginning of HFIR cycle 325. This occurred on 12-April, and was the result of a lightening strike which caused a circuit breaker trip. Since the reactor was down for only 15 min (and back to full power in 45 min), this shut down was not included in the efpd power history. During HFIR cycle 326, a problem with a coolant pump caused

Figure 1.1 HFIR Thermal Power During the HRB-22 Irradiation.

a mid-cycle scram. The reactor was restarted after being shut down for 4.4 days. On 9-July the power was reduced by 0.5 MW(t) for about 1 hr due to a set-back request from the Materials Irradiation Facility (MIF) safety logic circuit. The circuit was tested by ORNL Instrumentation and Controls Division (I&CD) personnel but no cause for the set-back request was identified.

2 CAPSULE DESIGN FEATURES

The HRB-22 capsule consisted of a doubly contained, single purge cell with 12 fuel compacts held in a graphite fuel body. The fuel compacts were annular right circular cylinders with an outside diameter of 26.05 mm, inside diameter of 10 mm and a height of 39 mm. The twelve compacts were enclosed in a fuel body fabricated from grade 2020 graphite. Grade 2020 is a fine grain graphite manufactured by the Stackpole Carbon Company. In an effort to establish uniform axial fuel-compact temperatures, the outside diameter of the fuel body was stepped resulting in a variable gas gap between it and the inconel

Figure 2.1 Schematic Drawing Showing the Axial Cross Section of HRB-22 Irradiation Capsule.

containment over the length of the body. In the region of compacts 4 through 9, the outside diameter was 38.23 mm; at compacts 2, 3, 10 and 11 it was 37.90 mm; and at compacts 1 and 12 it was 37.47 mm. The axial cross section of the capsule internal design indicating the position of the compacts is shown in Figure 2.1. Compacts 1 through 6 were located on the top half of the graphite fuel body and were above the reactor axial midplane, with compact 6 being near the axial center. Similarly, compacts 7 through 12 were located below the axial midplane of the reactor core. Compact pairs 1, 12 and 2, 11, *etc.*, operated under nearly identical conditions.

The fuel body with fuel compacts was placed inside a double walled, inconel-718 pressure vessel. A typical radial cross section of the capsule is shown in Figure 2.2. The temperature of the graphite fuel body was monitored by 24 thermocouples (TC) located at axial positions corresponding to the axial midpoints of each fuel compact. Twenty one of the thermocouples were arranged in three thermocouple array tubes (TCATs) with seven TC's in each tube. The axial locations are shown in Figure 2.1, while

Figure 2.2 Schematic Drawing Showing the Radial Cross Section of Capsule.

the radial locations are shown in Figure 2.2. The capsule includes facility for introducing a purge gas. Capsule temperatures were adjusted by changing the composition of the sweep gas flowing in the gap between the graphite fuel body and the inconel pressure vessel. A mixture of helium and neon was used to control the temperature. Greater fractions of helium, which has the higher thermal conductivity, decrease thermal resistance in the gap resulting in lower fuel temperatures. The same gas mixture occupies the gap between the fuel compact and the graphite fuel body, and the central cavity in the fuel compact.

3 OPERATING CONDITIONS

The thermal performance of the capsule was followed on a daily basis during the irradiation. The temperature was measured by 24 thermocouples located in the graphite fuel body. Compact positions 1, 6, 7 and 12 were initially monitored by three thermocouples; positions 3, 5, 9, and 11 were monitored by two thermocouples; and positions 2, 4, 8 and 10 by one thermocouple. The temperatures were measured and recorded by the data acquisition system in 10 second intervals. During the test, six thermocouples failed due to unknown causes. Table II gives the times at which each thermocouple failed.

Table II Thermocouple failures.

Thermocouple ID	TCAT Assembly	Located at Axial Center of Compact #	Thermocouple Failure	
			Date	Time
TE-107	1	2	24-Jun-94	16:40
TE-112	2	5	24-Jun-94	16:55
TE-118	3	6	10-Jul-94	13:08
TE-101	1	12	13-Jul-94	04:30
TE-110	2	7	10-Aug-94	14:54
TE-106	1	4	16-Aug-94	00:25

TE-107 and TE-112 failed during the shut down after the second irradiation cycle. All of the failures were characterized by an abrupt open circuit except for TE-112. This thermocouple indicated an increase

in temperature to about 650 °C (even though the reactor was not operating) for about 4 hours before it failed.

Toward the end of the first irradiation cycle the thermocouple response began to fluctuate, suggesting anomalous thermal behavior. Two different types of fluctuations occurred during the irradiation. First, there were several short time periods when the thermocouple measurements indicated that the graphite temperature had suddenly changed. In this case (Figure 3.1), all of the thermocouples showed that the

Figure 3.1 Example of the Temperature Oscillations Occurring Simultaneously in all Thermocouple Locations.

temperature decreased by 4 to 5 degrees, returned to the initial value for a few minutes, then increased by about 10 degrees and finally returned to the initial value. Discussions with the reactor operating personnel, and a review of the reactor operating data, did not find any reactor changes coinciding with these fluctuations. However, the fact that all of the thermocouples responded in the same way indicates that this type of temperature change is most likely caused by a small perturbations in the reactor operating conditions.

Beginning on 1-May, a second type of unexpected thermal oscillation started which continued throughout the rest of the irradiation. Shown in Figure 3.2 are the graphite temperatures measured on 1-May by two of the three thermocouples located at the axial midplane of compact 6. Prior to about 15:30 the temperatures were steady. Then, the temperature measured by TE-105 decreased and the temperature measured by TE-111 increased. In the first irradiation cycle, the capsule was situated such that thermocouples TE-105 and TE-111 were positioned at 3 and 7 o'clock, respectively, if we consider that

Figure 3.2 Comparison of Graphite Temperature Measured by Thermocouples at Centerline of Compact 6.

a 12 o'clock reference is pointed toward the axial centerline of the reactor. This type of thermal behavior must have been caused by changes in the position of the graphite body within the capsule. The decreasing temperature is caused when the gap between the graphite body and the inconel wall becomes smaller.

These rapid temperature oscillations were observed in all locations in the capsule. However, the temperature changes in the center of the capsule were larger than the changes at the ends. This was the

result of the fact that the gap between the graphite body and the inconel wall was smaller in the center than on the ends. Thus, as the graphite body shifted, the proportional change in the gap was larger in the center than on the ends.

The power generated by fission in each compact was calculated using the CACA-2 computer code (Ref. 3.1). This computer code calculates the compact fission power density as a function of time. The input to the code is the initial compact fuel loadings, the irradiation time and power history, and a polynomial which computes the time dependent HFIR thermal flux at the location of each compact in the capsule. The ^{235}U and ^{238}U loadings for each compact were obtained from the QA data package (Ref. 3.2). The cycle lengths and shutdown periods for HFIR cycles 325 through 328 (Table I) were used in this analysis. The reactor was assumed to operate at 85 MW(t). Figure 3.3 shows the calculated fission power as a function of the number of days from the start of the irradiation (elapsed time). The CACA-2 analysis provides individual compact fission power density as a function of time. In addition to the fission power, gamma heating contributes to the total compact power. The gamma heating contribution ranges from 13 to 22 W/cc depending on the compact axial position in the capsule (Ref. 3.3).

Figure 3.3 Fission Power as a Function of Elapsed Days.

The compacts in the middle of the capsule operated at approximately constant power throughout the cycle. The compacts at or near the end of the capsule underwent the greatest change in fission power production during a given cycle. This behavior is the result of the movement of reactor control plates during the cycle. The peak power density in fuel compacts 5, 6, 7, and 8 occurred at the beginning of the second cycle of operation.

CACA-2 analysis also provides burnup as a function of the irradiation time. The calculated burnup for individual compacts is shown in Figure 3.4. The compacts in the center of the capsule (6 and 7) reach a burnup of about 9.36% FIMA and the end compacts (1 and 12) have a burnup of 4.18% FIMA.

The time dependence of fast fluence for individual compacts is shown in Figure 3.5. The maximum fast fluence occurred in compacts 6 and 7 and was about 2.8×10^{25} n/m² (HTGR, E> 29 fJ, >0.18 MeV). The minimum fast fluence is about 1.3×10^{25} n/m² (HTGR) for compacts 1 and 12. Table III shows the calculated burnup and fluence for each compact at the end of each cycle.

Table III HRB-22 Calculated Burnup and Fast Fluence.

End of HFIR Cycle	<-----Compacts----->					
	1 and 12	2 and 11	3 and 10	4 and 9	5 and 8	6 and 7
Burnup (%FIMA) ^{a,b}						
325	1.03	1.42	1.82	2.13	2.33	2.45
326	2.07	2.84	3.62	4.22	4.60	4.84
327	3.13	4.26	5.39	6.25	6.80	7.14
328	4.18	5.65	7.10	8.22	8.91	9.36
Fast Fluence (10^{25} n/m ² HTGR) ^c						
325	0.33	0.43	0.53	0.61	0.67	0.70
326	0.65	0.85	1.04	1.20	1.31	1.37
327	0.98	1.28	1.56	1.80	1.97	2.06
328	1.31	1.71	2.10	2.42	2.65	2.76

^a Fissions per Initial Metal Atom

^b Calculated by CACA-2 computer code

^c E>29 fJ (0.18 MeV)

Figure 3.4 Fuel Compact Burnup Versus Elapsed Time.

Figure 3.5 Fuel Compact Fast Fluence Versus elapsed Time.

The pre-irradiation thermal performance predictions are documented in Reference 4.1. The thermal analysis described below takes into account the actual operation of the capsule during the four cycles of irradiation. Described is the final thermal analysis of the HRB-22 fuel irradiation capsule prior to the Post Irradiation Examination (PIE).

The thermal analysis requires the capsule dimensions, the operating power history and a materials' behavior database. The capsule dimensions were obtained from ORNL drawings X3E0126730220 through X3E0126730226 and from the data on the inspection reports. The power densities as a function of time were obtained from the CACA-2 analysis described above. The materials database, *i.e.*, thermal conductivities, thermal expansion coefficients, irradiation induced changes in dimensions and physical properties, along with references for the database is described in the General Atomics Graphite Design Data Manual (Ref. 4.2).

4.1 THERMAL ANALYSIS MODEL

Steady-state thermal analysis of the capsule was performed using the Heat Engineering and Transfer in Nine Geometries (HEATING) computer code, version 7.2. This code (Ref. 4.3) is a multidimensional, general purpose heat transfer code. HEATING solves steady-state and/or transient problems in one, two or three dimensions. Because of the rotational symmetry of the capsule, the problem was solved in two dimensions using R, Z geometry.

The model of the capsule follows the geometry shown in Figure 2.1 and Figure 2.2. The ends of the capsule are also included in the model. Individual fuel compacts are considered separate regions, with associated power generation rates. The time dependent fission power in the fuel compacts was computed using the CACA-2 computer code for the initial fuel loading. Appropriate gamma heating (Ref. 3.3) was included in all regions, *i.e.*, fuel compacts, the graphite fuel body, and the inconel pressure vessel. The thermocouples were not modelled in this analysis because inclusion of the thermocouples in the thermal model increases the complexity of the analysis.

The primary objectives of the pre-irradiation analysis (Ref. 4.1) were the following:

1. determine the most appropriate capsule dimensions, *i.e.*, the gaps between the graphite fuel body and the inconel pressure vessel,
2. define the most advantageous capsule operating conditions,
3. provide an initial understanding of the capsule performance as a guide to the actual operation, and
4. anticipate possible problem areas during the irradiation.

The pre-irradiation thermal performance indicated that it would be difficult to keep the maximum temperature below the specified 1300 °C at the start of the cycle 4 irradiation. Based on this prediction, plans were made to request operation of the HFIR at slightly lower power during the first four days of cycle 4. However, as explained below, it became evident that the pre-irradiation thermal calculations over-estimated the actual temperature. Thus, it was not necessary to reduce the HFIR power.

4.2 PERFORMANCE OF THE PRE-IRRADIATION THERMAL ANALYSIS

The predicted temperatures in the graphite fuel body at beginning of cycle 1 were consistently higher than measured by about 50 to 70 degrees celsius. This was not an immediate cause for concern, although an opposite effect would have been. A methodical search to understand this difference between the predicted and measured temperature was undertaken and the following are the possible causes which were identified:

1. The fission power calculated by the CACA-2 computer code may be higher than the actual power in the reactor.
2. The as-manufactured gap between the graphite fuel body and the inconel pressure vessel could be smaller than the value used in HEATING-7, and
3. The thermal-physical properties, *i.e.*, thermal conductivity and thermal expansion, of the graphite, and/or inconel could be in error.

A careful examination of QC records indicated that the capsule dimensions were measured accurately, which eliminates possible cause #2. Since the thermal-physical properties of the materials are well known, possible cause #3 could also be ruled out. Thus, possible cause #1 was the most likely reason for the

difference between the predicted and measured temperature at the start of the irradiation. Support for this hypothesis was found in the HRB-21 post irradiation examination data. The HRB-21 data indicates that the CACA-2 calculated burnup is about 10% higher than the burnup based on the measured concentration of the fission products in individual fuel particles (Ref. 4.4). Therefore, it is reasonable to assume that the compact fission power calculated by CACA-2 is too high.

When the beginning of cycle 1 thermal analysis was repeated using a fission power equal to 90% of the value predicted by CACA-2, the correspondence between the predicted (T_p) and measured (T_m) graphite temperature improved. The new ΔT ($\Delta T = T_p - T_m$) was about 30 °C for the middle 6 compacts. This result was sufficient and no further effort was made to improve the predictive capability.

As irradiation progressed during the first cycle, the difference between the predicted graphite temperature and the measured values (ΔT) continued to increase. Possible causes of the increasing disparity were identified as the following:

1. the assumed graphite shrinkage rate was excessive; predicting that the gap was increasing more rapidly than actually taking place,
2. the material properties of graphite were changing due to fast neutron damage more rapidly than predicted.

Graphite is a very good conductor of heat and the actual temperature drop across the graphite fuel body was small, thus eliminating the property change as the cause of the observed behavior. Thus, the most probable cause must be that the graphite shrinkage was less than that assumed in the analysis. Based on this conjecture, the shrinkage was adjusted downward and the thermal performance predictions were repeated. By the middle of cycle 2, it was clear that reducing the graphite shrinkage value to about 30% of that assumed during the pre-irradiation analysis provided good predictions. At that point in time the adjustments to the predictive methodology was frozen. The ΔT for the middle six compacts continued to be in the range of 0 - 30 °C for the remainder of the irradiation.

4.3 RESULTS OF THE THERMAL PERFORMANCE ANALYSIS

The final thermal performance analysis, then, was based on initial capsule dimensions, fission power from CACA-2 reduced by 10% and graphite shrinkage reduced to 30% of the value used in the pre-irradiation analysis. Compact operating temperatures change over a period of days, rather than hours, during the early part of each cycle. Near the end of the cycle the temperature changes more rapidly because of the changes in the fission power production. A full fledged, two dimensional thermal analysis was conducted using predicted changes in the gap dimensions every three days early in the cycle and every day near the end of each cycle.

The predictions of the maximum and volume average temperatures in the fuel compacts throughout the four cycles of irradiation are shown in Figures 4.1 through 4.12. Each figure is for one of the 12 compacts. The figures include the measured graphite temperature (in many cases this temperature is the average of the 2 or 3 thermocouples in that capsule location), the computed compact average temperature, the computed compact maximum temperature and the helium concentration in the purge gas. The compact maximum temperature is located at the inside surface of the annular compact.

Another measure of the thermal performance of the capsule is to determine the time dependant compact volume average temperature and the maximum compact temperature. The values for each compact at the end of each cycle are given in Table IV and Table V, respectively.

Table IV Compact Time Averaged, Volume Average Temperatures (°C) per Cycle.

	<-----compacts----->											
Cycle	1	2	3	4	5	6	7	8	9	10	11	12
325	973	1074	1124	1093	1164	1160	1163	1125	1092	1127	1075	970
326	879	1011	1094	1105	1150	1183	1187	1147	1104	1098	1013	880
327	877	1013	1100	1122	1168	1201	1204	1166	1121	1103	1014	874
328	868	1007	1095	1122	1167	1198	1201	1165	1121	1098	1009	862

Table V Compact Time Averaged Maximum Temperatures (°C) per Cycle.

Cycle	<-----compacts----->											
	1	2	3	4	5	6	7	8	9	10	11	12
325	1068	1169	1197	1171	1217	1241	1243	1218	1170	1201	1171	1071
326	994	1129	1173	1203	1252	1276	1278	1254	1200	1179	1131	1000
327	998	1135	1182	1227	1276	1300	1302	1279	1224	1188	1137	1004
328	994	1133	1186	1231	1277	1299	1302	1279	1228	1189	1135	1000

Figure 4.1 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 1.

Figure 4.2 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 2.

Figure 4.3 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 3.

Figure 4.4 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 4.

Figure 4.5 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 5.

Figure 4.6 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 6.

Figure 4.7 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 7.

Figure 4.8 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 8.

Figure 4.9 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 9.

Figure 4.10 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 10.

Figure 4.11 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 11.

Figure 4.12 Measured graphite body temperature and predicted volume average and maximum temperatures for compact 12.

5 FUEL PERFORMANCE

There were two methods used to measure the fuel performance during the HRB-22 irradiation. Both of these methods monitored the ability of the fuel coatings to retain gaseous fission products, and both measured the presence of radioactivity in the sweep gas. The first method used an ionization chamber to monitor the radiation level of the sweep gas after it exited the capsule. The second method involved obtaining a sample of the sweep gas (grab sample), determining its fission gas concentration, and computing the ratio (R/B) of the fission gas release rate (R) to the fission gas birth rate (B) for the specific fission product isotopes found in the sweep gas.

5.1 SWEEP GAS RADIATION LEVEL MONITORING

5.1.1 Procedure

The radiation level of the sweep gas was continuously monitored by two independent ionization chambers. The chambers were inserted in coils of the tubing which carried the sweep gas from the capsule to the grab sampling station. The ion chambers were identical in construction and were manufactured at ORNL. The first chamber (RE-112) was connected to a Keithley model 487 digital picoammeter/voltage source (I&CD M078741)¹ which supplied both the 300 V excitation source and an auto-ranging analog output signal which was proportional to the radiation field at the ion chamber. The output signal was fed to a computer, digitized and processed using the TESTPOINT (Keithley) data acquisition computer code.

The digitized signal was stored on a disk at 2 second intervals. The digitized ion chamber signal was found to be noisy with a peak-to-peak amplitude of about 2 picoamperes. This noisy signal could mask small changes in the radiation level of the sweep gas. However, as shown in Figure 5.1 processing the data by using a five-point (10 sec) running average smoothed the data sufficiently to observe small peaks. Beginning in the third irradiation cycle, the TESTPOINT data acquisition code was changed to automatically smooth the digital signal. The smoothing algorithm for the digital ion chamber data included (1) taking data every second, (2) averaging the data taken for the last four points, and (3) storing the average on the hard disk every 2 seconds.

¹ ORNL Instrument and Controls Division equipment identification number

Figure 5.1 Ion Chamber raw data and 10 sec. moving average data.

The second ion chamber (RE-112A) was connected to a Keithley model 410A analog picoammeter (I&CD M133010) and its output signal was fed directly to a strip chart recorder (RR-112A). The full-scale range on the 410A instrument was set at 30 picoamperes to reduce the possibility that the signal would go off scale. With this range, changes in the radiation level of less than 0.5 picoampere could not be detected. A few days from the end of the last cycle, the sensitivity was increased by changing the full-scale range to 10 picoamperes.

5.1.2 Results of Ion Chamber Measurements

Because of the experimental arrangement, the ion chambers respond to all photons which have sufficient energy to penetrate the wall of the ion chamber after passing through the wall of the tubing carrying the radioactive sweep gas. The ion chamber does not inherently discriminate between radioactive species. Instead, the signal is a complicated sum caused by the ions created by the individual photons from each radioactive species. It is influenced by the volume concentration of each radioactive species in the gas and the total pressure in the coil surrounding the ion chamber. The concentration depends on (1) the release rate in the capsule, (2) the half-life of the species, (3) the length of tubing between the capsule and the coil, and (4) the flow rate through the capsule. Figure 5.2 shows the influence that several of these capsule operating parameters have on the response of the ion chambers. The figure shows the signal from the digitally recorded ion chamber when the capsule temperature was being increased about two days after the start of the first irradiation cycle. In order to control the temperature in the capsule, the thermal conductivity of the sweep gas is altered by changing the amount of neon in the gas. An increase in the neon decreases the thermal conductivity and increases the temperature in the capsule. The addition of neon also increases the radiation level of the sweep gas. This happens because ^{23}Ne is formed by neutron

Figure 5.2 Ion Chamber Signal Showing the Effects of Neon Addition, Flow Rate and Gas Sampling on the Radiation Level at the Gas Sampling Station.

activation of the stable ^{22}Ne isotope. As demonstrated by the change in neon content from 0% to 29% and from 29% to 58%, the increase in signal is proportional to the neon concentration provided that the flow rate is constant. The primary reason to use the ion chamber is to detect the radioactive gas released when the coatings on a particle fail. With a high background signal, the increase due to the failed particle is not detectable. To reduce the background signal caused by adding neon, the flow rate was adjusted so that the majority of the ^{23}Ne had decayed by the time it reached the ion chamber. This is seen in Figure 5.2 when the total flow rate was lowered from 103 sccm to 52 sccm but the neon concentration was held at 58%.

The process of obtaining a fission gas sample for the R/B measurement also affects the ion chamber signal. Shown in Figure 5.2 is the ion chamber signal during the time that three grab samples were obtained. As the grab sample bottle is being filled with the sweep gas, the ion chamber signal increases rapidly because of the increased flow rate caused by the expansion into the evacuated bottle. The signal then becomes less than the level before taking the sample because the flow exiting the capsule stops until the pressure in the capsule has increased sufficiently to again exceed the flow resistance in the exit tubing. As the capsule exit flow rate increases to the preset value the ion chamber signal returns to the level prior to taking the sample.

The response of this ion chamber arrangement to the gas released when the coatings fail on a fuel particle has been shown to yield a sharp, distinctive pulse. In earlier US irradiation experiments some capsules contained compacts that were manufactured with a few particles that had coatings which were designed to fail during irradiation (Ref. 5.1). The release of radioactive gas which accompanied the coating failures caused a pulse on the ion chamber that was characterized by a very rapid increase in radiation level of only 1-3 minutes duration at half-height, followed by a slower return to a level that was somewhat higher than before the spike. Four ion chamber pulses (Figure 5.3 to Figure 5.6) that exhibited the characteristics of a particle failure were observed during the HRB-22 irradiation. The data for the first two particle failures was obtained without the "running-average" smoothing algorithm. Thus, the amount of noise in the signal appears larger than for the data obtained during the last two failures. The magnitude of the steady-state signal shown in Figure 5.6 is smaller than the level in the preceding three figures because the capsule sweep gas did not contain any neon when the fourth particle failed. Each of these pulses of gas had similar attributes. The time that each particle failed, an estimate of the fuel conditions at failure, and the attributes of the pulse are summarized in Table VI.

Figure 5.3 Ion Chamber Signal caused by the First Particle Failure.

Figure 5.4 Ion Chamber Signal Caused by the Second Particle Failure.

Figure 5.5 Ion Chamber Signal Caused by the Third Particle Failure.

Figure 5.6 Ion Chamber Signal Caused by the Fourth Particle Failure.

Table VI Attributes of Ion Chamber Pulse Caused by Fission Gas Release During Particle Failure.

Failure #	Date	Time	EFPD	% FIMA Compact		Fluence ^a Compact		Pulse Height (picoamp)	Width at Half Height (sec)	Width at Base (sec)	Baseline Change (picoamp)
				#1	#6	#1	#6				
1	5/15/94	13:36	29.57	1.33	3.27	0.44	0.92	3.2	170	550	0.2
2	5/18/94	12:33	32.52	1.46	3.59	0.48	1.01	2.4	160	450	0.4
3	7/9/94	14:15	56.91	2.62	6.21	0.84	1.77	3.4	170	440	0.5
4	8/16/94	11:30	83.07	3.84	8.82	1.23	2.59	1.4	100	380	0.3

^a ($\times 10^{25}$ n/m²) HTGR (E>29fJ, 0.18 MeV)

In addition to the four ion chamber pulses caused by particle failure, other pulses were observed which could not be attributed to particle failure. These pulses were more broad and were much lower in activity than were the pulses caused by particle failure. In addition, the signal always returned to the pre-pulse level indicating that additional fissile material had not been exposed to the sweep gas. These pulses of gas occurred during times in which the temperature in the capsule was oscillating (as discussed in section 3) due to shifts in the location of the fuel body. Shown in Figure 5.7 is an example of the pulses which occurred between 1-August at noon and 10:00 am on 2-August. Also plotted on the figure is the temperature measured in the graphite body at the axial location of the compact 1 centerline. By this time in the irradiation the coatings on three particles had failed. The magnitude of these ion chamber pulses is less than 0.4 picoamp. Furthermore, each pulse corresponds to an oscillation in the temperature. The data in Figure 5.7 was selected to show the best correlation with the temperature.

The ion chamber record was compared with capsule temperature measurements at other times during the irradiation. The ion chamber pulses did not follow the temperature oscillations in any of the locations in the capsule as accurately as demonstrated in Figure 5.7. However, when the temperature in the capsule was steady, the ion chamber signal was also steady.

Figure 5.7 Ion Chamber Pulses Caused by Temperature Changes in the Capsule.

5.2 R/B MEASUREMENTS

The release rate-to-birth rate ratio (R/B) is an important measure of the performance of the coated particle fuel. The frequency of R/B measurements which was specified in the irradiation guideline document (Ref. 5.2) is shown in Table VII.

Table VII R/B Sampling Frequency

Condition	R/B sample
HFIR rise-to-power	sample at 0.5 and 1 hr after reaching 100% power
first 5 days of operation of each cycle	one sample per day
after increasing volumetric average temperature	sample at 0.5 and 1 hr
normal full-power	a minimum of one sample 3 days per week
end of each operation cycle	just prior to shutdown
HFIR shut down	one sample per day for 3 days

5.2.1 Procedure

A sample of the sweep gas was obtained in a serum bottle using the grab sample apparatus following an approved procedure (Ref. 5.3). Figure 5.8 is a piping and instrumentation diagram of the tubing leading from the capsule to the grab sample station. Grab samples were taken from the line that bypasses the hold-up tank. To insure that the grab sample did not contain any gas from the hold-up tank, the valves on each side of the tank (HV-115 and HV-116) were closed prior to sampling. In addition, to prevent the back flow of gas from the HFIR off-gas system into the grab sample, valve HV-117 was also closed during sampling. The sample was obtained by first evacuating the serum bottle and grab sample manifold, and then backfilling the system with the sweep gas. The pressure change in the bottle was measured by a calibrated digital gage which was accurate to ± 0.1 in. Hg.

The type and activity of radioactive fission gas in the grab sample was measured using γ -spectroscopy. The γ -rays were detected by an intrinsic Ge detector (EG&G Ortec). The detector was calibrated using

a simulated gas standard (Analytics) in a 100 ml serum bottle. For most samples, the acquisition time for the spectrum was sufficient to lower the krypton isotopes counting error to less than 3%.

The number density of atoms of each isotope determined was calculated from the spectroscopy data by dividing by the volume of sweep gas obtained in the grab sample. The latter value was calculated from the pressure change in the bottle.

The release rate, R_i , was calculated from the number density of atoms of each isotope determined (Ref. 5.4) using equation (1)

$$R_i = N_i f_r \quad (1)$$

where

R_i = release rate (atom/s) for isotope i

N_i = number density of atoms (atom/cm³) for isotope i

f_r = flow rate (cm³/s)

The flow rate through the capsule was determined by mass flowmeters which measured the inlet flows of helium and neon (see section 6 for the QA data).

In order to account for decay during the transit of the gas from the outlet of the capsule to the gas sampling station, gamma counting data was back-corrected to an effective sampling time. To make this correction, we assume that the gas obtained in the grab sample comes from the tubing which is closest to the sampling station; *i.e.*, no mixing. Figure 5.9 is a schematic representation of the capsule, the exit tubing, the grab sample station, and the slug of sample gas. The average activity in the slug of gas will be less than the activity at the exit of the capsule due to radioactive decay as the slug transits the tubing.

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Figure 5.9 Schematic showing derivation of grab sample line decay correction.

The average activity, A_i , of a radioactive fission gas nuclide in the slug is given by Equation (2):

$$A_i = \frac{A_{i_0} \int_{t_1}^{t_2} e^{-\lambda_i t} dt}{\int_{t_1}^{t_2} dt} \quad (2)$$

where A_{i_0} is the activity at the exit of the capsule (μCi),

λ_i is the decay constant of the nuclide (sec^{-1})

t_2 is the time required for gas to transit the tubing from the capsule to the sample station

and t_1 is the time required for gas to get from the capsule to the start of the sample volume.

Thus, the activity at the capsule exit is calculated by equation (3)

$$A_{i_0} = A_i \times \frac{\lambda_i (t_2 - t_1)}{e^{-\lambda_i t_1} - e^{-\lambda_i t_2}} \quad (3)$$

Assuming slug flow, the transit times are calculated from the volume of the tubing (V_t), the volume of the sample (V_s) and the flow rate (f_r) at the temperature and pressure conditions in the tubing

$$t_2 = \frac{V_t}{f_r} \quad t_1 = \frac{(V_t - V_s)}{f_r} \quad (4)$$

where (V_s) is the total of the volume of the serum bottle (V_b) and the volume of the evacuated manifold (V_m) connected to the bottle.

The release rate was normalized to the birth rate, B_i , to obtain the release rate-to-birth rate ratio, R_i/B_i . The birth rate of fission gas nuclides which are produced by decay of precursor nuclides with much shorter half lives than the fission gas (^{85m}Kr , ^{87}Kr , ^{88}Kr , ^{89}Kr , ^{138}Xe) was determined from

$$B_i = \Phi \sum_j \sigma_j N_j Y_{ij} \quad (5)$$

where

B_i = birth rate of isotope i (atom/s)

ϕ = neutron flux (n/m²-s)

σ_j = fission cross section for neutron capture of heavy metal U or Pu isotopes (m²)

N_j = number of atoms of ^{235}U , ^{239}Pu and ^{241}Pu (dimensionless)

Y_{ij} = cumulative fission yield of isotope i

The birth rate for fission gases that have a precursor nuclide with a similar or longer half-life than the gas depends on the decay rate of the precursor. Thus, for ^{133}Xe , ^{135m}Xe , and ^{135}Xe , the birth rate was calculated via equation (6):

$$B_i = N_{i-1} \lambda_{i-1} f_i + \Phi \sum_j \sigma_j N_j D Y_{ij} \quad (6)$$

where

N_{i-1} = number of atoms of the precursor nuclide in the capsule

λ_{i-1} = decay constant of the precursor nuclide (1/s)

f_i = branching ratio (fraction of precursor disintegrations that yield the fission gas)

$D Y_{ij}$ = Direct fission yield of the fission gas i

and the remaining symbols have been defined in the preceding equations.

The number of atoms of the precursor nuclide in equation (6) and the fission generated birth rates were computed using the CACA-2 code. As discussed beginning on page 8, this code uses the capsule fissile particle loadings, the HFIR cross sections and the actual irradiation history to compute the time dependent, fission product production rate.

5.2.2 Results of R/B Measurements

The calculated R/B values, the measured specific activity of each isotope detected in the sweep gas and some of the capsule conditions at the time the samples were obtained are given in Appendix C. The R/B for ^{85m}Kr is plotted in Figure 5.10 and the R/B for ^{133}Xe is given in Figure 5.11. When the capsule was operating at the design temperature, the initial R/B of ^{85m}Kr was around 1×10^{-6} and only increased to about 2×10^{-6} during the irradiation showing that the coatings on the fuel particles performed well. Several points about the data need to be clarified:

- (1) The connected data points represent the data taken when the capsule was operating at the design temperature and the fission gas concentration was at radioactive equilibrium.
- (2) All of the high values for ^{133}Xe , except for the point at about 18 efpd, occurred after the reactor had been shut down for several days. This effect implies that ^{133}I , the precursor to ^{133}Xe , has been formed in, or transported to, locations in the capsule that are accessible to the sweep gas. After the reactor is shut down, iodine in such a location will decay to form xenon, but because of the low capsule temperature the xenon is not released to the sweep gas. The xenon is released in a pulse of gas when the capsule temperature increases as the reactor returns to full power.
- (3) The high values for ^{133}Xe at 18 efpd and 52 efpd are valid. The amount of ^{133}Xe in that sample bottle was measured by γ -spectroscopy a second time to verify its concentration. In addition, the sample pressure and capsule flow rates were also checked.
- (4) Three low R/B values in cycle 1 (at 7.5, 14.5, 21.4 efpd) and two low values in cycle 2 (at 30.4, 41.0 efpd) were obtained after the capsule temperature was intentionally lowered for about 2 hours to verify the thermal calculations.

Figure 5.10 R/B of ^{85m}Kr as a Function of EFPD.

Figure 5.11 R/B of ^{133}Xe as a Function of EFPD.

(5) The two R/B values taken about 0.5 hr and 1 hr after each reactor start-up sequence (e.g. at 0.04, 22.5, 44.0, and 66.4 efpd) are not steady-state values. Furthermore, the CACA-2 calculated birth terms are less certain during the first day of HFIR operation in each cycle. This is apparent because, as shown in Figure 3.3 (page 8), CACA-2 predicts that the total power in the capsule decreases during the first days of each cycle. However, the temperature in the capsule increases slowly during the first one to two days, which suggests that the power increases slightly.

(6) Appendix C lists all of the gas release data taken during the test. However, samples #97 and #113 had abnormally low activity in the grab sample bottle. Furthermore, the fractional reduction in fission gas activity in those samples compared to the preceding gas sample was dependent upon the decay constant. It was thought that this occurred because the isolation valves to the hold-up tank were not closed tightly and some of the gas in the bottle was withdrawn from the tank. Sample #113 was purposely obtained without closing the isolation valves. The activity in this sample was also abnormally low and the fractional reduction showed the same dependence on the decay constant. Thus, the data from samples #97 and #113 are in error.

Several special fission gas samples were taken to obtain data to assess the validity of the corrections applied to the raw data and to assess the reproducibility of the technique. The validity of the correction to account for decay during transit of the gas from the capsule to the sample station, equation (3), was checked by varying the flow rate through the capsule. Gas samples #22, #23, and #24, were obtained within a 1.5 hr period on 25-April-94 when the power production and temperature in the capsule was steady. Each sample was taken when the conditions in the capsule had equilibrated for 35 to 45 minutes after the Helium flow was changed. ^{89}Kr has the shortest half-life (3.15 min.) of the fission gases detected and its decay during transit to the sample station is the largest. Table VIII shows how the flow rate affects the as-measured ^{89}Kr R/B and verifies that equation (3) effectively corrects the value.

The R/B is computed from the activity per unit volume of sweep gas. The measurement which is used to compute the volume of gas obtained in each grab sample is the change in pressure when the bottle is filled with sweep gas. The pressure gage used to measure this change is attached to a sampling manifold

Table VIII Gas Sample Data Validating the Transit Time Correction to the R/B Data.

Sample #	efpd	Flow Rate ^a (std.cm ³ /min)	Capsule Pressure (MPa)	Calculated Correction factor	⁸⁹ Kr R/B (x 10 ⁻⁸)	
					Uncorrected	Corrected
22	14.49	108	0.209	1.72	4.52	7.77
23	14.52	79	0.208	2.03	3.71	7.54
24	14.55	53	0.208	2.83	2.67	7.55
Average R/B						7.62
% Standard Deviation						1.7

^a Capsule operating with 100% He as the sweep gas.

and is not directly attached to the serum bottle. To check that the indicated pressure change was the same as the change in the bottle, three samples with different volumes of gas were obtained. The first two samples were taken in the nominal 100 ml serum bottle and the last sample was taken in a nominal 30 ml serum bottle. The pressure change in the manifold was varied by a factor of 4.6. As shown in Table IX, the maximum uncertainty in the R/B value caused by the pressure change measurement was only $\pm 6.3\%$.

Table IX Data Validating R/B Grab Sample Bottle Pressure Change.

Sample #	Efpd	Bottle (cm ³)	Pressure Change (MPa)	Sample Size (cm ³)	Measured R/B			
					^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr
41	23.3672	122.0	0.087	97.1	4.36E-07	4.01E-07	2.96E-07	1.11E-07
42	23.3959	122.0	0.022	25.0	4.93E-07	4.49E-07	3.26E-07	1.12E-07
43	23.4277	36.7	0.101	33.9	4.52E-07	4.10E-07	3.16E-07	1.09E-07
average					4.60E-07	4.20E-07	3.13E-07	1.11E-07
% Standard deviation					6.3	6.1	5.0	1.0

The measurements by the ion chamber of the sweep gas radioactivity indicated that the coatings on four particles failed during the irradiation. The R/B increased abruptly when the coatings failed. The change in the ^{85m}Kr R/B (Table X) when the coatings failed was between 2 and 3.5 x 10⁻⁷.

Table X Increase in ^{85m}Kr R/B caused by particle coating failure.

			←----- ^{85m} Kr R/B -----→		
Failure	R/B Sample #	Efpd	Before	After	Change
1	48	27.364	6.11E-07		
	49	30.363		9.60E-07	3.49E-07
2	53	32.364	9.26E-07		
	54	32.569		1.28E-06	3.51E-07
3	91	55.674	1.99E-06		
	92	58.673		2.19E-06	1.99E-07
4	124	83.024	1.90E-06		
	125	83.269		2.15E-06	2.47E-07

Fission gas samples were taken daily for three days following each HFIR shutdown. From this data it is possible to estimate the amount of radioactive Iodine isotopes that resides in portions of the capsule which are accessible to the sweep gas. To make this calculation we assume that every decay of ^{133}I results in the production of one atom of ^{133}Xe ; and that each decay of ^{135}I results in 0.853 atom of ^{135}Xe and 0.147 atom of $^{135\text{m}}\text{Xe}$. It is further assumed that each fission gas atom is released to the sweep gas. Shown in Table XI are the measured release rates after each HFIR shut down, and the amount of I at the scram time required to give the release rates. Also shown is the effective decay constant based on the rate of change in the measured xenon concentration. ^{133}I has a decay constant of $9.26 \times 10^{-6} \text{ sec}^{-1}$ and the decay constant for ^{135}I is $2.93 \times 10^{-5} \text{ sec}^{-1}$. The table verifies that the effective decay constants for the Xenon isotopes did correspond to that of their precursor Iodine.

Table XI Data Used to Estimate Accessible Iodine.

Gas Sample	Hrs from Scram	Release Rate for Xe Isotope			Atoms of I at Scram Time Based on			Effective Decay Constant (1/s) Based on		
		133Xe	135Xe	135mXe	133Xe	135Xe	135mXe	133Xe	135Xe	135mXe
Shut Down at End of Cycle 1 (22.4649 efpd)										
35	0.92	8.96E-04	5.37E-03	2.63E-02						
36	23.53	3.86E-04	4.88E-04	2.16E-03						
37	47.78	1.89E-04	4.07E-05	1.55E-04	2.41E+12	4.07E+11	3.27E+11	9.23E-06	2.89E-05	3.04E-05
Shut Down During Cycle 2 (34.3594 efpd)										
56	1.79	1.39E-03	6.60E-03	2.90E-02						
57	24.07	5.40E-04	6.91E-04	2.41E-03						
58	72.08	1.36E-04	7.20E-06	nd.	3.62E+12	5.27E+11	4.02E+11	9.01E-06	2.69E-05	3.10E-05
Shut Down at End of Cycle 2 (43.9219 efpd)										
73	24.36	7.22E-04	6.72E-04	2.66E-03						
74	48.38	3.89E-04	6.82E-05	2.67E-04						
75	73.23	1.55E-04	7.20E-06	nd.	4.38E+12	4.42E+11	3.13E+11	8.76E-06	2.58E-05	2.66E-05
Shut Down at End of Cycle 3 (66.3042 efpd)										
101	8.75	1.86E-03	4.46E-03	1.70E-02						
102	32.87	5.92E-04	4.06E-04	1.38E-03						
103	56.90	2.76E-04	3.46E-05	1.25E-04	6.64E+12	7.64E+11	4.66E+11	1.10E-05	2.80E-05	2.84E-05
Shut Down at end of Cycle 4 (88.8878 efpd)										
131	3.15	1.38E-03	8.24E-03	3.48E-02						
132	25.39	9.39E-04	8.00E-04	2.78E-03						
133	49.48	3.10E-04	6.52E-05	2.55E-04	4.61E+12	7.98E+11	5.21E+11	9.01E-06	2.90E-05	2.94E-05

ORNL maintains an active quality assurance (QA) program. Its purpose is to insure the accuracy of all reported data and the traceability of the data obtained during calibration of the measuring instrumentation. In addition, the QA program controls documents which affect the quality of the work performed at ORNL. The ORNL Instrument and Controls Division (I&CD) has the responsibility to calibrate and maintain the signal conditioning and measuring equipment used in MIF-1 at HFIR. A list of the instruments which were used to obtain data concerning the HRB-22 capsule and their traceable identification numbers is given in the Appendix E. Also given in Appendix E are the instruments calibration data. The data acquired during the irradiation is stored at ORNL on Bernoulli disks. Specific notes about the daily operation at MIF-1 are recorded in MMES Laboratory Notebook #A-107105. Specific information describing the fission gas release measurements are recorded in MMES research and technical notebooks numbered A-106734-G and A-106735-G.

Because the thermocouple junctions were internal to the capsule, they were calibrated by the manufacturer (Delta Corporation) prior to being placed in the fuel body. After assembly of the capsule, proper operation of each thermocouple was verified by checking its continuity and its resistance. When calibrated in 1987, all of the thermocouples met the acceptance criteria of ± 7.5 deg at 1000 °C.

The Hastings mass flowmeters used to measure the flow of neon and helium into the capsule were calibrated at ORNL using air as the flowing gas. The calibration data shows that after adjustment, the error in the readings was less than 0.5%. These flowmeters operate on a thermal electric principle in which the output is a function of the mass flow rate and the heat capacity of the flowing gas. To account for the difference in heat capacity between air and helium or neon, the indicated values were multiplied by 1.43 and 1.38, respectively (Ref. 6.1).

The pressure in the grab sample bottle was measured by a digital compound pressure gage (TIF model 9675, S/N 11577). The gage was calibrated at ORNL in both a decreasing pressure mode and an increasing pressure mode from -29.5 in Hg (gage) to 100 psig. To be able to interpolate the pressure readings measured during fission gas sampling, the calibration data was fit to a quadratic equation. The correlation coefficients for the quadratic equation fits were greater than 0.9999. The standard error for the value estimated from the quadratic fit was <0.06 in Hg when the gage was evacuated.

The complete efficiency-calibration curve of the γ -spectrometer (EG&G, Ortec, model GEM 13180-P, S/N 28-TP30059D) was experimentally determined several times during the irradiation test by using a simulated gas standard in a 100 ml sample bottle. The calibration standard (S/N 47995B-198) was purchased from Analytics, Inc and is traceable to the National Institute of Standards and Technology through Analytics measurements assurance program. In addition to the periodic efficiency calibrations, a daily check was performed with a sealed, radioactive point source to assure that we could account for any changes in the detector.

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APPENDIX A: OPERATING CONDITIONS

HFIR Thermal Power Data

Date	HFIR Power (MW(t)) at the Time-of-Day											
	00:30	02:30	04:30	06:30	08:30	10:30	12:30	14:30	16:30	18:30	20:30	22:30
Cycle 1												
4/10/94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.74	84.92
4/11/94	84.80	84.81	84.64	84.56	84.35	84.70	84.72	84.86	85.05	85.13	84.91	84.49
4/12/94	84.80	84.82	84.67	84.55	84.70	84.60	84.58	84.65	84.70	84.79	59.55	84.72
4/13/94	84.82	84.72	84.63	84.64	84.90	84.90	84.97	84.99	84.63	84.55	84.43	84.60
4/14/94	84.16	84.20	84.21	84.57	84.76	84.84	84.73	84.91	84.83	84.92	84.83	84.76
4/15/94	84.59	84.83	84.74	84.73	84.69	84.84	84.98	85.13	85.11	84.99	84.80	84.77
4/16/94	84.68	84.65	84.65	84.58	84.50	84.34	84.57	84.60	84.63	84.60	84.56	84.61
4/17/94	84.38	84.34	84.46	84.44	84.35	84.52	84.42	84.44	84.50	84.73	84.70	84.60
4/18/94	84.66	84.47	84.52	84.44	84.52	84.53	84.92	85.02	84.87	84.86	84.86	85.00
4/19/94	84.82	84.58	84.54	84.62	84.65	84.65	84.79	84.83	84.87	85.02	85.02	85.02
4/20/94	85.05	84.97	84.86	84.92	84.80	84.74	84.75	84.82	84.87	84.97	84.94	85.15
4/21/94	84.72	84.65	84.59	84.62	84.65	84.71	84.82	84.87	85.01	84.96	85.01	85.07
4/22/94	85.00	84.88	84.95	84.92	84.86	84.72	84.90	84.90	84.97	84.93	84.82	84.78
4/23/94	84.52	84.57	84.55	84.42	84.49	84.51	84.59	84.60	84.58	84.61	84.71	84.73
4/24/94	84.67	84.60	84.62	84.59	84.51	84.43	84.64	84.72	84.71	84.90	84.95	84.78
4/25/94	84.88	84.73	84.70	84.67	84.70	85.00	85.08	85.00	85.05	85.10	84.72	84.69
4/26/94	84.49	84.47	84.36	84.28	84.50	84.62	84.58	84.76	84.62	84.60	84.58	84.57
4/27/94	84.55	84.45	84.32	84.39	84.30	84.44	84.31	84.47	84.23	84.62	84.53	84.50
4/28/94	84.58	84.51	84.54	84.60	84.57	84.68	84.71	84.61	84.75	84.60	84.61	84.71
4/29/94	84.73	84.62	84.55	84.46	84.59	84.65	84.77	84.88	84.91	84.88	84.89	84.79
4/30/94	84.70	84.56	84.54	84.62	84.50	84.42	84.43	84.60	84.60	84.55	84.46	84.61
5/1/94	84.61	84.43	84.41	84.47	84.34	84.38	84.51	84.40	84.51	84.51	84.47	84.53
5/2/94	84.43	84.54	84.37	84.59	84.53	84.67	84.69	84.76	84.78	84.71	84.66	84.69
5/3/94	84.63	84.54	84.52	84.68	84.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cycle 2												
5/8/94	0.00	0.00	0.00	0.00	0.00	10.80	84.51	84.55	84.62	84.48	84.54	84.49
5/9/94	84.49	84.48	84.43	84.52	84.43	84.58	84.45	84.45	84.51	84.69	84.54	84.63
5/10/94	84.59	84.47	84.35	84.37	84.50	84.57	84.48	84.62	84.57	84.53	84.50	84.54
5/11/94	84.45	84.33	84.34	84.53	84.47	84.55	84.60	84.70	84.75	84.63	84.70	84.70
5/12/94	84.55	84.59	84.74	84.62	84.44	84.52	84.62	84.74	84.71	84.68	84.65	84.70
5/13/94	84.60	84.65	84.46	84.48	84.34	84.39	84.38	84.62	84.76	84.58	84.75	85.07
5/14/94	84.91	84.83	84.76	84.80	84.59	84.65	84.64	84.84	85.00	84.99	85.13	85.05
5/15/94	85.02	84.99	84.90	84.79	84.91	85.00	84.95	84.97	84.96	84.90	84.83	84.92
5/16/94	84.81	84.83	84.81	84.83	84.86	84.93	85.01	84.88	85.07	84.95	84.74	84.77
5/17/94	84.91	84.76	84.74	84.65	84.53	84.44	84.84	84.99	84.89	84.86	84.84	85.00
5/18/94	84.55	84.42	84.32	84.39	84.18	84.74	85.04	84.78	84.92	85.00	84.88	84.95

APPENDIX A: OPERATING CONDITIONS

HFIR Thermal Power Data (continued)

Date	HFIR Power (MW(t)) at the Time-of-Day											
	00:30	02:30	04:30	06:30	08:30	10:30	12:30	14:30	16:30	18:30	20:30	22:30
5/19/94	85.03	84.77	84.88	84.63	84.81	84.83	84.98	84.72	84.93	84.88	84.70	84.60
5/20/94	84.73	84.63	84.64	84.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5/24/94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.84	84.68
5/25/94	84.48	84.37	84.27	84.35	84.30	84.61	84.49	84.41	84.43	84.58	84.54	84.46
5/26/94	84.50	84.49	84.44	84.54	84.38	84.50	84.67	83.41	85.07	85.09	85.11	85.06
5/27/94	84.86	84.84	84.88	84.87	84.98	84.88	84.82	84.93	84.84	84.81	84.91	84.56
5/28/94	84.79	84.82	84.54	84.60	84.70	84.64	84.69	84.76	84.75	84.74	84.77	84.72
5/29/94	84.83	84.54	84.71	84.75	84.70	84.76	84.77	85.02	84.66	84.64	84.61	84.59
5/30/94	84.75	84.70	84.53	84.49	84.41	84.60	84.54	84.75	84.73	84.82	84.87	84.72
5/31/94	85.01	84.86	84.66	84.59	84.69	84.91	84.72	84.74	84.74	84.72	84.77	84.72
6/1/94	84.92	84.76	84.57	84.49	84.70	84.66	84.81	84.80	84.88	84.92	84.78	84.82
6/2/94	84.87	85.00	84.70	84.60	84.66	84.73	84.73	84.72	84.80	84.79	84.67	84.78
6/3/94	84.66	84.79	84.52	84.58	84.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cycle 3												
6/26/94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.49	84.54	84.57	84.60	84.62
6/27/94	84.63	84.56	84.58	84.51	84.49	84.65	84.59	84.72	84.63	84.58	84.50	84.45
6/28/94	84.42	84.40	84.40	84.29	84.44	84.58	84.68	84.70	84.70	84.97	84.78	84.63
6/29/94	84.66	84.60	84.56	84.54	84.49	84.62	84.59	84.66	84.67	84.56	84.66	84.58
6/30/94	84.54	84.55	84.55	84.49	84.54	84.49	84.74	84.84	85.01	84.79	84.73	84.79
7/1/94	84.63	84.60	84.52	84.53	84.64	84.59	84.62	84.65	84.58	84.71	84.79	84.84
7/2/94	84.79	84.71	84.66	84.56	84.62	84.70	84.72	84.82	84.78	84.98	85.04	85.09
7/3/94	84.98	84.91	84.89	84.93	84.95	84.77	84.86	84.98	85.13	84.97	84.81	84.88
7/4/94	84.97	85.00	84.91	84.72	84.78	84.68	84.55	84.64	84.53	84.65	84.64	84.71
7/5/94	84.74	84.67	84.58	84.54	84.45	84.58	84.51	84.70	84.64	84.67	84.63	84.55
7/6/94	84.46	84.46	84.44	84.40	84.35	84.44	84.56	84.50	84.67	84.53	84.57	84.72
7/7/94	84.58	84.51	84.52	84.44	84.45	84.51	84.47	84.56	84.52	84.55	84.46	84.45
7/8/94	84.36	84.38	84.39	84.34	84.35	84.43	84.51	84.43	84.46	84.44	84.56	84.54
7/9/94	84.57	84.54	84.45	84.41	84.43	84.44	84.80	84.78	84.96	84.90	85.04	84.54
7/10/94	84.49	84.47	84.51	84.56	84.48	84.45	84.51	84.53	84.58	84.64	84.84	84.79
7/11/94	84.70	84.59	84.67	84.71	84.72	84.56	84.45	84.57	84.44	84.48	84.51	84.48
7/12/94	84.47	84.32	84.43	84.39	84.44	84.45	84.41	84.41	84.36	84.47	84.52	84.45
7/13/94	84.34	84.41	84.43	84.35	84.37	84.58	84.50	84.57	84.66	84.64	84.55	84.47
7/14/94	84.52	84.62	84.50	84.53	84.39	84.56	84.55	84.73	84.71	84.65	84.84	84.72
7/15/94	84.77	84.59	84.55	84.55	84.65	84.79	84.72	84.71	84.60	84.58	84.56	84.58
7/16/94	84.40	84.48	84.43	84.41	84.55	84.42	84.48	84.56	84.62	84.48	84.65	84.53
7/17/94	84.47	84.51	84.46	84.51	84.48	84.48	84.62	84.74	84.65	84.68	84.77	84.73
7/18/94	84.70	84.68	84.61	84.44	84.63	84.68	84.83	84.81	84.75	84.73	84.74	84.75

APPENDIX A: OPERATING CONDITIONS

HFIR Thermal Power Data (continued)

Date	HFIR Power (MW(t)) at the Time-of-Day											
	00:30	02:30	04:30	06:30	08:30	10:30	12:30	14:30	16:30	18:30	20:30	22:30
7/19/94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cycle 4												
7/30/94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.48	84.22	84.16	84.15
7/31/94	84.18	84.11	84.36	84.50	84.49	84.64	84.63	84.77	84.78	84.81	84.79	84.90
8/1/94	84.82	84.59	84.70	84.67	84.61	84.82	84.91	84.88	84.96	84.57	84.38	84.36
8/2/94	84.69	84.49	84.52	84.53	84.61	84.82	84.92	85.00	84.69	84.70	84.52	84.52
8/3/94	84.49	84.61	84.57	84.69	84.61	84.66	84.60	85.00	84.74	84.68	84.61	84.82
8/4/94	84.69	84.67	84.69	84.70	84.44	84.38	84.45	84.56	84.75	84.78	84.77	84.64
8/5/94	84.56	84.73	84.57	84.56	84.59	84.37	84.49	84.59	84.60	84.50	84.61	84.56
8/6/94	84.48	84.55	84.41	84.40	84.40	84.44	84.52	84.54	84.55	84.51	84.60	84.75
8/7/94	84.60	84.56	84.63	84.47	84.53	84.62	84.62	84.70	84.69	84.88	84.89	84.92
8/8/94	84.91	84.77	84.87	84.71	84.70	84.70	84.70	84.64	84.57	84.66	84.50	84.66
8/9/94	84.51	84.50	84.33	84.50	84.46	84.69	84.70	84.84	84.69	84.71	84.76	84.74
8/10/94	84.70	84.67	84.55	84.60	84.47	84.86	84.90	85.00	84.88	85.00	84.92	84.88
8/11/94	84.91	84.79	84.75	84.65	84.56	84.45	84.63	84.61	84.66	84.64	84.72	84.72
8/12/94	84.58	84.59	84.50	84.52	84.46	84.41	84.50	84.46	84.68	84.48	84.70	84.86
8/13/94	84.61	84.60	84.33	84.44	84.38	84.83	84.96	84.89	85.06	85.05	84.80	84.79
8/14/94	84.83	84.74	84.73	84.65	84.60	84.69	84.61	84.70	84.91	84.95	85.09	85.01
8/15/94	84.81	84.80	84.81	84.78	84.43	84.37	84.40	84.41	84.48	84.31	84.62	84.36
8/16/94	84.43	84.33	84.32	84.27	84.31	84.33	84.49	84.55	84.54	84.59	84.66	84.63
8/17/94	84.52	84.49	84.63	84.53	84.69	84.44	84.75	84.97	84.77	84.60	84.67	84.79
8/18/94	84.54	84.49	84.43	84.50	84.59	84.86	84.77	84.81	84.54	84.51	84.62	84.83
8/19/94	84.63	84.49	84.37	84.64	84.69	84.63	84.86	84.97	84.90	84.81	84.68	84.66
8/20/94	84.51	84.52	84.55	84.50	84.42	84.19	84.70	84.57	84.64	84.78	84.76	84.63
8/21/94	84.57	84.54	84.65	84.43	84.65	84.54	84.50	84.43	84.50	84.59	84.66	84.77
8/22/94	84.60	84.45	84.33	84.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

APPENDIX A: OPERATING CONDITIONS

Measured Inlet He Flow

Date	Corrected Inlet He Flow (cm ³ /min) at Time-of-Day											
	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
Cycle 1												
4/11/94	117.3	117.3	118.7	118.7	118.7	118.7	118.8	118.8	117.0	117.0	117.0	117.0
4/12/94	117.0	118.4	118.4	118.4	118.4	118.1	116.7	116.3	45.6	11.3	55.1	13.3
4/13/94	13.3	13.3	13.3	13.3	13.3	12.9	12.9	12.9	12.9	12.9	12.9	12.9
4/14/94	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
4/15/94	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
4/16/94	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
4/17/94	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
4/18/94	12.9	12.9	12.9	12.9	12.9	115.7	12.0	12.0	12.0	12.0	12.0	12.0
4/19/94	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4
4/20/94	13.4	13.4	13.4	13.4	13.4	13.3	13.3	13.3	13.3	13.3	13.3	13.3
4/21/94	13.3	13.3	13.3	13.3	13.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
4/22/94	17.3	17.3	17.3	17.3	17.3	17.4	17.4	17.4	17.4	17.4	17.4	17.4
4/23/94	17.4	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
4/24/94	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
4/25/94	18.9	18.9	18.9	18.9	18.9	85.8	18.9	18.9	18.9	18.9	18.9	18.9
4/26/94	18.9	18.9	18.9	18.9	18.9	18.7	18.7	18.7	18.7	18.7	18.7	18.7
4/27/94	18.7	18.7	18.7	18.7	18.7	28.3	28.3	28.3	28.3	28.3	28.3	28.3
4/28/94	28.3	28.3	28.3	28.3	28.3	29.0	29.0	29.0	29.0	29.0	29.0	29.0
4/29/94	29.0	29.0	29.0	29.0	29.0	29.0	28.6	34.9	33.7	33.7	33.7	33.7
4/30/94	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7
5/1/94	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	35.2
5/2/94	35.2	35.2	35.2	35.2	35.2	35.6	35.6	35.6	35.6	35.6	35.6	35.6
5/3/94	35.6	35.6	35.6	35.6	35.6	57.5	58.5					
Cycle 2												
5/8/94	58.5	58.5	58.5	58.5	58.5	58.5	58.3	58.3	58.3	58.3	58.3	58.3
5/9/94	58.3	58.3	58.3	58.3	58.3	58.9	57.9	57.9	57.9	57.9	57.9	57.9
5/10/94	57.9	57.9	57.9	57.9	57.9	40.6	40.8	40.8	40.8	40.8	40.8	40.8
5/11/94	40.8	40.8	40.8	40.8	40.8	41.0	41.0	41.0	41.0	41.0	39.6	39.6
5/12/94	39.6	39.6	39.6	39.6	39.6	40.3	40.3	40.3	40.3	40.3	40.3	40.3
5/13/94	40.3	40.3	40.3	40.3	40.3	41.9	41.9	40.5	40.5	40.5	40.5	40.5
5/14/94	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5
5/15/94	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5
5/16/94	40.5	40.5	40.5	40.5	40.5	39.9	41.8	41.8	41.8	41.8	41.8	41.8
5/17/94	41.8	41.8	41.8	41.8	41.8	42.8	41.3	41.3	41.3	41.3	41.3	41.3
5/18/94	41.3	41.3	41.3	41.3	41.3	42.2	42.2	41.2	41.2	41.2	41.2	41.2
5/19/94	41.2	41.2	41.2	41.2	41.2	42.5	42.5	42.5	42.5	42.5	42.5	42.5

APPENDIX A: OPERATING CONDITIONS

Measured Inlet He Flow (continued)

Date	Corrected Inlet He Flow (cm ³ /min) at Time-of-Day											
	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
5/20/94	42.5	42.5	42.5	42.5	42.5	57.3	57.8	56.3	56.3	56.3	56.3	56.3
5/21/94	56.3	56.3	57.8	57.8	57.8	58.9	57.5	57.5	57.5	57.5	57.5	57.5
5/22/94	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	56.1	56.1	56.1
5/23/94	56.1	56.1	57.5	57.5	57.5	56.6	56.6	56.6	55.2	55.2	55.2	55.2
5/24/94	55.2	55.2	55.2	55.2	55.2	55.2	54.9	54.9	54.9	54.9	55.5	55.2
5/25/94	55.2	56.6	56.6	56.6	56.6	46.5	45.0	45.0	45.0	45.0	45.0	45.0
5/26/94	45.0	45.0	45.0	46.5	46.5	46.2	46.2	46.2	46.2	46.2	46.2	46.2
5/27/94	46.2	46.2	46.2	46.2	46.2	46.0	46.0	46.0	46.0	46.0	46.0	46.0
5/28/94	46.0	46.0	46.0	46.0	46.0	47.5	47.5	47.5	46.0	46.0	46.0	46.0
5/29/94	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	44.6	44.6
5/30/94	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6
5/31/94	44.6	44.6	44.6	44.6	44.6	45.5	46.5	46.5	46.5	46.5	46.5	46.5
6/1/94	46.5	46.5	46.5	46.5	46.5	47.5	47.5	47.5	47.5	47.5	46.0	46.0
6/2/94	46.0	46.0	46.0	46.0	46.0	46.9	46.9	46.9	46.9	46.9	46.9	46.9
6/3/94	46.9	46.9	46.9	46.9	46.9	57.6	57.6	57.6	57.6	57.6	57.6	56.2
6/4/94	56.2	56.2	56.2	57.6	57.6	56.8	56.8	56.8	56.8	56.8	56.8	56.8
6/5/94	56.8	56.8	56.8	56.8	56.8	55.8	55.8	55.8	55.8	54.3	54.3	54.3
Cycle 3												
6/26/94	55.9	55.9	55.9	55.9	55.9	55.9	55.9	55.9	56.5	55.1	55.1	55.1
6/27/94	55.1	55.1	55.1	55.1	55.1	55.2	55.2	55.2	55.2	55.2	55.2	55.2
6/28/94	55.2	56.6	56.6	56.6	56.6	56.2	56.2	56.2	56.2	56.2	56.2	56.2
6/29/94	56.2	56.2	56.2	56.2	56.2	55.5	55.5	55.5	55.5	55.5	55.5	55.5
6/30/94	55.5	55.5	55.5	55.5	55.5	56.5	56.5	56.5	56.5	56.5	55.1	55.1
7/1/94	55.1	55.1	55.1	55.1	56.6	46.0	46.0	46.3	46.3	46.3	44.9	44.9
7/2/94	44.9	44.9	44.9	44.9	44.9	46.2	46.2	46.2	44.8	44.8	44.8	44.8
7/3/94	44.8	44.8	44.8	44.8	44.8	44.8	44.8	44.8	44.8	44.8	44.8	44.8
7/4/94	44.8	44.8	46.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2
7/5/94	46.2	46.2	46.2	46.2	46.2	46.6	46.6	46.6	46.6	46.6	46.6	46.6
7/6/94	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6
7/7/94	46.6	46.6	46.6	46.6	46.6	47.3	47.3	47.3	47.3	47.3	47.3	47.3
7/8/94	47.3	47.3	47.3	47.3	47.3	47.8	47.8	47.8	47.8	47.8	47.8	47.8
7/9/94	47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8	46.3	46.3	46.3
7/10/94	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
7/11/94	46.3	46.3	46.3	46.3	46.3	46.8	46.8	46.8	46.8	46.8	46.8	46.8
7/12/94	46.8	46.8	46.8	46.8	46.8	52.5	52.5	52.5	52.5	52.5	52.5	52.5
7/13/94	52.5	52.5	52.5	52.5	52.5	51.6	51.6	51.6	51.6	51.6	51.6	51.6
7/14/94	51.6	51.6	51.6	51.6	51.6	51.8	51.8	51.8	51.8	51.8	51.8	51.8

APPENDIX A: OPERATING CONDITIONS

Measured Inlet He Flow (continued)

Date	Corrected Inlet He Flow (cm ³ /min) at Time-of-Day											
	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
7/15/94	51.8	51.8	50.3	50.3	50.3	50.5	50.5	50.5	50.5	50.5	50.5	50.5
7/16/94	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5
7/17/94	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5
7/18/94	50.5	51.9	51.9	51.9	51.9	51.8	51.8	51.8	51.3	51.3	51.3	51.3
7/19/94	52.8	52.8	51.3	51.3	52.1	57.2	57.2	55.8	55.8	54.3	54.3	54.3
7/20/94	54.3	54.3	54.3	54.3	54.3	53.5	53.5					
Cycle 4												
7/30/94	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	56.6	57.2	57.2
7/31/94	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2	56.8	56.8	56.8
8/1/94	56.8	56.8	56.8	58.2	58.2	58.8	58.8	58.8	58.8	58.8	58.8	58.8
8/2/94	58.8	58.8	58.8	58.8	58.8	59.1	59.1	59.1	59.1	59.1	59.1	59.1
8/3/94	59.1	59.1	59.1	59.1	59.1	58.9	58.9	58.9	58.9	58.9	58.9	58.9
8/4/94	58.9	58.9	58.9	58.9	58.9	58.6	58.6	58.6	58.6	58.6	58.6	58.6
8/5/94	58.6	58.6	58.6	58.6	58.6	58.5	58.5	58.5	58.5	58.5	58.5	58.5
8/6/94	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	57.1	57.1	57.1	57.1
8/7/94	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1
8/8/94	57.1	57.1	57.1	57.1	57.1	57.8	57.8	57.8	57.8	57.8	57.8	57.8
8/9/94	57.8	57.8	57.8	57.8	57.8	52.5	52.3	52.3	52.3	52.3	52.3	52.3
8/10/94	52.3	52.3	52.3	52.3	52.3	51.3	51.3	51.3	49.9	49.9	49.9	49.9
8/11/94	51.3	51.3	51.3	51.3	51.3	53.8	53.8	53.8	52.3	52.3	52.3	52.3
8/12/94	52.3	52.3	52.3	52.3	52.3	52.2	52.2	52.2	52.2	52.2	50.8	50.8
8/13/94	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8
8/14/94	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8
8/15/94	50.8	50.8	50.8	50.8	50.8	51.5	51.5	51.5	51.5	52.9	52.9	52.9
8/16/94	52.9	52.9	52.9	52.9	52.9	57.3	58.2	56.8	56.8	57.3	57.3	55.9
8/17/94	55.9	55.9	55.9	55.9	55.9	55.9	55.9	55.9	54.5	54.5	54.5	54.5
8/18/94	55.9	55.9	55.9	55.9	55.9	57.3	57.3	57.3	57.3	57.3	57.3	57.3
8/19/94	57.3	57.3	57.3	57.3	57.3	58.5	58.5	58.5	58.5	58.5	58.5	58.5
8/20/94	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5
8/21/94	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	57.5	57.5	57.5
8/22/94	57.5	57.5	57.5	57.5	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6
8/23/94	57.6	57.6	57.6	57.6	57.6	59.2	59.2	59.2	57.8	57.8	57.8	57.8
8/24/94	57.8	57.8	57.8	57.8	57.8							

APPENDIX A: OPERATING CONDITIONS

Measured Inlet Ne Flow

Date	Corrected Inlet Ne Flow (cm ³ /min) at Time-of-Day											
	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
Cycle 1												
4/11/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4/12/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	65.4	44.4	0.1	43.1
4/13/94	44.4	44.4	44.4	44.4	45.8	45.8	46.2	46.2	46.2	46.2	46.2	46.2
4/14/94	46.2	46.2	46.2	46.2	46.2	46.8	46.8	46.8	46.8	46.8	46.8	46.8
4/15/94	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8
4/16/94	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8
4/17/94	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8
4/18/94	46.8	46.8	46.8	46.8	46.8	0.0	46.8	46.8	46.8	46.8	46.8	48.2
4/19/94	48.2	48.2	48.2	48.2	49.5	49.4	49.4	49.4	49.4	49.4	49.4	48.0
4/20/94	48.0	48.0	49.4	49.4	49.4	49.8	48.7	48.7	48.7	48.7	48.7	48.7
4/21/94	48.7	48.7	48.7	50.1	50.1	39.3	39.3	39.3	39.3	39.3	39.3	39.3
4/22/94	39.3	39.3	39.3	39.3	39.3	40.3	40.3	41.7	41.7	41.7	41.7	41.7
4/23/94	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7
4/24/94	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7
4/25/94	41.7	41.7	41.7	41.7	41.7	0.0	39.5	40.8	40.8	40.8	40.8	40.8
4/26/94	40.8	40.8	40.8	40.8	42.2	42.1	42.1	42.1	42.1	42.1	42.1	42.1
4/27/94	42.1	42.1	42.1	42.1	42.1	27.6	27.6	27.6	27.6	27.6	27.6	27.6
4/28/94	27.6	27.6	27.6	27.6	27.6	28.3	28.3	28.3	28.3	28.3	28.3	28.3
4/29/94	28.3	28.3	28.3	28.3	28.3	28.3	28.3	22.4	22.8	22.8	22.8	22.8
4/30/94	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
5/1/94	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
5/2/94	22.8	22.8	22.8	22.8	22.8	24.3	24.6	24.6	24.6	24.6	23.2	23.2
5/3/94	23.2	23.2	23.2	23.2	23.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle 2												
5/8/94	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
5/9/94	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
5/10/94	0.0	0.0	0.0	0.0	0.0	15.0	15.5	15.5	15.5	15.5	15.5	16.8
5/11/94	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
5/12/94	16.8	16.8	16.8	16.8	16.8	16.3	16.3	16.3	16.3	16.3	16.3	16.3
5/13/94	16.3	16.3	16.3	16.3	16.3	16.7	16.7	16.7	16.7	16.7	16.7	16.7
5/14/94	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7
5/15/94	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7
5/16/94	16.7	16.7	16.7	16.7	16.7	16.8	17.0	17.0	16.7	16.7	16.7	16.7
5/17/94	16.7	16.7	16.7	16.7	16.7	16.1	16.1	16.1	16.1	16.1	16.1	16.1
5/18/94	16.1	16.1	16.1	16.1	16.1	16.3	16.3	16.1	16.1	16.1	16.1	16.1
5/19/94	16.1	16.1	16.1	16.1	16.1	16.6	16.6	16.6	16.8	16.8	16.8	16.8

APPENDIX A: OPERATING CONDITIONS

Measured Inlet Ne Flow (continued)

Date	----- Corrected Inlet Ne Flow (cm ³ /min) at Time-of-Day -----											
	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
5/20/94	16.8	16.8	16.8	16.8	16.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0
5/21/94	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5/22/94	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5/23/94	1.0	1.0	1.0	1.0	1.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6
5/24/94	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	1.0
5/25/94	1.0	1.0	1.0	1.0	1.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
5/26/94	11.0	11.0	11.0	11.0	11.0	10.6	10.6	10.6	10.6	10.6	10.6	10.6
5/27/94	10.6	10.6	10.6	10.6	10.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5
5/28/94	11.5	11.5	11.5	11.5	11.5	10.4	10.4	10.4	10.4	10.4	10.4	10.4
5/29/94	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
5/30/94	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
5/31/94	10.4	10.4	10.4	10.4	10.4	11.3	11.5	11.5	11.5	11.5	11.5	11.5
6/1/94	11.5	11.5	11.5	11.5	11.5	11.7	11.7	11.7	11.7	11.7	11.7	11.7
6/2/94	11.7	11.7	11.7	11.7	11.7	10.6	10.6	10.6	10.6	10.6	10.6	10.6
6/3/94	10.6	10.6	10.6	12.0	12.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
6/4/94	1.1	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6	0.6	0.6	0.6
6/5/94	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle 3												
6/26/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6/27/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6/28/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6/29/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6/30/94	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2
7/1/94	1.2	1.2	1.2	1.2	1.2	10.9	10.9	10.6	10.6	10.6	10.6	10.6
7/2/94	10.6	10.6	10.6	10.6	10.6	11.7	11.7	11.7	11.7	11.7	11.7	11.7
7/3/94	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
7/4/94	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
7/5/94	11.7	11.7	11.7	11.7	11.7	10.9	10.9	10.9	10.9	10.9	10.9	10.9
7/6/94	10.9	10.9	10.9	10.9	10.9	11.3	11.3	11.3	11.3	11.3	11.3	11.3
7/7/94	11.3	11.3	11.3	11.3	11.3	11.7	11.7	11.7	11.7	11.7	11.7	11.7
7/8/94	11.7	11.7	11.7	11.7	11.7	11.5	11.5	11.5	11.5	11.5	11.5	11.5
7/9/94	11.5	11.5	11.5	11.5	11.5	11.5	13.1	13.1	13.1	13.1	13.1	13.1
7/10/94	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	11.7	11.7	11.7
7/11/94	11.7	11.7	11.7	11.7	11.7	11.9	11.9	11.9	11.9	11.9	11.9	11.9
7/12/94	11.9	11.9	11.9	11.9	11.9	4.7	4.7	4.7	4.7	4.7	4.7	4.7
7/13/94	4.7	4.7	4.7	4.7	4.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
7/14/94	5.7	5.7	5.7	5.7	5.7	5.0	5.0	5.0	5.0	5.0	5.0	5.0

APPENDIX A: OPERATING CONDITIONS

Measured Inlet Ne Flow (continued)

Date	Corrected Inlet Ne Flow (cm ³ /min) at Time-of-Day											
	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
7/15/94	5.0	5.0	5.0	5.0	5.0	4.6	4.6	4.6	4.6	4.6	4.6	4.6
7/16/94	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
7/17/94	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
7/18/94	5.9	5.9	5.9	5.9	5.9	5.5	5.5	5.5	5.9	5.9	5.9	5.9
7/19/94	5.9	5.9	5.9	5.9	5.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1
7/20/94	0.1	0.1	0.1	0.1	0.1	0.0	0.0					
Cycle 4												
7/30/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0
7/31/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1
8/1/94	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/2/94	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2
8/3/94	1.2	1.2	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/4/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/5/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/6/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/7/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/8/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/9/94	0.0	0.0	0.0	0.0	0.0	4.4	5.2	5.2	5.2	5.2	5.2	5.2
8/10/94	5.2	5.2	5.2	5.2	5.2	5.4	5.4	5.4	5.4	5.4	5.4	5.4
8/11/94	5.4	5.4	5.4	5.4	5.4	5.7	5.7	5.7	5.7	5.7	5.7	5.7
8/12/94	5.7	5.7	5.7	5.7	5.7	6.2	6.2	6.2	6.2	6.2	6.2	6.2
8/13/94	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
8/14/94	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
8/15/94	6.2	6.2	6.2	6.2	6.2	5.7	5.7	5.7	5.7	5.7	5.7	5.7
8/16/94	5.7	5.7	5.7	5.7	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/17/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/18/94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/19/94	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
8/20/94	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
8/21/94	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
8/22/94	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
8/23/94	1.0	1.0	1.0	1.0	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7
8/24/94	0.7	0.7	0.7	0.7	0.7							

APPENDIX A: OPERATING CONDITIONS

Measured Inlet Pressure

Date	----- Indicated Inlet Pressure (psig) on PI-110 at Time-of-Day -----											
	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
Cycle 1												
4/11/94	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
4/12/94	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.9	16.1	14.8	15.0	15.0
4/13/94	15.0	15.0	15.0	15.0	15.0	15.3	15.1	15.1	15.1	15.1	15.1	15.1
4/14/94	15.1	15.1	15.1	15.1	15.1	14.5	15.5	15.5	15.5	15.5	15.5	15.5
4/15/94	15.5	15.5	15.5	15.5	15.5	14.9	14.9	14.9	14.9	14.9	14.9	14.9
4/16/94	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
4/17/94	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
4/18/94	14.9	14.9	14.9	14.9	14.9	15.9	15.7	15.7	15.7	15.7	15.7	15.7
4/19/94	15.7	15.7	15.7	15.7	15.7	15.4	15.4	15.4	15.4	15.4	15.4	15.4
4/20/94	15.4	15.4	15.4	15.4	15.4	15.2	15.2	15.2	15.2	15.2	15.2	15.2
4/21/94	15.2	15.2	15.2	15.2	15.2	15.4	15.4	15.4	15.4	15.4	15.4	15.4
4/22/94	15.4	15.4	15.4	15.4	15.4	15.2	15.2	16.2	16.2	16.2	16.2	16.2
4/23/94	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2
4/24/94	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2
4/25/94	16.2	16.2	16.2	16.2	16.2	15.5	15.1	15.1	15.1	15.1	15.1	15.1
4/26/94	15.1	15.1	15.1	15.1	15.1	15.2	15.2	15.2	15.2	15.2	15.2	15.2
4/27/94	15.2	15.2	15.2	15.2	15.2	15.4	15.4	15.4	15.4	15.4	15.4	15.4
4/28/94	15.4	15.4	15.4	15.4	15.4	15.1	15.1	15.1	15.1	15.1	15.1	15.1
4/29/94	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
4/30/94	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
5/1/94	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
5/2/94	15.1	15.1	15.1	15.1	15.1	15.2	15.5	15.5	15.5	15.5	15.5	15.5
5/3/94	15.5	15.5	15.5	15.5	15.5	15.1	15.1					
Cycle 2												
5/8/94	15.1	15.1	15.1	15.1	15.1	15.1	14.4	15.0	15.0	15.0	15.0	15.0
5/9/94	15.0	15.0	15.0	15.0	15.0	15.7	14.9	14.9	14.9	14.9	14.9	14.9
5/10/94	14.9	14.9	14.9	14.9	14.9	14.4	14.5	14.5	14.5	14.5	14.5	14.5
5/11/94	14.5	14.5	14.5	14.5	14.5	15.3	15.3	15.3	15.3	15.3	15.3	15.3
5/12/94	15.3	15.3	15.3	15.3	15.3	14.5	14.5	14.5	14.5	14.5	14.5	14.5
5/13/94	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
5/14/94	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
5/15/94	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
5/16/94	14.5	14.5	14.5	14.5	14.5	14.4	14.7	14.7	14.7	14.7	14.7	14.7
5/17/94	14.7	14.7	14.7	14.7	14.7	14.6	14.6	14.6	14.6	14.6	14.6	14.6
5/18/94	14.6	14.6	14.6	14.6	14.6	14.7	14.7	15.1	15.1	15.1	15.1	15.1
5/19/94	15.1	15.1	15.1	15.1	15.1	14.6	14.6	14.6	14.6	14.6	14.6	14.6

APPENDIX A: OPERATING CONDITIONS

Measured Inlet Pressure (continued)

Date	----- Indicated Inlet Pressure (psig) on PI-110 at Time-of-Day -----											
	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
5/20/94	14.6	14.6	14.6	14.6	14.6	14.6	15.2	15.2	15.2	15.2	15.2	15.2
5/21/94	15.2	15.2	15.2	15.2	15.2	14.7	14.7	14.7	14.7	14.7	14.7	14.7
5/22/94	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
5/23/94	14.7	14.7	14.7	14.7	14.7	14.9	14.9	14.9	14.9	14.9	14.9	14.9
5/24/94	14.9	14.9	14.9	14.9	14.9	14.9	15.4	15.4	15.4	15.4	15.1	14.9
5/25/94	14.9	14.9	14.9	14.9	14.9	14.5	14.5	14.5	14.5	14.5	14.5	14.5
5/26/94	14.5	14.5	14.5	14.5	14.5	14.7	14.7	14.7	14.7	14.7	14.7	14.7
5/27/94	14.7	14.7	14.7	14.7	14.7	15.1	15.1	15.1	15.1	15.1	15.1	15.1
5/28/94	15.1	15.1	15.1	15.1	15.1	14.4	14.4	14.4	14.4	14.4	14.4	14.4
5/29/94	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
5/30/94	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	15.4
5/31/94	15.4	15.4	15.4	15.4	15.4	14.8	14.9	14.9	14.9	14.9	14.9	14.9
6/1/94	14.9	14.9	14.9	14.9	14.9	14.4	14.4	14.4	14.4	14.4	14.4	14.4
6/2/94	14.4	14.4	14.4	14.4	14.4	15.2	15.2	15.2	15.2	15.2	15.2	15.2
6/3/94	15.2	15.2	15.2	15.2	15.2	14.8	14.8	14.8	14.8	14.8	14.8	14.8
6/4/94	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
6/5/94	14.8	14.8	14.8	14.8	14.8	14.9	14.9	14.9	14.9	14.9	14.9	14.9
Cycle 3												
6/26/94	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	15.2	15.2	15.2	15.2
6/27/94	15.2	15.2	15.2	15.2	15.2	14.8	14.8	14.8	14.8	14.8	14.8	14.8
6/28/94	14.8	14.8	14.8	14.8	14.8	14.3	14.3	14.3	14.3	14.3	14.3	14.3
6/29/94	14.3	14.3	14.3	14.3	14.3	14.4	14.4	14.4	14.4	14.4	14.4	14.4
6/30/94	14.4	14.4	14.4	14.4	14.4	14.3	14.3	14.3	14.3	14.3	14.3	14.3
7/1/94	14.3	14.3	14.3	14.3	14.3	14.5	14.5	15.1	15.1	15.1	15.1	15.1
7/2/94	15.1	15.1	15.1	15.1	15.1	14.7	14.7	14.7	14.7	14.7	14.7	14.7
7/3/94	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
7/4/94	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
7/5/94	14.7	14.7	14.7	14.7	14.7	14.2	14.2	14.2	14.2	14.2	14.2	14.2
7/6/94	14.2	14.2	14.2	14.2	14.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
7/7/94	15.2	15.2	15.2	15.2	15.2	14.5	14.5	14.5	14.5	14.5	14.5	14.5
7/8/94	14.5	14.5	14.5	14.5	14.5	15.0	15.0	15.0	15.0	15.0	15.0	15.0
7/9/94	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
7/10/94	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
7/11/94	15.0	15.0	15.0	15.0	15.0	14.4	14.4	14.4	14.4	14.4	14.4	14.4
7/12/94	14.4	14.4	14.4	14.4	14.4	15.0	15.0	15.0	15.0	15.0	15.0	15.0
7/13/94	15.0	15.0	15.0	15.0	15.0	15.1	15.1	15.1	15.1	15.1	15.1	15.1
7/14/94	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1

APPENDIX A: OPERATING CONDITIONS

Measured Inlet Pressure (continued)

Date	----- Indicated Inlet Pressure (psig) on PI-110 at Time-of-Day ----->											
	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
7/15/94	15.1	15.1	15.1	15.1	15.1	14.6	14.6	14.6	14.6	14.6	14.6	14.6
7/16/94	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
7/17/94	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
7/18/94	14.6	14.6	14.6	14.6	14.6	14.9	14.9	14.9	14.3	14.3	14.3	14.3
7/19/94	14.3	14.3	14.3	14.3	14.3	14.7	14.7	13.7	13.7	13.7	13.7	13.7
7/20/94	13.7	13.7	13.7	13.7	13.7	13.2	13.2					
Cycle 4												
7/30/94	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.5	14.9	14.9
7/31/94	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.4	14.4	14.4
8/1/94	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
8/2/94	14.4	14.4	14.4	14.4	14.4	14.2	15.2	15.2	15.2	15.2	15.2	15.2
8/3/94	15.2	15.2	15.2	15.2	15.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
8/4/94	14.2	14.2	14.2	14.2	15.2	15.0	15.0	15.0	15.0	15.0	15.0	15.0
8/5/94	15.0	15.0	15.0	15.0	15.0	14.2	14.2	14.2	14.2	14.2	14.2	14.2
8/6/94	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
8/7/94	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
8/8/94	14.2	14.2	14.2	14.2	15.2	14.5	14.5	14.5	14.5	14.5	14.5	14.5
8/9/94	14.5	14.5	14.5	14.5	14.5	14.8	14.6	14.6	14.6	14.6	14.6	14.6
8/10/94	14.6	14.6	14.6	14.6	14.6	14.5	14.5	14.5	14.5	14.5	14.5	14.5
8/11/94	14.5	14.5	14.5	14.5	14.5	14.4	14.4	14.4	14.4	14.4	14.4	14.4
8/12/94	14.4	14.4	14.4	14.4	14.4	15.1	15.1	15.1	15.1	15.1	15.1	15.1
8/13/94	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
8/14/94	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
8/15/94	15.1	15.1	15.1	15.1	15.1	14.8	14.8	14.8	14.8	14.8	14.8	14.8
8/16/94	14.8	14.8	14.8	14.8	14.8	14.4	14.5	14.5	14.5	14.6	14.6	14.6
8/17/94	14.6	14.6	14.6	14.6	14.6	14.5	14.5	14.5	14.5	14.5	14.5	14.5
8/18/94	14.5	14.5	14.5	14.5	14.5	14.4	14.4	14.4	14.4	14.4	14.4	14.4
8/19/94	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
8/20/94	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
8/21/94	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
8/22/94	14.4	14.4	14.4	14.4	14.8	14.8	15.2	15.2	15.2	15.2	15.2	15.2
8/23/94	15.2	15.2	15.2	15.2	15.2	14.5	13.5	13.5	13.5	13.5	13.5	13.5
8/24/94	13.5	13.5	13.5	13.5	13.5							

APPENDIX A: OPERATING CONDITIONS

Measured Outlet Pressure

Date	-----Indicated Outlet Pressure (psig) on PI-111 at Time-of-Day -----											
	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
Cycle 1												
4/11/94	16.0	16.0	16.0	16.0	16.0	15.0	15.0	15.0	15.1	15.1	15.1	15.1
4/12/94	15.1	15.1	15.1	15.1	15.1	15.2	15.2	15.3	15.4	15.4	14.9	14.9
4/13/94	14.9	14.9	14.9	14.9	14.9	14.9	14.7	14.7	14.7	14.7	14.7	14.7
4/14/94	14.7	14.7	14.7	14.7	14.7	14.4	14.4	14.4	14.4	14.4	14.4	14.4
4/15/94	14.4	14.4	14.4	14.4	14.4	14.6	14.6	14.6	14.6	14.6	14.6	14.6
4/16/94	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
4/17/94	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
4/18/94	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
4/19/94	14.6	14.6	14.6	14.6	14.6	15.1	15.1	15.1	15.1	15.1	15.1	15.1
4/20/94	15.1	15.1	15.1	15.1	15.1	14.9	14.9	14.9	14.9	14.9	14.9	14.9
4/21/94	14.9	14.9	14.9	14.9	14.9	15.2	15.2	15.2	15.2	15.2	15.2	15.2
4/22/94	15.2	15.2	15.2	15.2	15.2	15.0	15.0	15.0	15.0	15.0	15.0	15.0
4/23/94	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
4/24/94	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
4/25/94	15.0	15.0	15.0	15.0	15.0	15.2	15.0	15.0	15.0	15.0	15.0	15.0
4/26/94	15.0	15.0	15.0	15.0	15.0	14.9	14.9	14.9	14.9	14.9	14.9	14.9
4/27/94	14.9	14.9	14.9	14.9	14.9	15.1	15.1	15.1	15.1	15.1	15.1	15.1
4/28/94	15.1	15.1	15.1	15.1	15.1	14.7	14.7	14.7	14.7	14.7	14.7	14.7
4/29/94	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.8	14.8	14.8	14.8
4/30/94	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
5/1/94	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
5/2/94	14.8	14.8	14.8	14.8	14.8	15.0	15.3	15.3	15.3	15.3	15.3	15.3
5/3/94	15.3	15.3	15.3	15.3	15.3	14.7	14.9					
Cycle 2												
5/8/94	14.9	14.9	14.9	14.9	14.9	14.9	14.6	14.5	14.5	14.5	14.5	14.5
5/9/94	14.5	14.5	14.5	14.5	14.5	14.6	14.8	14.8	14.8	14.8	14.8	14.8
5/10/94	14.8	14.8	14.8	14.8	14.8	14.5	14.5	14.5	14.5	14.5	14.5	14.5
5/11/94	14.5	14.5	14.5	14.5	14.5	14.4	14.4	14.4	14.4	14.4	14.4	14.4
5/12/94	14.4	14.4	14.4	14.4	14.4	14.6	14.6	14.6	14.6	14.6	14.6	14.6
5/13/94	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
5/14/94	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
5/15/94	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
5/16/94	14.6	14.6	14.6	14.6	14.6	14.3	15.1	15.1	15.1	15.1	15.1	15.1
5/17/94	15.1	15.1	15.1	15.1	15.1	14.2	14.2	14.2	14.2	14.2	14.2	14.2
5/18/94	14.2	14.2	14.2	14.2	14.2	14.3	14.3	14.5	14.5	14.5	14.5	14.5
5/19/94	14.5	14.5	14.5	14.5	14.5	14.6	14.6	14.6	14.6	14.6	14.6	14.6

APPENDIX A: OPERATING CONDITIONS

Measured Outlet Pressure (continued)

-----Indicated Outlet Pressure (psig) on PI-111 at Time-of-Day -----												
Date	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
5/20/94	14.6	14.6	14.6	14.6	14.6	14.6	14.9	14.9	14.9	14.9	14.9	14.9
5/21/94	14.9	14.9	14.9	14.9	14.9	14.5	14.5	14.5	14.5	14.5	14.5	14.5
5/22/94	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
5/23/94	14.5	14.5	14.5	14.5	14.5	14.4	14.4	14.4	14.4	14.4	14.4	14.4
5/24/94	14.4	14.4	14.4	14.4	14.4	14.4	15.2	15.2	15.2	15.2	14.8	14.8
5/25/94	14.8	14.8	14.8	14.8	14.8	15.0	15.0	15.0	15.0	15.0	15.0	15.0
5/26/94	15.0	15.0	15.0	15.0	15.0	14.6	14.6	14.6	14.6	14.6	14.6	14.6
5/27/94	14.6	14.6	14.6	14.6	14.6	15.2	15.2	15.2	15.2	15.2	15.2	15.2
5/28/94	15.2	15.2	15.2	15.2	15.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
5/29/94	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
5/30/94	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
5/31/94	14.2	14.2	14.2	14.2	14.2	14.6	15.2	15.2	15.2	15.2	15.2	15.2
6/1/94	15.2	15.2	15.2	15.2	15.2	15.0	15.0	15.0	15.0	15.0	15.0	15.0
6/2/94	15.0	15.0	15.0	15.0	15.0	14.4	14.4	14.4	14.4	14.4	14.4	14.4
6/3/94	14.4	14.4	14.4	14.4	14.4	14.0	14.0	14.0	14.0	14.0	14.0	14.0
6/4/94	14.0	14.0	14.0	15.0	15.0	14.2	14.2	14.2	14.2	14.2	14.2	14.2
6/5/94	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
Cycle 3												
6/26/94	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.8	14.8	14.8	14.8
6/27/94	14.8	14.8	14.8	14.8	14.8	14.5	14.5	14.5	14.5	14.5	14.5	14.5
6/28/94	14.5	14.5	14.5	14.5	14.5	14.3	14.3	14.3	14.3	14.3	14.3	14.3
6/29/94	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
6/30/94	14.3	14.3	14.3	14.3	14.3	14.8	14.8	14.8	14.8	14.8	14.8	14.8
7/1/94	14.8	14.8	14.8	14.8	14.8	14.2	14.2	14.3	14.3	14.3	14.3	14.3
7/2/94	14.3	14.3	14.3	14.3	14.3	14.9	14.9	14.9	14.9	14.9	14.9	14.9
7/3/94	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
7/4/94	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
7/5/94	14.9	14.9	14.9	14.9	14.9	14.0	14.0	14.0	14.0	14.0	14.0	14.0
7/6/94	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	15.0	15.0	15.0	15.0
7/7/94	15.0	15.0	15.0	15.0	15.0	14.6	14.6	14.6	14.6	14.6	14.6	14.6
7/8/94	14.6	14.6	14.6	14.6	14.6	14.4	14.4	14.4	14.4	14.4	14.4	14.4
7/9/94	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
7/10/94	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
7/11/94	14.4	14.4	14.4	14.4	14.4	14.7	14.7	14.7	14.7	14.7	14.7	14.7
7/12/94	14.7	14.7	14.7	14.7	14.7	14.1	14.1	14.1	14.1	14.1	14.1	14.1
7/13/94	14.1	14.1	14.1	14.1	14.1	14.7	14.7	14.7	14.7	14.7	14.7	14.7
7/14/94	14.7	14.7	14.7	14.7	14.7	13.9	13.9	13.9	13.9	13.9	13.9	13.9

APPENDIX A: OPERATING CONDITIONS

Measured Outlet Pressure (continued)

-----Indicated Outlet Pressure (psig) on PI-111 at Time-of-Day -----												
Date	0:00	2:00	4:00	6:00	8:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00
7/15/94	13.9	13.9	13.9	13.9	13.9	14.7	14.7	14.7	14.7	14.7	14.7	14.7
7/16/94	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
7/17/94	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
7/18/94	14.7	14.7	14.7	14.7	14.7	13.8	14.8	14.8	14.1	14.1	14.1	14.1
7/19/94	14.1	14.1	14.1	14.1	14.1	14.1	14.1	13.1	13.1	13.1	13.1	13.1
7/20/94	13.1	13.1	13.1	13.1	13.1	13.0	13.0					
Cycle 4												
7/30/94	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.0	14.0
7/31/94	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.2	14.2	14.2
8/1/94	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
8/2/94	14.2	14.2	14.2	14.2	14.2	13.9	13.9	13.9	13.9	13.9	13.9	13.9
8/3/94	13.9	13.9	13.9	13.9	13.9	14.0	14.0	14.0	14.0	14.0	14.0	14.0
8/4/94	14.0	14.0	14.0	14.0	14.0	13.9	13.9	13.9	13.9	13.9	13.9	13.9
8/5/94	13.9	13.9	13.9	13.9	13.9	14.0	14.0	14.0	14.0	14.0	14.0	14.0
8/6/94	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
8/7/94	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
8/8/94	14.0	14.0	14.0	14.0	14.0	14.6	14.6	14.6	14.6	14.6	14.6	14.6
8/9/94	14.6	14.6	14.6	14.6	14.6	14.0	14.3	14.3	14.3	14.3	14.3	14.3
8/10/94	14.3	14.3	14.3	14.3	14.3	14.5	14.5	14.5	14.5	14.5	14.5	14.5
8/11/94	14.5	14.5	14.5	14.5	14.5	14.4	14.4	14.4	14.4	14.4	14.4	14.4
8/12/94	14.4	14.4	14.4	14.4	14.4	14.0	14.0	14.0	14.0	14.0	14.0	14.0
8/13/94	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
8/14/94	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
8/15/94	14.0	14.0	14.0	14.0	14.0	14.9	14.9	14.9	14.9	14.9	14.9	14.9
8/16/94	14.9	14.9	14.9	14.9	14.9	14.3	14.1	14.1	14.1	14.3	14.3	14.3
8/17/94	14.3	14.3	14.3	14.3	14.3	14.2	14.2	14.2	14.2	14.2	14.2	14.2
8/18/94	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
8/19/94	14.2	14.2	14.2	14.2	14.2	13.9	13.9	13.9	13.9	13.9	13.9	13.9
8/20/94	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9
8/21/94	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	14.1	14.1	14.1
8/22/94	14.1	14.1	14.1	14.1	14.5	14.5	14.7	14.7	14.7	14.7	14.7	14.7
8/23/94	14.7	14.7	14.7	14.7	14.7	14.3	13.3	13.3	13.3	13.3	13.3	13.3
8/24/94	13.3	13.3	13.3	13.3	13.3							

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures	67
Predicted Volume-Averaged Compact Temperature	103
Predicted Maximum Compact Temperature	105

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
4/10/94	21:56:00				Cycle 1											
4/10/94	21:51:00	-0.003	-0.003	1.00	461	506	517	461	468	518	509	505	465	546	517	496
4/10/94	23:00:00	0.044	0.044	1.00	485	530	540	485	498	549	538	531	493	577	546	524
4/11/94	0:00:00	0.086	0.086	1.00	488	533	544	489	505	557	547	536	500	589	550	529
4/11/94	2:00:00	0.169	0.169	1.00	493	538	551	501	522	573	557	546	508	590	555	533
4/11/94	4:00:00	0.253	0.253	1.00	497	544	559	506	530	579	567	555	516	598	561	538
4/11/94	6:00:00	0.336	0.336	1.00	499	539	559	515	541	584	572	562	523	604	566	542
4/11/94	8:00:00	0.419	0.419	1.00	501	545	568	526	542	591	578	570	530	611	570	546
4/11/94	10:00:00	0.503	0.503	1.00	505	548	573	529	598	596	582	575	534	616	574	548
4/11/94	12:00:00	0.586	0.586	1.00	509	554	581	524	552	599	585	578	538	620	577	551
4/11/94	14:00:00	0.669	0.669	1.00	512	556	584	541	557	603	589	582	541	623	579	553
4/11/94	16:00:00	0.753	0.753	1.00	512	556	588	537	565	605	591	584	546	627	583	556
4/11/94	18:00:00	0.836	0.836	1.00	517	561	590	536	566	607	593	584	549	629	584	557
4/11/94	20:00:00	0.919	0.919	1.00	520	568	591	538	567	596	594	584	550	630	585	558
4/11/94	22:00:00	1.003	1.003	1.00	517	566	591	539	567	607	593	583	550	629	584	557
4/12/94	0:00:00	1.086	1.086	1.00	518	567	593	543	570	608	594	584	551	631	585	557
4/12/94	2:00:00	1.169	1.169	1.00	519	569	591	540	572	609	595	584	552	631	586	558
4/12/94	4:00:00	1.253	1.253	1.00	521	571	593	514	574	610	595	584	553	631	587	559
4/12/94	6:00:00	1.336	1.336	1.00	519	564	592	542	575	610	596	585	554	633	587	559
4/12/94	8:00:00	1.419	1.419	1.00	515	563	595	544	576	611	596	593	554	631	590	560
4/12/94	10:00:00	1.503	1.503	1.00	520	559	590	558	580	610	596	586	555	629	590	560
4/12/94	12:00:00	1.586	1.586	1.00	521	560	592	561	582	612	598	587	556	631	591	562
4/12/94	13:58:37	1.668	1.668	1.00	522	561	592	561	583	612	598	587	557	631	591	562
4/12/94	14:00:07	1.670	1.670	1.00	522	560	592	561	582	612	598	587	556	631	591	562
4/12/94	15:00:07	1.711	1.711	0.71	601	636	663	604	628	662	646	633	602	711	668	647
4/12/94	16:00:08	1.753	1.753	0.41	694	724	744	659	680	719	700	682	656	799	756	744
4/12/94	17:00:08	1.795	1.795	0.43	688	717	738	655	677	716	697	679	653	793	751	739
4/12/94	18:00:07	1.836	1.836	0.21	769	796	808	701	723	764	743	721	701	865	826	818
4/12/94	19:00:06	1.878	1.878	1.00	79	80	79	74	72	76	74	72	71	77	78	79
4/12/94	20:00:05	1.920	1.920	1.00	430	478	512	473	467	492	480	483	459	528	507	471
4/12/94	21:00:05	1.961	1.961	1.00	540	585	623	570	593	623	609	603	572	648	620	575
4/12/94	22:00:07	2.003	2.003	0.22	757	795	803	683	717	759	741	722	692	856	821	807
4/12/94	23:00:07	2.045	2.045	0.22	763	804	815	706	714	762	743	722	691	857	820	808
4/13/94	0:00:08	2.086	2.086	0.22	763	804	814	704	714	762	742	722	692	857	820	809
4/13/94	1:00:07	2.128	2.128	0.22	763	804	814	704	714	762	742	722	692	857	821	809
4/13/94	2:00:07	2.170	2.170	0.22	759	797	807	674	711	762	742	722	693	859	821	810
4/13/94	3:00:07	2.211	2.211	0.22	760	799	809	675	712	763	743	722	694	860	822	810

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
4/13/94	4:00:06	2.253	2.253	0.22	760	798	809	675	712	763	742	722	694	859	822	810
4/13/94	5:00:07	2.295	2.295	0.22	761	799	810	676	712	763	742	722	694	860	822	810
4/13/94	6:00:07	2.336	2.336	0.22	760	799	810	676	712	763	742	722	694	859	821	810
4/13/94	7:00:07	2.378	2.378	0.22	762	801	812	678	715	765	744	724	696	862	823	812
4/13/94	8:00:08	2.420	2.420	0.22	762	801	812	679	715	765	744	724	696	862	823	812
4/13/94	9:00:08	2.461	2.461	0.22	763	802	813	679	715	765	744	725	697	863	824	813
4/13/94	10:00:07	2.503	2.503	0.22	764	802	814	680	716	766	745	726	698	864	825	814
4/13/94	11:00:07	2.545	2.545	0.22	764	803	814	680	716	766	746	726	698	864	825	814
4/13/94	12:00:06	2.586	2.586	0.22	765	804	816	681	718	767	747	727	699	866	827	816
4/13/94	13:00:07	2.628	2.628	0.22	765	804	816	682	718	767	747	727	700	866	827	816
4/13/94	14:00:08	2.670	2.670	0.22	765	805	816	682	718	768	747	728	700	867	827	816
4/13/94	15:00:07	2.711	2.711	0.22	767	806	817	683	719	769	748	728	701	867	828	817
4/13/94	16:00:07	2.753	2.753	0.22	768	807	819	685	721	771	750	730	702	869	830	819
4/13/94	17:00:07	2.795	2.795	0.22	764	803	815	681	717	766	745	727	699	866	826	815
4/13/94	18:00:07	2.836	2.836	0.22	764	803	815	681	717	766	745	727	699	866	826	815
4/13/94	19:00:06	2.878	2.878	0.22	764	802	815	680	717	766	745	726	699	865	825	814
4/13/94	20:00:07	2.920	2.920	0.22	763	802	814	680	717	765	744	726	698	865	825	814
4/13/94	21:00:08	2.961	2.961	0.22	764	803	816	681	719	767	746	727	700	866	826	815
4/13/94	22:00:06	3.003	3.003	0.22	765	804	817	681	719	767	746	727	700	867	827	816
4/13/94	23:00:07	3.045	3.045	0.22	764	803	816	681	719	766	745	727	700	866	826	815
4/14/94	0:00:08	3.086	3.086	0.22	762	801	814	679	717	765	744	726	698	865	824	813
4/14/94	1:00:07	3.128	3.128	0.22	762	802	815	679	718	765	744	726	699	865	825	813
4/14/94	2:00:07	3.170	3.170	0.22	763	803	815	680	718	765	745	727	699	866	825	814
4/14/94	3:00:08	3.211	3.211	0.22	762	802	814	679	718	765	744	726	699	865	824	813
4/14/94	4:00:07	3.253	3.253	0.22	763	802	815	679	718	765	744	727	699	866	825	814
4/14/94	5:00:07	3.295	3.295	0.22	763	803	815	679	719	765	745	727	700	866	825	814
4/14/94	6:00:08	3.336	3.336	0.22	765	805	817	682	721	767	746	729	701	868	827	816
4/14/94	7:00:06	3.378	3.378	0.22	766	806	818	682	722	768	747	729	701	868	827	816
4/14/94	8:00:08	3.420	3.420	0.22	766	806	818	683	723	768	747	729	702	869	828	817
4/14/94	9:00:07	3.461	3.461	0.22	766	806	818	683	722	768	747	729	702	869	828	817
4/14/94	10:00:07	3.503	3.503	0.22	766	807	819	683	723	769	747	731	703	870	828	817
4/14/94	11:00:06	3.545	3.545	0.22	766	807	818	682	723	768	747	731	702	870	828	817
4/14/94	12:00:08	3.586	3.586	0.22	767	807	819	683	724	769	748	732	703	871	829	818
4/14/94	13:00:07	3.628	3.628	0.22	767	807	819	683	724	769	748	732	703	871	829	818
4/14/94	14:00:07	3.670	3.670	0.22	766	807	819	683	724	769	747	731	703	871	829	818
4/14/94	15:00:07	3.711	3.711	0.22	767	807	820	683	724	769	748	732	704	872	830	818
4/14/94	16:00:06	3.753	3.753	0.22	767	807	820	683	724	769	748	732	704	872	830	818

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
4/14/94	17:00:08	3.795	3.795	0.22	767	808	820	683	725	769	748	732	703	872	830	819
4/14/94	18:00:06	3.836	3.836	0.22	768	808	821	683	726	770	749	733	704	872	830	819
4/14/94	19:00:06	3.878	3.878	0.22	768	809	821	684	726	770	749	734	705	873	831	820
4/14/94	20:00:08	3.920	3.920	0.22	768	809	821	683	726	770	749	734	705	873	831	819
4/14/94	21:00:08	3.961	3.961	0.22	766	807	819	682	725	769	748	733	703	872	829	818
4/14/94	22:00:07	4.003	4.003	0.22	768	809	822	683	727	771	749	734	705	874	831	820
4/14/94	23:00:07	4.045	4.045	0.22	767	808	820	682	726	770	748	734	704	873	830	819
4/15/94	0:00:06	4.086	4.086	0.22	767	808	820	682	726	769	748	734	704	872	829	818
4/15/94	1:00:05	4.128	4.128	0.22	768	810	822	684	728	772	750	736	706	875	832	821
4/15/94	2:00:06	4.170	4.170	0.22	767	808	820	682	726	770	748	735	704	874	830	819
4/15/94	3:00:06	4.211	4.211	0.22	766	807	820	681	726	770	748	735	704	874	830	819
4/15/94	4:00:06	4.253	4.253	0.22	767	808	821	682	727	770	748	735	704	874	830	819
4/15/94	5:00:06	4.295	4.295	0.22	767	807	821	681	727	770	748	735	704	874	830	819
4/15/94	6:00:05	4.336	4.336	0.22	766	807	820	681	727	770	748	735	704	874	829	819
4/15/94	7:00:06	4.378	4.378	0.22	766	807	820	681	726	769	747	734	704	874	829	818
4/15/94	8:00:06	4.420	4.420	0.22	766	807	820	681	727	770	748	735	704	874	829	819
4/15/94	9:00:06	4.461	4.461	0.22	768	809	822	683	728	771	749	736	705	875	830	820
4/15/94	10:02:07	4.504	4.504	0.22	769	810	823	683	729	772	750	737	706	878	831	821
4/15/94	11:00:06	4.545	4.545	0.22	769	810	823	683	729	772	750	737	706	877	831	820
4/15/94	12:00:08	4.586	4.586	0.22	770	810	824	684	730	772	750	737	707	878	832	821
4/15/94	13:00:07	4.628	4.628	0.22	770	809	824	684	730	773	751	737	707	879	832	822
4/15/94	14:00:06	4.670	4.670	0.22	771	810	824	683	730	772	750	737	707	878	832	822
4/15/94	15:00:07	4.711	4.711	0.22	770	809	824	683	730	773	751	738	707	879	832	821
4/15/94	16:00:06	4.753	4.753	0.22	770	809	824	683	730	772	751	737	707	879	832	822
4/15/94	18:00:07	4.836	4.836	0.22	770	812	825	687	730	772	751	739	707	879	832	822
4/15/94	20:00:08	4.920	4.920	0.22	768	811	823	685	729	771	750	738	706	878	831	820
4/15/94	22:00:07	5.003	5.003	0.22	768	811	823	685	729	770	749	737	706	877	830	820
4/16/94	0:00:07	5.086	5.086	0.22	768	811	823	685	729	770	749	737	706	878	830	820
4/16/94	2:00:07	5.170	5.170	0.22	768	811	822	685	729	770	749	737	706	878	830	820
4/16/94	4:00:08	5.253	5.253	0.22	770	815	822	685	730	770	749	737	706	878	829	819
4/16/94	6:00:07	5.336	5.336	0.22	769	813	821	685	729	769	748	737	705	878	829	819
4/16/94	8:00:06	5.420	5.420	0.22	769	813	821	684	729	769	748	737	706	879	829	819
4/16/94	10:00:07	5.503	5.503	0.22	770	813	822	685	730	770	749	738	707	880	830	820
4/16/94	12:00:08	5.586	5.586	0.22	771	814	823	686	731	771	750	739	708	881	831	820
4/16/94	14:00:06	5.670	5.670	0.22	771	813	823	686	732	771	750	739	708	882	831	821
4/16/94	16:00:07	5.753	5.753	0.22	771	813	823	686	732	772	750	742	708	883	831	821
4/16/94	18:00:08	5.836	5.836	0.22	771	813	823	686	732	771	750	743	707	882	831	821

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
4/16/94	20:00:08	5.920	5.920	0.22	771	812	823	686	732	771	750	743	707	883	831	821
4/16/94	22:00:06	6.003	6.003	0.22	771	811	824	687	732	772	750	743	708	883	830	821
4/17/94	0:00:08	6.086	6.086	0.22	771	811	824	687	732	772	750	743	707	883	830	821
4/17/94	2:00:07	6.170	6.170	0.22	771	810	825	687	732	772	750	743	708	884	830	821
4/17/94	4:00:07	6.253	6.253	0.22	772	811	825	687	733	772	750	744	708	885	831	822
4/17/94	6:00:08	6.336	6.336	0.22	771	810	825	687	733	772	750	744	708	885	831	822
4/17/94	8:00:08	6.420	6.420	0.22	771	809	825	687	733	772	750	744	708	884	831	821
4/17/94	10:00:08	6.503	6.503	0.22	772	808	826	687	732	772	750	743	708	884	830	821
4/17/94	12:00:07	6.586	6.586	0.22	774	809	827	688	734	773	752	745	709	886	832	822
4/17/94	14:00:08	6.670	6.670	0.22	774	808	827	688	733	773	751	745	709	886	832	823
4/17/94	16:00:07	6.753	6.753	0.22	775	808	828	688	734	773	752	745	710	886	832	823
4/17/94	18:00:07	6.836	6.836	0.22	775	808	828	688	734	774	752	745	710	887	832	823
4/17/94	20:00:07	6.920	6.920	0.22	775	807	828	688	734	774	752	745	710	887	833	824
4/17/94	22:00:07	7.003	7.003	0.22	775	808	829	689	735	774	753	746	710	888	833	824
4/18/94	0:00:08	7.086	7.086	0.22	776	807	829	689	734	774	752	746	710	887	832	823
4/18/94	2:00:07	7.170	7.170	0.22	776	807	829	689	735	774	753	746	711	888	833	824
4/18/94	4:00:08	7.253	7.253	0.22	777	808	831	691	736	776	754	747	712	889	834	825
4/18/94	6:00:08	7.336	7.336	0.22	777	807	831	690	735	774	752	746	711	888	833	824
4/18/94	8:00:06	7.420	7.420	0.22	778	808	833	692	736	776	754	748	712	890	835	825
4/18/94	10:00:07	7.503	7.503	1.00	534	571	607	565	591	624	609	596	567	637	604	569
4/18/94	12:00:08	7.586	7.586	0.22	779	807	831	709	737	777	756	728	713	877	841	824
4/18/94	14:00:07	7.670	7.670	0.22	780	807	831	709	738	777	757	729	714	878	842	825
4/18/94	16:00:07	7.753	7.753	0.22	780	807	832	709	738	777	757	729	714	878	842	825
4/18/94	18:00:06	7.836	7.836	0.21	780	807	832	709	738	777	757	729	714	878	842	826
4/18/94	20:00:08	7.920	7.920	0.21	780	806	831	709	738	777	756	729	714	878	843	825
4/18/94	22:00:08	8.003	8.003	0.22	780	807	832	710	738	778	757	730	714	879	843	826
4/19/94	0:00:07	8.086	8.086	0.22	779	806	832	709	738	777	756	730	714	879	843	826
4/19/94	2:00:07	8.170	8.170	0.22	779	806	832	709	738	777	756	730	714	879	843	825
4/19/94	4:00:07	8.253	8.253	0.22	779	806	832	708	738	777	756	729	713	878	842	825
4/19/94	6:00:08	8.336	8.336	0.22	779	806	831	708	737	776	756	730	713	879	842	825
4/19/94	8:00:06	8.420	8.420	0.22	780	808	833	710	738	778	757	731	714	880	843	826
4/19/94	10:00:08	8.503	8.503	0.21	780	809	834	710	738	778	757	731	715	881	844	827
4/19/94	12:00:07	8.586	8.586	0.21	782	811	836	711	739	780	759	733	716	882	845	828
4/19/94	14:00:08	8.670	8.670	0.21	783	812	836	711	739	780	759	734	717	884	846	829
4/19/94	16:00:07	8.753	8.753	0.21	784	813	837	711	739	781	760	735	718	885	846	829
4/19/94	18:00:06	8.836	8.836	0.21	784	813	836	710	739	781	760	735	718	885	846	830
4/19/94	20:00:07	8.920	8.920	0.21	784	814	837	711	739	782	761	736	718	886	847	830

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
4/19/94	22:00:08	9.003	9.003	0.21	784	814	837	710	738	781	760	735	718	886	847	830
4/20/94	0:00:06	9.086	9.086	0.21	785	815	837	711	739	782	761	736	719	887	847	831
4/20/94	2:00:06	9.170	9.170	0.21	785	815	838	710	739	782	761	736	718	887	847	830
4/20/94	4:00:07	9.253	9.253	0.21	785	815	838	710	739	782	761	737	719	888	848	831
4/20/94	6:00:07	9.336	9.336	0.21	784	815	838	709	738	782	761	736	718	888	847	831
4/20/94	8:00:08	9.420	9.420	0.21	785	816	839	710	739	783	761	737	719	889	848	831
4/20/94	10:00:07	9.503	9.503	0.21	785	816	839	709	739	783	761	737	719	889	848	832
4/20/94	12:00:07	9.586	9.586	0.21	786	816	840	710	739	783	762	738	720	890	849	832
4/20/94	14:00:06	9.670	9.670	0.21	787	817	841	711	740	784	763	739	721	891	850	833
4/20/94	16:00:07	9.753	9.753	0.21	787	818	841	711	740	784	763	739	721	892	850	834
4/20/94	18:00:07	9.836	9.836	0.21	787	818	842	712	741	785	764	740	722	893	851	834
4/20/94	20:00:08	9.920	9.920	0.21	787	818	842	712	740	785	763	739	721	893	851	834
4/20/94	22:00:08	10.003	10.003	0.21	787	818	842	712	741	785	763	740	722	894	851	834
4/21/94	0:00:07	10.086	10.086	0.21	786	817	842	711	740	785	763	740	722	894	851	834
4/21/94	2:00:06	10.170	10.170	0.21	786	817	842	711	740	784	763	739	721	894	851	834
4/21/94	4:00:06	10.253	10.253	0.21	786	817	842	711	740	784	763	739	722	895	851	834
4/21/94	6:00:07	10.336	10.336	0.21	786	816	842	710	739	783	762	738	722	895	851	834
4/21/94	8:00:07	10.420	10.420	0.21	786	817	843	711	740	785	763	739	723	897	852	835
4/21/94	10:00:06	10.503	10.503	0.31	752	785	814	691	722	765	745	723	703	867	820	803
4/21/94	12:00:08	10.586	10.586	0.31	753	785	815	692	723	766	746	723	704	869	821	804
4/21/94	14:00:07	10.670	10.670	0.31	753	785	815	692	723	765	745	722	705	871	821	805
4/21/94	16:00:08	10.753	10.753	0.30	755	787	818	694	725	767	747	724	708	874	823	807
4/21/94	18:00:08	10.836	10.836	0.30	754	787	817	693	724	766	746	723	707	874	822	806
4/21/94	20:00:08	10.920	10.920	0.30	754	787	818	693	724	767	747	724	708	875	823	807
4/21/94	22:00:08	11.003	11.003	0.30	756	789	820	694	726	768	748	724	709	876	824	808
4/22/94	0:00:07	11.086	11.086	0.30	756	789	820	694	726	768	748	724	709	877	824	808
4/22/94	2:00:07	11.170	11.170	0.30	756	789	820	694	726	768	748	724	709	878	824	808
4/22/94	4:00:07	11.253	11.253	0.31	756	789	820	694	725	767	747	724	709	879	824	808
4/22/94	6:00:06	11.336	11.336	0.31	756	789	820	695	726	768	747	724	710	879	824	808
4/22/94	8:00:08	11.420	11.420	0.30	756	790	821	696	727	769	749	726	711	881	826	810
4/22/94	10:00:08	11.503	11.503	0.30	756	790	820	697	727	769	748	741	709	883	826	810
4/22/94	12:00:07	11.586	11.586	0.30	757	791	821	698	728	769	749	742	711	887	826	810
4/22/94	14:00:06	11.670	11.670	0.30	757	792	822	699	728	770	750	743	711	887	827	811
4/22/94	16:00:07	11.753	11.753	0.30	759	792	822	698	728	770	750	743	711	888	827	811
4/22/94	18:00:06	11.836	11.836	0.30	758	792	822	698	727	770	749	743	711	887	827	811
4/22/94	20:00:08	11.920	11.920	0.30	758	792	822	697	727	769	749	743	710	887	827	810
4/22/94	22:00:08	12.003	12.003	0.30	758	792	823	698	727	769	748	742	711	888	826	810

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
4/23/94	0:00:07	12.086	12.086	0.31	759	793	825	698	728	769	749	742	712	889	827	811
4/23/94	2:00:08	12.170	12.170	0.31	760	794	826	698	728	770	749	742	713	891	828	812
4/23/94	4:00:08	12.253	12.253	0.31	759	794	827	698	728	770	749	742	713	891	828	812
4/23/94	6:00:07	12.336	12.336	0.31	761	795	829	699	729	771	750	743	714	893	830	813
4/23/94	8:00:06	12.420	12.420	0.31	761	795	829	699	728	770	749	743	714	892	829	813
4/23/94	10:00:06	12.503	12.503	0.31	761	796	830	700	729	771	750	744	714	894	830	813
4/23/94	12:00:07	12.586	12.586	0.30	762	796	831	701	730	771	750	744	715	895	831	814
4/23/94	14:00:07	12.670	12.670	0.30	763	797	832	701	730	771	751	744	715	895	831	815
4/23/94	16:00:06	12.753	12.753	0.30	762	797	832	700	729	770	750	744	715	896	831	815
4/23/94	18:00:08	12.836	12.836	0.30	764	799	834	702	731	772	752	745	716	897	832	816
4/23/94	20:00:08	12.920	12.920	0.30	764	799	834	702	731	772	751	745	716	897	833	816
4/23/94	22:00:07	13.003	13.003	0.30	764	799	835	703	731	772	752	746	717	898	833	817
4/24/94	0:00:07	13.086	13.086	0.30	764	800	836	703	732	773	752	746	717	899	834	817
4/24/94	2:00:08	13.170	13.170	0.31	764	800	835	703	731	772	752	746	717	900	834	817
4/24/94	4:00:06	13.253	13.253	0.31	764	800	836	704	731	772	752	746	717	900	835	818
4/24/94	6:00:07	13.336	13.336	0.31	764	799	835	703	731	772	751	746	717	900	834	818
4/24/94	8:00:07	13.420	13.420	0.31	764	799	836	703	731	771	751	746	717	901	835	818
4/24/94	10:00:06	13.503	13.503	0.31	765	801	838	704	732	772	752	747	718	902	835	819
4/24/94	12:00:08	13.586	13.586	0.30	767	804	841	708	735	774	753	748	719	904	837	821
4/24/94	14:00:08	13.670	13.670	0.30	767	803	840	707	734	773	753	748	719	905	838	821
4/24/94	16:00:08	13.753	13.753	0.30	768	805	842	708	735	774	754	749	720	906	838	822
4/24/94	18:00:06	13.836	13.836	0.30	769	806	843	708	736	775	755	750	721	908	840	823
4/24/94	20:00:06	13.920	13.920	0.30	768	804	842	707	735	774	754	750	721	909	840	824
4/24/94	22:00:08	14.003	14.003	0.30	770	807	844	709	737	776	755	752	722	910	841	824
4/25/94	0:00:07	14.086	14.086	0.30	770	807	845	709	736	776	755	752	722	911	841	825
4/25/94	2:00:07	14.170	14.170	0.30	770	808	846	710	737	776	756	753	723	912	842	826
4/25/94	4:00:07	14.253	14.253	0.30	770	807	845	709	736	775	755	752	722	912	842	826
4/25/94	6:00:08	14.336	14.336	0.30	770	808	846	709	736	775	754	752	722	912	842	826
4/25/94	7:50:31	14.413	14.413	0.30	771	809	847	710	736	775	754	752	722	913	842	826
4/25/94	8:00:06	14.420	14.420	0.75	772	809	848	711	737	776	755	753	723	913	843	827
4/25/94	9:30:17	14.482	14.482	1.00	554	609	649	593	612	638	621	627	588	684	631	595
4/25/94	10:00:08	14.503	14.503	1.00	554	608	649	594	610	637	621	624	588	686	630	594
4/25/94	12:00:08	14.586	14.586	0.31	770	809	850	714	737	775	754	754	722	912	841	825
4/25/94	14:00:07	14.670	14.670	0.31	772	812	853	716	738	776	756	755	723	914	843	827
4/25/94	16:00:07	14.753	14.753	0.31	773	813	854	717	739	777	756	756	725	915	845	829
4/25/94	18:00:07	14.836	14.836	0.31	773	813	855	717	739	777	756	756	725	916	845	829
4/25/94	20:00:06	14.920	14.920	0.31	773	813	854	716	739	776	756	755	725	916	845	829

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
4/25/94	22:00:07	15.003	15.003	0.31	774	814	856	716	739	776	755	755	725	916	845	829
4/26/94	0:00:06	15.086	15.086	0.31	773	813	855	716	738	775	755	755	725	917	846	829
4/26/94	2:00:08	15.170	15.170	0.31	773	813	855	715	738	775	754	755	724	917	846	829
4/26/94	4:00:06	15.253	15.253	0.31	774	814	856	716	739	775	755	755	725	918	846	830
4/26/94	6:00:07	15.336	15.336	0.31	773	813	856	715	738	774	754	754	724	918	846	830
4/26/94	8:00:07	15.420	15.420	0.31	775	815	857	716	739	775	755	755	726	920	848	831
4/26/94	10:00:06	15.503	15.503	0.31	777	817	860	718	740	777	756	757	727	922	849	833
4/26/94	12:00:08	15.586	15.586	0.31	777	817	860	718	740	777	756	757	727	922	849	833
4/26/94	14:00:07	15.670	15.670	0.31	778	819	862	719	741	777	757	757	727	923	851	834
4/26/94	16:00:06	15.753	15.753	0.30	780	821	864	721	743	779	758	759	729	925	853	836
4/26/94	18:00:08	15.836	15.836	0.30	780	821	865	720	742	778	758	759	729	926	854	837
4/26/94	20:00:08	15.920	15.920	0.30	780	821	865	720	742	777	757	758	728	925	853	836
4/26/94	22:00:07	16.003	16.003	0.30	781	822	866	720	742	778	757	758	728	926	854	837
4/27/94	0:00:07	16.086	16.086	0.31	782	823	867	721	743	778	757	759	729	928	855	838
4/27/94	2:00:07	16.170	16.170	0.31	783	824	868	721	742	778	757	759	729	928	856	839
4/27/94	4:00:08	16.253	16.253	0.31	783	825	868	721	743	778	757	759	730	929	857	840
4/27/94	6:00:06	16.336	16.336	0.31	784	826	869	721	743	778	757	758	730	929	857	840
4/27/94	8:00:08	16.420	16.420	0.31	785	827	870	721	743	778	757	758	731	930	858	841
4/27/94	8:47:43	16.453	16.453	0.31	785	828	868	727	746	777	756	756	730	929	857	840
4/27/94	9:50:00	16.496	16.496	0.51	712	765	805	691	705	734	715	717	687	862	792	772
4/27/94	10:00:09	16.503	16.503	0.51	713	766	805	691	706	735	715	717	687	862	793	772
4/27/94	12:00:07	16.586	16.586	0.51	713	766	806	687	704	734	715	717	688	862	794	772
4/27/94	14:00:06	16.670	16.670	0.51	714	767	807	686	704	734	715	717	688	864	794	772
4/27/94	16:00:08	16.753	16.753	0.51	715	769	809	687	705	736	716	719	690	866	796	774
4/27/94	18:00:08	16.836	16.836	0.51	717	771	811	687	708	736	717	722	690	868	797	775
4/27/94	20:00:06	16.920	16.920	0.51	717	771	812	691	710	736	717	717	692	864	799	775
4/27/94	22:00:06	17.003	17.003	0.50	718	773	813	692	711	737	718	718	693	866	801	777
4/28/94	0:00:08	17.086	17.086	0.50	720	775	815	692	711	737	718	718	694	867	802	778
4/28/94	2:00:08	17.170	17.170	0.50	720	775	815	692	711	736	717	718	694	867	803	779
4/28/94	4:00:07	17.253	17.253	0.50	720	776	816	693	711	737	718	719	695	873	803	780
4/28/94	6:00:08	17.336	17.336	0.50	721	776	816	692	710	736	717	719	694	873	804	780
4/28/94	8:00:08	17.420	17.420	0.50	721	777	816	692	710	736	717	718	694	874	804	780
4/28/94	10:00:06	17.503	17.503	0.50	723	779	818	693	711	737	717	719	695	875	805	782
4/28/94	12:00:08	17.586	17.586	0.51	725	782	820	694	712	738	719	722	697	878	807	784
4/28/94	14:00:07	17.670	17.670	0.50	727	783	823	695	713	739	720	723	698	881	809	785
4/28/94	16:00:08	17.753	17.753	0.50	727	783	822	694	711	738	719	722	697	880	809	785
4/28/94	18:00:07	17.836	17.836	0.50	728	784	823	694	712	738	719	723	698	881	810	786

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
4/28/94	20:00:07	17.920	17.920	0.50	730	786	825	695	712	738	720	722	698	882	811	787
4/28/94	22:00:06	18.003	18.003	0.50	730	787	830	695	712	738	720	722	699	883	811	787
4/29/94	0:00:06	18.086	18.086	0.50	730	787	824	696	712	737	719	720	699	883	812	788
4/29/94	2:00:07	18.170	18.170	0.50	732	789	825	696	712	737	718	719	699	884	812	789
4/29/94	4:00:08	18.253	18.253	0.50	732	789	825	695	713	737	719	720	699	884	813	789
4/29/94	6:00:06	18.336	18.336	0.50	733	790	826	695	713	737	719	720	699	885	815	791
4/29/94	8:00:07	18.420	18.420	0.50	735	793	827	696	715	738	719	721	700	887	816	792
4/29/94	10:00:07	18.503	18.503	0.50	736	795	829	698	716	739	721	723	702	889	818	794
4/29/94	12:00:08	18.586	18.586	0.50	738	797	830	697	717	740	722	724	702	891	819	796
4/29/94	14:00:06	18.670	18.670	0.61	738	798	831	697	717	740	722	724	702	891	820	796
4/29/94	16:00:07	18.753	18.753	0.60	708	767	802	679	697	720	703	706	683	860	790	765
4/29/94	18:00:06	18.836	18.836	0.60	711	769	804	681	698	721	703	707	684	862	792	767
4/29/94	20:00:08	18.920	18.920	0.60	712	771	805	681	698	721	703	707	684	863	794	769
4/29/94	22:00:08	19.003	19.003	0.60	712	770	803	680	697	720	702	707	683	862	793	768
4/30/94	0:00:07	19.086	19.086	0.60	713	773	805	681	698	720	702	707	684	863	795	770
4/30/94	2:00:06	19.170	19.170	0.60	713	754	805	683	698	720	702	707	684	864	795	770
4/30/94	4:00:07	19.253	19.253	0.59	714	755	806	684	698	720	703	707	684	865	797	772
4/30/94	6:00:06	19.336	19.336	0.59	714	755	806	685	697	720	702	707	683	865	797	772
4/30/94	8:00:07	19.420	19.420	0.60	715	761	806	682	697	720	702	708	684	866	798	773
4/30/94	10:00:07	19.503	19.503	0.60	716	762	807	681	697	720	702	708	683	866	798	774
4/30/94	12:00:08	19.586	19.586	0.60	718	764	808	682	698	721	703	709	684	868	800	776
4/30/94	14:00:08	19.670	19.670	0.60	719	765	808	681	697	720	702	709	684	868	800	776
4/30/94	16:00:08	19.753	19.753	0.59	720	769	809	682	698	721	703	711	684	869	802	778
4/30/94	18:00:08	19.836	19.836	0.59	723	774	810	681	698	721	703	711	685	870	803	779
4/30/94	20:00:08	19.920	19.920	0.60	724	774	810	679	697	721	703	711	684	870	803	780
4/30/94	22:00:07	20.003	20.003	0.60	725	776	811	679	697	721	704	712	684	871	804	781
5/1/94	0:00:08	20.086	20.086	0.60	728	778	812	680	697	721	704	711	685	872	805	783
5/1/94	2:00:07	20.170	20.170	0.60	729	778	813	680	697	721	704	710	686	873	806	784
5/1/94	4:00:08	20.253	20.253	0.60	730	777	815	685	698	722	704	711	686	874	808	786
5/1/94	6:00:08	20.336	20.336	0.59	732	778	815	685	697	721	703	711	686	874	808	786
5/1/94	8:00:07	20.420	20.420	0.60	734	780	816	686	698	721	704	711	686	875	809	788
5/1/94	10:00:08	20.503	20.503	0.60	734	780	816	685	697	720	703	710	686	875	809	789
5/1/94	12:00:08	20.586	20.586	0.60	737	782	817	686	698	721	704	711	687	876	811	791
5/1/94	14:00:08	20.670	20.670	0.60	738	785	818	687	698	721	703	711	686	877	812	792
5/1/94	16:00:07	20.753	20.753	0.60	737	787	809	680	704	721	699	677	681	880	817	793
5/1/94	18:00:07	20.836	20.836	0.60	733	793	822	704	709	723	706	681	684	869	812	796
5/1/94	20:00:07	20.920	20.920	0.60	736	795	825	721	695	722	704	689	685	865	813	797

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/1/94	22:00:07	21.003	21.003	0.60	736	798	829	699	692	723	704	690	684	865	813	798
5/2/94	0:00:08	21.086	21.086	0.60	739	800	830	701	693	724	705	692	685	867	815	800
5/2/94	2:00:06	21.170	21.170	0.60	741	802	830	701	694	724	706	692	685	868	816	802
5/2/94	4:00:07	21.253	21.253	0.60	741	802	829	700	694	724	705	692	684	867	817	803
5/2/94	6:00:07	21.336	21.336	0.60	744	804	830	701	694	724	705	693	685	868	818	805
5/2/94	8:00:07	21.420	21.420	0.60	750	784	822	689	700	723	704	688	681	845	828	805
5/2/94	9:00:00	21.423	21.423	1.00	628	683	702	617	631	646	627	630	608	726	703	664
5/2/94	10:00:06	21.503	21.503	0.59	755	817	832	685	689	726	707	732	694	854	829	807
5/2/94	12:00:07	21.586	21.586	0.59	759	812	841	695	694	725	706	697	689	865	839	809
5/2/94	14:00:08	21.670	21.670	0.59	756	809	829	702	702	727	708	734	691	903	836	811
5/2/94	16:00:08	21.753	21.753	0.60	763	813	828	706	706	729	709	732	690	903	836	812
5/2/94	18:00:07	21.836	21.836	0.60	754	807	823	712	701	723	704	703	687	902	833	809
5/2/94	20:00:07	21.920	21.920	0.60	762	810	824	703	701	723	704	700	687	900	832	809
5/2/94	22:00:08	22.003	22.003	0.60	767	814	826	699	702	724	706	698	688	896	832	807
5/3/94	0:00:07	22.086	22.086	0.60	766	804	844	727	701	723	704	685	685	894	835	806
5/3/94	2:00:07	22.170	22.170	0.60	782	827	841	709	710	725	706	726	687	897	826	799
5/3/94	4:00:06	22.253	22.253	0.60	780	821	839	705	709	724	705	730	686	898	828	802
5/3/94	6:00:07	22.336	22.336	0.60	784	824	833	717	714	723	704	731	686	901	831	807
5/3/94	8:00:08	22.420	22.420	0.60	782	828	837	692	683	720	700	711	687	898	834	811
5/3/94	8:40:24	22.447	22.447	0.60	779	859	844	673	685	722	703	714	688	899	835	812
5/3/94	10:00:08	22.503	22.465	1.00	67	68	69	67	66	68	68	69	67	71	70	68
5/8/94	8:00:06	27.420	22.465	1.00	44	44	44	43	43	43	44	43	43	44	43	43
5/8/94	9:00:13	27.461	22.465	1.00	44	44	44	44	44	44	44	44	44	44	44	44
5/8/94	9:05:03	27.465	22.465	1.00	44	44	44	44	44	44	44	44	44	44	44	44
5/8/94	9:10:07	27.468	22.465	1.00	44	44	44	44	44	44	45	44	44	44	44	44
5/8/94	9:15:07	27.472	22.465	1.00	44	44	44	44	44	44	45	44	44	44	44	44
5/8/94	10:00:07	27.503	22.465	1.00	130	136	143	132	132	143	141	146	131	153	145	138
5/8/94	10:05:07	27.506	22.465	1.00	124	133	135	128	127	138	136	141	125	148	139	133
5/8/94	10:10:07	27.510	22.465	1.00	125	132	135	125	124	134	133	139	123	146	139	134
5/8/94	10:15:07	27.513	22.465	1.00	125	134	136	128	127	138	136	140	125	148	139	134
5/8/94	10:20:05	27.517	22.465	1.00	126	135	138	129	128	139	137	141	127	150	140	135
5/8/94	10:25:06	27.520	22.465	1.00	125	135	138	128	128	139	138	141	126	148	140	135
5/8/94	10:30:05	27.524	22.465	1.00	125	132	135	128	128	138	136	140	125	147	139	133
5/8/94	10:35:06	27.527	22.465	1.00	217	240	258	245	254	279	274	286	242	278	254	225
5/8/94	10:40:07	27.531	22.465	1.00	279	311	323	292	301	326	320	330	292	341	322	303
5/8/94	10:45:06	27.534	22.465	1.00	279	313	314	294	300	328	321	333	291	340	322	301

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/8/94	10:50:06	27.538	22.465	1.00	374	419	442	404	409	451	442	456	399	465	433	403
5/8/94	10:55:06	27.541	22.465	1.00	457	503	534	491	500	543	531	538	478	569	518	495
5/8/94	11:00:00	27.544	22.465		Cycle 2											
5/8/94	11:00:06	27.545	22.465	1.00	487	539	555	506	535	577	566	582	505	607	548	526
5/8/94	11:05:05	27.548	22.468	1.00	495	540	561	523	540	587	576	585	511	618	555	534
5/8/94	11:10:08	27.551	22.472	1.00	498	551	561	510	530	589	579	586	513	624	559	538
5/8/94	12:00:06	27.586	22.507	1.00	501	551	575	522	548	595	583	593	520	632	563	541
5/8/94	14:00:07	27.670	22.590	1.00	505	568	583	533	564	610	596	608	531	643	571	548
5/8/94	16:00:07	27.753	22.673	1.00	509	567	592	545	575	619	605	617	539	651	576	552
5/8/94	18:00:06	27.836	22.757	1.00	517	555	598	549	575	625	611	595	547	656	580	554
5/8/94	20:00:06	27.920	22.840	1.00	515	581	604	553	593	633	620	633	548	627	590	550
5/8/94	22:00:07	28.003	22.923	1.00	516	572	596	577	592	634	620	643	565	642	587	555
5/9/94	0:00:07	28.086	23.007	1.00	521	596	614	581	589	639	626	647	570	639	596	557
5/9/94	2:00:08	28.170	23.090	1.00	526	596	613	575	590	640	629	637	574	649	600	559
5/9/94	4:00:07	28.253	23.173	1.00	527	585	607	592	603	643	630	654	577	657	601	561
5/9/94	6:00:07	28.336	23.257	1.00	527	591	611	603	611	643	632	658	581	662	604	562
5/9/94	8:00:05	28.420	23.340	1.00	527	592	608	588	612	643	630	658	580	660	602	562
5/9/94	8:37:42	28.446	23.366	1.00	528	595	610	582	607	644	631	659	580	661	602	563
5/9/94	9:19:40	28.475	23.395	1.00	528	590	607	577	611	643	631	659	582	673	603	563
5/9/94	10:00:08	28.503	23.423	1.00	526	585	608	581	612	643	630	657	582	677	602	563
5/9/94	10:05:31	28.507	23.427	1.00	526	585	608	581	612	643	631	657	583	677	603	563
5/9/94	12:00:08	28.586	23.507	1.00	525	585	610	585	613	643	630	658	584	679	605	565
5/9/94	14:00:06	28.670	23.590	1.00	526	600	620	589	605	642	625	637	570	660	608	565
5/9/94	16:00:08	28.753	23.673	1.00	527	589	623	605	605	644	629	653	574	652	598	565
5/9/94	18:00:08	28.836	23.757	1.00	527	589	619	606	606	643	626	637	575	680	608	567
5/9/94	20:00:07	28.920	23.840	1.00	527	598	623	591	609	643	626	625	571	660	609	566
5/9/94	22:00:07	29.003	23.923	1.00	530	584	618	583	604	645	630	614	579	687	606	567
5/10/94	0:00:07	29.086	24.007	1.00	528	605	625	583	601	643	626	623	578	678	605	567
5/10/94	2:00:07	29.170	24.090	1.00	528	605	625	583	601	642	626	624	578	679	605	567
5/10/94	4:00:07	29.253	24.173	1.00	527	604	625	583	602	641	625	620	578	677	605	567
5/10/94	6:00:07	29.336	24.257	1.00	527	598	624	585	607	641	624	619	578	676	605	567
5/10/94	8:00:07	29.420	24.340	1.00	528	599	625	584	608	641	624	620	579	678	606	568
5/10/94	9:10:23	29.468	24.389	1.00	528	599	625	584	607	641	623	619	579	677	605	567
5/10/94	9:10:49	29.469	24.389	1.00	528	598	625	584	607	640	623	618	578	676	605	567
5/10/94	9:19:53	29.475	24.395	0.72	528	598	625	584	607	640	623	618	578	676	605	567
5/10/94	9:25:06	29.479	24.399	0.72	571	647	675	617	644	679	661	653	613	736	658	625
5/10/94	9:30:06	29.482	24.403	0.72	598	670	695	626	656	692	674	668	627	759	681	652

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/10/94	9:35:06	29.485	24.406	0.72	601	672	697	627	657	693	675	669	629	762	684	655
5/10/94	9:40:06	29.489	24.409	0.72	601	673	697	627	657	694	675	670	629	762	684	655
5/10/94	9:45:05	29.492	24.413	0.72	601	672	697	627	656	693	675	670	629	762	684	655
5/10/94	9:50:06	29.496	24.416	0.72	601	673	698	628	656	694	675	671	629	763	684	655
5/10/94	10:00:06	29.503	24.423	0.72	601	673	698	630	656	694	676	672	629	763	684	655
5/10/94	10:14:06	29.513	24.433	0.72	602	674	699	630	656	694	676	672	630	764	685	656
5/10/94	12:00:05	29.586	24.507	0.71	603	675	700	633	657	695	676	673	630	765	686	657
5/10/94	14:00:07	29.670	24.590	0.71	604	677	701	636	657	695	676	673	630	765	686	658
5/10/94	16:00:07	29.753	24.673	0.71	604	676	700	635	657	694	675	673	630	764	685	658
5/10/94	18:00:07	29.836	24.757	0.71	603	676	700	635	657	694	675	672	630	764	685	658
5/10/94	20:00:08	29.920	24.840	0.71	603	675	700	635	656	693	675	672	630	764	686	658
5/10/94	22:00:07	30.003	24.923	0.71	604	676	700	635	657	693	675	672	630	764	686	658
5/11/94	0:00:07	30.086	25.007	0.71	604	676	700	636	657	693	675	672	631	764	686	658
5/11/94	2:00:06	30.170	25.090	0.71	604	676	700	635	657	693	674	672	630	764	686	658
5/11/94	4:00:07	30.253	25.173	0.71	605	677	701	636	657	693	675	673	631	765	687	659
5/11/94	6:00:07	30.336	25.257	0.71	604	677	701	636	657	693	674	672	630	764	686	658
5/11/94	8:00:06	30.420	25.340	0.71	605	679	702	637	657	694	675	673	632	765	687	659
5/11/94	8:35:27	30.444	25.365	0.71	605	679	702	637	657	694	675	673	632	765	687	659
5/11/94	9:30:52	30.483	25.403	0.71	605	679	701	637	657	693	675	673	631	764	686	659
5/11/94	10:00:07	30.503	25.423	0.71	605	679	701	638	657	693	675	673	631	765	686	659
5/11/94	12:00:09	30.586	25.507	0.71	605	680	702	638	657	694	675	674	632	765	687	659
5/11/94	14:00:07	30.670	25.590	0.71	604	677	700	636	657	692	674	673	631	764	686	659
5/11/94	16:00:07	30.753	25.673	0.71	605	679	701	637	657	693	674	673	631	764	687	659
5/11/94	18:00:08	30.836	25.757	0.71	605	679	702	637	657	693	674	673	631	764	686	659
5/11/94	20:00:06	30.920	25.840	0.71	605	680	702	638	657	693	674	674	632	764	687	660
5/11/94	22:00:07	31.003	25.923	0.71	604	678	700	636	656	692	673	672	631	763	686	659
5/12/94	0:00:07	31.086	26.007	0.71	605	680	701	637	657	693	674	673	632	764	687	660
5/12/94	2:00:07	31.170	26.090	0.71	605	680	701	638	657	692	674	673	631	764	686	659
5/12/94	4:00:08	31.253	26.173	0.71	604	679	700	637	655	691	672	672	630	762	685	659
5/12/94	6:00:07	31.336	26.257	0.71	604	680	701	638	655	691	672	672	630	762	685	659
5/12/94	8:00:07	31.420	26.340	0.71	605	682	702	640	657	693	674	674	632	764	687	660
5/12/94	8:52:04	31.456	26.376	0.71	605	681	701	639	656	692	673	673	631	762	686	659
5/12/94	10:00:06	31.503	26.423	0.71	605	681	701	639	655	691	673	673	631	762	686	659
5/12/94	12:00:06	31.586	26.507	0.71	606	683	702	641	657	693	674	674	632	764	687	661
5/12/94	14:00:07	31.670	26.590	0.71	605	682	702	641	657	692	674	673	632	762	687	660
5/12/94	16:00:07	31.753	26.673	0.71	605	683	701	642	657	692	674	673	631	762	687	660
5/12/94	18:00:06	31.836	26.757	0.70	606	683	702	641	657	693	674	673	632	761	687	660

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/12/94	20:00:07	31.920	26.840	0.70	606	684	702	642	657	693	674	673	632	762	687	660
5/12/94	22:00:07	32.003	26.923	0.70	606	678	703	638	659	693	675	675	631	756	689	661
5/13/94	0:00:06	32.086	27.007	0.70	605	676	701	636	657	691	673	674	630	752	687	660
5/13/94	2:00:07	32.170	27.090	0.71	605	675	700	635	660	691	673	674	629	749	688	660
5/13/94	4:00:07	32.253	27.173	0.71	605	673	699	635	661	691	673	674	629	747	688	660
5/13/94	6:00:07	32.336	27.257	0.71	606	659	698	647	655	692	673	645	630	745	684	658
5/13/94	8:00:07	32.420	27.340	0.71	604	679	699	654	658	694	680	699	633	748	684	659
5/13/94	8:33:11	32.442	27.363	0.71	604	676	699	654	657	694	680	700	634	746	686	659
5/13/94	10:00:07	32.503	27.423	0.71	604	673	702	653	649	694	678	683	631	742	687	659
5/13/94	12:00:08	32.586	27.507	0.71	607	664	700	637	653	692	675	642	618	740	688	660
5/13/94	14:00:08	32.670	27.590	0.71	606	664	699	636	653	692	674	641	616	737	689	659
5/13/94	16:00:07	32.753	27.673	0.70	608	667	701	643	654	695	678	639	618	740	690	660
5/13/94	18:00:06	32.836	27.757	0.70	610	657	696	652	652	698	677	688	631	733	690	664
5/13/94	20:00:08	32.920	27.840	0.70	610	688	691	618	659	695	685	682	647	781	697	665
5/13/94	22:00:08	33.003	27.923	0.70	612	686	699	646	652	697	678	694	644	752	695	663
5/14/94	0:00:06	33.086	28.007	0.70	610	654	692	632	653	694	681	696	642	754	695	664
5/14/94	2:00:07	33.170	28.090	0.70	604	665	700	624	647	698	679	704	645	766	697	653
5/14/94	4:00:07	33.253	28.173	0.70	608	661	697	682	682	696	673	669	635	767	691	660
5/14/94	6:00:07	33.336	28.257	0.71	605	683	711	655	654	696	679	693	618	733	689	652
5/14/94	8:00:07	33.420	28.340	0.70	605	684	710	662	651	698	683	702	644	746	692	651
5/14/94	10:00:07	33.503	28.423	0.70	607	667	701	628	653	694	679	665	623	748	684	657
5/14/94	12:00:08	33.586	28.507	0.70	606	669	700	651	658	692	678	706	623	760	687	654
5/14/94	14:00:06	33.670	28.590	0.70	611	672	705	645	659	696	680	683	632	759	691	649
5/14/94	16:00:07	33.753	28.673	0.70	606	681	716	647	655	694	674	690	624	741	694	653
5/14/94	18:00:08	33.836	28.757	0.70	606	685	702	667	663	693	679	702	621	730	697	662
5/14/94	20:00:07	33.920	28.840	0.70	607	686	704	646	658	693	675	668	634	763	692	652
5/14/94	22:00:08	34.003	28.923	0.70	611	669	704	636	660	695	675	661	639	751	698	649
5/15/94	0:00:06	34.086	29.007	0.70	607	684	702	653	656	698	678	713	636	784	700	653
5/15/94	2:00:07	34.170	29.090	0.70	607	679	710	671	663	693	683	680	631	776	701	654
5/15/94	4:00:08	34.253	29.173	0.70	610	681	700	631	653	697	677	681	633	765	692	655
5/15/94	6:00:07	34.336	29.257	0.70	610	655	696	665	676	697	675	689	625	771	693	651
5/15/94	8:00:07	34.420	29.340	0.70	610	690	722	661	669	696	683	661	632	741	698	653
5/15/94	10:00:07	34.503	29.423	0.70	607	687	712	668	669	695	678	690	643	748	697	649
5/15/94	12:00:06	34.586	29.507	0.70	613	664	705	669	674	698	684	715	646	749	692	649
5/15/94	14:00:07	34.670	29.590	0.70	606	683	695	629	645	697	683	725	648	735	695	650
5/15/94	16:00:07	34.753	29.673	0.70	612	687	713	654	679	698	683	687	641	751	693	655
5/15/94	18:00:07	34.836	29.757	0.70	610	692	711	664	655	698	687	704	622	723	698	651

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/15/94	20:00:07	34.920	29.840	0.70	614	680	714	670	662	700	680	678	625	739	693	654
5/15/94	22:00:07	35.003	29.923	0.70	608	661	709	651	654	698	684	678	630	740	701	655
5/16/94	0:00:08	35.086	30.007	0.70	608	687	706	653	656	696	678	697	651	750	691	657
5/16/94	2:00:06	35.170	30.090	0.70	607	676	701	662	655	697	679	689	636	747	693	650
5/16/94	4:00:08	35.253	30.173	0.70	609	669	696	664	663	698	676	700	635	757	686	653
5/16/94	6:00:06	35.336	30.257	0.70	608	668	709	644	657	699	678	701	636	792	697	650
5/16/94	8:00:06	35.420	30.340	0.70	609	666	713	652	665	696	676	683	638	748	703	652
5/16/94	8:32:05	35.442	30.362	0.71	608	673	711	665	672	695	677	690	634	755	689	660
5/16/94	9:34:00	35.485	30.405	1.00	532	614	625	607	609	640	623	615	574	683	615	561
5/16/94	9:35:42	35.486	30.406	0.77	530	597	625	605	613	641	625	636	586	681	612	564
5/16/94	10:00:06	35.503	30.423	0.70	605	677	700	669	654	698	682	658	634	759	682	654
5/16/94	10:27:35	35.522	30.442	0.70	609	678	699	638	663	700	681	715	632	786	687	653
5/16/94	10:30:51	35.524	30.445	0.70	608	665	709	649	650	694	678	686	632	764	685	656
5/16/94	12:00:07	35.586	30.507	0.70	609	679	703	644	662	703	681	696	654	750	682	657
5/16/94	14:00:06	35.670	30.590	0.70	610	694	704	668	676	697	678	711	622	781	692	659
5/16/94	16:00:07	35.753	30.673	0.72	606	682	709	640	654	700	682	681	625	731	679	657
5/16/94	18:00:07	35.836	30.757	0.71	608	689	700	657	679	691	675	690	622	752	684	655
5/16/94	20:00:08	35.920	30.840	0.72	607	697	704	641	656	694	674	718	638	797	683	655
5/16/94	22:00:07	36.003	30.923	0.72	613	671	703	647	662	698	682	692	640	755	678	655
5/17/94	0:00:07	36.086	31.007	0.71	608	665	698	634	663	696	679	697	632	767	672	651
5/17/94	2:00:07	36.170	31.090	0.72	610	685	696	663	672	697	685	713	637	748	678	651
5/17/94	4:00:06	36.253	31.173	0.72	610	684	707	662	665	698	683	672	637	786	685	654
5/17/94	6:00:08	36.336	31.257	0.72	609	686	705	665	668	694	676	691	626	764	678	659
5/17/94	8:00:07	36.420	31.340	0.72	612	687	707	661	670	696	678	689	632	757	680	657
5/17/94	8:28:23	36.439	31.360	0.72	612	685	708	659	671	696	678	691	634	754	680	655
5/17/94	10:00:07	36.503	31.423	0.72	613	678	709	660	672	696	677	691	635	750	681	654
5/17/94	12:00:07	36.586	31.507	0.71	614	675	712	660	673	697	679	691	638	749	682	654
5/17/94	14:00:07	36.670	31.590	0.71	614	670	713	654	670	697	679	688	641	744	684	652
5/17/94	16:00:08	36.753	31.673	0.71	614	691	709	658	672	698	681	694	634	760	682	659
5/17/94	18:00:07	36.836	31.757	0.71	615	686	709	648	671	697	679	693	640	745	684	652
5/17/94	20:00:08	36.920	31.840	0.71	615	681	710	664	669	697	681	708	641	749	683	656
5/17/94	22:00:07	37.003	31.923	0.71	614	677	709	652	667	696	679	707	641	740	683	650
5/18/94	0:00:08	37.086	32.007	0.71	615	682	710	657	672	697	679	685	641	745	684	653
5/18/94	2:00:08	37.170	32.090	0.71	606	662	709	654	655	694	674	647	644	774	687	662
5/18/94	4:00:08	37.253	32.173	0.71	615	656	704	671	647	696	680	677	642	749	683	645
5/18/94	6:00:08	37.336	32.257	0.71	609	668	711	668	662	695	675	667	635	769	690	645
5/18/94	8:00:06	37.420	32.340	0.71	609	664	707	675	658	696	680	666	639	741	686	649

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/18/94	8:33:08	37.442	32.363	0.71	608	670	707	683	673	698	674	660	646	767	674	644
5/18/94	10:00:07	37.503	32.423	0.71	611	678	718	671	682	699	680	693	623	755	696	652
5/18/94	12:00:08	37.586	32.507	0.71	613	673	707	642	668	698	687	698	633	744	687	651
5/18/94	13:28:05	37.647	32.568	0.71	611	694	712	673	677	699	682	711	625	733	677	646
5/18/94	14:00:07	37.670	32.590	0.71	611	692	710	672	674	701	681	728	630	753	694	649
5/18/94	16:00:08	37.753	32.673	0.71	614	684	712	676	688	701	686	709	644	749	687	649
5/18/94	18:00:07	37.836	32.757	0.71	618	681	709	690	667	701	682	674	652	769	686	653
5/18/94	20:00:06	37.920	32.840	0.71	611	683	697	629	680	702	686	679	630	775	686	658
5/18/94	22:00:07	38.003	32.923	0.71	610	696	712	652	657	699	679	697	649	769	694	656
5/19/94	0:00:08	38.086	33.007	0.72	614	670	716	663	664	698	682	688	640	772	687	651
5/19/94	2:00:06	38.170	33.090	0.71	620	679	731	690	663	698	683	720	646	742	688	651
5/19/94	4:00:08	38.253	33.173	0.71	621	679	723	663	662	702	679	700	641	774	693	654
5/19/94	6:00:08	38.336	33.257	0.71	615	693	711	640	664	697	677	662	627	771	690	649
5/19/94	8:00:08	38.420	33.340	0.71	609	686	720	667	667	699	679	705	654	789	694	650
5/19/94	8:26:42	38.438	33.358	0.71	611	691	715	696	679	697	677	656	637	770	680	655
5/19/94	10:00:07	38.503	33.423	0.72	612	683	708	660	680	699	686	691	627	780	690	653
5/19/94	12:00:08	38.586	33.507	0.71	611	689	708	635	667	702	685	670	628	746	678	649
5/19/94	14:00:08	38.670	33.590	0.71	611	684	714	694	657	704	680	676	630	754	682	659
5/19/94	16:00:07	38.753	33.673	0.71	614	665	716	668	682	701	686	681	637	736	692	652
5/19/94	18:00:08	38.836	33.757	0.71	613	692	720	674	660	700	682	722	641	748	693	654
5/19/94	20:00:08	38.920	33.840	0.71	622	691	714	656	669	702	684	722	647	775	702	655
5/19/94	22:00:07	39.003	33.923	0.71	615	697	727	672	664	703	679	684	633	763	696	657
5/20/94	0:00:06	39.086	34.007	0.71	616	679	712	624	656	702	687	679	643	752	681	652
5/20/94	2:00:08	39.170	34.090	0.71	614	696	715	662	669	703	687	657	662	799	691	675
5/20/94	4:00:07	39.253	34.173	0.71	625	685	732	680	667	703	685	665	649	755	697	654
5/20/94	6:00:06	39.336	34.257	0.71	620	673	734	676	679	700	686	700	655	765	691	657
5/20/94	8:00:00	39.419	34.340	0.71	618	713	709	672	671	705	688	655	636	747	704	658
5/20/94	10:00:07	39.503	34.359	1.00	58	60	61	63	61	64	65	66	63	66	65	63
5/20/94	10:14:27	39.513	34.359	1.00	58	61	61	63	62	64	65	66	63	66	65	63
5/20/94	12:00:08	39.586	34.359	1.00	55	57	57	59	57	59	60	61	59	61	60	58
5/20/94	14:00:08	39.670	34.359	1.00	52	54	54	55	54	55	56	57	55	56	56	55
5/20/94	16:00:08	39.753	34.359	1.00	52	54	54	55	54	55	56	56	55	56	55	54
5/20/94	18:00:06	39.836	34.359	1.00	52	54	54	54	54	55	55	56	54	56	55	54
5/20/94	20:00:07	39.920	34.359	1.00	52	53	54	54	53	55	55	55	54	55	55	54
5/20/94	22:00:06	40.003	34.359	1.00	53	54	54	54	54	55	55	55	54	55	55	54
5/21/94	2:00:08	40.170	34.359	1.00	52	53	53	54	53	54	54	55	54	55	54	53
5/21/94	4:00:07	40.253	34.359	1.00	52	53	53	53	53	53	54	54	53	54	54	53

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/21/94	6:00:08	40.336	34.359	1.00	51	52	52	53	52	53	54	54	53	54	53	52
5/21/94	8:00:07	40.420	34.359	1.00	51	52	52	52	52	53	53	53	52	53	53	52
5/21/94	8:30:15	40.440	34.359	1.00	51	52	52	52	52	52	53	53	52	53	53	52
5/21/94	10:00:07	40.503	34.359	1.00	51	52	52	52	51	52	53	53	52	53	53	52
5/21/94	12:00:07	40.586	34.359	1.00	50	51	51	52	51	52	52	52	51	52	52	51
5/21/94	14:00:07	40.670	34.359	1.00	49	50	50	50	49	50	51	51	50	51	51	50
5/21/94	16:00:07	40.753	34.359	1.00	48	49	49	49	48	49	50	50	49	50	50	49
5/21/94	18:00:06	40.836	34.359	1.00	47	48	48	48	48	48	49	49	48	49	49	48
5/21/94	20:00:07	40.920	34.359	1.00	48	48	48	49	48	49	49	49	48	49	49	48
5/21/94	22:00:06	41.003	34.359	1.00	48	48	48	49	48	49	49	49	49	49	49	48
5/22/94	0:00:07	41.086	34.359	1.00	48	48	48	49	48	49	49	49	49	49	49	48
5/22/94	2:00:07	41.170	34.359	1.00	48	48	48	49	48	49	49	49	49	49	49	48
5/22/94	4:00:07	41.253	34.359	1.00	48	48	48	49	48	49	49	49	49	49	49	48
5/22/94	6:00:06	41.336	34.359	1.00	48	48	48	49	48	49	49	49	48	49	49	48
5/22/94	8:00:07	41.420	34.359	1.00	48	48	48	48	48	49	49	49	48	49	49	48
5/22/94	10:00:07	41.503	34.359	1.00	48	48	48	48	48	49	49	49	48	49	49	48
5/22/94	12:00:06	41.586	34.359	1.00	48	48	48	48	48	49	49	49	48	49	49	48
5/22/94	14:00:08	41.670	34.359	1.00	48	48	48	48	48	49	49	49	48	49	49	48
5/22/94	16:00:07	41.753	34.359	1.00	48	48	48	48	48	49	49	49	48	49	49	48
5/22/94	18:00:07	41.836	34.359	1.00	48	48	48	49	48	49	49	49	48	49	49	48
5/22/94	20:00:07	41.920	34.359	1.00	48	49	48	49	48	49	49	49	49	49	49	48
5/22/94	22:00:07	42.003	34.359	1.00	48	48	48	49	48	49	49	49	48	49	49	48
5/23/94	0:00:07	42.086	34.359	1.00	47	47	47	48	47	48	48	48	47	48	48	47
5/23/94	2:00:07	42.170	34.359	1.00	46	46	46	47	46	47	47	47	46	47	47	46
5/23/94	4:00:07	42.253	34.359	1.00	45	46	46	46	46	46	47	46	46	46	46	46
5/23/94	6:00:07	42.336	34.359	1.00	45	46	45	46	45	46	46	46	46	46	46	45
5/23/94	8:00:06	42.420	34.359	1.00	45	46	45	46	45	46	46	46	46	46	46	45
5/23/94	8:32:12	42.442	34.359	1.00	45	46	45	46	45	46	46	46	46	46	46	45
5/23/94	10:00:07	42.503	34.359	1.00	45	45	45	45	45	46	46	46	45	46	46	45
5/23/94	12:00:08	42.586	34.359	1.00	45	45	45	45	45	46	46	46	45	46	46	45
5/23/94	14:00:07	42.670	34.359	1.00	45	45	45	45	45	46	46	46	45	46	46	45
5/23/94	16:00:07	42.753	34.359	1.00	45	45	45	46	45	46	46	46	45	46	46	45
5/23/94	18:00:06	42.836	34.359	1.00	45	45	45	45	45	46	46	46	45	46	46	45
5/23/94	20:00:06	42.920	34.359	1.00	45	45	45	45	45	46	46	46	45	46	46	45
5/23/94	22:00:06	43.003	34.359	1.00	45	45	45	46	45	46	46	46	46	46	46	45
5/24/94	0:00:06	43.086	34.359	1.00	45	46	46	46	45	46	47	46	46	46	46	46
5/24/94	2:00:06	43.170	34.359	1.00	45	46	45	46	45	46	46	46	46	46	46	45

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/24/94	4:00:06	43.253	34.359	1.00	45	45	45	45	45	45	46	46	45	46	46	45
5/24/94	6:00:06	43.336	34.359	1.00	44	45	45	45	44	45	46	45	45	45	45	45
5/24/94	8:00:06	43.420	34.359	1.00	44	45	44	45	44	45	45	45	45	45	45	44
5/24/94	10:00:06	43.503	34.359	1.00	45	45	45	45	45	45	46	46	45	46	46	45
5/24/94	12:00:06	43.586	34.359	1.00	45	45	45	45	45	46	46	46	45	46	46	45
5/24/94	14:00:06	43.670	34.359	1.00	49	49	49	49	49	49	49	49	49	49	49	48
5/24/94	16:00:06	43.753	34.359	1.00	49	49	49	49	49	49	50	49	49	49	49	49
5/24/94	18:00:06	43.836	34.359	1.00	51	51	51	51	50	51	51	51	50	51	51	50
5/24/94	18:15:14	43.847	34.359	1.00	50	50	50	50	50	50	51	50	50	50	50	50
5/24/94	18:20:05	43.850	34.359	1.00	50	50	50	50	50	50	51	50	50	51	51	50
5/24/94	18:25:04	43.854	34.359	1.00	112	122	124	125	119	130	130	134	122	128	128	118
5/24/94	18:30:06	43.857	34.359	1.00	125	139	137	143	137	144	143	148	136	142	144	134
5/24/94	18:35:05	43.860	34.359	1.00	126	139	140	135	138	146	146	152	137	143	146	136
5/24/94	18:40:06	43.864	34.359	1.00	348	405	414	401	398	432	424	413	390	418	413	372
5/24/94	18:45:06	43.867	34.359	1.00	355	407	403	392	393	432	418	410	389	419	412	375
5/24/94	18:50:06	43.871	34.359	1.00	484	556	580	557	577	616	600	581	543	601	571	514
5/24/94	18:55:06	43.874	34.359	1.00	492	559	576	548	570	609	593	578	532	618	574	526
5/24/94	19:00:07	43.878	34.361	1.00	526	594	614	587	610	646	631	614	565	660	605	560
5/24/94	19:05:07	43.881	34.364	1.00	528	599	616	589	608	648	633	616	565	672	600	554
5/24/94	19:10:06	43.885	34.368	1.00	528	588	616	592	608	649	634	618	569	674	604	558
5/24/94	19:30:35	43.899	34.382	1.00	526	584	623	596	607	649	635	632	585	686	603	555
5/24/94	19:31:24	43.900	34.383	1.00	526	585	623	595	607	649	636	634	584	688	601	555
5/24/94	20:00:07	43.920	34.403	1.00	529	588	625	587	603	649	632	633	583	689	600	561
5/24/94	22:00:07	44.003	34.486	1.00	533	600	622	602	626	657	644	662	588	656	616	576
5/25/94	0:00:08	44.086	34.569	1.00	541	611	634	599	626	660	645	654	597	676	599	572
5/25/94	2:00:07	44.170	34.653	1.00	541	617	637	616	636	661	647	620	600	700	598	568
5/25/94	4:00:08	44.253	34.736	1.00	544	616	645	627	630	662	645	667	606	677	616	571
5/25/94	6:00:08	44.336	34.819	1.00	546	608	646	607	629	661	646	633	595	671	630	574
5/25/94	8:00:08	44.420	34.903	1.00	541	624	645	634	626	664	645	646	611	682	619	583
5/25/94	8:29:17	44.440	34.923	1.00	544	605	648	633	641	663	647	630	603	685	626	575
5/25/94	9:43:53	44.492	34.975	0.80	597	664	701	665	663	707	688	672	647	742	678	643
5/25/94	10:00:06	44.503	34.986	0.80	605	682	706	657	664	705	689	661	642	746	677	646
5/25/94	12:00:07	44.586	35.069	0.80	597	690	706	642	662	707	692	664	630	747	684	640
5/25/94	14:00:07	44.670	35.153	0.80	598	687	710	680	668	706	685	714	637	729	684	654
5/25/94	16:00:07	44.753	35.236	0.80	599	692	712	669	680	705	689	692	631	743	670	634
5/25/94	18:00:07	44.836	35.319	0.80	603	671	703	626	665	703	690	728	652	769	678	642
5/25/94	20:00:07	44.920	35.403	0.80	612	679	711	672	688	709	693	693	641	745	676	640

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/25/94	22:00:08	45.003	35.486	0.80	601	679	708	669	665	706	688	680	643	801	685	657
5/26/94	0:00:07	45.086	35.569	0.80	607	657	719	669	664	709	692	680	646	774	685	656
5/26/94	2:00:06	45.170	35.653	0.80	603	675	726	677	675	704	688	690	648	746	682	648
5/26/94	4:00:07	45.253	35.736	0.80	607	664	720	679	667	703	684	688	649	744	683	647
5/26/94	6:00:08	45.336	35.819	0.80	614	668	727	685	671	706	691	710	650	750	685	648
5/26/94	8:00:06	45.420	35.903	0.80	608	696	711	683	669	707	688	714	655	744	684	652
5/26/94	8:26:34	45.438	35.921	0.80	605	663	710	688	667	705	683	688	638	785	687	660
5/26/94	9:50:23	45.496	35.979	0.80	612	703	720	684	683	705	690	699	645	800	690	663
5/26/94	10:00:07	45.503	35.986	0.80	608	683	730	671	681	704	688	711	653	750	687	651
5/26/94	12:00:08	45.586	36.069	0.80	612	710	723	669	678	705	686	680	662	768	692	654
5/26/94	14:00:06	45.670	36.153	0.80	605	690	738	705	665	706	687	671	651	750	684	653
5/26/94	16:00:08	45.753	36.236	0.80	603	686	724	649	669	704	689	697	649	770	681	663
5/26/94	18:00:07	45.836	36.319	0.80	608	696	709	647	664	702	683	668	647	756	686	650
5/26/94	20:00:07	45.920	36.403	0.80	607	696	730	679	669	704	685	683	643	764	685	658
5/26/94	22:00:07	46.003	36.486	0.80	609	663	720	692	661	703	684	665	641	790	693	661
5/27/94	0:00:08	46.086	36.569	0.80	604	675	729	675	685	702	681	668	641	764	687	657
5/27/94	2:00:07	46.170	36.653	0.80	610	712	711	670	661	703	682	684	642	762	686	657
5/27/94	4:00:07	46.253	36.736	0.80	610	694	722	648	674	702	687	670	646	760	691	658
5/27/94	6:00:06	46.336	36.819	0.80	605	680	732	688	658	700	682	659	665	784	690	668
5/27/94	8:00:08	46.420	36.903	0.80	610	700	721	665	668	700	680	684	647	803	690	667
5/27/94	8:35:09	46.444	36.927	0.80	606	705	723	688	680	701	684	691	645	793	697	671
5/27/94	10:00:07	46.503	36.986	0.81	613	698	713	633	666	699	687	713	661	778	683	666
5/27/94	12:00:07	46.586	37.069	0.81	613	685	727	637	655	701	682	648	648	779	687	665
5/27/94	14:00:07	46.670	37.153	0.81	606	692	717	640	678	696	680	658	647	795	696	667
5/27/94	16:00:07	46.753	37.236	0.81	608	678	729	659	661	699	682	694	647	783	692	669
5/27/94	18:00:08	46.836	37.319	0.81	607	680	722	651	661	695	678	644	637	786	694	668
5/27/94	20:00:07	46.920	37.403	0.81	611	693	722	681	663	699	683	682	646	768	687	665
5/27/94	22:00:08	47.003	37.486	0.81	614	701	722	682	663	699	683	657	652	765	690	661
5/28/94	0:00:06	47.086	37.569	0.81	604	678	728	640	659	698	678	662	642	789	701	668
5/28/94	2:00:06	47.170	37.653	0.81	614	697	734	663	657	699	683	690	653	759	685	659
5/28/94	4:00:07	47.253	37.736	0.81	610	719	720	656	683	697	681	702	651	779	703	668
5/28/94	6:00:07	47.336	37.819	0.81	616	701	721	700	671	695	678	647	642	775	695	664
5/28/94	8:00:08	47.420	37.903	0.81	608	687	728	702	674	696	679	681	670	785	696	669
5/28/94	8:26:45	47.438	37.921	0.81	617	696	728	671	665	697	680	701	657	766	693	663
5/28/94	10:00:08	47.503	37.986	0.81	621	684	738	662	659	697	677	681	650	777	696	669
5/28/94	12:00:07	47.586	38.069	0.81	610	691	738	637	656	699	681	651	655	777	708	666
5/28/94	14:00:07	47.670	38.153	0.81	618	672	720	650	673	697	682	702	654	772	692	664

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/28/94	16:00:08	47.753	38.236	0.81	618	675	740	673	664	694	675	669	651	755	694	660
5/28/94	18:00:08	47.836	38.319	0.81	619	679	741	673	668	696	678	662	660	783	691	669
5/28/94	20:00:06	47.920	38.403	0.81	615	709	728	678	664	697	682	687	650	794	706	677
5/28/94	22:00:08	48.003	38.486	0.81	616	691	726	673	672	696	679	652	652	784	700	680
5/29/94	0:00:08	48.086	38.569	0.81	622	704	732	681	665	699	680	692	642	787	704	672
5/29/94	2:00:07	48.170	38.653	0.81	623	708	729	652	660	694	678	654	641	780	697	674
5/29/94	4:00:06	48.253	38.736	0.81	621	703	723	668	669	698	681	650	663	797	712	675
5/29/94	6:00:07	48.336	38.819	0.81	622	703	725	690	672	697	679	653	658	789	715	675
5/29/94	8:00:06	48.420	38.903	0.81	617	687	750	666	671	695	680	710	655	777	707	674
5/29/94	10:00:08	48.503	38.986	0.81	623	714	728	675	673	698	680	655	654	778	716	676
5/29/94	12:00:08	48.586	39.069	0.81	625	715	730	675	674	699	680	653	654	779	716	677
5/29/94	14:00:08	48.670	39.153	0.81	626	715	731	674	674	699	680	652	654	780	717	678
5/29/94	16:00:08	48.753	39.236	0.81	629	709	731	672	672	696	677	651	650	777	704	677
5/29/94	18:00:08	48.836	39.319	0.80	625	719	739	686	674	699	679	649	663	797	713	684
5/29/94	20:00:07	48.920	39.403	0.80	625	719	740	686	674	699	679	650	664	799	713	686
5/29/94	22:00:08	49.003	39.486	0.80	626	721	741	687	675	699	680	650	664	800	714	686
5/30/94	0:00:07	49.086	39.569	0.81	627	721	741	687	675	699	680	650	664	801	715	687
5/30/94	2:00:08	49.170	39.653	0.81	628	721	741	687	675	699	679	648	663	807	716	688
5/30/94	4:00:08	49.253	39.736	0.81	629	723	743	688	676	699	680	649	664	808	718	689
5/30/94	6:00:09	49.336	39.819	0.81	629	723	743	688	675	699	679	648	664	808	718	689
5/30/94	8:00:08	49.420	39.903	0.81	633	700	742	670	671	695	678	678	648	762	707	673
5/30/94	10:00:07	49.503	39.986	0.80	629	700	740	649	664	697	682	718	652	778	705	681
5/30/94	12:00:08	49.586	40.069	0.81	636	722	740	692	670	698	682	671	652	776	725	687
5/30/94	14:00:07	49.670	40.153	0.80	630	722	750	674	665	698	680	652	660	811	723	693
5/30/94	16:00:08	49.753	40.236	0.80	632	720	748	683	663	697	680	652	661	812	723	695
5/30/94	18:00:07	49.836	40.319	0.80	634	723	750	684	664	698	681	653	661	814	724	698
5/30/94	20:00:08	49.920	40.403	0.80	634	723	749	682	664	697	681	652	661	815	725	699
5/30/94	22:00:08	50.003	40.486	0.80	635	725	751	682	664	698	681	652	661	816	726	700
5/31/94	0:00:07	50.086	40.569	0.80	637	727	751	681	665	699	681	653	662	816	727	701
5/31/94	2:00:07	50.170	40.653	0.80	637	727	752	683	664	698	681	653	662	817	727	702
5/31/94	4:00:08	50.253	40.736	0.81	638	728	752	682	665	698	681	653	663	817	729	703
5/31/94	6:00:07	50.336	40.819	0.81	640	730	753	682	665	698	681	652	662	816	729	703
5/31/94	8:00:07	50.420	40.903	0.80	639	734	752	679	672	699	681	676	659	815	731	706
5/31/94	8:35:20	50.444	40.927	0.81	638	733	751	678	672	698	680	675	658	814	731	706
5/31/94	9:17:22	50.473	40.956	1.00	586	677	698	645	639	659	641	638	621	751	671	642
5/31/94	10:00:06	50.503	40.986	0.80	641	730	759	680	672	699	682	671	651	799	730	705
5/31/94	10:15:53	50.514	40.997	0.80	641	729	758	673	673	699	682	669	651	796	732	703

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
5/31/94	12:00:08	50.586	41.069	0.80	643	729	758	681	678	700	682	668	652	799	732	706
5/31/94	14:00:07	50.670	41.153	0.80	643	730	761	685	684	699	685	674	651	800	733	707
5/31/94	16:00:08	50.753	41.236	0.80	645	734	763	692	683	699	686	688	652	796	734	711
5/31/94	18:00:08	50.836	41.319	0.80	647	736	755	705	686	700	686	689	652	793	735	712
5/31/94	20:00:08	50.920	41.403	0.80	651	735	753	703	689	700	686	711	648	777	734	712
5/31/94	22:00:07	51.003	41.486	0.80	652	738	755	666	674	700	689	662	661	828	743	712
6/1/94	0:00:08	51.086	41.569	0.80	659	755	755	670	667	703	689	676	672	825	739	715
6/1/94	2:00:08	51.170	41.653	0.80	662	765	753	701	680	699	687	683	673	798	735	708
6/1/94	4:00:06	51.253	41.736	0.80	657	753	760	698	680	700	686	676	664	827	744	715
6/1/94	6:00:07	51.336	41.819	0.80	657	735	752	694	664	701	681	689	665	821	742	719
6/1/94	8:00:08	51.420	41.903	0.80	658	750	758	688	668	700	681	689	664	819	743	720
6/1/94	8:33:03	51.442	41.925	0.80	659	749	749	698	666	701	682	672	658	814	738	723
6/1/94	10:00:07	51.503	41.986	0.80	659	748	753	706	665	701	683	675	659	816	741	724
6/1/94	12:00:06	51.586	42.069	0.80	666	728	752	683	677	700	683	730	677	804	745	714
6/1/94	14:00:08	51.670	42.153	0.80	669	748	765	674	685	701	688	720	669	806	748	712
6/1/94	16:00:07	51.753	42.236	0.80	667	766	764	677	670	700	686	726	665	788	744	716
6/1/94	18:00:08	51.836	42.319	0.80	667	767	767	702	672	700	686	717	663	794	744	720
6/1/94	20:00:08	51.920	42.403	0.80	668	769	769	702	672	700	686	721	665	793	746	721
6/1/94	22:00:08	52.003	42.486	0.80	669	770	771	697	675	700	686	722	666	792	747	722
6/2/94	0:00:08	52.086	42.569	0.80	679	734	782	709	694	704	688	710	671	791	751	711
6/2/94	2:00:07	52.170	42.653	0.80	677	770	774	699	679	700	685	690	676	810	753	720
6/2/94	4:00:07	52.253	42.736	0.80	676	755	773	719	688	700	683	688	675	810	757	723
6/2/94	6:00:07	52.336	42.819	0.80	677	755	756	679	682	703	684	659	666	812	760	729
6/2/94	8:00:06	52.420	42.903	0.80	676	747	763	700	665	700	682	659	668	798	766	723
6/2/94	8:36:22	52.445	42.928	0.80	678	759	771	707	668	699	688	665	671	827	754	728
6/2/94	10:00:08	52.503	42.986	0.80	679	745	769	685	671	701	682	646	677	817	758	736
6/2/94	12:00:08	52.586	43.069	0.80	682	750	764	703	667	701	682	704	655	802	756	739
6/2/94	14:00:06	52.670	43.153	0.80	686	746	766	728	678	702	682	699	654	800	759	740
6/2/94	16:00:08	52.753	43.236	0.80	688	748	766	727	677	701	682	699	654	797	761	740
6/2/94	18:00:08	52.836	43.319	0.80	688	764	774	672	681	700	683	660	679	822	763	724
6/2/94	20:00:06	52.920	43.403	0.80	691	750	773	677	670	696	684	672	660	791	769	731
6/2/94	22:00:07	53.003	43.486	0.80	696	771	782	671	663	701	683	701	660	789	758	719
6/3/94	0:00:07	53.086	43.569	0.80	703	801	762	655	674	700	684	723	655	790	755	728
6/3/94	2:00:06	53.170	43.653	0.80	716	796	792	692	663	700	682	712	659	788	751	721
6/3/94	4:00:08	53.253	43.736	0.80	711	786	794	694	669	700	682	713	659	788	751	722
6/3/94	6:00:07	53.336	43.819	0.80	710	779	794	693	669	700	682	706	663	787	762	723
6/3/94	8:00:09	53.420	43.903	0.80	703	747	760	699	692	700	682	651	673	840	763	739

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
6/3/94	8:28:04	53.439	43.922	0.80	706	758	768	714	688	699	683	654	674	834	759	742
6/3/94	10:00:08	53.503	43.922	1.00	59	61	60	61	59	61	61	61	59	63	61	60
6/3/94	12:00:08	53.586	43.922	1.00	54	56	56	57	57	58	59	59	58	61	59	58
6/3/94	14:00:08	53.670	43.922	1.00	56	58	58	58	58	59	60	60	59	61	60	59
6/26/94	10:00:08	76.503	43.922	1.00	47	Open	47	47	46	47	47	47	46	47	47	46
6/26/94	12:00:08	76.586	43.922	1.00	43	Open	43	43	43	43	44	43	43	43	43	43
6/26/94	13:40:09	76.656	43.922	1.00	44	Open	44	44		44	44	44	44	44	44	43
6/26/94	13:45:08	76.659	43.922	1.00	44	Open	44	44		44	45	44	44	44	44	44
6/26/94	13:50:07	76.663	43.922	1.00	111	Open	119	119	121	127	126	127	113	130	123	115
6/26/94	13:55:06	76.666	43.922	1.00	131	Open	145	135	145	150	149	153	134	157	149	139
6/26/94	14:00:07	76.670	43.922	1.00	127	Open	140	132	138	145	145	148	130	153	144	135
6/26/94	14:05:07	76.673	43.922	0.99	137	Open	147	149	150	156	155	157	139	164	155	144
6/26/94	14:10:07	76.676	43.922	1.00	298	Open	341	324	319	350	347	347	304	368	330	318
6/26/94	14:15:07	76.680	43.922	1.00	297	Open	331	328	329	350	346	342	310	359	334	317
6/26/94	14:20:07	76.683	43.922	1.00	298	Open	336	338	336	357	351	343	316	364	340	322
6/26/94	14:25:08	76.687	43.922	1.00	323	Open	363	373	376	385	378	368	340	395	366	348
6/26/94	14:30:06	76.690	43.922	1.00	478	Open	546	504	534	571	565	560	496	592	527	505
6/26/94	14:34:00	76.693	43.922						Cycle 3							
6/26/94	14:35:08	76.694	43.923	1.00	507	Open	579	540	559	603	595	585	527	625	557	535
6/26/94	15:05:16	76.715	43.944	1.00	503	Open	585	541	560	609	601	588	531	630	562	536
6/26/94	15:47:36	76.744	43.973	1.00	512	Open	577	551	562	615	607	594	536	630	564	538
6/26/94	16:00:09	76.753	43.982	1.00	509	Open	579	553	565	617	607	597	537	630	565	539
6/26/94	18:00:08	76.836	44.065	1.00	516	Open	592	562	581	630	618	612	546	632	573	541
6/26/94	20:00:08	76.920	44.148	1.00	513	Open	605	580	588	638	626	631	546	630	559	544
6/26/94	22:00:08	77.003	44.232	1.00	515	Open	615	588	593	645	633	606	562	636	576	546
6/27/94	0:00:08	77.086	44.315	1.00	525	Open	597	582	627	646	638	622	564	640	576	550
6/27/94	2:00:08	77.170	44.398	1.00	520	Open	615	571	622	651	640	588	583	674	585	555
6/27/94	4:00:08	77.253	44.482	1.00	520	Open	616	603	599	651	639	655	570	633	588	554
6/27/94	6:00:07	77.336	44.565	1.00	524	Open	610	557	619	653	640	588	590	686	593	559
6/27/94	8:00:08	77.420	44.648	1.00	526	Open	617	611	640	658	646	666	577	663	588	572
6/27/94	8:02:03	77.421	44.650	1.00	525	Open	618	603	643	658	645	656	578	661	590	567
6/27/94	10:00:07	77.503	44.732	1.00	524	Open	617	602	643	657	644	654	576	663	579	563
6/27/94	12:00:08	77.586	44.815	0.99	527	Open	627	599	653	658	644	623	584	678	590	563
6/27/94	14:00:07	77.670	44.898	1.00	525	Open	625	597	635	661	647	658	584	678	586	566
6/27/94	16:00:08	77.753	44.982	1.00	527	Open	625	606	635	660	646	654	583	685	585	571
6/27/94	18:00:07	77.836	45.065	1.00	526	Open	626	603	637	660	646	657	584	683	586	570

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
6/27/94	20:00:06	77.920	45.148	1.00	526	Open	631	589	672	658	645	633	594	680	600	564
6/27/94	22:00:07	78.003	45.232	1.00	527	Open	631	590	673	658	645	632	594	682	598	566
6/28/94	0:00:07	78.086	45.315	1.00	528	Open	633	584	667	657	645	618	596	687	600	566
6/28/94	2:00:07	78.170	45.398	1.00	529	Open	620	581	649	658	645	601	599	697	602	566
6/28/94	4:00:07	78.253	45.482	1.00	530	Open	624	612	610	662	647	661	592	639	598	562
6/28/94	6:00:07	78.336	45.565	1.00	535	Open	622	584	670	656	641	630	589	671	593	569
6/28/94	8:00:08	78.420	45.648	1.00	535	Open	636	596	630	659	646	678	599	667	600	561
6/28/94	8:34:40	78.444	45.672	1.00	537	Open	636	582	632	660	647	675	598	667	599	561
6/28/94	9:24:25	78.478	45.707	1.00	532	Open	632	571	626	660	647	677	596	672	601	562
6/28/94	9:27:45	78.480	45.709	1.00	532	Open	632	603	626	659	646	678	598	665	597	562
6/28/94	9:30:13	78.482	45.711	1.00	536	Open	637	590	628	660	647	682	592	670	591	561
6/28/94	10:00:06	78.503	45.732	1.00	529	Open	639	581	621	661	648	672	596	672	600	560
6/28/94	12:00:07	78.586	45.815	1.00	537	Open	624	606	640	659	647	677	592	668	588	563
6/28/94	14:00:06	78.670	45.898	1.00	535	Open	623	610	638	659	647	677	595	666	599	565
6/28/94	16:00:07	78.753	45.982	1.00	534	Open	624	609	633	659	648	678	596	668	592	564
6/28/94	18:00:07	78.836	46.065	1.00	536	Open	625	605	635	660	648	679	597	668	601	565
6/28/94	20:00:06	78.920	46.148	1.00	537	Open	625	602	631	659	647	678	591	669	587	562
6/28/94	22:00:06	79.003	46.232	1.00	537	Open	625	601	630	659	646	677	591	670	588	564
6/29/94	0:00:08	79.086	46.315	1.00	536	Open	624	603	632	658	646	676	595	667	598	566
6/29/94	2:00:06	79.170	46.398	1.00	536	Open	625	603	632	658	646	676	594	668	597	566
6/29/94	4:00:06	79.253	46.482	1.00	537	Open	625	607	636	659	646	677	596	666	600	564
6/29/94	6:00:07	79.336	46.565	1.00	536	Open	623	605	634	657	645	675	595	666	599	564
6/29/94	8:00:08	79.420	46.648	1.00	535	Open	623	604	633	657	644	674	594	665	598	563
6/29/94	8:40:53	79.448	46.677	1.00	536	Open	624	604	633	657	644	675	593	667	597	564
6/29/94	9:22:12	79.477	46.705	1.00	535	Open	623	602	631	656	643	675	591	667	591	563
6/29/94	10:00:07	79.503	46.732	1.00	535	Open	623	605	634	656	644	675	594	666	598	562
6/29/94	12:00:07	79.586	46.815	1.00	535	Open	623	607	636	657	644	676	594	665	598	562
6/29/94	14:00:07	79.670	46.898	1.00	536	Open	624	604	633	657	644	674	594	666	598	565
6/29/94	16:00:06	79.753	46.982	1.00	535	Open	624	604	633	657	644	674	592	665	592	562
6/29/94	18:00:06	79.836	47.065	1.00	536	Open	624	606	635	657	644	677	590	668	587	559
6/29/94	20:00:08	79.920	47.148	1.00	536	Open	624	606	635	657	645	675	594	667	599	563
6/29/94	22:00:07	80.003	47.232	1.00	535	Open	623	608	636	656	644	675	594	666	599	562
6/30/94	0:00:09	80.086	47.315	1.00	531	Open	631	604	629	657	643	669	600	670	599	561
6/30/94	2:00:08	80.170	47.398	1.00	528	Open	629	611	623	656	641	632	590	685	602	567
6/30/94	4:00:07	80.253	47.482	1.00	529	Open	629	604	627	658	642	629	592	685	603	567
6/30/94	6:00:07	80.336	47.565	1.00	528	Open	628	607	626	656	640	628	591	684	601	566
6/30/94	8:00:08	80.420	47.648	1.00	528	Open	628	607	626	656	640	628	590	684	600	566

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
6/30/94	8:39:32	80.447	47.676	1.00	528	Open	628	607	626	655	639	628	589	684	600	566
6/30/94	10:00:08	80.503	47.732	1.00	528	Open	628	605	626	655	639	628	589	688	596	571
6/30/94	12:00:08	80.586	47.815	1.00	529	Open	629	606	628	656	640	629	590	685	602	567
6/30/94	14:00:08	80.670	47.898	1.00	529	Open	630	613	627	657	640	632	590	685	602	567
6/30/94	16:00:08	80.753	47.982	1.00	529	Open	630	613	627	656	640	630	591	685	601	567
6/30/94	18:00:08	80.836	48.065	1.00	530	Open	630	613	629	657	641	630	591	686	602	567
6/30/94	20:00:08	80.920	48.148	1.00	529	Open	629	612	628	656	640	630	590	686	601	568
6/30/94	22:00:08	81.003	48.232	1.00	529	Open	630	608	630	656	640	629	590	685	601	567
7/1/94	0:00:08	81.086	48.315	1.00	529	Open	630	609	630	655	639	629	590	685	601	567
7/1/94	2:00:08	81.170	48.398	1.00	528	Open	630	609	630	655	639	629	589	685	600	566
7/1/94	4:00:08	81.253	48.482	1.00	529	Open	630	609	631	655	639	629	589	685	601	566
7/1/94	6:00:08	81.336	48.565	1.00	528	Open	628	611	631	654	638	631	586	688	591	568
7/1/94	2:00:08	81.170	48.398	1.00	528	Open	628	612	630	654	638	628	589	684	600	566
7/1/94	4:00:08	81.253	48.482	1.00	531	Open	632	607	634	658	642	631	593	687	604	568
7/1/94	6:00:08	81.336	48.565	1.00	528	Open	628	611	631	654	638	631	586	688	591	568
7/1/94	8:00:08	81.420	48.648	1.00	528	Open	628	612	630	654	638	628	589	684	600	566
7/1/94	8:42:08	81.449	48.678	1.00	531	Open	632	607	634	658	642	631	593	687	604	568
7/1/94	10:00:08	81.503	48.732	0.81	580	Open	678	650	671	696	679	674	624	753	646	638
7/1/94	12:00:06	81.586	48.815	0.80	579	Open	678	648	666	695	677	666	630	737	658	628
7/1/94	13:05:44	81.632	48.861	0.80	577	Open	681	627	668	696	683	675	630	729	654	618
7/1/94	14:00:07	81.670	48.898	0.80	577	Open	685	647	667	696	681	647	626	737	657	627
7/1/94	16:00:07	81.753	48.982	0.80	577	Open	684	644	667	696	681	649	623	738	646	623
7/1/94	18:00:06	81.836	49.065	0.80	578	Open	683	643	668	696	683	649	625	734	659	626
7/1/94	20:00:09	81.920	49.148	0.79	579	Open	680	660	667	697	679	645	626	737	657	625
7/1/94	22:00:07	82.003	49.232	0.80	579	Open	680	661	668	696	679	647	626	734	656	623
7/2/94	0:00:06	82.086	49.315	0.79	579	Open	681	642	670	694	681	654	623	731	656	629
7/2/94	2:00:07	82.170	49.398	0.80	579	Open	683	648	670	695	678	646	623	735	647	623
7/2/94	4:00:07	82.253	49.482	0.80	579	Open	684	648	668	696	682	650	624	736	647	623
7/2/94	6:00:08	82.336	49.565	0.79	578	Open	685	645	669	696	682	650	624	737	647	624
7/2/94	8:00:07	82.420	49.648	0.80	578	Open	684	645	668	695	681	650	623	734	646	622
7/2/94	8:15:27	82.430	49.659	0.80	579	Open	685	646	671	695	678	646	623	734	647	622
7/2/94	10:00:08	82.503	49.732	0.79	579	Open	683	645	670	694	678	645	622	732	646	622
7/2/94	12:00:07	82.586	49.815	0.79	579	Open	681	660	669	695	678	649	621	744	645	636
7/2/94	14:00:07	82.670	49.898	0.79	579	Open	681	658	668	695	678	648	621	738	646	629
7/2/94	16:00:07	82.753	49.982	0.79	581	Open	677	632	671	696	679	648	624	735	647	623
7/2/94	18:00:07	82.836	50.065	0.79	580	Open	683	657	668	696	679	646	629	737	659	627
7/2/94	20:00:08	82.920	50.148	0.79	579	Open	683	657	668	695	678	644	628	736	658	628

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
7/2/94	22:00:07	83.003	50.232	0.79	580	Open	683	657	670	696	679	645	628	737	659	629
7/3/94	0:00:08	83.086	50.315	0.79	580	Open	682	653	670	696	679	646	629	737	660	627
7/3/94	2:00:07	83.170	50.398	0.79	581	Open	683	625	670	697	679	651	627	739	650	626
7/3/94	4:00:08	83.253	50.482	0.79	581	Open	690	640	673	697	679	647	623	727	649	623
7/3/94	6:00:07	83.336	50.565	0.79	581	Open	690	642	672	697	683	650	628	733	660	627
7/3/94	8:00:06	83.420	50.648	0.79	581	Open	691	643	673	697	680	644	628	731	660	626
7/3/94	10:00:07	83.503	50.732	0.79	588	Open	676	633	730	696	681	707	643	727	656	621
7/3/94	12:00:07	83.586	50.815	0.79	588	Open	676	634	729	696	681	708	640	728	645	617
7/3/94	14:00:08	83.670	50.898	0.79	589	Open	676	636	731	697	682	713	640	730	645	619
7/3/94	16:00:07	83.753	50.982	0.79	589	Open	677	635	731	696	681	713	639	727	645	618
7/3/94	18:00:08	83.836	51.065	0.79	587	Open	677	635	723	696	681	701	644	728	657	621
7/3/94	20:00:07	83.920	51.148	0.79	589	Open	676	636	730	696	681	712	639	728	644	618
7/3/94	22:00:07	84.003	51.232	0.79	587	Open	684	613	698	697	681	683	633	732	652	612
7/4/94	0:00:07	84.086	51.315	0.79	590	Open	685	633	690	699	683	695	643	718	656	621
7/4/94	2:00:07	84.170	51.398	0.80	589	Open	685	633	690	698	682	693	643	717	656	622
7/4/94	4:00:08	84.253	51.482	0.80	590	Open	683	634	691	699	682	700	639	720	643	619
7/4/94	6:00:08	84.336	51.565	0.79	589	Open	685	633	690	698	682	695	643	717	656	621
7/4/94	8:00:07	84.420	51.648	0.80	590	Open	683	633	690	698	682	700	638	720	643	619
7/4/94	10:00:08	84.503	51.732	0.80	589	Open	683	633	689	698	681	696	643	718	655	621
7/4/94	12:00:08	84.586	51.815	0.80	589	Open	684	633	689	698	681	694	643	717	656	621
7/4/94	14:00:09	84.670	51.898	0.80	589	Open	682	633	690	698	681	700	638	720	643	618
7/4/94	16:00:09	84.753	51.982	0.80	589	Open	685	634	690	698	682	695	643	718	656	622
7/4/94	18:00:08	84.836	52.065	0.80	589	Open	684	633	690	698	682	697	643	719	656	622
7/4/94	20:00:07	84.920	52.148	0.79	590	Open	684	634	691	699	682	698	643	720	656	622
7/4/94	22:00:08	85.003	52.232	0.79	591	Open	683	635	692	699	682	702	639	722	645	620
7/5/94	0:00:06	85.086	52.315	0.80	589	Open	685	634	691	699	683	696	644	719	657	623
7/5/94	2:00:06	85.170	52.398	0.80	590	Open	686	635	692	700	683	696	645	719	657	622
7/5/94	4:00:07	85.253	52.482	0.80	590	Open	684	634	691	699	682	698	644	720	656	624
7/5/94	6:00:08	85.336	52.565	0.80	590	Open	684	634	692	699	682	699	644	720	656	626
7/5/94	8:00:08	85.420	52.648	0.80	590	Open	684	634	692	699	682	699	644	720	656	625
7/5/94	8:11:43	85.428	52.656	0.80	590	Open	684	634	692	699	682	699	644	720	656	626
7/5/94	10:00:08	85.503	52.732	0.80	590	Open	684	634	692	699	682	699	644	720	656	625
7/5/94	12:00:08	85.586	52.815	0.79	590	Open	684	635	692	699	682	699	644	720	656	627
7/5/94	14:00:06	85.670	52.898	0.80	591	Open	683	635	693	699	683	700	645	722	657	626
7/5/94	16:00:08	85.753	52.982	0.80	591	Open	685	635	693	699	683	699	645	721	657	628
7/5/94	18:00:11	85.836	53.065	0.79	591	Open	686	637	694	700	684	700	646	721	657	629
7/5/94	20:00:06	85.920	53.148	0.79	591	Open	685	636	694	699	683	699	646	721	657	629

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
7/5/94	22:00:07	86.003	53.232	0.79	591	Open	686	636	694	700	684	699	646	722	658	626
7/6/94	0:00:07	86.086	53.315	0.80	593	Open	688	638	695	701	684	700	647	723	658	628
7/6/94	2:00:07	86.170	53.398	0.79	592	Open	686	637	695	700	683	700	646	722	657	626
7/6/94	4:00:08	86.253	53.482	0.80	582	Open	689	639	689	699	684	689	642	736	651	626
7/6/94	6:00:07	86.336	53.565	0.80	591	Open	685	634	680	699	683	694	645	731	656	632
7/6/94	8:00:07	86.420	53.648	0.80	591	Open	685	635	680	699	683	694	646	730	656	631
7/6/94	8:29:05	86.440	53.668	0.80	593	Open	685	636	681	699	683	696	641	734	642	641
7/6/94	10:00:07	86.503	53.732	0.80	591	Open	684	638	681	699	683	699	639	740	640	644
7/6/94	12:00:07	86.586	53.815	0.80	592	Open	685	637	682	700	683	695	647	730	656	633
7/6/94	14:00:09	86.670	53.898	0.79	592	Open	685	638	682	699	682	695	643	730	650	630
7/6/94	16:00:06	86.753	53.982	0.80	592	Open	686	640	683	701	685	699	644	736	650	638
7/6/94	18:00:07	86.836	54.065	0.79	593	Open	689	637	684	701	685	697	646	735	650	641
7/6/94	20:00:08	86.920	54.148	0.80	593	Open	686	641	684	701	685	702	642	742	646	644
7/6/94	22:00:07	87.003	54.232	0.79	593	Open	687	640	684	701	684	695	648	730	657	634
7/7/94	0:00:08	87.086	54.315	0.79	594	Open	689	639	685	702	685	697	649	733	658	636
7/7/94	2:00:07	87.170	54.398	0.80	593	Open	688	641	686	702	685	697	650	732	659	636
7/7/94	4:00:07	87.253	54.482	0.79	594	Open	689	640	686	702	686	697	650	733	658	636
7/7/94	6:00:08	87.336	54.565	0.79	593	Open	689	640	686	702	685	697	650	732	658	635
7/7/94	8:00:07	87.420	54.648	0.79	592	Open	686	641	686	701	684	701	642	741	640	645
7/7/94	8:29:00	87.440	54.668	0.80	592	Open	688	642	686	702	685	702	642	743	640	647
7/7/94	10:00:08	87.503	54.732	0.79	590	Open	685	637	682	698	681	699	638	740	637	646
7/7/94	12:00:09	87.586	54.815	0.79	593	Open	689	642	687	702	685	697	651	733	659	636
7/7/94	14:00:07	87.670	54.898	0.79	587	Open	696	653	687	700	684	706	652	731	657	626
7/7/94	16:00:08	87.753	54.982	0.79	589	Open	704	646	701	703	690	691	642	744	646	638
7/7/94	18:00:08	87.836	55.065	0.79	586	Open	692	651	677	703	686	664	638	747	670	630
7/7/94	20:00:06	87.920	55.148	0.79	591	Open	698	652	706	702	686	695	637	756	640	647
7/7/94	22:00:07	88.003	55.232	0.79	589	Open	695	642	683	705	690	677	640	747	668	618
7/8/94	0:00:08	88.086	55.315	0.79	587	Open	688	649	720	704	687	645	645	739	655	637
7/8/94	2:00:06	88.170	55.398	0.80	588	Open	694	659	713	704	689	679	642	738	664	636
7/8/94	4:00:07	88.253	55.482	0.80	589	Open	689	638	713	705	689	677	640	727	658	614
7/8/94	6:00:08	88.336	55.565	0.80	591	Open	696	656	719	703	688	701	641	735	653	634
7/8/94	8:00:07	88.420	55.648	0.80	598	Open	701	662	680	700	688	659	640	731	659	618
7/8/94	8:35:57	88.444	55.673	0.79	596	Open	690	665	720	705	691	669	647	738	654	620
7/8/94	10:00:07	88.503	55.732	0.79	589	Open	695	654	689	703	687	689	637	752	651	646
7/8/94	12:00:08	88.586	55.815	0.79	599	Open	702	639	712	704	688	671	638	729	659	626
7/8/94	14:00:08	88.670	55.898	0.79	589	Open	693	652	690	706	691	688	649	741	664	642
7/8/94	16:00:08	88.753	55.982	0.79	594	Open	706	692	736	704	690	679	637	736	662	623

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
7/8/94	18:00:07	88.836	56.065	0.79	591	Open	696	679	712	704	688	688	642	767	651	636
7/8/94	20:00:07	88.920	56.148	0.79	597	Open	694	676	703	703	689	674	638	737	663	627
7/8/94	22:00:07	89.003	56.232	0.79	593	Open	707	678	722	707	690	693	645	759	666	630
7/9/94	0:00:07	89.086	56.315	0.79	593	Open	703	654	700	705	691	671	648	763	666	640
7/9/94	2:00:08	89.170	56.398	0.79	592	Open	700	671	715	705	688	659	634	763	658	636
7/9/94	4:00:07	89.253	56.482	0.79	595	Open	685	653	730	704	689	662	647	724	656	637
7/9/94	6:00:06	89.336	56.565	0.79	596	Open	705	703	726	709	693	659	654	771	667	628
7/9/94	8:00:08	89.420	56.648	0.79	591	Open	699	649	724	706	694	701	645	745	665	633
7/9/94	10:00:10	89.503	56.732	0.79	594	Open	699	664	696	706	688	657	653	774	666	639
7/9/94	12:00:08	89.586	56.815	0.79	604	Open	735	674	744	709	689	670	644	757	667	644
7/9/94	14:00:07	89.670	56.898	0.80	595	Open	713	655	716	709	691	725	665	750	659	648
7/9/94	16:00:07	89.753	56.982	0.79	598	Open	709	644	740	710	691	717	658	768	685	624
7/9/94	18:00:07	89.836	57.065	0.80	594	Open	712	697	715	711	695	707	647	748	671	631
7/9/94	20:00:08	89.920	57.148	0.80	604	Open	714	696	733	705	685	673	643	756	689	624
7/9/94	22:00:07	90.003	57.232	0.79	597	Open	701	685	699	709	692	677	647	756	664	638
7/10/94	0:00:08	90.086	57.315	0.79	604	Open	702	654	736	708	691	667	656	739	669	626
7/10/94	2:00:07	90.170	57.398	0.79	592	Open	708	647	718	708	696	717	645	748	675	631
7/10/94	4:00:08	90.253	57.482	0.79	595	Open	716	685	711	705	690	691	662	744	669	638
7/10/94	6:00:09	90.336	57.565	0.79	600	Open	702	682	722	707	692	689	647	746	679	630
7/10/94	8:00:08	90.420	57.648	0.80	595	Open	703	670	705	711	694	669	653	759	683	640
7/10/94	10:00:07	90.503	57.732	0.79	599	Open	702	650	690	704	696	667	654	779	682	629
7/10/94	12:00:07	90.586	57.815	0.79	599	Open	701	641	706	709	692	686	638	743	670	644
7/10/94	14:00:08	90.670	57.898	0.79	606	Open	712	670	726	684	695	662	650	741	668	634
7/10/94	16:00:06	90.753	57.982	0.80	604	Open	712	684	716	706	695	661	676	760	670	644
7/10/94	18:00:07	90.836	58.065	0.79	599	Open	718	671	715	689	695	682	662	766	670	639
7/10/94	20:00:08	90.920	58.148	0.79	605	Open	716	674	712	695	697	711	651	752	660	659
7/10/94	22:00:08	91.003	58.232	0.79	598	Open	711	669	722	699	696	665	660	768	674	644
7/11/94	0:00:06	91.086	58.315	0.80	600	Open	725	715	720	686	697	691	645	756	673	629
7/11/94	2:00:07	91.170	58.398	0.80	603	Open	712	695	714	695	695	686	653	791	670	660
7/11/94	4:00:07	91.253	58.482	0.80	598	Open	714	647	685	682	696	671	643	741	688	630
7/11/94	6:00:06	91.336	58.565	0.80	607	Open	719	668	693	694	705	671	654	774	670	648
7/11/94	8:00:07	91.420	58.648	0.80	604	Open	722	652	694	688	697	667	666	779	674	647
7/11/94	8:34:35	91.443	58.672	0.79	601	Open	719	672	679	692	693	687	676	765	683	637
7/11/94	10:00:07	91.503	58.732	0.79	603	Open	699	650	716	Open	695	715	654	762	677	650
7/11/94	12:00:06	91.586	58.815	0.80	606	Open	724	657	725	689	695	704	649	764	670	649
7/11/94	14:00:08	91.670	58.898	0.79	611	Open	714	648	684	689	699	675	644	769	683	643
7/11/94	16:00:08	91.753	58.982	0.79	610	Open	715	657	728	694	692	716	672	783	686	642

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
7/11/94	18:00:07	91.836	59.065	0.79	603	Open	726	675	727	713	697	696	673	769	680	644
7/11/94	20:00:07	91.920	59.148	0.79	606	Open	719	673	712	684	693	665	654	750	681	636
7/11/94	22:00:06	92.003	59.232	0.79	613	Open	722	674	690	690	701	719	662	777	678	640
7/12/94	0:00:07	92.086	59.315	0.80	609	Open	722	707	728	699	697	691	653	767	694	640
7/12/94	2:00:08	92.170	59.398	0.80	612	Open	738	667	740	701	694	670	664	771	690	636
7/12/94	4:00:07	92.253	59.482	0.79	604	Open	717	653	722	684	692	715	656	744	679	646
7/12/94	6:00:07	92.336	59.565	0.79	606	Open	717	706	717	693	695	666	653	749	685	643
7/12/94	8:00:05	92.420	59.648	0.79	605	Open	738	687	735	687	695	711	652	769	670	664
7/12/94	8:36:29	92.445	59.674	0.79	607	Open	734	687	736	687	694	710	651	766	670	661
7/12/94	9:28:29	92.481	59.710	0.90	574	Open	700	660	720	Open	669	680	629	728	639	627
7/12/94	10:00:06	92.503	59.732	0.90	579	Open	703	679	705	676	672	680	628	733	640	629
7/12/94	12:00:07	92.586	59.815	0.90	578	Open	700	664	675	677	672	683	629	723	644	618
7/12/94	14:00:09	92.670	59.898	0.90	576	Open	706	650	681	673	673	683	632	723	647	615
7/12/94	16:00:07	92.753	59.982	0.90	581	Open	702	640	686	670	674	677	634	723	647	617
7/12/94	18:00:07	92.836	60.065	0.90	579	Open	694	631	662	684	674	660	648	707	658	616
7/12/94	20:00:08	92.920	60.148	0.90	580	Open	695	638	680	687	676	685	634	720	664	612
7/12/94	22:00:08	93.003	60.232	0.90	583	Open	702	668	710	681	676	690	643	745	658	629
7/13/94	0:00:06	93.086	60.315	0.90	584	Open	710	634	685	672	675	671	647	733	656	612
7/13/94	2:00:07	93.170	60.398	0.90	584	Open	697	645	683	673	674	679	649	727	655	619
7/13/94	4:00:07	93.253	60.482	0.90	585	Open	709	646	684	679	676	687	648	731	658	616
7/13/94	6:00:06	93.336	60.565	0.90	590	Open	701	665	688	680	677	697	647	737	659	620
7/13/94	8:00:09	93.420	60.648	0.90	588	Open	705	664	686	679	675	697	647	736	660	619
7/13/94	8:32:37	93.442	60.671	0.90	592	Open	702	646	730	684	674	675	639	745	660	622
7/13/94	10:00:08	93.503	60.732	0.90	587	Open	718	644	688	687	676	688	643	745	656	627
7/13/94	12:00:07	93.586	60.815	0.90	586	Open	705	671	751	690	675	682	648	729	674	618
7/13/94	14:00:07	93.670	60.898	0.90	585	Open	711	689	688	686	678	666	645	727	678	623
7/13/94	16:00:07	93.753	60.982	0.90	590	Open	714	649	702	682	677	680	655	734	679	626
7/13/94	18:00:06	93.836	61.065	0.90	588	Open	708	672	688	685	680	691	653	733	672	619
7/13/94	20:00:07	93.920	61.148	0.90	587	Open	706	657	684	689	678	673	651	745	668	632
7/13/94	22:00:10	94.003	61.232	0.90	590	Open	712	635	678	691	677	674	649	748	674	631
7/14/94	0:00:08	94.086	61.315	0.90	591	Open	715	655	730	693	679	668	655	738	687	629
7/14/94	2:00:08	94.170	61.398	0.90	588	Open	707	651	688	686	680	673	651	747	676	638
7/14/94	4:00:09	94.253	61.482	0.90	594	Open	713	663	692	685	674	688	646	747	669	629
7/14/94	6:00:08	94.336	61.565	0.90	592	Open	719	644	691	687	675	698	652	743	674	625
7/14/94	8:00:08	94.420	61.648	0.90	592	Open	706	687	700	684	676	703	629	764	670	628
7/14/94	8:33:11	94.442	61.671	0.90	593	Open	702	623	680	689	679	693	630	752	679	631
7/14/94	10:00:07	94.503	61.732	0.90	593	Open	703	693	744	688	673	656	644	739	680	619

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
7/14/94	12:00:07	94.586	61.815	0.90	593	Open	705	700	735	678	677	713	657	737	692	628
7/14/94	14:00:05	94.670	61.898	0.90	595	Open	716	675	675	689	681	669	634	745	680	624
7/14/94	16:00:07	94.753	61.982	0.90	599	Open	715	687	694	694	680	696	666	774	694	625
7/14/94	18:00:07	94.836	62.065	0.90	600	Open	710	660	700	690	678	667	661	762	694	631
7/14/94	20:00:06	94.920	62.148	0.90	599	Open	735	688	695	683	677	663	659	756	689	625
7/14/94	22:00:07	95.003	62.232	0.90	599	Open	722	694	695	686	674	691	639	754	698	643
7/15/94	0:00:06	95.086	62.315	0.90	601	Open	719	686	702	689	677	692	655	775	690	644
7/15/94	2:00:07	95.170	62.398	0.90	602	Open	717	661	689	688	679	697	662	769	685	647
7/15/94	4:00:08	95.253	62.482	0.90	602	Open	717	644	698	685	676	686	640	737	702	632
7/15/94	6:00:09	95.336	62.565	0.90	600	Open	728	662	694	683	679	689	648	756	690	640
7/15/94	8:00:06	95.420	62.648	0.90	600	Open	717	657	702	688	677	657	662	752	698	632
7/15/94	8:34:26	95.443	62.672	0.90	600	Open	723	661	685	683	685	679	664	747	695	637
7/15/94	9:09:05	95.467	62.696	0.90	600	Open	724	662	683	686	686	678	664	746	695	638
7/15/94	10:00:07	95.503	62.732	0.90	601	Open	724	663	683	686	686	679	664	746	694	639
7/15/94	12:00:07	95.586	62.815	0.90	606	Open	728	666	712	689	680	666	651	759	694	647
7/15/94	14:00:08	95.670	62.898	0.90	607	Open	718	667	697	679	680	658	638	756	700	633
7/15/94	16:00:11	95.753	62.982	0.90	609	Open	730	664	681	688	680	665	665	770	693	647
7/15/94	18:00:07	95.836	63.065	0.90	605	Open	729	674	688	692	682	665	659	777	682	654
7/15/94	20:00:09	95.920	63.148	0.90	609	Open	731	669	696	681	680	686	648	750	696	656
7/15/94	22:00:06	96.003	63.232	0.90	612	Open	724	662	689	688	679	688	649	753	692	655
7/16/94	0:00:07	96.086	63.315	0.90	611	Open	727	674	700	686	678	684	650	764	700	648
7/16/94	2:00:08	96.170	63.398	0.90	612	Open	729	678	705	685	678	674	648	770	689	650
7/16/94	4:00:06	96.253	63.482	0.90	613	Open	725	673	692	687	679	661	662	757	705	659
7/16/94	6:00:08	96.336	63.565	0.90	616	Open	735	659	716	686	684	671	658	765	695	666
7/16/94	8:00:08	96.420	63.648	0.90	615	Open	724	647	695	683	679	690	666	756	716	644
7/16/94	10:00:08	96.503	63.732	0.90	620	Open	725	675	713	688	678	673	657	766	699	652
7/16/94	12:00:08	96.586	63.815	0.90	621	Open	745	708	699	690	679	658	650	769	692	656
7/16/94	14:00:07	96.670	63.898	0.90	620	Open	742	692	709	677	680	694	656	764	697	661
7/16/94	16:00:10	96.753	63.982	0.90	624	Open	727	661	716	687	682	700	661	755	700	652
7/16/94	18:00:06	96.836	64.065	0.90	625	Open	741	652	702	689	683	690	660	761	704	661
7/16/94	20:00:08	96.920	64.148	0.90	625	Open	734	663	695	693	681	692	664	756	710	659
7/16/94	22:00:08	97.003	64.232	0.90	629	Open	741	703	702	688	680	706	658	771	697	661
7/17/94	0:00:07	97.086	64.315	0.90	627	Open	744	680	676	687	678	655	656	770	696	670
7/17/94	2:00:09	97.170	64.398	0.90	629	Open	742	671	700	684	679	670	668	771	708	666
7/17/94	4:00:07	97.253	64.482	0.90	630	Open	739	678	706	679	679	696	652	756	718	665
7/17/94	6:00:07	97.336	64.565	0.90	634	Open	736	674	695	680	679	698	656	757	716	673
7/17/94	8:00:07	97.420	64.648	0.90	636	Open	741	658	697	677	677	693	652	756	706	674

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
7/17/94	10:00:07	97.503	64.732	0.90	633	Open	743	655	703	684	678	693	651	771	707	682
7/17/94	12:00:08	97.586	64.815	0.90	640	Open	741	649	708	685	681	663	665	771	716	680
7/17/94	14:00:07	97.670	64.898	0.90	638	Open	741	685	692	687	679	691	658	784	703	676
7/17/94	16:00:08	97.753	64.982	0.90	640	Open	739	721	700	690	679	671	657	772	710	675
7/17/94	18:00:07	97.836	65.065	0.90	642	Open	744	677	722	682	678	680	656	789	710	679
7/17/94	20:00:07	97.920	65.148	0.90	643	Open	741	681	731	687	680	685	658	780	716	683
7/17/94	22:00:07	98.003	65.232	0.90	645	Open	741	652	713	683	680	669	652	777	715	681
7/18/94	0:00:07	98.086	65.315	0.90	651	Open	741	656	688	678	680	673	656	777	712	686
7/18/94	2:00:08	98.170	65.398	0.90	647	Open	745	691	734	680	679	643	654	780	710	690
7/18/94	4:00:07	98.253	65.482	0.90	650	Open	747	672	709	684	679	686	662	788	711	689
7/18/94	6:00:07	98.336	65.565	0.90	654	Open	745	673	714	685	678	691	659	781	712	695
7/18/94	8:00:10	98.420	65.648	0.90	656	Open	747	671	717	689	683	668	661	778	721	696
7/18/94	8:36:26	98.445	65.674	0.90	653	Open	742	685	708	684	681	687	656	793	713	694
7/18/94	10:00:07	98.503	65.732	0.90	656	Open	745	673	712	686	677	674	655	782	707	691
7/18/94	12:00:07	98.586	65.815	0.90	660	Open	741	682	700	675	679	661	660	780	725	690
7/18/94	14:00:10	98.670	65.898	0.90	669	Open	751	700	723	673	680	652	648	790	707	692
7/18/94	15:01:31	98.712	65.941	0.90	667	Open	758	678	683	662	679	647	649	787	706	694
7/18/94	16:00:08	98.753	65.982	0.90	666	Open	751	672	700	684	680	685	676	789	721	697
7/18/94	18:00:07	98.836	66.065	0.90	670	Open	747	682	708	683	680	687	660	788	707	699
7/18/94	20:00:08	98.920	66.148	0.90	677	Open	743	673	698	673	677	661	649	777	698	686
7/18/94	22:00:07	99.003	66.232	0.90	678	Open	752	695	699	669	676	677	656	787	712	694
7/19/94	0:00:07	99.086	66.304	0.90	75	Open	80	78	81	78	79	76	74	80	77	77
7/30/94	16:00:00	110.753	66.304	1.00	131	Open	144	134	149	149	149	153	138	150	148	136
7/30/94	16:59:00	110.794	66.304	1.00	Cycle 4											
7/30/94	18:02:40	110.838	66.348	1.00	496	Open	575	553	612	607	610	612	551	589	559	519
7/30/94	20:00:00	110.919	66.430	1.00	503	Open	590	569	600	631	622	634	564	601	564	530
7/30/94	22:00:00	111.003	66.513	1.00	507	Open	593	577	649	635	633	638	570	604	564	526
7/31/94	0:00:00	111.086	66.597	1.00	508	Open	596	584	648	641	640	645	569	623	569	527
7/31/94	2:02:40	111.171	66.682	1.00	509	Open	599	570	623	644	641	647	577	623	585	532
7/31/94	4:00:00	111.253	66.763	1.00	516	Open	610	583	642	650	652	652	585	633	567	532
7/31/94	6:02:40	111.338	66.848	1.00	518	Open	617	590	628	657	651	650	589	629	584	533
7/31/94	8:00:00	111.419	66.930	1.00	521	Open	620	602	640	658	655	655	595	636	586	537
7/31/94	10:02:40	111.505	67.015	1.00	524	Open	624	604	648	660	657	657	597	638	587	539
7/31/94	12:00:00	111.586	67.097	1.00	525	Open	626	609	644	661	657	658	599	640	587	540
7/31/94	14:02:40	111.671	67.182	1.00	525	Open	622	593	639	674	658	657	602	642	589	540
7/31/94	16:00:00	111.753	67.263	1.00	526	Open	623	594	641	674	659	658	603	643	589	541

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
7/31/94	18:02:40	111.838	67.348	1.00	525	Open	613	576	661	671	660	665	599	655	583	548
7/31/94	20:00:00	111.919	67.430	1.00	525	Open	614	578	660	671	658	661	602	650	585	545
7/31/94	22:02:40	112.005	67.515	1.00	527	Open	616	580	661	672	660	661	605	648	589	544
8/1/94	0:00:00	112.086	67.597	1.00	527	Open	619	581	661	672	660	661	606	649	590	544
8/1/94	2:02:40	112.171	67.682	1.00	528	Open	624	597	648	670	659	660	605	648	601	544
8/1/94	4:26:40	112.271	67.782	1.00	530	Open	626	597	652	673	660	661	606	651	601	543
8/1/94	6:24:00	112.353	67.863	1.00	525	Open	615	639	652	672	657	664	598	658	585	551
8/1/94	8:00:00	112.419	67.930	1.00	530	Open	617	633	676	674	659	651	606	659	588	544
8/1/94	8:37:20	112.445	67.956	1.00	525	Open	614	635	653	669	656	654	601	655	598	546
8/1/94	10:00:09	112.503	68.013	1.00	530	Open	618	636	673	679	660	652	612	661	600	554
8/1/94	12:00:09	112.586	68.097	1.00	525	Open	617	628	673	682	660	645	613	659	604	551
8/1/94	14:00:07	112.670	68.180	1.00	526	Open	619	633	669	679	659	660	610	662	603	552
8/1/94	16:00:09	112.753	68.263	1.00	520	Open	636	598	645	653	656	636	600	658	600	545
8/1/94	18:00:08	112.836	68.347	1.00	524	Open	612	645	646	652	655	665	608	664	600	552
8/1/94	20:00:07	112.920	68.430	1.00	522	Open	624	628	655	670	656	649	609	658	602	549
8/1/94	22:00:08	113.003	68.513	1.00	522	Open	624	627	638	661	655	652	606	669	594	551
8/2/94	0:00:07	113.086	68.597	1.00	523	Open	626	633	650	661	652	648	594	673	587	548
8/2/94	2:00:06	113.170	68.680	1.00	522	Open	617	632	652	662	654	654	608	660	601	549
8/2/94	4:00:07	113.253	68.763	1.00	523	Open	624	631	651	660	652	650	599	669	598	551
8/2/94	6:00:06	113.336	68.847	1.00	525	Open	626	623	663	662	652	652	593	670	585	546
8/2/94	8:00:08	113.420	68.930	1.00	524	Open	624	631	652	660	651	652	596	674	589	550
8/2/94	8:32:04	113.442	68.952	1.00	524	Open	625	631	651	661	653	649	601	672	600	553
8/2/94	9:26:20	113.479	68.990	1.00	523	Open	624	633	649	659	652	647	601	672	599	553
8/2/94	10:00:07	113.503	69.013	1.00	528	Open	633	625	649	672	655	656	613	659	594	545
8/2/94	12:00:08	113.586	69.097	1.00	532	Open	618	623	682	665	655	641	592	674	587	543
8/2/94	14:00:06	113.670	69.180	1.00	523	Open	634	606	637	667	654	636	597	655	603	546
8/2/94	16:00:07	113.753	69.263	1.00	525	Open	629	620	655	663	655	644	602	669	590	548
8/2/94	18:00:08	113.836	69.347	1.00	528	Open	623	610	666	659	655	645	589	661	587	543
8/2/94	20:00:08	113.920	69.430	1.00	528	Open	624	632	666	667	655	641	613	672	585	547
8/2/94	22:00:10	114.003	69.513	1.00	524	Open	625	612	641	663	656	639	606	656	602	548
8/3/94	0:00:09	114.086	69.597	1.00	527	Open	628	623	655	668	656	646	602	660	591	545
8/3/94	2:00:08	114.170	69.680	1.00	525	Open	625	607	664	661	656	642	595	658	597	547
8/3/94	4:00:07	114.253	69.763	1.00	526	Open	622	629	677	670	655	651	599	665	590	549
8/3/94	6:00:08	114.336	69.847	1.00	528	Open	624	623	660	663	655	644	592	671	584	545
8/3/94	8:00:07	114.420	69.930	1.00	525	Open	633	610	633	660	654	639	599	652	604	548
8/3/94	8:25:21	114.437	69.948	1.00	528	Open	620	628	679	668	655	639	613	662	596	545
8/3/94	10:00:09	114.503	70.013	1.00	528	Open	625	632	671	663	655	651	594	675	576	556

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
8/3/94	12:00:06	114.586	70.097	1.00	527	Open	623	609	663	664	655	643	606	657	594	544
8/3/94	14:00:07	114.670	70.180	1.00	526	Open	629	616	647	659	654	644	589	661	588	543
8/3/94	16:00:07	114.753	70.263	1.00	525	Open	630	613	641	657	653	641	589	660	589	544
8/3/94	18:00:06	114.836	70.347	1.00	526	Open	627	630	671	668	656	660	597	665	585	552
8/3/94	20:00:08	114.920	70.430	1.00	528	Open	622	624	678	667	656	645	607	652	601	544
8/3/94	22:00:08	115.003	70.513	1.00	526	Open	630	617	646	660	654	644	589	663	590	544
8/4/94	0:00:06	115.086	70.597	1.00	530	Open	624	631	655	668	653	641	611	662	590	544
8/4/94	2:00:08	115.170	70.680	1.00	528	Open	626	631	646	668	654	641	608	659	591	544
8/4/94	4:00:09	115.253	70.763	1.00	529	Open	622	625	675	670	655	642	606	652	599	544
8/4/94	6:00:11	115.336	70.847	1.00	525	Open	629	615	643	658	653	643	589	662	589	544
8/4/94	8:00:05	115.420	70.930	1.00	525	Open	629	624	660	669	653	658	606	669	588	547
8/4/94	8:27:51	115.439	70.949	1.00	523	Open	626	620	650	664	652	661	601	673	591	555
8/4/94	10:00:07	115.503	71.013	1.00	524	Open	633	630	643	667	655	643	607	665	596	547
8/4/94	12:00:08	115.586	71.097	1.00	530	Open	613	634	675	664	653	662	599	680	580	545
8/4/94	14:00:06	115.670	71.180	1.00	525	Open	629	608	637	657	651	640	590	661	589	542
8/4/94	16:00:07	115.753	71.263	1.00	532	Open	613	637	673	666	652	659	596	670	578	540
8/4/94	18:00:07	115.836	71.347	1.00	532	Open	614	635	673	665	653	661	595	667	578	540
8/4/94	20:00:07	115.920	71.430	1.00	529	Open	626	630	669	668	655	642	603	656	592	547
8/4/94	22:00:08	116.003	71.513	1.00	525	Open	619	628	654	663	654	646	591	677	580	551
8/5/94	0:00:07	116.086	71.597	1.00	531	Open	615	633	674	666	653	664	595	667	579	540
8/5/94	2:00:08	116.170	71.680	1.00	530	Open	618	633	661	665	653	640	596	680	580	547
8/5/94	4:00:08	116.253	71.763	1.00	532	Open	613	638	671	666	652	661	594	662	578	540
8/5/94	6:00:08	116.336	71.847	1.00	532	Open	613	638	672	666	653	663	595	664	578	540
8/5/94	8:00:07	116.420	71.930	1.00	531	Open	613	635	671	665	652	662	594	663	576	539
8/5/94	8:31:44	116.441	71.952	1.00	531	Open	613	637	671	665	652	662	594	664	576	540
8/5/94	10:00:06	116.503	72.013	1.00	531	Open	613	636	671	665	652	663	594	666	576	540
8/5/94	12:00:07	116.586	72.097	1.00	521	Open	631	614	627	663	653	637	601	646	606	544
8/5/94	14:00:09	116.670	72.180	1.00	522	Open	636	602	627	658	652	638	596	642	607	541
8/5/94	16:00:08	116.753	72.263	1.00	524	Open	612	600	630	658	652	639	597	643	607	541
8/5/94	18:00:08	116.836	72.347	1.00	525	Open	633	599	665	671	654	641	608	646	600	538
8/5/94	20:00:08	116.920	72.430	1.00	523	Open	617	606	649	663	653	644	594	647	601	539
8/5/94	22:00:07	117.003	72.513	1.00	531	Open	616	631	664	672	653	637	613	669	593	545
8/6/94	0:00:07	117.086	72.597	1.00	527	Open	617	621	654	662	655	644	590	667	583	547
8/6/94	2:00:08	117.170	72.680	1.00	522	Open	632	608	630	665	653	639	600	648	604	545
8/6/94	4:00:08	117.253	72.763	1.00	526	Open	619	620	653	663	653	650	592	675	578	550
8/6/94	6:00:06	117.336	72.847	1.00	525	Open	628	616	638	669	653	641	606	665	582	549
8/6/94	8:00:07	117.420	72.930	1.00	530	Open	617	636	664	670	653	640	605	673	590	546

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
8/6/94	10:00:08	117.503	73.013	1.00	522	Open	625	612	637	662	652	645	590	664	584	549
8/6/94	12:00:07	117.586	73.097	1.00	526	Open	620	620	659	665	652	651	593	680	577	551
8/6/94	14:00:06	117.670	73.180	1.00	527	Open	622	618	645	670	653	633	618	664	592	545
8/6/94	16:00:07	117.753	73.263	1.00	521	Open	628	607	631	664	652	641	599	651	602	544
8/6/94	18:00:08	117.836	73.347	1.00	527	Open	625	626	664	670	653	644	597	663	583	544
8/6/94	20:00:08	117.920	73.430	1.00	522	Open	627	612	630	654	649	646	593	658	588	539
8/6/94	22:00:08	118.003	73.513	1.00	523	Open	624	604	629	668	653	639	599	651	598	547
8/7/94	0:00:06	118.086	73.597	1.00	523	Open	628	621	634	663	652	652	605	664	600	549
8/7/94	2:00:07	118.170	73.680	1.00	523	Open	627	624	635	667	652	653	603	666	595	549
8/7/94	4:00:07	118.253	73.763	1.00	525	Open	619	619	672	670	653	646	593	665	587	548
8/7/94	6:00:09	118.336	73.847	1.00	522	Open	630	612	632	661	649	644	598	653	600	543
8/7/94	8:00:06	118.420	73.930	1.00	530	Open	622	607	643	669	653	650	598	651	585	535
8/7/94	10:00:08	118.503	74.013	1.00	525	Open	617	638	656	677	655	635	599	645	589	540
8/7/94	12:00:09	118.586	74.097	1.00	529	Open	617	601	673	659	656	650	605	661	587	543
8/7/94	14:00:07	118.670	74.180	1.00	522	Open	621	594	635	659	655	645	592	664	584	552
8/7/94	16:00:06	118.753	74.263	1.00	525	Open	630	620	643	672	653	622	607	655	592	541
8/7/94	18:00:08	118.836	74.347	1.00	523	Open	621	600	638	667	654	649	604	658	593	542
8/7/94	20:00:08	118.920	74.430	1.00	523	Open	622	590	640	676	656	646	597	658	581	550
8/7/94	22:00:06	119.003	74.513	1.00	534	Open	624	634	633	679	653	649	603	662	588	539
8/8/94	0:00:07	119.086	74.597	1.00	524	Open	629	614	653	668	654	637	596	655	591	541
8/8/94	2:00:07	119.170	74.680	1.00	524	Open	635	630	641	674	656	632	604	650	605	543
8/8/94	4:00:09	119.253	74.763	1.00	524	Open	637	595	635	681	657	630	604	652	603	544
8/8/94	6:00:08	119.336	74.847	1.00	523	Open	628	635	634	679	655	645	594	669	584	556
8/8/94	8:00:07	119.420	74.930	1.00	527	Open	624	653	624	670	650	624	590	657	587	550
8/8/94	8:27:58	119.439	74.949	1.00	526	Open	632	620	645	662	652	649	608	660	590	541
8/8/94	8:44:22	119.450	74.961	1.00	522	Open	627	606	652	672	656	621	591	653	595	541
8/8/94	10:00:06	119.503	75.013	1.00	529	Open	636	614	634	675	656	676	612	651	606	540
8/8/94	12:00:08	119.586	75.097	1.00	527	Open	625	635	631	674	654	656	597	653	593	542
8/8/94	14:00:07	119.670	75.180	1.00	529	Open	622	646	630	672	657	659	609	640	593	540
8/8/94	16:00:08	119.753	75.263	1.00	524	Open	624	631	646	680	654	614	611	674	588	545
8/8/94	18:00:06	119.836	75.347	1.00	526	Open	631	639	621	654	653	628	596	652	596	543
8/8/94	20:00:09	119.920	75.430	1.00	524	Open	621	615	655	662	654	608	605	672	594	555
8/8/94	22:00:08	120.003	75.513	1.00	522	Open	625	619	621	655	656	642	593	647	599	543
8/9/94	0:00:06	120.086	75.597	1.00	528	Open	628	634	629	665	653	647	600	658	594	543
8/9/94	2:00:07	120.170	75.680	1.00	526	Open	625	614	673	676	654	649	595	675	581	546
8/9/94	4:00:08	120.253	75.763	1.00	524	Open	619	606	636	665	654	655	594	661	587	553
8/9/94	6:00:07	120.336	75.847	1.00	526	Open	629	594	642	663	653	657	620	667	590	542

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←--Measured ^a Graphite Temperature (°C) at Location of Compact--→											
					1	2	3	4	5	6	7	8	9	10	11	12
8/9/94	8:00:07	120.420	75.930	1.00	530	Open	622	640	658	671	656	678	609	669	583	540
8/9/94	8:29:00	120.440	75.950	1.00	528	Open	638	618	640	677	653	630	602	684	589	550
8/9/94	9:32:26	120.484	75.994	0.90	551	Open	666	649	661	699	677	659	619	715	615	585
8/9/94	10:00:07	120.503	76.013	0.90	551	Open	659	635	661	704	678	642	630	716	617	582
8/9/94	10:19:29	120.516	76.027	0.90	551	Open	651	645	658	689	677	676	628	718	612	577
8/9/94	12:00:09	120.586	76.097	0.90	552	Open	663	641	666	701	678	642	628	715	618	579
8/9/94	14:00:06	120.670	76.180	0.90	550	Open	667	635	646	696	679	640	629	710	628	588
8/9/94	16:00:08	120.753	76.263	0.90	556	Open	665	640	662	701	677	644	628	714	617	578
8/9/94	18:00:07	120.836	76.347	0.90	557	Open	665	640	660	701	678	642	629	715	619	579
8/9/94	20:00:08	120.920	76.430	0.89	550	Open	659	644	689	703	679	650	622	717	614	595
8/9/94	22:00:08	121.003	76.513	0.89	550	Open	656	655	671	689	679	682	621	700	619	584
8/10/94	0:00:07	121.086	76.597	0.89	552	Open	663	647	656	703	675	694	629	699	622	585
8/10/94	2:00:09	121.170	76.680	0.89	563	Open	654	630	675	699	680	645	629	701	624	577
8/10/94	4:00:06	121.253	76.763	0.89	554	Open	648	618	668	686	677	700	629	712	623	576
8/10/94	6:00:07	121.336	76.847	0.90	563	Open	665	625	662	688	676	655	626	709	621	584
8/10/94	8:00:07	121.420	76.930	0.89	553	Open	670	638	636	677	679	697	635	713	615	581
8/10/94	8:34:28	121.443	76.954	0.90	553	Open	653	656	676	693	679	659	634	706	632	584
8/10/94	10:00:07	121.503	77.013	0.90	551	Open	662	661	642	695	681	691	625	700	618	582
8/10/94	12:00:07	121.586	77.097	0.90	560	Open	657	652	683	687	680	697	628	712	613	594
8/10/94	14:00:08	121.670	77.180	0.90	558	Open	664	652	689	705	682	663	627	722	618	599
8/10/94	16:00:07	121.753	77.263	0.89	551	Open	668	637	680	696	684	671	625	732	616	597
8/10/94	18:00:07	121.836	77.347	0.90	557	Open	666	635	652	683	692	650	635	709	629	586
8/10/94	20:00:09	121.920	77.430	0.90	552	Open	661	676	682	688	663	678	622	714	616	584
8/10/94	22:00:08	122.003	77.513	0.90	551	Open	658	642	690	689	693	689	625	686	625	574
8/11/94	0:00:06	122.086	77.597	0.90	554	Open	661	678	658	692	699	697	629	707	622	582
8/11/94	2:00:08	122.170	77.680	0.90	555	Open	661	629	691	691	677	680	627	696	630	585
8/11/94	4:00:08	122.253	77.763	0.90	558	Open	652	622	664	691	686	657	642	704	635	581
8/11/94	6:00:08	122.336	77.847	0.90	559	Open	664	639	695	698	682	684	631	686	635	583
8/11/94	8:00:08	122.420	77.930	0.90	556	Open	656	622	690	690	688	672	633	712	620	588
8/11/94	8:30:26	122.441	77.951	0.90	549	Open	658	677	703	719	682	668	632	693	621	583
8/11/94	10:00:06	122.503	78.013	0.90	556	Open	659	658	688	694	686	690	619	691	621	584
8/11/94	12:00:06	122.586	78.097	0.90	554	Open	663	688	667	693	695	669	641	676	645	573
8/11/94	14:00:07	122.670	78.180	0.90	556	Open	670	636	650	696	675	654	643	702	635	576
8/11/94	16:00:07	122.753	78.263	0.89	554	Open	666	645	662	698	681	683	637	694	631	584
8/11/94	18:00:09	122.836	78.347	0.90	556	Open	658	643	672	693	690	673	629	705	624	573
8/11/94	20:00:08	122.920	78.430	0.90	553	Open	671	668	676	697	695	690	623	696	621	586
8/11/94	22:00:07	123.003	78.513	0.89	556	Open	667	633	664	693	679	685	630	731	616	591

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
8/12/94	0:00:10	123.086	78.597	0.90	555	Open	665	665	640	691	693	682	625	685	631	577
8/12/94	2:00:06	123.170	78.680	0.89	560	Open	664	687	661	687	684	698	632	687	636	579
8/12/94	4:00:09	123.253	78.763	0.89	558	Open	667	650	689	692	694	674	638	730	623	593
8/12/94	6:00:07	123.336	78.847	0.89	557	Open	671	635	655	708	690	669	652	707	640	588
8/12/94	8:00:09	123.420	78.930	0.90	554	Open	673	647	654	695	687	668	646	722	630	586
8/12/94	8:33:09	123.442	78.953	0.90	562	Open	662	637	659	693	681	686	642	713	628	590
8/12/94	10:00:09	123.503	79.013	0.90	561	Open	671	660	650	711	691	667	643	713	639	592
8/12/94	12:00:07	123.586	79.097	0.89	558	Open	670	648	648	714	678	657	637	712	639	590
8/12/94	14:00:10	123.670	79.180	0.90	563	Open	677	662	654	706	689	682	640	709	635	584
8/12/94	16:00:07	123.753	79.263	0.89	557	Open	678	678	652	703	697	664	639	726	630	589
8/12/94	18:00:07	123.836	79.347	0.89	559	Open	685	649	651	703	696	667	639	724	637	591
8/12/94	20:00:08	123.920	79.430	0.89	556	Open	675	650	661	700	693	683	640	714	638	590
8/12/94	22:00:09	124.003	79.513	0.89	556	Open	678	652	664	700	695	686	638	715	632	589
8/13/94	0:00:09	124.086	79.597	0.89	558	Open	669	655	698	707	669	668	639	725	636	590
8/13/94	2:00:07	124.170	79.680	0.89	558	Open	685	652	640	710	681	666	642	710	641	589
8/13/94	4:00:07	124.253	79.763	0.89	559	Open	680	656	651	709	682	667	641	709	643	588
8/13/94	6:00:08	124.336	79.847	0.89	557	Open	684	641	642	695	685	681	635	727	628	600
8/13/94	8:00:08	124.420	79.930	0.89	559	Open	675	656	651	704	681	675	641	710	636	593
8/13/94	10:00:08	124.503	80.013	0.89	566	Open	687	627	654	716	675	674	641	735	629	596
8/13/94	12:00:06	124.586	80.097	0.89	561	Open	673	638	655	715	677	672	646	726	643	597
8/13/94	14:00:08	124.670	80.180	0.89	562	Open	674	643	649	716	679	653	646	719	649	596
8/13/94	16:00:08	124.753	80.263	0.89	569	Open	676	648	676	707	684	658	651	726	646	597
8/13/94	18:00:09	124.836	80.347	0.89	563	Open	697	669	660	719	700	664	646	719	647	598
8/13/94	20:00:07	124.920	80.430	0.89	561	Open	674	657	653	683	676	667	655	721	647	597
8/13/94	22:00:07	125.003	80.513	0.89	560	Open	679	669	650	683	682	678	649	735	632	606
8/14/94	0:00:06	125.086	80.597	0.89	569	Open	683	649	714	718	667	645	646	727	642	593
8/14/94	2:00:06	125.170	80.680	0.89	561	Open	700	662	653	698	677	684	641	716	631	597
8/14/94	4:00:07	125.253	80.763	0.89	570	Open	677	659	684	699	663	683	644	710	646	587
8/14/94	6:00:09	125.336	80.847	0.90	565	Open	678	649	678	705	659	689	642	699	650	586
8/14/94	8:00:08	125.420	80.930	0.90	564	Open	677	650	680	704	658	689	641	695	654	584
8/14/94	10:00:07	125.503	81.013	0.90	572	Open	689	661	655	700	697	681	650	717	648	595
8/14/94	12:00:07	125.586	81.097	0.90	565	Open	685	649	665	705	671	693	648	721	649	600
8/14/94	14:00:06	125.670	81.180	0.89	562	Open	673	649	657	715	675	697	643	728	644	597
8/14/94	16:00:08	125.753	81.263	0.89	564	Open	695	674	661	712	694	683	640	739	634	600
8/14/94	18:00:08	125.836	81.347	0.89	566	Open	689	655	661	717	698	655	645	734	647	606
8/14/94	20:00:08	125.920	81.430	0.89	571	Open	695	662	656	696	679	684	646	722	645	597
8/14/94	22:00:10	126.003	81.513	0.89	576	Open	699	647	667	719	699	693	667	737	639	596

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
8/15/94	0:00:07	126.086	81.597	0.89	577	Open	692	663	664	722	699	677	658	739	643	599
8/15/94	2:00:09	126.170	81.680	0.89	567	Open	707	671	653	713	676	691	639	729	643	604
8/15/94	4:00:06	126.253	81.763	0.89	573	Open	689	666	660	715	697	686	663	739	646	597
8/15/94	6:00:08	126.336	81.847	0.89	577	Open	679	639	675	722	693	667	667	727	659	596
8/15/94	8:00:06	126.420	81.930	0.89	566	Open	702	687	698	712	687	684	646	725	644	604
8/15/94	8:32:07	126.442	81.952	0.89	572	Open	693	695	650	715	671	688	653	702	643	604
8/15/94	10:00:06	126.503	82.013	0.90	567	Open	697	652	657	711	679	673	655	728	648	604
8/15/94	12:00:07	126.586	82.097	0.90	568	Open	680	660	657	714	681	662	645	720	634	608
8/15/94	14:00:12	126.670	82.180	0.90	569	Open	691	667	656	711	677	700	646	718	636	603
8/15/94	16:00:06	126.753	82.263	0.90	567	Open	686	675	667	708	671	691	652	708	649	600
8/15/94	18:00:06	126.836	82.347	0.90	569	Open	690	675	664	710	687	706	647	718	637	604
8/15/94	20:00:08	126.920	82.430	0.89	568	Open	690	678	678	703	666	702	646	713	642	602
8/15/94	22:00:07	127.003	82.513	0.90	568	Open	688	673	668	704	664	693	654	698	664	592
8/16/94	0:00:07	127.086	82.597	0.90	571	Open	691	672	673	703	666	700	652	704	660	589
8/16/94	2:00:09	127.170	82.680	0.90	579	Open	692	Open	658	711	680	681	656	703	654	589
8/16/94	4:00:09	127.253	82.763	0.90	578	Open	693	Open	697	700	697	680	649	738	663	594
8/16/94	6:00:09	127.336	82.847	0.90	579	Open	702	Open	668	713	691	659	646	763	656	607
8/16/94	8:00:08	127.420	82.930	0.90	580	Open	700	Open	686	698	679	659	648	746	653	602
8/16/94	8:29:07	127.440	82.950	0.90	577	Open	704	Open	648	714	705	669	660	706	650	609
8/16/94	9:27:39	127.480	82.991	1.00	557	Open	679	Open	648	691	672	652	627	701	619	576
8/16/94	10:00:08	127.503	83.013	1.00	557	Open	679	Open	642	689	672	655	627	699	617	577
8/16/94	10:14:07	127.513	83.023	1.00	557	Open	680	Open	644	690	671	658	627	701	618	576
8/16/94	12:00:06	127.586	83.097	1.00	556	Open	683	Open	642	686	651	683	635	702	624	589
8/16/94	14:00:08	127.670	83.180	1.00	559	Open	684	Open	668	687	669	660	626	717	621	574
8/16/94	16:00:07	127.753	83.263	1.00	559	Open	682	Open	616	674	650	641	631	711	621	580
8/16/94	16:06:57	127.758	83.268	1.00	556	Open	672	Open	652	692	656	642	626	729	617	584
8/16/94	18:00:08	127.836	83.347	1.00	558	Open	678	Open	637	686	668	680	631	711	626	585
8/16/94	20:00:06	127.920	83.430	1.00	556	Open	680	Open	632	691	673	681	635	737	630	581
8/16/94	22:00:08	128.003	83.513	1.00	558	Open	683	Open	631	687	679	698	641	708	626	583
8/17/94	0:00:07	128.086	83.597	1.00	555	Open	683	Open	666	695	669	675	630	684	627	579
8/17/94	2:00:08	128.170	83.680	1.00	564	Open	683	Open	650	694	678	645	625	691	627	574
8/17/94	4:00:09	128.253	83.763	1.00	559	Open	678	Open	654	696	677	658	622	698	624	582
8/17/94	6:00:09	128.336	83.847	1.00	560	Open	677	Open	654	697	677	664	622	703	622	585
8/17/94	8:00:09	128.420	83.930	1.00	562	Open	690	Open	655	696	675	656	622	696	627	578
8/17/94	8:39:40	128.447	83.957	1.00	563	Open	690	Open	656	697	679	658	623	697	627	580
8/17/94	10:00:10	128.503	84.013	0.99	563	Open	684	Open	655	693	678	654	622	695	628	578
8/17/94	12:00:08	128.586	84.097	1.00	560	Open	688	Open	657	699	677	658	628	695	637	576

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
8/17/94	14:00:07	128.670	84.180	0.99	567	Open	693	Open	656	699	680	663	628	700	631	581
8/17/94	16:00:09	128.753	84.263	0.99	566	Open	687	Open	654	699	674	695	642	702	640	572
8/17/94	18:00:09	128.836	84.347	1.00	570	Open	682	Open	650	709	678	688	645	708	638	583
8/17/94	20:00:09	128.920	84.430	1.00	565	Open	684	Open	669	688	674	692	644	710	640	586
8/17/94	22:00:06	129.003	84.513	1.00	568	Open	684	Open	668	686	672	693	642	703	648	584
8/18/94	0:00:06	129.086	84.597	1.00	567	Open	690	Open	674	682	675	694	643	720	637	590
8/18/94	2:00:08	129.170	84.680	1.00	565	Open	695	Open	662	686	668	690	647	715	638	589
8/18/94	4:00:08	129.253	84.763	1.00	567	Open	683	Open	659	683	676	654	627	708	627	595
8/18/94	6:00:06	129.336	84.847	1.00	568	Open	690	Open	648	682	675	654	632	695	637	581
8/18/94	8:00:06	129.420	84.930	1.00	569	Open	692	Open	652	683	676	656	627	710	628	598
8/18/94	8:33:20	129.443	84.953	1.00	569	Open	692	Open	652	683	676	657	628	710	629	599
8/18/94	10:00:07	129.503	85.013	1.00	570	Open	693	Open	653	683	677	658	628	712	629	600
8/18/94	12:00:07	129.586	85.097	1.00	570	Open	692	Open	647	687	680	678	633	704	634	596
8/18/94	14:00:06	129.670	85.180	1.00	572	Open	695	Open	645	701	681	669	642	715	648	592
8/18/94	16:00:09	129.753	85.263	1.00	571	Open	686	Open	639	688	677	667	633	705	638	596
8/18/94	18:00:06	129.836	85.347	1.00	575	Open	690	Open	676	697	656	691	643	714	649	594
8/18/94	20:00:07	129.920	85.430	1.00	575	Open	710	Open	645	692	676	638	625	697	649	590
8/18/94	22:00:07	130.003	85.513	1.00	578	Open	710	Open	657	700	677	629	638	715	649	592
8/19/94	0:00:07	130.086	85.597	1.00	578	Open	709	Open	659	703	683	646	638	702	654	584
8/19/94	2:00:06	130.170	85.680	1.00	579	Open	711	Open	659	703	683	647	639	704	654	585
8/19/94	4:00:07	130.253	85.763	1.00	581	Open	705	Open	669	696	665	640	632	730	659	594
8/19/94	6:00:08	130.336	85.847	1.00	582	Open	701	Open	638	689	659	672	645	709	649	596
8/19/94	8:00:06	130.420	85.930	1.00	582	Open	708	Open	647	697	668	636	634	716	654	592
8/19/94	8:33:46	130.443	85.953	1.00	574	Open	696	Open	665	682	658	672	653	726	664	601
8/19/94	10:00:08	130.503	86.013	1.00	576	Open	711	Open	628	689	674	685	640	709	651	601
8/19/94	12:00:08	130.586	86.097	1.00	581	Open	712	Open	669	687	665	661	652	706	660	601
8/19/94	14:00:07	130.670	86.180	1.00	588	Open	706	Open	662	689	657	685	649	705	670	595
8/19/94	16:00:07	130.753	86.263	1.00	580	Open	698	Open	638	686	671	666	634	732	657	611
8/19/94	18:00:07	130.836	86.347	1.00	584	Open	707	Open	631	678	682	702	647	745	658	610
8/19/94	20:00:09	130.920	86.430	1.00	592	Open	705	Open	652	685	676	682	650	741	665	603
8/19/94	22:00:08	131.003	86.513	1.00	590	Open	710	Open	652	683	680	684	650	739	662	605
8/20/94	0:00:08	131.086	86.597	1.00	589	Open	694	Open	661	691	671	684	651	737	658	610
8/20/94	2:00:08	131.170	86.680	1.00	588	Open	711	Open	685	705	676	652	647	725	650	610
8/20/94	4:00:07	131.253	86.763	1.00	595	Open	710	Open	664	699	662	658	644	711	660	609
8/20/94	6:00:08	131.336	86.847	1.00	593	Open	709	Open	665	703	679	649	646	724	672	603
8/20/94	8:00:07	131.420	86.930	1.00	592	Open	712	Open	645	692	672	685	638	721	666	611
8/20/94	10:00:08	131.503	87.013	1.00	590	Open	698	Open	639	698	681	653	648	750	657	622

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Measured Graphite Temperatures (continued)

Date	Time	Elapsed (d)	EFPDs (d)	He Fraction	←Measured ^a Graphite Temperature (°C) at Location of Compact→											
					1	2	3	4	5	6	7	8	9	10	11	12
8/20/94	12:00:08	131.586	87.097	1.00	599	Open	715	Open	663	688	684	676	653	735	676	613
8/20/94	14:00:07	131.670	87.180	1.00	598	Open	716	Open	662	706	684	646	644	731	678	607
8/20/94	16:00:07	131.753	87.263	1.00	603	Open	704	Open	652	699	673	658	638	736	656	626
8/20/94	18:00:06	131.836	87.347	1.00	601	Open	715	Open	642	690	672	687	642	719	684	612
8/20/94	20:00:06	131.920	87.430	1.00	607	Open	706	Open	658	680	680	681	642	726	671	624
8/20/94	22:00:08	132.003	87.513	1.00	599	Open	714	Open	645	704	663	688	641	743	670	624
8/21/94	0:00:06	132.086	87.597	1.00	610	Open	709	Open	638	706	673	671	644	713	683	621
8/21/94	2:00:08	132.170	87.680	1.00	609	Open	716	Open	655	701	673	662	650	700	696	616
8/21/94	4:00:06	132.253	87.763	1.00	606	Open	700	Open	629	702	668	688	640	713	665	629
8/21/94	6:00:06	132.336	87.847	1.00	609	Open	705	Open	648	696	672	697	656	718	690	613
8/21/94	8:00:06	132.420	87.930	1.00	613	Open	706	Open	641	697	674	698	651	721	682	615
8/21/94	10:00:06	132.503	88.013	1.00	608	Open	719	Open	646	705	671	705	641	729	674	632
8/21/94	12:00:07	132.586	88.097	1.00	617	Open	718	Open	679	705	666	641	654	718	694	625
8/21/94	14:00:05	132.670	88.180	1.00	618	Open	726	Open	650	698	666	649	640	727	681	638
8/21/94	16:00:07	132.753	88.263	1.00	617	Open	704	Open	664	704	676	665	651	718	678	636
8/21/94	16:29:14	132.773	88.284	1.00	628	Open	708	Open	685	701	658	647	644	746	685	621
8/21/94	18:00:08	132.836	88.347	1.00	617	Open	732	Open	640	703	663	670	651	711	691	626
8/21/94	20:00:07	132.920	88.430	1.00	626	Open	726	Open	643	703	679	695	652	723	676	625
8/21/94	22:00:06	133.003	88.513	1.00	633	Open	717	Open	654	698	672	660	654	729	692	622
8/22/94	0:00:08	133.086	88.597	1.00	643	Open	715	Open	684	702	674	676	641	729	662	630
8/22/94	2:00:08	133.170	88.680	1.00	635	Open	717	Open	698	706	665	655	658	719	691	619
8/22/94	4:00:08	133.253	88.763	1.00	644	Open	718	Open	640	689	658	642	653	727	675	626
8/22/94	6:00:08	133.336	88.847	1.00	646	Open	712	Open	659	693	675	650	645	715	686	627
8/22/94	8:00:07	133.420	88.888	1.00	63	Open	66	Open	64	69	70	69	65	68	66	64

^a Average of the thermocouples located in graphite fuel body adjacent to compact center line.

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Predicted Volume-Averaged Compact Temperature

Date	Time	Elapsed days	EFPD days	HEATING 7.2 Predicted Average Temperature (°C) for Compact											
				1	2	3	4	5	6	7	8	9	10	11	12
10-Apr-94	21:56:00														
Cycle 1															
10-Apr-94	21:51:00	-0.003	-0.003	686	770	812	792	826	856	858	823	790	814	772	703
12-Apr-94	21:00:05	1.961	1.961	686	770	812	792	826	856	858	823	790	814	772	703
12-Apr-94	22:00:07	2.003	2.003	957	1054	1093	1051	1085	1121	1123	1082	1049	1095	1056	961
15-Apr-94	22:00:07	5.003	5.003	966	1068	1113	1079	1119	1156	1159	1116	1077	1116	1070	968
18-Apr-94	10:00:07	7.503	7.503	741	827	885	881	925	958	959	922	879	886	827	746
18-Apr-94	22:00:08	8.003	8.003	981	1087	1139	1115	1160	1200	1203	1157	1113	1142	1089	981
21-Apr-94	8:00:07	10.420	10.420	1012	1122	1185	1167	1214	1252	1255	1212	1166	1188	1123	1007
21-Apr-94	10:00:06	10.503	10.503	963	1069	1129	1110	1156	1192	1195	1153	1109	1131	1069	960
25-Apr-94	10:00:08	14.503	14.503	796	894	961	959	992	1018	1020	990	958	963	893	797
25-Apr-94	22:00:07	15.003	15.003	1022	1138	1206	1187	1221	1251	1254	1219	1186	1210	1138	1015
27-Apr-94	8:47:43	16.453	16.453	1053	1168	1233	1203	1232	1263	1266	1229	1202	1237	1168	1045
27-Apr-94	9:50:00	16.496	16.496	965	1072	1134	1107	1134	1163	1166	1132	1106	1138	1072	962
29-Apr-94	12:00:08	18.586	18.586	1023	1128	1182	1141	1161	1188	1191	1158	1141	1185	1128	1016
29-Apr-94	14:00:06	18.670	18.670	984	1086	1140	1102	1121	1147	1150	1119	1101	1144	1086	980
29-Apr-94	22:00:08	19.003	19.003	969	1091	1148	1106	1121	1150	1153	1119	1105	1152	1088	943
30-Apr-94	22:00:07	20.003	20.003	1025	1123	1166	1117	1132	1158	1161	1130	1116	1169	1123	1019
1-May-94	22:00:07	21.003	21.003	1046	1139	1171	1117	1132	1158	1161	1129	1116	1175	1139	1039
2-May-94	9:00:00	21.423	21.423	924	1028	1063	1023	1043	1072	1074	1041	1022	1065	1025	901
3-May-94	8:40:24	22.447	22.447	1102	1179	1191	1128	1142	1169	1172	1140	1127	1195	1179	1092
8-May-94	10:55:06	27.541	22.465	761	895	986	1006	1069	1113	1116	1067	1005	989	897	771
8-May-94	11:00:00	27.544	22.465												
Cycle 2															
10-May-94	9:10:49	29.469	24.389	757	890	979	996	1054	1095	1098	1052	994	980	892	765
10-May-94	9:19:53	29.475	24.395	840	975	1064	1075	1136	1180	1183	1134	1074	1067	978	846
13-May-94	10:00:07	32.503	27.423	841	975	1061	1070	1127	1170	1173	1125	1069	1064	978	846
16-May-94	9:34:00	35.485	30.405	847	980	1066	1077	1134	1177	1179	1132	1075	1069	982	850
20-May-94	8:00:00	39.419	34.340	860	997	1089	1115	1170	1205	1208	1167	1114	1092	999	863
25-May-94	8:29:17	44.440	34.923	814	926	1009	1032	1084	1117	1120	1082	1031	1012	925	809
25-May-94	9:43:53	44.492	34.975	828	964	1055	1083	1138	1173	1176	1136	1082	1059	966	832
27-May-94	20:00:07	46.920	37.403	869	1005	1095	1113	1153	1183	1186	1151	1112	1098	1007	869
29-May-94	20:00:07	48.920	39.403	909	1041	1125	1129	1160	1188	1191	1158	1128	1128	1043	908
31-May-94	8:35:20	50.444	40.927	956	1083	1154	1142	1166	1193	1196	1164	1141	1158	1085	953
31-May-94	9:17:22	50.473	40.956	943	1041	1106	1092	1114	1137	1135	1102	1075	1086	1013	910
31-May-94	10:00:06	50.503	40.986	956	1083	1154	1142	1166	1193	1196	1164	1141	1158	1085	953
31-May-94	20:00:08	50.920	41.403	956	1083	1154	1142	1166	1193	1196	1164	1141	1158	1085	953
1-Jun-94	20:00:08	51.920	42.403	981	1105	1167	1147	1169	1196	1199	1167	1146	1170	1107	977
2-Jun-94	20:00:06	52.920	43.403	1009	1128	1178	1152	1172	1198	1202	1170	1151	1182	1129	1005

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Predicted Volume-Averaged Compact Temperature (continued)

Date	Time	Elapsed days	EFPD days	<--- HEATING 7.2 Predicted Average Temperature (°C) for Compact --->											
				1	2	3	4	5	6	7	8	9	10	11	12
3-Jun-94	8:28:04	53.439	43.922	1043	1152	1188	1155	1175	1201	1204	1173	1154	1191	1153	1036
26-Jun-94	14:34:00	76.693	43.922	Cycle 3											
26-Jun-94	15:05:16	76.715	43.944	804	950	1057	1101	1175	1223	1227	1172	1100	1059	952	806
28-Jun-94	14:00:06	78.670	45.898	795	938	1037	1076	1143	1186	1189	1141	1075	1040	939	798
1-Jul-94	8:42:08	81.449	48.678	791	930	1024	1058	1119	1160	1163	1116	1056	1027	932	793
1-Jul-94	14:00:07	81.670	48.898	846	987	1082	1112	1175	1217	1221	1172	1111	1085	989	846
6-Jul-94	14:00:09	86.670	53.898	850	987	1081	1114	1172	1209	1212	1170	1113	1084	989	847
9-Jul-94	8:00:08	89.420	56.648	858	998	1093	1126	1179	1212	1216	1177	1125	1096	1000	854
11-Jul-94	14:00:08	91.670	58.898	892	1035	1128	1150	1190	1218	1221	1188	1149	1131	1036	887
12-Jul-94	8:36:29	92.445	59.674	896	1037	1130	1153	1192	1220	1223	1190	1152	1133	1039	890
12-Jul-94	14:00:09	92.670	59.898	868	1006	1098	1123	1162	1189	1192	1160	1122	1102	1008	867
13-Jul-94	14:00:07	93.670	60.898	907	1041	1128	1145	1176	1202	1206	1174	1144	1132	1043	902
14-Jul-94	14:00:05	94.670	61.898	930	1062	1143	1151	1178	1204	1207	1176	1150	1146	1063	924
15-Jul-94	14:00:08	95.670	62.898	954	1083	1156	1156	1180	1205	1208	1177	1155	1160	1084	946
16-Jul-94	14:00:07	96.670	63.898	980	1105	1169	1161	1182	1206	1210	1180	1160	1173	1106	971
17-Jul-94	14:00:07	97.670	64.898	1007	1128	1179	1163	1183	1207	1211	1181	1163	1183	1128	997
18-Jul-94	14:00:10	98.670	65.898	1035	1145	1183	1162	1182	1206	1209	1179	1161	1187	1145	1024
30-Jul-94	16:00:00	110.753	66.304	821	974	1085	1140	1215	1263	1267	1213	1139	1088	976	818
30-Jul-94	16:59:00	110.794	66.304	Cycle 4											
31-Jul-94	16:00:00	111.753	67.263	818	966	1072	1122	1192	1237	1241	1190	1121	1075	967	817
1-Aug-94	16:00:09	112.753	68.263	814	960	1062	1109	1176	1218	1221	1173	1108	1065	961	811
2-Aug-94	16:00:07	113.753	69.263	807	948	1044	1085	1146	1184	1188	1143	1084	1046	949	803
4-Aug-94	16:00:07	115.753	71.263	809	951	1047	1088	1149	1188	1191	1147	1087	1049	952	805
7-Aug-94	16:00:06	118.753	74.263	810	948	1042	1083	1141	1178	1181	1139	1082	1045	950	807
9-Aug-94	8:29:00	120.440	75.950	811	951	1045	1088	1143	1177	1180	1141	1086	1048	952	808
9-Aug-94	9:32:26	120.484	75.994	837	977	1072	1112	1169	1203	1206	1166	1111	1074	978	832
11-Aug-94	16:00:07	122.753	78.263	845	986	1082	1122	1173	1203	1206	1171	1121	1085	988	840
14-Aug-94	16:00:08	125.753	81.263	882	1029	1124	1153	1191	1217	1220	1189	1152	1127	1030	874
15-Aug-94	16:00:06	126.753	82.263	901	1045	1137	1159	1192	1217	1220	1190	1158	1140	1046	892
16-Aug-94	8:29:07	127.440	82.950	922	1063	1151	1165	1194	1218	1221	1191	1164	1154	1065	912
16-Aug-94	9:27:39	127.480	82.991	893	1035	1123	1139	1167	1191	1194	1165	1138	1126	1036	885
17-Aug-94	16:00:09	128.753	84.263	916	1054	1136	1144	1168	1191	1194	1165	1143	1139	1054	906
18-Aug-94	16:00:09	129.753	85.263	938	1073	1147	1147	1168	1191	1194	1166	1146	1151	1074	928
19-Aug-94	16:00:07	130.753	86.263	963	1093	1158	1151	1169	1191	1194	1166	1150	1162	1094	951
20-Aug-94	16:00:07	131.753	87.263	987	1112	1166	1152	1169	1191	1195	1167	1152	1170	1113	975
21-Aug-94	16:00:07	132.753	88.263	1020	1136	1174	1154	1170	1191	1194	1168	1153	1178	1136	1006

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Predicted Maximum Compact Temperature

Date	Time	Elapsed day	EFPD day	Heating 7.2 Predicted Maximum Temperatures (°C) for Compact											
				1	2	3	4	5	6	7	8	9	10	11	12
10-Apr-94	21:56:00														
10-Apr-94	21:51:00	-0.003	-0.003	763	847	869	860	905	926	927	905	857	871	848	770
12-Apr-94	21:00:05	1.961	1.961	763	847	869	860	905	926	927	905	857	871	848	770
12-Apr-94	22:00:07	2.003	2.003	1042	1138	1160	1120	1171	1197	1198	1172	1117	1164	1140	1048
15-Apr-94	22:00:07	5.003	5.003	1054	1156	1179	1152	1206	1233	1234	1207	1149	1183	1157	1060
18-Apr-94	10:00:07	7.503	7.503	820	912	944	959	1010	1031	1033	1010	956	947	912	822
18-Apr-94	22:00:08	8.003	8.003	1072	1178	1205	1193	1252	1279	1281	1253	1190	1209	1180	1077
21-Apr-94	8:00:07	10.420	10.420	1106	1220	1252	1250	1307	1333	1334	1309	1247	1257	1221	1108
21-Apr-94	10:00:06	10.503	10.503	1054	1164	1196	1192	1248	1273	1275	1250	1189	1200	1166	1057
25-Apr-94	10:00:08	14.503	14.503	887	992	1031	1042	1080	1099	1100	1081	1039	1034	993	888
25-Apr-94	22:00:07	15.003	15.003	1123	1244	1281	1269	1313	1335	1336	1315	1266	1286	1246	1125
27-Apr-94	8:47:43	16.453	16.453	1157	1276	1312	1283	1324	1348	1349	1326	1280	1318	1278	1159
27-Apr-94	9:50:00	16.496	16.496	1066	1177	1212	1187	1225	1247	1249	1227	1184	1218	1179	1068
29-Apr-94	12:00:08	18.586	18.586	1129	1233	1264	1218	1252	1274	1275	1253	1221	1270	1235	1130
29-Apr-94	14:00:06	18.670	18.670	1088	1191	1222	1179	1212	1233	1234	1213	1180	1228	1193	1090
29-Apr-94	22:00:08	19.003	19.003	1087	1201	1232	1185	1213	1236	1238	1214	1188	1237	1202	1081
30-Apr-94	22:00:07	20.003	20.003	1132	1226	1252	1199	1223	1244	1246	1225	1202	1258	1228	1134
1-May-94	22:00:07	21.003	21.003	1155	1238	1261	1200	1223	1244	1246	1224	1202	1266	1239	1156
2-May-94	9:00:00	21.423	21.423	1043	1129	1148	1101	1135	1159	1160	1137	1103	1152	1129	1038
3-May-94	8:40:24	22.447	22.447	1210	1269	1285	1215	1235	1256	1257	1236	1218	1290	1271	1212
8-May-94	10:55:06	27.541	22.465	867	1009	1058	1110	1178	1208	1210	1180	1107	1063	1011	875
8-May-94	11:00:00	27.544	22.465												
10-May-94	9:10:49	29.469	24.389	863	1003	1050	1095	1159	1187	1188	1160	1092	1053	1004	870
10-May-94	9:19:53	29.475	24.395	948	1092	1139	1178	1245	1276	1277	1247	1175	1143	1094	956
13-May-94	10:00:07	32.503	27.423	949	1090	1135	1170	1234	1263	1265	1235	1167	1140	1092	957
16-May-94	9:34:00	35.485	30.405	956	1095	1141	1177	1241	1270	1271	1243	1174	1145	1097	962
20-May-94	8:00:00	39.419	34.340	972	1115	1164	1219	1274	1298	1300	1275	1215	1169	1117	979
25-May-94	8:29:17	44.440	34.923	912	1033	1081	1130	1182	1205	1207	1184	1127	1086	1034	913
25-May-94	9:43:53	44.492	34.975	940	1081	1130	1188	1242	1266	1268	1243	1184	1135	1083	947
27-May-94	20:00:07	46.920	37.403	985	1126	1174	1211	1254	1275	1277	1255	1207	1179	1128	991
29-May-94	20:00:07	48.920	39.403	1028	1163	1209	1222	1259	1281	1283	1261	1219	1214	1165	1035
31-May-94	8:35:20	50.444	40.927	1080	1204	1242	1231	1265	1287	1289	1267	1228	1248	1206	1085
31-May-94	9:17:22	50.473	40.956	1050	1152	1192	1177	1207	1223	1223	1200	1159	1171	1124	1021
31-May-94	10:00:06	50.503	40.986	1080	1204	1242	1231	1265	1287	1289	1267	1228	1248	1206	1085
31-May-94	20:00:08	50.920	41.403	1080	1204	1242	1231	1265	1287	1289	1267	1228	1248	1206	1085
1-Jun-94	20:00:08	51.920	42.403	1107	1223	1257	1234	1268	1290	1292	1270	1232	1263	1225	1113
2-Jun-94	20:00:06	52.920	43.403	1138	1242	1268	1239	1271	1292	1295	1273	1236	1275	1244	1143

APPENDIX B: MEASURED AND PREDICTED TEMPERATURES

Predicted Maximum Compact Temperature (continued)

Date	Time	Elapsed day	EFPD day	Heating 7.2 Predicted Maximum Temperatures (°C) for Compact											
				1	2	3	4	5	6	7	8	9	10	11	12
3-Jun-94	8:28:04	53.439	43.922	1172	1261	1281	1242	1275	1296	1297	1276	1240	1286	1262	1177
26-Jun-94	14:34:00	76.693	43.922	Cycle 3											
26-Jun-94	15:05:16	76.715	43.944	923	1079	1145	1225	1300	1333	1335	1302	1222	1147	1081	930
28-Jun-94	14:00:06	78.670	45.898	912	1061	1120	1192	1260	1289	1291	1262	1189	1122	1063	918
1-Jul-94	8:42:08	81.449	48.678	906	1050	1103	1167	1231	1258	1260	1232	1163	1105	1052	912
1-Jul-94	14:00:07	81.670	48.898	962	1108	1159	1221	1288	1316	1318	1289	1218	1164	1110	969
6-Jul-94	14:00:09	86.670	53.898	965	1108	1160	1223	1281	1307	1309	1289	1220	1164	1110	971
9-Jul-94	8:00:08	89.420	56.648	976	1121	1174	1235	1287	1309	1312	1289	1231	1177	1123	982
11-Jul-94	14:00:08	91.670	58.898	1016	1162	1211	1254	1295	1315	1317	1296	1251	1217	1163	1022
12-Jul-94	8:36:29	92.445	59.674	1020	1164	1214	1257	1298	1318	1320	1300	1254	1220	1166	1025
12-Jul-94	14:00:09	92.670	59.898	990	1132	1182	1227	1267	1287	1289	1269	1224	1187	1134	996
13-Jul-94	14:00:07	93.670	60.898	1032	1168	1216	1245	1280	1301	1303	1282	1242	1221	1170	1038
14-Jul-94	14:00:05	94.670	61.898	1058	1188	1233	1249	1282	1302	1304	1283	1246	1239	1190	1063
15-Jul-94	14:00:08	95.670	62.898	1084	1208	1248	1252	1283	1304	1306	1285	1249	1254	1210	1089
16-Jul-94	14:00:07	96.670	63.898	1112	1228	1262	1255	1285	1305	1307	1287	1252	1268	1229	1117
17-Jul-94	14:00:07	97.670	64.898	1142	1246	1273	1257	1287	1306	1309	1288	1254	1279	1248	1147
18-Jul-94	14:00:10	98.670	65.898	1170	1257	1248	1256	1285	1305	1308	1287	1252	1284	1259	1174
30-Jul-94	16:59:00	110.794	66.304	Cycle 4											
31-Jul-94	16:00:00	111.753	67.263	941	1097	1167	1247	1317	1348	1350	1319	1245	1170	1099	948
1-Aug-94	16:00:09	112.753	68.263	936	1088	1155	1231	1297	1326	1328	1299	1227	1157	1089	942
2-Aug-94	16:00:07	113.753	69.263	926	1072	1131	1199	1260	1286	1288	1262	1196	1132	1073	932
4-Aug-94	16:00:07	115.753	71.263	929	1075	1134	1203	1264	1291	1293	1266	1200	1136	1076	934
7-Aug-94	16:00:06	118.753	74.263	928	1071	1130	1196	1254	1279	1281	1255	1193	1131	1072	935
9-Aug-94	8:29:00	120.440	75.950	931	1074	1134	1201	1255	1277	1280	1256	1198	1136	1075	937
9-Aug-94	9:32:26	120.484	75.994	957	1100	1160	1226	1281	1304	1306	1282	1223	1162	1102	963
11-Aug-94	16:00:07	122.753	78.263	967	1111	1172	1234	1283	1303	1306	1284	1232	1174	1113	973
14-Aug-94	16:00:08	125.753	81.263	1010	1160	1213	1260	1299	1317	1319	1300	1257	1215	1161	1016
15-Aug-94	16:00:06	126.753	82.263	1030	1176	1225	1264	1299	1318	1320	1301	1261	1231	1177	1036
16-Aug-94	8:29:07	127.440	82.950	1053	1194	1241	1267	1300	1318	1320	1301	1264	1247	1196	1059
16-Aug-94	9:27:39	127.480	82.991	1025	1166	1213	1241	1273	1292	1294	1274	1238	1219	1168	1030
17-Aug-94	16:00:09	128.753	84.263	1049	1184	1228	1243	1273	1292	1294	1274	1240	1234	1185	1054
18-Aug-94	16:00:09	129.753	85.263	1074	1201	1241	1245	1273	1292	1294	1275	1242	1247	1203	1079
19-Aug-94	16:00:07	130.753	86.263	1100	1219	1254	1246	1273	1292	1295	1275	1243	1260	1221	1105
20-Aug-94	16:00:07	131.753	87.263	1126	1234	1262	1247	1274	1292	1295	1276	1245	1269	1236	1131
21-Aug-94	16:00:07	132.753	88.263	1161	1251	1271	1248	1275	1292	1294	1276	1245	1277	1253	1165

APPENDIX C: FISSION GAS RELEASE DATA

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APPENDIX C : FISSION GAS RELEASE DATA

R/B of Kr and Xe Fission Gas Isotopes

Gas ^a Sample	Sample Time Elap Day	Release Rate-to-Birth Rate (R/B) of Fission Gas ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
Cycle 1										
1	0.035	9.93E-08	9.72E-08	8.49E-08	2.67E-08	nd	nd	4.43E-08	4.18E-08	2.20E-08
2	0.067	1.58E-07	1.64E-07	1.41E-07	4.10E-08	nd	1.07E-07	7.21E-08	5.70E-08	2.95E-08
2A	0.067	nd ^c	nd	nd	nd	nd	nd	nd	nd	nd
3	0.516	2.70E-07	2.46E-07	1.84E-07	5.08E-08	nd	9.79E-08	1.09E-07	9.26E-08	4.45E-08
3A	0.516	nd	nd	nd	nd	2.78E-07	nd	nd	nd	nd
4	0.735	2.96E-07	2.74E-07	2.00E-07	5.69E-08	nd	9.39E-08	1.11E-07	1.02E-07	4.72E-08
4A	0.735	nd	nd	nd	nd	2.69E-07	nd	nd	nd	nd
5	1.450	2.99E-07	2.72E-07	2.05E-07	5.71E-08	nd	9.29E-08	1.05E-07	9.89E-08	4.44E-08
5A	1.450	nd	nd	nd	nd	3.61E-07	nd	nd	nd	nd
6	1.487	3.07E-07	2.69E-07	2.05E-07	6.01E-08	nd	9.09E-08	1.13E-07	1.00E-07	4.46E-08
6A	1.487	nd	nd	nd	nd	3.46E-07	nd	nd	nd	nd
7	1.706	4.83E-07	4.17E-07	2.95E-07	7.66E-08	4.24E-07	1.17E-07	1.31E-07	1.25E-07	6.04E-08
7A	1.706	nd	nd	nd	nd	5.67E-07	nd	nd	nd	nd
8	1.748	7.78E-07	6.14E-07	4.04E-07	1.00E-07	9.46E-07	1.36E-07	1.54E-07	1.47E-07	7.87E-08
8A	1.748	nd	nd	nd	nd	9.00E-07	nd	nd	nd	nd
9	1.795	6.41E-07	5.19E-07	3.61E-07	9.78E-08	9.19E-07	1.50E-07	1.71E-07	1.39E-07	7.28E-08
9A	1.795	nd	nd	nd	nd	8.96E-07	nd	nd	nd	nd
10	1.841	1.17E-06	9.02E-07	5.60E-07	1.17E-07	1.45E-06	2.49E-07	2.71E-07	1.64E-07	7.67E-08
10A	1.841	nd	nd	nd	nd	1.80E-06	nd	nd	nd	nd
11	2.503	6.47E-07	5.43E-07	3.80E-07	8.55E-08	9.35E-07	3.34E-07	3.44E-07	1.24E-07	6.08E-08
11A	2.503	nd	nd	nd	nd	1.07E-06	nd	nd	nd	nd
12	3.464	6.87E-07	5.82E-07	4.07E-07	9.57E-08	1.29E-06	3.22E-07	3.26E-07	1.34E-07	6.95E-08
12A	3.464	nd	nd	nd	nd	1.32E-06	nd	nd	nd	nd
13	4.464	7.91E-07	6.54E-07	4.57E-07	1.10E-07	2.15E-06	3.23E-07	3.29E-07	1.68E-07	7.91E-08
13A	4.464	nd	nd	nd	nd	2.20E-06	nd	nd	nd	nd
14	7.448	8.68E-07	7.79E-07	5.57E-07	1.41E-07	1.71E-06	3.18E-07	3.18E-07	1.79E-07	9.18E-08
14A	7.448	nd	nd	nd	nd	1.67E-06	nd	nd	nd	nd
15	7.508	1.87E-07	1.74E-07	1.30E-07	4.46E-08	8.43E-07	2.06E-07	2.02E-07	5.14E-08	2.93E-08

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ -count.

^b Corrected for decay back to capsule exit.

^c nd: none detected.

^d na: not applicable because birth rate is zero.

APPENDIX C : FISSION GAS RELEASE DATA

R/B of Kr and Xe Fission Gas Isotopes (continued)

Gas ^a Sample	Sample Time Elap Day	Release Rate-to-Birth Rate (R/B) of Fission Gas ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
15A	7.508	nd	nd	nd	nd	8.03E-07	nd	nd	nd	nd
16	8.441	8.84E-07	7.66E-07	5.78E-07	1.43E-07	1.45E-06	3.01E-07	3.05E-07	1.72E-07	8.80E-08
16A	8.441	nd	nd	nd	nd	1.57E-06	nd	nd	nd	nd
17	9.441	9.73E-07	8.60E-07	6.27E-07	1.69E-07	2.03E-06	3.40E-07	3.35E-07	2.01E-07	1.09E-07
17A	9.441	nd	nd	nd	nd	2.04E-06	nd	nd	nd	nd
18	10.456	1.09E-06	9.79E-07	7.09E-07	1.95E-07	3.61E-06	3.84E-07	3.90E-07	2.36E-07	1.26E-07
18A	10.456	nd	nd	nd	nd	3.70E-06	nd	nd	nd	nd
19	10.500	7.77E-07	7.05E-07	5.29E-07	1.43E-07	2.37E-06	3.57E-07	3.50E-07	1.74E-07	8.74E-08
19A	10.500	nd	nd	nd	nd	2.45E-06	nd	nd	nd	nd
20	11.448	9.47E-07	8.59E-07	6.38E-07	1.73E-07	2.44E-06	3.59E-07	3.46E-07	2.07E-07	1.01E-07
20A	11.448	nd	nd	nd	nd	2.43E-06	nd	nd	nd	nd
21	14.447	1.18E-06	1.08E-06	8.15E-07	2.54E-07	3.06E-06	4.66E-07	4.67E-07	3.01E-07	1.65E-07
21A	14.447	nd	nd	nd	nd	2.99E-06	4.77E-07	nd	nd	nd
22	14.489	3.04E-07	2.62E-07	2.07E-07	7.77E-08	2.21E-06	3.61E-07	3.43E-07	8.49E-08	4.74E-08
22A	14.489	nd	nd	nd	nd	2.24E-06	3.72E-07	nd	nd	nd
23	14.520	2.97E-07	2.67E-07	2.15E-07	7.54E-08	1.62E-06	3.28E-07	3.18E-07	8.12E-08	4.90E-08
23A	14.520	nd	nd	nd	nd	1.66E-06	3.50E-07	nd	nd	nd
24	14.548	3.07E-07	2.79E-07	2.16E-07	7.55E-08	1.55E-06	3.15E-07	3.10E-07	8.02E-08	4.85E-08
24A	14.548	nd	nd	nd	nd	1.66E-06	3.31E-07	nd	nd	nd
25	15.448	1.19E-06	1.10E-06	8.23E-07	2.72E-07	2.84E-06	4.67E-07	4.74E-07	3.12E-07	1.75E-07
25A	15.448	nd	nd	nd	nd	nd	nd	nd	nd	nd
26	16.449	1.42E-06	1.25E-06	9.30E-07	2.96E-07	1.11E-05	5.18E-07	5.27E-07	3.50E-07	1.92E-07
26A	16.449	nd	nd	nd	nd	1.13E-05	nd	nd	nd	nd
27	16.488	7.03E-07	6.40E-07	5.09E-07	1.69E-07	2.70E-06	4.66E-07	4.55E-07	1.81E-07	9.62E-08
27A	16.488	nd	nd	nd	nd	2.82E-06	nd	nd	nd	nd
28	17.449	9.16E-07	8.36E-07	6.02E-07	1.90E-07	2.05E-06	3.58E-07	3.56E-07	1.96E-07	1.00E-07
28A	17.449	nd	nd	nd	nd	1.95E-06	nd	nd	nd	nd
29	18.545	9.54E-07	8.67E-07	6.52E-07	1.89E-07	1.83E-06	3.59E-07	3.50E-07	2.02E-07	1.04E-07
29A	18.545	nd	nd	nd	nd	1.86E-06	nd	nd	nd	nd

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ-count.

^b Corrected for decay back to capsule exit.

^c nd: none detected.

^d na: not applicable because birth rate is zero.

APPENDIX C : FISSION GAS RELEASE DATA

R/B of Kr and Xe Fission Gas Isotopes (continued)

Gas ^a Sample	Sample Time Elap Day	Release Rate-to-Birth Rate (R/B) of Fission Gas ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
30	18.708	7.23E-07	6.58E-07	5.03E-07	1.56E-07	2.15E-06	3.28E-07	3.23E-07	1.53E-07	8.35E-08
31	21.441	8.80E-07	8.10E-07	5.84E-07	1.81E-07	1.69E-06	3.02E-07	3.15E-07	1.87E-07	9.85E-08
32	21.481	3.88E-07	3.47E-07	2.65E-07	9.78E-08	2.08E-06	2.59E-07	2.59E-07	1.01E-07	5.94E-08
33	21.518	1.14E-06	1.01E-06	7.03E-07	1.91E-07	2.18E-06	3.04E-07	3.14E-07	1.68E-07	9.38E-08
33A	21.518	1.15E-06	9.81E-07	7.22E-07	nd	2.14E-06	3.29E-07	nd	nd	nd
34	22.448	7.61E-07	7.03E-07	4.98E-07	1.53E-07	2.46E-06	2.42E-07	2.45E-07	1.31E-07	7.39E-08
34A	22.448	7.75E-07	6.94E-07	5.29E-07	nd	2.45E-06	2.60E-07	2.53E-07	1.36E-07	nd
34B	22.448	7.54E-07	6.71E-07	5.32E-07	nd	2.48E-06	2.61E-07	nd	nd	nd
35	22.503	na ^c	na	na	na	4.33E-07	2.01E-07	1.91E-07	na	na
36	23.445	na	na	na	na	3.96E-07	1.99E-07	1.70E-07	na	na
37	24.456	na	na	na	na	4.32E-07	2.15E-07	1.59E-07	na	na
Cycle 2										
38	27.571	1.54E-07	1.59E-07	1.30E-07	5.77E-08	4.93E-05	9.19E-08	6.73E-08	7.05E-08	3.73E-08
39	27.612	2.02E-07	1.97E-07	1.65E-07	6.91E-08	1.43E-05	8.32E-08	7.23E-08	7.91E-08	4.42E-08
40	27.645	2.28E-07	2.29E-07	1.89E-07	6.87E-08	8.75E-06	9.67E-08	8.22E-08	8.51E-08	4.87E-08
41	28.447	4.36E-07	4.01E-07	2.96E-07	1.11E-07	1.01E-06	1.08E-07	1.24E-07	1.21E-07	6.43E-08
41A	28.447	4.40E-07	nd	nd	nd	1.03E-06	1.21E-07	nd	nd	nd
42	28.475	4.93E-07	4.49E-07	3.26E-07	1.12E-07	1.21E-06	1.18E-07	1.34E-07	1.28E-07	7.33E-08
42A	28.475	nd	nd	nd	nd	1.17E-06	1.30E-07	nd	nd	nd
43	28.507	4.52E-07	4.10E-07	3.16E-07	1.09E-07	1.11E-06	1.11E-07	1.25E-07	1.22E-07	7.11E-08
43A	28.507	nd	nd	nd	nd	1.05E-06	nd	nd	nd	nd
44	29.443	4.58E-07	4.23E-07	3.20E-07	1.12E-07	7.93E-07	1.14E-07	1.30E-07	1.23E-07	6.70E-08
44A	29.443	4.72E-07	nd	nd	nd	8.25E-07	1.25E-07	nd	nd	nd
45	29.513	8.32E-07	7.27E-07	4.90E-07	1.54E-07	1.45E-06	1.41E-07	1.54E-07	1.55E-07	8.33E-08
46	30.445	6.32E-07	5.63E-07	4.20E-07	1.36E-07	1.17E-06	1.66E-07	1.76E-07	1.37E-07	7.79E-08
47	31.457	6.30E-07	5.82E-07	4.20E-07	1.52E-07	1.20E-06	1.67E-07	1.76E-07	1.35E-07	7.75E-08
48	32.444	6.11E-07	5.48E-07	4.10E-07	1.43E-07	1.11E-06	1.62E-07	1.70E-07	1.32E-07	7.63E-08
49	35.443	9.60E-07	8.69E-07	6.69E-07	2.47E-07	1.87E-06	2.65E-07	2.77E-07	2.08E-07	1.20E-07
50	35.486	6.26E-07	5.79E-07	4.62E-07	1.80E-07	1.42E-06	2.35E-07	2.42E-07	1.69E-07	1.01E-07

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ-count.

^b Corrected for decay back to capsule exit.

^c nd: none detected.

^d na: not applicable because birth rate is zero.

APPENDIX C : FISSION GAS RELEASE DATA

R/B of Kr and Xe Fission Gas Isotopes (continued)

Gas ^a Sample	Sample Time Elap Day	Release Rate-to-Birth Rate (R/B) of Fission Gas ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
51	35.523	1.17E-06	1.05E-06	7.94E-07	2.57E-07	2.10E-06	2.74E-07	2.87E-07	2.21E-07	1.31E-07
52	36.440	9.90E-07	8.92E-07	6.72E-07	2.53E-07	1.77E-06	2.65E-07	2.81E-07	2.21E-07	1.33E-07
52A	36.440	9.79E-07	8.95E-07	7.10E-07	nd	1.68E-06	2.85E-07	2.94E-07	2.20E-07	nd
52B	36.440	9.79E-07	9.05E-07	7.04E-07	nd	1.69E-06	2.91E-07	nd	nd	nd
52C	36.440	1.01E-06	8.67E-07	6.87E-07	nd	1.68E-06	2.84E-07	nd	nd	nd
53	37.444	9.26E-07	8.57E-07	6.52E-07	2.35E-07	1.56E-06	2.65E-07	2.76E-07	2.08E-07	1.20E-07
54	37.649	1.28E-06	1.19E-06	9.15E-07	3.08E-07	2.70E-06	3.73E-07	3.86E-07	2.82E-07	1.62E-07
54A	37.649	1.28E-06	1.17E-06	9.36E-07	nd	2.85E-06	4.06E-07	nd	nd	nd
55	38.439	1.40E-06	1.31E-06	1.01E-06	3.59E-07	2.56E-06	4.02E-07	4.07E-07	3.11E-07	1.81E-07
55A	38.439	1.41E-06	1.30E-06	1.04E-06	nd	2.35E-06	4.26E-07	nd	nd	nd
56	39.514	na	na	na	na	8.09E-07	3.20E-07	2.72E-07	na	na
57	40.442	na	na	na	na	6.58E-07	3.51E-07	2.38E-07	na	na
58	42.443	na	na	na	na	8.12E-07	5.80E-07	nd	na	na
59	43.901	6.22E-07	6.46E-07	5.96E-07	2.71E-07	6.66E-05	2.91E-07	2.39E-07	2.60E-07	1.49E-07
60	43.931	7.58E-07	7.80E-07	7.08E-07	2.88E-07	3.07E-05	2.50E-07	2.51E-07	2.73E-07	1.64E-07
61	44.441	1.37E-06	1.29E-06	9.80E-07	3.61E-07	3.32E-06	3.09E-07	3.57E-07	3.34E-07	1.91E-07
62	44.493	2.39E-06	2.14E-06	1.56E-06	4.93E-07	5.56E-06	3.99E-07	4.57E-07	4.34E-07	2.38E-07
64	45.497	1.65E-06	1.53E-06	1.20E-06	4.39E-07	2.38E-06	4.75E-07	5.00E-07	3.82E-07	2.25E-07
65	46.445	1.69E-06	1.56E-06	1.21E-06	4.70E-07	2.34E-06	4.58E-07	4.89E-07	3.94E-07	2.39E-07
66	47.439	1.67E-06	1.55E-06	1.19E-06	4.30E-07	2.33E-06	4.21E-07	4.49E-07	3.73E-07	2.14E-07
67	50.445	1.46E-06	1.34E-06	1.06E-06	3.53E-07	2.08E-06	3.72E-07	3.69E-07	3.00E-07	1.68E-07
68	50.474	9.30E-07	8.82E-07	7.33E-07	3.02E-07	1.67E-06	3.35E-07	3.59E-07	2.67E-07	1.61E-07
69	50.515	1.64E-06	1.51E-06	1.17E-06	4.31E-07	2.15E-06	3.76E-07	4.16E-07	3.37E-07	2.08E-07
70	51.443	1.52E-06	1.41E-06	1.11E-06	4.16E-07	2.14E-06	3.77E-07	4.13E-07	3.31E-07	1.99E-07
71	52.445	1.55E-06	1.44E-06	1.10E-06	4.10E-07	2.25E-06	3.74E-07	4.09E-07	3.23E-07	1.97E-07
72	53.439	1.41E-06	1.29E-06	1.01E-06	3.57E-07	2.47E-06	3.87E-07	5.84E-07	na	na
73	54.454	na	na	na	na	7.81E-07	3.06E-07	2.35E-07	na	na
74	55.454	na	na	na	na	9.33E-07	3.92E-07	2.96E-07	na	na
75	56.490	na	na	na	na	8.48E-07	5.69E-07	nd	na	na

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ-count.

^b Corrected for decay back to capsule exit.

^c nd: none detected.

^d na: not applicable because birth rate is zero.

APPENDIX C : FISSION GAS RELEASE DATA

R/B of Kr and Xe Fission Gas Isotopes (continued)

Gas ^a Sample	Sample Time Elap Day	Release Rate-to-Birth Rate (R/B) of Fission Gas ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
Cycle 3										
76	76.716	6.22E-07	6.51E-07	5.98E-07	2.87E-07	2.00E-05	3.25E-07	2.40E-07	2.63E-07	1.59E-07
77	76.745	8.21E-07	8.51E-07	7.52E-07	3.18E-07	7.08E-06	2.84E-07	2.78E-07	2.90E-07	1.77E-07
78	77.422	1.59E-06	1.46E-06	1.17E-06	4.24E-07	1.08E-06	4.01E-07	4.29E-07	3.85E-07	2.26E-07
78A	77.422	1.58E-06	1.46E-06	1.21E-06	nd	1.16E-06	4.38E-07	4.49E-07	3.93E-07	nd
79	78.444	1.75E-06	1.64E-06	1.28E-06	4.95E-07	1.74E-06	4.63E-07	4.97E-07	4.25E-07	2.57E-07
80	78.483	1.68E-06	1.57E-06	1.19E-06	4.56E-07	1.24E-06	4.53E-07	4.75E-07	4.08E-07	2.43E-07
80A	78.483	1.81E-06	nd	nd	nd	1.59E-06	4.73E-07	nd	nd	nd
81	79.449	1.70E-06	1.60E-06	1.27E-06	4.85E-07	1.75E-06	4.65E-07	5.00E-07	4.23E-07	2.53E-07
82	79.477	1.86E-06	1.69E-06	1.34E-06	5.34E-07	1.90E-06	4.95E-07	5.33E-07	4.48E-07	2.66E-07
83	80.448	1.68E-06	1.56E-06	1.25E-06	4.96E-07	1.98E-06	4.63E-07	4.93E-07	4.18E-07	2.56E-07
84	81.435	1.66E-06	1.56E-06	1.21E-06	4.77E-07	2.05E-06	4.48E-07	4.82E-07	4.08E-07	2.41E-07
85	81.480	2.66E-06	2.38E-06	1.77E-06	6.07E-07	3.05E-06	5.11E-07	5.56E-07	4.93E-07	2.94E-07
86	81.633	2.08E-06	1.95E-06	1.53E-06	5.64E-07	2.77E-06	5.21E-07	5.63E-07	4.68E-07	2.69E-07
87	82.431	1.95E-06	1.79E-06	1.44E-06	5.69E-07	2.50E-06	5.50E-07	5.67E-07	4.53E-07	2.84E-07
88	85.428	2.13E-06	1.99E-06	1.54E-06	5.60E-07	4.88E-06	5.73E-07	5.87E-07	4.45E-07	2.57E-07
88A	85.428	nd	nd	nd	nd	5.08E-06	6.26E-07	nd	nd	nd
89	86.441	1.92E-06	1.76E-06	1.36E-06	4.78E-07	2.89E-06	5.43E-07	5.30E-07	3.95E-07	2.32E-07
90	87.440	1.91E-06	1.75E-06	1.38E-06	5.39E-07	2.91E-06	5.19E-07	5.39E-07	4.08E-07	2.51E-07
91	88.445	1.99E-06	1.83E-06	1.39E-06	4.58E-07	2.78E-06	5.01E-07	5.01E-07	3.90E-07	2.19E-07
92	91.445	2.19E-06	2.05E-06	1.59E-06	6.02E-07	2.96E-06	5.95E-07	6.16E-07	4.63E-07	2.81E-07
93	92.446	2.23E-06	2.08E-06	1.64E-06	6.34E-07	3.17E-06	6.05E-07	6.25E-07	4.69E-07	2.82E-07
94	92.482	1.74E-06	1.67E-06	1.33E-06	5.61E-07	2.82E-06	5.74E-07	6.04E-07	4.31E-07	2.71E-07
95	93.443	2.18E-06	2.05E-06	1.56E-06	5.77E-07	2.94E-06	5.41E-07	5.65E-07	4.37E-07	2.69E-07
96	94.443	2.03E-06	1.87E-06	1.45E-06	5.65E-07	3.11E-06	5.16E-07	5.43E-07	4.15E-07	2.55E-07
97	95.444	1.82E-06	1.62E-06	1.19E-06	2.50E-07	2.79E-06	4.78E-07	3.34E-07	2.48E-07	1.26E-07
98	95.468	1.95E-06	1.80E-06	1.41E-06	5.36E-07	2.78E-06	5.04E-07	5.28E-07	3.98E-07	2.47E-07
99	98.445	2.11E-06	1.95E-06	1.45E-06	5.54E-07	2.89E-06	4.62E-07	4.98E-07	3.79E-07	2.36E-07
100	98.713	1.84E-06	1.70E-06	1.31E-06	4.99E-07	2.61E-06	4.52E-07	4.79E-07	3.61E-07	2.16E-07

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ-count.

^b Corrected for decay back to capsule exit.

^c nd: none detected.

^d na: not applicable because birth rate is zero.

APPENDIX C : FISSION GAS RELEASE DATA

R/B of Kr and Xe Fission Gas Isotopes (continued)

Gas ^a Sample	Sample Time Elap Day	Release Rate-to-Birth Rate (R/B) of Fission Gas ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
101	99.440	na	na	na	na	1.25E-06	4.08E-07	3.00E-07	na	na
102	100.445	na	na	na	na	8.91E-07	4.73E-07	3.12E-07	na	na
103	101.446	na	na	na	na	9.21E-07	5.07E-07	3.55E-07	na	na
Cycle 4										
104	110.817	8.24E-07	8.45E-07	8.25E-07	4.17E-07	1.01E-04	3.96E-07	3.09E-07	3.41E-07	2.18E-07
105	110.849	9.97E-07	1.02E-06	9.68E-07	4.53E-07	2.82E-05	3.87E-07	3.48E-07	3.63E-07	2.30E-07
106	111.793	1.99E-06	1.86E-06	1.53E-06	6.22E-07	2.02E-06	5.55E-07	5.82E-07	4.92E-07	3.08E-07
107	112.442	1.99E-06	1.84E-06	1.46E-06	6.18E-07	1.96E-06	5.86E-07	6.06E-07	4.83E-07	3.07E-07
108	113.443	1.82E-06	1.69E-06	1.27E-06	5.64E-07	2.08E-06	5.69E-07	5.81E-07	4.56E-07	2.91E-07
109	113.480	1.70E-06	1.49E-06	1.06E-06	2.04E-07	2.05E-06	5.58E-07	3.09E-07	2.37E-07	1.16E-07
110	114.438	1.92E-06	1.78E-06	1.40E-06	5.72E-07	2.19E-06	5.62E-07	5.89E-07	4.62E-07	2.93E-07
111	115.439	1.88E-06	1.72E-06	1.34E-06	5.59E-07	2.22E-06	5.53E-07	5.71E-07	4.42E-07	2.91E-07
112	116.442	1.85E-06	1.75E-06	1.38E-06	5.77E-07	2.48E-06	5.40E-07	5.64E-07	4.41E-07	2.77E-07
113	119.440	1.65E-06	1.46E-06	1.07E-06	2.37E-07	2.45E-06	5.04E-07	3.23E-07	2.44E-07	1.19E-07
114	119.451	1.84E-06	1.69E-06	1.35E-06	5.46E-07	2.58E-06	5.23E-07	5.44E-07	4.19E-07	2.68E-07
115	120.440	1.75E-06	1.58E-06	1.28E-06	5.15E-07	2.49E-06	5.01E-07	5.25E-07	4.01E-07	2.56E-07
116	120.485	2.41E-06	2.23E-06	1.72E-06	6.11E-07	2.90E-06	5.43E-07	5.74E-07	4.54E-07	2.87E-07
117	120.517	2.27E-06	2.08E-06	1.65E-06	6.25E-07	3.03E-06	5.51E-07	5.75E-07	4.51E-07	2.95E-07
118	121.444	1.92E-06	1.79E-06	1.44E-06	5.73E-07	2.86E-06	5.72E-07	5.74E-07	4.24E-07	2.72E-07
119	122.441	1.94E-06	1.78E-06	1.41E-06	5.79E-07	2.74E-06	5.71E-07	5.77E-07	4.19E-07	2.70E-07
120	123.443	2.12E-06	1.95E-06	1.60E-06	5.73E-07	3.05E-06	5.82E-07	5.81E-07	4.30E-07	2.61E-07
121	126.442	2.37E-06	2.19E-06	1.74E-06	6.26E-07	3.29E-06	5.83E-07	6.08E-07	4.44E-07	2.65E-07
122	127.440	2.22E-06	2.07E-06	1.62E-06	5.94E-07	2.95E-06	5.75E-07	6.00E-07	4.33E-07	2.69E-07
123	127.481	1.78E-06	1.69E-06	1.36E-06	5.46E-07	2.57E-06	5.49E-07	5.77E-07	4.02E-07	2.51E-07
124	127.513	1.90E-06	1.80E-06	1.46E-06	5.22E-07	2.68E-06	5.56E-07	5.82E-07	4.06E-07	2.44E-07
125	127.759	2.15E-06	2.00E-06	1.59E-06	5.91E-07	2.73E-06	6.01E-07	6.05E-07	4.54E-07	2.81E-07
126	128.448	2.00E-06	1.86E-06	1.48E-06	6.18E-07	2.77E-06	5.66E-07	5.91E-07	4.43E-07	2.79E-07
127	129.443	1.88E-06	1.75E-06	1.37E-06	6.20E-07	2.70E-06	5.44E-07	5.69E-07	4.24E-07	2.76E-07
128	130.444	1.95E-06	1.82E-06	1.42E-06	6.01E-07	2.80E-06	5.34E-07	5.54E-07	4.18E-07	2.73E-07

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ -count.

^b Corrected for decay back to capsule exit.

^c nd: none detected.

^d na: not applicable because birth rate is zero.

APPENDIX C : FISSION GAS RELEASE DATA

R/B of Kr and Xe Fission Gas Isotopes (continued)

Gas ^a Sample	Sample Time Elap Day	Release Rate-to-Birth Rate (R/B) of Fission Gas ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
129	132.774	1.87E-06	1.72E-06	1.33E-06	5.48E-07	2.68E-06	5.02E-07	5.25E-07	3.93E-07	2.48E-07
130	133.377	1.74E-06	1.58E-06	1.25E-06	5.10E-07	2.73E-06	4.76E-07	5.00E-07	3.68E-07	2.35E-07
131	133.508	na	na	na	na	8.07E-07	4.32E-07	3.54E-07	na	na
131A	133.508	na	na	na	na	8.33E-07	4.18E-07	nd	na	na
132	134.435	na	na	na	na	1.15E-06	4.40E-07	2.96E-07	na	na
132A	134.435	na	na	na	na	1.18E-06	6.44E-07	nd	na	na
133	135.439	na	na	na	na	8.43E-07	4.55E-07	3.44E-07	na	na

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^b Corrected for decay back to capsule exit.

^c nd: none detected.

^d na: not applicable because birth rate is zero.

APPENDIX C : FISSION GAS RELEASE DATA

Capsule Operating Parameters at Grab Sample Time

Gas ^a Sample	Sample Time	Elapsed Days	Efpd ^b	Comp 6		γ -Scan Acquire Time	Sweep Gas		capsule pressure (psia)	grab sample (std cc)
				Fluence ^c x10 ²⁵	Burnup % FIMA		Flow (scc/min) ^d	% He		
	10-Apr-94 21:56	0.000	0.000							
						Cycle 1				
1	10-Apr-94 22:46	0.035	0.035	1.09E-03	3.9E-05	10-Apr-94 22:51	108.3	100.0	30.19	102.4
2	10-Apr-94 23:32	0.067	0.067	2.08E-03	7.4E-05	10-Apr-94 23:36	109.0	100.0	30.19	99.9
2A	10-Apr-94 23:32	0.067	0.067	2.08E-03	7.4E-05	13-Apr-94 15:57	109.0	100.0	30.19	99.9
3	11-Apr-94 10:19	0.516	0.516	1.61E-02	5.5E-04	11-Apr-94 10:23	110.4	100.0	30.04	94.7
3A	11-Apr-94 10:19	0.516	0.516	1.61E-02	5.5E-04	19-Apr-94 15:53	110.4	100.0	30.04	94.7
4	11-Apr-94 15:34	0.735	0.735	2.29E-02	7.3E-04	11-Apr-94 15:37	109.0	100.0	30.04	96.3
4A	11-Apr-94 15:34	0.735	0.735	2.29E-02	7.3E-04	12-Apr-94 11:19	109.0	100.0	30.04	96.3
5	12-Apr-94 8:44	1.450	1.450	4.52E-02	1.5E-03	12-Apr-94 8:47	110.6	100.0	30.09	103.5
5A	12-Apr-94 8:44	1.450	1.450	4.52E-02	1.5E-03	14-Apr-94 9:39	110.6	100.0	30.09	103.5
6	12-Apr-94 9:37	1.487	1.487	4.63E-02	1.5E-03	12-Apr-94 9:41	109.5	100.0	30.24	96.3
6A	12-Apr-94 9:37	1.487	1.487	4.63E-02	1.5E-03	15-Apr-94 9:44	109.5	100.0	30.24	96.3
7	12-Apr-94 14:53	1.706	1.706	5.31E-02	1.8E-03	12-Apr-94 14:57	104.3	70.6	30.34	89.7
7A	12-Apr-94 14:53	1.706	1.706	5.31E-02	1.8E-03	15-Apr-94 14:48	104.3	70.6	30.34	89.7
8	12-Apr-94 15:53	1.748	1.748	5.44E-02	1.8E-03	12-Apr-94 15:58	103.3	41.1	30.34	95.1
8A	12-Apr-94 15:53	1.748	1.748	5.44E-02	1.8E-03	16-Apr-94 7:14	103.3	41.1	30.34	95.1
9	12-Apr-94 17:00	1.795	1.795	5.59E-02	1.9E-03	12-Apr-94 17:03	52.4	43.3	30.14	92.5
9A	12-Apr-94 17:00	1.795	1.795	5.59E-02	1.9E-03	17-Apr-94 7:56	52.4	43.3	30.14	92.5
10	12-Apr-94 18:06	1.841	1.841	5.73E-02	2.0E-03	12-Apr-94 18:09	51.0	21.1	30.19	85.1
10A	12-Apr-94 18:06	1.841	1.841	5.73E-02	2.0E-03	18-Apr-94 10:47	51.0	21.1	30.19	85.1
11	13-Apr-94 10:00	2.503	2.503	7.80E-02	2.7E-03	13-Apr-94 10:04	54.5	21.9	29.79	90.9
11A	13-Apr-94 10:00	2.503	2.503	7.80E-02	2.7E-03	19-Apr-94 9:13	54.5	21.9	29.79	90.9
12	14-Apr-94 9:04	3.464	3.464	1.08E-01	3.7E-03	14-Apr-94 9:09	56.0	22.3	29.74	92.7
12A	14-Apr-94 9:04	3.464	3.464	1.08E-01	3.7E-03	20-Apr-94 9:13	56.0	22.3	29.74	92.7
13	15-Apr-94 9:04	4.464	4.464	1.39E-01	4.7E-03	15-Apr-94 9:07	55.5	22.0	29.84	91.9
13A	15-Apr-94 9:04	4.464	4.464	1.39E-01	4.7E-03	20-Apr-94 16:40	55.5	22.0	29.84	91.9
14	18-Apr-94 8:41	7.448	7.448	2.32E-01	7.9E-03	18-Apr-94 8:44	56.7	21.8	29.89	82.9
14A	18-Apr-94 8:41	7.448	7.448	2.32E-01	7.9E-03	21-Apr-94 10:38	56.7	21.8	29.89	82.9
15	18-Apr-94 10:07	7.508	7.508	2.34E-01	8.0E-03	18-Apr-94 10:11	107.4	100.0	30.10	133.6
15A	18-Apr-94 10:07	7.508	7.508	2.34E-01	8.0E-03	21-Apr-94 16:02	107.4	100.0	30.10	133.6
16	19-Apr-94 8:31	8.441	8.441	2.63E-01	9.0E-03	19-Apr-94 8:35	58.5	21.6	29.94	79.4
16A	19-Apr-94 8:31	8.441	8.441	2.63E-01	9.0E-03	22-Apr-94 9:27	58.5	21.6	29.94	79.4
17	20-Apr-94 8:31	9.441	9.441	2.94E-01	1.0E-02	20-Apr-94 8:35	58.5	21.3	29.99	82.2

^a Letters indicate a recount of the same numeric sample.

^b Days at 85 Mw(t)

^c n/m² HTGR (E >29fJ)

^d Standard conditions: 273.15K; 1.01 Pa.

APPENDIX C : FISSION GAS RELEASE DATA

Capsule Operating Parameters at Grab Sample Time (continued)

Gas ^a Sample	Sample Time	Elapsed Days	Efpd ^b	Comp 6		γ -Scan Acquire Time	Sweep Gas		capsule pressure (psia)	grab sample (std cc)
				Fluence ^c $\times 10^{25}$	Burnup % FIMA		Flow (scc/min) ^d	% He		
17A	20-Apr-94 8:31	9.441	9.441	2.94E-01	1.0E-02	22-Apr-94 12:40	58.5	21.3	29.99	82.2
18	21-Apr-94 8:51	10.456	10.456	3.26E-01	1.1E-02	21-Apr-94 8:57	58.7	21.2	29.94	103.4
18A	21-Apr-94 8:51	10.456	10.456	3.26E-01	1.1E-02	23-Apr-94 15:21	58.7	21.2	29.94	103.4
19	21-Apr-94 9:56	10.500	10.500	3.27E-01	1.1E-02	21-Apr-94 10:00	52.7	30.7	30.04	63.2
19A	21-Apr-94 9:56	10.500	10.500	3.27E-01	1.1E-02	25-Apr-94 11:44	52.7	30.7	30.04	63.2
20	22-Apr-94 8:41	11.448	11.448	3.57E-01	1.2E-02	22-Apr-94 8:46	53.7	30.4	29.99	96.5
20A	22-Apr-94 8:41	11.448	11.448	3.57E-01	1.2E-02	25-Apr-94 15:47	53.7	30.4	29.99	96.5
21	25-Apr-94 8:40	14.447	14.447	4.50E-01	1.6E-02	25-Apr-94 8:45	56.1	30.3	30.13	86.4
21A	25-Apr-94 8:40	14.447	14.447	4.50E-01	1.6E-02	26-Apr-94 8:45	56.1	30.3	30.13	86.4
22	25-Apr-94 9:39	14.489	14.489	4.51E-01	1.6E-02	25-Apr-94 9:43	108.3	100.0	30.28	81.4
22A	25-Apr-94 9:39	14.489	14.489	4.51E-01	1.6E-02	26-Apr-94 12:06	108.3	100.0	30.28	81.4
23	25-Apr-94 10:24	14.520	14.520	4.52E-01	1.6E-02	25-Apr-94 10:27	79.1	100.0	30.23	101.7
23A	25-Apr-94 10:24	14.520	14.520	4.52E-01	1.6E-02	26-Apr-94 15:15	79.1	100.0	30.23	101.7
24	25-Apr-94 11:04	14.548	14.548	4.53E-01	1.6E-02	25-Apr-94 11:07	53.5	100.0	30.18	103.4
24A	25-Apr-94 11:04	14.548	14.548	4.53E-01	1.6E-02	27-Apr-94 10:27	53.5	100.0	30.18	103.4
25	26-Apr-94 8:41	15.448	15.448	4.81E-01	1.7E-02	26-Apr-94 8:46	56.3	30.9	29.98	85.6
25A	26-Apr-94 8:41	15.448	15.448	4.81E-01	1.7E-02	27-Apr-94 13:31	56.3	30.9	29.98	85.6
26	27-Apr-94 8:42	16.449	16.449	5.12E-01	1.8E-02	27-Apr-94 8:47	55.9	30.6	29.98	79.7
26A	27-Apr-94 8:42	16.449	16.449	5.12E-01	1.8E-02	2-May-94 11:00	55.9	30.6	29.98	79.7
27	27-Apr-94 9:38	16.488	16.488	5.13E-01	1.8E-02	27-Apr-94 9:42	51.6	50.6	30.08	88.3
27A	27-Apr-94 9:38	16.488	16.488	5.13E-01	1.8E-02	2-May-94 15:28	51.6	50.6	30.08	88.3
28	28-Apr-94 8:42	17.449	17.449	5.43E-01	1.9E-02	28-Apr-94 8:47	53.2	50.4	29.98	93.1
28A	28-Apr-94 8:42	17.449	17.449	5.43E-01	1.9E-02	3-May-94 15:12	53.2	50.4	29.98	93.1
29	29-Apr-94 11:00	18.545	18.545	5.78E-01	2.0E-02	29-Apr-94 11:07	52.8	50.3	29.98	92.5
29A	29-Apr-94 11:00	18.545	18.545	5.78E-01	2.0E-02	4-May-94 14:55	52.8	50.3	29.98	92.5
30	29-Apr-94 14:54	18.708	18.708	5.83E-01	2.0E-02	29-Apr-94 14:59	52.1	59.4	30.03	95.6
31	2-May-94 8:31	21.441	21.441	6.68E-01	2.3E-02	2-May-94 8:35	55.0	59.7	29.98	92.8
32	2-May-94 9:28	21.481	21.481	6.69E-01	2.3E-02	2-May-94 9:31	56.0	100.0	30.03	93.1
33	2-May-94 10:21	21.518	21.518	6.70E-01	2.3E-02	2-May-94 10:25	55.6	59.0	30.13	85.1
33A	2-May-94 10:21	21.518	21.518	6.70E-01	2.3E-02	2-May-94 14:49	55.6	59.0	30.13	85.1
34	3-May-94 8:41	22.448	22.448	6.99E-01	2.4E-02	3-May-94 8:46	55.4	60.2	29.93	83.6
34A	3-May-94 8:41	22.448	22.448	6.99E-01	2.4E-02	3-May-94 9:24	55.4	60.2	29.93	83.6
34B	3-May-94 8:41	22.448	22.448	6.99E-01	2.4E-02	3-May-94 14:38	55.4	60.2	29.93	83.6

^a Letters indicate a recount of the same numeric sample.

^b Days at 85 Mw(t)

^c n/m² HTGR (E > 29fJ)

^d Standard conditions: 273.15K; 1.01 Pa.

APPENDIX C : FISSION GAS RELEASE DATA

Capsule Operating Parameters at Grab Sample Time (continued)

Gas ^a Sample	Sample Time	Elapsed Days	Efpd ^b	Comp 6		γ -Scan Acquire Time	Sweep Gas		capsule pressure (psia)	grab sample (std cc)
				Fluence ^c x10 ²⁵	Burnup % FIMA		Flow (scc/min) ^d	% He		
35	3-May-94 10:00	22.503	22.465	7.00E-01	2.5E-02	3-May-94 10:03	53.4	100.0	30.08	97.5
36	4-May-94 8:37	23.445	22.465	7.00E-01	2.5E-02	4-May-94 8:43	54.0	100.0	28.13	108.7
37	5-May-94 8:52	24.456	22.465	7.00E-01	2.5E-02	5-May-94 8:57	53.1	100.0	28.43	107.7
	8-May-94 11:00	27.538	22.465			Cycle 2				
38	8-May-94 11:37	27.571	22.491	7.00E-01	2.5E-02	8-May-94 11:40	54.3	100.0	29.63	90.9
39	8-May-94 12:37	27.612	22.533	7.02E-01	2.5E-02	8-May-94 12:40	53.8	100.0	29.78	95.4
40	8-May-94 13:24	27.645	22.565	7.03E-01	2.5E-02	8-May-94 13:27	53.4	100.0	29.83	104.7
41	9-May-94 8:39	28.447	23.367	7.28E-01	2.6E-02	9-May-94 8:41	54.8	100.0	29.58	94.4
41A	9-May-94 8:39	28.447	23.367	7.28E-01	2.6E-02	10-May-94 10:57	54.8	100.0	29.58	94.2
42	9-May-94 9:20	28.475	23.396	7.29E-01	2.6E-02	9-May-94 9:23	54.3	100.0	29.68	24.3
42A	9-May-94 9:20	28.475	23.396	7.29E-01	2.6E-02	10-May-94 15:01	54.3	100.0	29.68	24.3
43	9-May-94 10:06	28.507	23.428	7.30E-01	2.6E-02	9-May-94 10:09	53.9	100.0	29.83	27.7
43A	9-May-94 10:06	28.507	23.428	7.30E-01	2.6E-02	11-May-94 14:43	53.9	100.0	29.83	27.7
44	10-May-94 8:33	29.443	24.363	7.59E-01	2.7E-02	10-May-94 8:36	54.6	100.0	29.63	101.3
44A	10-May-94 8:33	29.443	24.363	7.59E-01	2.7E-02	11-May-94 9:25	54.6	100.0	29.63	101.3
45	10-May-94 10:15	29.513	24.434	7.61E-01	2.7E-02	10-May-94 10:19	52.0	71.7	29.83	84.8
46	11-May-94 8:37	30.445	25.366	7.90E-01	2.8E-02	11-May-94 8:42	54.8	71.0	29.63	103.0
47	12-May-94 8:54	31.457	26.378	8.22E-01	2.9E-02	12-May-94 8:58	53.3	70.7	29.89	101.6
48	13-May-94 8:35	32.444	27.364	8.52E-01	3.0E-02	13-May-94 8:39	53.7	70.7	29.79	88.4
49	16-May-94 8:33	35.443	30.363	9.46E-01	3.4E-02	16-May-94 8:38	53.9	70.5	29.68	105.4
50	16-May-94 9:35	35.486	30.406	9.47E-01	3.4E-02	16-May-94 9:38	53.5	100.0	29.73	113.4
51	16-May-94 10:28	35.523	30.443	9.48E-01	3.4E-02	16-May-94 10:33	53.8	70.0	29.83	90.8
52	17-May-94 8:29	36.440	31.361	9.77E-01	3.5E-02	17-May-94 8:34	55.2	71.7	29.63	104.7
52A	17-May-94 8:29	36.440	31.361	9.77E-01	3.5E-02	17-May-94 9:00	55.2	71.7	29.63	104.7
52B	17-May-94 8:29	36.440	31.361	9.77E-01	3.5E-02	17-May-94 11:00	55.2	71.7	29.63	104.7
52C	17-May-94 8:29	36.440	31.361	9.77E-01	3.5E-02	17-May-94 15:07	55.2	71.7	29.63	104.7
53	18-May-94 8:34	37.444	32.364	1.01E+00	3.6E-02	18-May-94 8:39	54.7	71.4	29.73	105.7
54	18-May-94 13:30	37.649	32.569	1.01E+00	3.6E-02	18-May-94 13:35	54.0	71.3	29.73	107.9
54A	18-May-94 13:30	37.649	32.569	1.01E+00	3.6E-02	18-May-94 16:00	54.0	71.3	29.73	107.9
55	19-May-94 8:28	38.439	33.360	1.04E+00	3.7E-02	19-May-94 8:34	54.8	71.5	29.78	92.1
55A	19-May-94 8:28	38.439	33.360	1.04E+00	3.7E-02	19-May-94 11:17	54.8	71.5	29.78	92.1
56	20-May-94 10:15	39.514	34.359	1.07E+00	3.8E-02	20-May-94 10:18	52.8	100.0	29.78	104.5

^a Letters indicate a recount of the same numeric sample.

^b Days at 85 Mw(t)

^c n/m² HTGR (E > 29fJ)

^d Standard conditions: 273.15K; 1.01 Pa.

APPENDIX C : FISSION GAS RELEASE DATA

Capsule Operating Parameters at Grab Sample Time (continued)

Gas ^a Sample	Sample Time	Elapsed Days	Efpd ^b	Comp 6		γ -Scan Acquire Time	Sweep Gas		capsule pressure (psia)	grab sample (std cc)
				Fluence ^c $\times 10^{25}$	Burnup % FIMA		Flow (scc/min) ^d	% He		
57	21-May-94 8:33	40.442	34.359	1.07E+00	3.8E-02	21-May-94 8:36	53.9	100.0	29.64	106.1
58	23-May-94 8:33	42.443	34.359	1.07E+00	3.8E-02	23-May-94 8:36	53.2	100.0	29.73	116.9
59	24-May-94 19:33	43.901	34.384	1.07E+00	3.8E-02	24-May-94 19:36	50.3	100.0	30.08	91.1
60	24-May-94 20:17	43.931	34.414	1.07E+00	3.8E-02	24-May-94 20:20	50.7	100.0	30.08	102.8
61	25-May-94 8:30	44.441	34.924	1.09E+00	3.9E-02	25-May-94 8:33	52.8	100.0	29.68	98.1
62	25-May-94 9:45	44.493	34.976	1.09E+00	3.9E-02	25-May-94 9:49	52.7	80.3	29.78	100.9
64	26-May-94 9:51	45.497	35.980	1.12E+00	4.0E-02	26-May-94 9:54	52.7	80.1	29.83	90.6
65	27-May-94 8:36	46.445	36.928	1.15E+00	4.1E-02	27-May-94 8:39	54.6	80.0	29.64	89.4
66	28-May-94 8:28	47.439	37.922	1.18E+00	4.2E-02	28-May-94 8:31	54.0	80.8	29.68	93.1
67	31-May-94 8:36	50.445	40.928	1.27E+00	4.5E-02	31-May-94 8:40	52.1	80.6	29.83	88.3
68	31-May-94 9:18	50.474	40.957	1.28E+00	4.5E-02	31-May-94 9:21	53.1	100.0	29.83	103.8
69	31-May-94 10:17	50.515	40.998	1.28E+00	4.5E-02	31-May-94 10:20	52.9	80.1	29.93	89.4
70	1-Jun-94 8:34	51.443	41.926	1.31E+00	4.6E-02	1-Jun-94 8:37	54.6	80.0	29.78	90.7
71	2-Jun-94 8:37	52.445	42.928	1.34E+00	4.7E-02	2-Jun-94 8:40	54.4	80.0	29.78	86.9
72	3-Jun-94 8:28	53.439	43.922	1.37E+00	4.8E-02	3-Jun-94 8:34	55.1	80.0	29.73	85.7
73	4-Jun-94 8:49	54.454	43.922	1.37E+00	4.8E-02	4-Jun-94 8:52	52.8	100.0	29.83	93.6
74	5-Jun-94 8:50	55.454	43.922	1.37E+00	4.8E-02	5-Jun-94 8:52	52.7	100.0	29.73	101.8
75	6-Jun-94 9:41	56.490	43.922	1.37E+00	4.8E-02	6-Jun-94 9:43	50.8	100.0	29.83	106.4
Cycle 3										
	26-Jun-94 14:34	76.693	43.922							
76	26-Jun-94 15:07	76.716	43.945	1.37E+00	4.8E-02	26-Jun-94 15:10	51.0	100.0	29.73	102.5
77	26-Jun-94 15:48	76.745	43.974	1.37E+00	4.8E-02	26-Jun-94 15:51	51.1	100.0	29.73	69.5
78	27-Jun-94 8:03	77.422	44.650	1.39E+00	4.9E-02	27-Jun-94 8:05	51.0	100.0	29.83	109.0
78A	27-Jun-94 8:03	77.422	44.650	1.39E+00	4.9E-02	27-Jun-94 8:46	51.0	100.0	29.83	109.0
79	28-Jun-94 8:35	78.444	45.673	1.42E+00	5.0E-02	28-Jun-94 8:38	52.3	100.0	29.53	105.6
80	28-Jun-94 9:31	78.483	45.712	1.42E+00	5.0E-02	28-Jun-94 9:34	52.2	100.0	29.63	24.3
80A	28-Jun-94 9:31	78.483	45.712	1.42E+00	5.0E-02	29-Jun-94 10:00	52.2	100.0	29.63	24.3
81	29-Jun-94 8:42	79.449	46.678	1.45E+00	5.2E-02	29-Jun-94 8:45	52.0	100.0	29.63	103.4
82	29-Jun-94 9:23	79.477	46.706	1.45E+00	5.2E-02	29-Jun-94 9:26	51.5	100.0	29.73	25.2
83	30-Jun-94 8:40	80.448	47.677	1.48E+00	5.3E-02	30-Jun-94 8:46	52.2	100.0	29.58	100.1
84	1-Jul-94 8:22	81.435	48.664	1.52E+00	5.4E-02	1-Jul-94 8:27	52.4	100.0	29.63	101.6
85	1-Jul-94 9:27	81.480	48.709	1.52E+00	5.4E-02	1-Jul-94 9:32	52.2	80.1	29.78	100.9
86	1-Jul-94 13:07	81.633	48.862	1.52E+00	5.4E-02	1-Jul-94 13:12	52.4	79.7	29.68	102.7

^a Letters indicate a recount of the same numeric sample.

^b Days at 85 Mw(t)

^c n/m² HTGR (E >29fJ)

^d Standard conditions: 273.15K; 1.01 Pa.

APPENDIX C : FISSION GAS RELEASE DATA

Capsule Operating Parameters at Grab Sample Time (continued)

Gas ^a Sample	Sample Time	Elapsed Days	Efpd ^b	Comp 6		γ -Scan Acquire Time	Sweep Gas		capsule pressure (psia)	grab sample (std cc)
				Fluence ^c x10 ²⁵	Burnup % FIMA		Flow (scc/min) ^d	% He		
87	2-Jul-94 8:16	82.431	49.660	1.55E+00	5.5E-02	2-Jul-94 8:21	53.2	79.5	29.68	100.5
88	5-Jul-94 8:12	85.428	52.657	1.64E+00	5.8E-02	5-Jul-94 8:17	54.7	79.6	29.48	105.1
88A	5-Jul-94 8:12	85.428	52.657	1.64E+00	5.8E-02	6-Jul-94 9:11	54.7	79.6	29.48	105.1
89	6-Jul-94 8:30	86.441	53.669	1.67E+00	5.9E-02	6-Jul-94 8:36	54.7	79.6	29.53	105.1
90	7-Jul-94 8:29	87.440	54.669	1.70E+00	6.0E-02	7-Jul-94 8:34	54.6	79.6	29.53	104.9
91	8-Jul-94 8:36	88.445	55.674	1.73E+00	6.1E-02	8-Jul-94 8:40	54.8	79.4	29.43	102.4
92	11-Jul-94 8:36	91.445	58.673	1.83E+00	6.4E-02	11-Jul-94 8:40	54.0	79.4	29.53	105.0
93	12-Jul-94 8:37	92.446	59.674	1.86E+00	6.5E-02	12-Jul-94 8:42	54.8	79.4	29.53	102.7
94	12-Jul-94 9:29	92.482	59.710	1.86E+00	6.5E-02	12-Jul-94 9:34	53.2	90.1	29.58	104.1
95	13-Jul-94 8:33	93.443	60.672	1.89E+00	6.6E-02	13-Jul-94 8:37	53.7	90.0	29.48	104.0
96	14-Jul-94 8:34	94.443	61.672	1.92E+00	6.7E-02	14-Jul-94 8:39	53.0	89.9	29.53	104.1
97	15-Jul-94 8:35	95.444	62.673	1.95E+00	6.8E-02	15-Jul-94 8:41	51.6	89.8	29.63	104.2
98	15-Jul-94 9:10	95.468	62.697	1.95E+00	6.8E-02	15-Jul-94 9:15	51.7	89.8	29.68	100.0
99	18-Jul-94 8:37	98.445	65.674	2.05E+00	7.1E-02	18-Jul-94 8:42	54.2	89.8	29.48	103.8
100	18-Jul-94 15:02	98.713	65.942	2.05E+00	7.1E-02	18-Jul-94 15:07	53.0	89.9	29.53	102.2
101	19-Jul-94 8:29	99.440	66.304	2.06E+00	7.2E-02	19-Jul-94 8:33	53.3	90.1	29.57	93.8
102	20-Jul-94 8:36	100.445	66.304	2.06E+00	7.2E-02	20-Jul-94 8:39	49.4	100.0	28.42	89.1
103	21-Jul-94 8:38	101.446	66.304	2.06E+00	7.2E-02	21-Jul-94 8:40	49.6	100.0	28.83	90.1
Cycle 4										
	30-Jul-94 16:59	110.794	66.304							
104	30-Jul-94 17:32	110.817	66.327	2.07E+00	7.2E-02	30-Jul-94 17:35	52.2	100.0	29.58	107.1
105	30-Jul-94 18:18	110.849	66.359	2.07E+00	7.2E-02	30-Jul-94 18:22	52.2	100.0	29.63	103.5
106	31-Jul-94 16:58	111.793	67.304	2.10E+00	7.3E-02	31-Jul-94 17:03	51.8	100.0	29.63	104.1
107	1-Aug-94 8:31	112.442	67.952	2.12E+00	7.3E-02	1-Aug-94 8:36	53.6	100.0	29.68	106.2
108	2-Aug-94 8:33	113.443	68.953	2.15E+00	7.4E-02	2-Aug-94 8:37	54.8	100.0	29.38	108.4
109	2-Aug-94 9:27	113.480	68.991	2.15E+00	7.4E-02	2-Aug-94 9:31	54.0	100.0	29.53	107.5
110	3-Aug-94 8:26	114.438	69.948	2.18E+00	7.5E-02	3-Aug-94 8:31	54.3	100.0	29.48	103.2
111	4-Aug-94 8:28	115.439	70.950	2.21E+00	7.6E-02	4-Aug-94 8:33	53.4	100.0	29.58	107.9
112	5-Aug-94 8:32	116.442	71.953	2.24E+00	7.7E-02	5-Aug-94 8:37	53.2	100.0	29.53	103.8
113	8-Aug-94 8:29	119.440	74.950	2.33E+00	8.0E-02	8-Aug-94 8:34	53.5	100.0	29.63	109.5
114	8-Aug-94 8:45	119.451	74.962	2.33E+00	8.0E-02	8-Aug-94 8:49	53.6	100.0	29.58	101.9
115	9-Aug-94 8:30	120.440	75.951	2.37E+00	8.1E-02	9-Aug-94 8:34	52.6	100.0	29.68	103.0
116	9-Aug-94 9:33	120.485	75.995	2.37E+00	8.1E-02	9-Aug-94 9:38	52.9	90.1	29.78	102.7

^a Letters indicate a recount of the same numeric sample.

^b Days at 85 Mw(t)

^c n/m² HTGR (E >29fJ)

^d Standard conditions: 273.15K; 1.01 Pa.

APPENDIX C : FISSION GAS RELEASE DATA

Capsule Operating Parameters at Grab Sample Time (continued)

Gas ^a Sample	Sample Time	Elapsed Days	Efpd ^b	Comp 6		γ -Scan Acquire Time	Sweep Gas		capsule pressure (psia)	grab sample (std cc)
				Fluence ^c $\times 10^{25}$	Burnup % FIMA		Flow (scc/min) ^d	% He		
117	9-Aug-94 10:20	120.517	76.028	2.37E+00	8.1E-02	9-Aug-94 10:25	53.0	89.9	29.80	104.6
118	10-Aug-94 8:35	121.444	76.955	2.40E+00	8.2E-02	10-Aug-94 8:40	53.2	89.6	29.68	103.9
119	11-Aug-94 8:31	122.441	77.952	2.43E+00	8.3E-02	11-Aug-94 8:36	54.5	89.7	29.73	106.1
120	12-Aug-94 8:34	123.443	78.954	2.46E+00	8.4E-02	12-Aug-94 8:39	53.7	89.5	29.48	103.0
121	15-Aug-94 8:33	126.442	81.953	2.55E+00	8.7E-02	15-Aug-94 8:38	53.0	89.4	29.78	105.5
122	16-Aug-94 8:30	127.440	82.951	2.58E+00	8.8E-02	16-Aug-94 8:34	54.9	89.7	29.48	104.9
123	16-Aug-94 9:29	127.481	82.992	2.58E+00	8.8E-02	16-Aug-94 9:31	53.1	100.0	29.58	105.1
124	16-Aug-94 10:15	127.513	83.024	2.59E+00	8.8E-02	16-Aug-94 10:20	53.1	100.0	29.58	106.5
125	16-Aug-94 16:08	127.759	83.269	2.59E+00	8.8E-02	16-Aug-94 16:14	52.4	100.0	29.43	97.9
126	17-Aug-94 8:40	128.448	83.958	2.61E+00	8.9E-02	17-Aug-94 8:45	51.4	100.0	29.68	106.4
127	18-Aug-94 8:34	129.443	84.954	2.65E+00	9.0E-02	18-Aug-94 8:39	53.0	100.0	29.68	108.9
128	19-Aug-94 8:35	130.444	85.954	2.68E+00	9.1E-02	19-Aug-94 8:40	53.5	100.0	29.33	106.6
129	21-Aug-94 16:30	132.774	88.285	2.75E+00	9.3E-02	21-Aug-94 16:35	53.0	100.0	29.48	102.6
130	22-Aug-94 6:59	133.377	88.888	2.77E+00	9.4E-02	22-Aug-94 7:04	53.9	100.0	29.49	106.4
131	22-Aug-94 10:08	133.508	88.888	2.77E+00	9.4E-02	22-Aug-94 10:10	53.1	100.0	29.59	105.9
131A	22-Aug-94 10:08	133.508	88.888	2.77E+00	9.4E-02	25-Aug-94 7:55	53.1	100.0	29.59	105.9
132	23-Aug-94 8:22	134.435	88.888	2.77E+00	9.4E-02	23-Aug-94 8:25	54.0	100.0	29.64	106.0
132A	23-Aug-94 8:22	134.435	88.888	2.77E+00	9.4E-02	26-Aug-94 12:24	54.0	100.0	29.64	106.0
133	24-Aug-94 8:28	135.439	88.888	2.77E+00	9.4E-02	24-Aug-94 8:30	54.2	100.0	27.37	106.7

^a Letters indicate a recount of the same numeric sample.

^b Days at 85 Mw(t)

^c n/m² HTGR (E >29fJ)

^d Standard conditions: 273.15K; 1.01 Pa.

APPENDIX C : FISSION GAS RELEASE DATA

Measured Fission Gas Activity in Grab Sample

HRB22 ^a	Sample Time Elap Day	Specific Activity (uCi/cc) of Radioactive Gas in Grab Sample ^b									
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe	⁴¹ Ar
Cycle 1											
1	0.035	5.33E-04	2.23E-03	3.18E-03	4.27E-02	nd ^c	nd	8.28E-04	2.08E-02	3.94E-02	1.46E-01
2	0.067	8.42E-04	3.74E-03	5.23E-03	6.51E-02	nd	2.48E-04	1.68E-03	2.82E-02	5.25E-02	1.50E-01
2A	0.067	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
3	0.516	1.40E-03	5.48E-03	6.66E-03	7.88E-02	nd	9.42E-04	6.64E-03	4.47E-02	7.76E-02	7.11E-02
3A	0.516	nd	nd	nd	nd	8.83E-05	nd	nd	nd	nd	nd
4	0.735	1.56E-03	6.16E-03	7.33E-03	8.88E-02	nd	1.05E-03	7.64E-03	4.96E-02	8.30E-02	5.94E-02
4A	0.735	nd	nd	nd	nd	1.14E-04	nd	nd	nd	nd	nd
5	1.450	1.52E-03	5.94E-03	7.29E-03	8.66E-02	nd	1.17E-03	8.03E-03	4.69E-02	7.62E-02	3.31E-02
5A	1.450	nd	nd	nd	nd	2.31E-04	nd	nd	nd	nd	nd
6	1.487	1.58E-03	5.91E-03	7.36E-03	9.20E-02	nd	1.16E-03	8.74E-03	4.80E-02	7.73E-02	3.32E-02
6A	1.487	nd	nd	nd	nd	2.26E-04	nd	nd	nd	nd	nd
7	1.706	2.60E-03	9.58E-03	1.11E-02	1.23E-01	3.10E-04	1.58E-03	1.07E-02	6.25E-02	1.10E-01	5.55E-02
7A	1.706	nd	nd	nd	nd	4.15E-04	nd	nd	nd	nd	nd
8	1.748	4.22E-03	1.42E-02	1.53E-02	1.62E-01	7.08E-04	1.85E-03	1.27E-02	7.45E-02	1.44E-01	1.14E-01
8A	1.748	nd	nd	nd	nd	6.74E-04	nd	nd	nd	nd	nd
9	1.795	6.86E-03	2.37E-02	2.69E-02	3.10E-01	1.37E-03	4.02E-03	2.78E-02	1.39E-01	2.62E-01	1.75E-01
9A	1.795	nd	nd	nd	nd	1.34E-03	nd	nd	nd	nd	nd
10	1.841	1.28E-02	4.24E-02	4.30E-02	3.83E-01	2.25E-03	6.88E-03	4.54E-02	1.68E-01	2.84E-01	3.21E-01
10A	1.841	nd	nd	nd	nd	2.78E-03	nd	nd	nd	nd	nd
11	2.503	6.57E-03	2.36E-02	2.69E-02	2.57E-01	1.51E-03	8.66E-03	5.43E-02	1.18E-01	2.10E-01	1.01E-01
11A	2.503	nd	nd	nd	nd	1.73E-03	nd	nd	nd	nd	nd
12	3.464	6.69E-03	2.41E-02	2.75E-02	2.75E-01	2.19E-03	8.13E-03	5.03E-02	1.24E-01	2.32E-01	5.79E-02
12A	3.464	nd	nd	nd	nd	2.25E-03	nd	nd	nd	nd	nd
13	4.464	7.66E-03	2.69E-02	3.08E-02	3.15E-01	3.82E-03	8.28E-03	5.20E-02	1.55E-01	2.67E-01	4.44E-02
13A	4.464	nd	nd	nd	nd	3.91E-03	nd	nd	nd	nd	nd
14	7.448	7.97E-03	3.02E-02	3.55E-02	3.80E-01	3.07E-03	8.15E-03	5.18E-02	1.63E-01	3.07E-01	2.62E-02
14A	7.448	nd	nd	nd	nd	3.00E-03	nd	nd	nd	nd	nd
15	7.508	9.07E-04	3.55E-03	4.35E-03	6.30E-02	8.01E-04	2.80E-03	1.74E-02	2.46E-02	5.17E-02	3.91E-03
15A	7.508	nd	nd	nd	nd	7.63E-04	nd	nd	nd	nd	nd
16	8.441	7.80E-03	2.85E-02	3.52E-02	3.66E-01	2.56E-03	7.56E-03	4.90E-02	1.51E-01	2.88E-01	2.29E-02
16A	8.441	nd	nd	nd	nd	2.76E-03	nd	nd	nd	nd	nd
17	9.441	8.53E-03	3.17E-02	3.80E-02	4.31E-01	3.60E-03	8.65E-03	5.50E-02	1.78E-01	3.58E-01	2.23E-02
17A	9.441	nd	nd	nd	nd	3.61E-03	nd	nd	nd	nd	nd

^a Letters indicate a recount of the same numeric sample.

^b Corrected for decay back to capsule exit.

^c nd: none detected

APPENDIX C : FISSION GAS RELEASE DATA

Measured Fission Gas Activity in Grab Sample (continued)

HRB22 ^a	Sample Time Elap Day	Specific Activity (uCi/cc) of Radioactive Gas in Grab Sample ^b									
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe	⁴¹ Ar
18	10.456	9.48E-03	3.56E-02	4.25E-02	4.89E-01	6.43E-03	9.84E-03	6.50E-02	2.09E-01	4.17E-01	2.18E-02
18A	10.456	nd	nd	nd	nd	6.60E-03	nd	nd	nd	nd	nd
19	10.500	7.51E-03	2.85E-02	3.53E-02	3.98E-01	4.71E-03	1.02E-02	6.51E-02	1.72E-01	3.23E-01	1.68E-02
19A	10.500	nd	nd	nd	nd	4.86E-03	nd	nd	nd	nd	nd
20	11.448	8.94E-03	3.39E-02	4.14E-02	4.71E-01	4.81E-03	1.02E-02	6.44E-02	2.02E-01	3.68E-01	1.69E-02
.	11.448	nd	nd	nd	nd	4.79E-03	nd	nd	nd	nd	nd
21	14.447	1.07E-02	4.07E-02	5.07E-02	6.57E-01	6.03E-03	1.34E-02	8.94E-02	2.91E-01	6.04E-01	1.74E-02
21A	14.447	nd	nd	nd	nd	5.89E-03	1.37E-02	nd	nd	nd	nd
22	14.489	1.43E-03	5.13E-03	6.66E-03	1.04E-01	2.25E-03	5.37E-03	3.40E-02	4.25E-02	9.00E-02	2.54E-03
22A	14.489	nd	nd	nd	nd	2.29E-03	5.54E-03	nd	nd	nd	nd
23	14.520	1.91E-03	7.17E-03	9.48E-03	1.38E-01	2.26E-03	6.68E-03	4.32E-02	5.57E-02	1.27E-01	3.04E-03
23A	14.520	nd	nd	nd	nd	2.32E-03	7.13E-03	nd	nd	nd	nd
24	14.548	2.93E-03	1.11E-02	1.41E-02	2.05E-01	3.20E-03	9.50E-03	6.22E-02	8.14E-02	1.87E-01	4.29E-03
24A	14.548	nd	nd	nd	nd	3.42E-03	9.97E-03	nd	nd	nd	nd
25	15.448	1.08E-02	4.14E-02	5.13E-02	7.01E-01	5.67E-03	1.36E-02	9.25E-02	3.04E-01	6.50E-01	1.68E-02
25A	15.448	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
26	16.449	1.31E-02	4.76E-02	5.85E-02	7.70E-01	2.26E-02	1.55E-02	1.06E-01	3.50E-01	7.33E-01	1.85E-02
26A	16.449	nd	nd	nd	nd	2.30E-02	nd	nd	nd	nd	nd
27	16.488	7.02E-03	2.64E-02	3.47E-02	4.77E-01	5.99E-03	1.52E-02	9.95E-02	1.96E-01	3.97E-01	9.53E-03
27A	16.488	nd	nd	nd	nd	6.24E-03	nd	nd	nd	nd	nd
28	17.449	8.94E-03	3.37E-02	4.01E-02	5.22E-01	4.48E-03	1.15E-02	7.75E-02	2.09E-01	4.10E-01	9.87E-03
28A	17.449	nd	nd	nd	nd	4.26E-03	nd	nd	nd	nd	nd
29	18.545	9.45E-03	3.54E-02	4.40E-02	5.28E-01	4.12E-03	1.19E-02	7.90E-02	2.22E-01	4.38E-01	1.13E-02
29A	18.545	nd	nd	nd	nd	4.18E-03	nd	nd	nd	nd	nd
30	18.708	7.28E-03	2.74E-02	3.45E-02	4.43E-01	4.93E-03	1.11E-02	7.41E-02	1.71E-01	3.56E-01	8.89E-03
31	21.441	8.54E-03	3.23E-02	3.85E-02	4.90E-01	3.87E-03	1.02E-02	7.29E-02	2.06E-01	4.18E-01	1.09E-02
32	21.481	3.69E-03	1.36E-02	1.72E-02	2.60E-01	4.68E-03	8.61E-03	5.90E-02	1.09E-01	2.48E-01	4.03E-03
33	21.518	1.09E-02	3.96E-02	4.60E-02	5.13E-01	4.93E-03	1.02E-02	7.19E-02	1.83E-01	3.94E-01	1.16E-02
33A	21.518	1.11E-02	3.86E-02	4.72E-02	nd	4.85E-03	1.10E-02	nd	nd	nd	1.18E-02
34	22.448	7.40E-03	2.80E-02	3.29E-02	4.15E-01	5.69E-03	8.28E-03	5.78E-02	1.45E-01	3.17E-01	1.14E-02
34A	22.448	7.53E-03	2.77E-02	3.50E-02	nd	5.67E-03	8.91E-03	5.97E-02	1.52E-01	nd	1.21E-02
34B	22.448	7.33E-03	2.68E-02	3.52E-02	nd	5.74E-03	8.95E-03	nd	nd	nd	1.23E-02
35	22.503	4.55E-05	1.17E-04	9.50E-05	nd	1.01E-03	6.04E-03	2.95E-02	nd	nd	5.37E-03
36	23.445	nd	nd	nd	nd	4.29E-04	5.42E-04	2.40E-03	nd	nd	nd

^a Letters indicate a recount of the same numeric sample.

^b Corrected for decay back to capsule exit.

^c nd: none detected

APPENDIX C : FISSION GAS RELEASE DATA

Measured Fission Gas Activity in Grab Sample (continued)

HRB22 ^a	Sample Time Elap Day	Specific Activity (uCi/cc) of Radioactive Gas in Grab Sample ^b									
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe	⁴¹ Ar
37	24.456	nd	nd	nd	nd	2.13E-04	4.60E-05	1.76E-04	nd	nd	nd
Cycle 2											
38	27.571	1.33E-03	5.53E-03	7.52E-03	1.36E-01	4.35E-03	3.59E-04	5.60E-03	7.23E-02	1.50E-01	9.62E-04
39	27.612	1.76E-03	6.94E-03	9.67E-03	1.64E-01	2.27E-03	6.13E-04	7.13E-03	8.18E-02	1.79E-01	1.07E-03
40	27.645	1.99E-03	8.12E-03	1.12E-02	1.64E-01	1.87E-03	9.12E-04	9.02E-03	8.86E-02	1.98E-01	3.13E-03
41	28.447	3.63E-03	1.35E-02	1.66E-02	2.52E-01	1.14E-03	3.12E-03	2.56E-02	1.20E-01	2.49E-01	2.56E-03
41A	28.447	3.66E-03	nd	nd	nd	1.17E-03	3.47E-03	nd	nd	nd	nd
42	28.475	4.14E-03	1.53E-02	1.85E-02	2.57E-01	1.42E-03	3.46E-03	2.79E-02	1.28E-01	2.87E-01	3.06E-03
42A	28.475	nd	nd	nd	nd	1.36E-03	3.81E-03	nd	nd	nd	nd
43	28.507	3.82E-03	1.40E-02	1.80E-02	2.54E-01	1.34E-03	3.30E-03	2.64E-02	1.23E-01	2.80E-01	2.50E-03
43A	28.507	nd	nd	nd	nd	1.26E-03	nd	nd	nd	nd	nd
44	29.443	3.74E-03	1.40E-02	1.76E-02	2.50E-01	1.33E-03	3.53E-03	2.82E-02	1.20E-01	2.55E-01	2.56E-03
44A	29.443	3.86E-03	nd	nd	nd	1.39E-03	3.87E-03	nd	nd	nd	nd
45	29.513	7.11E-03	2.52E-02	2.82E-02	3.61E-01	2.59E-03	4.57E-03	3.50E-02	1.58E-01	3.32E-01	5.18E-03
46	30.445	5.04E-03	1.82E-02	2.26E-02	2.96E-01	2.22E-03	5.08E-03	3.76E-02	1.31E-01	2.91E-01	3.81E-03
47	31.457	5.06E-03	1.90E-02	2.29E-02	3.34E-01	2.44E-03	5.16E-03	3.79E-02	1.30E-01	2.94E-01	3.90E-03
48	32.444	4.80E-03	1.74E-02	2.18E-02	3.08E-01	2.27E-03	4.92E-03	3.62E-02	1.26E-01	2.84E-01	3.69E-03
49	35.443	7.24E-03	2.64E-02	3.39E-02	5.06E-01	3.79E-03	7.93E-03	5.82E-02	1.94E-01	4.40E-01	3.87E-03
50	35.486	4.76E-03	1.77E-02	2.36E-02	3.70E-01	2.90E-03	7.07E-03	5.12E-02	1.59E-01	3.72E-01	2.16E-03
51	35.523	8.82E-03	3.19E-02	4.02E-02	5.25E-01	4.27E-03	8.19E-03	6.04E-02	2.06E-01	4.80E-01	3.88E-03
52	36.440	7.23E-03	2.63E-02	3.29E-02	4.99E-01	3.50E-03	7.73E-03	5.76E-02	2.00E-01	4.76E-01	3.37E-03
52A	36.440	7.14E-03	2.64E-02	3.48E-02	nd	3.32E-03	8.32E-03	6.03E-02	2.00E-01	nd	nd
52B	36.440	7.14E-03	2.67E-02	3.45E-02	nd	3.35E-03	8.49E-03	nd	nd	nd	nd
52C	36.440	7.35E-03	2.56E-02	3.37E-02	nd	3.33E-03	8.29E-03	nd	nd	nd	nd
53	37.444	6.78E-03	2.52E-02	3.19E-02	4.66E-01	3.12E-03	7.83E-03	5.73E-02	1.91E-01	4.33E-01	3.64E-03
54	37.649	9.44E-03	3.52E-02	4.54E-02	6.17E-01	5.45E-03	1.11E-02	8.13E-02	2.63E-01	5.92E-01	3.57E-03
54A	37.649	9.48E-03	3.47E-02	4.64E-02	nd	5.75E-03	1.21E-02	nd	nd	nd	nd
55	38.439	1.02E-02	3.83E-02	4.96E-02	7.06E-01	5.11E-03	1.19E-02	8.49E-02	2.86E-01	6.55E-01	3.77E-03
55A	38.439	1.03E-02	3.82E-02	5.09E-02	nd	4.70E-03	1.26E-02	nd	nd	nd	nd
56	39.514	1.78E-04	4.87E-04	2.61E-04	nd	1.58E-03	7.50E-03	3.29E-02	nd	nd	2.86E-04
57	40.442	nd	nd	nd	nd	6.01E-04	7.70E-04	2.68E-03	nd	nd	nd
58	42.443	nd	nd	nd	nd	1.53E-04	8.12E-06	nd	nd	nd	nd
59	43.901	5.22E-03	2.16E-02	3.35E-02	6.05E-01	7.38E-03	1.23E-03	2.31E-02	2.84E-01	6.45E-01	1.59E-03
60	43.931	6.32E-03	2.59E-02	3.95E-02	6.38E-01	5.07E-03	1.82E-03	2.71E-02	2.95E-01	7.04E-01	2.25E-03

^a Letters indicate a recount of the same numeric sample.

^b Corrected for decay back to capsule exit.

^c nd: none detected

APPENDIX C : FISSION GAS RELEASE DATA

Measured Fission Gas Activity in Grab Sample (continued)

HRB22 ^a	Sample Time Elap Day	Specific Activity (uCi/cc) of Radioactive Gas in Grab Sample ^b									
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe	⁴¹ Ar
61	44.441	1.09E-02	4.10E-02	5.20E-02	7.60E-01	2.87E-03	8.15E-03	7.24E-02	3.44E-01	7.81E-01	3.30E-03
62	44.493	1.90E-02	6.78E-02	8.30E-02	1.04E+00	5.15E-03	1.09E-02	9.48E-02	4.48E-01	9.75E-01	4.77E-03
64	45.497	1.29E-02	4.77E-02	6.29E-02	9.16E-01	3.95E-03	1.57E-02	1.17E-01	3.89E-01	9.11E-01	3.89E-03
65	46.445	1.28E-02	4.69E-02	6.11E-02	9.44E-01	4.44E-03	1.47E-02	1.12E-01	3.88E-01	9.34E-01	3.84E-03
66	47.439	1.28E-02	4.70E-02	6.08E-02	8.71E-01	4.80E-03	1.36E-02	1.04E-01	3.71E-01	8.45E-01	3.77E-03
67	50.445	1.17E-02	4.26E-02	5.66E-02	7.54E-01	4.77E-03	1.29E-02	9.12E-02	3.19E-01	7.08E-01	4.13E-03
68	50.474	7.32E-03	2.76E-02	3.85E-02	6.33E-01	3.77E-03	1.14E-02	8.68E-02	2.78E-01	6.66E-01	2.28E-03
69	50.515	1.30E-02	4.74E-02	6.22E-02	9.07E-01	4.88E-03	1.28E-02	1.01E-01	3.53E-01	8.66E-01	4.80E-03
70	51.443	1.17E-02	4.32E-02	5.70E-02	8.52E-01	4.77E-03	1.26E-02	9.84E-02	3.40E-01	8.12E-01	4.39E-03
71	52.445	1.21E-02	4.47E-02	5.72E-02	8.47E-01	5.07E-03	1.27E-02	9.93E-02	3.37E-01	8.19E-01	5.08E-03
72	53.439	1.10E-02	3.98E-02	5.21E-02	7.36E-01	5.58E-03	1.28E-02	9.40E-02	3.03E-01	6.93E-01	5.18E-03
73	54.454	nd	nd	nd	nd	8.20E-04	7.63E-04	3.03E-03	nd	nd	nd
74	55.454	nd	nd	nd	nd	4.43E-04	7.77E-05	3.04E-04	nd	nd	nd
75	56.490	nd	nd	nd	nd	1.83E-04	8.50E-06	nd	nd	nd	nd
Cycle 3											
76	76.716	4.65E-03	1.91E-02	2.94E-02	5.56E-01	8.95E-04	1.34E-03	2.37E-02	2.75E-01	6.72E-01	1.29E-03
77	76.745	6.12E-03	2.49E-02	3.69E-02	6.14E-01	6.86E-04	2.02E-03	3.03E-02	3.03E-01	7.44E-01	1.57E-03
78	77.422	1.16E-02	4.17E-02	5.65E-02	8.02E-01	1.10E-03	1.18E-02	9.53E-02	3.94E-01	9.27E-01	2.21E-03
78A	77.422	1.15E-02	4.18E-02	5.83E-02	nd	1.18E-03	1.29E-02	9.98E-02	4.02E-01	nd	2.26E-03
79	78.444	1.21E-02	4.46E-02	5.84E-02	8.83E-01	2.88E-03	1.49E-02	1.15E-01	4.10E-01	9.97E-01	2.25E-03
80	78.483	1.16E-02	4.27E-02	5.43E-02	8.17E-01	2.07E-03	1.46E-02	1.10E-01	3.95E-01	9.43E-01	2.91E-03
80A	78.483	1.25E-02	nd	nd	nd	2.65E-03	1.52E-02	nd	nd	nd	nd
81	79.449	1.15E-02	4.26E-02	5.68E-02	8.54E-01	3.37E-03	1.48E-02	1.14E-01	4.01E-01	9.62E-01	1.92E-03
82	79.477	1.27E-02	4.51E-02	6.03E-02	9.49E-01	3.70E-03	1.59E-02	1.23E-01	4.29E-01	1.02E+00	2.97E-03
83	80.448	1.11E-02	4.05E-02	5.48E-02	8.48E-01	3.97E-03	1.44E-02	1.10E-01	3.89E-01	9.53E-01	2.24E-03
84	81.435	1.07E-02	3.96E-02	5.17E-02	8.00E-01	4.14E-03	1.37E-02	1.05E-01	3.72E-01	8.80E-01	1.68E-03
85	81.480	1.72E-02	6.06E-02	7.57E-02	1.02E+00	6.19E-03	1.57E-02	1.22E-01	4.52E-01	1.08E+00	3.35E-03
86	81.633	1.34E-02	4.90E-02	6.49E-02	9.40E-01	5.60E-03	1.59E-02	1.23E-01	4.26E-01	9.85E-01	2.46E-03
87	82.431	1.22E-02	4.40E-02	5.97E-02	9.28E-01	4.98E-03	1.63E-02	1.21E-01	4.03E-01	1.01E+00	2.68E-03
88	85.428	1.26E-02	4.61E-02	6.02E-02	8.53E-01	9.30E-03	1.63E-02	1.20E-01	3.79E-01	8.80E-01	2.21E-03
88A	85.428	nd	nd	nd	nd	9.67E-03	1.78E-02	nd	nd	nd	nd
89	86.441	1.13E-02	4.04E-02	5.26E-02	7.22E-01	5.49E-03	1.55E-02	1.08E-01	3.37E-01	7.95E-01	2.56E-03
90	87.440	1.12E-02	4.03E-02	5.32E-02	8.16E-01	5.55E-03	1.48E-02	1.11E-01	3.50E-01	8.63E-01	2.23E-03
91	88.445	1.16E-02	4.15E-02	5.36E-02	6.85E-01	5.29E-03	1.43E-02	1.03E-01	3.33E-01	7.53E-01	2.37E-03

^a Letters indicate a recount of the same numeric sample.

^b Corrected for decay back to capsule exit.

^c nd: none detected

APPENDIX C : FISSION GAS RELEASE DATA

Measured Fission Gas Activity in Grab Sample (continued)

HRB22 ^a	Sample Time Elap Day	Specific Activity (uCi/cc) of Radioactive Gas in Grab Sample ^b									
		^{85m} Kr	⁸⁵ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe	⁴¹ Ar
92	91.445	1.32E-02	4.79E-02	6.27E-02	9.27E-01	5.83E-03	1.78E-02	1.33E-01	4.15E-01	1.01E+00	1.30E-01
93	92.446	1.34E-02	4.84E-02	6.44E-02	9.70E-01	6.22E-03	1.81E-02	1.35E-01	4.19E-01	1.02E+00	1.32E-01
94	92.482	1.07E-02	3.99E-02	5.40E-02	8.84E-01	5.71E-03	1.77E-02	1.34E-01	3.97E-01	1.01E+00	1.54E-01
95	93.443	1.34E-02	4.92E-02	6.34E-02	9.07E-01	5.98E-03	1.67E-02	1.26E-01	4.05E-01	1.00E+00	1.54E-01
96	94.443	1.28E-02	4.61E-02	6.04E-02	9.12E-01	6.50E-03	1.64E-02	1.25E-01	3.96E-01	9.82E-01	1.63E-01
97	95.444	1.20E-02	4.15E-02	5.13E-02	4.21E-01	6.09E-03	1.59E-02	8.01E-02	2.47E-01	5.05E-01	1.47E-01
98	95.468	1.28E-02	4.59E-02	6.09E-02	9.00E-01	6.05E-03	1.67E-02	1.26E-01	3.95E-01	9.91E-01	1.76E-01
99	98.445	1.37E-02	4.89E-02	6.17E-02	9.12E-01	6.27E-03	1.53E-02	1.19E-01	3.76E-01	9.48E-01	3.41E-03
100	98.713	1.23E-02	4.40E-02	5.72E-02	8.44E-01	5.83E-03	1.54E-02	1.18E-01	3.68E-01	8.89E-01	3.57E-03
101	99.440	nd	nd	nd	nd	2.09E-03	5.02E-03	1.91E-02	nd	nd	nd
102	100.445	nd	nd	nd	nd	7.20E-04	4.94E-04	1.68E-03	nd	nd	nd
103	101.446	nd	nd	nd	nd	3.34E-04	4.18E-05	1.51E-04	nd	nd	nd
Cycle 4											
104	110.817	5.06E-03	1.98E-02	3.29E-02	6.37E-01	4.25E-03	1.59E-03	3.00E-02	3.31E-01	8.63E-01	nd
105	110.849	6.11E-03	2.39E-02	3.86E-02	6.90E-01	2.72E-03	2.75E-03	3.77E-02	3.51E-01	9.07E-01	9.06E-04
106	111.793	1.19E-02	4.22E-02	5.94E-02	9.22E-01	2.41E-03	1.68E-02	1.31E-01	4.63E-01	1.18E+00	1.34E-03
107	112.442	1.12E-02	3.95E-02	5.36E-02	8.70E-01	2.95E-03	1.78E-02	1.34E-01	4.31E-01	1.12E+00	1.14E-03
108	113.443	9.79E-03	3.50E-02	4.46E-02	7.59E-01	3.60E-03	1.67E-02	1.24E-01	3.89E-01	1.01E+00	1.28E-03
109	113.480	9.25E-03	3.13E-02	3.75E-02	2.77E-01	3.62E-03	1.66E-02	6.66E-02	2.05E-01	4.08E-01	1.24E-03
110	114.438	1.02E-02	3.64E-02	4.84E-02	7.58E-01	4.04E-03	1.63E-02	1.24E-01	3.91E-01	1.01E+00	1.51E-03
111	115.439	1.00E-02	3.50E-02	4.66E-02	7.41E-01	4.22E-03	1.61E-02	1.20E-01	3.76E-01	1.01E+00	1.14E-03
112	116.442	9.73E-03	3.52E-02	4.72E-02	7.54E-01	4.73E-03	1.55E-02	1.18E-01	3.72E-01	9.51E-01	1.71E-03
113	119.440	8.41E-03	2.85E-02	3.54E-02	3.00E-01	4.57E-03	1.42E-02	6.59E-02	2.01E-01	4.01E-01	1.93E-03
114	119.451	9.35E-03	3.29E-02	4.48E-02	6.91E-01	4.80E-03	1.46E-02	1.11E-01	3.44E-01	8.97E-01	2.24E-03
115	120.440	9.04E-03	3.11E-02	4.29E-02	6.59E-01	4.71E-03	1.43E-02	1.09E-01	3.37E-01	8.74E-01	1.75E-03
116	120.485	1.23E-02	4.36E-02	5.75E-02	7.76E-01	5.45E-03	1.54E-02	1.18E-01	3.79E-01	9.75E-01	2.75E-03
117	120.517	1.16E-02	4.07E-02	5.50E-02	7.91E-01	5.68E-03	1.56E-02	1.18E-01	3.75E-01	9.97E-01	2.18E-03
118	121.444	9.79E-03	3.48E-02	4.77E-02	7.25E-01	5.34E-03	1.62E-02	1.18E-01	3.53E-01	9.21E-01	2.08E-03
119	122.441	9.64E-03	3.37E-02	4.54E-02	7.13E-01	5.00E-03	1.58E-02	1.16E-01	3.41E-01	8.95E-01	1.92E-03
120	123.443	1.07E-02	3.77E-02	5.25E-02	7.17E-01	5.69E-03	1.65E-02	1.19E-01	3.58E-01	8.85E-01	1.91E-03
121	126.442	1.25E-02	4.39E-02	5.97E-02	8.15E-01	6.37E-03	1.73E-02	1.31E-01	3.87E-01	9.41E-01	2.55E-03
122	127.440	1.14E-02	4.05E-02	5.41E-02	7.53E-01	5.58E-03	1.67E-02	1.27E-01	3.71E-01	9.37E-01	2.58E-03
123	127.481	9.48E-03	3.43E-02	4.69E-02	7.15E-01	5.03E-03	1.65E-02	1.26E-01	3.56E-01	9.07E-01	1.83E-04
124	127.513	1.02E-02	3.64E-02	5.05E-02	6.84E-01	5.26E-03	1.67E-02	1.27E-01	3.60E-01	8.81E-01	2.07E-04

^a Letters indicate a recount of the same numeric sample.

^b Corrected for decay back to capsule exit.

^c nd: none detected

APPENDIX C : FISSION GAS RELEASE DATA

Measured Fission Gas Activity in Grab Sample (continued)

HRB22 ^a _	Sample Time Elap Day	Specific Activity (uCi/cc) of Radioactive Gas in Grab Sample ^b									
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe	⁴¹ Ar
125	127.759	1.17E-02	4.13E-02	5.61E-02	7.91E-01	5.44E-03	1.84E-02	1.35E-01	4.09E-01	1.03E+00	1.78E-03
126	128.448	1.12E-02	3.96E-02	5.35E-02	8.52E-01	5.69E-03	1.79E-02	1.36E-01	4.11E-01	1.06E+00	1.86E-03
127	129.443	1.03E-02	3.67E-02	4.88E-02	8.35E-01	5.47E-03	1.69E-02	1.29E-01	3.88E-01	1.03E+00	1.86E-04
128	130.444	1.07E-02	3.81E-02	5.08E-02	8.15E-01	5.70E-03	1.67E-02	1.26E-01	3.85E-01	1.03E+00	1.80E-03
129	132.774	1.08E-02	3.74E-02	4.98E-02	7.75E-01	5.71E-03	1.65E-02	1.25E-01	3.79E-01	9.78E-01	2.22E-03
130	133.377	9.99E-03	3.42E-02	4.62E-02	7.15E-01	5.78E-03	1.55E-02	1.18E-01	3.53E-01	9.19E-01	2.41E-03
131	133.508	nd	nd	nd	nd	1.56E-03	9.31E-03	3.93E-02	nd	nd	nd
131A	133.508	nd	nd	nd	nd	1.61E-03	9.00E-03	nd	nd	nd	nd
132	134.435	nd	nd	nd	nd	1.04E-03	8.88E-04	3.09E-03	nd	nd	nd
132A	134.435	nd	nd	nd	nd	1.07E-03	1.30E-03	nd	nd	nd	nd
133	135.439	nd	nd	nd	nd	3.43E-04	7.22E-05	2.83E-04	nd	nd	nd

^a Letters indicate a recount of the same numeric sample.

^b Corrected for decay back to capsule exit.

^c nd: none detected

APPENDIX C : FISSION GAS RELEASE DATA

Fission Gas Birth Rates at Grab Sample Time

Gas ^a Sample	Sample Time Elap. Day	Fission Gas Birth Rate (Atoms/Sec) ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
Cycle 1										
1	0.035	8.35E+12	2.26E+13	1.65E+13	2.91E+13	1.17E+12	4.40E+12	1.65E+12	4.06E+13	3.96E+13
2	0.067	8.34E+12	2.26E+13	1.65E+13	2.91E+13	2.19E+12	7.38E+12	2.08E+12	4.05E+13	3.96E+13
2A	0.067	8.34E+12	2.26E+13	1.65E+13	2.91E+13	2.19E+12	7.38E+12	2.08E+12	4.05E+13	3.96E+13
3	0.516	8.26E+12	2.24E+13	1.63E+13	2.88E+13	1.41E+13	3.10E+13	5.48E+12	4.02E+13	3.93E+13
3A	0.516	8.26E+12	2.24E+13	1.63E+13	2.88E+13	1.41E+13	3.10E+13	5.48E+12	4.02E+13	3.93E+13
4	0.735	8.21E+12	2.23E+13	1.62E+13	2.86E+13	1.86E+13	3.56E+13	6.15E+12	4.00E+13	3.91E+13
4A	0.735	8.21E+12	2.23E+13	1.62E+13	2.86E+13	1.86E+13	3.56E+13	6.15E+12	4.00E+13	3.91E+13
5	1.450	8.09E+12	2.19E+13	1.60E+13	2.82E+13	2.85E+13	4.06E+13	6.88E+12	3.95E+13	3.87E+13
5A	1.450	8.09E+12	2.19E+13	1.60E+13	2.82E+13	2.85E+13	4.06E+13	6.88E+12	3.95E+13	3.87E+13
6	1.487	8.09E+12	2.19E+13	1.60E+13	2.82E+13	2.89E+13	4.07E+13	6.89E+12	3.95E+13	3.87E+13
6A	1.487	8.09E+12	2.19E+13	1.60E+13	2.82E+13	2.89E+13	4.07E+13	6.89E+12	3.95E+13	3.87E+13
7	1.706	8.05E+12	2.18E+13	1.59E+13	2.81E+13	3.08E+13	4.10E+13	6.94E+12	3.94E+13	3.86E+13
7A	1.706	8.05E+12	2.18E+13	1.59E+13	2.81E+13	3.08E+13	4.10E+13	6.94E+12	3.94E+13	3.86E+13
8	1.748	8.05E+12	2.18E+13	1.59E+13	2.80E+13	3.12E+13	4.10E+13	6.95E+12	3.94E+13	3.86E+13
8A	1.748	8.05E+12	2.18E+13	1.59E+13	2.80E+13	3.12E+13	4.10E+13	6.95E+12	3.94E+13	3.86E+13
9	1.795	8.04E+12	2.18E+13	1.59E+13	2.80E+13	3.15E+13	4.10E+13	6.96E+12	3.93E+13	3.85E+13
9A	1.795	8.04E+12	2.18E+13	1.59E+13	2.80E+13	3.15E+13	4.10E+13	6.96E+12	3.93E+13	3.85E+13
10	1.841	8.04E+12	2.18E+13	1.59E+13	2.80E+13	3.19E+13	4.11E+13	6.96E+12	3.93E+13	3.85E+13
10A	1.841	8.04E+12	2.18E+13	1.59E+13	2.80E+13	3.19E+13	4.11E+13	6.96E+12	3.93E+13	3.85E+13
11	2.503	7.94E+12	2.15E+13	1.57E+13	2.76E+13	3.55E+13	4.12E+13	7.01E+12	3.91E+13	3.83E+13
11A	2.503	7.94E+12	2.15E+13	1.57E+13	2.76E+13	3.55E+13	4.12E+13	7.01E+12	3.91E+13	3.83E+13
12	3.464	7.83E+12	2.11E+13	1.54E+13	2.71E+13	3.83E+13	4.12E+13	7.07E+12	3.88E+13	3.82E+13
12A	3.464	7.83E+12	2.11E+13	1.54E+13	2.71E+13	3.83E+13	4.12E+13	7.07E+12	3.88E+13	3.82E+13
13	4.464	7.72E+12	2.08E+13	1.52E+13	2.67E+13	3.97E+13	4.14E+13	7.16E+12	3.87E+13	3.82E+13
13A	4.464	7.72E+12	2.08E+13	1.52E+13	2.67E+13	3.97E+13	4.14E+13	7.16E+12	3.87E+13	3.82E+13
14	7.448	7.47E+12	2.00E+13	1.47E+13	2.56E+13	4.11E+13	4.24E+13	7.54E+12	3.87E+13	3.87E+13
14A	7.448	7.47E+12	2.00E+13	1.47E+13	2.56E+13	4.11E+13	4.24E+13	7.54E+12	3.87E+13	3.87E+13
15	7.508	7.46E+12	2.00E+13	1.46E+13	2.55E+13	4.11E+13	4.24E+13	7.54E+12	3.87E+13	3.87E+13
15A	7.508	7.46E+12	2.00E+13	1.46E+13	2.55E+13	4.11E+13	4.24E+13	7.54E+12	3.87E+13	3.87E+13
16	8.441	7.40E+12	1.98E+13	1.45E+13	2.52E+13	4.15E+13	4.28E+13	7.68E+12	3.88E+13	3.90E+13
16A	8.441	7.40E+12	1.98E+13	1.45E+13	2.52E+13	4.15E+13	4.28E+13	7.68E+12	3.88E+13	3.90E+13
17	9.441	7.35E+12	1.96E+13	1.44E+13	2.50E+13	4.18E+13	4.33E+13	7.83E+12	3.89E+13	3.93E+13
17A	9.441	7.35E+12	1.96E+13	1.44E+13	2.50E+13	4.18E+13	4.33E+13	7.83E+12	3.89E+13	3.93E+13

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ-count.

^b Calculated by CACA-2 Computer Code.

APPENDIX C : FISSION GAS RELEASE DATA

Fission Gas Birth Rates at Grab Sample Time (continued)

Gas ^a Sample	Sample Time Elap. Day	Fission Gas Birth Rate (Atoms/Sec) ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
18	10.456	7.31E+12	1.94E+13	1.43E+13	2.47E+13	4.22E+13	4.39E+13	8.00E+12	3.92E+13	3.97E+13
18A	10.456	7.31E+12	1.94E+13	1.43E+13	2.47E+13	4.22E+13	4.39E+13	8.00E+12	3.92E+13	3.97E+13
19	10.500	7.31E+12	1.94E+13	1.43E+13	2.47E+13	4.22E+13	4.39E+13	8.00E+12	3.92E+13	3.97E+13
19A	10.500	7.31E+12	1.94E+13	1.43E+13	2.47E+13	4.22E+13	4.39E+13	8.00E+12	3.92E+13	3.97E+13
20	11.448	7.28E+12	1.93E+13	1.42E+13	2.46E+13	4.27E+13	4.45E+13	8.17E+12	3.94E+13	4.01E+13
20A	11.448	7.28E+12	1.93E+13	1.42E+13	2.46E+13	4.27E+13	4.45E+13	8.17E+12	3.94E+13	4.01E+13
21	14.447	7.31E+12	1.93E+13	1.42E+13	2.44E+13	4.45E+13	4.69E+13	8.76E+12	4.08E+13	4.19E+13
21A	14.447	7.31E+12	1.93E+13	1.42E+13	2.44E+13	4.45E+13	4.69E+13	8.76E+12	4.08E+13	4.19E+13
22	14.489	7.31E+12	1.93E+13	1.42E+13	2.44E+13	4.45E+13	4.70E+13	8.77E+12	4.08E+13	4.19E+13
22A	14.489	7.31E+12	1.93E+13	1.42E+13	2.44E+13	4.45E+13	4.70E+13	8.77E+12	4.08E+13	4.19E+13
23	14.520	7.31E+12	1.93E+13	1.42E+13	2.44E+13	4.45E+13	4.70E+13	8.77E+12	4.08E+13	4.19E+13
23A	14.520	7.31E+12	1.93E+13	1.42E+13	2.44E+13	4.45E+13	4.70E+13	8.77E+12	4.08E+13	4.19E+13
24	14.548	7.31E+12	1.93E+13	1.42E+13	2.44E+13	4.45E+13	4.70E+13	8.78E+12	4.09E+13	4.20E+13
24A	14.548	7.31E+12	1.93E+13	1.42E+13	2.44E+13	4.45E+13	4.70E+13	8.78E+12	4.09E+13	4.20E+13
25	15.448	7.34E+12	1.93E+13	1.43E+13	2.44E+13	4.53E+13	4.79E+13	8.99E+12	4.14E+13	4.27E+13
25A	15.448	7.34E+12	1.93E+13	1.43E+13	2.44E+13	4.53E+13	4.79E+13	8.99E+12	4.14E+13	4.27E+13
26	16.449	7.39E+12	1.94E+13	1.43E+13	2.45E+13	4.61E+13	4.89E+13	9.22E+12	4.21E+13	4.35E+13
26A	16.449	7.39E+12	1.94E+13	1.43E+13	2.45E+13	4.61E+13	4.89E+13	9.22E+12	4.21E+13	4.35E+13
27	16.488	7.40E+12	1.94E+13	1.43E+13	2.45E+13	4.61E+13	4.90E+13	9.23E+12	4.21E+13	4.35E+13
27A	16.488	7.40E+12	1.94E+13	1.43E+13	2.45E+13	4.61E+13	4.90E+13	9.23E+12	4.21E+13	4.35E+13
28	17.449	7.45E+12	1.95E+13	1.44E+13	2.46E+13	4.70E+13	5.00E+13	9.46E+12	4.28E+13	4.43E+13
28A	17.449	7.45E+12	1.95E+13	1.44E+13	2.46E+13	4.70E+13	5.00E+13	9.46E+12	4.28E+13	4.43E+13
29	18.545	7.51E+12	1.96E+13	1.45E+13	2.48E+13	4.80E+13	5.11E+13	9.73E+12	4.36E+13	4.52E+13
29A	18.545	7.51E+12	1.96E+13	1.45E+13	2.48E+13	4.80E+13	5.11E+13	9.73E+12	4.36E+13	4.52E+13
30	18.708	7.52E+12	1.97E+13	1.45E+13	2.48E+13	4.81E+13	5.13E+13	9.77E+12	4.37E+13	4.53E+13
31	21.441	7.66E+12	1.99E+13	1.48E+13	2.50E+13	5.07E+13	5.42E+13	1.04E+13	4.56E+13	4.76E+13
32	21.481	7.66E+12	1.99E+13	1.48E+13	2.50E+13	5.07E+13	5.42E+13	1.04E+13	4.56E+13	4.76E+13
33	21.518	7.66E+12	1.99E+13	1.48E+13	2.50E+13	5.07E+13	5.42E+13	1.04E+13	4.56E+13	4.76E+13
33A	21.518	7.66E+12	1.99E+13	1.48E+13	2.50E+13	5.07E+13	5.42E+13	1.04E+13	4.56E+13	4.76E+13
34	22.448	7.72E+12	2.01E+13	1.49E+13	2.52E+13	5.16E+13	5.53E+13	1.07E+13	4.63E+13	4.85E+13
34A	22.448	7.72E+12	2.01E+13	1.49E+13	2.52E+13	5.16E+13	5.53E+13	1.07E+13	4.63E+13	4.85E+13
34B	22.448	7.72E+12	2.01E+13	1.49E+13	2.52E+13	5.16E+13	5.53E+13	1.07E+13	4.63E+13	4.85E+13
35	22.503	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.00E+13	4.68E+13	6.74E+12	0.00E+00	0.00E+00
36	23.445	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E+13	4.29E+12	6.21E+11	0.00E+00	0.00E+00

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ-count.

^b Calculated by CACA-2 Computer Code.

APPENDIX C : FISSION GAS RELEASE DATA

Fission Gas Birth Rates at Grab Sample Time (continued)

Gas ^a Sample	Sample Time Elap. Day	Fission Gas Birth Rate (Atoms/Sec) ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
37	24.456	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E+13	3.32E+11	4.80E+10	0.00E+00	0.00E+00
Cycle 2										
38	27.571	6.70E+12	1.72E+13	1.28E+13	2.15E+13	1.93E+12	6.19E+12	3.69E+12	4.19E+13	4.44E+13
39	27.612	6.69E+12	1.72E+13	1.28E+13	2.15E+13	3.46E+12	1.15E+13	4.33E+12	4.18E+13	4.43E+13
40	27.645	6.69E+12	1.72E+13	1.28E+13	2.15E+13	4.60E+12	1.47E+13	4.78E+12	4.18E+13	4.43E+13
41	28.447	6.54E+12	1.68E+13	1.25E+13	2.10E+13	2.51E+13	4.59E+13	9.23E+12	4.09E+13	4.33E+13
41A	28.447	6.54E+12	1.68E+13	1.25E+13	2.10E+13	2.51E+13	4.59E+13	9.23E+12	4.09E+13	4.33E+13
42	28.475	6.54E+12	1.68E+13	1.25E+13	2.10E+13	2.55E+13	4.62E+13	9.27E+12	4.09E+13	4.33E+13
42A	28.475	6.54E+12	1.68E+13	1.25E+13	2.10E+13	2.55E+13	4.62E+13	9.27E+12	4.09E+13	4.33E+13
43	28.507	6.54E+12	1.68E+13	1.25E+13	2.10E+13	2.61E+13	4.65E+13	9.32E+12	4.09E+13	4.33E+13
43A	28.507	6.54E+12	1.68E+13	1.25E+13	2.10E+13	2.61E+13	4.65E+13	9.32E+12	4.09E+13	4.33E+13
44	29.443	6.39E+12	1.64E+13	1.22E+13	2.05E+13	3.70E+13	4.92E+13	9.64E+12	4.00E+13	4.24E+13
44A	29.443	6.39E+12	1.64E+13	1.22E+13	2.05E+13	3.70E+13	4.92E+13	9.64E+12	4.00E+13	4.24E+13
45	29.513	6.38E+12	1.64E+13	1.22E+13	2.05E+13	3.75E+13	4.92E+13	9.64E+12	4.00E+13	4.23E+13
46	30.445	6.26E+12	1.61E+13	1.20E+13	2.01E+13	4.19E+13	4.87E+13	9.52E+12	3.94E+13	4.17E+13
47	31.457	6.15E+12	1.58E+13	1.18E+13	1.97E+13	4.38E+13	4.80E+13	9.40E+12	3.89E+13	4.12E+13
48	32.444	6.05E+12	1.55E+13	1.16E+13	1.94E+13	4.43E+13	4.76E+13	9.32E+12	3.85E+13	4.08E+13
49	35.443	5.83E+12	1.49E+13	1.11E+13	1.85E+13	4.41E+13	4.69E+13	9.24E+12	3.78E+13	4.02E+13
50	35.486	5.83E+12	1.49E+13	1.11E+13	1.85E+13	4.41E+13	4.69E+13	9.24E+12	3.78E+13	4.02E+13
51	35.523	5.83E+12	1.49E+13	1.11E+13	1.85E+13	4.41E+13	4.69E+13	9.24E+12	3.78E+13	4.02E+13
52	36.440	5.78E+12	1.48E+13	1.10E+13	1.83E+13	4.40E+13	4.69E+13	9.25E+12	3.77E+13	4.02E+13
52A	36.440	5.78E+12	1.48E+13	1.10E+13	1.83E+13	4.40E+13	4.69E+13	9.25E+12	3.77E+13	4.02E+13
52B	36.440	5.78E+12	1.48E+13	1.10E+13	1.83E+13	4.40E+13	4.69E+13	9.25E+12	3.77E+13	4.02E+13
52C	36.440	5.78E+12	1.48E+13	1.10E+13	1.83E+13	4.40E+13	4.69E+13	9.25E+12	3.77E+13	4.02E+13
53	37.444	5.74E+12	1.46E+13	1.09E+13	1.82E+13	4.40E+13	4.70E+13	9.28E+12	3.78E+13	4.03E+13
54	37.649	5.73E+12	1.46E+13	1.09E+13	1.82E+13	4.40E+13	4.70E+13	9.29E+12	3.78E+13	4.03E+13
54A	37.649	5.73E+12	1.46E+13	1.09E+13	1.82E+13	4.40E+13	4.70E+13	9.29E+12	3.78E+13	4.03E+13
55	38.439	5.72E+12	1.46E+13	1.09E+13	1.81E+13	4.41E+13	4.72E+13	9.34E+12	3.79E+13	4.04E+13
55A	38.439	5.72E+12	1.46E+13	1.09E+13	1.81E+13	4.41E+13	4.72E+13	9.34E+12	3.79E+13	4.04E+13
56	39.514	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.17E+13	3.61E+13	5.23E+12	0.00E+00	0.00E+00
57	40.442	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E+13	3.44E+12	4.97E+11	0.00E+00	0.00E+00
58	42.443	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.04E+12	2.17E+10	3.14E+09	0.00E+00	0.00E+00
59	43.901	6.06E+12	1.53E+13	1.15E+13	1.89E+13	2.25E+12	6.21E+12	3.98E+12	4.13E+13	4.45E+13
60	43.931	6.06E+12	1.53E+13	1.15E+13	1.89E+13	3.38E+12	1.08E+13	4.46E+12	4.13E+13	4.45E+13

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ -count.

^b Calculated by CACA-2 Computer Code.

APPENDIX C : FISSION GAS RELEASE DATA

Fission Gas Birth Rates at Grab Sample Time (continued)

Gas ^a Sample	Sample Time Elap. Day	Fission Gas Birth Rate (Atoms/Sec) ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
61	44.441	6.00E+12	1.52E+13	1.14E+13	1.87E+13	1.84E+13	4.07E+13	8.75E+12	4.09E+13	4.40E+13
62	44.493	6.00E+12	1.52E+13	1.14E+13	1.87E+13	1.97E+13	4.21E+13	8.94E+12	4.09E+13	4.40E+13
64	45.497	5.93E+12	1.50E+13	1.12E+13	1.85E+13	3.53E+13	5.06E+13	1.01E+13	4.05E+13	4.35E+13
65	46.445	5.91E+12	1.49E+13	1.12E+13	1.84E+13	4.18E+13	5.10E+13	1.02E+13	4.04E+13	4.34E+13
66	47.439	5.91E+12	1.49E+13	1.12E+13	1.84E+13	4.50E+13	5.11E+13	1.02E+13	4.05E+13	4.35E+13
67	50.445	6.00E+12	1.51E+13	1.13E+13	1.87E+13	4.82E+13	5.25E+13	1.05E+13	4.17E+13	4.48E+13
68	50.474	6.00E+12	1.51E+13	1.13E+13	1.87E+13	4.82E+13	5.25E+13	1.05E+13	4.17E+13	4.48E+13
69	50.515	6.00E+12	1.51E+13	1.14E+13	1.87E+13	4.83E+13	5.26E+13	1.05E+13	4.17E+13	4.49E+13
70	51.443	6.05E+12	1.52E+13	1.14E+13	1.88E+13	4.89E+13	5.32E+13	1.06E+13	4.22E+13	4.54E+13
71	52.445	6.10E+12	1.54E+13	1.15E+13	1.89E+13	4.96E+13	5.40E+13	1.08E+13	4.28E+13	4.61E+13
72	53.439	6.16E+12	1.55E+13	1.16E+13	1.91E+13	5.02E+13	5.29E+13	7.24E+12	0.00E+00	0.00E+00
73	54.454	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+13	3.84E+12	5.56E+11	0.00E+00	0.00E+00
74	55.454	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E+13	3.04E+11	4.41E+10	0.00E+00	0.00E+00
75	56.490	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.42E+12	2.21E+10	3.20E+09	0.00E+00	0.00E+00
Cycle 3										
76	76.716	5.47E+12	1.36E+13	1.02E+13	1.66E+13	9.19E+11	6.13E+12	4.11E+12	4.02E+13	4.38E+13
77	76.745	5.47E+12	1.36E+13	1.02E+13	1.66E+13	2.00E+12	1.06E+13	4.56E+12	4.02E+13	4.38E+13
78	77.422	5.34E+12	1.33E+13	1.00E+13	1.62E+13	2.09E+13	4.38E+13	9.26E+12	3.92E+13	4.27E+13
78A	77.422	5.34E+12	1.33E+13	1.00E+13	1.62E+13	2.09E+13	4.38E+13	9.26E+12	3.92E+13	4.27E+13
79	78.444	5.17E+12	1.29E+13	9.69E+12	1.57E+13	3.49E+13	4.90E+13	9.90E+12	3.80E+13	4.13E+13
80	78.483	5.16E+12	1.29E+13	9.68E+12	1.57E+13	3.52E+13	4.90E+13	9.90E+12	3.80E+13	4.13E+13
80A	78.483	5.16E+12	1.29E+13	9.68E+12	1.57E+13	3.52E+13	4.90E+13	9.90E+12	3.80E+13	4.13E+13
81	79.449	5.04E+12	1.26E+13	9.46E+12	1.54E+13	4.03E+13	4.82E+13	9.70E+12	3.72E+13	4.04E+13
82	79.477	5.04E+12	1.25E+13	9.45E+12	1.54E+13	4.04E+13	4.82E+13	9.70E+12	3.71E+13	4.03E+13
83	80.448	4.94E+12	1.23E+13	9.26E+12	1.50E+13	4.22E+13	4.73E+13	9.51E+12	3.65E+13	3.97E+13
84	81.435	4.85E+12	1.21E+13	9.10E+12	1.48E+13	4.27E+13	4.66E+13	9.37E+12	3.60E+13	3.91E+13
85	81.480	4.85E+12	1.21E+13	9.09E+12	1.48E+13	4.27E+13	4.66E+13	9.36E+12	3.60E+13	3.91E+13
86	81.633	4.84E+12	1.20E+13	9.07E+12	1.47E+13	4.27E+13	4.65E+13	9.34E+12	3.59E+13	3.91E+13
87	82.431	4.78E+12	1.19E+13	8.97E+12	1.46E+13	4.26E+13	4.61E+13	9.27E+12	3.57E+13	3.88E+13
88	85.428	4.64E+12	1.15E+13	8.68E+12	1.40E+13	4.20E+13	4.54E+13	9.13E+12	3.51E+13	3.82E+13
88A	85.428	4.64E+12	1.15E+13	8.68E+12	1.40E+13	4.20E+13	4.54E+13	9.13E+12	3.51E+13	3.82E+13
89	86.441	4.61E+12	1.14E+13	8.62E+12	1.39E+13	4.19E+13	4.54E+13	9.13E+12	3.51E+13	3.82E+13
90	87.440	4.59E+12	1.14E+13	8.58E+12	1.39E+13	4.19E+13	4.54E+13	9.16E+12	3.52E+13	3.83E+13
91	88.445	4.59E+12	1.13E+13	8.57E+12	1.38E+13	4.20E+13	4.56E+13	9.20E+12	3.53E+13	3.85E+13

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ -count.

^b Calculated by CACA-2 Computer Code.

APPENDIX C : FISSION GAS RELEASE DATA

Fission Gas Birth Rates at Grab Sample Time (continued)

Gas ^a Sample	Sample Time Elap. Day	Fission Gas Birth Rate (Atoms/Sec) ^b								
		^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
92	91.445	4.66E+12	1.15E+13	8.68E+12	1.40E+13	4.29E+13	4.70E+13	9.50E+12	3.64E+13	3.97E+13
93	92.446	4.71E+12	1.16E+13	8.77E+12	1.41E+13	4.34E+13	4.77E+13	9.64E+12	3.69E+13	4.03E+13
94	92.482	4.71E+12	1.16E+13	8.77E+12	1.41E+13	4.34E+13	4.77E+13	9.64E+12	3.69E+13	4.03E+13
95	93.443	4.76E+12	1.17E+13	8.87E+12	1.42E+13	4.40E+13	4.84E+13	9.79E+12	3.75E+13	4.09E+13
96	94.443	4.82E+12	1.19E+13	8.97E+12	1.44E+13	4.47E+13	4.92E+13	9.96E+12	3.81E+13	4.16E+13
97	95.444	4.88E+12	1.20E+13	9.08E+12	1.46E+13	4.54E+13	5.00E+13	1.01E+13	3.87E+13	4.23E+13
98	95.468	4.88E+12	1.20E+13	9.08E+12	1.46E+13	4.54E+13	5.01E+13	1.01E+13	3.87E+13	4.23E+13
99	98.445	5.06E+12	1.24E+13	9.40E+12	1.50E+13	4.75E+13	5.25E+13	1.06E+13	4.05E+13	4.43E+13
100	98.713	5.08E+12	1.25E+13	9.44E+12	1.51E+13	4.77E+13	5.27E+13	1.07E+13	4.07E+13	4.45E+13
101	99.440	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.59E+13	1.91E+13	2.77E+12	0.00E+00	0.00E+00
102	100.445	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E+13	1.50E+12	2.17E+11	0.00E+00	0.00E+00
103	101.446	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.25E+12	1.19E+11	1.72E+10	0.00E+00	0.00E+00
Cycle 4										
104	110.817	4.59E+12	1.11E+13	8.46E+12	1.34E+13	8.88E+11	6.09E+12	4.14E+12	3.80E+13	4.20E+13
105	110.849	4.59E+12	1.11E+13	8.46E+12	1.34E+13	2.03E+12	1.08E+13	4.62E+12	3.80E+13	4.20E+13
106	111.793	4.43E+12	1.07E+13	8.18E+12	1.29E+13	2.49E+13	4.56E+13	9.51E+12	3.67E+13	4.05E+13
107	112.442	4.34E+12	1.05E+13	8.02E+12	1.27E+13	3.26E+13	4.75E+13	9.71E+12	3.60E+13	3.97E+13
108	113.443	4.23E+12	1.03E+13	7.81E+12	1.24E+13	3.83E+13	4.68E+13	9.53E+12	3.52E+13	3.88E+13
109	113.480	4.23E+12	1.03E+13	7.81E+12	1.24E+13	3.84E+13	4.68E+13	9.53E+12	3.52E+13	3.88E+13
110	114.438	4.15E+12	1.01E+13	7.66E+12	1.21E+13	4.03E+13	4.59E+13	9.33E+12	3.46E+13	3.81E+13
111	115.439	4.08E+12	9.90E+12	7.53E+12	1.19E+13	4.09E+13	4.52E+13	9.18E+12	3.41E+13	3.76E+13
112	116.442	4.02E+12	9.75E+12	7.42E+12	1.17E+13	4.09E+13	4.46E+13	9.07E+12	3.38E+13	3.72E+13
113	119.440	3.91E+12	9.48E+12	7.22E+12	1.14E+13	4.02E+13	4.38E+13	8.91E+12	3.32E+13	3.66E+13
114	119.451	3.91E+12	9.47E+12	7.22E+12	1.14E+13	4.02E+13	4.38E+13	8.91E+12	3.32E+13	3.66E+13
115	120.440	3.89E+12	9.42E+12	7.18E+12	1.13E+13	4.01E+13	4.38E+13	8.90E+12	3.32E+13	3.66E+13
116	120.485	3.89E+12	9.42E+12	7.18E+12	1.13E+13	4.01E+13	4.38E+13	8.90E+12	3.32E+13	3.66E+13
117	120.517	3.89E+12	9.42E+12	7.18E+12	1.13E+13	4.01E+13	4.38E+13	8.90E+12	3.32E+13	3.66E+13
118	121.444	3.89E+12	9.39E+12	7.16E+12	1.13E+13	4.01E+13	4.38E+13	8.91E+12	3.33E+13	3.67E+13
119	122.441	3.89E+12	9.39E+12	7.16E+12	1.13E+13	4.01E+13	4.40E+13	8.95E+12	3.34E+13	3.68E+13
120	123.443	3.90E+12	9.42E+12	7.18E+12	1.13E+13	4.03E+13	4.43E+13	9.01E+12	3.36E+13	3.71E+13
121	126.442	4.01E+12	9.66E+12	7.38E+12	1.16E+13	4.14E+13	4.58E+13	9.34E+12	3.48E+13	3.85E+13
122	127.440	4.06E+12	9.79E+12	7.47E+12	1.17E+13	4.19E+13	4.65E+13	9.48E+12	3.54E+13	3.91E+13
123	127.481	4.07E+12	9.79E+12	7.48E+12	1.17E+13	4.20E+13	4.65E+13	9.49E+12	3.54E+13	3.91E+13
124	127.513	4.07E+12	9.79E+12	7.48E+12	1.17E+13	4.20E+13	4.65E+13	9.49E+12	3.54E+13	3.91E+13

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ -count.

^b Calculated by CACA-2 Computer Code.

APPENDIX C : FISSION GAS RELEASE DATA

Fission Gas Birth Rates at Grab Sample Time (continued)

Sample	Gas ^a	Sample Time Elap. Day	Fission Gas Birth Rate (Atoms/Sec) ^b								
			^{85m} Kr	⁸⁸ Kr	⁸⁷ Kr	⁸⁹ Kr	¹³³ Xe	¹³⁵ Xe	^{135m} Xe	¹³⁸ Xe	¹³⁷ Xe
125		127.759	4.08E+12	9.83E+12	7.50E+12	1.18E+13	4.21E+13	4.67E+13	9.53E+12	3.55E+13	3.92E+13
126		128.448	4.12E+12	9.92E+12	7.58E+12	1.19E+13	4.26E+13	4.73E+13	9.64E+12	3.59E+13	3.97E+13
127		129.443	4.18E+12	1.01E+13	7.69E+12	1.20E+13	4.32E+13	4.80E+13	9.79E+12	3.65E+13	4.03E+13
128		130.444	4.24E+12	1.02E+13	7.79E+12	1.22E+13	4.39E+13	4.88E+13	9.95E+12	3.71E+13	4.10E+13
129		132.774	4.38E+12	1.05E+13	8.05E+12	1.26E+13	4.56E+13	5.07E+13	1.03E+13	3.85E+13	4.25E+13
130		133.377	4.43E+12	1.06E+13	8.13E+12	1.27E+13	4.60E+13	5.12E+13	1.04E+13	3.89E+13	4.30E+13
131		133.508	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.14E+13	3.33E+13	4.81E+12	0.00E+00	0.00E+00
131A		133.508	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.14E+13	3.33E+13	4.81E+12	0.00E+00	0.00E+00
132		134.435	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E+13	3.18E+12	4.60E+11	0.00E+00	0.00E+00
132A		134.435	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E+13	3.18E+12	4.60E+11	0.00E+00	0.00E+00
133		135.439	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.88E+12	2.51E+11	3.63E+10	0.00E+00	0.00E+00

^a Letter indicates a reanalysis of same numeric sample. The birth rate is identical to first γ -count.

^b Calculated by CACA-2 Computer Code.

APPENDIX D: ION CHAMBER DATA

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APPENDIX D: ION CHAMBER DATA

First Particle Failure - May 15, 1994

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
13:20:01	7.6E-12	13:20:07	7.7E-12	13:20:13	7.6E-12	13:20:19	7.9E-12	13:20:25	8.0E-12	13:20:31	7.3E-12
13:20:37	7.4E-12	13:20:43	7.5E-12	13:20:49	7.6E-12	13:20:55	7.6E-12	13:21:01	7.7E-12	13:21:07	8.0E-12
13:21:13	7.3E-12	13:21:19	7.4E-12	13:21:25	7.4E-12	13:21:31	7.1E-12	13:21:37	7.5E-12	13:21:43	7.6E-12
13:21:49	7.6E-12	13:21:55	7.5E-12	13:22:01	7.2E-12	13:22:07	7.9E-12	13:22:13	8.1E-12	13:22:19	7.2E-12
13:22:25	7.4E-12	13:22:31	7.8E-12	13:22:37	7.7E-12	13:22:43	7.7E-12	13:22:49	6.9E-12	13:22:55	7.4E-12
13:23:01	7.4E-12	13:23:07	8.1E-12	13:23:13	7.5E-12	13:23:19	7.5E-12	13:23:25	8.2E-12	13:23:31	7.1E-12
13:23:37	7.7E-12	13:23:43	7.6E-12	13:23:49	7.6E-12	13:23:55	7.4E-12	13:24:01	7.5E-12	13:24:07	7.6E-12
13:24:13	7.6E-12	13:24:19	7.5E-12	13:24:25	7.6E-12	13:24:31	7.7E-12	13:24:37	7.6E-12	13:24:43	7.6E-12
13:24:49	7.6E-12	13:24:55	7.8E-12	13:25:01	7.9E-12	13:25:07	7.3E-12	13:25:13	7.1E-12	13:25:19	8.0E-12
13:25:25	7.6E-12	13:25:31	7.6E-12	13:25:37	7.7E-12	13:25:43	7.9E-12	13:25:49	7.4E-12	13:25:55	7.5E-12
13:26:01	7.1E-12	13:26:07	7.6E-12	13:26:13	7.6E-12	13:26:19	7.8E-12	13:26:25	8.0E-12	13:26:31	7.9E-12
13:26:37	7.7E-12	13:26:43	7.6E-12	13:26:49	7.6E-12	13:26:55	7.6E-12	13:27:01	7.6E-12	13:27:07	7.6E-12
13:27:13	7.6E-12	13:27:19	7.6E-12	13:27:25	7.5E-12	13:27:31	7.6E-12	13:27:37	7.6E-12	13:27:43	7.6E-12
13:27:49	7.6E-12	13:27:55	7.5E-12	13:28:01	7.9E-12	13:28:07	7.8E-12	13:28:13	7.7E-12	13:28:19	7.8E-12
13:28:25	7.8E-12	13:28:31	7.7E-12	13:28:37	8.0E-12	13:28:43	7.2E-12	13:28:49	7.2E-12	13:28:55	7.5E-12
13:29:01	7.5E-12	13:29:07	7.2E-12	13:29:13	7.8E-12	13:29:19	7.6E-12	13:29:25	7.3E-12	13:29:31	7.8E-12
13:29:37	7.9E-12	13:29:43	8.2E-12	13:29:49	7.4E-12	13:29:55	7.4E-12	13:30:01	7.5E-12	13:30:07	7.5E-12
13:30:13	7.6E-12	13:30:19	7.6E-12	13:30:25	7.6E-12	13:30:31	7.6E-12	13:30:37	7.6E-12	13:30:43	7.8E-12
13:30:49	7.8E-12	13:30:55	7.7E-12	13:31:01	7.6E-12	13:31:07	7.6E-12	13:31:13	7.7E-12	13:31:19	7.2E-12
13:31:25	7.9E-12	13:31:31	7.8E-12	13:31:37	7.5E-12	13:31:43	7.5E-12	13:31:49	7.5E-12	13:31:55	7.5E-12
13:32:01	7.6E-12	13:32:07	7.6E-12	13:32:13	7.5E-12	13:32:19	7.9E-12	13:32:25	7.8E-12	13:32:31	7.2E-12
13:32:37	7.5E-12	13:32:43	8.0E-12	13:32:49	8.1E-12	13:32:55	7.0E-12	13:33:01	7.5E-12	13:33:07	7.6E-12
13:33:13	7.6E-12	13:33:19	7.5E-12	13:33:25	6.9E-12	13:33:31	7.6E-12	13:33:37	7.6E-12	13:33:43	7.4E-12
13:33:49	7.5E-12	13:33:55	7.5E-12	13:34:01	7.5E-12	13:34:07	7.6E-12	13:34:13	7.5E-12	13:34:19	7.7E-12
13:34:25	7.6E-12	13:34:31	7.5E-12	13:34:37	8.1E-12	13:34:43	7.2E-12	13:34:49	7.7E-12	13:34:55	7.7E-12
13:35:01	7.7E-12	13:35:07	7.4E-12	13:35:13	7.5E-12	13:35:19	7.5E-12	13:35:25	7.6E-12	13:35:31	7.7E-12
13:35:37	7.7E-12	13:35:43	7.8E-12	13:35:49	7.7E-12	13:35:55	7.6E-12	13:36:01	8.3E-12	13:36:07	7.8E-12
13:36:13	7.3E-12	13:36:19	7.5E-12	13:36:25	7.5E-12	13:36:31	7.5E-12	13:36:37	7.6E-12	13:36:43	7.6E-12
13:36:49	7.7E-12	13:36:55	7.8E-12	13:37:01	7.7E-12	13:37:07	8.2E-12	13:37:13	8.0E-12	13:37:19	7.8E-12
13:37:25	7.8E-12	13:37:31	7.7E-12	13:37:37	7.7E-12	13:37:43	8.3E-12	13:37:49	7.2E-12	13:37:55	7.7E-12
13:38:01	7.6E-12	13:38:07	7.6E-12	13:38:13	7.5E-12	13:38:19	7.5E-12	13:38:25	7.6E-12	13:38:31	7.4E-12
13:38:37	7.5E-12	13:38:43	7.6E-12	13:38:49	7.5E-12	13:38:55	7.6E-12	13:39:01	7.6E-12	13:39:07	8.1E-12
13:39:13	7.5E-12	13:39:19	8.0E-12	13:39:25	7.5E-12	13:39:31	8.4E-12	13:39:37	7.7E-12	13:39:43	7.6E-12
13:39:49	7.6E-12	13:39:55	7.4E-12	13:40:01	7.4E-12	13:40:07	6.9E-12	13:40:13	7.5E-12	13:40:19	7.6E-12
13:40:25	7.6E-12	13:40:31	8.1E-12	13:40:37	7.4E-12	13:40:43	8.0E-12	13:40:49	7.3E-12	13:40:55	8.3E-12
13:41:01	7.8E-12	13:41:07	7.9E-12	13:41:13	8.7E-12	13:41:19	9.2E-12	13:41:25	9.9E-12	13:41:31	9.8E-12
13:41:37	1.1E-11	13:41:43	1.1E-11	13:41:49	1.0E-11	13:41:55	1.1E-11	13:42:01	1.0E-11	13:42:07	1.1E-11
13:42:13	1.1E-11	13:42:19	1.1E-11	13:42:25	1.1E-11	13:42:31	1.1E-11	13:42:37	1.0E-11	13:42:43	1.0E-11
13:42:49	1.0E-11	13:42:55	1.0E-11	13:43:01	9.8E-12	13:43:07	1.1E-11	13:43:13	9.8E-12	13:43:19	9.7E-12
13:43:25	9.6E-12	13:43:31	9.7E-12	13:43:37	9.7E-12	13:43:43	9.1E-12	13:43:49	9.5E-12	13:43:55	9.5E-12
13:44:01	9.5E-12	13:44:07	9.3E-12	13:44:13	9.3E-12	13:44:19	9.3E-12	13:44:25	9.3E-12	13:44:31	9.2E-12

APPENDIX D: ION CHAMBER DATA

First Particle Failure - May 15, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
13:44:37	9.3E-12	13:44:43	8.6E-12	13:44:49	9.1E-12	13:44:55	9.2E-12	13:45:01	8.5E-12	13:45:07	8.6E-12
13:45:13	8.6E-12	13:45:19	8.8E-12	13:45:25	8.4E-12	13:45:31	8.3E-12	13:45:37	8.2E-12	13:45:43	8.7E-12
13:45:49	8.7E-12	13:45:55	8.6E-12	13:46:01	8.6E-12	13:46:07	8.9E-12	13:46:13	8.2E-12	13:46:19	8.3E-12
13:46:25	8.4E-12	13:46:31	8.3E-12	13:46:37	8.3E-12	13:46:43	8.3E-12	13:46:49	8.3E-12	13:46:55	8.3E-12
13:47:01	8.4E-12	13:47:07	8.6E-12	13:47:13	8.1E-12	13:47:19	8.1E-12	13:47:25	7.9E-12	13:47:31	8.0E-12
13:47:37	8.2E-12	13:47:43	8.2E-12	13:47:49	8.6E-12	13:47:55	8.2E-12	13:48:01	8.1E-12	13:48:07	8.0E-12
13:48:13	8.0E-12	13:48:19	8.0E-12	13:48:25	7.9E-12	13:48:31	8.0E-12	13:48:37	8.5E-12	13:48:43	8.3E-12
13:48:49	8.3E-12	13:48:55	8.2E-12	13:49:01	8.4E-12	13:49:07	7.7E-12	13:49:13	8.5E-12	13:49:19	8.0E-12
13:49:25	8.2E-12	13:49:31	8.2E-12	13:49:37	8.7E-12	13:49:43	8.3E-12	13:49:49	7.8E-12	13:49:55	7.8E-12
13:50:01	7.8E-12	13:50:07	7.9E-12	13:50:13	7.9E-12	13:50:19	8.0E-12	13:50:25	7.2E-12	13:50:31	8.1E-12
13:50:37	8.0E-12	13:50:43	8.0E-12	13:50:49	7.8E-12	13:50:55	8.1E-12	13:51:01	8.1E-12	13:51:07	8.0E-12
13:51:13	8.0E-12	13:51:19	7.5E-12	13:51:25	7.6E-12	13:51:31	7.7E-12	13:51:37	7.8E-12	13:51:43	7.8E-12
13:51:49	7.7E-12	13:51:55	7.9E-12	13:52:01	8.3E-12	13:52:07	7.8E-12	13:52:13	7.8E-12	13:52:19	8.4E-12
13:52:25	7.6E-12	13:52:31	7.9E-12	13:52:37	8.0E-12	13:52:43	8.7E-12	13:52:49	8.2E-12	13:52:55	7.7E-12
13:53:01	7.8E-12	13:53:07	8.3E-12	13:53:13	7.9E-12	13:53:19	7.4E-12	13:53:25	7.9E-12	13:53:31	7.9E-12
13:53:37	7.9E-12	13:53:43	8.0E-12	13:53:49	8.3E-12	13:53:55	8.2E-12	13:54:01	8.1E-12	13:54:07	8.4E-12
13:54:13	8.3E-12	13:54:19	8.2E-12	13:54:25	8.2E-12	13:54:31	7.7E-12	13:54:37	7.8E-12	13:54:43	8.7E-12
13:54:49	8.1E-12	13:54:55	8.3E-12	13:55:01	7.8E-12	13:55:07	8.3E-12	13:55:13	8.1E-12	13:55:19	7.6E-12
13:55:25	7.7E-12	13:55:31	7.8E-12	13:55:37	7.8E-12	13:55:43	8.4E-12	13:55:49	7.8E-12	13:55:55	8.2E-12
13:56:01	7.6E-12	13:56:07	8.3E-12	13:56:13	7.7E-12	13:56:19	7.8E-12	13:56:25	7.8E-12	13:56:31	8.0E-12
13:56:37	7.9E-12	13:56:43	7.8E-12	13:56:49	7.7E-12	13:56:55	7.8E-12	13:57:01	8.3E-12	13:57:07	8.3E-12
13:57:13	7.8E-12	13:57:19	7.8E-12	13:57:25	7.8E-12	13:57:31	7.9E-12	13:57:37	7.9E-12	13:57:43	7.9E-12
13:57:49	7.3E-12	13:57:55	8.3E-12	13:58:01	8.7E-12	13:58:07	8.1E-12	13:58:13	8.0E-12	13:58:19	7.4E-12
13:58:25	7.6E-12	13:58:31	8.1E-12	13:58:37	8.1E-12	13:58:43	8.0E-12	13:58:49	7.5E-12	13:58:55	8.1E-12
13:59:01	7.5E-12	13:59:07	7.6E-12	13:59:13	8.1E-12	13:59:19	8.0E-12	13:59:25	8.0E-12	13:59:31	8.1E-12
13:59:37	8.0E-12	13:59:43	7.5E-12	13:59:49	8.3E-12	13:59:55	7.3E-12	14:00:01	7.4E-12	14:00:07	8.1E-12
14:00:13	8.0E-12	14:00:19	7.9E-12	14:00:25	7.9E-12	14:00:31	7.9E-12	14:00:37	8.4E-12	14:00:43	7.1E-12
14:00:49	7.7E-12	14:00:55	8.3E-12	14:01:01	7.4E-12	14:01:07	8.1E-12	14:01:13	8.0E-12	14:01:19	7.8E-12
14:01:25	7.8E-12	14:01:31	7.8E-12	14:01:37	7.9E-12	14:01:43	7.8E-12	14:01:49	8.3E-12	14:01:55	7.6E-12
14:02:01	8.2E-12	14:02:07	8.0E-12	14:02:13	7.4E-12	14:02:19	7.7E-12	14:02:25	8.1E-12	14:02:31	8.2E-12
14:02:37	8.1E-12	14:02:43	8.1E-12	14:02:49	8.1E-12	14:02:55	8.0E-12	14:03:01	7.6E-12	14:03:07	8.0E-12
14:03:13	8.0E-12	14:03:19	7.9E-12	14:03:25	8.0E-12	14:03:31	7.8E-12	14:03:37	7.9E-12	14:03:43	8.6E-12
14:03:49	7.7E-12	14:03:55	8.4E-12	14:04:01	8.1E-12	14:04:07	8.1E-12	14:04:13	7.9E-12	14:04:19	8.7E-12
14:04:25	8.0E-12	14:04:31	7.9E-12	14:04:37	8.2E-12	14:04:43	8.2E-12	14:04:49	7.8E-12	14:04:55	7.9E-12
14:05:01	7.9E-12	14:05:07	7.9E-12	14:05:13	7.7E-12	14:05:19	8.4E-12	14:05:25	7.6E-12	14:05:31	7.8E-12
14:05:37	8.0E-12	14:05:43	8.0E-12	14:05:49	8.0E-12	14:05:55	8.1E-12	14:06:01	8.1E-12	14:06:07	8.0E-12
14:06:13	7.2E-12	14:06:19	8.3E-12	14:06:25	8.1E-12	14:06:31	7.6E-12	14:06:37	7.7E-12	14:06:43	7.8E-12
14:06:49	7.8E-12	14:06:55	7.6E-12	14:07:01	7.7E-12	14:07:07	8.3E-12	14:07:13	8.3E-12	14:07:19	7.6E-12
14:07:25	7.7E-12	14:07:31	7.8E-12	14:07:37	7.8E-12	14:07:43	7.9E-12	14:07:49	7.8E-12	14:07:55	7.9E-12
14:08:01	7.9E-12	14:08:07	8.2E-12	14:08:13	7.6E-12	14:08:19	7.7E-12	14:08:25	7.7E-12	14:08:31	7.8E-12
14:08:37	7.8E-12	14:08:43	7.8E-12	14:08:49	7.9E-12	14:08:55	8.0E-12	14:09:01	7.9E-12	14:09:07	8.0E-12

APPENDIX D: ION CHAMBER DATA

First Particle Failure - May 15, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
14:09:13	8.0E-12	14:09:19	7.9E-12	14:09:25	7.9E-12	14:09:31	7.5E-12	14:09:37	8.1E-12	14:09:43	8.0E-12
14:09:49	7.2E-12	14:09:55	7.9E-12	14:10:01	7.9E-12	14:10:07	8.2E-12	14:10:13	7.8E-12	14:10:19	7.8E-12
14:10:25	8.4E-12	14:10:31	7.8E-12	14:10:37	7.8E-12	14:10:43	7.7E-12	14:10:49	7.7E-12	14:10:55	7.8E-12
14:11:01	7.8E-12	14:11:07	7.9E-12	14:11:13	7.8E-12	14:11:19	8.3E-12	14:11:25	8.0E-12	14:11:31	7.3E-12
14:11:37	8.0E-12	14:11:43	7.9E-12	14:11:49	8.0E-12	14:11:55	7.5E-12	14:12:01	8.1E-12	14:12:07	8.3E-12
14:12:13	7.5E-12	14:12:19	8.2E-12	14:12:25	8.1E-12	14:12:31	7.9E-12	14:12:37	7.9E-12	14:12:43	7.9E-12
14:12:49	7.3E-12	14:12:55	7.8E-12	14:13:01	7.8E-12	14:13:07	7.8E-12	14:13:13	7.9E-12	14:13:19	7.9E-12
14:13:25	7.9E-12	14:13:31	7.8E-12	14:13:37	7.6E-12	14:13:43	8.3E-12	14:13:49	8.3E-12	14:13:55	7.7E-12
14:14:01	7.8E-12	14:14:07	7.8E-12	14:14:13	7.8E-12	14:14:19	7.9E-12	14:14:25	7.9E-12	14:14:31	7.9E-12
14:14:37	8.4E-12	14:14:43	8.3E-12	14:14:49	7.8E-12	14:14:55	7.8E-12	14:15:01	7.8E-12	14:15:07	7.9E-12
14:15:13	7.9E-12	14:15:19	8.4E-12	14:15:25	7.9E-12	14:15:31	7.9E-12	14:15:37	7.9E-12	14:15:43	8.4E-12
14:15:49	7.8E-12	14:15:55	7.9E-12	14:16:00	7.9E-12	14:16:07	7.7E-12	14:16:13	8.0E-12	14:16:19	8.0E-12
14:16:24	7.9E-12	14:16:31	7.6E-12	14:16:37	8.2E-12	14:16:43	7.4E-12	14:16:48	8.0E-12	14:16:54	8.1E-12
14:17:01	8.1E-12	14:17:07	8.0E-12	14:17:13	8.0E-12	14:17:18	7.9E-12	14:17:25	7.9E-12	14:17:31	8.6E-12
14:17:37	8.0E-12	14:17:42	8.0E-12	14:17:48	8.3E-12	14:17:55	7.3E-12	14:18:01	8.0E-12	14:18:06	7.9E-12
14:18:12	7.9E-12	14:18:19	8.3E-12	14:18:25	8.2E-12	14:18:30	8.2E-12	14:18:36	8.0E-12	14:18:42	7.5E-12
14:18:49	8.4E-12	14:18:54	7.7E-12	14:19:00	7.8E-12	14:19:06	7.9E-12	14:19:13	7.9E-12	14:19:18	8.0E-12
14:19:24	8.0E-12	14:19:30	8.0E-12	14:19:36	8.5E-12	14:19:43	8.2E-12	14:19:48	7.5E-12	14:19:54	7.6E-12
14:20:00	7.7E-12	14:20:07	7.3E-12	14:20:12	8.1E-12	14:20:18	8.1E-12	14:20:24	8.0E-12	14:20:30	7.8E-12
14:20:36	7.4E-12	14:20:42	8.1E-12	14:20:48	7.3E-12	14:20:54	7.4E-12	14:21:00	7.9E-12	14:21:06	7.8E-12
14:21:12	7.8E-12	14:21:18	8.4E-12	14:21:24	7.9E-12	14:21:30	7.3E-12	14:21:36	8.1E-12	14:21:42	7.7E-12
14:21:48	7.8E-12	14:21:54	7.9E-12	14:22:00	7.9E-12	14:22:06	7.8E-12	14:22:12	7.8E-12	14:22:18	7.8E-12
14:22:24	8.1E-12	14:22:30	8.0E-12	14:22:36	7.6E-12	14:22:42	7.9E-12	14:22:48	7.8E-12	14:22:54	7.8E-12
14:23:00	7.9E-12	14:23:06	7.9E-12	14:23:12	7.9E-12	14:23:18	7.9E-12	14:23:24	7.9E-12	14:23:30	7.9E-12
14:23:36	8.5E-12	14:23:42	7.9E-12	14:23:48	7.8E-12	14:23:54	7.8E-12	14:24:00	7.9E-12	14:24:06	7.8E-12
14:24:12	7.5E-12	14:24:18	7.3E-12	14:24:24	8.0E-12	14:24:30	8.0E-12	14:24:36	8.0E-12	14:24:42	7.9E-12
14:24:48	7.4E-12	14:24:54	7.9E-12	14:25:00	7.9E-12	14:25:06	7.9E-12	14:25:12	7.9E-12	14:25:18	7.5E-12
14:25:24	7.5E-12	14:25:30	7.3E-12	14:25:36	7.3E-12	14:25:42	7.5E-12	14:25:48	8.2E-12	14:25:54	7.6E-12
14:26:00	7.7E-12	14:26:06	7.8E-12	14:26:12	7.2E-12	14:26:18	7.8E-12	14:26:24	7.8E-12	14:26:30	7.8E-12
14:26:36	7.9E-12	14:26:42	7.8E-12	14:26:48	7.9E-12	14:26:54	7.9E-12	14:27:00	8.6E-12	14:27:06	7.3E-12
14:27:12	8.6E-12	14:27:18	7.8E-12	14:27:24	7.7E-12	14:27:30	7.5E-12	14:27:36	7.5E-12	14:27:42	7.5E-12
14:27:48	8.0E-12	14:27:54	7.9E-12	14:28:00	7.8E-12	14:28:06	7.8E-12	14:28:12	7.8E-12	14:28:18	7.5E-12
14:28:24	8.4E-12	14:28:30	8.3E-12	14:28:36	7.8E-12	14:28:42	7.8E-12	14:28:48	7.8E-12	14:28:54	7.9E-12
14:29:00	7.9E-12	14:29:06	7.9E-12	14:29:12	7.9E-12	14:29:18	8.0E-12	14:29:24	7.9E-12	14:29:30	8.0E-12
14:29:36	8.0E-12	14:29:42	8.0E-12	14:29:48	7.8E-12	14:29:54	7.2E-12	14:30:00	8.1E-12	14:30:06	8.4E-12
14:30:12	7.8E-12	14:30:18	7.8E-12	14:30:24	7.9E-12	14:30:30	7.9E-12	14:30:36	7.9E-12	14:30:42	7.9E-12
14:30:48	8.0E-12	14:30:54	8.0E-12	14:31:00	7.8E-12	14:31:06	7.8E-12	14:31:12	7.3E-12	14:31:18	7.8E-12
14:31:24	7.8E-12	14:31:30	7.9E-12	14:31:36	7.8E-12	14:31:42	7.8E-12	14:31:48	7.9E-12	14:31:54	8.4E-12
14:32:00	7.7E-12	14:32:06	7.8E-12	14:32:12	8.1E-12	14:32:18	7.5E-12	14:32:24	7.6E-12	14:32:30	7.7E-12
14:32:36	8.3E-12	14:32:42	7.5E-12	14:32:48	8.1E-12	14:32:54	8.1E-12	14:33:00	7.5E-12	14:33:06	8.1E-12
14:33:12	8.1E-12	14:33:18	8.1E-12	14:33:24	8.0E-12	14:33:30	8.2E-12	14:33:36	7.9E-12	14:33:42	8.1E-12

APPENDIX D: ION CHAMBER DATA

First Particle Failure - May 15, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
14:33:48	8.1E-12	14:33:54	8.0E-12	14:34:00	7.9E-12	14:34:06	7.9E-12	14:34:12	8.0E-12	14:34:18	7.9E-12
14:34:24	8.0E-12	14:34:30	8.0E-12	14:34:36	7.3E-12	14:34:42	7.6E-12	14:34:48	8.3E-12	14:34:54	7.7E-12
14:35:00	8.3E-12	14:35:06	8.3E-12	14:35:12	8.2E-12	14:35:18	7.8E-12	14:35:24	7.9E-12	14:35:30	7.9E-12
14:35:36	7.9E-12	14:35:42	7.9E-12	14:35:48	8.0E-12	14:35:54	8.0E-12	14:36:00	7.4E-12	14:36:06	7.6E-12
14:36:12	8.4E-12	14:36:18	7.6E-12	14:36:24	7.7E-12	14:36:30	7.6E-12	14:36:36	7.8E-12	14:36:42	7.8E-12
14:36:48	8.4E-12	14:36:54	7.8E-12	14:37:00	7.9E-12	14:37:06	7.9E-12	14:37:12	7.5E-12	14:37:18	7.7E-12
14:37:24	7.5E-12	14:37:30	7.5E-12	14:37:36	8.1E-12	14:37:42	8.0E-12	14:37:48	7.9E-12	14:37:54	8.2E-12
14:38:00	8.2E-12	14:38:06	8.1E-12	14:38:12	7.9E-12	14:38:18	7.8E-12	14:38:24	7.9E-12	14:38:30	8.0E-12
14:38:36	8.0E-12	14:38:42	8.0E-12	14:38:48	7.9E-12	14:38:54	7.9E-12	14:39:00	7.3E-12	14:39:06	8.2E-12
14:39:12	7.5E-12	14:39:18	7.8E-12	14:39:24	8.0E-12	14:39:30	7.9E-12	14:39:36	7.9E-12	14:39:42	8.0E-12
14:39:48	8.0E-12	14:39:54	8.2E-12	14:40:00	8.2E-12	14:40:06	7.9E-12	14:40:12	8.4E-12	14:40:18	8.0E-12
14:40:24	7.9E-12	14:40:30	7.9E-12	14:40:36	7.9E-12	14:40:42	7.9E-12	14:40:48	7.9E-12	14:40:54	7.9E-12
14:41:00	7.9E-12	14:41:06	7.9E-12	14:41:12	7.8E-12	14:41:18	8.4E-12	14:41:24	8.4E-12	14:41:30	8.3E-12
14:41:36	7.6E-12	14:41:42	7.5E-12	14:41:48	7.7E-12	14:41:54	7.8E-12	14:42:00	7.8E-12	14:42:06	7.9E-12
14:42:12	7.9E-12	14:42:18	8.1E-12	14:42:24	7.6E-12	14:42:30	7.5E-12	14:42:36	7.7E-12	14:42:42	7.8E-12
14:42:48	7.9E-12	14:42:54	7.8E-12	14:43:00	7.8E-12	14:43:06	7.7E-12	14:43:12	7.8E-12	14:43:18	7.8E-12
14:43:24	7.8E-12	14:43:30	7.9E-12	14:43:36	8.0E-12	14:43:42	8.0E-12	14:43:48	8.0E-12	14:43:54	7.4E-12
14:44:00	8.1E-12	14:44:06	8.0E-12	14:44:12	7.9E-12	14:44:18	7.8E-12	14:44:24	7.7E-12	14:44:30	7.8E-12
14:44:36	7.8E-12	14:44:42	7.7E-12	14:44:48	7.8E-12	14:44:54	7.9E-12	14:45:00	7.9E-12	14:45:06	7.8E-12
14:45:12	7.6E-12	14:45:18	7.4E-12	14:45:24	7.0E-12	14:45:30	7.8E-12	14:45:36	7.9E-12	14:45:42	7.9E-12
14:45:48	7.3E-12	14:45:54	7.4E-12	14:46:00	7.7E-12	14:46:06	8.2E-12	14:46:12	8.1E-12	14:46:18	8.0E-12
14:46:24	8.0E-12	14:46:30	7.8E-12	14:46:36	7.8E-12	14:46:42	8.0E-12	14:46:48	8.0E-12	14:46:54	7.9E-12
14:47:00	8.3E-12	14:47:06	8.2E-12	14:47:12	8.1E-12	14:47:18	8.1E-12	14:47:24	7.9E-12	14:47:30	7.8E-12
14:47:36	7.7E-12	14:47:42	7.7E-12	14:47:48	7.7E-12	14:47:54	8.3E-12	14:48:00	7.7E-12	14:48:06	7.8E-12
14:48:12	7.8E-12	14:48:18	8.3E-12	14:48:24	7.7E-12	14:48:30	7.7E-12	14:48:36	8.2E-12	14:48:42	7.6E-12
14:48:48	7.7E-12	14:48:54	8.2E-12	14:49:00	7.5E-12	14:49:06	7.6E-12	14:49:12	8.1E-12	14:49:18	7.5E-12
14:49:24	7.9E-12	14:49:30	7.6E-12	14:49:36	7.7E-12	14:49:42	7.8E-12	14:49:48	7.8E-12	14:49:54	7.7E-12
14:50:00	7.8E-12	14:50:06	7.8E-12	14:50:12	7.9E-12	14:50:18	7.9E-12	14:50:24	7.9E-12	14:50:30	7.8E-12
14:50:36	7.9E-12	14:50:42	7.9E-12	14:50:48	7.4E-12	14:50:54	7.9E-12	14:51:00	7.9E-12	14:51:06	7.8E-12
14:51:12	7.6E-12	14:51:18	7.7E-12	14:51:24	7.5E-12	14:51:30	8.1E-12	14:51:36	8.2E-12	14:51:42	7.4E-12
14:51:48	7.9E-12	14:51:54	7.9E-12	14:52:00	7.9E-12	14:52:06	7.9E-12	14:52:12	7.8E-12	14:52:18	7.9E-12
14:52:24	7.9E-12	14:52:30	7.9E-12	14:52:36	7.9E-12	14:52:42	7.9E-12	14:52:48	7.9E-12	14:52:54	7.8E-12
14:53:00	7.8E-12	14:53:06	7.9E-12	14:53:12	7.9E-12	14:53:18	7.8E-12	14:53:24	7.9E-12	14:53:30	8.1E-12
14:53:36	8.1E-12	14:53:42	7.5E-12	14:53:48	7.5E-12	14:53:54	8.3E-12	14:54:00	7.7E-12	14:54:06	7.5E-12
14:54:12	8.2E-12	14:54:18	7.5E-12	14:54:24	7.8E-12	14:54:30	7.9E-12	14:54:36	7.9E-12	14:54:42	7.7E-12
14:54:48	7.8E-12	14:54:54	7.8E-12	14:55:00	7.9E-12	14:55:06	8.3E-12	14:55:12	8.2E-12	14:55:18	7.6E-12
14:55:24	7.7E-12	14:55:30	7.8E-12	14:55:36	7.9E-12	14:55:42	7.4E-12	14:55:48	8.4E-12	14:55:54	7.8E-12
14:56:00	7.8E-12	14:56:06	7.5E-12	14:56:12	7.6E-12	14:56:18	8.4E-12	14:56:24	7.7E-12	14:56:30	7.7E-12
14:56:36	7.8E-12	14:56:42	7.9E-12	14:56:48	7.9E-12	14:56:54	8.0E-12	14:57:00	8.1E-12	14:57:06	8.0E-12
14:57:12	8.0E-12	14:57:18	8.0E-12	14:57:24	7.9E-12	14:57:30	7.9E-12	14:57:36	7.9E-12	14:57:42	7.9E-12
14:57:48	7.8E-12	14:57:54	8.1E-12	14:58:00	8.0E-12	14:58:06	7.9E-12	14:58:12	8.0E-12	14:58:18	8.0E-12

APPENDIX D: ION CHAMBER DATA

First Particle Failure - May 15, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
14:58:24	8.0E-12	14:58:30	8.9E-12	14:58:36	8.1E-12	14:58:42	8.0E-12	14:58:48	8.1E-12	14:58:54	8.0E-12
14:59:00	8.0E-12	14:59:06	7.9E-12	14:59:12	7.8E-12	14:59:18	7.9E-12	14:59:24	7.7E-12	14:59:30	8.0E-12
14:59:36	8.0E-12	14:59:42	7.9E-12	14:59:48	7.7E-12	14:59:54	8.0E-12	15:00:00	8.0E-12	15:00:06	8.0E-12
15:00:12	8.1E-12	15:00:18	8.0E-12	15:00:24	8.3E-12	15:00:30	8.3E-12	15:00:36	8.1E-12	15:00:42	7.9E-12
15:00:48	7.9E-12	15:00:54	7.8E-12	15:01:00	7.8E-12	15:01:06	7.9E-12	15:01:12	7.9E-12	15:01:18	8.0E-12
15:01:24	7.9E-12	15:01:30	8.4E-12	15:01:36	8.4E-12	15:01:42	8.0E-12	15:01:48	8.0E-12	15:01:54	8.0E-12
15:02:00	7.9E-12	15:02:06	8.0E-12	15:02:12	8.0E-12	15:02:18	7.9E-12	15:02:24	8.0E-12	15:02:30	8.0E-12
15:02:36	8.0E-12	15:02:42	7.4E-12	15:02:48	8.6E-12	15:02:54	8.3E-12	15:03:00	7.6E-12	15:03:06	7.9E-12
15:03:12	8.1E-12	15:03:18	8.7E-12	15:03:24	8.1E-12	15:03:30	7.9E-12	15:03:36	8.0E-12	15:03:42	8.0E-12
15:03:48	8.2E-12	15:03:54	8.1E-12	15:04:00	7.8E-12	15:04:06	8.8E-12	15:04:12	8.7E-12	15:04:18	8.4E-12
15:04:24	7.9E-12	15:04:30	7.9E-12	15:04:36	7.9E-12	15:04:42	8.5E-12	15:04:48	8.3E-12	15:04:54	8.2E-12
15:05:00	8.1E-12	15:05:06	7.6E-12	15:05:12	8.3E-12	15:05:18	7.6E-12	15:05:24	7.6E-12	15:05:30	8.2E-12
15:05:36	8.2E-12	15:05:42	7.5E-12	15:05:48	7.6E-12	15:05:54	7.7E-12	15:06:00	8.3E-12	15:06:06	8.0E-12
15:06:12	8.3E-12	15:06:18	8.2E-12	15:06:24	7.3E-12	15:06:30	7.3E-12	15:06:36	7.9E-12	15:06:42	7.9E-12
15:06:48	8.0E-12	15:06:54	7.3E-12	15:07:00	8.0E-12	15:07:06	7.9E-12	15:07:12	7.9E-12	15:07:18	7.7E-12
15:07:24	8.2E-12	15:07:30	7.5E-12	15:07:36	8.1E-12	15:07:42	8.1E-12	15:07:48	7.5E-12	15:07:54	8.1E-12
15:08:00	8.3E-12	15:08:06	7.6E-12	15:08:12	7.7E-12	15:08:18	7.5E-12	15:08:24	8.3E-12	15:08:30	7.8E-12
15:08:36	7.9E-12	15:08:42	7.9E-12	15:08:48	8.0E-12	15:08:54	8.0E-12	15:09:00	8.0E-12	15:09:06	8.4E-12
15:09:12	8.1E-12	15:09:18	8.0E-12	15:09:24	8.0E-12	15:09:30	8.0E-12	15:09:36	7.9E-12	15:09:42	7.9E-12
15:09:48	7.9E-12	15:09:54	7.8E-12	15:10:00	8.0E-12	15:10:06	8.5E-12	15:10:12	7.9E-12	15:10:18	7.9E-12
15:10:24	7.9E-12	15:10:30	7.9E-12	15:10:36	8.4E-12	15:10:42	7.6E-12	15:10:48	7.8E-12	15:10:54	7.8E-12
15:11:00	8.5E-12	15:11:06	7.9E-12	15:11:12	7.9E-12	15:11:18	8.1E-12	15:11:24	8.0E-12	15:11:30	7.7E-12
15:11:36	7.5E-12	15:11:42	8.2E-12	15:11:48	7.9E-12	15:11:54	7.9E-12	15:12:00	7.8E-12	15:12:06	7.8E-12
15:12:12	8.3E-12	15:12:18	8.1E-12	15:12:24	8.1E-12	15:12:30	8.6E-12	15:12:36	7.7E-12	15:12:42	7.7E-12
15:12:48	7.7E-12	15:12:54	7.8E-12	15:13:00	7.6E-12	15:13:06	8.4E-12	15:13:12	7.6E-12	15:13:18	7.7E-12
15:13:24	7.8E-12	15:13:30	7.7E-12	15:13:36	8.0E-12	15:13:42	7.9E-12	15:13:48	7.8E-12	15:13:54	7.7E-12
15:14:00	8.4E-12	15:14:06	7.5E-12	15:14:12	7.5E-12	15:14:18	8.0E-12	15:14:24	7.7E-12	15:14:30	7.7E-12
15:14:36	7.8E-12	15:14:42	7.4E-12	15:14:48	7.6E-12	15:14:54	7.5E-12	15:15:00	8.1E-12	15:15:06	7.1E-12
15:15:12	7.8E-12	15:15:18	7.8E-12	15:15:24	8.2E-12	15:15:30	7.6E-12	15:15:36	8.1E-12	15:15:42	8.2E-12
15:15:48	8.1E-12	15:15:54	7.9E-12	15:16:00	7.8E-12	15:16:06	7.3E-12	15:16:12	7.9E-12	15:16:18	7.9E-12
15:16:24	7.9E-12	15:16:30	7.7E-12	15:16:36	7.8E-12	15:16:42	7.8E-12	15:16:48	7.8E-12	15:16:54	7.8E-12
15:17:00	7.8E-12	15:17:06	8.0E-12	15:17:12	7.9E-12	15:17:18	7.9E-12	15:17:24	8.5E-12	15:17:30	7.8E-12
15:17:36	7.8E-12	15:17:42	8.2E-12	15:17:48	7.7E-12	15:17:54	8.6E-12	15:18:00	7.9E-12	15:18:06	8.1E-12
15:18:12	7.5E-12	15:18:18	8.2E-12	15:18:24	7.5E-12	15:18:30	8.0E-12	15:18:36	7.4E-12	15:18:42	8.2E-12
15:18:48	7.7E-12	15:18:54	7.7E-12	15:19:00	7.8E-12	15:19:06	7.8E-12	15:19:12	7.3E-12	15:19:18	8.1E-12
15:19:24	7.5E-12	15:19:30	8.1E-12	15:19:36	7.5E-12	15:19:42	7.6E-12	15:19:48	7.9E-12	15:19:54	7.9E-12

APPENDIX D: ION CHAMBER DATA

Second Particle Failure - May 18, 1994

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
12:00:04	8.7E-12	12:00:10	8.1E-12	12:00:16	8.8E-12	12:00:22	8.7E-12	12:00:28	8.0E-12	12:00:34	8.1E-12
12:00:40	8.7E-12	12:00:46	8.4E-12	12:00:52	9.1E-12	12:00:58	8.6E-12	12:01:04	9.0E-12	12:01:10	8.0E-12
12:01:16	9.1E-12	12:01:22	8.5E-12	12:01:28	8.4E-12	12:01:34	8.5E-12	12:01:40	9.1E-12	12:01:46	8.8E-12
12:01:52	9.1E-12	12:01:58	8.9E-12	12:02:04	8.7E-12	12:02:10	8.8E-12	12:02:16	8.2E-12	12:02:22	8.3E-12
12:02:28	8.4E-12	12:02:34	8.5E-12	12:02:40	8.6E-12	12:02:46	7.9E-12	12:02:52	8.8E-12	12:02:58	8.3E-12
12:03:04	8.3E-12	12:03:10	8.8E-12	12:03:16	8.7E-12	12:03:22	8.7E-12	12:03:28	8.7E-12	12:03:34	9.1E-12
12:03:40	8.4E-12	12:03:46	8.2E-12	12:03:52	8.8E-12	12:03:58	9.0E-12	12:04:04	9.0E-12	12:04:10	8.9E-12
12:04:16	8.4E-12	12:04:22	9.0E-12	12:04:28	8.2E-12	12:04:34	8.3E-12	12:04:40	9.0E-12	12:04:46	8.5E-12
12:04:52	8.5E-12	12:04:58	8.7E-12	12:05:04	8.6E-12	12:05:10	9.1E-12	12:05:16	8.1E-12	12:05:22	8.7E-12
12:05:28	8.4E-12	12:05:34	9.0E-12	12:05:40	8.1E-12	12:05:46	8.2E-12	12:05:52	8.4E-12	12:05:58	7.9E-12
12:06:04	8.8E-12	12:06:10	8.7E-12	12:06:16	8.7E-12	12:06:22	8.6E-12	12:06:28	8.6E-12	12:06:34	8.8E-12
12:06:40	8.2E-12	12:06:46	9.0E-12	12:06:52	8.5E-12	12:06:58	9.2E-12	12:07:04	8.4E-12	12:07:10	8.5E-12
12:07:16	8.2E-12	12:07:22	7.9E-12	12:07:28	8.5E-12	12:07:34	8.7E-12	12:07:40	8.9E-12	12:07:46	8.6E-12
12:07:52	8.8E-12	12:07:58	8.7E-12	12:08:04	8.7E-12	12:08:10	8.6E-12	12:08:16	8.8E-12	12:08:22	8.4E-12
12:08:28	8.3E-12	12:08:34	8.2E-12	12:08:40	8.3E-12	12:08:46	8.4E-12	12:08:52	8.4E-12	12:08:58	8.4E-12
12:09:04	8.5E-12	12:09:10	8.5E-12	12:09:16	8.5E-12	12:09:22	8.5E-12	12:09:28	8.5E-12	12:09:34	8.4E-12
12:09:40	8.0E-12	12:09:46	8.6E-12	12:09:52	8.4E-12	12:09:58	8.5E-12	12:10:04	8.5E-12	12:10:10	8.6E-12
12:10:16	9.1E-12	12:10:22	8.9E-12	12:10:28	8.3E-12	12:10:34	8.1E-12	12:10:40	9.0E-12	12:10:46	9.0E-12
12:10:52	8.5E-12	12:10:58	8.5E-12	12:11:04	8.6E-12	12:11:10	8.6E-12	12:11:16	9.0E-12	12:11:22	8.5E-12
12:11:28	8.5E-12	12:11:34	8.6E-12	12:11:40	9.2E-12	12:11:46	7.9E-12	12:11:52	9.0E-12	12:11:58	8.4E-12
12:12:04	8.5E-12	12:12:10	8.5E-12	12:12:16	8.8E-12	12:12:22	8.1E-12	12:12:28	8.0E-12	12:12:34	8.7E-12
12:12:40	8.7E-12	12:12:46	8.1E-12	12:12:52	8.8E-12	12:12:58	8.7E-12	12:13:04	8.6E-12	12:13:10	8.0E-12
12:13:16	8.9E-12	12:13:22	8.1E-12	12:13:28	8.3E-12	12:13:34	8.3E-12	12:13:40	8.1E-12	12:13:46	8.2E-12
12:13:52	9.0E-12	12:13:58	8.5E-12	12:14:04	8.9E-12	12:14:10	8.7E-12	12:14:16	8.1E-12	12:14:22	8.7E-12
12:14:28	8.2E-12	12:14:34	8.3E-12	12:14:40	8.4E-12	12:14:46	8.4E-12	12:14:52	8.5E-12	12:14:58	8.4E-12
12:15:04	8.4E-12	12:15:10	8.5E-12	12:15:16	8.5E-12	12:15:22	8.5E-12	12:15:28	7.6E-12	12:15:34	8.5E-12
12:15:40	8.6E-12	12:15:46	8.5E-12	12:15:52	8.5E-12	12:15:58	8.4E-12	12:16:04	9.2E-12	12:16:10	8.6E-12
12:16:16	8.5E-12	12:16:22	8.5E-12	12:16:28	8.3E-12	12:16:34	8.4E-12	12:16:40	8.5E-12	12:16:46	8.0E-12
12:16:52	8.9E-12	12:16:58	8.4E-12	12:17:04	9.1E-12	12:17:10	8.4E-12	12:17:16	8.4E-12	12:17:22	8.5E-12
12:17:28	8.5E-12	12:17:34	8.4E-12	12:17:40	8.4E-12	12:17:46	8.1E-12	12:17:52	8.2E-12	12:17:58	8.8E-12
12:18:04	8.2E-12	12:18:10	8.0E-12	12:18:16	8.7E-12	12:18:22	8.7E-12	12:18:28	8.1E-12	12:18:34	8.6E-12
12:18:40	8.6E-12	12:18:46	8.5E-12	12:18:52	8.7E-12	12:18:58	8.6E-12	12:19:04	8.4E-12	12:19:10	8.1E-12
12:19:16	8.2E-12	12:19:22	8.4E-12	12:19:28	8.1E-12	12:19:34	8.2E-12	12:19:40	8.9E-12	12:19:46	8.4E-12
12:19:52	8.4E-12	12:19:58	9.0E-12	12:20:04	8.4E-12	12:20:10	9.0E-12	12:20:16	8.5E-12	12:20:22	8.7E-12
12:20:28	8.1E-12	12:20:34	8.3E-12	12:20:40	8.4E-12	12:20:46	8.4E-12	12:20:52	8.9E-12	12:20:58	8.9E-12
12:21:04	8.8E-12	12:21:10	9.0E-12	12:21:16	8.2E-12	12:21:22	8.8E-12	12:21:28	8.0E-12	12:21:34	8.5E-12
12:21:40	8.5E-12	12:21:46	8.5E-12	12:21:52	8.3E-12	12:21:58	9.2E-12	12:22:04	8.3E-12	12:22:10	8.4E-12
12:22:16	8.3E-12	12:22:22	8.3E-12	12:22:28	9.0E-12	12:22:34	8.4E-12	12:22:40	8.9E-12	12:22:46	9.0E-12
12:22:52	8.2E-12	12:22:58	8.7E-12	12:23:04	8.7E-12	12:23:10	7.5E-12	12:23:16	8.7E-12	12:23:22	8.7E-12
12:23:28	8.6E-12	12:23:34	8.6E-12	12:23:40	8.2E-12	12:23:46	8.9E-12	12:23:52	8.8E-12	12:23:58	8.9E-12
12:24:04	8.8E-12	12:24:10	8.9E-12	12:24:16	8.8E-12	12:24:22	8.8E-12	12:24:28	8.2E-12	12:24:34	8.7E-12

APPENDIX D: ION CHAMBER DATA

Second Particle Failure - May 18, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
12:24:40	8.6E-12	12:24:46	8.3E-12	12:24:52	8.4E-12	12:24:58	8.1E-12	12:25:04	8.1E-12	12:25:10	8.2E-12
12:25:16	8.1E-12	12:25:22	8.7E-12	12:25:28	8.3E-12	12:25:34	8.7E-12	12:25:40	8.6E-12	12:25:46	8.6E-12
12:25:52	8.4E-12	12:25:58	8.9E-12	12:26:04	8.3E-12	12:26:10	8.4E-12	12:26:16	8.2E-12	12:26:22	8.9E-12
12:26:28	8.8E-12	12:26:34	8.6E-12	12:26:40	8.6E-12	12:26:46	8.1E-12	12:26:52	8.1E-12	12:26:58	8.1E-12
12:27:04	8.8E-12	12:27:10	8.5E-12	12:27:16	8.6E-12	12:27:22	8.6E-12	12:27:28	8.5E-12	12:27:34	8.3E-12
12:27:40	8.8E-12	12:27:46	8.3E-12	12:27:52	8.9E-12	12:27:58	8.7E-12	12:28:04	7.9E-12	12:28:10	8.4E-12
12:28:16	8.2E-12	12:28:22	8.3E-12	12:28:28	8.9E-12	12:28:34	8.9E-12	12:28:40	8.0E-12	12:28:46	9.1E-12
12:28:52	8.2E-12	12:28:58	8.8E-12	12:29:04	8.1E-12	12:29:10	8.3E-12	12:29:16	8.8E-12	12:29:22	8.0E-12
12:29:28	8.5E-12	12:29:34	8.6E-12	12:29:40	8.6E-12	12:29:46	8.5E-12	12:29:52	8.5E-12	12:29:58	8.1E-12
12:30:04	8.2E-12	12:30:10	8.3E-12	12:30:16	8.1E-12	12:30:22	8.6E-12	12:30:28	8.5E-12	12:30:34	8.5E-12
12:30:40	8.5E-12	12:30:46	8.5E-12	12:30:52	8.5E-12	12:30:58	9.2E-12	12:31:04	8.6E-12	12:31:10	8.6E-12
12:31:16	8.6E-12	12:31:22	8.5E-12	12:31:28	8.6E-12	12:31:34	8.6E-12	12:31:40	8.7E-12	12:31:46	8.7E-12
12:31:52	8.7E-12	12:31:58	7.9E-12	12:32:04	8.6E-12	12:32:10	8.5E-12	12:32:16	8.5E-12	12:32:22	8.6E-12
12:32:28	8.7E-12	12:32:34	8.9E-12	12:32:40	8.7E-12	12:32:46	8.4E-12	12:32:52	8.5E-12	12:32:58	8.4E-12
12:33:04	8.5E-12	12:33:10	8.5E-12	12:33:16	8.8E-12	12:33:22	8.2E-12	12:33:28	8.2E-12	12:33:34	9.2E-12
12:33:40	8.5E-12	12:33:46	8.5E-12	12:33:52	7.7E-12	12:33:58	8.4E-12	12:34:04	8.5E-12	12:34:10	8.5E-12
12:34:16	8.0E-12	12:34:22	8.1E-12	12:34:28	8.3E-12	12:34:34	8.4E-12	12:34:40	8.4E-12	12:34:46	8.4E-12
12:34:52	8.4E-12	12:34:58	9.2E-12	12:35:04	8.7E-12	12:35:10	8.6E-12	12:35:16	8.4E-12	12:35:22	7.9E-12
12:35:28	8.8E-12	12:35:34	8.7E-12	12:35:40	8.1E-12	12:35:46	8.8E-12	12:35:52	8.0E-12	12:35:58	8.2E-12
12:36:04	8.8E-12	12:36:10	8.2E-12	12:36:16	8.4E-12	12:36:22	8.5E-12	12:36:28	8.5E-12	12:36:34	8.5E-12
12:36:40	8.4E-12	12:36:46	8.5E-12	12:36:52	8.4E-12	12:36:58	8.3E-12	12:37:04	8.3E-12	12:37:10	8.4E-12
12:37:16	8.9E-12	12:37:22	8.3E-12	12:37:28	8.4E-12	12:37:34	8.3E-12	12:37:40	8.6E-12	12:37:46	8.6E-12
12:37:52	8.5E-12	12:37:58	8.5E-12	12:38:04	9.0E-12	12:38:10	8.3E-12	12:38:16	8.4E-12	12:38:22	9.0E-12
12:38:28	9.1E-12	12:38:34	9.3E-12	12:38:40	1.0E-11	12:38:46	1.0E-11	12:38:52	1.0E-11	12:38:58	1.0E-11
12:39:04	1.1E-11	12:39:10	1.0E-11	12:39:16	1.1E-11	12:39:22	1.1E-11	12:39:28	1.1E-11	12:39:34	1.0E-11
12:39:40	1.0E-11	12:39:46	1.0E-11	12:39:52	1.1E-11	12:39:58	1.1E-11	12:40:04	1.0E-11	12:40:10	1.1E-11
12:40:16	9.9E-12	12:40:22	1.1E-11	12:40:28	1.1E-11	12:40:34	1.0E-11	12:40:40	9.7E-12	12:40:46	9.8E-12
12:40:52	9.6E-12	12:40:58	1.0E-11	12:41:04	9.3E-12	12:41:10	1.0E-11	12:41:16	9.6E-12	12:41:22	9.6E-12
12:41:28	9.0E-12	12:41:34	9.7E-12	12:41:40	9.1E-12	12:41:46	9.7E-12	12:41:52	9.2E-12	12:41:58	9.3E-12
12:42:04	9.3E-12	12:42:10	9.4E-12	12:42:16	8.8E-12	12:42:22	9.3E-12	12:42:28	9.5E-12	12:42:34	9.5E-12
12:42:40	8.8E-12	12:42:46	9.1E-12	12:42:52	9.2E-12	12:42:58	9.0E-12	12:43:04	9.0E-12	12:43:10	9.0E-12
12:43:16	9.6E-12	12:43:22	9.1E-12	12:43:28	8.7E-12	12:43:34	9.3E-12	12:43:40	8.2E-12	12:43:46	8.9E-12
12:43:52	9.6E-12	12:43:58	8.9E-12	12:44:04	8.9E-12	12:44:10	8.8E-12	12:44:16	9.3E-12	12:44:22	9.1E-12
12:44:28	9.1E-12	12:44:34	8.7E-12	12:44:40	8.8E-12	12:44:46	8.6E-12	12:44:52	9.0E-12	12:44:58	8.9E-12
12:45:04	8.3E-12	12:45:10	8.7E-12	12:45:16	8.7E-12	12:45:22	8.9E-12	12:45:28	9.0E-12	12:45:34	8.9E-12
12:45:40	8.9E-12	12:45:46	9.0E-12	12:45:52	8.6E-12	12:45:58	8.8E-12	12:46:04	9.3E-12	12:46:10	9.2E-12
12:46:16	9.3E-12	12:46:22	8.8E-12	12:46:28	8.8E-12	12:46:34	8.9E-12	12:46:40	9.2E-12	12:46:46	8.9E-12
12:46:52	8.9E-12	12:46:58	8.9E-12	12:47:04	8.8E-12	12:47:10	8.8E-12	12:47:16	8.6E-12	12:47:22	9.2E-12
12:47:28	9.1E-12	12:47:34	8.6E-12	12:47:40	8.2E-12	12:47:46	8.9E-12	12:47:52	9.5E-12	12:47:58	9.4E-12
12:48:04	8.8E-12	12:48:10	9.3E-12	12:48:16	8.6E-12	12:48:22	8.5E-12	12:48:28	8.7E-12	12:48:34	8.6E-12
12:48:40	8.6E-12	12:48:46	8.7E-12	12:48:52	8.7E-12	12:48:58	8.7E-12	12:49:04	9.3E-12	12:49:10	8.6E-12

APPENDIX D: ION CHAMBER DATA

Second Particle Failure - May 18, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
12:49:16	8.3E-12	12:49:22	8.4E-12	12:49:28	8.7E-12	12:49:34	8.7E-12	12:49:40	8.7E-12	12:49:46	9.3E-12
12:49:52	8.8E-12	12:49:58	8.9E-12	12:50:04	9.0E-12	12:50:10	8.9E-12	12:50:16	8.5E-12	12:50:22	8.5E-12
12:50:28	8.6E-12	12:50:34	8.7E-12	12:50:40	8.8E-12	12:50:46	8.8E-12	12:50:52	8.7E-12	12:50:58	8.4E-12
12:51:04	8.5E-12	12:51:10	8.6E-12	12:51:16	9.2E-12	12:51:22	9.3E-12	12:51:28	9.1E-12	12:51:34	9.1E-12
12:51:40	9.0E-12	12:51:46	9.0E-12	12:51:52	9.0E-12	12:51:58	8.9E-12	12:52:04	9.0E-12	12:52:10	8.9E-12
12:52:16	9.2E-12	12:52:22	8.5E-12	12:52:28	8.2E-12	12:52:34	9.0E-12	12:52:40	8.4E-12	12:52:46	9.1E-12
12:52:52	9.1E-12	12:52:58	9.0E-12	12:53:04	9.1E-12	12:53:10	8.7E-12	12:53:16	9.3E-12	12:53:22	8.7E-12
12:53:28	8.1E-12	12:53:34	8.7E-12	12:53:40	8.7E-12	12:53:46	8.8E-12	12:53:52	9.4E-12	12:53:58	8.7E-12
12:54:04	8.6E-12	12:54:10	8.5E-12	12:54:16	9.2E-12	12:54:22	8.5E-12	12:54:28	8.4E-12	12:54:34	9.0E-12
12:54:40	9.0E-12	12:54:46	9.2E-12	12:54:52	9.2E-12	12:54:58	8.6E-12	12:55:04	9.0E-12	12:55:10	9.1E-12
12:55:16	9.0E-12	12:55:22	8.9E-12	12:55:28	8.9E-12	12:55:34	9.0E-12	12:55:40	9.0E-12	12:55:46	8.7E-12
12:55:52	8.7E-12	12:55:58	9.2E-12	12:56:04	8.5E-12	12:56:10	9.1E-12	12:56:16	9.0E-12	12:56:22	8.8E-12
12:56:28	8.8E-12	12:56:34	9.3E-12	12:56:40	8.7E-12	12:56:46	8.8E-12	12:56:52	8.8E-12	12:56:58	8.8E-12
12:57:04	8.7E-12	12:57:10	8.8E-12	12:57:16	8.8E-12	12:57:22	8.8E-12	12:57:28	9.6E-12	12:57:34	9.0E-12
12:57:40	8.9E-12	12:57:46	8.8E-12	12:57:52	9.3E-12	12:57:58	9.0E-12	12:58:04	8.9E-12	12:58:10	9.1E-12
12:58:16	9.0E-12	12:58:22	9.5E-12	12:58:28	9.4E-12	12:58:34	8.9E-12	12:58:40	8.9E-12	12:58:46	8.9E-12
12:58:52	8.8E-12	12:58:58	8.8E-12	12:59:04	8.8E-12	12:59:10	8.3E-12	12:59:16	9.3E-12	12:59:22	8.3E-12
12:59:28	8.5E-12	12:59:34	9.1E-12	12:59:40	8.6E-12	12:59:46	8.3E-12	12:59:52	9.0E-12	12:59:58	8.3E-12
13:00:04	8.6E-12	13:00:10	9.7E-12	13:00:16	8.3E-12	13:00:22	8.9E-12	13:00:28	9.0E-12	13:00:34	9.0E-12
13:00:40	8.5E-12	13:00:46	8.1E-12	13:00:52	8.8E-12	13:00:58	8.8E-12	13:01:04	8.8E-12	13:01:10	8.1E-12
13:01:16	8.7E-12	13:01:22	8.8E-12	13:01:28	8.8E-12	13:01:34	8.9E-12	13:01:40	9.1E-12	13:01:46	8.5E-12
13:01:52	9.0E-12	13:01:58	8.5E-12	13:02:04	9.0E-12	13:02:10	9.1E-12	13:02:16	9.1E-12	13:02:22	8.6E-12
13:02:28	8.8E-12	13:02:34	9.3E-12	13:02:40	8.6E-12	13:02:46	8.6E-12	13:02:52	9.2E-12	13:02:58	9.1E-12
13:03:04	8.5E-12	13:03:10	8.3E-12	13:03:16	8.7E-12	13:03:22	9.2E-12	13:03:28	9.1E-12	13:03:34	8.6E-12
13:03:40	8.6E-12	13:03:46	8.7E-12	13:03:52	8.7E-12	13:03:58	8.8E-12	13:04:04	9.0E-12	13:04:10	9.0E-12
13:04:16	9.0E-12	13:04:22	8.8E-12	13:04:28	9.4E-12	13:04:34	8.7E-12	13:04:40	9.1E-12	13:04:46	9.1E-12
13:04:52	8.6E-12	13:04:58	9.3E-12	13:05:04	9.2E-12	13:05:10	8.6E-12	13:05:16	8.7E-12	13:05:22	8.7E-12
13:05:28	9.2E-12	13:05:34	8.8E-12	13:05:40	9.0E-12	13:05:46	8.5E-12	13:05:52	8.7E-12	13:05:58	8.5E-12
13:06:04	8.4E-12	13:06:10	9.4E-12	13:06:16	9.3E-12	13:06:22	8.5E-12	13:06:28	9.1E-12	13:06:34	8.6E-12
13:06:40	8.7E-12	13:06:46	8.3E-12	13:06:52	8.9E-12	13:06:58	8.9E-12	13:07:04	8.8E-12	13:07:10	8.9E-12
13:07:16	8.9E-12	13:07:22	8.9E-12	13:07:28	9.1E-12	13:07:34	8.3E-12	13:07:40	8.8E-12	13:07:46	8.4E-12
13:07:52	8.4E-12	13:07:58	8.7E-12	13:08:04	8.7E-12	13:08:10	8.7E-12	13:08:16	8.8E-12	13:08:22	8.8E-12
13:08:28	8.8E-12	13:08:34	8.9E-12	13:08:40	8.3E-12	13:08:46	8.4E-12	13:08:52	8.8E-12	13:08:58	8.8E-12
13:09:04	8.6E-12	13:09:10	9.2E-12	13:09:16	8.5E-12	13:09:22	8.5E-12	13:09:28	8.6E-12	13:09:34	9.2E-12
13:09:40	8.6E-12	13:09:46	8.9E-12	13:09:52	9.3E-12	13:09:58	8.6E-12	13:10:04	8.7E-12	13:10:10	9.3E-12
13:10:16	9.1E-12	13:10:22	9.3E-12	13:10:28	8.9E-12	13:10:34	8.9E-12	13:10:40	8.4E-12	13:10:46	9.2E-12
13:10:52	8.7E-12	13:10:58	9.2E-12	13:11:04	9.3E-12	13:11:10	9.2E-12	13:11:16	8.6E-12	13:11:22	8.8E-12
13:11:28	8.8E-12	13:11:34	8.9E-12	13:11:40	8.1E-12	13:11:46	8.9E-12	13:11:52	8.8E-12	13:11:58	8.7E-12
13:12:04	8.6E-12	13:12:10	8.6E-12	13:12:16	8.9E-12	13:12:22	9.0E-12	13:12:28	8.8E-12	13:12:34	8.8E-12
13:12:40	8.7E-12	13:12:46	8.6E-12	13:12:52	9.5E-12	13:12:58	9.1E-12	13:13:04	8.4E-12	13:13:10	8.3E-12
13:13:16	8.9E-12	13:13:22	8.9E-12	13:13:28	8.8E-12	13:13:34	9.3E-12	13:13:40	9.1E-12	13:13:46	9.0E-12

APPENDIX D: ION CHAMBER DATA

Second Particle Failure - May 18, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
13:13:52	8.2E-12	13:13:58	8.7E-12	13:14:04	8.5E-12	13:14:10	9.1E-12	13:14:16	9.3E-12	13:14:22	9.0E-12
13:14:28	9.0E-12	13:14:34	8.4E-12	13:14:40	9.1E-12	13:14:46	9.2E-12	13:14:52	8.3E-12	13:14:58	9.0E-12
13:15:04	9.0E-12	13:15:10	9.0E-12	13:15:16	8.5E-12	13:15:22	8.8E-12	13:15:28	8.7E-12	13:15:34	8.7E-12
13:15:40	9.1E-12	13:15:46	8.7E-12	13:15:52	8.8E-12	13:15:58	8.8E-12	13:16:04	8.7E-12	13:16:10	9.4E-12
13:16:16	9.1E-12	13:16:22	8.9E-12	13:16:28	8.8E-12	13:16:34	8.7E-12	13:16:40	8.7E-12	13:16:46	8.7E-12
13:16:52	8.7E-12	13:16:58	8.7E-12	13:17:04	9.3E-12	13:17:10	9.3E-12	13:17:16	8.6E-12	13:17:22	8.8E-12
13:17:28	7.9E-12	13:17:34	8.8E-12	13:17:40	9.3E-12	13:17:46	9.0E-12	13:17:52	8.9E-12	13:17:58	8.9E-12
13:18:04	8.8E-12	13:18:10	8.8E-12	13:18:16	8.8E-12	13:18:22	8.9E-12	13:18:28	8.9E-12	13:18:34	8.8E-12
13:18:40	8.8E-12	13:18:46	8.9E-12	13:18:52	8.8E-12	13:18:58	9.3E-12	13:19:04	9.0E-12	13:19:10	8.9E-12
13:19:16	9.4E-12	13:19:22	8.9E-12	13:19:28	8.8E-12	13:19:34	8.7E-12	13:19:40	8.7E-12	13:19:46	9.0E-12
13:19:52	8.9E-12	13:19:58	8.9E-12	13:20:04	8.8E-12	13:20:10	8.9E-12	13:20:16	8.9E-12	13:20:22	8.4E-12
13:20:28	8.7E-12	13:20:34	1.1E-11	13:20:40	8.6E-12	13:20:46	8.7E-12	13:20:52	8.7E-12	13:20:58	8.8E-12
13:21:04	8.4E-12	13:21:10	9.1E-12	13:21:16	9.3E-12	13:21:22	9.0E-12	13:21:28	8.1E-12	13:21:34	9.0E-12
13:21:40	8.8E-12	13:21:46	8.8E-12	13:21:52	8.3E-12	13:21:58	8.6E-12	13:22:04	8.5E-12	13:22:10	9.2E-12
13:22:16	8.6E-12	13:22:22	8.5E-12	13:22:28	8.5E-12	13:22:34	9.2E-12	13:22:40	8.5E-12	13:22:46	9.0E-12
13:22:52	8.9E-12	13:22:58	8.3E-12	13:23:04	9.0E-12	13:23:10	9.0E-12	13:23:16	8.8E-12	13:23:22	9.0E-12
13:23:28	8.5E-12	13:23:34	8.7E-12	13:23:40	8.7E-12	13:23:46	8.7E-12	13:23:52	8.8E-12	13:23:58	8.8E-12
13:24:04	8.8E-12	13:24:10	8.2E-12	13:24:16	8.8E-12	13:24:22	8.7E-12	13:24:28	8.8E-12	13:24:34	8.8E-12
13:24:40	8.8E-12	13:24:46	9.1E-12	13:24:52	8.4E-12	13:24:58	8.4E-12	13:25:04	9.0E-12	13:25:10	8.7E-12
13:25:16	9.1E-12	13:25:22	8.4E-12	13:25:28	8.3E-12	13:25:34	8.2E-12	13:25:40	8.7E-12	13:25:46	8.8E-12
13:25:52	8.8E-12	13:25:58	8.7E-12	13:26:04	8.4E-12	13:26:10	8.6E-12	13:26:16	8.7E-12	13:26:22	8.5E-12
13:26:28	8.5E-12	13:26:34	8.7E-12	13:26:40	8.7E-12	13:26:46	8.7E-12	13:26:52	8.8E-12	13:26:58	8.8E-12
13:27:04	8.6E-12	13:27:10	8.7E-12	13:27:16	8.8E-12	13:27:22	8.7E-12	13:27:28	8.7E-12	13:27:34	8.7E-12
13:27:40	8.6E-12	13:27:46	8.3E-12	13:27:52	8.6E-12	13:27:58	8.2E-12	13:28:04	8.8E-12	13:28:10	8.8E-12
13:28:16	8.7E-12	13:28:22	8.7E-12	13:28:28	8.7E-12	13:28:34	8.6E-12	13:28:40	8.6E-12	13:28:46	8.6E-12
13:28:52	8.4E-12	13:28:58	8.6E-12	13:29:04	9.3E-12	13:29:10	8.3E-12	13:29:16	8.9E-12	13:29:22	7.8E-12
13:29:28	8.3E-12	13:29:34	8.3E-12	13:29:40	7.7E-12	13:29:46	7.7E-12	13:29:52	7.0E-12	13:29:58	1.3E-11
13:30:04	2.7E-11	13:30:10	2.8E-11	13:30:16	2.7E-11	13:30:22	2.4E-11	13:30:28	2.2E-11	13:30:34	2.0E-11
13:30:40	1.9E-11	13:30:46	1.3E-11	13:30:52	1.2E-11	13:30:58	1.1E-11	13:31:04	1.1E-11	13:31:10	1.0E-11
13:31:16	1.0E-11	13:31:22	1.0E-11	13:31:28	1.0E-11	13:31:34	9.5E-12	13:31:40	9.8E-12	13:31:46	9.2E-12
13:31:52	9.3E-12	13:31:58	8.6E-12	13:32:04	9.9E-12	13:32:10	9.3E-12	13:32:16	9.4E-12	13:32:22	9.0E-12
13:32:28	1.0E-11	13:32:34	1.1E-11	13:32:40	9.7E-12	13:32:46	1.1E-11	13:32:52	9.7E-12	13:32:58	9.0E-12
13:33:03	8.9E-12	13:33:10	8.9E-12	13:33:16	8.2E-12	13:33:22	7.6E-12	13:33:28	8.1E-12	13:33:34	7.1E-12
13:33:40	7.2E-12	13:33:46	5.6E-12	13:33:52	5.7E-12	13:33:57	5.7E-12	13:34:04	5.3E-12	13:34:10	5.2E-12
13:34:16	5.3E-12	13:34:21	6.1E-12	13:34:28	6.1E-12	13:34:34	7.2E-12	13:34:40	7.2E-12	13:34:45	7.2E-12
13:34:51	7.9E-12	13:34:58	8.3E-12	13:35:04	8.0E-12	13:35:09	8.0E-12	13:35:15	9.1E-12	13:35:22	8.5E-12
13:35:28	7.9E-12	13:35:34	9.0E-12	13:35:39	9.0E-12	13:35:45	8.9E-12	13:35:52	8.9E-12	13:35:58	8.2E-12
13:36:03	8.7E-12	13:36:09	8.7E-12	13:36:16	8.8E-12	13:36:22	8.9E-12	13:36:27	8.8E-12	13:36:33	8.8E-12
13:36:39	8.8E-12	13:36:46	8.4E-12	13:36:51	8.5E-12	13:36:57	8.7E-12	13:37:03	8.5E-12	13:37:10	9.1E-12
13:37:15	8.2E-12	13:37:21	9.2E-12	13:37:27	9.0E-12	13:37:33	8.5E-12	13:37:39	8.3E-12	13:37:45	8.8E-12
13:37:51	8.8E-12	13:37:57	8.9E-12	13:38:04	8.6E-12	13:38:09	9.1E-12	13:38:15	9.3E-12	13:38:21	8.6E-12

APPENDIX D: ION CHAMBER DATA

Second Particle Failure - May 18, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
13:38:27	9.1E-12	13:38:33	9.1E-12	13:38:39	8.9E-12	13:38:45	8.8E-12	13:38:51	8.5E-12	13:38:57	9.6E-12
13:39:03	9.1E-12	13:39:09	8.8E-12	13:39:15	8.7E-12	13:39:21	8.7E-12	13:39:27	8.7E-12	13:39:33	8.6E-12
13:39:39	9.0E-12	13:39:45	8.8E-12	13:39:51	8.7E-12	13:39:57	8.5E-12	13:40:03	9.1E-12	13:40:09	8.6E-12
13:40:15	8.7E-12	13:40:21	8.9E-12	13:40:27	8.8E-12	13:40:33	8.9E-12	13:40:39	8.0E-12	13:40:45	8.7E-12
13:40:51	8.7E-12	13:40:57	8.4E-12	13:41:03	8.9E-12	13:41:09	8.9E-12	13:41:15	8.9E-12	13:41:21	8.4E-12
13:41:27	9.0E-12	13:41:33	8.5E-12	13:41:39	8.7E-12	13:41:45	8.7E-12	13:41:51	8.7E-12	13:41:57	8.7E-12
13:42:03	8.7E-12	13:42:09	8.8E-12	13:42:15	8.7E-12	13:42:21	8.3E-12	13:42:27	8.9E-12	13:42:33	8.8E-12
13:42:39	8.6E-12	13:42:45	8.3E-12	13:42:51	8.3E-12	13:42:57	8.2E-12	13:43:03	8.9E-12	13:43:09	8.9E-12
13:43:15	8.9E-12	13:43:21	8.8E-12	13:43:27	8.8E-12	13:43:33	8.7E-12	13:43:39	8.6E-12	13:43:45	8.1E-12
13:43:51	8.7E-12	13:43:57	8.6E-12	13:44:03	8.9E-12	13:44:09	8.1E-12	13:44:15	8.8E-12	13:44:21	8.3E-12
13:44:27	8.3E-12	13:44:33	8.4E-12	13:44:39	8.4E-12	13:44:45	8.2E-12	13:44:51	8.8E-12	13:44:57	8.3E-12
13:45:03	8.4E-12	13:45:09	8.9E-12	13:45:15	9.2E-12	13:45:21	9.2E-12	13:45:27	8.8E-12	13:45:33	8.4E-12
13:45:39	8.1E-12	13:45:45	8.9E-12	13:45:51	8.8E-12	13:45:57	8.8E-12	13:46:03	8.8E-12	13:46:09	8.3E-12
13:46:15	8.4E-12	13:46:21	8.6E-12	13:46:27	8.9E-12	13:46:33	8.3E-12	13:46:39	8.2E-12	13:46:45	8.7E-12
13:46:51	9.4E-12	13:46:57	8.4E-12	13:47:03	8.5E-12	13:47:09	9.3E-12	13:47:15	8.6E-12	13:47:21	8.6E-12
13:47:27	9.1E-12	13:47:33	8.6E-12	13:47:39	9.2E-12	13:47:45	9.1E-12	13:47:51	8.6E-12	13:47:57	8.6E-12
13:48:03	8.6E-12	13:48:09	8.6E-12	13:48:15	8.8E-12	13:48:21	8.3E-12	13:48:27	8.6E-12	13:48:33	8.6E-12
13:48:39	8.5E-12	13:48:45	8.9E-12	13:48:51	8.7E-12	13:48:57	8.7E-12	13:49:03	8.7E-12	13:49:09	9.1E-12
13:49:15	8.2E-12	13:49:21	8.9E-12	13:49:27	8.4E-12	13:49:33	8.8E-12	13:49:39	8.7E-12	13:49:45	8.4E-12
13:49:51	8.2E-12	13:49:57	8.3E-12	13:50:03	8.4E-12	13:50:09	8.5E-12	13:50:15	8.5E-12	13:50:21	8.5E-12
13:50:27	8.6E-12	13:50:33	8.6E-12	13:50:39	8.6E-12	13:50:45	8.0E-12	13:50:51	8.1E-12	13:50:57	8.2E-12
13:51:03	8.9E-12	13:51:09	8.6E-12	13:51:15	8.6E-12	13:51:21	8.5E-12	13:51:27	8.5E-12	13:51:33	9.0E-12
13:51:39	8.4E-12	13:51:45	8.4E-12	13:51:51	8.4E-12	13:51:57	8.5E-12	13:52:03	8.5E-12	13:52:09	8.5E-12
13:52:15	8.5E-12	13:52:21	8.5E-12	13:52:27	8.6E-12	13:52:33	8.5E-12	13:52:39	8.6E-12	13:52:45	8.6E-12
13:52:51	8.6E-12	13:52:57	8.7E-12	13:53:03	8.5E-12	13:53:09	8.6E-12	13:53:15	8.6E-12	13:53:21	8.5E-12
13:53:27	8.6E-12	13:53:33	8.6E-12	13:53:39	8.7E-12	13:53:45	8.7E-12	13:53:51	9.0E-12	13:53:57	9.0E-12
13:54:03	9.1E-12	13:54:09	8.5E-12	13:54:15	9.2E-12	13:54:21	8.9E-12	13:54:27	8.9E-12	13:54:33	9.0E-12
13:54:39	8.5E-12	13:54:45	8.9E-12	13:54:51	8.7E-12	13:54:57	8.7E-12	13:55:03	8.6E-12	13:55:09	8.2E-12
13:55:15	8.6E-12	13:55:21	9.0E-12	13:55:27	8.1E-12	13:55:33	8.2E-12	13:55:39	8.8E-12	13:55:45	8.8E-12
13:55:51	8.7E-12	13:55:57	9.2E-12	13:56:03	8.6E-12	13:56:09	8.6E-12	13:56:15	8.7E-12	13:56:21	8.7E-12
13:56:27	8.6E-12	13:56:33	8.7E-12	13:56:39	8.3E-12	13:56:45	8.8E-12	13:56:51	8.7E-12	13:56:57	8.3E-12
13:57:03	9.0E-12	13:57:09	8.9E-12	13:57:15	8.1E-12	13:57:21	8.4E-12	13:57:27	8.5E-12	13:57:33	8.7E-12
13:57:39	8.6E-12	13:57:45	8.5E-12	13:57:51	8.6E-12	13:57:57	8.5E-12	13:58:03	8.9E-12	13:58:09	8.9E-12
13:58:15	8.6E-12	13:58:21	8.4E-12	13:58:27	8.5E-12	13:58:33	8.6E-12	13:58:39	9.5E-12	13:58:45	8.6E-12
13:58:51	8.8E-12	13:58:57	9.3E-12	13:59:03	8.8E-12	13:59:09	8.8E-12	13:59:15	8.8E-12	13:59:21	8.8E-12
13:59:27	8.7E-12	13:59:33	8.7E-12	13:59:39	8.8E-12	13:59:45	8.9E-12	13:59:51	8.8E-12	13:59:57	8.1E-12

APPENDIX D: ION CHAMBER DATA

Third Particle Failure - July 9, 1994

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
14:00:06	9.5E-12	14:00:12	9.5E-12	14:00:18	9.4E-12	14:00:24	9.3E-12	14:00:30	9.2E-12	14:00:36	9.1E-12
14:00:42	9.2E-12	14:00:48	9.4E-12	14:00:54	9.3E-12	14:01:00	9.2E-12	14:01:06	9.1E-12	14:01:12	9.1E-12
14:01:18	9.4E-12	14:01:24	9.4E-12	14:01:30	9.3E-12	14:01:36	9.4E-12	14:01:42	9.0E-12	14:01:48	9.0E-12
14:01:54	9.1E-12	14:02:00	9.0E-12	14:02:06	9.2E-12	14:02:12	9.1E-12	14:02:18	9.0E-12	14:02:24	9.1E-12
14:02:30	9.4E-12	14:02:36	9.4E-12	14:02:42	9.0E-12	14:02:48	9.1E-12	14:02:54	9.2E-12	14:03:00	9.3E-12
14:03:06	9.3E-12	14:03:12	9.3E-12	14:03:18	9.1E-12	14:03:24	9.0E-12	14:03:30	9.0E-12	14:03:36	9.1E-12
14:03:42	9.2E-12	14:03:48	9.2E-12	14:03:54	9.2E-12	14:04:00	9.2E-12	14:04:06	9.3E-12	14:04:12	9.3E-12
14:04:18	9.3E-12	14:04:24	9.3E-12	14:04:30	9.3E-12	14:04:36	9.3E-12	14:04:42	9.3E-12	14:04:48	9.4E-12
14:04:54	9.3E-12	14:05:00	9.3E-12	14:05:06	9.3E-12	14:05:12	9.3E-12	14:05:18	9.2E-12	14:05:24	9.1E-12
14:05:30	9.3E-12	14:05:36	9.6E-12	14:05:42	9.4E-12	14:05:48	9.4E-12	14:05:54	9.4E-12	14:06:00	9.4E-12
14:06:06	9.4E-12	14:06:12	9.4E-12	14:06:18	9.4E-12	14:06:24	9.4E-12	14:06:30	9.3E-12	14:06:36	9.4E-12
14:06:42	9.6E-12	14:06:48	9.5E-12	14:06:54	9.3E-12	14:07:00	9.4E-12	14:07:06	9.5E-12	14:07:12	9.3E-12
14:07:18	9.3E-12	14:07:24	9.4E-12	14:07:30	9.3E-12	14:07:36	9.4E-12	14:07:42	9.4E-12	14:07:48	9.2E-12
14:07:54	9.2E-12	14:08:00	9.2E-12	14:08:06	9.4E-12	14:08:12	9.5E-12	14:08:18	9.5E-12	14:08:24	9.5E-12
14:08:30	9.5E-12	14:08:36	9.4E-12	14:08:42	9.4E-12	14:08:48	9.4E-12	14:08:54	9.5E-12	14:09:00	9.5E-12
14:09:06	9.5E-12	14:09:12	9.3E-12	14:09:18	9.3E-12	14:09:24	9.3E-12	14:09:30	9.4E-12	14:09:36	9.5E-12
14:09:42	9.6E-12	14:09:48	9.4E-12	14:09:54	9.3E-12	14:10:00	9.4E-12	14:10:06	9.5E-12	14:10:12	9.6E-12
14:10:18	9.6E-12	14:10:24	9.5E-12	14:10:30	9.3E-12	14:10:36	9.4E-12	14:10:42	9.4E-12	14:10:48	9.6E-12
14:10:54	9.4E-12	14:11:00	9.2E-12	14:11:06	9.3E-12	14:11:12	9.2E-12	14:11:18	9.2E-12	14:11:24	9.5E-12
14:11:30	9.5E-12	14:11:36	9.4E-12	14:11:42	9.3E-12	14:11:48	9.3E-12	14:11:54	9.3E-12	14:12:00	9.3E-12
14:12:06	9.6E-12	14:12:12	9.6E-12	14:12:18	9.5E-12	14:12:24	9.5E-12	14:12:30	9.3E-12	14:12:36	9.1E-12
14:12:42	9.4E-12	14:12:48	9.4E-12	14:12:54	9.4E-12	14:13:00	9.4E-12	14:13:06	9.5E-12	14:13:12	9.5E-12
14:13:18	9.3E-12	14:13:24	9.2E-12	14:13:30	9.5E-12	14:13:36	9.7E-12	14:13:42	9.4E-12	14:13:48	9.2E-12
14:13:54	9.2E-12	14:14:00	9.2E-12	14:14:06	9.3E-12	14:14:12	9.4E-12	14:14:18	9.3E-12	14:14:24	9.4E-12
14:14:30	9.5E-12	14:14:36	9.3E-12	14:14:42	9.2E-12	14:14:48	9.3E-12	14:14:54	9.6E-12	14:15:00	9.5E-12
14:15:06	9.2E-12	14:15:12	8.9E-12	14:15:18	9.1E-12	14:15:24	9.3E-12	14:15:30	9.4E-12	14:15:36	9.4E-12
14:15:42	9.3E-12	14:15:48	9.4E-12	14:15:54	9.3E-12	14:16:00	9.4E-12	14:16:06	9.4E-12	14:16:12	9.4E-12
14:16:18	9.3E-12	14:16:24	9.2E-12	14:16:30	9.1E-12	14:16:36	9.4E-12	14:16:42	9.6E-12	14:16:48	9.6E-12
14:16:54	9.4E-12	14:17:00	9.0E-12	14:17:06	9.1E-12	14:17:12	9.3E-12	14:17:18	9.2E-12	14:17:24	9.3E-12
14:17:30	9.5E-12	14:17:36	9.5E-12	14:17:42	9.2E-12	14:17:48	9.3E-12	14:17:54	9.4E-12	14:18:00	9.3E-12
14:18:06	9.2E-12	14:18:12	9.4E-12	14:18:18	9.4E-12	14:18:24	9.3E-12	14:18:30	9.2E-12	14:18:36	9.1E-12
14:18:42	9.2E-12	14:18:48	9.2E-12	14:18:54	9.3E-12	14:19:00	9.3E-12	14:19:06	9.4E-12	14:19:12	9.3E-12
14:19:18	9.3E-12	14:19:24	9.4E-12	14:19:30	9.4E-12	14:19:36	9.3E-12	14:19:42	9.4E-12	14:19:48	9.8E-12
14:19:54	1.0E-11	14:20:00	1.1E-11	14:20:06	1.1E-11	14:20:12	1.2E-11	14:20:18	1.2E-11	14:20:24	1.3E-11
14:20:30	1.3E-11	14:20:36	1.3E-11	14:20:42	1.3E-11	14:20:48	1.3E-11	14:20:54	1.3E-11	14:21:00	1.3E-11
14:21:06	1.3E-11	14:21:12	1.3E-11	14:21:18	1.2E-11	14:21:24	1.2E-11	14:21:30	1.2E-11	14:21:36	1.2E-11
14:21:42	1.2E-11	14:21:48	1.2E-11	14:21:54	1.2E-11	14:22:00	1.2E-11	14:22:06	1.2E-11	14:22:12	1.1E-11
14:22:18	1.1E-11	14:22:24	1.1E-11	14:22:30	1.2E-11	14:22:36	1.1E-11	14:22:42	1.1E-11	14:22:48	1.1E-11
14:22:54	1.1E-11	14:23:00	1.1E-11	14:23:06	1.1E-11	14:23:12	1.1E-11	14:23:18	1.1E-11	14:23:24	1.1E-11
14:23:30	1.1E-11	14:23:36	1.1E-11	14:23:42	1.1E-11	14:23:48	1.1E-11	14:23:54	1.1E-11	14:24:00	1.0E-11
14:24:06	1.1E-11	14:24:12	1.1E-11	14:24:18	1.1E-11	14:24:24	1.0E-11	14:24:30	1.0E-11	14:24:36	1.0E-11

APPENDIX D: ION CHAMBER DATA

Third Particle Failure - July 9, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
14:24:42	1.0E-11	14:24:48	1.0E-11	14:24:54	1.0E-11	14:25:00	1.0E-11	14:25:06	1.0E-11	14:25:12	1.0E-11
14:25:18	1.0E-11	14:25:24	1.0E-11	14:25:30	1.0E-11	14:25:36	1.0E-11	14:25:42	1.0E-11	14:25:48	1.0E-11
14:25:54	1.0E-11	14:26:00	1.0E-11	14:26:06	1.0E-11	14:26:12	1.0E-11	14:26:18	1.0E-11	14:26:24	1.0E-11
14:26:30	9.9E-12	14:26:36	1.0E-11	14:26:42	9.9E-12	14:26:48	9.9E-12	14:26:54	9.9E-12	14:27:00	1.0E-11
14:27:06	9.9E-12	14:27:12	9.9E-12	14:27:18	1.0E-11	14:27:24	1.0E-11	14:27:30	1.0E-11	14:27:36	9.9E-12
14:27:42	1.0E-11	14:27:48	1.0E-11	14:27:54	1.0E-11	14:28:00	1.0E-11	14:28:06	1.0E-11	14:28:12	1.0E-11
14:28:18	1.0E-11	14:28:24	9.9E-12	14:28:30	1.0E-11	14:28:36	1.0E-11	14:28:42	1.0E-11	14:28:48	1.0E-11
14:28:54	1.0E-11	14:29:00	1.0E-11	14:29:06	1.0E-11	14:29:12	1.0E-11	14:29:18	9.9E-12	14:29:24	9.9E-12
14:29:30	9.8E-12	14:29:36	9.8E-12	14:29:42	1.0E-11	14:29:48	1.0E-11	14:29:54	9.9E-12	14:30:00	9.9E-12
14:30:06	9.6E-12	14:30:12	9.7E-12	14:30:18	1.0E-11	14:30:24	1.0E-11	14:30:30	9.9E-12	14:30:36	9.9E-12
14:30:42	1.0E-11	14:30:48	9.8E-12	14:30:54	9.9E-12	14:31:00	9.9E-12	14:31:06	1.0E-11	14:31:12	1.0E-11
14:31:18	1.0E-11	14:31:24	9.9E-12	14:31:30	9.7E-12	14:31:36	9.7E-12	14:31:42	9.7E-12	14:31:48	9.8E-12
14:31:54	9.7E-12	14:32:00	9.7E-12	14:32:06	1.0E-11	14:32:12	1.0E-11	14:32:18	1.0E-11	14:32:24	9.9E-12
14:32:30	1.0E-11	14:32:36	1.0E-11	14:32:42	9.9E-12	14:32:48	9.6E-12	14:32:54	9.7E-12	14:33:00	1.0E-11
14:33:06	1.0E-11	14:33:12	9.9E-12	14:33:18	1.0E-11	14:33:24	9.9E-12	14:33:30	1.0E-11	14:33:36	1.0E-11
14:33:42	9.8E-12	14:33:48	9.8E-12	14:33:54	9.8E-12	14:34:00	9.9E-12	14:34:06	9.8E-12	14:34:12	9.8E-12
14:34:18	9.9E-12	14:34:24	1.0E-11	14:34:30	1.0E-11	14:34:36	9.9E-12	14:34:42	9.7E-12	14:34:48	9.9E-12
14:34:54	9.9E-12	14:35:00	1.0E-11	14:35:06	1.0E-11	14:35:12	1.0E-11	14:35:18	1.0E-11	14:35:24	1.0E-11
14:35:30	9.9E-12	14:35:36	9.9E-12	14:35:42	9.9E-12	14:35:48	1.0E-11	14:35:54	1.0E-11	14:36:00	1.0E-11
14:36:06	1.0E-11	14:36:12	9.9E-12	14:36:18	9.7E-12	14:36:24	9.9E-12	14:36:30	9.8E-12	14:36:36	9.6E-12
14:36:42	9.7E-12	14:36:48	9.8E-12	14:36:54	9.8E-12	14:37:00	9.7E-12	14:37:06	9.6E-12	14:37:12	9.6E-12
14:37:18	9.7E-12	14:37:24	9.8E-12	14:37:30	9.8E-12	14:37:36	9.9E-12	14:37:42	1.0E-11	14:37:48	1.0E-11
14:37:54	1.0E-11	14:38:00	1.0E-11	14:38:06	1.0E-11	14:38:12	1.0E-11	14:38:18	1.0E-11	14:38:24	1.0E-11
14:38:30	1.0E-11	14:38:36	1.0E-11	14:38:42	1.0E-11	14:38:48	9.8E-12	14:38:54	9.8E-12	14:39:00	9.9E-12
14:39:06	9.9E-12	14:39:12	9.8E-12	14:39:18	9.8E-12	14:39:24	9.8E-12	14:39:30	9.8E-12	14:39:36	9.9E-12
14:39:42	9.8E-12	14:39:48	1.0E-11	14:39:54	1.0E-11	14:40:00	9.7E-12	14:40:06	9.7E-12	14:40:12	9.7E-12
14:40:18	9.7E-12	14:40:24	9.6E-12	14:40:30	9.9E-12	14:40:36	1.0E-11	14:40:42	9.9E-12	14:40:48	9.9E-12
14:40:54	1.0E-11	14:41:00	9.9E-12	14:41:06	9.8E-12	14:41:12	9.7E-12	14:41:18	9.9E-12	14:41:24	1.0E-11
14:41:30	9.9E-12	14:41:36	1.0E-11	14:41:42	1.0E-11	14:41:48	1.0E-11	14:41:54	1.0E-11	14:42:00	9.9E-12
14:42:06	1.0E-11	14:42:12	1.0E-11	14:42:18	1.0E-11	14:42:24	1.0E-11	14:42:30	9.9E-12	14:42:36	9.9E-12
14:42:42	1.0E-11	14:42:48	1.0E-11	14:42:54	1.0E-11	14:43:00	1.0E-11	14:43:06	9.9E-12	14:43:12	9.9E-12
14:43:18	9.8E-12	14:43:24	9.9E-12	14:43:30	1.0E-11	14:43:36	9.9E-12	14:43:42	9.8E-12	14:43:48	9.7E-12
14:43:54	1.0E-11	14:44:00	1.0E-11	14:44:06	9.8E-12	14:44:12	1.0E-11	14:44:18	1.0E-11	14:44:24	1.0E-11
14:44:30	1.0E-11	14:44:36	9.8E-12	14:44:42	9.8E-12	14:44:48	9.8E-12	14:44:54	9.8E-12	14:45:00	9.8E-12
14:45:06	9.9E-12	14:45:12	9.8E-12	14:45:18	9.8E-12	14:45:24	1.0E-11	14:45:30	1.0E-11	14:45:36	9.9E-12
14:45:42	9.9E-12	14:45:48	9.8E-12	14:45:54	9.6E-12	14:46:00	9.9E-12	14:46:06	1.0E-11	14:46:12	9.8E-12
14:46:18	9.8E-12	14:46:24	9.7E-12	14:46:30	9.7E-12	14:46:35	9.7E-12	14:46:42	9.7E-12	14:46:48	1.0E-11
14:46:54	1.0E-11	14:47:00	1.0E-11	14:47:06	1.0E-11	14:47:12	1.0E-11	14:47:18	9.9E-12	14:47:24	1.0E-11
14:47:29	1.0E-11	14:47:36	9.6E-12	14:47:42	9.5E-12	14:47:48	9.8E-12	14:47:53	9.9E-12	14:48:00	9.9E-12
14:48:06	9.9E-12	14:48:12	9.9E-12	14:48:17	9.9E-12	14:48:23	9.8E-12	14:48:30	9.8E-12	14:48:36	9.9E-12
14:48:41	9.8E-12	14:48:47	9.7E-12	14:48:54	1.0E-11	14:49:00	1.0E-11	14:49:06	1.0E-11	14:49:11	1.0E-11

APPENDIX D: ION CHAMBER DATA

Third Particle Failure - July 9, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
14:49:17	1.0E-11	14:49:24	1.0E-11	14:49:30	1.0E-11	14:49:35	1.0E-11	14:49:41	1.0E-11	14:49:48	9.8E-12
14:49:54	9.9E-12	14:49:59	1.0E-11	14:50:05	1.0E-11	14:50:12	1.0E-11	14:50:18	9.8E-12	14:50:23	9.8E-12
14:50:29	9.9E-12	14:50:35	9.8E-12	14:50:42	9.9E-12	14:50:47	1.0E-11	14:50:53	1.0E-11	14:50:59	1.0E-11
14:51:06	1.0E-11	14:51:11	1.0E-11	14:51:17	1.0E-11	14:51:23	1.0E-11	14:51:29	9.9E-12	14:51:36	1.0E-11
14:51:41	1.0E-11	14:51:47	9.9E-12	14:51:53	9.9E-12	14:52:00	1.0E-11	14:52:05	1.0E-11	14:52:11	9.9E-12
14:52:17	9.9E-12	14:52:23	9.8E-12	14:52:29	9.9E-12	14:52:35	9.9E-12	14:52:41	9.9E-12	14:52:47	1.0E-11
14:52:53	1.0E-11	14:52:59	9.9E-12	14:53:05	9.9E-12	14:53:11	9.9E-12	14:53:17	9.9E-12	14:53:23	1.0E-11
14:53:29	9.9E-12	14:53:35	9.9E-12	14:53:41	9.9E-12	14:53:47	9.8E-12	14:53:53	9.6E-12	14:53:59	9.8E-12
14:54:05	9.8E-12	14:54:11	9.9E-12	14:54:17	9.9E-12	14:54:23	9.6E-12	14:54:29	9.7E-12	14:54:35	1.0E-11
14:54:41	1.0E-11	14:54:47	1.0E-11	14:54:53	9.9E-12	14:54:59	9.8E-12	14:55:05	9.8E-12	14:55:11	9.7E-12
14:55:17	9.7E-12	14:55:23	9.8E-12	14:55:29	9.9E-12	14:55:35	9.7E-12	14:55:41	9.5E-12	14:55:47	9.5E-12
14:55:53	9.6E-12	14:55:59	9.8E-12	14:56:05	9.9E-12	14:56:11	9.8E-12	14:56:17	9.5E-12	14:56:23	9.6E-12
14:56:29	9.8E-12	14:56:35	9.7E-12	14:56:41	9.7E-12	14:56:47	9.7E-12	14:56:53	9.8E-12	14:56:59	9.9E-12
14:57:05	9.8E-12	14:57:11	9.9E-12	14:57:17	9.7E-12	14:57:23	9.7E-12	14:57:29	9.9E-12	14:57:35	9.9E-12
14:57:41	9.8E-12	14:57:47	9.6E-12	14:57:53	9.6E-12	14:57:59	9.7E-12	14:58:05	9.8E-12	14:58:11	9.7E-12
14:58:17	9.7E-12	14:58:23	9.9E-12	14:58:29	9.9E-12	14:58:35	9.7E-12	14:58:41	9.6E-12	14:58:47	9.6E-12
14:58:53	9.6E-12	14:58:59	9.7E-12	14:59:05	9.8E-12	14:59:11	9.9E-12	14:59:17	9.9E-12	14:59:23	9.9E-12
14:59:29	9.9E-12	14:59:35	9.8E-12	14:59:41	9.8E-12	14:59:47	1.0E-11	14:59:53	9.9E-12	14:59:59	9.9E-12
15:00:05	1.0E-11	15:00:11	9.9E-12	15:00:17	9.9E-12	15:00:23	1.0E-11	15:00:29	1.0E-11	15:00:35	1.0E-11
15:00:41	1.0E-11	15:00:47	1.0E-11	15:00:53	9.8E-12	15:00:59	9.9E-12	15:01:05	1.0E-11	15:01:11	1.0E-11
15:01:17	9.8E-12	15:01:23	9.8E-12	15:01:29	9.8E-12	15:01:35	1.0E-11	15:01:41	1.0E-11	15:01:47	1.0E-11
15:01:53	1.0E-11	15:01:59	1.0E-11	15:02:05	1.0E-11	15:02:11	9.9E-12	15:02:17	1.0E-11	15:02:23	1.0E-11
15:02:29	1.0E-11	15:02:35	1.0E-11	15:02:41	1.0E-11	15:02:47	1.0E-11	15:02:53	1.0E-11	15:02:59	9.9E-12
15:03:05	1.0E-11	15:03:11	1.0E-11	15:03:17	9.8E-12	15:03:23	9.7E-12	15:03:29	9.8E-12	15:03:35	1.0E-11
15:03:41	1.0E-11	15:03:47	1.0E-11	15:03:53	1.0E-11	15:03:59	9.9E-12	15:04:05	1.0E-11	15:04:11	9.9E-12
15:04:17	1.0E-11	15:04:23	1.0E-11	15:04:29	9.9E-12	15:04:35	9.6E-12	15:04:41	9.8E-12	15:04:47	9.9E-12
15:04:53	9.9E-12	15:04:59	9.8E-12	15:05:05	9.8E-12	15:05:11	9.8E-12	15:05:17	9.9E-12	15:05:23	9.9E-12
15:05:29	9.9E-12	15:05:35	9.8E-12	15:05:41	9.9E-12	15:05:47	9.9E-12	15:05:53	9.9E-12	15:05:59	9.8E-12
15:06:05	9.7E-12	15:06:11	9.8E-12	15:06:17	9.8E-12	15:06:23	9.7E-12	15:06:29	9.9E-12	15:06:35	1.0E-11
15:06:41	9.8E-12	15:06:47	1.0E-11	15:06:53	1.0E-11	15:06:59	9.7E-12	15:07:05	9.7E-12	15:07:11	9.8E-12
15:07:17	9.7E-12	15:07:23	9.9E-12	15:07:29	1.0E-11	15:07:35	9.7E-12	15:07:41	9.6E-12	15:07:47	9.6E-12
15:07:53	9.8E-12	15:07:59	9.8E-12	15:08:05	9.8E-12	15:08:11	1.0E-11	15:08:17	1.0E-11	15:08:23	9.9E-12
15:08:29	9.7E-12	15:08:35	9.7E-12	15:08:41	9.7E-12	15:08:47	9.8E-12	15:08:53	9.8E-12	15:08:59	9.9E-12
15:09:05	9.9E-12	15:09:11	9.8E-12	15:09:17	9.9E-12	15:09:23	1.0E-11	15:09:29	9.9E-12	15:09:35	1.0E-11
15:09:41	1.0E-11	15:09:47	1.0E-11	15:09:53	9.9E-12	15:09:59	1.0E-11	15:10:05	9.9E-12	15:10:11	9.8E-12
15:10:17	1.0E-11	15:10:23	1.0E-11	15:10:29	9.9E-12	15:10:35	9.8E-12	15:10:41	9.8E-12	15:10:47	9.7E-12
15:10:53	9.7E-12	15:10:59	9.8E-12	15:11:05	9.9E-12	15:11:11	9.7E-12	15:11:17	9.6E-12	15:11:23	9.9E-12
15:11:29	1.0E-11	15:11:35	1.0E-11	15:11:41	9.8E-12	15:11:47	9.8E-12	15:11:53	9.9E-12	15:11:59	9.9E-12
15:12:05	1.0E-11	15:12:11	1.0E-11	15:12:17	9.8E-12	15:12:23	9.8E-12	15:12:29	1.0E-11	15:12:35	9.8E-12
15:12:41	9.8E-12	15:12:47	9.9E-12	15:12:53	1.0E-11	15:12:59	9.9E-12	15:13:05	9.6E-12	15:13:11	9.7E-12
15:13:17	9.9E-12	15:13:23	1.0E-11	15:13:29	1.0E-11	15:13:35	1.0E-11	15:13:41	9.9E-12	15:13:47	9.9E-12

APPENDIX D: ION CHAMBER DATA

Third Particle Failure - July 9, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
15:13:53	1.0E-11	15:13:59	1.0E-11	15:14:05	1.0E-11	15:14:11	9.9E-12	15:14:17	9.6E-12	15:14:23	9.8E-12
15:14:29	9.8E-12	15:14:35	9.9E-12	15:14:41	1.0E-11	15:14:47	9.8E-12	15:14:53	9.6E-12	15:14:59	9.8E-12
15:15:05	9.9E-12	15:15:11	1.0E-11	15:15:17	1.0E-11	15:15:23	9.7E-12	15:15:29	9.7E-12	15:15:35	9.9E-12
15:15:41	1.0E-11	15:15:47	9.9E-12	15:15:53	9.7E-12	15:15:59	9.8E-12	15:16:05	1.0E-11	15:16:11	9.9E-12
15:16:17	9.8E-12	15:16:23	9.8E-12	15:16:29	1.0E-11	15:16:35	1.0E-11	15:16:41	9.7E-12	15:16:47	9.6E-12
15:16:53	1.0E-11	15:16:59	1.0E-11	15:17:05	1.0E-11	15:17:11	9.9E-12	15:17:17	9.9E-12	15:17:23	1.0E-11
15:17:29	9.8E-12	15:17:35	9.8E-12	15:17:41	9.9E-12	15:17:47	1.0E-11	15:17:53	1.0E-11	15:17:59	9.9E-12
15:18:05	9.8E-12	15:18:11	9.8E-12	15:18:17	9.8E-12	15:18:23	9.8E-12	15:18:29	9.8E-12	15:18:35	9.8E-12
15:18:41	9.8E-12	15:18:47	9.9E-12	15:18:53	9.7E-12	15:18:59	9.8E-12	15:19:05	1.0E-11	15:19:11	9.9E-12
15:19:17	9.9E-12	15:19:23	9.9E-12	15:19:29	1.0E-11	15:19:35	1.0E-11	15:19:41	9.9E-12	15:19:47	1.0E-11
15:19:53	1.0E-11	15:19:59	9.9E-12	15:20:05	9.7E-12	15:20:11	9.7E-12	15:20:17	9.9E-12	15:20:23	9.9E-12
15:20:29	9.9E-12	15:20:35	1.0E-11	15:20:41	1.0E-11	15:20:47	9.9E-12	15:20:53	1.0E-11	15:20:59	9.8E-12
15:21:05	9.8E-12	15:21:11	9.8E-12	15:21:17	9.9E-12	15:21:23	1.0E-11	15:21:29	1.0E-11	15:21:35	9.8E-12
15:21:41	9.8E-12	15:21:47	9.9E-12	15:21:53	1.0E-11	15:21:59	1.0E-11	15:22:05	9.8E-12	15:22:11	9.8E-12
15:22:17	9.8E-12	15:22:23	9.7E-12	15:22:29	9.9E-12	15:22:35	9.9E-12	15:22:41	9.8E-12	15:22:47	9.8E-12
15:22:53	9.7E-12	15:22:59	9.7E-12	15:23:05	9.9E-12	15:23:11	9.8E-12	15:23:17	9.9E-12	15:23:23	9.9E-12
15:23:29	9.7E-12	15:23:35	9.9E-12	15:23:41	1.0E-11	15:23:47	9.9E-12	15:23:53	9.9E-12	15:23:59	1.0E-11
15:24:05	1.0E-11	15:24:11	1.0E-11	15:24:17	1.0E-11	15:24:23	1.0E-11	15:24:29	9.9E-12	15:24:35	9.8E-12
15:24:41	9.7E-12	15:24:47	9.7E-12	15:24:53	9.6E-12	15:24:59	9.5E-12	15:25:05	9.5E-12	15:25:11	9.6E-12
15:25:17	9.8E-12	15:25:23	9.8E-12	15:25:29	9.8E-12	15:25:35	9.7E-12	15:25:41	9.8E-12	15:25:47	9.9E-12
15:25:53	9.7E-12	15:25:59	9.6E-12	15:26:05	9.7E-12	15:26:11	9.7E-12	15:26:17	1.0E-11	15:26:23	1.0E-11
15:26:29	1.0E-11	15:26:35	9.9E-12	15:26:41	9.8E-12	15:26:47	9.6E-12	15:26:53	9.5E-12	15:26:59	9.7E-12
15:27:05	9.8E-12	15:27:11	1.0E-11	15:27:17	1.0E-11	15:27:23	1.0E-11	15:27:29	1.0E-11	15:27:35	1.0E-11
15:27:41	1.0E-11	15:27:47	9.9E-12	15:27:53	9.9E-12	15:27:59	9.9E-12	15:28:05	9.9E-12	15:28:11	1.0E-11
15:28:17	1.0E-11	15:28:23	9.9E-12	15:28:29	1.0E-11	15:28:35	1.0E-11	15:28:41	1.0E-11	15:28:47	1.0E-11
15:28:53	9.8E-12	15:28:59	9.8E-12	15:29:05	1.0E-11	15:29:11	1.0E-11	15:29:17	9.8E-12	15:29:23	9.6E-12
15:29:29	9.9E-12	15:29:35	1.0E-11	15:29:41	1.0E-11	15:29:47	9.9E-12	15:29:53	9.7E-12	15:29:59	9.7E-12
15:30:05	9.8E-12	15:30:11	9.9E-12	15:30:17	9.9E-12	15:30:23	1.0E-11	15:30:29	1.0E-11	15:30:35	9.9E-12
15:30:41	9.8E-12	15:30:47	9.8E-12	15:30:53	9.9E-12	15:30:59	1.0E-11	15:31:05	1.0E-11	15:31:11	9.9E-12
15:31:17	9.9E-12	15:31:23	1.0E-11	15:31:29	9.9E-12	15:31:35	1.0E-11	15:31:41	1.0E-11	15:31:47	9.7E-12
15:31:53	9.7E-12	15:31:59	9.7E-12	15:32:05	9.6E-12	15:32:11	9.6E-12	15:32:17	9.5E-12	15:32:23	9.7E-12
15:32:29	1.0E-11	15:32:35	9.9E-12	15:32:41	9.8E-12	15:32:47	9.8E-12	15:32:53	1.0E-11	15:32:59	1.0E-11
15:33:05	1.0E-11	15:33:11	1.0E-11	15:33:17	1.0E-11	15:33:23	9.7E-12	15:33:29	9.8E-12	15:33:35	1.0E-11
15:33:41	9.9E-12	15:33:47	9.8E-12	15:33:53	9.8E-12	15:33:59	9.9E-12	15:34:05	1.0E-11	15:34:11	9.9E-12
15:34:17	9.7E-12	15:34:23	9.9E-12	15:34:29	9.9E-12	15:34:35	9.8E-12	15:34:41	1.0E-11	15:34:47	1.0E-11
15:34:53	9.8E-12	15:34:59	9.7E-12	15:35:05	9.8E-12	15:35:11	9.9E-12	15:35:17	1.0E-11	15:35:23	1.0E-11
15:35:29	9.9E-12	15:35:35	9.6E-12	15:35:41	9.5E-12	15:35:47	9.6E-12	15:35:53	9.6E-12	15:35:59	9.7E-12
15:36:05	9.8E-12	15:36:11	9.7E-12	15:36:17	9.8E-12	15:36:23	1.0E-11	15:36:29	1.0E-11	15:36:35	1.0E-11
15:36:41	9.7E-12	15:36:47	9.9E-12	15:36:53	9.9E-12	15:36:59	9.9E-12	15:37:05	1.0E-11	15:37:11	1.0E-11
15:37:17	9.9E-12	15:37:23	9.9E-12	15:37:29	9.9E-12	15:37:35	9.9E-12	15:37:41	9.8E-12	15:37:47	9.9E-12
15:37:53	1.0E-11	15:37:59	1.0E-11	15:38:05	1.0E-11	15:38:11	1.0E-11	15:38:17	9.9E-12	15:38:23	9.9E-12

APPENDIX D: ION CHAMBER DATA

Third Particle Failure - July 9, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
15:38:29	1.0E-11	15:38:35	1.0E-11	15:38:41	1.0E-11	15:38:47	1.0E-11	15:38:53	1.0E-11	15:38:59	1.0E-11
15:39:05	1.0E-11	15:39:11	1.0E-11	15:39:17	1.0E-11	15:39:23	1.0E-11	15:39:29	1.0E-11	15:39:35	1.0E-11
15:39:41	1.0E-11	15:39:47	9.8E-12	15:39:53	1.0E-11	15:39:59	1.0E-11	15:40:05	1.0E-11	15:40:11	1.0E-11
15:40:17	1.0E-11	15:40:23	1.0E-11	15:40:29	9.9E-12	15:40:35	9.8E-12	15:40:41	9.9E-12	15:40:47	1.0E-11
15:40:53	9.9E-12	15:40:59	9.8E-12	15:41:05	9.9E-12	15:41:11	9.9E-12	15:41:17	1.0E-11	15:41:23	9.9E-12
15:41:29	1.0E-11	15:41:35	1.0E-11	15:41:41	1.0E-11	15:41:47	1.0E-11	15:41:53	9.9E-12	15:41:59	1.0E-11
15:42:05	1.0E-11	15:42:11	9.8E-12	15:42:17	9.7E-12	15:42:23	9.7E-12	15:42:29	9.9E-12	15:42:35	1.0E-11
15:42:41	9.9E-12	15:42:47	9.9E-12	15:42:53	9.8E-12	15:42:59	9.8E-12	15:43:05	9.8E-12	15:43:11	1.0E-11
15:43:17	9.9E-12	15:43:23	9.9E-12	15:43:29	9.9E-12	15:43:35	9.8E-12	15:43:41	9.8E-12	15:43:47	1.0E-11
15:43:53	1.0E-11	15:43:59	9.9E-12	15:44:05	9.8E-12	15:44:11	9.6E-12	15:44:17	9.8E-12	15:44:23	1.0E-11
15:44:29	9.8E-12	15:44:35	9.8E-12	15:44:41	9.9E-12	15:44:47	9.8E-12	15:44:53	9.7E-12	15:44:59	9.8E-12
15:45:05	9.7E-12	15:45:11	9.7E-12	15:45:17	1.0E-11	15:45:23	9.9E-12	15:45:29	9.7E-12	15:45:35	9.8E-12
15:45:41	1.0E-11	15:45:47	1.0E-11	15:45:53	9.7E-12	15:45:59	9.7E-12	15:46:05	9.8E-12	15:46:11	9.6E-12
15:46:17	9.7E-12	15:46:23	9.9E-12	15:46:29	1.0E-11	15:46:35	9.8E-12	15:46:41	9.7E-12	15:46:47	9.8E-12
15:46:53	9.8E-12	15:46:59	9.8E-12	15:47:05	9.8E-12	15:47:11	9.8E-12	15:47:17	1.0E-11	15:47:23	9.9E-12
15:47:29	9.7E-12	15:47:35	9.6E-12	15:47:41	9.8E-12	15:47:47	1.0E-11	15:47:53	9.9E-12	15:47:59	9.8E-12
15:48:05	9.9E-12	15:48:11	1.0E-11	15:48:17	9.9E-12	15:48:23	9.8E-12	15:48:29	9.8E-12	15:48:35	9.7E-12
15:48:41	9.6E-12	15:48:47	9.8E-12	15:48:53	9.9E-12	15:48:59	9.8E-12	15:49:05	9.7E-12	15:49:11	9.7E-12
15:49:17	9.8E-12	15:49:23	9.6E-12	15:49:29	9.6E-12	15:49:35	1.0E-11	15:49:41	9.9E-12	15:49:47	9.7E-12
15:49:53	9.8E-12	15:49:59	9.7E-12	15:50:05	9.7E-12	15:50:11	9.8E-12	15:50:17	9.9E-12	15:50:23	9.9E-12
15:50:29	9.8E-12	15:50:35	9.7E-12	15:50:41	9.7E-12	15:50:47	9.8E-12	15:50:53	1.0E-11	15:50:59	1.0E-11
15:51:05	1.0E-11	15:51:11	1.0E-11	15:51:17	1.0E-11	15:51:23	9.8E-12	15:51:29	9.5E-12	15:51:35	9.6E-12
15:51:41	9.8E-12	15:51:47	1.0E-11	15:51:53	1.0E-11	15:51:59	9.9E-12	15:52:05	1.0E-11	15:52:11	9.9E-12
15:52:17	9.7E-12	15:52:23	9.9E-12	15:52:29	1.0E-11	15:52:35	9.9E-12	15:52:41	9.9E-12	15:52:47	1.0E-11
15:52:53	1.0E-11	15:52:59	1.0E-11	15:53:05	9.8E-12	15:53:11	9.8E-12	15:53:17	1.0E-11	15:53:23	9.9E-12
15:53:29	9.8E-12	15:53:35	9.9E-12	15:53:41	9.9E-12	15:53:47	1.0E-11	15:53:53	1.0E-11	15:53:59	1.0E-11
15:54:05	9.9E-12	15:54:11	9.8E-12	15:54:17	9.9E-12	15:54:23	9.9E-12	15:54:29	9.9E-12	15:54:35	9.9E-12
15:54:41	9.9E-12	15:54:47	9.9E-12	15:54:53	1.0E-11	15:54:59	9.9E-12	15:55:05	9.9E-12	15:55:11	9.8E-12
15:55:17	1.0E-11	15:55:23	9.7E-12	15:55:29	9.6E-12	15:55:35	1.0E-11	15:55:41	9.9E-12	15:55:47	9.9E-12
15:55:53	9.9E-12	15:55:59	9.9E-12	15:56:05	9.8E-12	15:56:11	9.6E-12	15:56:17	9.5E-12	15:56:23	9.6E-12
15:56:29	9.6E-12	15:56:35	9.7E-12	15:56:41	9.7E-12	15:56:47	9.5E-12	15:56:53	9.5E-12	15:56:59	9.7E-12
15:57:05	9.9E-12	15:57:11	9.7E-12	15:57:17	9.7E-12	15:57:23	9.9E-12	15:57:29	9.9E-12	15:57:35	9.8E-12
15:57:41	9.8E-12	15:57:47	9.8E-12	15:57:53	9.8E-12	15:57:59	9.7E-12	15:58:05	9.9E-12	15:58:11	9.7E-12
15:58:17	9.3E-12	15:58:23	9.5E-12	15:58:29	9.7E-12	15:58:35	9.8E-12	15:58:41	1.0E-11	15:58:47	9.9E-12
15:58:53	9.7E-12	15:58:59	9.6E-12	15:59:05	9.7E-12	15:59:11	9.8E-12	15:59:17	9.8E-12	15:59:23	9.7E-12
15:59:29	9.7E-12	15:59:35	9.7E-12	15:59:41	9.8E-12	15:59:47	9.9E-12	15:59:53	9.8E-12	15:59:59	9.7E-12

APPENDIX D: ION CHAMBER DATA

Fourth Particle Failure - August 16, 1994

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
10:00:09	5.6E-12	10:00:15	5.6E-12	10:00:21	5.6E-12	10:00:27	5.6E-12	10:00:33	5.6E-12	10:00:39	5.6E-12
10:00:45	5.6E-12	10:00:51	5.7E-12	10:00:57	5.6E-12	10:01:03	5.6E-12	10:00:39	5.6E-12	10:01:09	5.6E-12
10:01:21	5.5E-12	10:01:27	5.5E-12	10:01:33	5.5E-12	10:01:39	5.6E-12	10:01:09	5.6E-12	10:01:15	5.5E-12
10:01:57	5.5E-12	10:02:03	5.5E-12	10:02:09	5.5E-12	10:02:15	5.6E-12	10:01:45	5.5E-12	10:01:51	5.5E-12
10:02:33	5.6E-12	10:02:39	5.3E-12	10:02:45	5.4E-12	10:02:51	5.5E-12	10:02:21	5.5E-12	10:02:27	5.6E-12
10:03:09	5.5E-12	10:03:15	5.5E-12	10:03:21	5.6E-12	10:03:27	5.6E-12	10:02:57	5.5E-12	10:03:03	5.5E-12
10:03:45	5.8E-12	10:03:51	5.6E-12	10:03:57	5.5E-12	10:04:03	5.5E-12	10:03:33	5.5E-12	10:03:39	6.0E-12
10:04:21	5.6E-12	10:04:27	5.6E-12	10:04:33	5.6E-12	10:04:39	5.6E-12	10:04:09	5.5E-12	10:04:15	5.6E-12
10:04:57	5.6E-12	10:05:03	5.6E-12	10:05:09	5.6E-12	10:05:15	5.6E-12	10:05:21	5.6E-12	10:05:27	5.6E-12
10:05:33	5.6E-12	10:05:39	5.5E-12	10:05:45	5.5E-12	10:05:51	5.5E-12	10:05:57	5.5E-12	10:06:03	5.5E-12
10:06:09	5.5E-12	10:06:15	5.5E-12	10:06:21	5.7E-12	10:06:27	5.7E-12	10:06:33	5.6E-12	10:06:39	5.6E-12
10:06:45	5.4E-12	10:06:51	5.9E-12	10:06:57	5.7E-12	10:07:03	5.1E-12	10:07:09	5.4E-12	10:07:15	5.5E-12
10:07:21	5.5E-12	10:07:27	5.5E-12	10:07:33	5.5E-12	10:07:39	5.6E-12	10:07:45	5.6E-12	10:07:51	5.6E-12
10:07:57	5.6E-12	10:08:03	5.4E-12	10:08:09	5.6E-12	10:08:15	5.6E-12	10:08:21	5.5E-12	10:08:27	5.7E-12
10:08:33	5.4E-12	10:08:39	5.7E-12	10:08:45	5.7E-12	10:08:51	5.7E-12	10:08:57	5.4E-12	10:09:03	5.7E-12
10:09:09	5.6E-12	10:09:15	5.6E-12	10:09:21	5.3E-12	10:09:27	5.5E-12	10:09:33	5.5E-12	10:09:39	5.6E-12
10:09:45	5.7E-12	10:09:51	5.6E-12	10:09:57	5.6E-12	10:10:03	5.6E-12	10:10:09	5.6E-12	10:10:15	5.5E-12
10:10:21	5.6E-12	10:10:27	5.6E-12	10:10:33	5.6E-12	10:10:39	5.3E-12	10:10:45	5.6E-12	10:10:51	5.5E-12
10:10:57	5.5E-12	10:11:03	5.5E-12	10:11:09	5.6E-12	10:11:15	5.5E-12	10:11:21	5.6E-12	10:11:27	5.7E-12
10:11:33	5.6E-12	10:11:39	5.6E-12	10:11:45	5.6E-12	10:11:51	5.7E-12	10:11:57	5.7E-12	10:12:03	5.6E-12
10:12:09	5.5E-12	10:12:15	5.5E-12	10:12:21	5.5E-12	10:12:27	5.6E-12	10:12:33	5.6E-12	10:12:39	5.6E-12
10:12:45	5.4E-12	10:12:51	5.8E-12	10:12:57	5.7E-12	10:13:03	5.6E-12	10:13:09	5.6E-12	10:13:15	5.6E-12
10:13:21	5.7E-12	10:13:27	5.6E-12	10:13:33	5.6E-12	10:13:39	5.6E-12	10:13:45	5.6E-12	10:13:51	5.5E-12
10:13:57	5.6E-12	10:14:03	5.5E-12	10:14:09	5.6E-12	10:14:15	5.6E-12	10:14:21	5.6E-12	10:14:27	5.5E-12
10:14:33	5.5E-12	10:14:39	5.6E-12	10:14:45	5.6E-12	10:14:51	5.8E-12	10:14:57	5.7E-12	10:15:03	5.8E-12
10:15:09	5.6E-12	10:15:15	5.7E-12	10:15:21	6.4E-12	10:15:27	6.3E-12	10:15:33	6.3E-12	10:15:39	6.0E-12
10:15:45	6.0E-12	10:15:51	5.9E-12	10:15:57	5.9E-12	10:16:03	5.8E-12	10:16:09	5.8E-12	10:16:15	5.4E-12
10:16:21	5.8E-12	10:16:27	5.8E-12	10:16:33	5.7E-12	10:16:39	5.8E-12	10:16:45	5.9E-12	10:16:51	5.6E-12
10:16:57	5.6E-12	10:17:03	5.6E-12	10:17:09	5.6E-12	10:17:15	5.6E-12	10:17:21	5.6E-12	10:17:27	5.6E-12
10:17:33	5.5E-12	10:17:39	5.5E-12	10:17:45	5.5E-12	10:17:51	5.6E-12	10:17:57	5.6E-12	10:18:03	5.6E-12
10:18:09	5.9E-12	10:18:15	5.2E-12	10:18:21	5.4E-12	10:18:27	5.5E-12	10:18:33	5.7E-12	10:18:39	5.5E-12
10:18:45	5.5E-12	10:18:51	5.5E-12	10:18:57	5.5E-12	10:19:03	5.4E-12	10:19:09	5.4E-12	10:19:15	5.3E-12
10:19:21	4.9E-12	10:19:27	5.2E-12	10:19:33	5.1E-12	10:19:39	5.1E-12	10:19:45	5.0E-12	10:19:51	5.0E-12
10:19:57	5.1E-12	10:20:03	5.2E-12	10:20:09	5.3E-12	10:20:15	5.3E-12	10:20:21	5.3E-12	10:20:27	5.5E-12
10:20:33	5.6E-12	10:20:39	5.6E-12	10:20:45	5.5E-12	10:20:51	5.6E-12	10:20:57	6.0E-12	10:21:03	5.8E-12
10:21:09	5.4E-12	10:21:15	5.5E-12	10:21:21	5.6E-12	10:21:27	5.6E-12	10:21:33	5.5E-12	10:21:39	5.7E-12
10:21:45	5.7E-12	10:21:51	5.7E-12	10:21:57	5.7E-12	10:22:03	5.6E-12	10:22:09	5.7E-12	10:22:15	5.7E-12
10:22:21	5.7E-12	10:22:27	5.6E-12	10:22:33	5.6E-12	10:22:39	5.6E-12	10:22:45	5.5E-12	10:22:51	5.6E-12
10:22:57	5.6E-12	10:23:03	5.7E-12	10:23:09	5.5E-12	10:23:15	5.5E-12	10:23:21	5.9E-12	10:23:27	5.9E-12
10:23:33	5.6E-12	10:23:39	5.8E-12	10:23:45	5.6E-12	10:23:51	6.0E-12	10:23:57	5.9E-12	10:24:03	5.6E-12
10:24:09	5.9E-12	10:24:15	5.8E-12	10:24:21	5.8E-12	10:24:27	5.8E-12	10:24:33	6.2E-12	10:24:39	6.0E-12

APPENDIX D: ION CHAMBER DATA

Fourth Particle Failure - August 16, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
10:24:45	5.4E-12	10:24:51	5.7E-12	10:24:57	5.8E-12	10:25:03	5.8E-12	10:25:09	5.8E-12	10:25:15	5.8E-12
10:25:21	5.8E-12	10:25:27	5.8E-12	10:25:33	5.7E-12	10:25:39	5.7E-12	10:25:45	5.7E-12	10:25:51	5.7E-12
10:25:57	5.7E-12	10:26:03	5.8E-12	10:26:09	5.7E-12	10:26:15	5.4E-12	10:26:21	5.7E-12	10:26:27	5.4E-12
10:26:33	5.6E-12	10:26:39	5.7E-12	10:26:45	5.4E-12	10:26:51	5.6E-12	10:26:57	5.6E-12	10:27:03	5.6E-12
10:27:09	5.6E-12	10:27:15	5.6E-12	10:27:21	5.5E-12	10:27:27	5.2E-12	10:27:33	5.8E-12	10:27:39	5.8E-12
10:27:45	5.8E-12	10:27:51	5.7E-12	10:27:57	5.6E-12	10:28:03	5.1E-12	10:28:09	5.8E-12	10:28:15	5.7E-12
10:28:21	5.5E-12	10:28:27	5.6E-12	10:28:33	5.5E-12	10:28:39	5.6E-12	10:28:45	5.6E-12	10:28:51	5.6E-12
10:28:57	5.6E-12	10:29:03	5.7E-12	10:29:09	5.7E-12	10:29:15	5.6E-12	10:29:21	5.6E-12	10:29:27	5.6E-12
10:29:33	5.6E-12	10:29:39	5.7E-12	10:29:45	5.7E-12	10:29:51	5.6E-12	10:29:57	5.6E-12	10:30:03	5.7E-12
10:30:09	5.7E-12	10:30:15	5.6E-12	10:30:21	5.3E-12	10:30:27	5.6E-12	10:30:33	5.7E-12	10:30:39	5.6E-12
10:30:45	5.5E-12	10:30:51	5.5E-12	10:30:57	5.5E-12	10:31:03	5.5E-12	10:31:09	5.7E-12	10:31:15	5.7E-12
10:31:21	5.6E-12	10:31:27	5.4E-12	10:31:33	5.6E-12	10:31:39	5.6E-12	10:31:45	5.6E-12	10:31:51	5.5E-12
10:31:57	5.5E-12	10:32:03	5.4E-12	10:32:09	5.4E-12	10:32:15	5.6E-12	10:32:21	5.5E-12	10:32:27	5.4E-12
10:32:33	5.6E-12	10:32:39	5.5E-12	10:32:45	5.6E-12	10:32:51	5.6E-12	10:32:57	5.7E-12	10:33:03	5.6E-12
10:33:09	5.6E-12	10:33:15	5.6E-12	10:33:21	5.6E-12	10:33:27	5.8E-12	10:33:33	5.5E-12	10:33:39	5.5E-12
10:33:45	5.4E-12	10:33:51	6.0E-12	10:33:57	5.9E-12	10:34:03	5.7E-12	10:34:09	5.6E-12	10:34:15	5.5E-12
10:34:21	5.5E-12	10:34:27	5.6E-12	10:34:33	5.5E-12	10:34:39	5.7E-12	10:34:45	5.6E-12	10:34:51	5.6E-12
10:34:57	5.6E-12	10:35:03	5.5E-12	10:35:09	5.6E-12	10:35:15	5.6E-12	10:35:21	5.6E-12	10:35:27	5.5E-12
10:35:33	5.4E-12	10:35:39	5.5E-12	10:35:45	5.6E-12	10:35:51	5.6E-12	10:35:57	5.6E-12	10:36:03	5.9E-12
10:36:09	5.6E-12	10:36:15	5.6E-12	10:36:21	5.4E-12	10:36:27	5.5E-12	10:36:33	5.5E-12	10:36:39	5.5E-12
10:36:45	5.5E-12	10:36:51	5.5E-12	10:36:57	5.6E-12	10:37:03	5.6E-12	10:37:09	5.5E-12	10:37:15	5.6E-12
10:37:21	5.6E-12	10:37:27	5.6E-12	10:37:33	5.6E-12	10:37:39	5.6E-12	10:37:45	5.6E-12	10:37:51	5.6E-12
10:37:57	5.6E-12	10:38:03	5.6E-12	10:38:09	5.6E-12	10:38:15	5.6E-12	10:38:21	5.5E-12	10:38:27	5.7E-12
10:38:33	5.7E-12	10:38:39	5.5E-12	10:38:45	5.6E-12	10:38:51	5.7E-12	10:38:57	5.6E-12	10:39:03	5.5E-12
10:39:09	5.5E-12	10:39:15	5.5E-12	10:39:21	5.5E-12	10:39:27	5.7E-12	10:39:33	5.7E-12	10:39:39	5.6E-12
10:39:45	5.5E-12	10:39:51	5.4E-12	10:39:57	5.5E-12	10:40:03	5.5E-12	10:40:09	5.6E-12	10:40:15	5.5E-12
10:40:21	5.5E-12	10:40:27	5.5E-12	10:40:33	5.6E-12	10:40:39	5.6E-12	10:40:45	5.6E-12	10:40:51	5.6E-12
10:40:57	5.4E-12	10:41:03	5.9E-12	10:41:09	5.6E-12	10:41:15	5.7E-12	10:41:21	5.7E-12	10:41:27	5.7E-12
10:41:33	5.6E-12	10:41:39	5.6E-12	10:41:45	5.6E-12	10:41:51	5.6E-12	10:41:57	5.5E-12	10:42:03	5.6E-12
10:42:09	5.6E-12	10:42:15	5.5E-12	10:42:21	5.6E-12	10:42:27	5.4E-12	10:42:33	5.4E-12	10:42:39	5.4E-12
10:42:45	5.7E-12	10:42:51	5.7E-12	10:42:57	5.6E-12	10:43:03	5.7E-12	10:43:09	5.5E-12	10:43:15	5.5E-12
10:43:21	5.7E-12	10:43:27	5.6E-12	10:43:33	5.5E-12	10:43:39	5.5E-12	10:43:45	5.6E-12	10:43:51	5.5E-12
10:43:57	5.5E-12	10:44:03	5.5E-12	10:44:09	5.6E-12	10:44:15	5.5E-12	10:44:21	5.8E-12	10:44:27	5.3E-12
10:44:33	5.8E-12	10:44:39	5.4E-12	10:44:45	5.6E-12	10:44:51	5.3E-12	10:44:57	5.6E-12	10:45:03	5.5E-12
10:45:09	5.6E-12	10:45:15	5.6E-12	10:45:21	5.6E-12	10:45:27	5.5E-12	10:45:33	5.6E-12	10:45:39	5.6E-12
10:45:45	5.6E-12	10:45:51	5.5E-12	10:45:57	5.5E-12	10:46:03	5.4E-12	10:46:09	5.5E-12	10:46:15	5.6E-12
10:46:21	5.6E-12	10:46:27	5.6E-12	10:46:33	5.9E-12	10:46:39	5.4E-12	10:46:45	5.4E-12	10:46:51	5.5E-12
10:46:57	5.6E-12	10:47:03	5.6E-12	10:47:09	5.6E-12	10:47:15	5.5E-12	10:47:21	5.5E-12	10:47:27	5.4E-12
10:47:33	5.6E-12	10:47:39	5.9E-12	10:47:45	5.5E-12	10:47:51	5.8E-12	10:47:57	5.3E-12	10:48:03	5.4E-12
10:48:09	5.5E-12	10:48:15	5.5E-12	10:48:21	5.4E-12	10:48:27	5.5E-12	10:48:33	5.7E-12	10:48:39	5.6E-12
10:48:45	5.6E-12	10:48:51	5.6E-12	10:48:57	5.6E-12	10:49:03	5.6E-12	10:49:09	5.7E-12	10:49:15	5.5E-12

APPENDIX D: ION CHAMBER DATA

Fourth Particle Failure - August 16, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
10:49:21	5.8E-12	10:49:27	5.7E-12	10:49:33	5.7E-12	10:49:39	5.6E-12	10:49:45	5.3E-12	10:49:51	5.5E-12
10:49:57	5.7E-12	10:50:03	5.6E-12	10:50:09	5.6E-12	10:50:15	5.7E-12	10:50:21	5.9E-12	10:50:27	5.5E-12
10:50:33	5.9E-12	10:50:39	5.4E-12	10:50:45	5.5E-12	10:50:51	5.6E-12	10:50:57	5.5E-12	10:51:03	5.4E-12
10:51:09	5.5E-12	10:51:15	5.6E-12	10:51:21	5.6E-12	10:51:27	5.7E-12	10:51:33	5.7E-12	10:51:39	5.7E-12
10:51:45	5.3E-12	10:51:51	5.5E-12	10:51:57	5.8E-12	10:52:03	5.8E-12	10:52:09	5.7E-12	10:52:15	5.7E-12
10:52:21	5.6E-12	10:52:27	5.6E-12	10:52:33	5.6E-12	10:52:39	5.4E-12	10:52:45	5.7E-12	10:52:51	5.6E-12
10:52:57	5.6E-12	10:53:03	5.6E-12	10:53:09	5.6E-12	10:53:15	5.5E-12	10:53:21	5.6E-12	10:53:27	5.5E-12
10:53:33	5.8E-12	10:53:39	5.7E-12	10:53:45	5.6E-12	10:53:51	5.6E-12	10:53:57	5.4E-12	10:54:03	5.6E-12
10:54:09	5.7E-12	10:54:15	5.6E-12	10:54:21	5.4E-12	10:54:27	5.7E-12	10:54:33	5.6E-12	10:54:39	5.6E-12
10:54:45	5.6E-12	10:54:51	5.7E-12	10:54:57	5.7E-12	10:55:03	5.7E-12	10:55:09	5.7E-12	10:55:15	5.6E-12
10:55:21	5.6E-12	10:55:27	5.6E-12	10:55:33	5.6E-12	10:55:39	5.6E-12	10:55:45	5.7E-12	10:55:51	5.6E-12
10:55:57	5.6E-12	10:56:03	5.6E-12	10:56:09	5.5E-12	10:56:15	5.5E-12	10:56:21	5.6E-12	10:56:27	5.6E-12
10:56:33	5.5E-12	10:56:39	5.5E-12	10:56:45	5.6E-12	10:56:51	5.7E-12	10:56:57	5.6E-12	10:57:03	5.6E-12
10:57:09	5.6E-12	10:57:15	5.6E-12	10:57:21	5.6E-12	10:57:27	5.8E-12	10:57:33	5.4E-12	10:57:39	5.5E-12
10:57:45	5.5E-12	10:57:51	5.6E-12	10:57:57	5.3E-12	10:58:03	5.4E-12	10:58:09	5.8E-12	10:58:15	6.0E-12
10:58:21	5.7E-12	10:58:27	5.6E-12	10:58:33	5.6E-12	10:58:39	5.5E-12	10:58:45	5.5E-12	10:58:51	5.6E-12
10:58:57	5.8E-12	10:59:03	5.7E-12	10:59:09	5.6E-12	10:59:15	5.6E-12	10:59:21	5.6E-12	10:59:27	5.6E-12
10:59:33	5.6E-12	10:59:39	5.7E-12	10:59:45	5.4E-12	10:59:51	5.6E-12	10:59:57	5.7E-12	11:00:03	5.4E-12
11:00:09	5.6E-12	11:00:15	5.4E-12	11:00:21	5.5E-12	11:00:27	5.4E-12	11:00:33	5.9E-12	11:00:39	5.7E-12
11:00:45	5.6E-12	11:00:51	5.5E-12	11:00:57	5.7E-12	11:01:03	5.5E-12	11:01:09	5.5E-12	11:01:15	5.6E-12
11:01:21	5.6E-12	11:01:27	5.6E-12	11:01:33	5.6E-12	11:01:39	5.6E-12	11:01:45	5.6E-12	11:01:51	5.6E-12
11:01:57	5.5E-12	11:02:03	5.5E-12	11:02:09	5.6E-12	11:02:15	5.5E-12	11:02:21	5.6E-12	11:02:27	5.6E-12
11:02:33	5.5E-12	11:02:39	5.4E-12	11:02:45	5.5E-12	11:02:51	6.1E-12	11:02:57	5.5E-12	11:03:03	5.7E-12
11:03:09	5.6E-12	11:03:15	5.6E-12	11:03:21	5.7E-12	11:03:27	5.6E-12	11:03:33	5.5E-12	11:03:39	5.6E-12
11:03:45	5.6E-12	11:03:51	5.5E-12	11:03:57	5.6E-12	11:04:03	5.6E-12	11:04:09	5.6E-12	11:04:15	5.6E-12
11:04:21	5.6E-12	11:04:27	5.5E-12	11:04:33	5.9E-12	11:04:39	5.7E-12	11:04:45	5.5E-12	11:04:51	6.0E-12
11:04:57	5.6E-12	11:05:03	5.6E-12	11:05:09	5.6E-12	11:05:15	5.6E-12	11:05:21	5.6E-12	11:05:27	5.6E-12
11:05:33	5.6E-12	11:05:39	5.6E-12	11:05:45	5.6E-12	11:05:51	5.6E-12	11:05:57	5.6E-12	11:06:03	5.5E-12
11:06:09	5.6E-12	11:06:15	5.6E-12	11:06:21	5.5E-12	11:06:27	5.6E-12	11:06:33	5.6E-12	11:06:39	5.5E-12
11:06:45	5.5E-12	11:06:51	5.4E-12	11:06:57	5.6E-12	11:07:03	5.5E-12	11:07:09	5.6E-12	11:07:15	5.6E-12
11:07:21	5.6E-12	11:07:27	5.5E-12	11:07:33	5.5E-12	11:07:39	5.5E-12	11:07:45	5.8E-12	11:07:51	5.6E-12
11:07:57	5.8E-12	11:08:03	5.7E-12	11:08:09	5.7E-12	11:08:15	5.6E-12	11:08:21	5.6E-12	11:08:27	5.5E-12
11:08:33	5.6E-12	11:08:39	5.6E-12	11:08:45	5.6E-12	11:08:51	5.5E-12	11:08:57	5.6E-12	11:09:03	5.6E-12
11:09:09	5.6E-12	11:09:15	5.6E-12	11:09:21	5.6E-12	11:09:27	5.6E-12	11:09:33	5.7E-12	11:09:39	5.7E-12
11:09:45	5.6E-12	11:09:51	5.7E-12	11:09:57	5.6E-12	11:10:03	5.5E-12	11:10:09	5.5E-12	11:10:15	5.5E-12
11:10:21	5.5E-12	11:10:27	5.6E-12	11:10:33	5.5E-12	11:10:39	5.6E-12	11:10:45	5.6E-12	11:10:51	5.6E-12
11:10:57	5.6E-12	11:11:03	5.6E-12	11:11:09	5.6E-12	11:11:15	5.6E-12	11:11:21	5.5E-12	11:11:27	5.5E-12
11:11:33	5.6E-12	11:11:39	5.6E-12	11:11:45	5.6E-12	11:11:51	5.6E-12	11:11:57	5.5E-12	11:12:03	5.6E-12
11:12:09	5.6E-12	11:12:15	5.5E-12	11:12:21	5.6E-12	11:12:27	5.6E-12	11:12:33	5.6E-12	11:12:39	5.6E-12
11:12:45	5.6E-12	11:12:51	5.5E-12	11:12:57	5.3E-12	11:13:03	5.4E-12	11:13:09	5.5E-12	11:13:15	5.6E-12
11:13:21	5.6E-12	11:13:27	5.4E-12	11:13:33	5.4E-12	11:13:39	5.4E-12	11:13:45	5.5E-12	11:13:51	5.6E-12

APPENDIX D: ION CHAMBER DATA

Fourth Particle Failure - August 16, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
11:13:57	5.6E-12	11:14:03	5.7E-12	11:14:09	5.6E-12	11:14:15	5.5E-12	11:14:21	5.6E-12	11:14:27	5.6E-12
11:14:33	5.5E-12	11:14:39	5.6E-12	11:14:45	5.6E-12	11:14:51	5.6E-12	11:14:57	5.6E-12	11:15:03	5.6E-12
11:15:09	5.6E-12	11:15:15	5.6E-12	11:15:21	5.6E-12	11:15:27	5.6E-12	11:15:33	5.4E-12	11:15:39	5.6E-12
11:15:45	5.7E-12	11:15:51	5.6E-12	11:15:57	5.6E-12	11:16:03	5.6E-12	11:16:09	5.5E-12	11:16:15	5.5E-12
11:16:21	5.5E-12	11:16:27	5.6E-12	11:16:33	5.6E-12	11:16:39	5.6E-12	11:16:45	5.7E-12	11:16:51	5.6E-12
11:16:57	5.6E-12	11:17:03	5.5E-12	11:17:09	5.7E-12	11:17:15	5.6E-12	11:17:21	5.6E-12	11:17:27	5.6E-12
11:17:33	5.6E-12	11:17:39	5.5E-12	11:17:45	5.7E-12	11:17:51	5.7E-12	11:17:57	5.4E-12	11:18:03	5.5E-12
11:18:09	5.6E-12	11:18:15	5.6E-12	11:18:21	5.6E-12	11:18:27	5.6E-12	11:18:33	5.6E-12	11:18:39	5.5E-12
11:18:45	5.5E-12	11:18:51	5.5E-12	11:18:57	5.5E-12	11:19:03	5.6E-12	11:19:09	5.5E-12	11:19:15	5.5E-12
11:19:21	5.5E-12	11:19:27	5.6E-12	11:19:33	5.6E-12	11:19:39	5.3E-12	11:19:45	5.4E-12	11:19:51	5.8E-12
11:19:57	5.7E-12	11:20:03	5.7E-12	11:20:09	5.5E-12	11:20:15	5.5E-12	11:20:21	5.6E-12	11:20:27	5.6E-12
11:20:33	5.6E-12	11:20:39	5.6E-12	11:20:45	5.6E-12	11:20:51	5.6E-12	11:20:57	5.7E-12	11:21:03	5.8E-12
11:21:09	5.6E-12	11:21:15	5.6E-12	11:21:21	5.6E-12	11:21:27	5.6E-12	11:21:33	5.6E-12	11:21:39	5.5E-12
11:21:45	5.5E-12	11:21:51	5.5E-12	11:21:57	5.5E-12	11:22:03	5.5E-12	11:22:09	5.5E-12	11:22:15	5.5E-12
11:22:21	5.6E-12	11:22:27	5.6E-12	11:22:33	5.5E-12	11:22:39	5.5E-12	11:22:45	5.5E-12	11:22:51	5.4E-12
11:22:57	5.4E-12	11:23:03	5.7E-12	11:23:09	5.8E-12	11:23:15	5.7E-12	11:23:21	5.5E-12	11:23:27	5.4E-12
11:23:33	5.4E-12	11:23:39	5.4E-12	11:23:45	5.5E-12	11:23:51	5.6E-12	11:23:57	5.6E-12	11:24:03	5.6E-12
11:24:09	5.6E-12	11:24:15	5.6E-12	11:24:21	5.6E-12	11:24:27	5.4E-12	11:24:33	5.6E-12	11:24:39	5.6E-12
11:24:45	5.6E-12	11:24:51	5.6E-12	11:24:57	5.6E-12	11:25:03	5.6E-12	11:25:09	5.6E-12	11:25:15	5.5E-12
11:25:21	5.6E-12	11:25:27	5.5E-12	11:25:33	5.6E-12	11:25:39	5.5E-12	11:25:45	5.5E-12	11:25:51	5.5E-12
11:25:57	5.6E-12	11:26:03	5.5E-12	11:26:09	5.5E-12	11:26:15	5.5E-12	11:26:21	5.5E-12	11:26:27	5.5E-12
11:26:33	5.5E-12	11:26:39	5.5E-12	11:26:45	5.6E-12	11:26:51	5.6E-12	11:26:57	5.6E-12	11:27:03	5.5E-12
11:27:09	5.6E-12	11:27:15	5.7E-12	11:27:21	5.7E-12	11:27:27	5.6E-12	11:27:33	5.4E-12	11:27:39	5.4E-12
11:27:45	5.5E-12	11:27:51	5.5E-12	11:27:57	5.5E-12	11:28:03	5.7E-12	11:28:09	5.7E-12	11:28:15	5.7E-12
11:28:21	5.6E-12	11:28:27	5.6E-12	11:28:33	5.6E-12	11:28:39	5.5E-12	11:28:45	5.5E-12	11:28:51	5.5E-12
11:28:57	5.5E-12	11:29:03	5.2E-12	11:29:09	5.3E-12	11:29:15	5.4E-12	11:29:21	5.5E-12	11:29:27	5.5E-12
11:29:33	5.7E-12	11:29:39	5.7E-12	11:29:45	5.6E-12	11:29:51	5.6E-12	11:29:57	5.6E-12	11:30:03	5.6E-12
11:30:09	5.6E-12	11:30:15	5.6E-12	11:30:21	5.6E-12	11:30:27	5.6E-12	11:30:33	5.6E-12	11:30:39	5.5E-12
11:30:45	5.6E-12	11:30:51	5.6E-12	11:30:57	5.6E-12	11:31:03	5.6E-12	11:31:09	5.5E-12	11:31:15	5.6E-12
11:31:21	5.6E-12	11:31:27	5.5E-12	11:31:33	5.5E-12	11:31:39	5.5E-12	11:31:45	5.5E-12	11:31:51	5.5E-12
11:31:57	5.5E-12	11:32:03	5.5E-12	11:32:09	5.5E-12	11:32:15	5.6E-12	11:32:21	5.6E-12	11:32:27	5.6E-12
11:32:33	5.6E-12	11:32:39	5.5E-12	11:32:45	5.7E-12	11:32:51	5.5E-12	11:32:57	5.5E-12	11:33:03	5.6E-12
11:33:09	5.6E-12	11:33:15	5.7E-12	11:33:21	5.6E-12	11:33:27	5.5E-12	11:33:33	5.7E-12	11:33:39	5.6E-12
11:33:45	5.6E-12	11:33:50	5.6E-12	11:33:57	5.6E-12	11:34:03	5.5E-12	11:34:09	5.7E-12	11:34:14	5.4E-12
11:34:21	5.3E-12	11:34:27	5.7E-12	11:34:33	5.6E-12	11:34:39	5.8E-12	11:34:44	5.7E-12	11:34:51	6.2E-12
11:34:57	6.4E-12	11:35:03	6.9E-12	11:35:08	6.9E-12	11:35:15	6.9E-12	11:35:21	7.0E-12	11:35:27	7.0E-12
11:35:32	7.0E-12	11:35:38	6.9E-12	11:35:45	6.8E-12	11:35:51	6.7E-12	11:35:56	7.0E-12	11:36:02	6.6E-12
11:36:09	6.2E-12	11:36:15	6.3E-12	11:36:20	6.3E-12	11:36:26	6.3E-12	11:36:32	6.3E-12	11:36:39	6.3E-12
11:36:45	6.3E-12	11:36:50	6.2E-12	11:36:56	6.0E-12	11:37:03	6.4E-12	11:37:09	6.1E-12	11:37:14	5.8E-12
11:37:20	6.2E-12	11:37:26	6.2E-12	11:37:33	6.1E-12	11:37:38	6.1E-12	11:37:44	6.1E-12	11:37:50	6.1E-12
11:37:57	5.9E-12	11:38:02	5.8E-12	11:38:08	6.5E-12	11:38:14	5.9E-12	11:38:20	6.0E-12	11:38:26	6.1E-12

APPENDIX D: ION CHAMBER DATA

Fourth Particle Failure - August 16, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
11:38:32	6.0E-12	11:38:38	6.0E-12	11:38:44	6.0E-12	11:38:51	6.1E-12	11:38:56	6.1E-12	11:39:02	6.0E-12
11:39:08	6.1E-12	11:39:14	6.0E-12	11:39:20	5.9E-12	11:39:26	5.9E-12	11:39:32	6.0E-12	11:39:38	6.0E-12
11:39:44	6.2E-12	11:39:50	6.1E-12	11:39:56	5.9E-12	11:40:02	5.7E-12	11:40:08	6.1E-12	11:40:14	6.3E-12
11:40:20	6.3E-12	11:40:26	6.2E-12	11:40:32	6.1E-12	11:40:38	6.1E-12	11:40:44	5.9E-12	11:40:50	6.0E-12
11:40:56	6.0E-12	11:41:02	6.0E-12	11:41:08	5.9E-12	11:41:14	5.9E-12	11:41:20	5.9E-12	11:41:26	6.0E-12
11:41:32	5.9E-12	11:41:38	5.8E-12	11:41:44	5.8E-12	11:41:50	6.3E-12	11:41:56	5.7E-12	11:42:02	6.2E-12
11:42:08	6.0E-12	11:42:14	6.0E-12	11:42:20	5.9E-12	11:42:26	5.9E-12	11:42:32	5.9E-12	11:42:38	5.9E-12
11:42:44	5.9E-12	11:42:50	6.0E-12	11:42:56	6.0E-12	11:43:02	5.9E-12	11:43:08	5.9E-12	11:43:14	5.8E-12
11:43:20	5.9E-12	11:43:26	6.0E-12	11:43:32	6.0E-12	11:43:38	6.0E-12	11:43:44	6.0E-12	11:43:50	5.9E-12
11:43:56	5.9E-12	11:44:02	5.9E-12	11:44:08	5.9E-12	11:44:14	6.0E-12	11:44:20	5.9E-12	11:44:26	5.9E-12
11:44:32	5.9E-12	11:44:38	5.9E-12	11:44:44	5.9E-12	11:44:50	5.8E-12	11:44:56	5.9E-12	11:45:02	5.9E-12
11:45:08	5.8E-12	11:45:14	5.9E-12	11:45:20	5.9E-12	11:45:26	5.9E-12	11:45:32	5.9E-12	11:45:38	5.9E-12
11:45:44	6.0E-12	11:45:50	5.9E-12	11:45:56	6.0E-12	11:46:02	6.0E-12	11:46:08	5.9E-12	11:46:14	5.9E-12
11:46:20	5.9E-12	11:46:26	5.9E-12	11:46:32	6.0E-12	11:46:38	6.0E-12	11:46:44	6.1E-12	11:46:50	5.8E-12
11:46:56	5.8E-12	11:47:02	5.9E-12	11:47:08	6.0E-12	11:47:14	6.0E-12	11:47:20	5.8E-12	11:47:26	5.9E-12
11:47:32	5.9E-12	11:47:38	5.9E-12	11:47:44	5.9E-12	11:47:50	5.9E-12	11:47:56	5.8E-12	11:48:02	6.0E-12
11:48:08	6.0E-12	11:48:14	6.0E-12	11:48:20	6.0E-12	11:48:26	6.0E-12	11:48:32	5.9E-12	11:48:38	5.8E-12
11:48:44	6.0E-12	11:48:50	5.9E-12	11:48:56	5.9E-12	11:49:02	5.8E-12	11:49:08	5.8E-12	11:49:14	6.1E-12
11:49:20	5.8E-12	11:49:26	5.9E-12	11:49:32	5.9E-12	11:49:38	5.9E-12	11:49:44	5.9E-12	11:49:50	6.1E-12
11:49:56	6.1E-12	11:50:02	6.0E-12	11:50:08	6.0E-12	11:50:14	6.0E-12	11:50:20	6.0E-12	11:50:26	6.1E-12
11:50:32	6.1E-12	11:50:38	6.0E-12	11:50:44	6.0E-12	11:50:50	6.5E-12	11:50:56	5.9E-12	11:51:02	5.9E-12
11:51:08	5.9E-12	11:51:14	5.9E-12	11:51:20	5.9E-12	11:51:26	5.9E-12	11:51:32	6.1E-12	11:51:38	6.0E-12
11:51:44	6.0E-12	11:51:50	5.9E-12	11:51:56	6.1E-12	11:52:02	5.9E-12	11:52:08	5.9E-12	11:52:14	6.4E-12
11:52:20	5.6E-12	11:52:26	6.0E-12	11:52:32	6.1E-12	11:52:38	6.3E-12	11:52:44	6.0E-12	11:52:50	6.0E-12
11:52:56	5.9E-12	11:53:02	6.1E-12	11:53:08	5.8E-12	11:53:14	5.9E-12	11:53:20	6.0E-12	11:53:26	6.0E-12
11:53:32	6.0E-12	11:53:38	6.0E-12	11:53:44	5.8E-12	11:53:50	5.8E-12	11:53:56	5.9E-12	11:54:02	6.0E-12
11:54:08	6.0E-12	11:54:14	6.0E-12	11:54:20	5.9E-12	11:54:26	6.2E-12	11:54:32	6.2E-12	11:54:38	6.1E-12
11:54:44	6.0E-12	11:54:50	6.0E-12	11:54:56	5.8E-12	11:55:02	6.0E-12	11:55:08	6.0E-12	11:55:14	6.0E-12
11:55:20	5.8E-12	11:55:26	5.8E-12	11:55:32	5.9E-12	11:55:38	5.9E-12	11:55:44	5.9E-12	11:55:50	6.1E-12
11:55:56	5.9E-12	11:56:02	5.9E-12	11:56:08	5.9E-12	11:56:14	5.9E-12	11:56:20	5.9E-12	11:56:26	5.9E-12
11:56:32	6.0E-12	11:56:38	6.0E-12	11:56:44	6.0E-12	11:56:50	6.0E-12	11:56:56	6.0E-12	11:57:02	6.0E-12
11:57:08	6.0E-12	11:57:14	6.0E-12	11:57:20	6.0E-12	11:57:26	6.0E-12	11:57:32	6.0E-12	11:57:38	6.3E-12
11:57:44	6.0E-12	11:57:50	6.0E-12	11:57:56	6.1E-12	11:58:02	5.9E-12	11:58:08	6.0E-12	11:58:14	6.0E-12
11:58:20	6.0E-12	11:58:26	6.0E-12	11:58:32	5.9E-12	11:58:38	5.9E-12	11:58:44	5.9E-12	11:58:50	6.0E-12
11:58:56	6.0E-12	11:59:02	6.1E-12	11:59:08	5.9E-12	11:59:14	6.0E-12	11:59:20	6.2E-12	11:59:26	5.9E-12
11:59:32	6.1E-12	11:59:38	5.8E-12	11:59:44	5.8E-12	11:59:50	5.8E-12	11:59:56	5.9E-12	12:00:02	6.0E-12

APPENDIX D: ION CHAMBER DATA

Data During Temperature Oscillations - August 1,1994

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
20:30:01	6.02E-12	20:30:07	6.03E-12	20:30:13	6.09E-12	20:30:19	6.10E-12	20:30:25	6.00E-12	20:30:31	6.00E-12
20:30:37	6.09E-12	20:30:43	6.14E-12	20:30:49	6.12E-12	20:30:55	6.17E-12	20:31:01	6.13E-12	20:31:07	6.02E-12
20:31:13	6.01E-12	20:31:19	6.11E-12	20:31:25	5.82E-12	20:31:31	5.91E-12	20:31:37	6.00E-12	20:31:43	6.05E-12
20:31:49	6.10E-12	20:31:55	6.04E-12	20:32:01	5.97E-12	20:32:07	5.97E-12	20:32:13	6.05E-12	20:32:19	6.02E-12
20:32:25	6.02E-12	20:32:31	6.07E-12	20:32:37	6.12E-12	20:32:43	6.09E-12	20:32:49	6.26E-12	20:32:55	6.04E-12
20:33:01	5.95E-12	20:33:07	5.98E-12	20:33:13	5.99E-12	20:33:19	5.97E-12	20:33:25	6.00E-12	20:33:31	6.06E-12
20:33:37	6.10E-12	20:33:43	6.11E-12	20:33:49	6.03E-12	20:33:55	5.88E-12	20:34:01	6.42E-12	20:34:07	6.01E-12
20:34:13	6.19E-12	20:34:19	5.96E-12	20:34:25	6.19E-12	20:34:31	5.92E-12	20:34:37	5.98E-12	20:34:43	6.03E-12
20:34:49	5.98E-12	20:34:55	5.94E-12	20:35:01	5.93E-12	20:35:07	6.19E-12	20:35:13	5.85E-12	20:35:19	5.98E-12
20:35:25	6.01E-12	20:35:31	6.42E-12	20:35:37	5.83E-12	20:35:43	5.90E-12	20:35:49	5.92E-12	20:35:55	6.26E-12
20:36:01	6.00E-12	20:36:07	6.02E-12	20:36:13	5.99E-12	20:36:19	5.99E-12	20:36:25	6.02E-12	20:36:31	6.04E-12
20:36:37	6.11E-12	20:36:43	6.11E-12	20:36:49	6.11E-12	20:36:55	6.17E-12	20:37:01	6.15E-12	20:37:07	6.18E-12
20:37:13	5.91E-12	20:37:19	5.95E-12	20:37:25	6.25E-12	20:37:31	5.86E-12	20:37:37	5.98E-12	20:37:43	6.42E-12
20:37:49	5.91E-12	20:37:55	6.00E-12	20:38:01	6.06E-12	20:38:07	5.96E-12	20:38:13	6.02E-12	20:38:19	6.10E-12
20:38:25	6.11E-12	20:38:31	6.05E-12	20:38:37	6.02E-12	20:38:43	6.03E-12	20:38:49	6.08E-12	20:38:55	6.11E-12
20:39:01	6.08E-12	20:39:07	6.11E-12	20:39:13	6.05E-12	20:39:19	6.04E-12	20:39:25	6.14E-12	20:39:31	6.18E-12
20:39:37	6.13E-12	20:39:43	6.02E-12	20:39:49	6.20E-12	20:39:55	6.14E-12	20:40:01	5.94E-12	20:40:07	6.03E-12
20:40:13	5.85E-12	20:40:19	5.99E-12	20:40:25	6.18E-12	20:40:31	5.97E-12	20:40:37	5.95E-12	20:40:43	6.02E-12
20:40:49	6.02E-12	20:40:55	6.00E-12	20:41:01	6.17E-12	20:41:07	5.78E-12	20:41:13	5.95E-12	20:41:19	5.95E-12
20:41:25	6.06E-12	20:41:31	6.10E-12	20:41:37	6.06E-12	20:41:43	6.05E-12	20:41:49	6.07E-12	20:41:55	6.04E-12
20:42:01	6.07E-12	20:42:07	6.05E-12	20:42:13	6.04E-12	20:42:19	6.05E-12	20:42:25	6.06E-12	20:42:31	6.05E-12
20:42:37	6.04E-12	20:42:43	5.99E-12	20:42:49	5.99E-12	20:42:55	6.04E-12	20:43:01	6.01E-12	20:43:07	6.01E-12
20:43:13	6.06E-12	20:43:19	6.09E-12	20:43:25	6.10E-12	20:43:31	6.04E-12	20:43:37	6.03E-12	20:43:43	6.06E-12
20:43:49	6.06E-12	20:43:55	5.98E-12	20:44:01	6.06E-12	20:44:07	6.09E-12	20:44:13	6.10E-12	20:44:19	6.07E-12
20:44:25	5.69E-12	20:44:31	5.88E-12	20:44:37	6.01E-12	20:44:43	6.10E-12	20:44:49	6.12E-12	20:44:55	6.08E-12
20:45:01	6.02E-12	20:45:07	6.06E-12	20:45:13	6.08E-12	20:45:19	6.10E-12	20:45:25	6.09E-12	20:45:31	6.05E-12
20:45:37	5.99E-12	20:45:43	6.04E-12	20:45:49	6.12E-12	20:45:55	6.06E-12	20:46:01	6.03E-12	20:46:07	6.01E-12
20:46:13	5.97E-12	20:46:19	5.96E-12	20:46:25	5.98E-12	20:46:31	6.06E-12	20:46:37	6.05E-12	20:46:43	6.04E-12
20:46:49	6.09E-12	20:46:55	6.04E-12	20:47:01	6.05E-12	20:47:07	6.12E-12	20:47:13	6.14E-12	20:47:19	6.05E-12
20:47:25	5.99E-12	20:47:31	6.00E-12	20:47:37	6.51E-12	20:47:43	6.14E-12	20:47:49	5.84E-12	20:47:55	5.94E-12
20:48:01	5.99E-12	20:48:07	6.41E-12	20:48:13	6.32E-12	20:48:19	6.23E-12	20:48:25	6.22E-12	20:48:31	6.20E-12
20:48:37	6.15E-12	20:48:43	6.09E-12	20:48:49	6.15E-12	20:48:55	6.15E-12	20:49:01	6.07E-12	20:49:07	6.10E-12
20:49:13	6.19E-12	20:49:19	6.08E-12	20:49:25	6.14E-12	20:49:31	6.10E-12	20:49:37	6.17E-12	20:49:43	6.11E-12
20:49:49	6.33E-12	20:49:55	6.01E-12	20:50:01	6.35E-12	20:50:07	6.27E-12	20:50:13	6.27E-12	20:50:19	6.10E-12
20:50:25	6.00E-12	20:50:31	6.13E-12	20:50:37	6.11E-12	20:50:43	6.53E-12	20:50:49	6.09E-12	20:50:55	6.36E-12
20:51:01	6.31E-12	20:51:07	6.04E-12	20:51:13	6.43E-12	20:51:19	6.36E-12	20:51:25	6.25E-12	20:51:31	6.07E-12
20:51:37	6.32E-12	20:51:43	6.18E-12	20:51:49	6.17E-12	20:51:55	6.23E-12	20:52:01	6.23E-12	20:52:07	6.19E-12
20:52:13	6.15E-12	20:52:19	6.15E-12	20:52:25	6.14E-12	20:52:31	6.17E-12	20:52:37	6.11E-12	20:52:43	6.13E-12
20:52:49	6.16E-12	20:52:55	6.14E-12	20:53:01	5.92E-12	20:53:07	6.19E-12	20:53:13	6.19E-12	20:53:19	6.22E-12
20:53:25	6.24E-12	20:53:31	6.18E-12	20:53:37	6.14E-12	20:53:43	6.08E-12	20:53:49	6.07E-12	20:53:55	6.14E-12
20:54:01	6.13E-12	20:54:07	6.33E-12	20:54:13	6.25E-12	20:54:19	6.17E-12	20:54:25	6.18E-12	20:54:31	6.20E-12

APPENDIX D: ION CHAMBER DATA

Data During Temperature Oscillations - August 1,1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
20:54:37	6.23E-12	20:54:43	5.98E-12	20:54:49	6.28E-12	20:54:55	6.00E-12	20:55:01	6.28E-12	20:55:07	6.26E-12
20:55:13	5.99E-12	20:55:19	5.91E-12	20:55:25	6.06E-12	20:55:31	6.14E-12	20:55:37	6.13E-12	20:55:43	6.13E-12
20:55:49	6.10E-12	20:55:55	6.13E-12	20:56:01	6.14E-12	20:56:07	6.37E-12	20:56:13	6.32E-12	20:56:19	6.31E-12
20:56:25	6.23E-12	20:56:31	6.27E-12	20:56:37	6.28E-12	20:56:43	6.25E-12	20:56:49	6.12E-12	20:56:55	6.16E-12
20:57:01	6.16E-12	20:57:07	6.18E-12	20:57:13	6.17E-12	20:57:19	6.49E-12	20:57:25	6.07E-12	20:57:31	6.08E-12
20:57:37	6.09E-12	20:57:43	6.15E-12	20:57:49	6.18E-12	20:57:55	6.15E-12	20:58:01	6.29E-12	20:58:07	5.96E-12
20:58:13	6.25E-12	20:58:19	6.18E-12	20:58:25	6.17E-12	20:58:31	6.21E-12	20:58:37	6.26E-12	20:58:43	6.27E-12
20:58:49	6.27E-12	20:58:55	6.20E-12	20:59:01	6.15E-12	20:59:07	6.24E-12	20:59:13	6.27E-12	20:59:19	6.26E-12
20:59:25	6.22E-12	20:59:31	6.22E-12	20:59:37	6.23E-12	20:59:43	6.23E-12	20:59:49	6.19E-12	20:59:55	5.97E-12
21:00:01	6.08E-12	21:00:07	6.15E-12	21:00:13	6.16E-12	21:00:19	6.76E-12	21:00:25	6.08E-12	21:00:31	6.10E-12
21:00:37	6.11E-12	21:00:43	6.16E-12	21:00:49	6.24E-12	21:00:55	6.23E-12	21:01:01	6.16E-12	21:01:07	6.27E-12
21:01:13	6.19E-12	21:01:19	6.12E-12	21:01:25	6.08E-12	21:01:31	6.12E-12	21:01:37	6.11E-12	21:01:43	6.13E-12
21:01:49	6.20E-12	21:01:55	6.24E-12	21:02:01	5.93E-12	21:02:07	6.40E-12	21:02:13	5.87E-12	21:02:19	5.98E-12
21:02:25	6.02E-12	21:02:31	6.17E-12	21:02:37	6.21E-12	21:02:43	6.40E-12	21:02:49	5.82E-12	21:02:55	5.93E-12
21:03:01	6.07E-12	21:03:07	6.26E-12	21:03:13	6.03E-12	21:03:19	6.09E-12	21:03:25	6.16E-12	21:03:31	6.04E-12
21:03:37	6.08E-12	21:03:43	6.20E-12	21:03:49	6.05E-12	21:03:55	6.04E-12	21:04:01	6.01E-12	21:04:07	6.06E-12
21:04:13	6.07E-12	21:04:19	6.03E-12	21:04:25	5.86E-12	21:04:31	6.09E-12	21:04:37	6.04E-12	21:04:43	6.04E-12
21:04:49	6.09E-12	21:04:55	6.13E-12	21:05:01	6.33E-12	21:05:07	6.10E-12	21:05:13	6.01E-12	21:05:19	6.03E-12
21:05:25	6.08E-12	21:05:31	6.03E-12	21:05:37	6.06E-12	21:05:43	6.16E-12	21:05:49	5.70E-12	21:05:55	5.89E-12
21:06:01	6.00E-12	21:06:07	6.05E-12	21:06:13	6.00E-12	21:06:19	6.04E-12	21:06:25	6.07E-12	21:06:31	5.87E-12
21:06:37	6.40E-12	21:06:43	6.01E-12	21:06:49	6.29E-12	21:06:55	6.38E-12	21:07:01	5.99E-12	21:07:07	5.91E-12
21:07:13	6.00E-12	21:07:19	6.08E-12	21:07:25	6.10E-12	21:07:31	6.09E-12	21:07:37	6.08E-12	21:07:43	6.08E-12
21:07:49	6.07E-12	21:07:55	6.07E-12	21:08:01	6.09E-12	21:08:07	6.15E-12	21:08:13	6.12E-12	21:08:19	6.10E-12
21:08:25	6.10E-12	21:08:31	6.06E-12	21:08:37	6.08E-12	21:08:43	6.09E-12	21:08:49	6.11E-12	21:08:55	6.12E-12
21:09:01	6.14E-12	21:09:07	6.10E-12	21:09:13	6.12E-12	21:09:19	6.13E-12	21:09:25	6.09E-12	21:09:31	6.10E-12
21:09:37	6.11E-12	21:09:43	6.16E-12	21:09:49	6.11E-12	21:09:55	6.08E-12	21:10:01	6.07E-12	21:10:07	6.05E-12
21:10:13	6.02E-12	21:10:19	6.06E-12	21:10:25	6.03E-12	21:10:31	6.06E-12	21:10:37	6.13E-12	21:10:43	6.15E-12
21:10:49	6.11E-12	21:10:55	6.07E-12	21:11:01	6.21E-12	21:11:07	6.09E-12	21:11:13	5.96E-12	21:11:19	6.06E-12
21:11:25	6.32E-12	21:11:31	5.84E-12	21:11:37	5.95E-12	21:11:43	6.02E-12	21:11:49	6.07E-12	21:11:55	5.88E-12
21:12:01	6.38E-12	21:12:07	6.22E-12	21:12:13	6.13E-12	21:12:19	6.06E-12	21:12:25	6.07E-12	21:12:31	6.03E-12
21:12:37	6.23E-12	21:12:43	6.10E-12	21:12:49	6.05E-12	21:12:55	6.09E-12	21:13:01	6.09E-12	21:13:07	6.12E-12
21:13:13	6.11E-12	21:13:19	6.11E-12	21:13:25	6.11E-12	21:13:31	6.10E-12	21:13:37	6.05E-12	21:13:43	6.03E-12
21:13:49	5.99E-12	21:13:55	5.97E-12	21:14:01	6.02E-12	21:14:07	6.04E-12	21:14:13	6.19E-12	21:14:19	5.88E-12
21:14:25	6.06E-12	21:14:31	6.10E-12	21:14:37	6.11E-12	21:14:43	6.13E-12	21:14:49	6.11E-12	21:14:55	6.13E-12
21:15:01	6.17E-12	21:15:07	6.19E-12	21:15:13	6.17E-12	21:15:19	5.95E-12	21:15:25	6.02E-12	21:15:31	6.10E-12
21:15:37	6.11E-12	21:15:43	6.11E-12	21:15:49	6.07E-12	21:15:55	6.02E-12	21:16:01	6.00E-12	21:16:07	6.07E-12
21:16:13	6.16E-12	21:16:19	6.16E-12	21:16:25	6.10E-12	21:16:31	6.03E-12	21:16:37	6.05E-12	21:16:43	6.05E-12
21:16:49	6.03E-12	21:16:55	6.03E-12	21:17:01	5.99E-12	21:17:07	6.41E-12	21:17:13	6.03E-12	21:17:19	6.12E-12
21:17:25	6.17E-12	21:17:31	6.24E-12	21:17:37	6.21E-12	21:17:43	6.17E-12	21:17:49	6.10E-12	21:17:54	6.14E-12
21:18:01	6.15E-12	21:18:07	6.15E-12	21:18:13	6.12E-12	21:18:19	6.11E-12	21:18:25	6.10E-12	21:18:31	6.10E-12
21:18:37	6.15E-12	21:18:43	6.17E-12	21:18:48	6.04E-12	21:18:55	6.35E-12	21:19:01	6.25E-12	21:19:07	6.22E-12

APPENDIX D: ION CHAMBER DATA

Data During Temperature Oscillations - August 1,1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
21:19:12	6.22E-12	21:19:19	5.92E-12	21:19:25	6.17E-12	21:19:31	6.12E-12	21:19:36	6.17E-12	21:19:42	6.33E-12
21:19:49	5.87E-12	21:19:55	6.42E-12	21:20:00	6.03E-12	21:20:06	6.25E-12	21:20:13	6.23E-12	21:20:19	6.19E-12
21:20:25	6.24E-12	21:20:30	6.27E-12	21:20:36	6.21E-12	21:20:43	6.07E-12	21:20:49	6.07E-12	21:20:54	6.10E-12
21:21:00	6.13E-12	21:21:07	6.12E-12	21:21:13	6.17E-12	21:21:18	6.16E-12	21:21:24	6.45E-12	21:21:30	6.36E-12
21:21:37	6.31E-12	21:21:42	5.99E-12	21:21:48	6.34E-12	21:21:54	6.60E-12	21:22:01	6.12E-12	21:22:06	6.39E-12
21:22:12	6.03E-12	21:22:18	6.32E-12	21:22:24	6.25E-12	21:22:31	6.26E-12	21:22:36	6.23E-12	21:22:42	6.23E-12
21:22:48	6.25E-12	21:22:55	6.24E-12	21:23:00	6.23E-12	21:23:06	6.22E-12	21:23:12	6.20E-12	21:23:18	6.23E-12
21:23:24	6.25E-12	21:23:30	6.26E-12	21:23:36	6.32E-12	21:23:42	6.24E-12	21:23:48	6.17E-12	21:23:54	6.20E-12
21:24:00	6.20E-12	21:24:06	6.08E-12	21:24:12	6.18E-12	21:24:18	6.25E-12	21:24:24	6.28E-12	21:24:30	6.29E-12
21:24:36	6.30E-12	21:24:42	6.31E-12	21:24:48	6.28E-12	21:24:54	6.24E-12	21:25:00	6.23E-12	21:25:06	6.20E-12
21:25:12	6.17E-12	21:25:18	6.20E-12	21:25:24	6.19E-12	21:25:30	6.17E-12	21:25:36	5.97E-12	21:25:42	6.28E-12
21:25:48	6.24E-12	21:25:54	6.20E-12	21:26:00	6.21E-12	21:26:06	6.21E-12	21:26:12	6.21E-12	21:26:18	6.58E-12
21:26:24	6.28E-12	21:26:30	6.26E-12	21:26:36	6.23E-12	21:26:42	6.23E-12	21:26:48	6.24E-12	21:26:54	6.22E-12
21:27:00	6.23E-12	21:27:06	6.23E-12	21:27:12	6.22E-12	21:27:18	6.36E-12	21:27:24	6.25E-12	21:27:30	6.15E-12
21:27:36	6.09E-12	21:27:42	5.90E-12	21:27:48	6.09E-12	21:27:54	6.18E-12	21:28:00	6.39E-12	21:28:06	6.19E-12
21:28:12	6.42E-12	21:28:18	6.37E-12	21:28:24	6.40E-12	21:28:30	5.98E-12	21:28:36	6.06E-12	21:28:42	6.31E-12
21:28:48	6.50E-12	21:28:54	6.45E-12	21:29:00	6.40E-12	21:29:06	6.24E-12	21:29:12	6.17E-12	21:29:18	6.16E-12
21:29:24	6.19E-12	21:29:30	6.22E-12	21:29:36	6.22E-12	21:29:42	6.11E-12	21:29:48	6.41E-12	21:29:54	5.64E-12
21:30:00	6.26E-12	21:30:06	6.22E-12	21:30:12	6.18E-12	21:30:18	6.20E-12	21:30:24	6.16E-12	21:30:30	6.18E-12
21:30:36	6.19E-12	21:30:42	6.20E-12	21:30:48	6.22E-12	21:30:54	6.20E-12	21:31:00	6.17E-12	21:31:06	6.17E-12
21:31:12	6.18E-12	21:31:18	6.19E-12	21:31:24	6.11E-12	21:31:30	6.09E-12	21:31:36	6.17E-12	21:31:42	6.11E-12
21:31:48	6.14E-12	21:31:54	6.11E-12	21:32:00	6.09E-12	21:32:06	6.09E-12	21:32:12	6.10E-12	21:32:18	6.22E-12
21:32:24	6.00E-12	21:32:30	6.36E-12	21:32:36	6.41E-12	21:32:42	6.13E-12	21:32:48	6.08E-12	21:32:54	6.10E-12
21:33:00	6.15E-12	21:33:06	6.21E-12	21:33:12	6.20E-12	21:33:18	6.19E-12	21:33:24	6.11E-12	21:33:30	6.05E-12
21:33:36	6.13E-12	21:33:42	6.12E-12	21:33:48	6.09E-12	21:33:54	6.10E-12	21:34:00	6.19E-12	21:34:06	6.19E-12
21:34:12	6.06E-12	21:34:18	5.81E-12	21:34:24	6.33E-12	21:34:30	6.24E-12	21:34:36	6.15E-12	21:34:42	6.13E-12
21:34:48	6.10E-12	21:34:54	6.05E-12	21:35:00	6.39E-12	21:35:06	6.07E-12	21:35:12	5.98E-12	21:35:18	6.01E-12
21:35:24	6.07E-12	21:35:30	6.12E-12	21:35:36	6.21E-12	21:35:42	5.95E-12	21:35:48	6.29E-12	21:35:54	6.18E-12
21:36:00	6.14E-12	21:36:06	6.09E-12	21:36:12	5.93E-12	21:36:18	6.03E-12	21:36:24	6.24E-12	21:36:30	6.14E-12
21:36:36	6.12E-12	21:36:42	6.14E-12	21:36:48	6.08E-12	21:36:54	6.04E-12	21:37:00	6.02E-12	21:37:06	6.06E-12
21:37:12	6.16E-12	21:37:18	6.15E-12	21:37:24	6.07E-12	21:37:30	5.99E-12	21:37:36	6.01E-12	21:37:42	6.07E-12
21:37:48	6.06E-12	21:37:54	6.07E-12	21:38:00	6.14E-12	21:38:06	6.29E-12	21:38:12	6.14E-12	21:38:18	5.96E-12
21:38:24	5.82E-12	21:38:30	5.98E-12	21:38:36	6.37E-12	21:38:42	5.95E-12	21:38:48	5.96E-12	21:38:54	6.28E-12
21:39:00	6.17E-12	21:39:06	6.22E-12	21:39:12	6.17E-12	21:39:18	6.11E-12	21:39:24	5.74E-12	21:39:30	6.32E-12
21:39:36	5.94E-12	21:39:42	5.95E-12	21:39:48	6.38E-12	21:39:54	5.98E-12	21:40:00	5.98E-12	21:40:06	5.97E-12
21:40:12	5.99E-12	21:40:18	6.04E-12	21:40:24	6.11E-12	21:40:30	6.10E-12	21:40:36	6.01E-12	21:40:42	6.00E-12
21:40:48	6.02E-12	21:40:54	6.11E-12	21:41:00	5.81E-12	21:41:06	6.06E-12	21:41:12	6.29E-12	21:41:18	6.20E-12
21:41:24	6.13E-12	21:41:30	6.12E-12	21:41:36	6.09E-12	21:41:42	6.02E-12	21:41:48	6.02E-12	21:41:54	6.06E-12
21:42:00	6.07E-12	21:42:06	6.07E-12	21:42:12	6.06E-12	21:42:18	6.10E-12	21:42:24	6.12E-12	21:42:30	6.10E-12
21:42:36	6.13E-12	21:42:42	6.15E-12	21:42:48	6.16E-12	21:42:54	6.17E-12	21:43:00	6.14E-12	21:43:06	6.09E-12
21:43:12	6.09E-12	21:43:18	6.10E-12	21:43:24	6.09E-12	21:43:30	6.05E-12	21:43:36	6.03E-12	21:43:42	6.04E-12

APPENDIX D: ION CHAMBER DATA

Data During Temperature Oscillations - August 1, 1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
21:43:48	6.33E-12	21:43:54	6.04E-12	21:44:00	5.92E-12	21:44:06	6.33E-12	21:44:12	6.41E-12	21:44:18	6.08E-12
21:44:24	6.07E-12	21:44:30	6.12E-12	21:44:36	6.37E-12	21:44:42	6.04E-12	21:44:48	6.03E-12	21:44:54	6.04E-12
21:45:00	6.02E-12	21:45:06	6.02E-12	21:45:12	6.05E-12	21:45:18	6.08E-12	21:45:24	6.06E-12	21:45:30	6.10E-12
21:45:36	6.14E-12	21:45:42	6.06E-12	21:45:48	6.07E-12	21:45:54	6.15E-12	21:46:00	6.18E-12	21:46:06	6.49E-12
21:46:12	5.77E-12	21:46:18	6.47E-12	21:46:24	5.76E-12	21:46:30	5.88E-12	21:46:36	6.25E-12	21:46:42	6.03E-12
21:46:48	6.13E-12	21:46:54	6.13E-12	21:47:00	6.18E-12	21:47:06	6.23E-12	21:47:12	6.30E-12	21:47:18	6.29E-12
21:47:24	6.19E-12	21:47:30	6.11E-12	21:47:36	6.13E-12	21:47:42	6.13E-12	21:47:48	6.15E-12	21:47:54	6.16E-12
21:48:00	6.15E-12	21:48:06	6.17E-12	21:48:12	6.16E-12	21:48:18	6.12E-12	21:48:24	6.21E-12	21:48:30	6.18E-12
21:48:36	6.18E-12	21:48:42	6.20E-12	21:48:48	6.20E-12	21:48:54	6.23E-12	21:49:00	6.26E-12	21:49:06	6.23E-12
21:49:12	6.23E-12	21:49:18	6.23E-12	21:49:24	6.22E-12	21:49:30	6.01E-12	21:49:36	6.13E-12	21:49:42	6.28E-12
21:49:48	6.22E-12	21:49:54	6.15E-12	21:50:00	6.10E-12	21:50:06	6.11E-12	21:50:12	6.20E-12	21:50:18	6.49E-12
21:50:24	5.90E-12	21:50:30	6.02E-12	21:50:36	6.18E-12	21:50:42	6.25E-12	21:50:48	6.29E-12	21:50:54	6.31E-12
21:51:00	6.29E-12	21:51:06	6.26E-12	21:51:12	6.34E-12	21:51:18	6.10E-12	21:51:24	6.13E-12	21:51:30	6.16E-12
21:51:36	6.37E-12	21:51:42	6.31E-12	21:51:48	6.21E-12	21:51:54	6.14E-12	21:52:00	6.21E-12	21:52:06	6.29E-12
21:52:12	6.31E-12	21:52:18	6.34E-12	21:52:24	6.34E-12	21:52:30	6.28E-12	21:52:36	6.22E-12	21:52:42	6.13E-12
21:52:48	6.10E-12	21:52:54	6.14E-12	21:53:00	6.20E-12	21:53:06	6.17E-12	21:53:12	6.18E-12	21:53:18	6.21E-12
21:53:24	6.30E-12	21:53:30	6.04E-12	21:53:36	6.12E-12	21:53:42	6.22E-12	21:53:48	6.23E-12	21:53:54	6.16E-12
21:54:00	6.17E-12	21:54:06	6.21E-12	21:54:12	6.20E-12	21:54:18	6.13E-12	21:54:24	6.16E-12	21:54:30	6.19E-12
21:54:36	6.23E-12	21:54:42	6.05E-12	21:54:48	6.20E-12	21:54:54	6.17E-12	21:55:00	6.25E-12	21:55:06	5.99E-12
21:55:12	6.20E-12	21:55:18	6.13E-12	21:55:24	5.78E-12	21:55:30	6.19E-12	21:55:36	6.43E-12	21:55:42	6.35E-12
21:55:48	6.24E-12	21:55:54	6.20E-12	21:56:00	6.31E-12	21:56:06	5.92E-12	21:56:12	6.27E-12	21:56:18	6.39E-12
21:56:24	5.98E-12	21:56:30	6.09E-12	21:56:36	6.19E-12	21:56:42	6.21E-12	21:56:48	6.19E-12	21:56:54	6.23E-12
21:57:00	6.26E-12	21:57:06	6.22E-12	21:57:12	6.24E-12	21:57:18	6.21E-12	21:57:24	6.12E-12	21:57:30	6.24E-12
21:57:36	6.19E-12	21:57:42	6.17E-12	21:57:48	6.18E-12	21:57:54	6.13E-12	21:58:00	6.07E-12	21:58:06	6.01E-12
21:58:12	6.09E-12	21:58:18	6.17E-12	21:58:24	6.19E-12	21:58:30	6.19E-12	21:58:36	6.15E-12	21:58:42	6.14E-12
21:58:48	6.14E-12	21:58:54	6.13E-12	21:59:00	6.03E-12	21:59:06	5.69E-12	21:59:12	5.94E-12	21:59:18	5.97E-12
21:59:24	6.02E-12	21:59:30	6.08E-12	21:59:36	5.99E-12	21:59:42	6.01E-12	21:59:48	6.05E-12	21:59:54	6.22E-12
22:00:00	6.11E-12	22:00:06	6.03E-12	22:00:12	6.00E-12	22:00:18	6.04E-12	22:00:24	6.09E-12	22:00:30	6.09E-12
22:00:36	6.03E-12	22:00:42	6.14E-12	22:00:48	6.17E-12	22:00:54	6.10E-12	22:01:00	6.07E-12	22:01:06	6.07E-12
22:01:12	6.00E-12	22:01:18	6.07E-12	22:01:24	6.10E-12	22:01:30	6.08E-12	22:01:36	6.09E-12	22:01:42	6.07E-12
22:01:48	6.12E-12	22:01:54	6.10E-12	22:02:00	6.08E-12	22:02:06	6.04E-12	22:02:12	6.03E-12	22:02:18	6.04E-12
22:02:24	5.97E-12	22:02:30	5.99E-12	22:02:36	6.04E-12	22:02:42	6.17E-12	22:02:48	5.96E-12	22:02:54	6.01E-12
22:03:00	6.05E-12	22:03:06	6.04E-12	22:03:12	6.12E-12	22:03:18	6.08E-12	22:03:24	6.35E-12	22:03:30	5.90E-12
22:03:36	6.01E-12	22:03:42	6.12E-12	22:03:48	6.05E-12	22:03:54	5.97E-12	22:04:00	5.92E-12	22:04:06	6.23E-12
22:04:12	5.98E-12	22:04:18	6.01E-12	22:04:24	6.01E-12	22:04:30	6.03E-12	22:04:36	6.02E-12	22:04:42	6.10E-12
22:04:48	6.11E-12	22:04:54	6.06E-12	22:05:00	6.20E-12	22:05:06	6.06E-12	22:05:12	6.06E-12	22:05:18	6.03E-12
22:05:24	6.01E-12	22:05:30	6.00E-12	22:05:36	6.04E-12	22:05:42	6.00E-12	22:05:48	6.01E-12	22:05:54	6.07E-12
22:06:00	6.08E-12	22:06:06	6.10E-12	22:06:12	6.06E-12	22:06:18	6.07E-12	22:06:24	6.09E-12	22:06:30	6.06E-12
22:06:36	6.07E-12	22:06:42	6.06E-12	22:06:48	5.87E-12	22:06:54	5.90E-12	22:07:00	6.12E-12	22:07:06	6.06E-12
22:07:12	5.91E-12	22:07:18	6.05E-12	22:07:24	6.01E-12	22:07:30	6.00E-12	22:07:36	6.03E-12	22:07:42	6.06E-12
22:07:48	6.05E-12	22:07:54	6.05E-12	22:08:00	5.94E-12	22:08:06	5.99E-12	22:08:12	6.02E-12	22:08:18	6.00E-12

APPENDIX D: ION CHAMBER DATA

Data During Temperature Oscillations - August 1,1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
22:08:24	6.02E-12	22:08:30	6.00E-12	22:08:36	5.79E-12	22:08:42	6.00E-12	22:08:48	6.03E-12	22:08:54	5.97E-12
22:09:00	6.30E-12	22:09:06	6.28E-12	22:09:12	6.16E-12	22:09:18	6.12E-12	22:09:24	6.10E-12	22:09:30	6.10E-12
22:09:36	6.06E-12	22:09:42	6.10E-12	22:09:48	6.12E-12	22:09:54	6.04E-12	22:10:00	6.04E-12	22:10:06	6.05E-12
22:10:12	6.08E-12	22:10:18	6.07E-12	22:10:24	6.11E-12	22:10:30	6.11E-12	22:10:36	6.18E-12	22:10:42	5.99E-12
22:10:48	5.96E-12	22:10:54	5.88E-12	22:11:00	5.95E-12	22:11:06	6.00E-12	22:11:12	6.03E-12	22:11:18	5.99E-12
22:11:24	6.00E-12	22:11:30	6.21E-12	22:11:36	6.14E-12	22:11:42	6.11E-12	22:11:48	6.12E-12	22:11:54	6.06E-12
22:12:00	6.01E-12	22:12:06	5.98E-12	22:12:12	5.96E-12	22:12:18	6.01E-12	22:12:24	6.02E-12	22:12:30	6.02E-12
22:12:36	6.05E-12	22:12:42	6.04E-12	22:12:48	6.02E-12	22:12:54	6.12E-12	22:13:00	6.13E-12	22:13:06	6.10E-12
22:13:12	6.16E-12	22:13:18	6.19E-12	22:13:24	6.20E-12	22:13:30	6.00E-12	22:13:36	6.03E-12	22:13:42	5.82E-12
22:13:48	5.94E-12	22:13:54	5.99E-12	22:14:00	6.15E-12	22:14:06	6.19E-12	22:14:12	6.03E-12	22:14:18	5.96E-12
22:14:24	5.98E-12	22:14:30	6.03E-12	22:14:36	6.07E-12	22:14:42	6.14E-12	22:14:48	6.20E-12	22:14:54	5.88E-12
22:15:00	6.05E-12	22:15:06	5.99E-12	22:15:12	5.96E-12	22:15:18	5.97E-12	22:15:24	6.00E-12	22:15:30	6.07E-12
22:15:36	6.05E-12	22:15:42	6.01E-12	22:15:48	6.00E-12	22:15:54	6.04E-12	22:16:00	6.01E-12	22:16:06	5.99E-12
22:16:12	6.01E-12	22:16:18	6.03E-12	22:16:24	6.06E-12	22:16:30	6.23E-12	22:16:36	6.05E-12	22:16:42	6.32E-12
22:16:48	6.19E-12	22:16:54	6.13E-12	22:17:00	6.11E-12	22:17:06	6.04E-12	22:17:12	6.06E-12	22:17:18	5.83E-12
22:17:24	5.94E-12	22:17:30	6.01E-12	22:17:36	6.02E-12	22:17:42	6.02E-12	22:17:48	6.16E-12	22:17:54	6.16E-12
22:18:00	6.09E-12	22:18:06	6.02E-12	22:18:12	6.10E-12	22:18:18	6.42E-12	22:18:24	6.22E-12	22:18:30	6.18E-12
22:18:36	6.10E-12	22:18:42	6.06E-12	22:18:48	6.07E-12	22:18:54	6.03E-12	22:19:00	6.02E-12	22:19:06	6.09E-12
22:19:12	6.10E-12	22:19:18	6.10E-12	22:19:24	6.03E-12	22:19:30	6.03E-12	22:19:36	6.10E-12	22:19:42	6.06E-12
22:19:48	5.95E-12	22:19:54	6.01E-12	22:20:00	6.71E-12	22:20:06	6.06E-12	22:20:12	6.03E-12	22:20:18	6.04E-12
22:20:24	6.26E-12	22:20:30	6.02E-12	22:20:36	6.11E-12	22:20:42	6.06E-12	22:20:48	6.08E-12	22:20:54	6.03E-12
22:21:00	6.01E-12	22:21:06	6.06E-12	22:21:12	6.09E-12	22:21:18	6.07E-12	22:21:24	6.05E-12	22:21:30	6.02E-12
22:21:36	6.03E-12	22:21:42	6.05E-12	22:21:48	6.08E-12	22:21:54	6.03E-12	22:22:00	6.02E-12	22:22:06	6.05E-12
22:22:12	6.02E-12	22:22:18	5.98E-12	22:22:24	6.00E-12	22:22:30	6.02E-12	22:22:36	6.09E-12	22:22:42	5.98E-12
22:22:48	6.16E-12	22:22:54	5.60E-12	22:23:00	6.18E-12	22:23:06	6.25E-12	22:23:12	6.04E-12	22:23:18	6.14E-12
22:23:24	5.81E-12	22:23:30	6.19E-12	22:23:36	6.14E-12	22:23:42	6.09E-12	22:23:48	6.03E-12	22:23:54	6.02E-12
22:24:00	6.02E-12	22:24:06	6.06E-12	22:24:12	6.11E-12	22:24:18	6.10E-12	22:24:24	6.12E-12	22:24:30	6.12E-12
22:24:36	6.20E-12	22:24:42	6.20E-12	22:24:48	6.12E-12	22:24:54	6.39E-12	22:25:00	5.94E-12	22:25:06	6.28E-12
22:25:12	6.35E-12	22:25:18	6.25E-12	22:25:24	6.28E-12	22:25:30	5.73E-12	22:25:36	6.15E-12	22:25:42	6.32E-12
22:25:48	6.25E-12	22:25:54	6.22E-12	22:26:00	6.19E-12	22:26:06	6.20E-12	22:26:12	6.23E-12	22:26:18	6.22E-12
22:26:24	6.15E-12	22:26:30	6.16E-12	22:26:36	6.25E-12	22:26:42	6.25E-12	22:26:48	6.26E-12	22:26:54	6.33E-12
22:27:00	6.33E-12	22:27:06	6.10E-12	22:27:12	6.21E-12	22:27:18	6.20E-12	22:27:24	6.20E-12	22:27:30	6.17E-12
22:27:36	6.13E-12	22:27:42	6.39E-12	22:27:48	6.07E-12	22:27:54	6.10E-12	22:28:00	6.06E-12	22:28:06	5.95E-12
22:28:12	6.04E-12	22:28:18	6.29E-12	22:28:24	6.37E-12	22:28:30	6.25E-12	22:28:36	6.20E-12	22:28:42	6.21E-12
22:28:48	6.29E-12	22:28:54	6.19E-12	22:29:00	6.19E-12	22:29:06	6.16E-12	22:29:12	6.35E-12	22:29:18	6.45E-12
22:29:24	6.18E-12	22:29:30	6.11E-12	22:29:36	6.12E-12	22:29:42	6.00E-12	22:29:48	6.06E-12	22:29:54	6.09E-12

APPENDIX D: ION CHAMBER DATA

Effect of Ne Concentration and Flow Rate - April 12,1994

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
14:00:14	3.73E-12	14:00:20	3.15E-12	14:00:26	3.92E-12	14:00:32	3.88E-12	14:00:38	3.79E-12	14:00:44	3.83E-12
14:00:50	3.81E-12	14:00:56	3.82E-12	14:01:02	3.79E-12	14:01:08	3.33E-12	14:01:14	4.01E-12	14:01:20	3.54E-12
14:01:26	4.07E-12	14:01:32	3.99E-12	14:01:38	3.94E-12	14:01:44	3.91E-12	14:01:50	3.92E-12	14:01:56	3.89E-12
14:02:02	3.84E-12	14:02:08	3.76E-12	14:02:14	4.28E-12	14:02:20	3.66E-12	14:02:26	3.70E-12	14:02:32	3.77E-12
14:02:38	3.79E-12	14:02:44	3.79E-12	14:02:50	3.74E-12	14:02:56	3.81E-12	14:03:02	3.82E-12	14:03:08	3.82E-12
14:03:14	4.02E-12	14:03:20	3.98E-12	14:03:26	3.94E-12	14:03:32	3.91E-12	14:03:38	3.95E-12	14:03:44	3.90E-12
14:03:50	3.88E-12	14:03:56	3.85E-12	14:04:02	3.69E-12	14:04:08	3.65E-12	14:04:14	3.72E-12	14:04:20	3.76E-12
14:04:26	3.76E-12	14:04:32	3.80E-12	14:04:38	3.81E-12	14:04:44	3.82E-12	14:04:50	3.80E-12	14:04:56	3.79E-12
14:05:02	3.80E-12	14:05:08	3.75E-12	14:05:14	3.72E-12	14:05:20	3.68E-12	14:05:26	4.35E-12	14:05:32	3.71E-12
14:05:38	3.78E-12	14:05:44	3.82E-12	14:05:50	3.76E-12	14:05:56	3.72E-12	14:06:02	3.69E-12	14:06:08	3.72E-12
14:06:14	3.82E-12	14:06:20	3.86E-12	14:06:26	3.84E-12	14:06:32	3.80E-12	14:06:38	3.85E-12	14:06:44	4.36E-12
14:06:50	3.97E-12	14:06:56	3.88E-12	14:07:02	3.86E-12	14:07:08	3.77E-12	14:07:14	3.70E-12	14:07:20	3.55E-12
14:07:26	3.63E-12	14:07:32	3.73E-12	14:07:38	3.32E-12	14:07:44	3.47E-12	14:07:50	3.70E-12	14:07:56	3.72E-12
14:08:02	3.81E-12	14:08:08	3.79E-12	14:08:14	3.79E-12	14:08:20	3.76E-12	14:08:26	3.86E-12	14:08:32	3.89E-12
14:08:38	3.93E-12	14:08:44	3.92E-12	14:08:50	3.86E-12	14:08:56	3.85E-12	14:09:02	3.84E-12	14:09:08	3.80E-12
14:09:14	4.45E-12	14:09:20	4.24E-12	14:09:26	3.44E-12	14:09:32	3.91E-12	14:09:38	3.85E-12	14:09:44	3.82E-12
14:09:50	3.85E-12	14:09:56	3.86E-12	14:10:02	3.91E-12	14:10:08	3.82E-12	14:10:14	3.61E-12	14:10:20	3.52E-12
14:10:26	4.05E-12	14:10:32	3.55E-12	14:10:38	3.65E-12	14:10:44	4.19E-12	14:10:50	3.63E-12	14:10:56	3.76E-12
14:11:02	3.84E-12	14:11:08	3.82E-12	14:11:14	3.78E-12	14:11:20	3.82E-12	14:11:26	3.80E-12	14:11:32	3.83E-12
14:11:38	3.88E-12	14:11:44	3.99E-12	14:11:50	3.97E-12	14:11:56	3.94E-12	14:12:02	3.89E-12	14:12:08	3.82E-12
14:12:14	3.71E-12	14:12:20	4.20E-12	14:12:26	3.75E-12	14:12:32	3.78E-12	14:12:38	3.80E-12	14:12:44	3.83E-12
14:12:50	3.89E-12	14:12:56	3.80E-12	14:13:02	3.78E-12	14:13:08	3.75E-12	14:13:14	3.74E-12	14:13:20	3.66E-12
14:13:26	3.71E-12	14:13:32	3.77E-12	14:13:38	3.75E-12	14:13:44	3.85E-12	14:13:50	3.95E-12	14:13:56	3.87E-12
14:14:02	3.83E-12	14:14:08	3.85E-12	14:14:14	3.79E-12	14:14:20	3.51E-12	14:14:26	3.94E-12	14:14:32	3.82E-12
14:14:38	3.77E-12	14:14:44	3.97E-12	14:14:50	3.51E-12	14:14:56	3.97E-12	14:15:02	3.91E-12	14:15:08	3.89E-12
14:15:14	3.88E-12	14:15:20	3.91E-12	14:15:26	3.89E-12	14:15:32	3.60E-12	14:15:38	3.64E-12	14:15:44	3.74E-12
14:15:50	3.82E-12	14:15:56	4.31E-12	14:16:02	4.23E-12	14:16:08	4.16E-12	14:16:14	4.15E-12	14:16:20	3.58E-12
14:16:26	3.61E-12	14:16:32	4.23E-12	14:16:38	3.62E-12	14:16:44	3.70E-12	14:16:50	3.70E-12	14:16:56	3.76E-12
14:17:02	3.82E-12	14:17:08	3.77E-12	14:17:14	3.22E-12	14:17:20	3.80E-12	14:17:26	3.80E-12	14:17:32	3.70E-12
14:17:38	3.70E-12	14:17:44	3.68E-12	14:17:50	3.69E-12	14:17:56	3.72E-12	14:18:02	3.71E-12	14:18:08	3.74E-12
14:18:14	3.78E-12	14:18:20	3.50E-12	14:18:26	3.60E-12	14:18:32	3.73E-12	14:18:38	3.84E-12	14:18:44	3.84E-12
14:18:50	3.81E-12	14:18:56	3.83E-12	14:19:02	3.86E-12	14:19:08	3.89E-12	14:19:14	3.86E-12	14:19:20	3.85E-12
14:19:26	3.80E-12	14:19:32	3.78E-12	14:19:38	3.74E-12	14:19:44	3.75E-12	14:19:50	3.78E-12	14:19:56	3.85E-12
14:20:02	3.89E-12	14:20:08	3.84E-12	14:20:14	4.28E-12	14:20:20	4.27E-12	14:20:26	3.99E-12	14:20:32	3.92E-12
14:20:38	3.89E-12	14:20:44	3.87E-12	14:20:50	3.90E-12	14:20:56	3.80E-12	14:21:02	3.81E-12	14:21:08	3.58E-12
14:21:14	3.64E-12	14:21:20	3.78E-12	14:21:26	4.23E-12	14:21:32	4.03E-12	14:21:38	4.10E-12	14:21:44	4.72E-12
14:21:50	4.33E-12	14:21:56	4.93E-12	14:22:02	5.36E-12	14:22:08	6.06E-12	14:22:14	6.71E-12	14:22:20	7.28E-12
14:22:26	8.48E-12	14:22:32	9.37E-12	14:22:38	1.11E-11	14:22:44	1.15E-11	14:22:50	1.32E-11	14:22:56	1.41E-11
14:23:02	1.52E-11	14:23:08	1.61E-11	14:23:14	1.67E-11	14:23:20	1.75E-11	14:23:26	1.92E-11	14:23:32	1.90E-11
14:23:38	2.04E-11	14:23:44	2.12E-11	14:23:50	2.18E-11	14:23:56	2.23E-11	14:24:02	2.32E-11	14:24:08	2.34E-11
14:24:14	2.47E-11	14:24:20	2.49E-11	14:24:26	2.54E-11	14:24:32	2.49E-11	14:24:38	2.59E-11	14:24:44	2.63E-11

APPENDIX D: ION CHAMBER DATA

Effect of Ne Concentration and Flow Rate - April 12,1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
14:24:50	2.60E-11	14:24:56	2.63E-11	14:25:02	2.69E-11	14:25:08	2.73E-11	14:25:14	2.73E-11	14:25:20	2.80E-11
14:25:26	2.82E-11	14:25:32	2.75E-11	14:25:38	2.81E-11	14:25:44	2.86E-11	14:25:50	2.83E-11	14:25:56	2.88E-11
14:26:02	2.92E-11	14:26:08	2.82E-11	14:26:14	2.88E-11	14:26:20	2.81E-11	14:26:26	2.87E-11	14:26:32	2.92E-11
14:26:38	2.87E-11	14:26:44	2.88E-11	14:26:49	2.82E-11	14:26:56	2.85E-11	14:27:02	2.77E-11	14:27:08	2.96E-11
14:27:13	2.85E-11	14:27:20	2.93E-11	14:27:26	2.97E-11	14:27:32	2.88E-11	14:27:37	2.96E-11	14:27:43	2.90E-11
14:27:50	2.88E-11	14:27:56	2.89E-11	14:28:02	2.88E-11	14:28:07	2.93E-11	14:28:14	2.93E-11	14:28:20	2.92E-11
14:28:26	2.92E-11	14:28:31	3.00E-11	14:28:37	2.88E-11	14:28:44	2.99E-11	14:28:50	2.87E-11	14:28:55	2.88E-11
14:29:01	2.90E-11	14:29:08	2.92E-11	14:29:14	2.97E-11	14:29:19	2.95E-11	14:29:25	2.87E-11	14:29:31	2.96E-11
14:29:38	2.93E-11	14:29:43	2.91E-11	14:29:49	2.87E-11	14:29:55	2.83E-11	14:30:02	2.90E-11	14:30:07	2.95E-11
14:30:13	3.01E-11	14:30:19	3.02E-11	14:30:25	2.98E-11	14:30:32	2.97E-11	14:30:37	2.82E-11	14:30:43	2.96E-11
14:30:49	2.87E-11	14:30:56	2.88E-11	14:31:01	2.86E-11	14:31:07	3.01E-11	14:31:13	2.94E-11	14:31:19	3.08E-11
14:31:25	3.05E-11	14:31:31	2.88E-11	14:31:37	2.93E-11	14:31:43	2.91E-11	14:31:49	2.97E-11	14:31:55	2.92E-11
14:32:01	2.95E-11	14:32:07	2.93E-11	14:32:13	3.03E-11	14:32:19	2.95E-11	14:32:25	2.93E-11	14:32:31	2.99E-11
14:32:37	2.94E-11	14:32:43	2.97E-11	14:32:49	2.98E-11	14:32:55	2.97E-11	14:33:01	2.88E-11	14:33:07	2.84E-11
14:33:13	2.92E-11	14:33:19	2.99E-11	14:33:25	2.99E-11	14:33:31	2.94E-11	14:33:37	2.94E-11	14:33:43	2.89E-11
14:33:49	2.95E-11	14:33:55	2.85E-11	14:34:01	3.00E-11	14:34:07	2.99E-11	14:34:13	3.04E-11	14:34:19	2.95E-11
14:34:25	2.97E-11	14:34:31	2.88E-11	14:34:37	3.00E-11	14:34:43	2.91E-11	14:34:49	2.92E-11	14:34:55	2.93E-11
14:35:01	3.05E-11	14:35:07	2.86E-11	14:35:13	2.85E-11	14:35:19	3.00E-11	14:35:25	2.89E-11	14:35:31	2.96E-11
14:35:37	2.93E-11	14:35:43	3.01E-11	14:35:49	2.93E-11	14:35:55	2.98E-11	14:36:01	2.94E-11	14:36:07	2.88E-11
14:36:13	2.93E-11	14:36:19	2.99E-11	14:36:25	3.06E-11	14:36:31	2.90E-11	14:36:37	2.92E-11	14:36:43	3.06E-11
14:36:49	3.07E-11	14:36:55	3.00E-11	14:37:01	2.90E-11	14:37:07	2.99E-11	14:37:13	2.93E-11	14:37:19	2.92E-11
14:37:25	2.97E-11	14:37:31	2.92E-11	14:37:37	3.03E-11	14:37:43	2.95E-11	14:37:49	2.94E-11	14:37:55	2.94E-11
14:38:01	2.97E-11	14:38:07	2.98E-11	14:38:13	3.00E-11	14:38:19	3.04E-11	14:38:25	2.87E-11	14:38:31	2.87E-11
14:38:37	2.89E-11	14:38:43	2.95E-11	14:38:49	2.96E-11	14:38:55	2.92E-11	14:39:01	2.98E-11	14:39:07	2.96E-11
14:39:13	3.04E-11	14:39:19	2.95E-11	14:39:25	2.92E-11	14:39:31	2.96E-11	14:39:37	3.05E-11	14:39:43	2.95E-11
14:39:49	2.93E-11	14:39:55	2.95E-11	14:40:01	2.90E-11	14:40:07	3.08E-11	14:40:13	2.96E-11	14:40:19	2.97E-11
14:40:25	2.89E-11	14:40:31	3.06E-11	14:40:37	2.97E-11	14:40:43	2.95E-11	14:40:49	2.92E-11	14:40:55	2.93E-11
14:41:01	2.91E-11	14:41:07	2.95E-11	14:41:13	3.07E-11	14:41:19	2.98E-11	14:41:25	2.92E-11	14:41:31	2.91E-11
14:41:37	2.94E-11	14:41:43	2.91E-11	14:41:49	2.93E-11	14:41:55	2.97E-11	14:42:01	2.83E-11	14:42:07	2.95E-11
14:42:13	3.01E-11	14:42:19	3.07E-11	14:42:25	3.08E-11	14:42:31	3.01E-11	14:42:37	2.96E-11	14:42:43	2.93E-11
14:42:49	2.92E-11	14:42:55	2.87E-11	14:43:01	2.98E-11	14:43:07	3.00E-11	14:43:13	2.96E-11	14:43:19	2.95E-11
14:43:25	2.94E-11	14:43:31	3.01E-11	14:43:37	2.93E-11	14:43:43	2.97E-11	14:43:49	2.97E-11	14:43:55	3.03E-11
14:44:01	2.95E-11	14:44:07	2.96E-11	14:44:13	2.85E-11	14:44:19	2.89E-11	14:44:25	2.95E-11	14:44:31	3.04E-11
14:44:37	3.01E-11	14:44:43	2.94E-11	14:44:49	3.05E-11	14:44:55	3.05E-11	14:45:01	2.91E-11	14:45:07	2.99E-11
14:45:13	2.94E-11	14:45:19	3.03E-11	14:45:25	3.03E-11	14:45:31	2.97E-11	14:45:37	3.04E-11	14:45:43	3.08E-11
14:45:49	3.02E-11	14:45:55	3.03E-11	14:46:01	3.03E-11	14:46:07	2.97E-11	14:46:13	3.04E-11	14:46:19	2.83E-11
14:46:25	2.97E-11	14:46:31	2.92E-11	14:46:37	2.93E-11	14:46:43	3.02E-11	14:46:49	2.92E-11	14:46:55	2.99E-11
14:47:01	3.02E-11	14:47:07	2.87E-11	14:47:13	2.93E-11	14:47:19	3.08E-11	14:47:25	2.97E-11	14:47:31	3.04E-11
14:47:37	3.04E-11	14:47:43	2.98E-11	14:47:49	3.04E-11	14:47:55	2.95E-11	14:48:01	2.98E-11	14:48:07	3.12E-11
14:48:13	3.00E-11	14:48:19	2.99E-11	14:48:25	3.05E-11	14:48:31	2.99E-11	14:48:37	2.95E-11	14:48:43	2.97E-11
14:48:49	2.96E-11	14:48:55	2.95E-11	14:49:01	2.99E-11	14:49:07	3.01E-11	14:49:13	2.92E-11	14:49:19	3.01E-11

APPENDIX D: ION CHAMBER DATA

Effect of Ne Concentration and Flow Rate - April 12,1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
14:49:25	3.02E-11	14:49:31	2.97E-11	14:49:37	2.95E-11	14:49:43	3.00E-11	14:49:49	2.98E-11	14:49:55	2.99E-11
14:50:01	2.97E-11	14:50:07	2.93E-11	14:50:13	2.99E-11	14:50:19	3.06E-11	14:50:25	2.99E-11	14:50:31	2.97E-11
14:50:37	3.04E-11	14:50:43	2.99E-11	14:50:49	3.05E-11	14:50:55	3.04E-11	14:51:01	2.99E-11	14:51:07	2.89E-11
14:51:13	3.02E-11	14:51:19	3.06E-11	14:51:25	2.95E-11	14:51:31	3.01E-11	14:51:37	3.01E-11	14:51:43	3.03E-11
14:51:49	3.07E-11	14:51:55	2.97E-11	14:52:01	3.02E-11	14:52:07	2.97E-11	14:52:13	3.04E-11	14:52:19	3.05E-11
14:52:25	2.98E-11	14:52:31	2.96E-11	14:52:37	3.03E-11	14:52:43	2.95E-11	14:52:49	3.00E-11	14:52:55	2.96E-11
14:53:01	2.95E-11	14:53:07	2.99E-11	14:53:13	2.96E-11	14:53:19	2.88E-11	14:53:25	2.65E-11	14:53:31	2.70E-11
14:53:37	4.96E-11	14:53:43	4.77E-11	14:53:49	4.44E-11	14:53:55	4.24E-11	14:54:01	3.80E-11	14:54:07	3.72E-11
14:54:13	3.42E-11	14:54:19	3.22E-11	14:54:25	3.22E-11	14:54:31	3.19E-11	14:54:37	3.25E-11	14:54:43	3.18E-11
14:54:49	3.25E-11	14:54:55	3.27E-11	14:55:01	3.28E-11	14:55:07	3.35E-11	14:55:13	3.20E-11	14:55:19	3.05E-11
14:55:25	2.85E-11	14:55:31	2.69E-11	14:55:37	2.25E-11	14:55:43	1.93E-11	14:55:49	1.72E-11	14:55:55	1.82E-11
14:56:01	2.21E-11	14:56:07	2.56E-11	14:56:13	2.74E-11	14:56:19	2.87E-11	14:56:25	2.94E-11	14:56:31	3.15E-11
14:56:37	3.10E-11	14:56:43	3.19E-11	14:56:49	2.99E-11	14:56:55	3.07E-11	14:57:01	3.06E-11	14:57:07	3.12E-11
14:57:13	3.08E-11	14:57:19	2.96E-11	14:57:25	3.04E-11	14:57:31	2.96E-11	14:57:37	3.08E-11	14:57:43	2.95E-11
14:57:49	2.99E-11	14:57:55	2.96E-11	14:58:01	3.00E-11	14:58:07	2.98E-11	14:58:13	3.06E-11	14:58:19	2.98E-11
14:58:25	3.04E-11	14:58:31	3.10E-11	14:58:37	3.04E-11	14:58:43	3.08E-11	14:58:49	3.04E-11	14:58:55	2.89E-11
14:59:01	3.09E-11	14:59:07	2.99E-11	14:59:13	3.04E-11	14:59:19	3.08E-11	14:59:25	2.99E-11	14:59:31	3.03E-11
14:59:37	3.02E-11	14:59:43	3.03E-11	14:59:49	2.98E-11	14:59:55	2.97E-11	15:00:01	3.03E-11	15:00:07	2.87E-11
15:00:13	2.99E-11	15:00:19	3.01E-11	15:00:25	2.95E-11	15:00:31	2.95E-11	15:00:37	2.97E-11	15:00:43	2.99E-11
15:00:49	2.98E-11	15:00:55	3.01E-11	15:01:01	2.96E-11	15:01:07	2.99E-11	15:01:13	3.05E-11	15:01:19	2.98E-11
15:01:25	3.01E-11	15:01:31	3.01E-11	15:01:37	3.02E-11	15:01:43	2.90E-11	15:01:49	3.01E-11	15:01:55	3.10E-11
15:02:01	3.04E-11	15:02:07	2.96E-11	15:02:13	3.00E-11	15:02:19	3.03E-11	15:02:25	3.05E-11	15:02:31	3.00E-11
15:02:37	3.07E-11	15:02:43	3.02E-11	15:02:49	2.99E-11	15:02:55	3.07E-11	15:03:01	2.97E-11	15:03:07	2.87E-11
15:03:13	2.98E-11	15:03:19	2.94E-11	15:03:25	3.07E-11	15:03:31	3.09E-11	15:03:37	3.04E-11	15:03:43	2.97E-11
15:03:49	3.05E-11	15:03:55	3.03E-11	15:04:01	3.02E-11	15:04:07	3.06E-11	15:04:13	3.05E-11	15:04:19	2.98E-11
15:04:25	2.87E-11	15:04:31	3.02E-11	15:04:37	3.02E-11	15:04:43	3.04E-11	15:04:49	2.91E-11	15:04:55	2.95E-11
15:05:01	3.01E-11	15:05:07	2.92E-11	15:05:13	3.02E-11	15:05:19	2.94E-11	15:05:25	2.92E-11	15:05:31	3.05E-11
15:05:37	3.07E-11	15:05:43	3.01E-11	15:05:49	3.10E-11	15:05:55	2.97E-11	15:06:01	3.01E-11	15:06:07	3.07E-11
15:06:13	3.00E-11	15:06:19	3.06E-11	15:06:25	3.04E-11	15:06:31	2.99E-11	15:06:37	2.95E-11	15:06:43	2.95E-11
15:06:49	2.99E-11	15:06:55	3.08E-11	15:07:01	2.89E-11	15:07:07	3.01E-11	15:07:13	2.91E-11	15:07:19	2.92E-11
15:07:25	2.96E-11	15:07:31	2.94E-11	15:07:37	3.04E-11	15:07:43	2.99E-11	15:07:49	3.04E-11	15:07:55	2.99E-11
15:08:01	3.00E-11	15:08:07	2.98E-11	15:08:13	3.10E-11	15:08:19	3.03E-11	15:08:25	2.97E-11	15:08:31	3.03E-11
15:08:37	3.00E-11	15:08:43	2.99E-11	15:08:49	2.95E-11	15:08:55	3.00E-11	15:09:01	3.00E-11	15:09:07	3.01E-11
15:09:13	2.95E-11	15:09:19	3.13E-11	15:09:25	3.01E-11	15:09:31	2.93E-11	15:09:37	2.93E-11	15:09:43	3.05E-11
15:09:49	3.06E-11	15:09:55	3.01E-11	15:10:01	2.93E-11	15:10:07	2.99E-11	15:10:13	3.00E-11	15:10:19	3.05E-11
15:10:25	2.98E-11	15:10:31	2.92E-11	15:10:37	2.96E-11	15:10:43	3.04E-11	15:10:49	2.99E-11	15:10:55	2.97E-11
15:11:01	3.04E-11	15:11:07	3.05E-11	15:11:13	3.02E-11	15:11:19	2.91E-11	15:11:25	2.93E-11	15:11:31	3.00E-11
15:11:37	2.98E-11	15:11:43	3.02E-11	15:11:49	2.97E-11	15:11:55	2.90E-11	15:12:01	2.84E-11	15:12:07	2.74E-11
15:12:13	2.59E-11	15:12:19	2.62E-11	15:12:25	2.64E-11	15:12:31	2.58E-11	15:12:37	2.53E-11	15:12:43	2.51E-11
15:12:49	2.60E-11	15:12:55	2.52E-11	15:13:01	2.51E-11	15:13:07	2.42E-11	15:13:13	2.39E-11	15:13:19	2.44E-11
15:13:25	2.36E-11	15:13:31	2.31E-11	15:13:37	2.33E-11	15:13:43	2.35E-11	15:13:49	2.33E-11	15:13:55	2.38E-11

APPENDIX D: ION CHAMBER DATA

Effect of Ne Concentration and Flow Rate - April 12,1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
15:14:01	2.49E-11	15:14:07	2.60E-11	15:14:13	2.58E-11	15:14:19	2.65E-11	15:14:25	2.74E-11	15:14:31	2.70E-11
15:14:37	2.69E-11	15:14:43	2.77E-11	15:14:49	2.74E-11	15:14:55	2.76E-11	15:15:01	2.80E-11	15:15:07	2.85E-11
15:15:13	2.93E-11	15:15:19	2.79E-11	15:15:25	2.90E-11	15:15:31	2.86E-11	15:15:37	2.85E-11	15:15:43	2.81E-11
15:15:49	2.89E-11	15:15:55	2.88E-11	15:16:01	2.83E-11	15:16:07	2.96E-11	15:16:13	2.94E-11	15:16:19	2.89E-11
15:16:25	2.95E-11	15:16:31	3.11E-11	15:16:37	3.07E-11	15:16:43	3.10E-11	15:16:49	3.14E-11	15:16:55	3.27E-11
15:17:01	3.26E-11	15:17:07	3.38E-11	15:17:13	3.54E-11	15:17:19	3.72E-11	15:17:25	3.69E-11	15:17:31	3.99E-11
15:17:37	3.95E-11	15:17:43	4.08E-11	15:17:49	4.14E-11	15:17:55	4.15E-11	15:18:01	4.33E-11	15:18:07	4.53E-11
15:18:13	4.45E-11	15:18:19	4.61E-11	15:18:25	4.60E-11	15:18:31	4.65E-11	15:18:37	4.74E-11	15:18:43	4.72E-11
15:18:49	4.89E-11	15:18:55	4.79E-11	15:19:01	4.85E-11	15:19:07	4.94E-11	15:19:13	4.96E-11	15:19:19	5.05E-11
15:19:25	4.89E-11	15:19:31	4.98E-11	15:19:37	5.01E-11	15:19:43	5.00E-11	15:19:49	4.94E-11	15:19:55	5.03E-11
15:20:01	5.01E-11	15:20:07	5.07E-11	15:20:13	5.10E-11	15:20:19	5.14E-11	15:20:25	4.99E-11	15:20:31	4.94E-11
15:20:37	5.08E-11	15:20:43	5.12E-11	15:20:49	5.00E-11	15:20:55	5.11E-11	15:21:01	5.15E-11	15:21:07	5.16E-11
15:21:13	5.02E-11	15:21:19	5.00E-11	15:21:25	5.30E-11	15:21:31	5.21E-11	15:21:37	5.07E-11	15:21:43	5.15E-11
15:21:49	5.04E-11	15:21:55	5.04E-11	15:22:01	5.09E-11	15:22:07	5.03E-11	15:22:13	5.10E-11	15:22:19	5.12E-11
15:22:25	4.98E-11	15:22:31	5.07E-11	15:22:37	5.15E-11	15:22:43	4.99E-11	15:22:49	5.15E-11	15:22:55	4.96E-11
15:23:01	5.13E-11	15:23:07	5.10E-11	15:23:13	5.16E-11	15:23:19	5.02E-11	15:23:25	5.07E-11	15:23:31	5.11E-11
15:23:37	5.12E-11	15:23:43	5.15E-11	15:23:49	5.13E-11	15:23:55	5.03E-11	15:24:01	4.98E-11	15:24:07	5.05E-11
15:24:13	5.20E-11	15:24:19	5.20E-11	15:24:25	5.07E-11	15:24:31	5.13E-11	15:24:37	5.21E-11	15:24:43	5.20E-11
15:24:49	5.15E-11	15:24:55	5.15E-11	15:25:01	5.11E-11	15:25:07	5.05E-11	15:25:13	5.21E-11	15:25:19	5.08E-11
15:25:25	5.09E-11	15:25:31	5.19E-11	15:25:37	5.14E-11	15:25:43	5.16E-11	15:25:49	4.98E-11	15:25:55	5.00E-11
15:26:01	5.04E-11	15:26:07	5.20E-11	15:26:13	5.03E-11	15:26:19	5.17E-11	15:26:25	5.17E-11	15:26:31	5.18E-11
15:26:37	5.10E-11	15:26:43	5.20E-11	15:26:49	5.26E-11	15:26:55	5.22E-11	15:27:01	5.13E-11	15:27:07	5.03E-11
15:27:13	5.26E-11	15:27:19	5.02E-11	15:27:25	5.06E-11	15:27:31	5.21E-11	15:27:37	5.09E-11	15:27:43	5.09E-11
15:27:49	5.14E-11	15:27:55	5.27E-11	15:28:01	5.16E-11	15:28:07	5.17E-11	15:28:13	5.17E-11	15:28:19	5.24E-11
15:28:25	5.09E-11	15:28:31	5.11E-11	15:28:37	5.06E-11	15:28:43	5.10E-11	15:28:49	5.18E-11	15:28:55	5.18E-11
15:29:01	5.10E-11	15:29:07	5.04E-11	15:29:13	5.08E-11	15:29:19	5.16E-11	15:29:25	5.12E-11	15:29:31	5.09E-11
15:29:37	5.13E-11	15:29:43	5.26E-11	15:29:49	5.20E-11	15:29:55	5.12E-11	15:30:01	5.08E-11	15:30:07	5.18E-11
15:30:13	5.02E-11	15:30:19	5.26E-11	15:30:25	5.10E-11	15:30:31	5.09E-11	15:30:37	5.13E-11	15:30:43	5.22E-11
15:30:49	5.13E-11	15:30:55	5.15E-11	15:31:01	5.05E-11	15:31:07	5.08E-11	15:31:13	5.23E-11	15:31:19	5.17E-11
15:31:25	5.11E-11	15:31:31	5.15E-11	15:31:37	5.11E-11	15:31:43	5.18E-11	15:31:49	5.17E-11	15:31:55	5.06E-11
15:32:01	5.13E-11	15:32:07	5.07E-11	15:32:13	5.12E-11	15:32:19	5.11E-11	15:32:25	5.06E-11	15:32:31	5.23E-11
15:32:37	5.11E-11	15:32:43	5.17E-11	15:32:49	5.18E-11	15:32:55	5.18E-11	15:33:01	5.08E-11	15:33:07	5.13E-11
15:33:13	5.21E-11	15:33:19	5.24E-11	15:33:25	5.07E-11	15:33:31	5.10E-11	15:33:37	5.15E-11	15:33:43	5.27E-11
15:33:49	5.34E-11	15:33:55	5.15E-11	15:34:01	5.12E-11	15:34:07	5.26E-11	15:34:13	5.15E-11	15:34:19	5.06E-11
15:34:25	5.19E-11	15:34:31	5.17E-11	15:34:37	5.12E-11	15:34:43	5.11E-11	15:34:49	5.15E-11	15:34:55	5.07E-11
15:35:01	5.11E-11	15:35:07	5.15E-11	15:35:13	5.14E-11	15:35:19	5.13E-11	15:35:25	5.12E-11	15:35:31	5.05E-11
15:35:37	5.15E-11	15:35:43	5.02E-11	15:35:49	5.11E-11	15:35:55	5.14E-11	15:36:01	5.07E-11	15:36:07	5.18E-11
15:36:13	5.19E-11	15:36:19	5.08E-11	15:36:25	5.16E-11	15:36:31	5.05E-11	15:36:37	5.00E-11	15:36:43	5.13E-11
15:36:49	5.04E-11	15:36:55	5.04E-11	15:37:01	5.26E-11	15:37:07	5.06E-11	15:37:13	5.15E-11	15:37:19	5.08E-11
15:37:25	5.16E-11	15:37:31	5.07E-11	15:37:37	5.07E-11	15:37:43	5.17E-11	15:37:49	5.05E-11	15:37:55	5.20E-11
15:38:01	5.07E-11	15:38:07	5.20E-11	15:38:13	5.21E-11	15:38:19	5.14E-11	15:38:25	5.19E-11	15:38:31	5.20E-11

APPENDIX D: ION CHAMBER DATA

Effect of Ne Concentration and Flow Rate - April 12,1994 (continued)

Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere	Time	Ampere
15:38:37	5.16E-11	15:38:43	5.21E-11	15:38:49	5.18E-11	15:38:55	5.12E-11	15:39:01	5.18E-11	15:39:07	5.07E-11
15:39:13	5.11E-11	15:39:19	5.24E-11	15:39:25	5.07E-11	15:39:31	5.07E-11	15:39:37	5.11E-11	15:39:43	5.14E-11
15:39:49	5.12E-11	15:39:55	5.16E-11	15:40:01	5.08E-11	15:40:07	5.06E-11	15:40:13	5.13E-11	15:40:19	5.10E-11
15:40:25	5.04E-11	15:40:31	5.15E-11	15:40:37	5.19E-11	15:40:43	5.05E-11	15:40:49	5.18E-11	15:40:55	5.14E-11
15:41:01	5.17E-11	15:41:07	5.05E-11	15:41:13	5.15E-11	15:41:19	5.14E-11	15:41:25	5.17E-11	15:41:31	5.17E-11
15:41:37	5.07E-11	15:41:43	5.19E-11	15:41:49	5.13E-11	15:41:55	5.08E-11	15:42:01	5.09E-11	15:42:07	5.07E-11
15:42:13	5.25E-11	15:42:19	5.15E-11	15:42:25	5.25E-11	15:42:31	5.09E-11	15:42:37	5.15E-11	15:42:43	5.06E-11
15:42:49	5.17E-11	15:42:55	5.15E-11	15:43:01	5.15E-11	15:43:07	5.10E-11	15:43:13	5.09E-11	15:43:19	5.13E-11
15:43:25	5.12E-11	15:43:31	5.12E-11	15:43:37	5.19E-11	15:43:43	5.14E-11	15:43:49	5.11E-11	15:43:55	5.28E-11
15:44:01	5.21E-11	15:44:07	5.12E-11	15:44:13	4.99E-11	15:44:19	5.12E-11	15:44:25	5.12E-11	15:44:31	5.18E-11
15:44:37	5.11E-11	15:44:43	5.22E-11	15:44:49	5.14E-11	15:44:55	5.17E-11	15:45:01	5.09E-11	15:45:07	5.20E-11
15:45:13	5.10E-11	15:45:19	5.10E-11	0.656539	5.08E-11	15:45:31	5.14E-11	15:45:37	5.30E-11	15:45:43	5.08E-11
15:45:49	5.09E-11	15:45:55	5.22E-11	15:46:01	5.06E-11	15:46:07	5.16E-11	15:46:13	5.18E-11	15:46:19	5.17E-11
15:46:25	5.14E-11	15:46:31	5.06E-11	15:46:37	5.11E-11	15:46:43	5.10E-11	15:46:49	5.18E-11	15:46:55	5.09E-11
15:47:01	5.16E-11	15:47:07	5.07E-11	15:47:13	5.23E-11	15:47:19	5.08E-11	15:47:25	5.21E-11	15:47:31	5.35E-11
15:47:37	5.27E-11	15:47:43	5.17E-11	15:47:49	5.18E-11	15:47:55	5.14E-11	15:48:01	5.23E-11	15:48:07	5.13E-11
15:48:13	5.19E-11	15:48:19	5.29E-11	15:48:25	5.17E-11	15:48:31	5.16E-11	15:48:37	5.29E-11	15:48:43	5.19E-11
15:48:49	5.27E-11	15:48:55	5.30E-11	15:49:01	5.21E-11	15:49:07	5.29E-11	15:49:13	5.33E-11	15:49:19	5.21E-11
15:49:25	5.17E-11	15:49:31	5.13E-11	15:49:37	5.16E-11	15:49:43	5.20E-11	15:49:49	5.25E-11	15:49:55	5.21E-11
15:50:01	5.13E-11	15:50:07	5.25E-11	15:50:13	5.18E-11	15:50:19	5.08E-11	15:50:25	5.14E-11	15:50:31	5.12E-11
15:50:37	5.19E-11	15:50:43	5.16E-11	15:50:49	5.24E-11	15:50:55	5.24E-11	15:51:01	5.23E-11	15:51:07	5.20E-11
15:51:13	5.29E-11	15:51:19	5.24E-11	15:51:25	5.11E-11	15:51:31	5.15E-11	15:51:37	5.19E-11	15:51:43	5.26E-11
15:51:49	5.10E-11	15:51:55	5.19E-11	15:52:01	5.11E-11	15:52:07	5.14E-11	15:52:13	5.22E-11	15:52:19	5.21E-11
15:52:25	5.06E-11	15:52:31	5.29E-11	15:52:37	5.20E-11	15:52:43	5.20E-11	15:52:49	5.17E-11	15:52:55	5.27E-11
15:53:01	5.14E-11	15:53:07	5.22E-11	15:53:13	5.19E-11	15:53:19	5.14E-11	15:53:25	5.18E-11	15:53:31	5.10E-11
15:53:37	5.07E-11	15:53:43	4.90E-11	15:53:49	4.52E-11	15:53:55	9.71E-11	15:54:01	1.03E-10	15:54:07	9.38E-11
15:54:13	8.75E-11	15:54:19	7.61E-11	15:54:25	6.39E-11	15:54:31	6.10E-11	15:54:37	5.97E-11	15:54:43	5.77E-11
15:54:49	5.66E-11	15:54:55	5.59E-11	15:55:01	5.60E-11	15:55:07	5.52E-11	15:55:13	5.64E-11	15:55:19	5.64E-11
15:55:25	5.67E-11	15:55:31	5.92E-11	15:55:37	5.73E-11	15:55:43	5.43E-11	15:55:49	4.97E-11	15:55:55	4.63E-11
15:56:01	3.99E-11	15:56:07	3.53E-11	15:56:13	2.82E-11	15:56:19	2.47E-11	15:56:25	2.68E-11	15:56:31	3.47E-11
15:56:37	4.15E-11	15:56:43	4.68E-11	15:56:49	5.00E-11	15:56:55	5.11E-11	15:57:01	5.18E-11	15:57:07	5.25E-11
15:57:13	5.25E-11	15:57:19	5.24E-11	15:57:25	5.19E-11	15:57:31	5.20E-11	15:57:37	5.40E-11	15:57:43	5.26E-11
15:57:49	5.31E-11	15:57:55	5.26E-11	15:58:01	5.27E-11	15:58:07	5.12E-11	15:58:13	5.16E-11	15:58:19	5.17E-11
15:58:25	5.28E-11	15:58:31	5.17E-11	15:58:37	5.08E-11	15:58:43	5.06E-11	15:58:49	5.13E-11	15:58:55	5.10E-11
15:59:01	5.14E-11	15:59:07	5.02E-11	15:59:13	5.12E-11	15:59:19	5.13E-11	15:59:25	5.08E-11	15:59:31	5.05E-11
15:59:37	5.07E-11	15:59:43	5.14E-11	15:59:49	5.21E-11	15:59:55	5.10E-11	16:00:01	5.13E-11	16:00:07	5.07E-11

APPENDIX E: INSTRUMENTATION QUALITY ASSURANCE DATA

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APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Instrument ID and Description Cross Reference

Instrument	I&C ID No.	Manufacturer Code	Model No.	Description
UR-100	M078734	Kaye	DR-4S	Electronic Recorder/Data Logger
FT-144	M133004	Hastings	HFM-200L	Sweep Gas Inlet He Mass Flowmeter
FI-144	M081778	Newport	205-P,R,CO	Digital Indicator
FT-145	M133005	Hastings	HFM-200L	Sweep Gas Inlet Ne Mass Flowmeter
FI-145	M081779	Newport	205-P,R,CO	Digital Indicator
MI-100	M078737	Nyad	MA-132-CD	Sweep Gas Inlet Moisture Monitor
PE-110	M132942	Viatran	3185AM2AAA20	Capsule Inlet Pressure Transducer
TT-101	M132958	Ronan	X54-215L-K-O-12	TC transmitter for TC's
TT-102	M132956	Ronan	X54-215L-K-O-12	TC transmitter for TC's
TT-103	M132954	Ronan	X54-215L-K-O-12	TC transmitter for TC's
PE-111	M132905	Taylor		Capsule Outlet Pressure Transducer
PT-111	M142267	RIS	SC-1390	Strain Gage Transmitter
PI-111	M132949	Newport	205FSP,R,CO,TP 2	Digital Indicator
RE-112	M132849	ORNL	Q-2818A	Ion Chamber
RM-112	M078740	Keithley	487	Picoammeter/V source
RE-112A	M132847	ORNL	Q-2818A	Ion Chamber
RM-112A	M133010	Keithley	410A	Picoammeter/V source
RR-112A	M132813	L&N	H	Strip Chart Recorder
FE-115	M132915	Hastings	H-100	Sweep Gas Exit Flow Transducer
FXI-115	M132831	Hastings	All-100	Mass Flowmeter
MI-101		Nyad	MA-132-CD	Sweep Gas Exit Moisture Monitor
PI-981A		TIF	9675 S/N 11577	Grab Sample Digital Pressure Gage

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Inlet He Mass Flowmeter Calibration Data Teledyne Hastings - Raydist

JOB:	A69990	<u>Standards</u>	<u>ID</u>
ID#:	M133004	Time	M079326
MFG.	Teledyne	Volume	M100453
Model #	HFM 200L	Pressure	M079327
S/N#	515	Temp	M073478
Date:	14-Feb-94	DVM	X153603
Cal'd By	RJ Quinn (25711)	Std Temp:	21.1 Deg C
		Std Press:	14.7 PSIA
		Gas	Air

Volume (cc)	Time (sec)	Flow (accm)	Temp (deg C)	Press (PSIA)	Flow ^a (cc/min)	Calc. ^b (cc/min)	% error Range	Output Volts
DATA AS FOUND								
0.00	60.000	0.00	20.90	14.62	0.00	0.80	0.80	0.040
50.00	140.550	21.34	21.10	14.69	21.33	20.46	-0.87	1.023
50.00	70.720	42.42	21.00	14.70	42.44	40.24	-2.20	2.012
50.00	46.899	63.97	21.00	14.70	63.99	60.46	-3.53	3.023
100.00	70.624	84.96	21.00	14.70	84.99	80.52	-4.47	4.026
100.00	56.960	105.34	21.10	14.70	105.34	100.18	-5.16	5.009
DATA AFTER ADJUSTMENT								
0.00	60.000	0.00	21.20	14.62	0.00	0.04	0.04	0.002
50.00	142.713	21.02	21.20	14.69	21.00	20.64	-0.36	1.032
50.00	73.680	40.72	21.30	14.69	40.66	40.24	-0.42	2.012
50.00	49.339	60.80	21.40	14.68	60.66	60.32	-0.34	3.016
100.00	74.054	81.02	21.40	14.68	80.83	80.86	0.03	4.043
100.00	61.758	97.15	21.40	14.68	96.92	96.98	0.06	4.849

^a Flow at 294.3 K and 1.01×10^5 Pa

^b Flow calculated assuming linear relation for 100 cc/min = 5.00 Volts

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Inlet Ne Mass Flowmeter Calibration Data Teledyne Hastings - Raydist

JOB:	A69991	<u>Standards</u>	<u>ID</u>
ID#:	M133005	Time	M079326
MFG.	Teledyne	Volume	M100453
Model #	HFM 200L	Pressure	M079327
S/N#	516	Temp	M073478
Date:	14-Feb-94	DVM	X153603
Cal'd By	RJ Quinn (25711)	Std Temp:	21.1 Deg C
		Std Press:	14.7 PSIA
		Gas	Air

Volume (cc)	Time (sec)	Flow (accm)	Temp (deg C)	Press (PSIA)	Flow ^a (cc/min)	Calc. ^b (cc/min)	% error Range	Output Volts
DATA AS FOUND								
0.00	60.000	0.00	21.20	14.61	0.00	-0.06	-0.06	-0.003
50.00	121.476	24.70	21.30	14.68	24.65	19.56	-5.09	0.978
50.00	58.811	51.01	21.20	14.68	50.92	40.68	-10.24	2.034
100.00	78.893	76.05	21.30	14.68	75.90	60.70	-15.20	3.035
100.00	60.426	99.30	21.20	14.68	99.13	78.12	-21.01	3.906
100.00	46.764	128.30	21.20	14.68	128.09	99.24	-28.85	4.962
DATA AFTER ADJUSTMENT								
0.00	60.000	0.00	21.50	14.59	0.00	0.00	0.00	0.000
50.00	145.927	20.56	21.60	14.65	20.45	20.66	0.21	1.033
50.00	75.450	39.76	21.50	14.66	39.60	39.90	0.30	1.995
50.00	49.559	60.53	21.60	14.66	60.27	60.42	0.15	3.021
100.00	75.505	79.46	21.50	14.65	79.09	79.02	-0.07	3.951
100.00	58.743	102.14	21.50	14.66	101.72	101.54	-0.18	5.077

^a Flow at 294.3 K and 1.01×10^5 Pa

^b Flow calculated assuming linear relation for 100 cc/min = 5.00 Volts

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Capsule Inlet and Outlet Pressure Gages Calibration Data

Pre-Test Data

%	Pressure Input		UR-100 Point 110 ^a (HRB-22 Inlet Pressure)		UR-100 Point 104 ^b (HRB-22 Outlet Pressure)	
	PSIG	Desired	As-Found	As-Left	As-Found	As-Left
0	0	0±0.4	0	--	0.1	--
25	6.25	6.25±0.4	6.2	--	6.3	--
50	12.5	12.5±0.4	12.6	--	12.5	--
75	18.75	18.75±0.4	18.7	--	18.7	--
100	25.0	25.0±0.4	25.1	--	25.2	--
75	18.75	18.75±0.4	18.8	--	18.8	--
50	12.5	12.5±0.4	12.6	--	12.6	--
25	6.25	6.25±0.4	6.3	--	6.4	--
0	0	0±0.4	0.1	--	0.2	--

Post-Test Data

%	Pressure Input		UR-100 Point 110 ^a (HRB-22 Inlet Pressure)		UR-100 Point 104 ^b (HRB-22 Outlet Pressure)	
	PSIG	Desired	As-Found	As-Left	As-Found	As-Left
0	0	0±0.4	0	--	0.2	--
25	6.25	6.25±0.4	6.3	--	6.3	--
50	12.5	12.5±0.4	12.6	--	12.6	--
75	18.75	18.75±0.4	18.9	--	18.9	--
100	25.0	25.0±0.4	25.3	--	25.2	--
75	18.75	18.75±0.4	19.0	--	18.9	--
50	12.5	12.5±0.4	12.7	--	12.7	--
25	6.25	6.25±0.4	6.4	--	6.4	--
0	0	0±0.4	0	--	0.2	--

^a Kaye Data Logger UR-100; Bank 1, channel 10

^b Kaye Data Logger UR-100; Bank 1, channel 4

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Grab Sample Compound Pressure Gauge Calibration Data

JOB:	A76107	Date:	8-Apr-94
ID#:	PI-981A	Cal'd By	RJ Quinn (25711)
MFG.	TIF	Standards	ID
Model #	TIF9675	Pressure	M132231
S/N#	11577	Vacuum	x183899

Standard Read (PSI)	1st Run			2nd Run		
	Increase (PSIG)	Decrease (PSIG)	Increase (PSIG)	Increase (PSIG)	Decrease (PSIG)	Increase (PSIG)
100.00	100.2	100.2	--	100.2	100.2	--
80.00	80.6	80.6	--	80.7	80.7	--
60.00	60.6	60.7	--	60.7	60.7	--
40.00	40.5	40.5	--	40.6	40.6	--
20.00	20.2	20.3	--	20.2	20.4	--
0.00	0.0	0.0	--	0.0	0.0	--
0.00	--	0.0	-0.1	--	0.0	-0.1
5.00	--	-5.0	-5.2	--	-5.0	-5.1
10.00	--	-10.2	-10.4	--	-10.2	-10.3
15.00	--	-15.3	-15.5	--	-15.3	-15.4
20.00	--	-20.6	-20.6	--	-20.5	-20.6
25.00	--	-25.6	-25.6	--	-25.6	-25.7
29.51	--	-30.3	-30.3	--	-30.2	-30.2

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Grab Sample Compound Pressure Gauge Calibration Data (continued) Least-Squares Fits used to Calculate the Pressure Change

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Grab Sample Compound Pressure Gauge Calibration Data (continued) Least-Squares Fits used to Calculate the Pressure Change

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Thermocouple Calibration Data

Date: 21-Oct-1987 P.O. 71-Y-CX246
 For: MM-ES TC Description:
 By: DELTA M Corporation ANSI Type: K,N
 525 Warehouse Road Insulation: MgO
 Oak Ridge, TN 37830 Junction: Insulated
 Reference: 87TIC2056 Sheath: I601
 Standards:
 Ref: S001 T-107N-18A59AA-72
 calibrated 25-Sept-1985
 Read out indicator: Fluke 2393A
 S/N 3335012

DELTA M Thermocouple Vs Reference DELTA M STD #S001. Ref TC Error vs. NBS: Add to Ref Reading for Actual @80F -0.55; @500F -0.55; @1000F +1.66, @1500F -0.66, @200F -0.70

Serial No.	ANSI Type	Reference Temperature (°C)		Test Thermocouple (°C)	
		Indicated	Actual	Temperature Measured	Deviation From Actual
22-1	K	1004.95	1004.57	1010.30	5.73
22-2	K	1005.00	1004.62	1007.80	3.18
22-3	K	1005.05	1004.67	1008.20	3.53
22-4	K	1005.10	1004.72	1007.90	3.18
22-5	K	1005.15	1004.77	999.90	-4.87
22-6	K	1005.20	1004.82	1006.10	1.28
22-7	K	1005.25	1004.87	1006.80	1.93
22-8	K	1005.30	1004.92	1003.90	-1.02
22-9	K	1005.35	1004.97	1006.90	1.93
22-10	K	1005.40	1005.02	1009.60	4.58
22-11	K	1005.45	1005.07	1004.90	-0.17
22-12	K	1005.50	1005.12	1003.00	-2.12
22-14	K	1005.55	1005.17	1006.20	1.03
22-15	K	1005.60	1005.22	1008.10	2.88
22-16	K	1005.65	1005.27	1007.40	2.13

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Thermocouple Calibration Data (continued)

Serial No.	ANSI Type	Reference Temperature (°C)		Test Thermocouple (°C)	
		Indicated	Actual	Temperature Measured	Deviation From Actual
22-26	K	999.85	999.47	994.40	-5.07
22-27	K	999.90	999.52	995.20	-4.32
22-18	K	999.95	999.57	994.20	-5.37
22-19	K	1000.00	999.62	994.90	-4.72
22-20	K	1000.05	999.67	994.10	-5.57
22-21	K	1000.10	999.72	994.80	-4.92
22-22	K	1000.35	999.97	998.10	-1.87
22-23	K	999.60	999.22	1000.00	0.78
22-24N	N	1000.18	999.80	998.34	-1.46
Recheck After Assembly of Probes (TCAT)					
22-1	K	1000.75	1000.37	997.80	-2.57
22-8	K	1000.60	1000.22	998.20	-2.02
22-15	K	1000.45	1000.07	998.70	-1.37

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Gamma Spectroscopy 100 ml Bottle Geometry Efficiency Calibration Net Counts per Second at Acquisition Time

Cal. ID #:		G-STD-01	CALCK1	CALCK2	G-STD-02	G-STD-03	G-STD-04	G-STD-05
Date:		6-Apr-94	10-Apr-94	13-Apr-94	5-May-94	20-Jun-94	24-Jun-94	25-Jun-94
Time:		13:41:32	15:08:27	10:41:21	15:26:13	8:20:08	14:04:04	11:19:09
nuclide	Kev	Net Counts per Second						
Am-241	59.5	1.50E+00	1.50E+00	1.54E+00	1.52E+00	1.50E+00	1.52E+00	1.51E+00
Cd-109	88.0	4.77E+00	4.70E+00	4.77E+00	4.56E+00	4.26E+00	4.24E+00	4.24E+00
Co-57	122.1	3.03E+00	3.01E+00	2.95E+00	2.81E+00	2.52E+00	2.48E+00	2.47E+00
Ce-139	165.9	2.41E+00	2.33E+00	2.33E+00	2.08E+00	1.63E+00	1.60E+00	1.59E+00
Hg-203	279.2	1.03E+00	9.90E-01	9.57E-01	6.53E-01	3.26E-01	3.08E-01	3.06E-01
Sn-113	391.7	1.46E+00	1.41E+00	1.43E+00	1.19E+00	8.78E-01	8.76E-01	8.61E-01
Sr-85	514.0	1.28E+00	1.24E+00	1.21E+00	9.11E-01	5.49E-01	5.26E-01	5.21E-01
Cs-137	661.7	9.17E-01	8.88E-01	9.29E-01	8.79E-01	8.59E-01	8.61E-01	8.66E-01
Y-88	898.1	1.49E+00	1.47E+00	1.45E+00	1.17E+00	8.54E-01	8.42E-01	8.44E-01
Co-60	1173.0	8.29E-01	8.22E-01	9.25E-01	7.76E-01	7.40E-01	7.37E-01	7.43E-01
CO-60	1332.0	7.26E-01	7.03E-01	7.35E-01	6.84E-01	6.56E-01	6.60E-01	6.60E-01
Y-88	1836.0	7.75E-01	7.63E-01	7.58E-01	5.99E-01	4.37E-01	4.26E-01	4.20E-01

Cal. ID #:		G-STD-06	G-STD-07	G-STD-08	G-STD-09	G-STD-10	G-STD-11	G-STD-13
Date:		5-Jul-94	13-Jul-94	25-Jul-94	30-Jul-94	10-Aug-94	17-Aug-94	27-Aug-94
Time:		9:12:01	9:36:41	7:48:05	19:01:17	9:20:06	9:24:40	9:43:13
Nuclide	Kev:	Net Counts per Second						
Am-241	59.5	1.51E+00	1.51E+00	1.51E+00	1.51E+00	1.53E+00	1.53E+00	1.51E+00
Cd-109	88.0	4.18E+00	4.12E+00	4.03E+00	4.00E+00	3.99E+00	3.93E+00	3.88E+00
Co-57	122.1	2.41E+00	2.37E+00	2.29E+00	2.25E+00	2.21E+00	2.17E+00	2.11E+00
Ce-139	165.9	1.52E+00	1.45E+00	1.37E+00	1.32E+00	1.26E+00	1.22E+00	1.14E+00
Hg-203	279.2	2.66E-01	2.39E-01	1.91E-01	1.78E-01	1.56E-01	1.36E-01	1.16E-01
Sn-113	391.7	8.04E-01	7.77E-01	7.18E-01	6.91E-01	6.47E-01	6.28E-01	5.77E-01
Sr-85	514.0	4.71E-01	4.36E-01	3.76E-01	3.56E-01	3.23E-01	2.95E-01	2.57E-01
Cs-137	661.7	8.60E-01	8.65E-01	8.47E-01	8.53E-01	8.54E-01	8.64E-01	8.40E-01
Y-88	898.1	7.81E-01	7.51E-01	6.79E-01	6.60E-01	6.14E-01	5.86E-01	5.35E-01
Co-60	1173.0	7.38E-01	7.46E-01	7.27E-01	7.18E-01	7.24E-01	7.27E-01	7.13E-01
CO-60	1332.0	6.56E-01	6.59E-01	6.39E-01	6.42E-01	6.40E-01	6.40E-01	6.30E-01
Y-88	1836.0	3.94E-01	3.81E-01	3.45E-01	3.33E-01	3.10E-01	2.97E-01	2.71E-01

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Gamma Spectroscopy 100 ml Bottle Geometry Efficiency Calibration Measured Detector Efficiency

	Cal. ID #.	G-STD-01	CALCK1	CALCK2	G-STD-02	G-STD-03	G-STD-04	G-STD-05
	Date:	6-Apr-94	10-Apr-94	13-Apr-94	5-May-94	20-Jun-94	24-Jun-94	25-Jun-94
	Time:	13:41:32	15:08:27	10:41:21	15:26:13	8:20:08	14:04:04	11:19:09
Nuclide	Key:	Efficiency						
Am-241	59.5	2.07E-02	2.07E-02	2.13E-02	2.09E-02	2.07E-02	2.09E-02	2.08E-02
Cd-109	88.0	5.46E-02	5.41E-02	5.52E-02	5.45E-02	5.45E-02	5.46E-02	5.46E-02
Co-57	122.1	6.84E-02	6.86E-02	6.76E-02	6.83E-02	6.87E-02	6.83E-02	6.84E-02
Ce-139	165.9	6.39E-02	6.29E-02	6.39E-02	6.36E-02	6.30E-02	6.30E-02	6.31E-02
Hg-203	279.2	3.76E-02	3.84E-02	3.87E-02	3.67E-02	3.62E-02	3.64E-02	3.67E-02
Sn-113	391.7	2.61E-02	2.58E-02	2.66E-02	2.53E-02	2.46E-02	2.52E-02	2.49E-02
Sr-85	514.0	1.87E-02	1.89E-02	1.91E-02	1.82E-02	1.79E-02	1.79E-02	1.79E-02
Cs-137	661.7	1.47E-02	1.43E-02	1.49E-02	1.41E-02	1.39E-02	1.39E-02	1.40E-02
Y-88	898.1	1.06E-02	1.07E-02	1.07E-02	1.00E-02	9.83E-03	9.97E-03	1.01E-02
Co-60	1173	8.35E-03	8.29E-03	8.33E-03	7.87E-03	7.63E-03	7.62E-03	7.68E-03
Co-60	1332	7.29E-03	7.07E-03	7.40E-03	6.91E-03	6.74E-03	6.79E-03	6.80E-03
Y-88	1836	5.22E-03	5.27E-03	5.34E-03	4.87E-03	4.78E-03	4.80E-03	4.75E-03

	Cal. ID #.	G-STD-06	G-STD-07	G-STD-08	G-STD-09	G-STD-10	G-STD-11	G-STD-13
	Date	5-Jul-94	13-Jul-94	25-Jul-94	30-Jul-94	10-Aug-94	17-Aug-94	27-Aug-94
	Time	9:12:01	9:36:41	7:48:05	19:01:17	9:20:06	9:24:40	9:43:13
Nuclide	Key	Efficiency						
Am-241	59.5	2.09E-02	2.08E-02	2.09E-02	2.08E-02	2.12E-02	2.10E-02	2.09E-02
Cd-109	88.0	5.46E-02	5.45E-02	5.44E-02	5.44E-02	5.52E-02	5.49E-02	5.51E-02
Co-57	122.1	6.84E-02	6.86E-02	6.84E-02	6.81E-02	6.86E-02	6.86E-02	6.85E-02
Ce-139	165.9	6.31E-02	6.28E-02	6.31E-02	6.25E-02	6.28E-02	6.29E-02	6.21E-02
Hg-203	279.2	3.70E-02	3.73E-02	3.56E-02	3.61E-02	3.69E-02	3.58E-02	3.53E-02
Sn-113	391.7	2.46E-02	2.50E-02	2.48E-02	2.47E-02	2.46E-02	2.50E-02	2.43E-02
Sr-85	514.0	1.80E-02	1.80E-02	1.78E-02	1.79E-02	1.82E-02	1.79E-02	1.73E-02
Cs-137	661.7	1.39E-02	1.40E-02	1.37E-02	1.38E-02	1.38E-02	1.40E-02	1.36E-02
Y-88	898.1	9.92E-03	1.01E-02	9.82E-03	9.90E-03	9.85E-03	9.84E-03	9.59E-03
Co-60	1173	7.66E-03	7.75E-03	7.59E-03	7.54E-03	7.62E-03	7.68E-03	7.56E-03
Co-60	1332	6.78E-03	6.86E-03	6.66E-03	6.72E-03	6.72E-03	6.74E-03	6.66E-03
Y-88	1836	4.76E-03	4.85E-03	4.74E-03	4.75E-03	4.73E-03	4.74E-03	4.61E-03

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Gamma Spectroscopy Daily Energy Check

γ-data file name	Date	Shelf (cm)	¹⁰⁹ Cd	⁵⁷ Co	¹³⁷ Cs	⁶⁰ Co	⁶⁰ Co
			88.03 Kev	122.1 Kev	661.6 Kev	1173.2 Kev	1332.5 Kev
			Measured Energy (Kev)				
effck2	04/11/94	~ 3	87.87	121.9	661.9	1173.3	1332.2
effck3	04/13/94	~ 3	87.90	121.9	661.8	1172.9	1331.9
enck4	04/14/94	~ 3	87.75	121.8	661.7	1173.0	1332.0
enck5	04/15/94	~ 3	87.84	121.9	661.7	1172.9	1331.9
enck6	04/18/94	~ 3	87.74	121.8	661.7	1173.1	1332.0
enck7	04/19/94	~ 3	87.71	121.7	661.7	1173.0	1331.9
enck8	04/20/94	~ 3	87.77	121.8	661.7	1173.0	1332.0
enck9	04/21/94	~ 3	87.75	121.8	661.8	1173.1	1292.7
enck10	04/22/94	~ 3	87.79	121.8	661.8	1173.1	1332.1
enck11	04/25/94	~ 3	87.84	121.9	661.8	1173.1	1332.0
enck12	04/26/94	~ 3	87.87	121.9	661.8	1173.0	1332.0
enck13	04/27/94	~ 3	87.90	121.9	661.8	1173.0	1332.0
enck14	04/28/94	~ 3	87.86	121.9	661.7	1172.8	1331.8
enck15	05/02/94	~ 3	87.73	121.8	661.7	1172.9	1331.9
enck16	05/03/94	~ 3	87.74	121.8	661.7	1173.0	1331.9
enck17	05/04/94	~ 3	87.71	121.8	661.7	1172.9	1331.8
enck18	05/05/94	~ 3	87.68	121.7	661.6	1172.8	1331.8
enck19	05/08/94	~ 3	87.77	121.8	661.7	1173.0	1332.0
enck20	05/09/94	~ 3	87.75	121.8	661.7	1172.9	1331.8
enck21	05/10/94	~ 3	87.82	121.9	661.7	1173.0	1331.9
enck22	05/11/94	~ 3	87.68	121.7	661.7	1173.0	1331.9
enck23	05/12/94	~ 3	87.79	121.8	661.7	1172.9	1331.9
enck24	05/13/94	~ 3	87.80	121.8	661.8	1173.0	1332.0
enck25	05/13/94	~ 3	87.87	121.9	661.8	1173.0	1332.0
enck26	05/13/94	~ 3	87.92	122.0	661.9	1173.0	1332.0
enck27	05/16/94	~ 3	87.87	121.9	661.8	1172.9	1331.8
enck28	05/17/94	~ 3	87.76	121.8	661.7	1173.0	1332.0
enck29	05/17/94	4	87.86	121.9	661.8	1173.0	1332.0
enck30	05/18/94	4	87.75	121.8	661.7	1173.0	1258.6
enck31	05/19/94	4	87.74	121.8	661.8	1173.1	1332.1
enck32	05/20/94	4	87.69	121.7	661.7	1173.0	1332.0
enck33	05/21/94	4	87.73	121.8	661.7	1173.0	1332.0
enck34	05/23/94	4	87.76	121.8	661.7	1173.0	1331.9

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Gamma Spectroscopy Daily Energy Check (continued)

γ-data file name	Date	Shelf (cm)	¹⁰⁹ Cd	⁵⁷ Co	¹³⁷ Cs	⁶⁰ Co	⁶⁰ Co
			88.03 Kev	122.1 Kev	661.6 Kev	1173.2 Kev	1332.5 Kev
			Measured Energy (Kev)				
enck35	05/24/94	4	87.83	121.9	661.7	1173.0	1331.9
enck36	05/25/94	4	87.82	121.9	661.7	1173.0	1331.9
enck37	05/26/94	4	87.88	121.9	661.7	1172.9	1331.8
enck38	05/27/94	4	87.76	121.8	661.7	1172.9	1331.8
enck39	05/28/94	4	87.71	121.8	661.7	1173.0	1331.9
enck40	05/31/94	4	87.97	122.0	661.9	1173.0	1331.9
enck41	06/01/94	4	87.87	121.9	661.8	1172.9	1331.9
enck42	06/02/94	4	87.89	121.9	661.8	1172.9	1331.8
enck43	06/03/94	4	87.84	121.9	661.7	1172.9	1331.9
enck44	06/04/94	4	87.85	121.9	661.8	1172.9	1331.9
enck45	06/05/94	4	87.87	121.9	661.8	1173.0	1331.9
enck46	06/06/94	4	87.91	121.9	661.8	1172.9	1331.8
enck47	06/20/94	4	88.00	122.0	661.9	1173.0	1332.0
enck48	06/24/94	4	87.67	121.7	661.6	1172.8	1331.7
enck49	06/26/94	4	87.82	121.9	661.7	1173.0	1331.9
enck50	06/27/94	4	87.90	121.9	661.8	1172.9	1331.9
enck51	06/28/94	4	87.91	121.9	661.8	1173.1	1332.0
enck52	06/29/94	4	87.88	121.9	661.8	1173.0	1332.0
enck53	06/30/94	4	87.90	121.9	661.8	1173.0	1331.9
enck54	07/01/94	4	87.87	121.9	661.8	1173.1	1332.1
enck55	07/02/94	4	87.91	122.0	661.9	1173.1	1332.0
enck56	07/05/94	4	87.77	121.8	661.7	1172.9	1331.9
enck57	07/06/94	4	87.71	121.7	661.6	1172.9	1331.8
enck58	07/07/94	4	87.73	121.8	661.7	1172.9	1331.8
enck59	07/08/94	4	87.72	121.8	661.6	1172.9	1331.8
enck60	07/11/94	4	87.81	121.9	661.7	1172.9	1331.8
enck61	07/12/94	4	87.68	121.7	661.6	1172.9	1331.8
enck62	07/13/94	4	87.68	121.7	661.6	1172.8	1331.8
enck63	07/14/94	4	87.71	121.7	661.6	1172.8	1331.8
enck64	07/15/94	4	87.93	122.0	661.8	1173.0	1332.0
enck65	07/16/94	4	87.69	121.7	661.6	1172.9	1331.8
enck66	07/19/94	4	87.89	121.9	661.8	1173.0	1331.9
enck67	07/20/94	4	88.37	122.4	662.2	1173.2	1332.2

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Gamma Spectroscopy Daily Energy Check (continued)

γ-data file name	Date	Shelf (cm)	¹⁰⁹ Cd	⁵⁷ Co	¹³⁷ Cs	⁶⁰ Co	⁶⁰ Co
			88.03 Kev	122.1 Kev	661.6 Kev	1173.2 Kev	1332.5 Kev
			Measured Energy (Kev)				
enck68	07/21/94	4	88.30	122.3	662.2	1173.3	1332.3
enck69	07/25/94	4	87.56	121.6	661.5	1172.8	1331.7
enck70	07/27/94	4	87.82	121.9	661.8	1173.0	1332.0
enck71	07/28/94	4	87.86	121.9	661.8	1173.0	1331.9
enck72	07/30/94	4	88.03	122.1	662.0	1173.1	1332.1
enck73	07/31/94	4	88.08	122.1	662.0	1173.2	1332.1
enck74	08/01/94	4	87.80	122.1	661.6	1173.2	1332.5
enck75	08/02/94	4	87.69	121.7	661.7	1173.0	1331.9
enck76	03/08/94	4	87.71	121.8	661.7	1173.0	1331.9
enck77	08/04/94	4	87.72	121.8	661.6	1172.9	1331.8
enck78	08/05/94	4	87.72	121.8	661.7	1173.0	1331.9
enck79	08/08/94	4	87.81	121.9	661.8	1173.0	1332.0
enck80	08/09/94	4	87.89	121.9	661.9	1173.1	1332.1
enck81	08/10/94	4	87.96	122.0	661.9	1173.2	1332.1
enck82	08/11/94	4	87.77	121.8	661.7	1173.0	1332.0
enck83	08/12/94	4	87.97	122.0	661.9	1173.1	1332.1
enck84	08/15/94	4	88.03	122.1	662.0	1173.2	1332.1
enck85	08/16/94	4	87.70	121.7	661.7	1173.0	1331.9
enck86	08/17/94	4	87.93	122.0	661.9	1173.1	1332.0
enck87	08/18/94	4	87.72	121.8	661.7	1173.0	1331.9
enck88	08/19/94	4	87.73	121.8	661.7	1173.0	1331.9
enck89	08/21/94	4	87.77	121.8	661.7	1172.9	1331.9
enck90	08/22/94	4	87.66	121.7	661.6	1172.9	1331.8
enck91	08/23/94	4	87.45	121.5	661.4	1172.8	1331.8
enck92	08/24/94	4	87.59	121.6	661.6	1172.9	1331.9
enck93	08/29/94	4	88.02	122.1	662.0	1173.2	1332.2
enck94	09/02/94	4	87.84	121.9	661.7	1173.0	1331.9

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Gamma Spectroscopy Daily Efficiency Check

Sample ID	Date	Shelf	uCi per Sample Decayed to 4/1/92 at 12:00:00 ^a				
			Cd109	Co57	Cs137	Co60	Co60
effck2	04/11/94	~ 3cm	139.2	3.227	5.325	7.330	7.612
effck3	04/13/94	~ 3cm	137.4	3.221	5.445	7.370	7.573
enck4	04/14/94	~ 3cm	137.9	3.274	5.348	7.306	7.451
enck5	04/15/94	~ 3cm	139.7	3.197	5.262	7.306	7.374
enck6	04/18/94	~ 3cm	139.7	3.270	5.281	7.259	7.331
enck7	04/19/94	~ 3cm	138.7	3.292	5.274	7.180	7.411
enck8	04/20/94	~ 3cm	137.8	3.281	5.258	7.134	7.340
enck9	04/21/94	~ 3cm	140.0	3.307	5.321	7.211	7.407
enck10	04/22/94	~ 3cm	136.9	3.236	5.304	7.222	7.333
enck11	04/25/94	~ 3cm	138.2	3.335	5.243	7.308	7.292
enck12	04/26/94	~ 3cm	139.2	3.322	5.215	7.158	7.367
enck13	04/27/94	~ 3cm	137.4	3.249	5.270	7.183	7.218
enck14	04/28/94	~ 3cm	139.1	3.302	5.256	7.100	7.316
enck15	05/02/94	~ 3cm	139.4	3.237	5.328	7.109	7.339
enck16	05/03/94	~ 3cm	138.6	3.237	5.192	7.164	7.322
enck17	05/04/94	~ 3cm	136.4	3.177	5.139	6.843	6.973
enck18	05/05/94	~ 3cm	139.2	3.225	5.304	7.020	7.247
enck19	05/08/94	~ 3cm	139.7	3.263	5.235	7.125	7.244
enck20	05/09/94	~ 3cm	138.8	3.208	5.169	7.007	7.164
enck21	05/10/94	~ 3cm	139.2	3.265	5.183	7.132	7.252
enck22	05/11/94	~ 3cm	139.1	3.268	5.260	7.153	7.328
enck23	05/12/94	~ 3cm	139.0	3.237	5.164	7.071	7.213
enck24	05/13/94	~ 3cm	133.8	3.175	4.972	6.759	6.843
enck25	05/13/94	~ 3cm	139.8	3.212	5.322	7.189	7.349
enck26	05/13/94	~ 3cm	139.6	3.283	5.311	7.314	7.479
enck27	05/16/94	~ 3cm	139.5	3.257	5.162	7.088	7.156
enck28	05/17/94	~ 3cm	139.4	3.252	5.098	7.009	7.107
enck29	05/17/94	4 cm	105.8	2.504	3.891	5.308	5.595
enck30	05/18/94	4 cm	105.8	2.422	3.855	5.194	5.320
enck31	05/19/94	4 cm	105.1	2.458	3.919	5.317	5.243
enck32	05/20/94	4cm	105.9	2.507	3.819	5.223	5.320
enck33	05/21/94	4cm	105.4	2.482	3.900	5.154	5.329
enck34	05/23/94	4cm	106.2	2.412	3.844	5.228	5.353

^a point source calibration date

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Gamma Spectroscopy Daily Efficiency Check (continued)

Sample ID	Date	Shelf	uCi per Sample Decayed to 4/1/92 at 12:00:00 ^a				
			Cd109	Co57	Cs137	Co60	Co60
enck35	05/24/94	4 cm	105.9	2.501	3.856	5.324	5.377
enck36	05/25/94	4 cm	104.7	2.463	3.892	5.298	5.410
enck37	05/26/94	4 cm	106.0	2.459	3.929	5.291	5.406
enck38	05/27/94	4 cm	106.1	2.430	3.875	5.226	5.375
enck39	05/28/94	4 cm	107.2	2.504	3.866	5.341	5.370
enck40	05/31/94	4 cm	106.9	2.459	3.851	5.231	5.405
enck41	06/01/94	4 cm	104.6	2.494	3.834	5.139	5.272
enck42	06/02/94	4 cm	106.0	2.471	3.837	5.228	5.409
enck43	06/03/94	4 cm	106.6	2.476	3.820	5.178	5.281
enck44	06/04/94	4 cm	104.7	2.240	3.861	5.220	5.317
enck45	06/05/94	4 cm	106.1	2.481	3.778	5.183	5.335
enck46	06/06/94	4 cm	104.7	2.482	3.867	5.234	5.405
enck47	06/20/94	4cm	106.2	2.533	3.886	5.273	5.442
enck48	06/24/94	4 cm	105.5	2.448	3.885	5.289	5.364
enck49	06/26/94	4 cm	106.7	2.447	3.898	5.245	5.413
enck50	06/27/94	4cm	106.0	2.517	3.847	5.260	5.386
enck51	06/28/94	4cm	106.4	2.453	3.899	5.203	5.454
enck52	06/29/94	4cm	105.3	2.490	3.832	5.262	5.245
enck53	06/30/94	4cm	106.4	2.456	3.850	5.202	5.291
enck54	07/01/94	4cm	105.3	2.434	3.787	5.156	5.339
enck55	07/02/94	4cm	106.1	2.519	3.802	5.248	5.330
enck56	07/05/94	4cm	105.0	2.470	3.805	5.214	5.321
enck57	07/06/94	4cm	105.6	2.481	3.849	5.294	5.407
enck58	07/07/94	4cm	106.3	2.427	3.830	5.226	5.383
enck59	07/08/94	4cm	105.3	2.505	3.841	5.346	5.449
enck60	07/11/94	4cm	106.9	2.495	3.853	5.170	5.315
enck61	07/12/94	4cm	106.1	2.484	3.908	5.271	5.386
enck62	07/13/94	4cm	105.6	2.471	3.845	5.354	5.401
enck63	07/14/94	4cm	105.9	2.493	3.909	5.360	5.395
enck64	07/15/94	4cm	106.4	2.496	3.818	5.163	5.232
enck65	07/16/94	4cm	106.0	2.498	3.803	5.195	5.285
enck66	07/19/94	4cm	105.4	2.483	3.799	5.245	5.163
enck67	07/20/94	4cm	104.6	2.488	3.861	5.233	5.191

^a point source calibration date

APPENDIX E : INSTRUMENTATION QUALITY ASSURANCE DATA

Gamma Spectroscopy Daily Efficiency Check (continued)

Sample ID	Date	Shelf	uCi per Sample Decayed to 4/1/92 at 12:00:00 ^a				
			Cd109	Co57	Cs137	Co60	Co60
enck68	07/21/94	4cm	103.9	2.464	3.800	5.134	5.267
enck69	07/25/94	4cm	107.0	2.561	3.828	5.241	5.347
enck70	07/27/94	4cm	105.0	2.484	3.832	5.232	5.262
enck71	07/28/94	4cm	106.6	2.490	3.734	5.097	5.294
enck72	07/30/94	4cm	106.1	2.457	3.842	5.203	5.300
enck73	07/31/94	4cm	105.1	2.524	3.827	5.115	5.293
enck74	08/01/94	4cm	105.2	2.460	3.842	5.217	5.321
enck75	08/02/94	4cm	106.1	2.476	3.759	5.116	5.238
enck76	03/08/94	4cm	106.0	2.539	3.818	5.232	5.226
enck77	08/04/94	4cm	105.6	2.435	3.806	5.198	5.221
enck78	08/05/94	4cm	105.8	2.532	3.815	5.262	5.312
enck79	08/08/94	4cm	105.8	2.470	3.813	5.095	5.255
enck80	08/09/94	4cm	105.4	2.456	3.853	5.164	5.165
enck81	08/10/94	4cm	105.0	2.468	3.744	5.088	5.237
enck82	08/11/94	4cm	105.4	2.387	3.800	5.200	5.284
enck83	08/12/94	4cm	104.5	2.490	3.808	5.137	5.258
enck84	08/15/94	4cm	105.6	2.522	3.812	5.192	5.286
enck85	08/16/94	4cm	105.5	2.475	3.848	5.221	5.383
enck86	08/17/94	4cm	106.8	2.473	3.799	5.212	5.183
enck87	08/18/94	4cm	106.3	2.479	3.886	5.198	5.371
enck88	08/19/94	4cm	105.5	2.491	3.799	5.248	5.257
enck89	08/21/94	4cm	105.6	2.493	3.777	5.226	5.218
enck90	08/22/94	4cm	104.8	2.468	3.977	5.566	5.599
enck91	08/23/94	4cm	106.6	2.514	3.751	5.178	5.274
enck92	08/24/94	4cm	105.8	2.486	3.781	5.156	5.224
enck93	08/29/94	4cm	105.1	2.521	3.763	5.146	5.213
enck94	09/02/94	4cm	105.9	2.423	3.840	5.188	5.334

^a point source calibration date

APPENDIX F: INPUT USED IN COMPUTER CODES

Input for CACA2 Code	183
Input for Heating 7 Calculations	188

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for CACA2 Code

Run of CACA3fcm for HRB-22, full capsule load 8/01/94 kr isotopes, 1d time

2 1 1 4 9 12 12

HFIR PB-FACILITY, ORNL CROSS SECTIONS.

.00208	2200.	243.	241.	.00859	930.
432.	532.	5.21	37.1	0.0	24.3
52.6	44.0	8.97	180.	6.72	93.8
0.0	22.	221.	206.	342.	175.
35.5					

HFIR RB-FACILITY, ORNL CROSS SECTIONS.

.006	1500.	151.0	144.0	.023	550.
281.	329.	2.77	32.2	150.	16.1
40.1	27.9	10.2	110.	5.908	65.6
13.0	8.3	130.	142.	287.0	109.
36.5					

Kr-85m Kr-87 Kr-88 Kr-89

4.298D-5	0.04163513	0.0	0.02136450	0.01290639	0.00741821
0.0	0.00563661	0.00404017			
1.516D-4	0.07078017	0.0	0.03931578	0.02553161	0.01622367
0.0	0.00989911	0.00752204			
6.780D-5	0.07256433	0.0	0.05074410	0.03500810	0.02024764
0.0	0.01263172	0.00978544			
3.667D-3	0.07441334	0.0	0.05216196	0.04503012	0.02698440
0.0	0.01442620	0.01158421			
22.4649	5.0795	11.8944	4.4375	9.5625	23.2542
22.2542	11.7184	22.5836			

1.35496E-05

3.19364E-04

1.36542E-05

3.21830E-04

1.33285E-05

3.14153E-04

1.34844E-05

3.17827E-04

1.34828E-05

3.17789E-04

1.34671E-05

3.17419E-04

1.36799E-05

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for CACA2 Code (continued)

3.22435E-04

1.34333E-05

3.16624E-04

1.35018E-05

3.18239E-04

1.35298e-05

3.18898E-04

1.32888E-05

3.13217E-04

1.31901E-05

3.10892E-04

```

17.711    3.900
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
.8500     0.0   .8500     0.0   .8500     0.0
.8500     0.0   .8500
325       325   326       326   326       326
327       327   328
9.13049d14 2.01658d13 -1.74940d13 5.39957d12 -7.73530d11 5.57093d10
-1.93210d09 2.58347d07
1
1

```

```

1.0
17.726    3.9020
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
.8500     0.0   .8500     0.0   .8500     0.0
.8500     0.0   .8500
325       325   326       326   326       326
327       327   328
1.32270d15 -6.05040d12 3.93244d12 -8.33860d11 6.54438d10 -1.23040d09
-3.47590d07 1.09850d06
1
2

```

```

1.0
17.711    3.9000
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
.8500     0.0   .8500     0.0   .8500     0.0
.8500     0.0   .8500
325       325   326       326   326       326

```

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for CACA2 Code (continued)

327 327 328
1.73911d15 2.03662d12 -2.19790d12 9.01068d11 -1.72210d11 1.56960d10
-6.26180d08 8.97961d06

1

3

1.0
17.712 3.8990
2
.8500 0.0 .8500 0.0 .8500 0.0
.8500 0.0 .8500
325 325 326 326 326 326
327 327 328

2.09581d15 -2.40620d12 4.06812d12 -1.62870d12 2.48078d11 -1.62602d10
4.86893d08 -5.52870d06

1

4

1.0
17.737 3.9010
2
.8500 0.0 .8500 0.0 .8500 0.0
.8500 0.0 .8500
325 325 326 326 326 326
327 327 328

2.38939d15 -4.14520d12 4.80375d12 -1.76470d12 2.75183d11 -1.99310d10
6.75507d08 -8.70290d06

1

5

1.0
17.720 3.9020
2
.8500 0.0 .8500 0.0 .8500 0.0
.8500 0.0 .8500
325 325 326 326 326 326
327 327 328

2.55995d15 0.00000000 0.00000000 0.00000000 0.00000000 0.00000000
0.00000000 0.00000000

1

6

1.0
17.715 3.9010
2
.8500 0.0 .8500 0.0 .8500 0.0
.8500 0.0 .8500
325 325 326 326 326 326

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for CACA2 Code (continued)

```

      327      327      328
2.55995d15 0.00000000 0.00000000 0.00000000 0.00000000 0.00000000
0.00000000 0.00000000

```

1
7

```

      1.0
      17.726      3.9020
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
      .8500      0.0      .8500      0.0      .8500      0.0
      .8500      0.0      .8500
      325      325      326      326      326      326
      327      327      328
2.38939d15 -4.14520d12 4.80375d12 -1.76470d12 2.75183d11 -1.99310d10
6.75507d08 -8.70290d06

```

1
8

```

      1.0
      17.712      3.8990
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
      .8500      0.0      .8500      0.0      .8500      0.0
      .8500      0.0      .8500
      325      325      326      326      326      326
      327      327      328
2.09581d15 -2.40620d12 4.06812d12 -1.62870d12 2.48078d11 -1.62602d10
4.86893d08 -5.52870d06

```

1
9

```

      1.0
      17.721      3.9010
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
      .8500      0.0      .8500      0.0      .8500      0.0
      .8500      0.0      .8500
      325      325      326      326      326      326
      327      327      328
1.73911d15 2.03662d12 -2.19790d12 9.01068d11 -1.72210d11 1.56960d10
-6.26180d08 8.97961d06

```

1
10

```

      1.0
      17.702      3.8980
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
      .8500      0.0      .8500      0.0      .8500      0.0
      .8500      0.0      .8500
      325      325      326      326      326      326

```


APPENDIX F : INPUT USED IN COMPUTER CODES

Input for CACA2 Code (continued)

```

      327      327      328
1.32270d15 -6.05040d12 3.93244d12 -8.33860d11 6.54438d10 -1.23040d09
-3.47590d07 1.09850d06
1
11
      1.0
      17.717      3.900
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
      .8500      0.0      .8500      0.0      .8500      0.0
      .8500      0.0      .8500
      325      325      326      326      326      326
      327      327      328
9.13049d14 2.01658d13 -1.74940d13 5.39957d12 -7.73530d11 5.57093d10
-1.93210d09 2.58347d07
1
12
      1.0

```

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for Heating 7 Calculations

Cycle 2, Day 2 70% He 30% Ne Final 6/2/94

12000 3 0 1

regions

*****fuel compacts

```

1 1 0.501 1.30137 0.0 0.0 46.5 50.4
2 1 0 0 0 0 0 0
2 2 0.501 1.30060 0.0 0.0 42.6 46.5
2 2 0 0 0 0 0 0
3 3 0.501 1.29978 0.0 0.0 38.7 42.6
2 3 0 0 0 0 0 0
4 4 0.501 1.29894 0.0 0.0 34.8 38.7
2 4 0 0 0 0 0 0
5 5 0.501 1.29854 0.0 0.0 30.9 34.8
2 5 0 0 0 0 0 0
6 6 0.501 1.29838 0.0 0.0 27.0 30.9
2 6 0 0 0 0 0 0
7 6 0.501 1.29838 0.0 0.0 23.1 27.0
2 7 0 0 0 0 0 0
8 5 0.501 1.29854 0.0 0.0 19.2 23.1
2 8 0 0 0 0 0 0
9 4 0.501 1.29894 0.0 0.0 15.3 19.2
2 9 0 0 0 0 0 0
10 3 0.501 1.29978 0.0 0.0 11.4 15.3
2 10 0 0 0 0 0 0
11 2 0.501 1.30060 0.0 0.0 7.5 11.4
2 11 0 0 0 0 0 0
12 1 0.501 1.30137 0.0 0.0 3.6 7.5
2 12 0 0 0 0 0 0

```

*****sweep gas in central space

```

13 14 0.0001 0.50100 0.0 0.0 3.6 51.0013
2 0 0 0 0 0 5 5

```

*****carbon insulator at bottom

```

14 16 0.0001 1.92596 0.0 0.0 0.5774 2.67544
1 15 0 0 0 0 0 0

```

*****inconel primary at bottom of capsule

```

15 13 0.0001 2.09627 0.0 0.0 0.0059 0.5774
1 14 0 0 0 0 0 0

```

*****He gas between containments at bottom of capsule

```

16 15 0.0001 2.09627 0.0 0.0 -0.3243 0.0059
3 0 0 0 0 0 4 4
17 15 2.09627 2.09894 0.0 0.0 -0.3243 0.0059
3 0 0 0 0 0 4 4

```

*****inconel secondary at bottom of capsule

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for Heating 7 Calculations (continued)

```

18 13 0.0001 2.09627 0.0 0.0 -0.8958 -0.3243
3 14 0 2 0 0 2 0
19 13 2.09627 2.29409 0.0 0.0 -0.8958 -0.3243
3 14 0 2 0 0 2 0
*****
*****Sweep gas between fuel and SP2020
*****Top
20 14 0.50100 1.31063 0.0 0.0 50.4 51.0013
2 0 5 5 0 0 0 0
*****Region-1
21 14 1.30137 1.31063 0.0 0.0 46.5 50.4
2 0 5 5 0 0 0 0
*****Region-2
22 14 1.3006 1.31063 0.0 0.0 42.6 46.5
2 0 5 5 0 0 0 0
*****Region-3
23 14 1.29978 1.3108 0.0 0.0 38.7 42.6
2 0 5 5 0 0 0 0
*****Region-4
24 14 1.29894 1.31031 0.0 0.0 34.8 38.7
2 0 5 5 0 0 0 0
*****Region-5
25 14 1.29854 1.31034 0.0 0.0 30.9 34.8
2 0 5 5 0 0 0 0
*****Region-6
26 14 1.29838 1.3104 0.0 0.0 27 30.9
2 0 5 5 0 0 0 0
*****Region-7
27 14 1.29838 1.3104 0.0 0.0 23.1 27
2 0 5 5 0 0 0 0
*****Region-8
28 14 1.29854 1.31034 0.0 0.0 19.2 23.1
2 0 5 5 0 0 0 0
*****Region-9
29 14 1.29894 1.31031 0.0 0.0 15.3 19.2
2 0 5 5 0 0 0 0
*****Region-10
30 14 1.29978 1.3108 0.0 0.0 11.4 15.3
2 0 5 5 0 0 0 0
*****Region-11
31 14 1.3006 1.31063 0.0 0.0 7.5 11.4
2 0 5 5 0 0 0 0
*****Region-12
32 14 1.30137 1.31063 0.0 0.0 3.6 7.5

```

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for Heating 7 Calculations (continued)

```

2 0 5 5 0 0 0 0
*****
*****SP2020 Region-1
33 7 1.31063 1.87624 0.0 0.0 46.5 50.4
3 13 0 0 0 0 0 0
*****SP2020 Region-2
34 8 1.31063 1.89825 0.0 0.0 42.6 46.5
3 13 0 0 0 0 0 0
*****SP2020 Region-3
35 9 1.3108 1.89849 0.0 0.0 38.7 42.6
3 13 0 0 0 0 0 0
*****SP2020 Region-4
36 10 1.31031 1.91483 0.0 0.0 34.8 38.7
3 13 0 0 0 0 0 0
*****SP2020 Region-5
37 11 1.31034 1.91488 0.0 0.0 30.9 34.8
3 13 0 0 0 0 0 0
*****SP2020 Region-6
38 12 1.3104 1.91497 0.0 0.0 27 30.9
3 13 0 0 0 0 0 0
*****SP2020 Region-7
39 12 1.3104 1.91497 0.0 0.0 23.1 27
3 13 0 0 0 0 0 0
*****SP2020 Region-8
40 11 1.31034 1.91488 0.0 0.0 19.2 23.1
3 13 0 0 0 0 0 0
*****SP2020 Region-9
41 10 1.31031 1.91483 0.0 0.0 15.3 19.2
3 13 0 0 0 0 0 0
*****SP2020 Region-10
42 9 1.3108 1.89849 0.0 0.0 11.4 15.3
3 13 0 0 0 0 0 0
*****SP2020 Region-11
43 8 1.31063 1.89825 0.0 0.0 7.5 11.4
3 13 0 0 0 0 0 0
*****SP2020 Region-12
44 7 1.31063 1.87624 0.0 0.0 3.6 7.5
3 13 0 0 0 0 0 0
*****
*****SP2020_inconel sweep gas gap
*****Region-1
45 14 1.87624 1.92596 0.0 0.0 46.5 50.4
3 0 5 5 0 0 0 0
*****Region-2

```

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for Heating 7 Calculations (continued)

```

46 14 1.89825 1.92596 0.0 0.0 42.6 46.5
3 0 5 5 0 0 0 0
*****Region-3
47 14 1.89849 1.92596 0.0 0.0 38.7 42.6
3 0 5 5 0 0 0 0
*****Region-4
48 14 1.91483 1.92596 0.0 0.0 34.8 38.7
3 0 5 5 0 0 0 0
*****Region-5
49 14 1.91488 1.92596 0.0 0.0 30.9 34.8
3 0 5 5 0 0 0 0
*****Region-6
50 14 1.91497 1.92596 0.0 0.0 27 30.9
3 0 5 5 0 0 0 0
*****Region-7
51 14 1.91497 1.92596 0.0 0.0 23.1 27
3 0 5 5 0 0 0 0
*****Region-8
52 14 1.91488 1.92596 0.0 0.0 19.2 23.1
3 0 5 5 0 0 0 0
*****Region-9
53 14 1.91483 1.92596 0.0 0.0 15.3 19.2
3 0 5 5 0 0 0 0
*****Region-10
54 14 1.89849 1.92596 0.0 0.0 11.4 15.3
3 0 5 5 0 0 0 0
*****Region-11
55 14 1.89825 1.92596 0.0 0.0 7.5 11.4
3 0 5 5 0 0 0 0
*****Region-12
56 14 1.87624 1.92596 0.0 0.0 3.6 7.5
3 0 5 5 0 0 0 0
*****
*****Inconel primary wall
57 13 1.92596 2.09627 0.0 0.0 0.5774 57.2713
3 14 0 0 0 0 0
*****He gas between containments
58 15 2.09627 2.09894 0.0 0.0 0.0059 67.1925
3 0 4 4 0 0 0 0
*****Inconel secondary wall
59 13 2.09894 2.29409 0.0 0.0 -0.3243 67.1925
3 14 0 2 0 0 0 2
*****inconel top cap
60 13 0.0001 2.09627 0.0 0.0 57.2713 58.2238

```

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for Heating 7 Calculations (continued)

```

3 14 0 0 0 0 0 0
*****Carbon insulator at top
61 16 0.0001 0.501 0.0 0.0 51.0013 51.635
2 15 0 0 0 0 0 0
62 16 0.501 1.30137 0.0 0.0 51.0013 51.635
2 15 0 0 0 0 0 0
63 16 1.30137 1.31063 0.0 0.0 51.0013 51.635
2 15 0 0 0 0 0 0
*****SP2020 at top
64 7 1.31063 1.87624 0.0 0.0 50.4 52.27
1 13 0 0 0 0 0 0
*****sweep gas at top
65 14 1.87624 1.92596 0.0 0.0 50.4 53.54
1 0 3 3 0 0 0 0
66 14 0.0001 1.92596 0.0 0.0 53.54 57.2713
1 0 0 0 0 0 3 3
*****Carbon insulator at top
67 16 0.0001 1.87624 0.0 0.0 52.27 53.54
1 15 0 0 0 0 0 0
68 16 0.0001 1.31063 0.0 0.0 51.635 52.27
1 15 0 0 0 0 0 0
*****Graphite ring
69 7 1.05698 1.31063 0.0 0.0 2.83546 3.6
1 13 0 0 0 0 0 0
*****graphite support disk
70 7 0.0001 1.52673 0.0 0.0 2.67544 2.83546
1 13 0 0 0 0 0 0
***** Carbond between disk and inconel
71 16 1.52673 1.92596 0.0 0.0 2.67544 2.83546
1 15 0 0 0 0 0 0
*****Gap between fuel and disk
72 16 0.0001 1.05698 0.0 0.0 2.83546 3.6
1 15 0 0 0 0 0 0
***** SP2020 graphite
73 7 1.31063 1.87624 0.0 0.0 2.83546 3.6
1 13 0 0 0 0 0 0
*****Helium at top
74 15 0.0001 2.09627 0.0 0.0 58.2238 67.1925
3 0 0 0 0 0 4 4
*****Sweep gas between SP2020 and Inconel Region-72
75 14 1.87624 1.92596 0.0 0.0 2.83546 3.6
3 0 5 5 0 0 0 0
*****
materials

```

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for Heating 7 Calculations (continued)

```

1 fuelZ1 0.170304 1.93 0 0 0 0
2 fuelZ2 0.170304 1.93 0 0 0 0
3 fuelZ3 0.170304 1.93 0 0 0 0
4 fuelZ4 0.170304 1.93 0 0 0 0
5 fuelZ5 0.170304 1.93 0 0 0 0
6 fuelZ6 0.170304 1.93 0 0 0 0
7 Z1 1 1.78 0 -8 0 0 0
8 Z2 1 1.78 0 -8 0 0 0
9 Z3 1 1.78 0 -8 0 0 0
10 Z4 1 1.78 0 -8 0 0 0
11 Z5 1 1.78 0 -8 0 0 0
12 Z6 1 1.78 0 -8 0 0 0
13 inc-718 1 8.1933 0 -9 0 0 0
14 he-ne 1 0 0 -13 0 0 0
15 helium 1 0 0 -10 0 0 0
16 Carbon 0.0015 0.15 0 0 0 0 0
*****

```

initial temperatures

```

1 200 0 0 0
2 1200 0 0 0
3 800 0 0 0
*****

```

heat generations

```

1 56.0 0 0 0 0
2 78.8 0 0 0 0
3 98.9 0 0 0 0
4 118.5 0 0 0 0
5 132.6 0 0 0 0
6 141.2 0 0 0 0
7 143.0 0 0 0 0
8 132.3 0 0 0 0
9 118.6 0 0 0 0
10 100.2 0 0 0 0
11 78.4 0 0 0 0
12 56.0 0 0 0 0
13 0.85 0 0 0 -3
14 0.85 0 0 0 -6
15 1.02 0 0 0 0
16 15 0 0 0 0
*****

```

boundary conditions

```

1 2 48.89
2 1 48.89

```

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for Heating 7 Calculations (continued)

```

2.4
3 3 0 0 0 0 0
0 2.00E-12
4 3 0 0 0 0 0
0 1.40E-12
5 3 0 0 0 0 0
0 5.10E-12
*****
xgrid
0.00010 0.50100 1.05698 1.29838 1.29854 1.29894
@ 1.29978 1.30060 1.30137 1.31031 1.31034 1.31040
@ 1.31063 1.31080 1.52673 1.87624 1.89825
@ 1.89849 1.91483 1.91488 1.91497 1.92596 2.09627
@ 2.09894 2.29409
2 4 1 1 1 1
@ 1 1 1 1 1 1
@ 1 2 2 1 1
@ 1 1 1 1 3 1
@ 3
*****
zgrid
-0.8958 -0.3243 0.0059 0.5774 2.67544 2.83546
@ 3.6 7.5 11.4 15.3 19.2 23.1
@ 27 30.9 34.8 38.7 42.6 46.5
@ 50.4 51.0013 51.635 52.27 53.54 57.2713
@ 58.2238 67.1925
4 2 4 4 2 2
@ 4 4 4 4 4 4
@ 4 4 4 4 4 4
@ 2 2 2 2 2 2
@ 2 2
*****
tabular functions
1 15
-8.56 6 -3.48 8.8 1.6 12 6.68 15.1
@ 11.76 17.6 16.84 19.9 21.92 22.3 27 23.6
@ 32.08 22.9 37.16 21.1 42.24 17.6 47.32 15.1
@ 52.4 12 57.48 8.8 62.56 6
2 15
-8.56 7 -3.48 9.5 1.6 13 6.68 16
@ 11.76 20.4 16.84 22.3 21.92 24.6 27 25.9
@ 32.08 25.7 37.16 23.4 42.24 20.4 47.32 16
@ 52.4 13 57.48 9.5 62.56 7
3 15

```


APPENDIX F : INPUT USED IN COMPUTER CODES

Input for Heating 7 Calculations (continued)

```

-8.56 7 -3.48 10.6 1.6 14.1 6.68 18.6
@ 11.76 22.2 16.84 24.6 21.92 25.6 27 26.6
@ 32.08 26.4 37.16 24.6 42.24 22.2 47.32 18.6
@ 52.4 14.1 57.48 10.6 62.56 7
4 15
-8.56 22.9 -3.48 37.7 1.6 55.7 6.68 72.1
@ 11.76 87.7 16.84 106.5 21.92 122.9 27 135.2
@ 32.08 132.7 37.16 116.3 42.24 98.3 47.32 81.9
@ 52.4 65.5 57.48 47.5 62.56 32.8
5 15
-8.56 35.2 -3.48 51.6 1.6 68 6.68 84.4
@ 11.76 95.8 16.84 117.2 21.92 136 27 144.2
@ 32.08 142.6 37.16 131.1 42.24 106.5 47.32 84.4
@ 52.4 68 57.48 51.6 62.56 35.2
6 15
-8.56 36.9 -3.48 53.3 1.6 77 6.68 102.4
@ 11.76 114.7 16.84 131 21.92 141.6 27 147.5
@ 32.08 145.8 37.16 139.3 42.24 123 47.32 102.4
@ 52.4 77 57.48 53.3 62.56 36.9
***** Thermal cond. of compact
7 14
100 0.3614 200 0.3353 300 0.3112 400 0.2891
@ 500 0.269 600 0.251 700 0.235 800 0.221
@ 900 0.209 1000 0.1991 1100 0.1912 1200 0.1853
@ 1300 0.1815 1400 0.1797
***** Thermal cond. of SP2020
8 8
227 0.1268 327 0.1557 427 0.1836
@ 527 0.2324 627 0.2520 727 0.3021
@ 827 0.3056 927 0.3281
***** Inconel 718 thermal conductivity
9 10
21.11 0.111 93.33 0.124 204.44 0.141 315.56 0.16
@ 426.67 0.177 537.78 0.195 648.89 0.212 760 0.231
@ 871.11 0.249 1093.33 0.28269
***** 100% He and 0% Ne
10 11
27 0.001512 127 0.001850 227 0.002163 327 0.002458
@ 427 0.002739 527 0.003007 627 0.003266 727 0.003516
@ 827 0.003759 927 0.003996 1027 0.004226
***** 90% He and 10% Ne
11 11
27 0.001405 127 0.001718 227 0.002007 327 0.002279
@ 427 0.002538 527 0.002786 627 0.003025 727 0.003255

```

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for Heating 7 Calculations (continued)

```
@ 827 0.003479 927 0.003697 1027 0.00391
*****80% He and 20% Ne
12 11
27 0.001297 127 0.001585 227 0.001851 327 0.002101
@ 427 0.002338 527 0.002565 627 0.002784 727 0.002995
@ 827 0.0032 927 0.0034 1027 0.003594
*****70% He and 30% Ne
13 11
27 0.00119 127 0.001453 227 0.001696 327 0.001923
@ 427 0.002139 527 0.002346 627 0.002545 727 0.002737
@ 827 0.002924 927 0.003106 1027 0.003283
*****60% He and 40% Ne
14 11
27 0.001084 127 0.001323 227 0.001542 327 0.001748
@ 427 0.001944 527 0.002131 627 0.00231 727 0.002484
@ 827 0.002653 927 0.002817 1027 0.002976
*****50% He and 50% Ne
15 11
27 0.000980 127 0.001194 227 0.001392 327 0.001577
@ 427 0.001752 527 0.00192 627 0.002081 727 0.002236
@ 827 0.002387 927 0.002534 1027 0.002677
*****40% He and 60% Ne
16 11
27 0.000877 127 0.001069 227 0.001244 327 0.001409
@ 427 0.001564 527 0.001713 627 0.001856 727 0.001994
@ 827 0.002128 927 0.002258 1027 0.002385
*****30% He and 70% Ne
17 11
27 0.000777 127 0.000946 227 0.0011 327 0.001245
@ 427 0.001381 527 0.001512 627 0.001637 727 0.001758
@ 827 0.001875 927 0.001989 1027 0.002101
*****20% He and 80% Ne
18 11
27 0.000679 127 0.000826 227 0.00096 327 0.001085
@ 427 0.001203 527 0.001316 627 0.001424 727 0.001528
@ 827 0.00163 927 0.001728 1027 0.001824
*****10% He and 90% Ne
19 11
27 0.000584 127 0.000709 227 0.000823 327 0.000929
@ 427 0.00103 527 0.001125 627 0.001217 727 0.001305
@ 827 0.001391 927 0.001475 1027 0.001556
*****0% He and 100% Ne
20 11
27 0.000491 127 0.000595 227 0.00069 327 0.000778
```

APPENDIX F : INPUT USED IN COMPUTER CODES

Input for Heating 7 Calculations (continued)

@ 427 0.000861 527 0.00094 627 0.001016 727 0.001089

@ 827 0.00116 927 0.001229 1027 0.001296

steady state parameters

1 12000 1E-08 1.9 15

%

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