#422594

WPO 46674

SUMMARY OF EPA-MANDATED PERFORMANCE ASSESSMENT VERIFICATION TEST (REPLICATE 1) AND COMPARISON WITH THE COMPLIANCE CERTIFICATION APPLICATION CALCULATIONS

July 25, 1997

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

APPENDICES PAGE

TABLE OF CONTENTS (continued)

1.0 INTRODUCTION

This report summarizes the results obtained from replicate 1 of the U.S. Environmental Protection Agency (EPA) Mandated Performance Assessment Verification Test of the U.S. Department of Energy's Performance Assessment (PA) Analyses supporting the Waste Isolation Pilot Plant (WIPP) Compliance Certification Application (CCA). Results from replicates 2 and 3 will be presented in a subsequent document. The EPA-Mandated Performance Assessment Verification Test (replicate 1) will be referred to as the PAVT in the remainder of this report.

The report is divided into seven sections: An Introduction and Summary of the Differences Between the PAVT and CCA (Section 1); Salado Flow Calculations (Section 2); Salado Transport Calculations (Section 3); Culebra Flow and Transport Calculations (Section 4); Cuttings, Cavings, and Spallings Calculations (Section 5); Direct Brine Release Calculations (Section 6); and Complimentary Cumulative Distribution Function (CCDF) Calculations (Section 7). In each section, the following information is provided:

- A description of changes in PA input parameters requested by EPA.
- A description of changes in model implementation and computer codes.
- Results of the PAVT calculations and their comparison with the CCA results.

Because of the importance of understanding the results of the Salado Flow calculations, a detailed analysis of gas and brine migration modeling results is presented in Appendices A and B. Additional information supporting the other calculations is also provided in Appendices C (Salado Transport), D (Culebra Transport), E (Cuttings, Cavings, and Spallings), and F (Direct Brine Release). In the final section, CCDFs representing futures of the repository and calculation of cumulative releases for the PAVT are presented and compared to the CCA CCDFs. Supporting information is provided in Appendix G. A listing of code versions and associated Software Problem Report (SPR) numbers is included in Appendix H. Detailed discussions of CCA results may be found in the Analysis Packages listed in the References (Section 8).

It is important to note that a different set of seed numbers, which determine the random LHS combinations of uncertain input parameters for BRAGFLO and other codes, was used in the PAVT than in the CCA. Therefore, specific vectors from PAVT replicate 1 do not map directly to vectors from CCA replicate 1.

1.1 Summary of Differences Between the PAVT and CCA

In both the PAVT and the CCA, total releases to the accessible environment were dominated by cuttings and spallings releases, with a smaller contribution from direct brine release. Culebra, Salado interbed, and Dewey Lake releases across the LWB were negligible. The PAVT mean CCDF for total normalized releases to the accessible environment does not exceed or come within an order of magnitude of the EPA Limit. The following discussion summarizes the major differences in the PAVT results relative to the CCA. Factors affecting indirect releases through the Salado and Culebra are discussed first, followed by a discussion of direct releases (cuttings, spallings, and direct brine release) and CCDFs. Factors responsible for differences include parameter changes and model implementation changes. Impact analyses (see Appendix H for a table of associated Software Problem Reports (SPRs)) performed on CCA results suggest that computational model (code) changes had an insignificant impact on results.

Salado Flow

Undisturbed Scenario

In terms of repository pressures, brine saturations, and gas generation, undisturbed repository performance was not significantly impacted by changes in parameters. However, one vector (#38) produced increased flow (3326 m^3) across the land withdrawal boundary (LWB). This flow was caused by a combination of factors: the highest interbed permeability, the 8th highest DRZ permeability, low far-field pressure, and a high repository pressure at 1000 years. The maximum flow across the LWB in the CCA was 216 m^3.

Disturbed Scenarios S2 and S3 (E1 intrusion at 350 and 1000 years)

Parameter changes that had the most impact on repository performance in the E1 intrusion scenarios were the brine reservoir volume (approximately two orders of magnitude larger), borehole permeability (lower minimum permeabilities), and corrosion rates (higher). These changes resulted in higher repository pressures and larger upward borehole brine flows to the Culebra, with the maximum flow about two times larger than the maximum amount predicted in the CCA (102,340 m^3 versus 67,000 m^3). As in the undisturbed scenario, one vector (#38) produced increased flow (2630 m^3) across the LWB. In the CCA, flows across the LWB in all disturbed scenarios were negligible.

Disturbed Scenarios S4 and S5 (E2 intrusion at 350 and 1000 years)

Parameter changes that had the most impact on repository performance in the E2 intrusion scenarios were corrosion rates (higher), borehole permeabilities (lower minimum permeabilities), and DRZ permeability (sampled over a range of higher and lower permeabilities). These changes resulted in higher repository pressures and smaller upward borehole brine flows to the Culebra, with the maximum flow about ten times smaller than the maximum amount predicted in the CCA (4,474 m^3 versus 40,000 m^3). As in E1 intrusion scenario, cumulative brine flow across the LWB was significant in vector #38 (2735 m^3) only.

Disturbed Scenario S6 (E2 intrusion at 1000 years and an E1 intrusion at 2000 years)

Parameter changes that had the most impact on repository performance in the E2E1 intrusion scenarios were the brine reservoir volume (approximately two orders of magnitude larger), borehole permeability (lower minimum permeabilities), and corrosion rates (higher). As in scenarios S2 and S3, these changes resulted in higher repository pressures and larger upward borehole brine flows to the Culebra, with the maximum flow about two times larger than the maximum amount predicted in the CCA (108,960 m^3 versus 62,000 m^3). Again, cumulative brine flow across the LWB was significant in vector #38 (3203 m^3) only.

Salado Transport

Parameter changes that had the most impact on radionuclide releases to the Culebra via the borehole were the changes in actinide solubilities. In particular, these changes substantially reduced the solubilities of ^{241}Am in the Salado and Castile brines and reduced the solubility of ^{239}Pu in the Salado brine. The solubility of ^{239}Pu in the Castile brine was similar to the CCA. ^{241}Am was the dominant radionuclide for transport at early time (<2000 years after closure) while ^{239}Pu was the dominant radionuclide at later times. Castile solubilities were used for E1 intrusion scenarios (S2, S3, S6) and Salado solubilities were used for the other scenarios. For the E1 scenarios with early time intrusions, larger upward borehole flows (relative to the CCA), were offset by the reduced ^{241}Am solubility. As a consequence, radionuclide releases to the Culebra from early time E1 intrusions were only slightly larger, on average, than those in the CCA. For later E1 intrusion times, PAVT releases tended to be moderately larger than those in the CCA. The larger flows were not offset as much at later times because the ^{239}Pu solubilities were similar to the CCA. For E2 intrusions at all times, radionuclide releases to the Culebra tended to be less than in the CCA due to both lower upward borehole flows and reduced solubilities. There were no radionuclide releases upward in the borehole beyond the top of the Rustler in any scenario. Integrated releases across the LWB via the interbeds were very small (< 5.0E-10 EPA units) even for vector #38. These releases were likely artificial and due to numerical dispersion.

Culebra Transport

The most significant factors impacting Culebra transport were the matrix distribution coefficients (k_d). The k_d s were represented by loguniform probability distributions rather than the uniform probability distributions used in the CCA. As a result, sampled k_d values tended to be lower in the PAVT and several more realizations discharged ^{234}U across the LWB in the PAVT than in the CCA. However, as in the CCA, these discharges were very small and were not significant contributors to total mean CCDF.

Cuttings, Cavings, and Spallings

The most significant factors that impacted total cuttings, cavings, and spallings volume releases were the waste shear strength and the parameters influencing repository pressure (corrosion rate, brine reservoir volume, and borehole permeability). The change in the waste shear strength distribution produced more cuttings and cavings volume releases in the PAVT. Repository pressures in the PAVT disturbed scenarios tended to be higher than in the CCA (more vectors had pressures above 8 MPa). As a result, more vectors produced spallings volume releases.

Direct Brine Release

The most significant factors impacting direct brine release volumes were the parameters influencing repository pressure (corrosion rate, brine reservoir volume, waste permeability, and borehole permeability). In the disturbed scenarios, repository pressures and direct brine volume releases tended to be higher in the PAVT as compared to the CCA, with nearly as many replicate one realizations releasing brine as in all three replicates of the CCA combined. However, due to reduced actinide solubilities (as described previously in the Salado Transport summary), direct brine radionuclide releases in the PAVT were only slightly larger than in the CCA.

CCDFs

The PAVT mean CCDF for total normalized releases is a factor of 2 to 3 larger than the CCA mean CCDF for all probabilities of exceedance. This increase is primarily due to the increase in cuttings releases. Total releases to the accessible environment were dominated by cuttings and spallings releases, with a smaller contribution from direct brine release. Culebra, Salado interbed, and Dewey Lake releases across the LWB were negligible. The PAVT mean CCDF for total normalized releases to the accessible environment does not exceed or come within an order of magnitude of the EPA Limit.

2.0 SALADO FLOW CALCULATIONS

This section summarizes differences between the PAVT and CCA Salado two-phase flow calculations. These calculations were performed using BRAGFLO. Six different repository scenarios were considered:

S1. Undisturbed
S2. E1 Intrusion at 350 Years
S3. E1 Intrusion at 1000 Years
S4. E2 Intrusion at 350 Years
S5. E2 Intrusion at 1000 Years
S6. E2E1 Intrusion

This summary focuses on values of key BRAGFLO performance measures for each scenario. Key performance measures for the S1 scenario include pressure and brine saturation in the panel at times of 350 and 1000 years and cumulative brine flow across the LWB via the interbeds. Brine flow up the shaft was found to be insignificant and is therefore not presented. Panel pressure and brine saturation values are useful for assessing the potential impact of the PAVT input changes on direct releases up the borehole (spallings and direct brine release). Cumulative brine flow across the LWB is useful since the interbeds are the primary pathway for radionuclide release in the undisturbed scenario. In the disturbed scenarios, S2, S3, S4, S5, and S6, the borehole is the primary pathway for radionuclide release. Thus, in addition to the S1 performance measures, a key performance measure is the cumulative brine flow up the borehole to the Culebra. Figures and Tables with performance measure values are provided. A detailed discussion of two-phase flow behavior (gas and brine migration) in each of the repository scenarios is provided in Appendix A. Differences between the PAVT and CCA results are summarized in Appendix B.

2.1 Changes to Parameters

Changes to input parameters were implemented in BRAGFLO as follows:

(1) DRZ log permeability (m^2) was changed from a constant value of -15.0 to a uniform distribution ranging from -19.4 to -12.5 with a mean and median of -15.95.

(2) Inundated corrosion rate (m/s) distribution (without CO_2) was changed from a uniform range of 0 to 1.58×10^{-14} to a uniform range of 0 to 3.17×10^{-14}.

(3) Waste permeability (m^2) was changed from a constant value of 1.7×10^{-13} to a constant value of 2.4×10^{-13}.

(4) Castile brine reservoir rock compressibility (Pa^{-1}) was changed from a log triangular distribution ranging from -11.3 to -8.0 to a triangular distribution ranging from 2.0×10^{-11} to 1.0×10^{-10} (log: -10.7 to -10.0).

(5) Castile brine reservoir porosity was calculated from the condition that the product of Castile brine reservoir rock compressibility (Pa^{-1}) and porosity was constant and equal to 1.848×10^{-11} Pa^{-1}. Based on the new range for rock compressibility (see (4) above) the calculated porosity ranges from 0.1848 to 0.924. The bulk volume of the brine reservoir is fixed by the grid geometry at 1.84×10^7 m^3. The sampled porosities resulted in one hundred initial brine reservoir volumes (m^3) ranging from 3.6×10^6 to 1.4×10^7. In the CCA, the volume of brine in the Castile brine reservoir was sampled between a minimum of 32,000 m^3 and a maximum of 160,000 m^3 resulting in five possible volumes of 32,000, 64,000, 96,000, 128,000, and 160,000 m^3, which were controlled by the parameter GRIDFLO (see Section 2.2).

(6) Sand-filled borehole log permeability (m^2) was changed from a uniform distribution ranging from -14.0 to -11.0 to a uniform distribution ranging from -16.3 to -11.0.

(7) Concrete plug permeability (m^2) was changed from a constant value of 5.0×10^{-17} to a uniform distribution ranging from 1.0×10^{-19} to 1.0×10^{-17}.

2.2 Changes to Model

To avoid calculating unrealistic repository pressures (far above lithostatic), the DRZ was allowed to fracture under the same conceptual model and parameters as Marker Beds 138 and 139.

One computational model change was implemented via input parameters. For vector #78 of the S2 scenario, the solution tolerances were changed to prevent excessive time step reductions. This change was not required for any other vectors or any other scenarios. These tolerance changes are described in Appendix B (Section B.5).

As described in Section 2.1, parameter change (5), Castile brine reservoir volumes were determined in the CCA using the sampled parameter GRIDFLO. In the PAVT, brine reservoir volumes were calculated as described above in parameter change (5), and GRIDFLO was not used.

Subsequent to the CCA, several minor code changes were implemented in BRAGFLO. These changes were shown to have no impact on the CCA Salado flow calculations (SPR Numbers 97-002, 97-003, 97-007, 97-008, 97-009, 97-010, which are all described in the Change Control Form for BRAGFLO, WPO #45223).

2.3 Impact of Changes on Model Results

2.3.1 Undisturbed Scenario S1

Parameter changes that had the most impact on repository performance in the undisturbed scenario were corrosion rates (higher) and DRZ permeability (sampled over a range with both higher and lower permeabilities and a lower median). Values for important performance measures are provided in Table 2.1. The higher corrosion rates produced marginally higher pressures through 1000 years in the PAVT relative to the CCA. The range in DRZ permeability resulted in a wider range in brine inflow volumes. However, 64 realizations had initial DRZ permeabilities less than the CCA value of $1x10^{-15}$ m^2 which resulted in lower mean and median cumulative brine flows into the repository than in the CCA. Higher brine consumption rates (associated with the higher corrosion rates), slightly higher pressures, and lower inflow rates resulted in lower brine saturations in the repository. At times greater than 1000 years, these conditions resulted in slightly lower gas generation rates and less overall total gas generation.

DRZ fracturing appears to have had only a small effect on brine flows within the repository and DRZ and no apparent impact on flow up the shaft or across the LWB. Cumulative brine flows across the LWB were slightly less than in the CCA (see Table 2.1), except for one vector (#38) which produced significant flow (3326 m^3) across the LWB (the majority of this flow occurs in Marker Bed 139). The maximum flow across the LWB in the CCA was 275 m^3. This significant flow in vector #38 was caused by a combination of factors: the highest interbed permeability, the 8th highest DRZ permeability, low far-field pressure, and a high repository pressure at 1000 years.

2.3.2 Disturbed Scenarios S2 and S3 (E1 intrusion at 350 and 1000 years)

Parameter changes that had the most impact on repository performance in the E1 intrusion scenarios were the brine reservoir volume (approximately two orders of magnitude larger), borehole permeability (lower minimum permeabilities), and corrosion rates (higher). Values for important performance measures are provided in Tables 2.2 and 2.3. Panel pressures and brine saturations prior to intrusion were the same as shown in Table 2.1 (prior to intrusion, the E1 intrusion scenarios were identical to the undisturbed scenario). The higher corrosion rates produced marginally higher repository pressures prior to intrusion in the PAVT relative to the CCA. Following intrusion, lower borehole permeabilities and higher corrosion rates in combination with increased flow from the brine reservoir (brine reservoir pressures remain high after intrusion) resulted in substantially higher pressures in the repository. Brine flows upward in the borehole to the Culebra were substantially higher, with the maximum flow about two times larger than that predicted in the CCA. As in the CCA, there were also very small amounts of brine flow upward in the borehole beyond the top of the Rustler (< 1.2 m^3). Salado transport results (see Section 3.3.2) show that these small volumes of brine were uncontaminated. As in the undisturbed scenario, one vector (#38) produced significant flow across the LWB. In the CCA, flows across the LWB in all disturbed scenarios were negligible. In addition to having high interbed and DRZ permeability, vector #38 also had the 17th lowest borehole permeability. As a consequence, flow across the LWB is decreased only slightly from the S1 value.

2.3.3 Disturbed Scenarios S4 and S5 (E2 intrusion at 350 and 1000 years)

Parameter changes that had the most impact on repository performance in the E2 intrusion scenarios were corrosion rates (higher), borehole permeabilities (lower minimum permeabilities), and DRZ permeability (sampled over a range of higher and lower permeabilities). Values for important performance measures are provided in Tables 2.4 and 2.5. Panel pressures and brine saturations prior to intrusion were the same as shown in Table 2.1 (prior to intrusion, the E2 intrusion scenarios were identical to the undisturbed scenario). Higher corrosion rates produced marginally higher pressures prior to intrusion in the PAVT relative to the CCA. The range in DRZ permeability resulted in a wider range in brine inflow volumes. However, 64 realizations had initial DRZ permeabilities less than the CCA value of 1×10^{-15} m^2 which resulted in lower mean and median cumulative brine flows into the repository than in the CCA. The net result of the higher brine consumption, higher pressures, and decreased brine inflow was lower brine saturations in the repository. Following the borehole intrusion, panel pressures stayed higher in the PAVT than in the CCA due primarily to the lower borehole permeabilities.

Although the upper end of the borehole permeability range was not changed, brine flows up the borehole were substantially less than those predicted in the CCA. This behavior was due to a combination of factors: lower brine saturations in the repository; lower borehole permeabilities at the lower end of the range; and the range of DRZ permeabilities. In the CCA, the DRZ added brine directly to the borehole in the highest flow cases. In the PAVT, the highest flow cases have a high borehole permeability and a low DRZ permeability. As a result there was no additional contribution from the low permeability DRZ to flow up the borehole (which is already lower than in the CCA because of the lower brine saturations). As in the E1 intrusion scenarios, cumulative brine flow across the LWB was significant in vector #38 (2735 m^3) only.

2.3.4 Disturbed Scenario S6 (E2 intrusion at 1000 years and an E1 intrusion at 2000 years)

Parameter changes that had the most impact on repository performance in the E2E1 intrusion scenarios were the brine reservoir volume (approximately two orders of magnitude larger), borehole permeability (lower minimum permeabilities), and corrosion rates (higher). Results for S6 are provided in Table 2.6. As in scenarios S2 and S3, S6 was dominated by the E1 intrusion because of the large brine reservoir. Panel pressures and brine saturations prior to the E2 intrusion were the same as shown in Table 2.1 (prior to first intrusion, the E2E1 intrusion scenarios is identical to the undisturbed scenario). The higher corrosion rates produced marginally higher repository pressures prior to the E2 intrusion in the PAVT relative to the CCA. Following intrusion, lower borehole permeabilities and higher corrosion rates in combination with increased flow from the brine reservoir (brine reservoir pressures remain high after intrusion) resulted in substantially higher pressures in the repository. Brine flows upward in the borehole to the Culebra were substantially higher, with the maximum flow about two times larger than that predicted in the CCA. Flows up the borehole were slightly larger than those in S2 and S3 due to a larger head gradient between the Castile brine reservoir and panel at the time of the E1 intrusion. The larger head gradient between the Castile and panel was due to the E2 intrusion at 1000 years and the subsequent venting of panel gas up the borehole. As in E1 and E2 intrusion scenarios, cumulative brine flow across the LWB was significant in vector #38 (3203 m^3) only.

Table 2.1. 10th Percentile, Median, Mean, 90th Percentile, and Maximum Output Variable Values from the PAVT and CCA Simulations for Scenario S1 (Undisturbed).

Output Variable Description	Time (yrs)	PAVT Simulation (R1)					CCA Simulation (R1, R2, R3)				
		10th	Median	Mean	90th	Max.	10th	Median	Mean	90th	Max
Average Pressure in Waste Panel (MPa)	350	1.6	4.0	4.4	9.0	10.5	1.0 1.0 1.2	3.2 3.2 3.2	4.0 4.0 4.0	9.2 9.2 9.2	10.4 10.2 10.0
	1000	3.7	7.1	7.7	12.9	14.0	2.1 2.0 2.7	6.1 6.1 6.0	6.7 6.7 6.7	12.2 12.4 12.4	13.5 14.0 14.5
	10000	6.9	10.2	10.5	13.6	16.8	7.0 7.1 6.8	10.8 11.0 10.7	10.8 10.8 10.7	14.2 14.1 14.0	15.5 16.3 16.2
Average Brine Saturation in Waste Panel	350	0.04	0.16	0.23	0.52	0.98	0.12 0.09 0.09	0.22 0.23 0.23	0.27 0.27 0.27	0.50 0.42 0.55	0.80 0.75 0.88
	1000	0.00	0.17	0.26	0.70	0.98	0.10 0.07 0.08	0.26 0.27 0.28	0.33 0.34 0.34	0.77 0.67 0.85	0.98 0.91 0.98
Cumulative Brine Flow out of MBs Across LWB (m^3)	10000	0.0	0.0	35	0.0	3326	0.0 0.0 0.0	0.1 0.1 0.1	5.0 4.2 4.5	0.3 0.4 0.3	216 275 168
Total Volume of Gas Generated (10^6 m^3)	10000	5.2	11.2	11.9	18.8	34.0	5.0 5.0 4.8	11.8 12.5 11.8	12.2 12.4 12.1	21.5 20.0 18.8	28.1 30.7 26.0
Cumulative Brine Flow into Repository (m^3)	10000	1000	7500	13000	35000	72000	3200 3200 3000	11200 12400 12200	16000 16000 16000	33000 32000 33500	85000 57000 55500

Table 2.2. 10th Percentile, Median, Mean, 90th Percentile, and Maximum Output Variable Values from the PAVT and CCA Simulations for Scenario S2 (E1 Intrusion at 350 Years).

Output Variable Description	Time (yrs)	PAVT Simulation (R1)					CCA Simulation (R1, R2, R3)				
		10th	Median	Mean	90th	Max.	10th	Median	Mean	90th	Max
Average Pressure in Waste Panel (MPa)	10000	4.7	7.9	8.9	14.2	16.6	1.6 1.5 1.5	4.7 5.0 4.7	4.5 4.5 4.5	7.3 7.0 7.3	9.7 10.1 11.0
Average Brine Saturation in Waste Panel	350	0.04	0.16	0.23	0.52	0.98	0.12 0.09 0.09	0.22 0.23 0.23	0.27 0.27 0.27	0.50 0.42 0.55	0.80 0.75 0.88
Cum. Brine Flow up Borehole at Rustler/Cul. (m^3)	10000	0.0	27	6381	18100	105040	0.0 0.0 0.0	0 0 0	1030 1230 350	1330 700 670	39000 62000 12500
Cumulative Brine Flow out of MBs Across LWB (m^3)	10000	0.0	0.0	26	0.0	2487	0.02 0.02 0.02	0.08 0.08 0.08	0.11 0.11 0.10	0.25 0.26 0.22	0.79 0.43 0.43

Table 2.3. 10th Percentile, Median, Mean, 90th Percentile, and Maximum Output Variable Values from the PAVT and CCA Simulations for Scenario S3 (E1 Intrusion at 1000 Years).

Output Variable Description	Time (yrs)	PAVT Simulation (R1)					CCA Simulation (R1, R2, R3)				
		10th	Median	Mean	90th	Max.	10th	Median	Mean	90th	Max
Average Pressure in Waste Panel (MPa)	10000	3.2	7.4	8.1	12.7	15.4	1.7 1.5 1.5	4.7 5.0 4.7	4.5 4.5 4.5	7.3 7.0 7.2	9.2 10.2 10.1
Average Brine Saturation in Waste Panel	1000	0.00	0.17	0.26	0.70	0.98	0.10 0.07 0.08	0.26 0.27 0.28	0.33 0.34 0.34	0.77 0.67 0.85	0.98 0.91 0.98
Cum. Brine Flow up Borehole at Rustler/Cul. (m^3)	10000	0.0	16	5935	18300	102340	0.0 0.0 0.0	0.0 0.0 0.0	1050 1150 450	1300 425 900	35200 67000 15600
Cumulative Brine Flow out of MBs Across LWB (m^3)	10000	0.0	0.0	26	0.0	2630	0.02 0.02 0.02	0.08 0.08 0.08	0.12 0.12 0.11	0.25 0.26 0.24	1.28 0.66 0.41

Table 2.4. 10th Percentile, Median, Mean, 90th Percentile, and Maximum Output Variable Values from the PAVT and CCA Simulations for Scenario S4 (E2 Intrusion at 350 Years).

Output Variable Description	Time (yrs)	PAVT Simulation					CCA Simulation				
		10th	Median	Mean	90th	Max.	10th	Median	Mean	90th	Max
Average Pressure in Waste Panel (MPa)	10000	1.7	6.4	6.5	12.5	13.9	1.4 1.4 1.4	3.3 3.4 3.4	3.9 3.9 3.9	6.7 6.4 6.4	9.0 10.0 9.3
Average Brine Saturation in Waste Panel	350	0.04	0.16	0.23	0.52	0.98	0.12 0.09 0.09	0.22 0.23 0.23	0.27 0.27 0.27	0.50 0.42 0.55	0.80 0.75 0.88
Cum. Brine Flow up Borehole at Rustler/Cul. (m^3)	10000	0.0	2.3	151	238	4774	0.0 0.0 0.0	0.0 0.0 0.0	638 330 250	110 93 70	40000 17800 13700
Cumulative Brine Flow out of MBs Across LWB (m^3)	10000	0.0	0.0	26	0.0	2640	0.02 0.02 0.02	0.08 0.08 0.08	0.11 0.11 0.10	0.25 0.23 0.22	0.73 0.42 0.35

Table 2.5. 10th Percentile, Median, Mean, 90th Percentile, and Maximum Output Variable Values from the PAVT and CCA Simulations for Scenario S5 (E2 Intrusion at 1000 Years).

Output Variable Description	Time (yrs)	PAVT Simulation					CCA Simulation				
		10th	Median	Mean	90th	Max.	10th	Median	Mean	90th	Max
Average Pressure in Waste Panel (MPa)	10000	1.6	6.4	6.5	12.5	14.1	1.4 1.4 1.4	3.3 3.4 3.2	3.9 3.9 3.9	6.8 6.4 6.4	9.0 10.2 9.3
Average Brine Saturation in Waste Panel	1000	0.00	0.17	0.26	0.70	0.98	0.10 0.07 0.08	0.26 0.27 0.28	0.33 0.34 0.34	0.77 0.67 0.85	0.98 0.91 0.98
Cum. Brine Flow up Borehole at Rustler/Cul. (m^3)	10000	0.0	1.8	133	160	4472	0.0 0.0 0.0	0.0 0.0 0.0	563 270 210	100 75 70	36100 13000 13000
Cumulative Brine Flow out of MBs Across LWB (m^3)	10000	0.0	0.0	27	0.0	2735	0.02 0.02 0.02	0.08 0.08 0.08	0.12 0.11 0.11	0.25 0.25 0.23	1.28 0.71 0.38

Table 2.6. 10th Percentile, Median, Mean, 90th Percentile, and Maximum Output Variable Values from the PAVT and CCA Simulations for Scenario S6 (E2E1 Intrusion).

Output Variable Description	Time (yrs)	PAVT Simulation					CCA Simulation				
		10th	Median	Mean	90th	Max.	10th	Median	Mean	90th	Max
Average Pressure in Waste Panel (MPa)	10000	4.8	7.5	8.4	12.9	14.5	1.5 1.5 1.5	4.8 5.1 5.2	4.5 4.5 4.6	7.2 6.9 7.3	9.1 10.2 9.5
Average Brine Saturation in Waste Panel	1000	0.00	0.17	0.26	0.70	0.98	0.10 0.07 0.08	0.26 0.27 0.28	0.33 0.34 0.34	0.77 0.67 0.85	0.98 0.91 0.98
Cum. Brine Flow up Borehole at Rustler/Cul. (m^3)	10000	0.0	66	7108	22000	108960	0.0 0.0 0.0	20 20 20	950 1280 620	780 340 1700	37100 62000 14000
Cumulative Brine Flow out of MBs Across LWB (m^3)	10000	0.0	0.0	32	0.0	3203	0.02 0.02 0.02	0.08 0.08 0.09	0.12 0.11 0.11	0.25 0.25 0.23	1.65 0.56 0.39

3.0 SALADO TRANSPORT CALCULATIONS

This section summarizes differences between the PAVT and CCA Salado transport calculations. These calculations were performed using NUTS and PANEL. NUTS was used to calculate the transport of radionuclides throughout the repository, shaft system, Salado formation, and possible human-intrusion boreholes in scenarios S1, S2, S3, S4, and S5. PANEL was used to calculate the movement of radionuclides through the repository and boreholes in the multiple intrusion scenario S6 only. The key performance measure for comparing PAVT and CCA Salado transport results is cumulative radionuclide release to the Culebra via the intruding borehole. Transport of radionuclides to the accessible environment via the shaft and interbeds was found to be insignificant in both the PAVT and the CCA. Detailed Salado transport results are presented in Appendix C.

3.1 Changes to Parameters

The EPA requested that the solubilities of actinides in oxidation states +III, +IV, and +V be changed as shown in Table 3.1.

Table 3.1. PAVT and CCA Solubilities (moles/liter) of Actinide Oxidation States in Salado and Castile Brines Controlled by the $MgO/MgCO_3$ Buffer

	+III		+IV		+V		+VI	
	PAVT	CCA	PAVT	CCA	PAVT	CCA	PAVT	CCA
Salado	1.2E-7	5.8E-7	1.3E-8	4.4E-6	2.4E-7	2.3E-6	8.7E-6	8.7E-6
Castile	1.3E-8	6.5E-8	4.1E-8	6.0E-9	4.8E-7	2.2E-6	8.8E-6	8.8E-6

3.2 Changes to Model

The NUTS PAVT calculations were performed using an implicit dissolution/precipitation algorithm whereas the CCA NUTS calculations were performed using an explicit dissolution/precipitation algorithm. This algorithm change resulted from a previous investigation of the NUTS CCA calculations (SPR No. 97-004). This investigation indicated that radionuclide releases to the Culebra via the borehole and across the LWB via the interbeds may have been underestimated because of the explicit implementation of the precipitation/dissolution algorithm in NUTS version 2.03. To determine if CCA results were underestimated, a fully implicit dissolution/precipitation algorithm was incorporated in NUTS version 2.04 (Change Control Form, WPO #45998) and several CCA calculations were repeated. The conclusion of this investigation was that the impact of the explicit precipitation/dissolution algorithm on the CCA results was not important and that releases were not significantly underestimated. Based on this investigation it is concluded that differences in results between the CCA and PAVT are not attributable to the change in the dissolution/precipitation algorithm change. However, because the implicit dissolution/precipitation algorithm is more robust and stable, it was implemented in the PAVT calculations.

In the CCA, ^{238}Pu and ^{239}Pu shared the same elemental solubility. To simplify the implementation of the implicit dissolution/precipitation algorithm in the PAVT calculations, these two isotopes were treated as separate elements and did not share the same elemental solubility. This treatment was implemented by assigning the solubility of ^{239}Pu equal to the Pu solubility times the mole fraction of ^{239}Pu at time zero (Stockman, 1997). This simplification is conservative in the sense that it overestimates ^{238}Pu and ^{239}Pu solubilities during the early part of the 10,000 year regulatory period. However, the impact of this overestimation of solubilities should not be significant.

3.3 Impact of Changes on Model Results

A screening analysis using a hypothetical inert tracer was conducted to reduce the large number of potential Salado transport simulations to a tractable number. An identical screening analysis was conducted previously for the CCA. For the screening analysis, a source concentration of 1 kg/m^3 was applied to the source region. All realizations that transported a cumulative mass of inert tracer greater than or equal to 10^{-7} kg to the accessible environment over 10,000 years were considered significant and retained for complete transport analysis. The number of realizations screened in for scenarios S1, S2, S3, S4, and S5 are summarized in Table 3.2. A total of 151 runs were screened in for further analysis in PAVT replicate 1 compared to 57, 53, and 64 runs in replicates 1,2, and 3 of the CCA. Note that in scenario S6, all 100 realizations are analyzed using PANEL.

Table 3.2. Summary of Realizations Screened In

Scenario	PAVT	CCA		
	R1	R1	R2	R3
S1	4	1	5	3
S2	68	23	17	22
S3	50	21	21	25
S4	15	6	5	7
S5	14	6	5	7

As noted in Section 3.1, the solubilities of actinides in oxidation states +III, +IV, and +V were changed in the PAVT (Table 3.1). These changes reduce the effective solubilities of contaminants with the exception of actinides in the +IV state in the Castile brine. Note that the actinide oxidation states of +VI were unchanged. The net effect of the solubility changes is illustrated in

Figures 3.1 to 3.4. These Figures[1] show representative contaminant concentrations in EPA units/m^3 within the repository as a function of time. S1 concentrations, which assume that Salado brine is present in the repository, are shown for the PAVT (Figure 3.1) and the CCA (Figure 3.2). S2 concentrations, which assume that Castile brine is present in the repository, are also shown for the PAVT (Figure 3.3.) and CCA (Figure 3.4). Two major regions are evident in each of these figures. In the first several thousand years, constant concentrations are seen for the period in which ^{241}Am (oxidation state +III) controls the total EPA unit concentration and is solubility limited. This region is shorter for realizations that sampled a higher ^{241}Am solubility. The transition to the second region occurs as the ^{241}Am changes from solubility to inventory limited and the EPA unit concentrations decrease. In the second region, ^{239}Pu solubility (oxidation state +III or +IV) controls the EPA unit concentration. Note that higher concentrations are constant but the lower concentrations show a slow decrease with time. This behavior occurs because the sampled ^{239}Pu solubility is low enough that other isotopes, which are inventory limited and have intermediate half-lives, contribute to the total EPA unit concentrations.

In the first region (^{241}Am-controlled), the lower ^{241}Am solubilities in the PAVT are seen by comparing Figures 3.1 (PAVT) and 3.2 (CCA) for the Salado brine and Figures 3.3 (PAVT) and 3.4 (CCA) for the Castile brine. For the Salado brine, the PAVT ^{241}Am concentrations are clustered around 1×10^{-3} EPA units whereas in the CCA they are clustered around the higher value of 6×10^{-3} EPA units. For the Castile brine, the PAVT ^{241}Am concentrations are clustered around 2×10^{-4} EPA units whereas in the CCA they are clustered around 8×10^{-4} EPA units.

These same four Figures can also be used to compare solubilities in the second region (^{239}Pu-controlled). For the Salado brine, the PAVT ^{239}Pu concentrations (Figure 3.1) are lower and are clustered around 2×10^{-5} EPA units whereas in the CCA (Figure 3.2) there are two distinct clusters of solubilities, one around the solubility of ^{239}Pu(+III) and another around the solubility of ^{239}Pu(+IV). In the PAVT, two distinct clusters are not seen because both actinide solubilities are very low. For the Castile brine, the PAVT ^{239}Pu concentrations (Figure 3.3) show a slightly larger spread than the CCA values (Figure 3.4), but with an increased number of lower concentrations near 1×10^{-5} EPA units. The larger spread is due to the increase in ^{239}Pu(+IV) solubility for Castile brine.

Based on the above discussion, both the Salado and Castile solubilities of ^{241}Am tended to be significantly lower in the PAVT than in the CCA. Salado ^{239}Pu solubilities in the PAVT also tended to be much lower than in the CCA. In Castile brine, ^{239}Pu solubilities were higher or lower than in the CCA depending on the sampled oxidation state, and on average were similar to the CCA.

---

[1] These Figures were constructed for illustrative purposes only using the computer code PANEL. Concentrations are based on a typical waste panel brine volume of 4,000 m^3. Since PANEL requires a flow rate as input, a low flow rate of 10^{-5} m^3/yr was assigned to prevent inventory depletion during PANEL calculations.

3.3.1 Undisturbed Performance

The Salado flow analysis showed that only one undisturbed scenario (S1) vector (#38) produced significant flow (3326 m^3) outward across the LWB. This vector was the only realization that released contaminants across the LWB (see Appendix C). These releases occurred at the LWB to the south of the repository in Marker Bed 139, with a total integrated discharge of 4.84E-10 EPA units out of all interbeds (see Figures C.1 - C.7 in Appendix C). The majority of this activity was due to ^{239}Pu (3.4E-10 EPA units) and ^{241}Am (8.67E-11 EPA units). These results are similar to the CCA results where a total activity of 3.33E-10 EPA units was released. Further, as in the CCA, these releases were likely due to numerical dispersion that was caused by the coarse lateral gridding between the repository and lateral LWB, and large time steps at later times in the calculation. This conclusion is also supported by the fact that the pore volume of Marker Bed 139 (which provides most of the flow in vector #38) between the repository and LWB is greater than 155,000 m^3.

3.3.2 Disturbed Performance (E1, E2, and E2E1 Intrusions)

In both the PAVT and the CCA, the only pathway for significant release in the disturbed scenarios was the intrusion borehole. This behavior, described below, justifies the use of PANEL, which ignores all pathways other than the borehole, for S6 calculations. For Salado transport calculations under disturbed conditions, brine may enter the repository from the Castile, Salado, or Culebra. For E1 intrusion scenarios where a borehole penetrates the Castile brine reservoir (S2, S3, S6), actinide solubilities in Castile brine were used. For E2 intrusions (S4, S5), solubilities in Salado brine were used.

The brine flow fields required for NUTS transport calculations are provided by the two-phase flow model BRAGFLO. BRAGFLO was used to model two intrusion times of 350 and 1000 years. The flow fields corresponding to these two intrusion times were used to approximate flow fields for the additional intrusion times of 100, 3000, 5000, 7000, and 9000 years. For example, for the 100-year intrusion, flow fields from the 350-year intrusion were applied beginning at 100 years. For the period from time zero to 100 years, flow fields from the undisturbed scenario were used. Similarly, for each of the intrusions at 3000, 5000, 7000, and 9000 years, BRAGFLO flow fields from the 1,000-year intrusion were applied beginning at 3000, 5000, 7000, and 9000 years, respectively. In each of these intrusion cases, from time zero until the intrusion time, flow fields from the undisturbed scenario were used.

In the E2E1 intrusion scenario, one borehole penetrates the waste-filled panel at 1000 years and a second borehole, drilled at the same location, penetrates the panel and underlying Castile brine reservoir at 2000 years. The additional brine flow fields required for the PANEL calculations (at times 100, 350, 1000, 4000, 6000, and 9,000) were simulated by shifting the BRAGFLO E2E1 flow conditions at the time of the E1 intrusion (2000 years) to the nominal intrusion time of concern. For example, a 100 year intrusion was simulated by shifting the BRAGFLO time steps backwards in time by 1900 years. Thus, at the start of the 100 year PANEL run, the repository had already had an E2 intrusion for 900 years and at 100 years, the E1 intrusion occurred. The releases during the final 1900 years were obtained by using the panel brine volume and borehole flow rate from the final time step in the BRAGFLO E2E1 simulation. For a nominal intrusion time after 2000 years, the BRAGFLO initial conditions were maintained until the first BRAGFLO time shifted time step. This method of time shifting resulted in artificially high repository saturations at very early times in the 100, 350, and 1000 year time shifted runs, which can be seen in the large volumes of brine that were released at early times in these calculations.

The integrated discharges (in EPA units) up the borehole and into the Culebra from the NUTS and PANEL calculations for all screened-in realizations are listed in tabular form in Appendix C. The realizations in each of the Tables were sorted by the total EPA units discharged to the Culebra summed over all 5 transported isotopes. Figures C.8 through C.91 show the discharge to the Culebra for all intrusion times for scenarios 2 through 5. For all scenarios, releases decreased with later intrusion times because of ^{241}Am decay. Releases also decreased with later intrusion time because of less time for long-term flow after the intrusion. Figures C.92 through C.133 show the discharge to the Culebra for the multiple intrusion E2E1. Like the E1 intrusions, the E2E1 intrusion was ^{241}Am dominated for the first 3000 to 4000 years, after which radioactive decay of ^{241}Am results in ^{239}Pu dominance. In the S2 and S3 scenarios, a small amount of brine (<1.2 m^3) flowed upward in the borehole beyond the top of Rustler (see Appendix A, Sections A.2.1.1.1.3 and A.2.1.2). NUTS transport results show that this brine was uncontaminated.

A summary of PAVT replicate 1 statistical measures (10th percentile, median, mean, 90th percentile, and maximum) for total releases to the Culebra (in EPA units) for each scenario and intrusion time is shown in Table 3.3. Equivalent information for the three CCA replicates combined is shown in Table 3.4

For the E1 scenarios (S2, S3, S6) with early time (<2000 years after closure) intrusions, larger upward borehole flows in the PAVT relative to the CCA, were offset by the reduced ^{241}Am solubility. As a consequence, radionuclide releases to the Culebra from early time E1 intrusions were only slightly larger, on average, in the PAVT (Table 3.3) than in the CCA (Table 3.4). For later E1 intrusion times, PAVT releases tended to be moderately larger than those in the CCA. The larger PAVT flows were not offset as much at later times because the ^{239}Pu solubilities were similar to the CCA. Releases to the Culebra from later E1 intrusion times were much less than from early intrusions.

The top realizations in terms of maximum 10,000 year integrated release (in EPA units) to the Culebra for specified intrusion times for scenarios S2 through S6 are summarized for the PAVT (maximum from replicate 1) in Table 3.5 and for the CCA (maximum from all 3 replicates) in Table 3.6. As was predicted in the CCA, high releases were controlled either by ^{241}Am or ^{239}Pu. Contrary to the larger mean and 90th percentile releases in the PAVT, maximum releases to the Culebra from early time E1 intrusions were smaller in the PAVT. For example, in PAVT replicate 1, the maximum release to the Culebra is 28.9 total EPA units (vector #28, S6 at 100 yrs) as compared to 95.0 total EPA units (vector #111, S6 at 100 yrs) in the CCA (replicate 2). It should be noted that in the CCA the maximum releases to the Culebra in replicates 1 and 3 were 9.2 and 26.3 total EPA units, respectively. Both of these maximum releases are less than the maximum PAVT replicate 1 release. The reduced maximum early time E1 release in the PAVT was likely caused by the significant reduction in the Castile solubilities of ^{241}Am. The ^{241}Am solubility in PAVT vector #28 was 1.62E-7 moles/liter versus 2.63E-6 moles/liter in CCA vector #111. In the PAVT, vector #28 had the largest brine discharge to the Culebra (108,960 m^3 in S6, 102,340 m^3 in S3, and 105,040 m^3 in S2); in the CCA, vector #111 had the highest brine discharge to the Culebra (62,000 m^3 in S6, 67,000 m^3 in S3, and 62,000 m^3 in S2). The lower ^{241}Am solubility in the PAVT offset the higher upward borehole flow, resulting in a lower release to the Culebra.

For E2 intrusions (S4, S5) at all times, radionuclide releases to the Culebra tended to be much less than in the CCA due to both lower upward borehole flows and reduced solubilities of both ^{241}Am and ^{239}Pu in Salado brine. For E2 intrusions, maximum releases were also significantly lower in the PAVT.

Note that other factors such as volume of repository swept by incoming brine and the flow path brine takes once it is contaminated, also influence the quantity of radionuclides that enter the borehole and flow upward to the Culebra. These factors were responsible for the large differences in releases between scenarios S3 and S6 in both the PAVT and the CCA. For example, in S3 a large fraction of the brine flow that flowed upward from the Castile continued to flow up the borehole without mixing with the waste. This behavior occurred for two reasons: (i) the waste inventory in the region near the borehole became depleted; and (ii) outward flow into the repository from the borehole decreased as the repository became saturated with brine. In S6, radionuclide releases computed with PANEL were based on the assumption that all of the brine that flowed upward beyond the top of the DRZ had contacted all of the waste within the intruded panel and was then instantly injected into the Culebra.

In the single intrusion scenarios, the highest release to the Culebra in the PAVT was from scenario S2 (vector#28), an E1 intrusion at 100 years. In the CCA, the highest single intrusion release occurred in scenario S4 (vector#24), an E2 intrusion at 100 years. CCA vector #24 discharged 40,000 m^3 to the Culebra following the E2 intrusion. In the PAVT, the E2 intrusions (S4 and S5 scenarios) produced only small brine discharges to the Culebra (< 5000 m^3) as discussed in Section 2 and, coupled with the reduced ^{241}Am solubility, produced much lower releases than in the CCA. For further comparison, the maximum releases to the Culebra in the PAVT from ^{241}Am, ^{239}Pu, ^{238}Pu, ^{234}U, and ^{230}Th were 27.5, 2.99, 0.202, 0.014, and 0.029 EPA units, respectively. In the CCA, the corresponding maximum releases to the Culebra were 94.6, 20.8, 0.005, 0.013, and 0.177 EPA units. Again, as was predicted in the CCA, high releases to the Culebra are controlled either by ^{241}Am or ^{239}Pu.

Table 3.3. Statistical Summary of PAVT Total 10,000 Year Integrated Release (EPA units) up the Borehole to the Culebra* For Each Scenario (Replicate 1).

Scenario	Intrusion Time (yrs)	10th Percentile	Median	Mean	90th Percentile	Maximum
S1	none*	0.00	0.00	4.8E-12	0.00	4.8E-10
S2	100	0.00	8.00E-06	0.164	0.621	2.90
	350	0.00	7.97E-06	0.146	0.597	2.51
S3	1000	0.00	0.00	6.65E-02	0.270	1.11
	3000	0.00	0.00	4.13E-02	0.174	0.65
	5000	0.00	0.00	3.15E-02	0.128	0.52
	7000	0.00	0.00	2.20E-02	0.0771	0.29
	9000	0.00	0.00	1.27E-02	0.0401	0.23
S4	100	0.00	0.00	3.77E-03	1.28E-03	0.20
	350	0.00	0.00	3.43E-03	1.09E-03	0.19
S5	1000	0.00	0.00	1.52E-03	6.37E-04	0.06
	3000	0.00	0.00	5.22E-04	0.00	0.01
	5000	0.00	0.00	2.24E-04	0.00	0.01
	7000	0.00	0.00	1.14E-04	0.00	0.01
	9000	0.00	0.00	0.00	0.00	0.0
S6	100	1.51E-12	3.31E-03	1.38	4.26	28.9
	350	1.51E-12	3.25E-03	1.30	4.07	27.1
	1000	1.51E-12	3.23E-03	1.03	3.64	18.2
	2000	1.44E-12	3.04E-03	0.567	2.40	7.11
	4000	0.00	6.03E-04	0.150	0.408	2.46
	6000	0.00	1.25E-04	0.0974	0.207	1.82
	9000	0.00	7.60E-05	0.0496	0.0951	1.01

* S1 releases are through the Salado interbeds to the LWB. S2 through S6 releases are up the borehole to the Culebra

Table 3.4. Statistical Summary of CCA Total 10,000 Year Integrated Release (EPA units) up the Borehole to the Culebra* For Each Scenario (Replicates 1,2, and 3).

Scenario	Intrusion Time (yrs)	10th Percentile	Median	Mean	90th Percentile	Maximum
S1	none*	0.00	0.00	1.5E-12	0.00	3.3E-10
S2	100	0.00	0.00	0.0750	0.0395	6.62
	350	0.00	0.00	0.0650	0.0323	6.04
S3	1000	0.00	0.00	2.66E-02	2.53E-02	2.19
	3000	0.00	0.00	4.69E-03	5.10E-03	0.36
	5000	0.00	0.00	1.76E-03	1.98E-03	0.24
	7000	0.00	0.00	9.63E-04	7.50E-04	0.14
	9000	0.00	0.00	3.00E-04	1.04E-04	0.035
S4	100	0.00	0.00	9.25E-02	0.00	21.1
	350	0.00	0.00	8.83E-02	0.00	20.4
S5	1000	0.00	0.00	7.68E-02	0.00	18.4
	3000	0.00	0.00	4.76E-02	0.00	11.6
	5000	0.00	0.00	2.14E-02	0.00	5.62
	7000	0.00	0.00	5.48E-03	0.00	1.10
	9000	0.00	0.00	1.43E-04	0.00	0.027
S6	100	0.00	2.06E-03	0.728	0.629	95.0
	350	0.00	2.05E-03	0.603	0.555	68.7
	1000	0.00	2.05E-03	0.368	0.479	26.0
	2000	0.00	1.76E-03	0.165	0.384	5.57
	4000	0.00	2.68E-04	0.0162	0.0408	0.792
	6000	0.00	4.63E-05	6.52E-03	8.85E-03	0.491
	9000	0.00	2.75E-05	3.16E-03	4.98E-03	0.195

* S1 releases are through the Salado interbeds to the LWB. S2 through S6 releases are up the borehole to the Culebra

Table 3.5. Maximum PAVT Total 10,000 Year Integrated Release (EPA units) up the Borehole to the Culebra For Each Disturbed Scenario at Specified Intrusion Times (Replicate 1).

Scenario	Intrusion Time (yrs)	Vector	^{241}Am	^{239}Pu	^{238}Pu	^{234}U	^{230}Th	Total
S2	100	28	2.33E+00	5.36E-01	3.15E-02	3.06E-04	3.15E-03	2.90
	350	28	1.96E+00	5.32E-01	1.79E-02	3.02E-04	3.15E-03	2.51
S3	1000	28	5.83E-01	5.20E-01	2.95E-06	2.84E-04	2.82E-04	1.11
	3000	83	3.03E-02	6.15E-01	2.03E-08	4.20E-03	5.69E-04	0.65
	5000	83	6.60E-03	5.10E-01	1.53E-10	3.48E-03	5.64E-04	0.52
	7000	28	1.34E-04	2.90E-01	8.41E-15	1.67E-04	1.51E-03	0.29
	9000	28	6.01E-06	2.29E-01	5.98E-17	9.71E-05	1.25E-03	0.23
S4	100	28	1.90E-01	1.34E-02	4.66E-05	9.52E-07	1.95E-05	0.20
	350	28	1.79E-01	1.34E-02	1.84E-06	9.50E-07	1.95E-05	0.19
S5	1000	28	4.91E-02	1.13E-02	2.02E-08	8.06E-07	1.70E-05	0.06
	3000	5	4.90E-06	1.43E-02	1.17E-16	3.90E-05	9.56E-06	0.01
	5000	28	7.66E-05	1.13E-02	1.52E-14	8.06E-07	1.66E-05	0.01
	7000	28	6.29E-06	1.13E-02	3.27E-17	8.06E-07	1.66E-05	0.01
	9000		0.0	0.0	0.0	0.0	0.0	0.0
S6	100	28	2.75E+01	1.29E+00	1.05E-01	5.64E-04	1.77E-02	28.9
	350	28	2.58E+01	1.28E+00	1.47E-02	5.61E-04	1.86E-02	27.1
	1000	28	1.70E+01	1.23E+00	8.85E-05	5.43E-04	2.08E-02	18.2
	2000	54	4.48E+00	2.60E+00	6.54E-08	9.75E-03	1.82E-02	7.11
	4000	54	2.44E-01	2.19E+00	9.59E-15	8.25E-03	1.92E-02	2.46
	6000	54	3.17E-02	1.76E+00	1.40E-21	6.66E-03	1.82E-02	1.82
	9000	54	1.80E-02	9.73E-01	7.81E-32	3.70E-03	1.23E-02	1.01

Maximum Release 28.9

Table 3.6. Maximum CCA Total 10,000 Year Integrated Release (EPA units) up the Borehole to the Culebra For Each Disturbed Scenario at Specified Intrusion Times (Replicates 1,2, and 3).

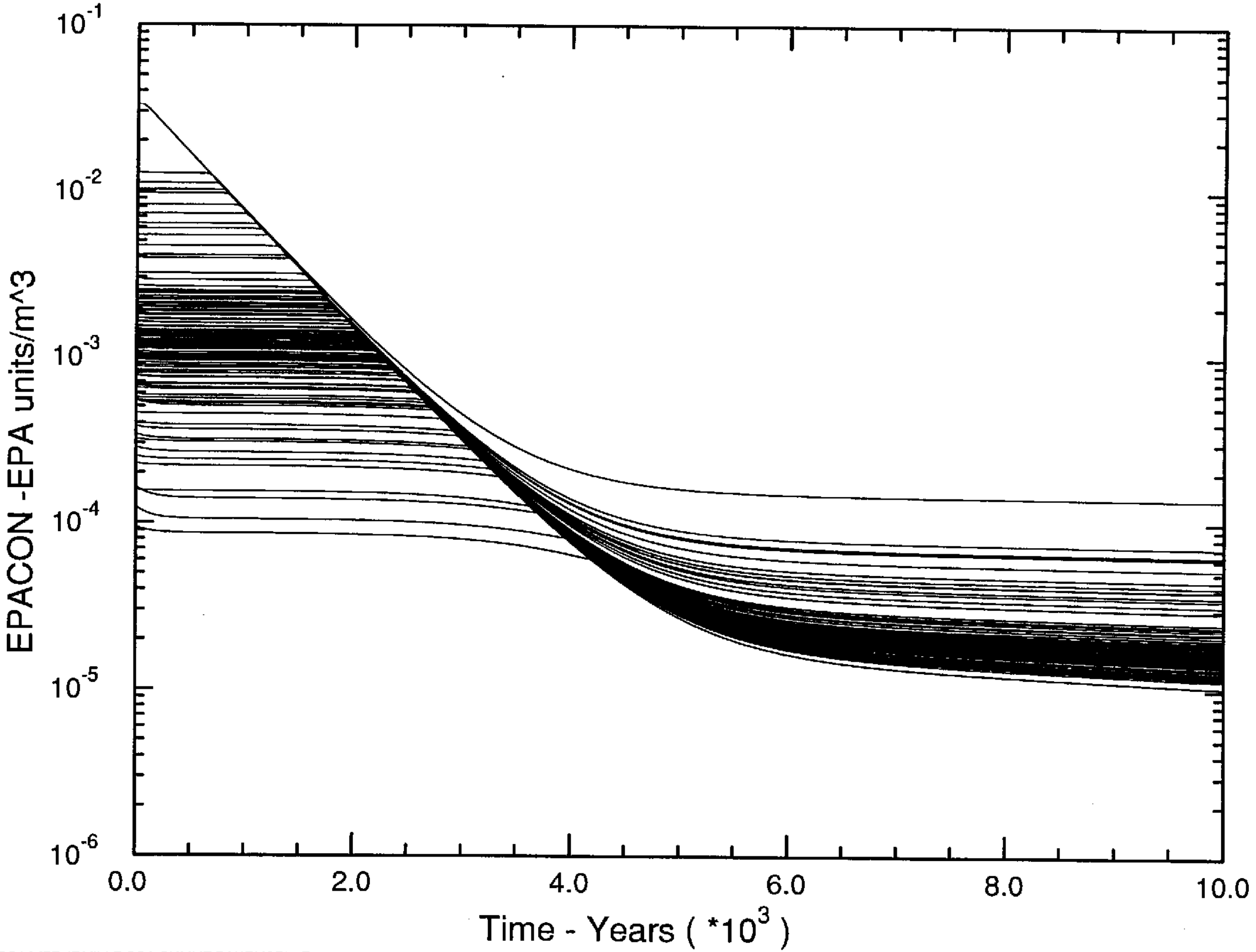
Scenario	Intrusion Time (yrs)	Vector	^{241}Am	^{239}Pu	^{238}Pu	^{234}U	^{230}Th	Total
S2	100	111	6.57E+00	4.51E-02	1.73E-03	5.23E-05	9.40E-04	6.62
	350	111	6.00E+00	4.44E-02	8.07E-05	2.21E-05	9.28E-04	6.04
S3	1000	111	2.15E+00	4.40E-02	1.23E-06	7.48E-06	1.01E-03	2.19
	3000	128	4.32E-02	3.16E-01	2.69E-08	9.86E-06	3.21E-04	0.36
	5000	128	3.76E-03	2.36E-01	1.76E-10	7.20E-06	2.41E-04	0.24
	7000	128	2.06E-04	1.42E-01	2.67E-13	4.26E-06	1.49E-04	0.14
	9000	128	1.36E-05	3.53E-02	2.59E-15	1.05E-06	4.94E-05	0.04
S4	100	23	1.41E-01	2.08E+01	1.55E-06	1.31E-02	1.77E-01	21.1
	350	23	5.87E-02	2.01E+01	2.39E-07	9.43E-03	1.72E-01	20.4
S5	1000	23	1.34E-02	1.82E+01	6.12E-09	1.16E-02	1.55E-01	18.4
	3000	23	2.82E-04	1.15E+01	6.59E-14	5.47E-03	9.85E-02	11.6
	5000	23	1.65E-05	5.57E+00	1.39E-16	2.72E-03	4.76E-02	5.62
	7000	23	6.81E-08	1.09E+00	1.68E-18	5.14E-04	9.24E-03	1.10
	9000	124	8.75E-08	2.67E-02	1.86E-18	3.54E-06	2.64E-04	0.03
S6	100	111	9.46E+01	4.29E-01	3.83E-02	6.88E-05	2.03E-03	95.0
	350	111	6.82E+01	4.24E-01	5.36E-03	6.85E-05	2.13E-03	68.7
	1000	111	2.56E+01	4.09E-01	3.23E-05	6.63E-05	2.37E-03	26.0
	2000	111	5.18E+00	3.87E-01	1.24E-08	6.29E-05	2.69E-03	5.57
	4000	128	1.34E-01	6.57E-01	6.83E-14	2.05E-05	1.28E-03	0.79
	6000	128	2.30E-02	4.67E-01	1.00E-20	1.46E-05	1.03E-03	0.49
	9000	128	9.80E-03	1.84E-01	5.60E-31	5.78E-06	4.73E-04	0.20

Maximum Release 95.0

Figure 3.1 PAVT Salado brine

SNL WIPP PA: PANEL SIMULA[illegible]ONS (C97 R1 S1)

Radionuclide Concentration in Panel in EPA Units



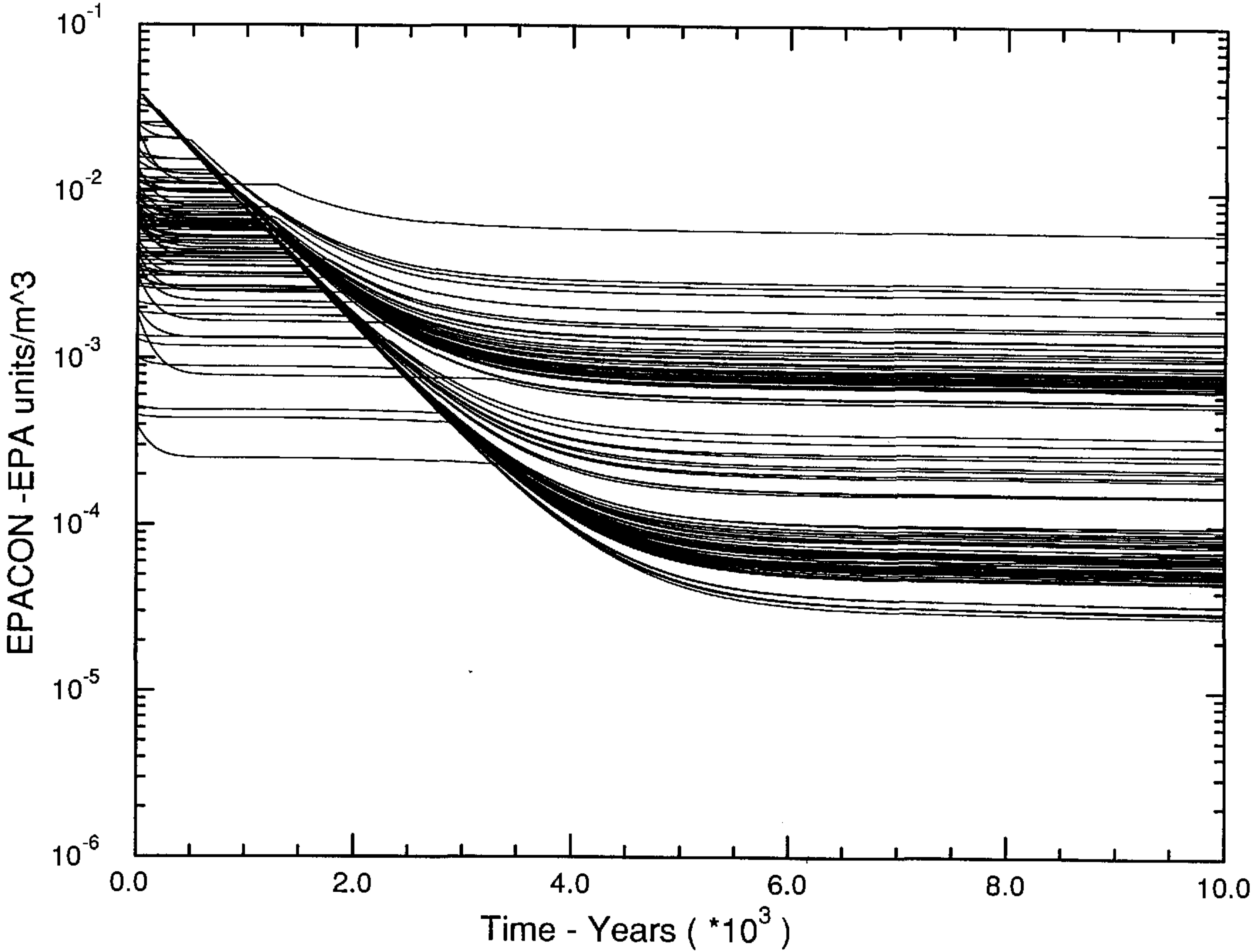
DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PANEL]SPLAT_C97_EPACON_R1S1.INP;1

SPLAT_PA96_2 1.02 06/03/97 18:26:48

SNL WIPP PA96: PANEL SIMULATIONS (CCA R1 S1)

Radionuclide Concentration in Panel in EPA Units

Figure 3.2 CCA Salado brine



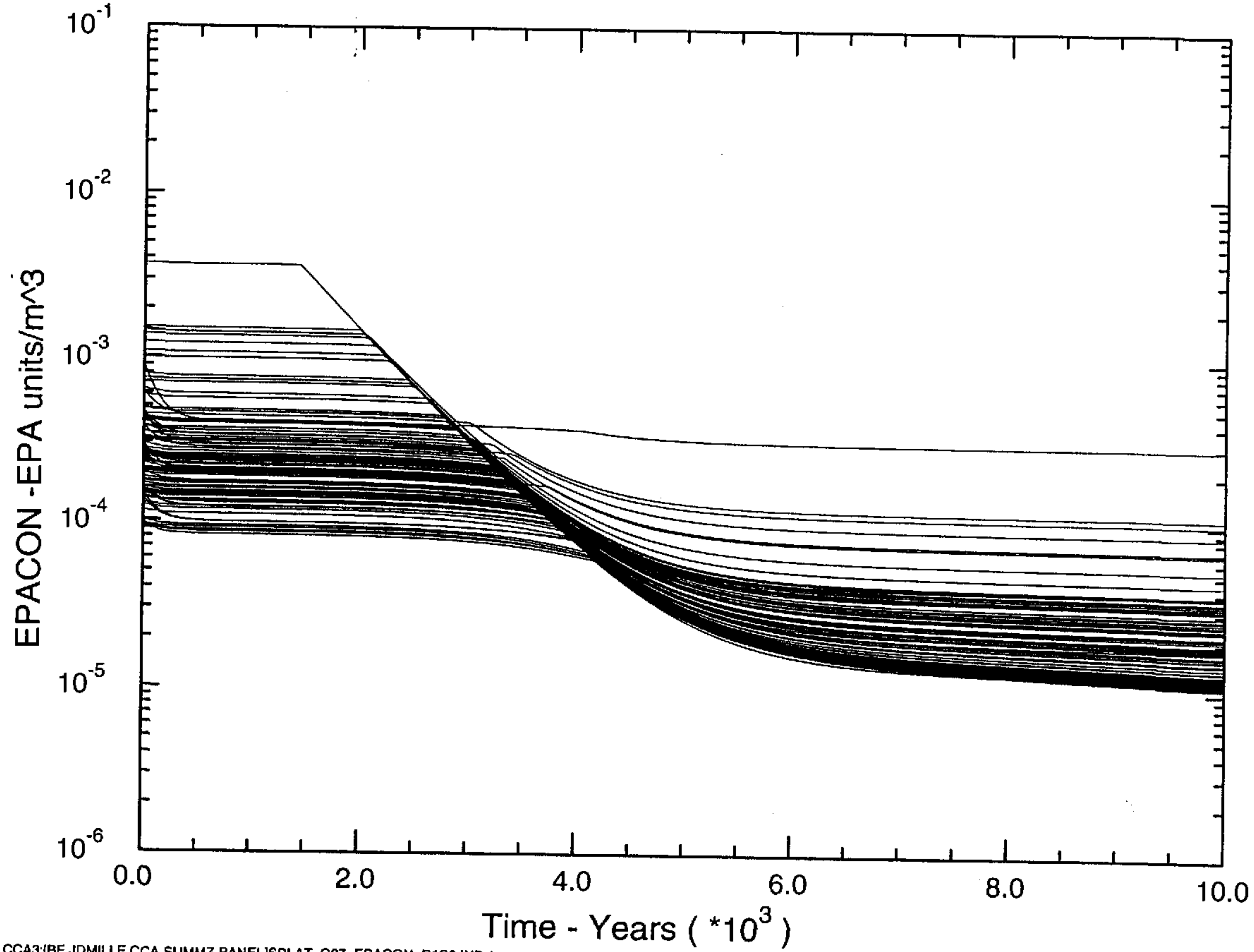
DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PANEL]SPLAT_PANEL_EPACON_R1S1.INP;1

SPLAT_PA96_2 1.02 10/05/96 14:37:44

Figure 3.3 PAVT Castile brine

SNL WIPP PA: PANEL SIMULATIONS (C97 R1 S2)

Radionuclide Concentration in Panel in EPA Units



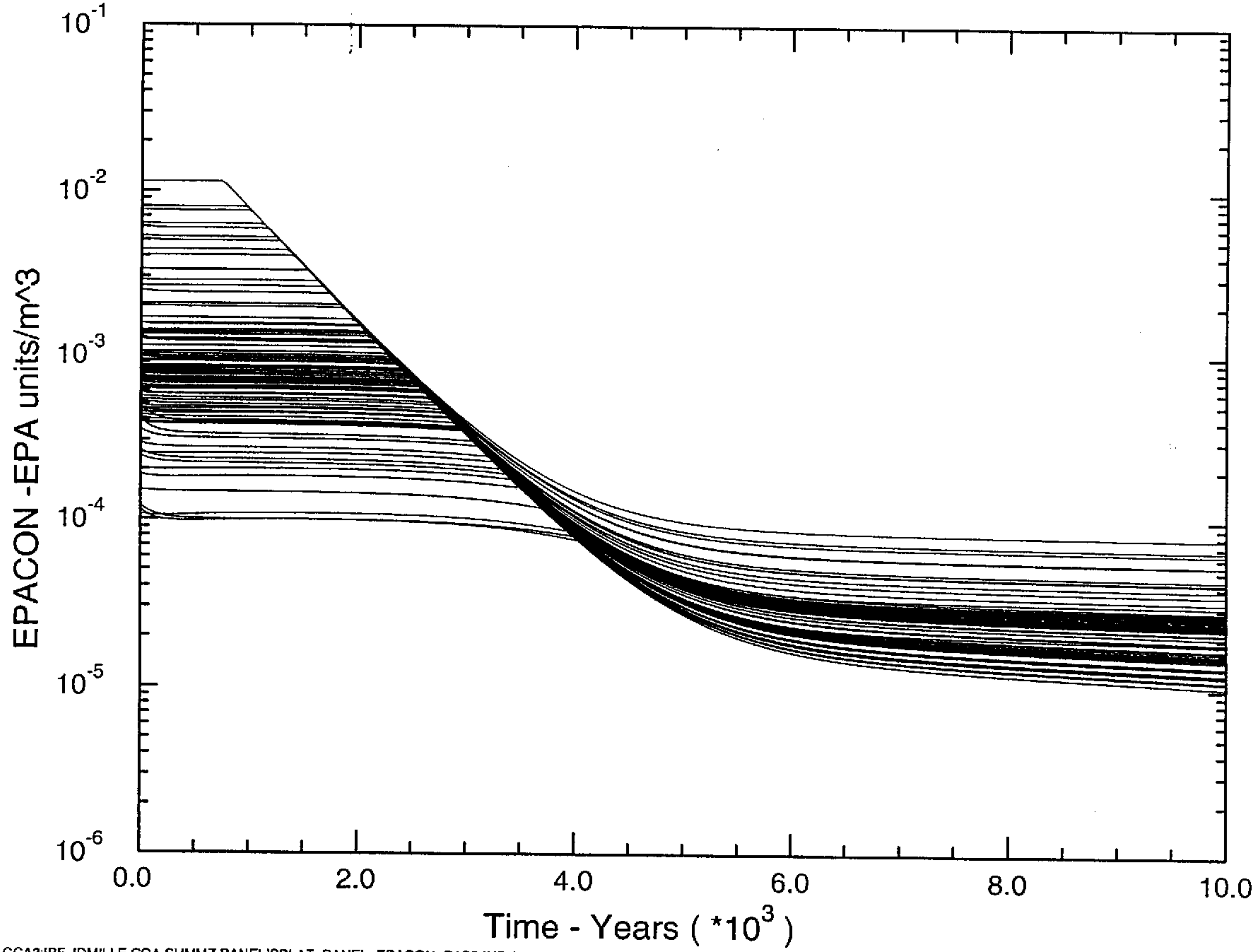
DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PANEL]SPLAT_C97_EPACON_R1S2.INP;1

SPLAT_PA96_2 1.02 06/03/97 18:27:14

SNL WIPP PA96: PANEL SIMU[illegible]TIONS (CCA R1 S2)

Radionuclide Concentration in Panel in EPA Units

Figure 3.4 CCA Castile brine



DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PANEL]SPLAT_PANEL_EPACON_R1S2.INP;1

SPLAT_PA96_2 1.02 10/05/96 14:38:17

4.0 CULEBRA TRANSPORT CALCULATIONS

This section summarizes differences between the PAVT and CCA Culebra transport calculations. These calculations were performed using SECOFL2D and SECOTP2D. SECOFL2D was used to calculate ground-water flow assuming single porosity, steady-state conditions. SECOTP2D was used to calculate transport and cumulative release of radionuclides to the accessible environment assuming dual-porosity transport behavior with linear equilibrium sorption. Sorption is assumed to occur in the matrix only. Important future events such as potash mining and climate change were included.

The key performance measure for comparing PAVT and CCA Culebra transport results is the cumulative discharge of radionuclides across the LWB.

4.1 Changes to Parameters

The Culebra matrix distribution coefficients were represented by loguniform probability distributions rather than the uniform probability distributions used in the CCA. The ranges of k_d values used in the CCA for each probability distribution were unchanged.

4.2 Changes to Model

Seven significant code changes were made to SECOTP2D subsequent to the CCA calculations (Change Control Form, WPO #45730):

(1) mass balance reporting was implemented to enable monitoring of the total mass of each contaminant in the system during the 10,000 year regulatory period (WPO #45730);

(2) the source-term algorithm was corrected to ensure that the correct amount of mass (1 kg) was injected into the system (SPR No. 97-006);

(3) the discharge calculation at the model domain (grid) boundary was corrected to ensure that the mass of each contaminant leaving the system was accurately tracked (SPR No. 97-012);

(4) the total variation diminishing (TVD) limiters at the boundaries of the model domain were restricted to have values equal to zero (equivalent to upwinding) to reduce the potential for numerical instabilities near boundaries (SPR No. 97-013);

(5) logic was modified to avoid redundant coefficient generation and LU decomposition calculations in the solution of the matrix diffusion equation when a constant time step was used (WPO #45730);

(6) the van Leer TVD limiter was changed so that it is consistent with published references (WPO #45730);

(7) logic was introduced to limit the application of TVD to computational cells in which the Courant number was less than or equal to one (WPO #45730).

These modifications have improved the robustness, computational efficiency, and accuracy of

SECOTP2D.

Three important model implementation changes were made for the PAVT. Numerical studies of SECOTP2D have shown that substantially improved mass balance characteristics are obtained in the Culebra transport calculations if the operator splitting factors (SECOTP2D User's Manual, Version 1.30, WPO #36695) are set to $a_x=0$ and $a_y=1$. In the CCA, these parameters were both set to 0.5. The second implementation change was to set Dirichlet boundary conditions equal to zero (specified concentrations equal to zero) at the transport grid boundaries. In the CCA, the automatic boundary condition scheme was implemented; this scheme enforced a zero Neumann condition (zero flux) at the boundary if flow was out of the model domain and zero Dirichlet (zero concentration) if flow was into the domain. In the PAVT, a zero Dirichlet condition (zero concentrations) was enforced at all grid boundaries during the simulation to avoid instabilities caused by alternating flow directions in adjacent computational cells along the model domain boundaries. Note that this choice of boundary condition does not influence the predicted contaminant discharges across the LWB since the model domain boundaries were positioned far from the LWB. The third important model implementation change was to use a variable time step in the transport calculations to avoid solution oscillations at early times. The variable time step was prescribed as follows: the initial time step was 0.01 years for the 50 years, a variable time step that gradually increased to one year by a factor of 1.001 each year up to the time of approximately 1000 years, and a constant time step of one year thereafter.

Two additional changes were implemented in the PAVT. First, in the CCA, the matrix was discretized with 20 nodes; in the PAVT, 21 nodes were used. Second, in the CCA, the northeastern corner of the regional domain was modeled using no-flow boundary conditions. In the PAVT, these boundary conditions were changed to a specified head boundary condition to be more consistent with the specified head boundary conditions that are applied in this region during the transmissivity field generation process (Analysis Package for the Culebra Flow and Transport Calculations, WPO #40516). This change should not influence the flow field at the local (transport) scale and therefore should not influence the PAVT Culebra transport results.

4.3 Impact of Changes on Model Results

The following steps in the analysis were implemented identically in the PAVT and CCA. The first step in the transport analysis was to generate the Culebra transmissivity field (T-field). Uncertainty in the T-field was quantified by generating 100 equally likely representations of the T-fields through geostatistical analysis. Potash mining was incorporated into the analysis according to the guidelines and recommendation given in 40 CFR Part 194. Mining impacts were considered by uniformly scaling the transmissivity in regions considered to contain economically-extractable resources by a factor (MINP_FAC) of 1 to 1000. Mining effects were treated differently depending on the location of the resources with respect to the LWB. Outside the LWB, it was assumed mining will occur prior to sealing the disposal facility. Inside the LWB, mining occurred with a probability of 1 in 100 each century. The probabilistic aspects of mining associated with the time of occurrence within the LWB are accounted for in the construction of the CCDF. The analysis was therefore essentially based on two sets of transmissivity fields; one with mining outside the LWB (partial mining scenario), and one with all regions mined (full mining scenario). These two sets of transmissivity fields were used to produce two sets of steady-state groundwater flow fields, one for the partial mining scenario and one for the full mining scenario. The impact of potential climate variations on these steady-state flow fields was addressed by uniformly scaling the x and y components of the Darcy flow velocity by a single value ranging from 1.0 to 2.25, known as the climate index (CLIMTIDX). The PAVT results are summarized as follows.

In the CCA, only two realizations resulted in conditional releases[2] across the LWB. In these two realizations, only two radionuclides were released, ^{234}U and negligible amounts of ^{230}Th (less than 3.0E-7 kg). Because a loguniform distribution for k_d was used in the PAVT, sampled k_d values tended to be much smaller than those used in the CCA. As a consequence, several realizations resulted in the conditional releases of ^{234}U and insignificant amounts of ^{230}Th (less than 4.0E-6 kg) at the LWB.

The realizations were ranked according to the conditional release of ^{234}U. Results are provided in Appendix D for both the partial mining and full mining scenarios. Also provided are corresponding values of the following parameters; MINP_FAC (mining impact factor), CLIMTIDX (climate index), APOROS (fracture porosity), DPOROS (matrix porosity), HMBLKT (half block length of the matrix), OXSTAT (actinide oxidation state parameter), and MKD_U (k_d value for matrix sorption). The tabulated results show that 22 partial mining and 20 full mining scenarios produced a conditional ^{234}U release greater than 1.0E-10 kg. Only 7 partial mining and 8 full mining scenarios produced a conditional release greater than 0.1 kg. The maximum possible release of the entire source of 1 kg occurred in realization #79 with full mining and almost occurred (> 0.9 kg) in realization #74 with full mining and realization #79 with partial mining. These results are shown graphically in Figures 4.1 (partial mining) and 4.2 (full mining). Note that all conditional releases greater than 1.E-10 kg had a value of OXSTAT greater than 0.5 corresponding to an oxidation state of released ^{234}U of +VI. This isotope had the lowest range of matrix distribution coefficients as shown in Table 4.1. Other factors such half-block length of the matrix, mining impact factor, climate index, and transmissivity field also influence, in a complex way, the conditional release across the LWB. This combination of factors is why vector #79 had the highest discharge yet didn't have the lowest k_d.

Statistical summaries of PAVT and CCA Culebra conditional ^{234}U releases are shown in Tables 4.2 and 4.3, respectively. Mean, 90th percentile, and maximum discharges are all higher in the PAVT. However, even with the maximum PAVT SECOTP2D conditional discharge (full mining vector #79) of 1 kg, the maximum release of ^{234}U to the Culebra predicted by the Salado transport

---

[2] The computational strategy used in the Culebra transport analysis takes advantage of the linearity of the system of partial differential equations that underlies SECOTP2D. Transport calculations were performed for unit kg releases to the Culebra. These calculations identify conditional releases. Using the linearity of the system, the conditional releases are then used to construct transport results for arbitrary time-dependent releases into the Culebra using NUTS and PANEL calculated radionuclide sources.

analysis is only 0.0136 EPA units (Appendix C, scenario S6, 100 year intrusion time, vector #83). If these two maximum values were combined, the 1 kg conditional release would produce a ^{234}U release of only 0.0136 EPA units across the LWB (assuming 1 intrusion in 10,000 years).

Table 4.1 Matrix Distribution Coefficients

Isotope Low/High Oxidation State	Low Oxidation State k_d range (m^3/kg)	High Oxidation State k_d range (m^3/kg)
^{234}U (IV)/(VI)	0.9 to 20	0.00003 to 0.03
^{239}Pu (III)/(IV)	0.02 to 0.5	0.9 to 20
^{241}Am (III)/(III)	0.02 to 0.5	0.02 to 0.5
^{230}Th (IV)/(IV)	0.9 to 20	0.9 to 20

Table 4.2. Statistical Summary of PAVT Conditional ^{234}U Release (kg) Through the Culebra to the LWB from a 1 kg Source (Replicate 1)

Mining	10th Percentile	Median	Mean	90th Percentile	Maximum
Full	0.0	0.0	0.057	0.027	1.00
Partial	0.0	0.0	0.035	0.047	0.92

Table 4.3. Statistical Summary of CCA Conditional ^{234}U Release (kg) Through the Culebra to the LWB from a 1 kg Source (All 3 Replicates)

Mining	10th Percentile	Median	Mean	90th Percentile	Maximum
Full	0.0	0.0	0.003	0.0	0.91
Partial	0.0	0.0	0.0004	0.0	0.11

The hydraulic conductivity fields (K-fields), hydraulic head contours, and contaminant concentrations for vector #79, in both the partial and full mining scenarios, are presented in Figures 4.3 through 4.8. The locations of the high-K zones are identified in both scenarios (Figures 4.3 and 4.4), as are the locations of the LWB and waste repository area. The groundwater flow solutions at 10,000 years, in the form of hydraulic heads, for both scenarios (Figures 4.5 and 4.6) show that flow within the region defined by the LWB was predominately southward through the higher K-zones , with some flow in the southwesterly direction, particularly with full mining. Conditional ^{234}U concentrations (based on a unit source) at 10,000 years (Figures 4.7 and 4.8) show that the contaminant plumes also moved predominately southward with the flow field.

Finally, conditional mass balance errors[3] for each radionuclide were monitored in the PAVT Culebra transport simulations and are presented in Appendix D (Figures D.1 through D.5 for partial mining and Figures D.6 through D.10 for full mining). These Figures show that conditional mass balance errors for all radionuclides and simulations were very small, with the maximum error being 0.014 kg for ^{234}U in full mining vector #57 (Figure D.6).

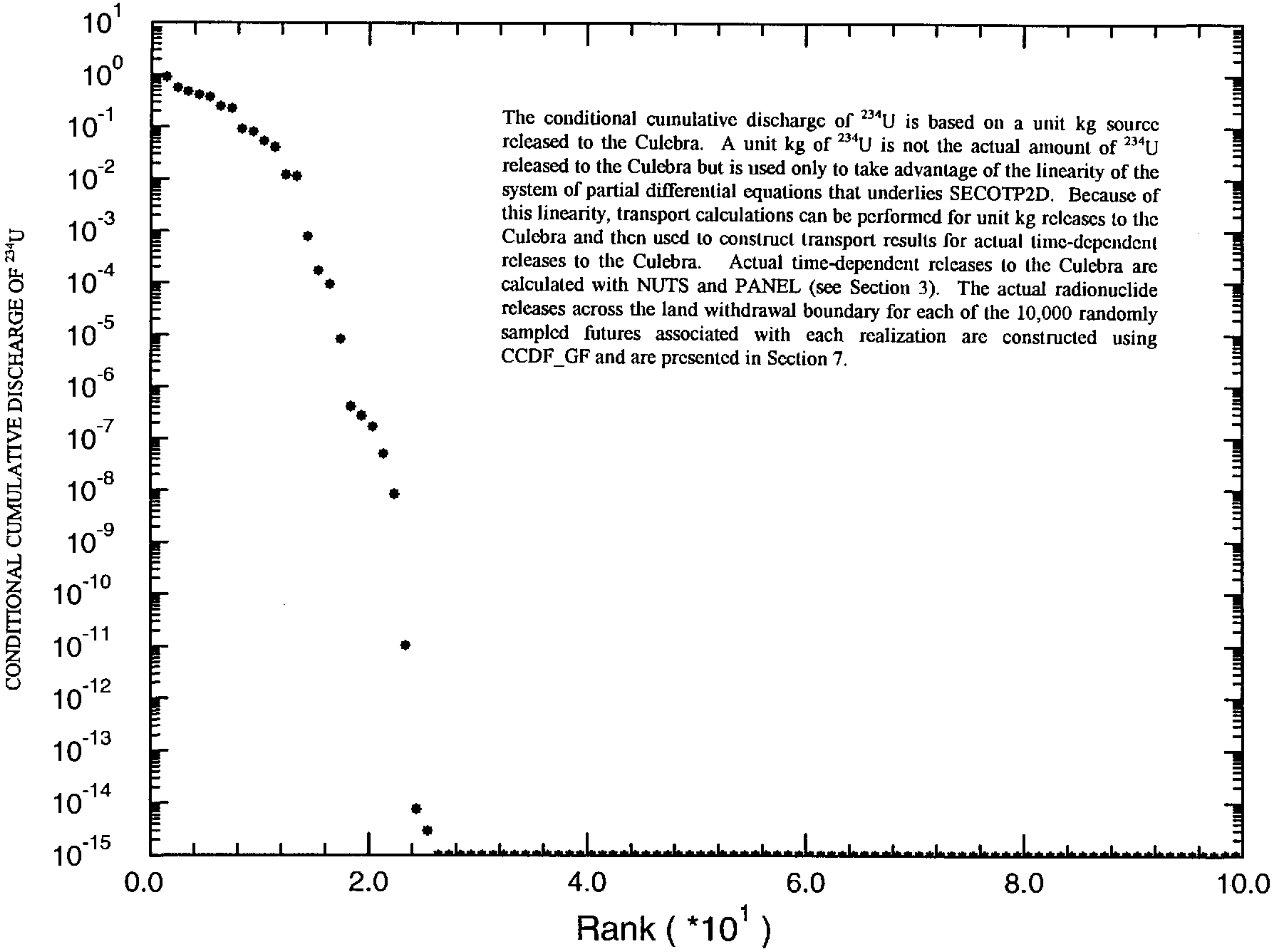
---

[3] These mass balance errors are based on a unit 1 kg source in the Culebra.

Figure 4.1

SECOTP2D, U-234, R1, Partially [illegible]ined

Cumulative Discharge @ 1E4 yrs (MT1U234)



The conditional cumulative discharge of ^{234}U is based on a unit kg source released to the Culebra. A unit kg of ^{234}U is not the actual amount of ^{234}U released to the Culebra but is used only to take advantage of the linearity of the system of partial differential equations that underlies SECOTP2D. Because of this linearity, transport calculations can be performed for unit kg releases to the Culebra and then used to construct transport results for actual time-dependent releases to the Culebra. Actual time-dependent releases to the Culebra are calculated with NUTS and PANEL (see Section 3). The actual radionuclide releases across the land withdrawal boundary for each of the 10,000 randomly sampled futures associated with each realization are constructed using CCDF_GF and are presented in Section 7.

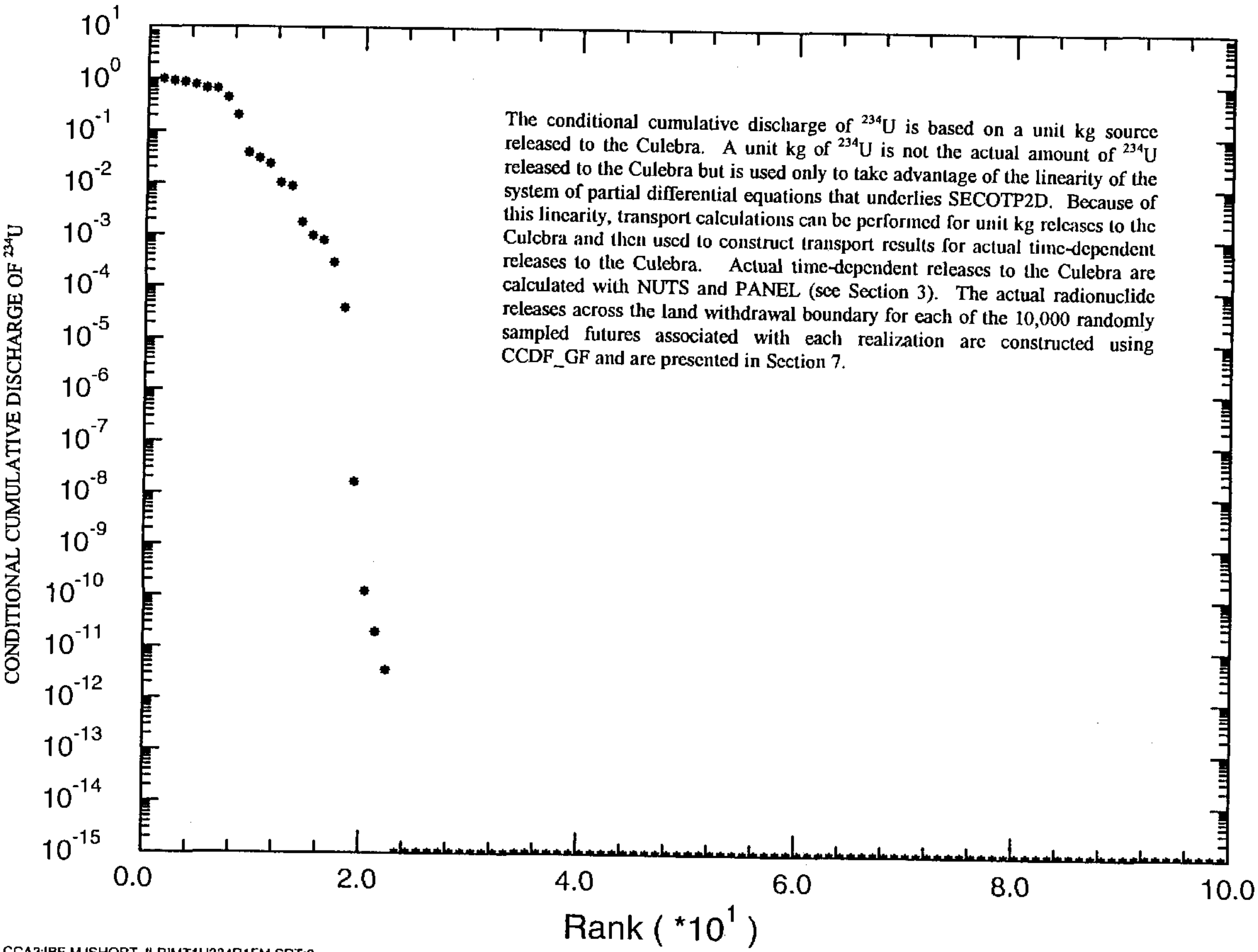
DISK$TINA_CCA3:[BF.MJSHORT.JLR]MT1U234R1PM.SRT;3

SPLAT_PA96_2 1.02 07/21/97 14:04:01

Figure 4.2

SECOTP2D, U-234, R1, Fully M[illegible]ed

Cumulative Discharge @ 1E4 yrs (MT1U234)



The conditional cumulative discharge of ^{234}U is based on a unit kg source released to the Culebra. A unit kg of ^{234}U is not the actual amount of ^{234}U released to the Culebra but is used only to take advantage of the linearity of the system of partial differential equations that underlies SECOTP2D. Because of this linearity, transport calculations can be performed for unit kg releases to the Culebra and then used to construct transport results for actual time-dependent releases to the Culebra. Actual time-dependent releases to the Culebra are calculated with NUTS and PANEL (see Section 3). The actual radionuclide releases across the land withdrawal boundary for each of the 10,000 randomly sampled futures associated with each realization are constructed using CCDF_GF and are presented in Section 7.

DISK$TINA_CCA3:[BF.MJSHORT.JLR]MT1U234R1FM.SRT;3

SPLAT_PA96_2 1.02 07/21/97 14:04:18

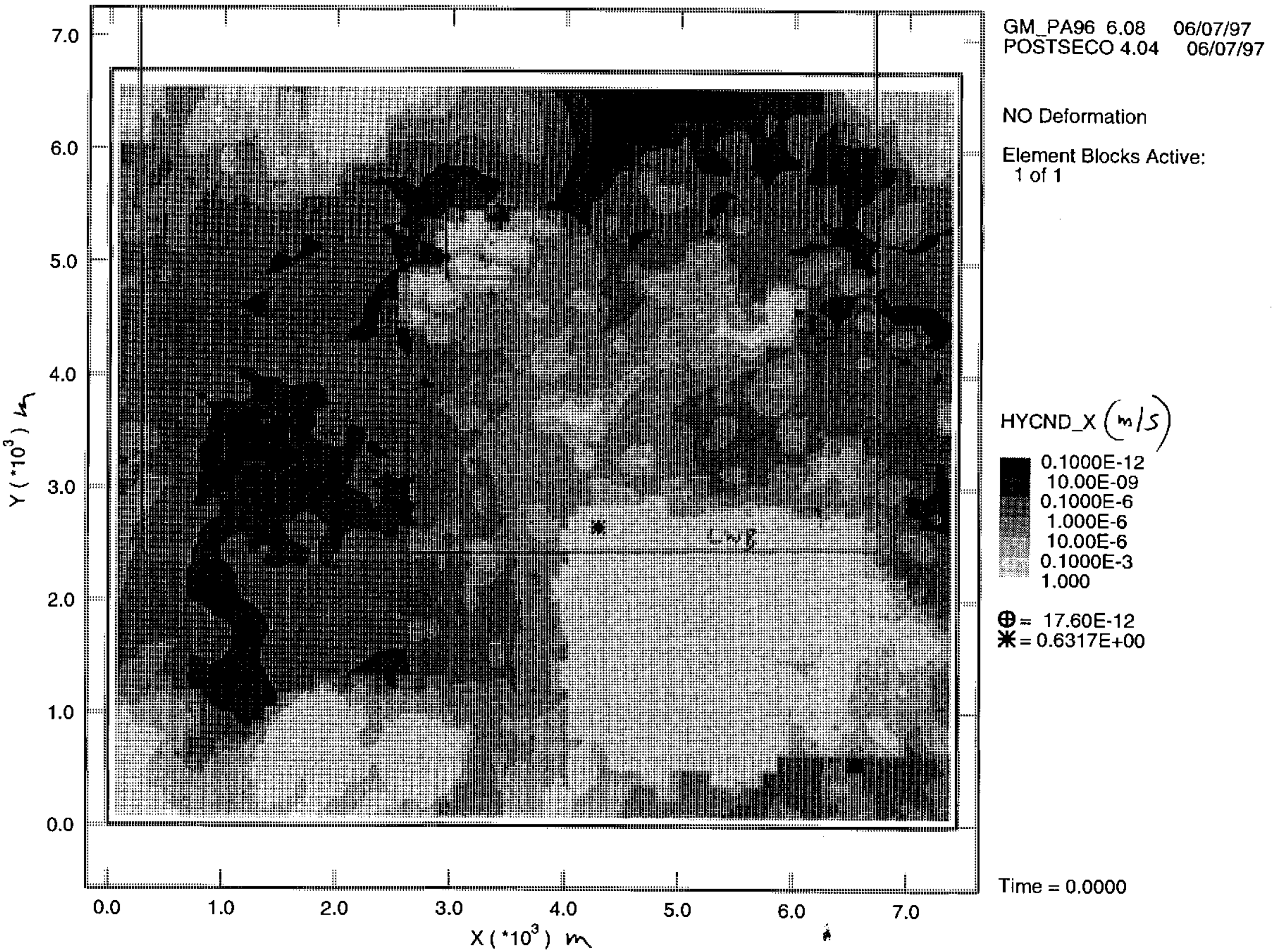


Figure 4.3 Conductivity Field (Partial Mining)

DISK$CURLY_CCA3:[NON_HSM.SF2D.C97.DATA.R1PM]SF2D3_C97_LOCAL_R1_V079_PM.CDB;1

BLOTCDB_PA96 1.37 07/11/97 16:23

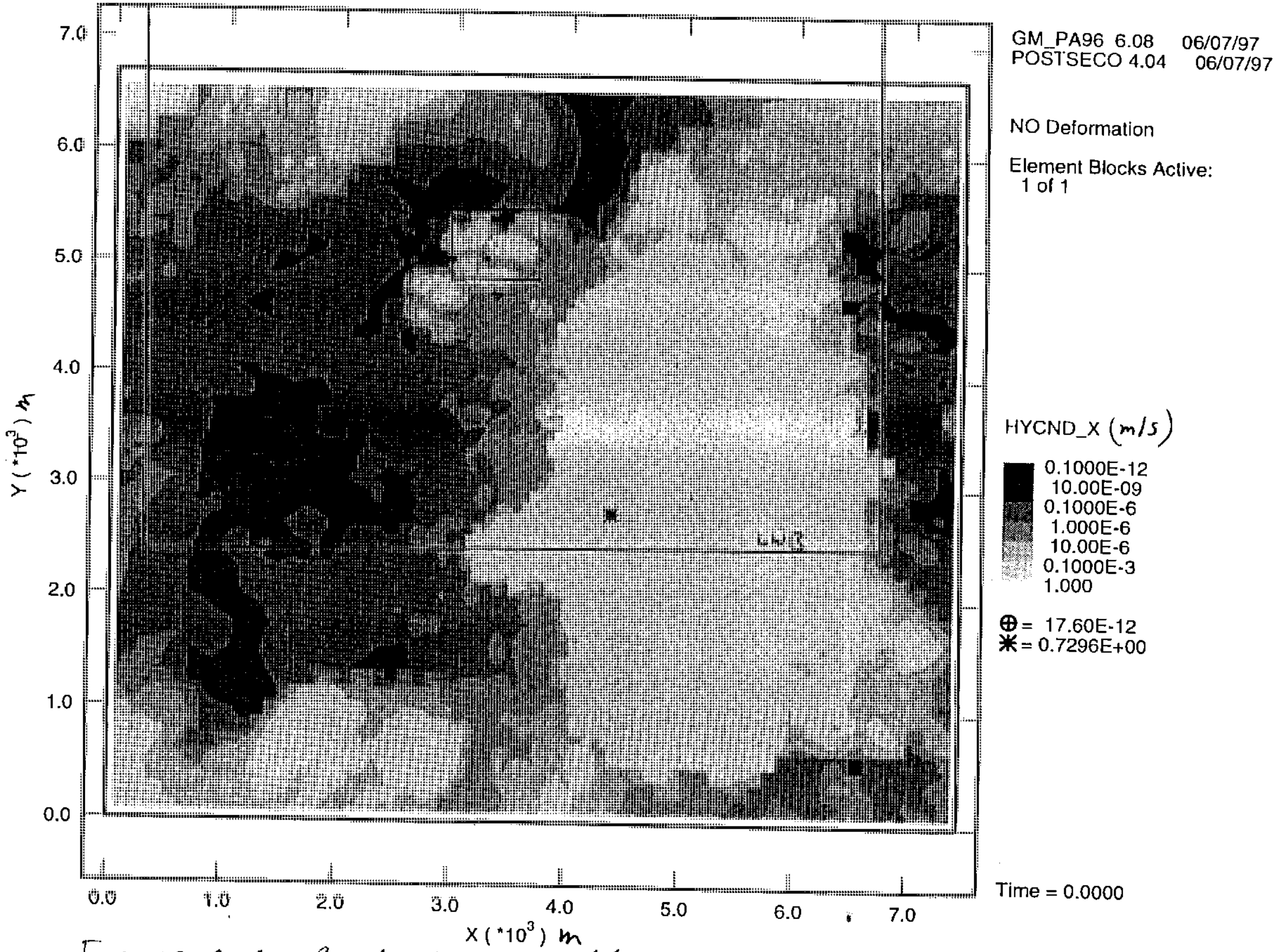


Figure 4.4 Conductivity Field (Full Mining)

DISK$CURLY_CCA3:[NON_HSM.SF2D.C97.DATA.R1FM]SF2D3_C97_LOCAL_R1_V079_FM.CDB;1

BLOTCDB_PA96 1.37 06/27/97 14:14

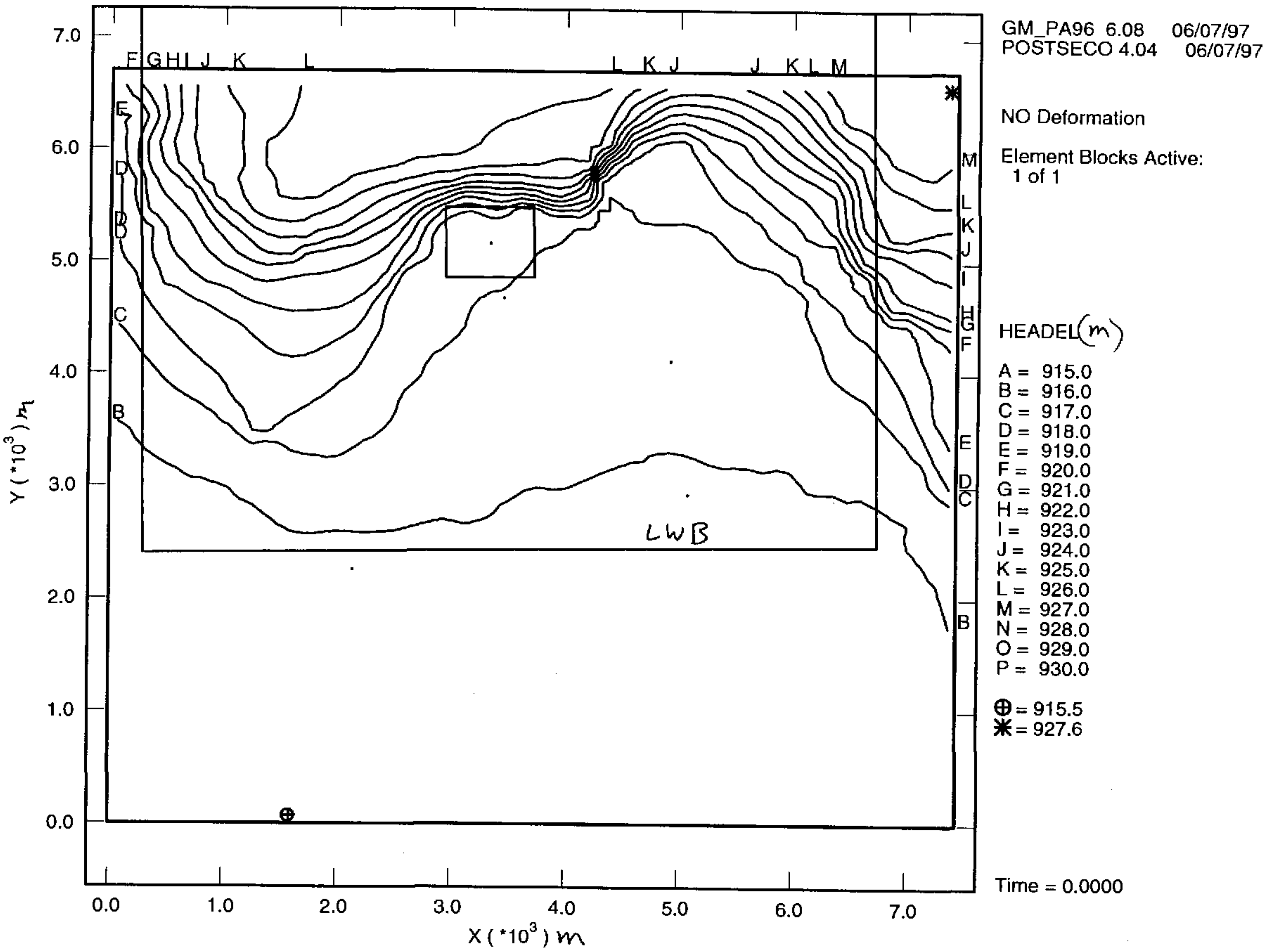


Figure 4.5 Hydraulic Head (m) (Partial Mining): Vector 79, R1

DISK$CURLY_CCA3:[NON_HSM.SF2D.C97.DATA.R1PM]SF2D3_C97_LOCAL_R1_V079_PM.CDB;1 BLOTCDB_PA96 1.37 07/11/97 16:25

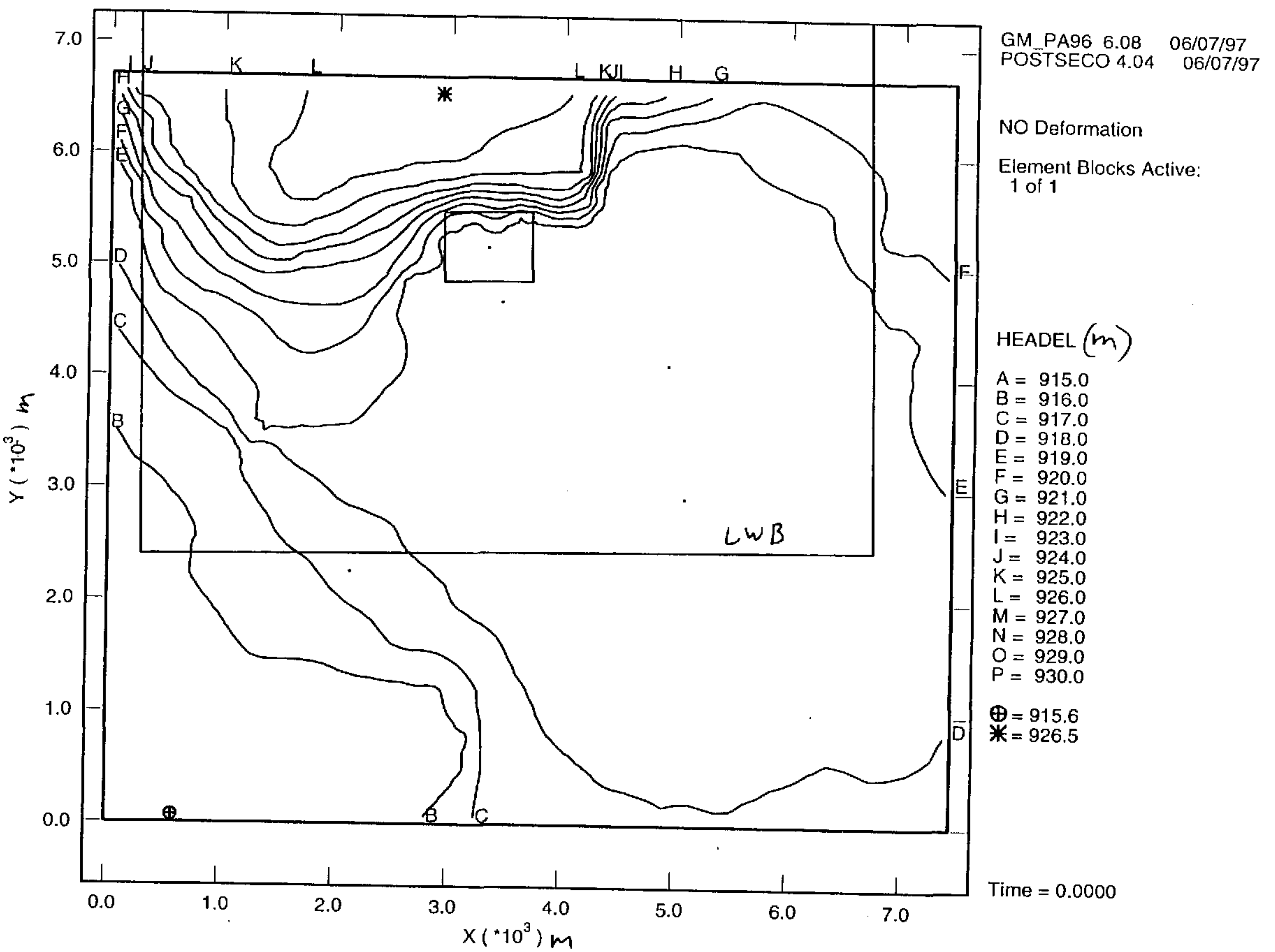


Figure 4.6 Hydraulic Head (m) (Full Mining); Vector 79, R1

DISK$CURLY_CCA3:[NON_HSM.SF2D.C97.DATA.R1FM]SF2D3_C97_LOCAL_R1_V079_FM.CDB;1

BLOTCDB_PA96 1.37 06/27/97 13:36

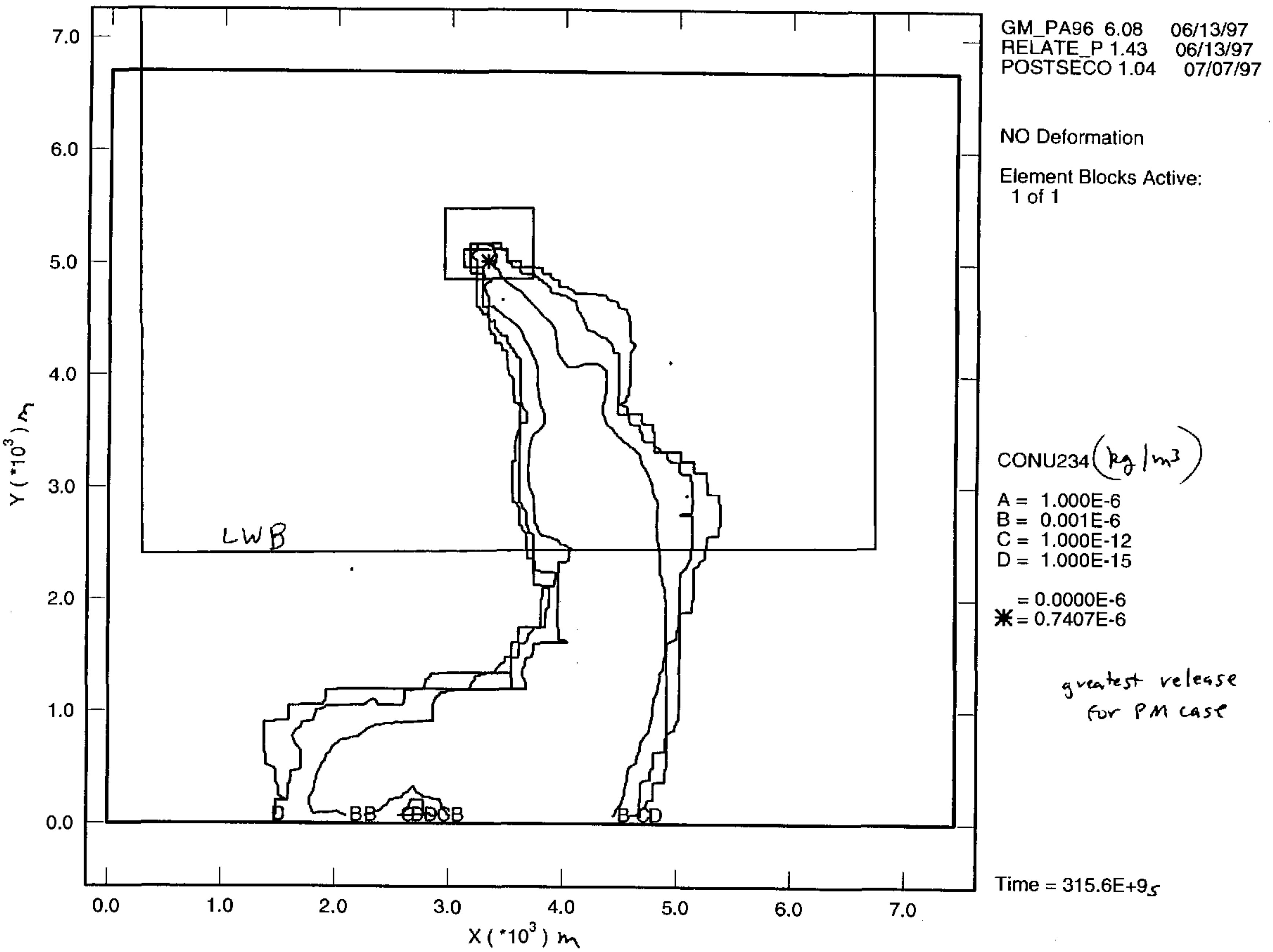
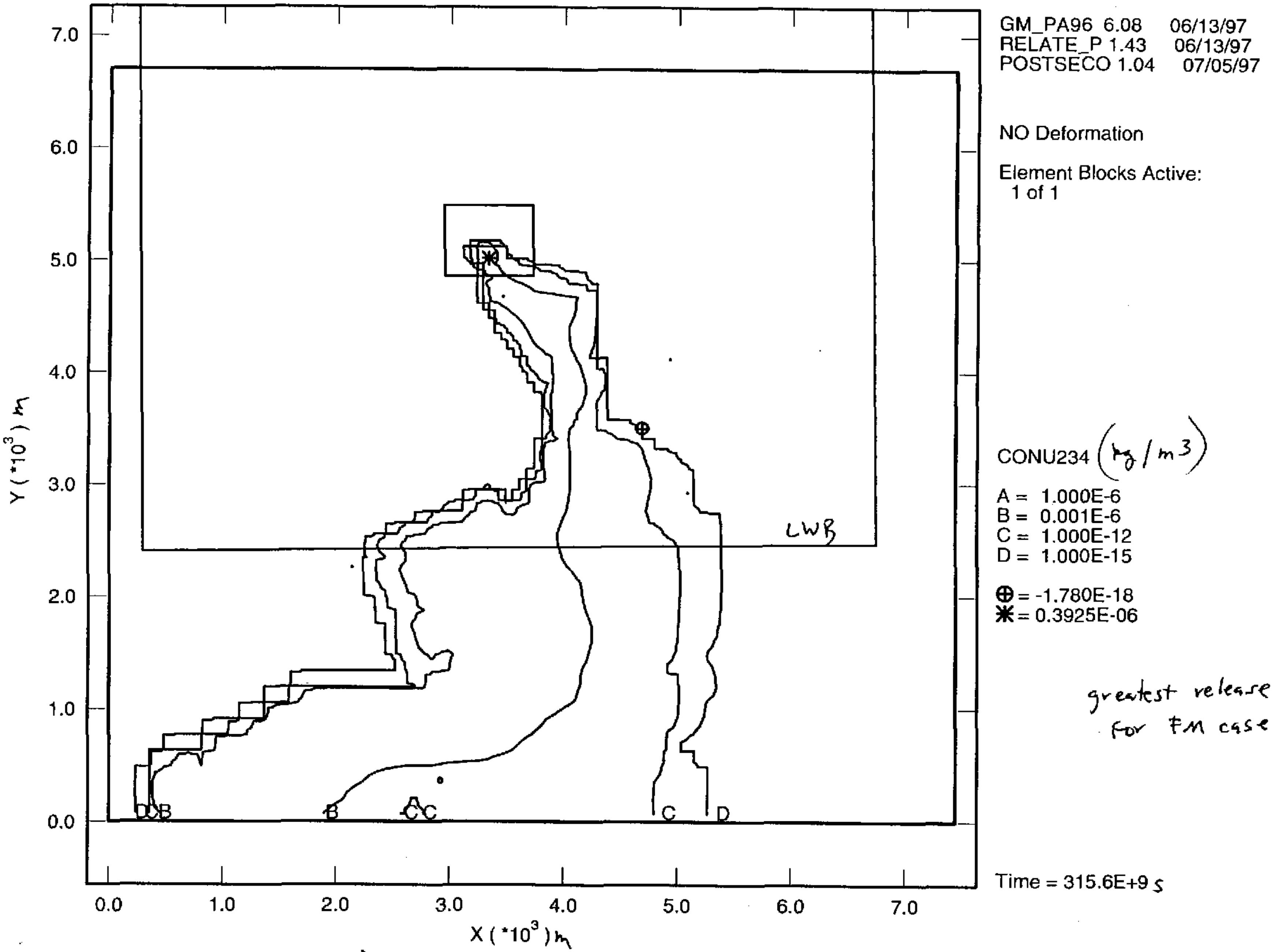


Figure 4.7 Conditional Concentration, ^{234}U (kg/m³): Vector 79, R1

DISK$CURLY_CCA3:[NON_HSM.ST2D.C97.DATA.R1PM]ST2D3_C97_R1_V079_PM.CDB;1

BLOTCDB_PA96 1.37 07/11/97 15:59



greatest release
for FM case

Figure 4.8 Conditional Concentration, ^{234}U (kg/m^3); Vector 79, R1

DISK$CURLY_CCA3:[NON_HSM.ST2D.C97.DATA.R1FM]ST2D3_C97_R1_V079_FM.CDB;1 BLOTCDB_PA96 1.37 07/11/97 16:01

5.0 CUTTINGS, CAVINGS, AND SPALLINGS CALCULATIONS

This section summarizes differences between the PAVT and CCA direct releases due to cuttings, cavings, and spallings. The cuttings, cavings, and spallings calculations were performed using CUTTINGS_S. Note that in the PAVT, releases due to spallings were calculated using a different approach than the one used in the CCA. The new approach is described below in Section 5.2

The key performance measure for comparing PAVT and CCA direct releases due to cuttings, cavings, and spallings is the volume of waste released at the ground surface. Volume of waste released is passed on to CCDF_GF where this information is combined with activity data and scenario probabilities to compute direct radionuclide releases due to cuttings, cavings, and spallings.

5.1 Changes to Parameters

Changes to input parameters were implemented in CUTTINGS_S as follows:

(1) The waste shear strength (Pa) was changed from a uniform distribution ranging from 0.05 to 10 to a loguniform distribution ranging from 0.05 to 77 based on expert elicitation (Wang and Larson, 1997).

(2) The drill string angular velocity (rad/s) was changed from a constant value of 7.8 to cumulative distribution ranging from 4.2 to 23.0 with a mean value of 7.77.

(3) The new approach used to calculate spallings volumes did not require values for diameter of solid particles and gravitational effectiveness factor. In the CCA, particle diameter was sampled from a loguniform distribution ranging from 4.0E-5 to 0.2 m and gravitational effectiveness factor was sampled from a uniform distribution ranging from 1.0 to 18.1.

5.2 Changes to Model

The following approach was used for calculating releases due to spallings in the PAVT (Change Control Form, WPO #45969). Volumes of waste released due to spallings were calculated by sampling a probability distribution for spallings volume. If the repository pressure exceeded 8 MPa at the time of intrusion, the sampled spallings volume was used as a spallings release. Spallings volume was represented by a uniform distribution ranging from 0.5 to 4.0 m^3.

5.3 Impact of Changes on Model Results

Volumes of material released due to cuttings, cavings, and spallings were determined for the following conditions:

(1) An initial intrusion at 100, 350, 1000, 3000, 5000, or 10000 years after closure for undisturbed conditions (designated scenario S1);
(2) An initial E1 intrusion at 350 years followed by a second intrusion at 550, 750, 2000, 4000, or 10000 (designated scenario S2);
(3) An initial E1 intrusion at 1000 years followed by a second intrusion at 1200, 1400, 3000, 5000, or 10000 years (designated scenario S3);
(4) An initial E2 intrusion at 350 years followed by a second intrusion at 550, 750, 2000, 4000, or 10000 years (designated scenario S4);
(5) An initial E2 intrusion at 1000 years followed by a second intrusion at 1200, 1400, 3000, 5000, or 10000 years (designated scenario S5).

For the S1 scenario, spallings calculations were performed for intrusions into both upper and lower waste panels. For scenarios S2 through S5, releases were calculated for two cases for each of the second intrusion times: (i) intrusion into the same waste panel as the first intrusion; and (ii) intrusion into a different waste panel than the first intrusion. Intrusion times 200 and 400 years after the initial time (i.e., 550 and 750 years for an initial intrusion at 350 years, and 1200 and 1400 years for an initial intrusion at 1000 years) were selected to give results just before and after the borehole plugs are assumed to fail. Wider time intervals were used at later times because gas pressure tends to change rather slowly at later times. The distinction between intrusion into same and different panels was made because of the possible effects of the resistance to flow between waste panels.

Representative release volumes to the accessible environment from cuttings, cavings, and spallings are shown for the PAVT and CCA in Figures 5.1 through 5.10. Results are only presented for an S1 scenario with an intrusion into the lower repository region at 10,000 years and an S2 scenario with the second intrusion at 10,000 years. Tabulated results for scenarios S1 (lower) and S2 through S5, all with an intrusion at 10,000 years are provided in Appendix E. In addition, box plots showing volume removed and normalized release (EPA units) for all conditions are provided in Appendix E in Figures E.1 through E.12 (for the PAVT) and Figures E.13 through E.24 (for the CCA).

Cuttings and cavings releases for the scenario S1 (replicate 1) 10,000-year intrusion are shown in Figure 5.1 (for the PAVT) and 5.2 (for the CCA). Cuttings and cavings results for other scenarios and intrusion times were the same because cuttings and cavings volumes are not influenced by repository conditions at the time of intrusion and are therefore scenario independent. Cuttings and cavings volumes depend only on sampled parameters such as waste shear strength and drill string angular velocity. Statistical measures of PAVT and CCA cuttings and cavings release volume are shown in Table 5.1. Releases for the PAVT range from approximately 0.3 to 3.9 m^3. Releases for the CCA range from approximately 0.4 to 2.9 m^3. The PAVT results show a much larger number of releases greater than 1.0 m^3 (36 versus 7) and greater than 2.0 m^3 (16 versus 1). The uncertainty in the volume of waste removed by cuttings and cavings was determined by the waste shear strength parameter TAUFAIL (Figures 5.3 and 5.4). In the PAVT, the range of TAUFAIL values was increased and the distribution was changed from a uniform to loguniform distribution. The impact of the higher maximum TAUFAIL value resulted in more small releases while the impact of converting the distribution to loguniform resulted in more large releases (more TAUFAIL values near zero were sampled). Also note that the PAVT curve is less smooth than the CCA curve; this behavior is likely due to the fact that the drill string angular velocity was sampled in the PAVT whereas it was a fixed value in the CCA.

Representative spallings release volumes are shown in Figures 5.5 and 5.6. Spallings releases occur only if the repository pressure exceeds 8 MPa at the time of intrusion. Spallings releases in both the PAVT and the CCA range from 0.0 m to 4.0 m^3. In the CCA, there were two distinct groupings of releases with no releases in the region from 2.4 to 3.2 m^3. In the PAVT, releases were spread uniformly over the range of releases because the volumes were sampled from a uniform distribution (see Section 5.2). For scenario S1, repository pressures were similar in the PAVT and CCA, therefore, spallings volumes removed were also similar (see Figures 5.5 and 5.6 and Table 5.1). For the disturbed scenarios (S2 and others), there were more repository pressures greater than 8 MPa in the PAVT than in the CCA resulting in many more vectors which produced spallings volume releases. The increased spallings releases (volume removed and normalized release) in the PAVT are evident in the statistical comparison in Table 5.2 which shows that the mean and 90th percentile values were much higher in the PAVT than in the CCA.

The combined impact of cuttings, cavings, and spallings for scenarios S1 and S2 are shown in Figures 5.7 through 5.10. In scenario S1, total release volumes in the PAVT range from 0.3 to 6.6 m^3 (Figure 5.7) compared to values in the CCA that range from 0.4 to 4.6 m^3 (Figure 5.8). In the disturbed scenario S2 (as well as in the other disturbed scenarios), the PAVT release volumes (Figure 5.9) were also larger than the CCA volumes (Figure 5.10) due to the larger cuttings and cavings releases. In addition, there were more PAVT vectors with releases, corresponding to vectors with repository pressures greater than 8 MPa.

Table 5.1. 10th Percentile, Median, Mean, 90th Percentile, and Maximum Output Variable Values from the PAVT and CCA Simulations for Scenario S1 (initial E2 intrusion at 10,000 years)

Output Variable Description	Time (yrs)	PAVT Simulation (R1)					CCA Simulation (R1,R2, R3 combined)				
		10th	Median	Mean	90th	Max.	10th	Median	Mean	90th	Max
Cuttings and Cavings Volume (m^3)	10000	0.32	0.67	1.0	2.3	3.9	0.43	0.51	0.60	0.87	2.9
Spallings Volume (m^3)	10000	0.0	1.6	1.7	3.5	4.0	0.0	2.1	2.1	3.7	3.9
Spallings Release (EPA units)	10000	0.0	0.0072	0.0074	0.015	0.018	0.0	0.0093	0.0091	0.016	0.017

Table 5.2. 10th Percentile, Median, Mean, 90th Percentile, and Maximum Output Variable Values from the PAVT and CCA Simulations for Scenario S2 (E1 intrusion at 350 yrs, E2 intrusion at 10,000 years, same panel)

Output Variable Description	Time (yrs)	PAVT Simulation (R1)					CCA Simulation (R1, R2, R3 combined)				
		10th	Median	Mean	90th	Max.	10th	Median	Mean	90th	Max.
Cuttings and CavingsVolume (m^3)	10000	0.32	0.67	1.0	2.3	3.9	0.43	0.51	0.60	0.87	2.9
Spallings Volume (m^3)	10000	0.0	0.0	1.2	3.3	4.0	0.0	0.0	0.19	0.0	3.7
Spallings Release (EPA) units	10000	0.0	0.0	0.0051	0.015	0.018	0.0	0.0	0.0009	0.0	0.016

SNL WIPP PA: CUSP (C97 R1[illegible]1 L)

Cuttings and Cavings Release Volume at 10000 Years

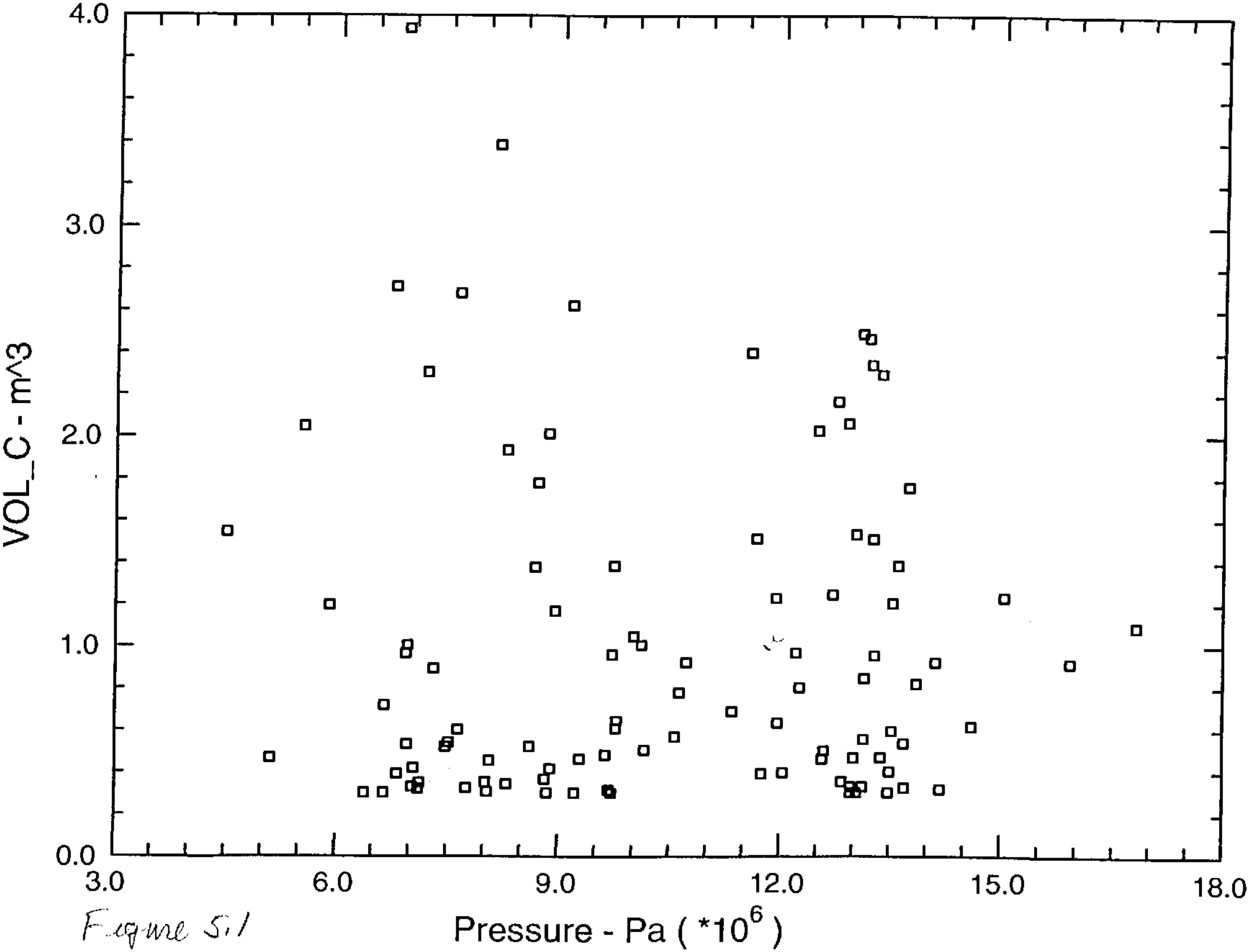


Figure 51

U1:[JDMILLE.C97.CUSP.RESULTS]SPLAT_CUSP_C97_R1S1_L_T10000_VC.INP;2

SPLAT_PA96_2 1.02 07/10/97 16:04:21

SNL WIPP PA: CUSP (CCA R1 S L)

Cuttings and Cavings Release Volume at 10000 Years

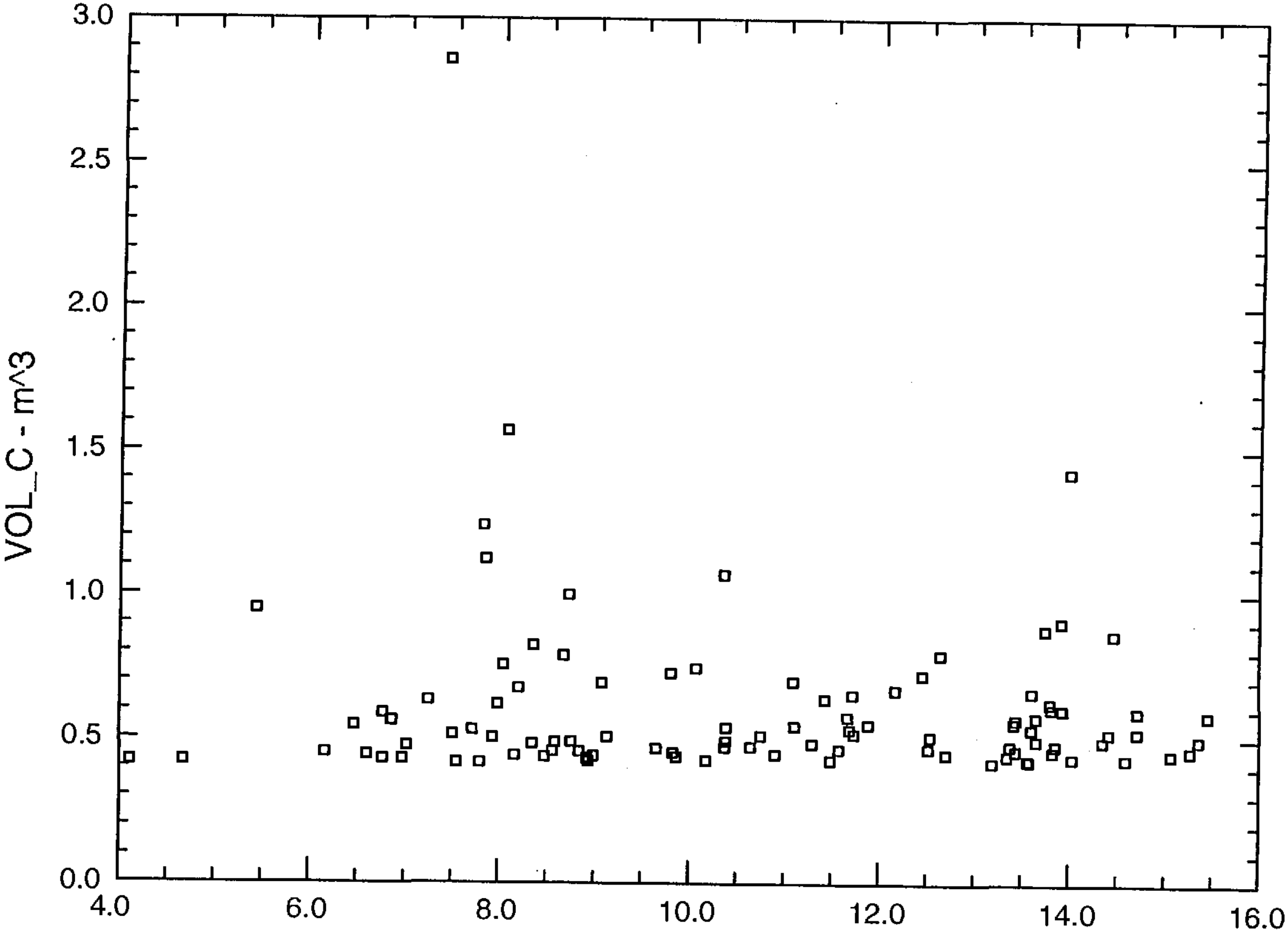


Figure 5.2

U1:[JDMILLE.CCA.CUSP.RESULTS]SPLAT_CUSP_CCA_R1S1_L_T10000_VC.INP;2

SPLAT_PA96_2 1.02 07/10/97 16:12:17

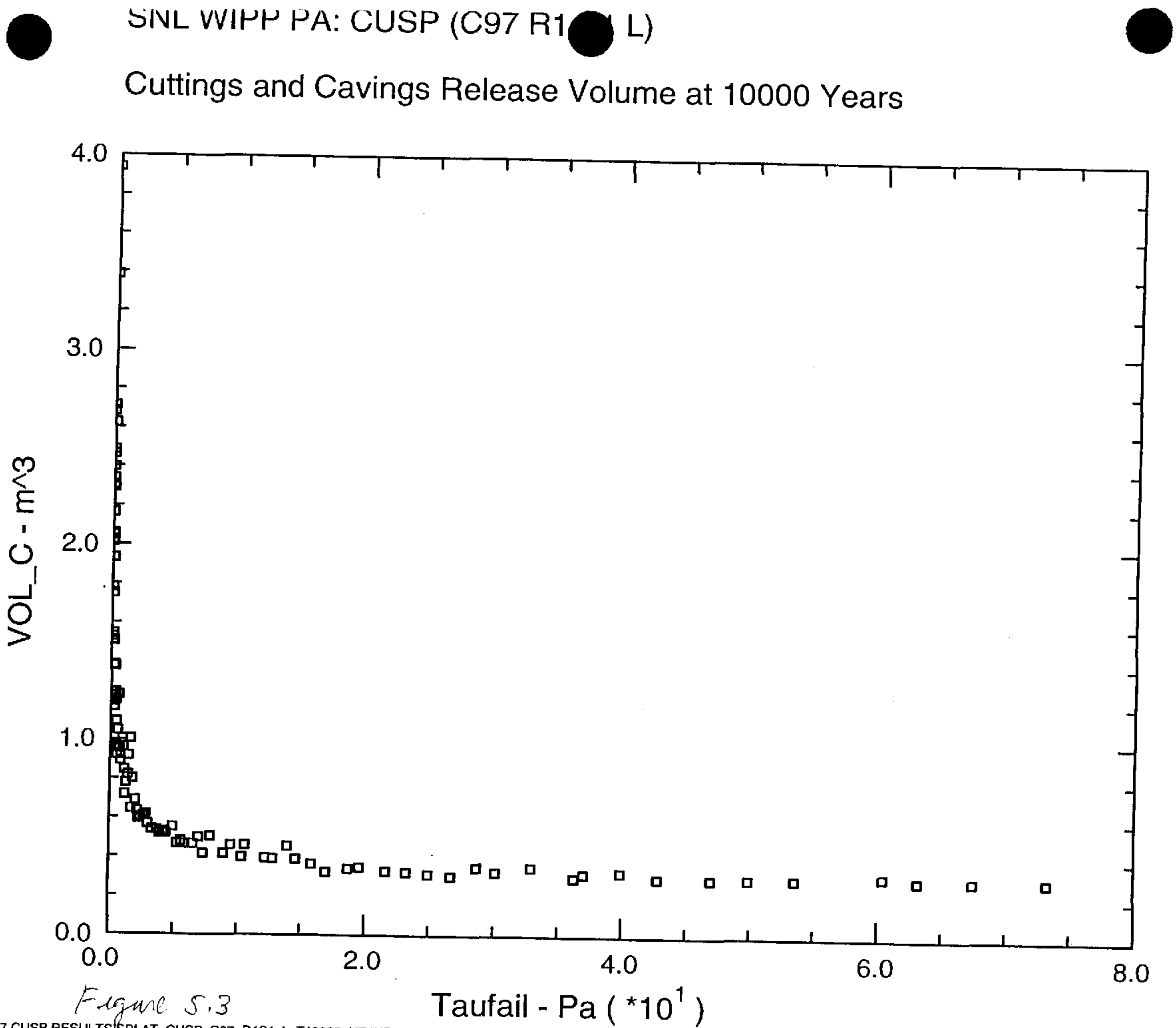


Figure 5.3

U1:[JDMILLE.C97.CUSP.RESULTS]SPLAT_CUSP_C97_R1S1_L_T10000_VF.INP;1

SPLAT_PA96_2 1.02 07/10/97 16:04:25

SNL WIPP PA: CUSP (CCA R1[illegible]1 L)

Cuttings and Cavings Release Volume at 10000 Years

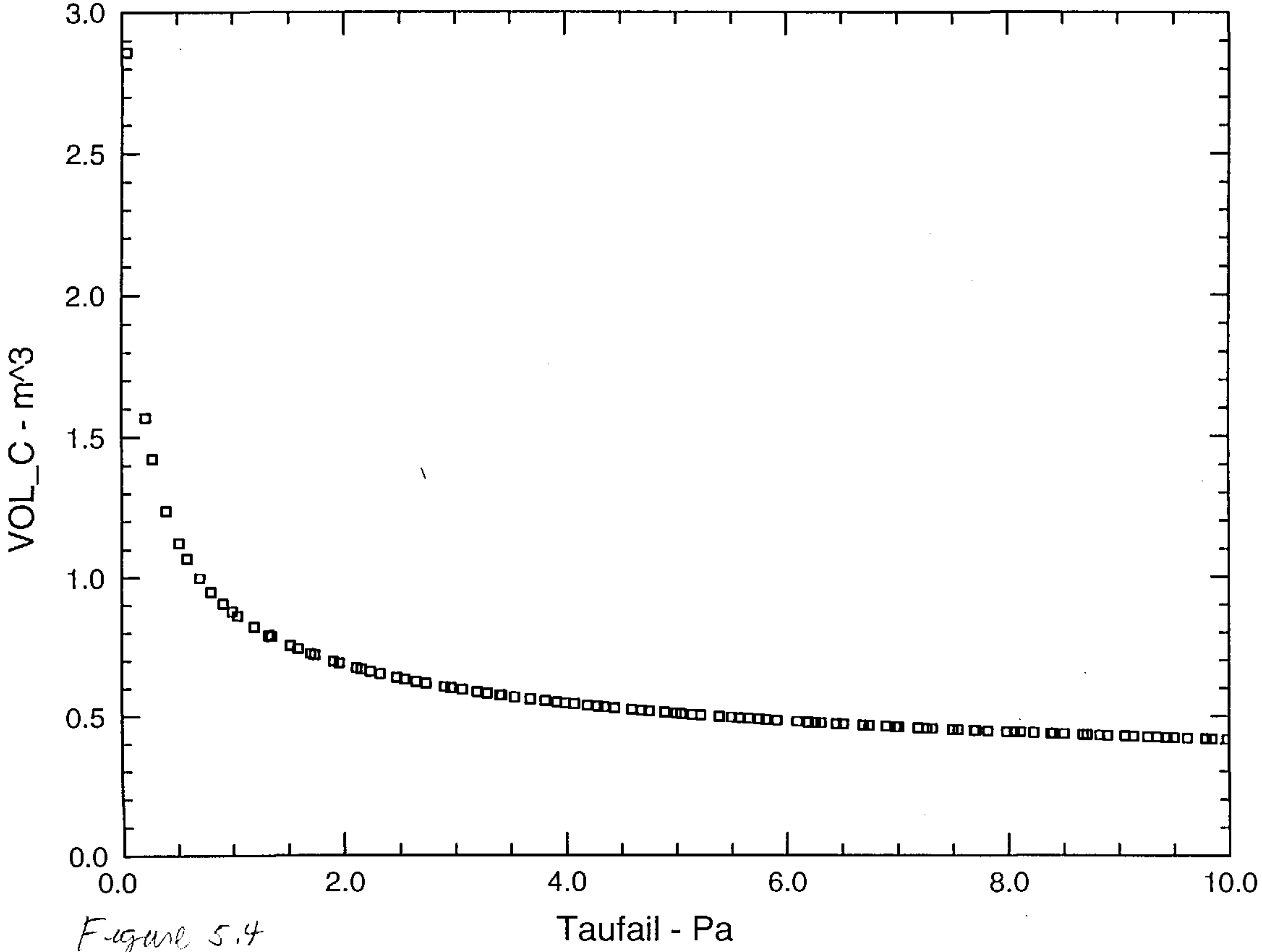


Figure 5.4

U1:[JDMILLE.CCA.CUSP.RESULTS]SPLAT_CUSP_CCA_R1S1_L_T10000_VF.INP;1

SPLAT_PA96_2 1.02 07/10/97 16:12:28

SNL WIPP PA: CUSP (C97 R1 L)

Spall Release Volume at 10000 Years

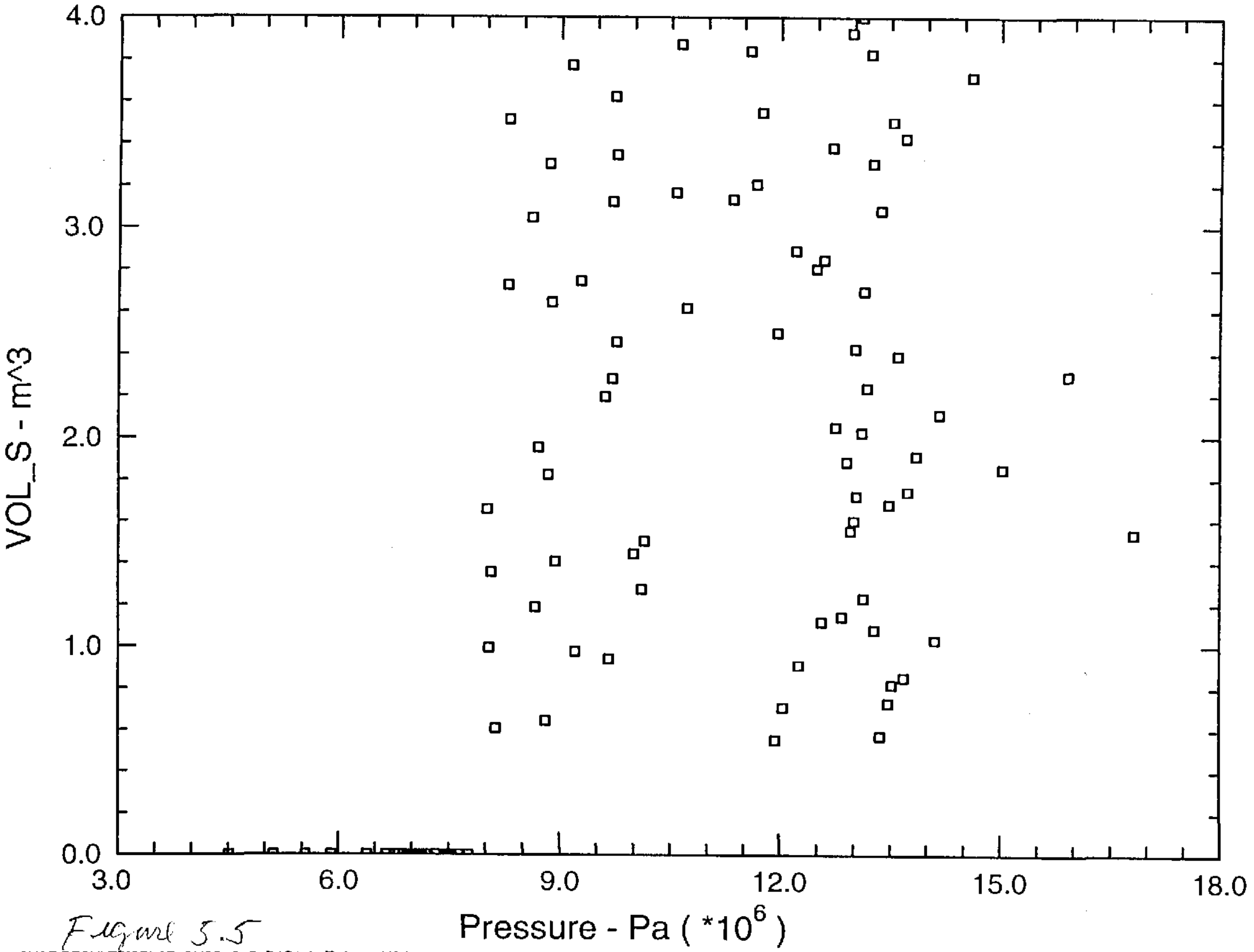


Figure 5.5

U1:[JDMILLE.C97.CUSP.RESULTS]SPLAT_CUSP_C97_R1S1_L_T10000_VS.INP;2

SPLAT_PA96_2 1.02 07/10/97 16:04:29

SNL WIPP PA: CUSP (CCA R1[illegible]1 L)

Spall Release Volume at 10000 Years

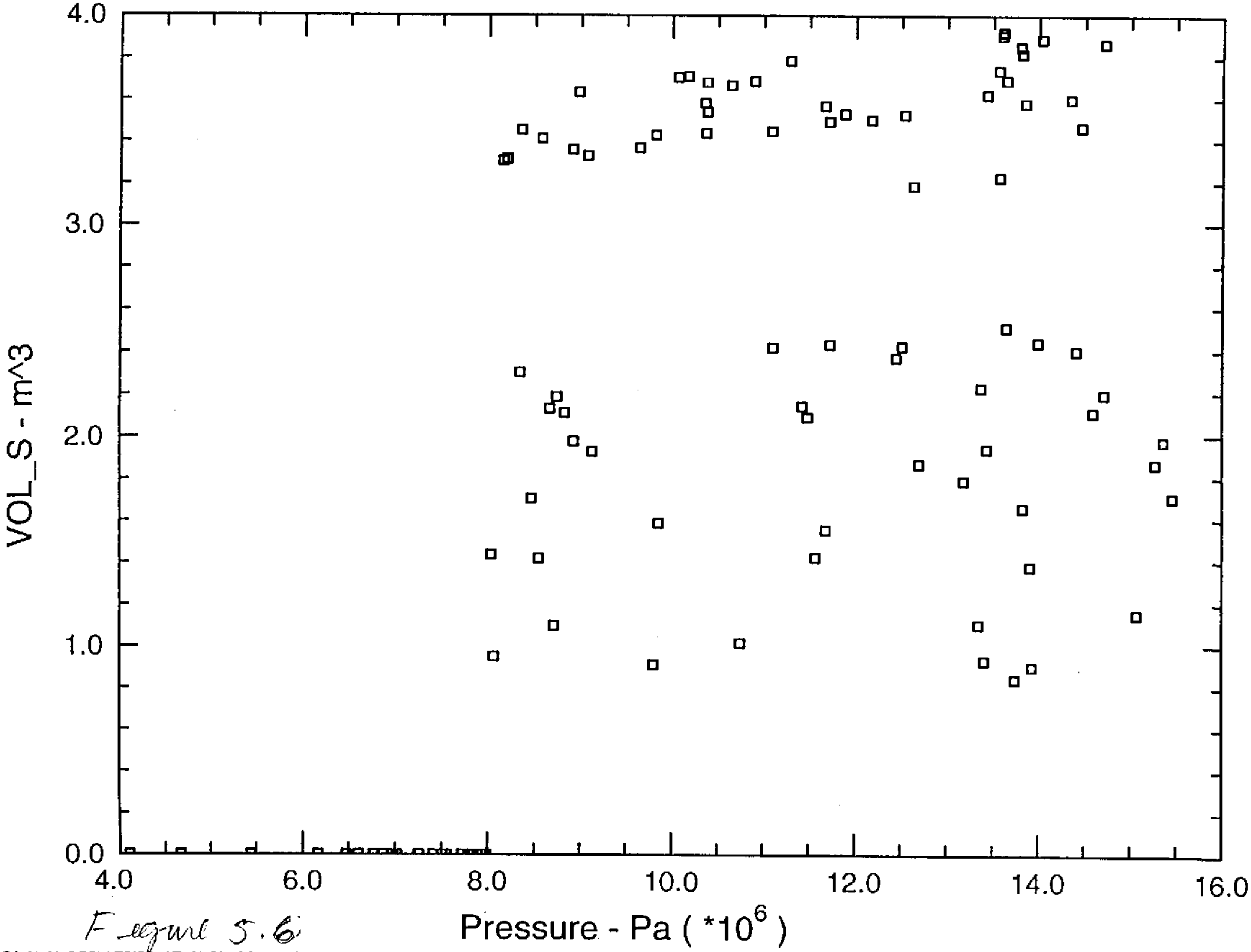


Figure 5.6

U1:[JDMILLE.CCA.CUSP.RESULTS]SPLAT_CUSP_CCA_R1S1_L_T10000_VS.INP;2

SPLAT_PA96_2 1.02 07/10/97 16:12:34

SNL WIPP PA: CUSP (C97 R1 [illegible] L)

Total Release Volume at 10000 Years

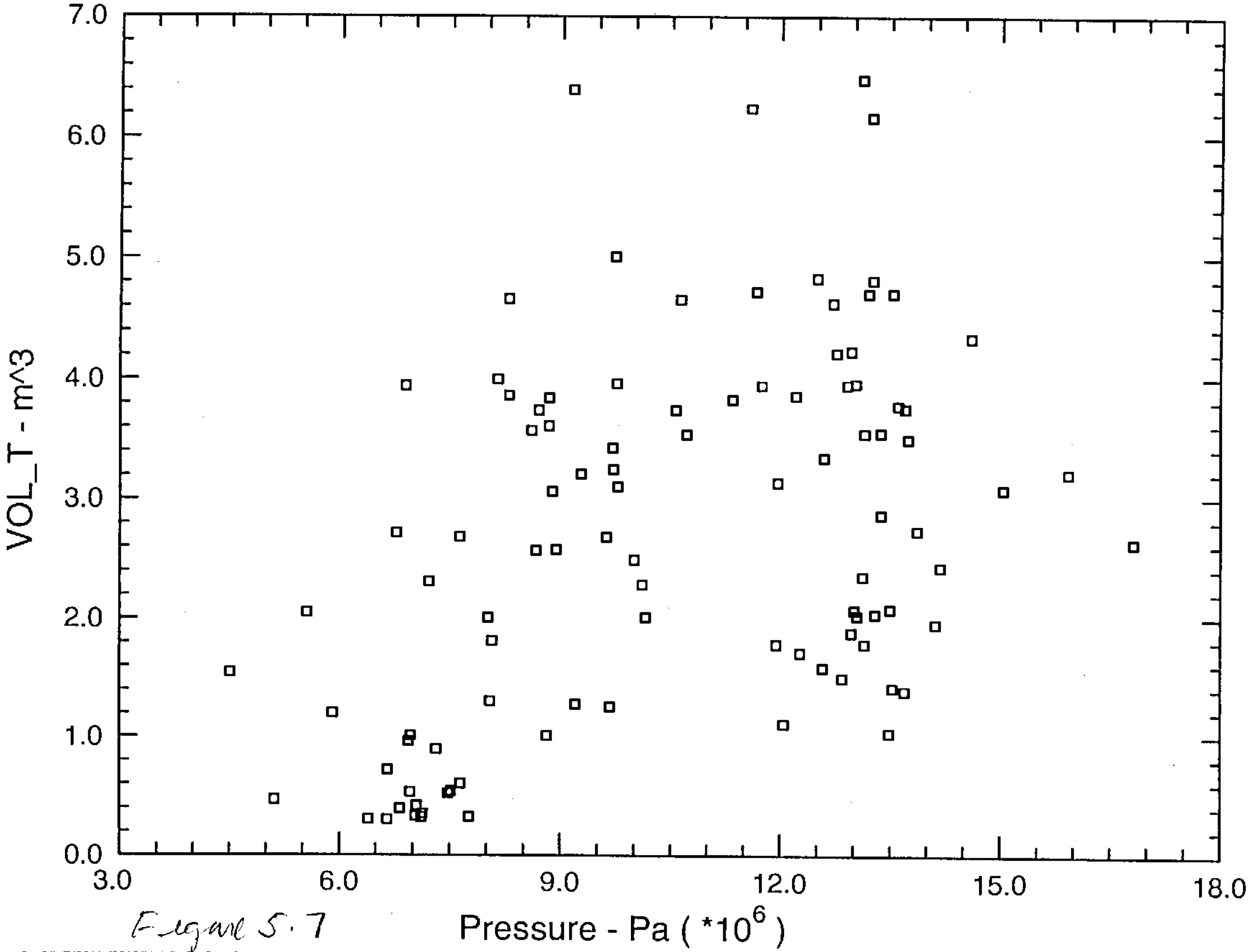


Figure 5.7

U1:[JDMILLE.C97.CUSP.RESULTS]SPLAT_CUSP_C97_R1S1_L_T10000_VT.INP;2

SPLAT_PA96_2 1.02 07/10/97 16:04:35

SNL WIPP PA: CUSP (CCA R1[illegible] L)

Total Release Volume at 10000 Years

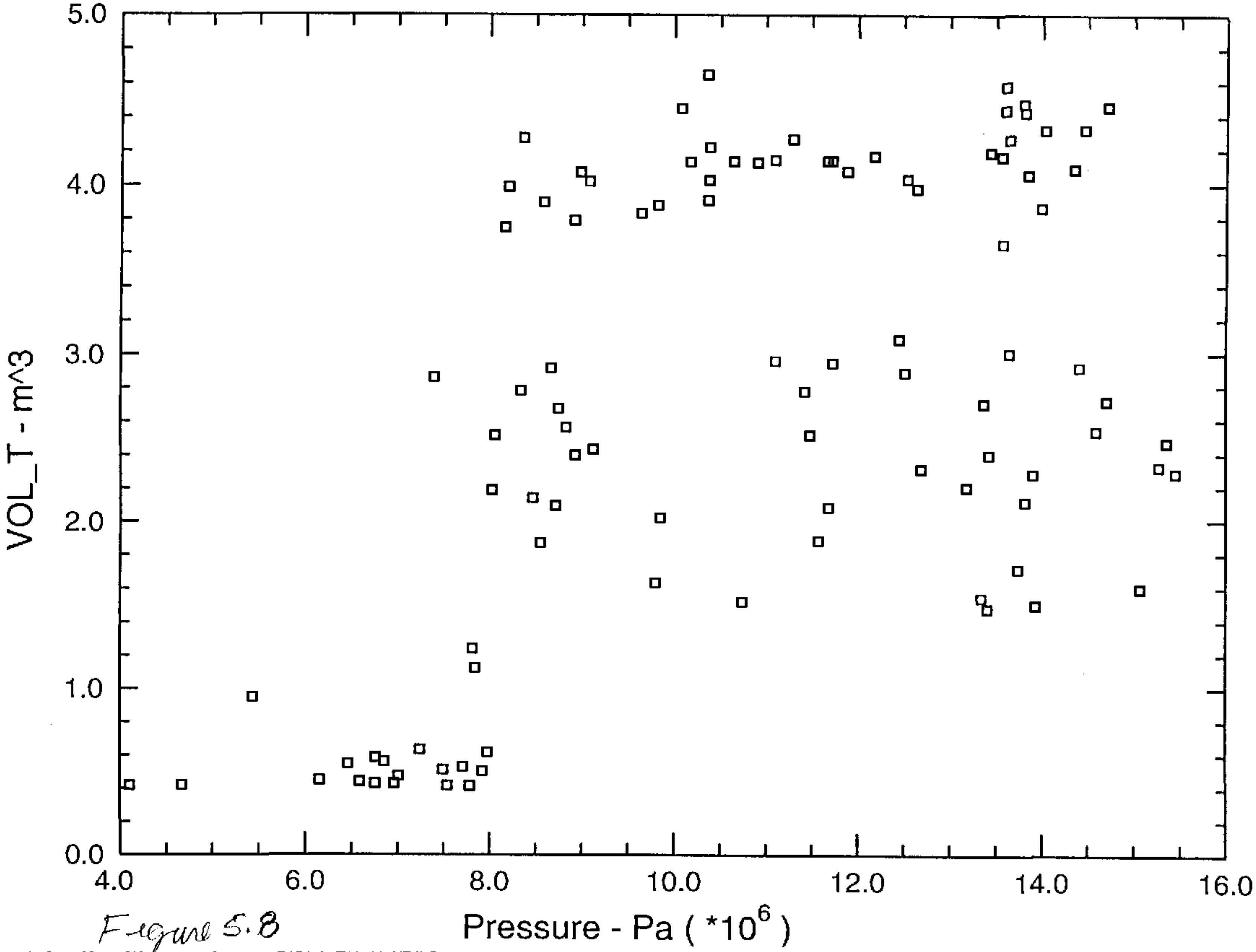


Figure 5.8

U1:[JDMILLE.CCA.CUSP.RESULTS]SPLAT_CUSP_CCA_R1S1_L_T10000_VT.INP;2

SPLAT_PA96_2 1.02 07/10/97 16:12:49

SNL WIPP PA: CUSP (C97 R1 S[illegible]L)

Total Release Volume at 10000 Years

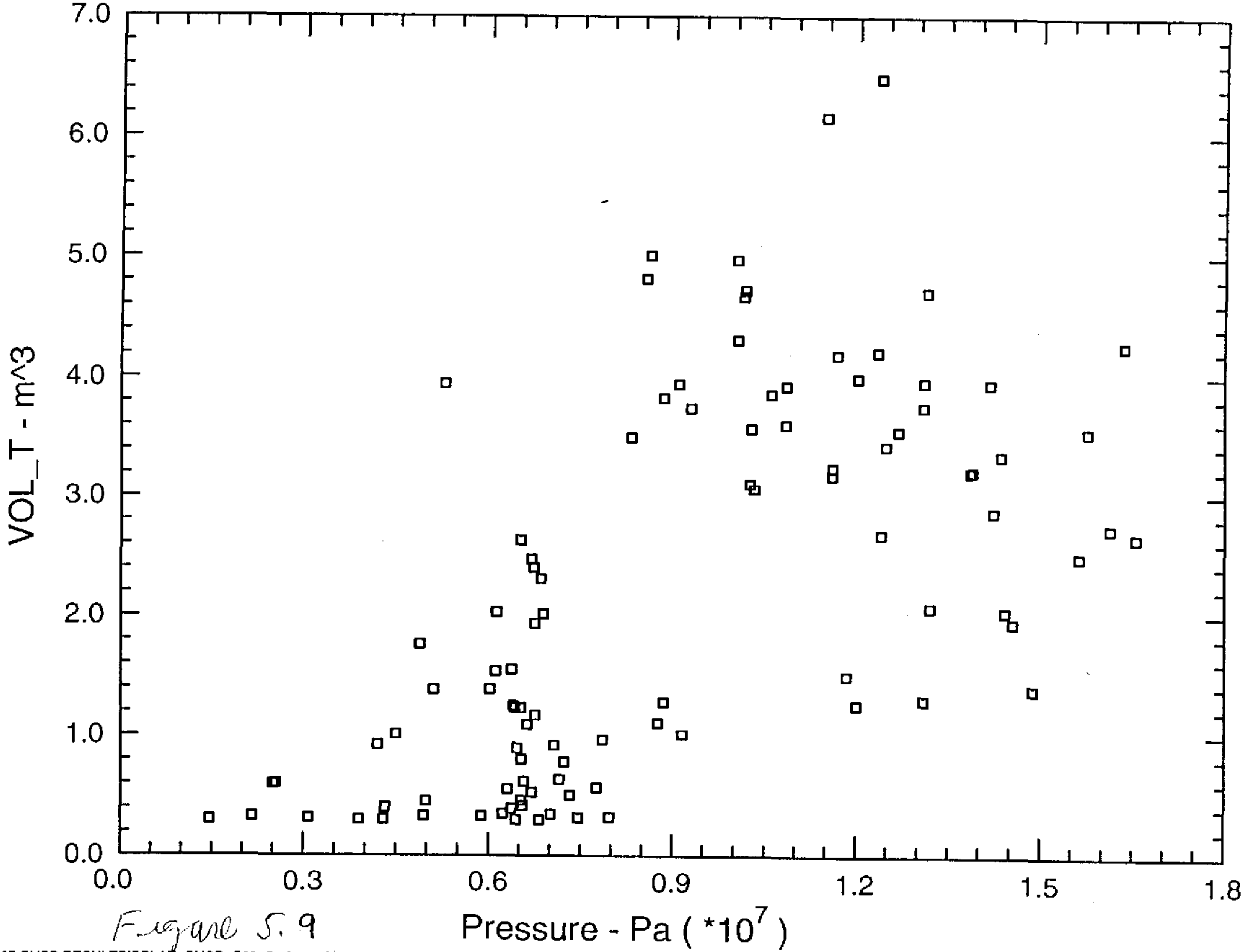


Figure 5.9

U1:[JDMILLE.C97.CUSP.RESULTS]SPLAT_CUSP_C97_R1S2_L_T10000_VOL.INP;3

SPLAT_PA96_2 1.02 07/10/97 16:04:41

SNL WIPP PA: CUSP (CCA R1[illegible]2 L)

Total Release Volume at 10000 Years

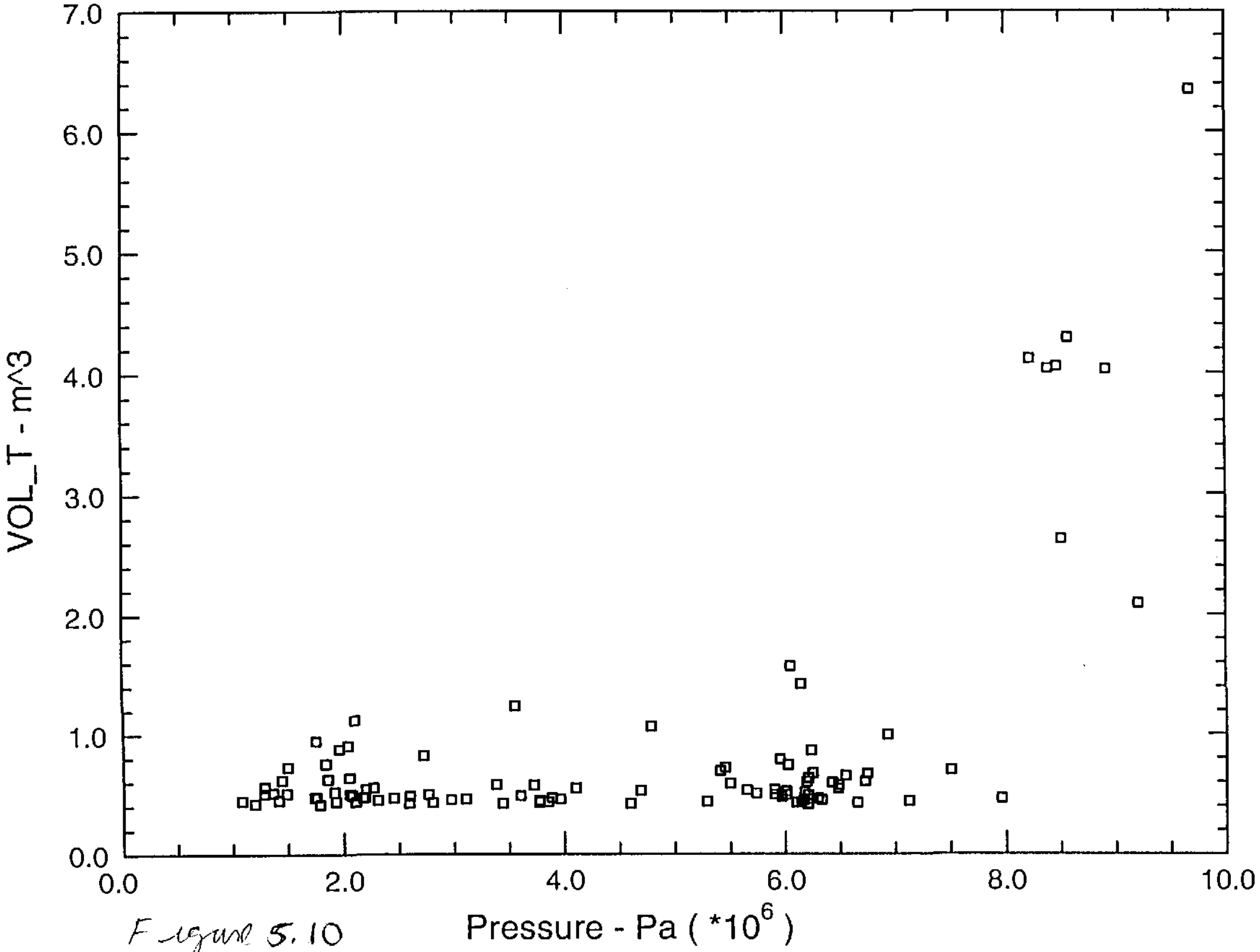


Figure 5.10

U1:[JDMILLE.CCA.CUSP.RESULTS]SPLAT_CUSP_CCA_R1S2_L_T10000_VOL.INP;2

SPLAT_PA96_2 1.02 07/10/97 16:13:02

6.0 DIRECT BRINE RELEASE CALCULATIONS

This section summarizes differences between the PAVT and CCA direct brine release (DBR) calculations. Note that in the CCA, DBR was sometimes referred to as blowout. In these calculations, the release of brine to the surface via an intruding borehole was predicted by using BRAGFLO to model short-term flow in the repository. Repository features such as panel closures and pillars were considered in the analysis. The key performance measure for comparing PAVT and CCA direct brine release results is the volume of brine released at the surface within a time period of up to eleven days.

6.1 Changes to Parameters

The following changes to input parameters were implemented in the BRAGFLO DBR analysis:

(1) Waste permeability was increased from a constant value of 1.7×10^{-13} m^2 to a constant value of 2.4×10^{-13} m^2.

(2) DRZ log permeability (m^2) was changed from a constant value of -15.0 to a uniform distribution ranging from -19.4 to -12.5 with a mean and median of -15.95.

Note that these parameter changes were specified in Section 2.1.

6.2 Changes to Model

In the CCA, the DBR conceptual model represented the DRZ permeability and porosity using a constant DRZ permeability value of 10^{-15} m^2 and a porosity value slightly enhanced over the intact halite value, $\phi_{DRZ} = \phi_{halite} + 0.0029$. The intact halite porosity was sampled from a cumulative distribution ranging from 0.001 to 0.03 with a median value of 0.01. These values were assigned to both the DRZ region surrounding the repository and the pillars in the repository. Because the DRZ grid volumes in the DBR and Salado grids were different, the porosity value for the DBR grid was adjusted so that pore volume of the DRZ was conserved. In the PAVT, the pillars in the repository were assigned the initial sampled value of DRZ permeability. Further, the permeability and porosity of the DRZ surrounding the repository were assigned volume-averaged permeability and porosity values of the DRZ at the time of intrusion. As in the CCA, the DRZ porosity was adjusted to account for the different grid volumes. Note that the DRZ permeability and porosity were time dependent because the DRZ was allowed to fracture under the same conceptual model as Marker Beds 138 and 139 (for further discussion see Section 2 and Appendix A).

For the PAVT, a code change was implemented in BRAGFLO, Version 4.10, to allow it to be used for DBR calculations in addition to Salado flow calculations (Change Control Form #45223). In the CCA, a separate code, BRAGFLO_DBR was used for DBR calculations.

6.3 Impact of Changes on Model Results

Direct brine releases may occur when a future driller penetrates the WIPP and contaminated brine is unknowingly brought to surface during the drilling process. These releases are not specifically accounted for in the CUTTINGS_S code, as that code only calculates the solids removed during the drilling process. Certain conditions must exist within the waste in order for contaminated brine to flow directly to the surface during a drilling intrusion:

- Pressure in the waste must be greater than that exerted by the column of drilling mud that penetrates a waste panel. Drillers in the Delaware Basin currently use a salt saturated mud while drilling through the Salado, with a specific gravity of 1.23 (WP#40520). This corresponds to 7.7 MPa (which is the conversion of specific gravity of the brine to an equivalent pressure at the depth of the repository horizon), which is the minimum pressure needed to overcome a static column of drilling mud. Additional pressure is created in the wellbore due to frictional forces associated with the fluid flow up the annular space between the drill string and open hole (the assumed flow regime for direct releases). Therefore, a pressure of ~8 MPa is needed in the waste panel for fluids to flow into the intrusion borehole under dynamic flow conditions.

- There must be mobile brine present in the waste panels to flow to the surface. Corrosion and biodegradation processes consume brine and produce gas, and it is possible for the brine volume in the waste to drop below its "mobile" (residual) saturation. It is possible for gas-only flows to occur up a drill hole, but these flows are only of concern for the solids releases (spallings).

Direct brine releases were calculated for the same repository conditions (scenarios and intrusion times) that were used in the cuttings, cavings, and spallings calculations (Section 5.3), resulting in a total of 5200 DBR calculations (2600 up dip and 2600 down dip) for PAVT replicate 1. The pressure and saturation time-histories from the 10,000 year BRAGFLO PAVT realizations provided the basic input needed for the direct brine release calculations. The pressure and saturation at specified times for each consequence furnished the initial and boundary conditions needed to run the separate repository scale BRAGFLO model to determine the volumes of direct brine releases to the surface. The model assumed no-flow boundary conditions beyond the footprint of the waste region for the (several day) flow period of direct releases (i.e., there is no connection to the surrounding geology). All relevant flow parameters (permeability, porosity, characteristic curves, etc.), both sampled and unsampled, were the same as those used for the 10,000 year BRAGFLO models.

In the PAVT replicate 1, nearly as many calculations resulted in brine release as in all three CCA replicates combined (821 vs. 907). The number of calculations that released brine in the PAVT (from the total of 5200) are tabulated by scenario in Table 6.1. This increase in the number of releases was primarily due to the increased repository pressures in the disturbed scenarios and to a lesser extent the increased waste permeability.

Table 6.1 Summary of PAVT Calculations by Scenario that Produced Direct Brine Releases

Scenario	Down-Dip		Up-Dip	
	Number of Calculations with Releases	Total Number of Calculations	Number of Calculations with Releases	Total Number of Calculations
S1	96	600	12	600
S2	272	500	85	500
S3	202	500	48	500
S4	37	500	7	500
S5	53	500	9	500
Total	660	2600	161	2600

Figures 6.1 and 6.2 show how brine releases vary with initial panel pressure for all down-dip intrusion DBR calculations in the PAVT and CCA. Brine release volumes in the PAVT were, in general, larger than release volumes in the CCA. These larger release volumes were due in part to the increased waste permeability. As in the CCA, the PAVT data shows a tendency for releases to increase with increasing pressure. Pressures ranged up to 17 MPa in the PAVT with a maximum release of about 180 m^3; in the CCA the maximum release was approximately 55 m^3 at a pressure of 15 MPa. In addition, there were many more calculations that released brine in volumes greater than 10 m^3 in PAVT replicate 1 than in all three replicates in the CCA.

Statistical measures for direct brine releases (brine volumes and radionuclides) are given in Tables 6.2 and 6.3. Results are presented for a single intrusion into the lower panel of an undisturbed repository (S1) at 5000 and 10000 years (Table 6.2) and for an E1 intrusion at 1000 years (S3) followed by a second intrusion at 1200, 5000, and 10000 years (Table 6.3). Results for all scenarios are given in Appendix F along with box plots of releases (brine volume and EPA units) for the PAVT (Figures F.1 through F.10) and CCA (Figures F.11 through F.20).

Results show that, for the S1 scenario, released brine volumes tended to be slightly larger in the PAVT (Figure F.1) than in the CCA (Figure F.11), but radionuclide releases tended to be smaller in the PAVT (Figure F.6) than in the CCA (Figure F.16). These differences are summarized with a statistical comparison in Table 6.2. The reduced radionuclide releases in the PAVT were due to the reduced solubilities of ^{241}Am and ^{239}Pu in Salado brine.

In the E1 intrusion scenarios (S2 and S3), released brine volumes were much higher (about an order of magnitude on average) in the PAVT (Figures F.2 and F.3) than in the CCA (Figures F.12 and F.13). Corresponding radionuclide releases were slightly larger, on average, in the PAVT at early intrusion times (Figures F.7, F.8, F.17, and F.18) and moderately larger at later intrusion times. At early time, the higher brine volumes released in the PAVT were counteracted by the lower ^{241}Am solubilities in Castile brine. The later time PAVT radionuclide releases were influenced by ^{239}Pu solubilities in Castile brine; these solubilities were comparable (sometimes larger, sometimes smaller, depending on oxidation state) in the PAVT and CCA. These differences are summarized with a statistical comparison in Table 6.3.

In the E2 intrusion scenarios (S4 and S5), released brine volumes were also about an order of magnitude larger on average in the PAVT (Figures F.4 and F.5) than in the CCA (Figures F.14 and F.15). Corresponding PAVT radionuclide releases were generally slightly larger, and at later times were actually smaller than CCA releases (Figures F.9, F.10, F.19, and F.20). In these scenarios, the larger brine volumes were counteracted by the reduced Salado brine solubilities.

Figures 6.3 and 6.4 show how brine releases vary with initial brine saturation ($Sw_{initial}$) for all down-dip direct brine release calculations. In both the PAVT and CCA, the scatter in the data suggests that generally higher initial brine saturations result in higher brine volume releases with the majority of the larger releases occurring at saturations between 0.7 and 0.8.

Figures 6.5 and 6.6 show how brine releases vary with initial panel pressure for all up-dip direct brine release calculations. Several more calculations release brine in PAVT replicate 1 than in the three replicates of the CCA. Again, as in the down-dip calculations, the releases were much larger in the PAVT with the maximum value of about 150 m^3 near 16 MPa, whereas the maximum release in the CCA results was 32 m^3 at 11 MPa.

Figures 6.7 and 6.8 show how brine releases vary with initial brine saturation ($Sw_{initial}$) for all up-dip direct brine release calculations. As with the down-dip calculations, higher initial brine saturations generally resulted in higher brine volume releases.

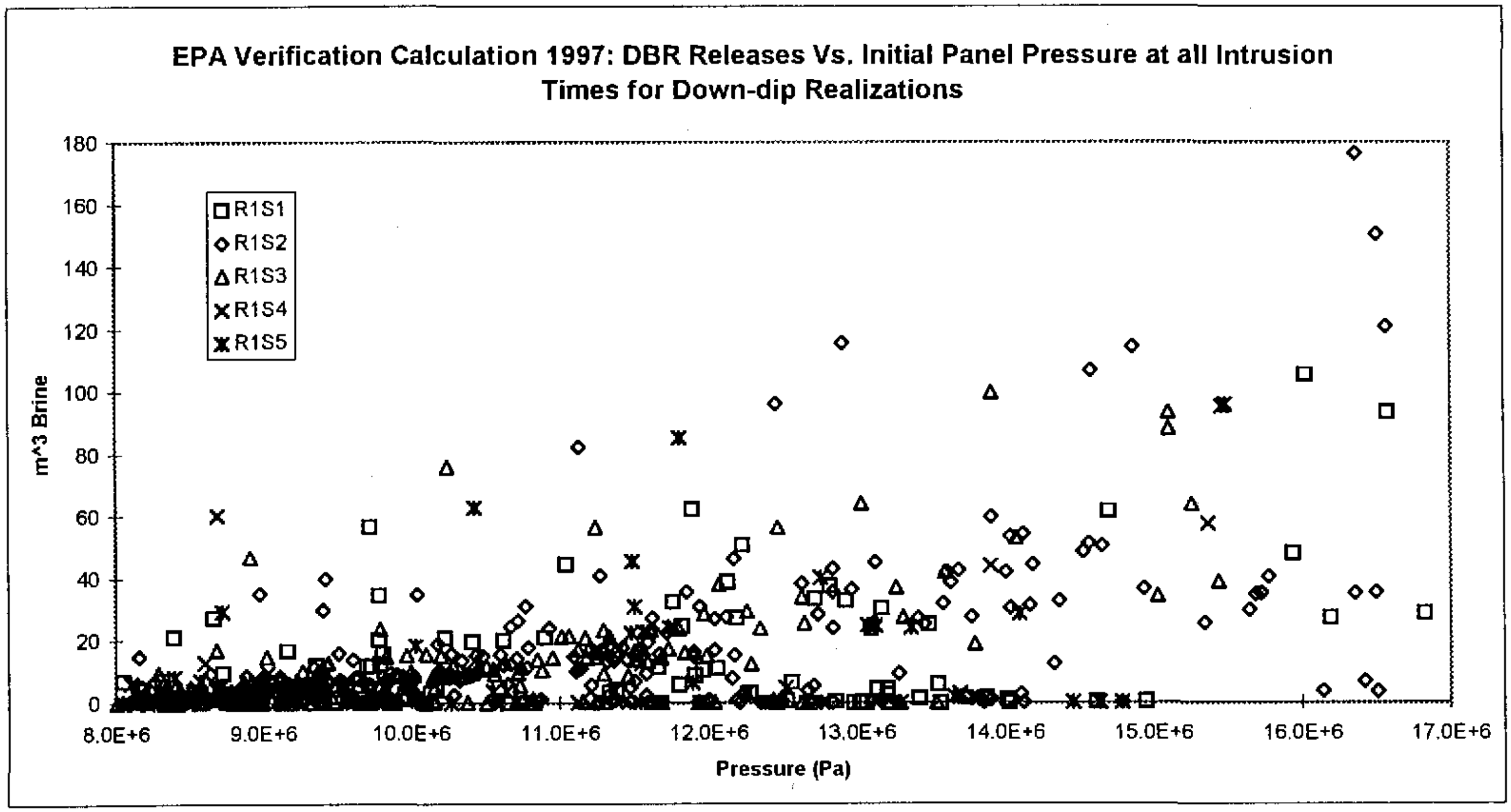
Table 6.2. 10th Percentile, Median, Mean, 90th Percentile, and Maximum Output Variable Values from the PAVT and CCA Simulations for Scenario S1 (initial intrusion at time specified in lower panel)

Output Variable Description	Intrusion Time (yrs)	PAVT Simulation (R1)					CCA Simulation (R1, R2, R3 combined)				
		10th	Median	Mean	90th	Max.	10th	Median	Mean	90th	Max.
Brine Volume (m^3)	5000	0.0	0.0	3.8	12	93	0.0	0.0	1.0	1.2	28
Release (EPA units)		0.0	0.0	2.1E-4	3.9E-4	1.0E-2	0.0	0.0	7.4E-4	2.9E-4	5.1E-2
Brine Volume (m^3)	10000	0.0	0.0	4.0	15	51	0.0	0.0	1.9	5.5	37
Release (EPA units)		0.0	0.0	1.1E-4	3.4E-4	3.5E-3	0.0	0.0	1.0E-3	9.2E-4	5.2E-2

Table 6.3. 10th Percentile, Median, Mean, 90th Percentile, and Maximum Output Variable Values from the PAVT and CCA Simulations for Scenario S3 (E1 intrusion at 1000 yrs followed by a second intrusion at time specified in same panel)

Output Variable Description	Intrusion Time (yrs)	PAVT Simulation (R1)					CCA Simulation (R1, R2, R3 combined)				
		10th	Median	Mean	90th	Max.	10th	Median	Mean	90th	Max.
Brine Volume (m^3)	1200	0.0	2.5	5.5	15	76	0.0	0.0	0.62	.43	15
Release (EPA units)		0.0	5.1E-4	1.6E-3	3.5E-3	1.9E-2	0.0	0.0	8.1E-4	3.3E-4	5.8E-2
Brine Volume (m^3)	5000	0.0	0.0	3.7	13	64	0.0	0.0	0.25	0.0	13
Release (EPA units)		0.0	0.0	1.3E-4	6.2E-4	1.9E-3	0.0	0.0	9.9E-6	0.0	5.6E-4
Brine Volume (m^3)	10000	0.0	0.0	4.0	8.6	100	0.0	0.0	0.18	0.0	11
Release (EPA units)		0.0	0.0	6.3E-5	1.6E-4	1.9E-3	0.0	0.0	3.7E-6	0.0	2.3E-4

Figure 6.1



EPA Verification Calculation 1997: DBR Releases Vs. Initial Panel Pressure at all Intrusion Times for Down-dip Realizations

Figure 6.1

Figure 6.2: Brine Releases vs. Initial Panel Pressure: All Down-dip Realizations (CCA)

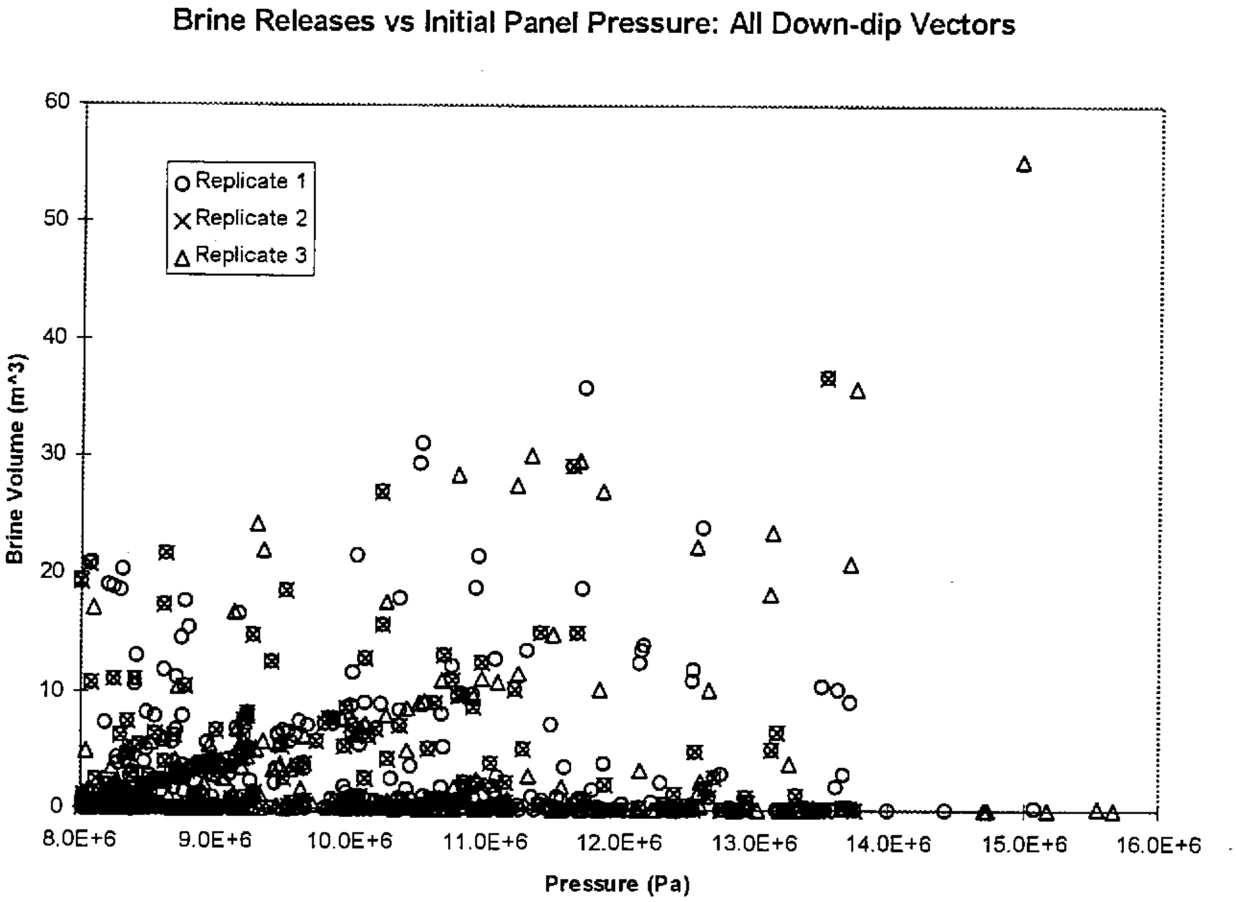
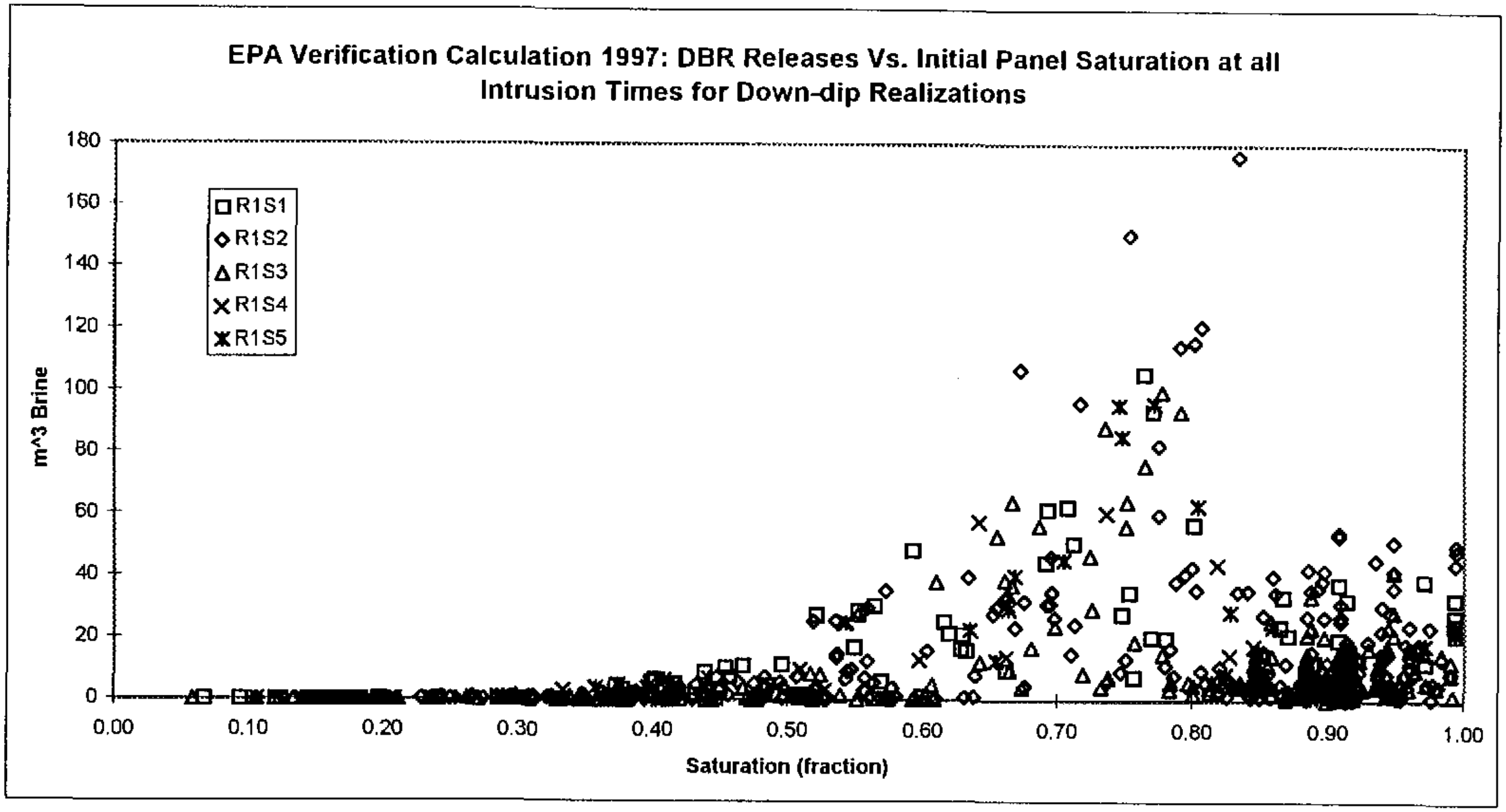


Figure 6.3



EPA Verification Calculation 1997: DBR Releases Vs. Initial Panel Saturation at all Intrusion Times for Down-dip Realizations

Figure 6.3

Figure 6.4: Brine Releases vs Initial Panel Saturation: All Down-dip Realizations (CCA)

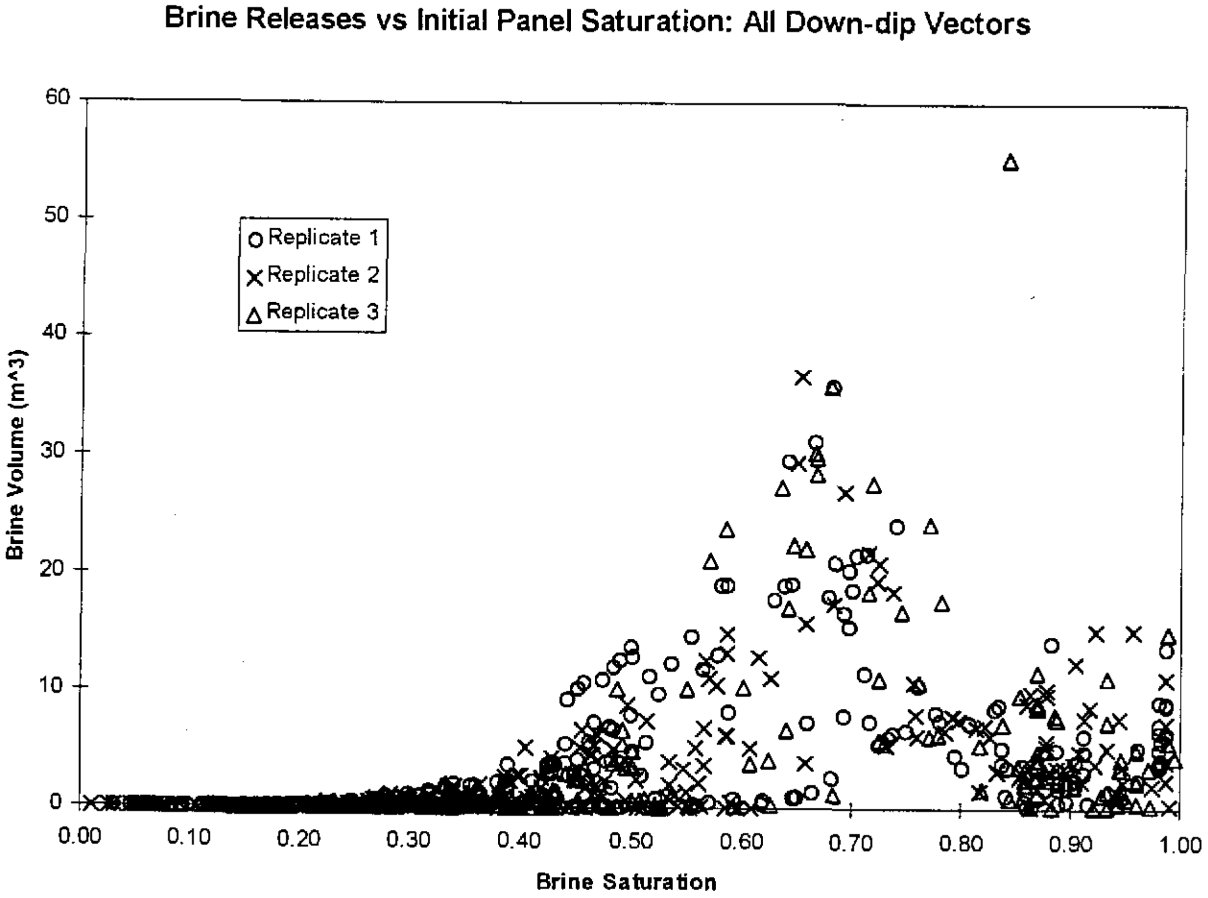


Figure 6.5

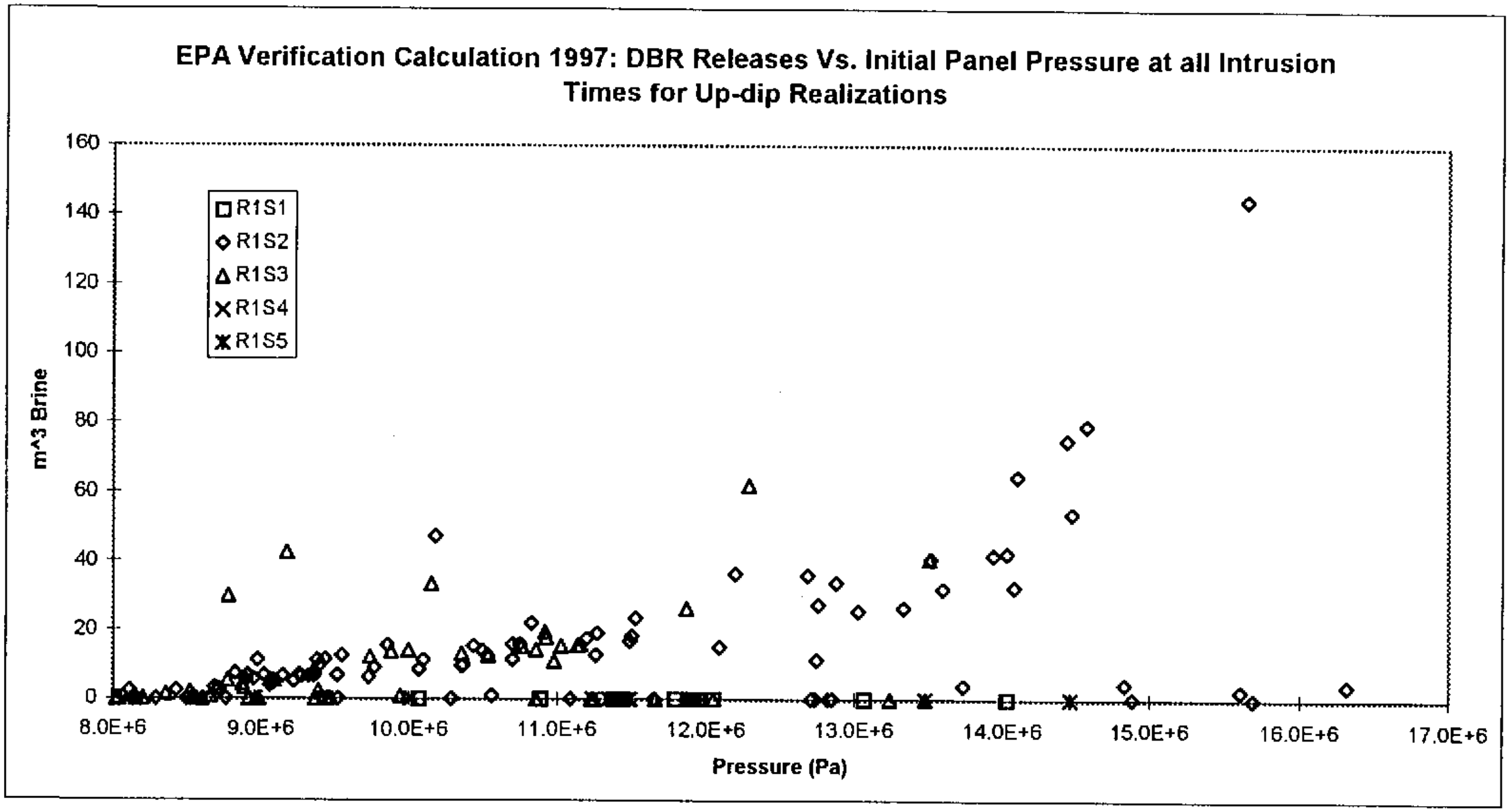


Figure 6.5

Figure 6.6: Brine Releases vs Initial Panel Pressure: All Up-dip Realizations (CCA)

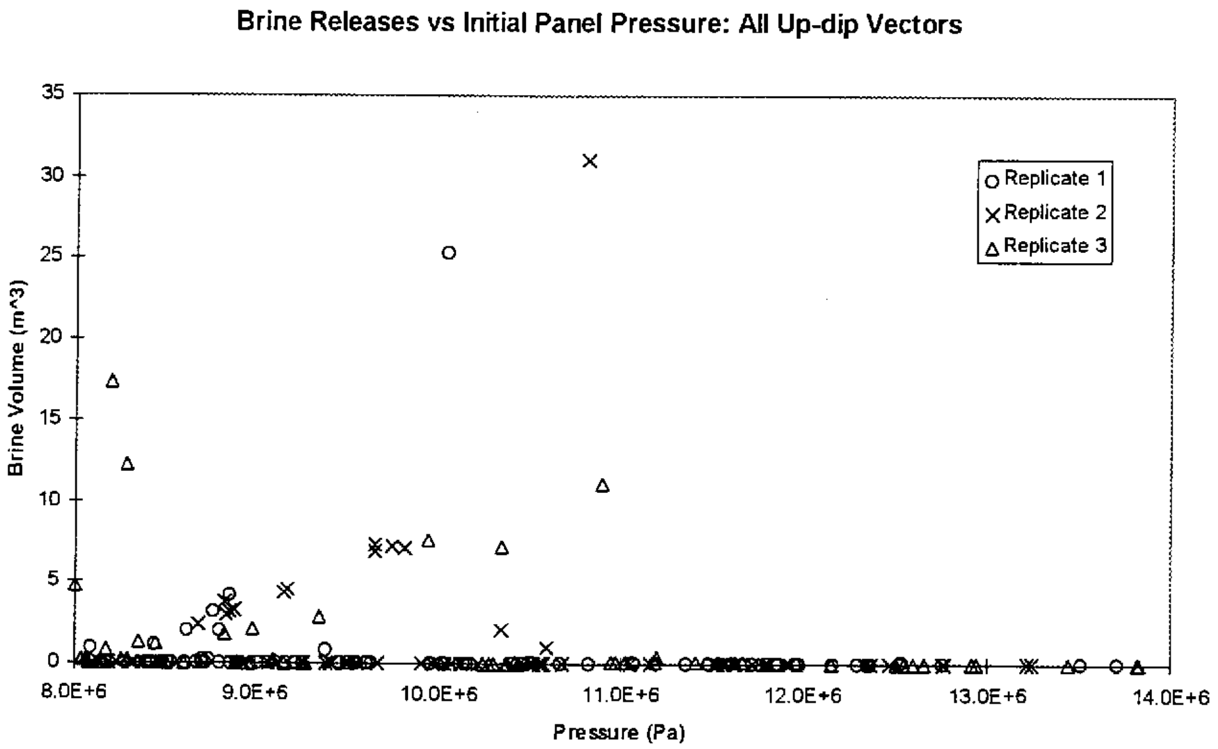
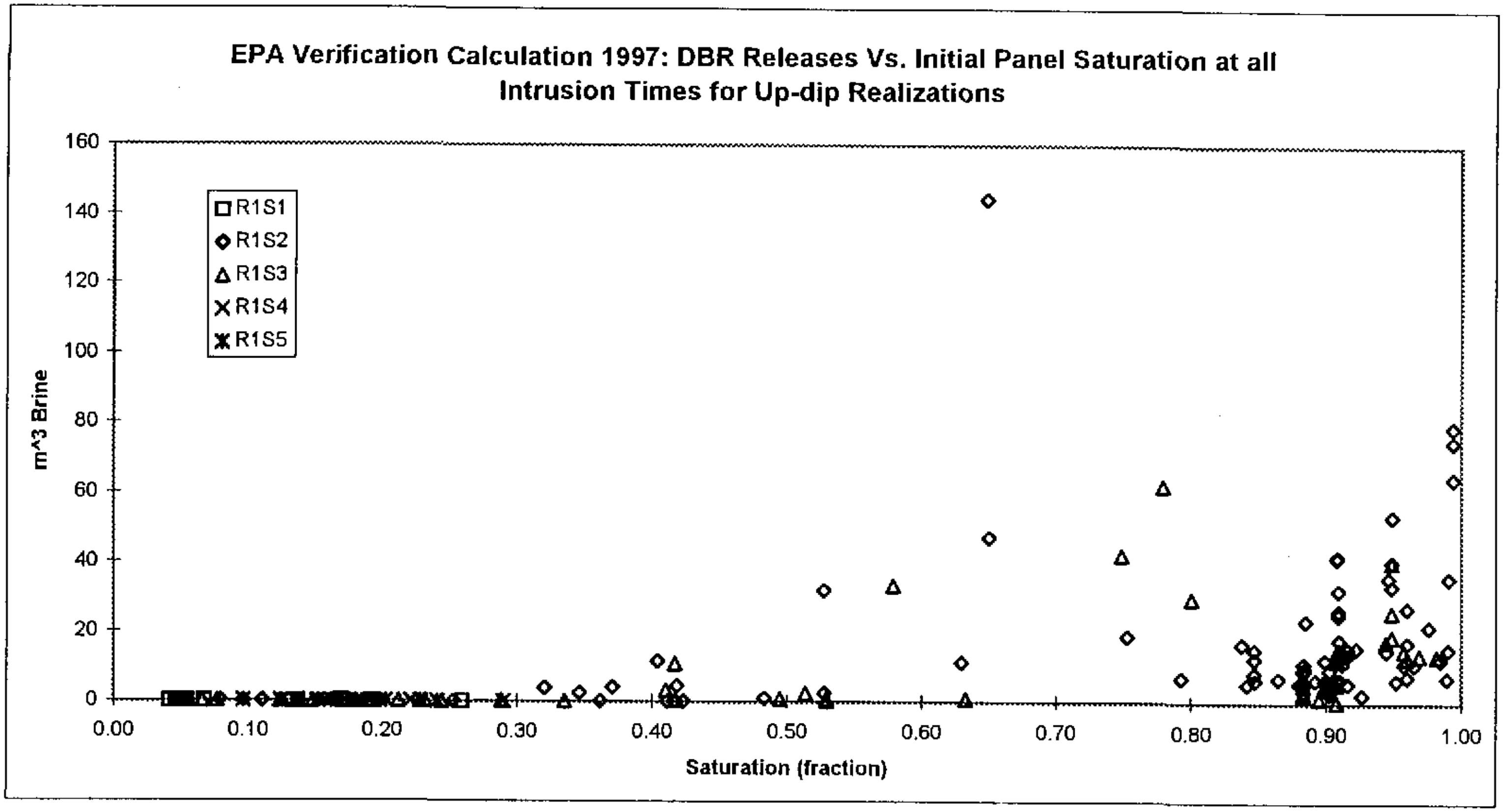


Figure 6.7



EPA Verification Calculation 1997: DBR Releases Vs. Initial Panel Saturation at all Intrusion Times for Up-dip Realizations

Figure 6.7

Figure 6.8: Brine Releases vs Panel Saturation: All Up-dip Realizations (CCA)

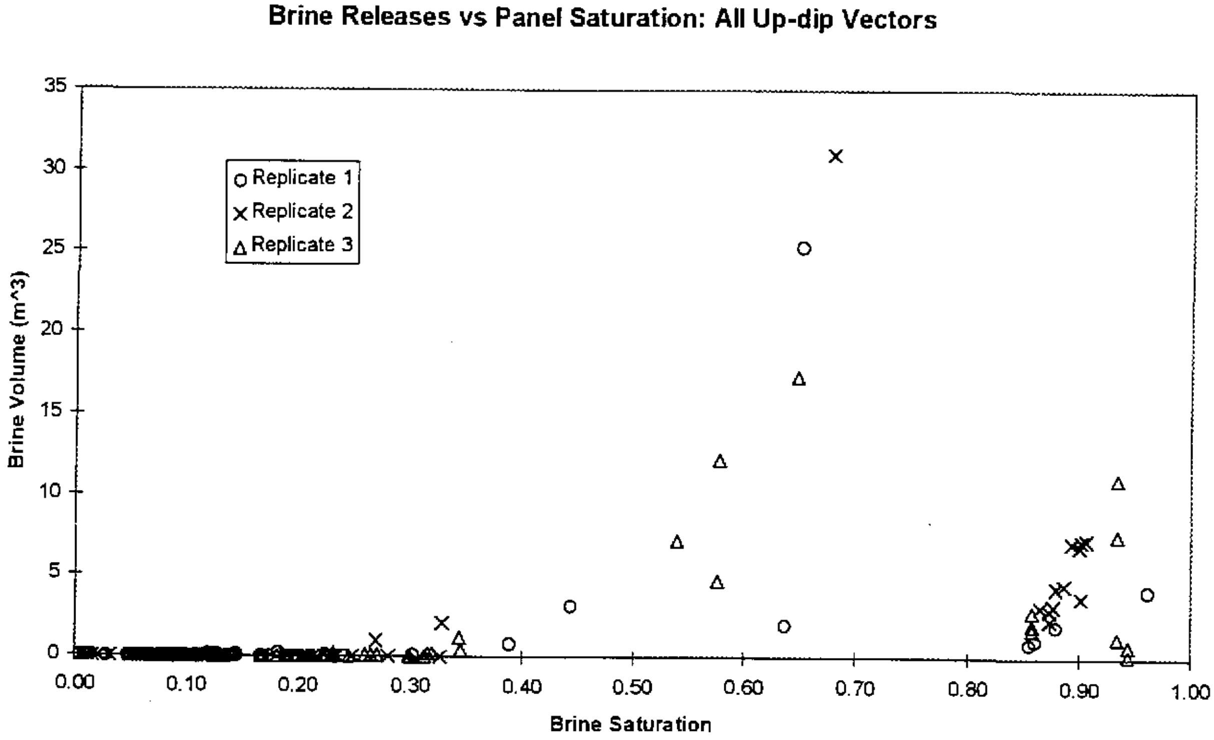


Figure 6.8

7.0 CCDF CALCULATIONS

This section summarizes differences between the CCDFs resulting from the PAVT and CCA simulations. The CCDFs were calculated using a three step process: (1) determine futures (random sequences of events that may occur over the next 10,000 years); (2) estimate the radionuclide releases resulting from these futures; and (3) construct a CCDF for each future. The computer code CCDF_GF was used to perform these three steps. CCDF_GF uses the results of calculations performed in Sections 2 through 6 to produce the CCDFs.

The key performance measure for comparing PAVT and CCA results is summed normalized releases in EPA units as compared with EPA limits.

7.1 Changes to Parameters

The CCDF calculations were affected by all of the parameter changes made to the other codes (see Sections 2 through 6) which impacted radionuclide releases to the accessible environment. Only one CCDF_GF parameter was changed for the PAVT calculations. Parameter PBRINE was changed from a constant value of 0.08 to a uniform distribution ranging from 0.01 to 0.60. PBRINE is the probability that an intrusion borehole will intersect a brine reservoir.

7.2 Changes to Model

The model implementation was enhanced to include releases from the Culebra and Salado interbeds at the LWB. For the PAVT calculations, these releases were not significant but they were non-zero. The CCA only included direct releases from the intrusion borehole because the other releases were zero. A second change to the model implementation involved the number of intrusions required to deplete a brine reservoir. In the CCA, the number of intrusions was correlated with sampled reservoir volume and varied from 2 to 10 intrusions. For the PAVT, brine reservoirs were assumed not to deplete because of the larger sampled brine reservoir volumes (see Section 2.1). A third change to the model implementation was related to Passive Institutional Controls (PICs). The PAVT does not take credit for PICs whereas for the CCA, the impact of PICs was included.

There were no changes to the computational model which had any significant impact on the results.

7.3 *Impact of* Changes on Model Results

Differences between the CCDFs from the PAVT and CCA calculations are due to a combination of the following factors:

- Cuttings and cavings releases were higher for all scenarios due to a change in the waste shear strength distribution.

- Spallings releases were slightly higher and more frequent for all scenarios due to higher repository pressures at the time of intrusion.

- Direct brine releases were higher due to higher repository pressures.

- The change in PBRINE resulted in a higher probability of futures containing an E1 intrusion than in the CCA.

- Culebra releases across the LWB were higher due to more small sampled k_d's but were still small relative to direct releases.

- For E1 intrusion scenarios at early intrusion times, radionuclide releases up the borehole to the Culebra were slightly larger, on average, than in the CCA. At later E1 intrusion times, releases were moderately larger than in the CCA. These results were due to greater flow up the borehole combined with similar and/or lower solubilities.

- For E2 intrusion scenarios, releases up the borehole to the Culebra were less by a factor of about 100 due to lower flow up the borehole and lower solubilities.

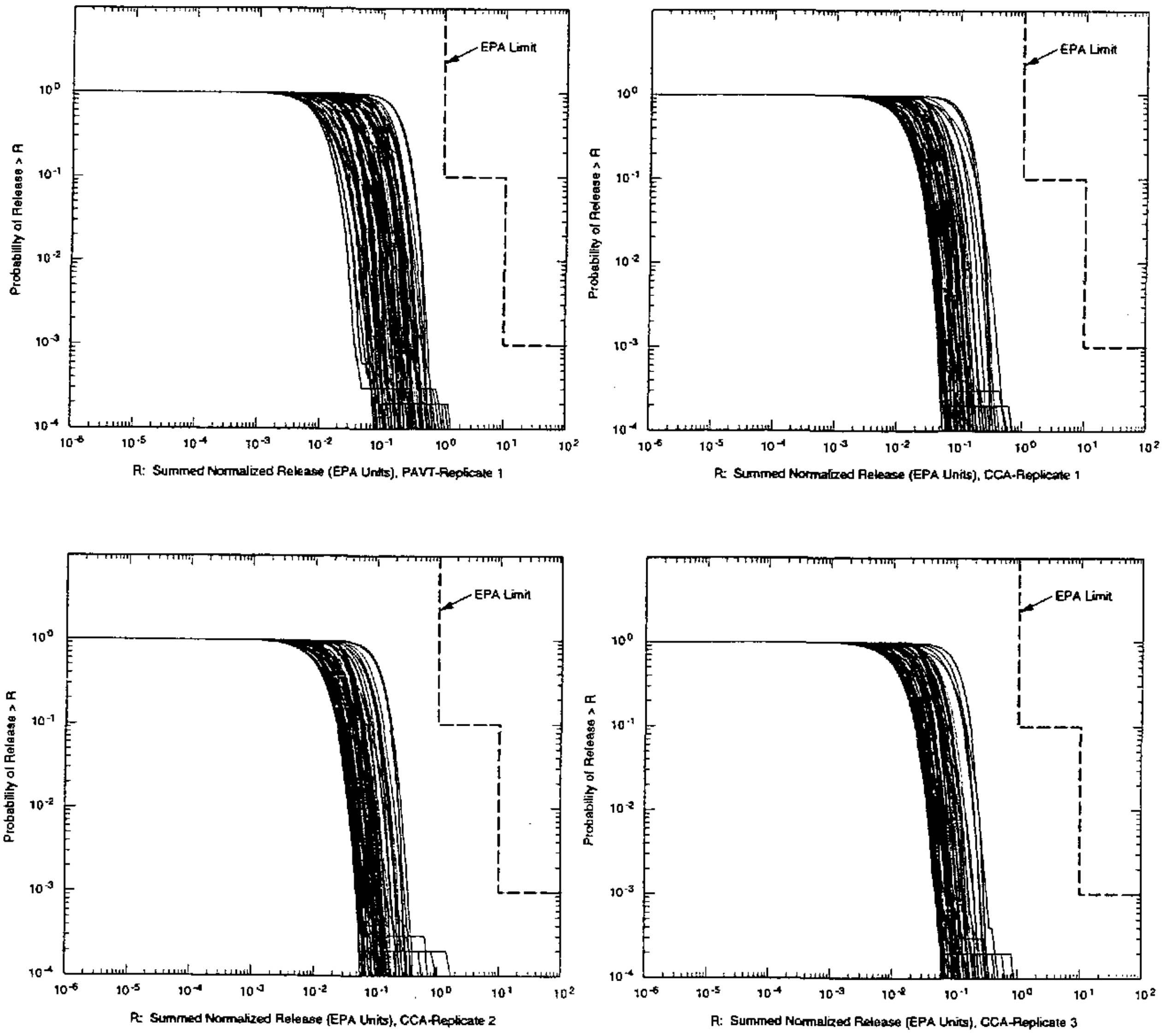
- Salado interbed releases to the LWB were still insignificant.

A summary of CCDF results is presented in this section. Additional CCDF plots providing more detail about releases are provided in Appendix G. Figure 7.1 compares the family of CCDFs for summed (combined total contributions from all release mechanisms) normalized releases from PAVT replicate 1 with those from each of the three CCA replicates. All of the CCDFs have a similar lower bound, with the PAVT family of CCDFs containing several curves with total releases a factor of 2 or 3 higher than in the CCA.

Figures 7.2 through 7.6 show mean normalized releases for the PAVT and the CCA. Means for PAVT replicate 1 and each of the three CCA replicates as well as an overall CCA mean are shown. The summed releases for the PAVT mean CCDF are a factor of 2 to 3 larger than the CCA values for all probabilities of exceedance (Figure 7.2). For a specific release, the probability of exceedance has increased by as much as a factor of 10. These increases were primarily due to the increase in cuttings releases (Figure 7.3). Other contributors to total summed releases include spallings (Figure 7.4), direct brine release (Figure 7.5), and Culebra (Figure 7.6) releases. Note that mean CCDFs for all of these components of the summed normalized releases are greater (to the right) of the CCA mean CCDFs. The absence of PICs and the change in PBRINE were also minor contributors to the change in releases. Even with the slightly higher releases, the PAVT mean CCDF does not exceed or come within an order of magnitude of the EPA Limit.

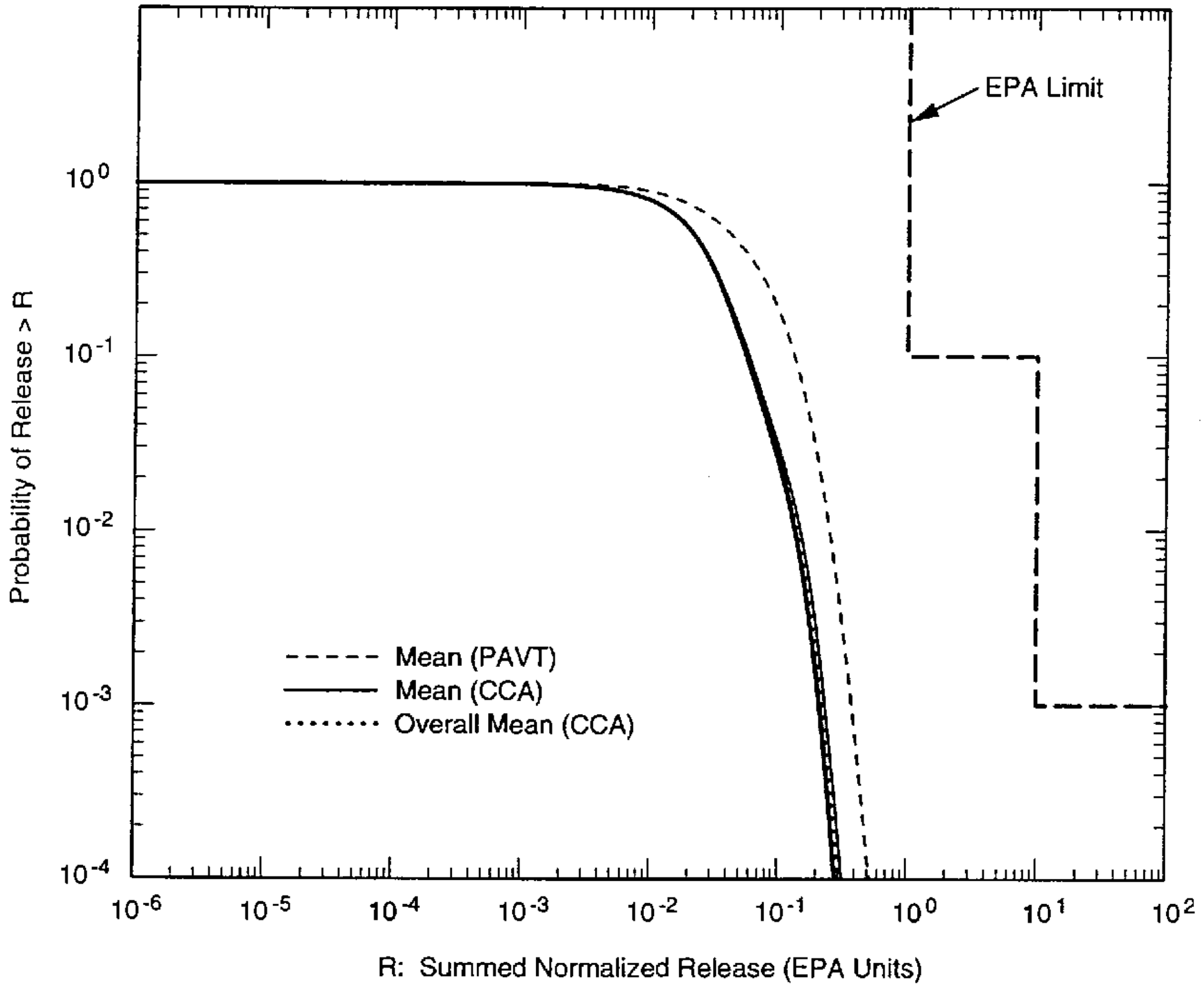
Figure 7.7 shows the relative contributions of each release mechanism to the summed release for both the PAVT and the CCA. Releases from each of the CCA replicates are similar and only were the most important contributors to the total mean CCDF. Spallings also made an important contribution to the total CCDF, particularly in the CCA. Direct brine releases were slightly more important in the PAVT than in the CCA, but have only a minor effect on the total CCDF. Subsurface releases due to Culebra groundwater transport were not significant. Salado interbed and Dewey Lake releases were also negligible and are not shown.

Figure 7.8 shows additional statistical information about total summed CCDFs for PAVT replicate 1 and the three CCA replicates. This Figure shows CCDFs representing the mean, median, 10th, and 90th percentiles for each replicate.



TRI-6342-5528-0

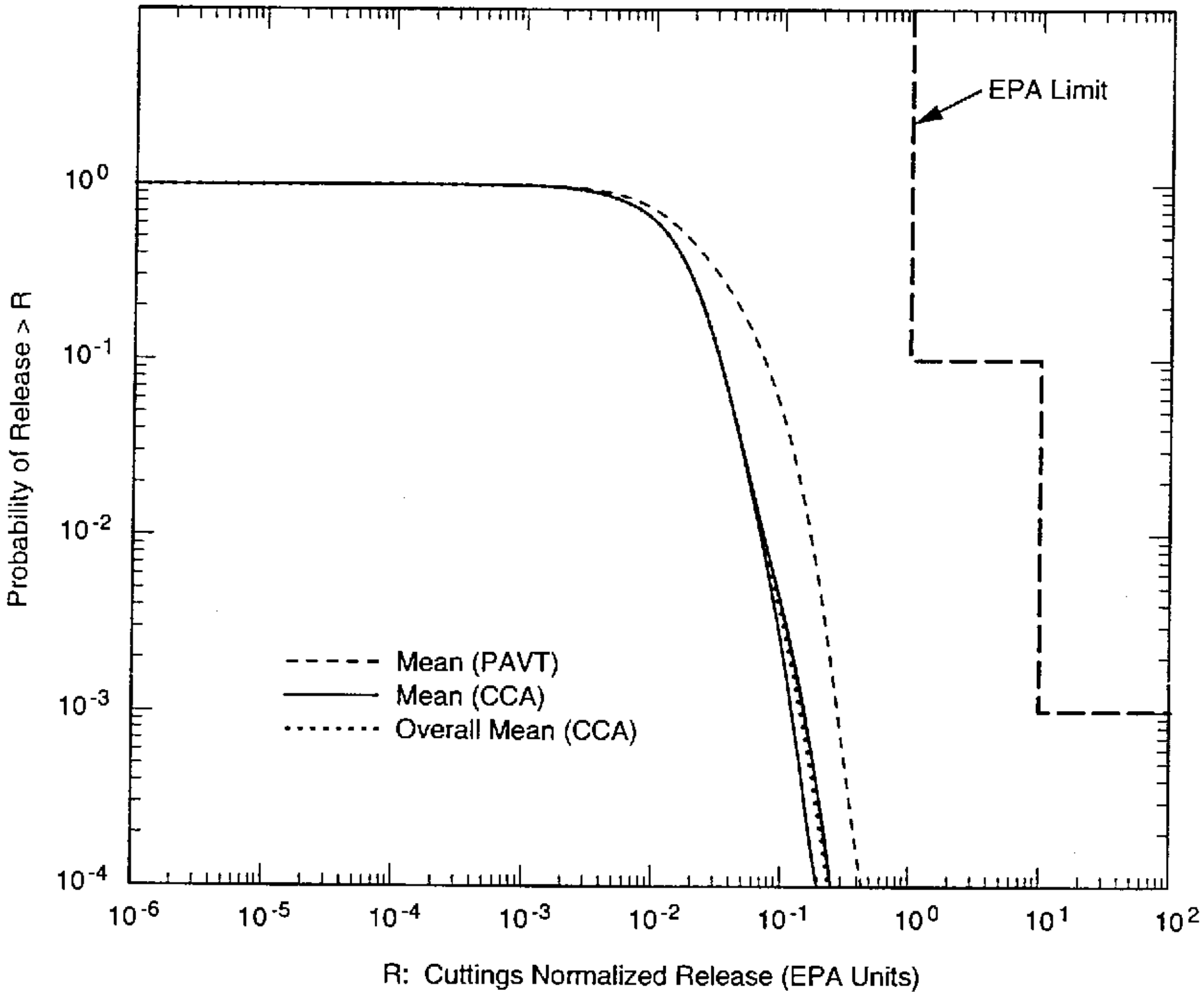
Figure 7.1 Distribution of CCDFs for Normalized Radionuclide Releases to the Accessible Environment from the WIPP



TRI-6342-5523-0

Note: Four CCA CCDFs are shown, including three individual mean CCDFs calculated for each of the three distributions of CCDFs calculated for the three replicates and an overall mean CCDF that is the arithmetic mean of the three individual mean CCDFs.

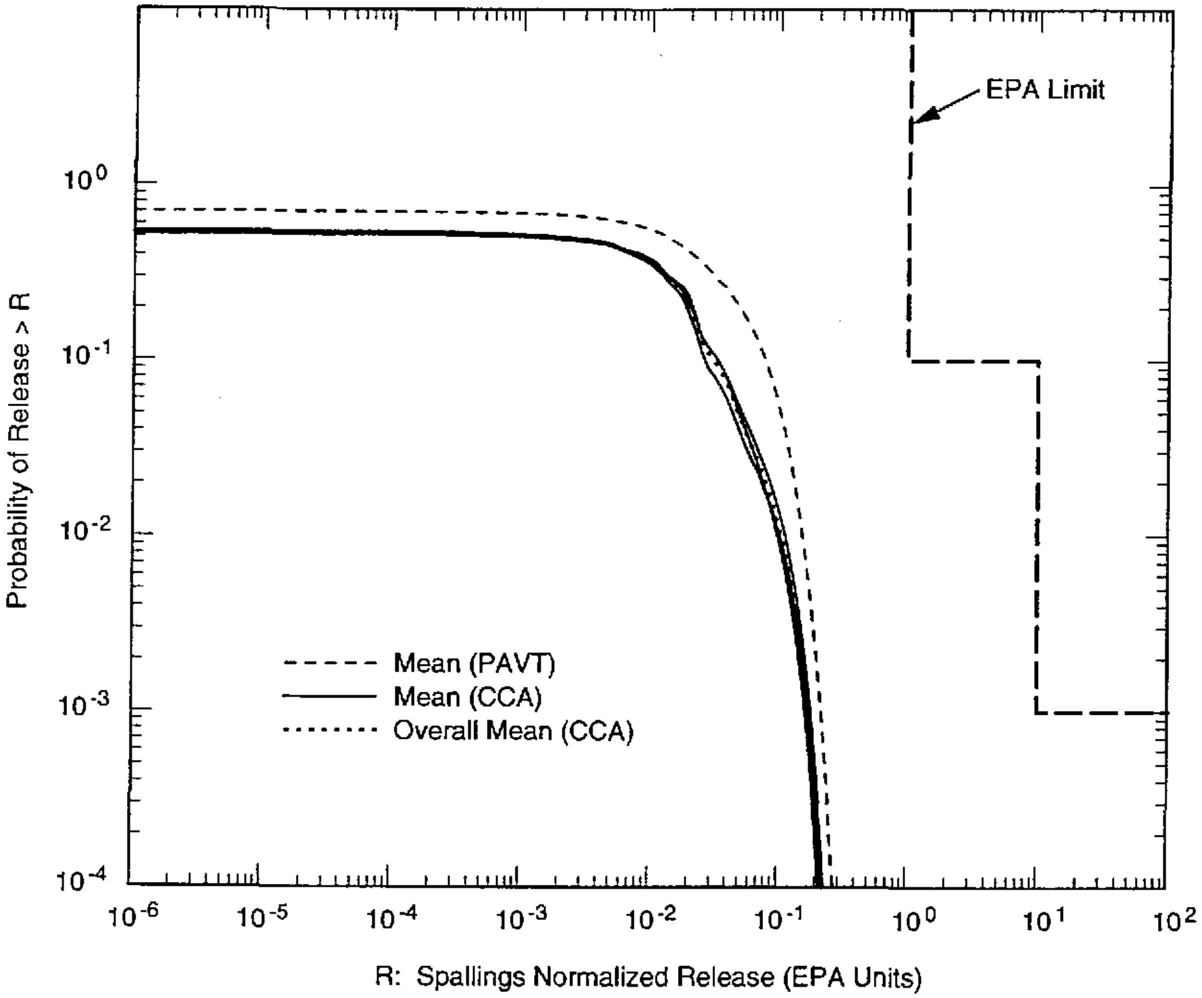
Figure 7.2 Mean CCDFs for Summed Normalized Radionuclide Releases to the Accessible Environment



TRI-6342-5524-0

Note: Four CCA CCDFs are shown, including three individual mean CCDFs calculated for each of the three distributions of CCDFs calculated for the three replicates and an overall mean CCDF that is the arithmetic mean of the three individual mean CCDFs.

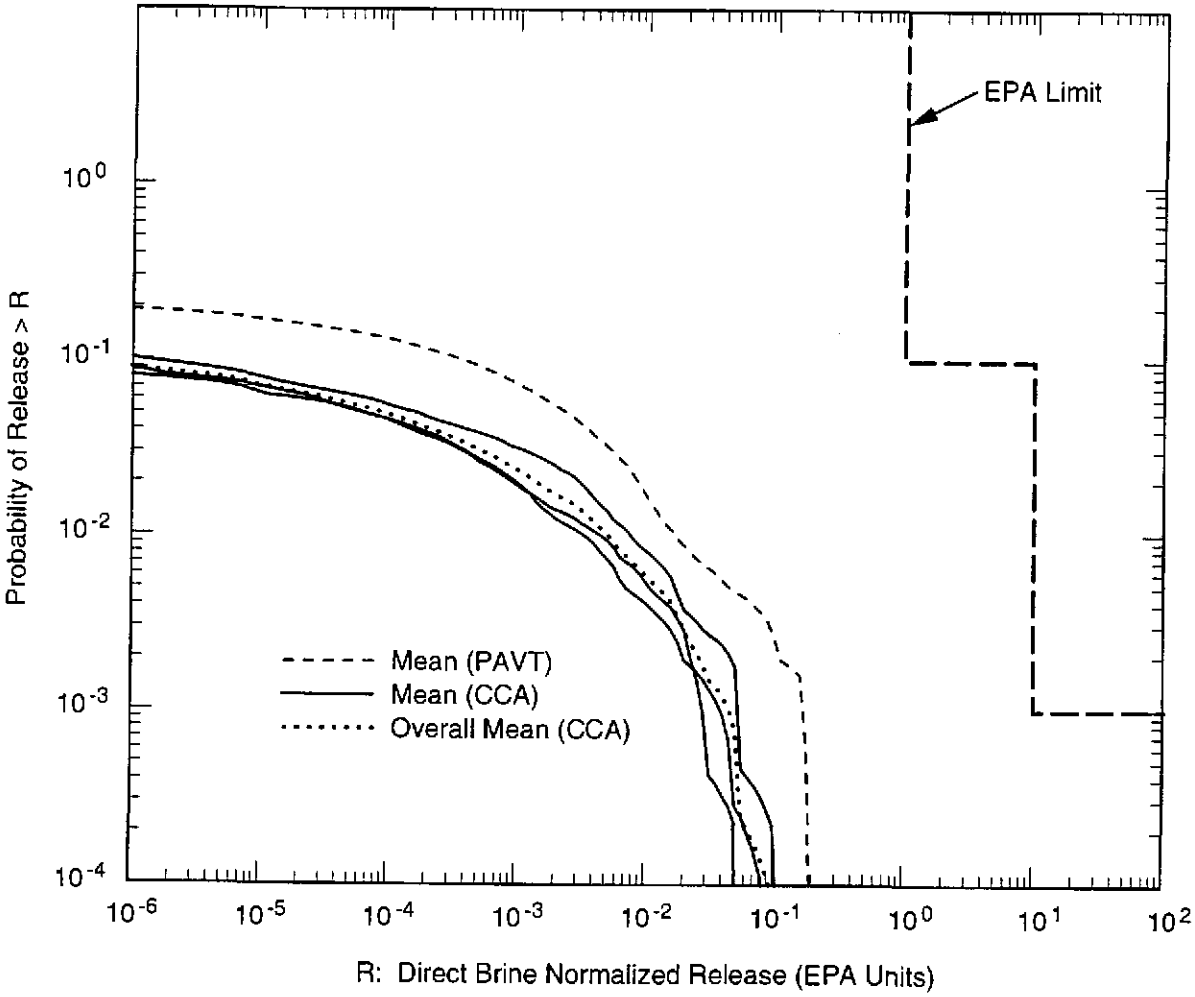
Figure 7.3 Mean CCDFs for Cuttings Normalized Radionuclide Releases to the Accessible Environment



TRI-6342-5525-0

Note: Four CCA CCDFs are shown, including three individual mean CCDFs calculated for each of the three distributions of CCDFs calculated for the three replicates and an overall mean CCDF that is the arithmetic mean of the three individual mean CCDFs.

Figure 7.4 Mean CCDFs for Spallings Normalized Radionuclide Releases to the Accessible Environment



Note: Four CCA CCDFs are shown, including three individual mean CCDFs calculated for each of the three distributions of CCDFs calculated for the three replicates and an overall mean CCDF that is the arithmetic mean of the three individual mean CCDFs.

Figure 7.5 Mean CCDFs for Direct Brine Release Normalized Radionuclide Releases to the Accessible Environment

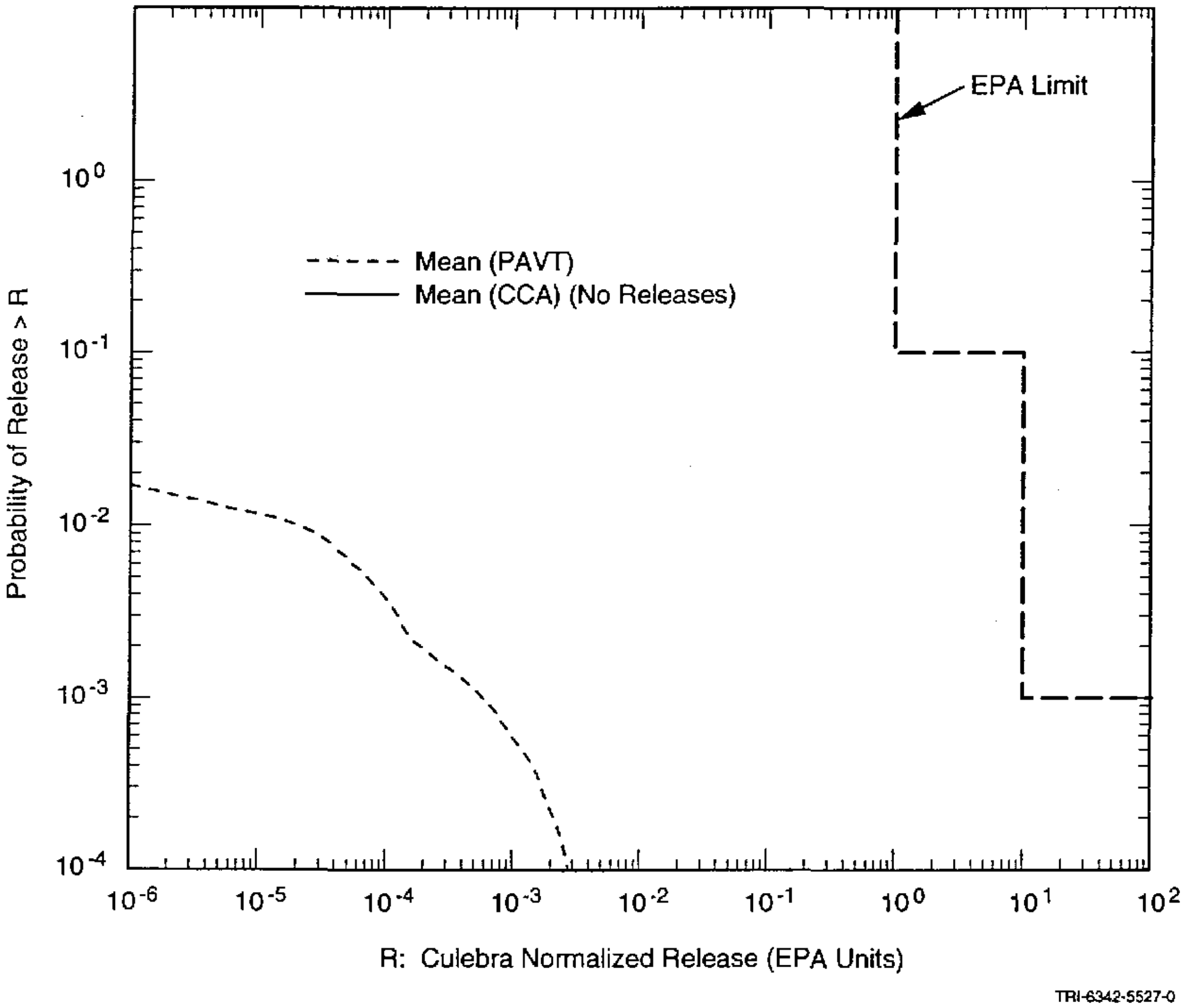
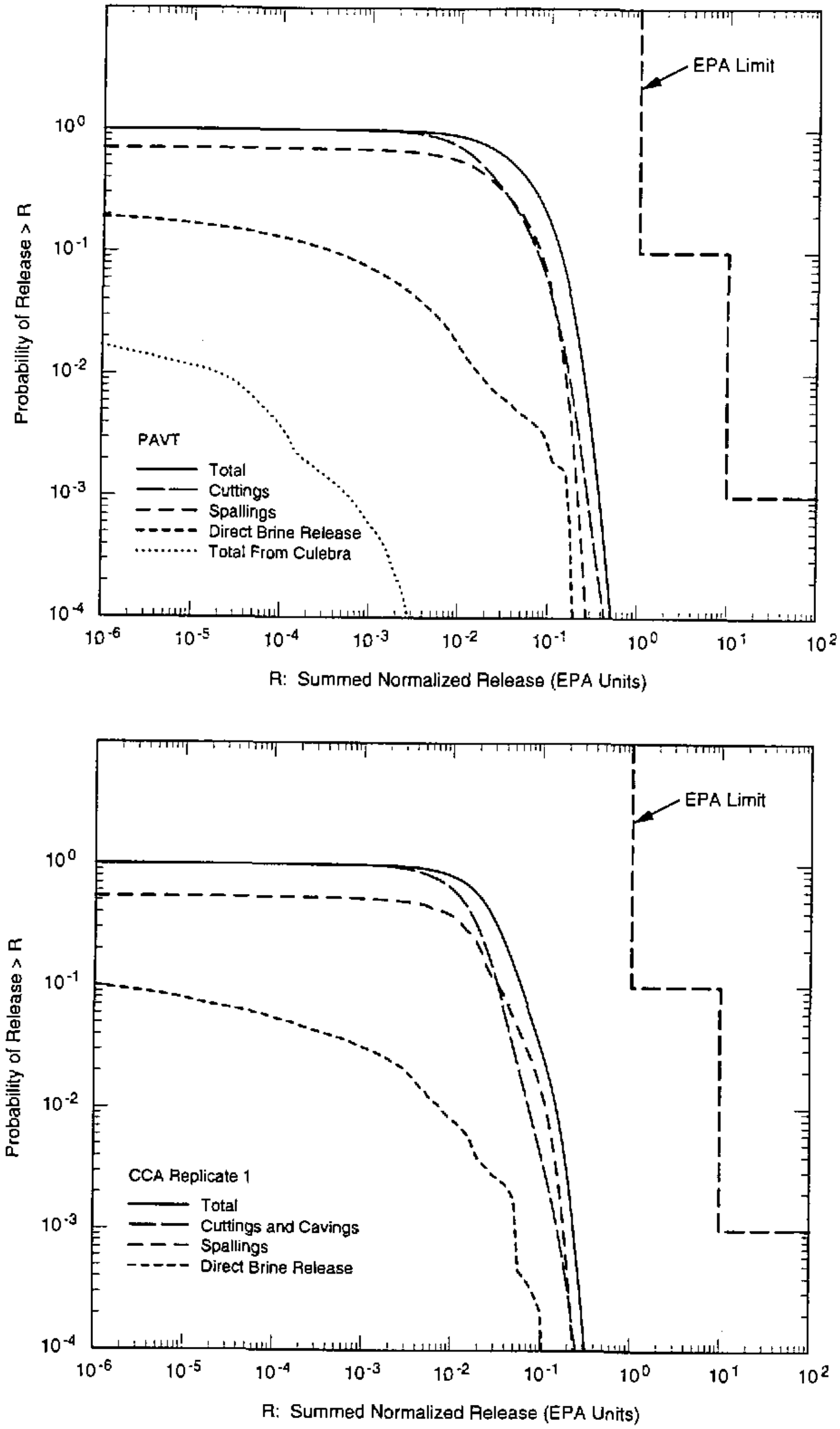
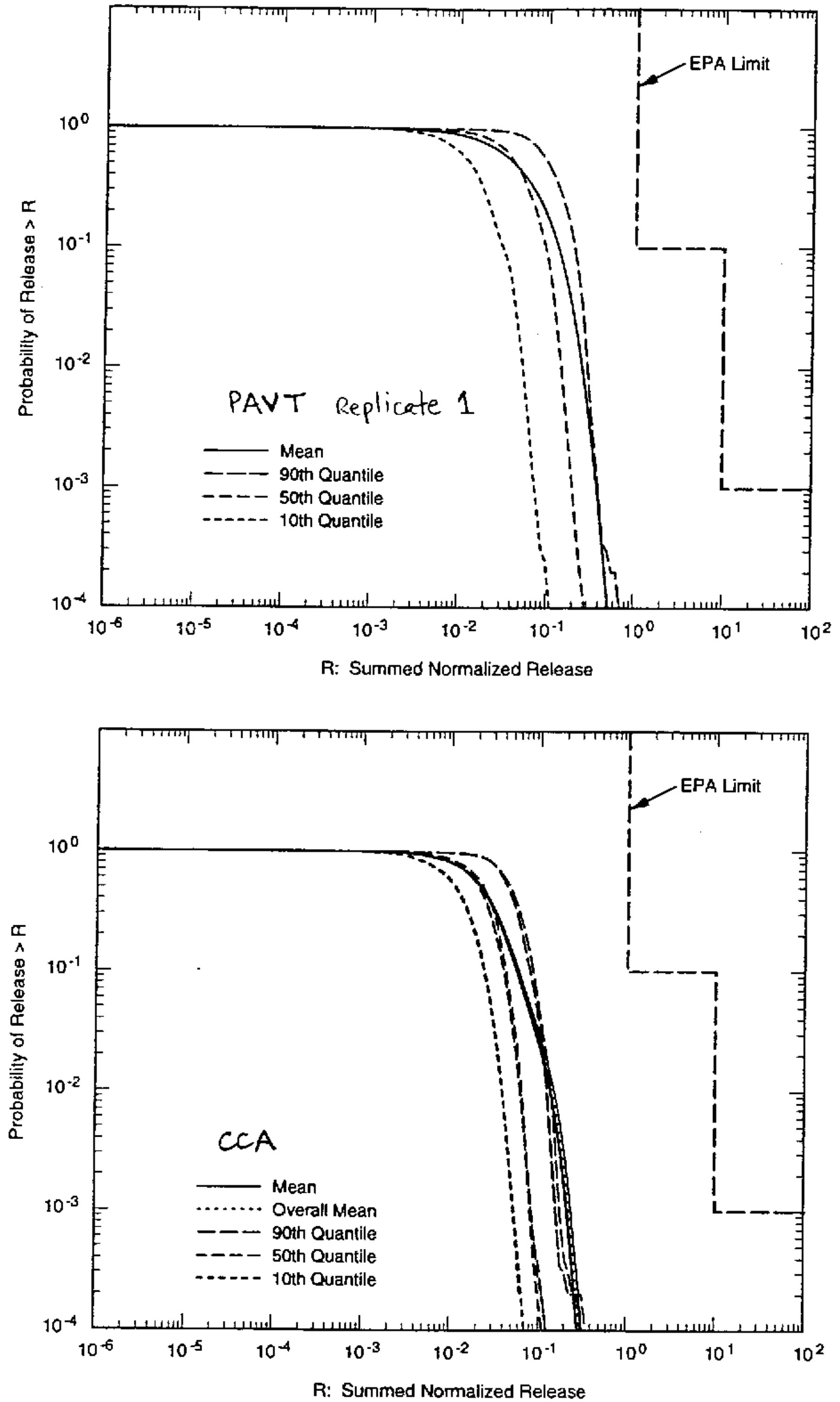


Figure 7.6 **Mean CCDFs for Culebra Normalized Radionuclide Releases to the Accessible Environment**



TRI-6342-5529-0

Figure 7.7 Mean CCDFs for Specific Release Modes



TRI-6342-5530-0

Note: Mean, median, and 10th and 90th percentile CCDFs are shown together with the overall mean.

Figure 7.8 Summary CCDFs

8.0 REFERENCES

Analysis Package for the Salado Flow Calculations (Task 1) of the Performance Assessment Analysis Supporting the Compliance Certification Application, WPO # 40514.

Analysis Package for the Salado Transport Calculations (Task 2) of the Performance Assessment Analysis Supporting the Compliance Certification Application, WPO # 40515.

Analysis Package for the Culebra Flow and Transport Calculations (Task 3) of the Performance Assessment Analysis Supporting the Compliance Certification Application, WPO # 40516.

Analysis Package for the BRAGFLO Direct Brine Release Calculations (Task 4) of the Performance Assessment Analysis Supporting the Compliance Certification Application, WPO # 40520.

Analysis Package for the Cuttings and Spallings Calculations (Tasks 5 and 6) of the Performance Assessment Analysis Supporting the Compliance Certification Application, WPO # 40521.

Analysis Package for CCDF Construction (Task 7) of the Performance Assessment Analysis Supporting the Compliance Certification Application, WPO #40524

Change Control Form for BRAGFLO, WPO #45223.

Change Control Form for NUTS, WPO #45998.

Change Control Form for SECOTP2D, WPO #45730.

Salari, K. and R. Blaine, 1996, SECOTP2D User's Manual, Version 1.30, WPO #36695, Sandia WIPP Central Files (SWCF).

Change Control Form for CUTTING_S, WPO #45969.

Change Control Form for CCDF_GF, WPO #45409.

Stockman, C., 1997. "Modelling transport of ^{238}Pu and ^{239}Pu in NUTS", Memorandum to A. Shinta.

Wang, Y. and K.W. Larson, 1997. "Estimate Waste Critical Shear Stress for WIPP PA Caving Model", Memorandum to M. Chu and M. Marietta, June 27, 1997.

APPENDIX A

GAS AND BRINE MIGRATION IN UNDISTURBED
AND
DISTURBED REPOSITORY SYSTEMS
FOR
THE PAVT CALCULATIONS

In this Appendix, gas and brine migration modeling results are presented and discussed for undisturbed and disturbed repository performance. For disturbed performance, three representative borehole intrusion scenarios are considered. In the first scenario, the E1 scenario, a borehole penetrates a waste-filled panel and a hypothetical pressurized brine reservoir in the underlying Castile Formation. In the second scenario, the E2 scenario, a borehole penetrates the waste-filled panel only. To examine the impact of different intrusion times, the E1 and E2 scenarios are subdivided into computational scenarios on the basis of two different intrusion times of 350 and 1000 years. In the third scenario, the E2E1 scenario, a borehole penetrates the repository at 1000 years (an E2 intrusion) and a second borehole, drilled at the same location, penetrates the repository and the hypothetical brine reservoir at 2000 years (an E1 intrusion).

In the following sections, results are presented in terms of volume-averaged quantities such as volume-averaged pressure. Volume-averaged pressure is given by forming the product of grid block pressure and grid block volume for each grid block in the region of concern, summing this product up over all grid blocks in the region, and dividing by the bulk volume of the region. All other volume-averaged quantities are computed in the same manner. Cumulative and net flow volumes are also presented. Cumulative flow into a region is defined as the time-dependent flow into a region integrated over time. Cumulative flow out of a region is defined as the time-dependent flow out of a region integrated over time. Net flow into a region is defined as cumulative flow into a region minus cumulative flow out of a region. Similarly, net flow out of a region is cumulative flow out of a region minus cumulative flow into a region.

The following sections describe PAVT replicate 1 results. Corresponding results from CCA replicate 1 are shown in parentheses.

A.1 UNDISTURBED PERFORMANCE

This section examines repository behavior and the flow of brine and gas along two potential pathways for migration of radionuclides in dissolved brine (Figure A.1-1). In the first pathway, brine may migrate through the panel seals or through the disturbed rock zone (DRZ) surrounding the repository to the shaft and then upward toward the Culebra Dolomite Member of the Rustler Formation. The quantity of brine reaching the Culebra is important because transport may then occur laterally in the Culebra toward the subsurface land withdrawal boundary. In the second pathway, brine may migrate from the repository through the DRZ and laterally toward the subsurface land withdrawal boundary within the anhydrite interbeds in the Salado Formation.

Note that of the seven changes to input parameters for the PAVT simulations listed in Section 2.1, only the first three are relevant to undisturbed performance. The final four changes relate to the Castile brine pocket and to intrusion borehole properties. Two additional differences from the CCA simulations of the S1 scenario should be noted: (1) H2 viscosity was changed slightly; and (2) the grid was the same as for disturbed (human intrusion) scenarios. Both of these changes had little or no effect on the results.

A.1.1 Replicate 1 Results and Discussion

A.1.1.1 Repository Behavior

Repository behavior is characterized by interactions between creep closure, fluid flow, and gas generation. Creep closure of excavated regions begins immediately because of excavation induced loading. In the waste disposal region, waste consolidation will continue until back-stresses imposed by the compressed waste resist further closure or until fluid pressures become sufficiently high. Pressure in the disposal region is governed by the quantities of brine present in the disposal region, the rates of gas generation, and the ease at which fluids can escape the repository. Depending on material properties and pressure conditions, brine may flow into the disposal region by moving down shafts and through the DRZ and anhydrite layers. Brine contained in the Salado also flows into the waste disposal region because of pressure gradients created by the excavation. As a consequence, significant quantities of gas may be generated by the availability of brine, causing pressures to increase. Brine flow into the repository will be reduced as repository pressure increases, and brine may be expelled from the repository if pressure exceeds brine pressure in the immediately surrounding formation. Brine saturation has to exceed the residual brine saturation in order for brine to be expelled from the repository. Similarly, gas may flow away from the waste into lower pressure areas, which may include disturbed areas surrounding the repository, the interbeds, and the shafts. Gas flow into intact halite rock is not significant because of the high threshold pressure of halite.

Pressures in the waste panel and rest of repository (Figures A.1-2 [GVAR_023] and A.1-3 [GVAR_024]) increase from their initial value of 1 atmosphere. Pressure responses in the experimental and operation regions are nearly equal to those in the waste panel and rest of repository because the permeability of excavated regions, drift and panel seals, and DRZ are high, on the order of 10^{-15} m^2. This allows relatively free movement of gas throughout the excavated regions, and equalizes pressures there quickly (relative to the 10,000-year regulatory period). In a few realizations where the DRZ or lower shaft permeability is low, on the order of 10^{-18} m^2, the experimental area shows a slower pressure response, however, this behavior does not influence the rest of the repository or the surrounding formations. In many realizations, pressures increase rapidly during the first 500 years. These rapid increases in pressure are caused by a high gas generation rate coupled with creep closure. In these realizations, plastics and rubbers are included in the inventory of biodegradables; this results in a higher net rate of gas generation during the first 1000 years. In some realizations, the pressure reaches a maximum even though gas generation may continue long after the peak pressure is reached. In these realizations, gas is vented out of the waste through the interbeds, shaft, and DRZ fractures since the far-field pressure is lower than the peak pressure in the waste. Also, creep closure is essentially complete by 1000 years, so there are no pressure changes due to repository pore volume changes. In some realizations, the pressure after 10,000 years is higher than the far-field pressure because gas continues to be generated faster than brine and gas can flow out of the waste. In contrast to this behavior, some realizations (#13, #45, #1, #6, #83, #100, #57, near the bottom of the plots) exhibit slowly increasing pressures. In these realizations, pressure increases during the first 300 - 500 years results primarily from creep closure since there is very little gas generation from corrosion (sampled corrosion rates are among the lowest) and none from biodegradation. The different rates of pressure increase in these cases are largely a result of different anhydrite permeabilities and corresponding inflow rates of brine. The third type of behavior exhibited in Figures A.1-2 [GVAR_023] and A.1-3 [GVAR_024] is a moderately rapid initial rise in pressure. This behavior is a result of creep closure in combination with moderate gas generation rates. At later times, pressures level off in some realizations, indicating that gas generation by microbial degradation has ceased after the cellulose inventory has been exhausted. For most realizations, the cellulose inventory is generally exhausted within 1500 years (Figure A.1-4 [GVAR_002]). Simultaneously, corrosion consumes most of the brine present in the waste, and it also slows down depending on the rate of inflow of brine from the surrounding formations. In several realizations, pressures continue to increase over the full 10,000-year regulatory period. In some of these cases, pressures in excess of the far-field pressure are reached. This behavior is expected when the gas generation rate is relatively low and enough brine is present in the waste or flows in from outside the repository to sustain the corrosion reactions.

A.1.1.1.1 Gas Generation

The rate and amount of gas generation varies significantly, as shown in Figure A.1-5 [GVAR_022]. Among the 100 realizations, the volume of gas generated varies over more than an order of magnitude, from 2.2×10^6 m^3 to 3.4×10^7 m^3 (1.5×10^6 m^3 to 2.8×10^7 m^3) of hydrogen, at reference conditions (30 °C, 1.01325×10^5 Pa). Of the total volume of gas generated (Figures A.1-6 [GVAR_017] and A.1-7 [GVAR_020]), corrosion accounts for volumes ranging between 4×10^5 m^3 to 2.3×10^7 m^3 (5×10^5 m^3 to 1.89×10^7 m^3) and biodegradation accounts for volumes ranging between 3.3×10^6 m^3 to 1.15×10^7 m^3 (3×10^6 m^3 to 1.15×10^7 m^3). As shown in Figure A.1-7 [GVAR_020], the amount of gas generated by biodegradation is grouped into two distinct branches. The lower and higher branches correspond to the inclusion and exclusion, respectively, of plastics and rubbers in the cellulosics inventory. Also, biodegradation ceases in most realizations within 1500 years, whereas corrosion generally continues for 10,000 years or as long as brine is present. Although the rate of microbial gas generation is constant in any computational cell for a given realization, when the inventory of cellulose or brine is depleted in some cells, the rate of gas generation in the repository as a whole drops. This is manifested in Figure A.1-7 [GVAR_020] by the decrease in the slopes of the curves, reflecting the reduction in the overall rate of microbial gas generation.

The fraction of gas generated by corrosion for all realizations is shown in Figure A.1-10 [GVAR_175]. In those realizations where gas generation from corrosion ceases, the cause is a lack of brine in the waste. In contrast, biodegradation, which also requires brine to be present, completely consumes the inventory of cellulosics (Figure A.1-4 [GVAR_002]) in all but nine (one) realizations. In these realizations, corrosion consumes all the available brine before the entire inventory of cellulosics is consumed. (Recall that 50 realizations have no biodegradation at all, these are indicated by the horizontal line showing no change in cellulose content from the initial inventory of 9.1×10^6 kg.) As shown in Figure A.1-11 [GVAR_001], iron is present in the waste in all 100 realizations after 10,000 years, yet the rate of gas generation by corrosion has decreased greatly in most (all but about 15%) of the realizations. Higher rates of corrosion are maintained in a few realizations because brine saturations remain relatively high (greater than 10%), as shown in Figure A.1-12 [GVAR_046]. The amount of iron remaining after 10,000 years ranges from 28% to 98% (40% to about 98%) of the initial inventory (Figure A.1-13 [GVAR_003]). This behavior primarily represents that of the rest of the repository, which accounts for about 90% of the waste volume. In the panel, iron is generally consumed at a faster rate than in the rest of the repository due to the larger number of realizations with elevated brine saturations (Figures A.1-14 [GVAR_042] and A.1-15 [GVAR_043]). In three (one) realizations, 100% of the initial iron inventory is consumed; among the other 97 (99) realizations, the amount of initial iron inventory remaining after 10,000 years ranges from 0% to 98% (17% to 98%) (Figure A.1-16 [GVAR_144]) in the single waste panel. In two realizations (#58 and #28) there are large increases in brine saturation in the panel at times beyond the initial 1000 years (Figure A.1-14 [GVAR_144]). These increases are due to increases in brine inflow to the repository.

The volume of brine consumed in the waste panel ranges from 100 m^3 to 5800 m^3 (100 m^3 to 5650 m^3) (Figure A.1-17 [GVAR_157]). For comparison, the initial pore volume of a panel is 40,670 m^3, and the minimum pore volume after creep closure ranges from about 2800 m^3 to 8500 m^3, corresponding to a range of minimum porosity of 0.07 to 0.21 (Figure A.1-18 [GVAR_048]). Thus, the amount of brine consumed is generally just a fraction of the total pore volume of the waste. The amount of brine consumed in the rest of the repository ranges from 700 m^3 to 32,500 m^3 (1000 m^3 to 30,000 m^3) (Figure A.1-19 [GVAR_158]).

A.1.1.1.2 Halite Creep

Halite creep causes the pore volume of the repository to decrease over time. As shown in Figure A.1-20 [GVAR_052], the porosity of the waste drops from its initial porosity of 84.8% during the first few hundred years, as the repository creeps shut. The porosity reaches a minimum between 7% and 22% of the initial excavated volume, depending on the rate at which the pressure in the repository increases, primarily as a result of gas generation. In approximately 10 realizations, the gas generation rate is very low, which causes the waste pressure to remain low, allowing creep closure to reduce the waste porosity very rapidly. The porosity continues to decrease until 1000 - 2000 years in some cases. Eventually closure ceases and porosities reverse slightly due pressure buildup in the waste. This pressure buildup is the net effect of gas generation, equilibration with far-field pressure, and compression of the waste and fluids. After bottoming out at 7% - 8%, the porosity slowly increases to 8% - 15% in these realizations. In the intermediate group of realizations, the porosity again decreases rapidly for the first 300 years, but gas generation inhibits creep closure to the point that closure ceases in about 1000 years. Subsequently, the waste repository inflates slightly and minimum porosities ranging from 10% - 17% increase to final porosities of approximately 20% at 10,000 years. In some realizations, the porosity continues to drop very slowly over the full 10,000 years, reaching lows of 11% - 12% at 10,000 years. In these cases pressures in the repository remain so low that no inflation occurs.

A.1.1.1.3 Fluid Flow

Fluid flow behavior in the repository and surrounding strata are largely determined by the gas generation rate. If the gas generation rate is relatively low, primarily as a result of low reaction rates or the absence of biodegradation, the pressure in the repository rises relatively slowly as brine from the far field flows in to equilibrate repository pressure with the far field. Under these conditions, the direction of flow is mostly inward toward the repository. A less common response is for gas to be generated sufficiently rapidly so that the pressure in the repository becomes high enough to drive significant quantities of brine and gas away from the repository out the most permeable pathways: the three anhydrite layers and the sealed shaft.

Although the brine saturation in the waste panel and rest of the repository (Figures A.1-21 [GVAR_042] and A.1-15 [GVAR_043], respectively) vary greatly from realization to realization, the variations with time show similar trends in all but a few realizations. There is an initial period when the brine saturation increases rapidly during the first 100-300 years, with most realizations peaking within 1500 years. This rise in brine saturation is caused primarily by the rapid and large reduction in porosity due to creep closure (Figure A.1-20 [GVAR_052]) and, to a lesser degree, brine inflow (Figure A.1-22 [GVAR_064]) from the surrounding DRZ. Both of these processes occur initially at a rate faster than corrosion consumes brine. As shown in Figure A.1-23 [GVAR_032], brine volume (mass) in the repository begins to decrease immediately after this initial period in all but a few realizations. This decrease in brine volume is largely caused by consumption of brine due to corrosion (Figure A.1-24 [GVAR_053]) since only a few realizations exhibit decreases in net brine flow into the repository with time (Figure A.1-22 [GVAR_064]). It should also be pointed out that brine saturations tend to be higher in the panel because the panel is located down-dip of the rest of the repository. In two realizations there is a significant increase in brine inflow after the initial 1000 years, one occurs at 1500 years (#58) and the other at 3500 years (#28). These increases correspond to fracturing and significant permeability increases in the DRZ.

Figures A.1-25 [GVAR_181] and A.1-26 [GVAR_184] show that there is more flow out of the panel seal and into the waste panel than there is out of the rest of the repository and into the panel seal. The mean flow into the panel is about 160 m^3 (700 m^3), whereas the mean flow out of the repository is only about 38 m^3 (200 m^3). Also, the number of realizations in which there is flow into the panel is much greater than the number in which there is flow out of the rest of the repository. In only a few (four) realizations is there any substantial brine flow (greater than 100 m^3) in the northerly direction out of the panel and into the seal (Figure A.1-27 [GVAR_183]) and out of the seal and into the rest of the repository (Figure A.1-28 [GVAR_182]).

For contaminated brine to flow up the shaft, it must first flow either through the panel seals and into the shaft, or through the DRZ above and below the waste region. As Figure A.1-29

[GVAR_069] shows, there are several realizations in which brine flows upward in the shaft, and the maximum flow is 112 m^3 (150 m^3). All of the brine that flows up the shaft flows into the Culebra; none of it flows beyond the Rustler Formation (Figure A.1-30 [GVAR_070]). There is some downward flow in the shaft as well, although Figures A.1-29 [GVAR_069] and A.1-30 [GVAR_070] do not reflect this because only upward flows are integrated to generate these plots.

A.1.1.2 Behavior in Formations Surrounding the Repository

A.1.1.2.1 Two-Phase Flow

The bulk of the gas generated in the repository flows up-dip into the anhydrite layers north of the repository (Figures A.1-31 [GVAR_106] to A.1-37 [GVAR_112]). However, substantial gas flow out the marker beds (more than 100,000 m^3 in 10,000 years) occurs in only 16 (17) realizations. The maximum cumulative gas flow out any marker bed is 2.1×10^6 m^3 (3.8×10^6 m^3) out Marker Bed 139 (Anhydrite a and b) (Figure A.1-33 [GVAR_108]). Gas flow out the marker beds to the south of the repository are much less than to the north, the maximum being 4.7×10^5 m^3 (8.2×10^5 $m^{3)}$ out Anhydrite a and b (Marker Bed 139) (Figure A.1-35 [GVAR_110]). The maximum total gas flow out all marker beds over 10,000 years is 3.3×10^6 m^3 (6.8×10^6 m^3) (Figure A.1-37 [GVAR_112]), with a mean gas flow volume of 1.5×10^5 m^3 (3.8×10^5 m^3). Comparing this quantity with a maximum of 3.4×10^7 m^3 (2.8×10^7 m^3) total gas generated (Figure A.1-38 [GVAR_022]), it can be determined that, as an approximate upper bound, 10% (26%) of the gas generated in the repository flows out into the marker beds. The mean total gas volume generated is 1.19×10^7 m^3 (1.24×10^7 m^3), so the mean percentage of gas generated that flowed out the marker beds is 1.3% (3.1%).

Cumulative brine flows out of the repository are shown in Figure A.1-39 [GVAR_059]. Three vectors (#24,#44,#22) have rapid (within 200 years) outflow. These vectors have high DRZ permeability, high brine saturation, and low residual brine saturation. This potentially contaminated brine cannot migrate significant distances in halite because of the low permeability of halite. To get to the land withdrawal boundary, brine from the repository must first flow through the DRZ into one of the permeable anhydrite layers (Marker Beds 138 or 139 or the combined Anhydrite a and b), or up the sealed shaft. Cumulative net brine flow into the DRZ region surrounding the repository from all anhydrite layers is shown in Figure A.1-40 [GVAR_099]. In this figure positive values indicate flow inward, toward the repository from the marker beds, and negative values indicate net flow outward, from the repository into the marker beds. Cumulative net outward flow (from the DRZ into the marker beds) occurs in approximately 10% of the realizations, with the maximum after 10,000 years being about 7800 m^3 (3700 m^3) in any single realization with the contribution from all marker beds combined. This is summarized in Table A.1-1. The two realizations with the highest outward flow showed increased flow at 2000 years (#58) and 4000 years (#51).

The contributions to the net brine flow from individual marker beds to the north of the repository are shown in Figures A.1-41 [GVAR_093] to A.1-43 [GVAR_095] and to the south of the repository in Figures A.1-44 [GVAR_096] to A.1-46 [GVAR_098]. In these six figures, positive flows are to the north and negative flows are to the south. These figures again show that net flow is inward in approximately 90% of the realizations. The maximum outward flows occur in MB139 [to the north ~1800 m^3 (1800 m^3) and to the south ~7200 m^3 (1800 m^3)]. The cumulative net flows out each of the anhydrite layers are summarized in Table A.1-1.

Table A.1-1. Cumulative Net Interbed Brine Flows for Undisturbed Conditions (S1 Scenario).

Marker Bed	Max. Net Brine Flow from MB into DRZ, m^3	Max. Net Brine Flow from DRZ into MB, m^3
MB138 North	90 (330)	110 (235)
MB138 South	1,650 (4,000)	550 (600)
Anhydrite a & b North	2,700 (9,500)	0.0 (0.0)
Anhydrite a & b South	2,150 (10,700)	0.0 (0.0)
MB139 North	7,000 (21,800)	1,800 (1,800)
MB139 South	5,600 (23,000)	7,200 (1,800)
All Marker Beds*	15,500 (69,000)	7,800 (3,700)

*Because the maximum flows in individual marker beds may occur in different realizations, the sum of maximum flows in each marker bed may not add up to the maximum flow when the contribution from all marker beds is combined in each realization.

The cumulative flows across the land withdrawal boundary in the marker beds are summarized in Figure A.1-47 [GVAR_174] and in Table A.1-2. Flows in individual layers are presented in Figures A.1-48 [GVAR_168] to A.1-53 [GVAR_173]. (In these seven plots, only flows away from the repository are integrated.) As shown, only five (eight) realizations produce brine flow outward beyond the land withdrawal boundary. Brine volumes crossing the land withdrawal boundary during the 10,000 regulatory period range up to 3300 m^3 (#38) (216 m^3). The other four realizations (#61, #93, #26, #58) had volumes crossing the land withdrawal boundary of less than 100 m^3. Important factors producing brine flow at the land withdrawal boundary include: high pressure at 1000 years (which may build due to high gas generation, tight DRZ and or marker beds which subsequently fracture, or high residual brine saturation which prevents early time brine and pressure release); high marker bed permeability; high DRZ permeability; low DRZ porosity (low brine storage so more brine is available to flow into marker beds); and low far-field pressure. The high flow across the land withdrawal boundary in vector #38 is due to a high pressure at 1000 years, the combination of very high DRZ and marker bed permeabilities, a very low DRZ porosity, and a low far-field pressure.

The brine that flows across the land withdrawal boundary does not originate in the repository; rather, it is brine that is initially present in the marker beds, as is demonstrated in Section 3.0 describing the Salado transport analysis. This result is not surprising since the pore volume of

Marker Bed 139 (which provides most of the flow in vector #38) between the repository and the land withdrawal boundary is greater than 155,000 m^3.

Table A.1-2. Cumulative Interbed Brine Flows Outward Across Land Withdrawal Boundary for Undisturbed Conditions (S1 Scenario)

Marker Bed	Maximum Brine Outflow across Land Withdrawal Boundary, m^3
MB138 North	150 (14.3)
MB138 South	155 (10.6)
Anhydrite a & b North	620 (39)
Anhydrite a & b South	160 (47)
MB139 North	1,550 (78)
MB139 South	700 (50)
All Marker Beds	3,300 (216)

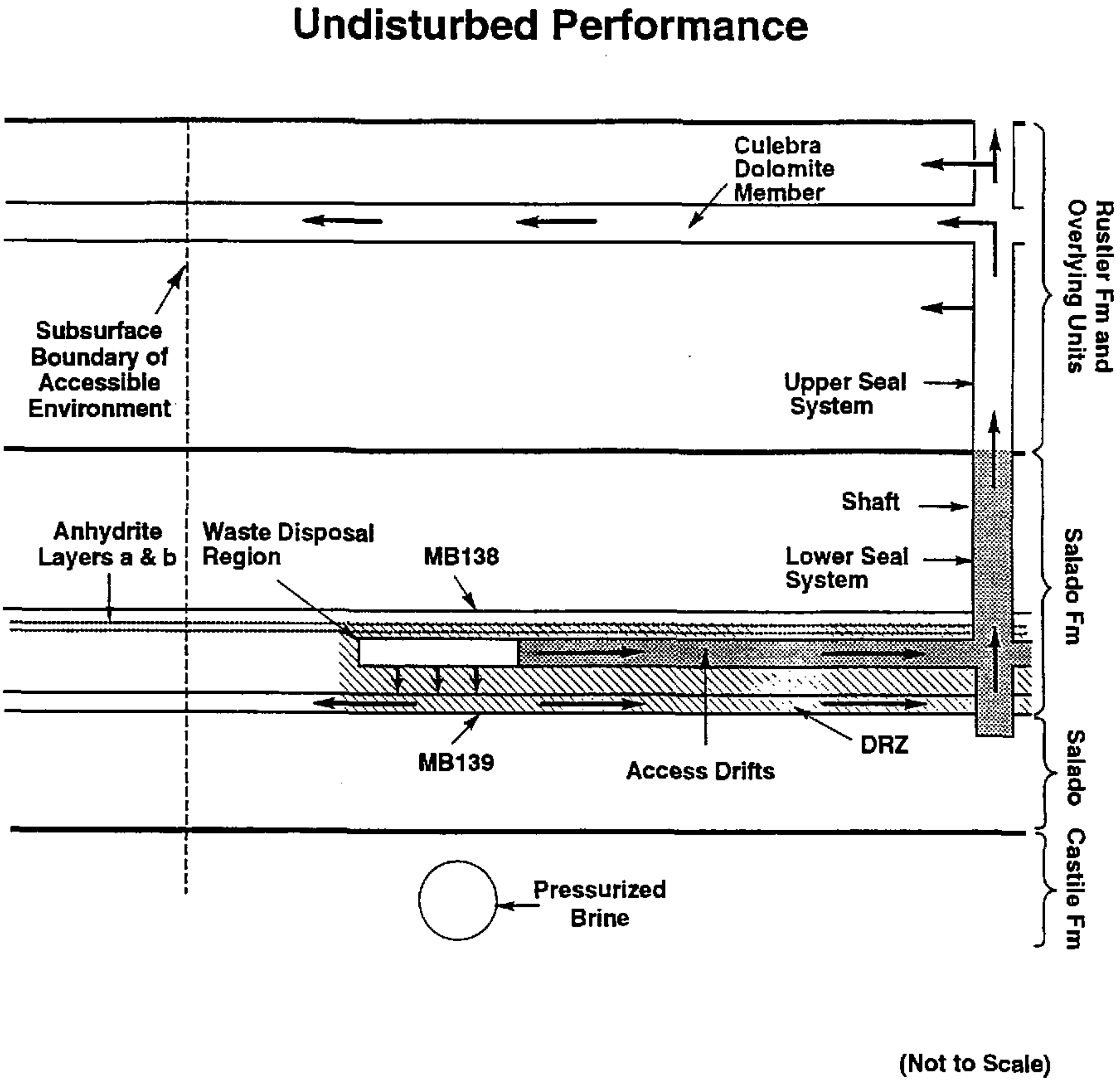
A.1.1.2.2 Mechanical Response

Fracturing in the interbeds occurs in approximately 18 (19) realizations (Figures A.1-54 [GVAR_113] to A.1-59 [GVAR_118]), although in most marker beds, a significant amount of fracturing occurs in only four (five or six) realizations. The most extensive fracturing occurs in realizations #58 and #61. In these realizations, all three anhydrite layers fracture. In realization #58, fracture lengths exceed 1000 m to the north in Marker Bed 138 and Anhydrite a and b and to the south in Marker Bed 138 and Marker Bed 139. In the CCA, maximum fracture lengths to the north in Marker Bed 138 and Anhydrite a and b were 1900 m and 1000 m, respectively, and to the south 1000 m. In realization #61, fracture lengths exceed 1000 m to the north in Anhydrite a and b and to the south in Marker Bed 138 and Marker Bed 139. Other realizations (#51, #28) also display significant fracturing. In addition to realizations #61 and #58, the other realizations in which brine flowed across the land withdrawal boundary (#38, #93, #26) showed moderate fracturing. In most other realizations, gas is not generated at sufficiently high rates to reach interbed fracture pressures and/or pressure is dissipated through DRZ fracturing. Note that in some cases fractures close up some time after opening.

Significant fracturing in the DRZ occurs in about 20 realizations, as indicated by increasing DRZ permeability (Figure A.1-60 [EX_H033]). In all of these realizations, gas is generated by corrosion and biodegradation of cellulosics and plastics and rubbers. Three realizations (#51, #58, #28) result in DRZ permeabilities greater than 1×10^{-11} m^2 and porosities greater than 0.03. These realizations had high initial DRZ porosities, medium to high DRZ permeabilities, and medium to low Marker Bed permeabilities. DRZ porosity increases, indicative of DRZ fracturing, are also evident in many of the realizations (Figure A.1-61 [EX_H022]) with realizations #51, #58, and #28 showing the largest porosity increases. Mean, median, and maximum values for DRZ permeability and porosity are shown in Table A.1-3.

Table A.1-3. Volume-Averaged DRZ Permeability and Porosity from PAVT Replicate 1.

Scenario	Time (yrs)	Average DRZ Permeability			Average DRZ Porosity		
		mean	median	max	mean	med	max
S1	0	2.01E-14	1.14E-16	2.82E-13	9.22E-3	6.16E-3	2.52E-2
	10000	4.30E-12	2.98E-16	3.48E-10	1.52E-2	1.31E-2	4.65E-2
S2	0	2.01E-14	1.14E-16	2.82E-13	9.22E-3	6.16E-3	2.52E-2
	350	2.01E-14	1.14E-16	2.82E-13	1.10E-2	8.52E-3	3.03E-2
	10000	6.60E-12	3.55E-16	5.83E-10	1.45E-2	1.11E-2	4.74E-2
S3	0	2.01E-14	1.14E-16	2.82E-13	9.22E-3	6.16E-3	2.52E-2
	1000	3.06E-14	6.69E-16	4.87E-13	1.30E-2	1.16E-2	3.44E-2
	10000	3.77E-13	1.82E-16	3.53E-11	1.33E-2	1.08E-2	3.72E-2
S4	0	2.01E-14	1.14E-16	2.82E-13	9.22E-3	6.16E-3	2.52E-2
	350	2.01E-14	1.14E-16	2.82E-13	1.10E-2	8.52E-3	3.03E-2
	10000	2.12E-14	1.76E-16	3.18E-13	1.22E-2	1.01E-2	3.40E-2
S5	0	2.01E-14	1.14E-16	2.82E-13	9.22E-3	6.16E-3	2.52E-2
	1000	3.01E-14	1.48E-16	4.87E-13	1.30E-2	1.16E-2	3.44E-2
	10000	2.11E-14	1.58E-16	3.08E-13	1.22E-2	1.01E-2	3.45E-2
S6	0	2.01E-14	1.14E-16	2.82E-13	9.22E-3	6.16E-3	2.52E-2
	1000	3.01E-14	1.48E-16	4.87E-13	1.30E-2	1.16E-2	3.44E-2
	2000	2.94E-14	1.50E-16	4.11E-13	1.22E-2	1.03E-2	4.00E-2
	10000	4.17E-14	1.55E-16	2.02E-12	1.33E-2	1.08E-2	3.19E-2



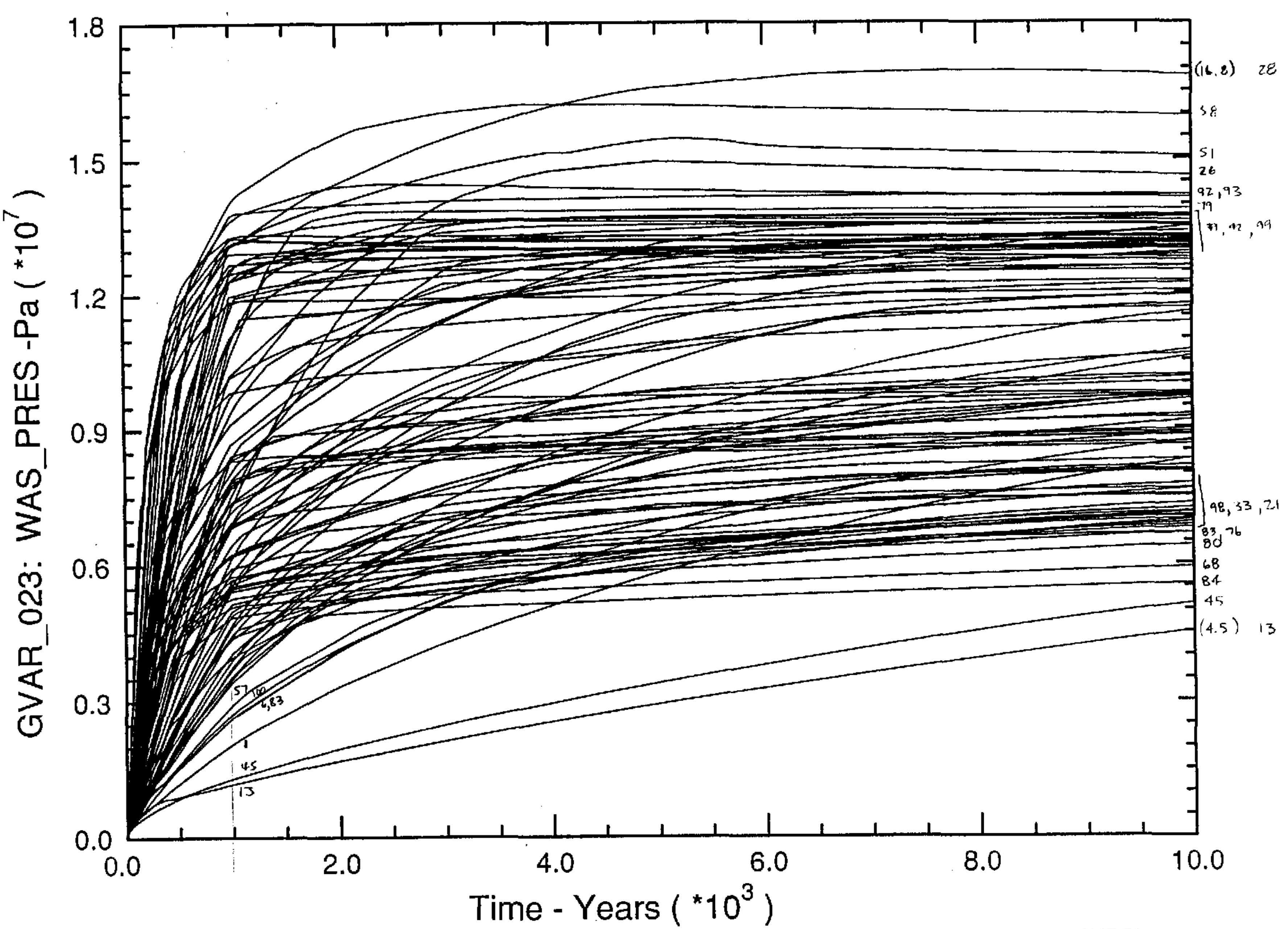
A.1-1

Figure ~~7.1-1.~~ Conceptual model used in simulating undisturbed performance.

Fig A.1-2

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S1)

Volume-Averaged Pressure in Waste Panel



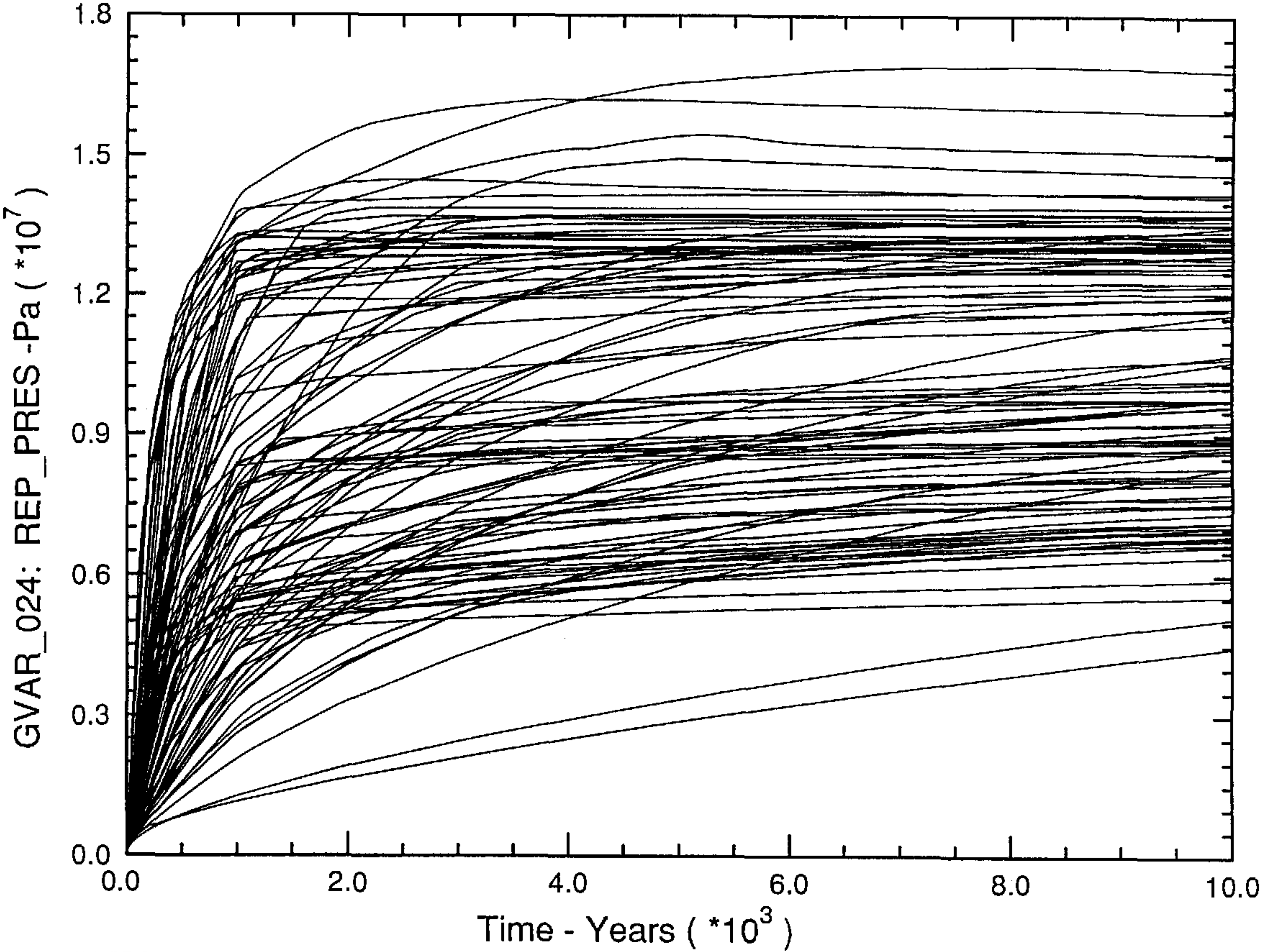
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H023.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:11:07

Fig A.1-3

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Volume-Averaged Pressure in Rest of Repository



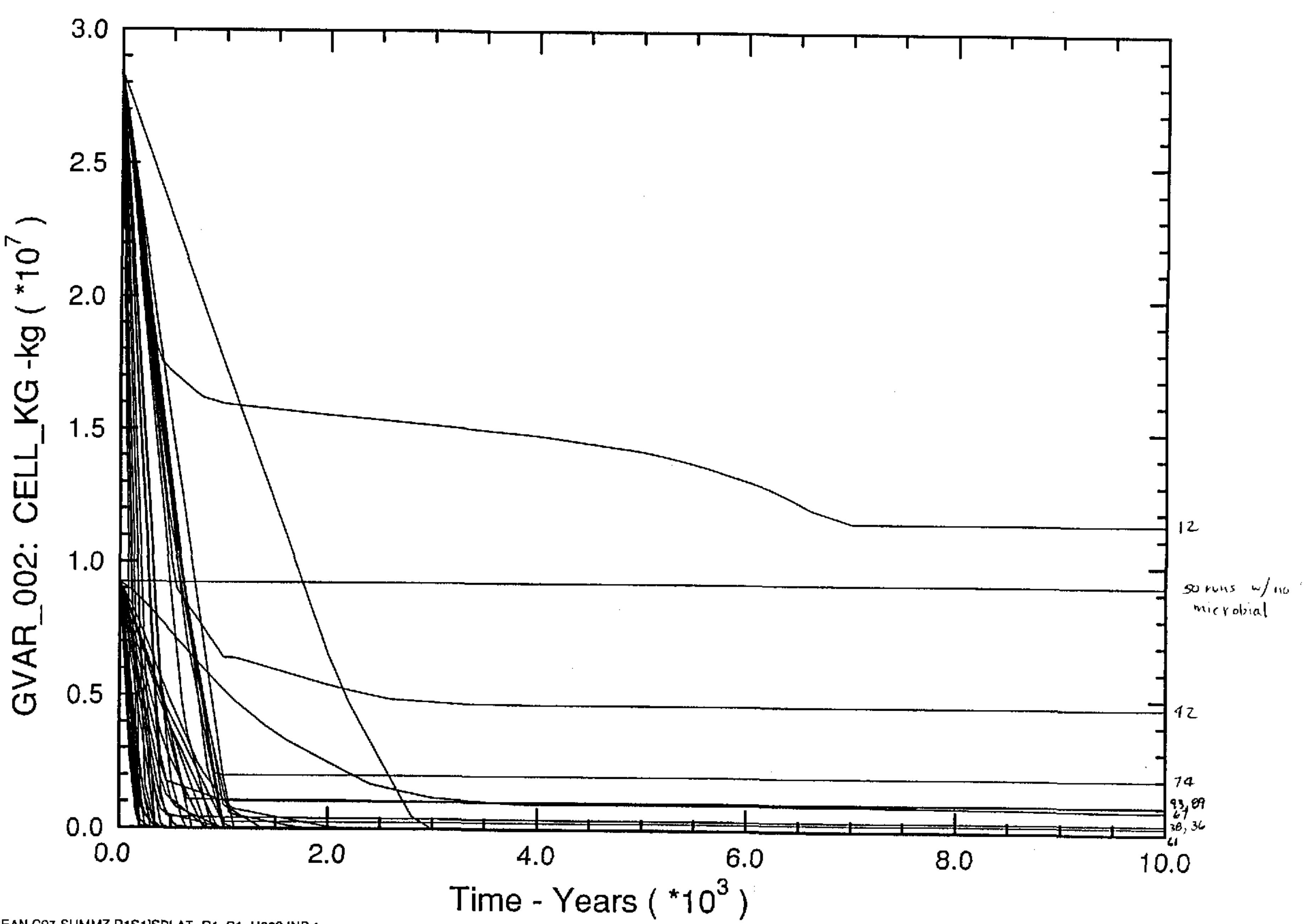
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H024.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:14:35

Fig A.1-4

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S1)

Mass of Cellulose Remaining



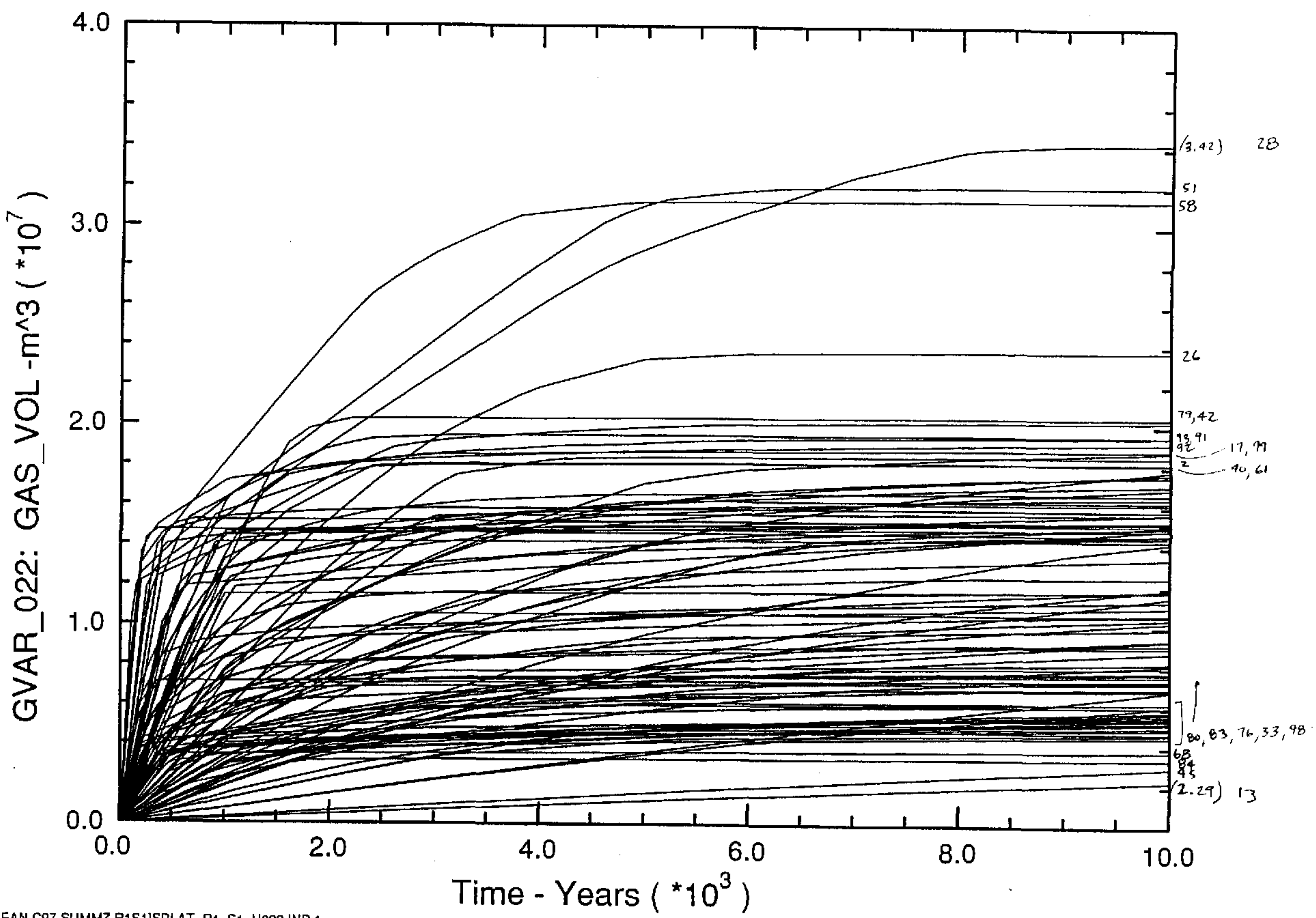
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H002.INP;1

SPLAT_PA96_2 1.02 05/27/97 07:55:33

Fig A.1-5

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Total Gas Volume Generated



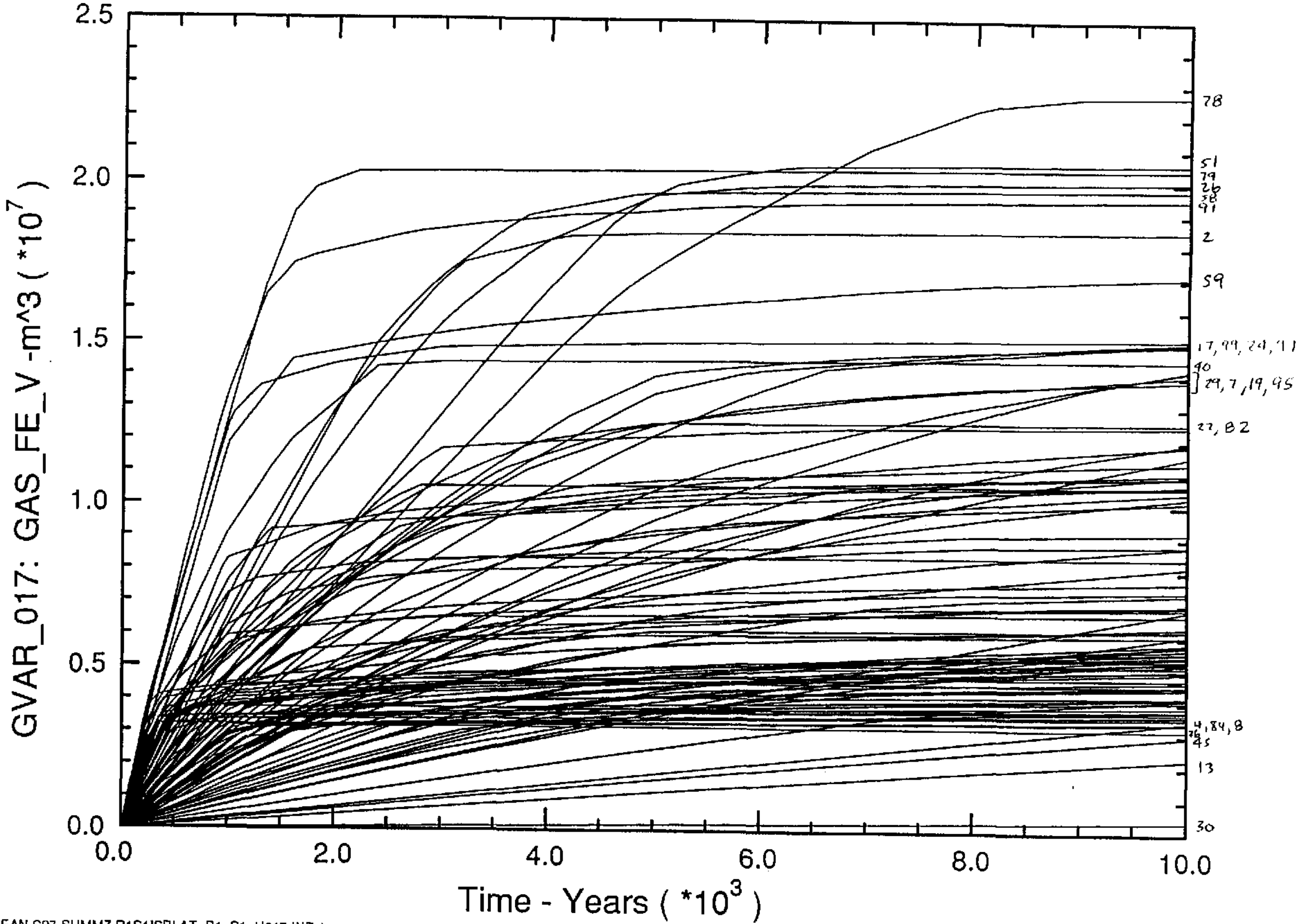
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H022.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:06:46

Fig A.1-6

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Total Gas Volume Generated by Corrosion



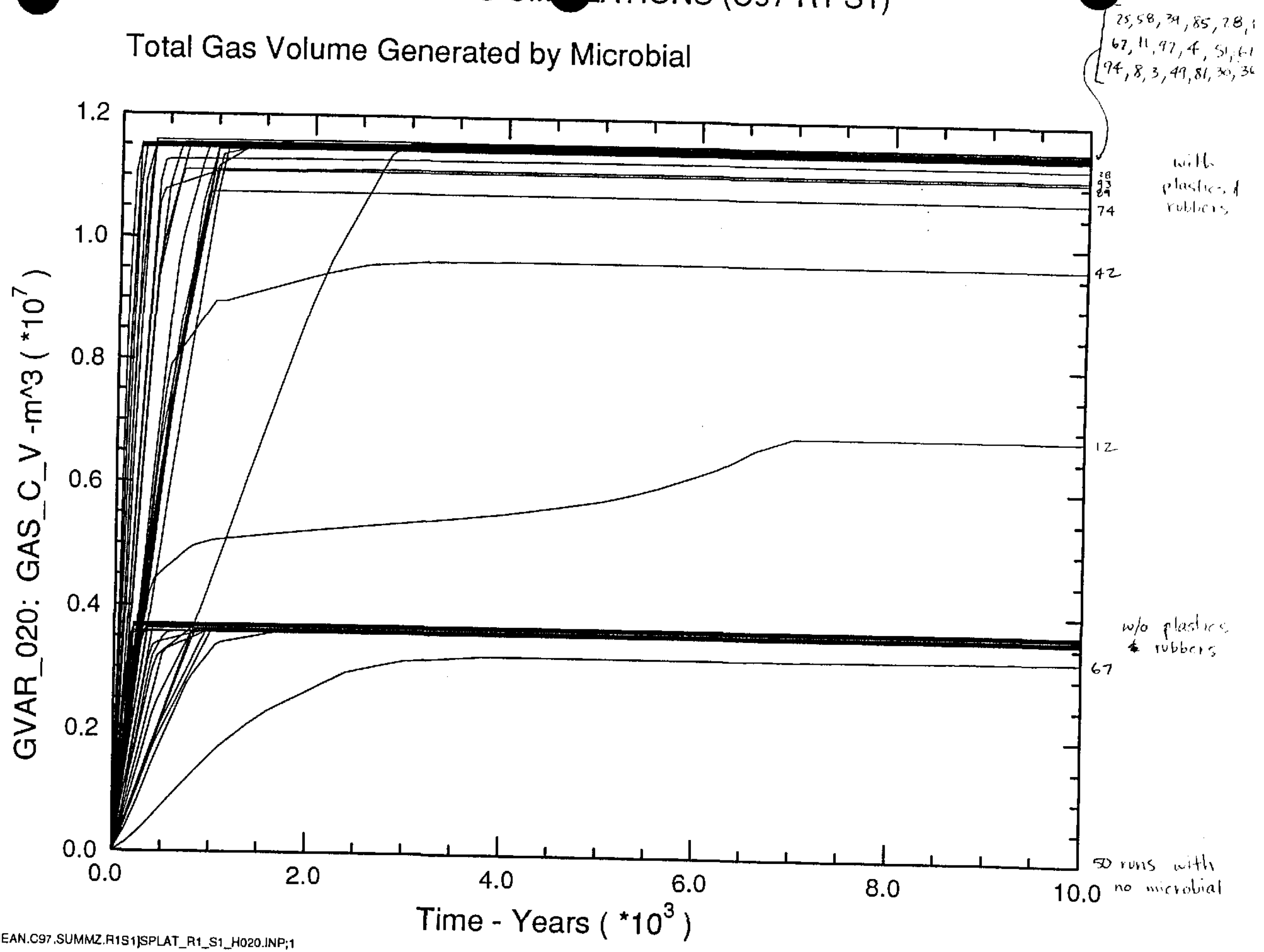
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H017.INP;1

SPLAT_PA96_2 1.02 05/27/97 08:49:44

Fig A.1-7

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Total Gas Volume Generated by Microbial



1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H020.INP;1

SPLAT_PA96_2 1.02 05/27/97 08:59:57

Figure corresponding to CCA Fig 7.1-8
not used.

Fig A.1-8

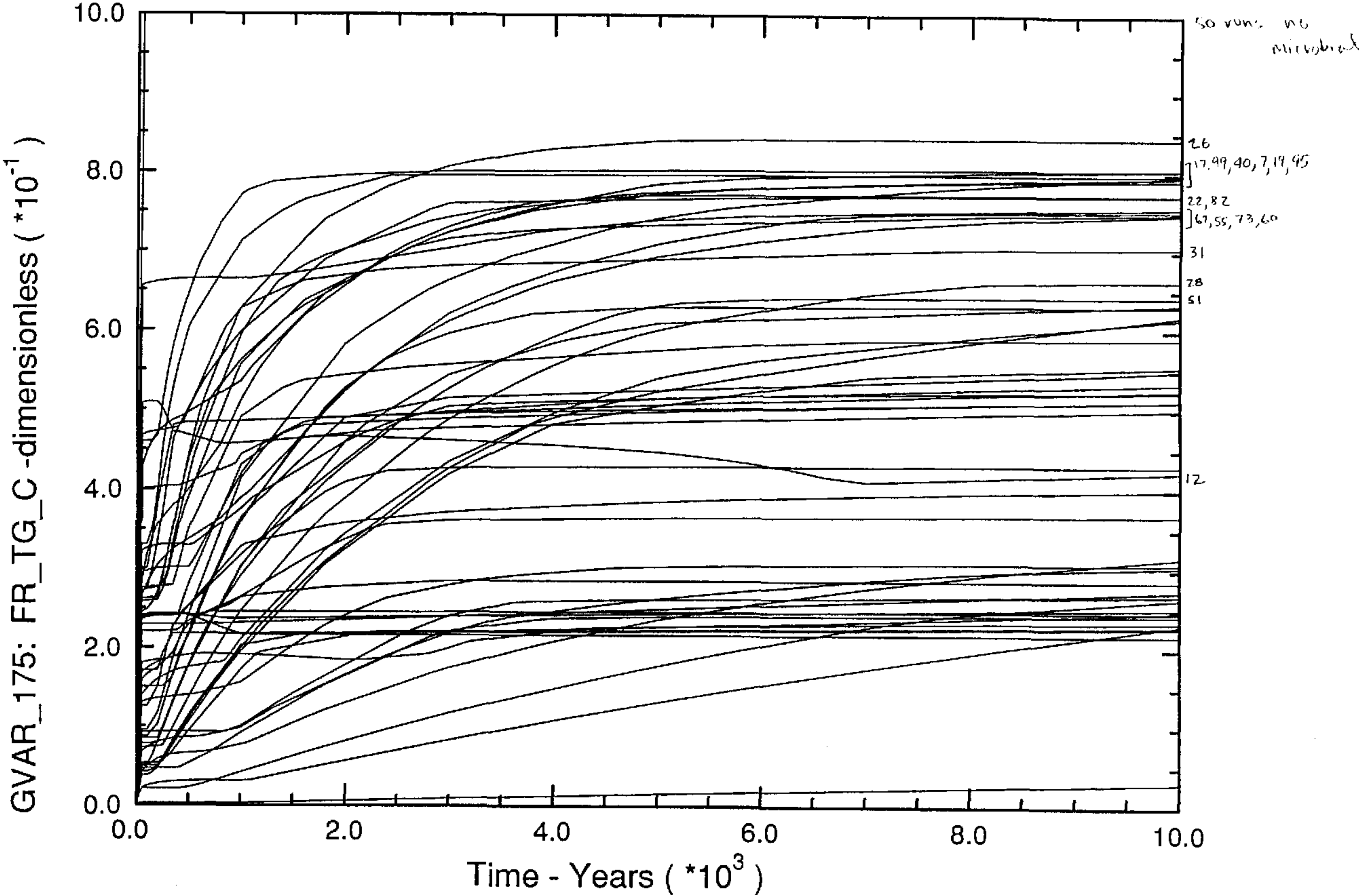
Figure corresponding to CCA Fig 7.1-9
not used.

Fig. A.1-9

Fig. A.1-10

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Fraction of Gas due to Steel Corrosion



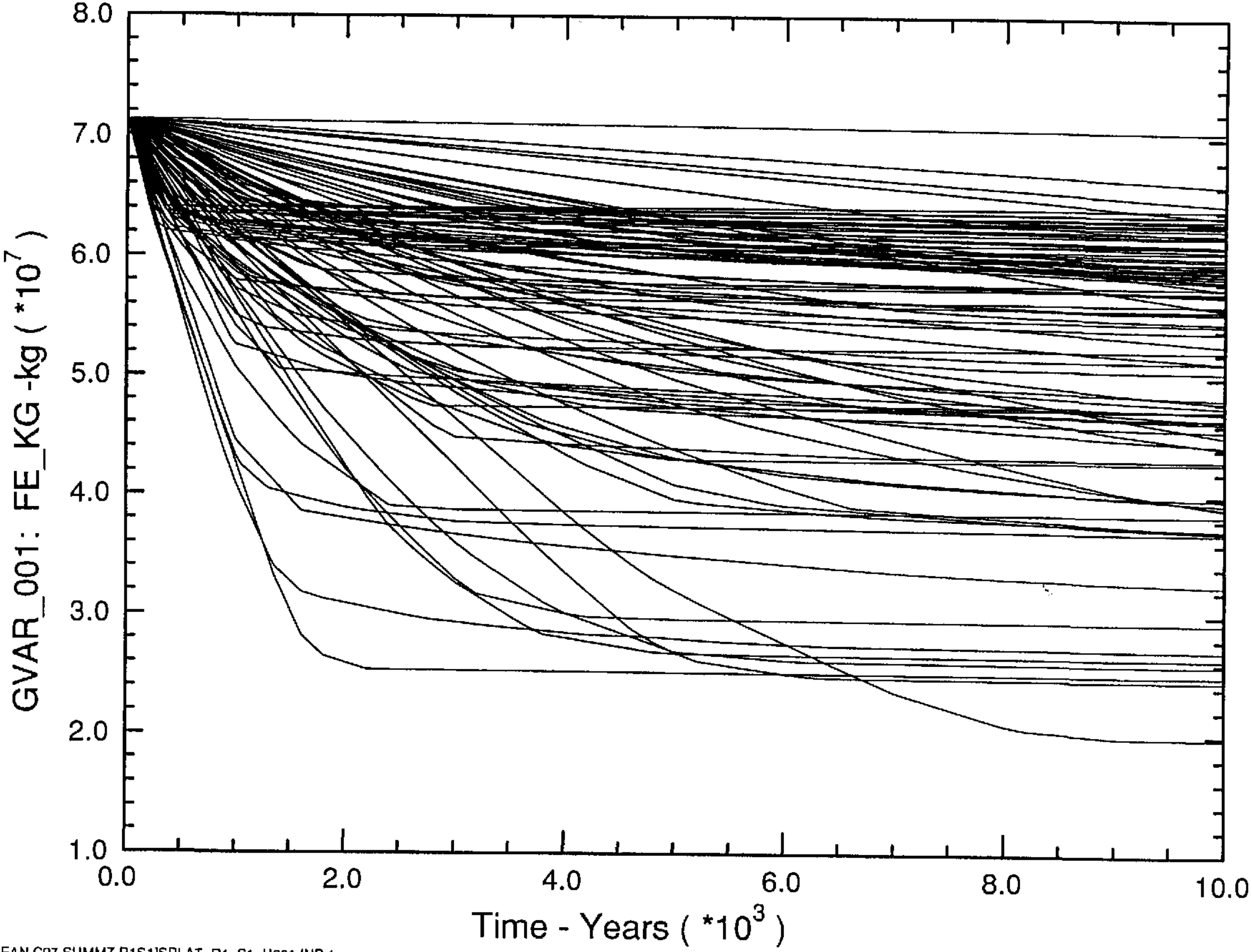
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H175.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:47:12

Fig A.1-11

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Mass of Steel Remaining



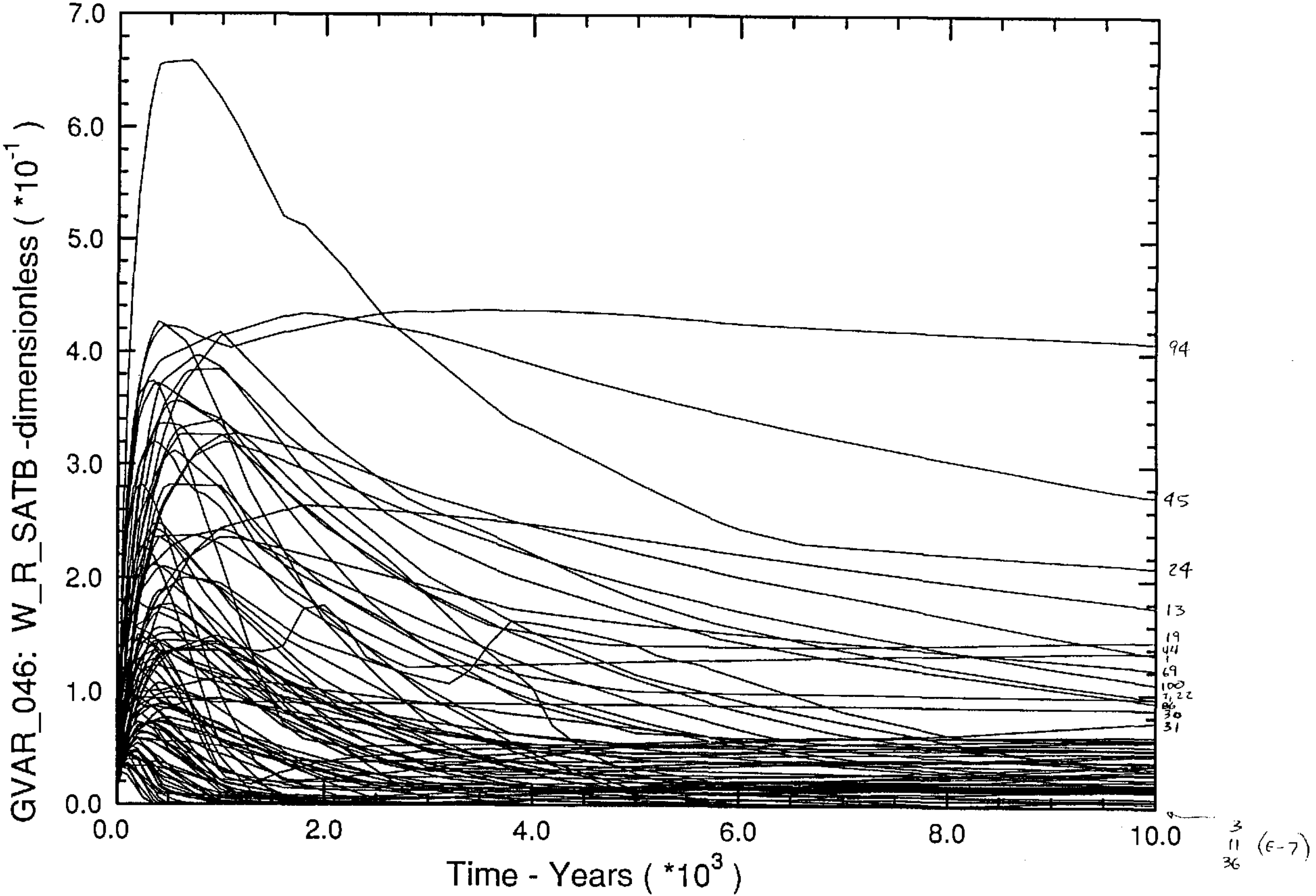
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H001.INP;1

SPLAT_PA96_2 1.02 05/27/97 07:51:49

Fig A.1-12

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Volume-Averaged Brine Saturation in Waste Panel plus Rest of Repository



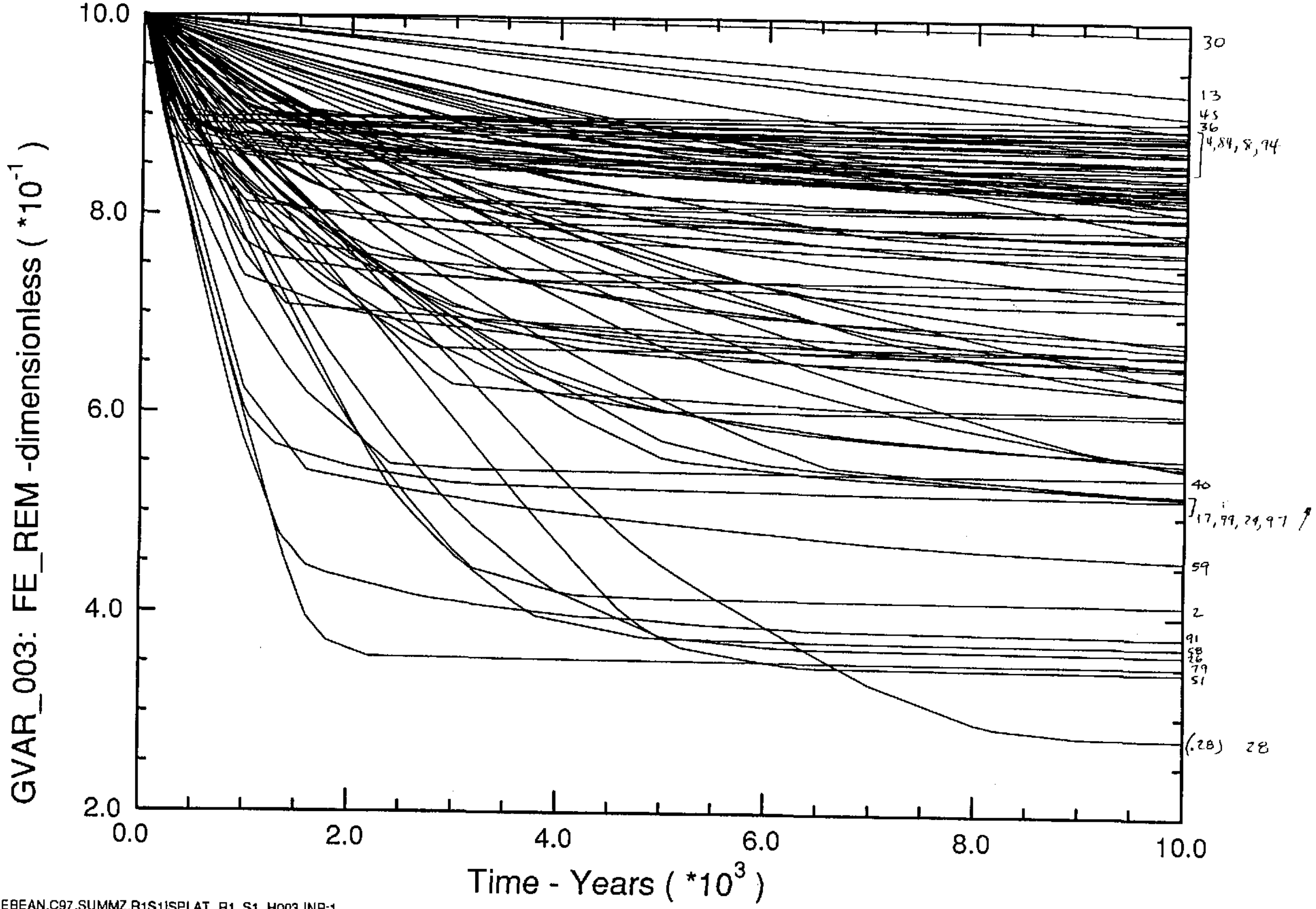
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H046.INP;1

SPLAT_PA96_2 1.02 05/27/97 10:34:22

Fig. 4.1-13

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Remaining Fraction of Steel Inventory



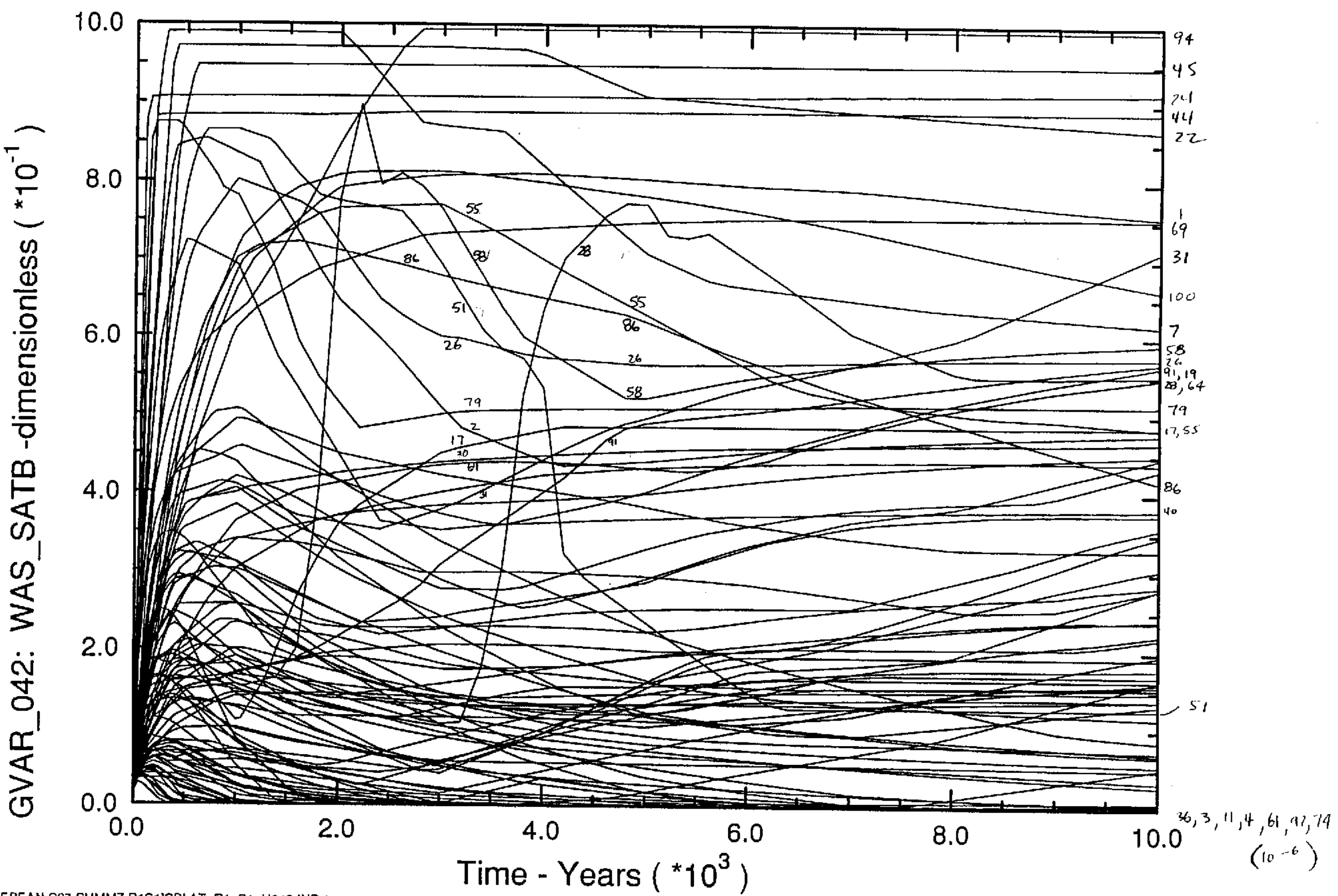
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H003.INP;1

SPLAT_PA96_2 1.02 05/27/97 07:59:16

Fig A.1-14

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Volume-Averaged Brine Saturation in Waste Panel



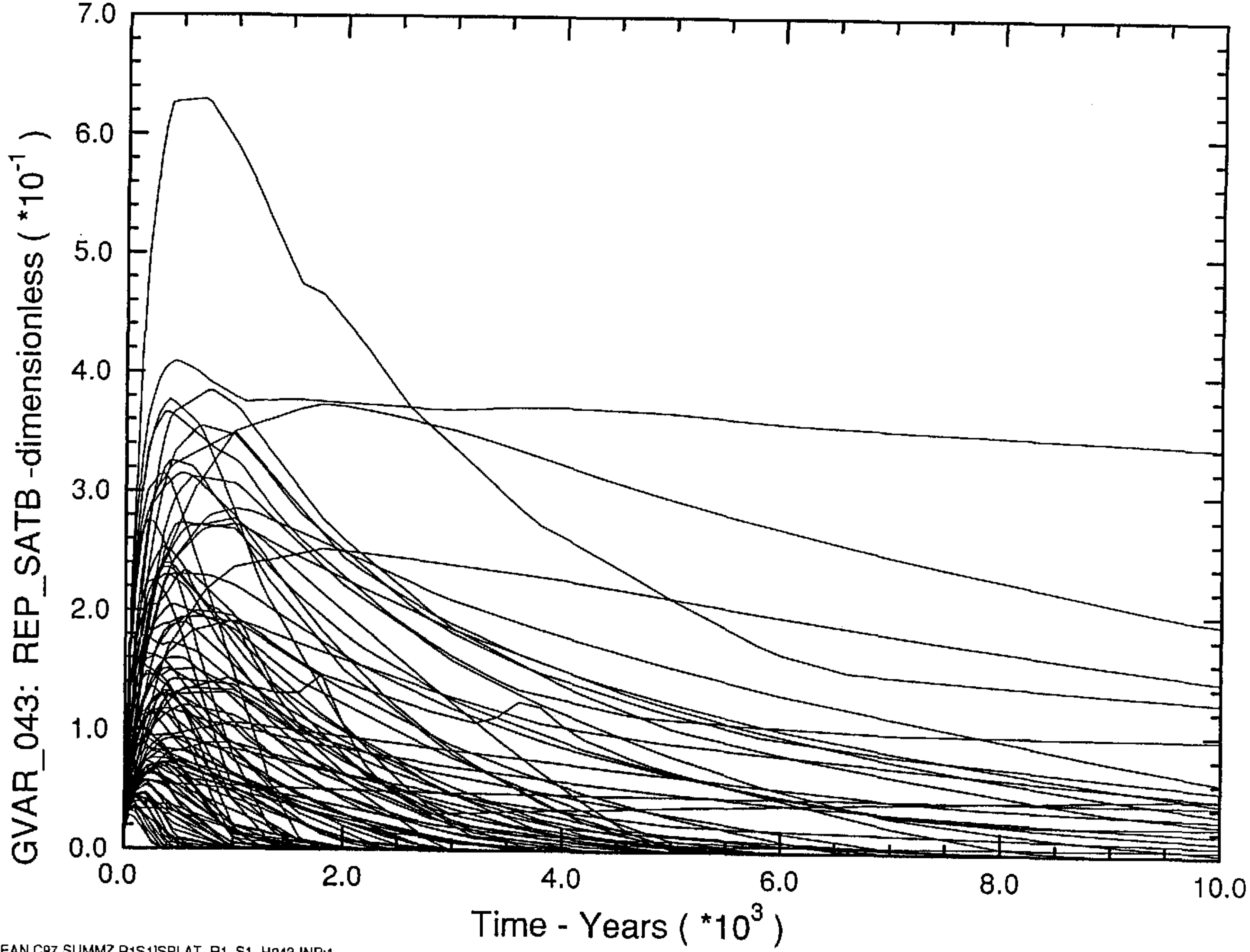
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H042.INP;1

SPLAT_PA96_2 1.02 05/27/97 10:19:03

Fig A.1-15

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Volume-Averaged Brine Saturation in Rest of Repository



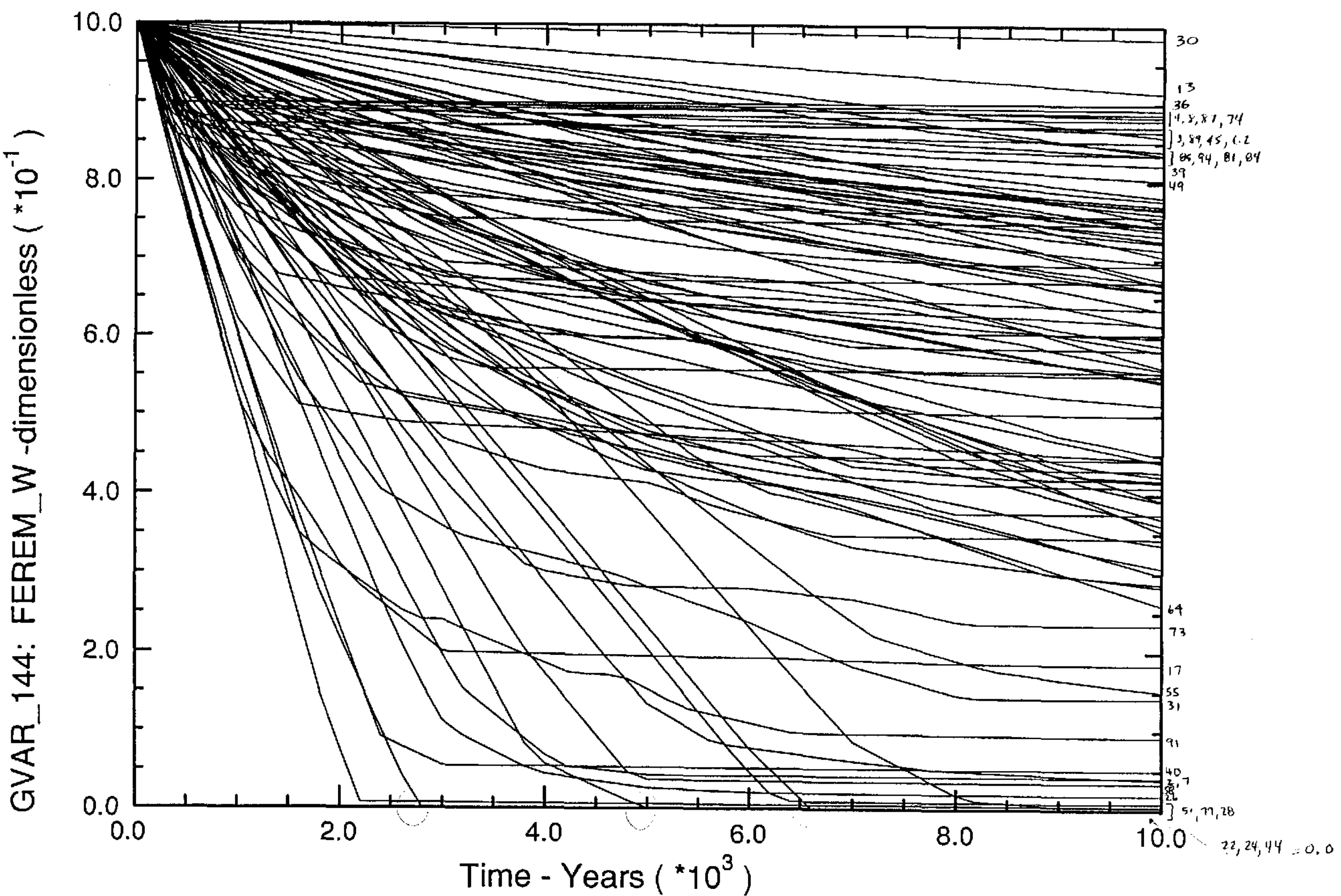
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H043.INP;1

SPLAT_PA96_2 1.02 05/27/97 10:22:58

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S1)

Remaining Fraction of Steel Inventory in Waste Panel

Fig A.1-16



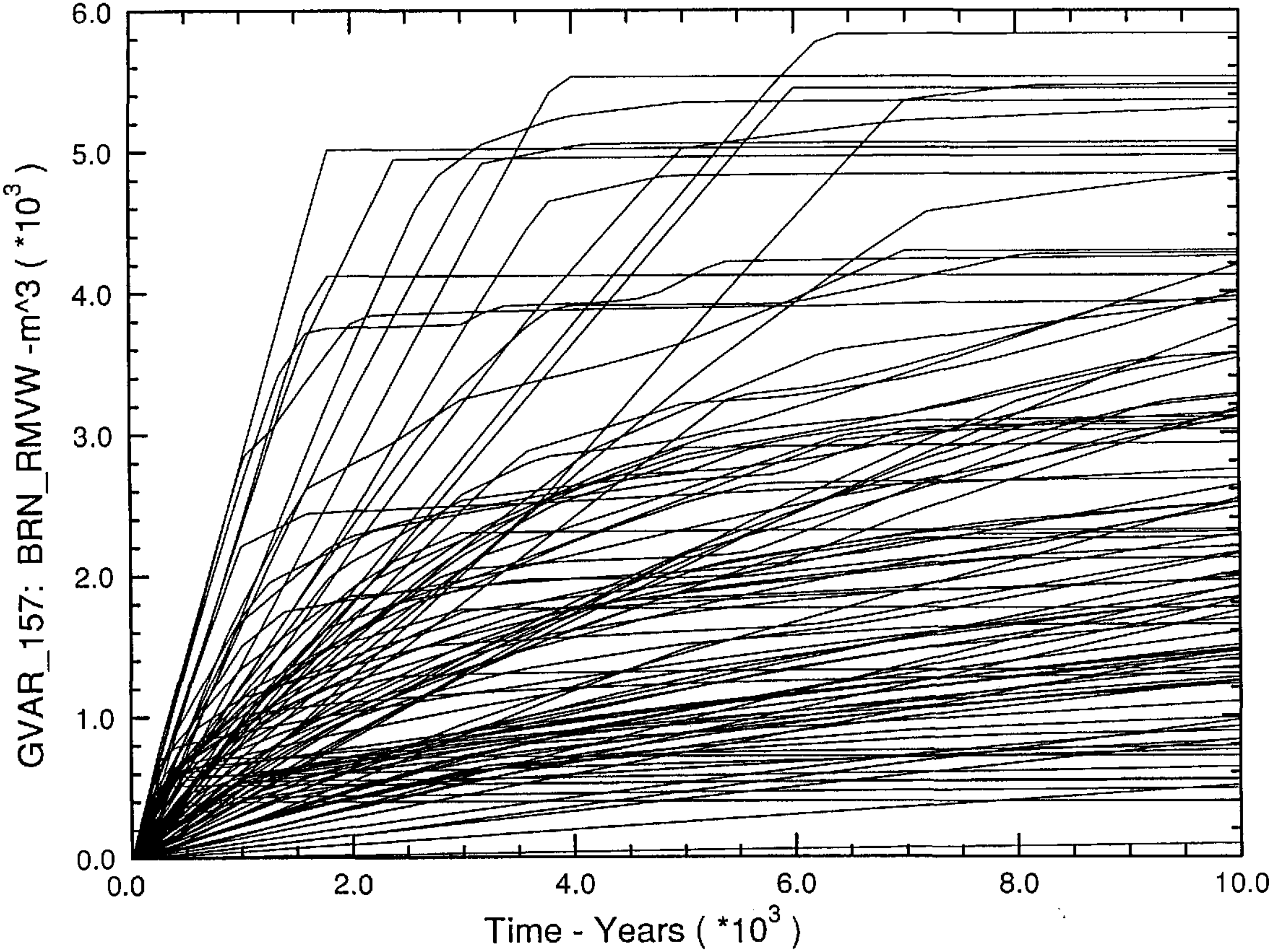
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H144.INP;1

SPLAT_PA96_2 1.02 05/28/97 10:07:16

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Brine Consumed in Waste Panel

Fig A.1-17



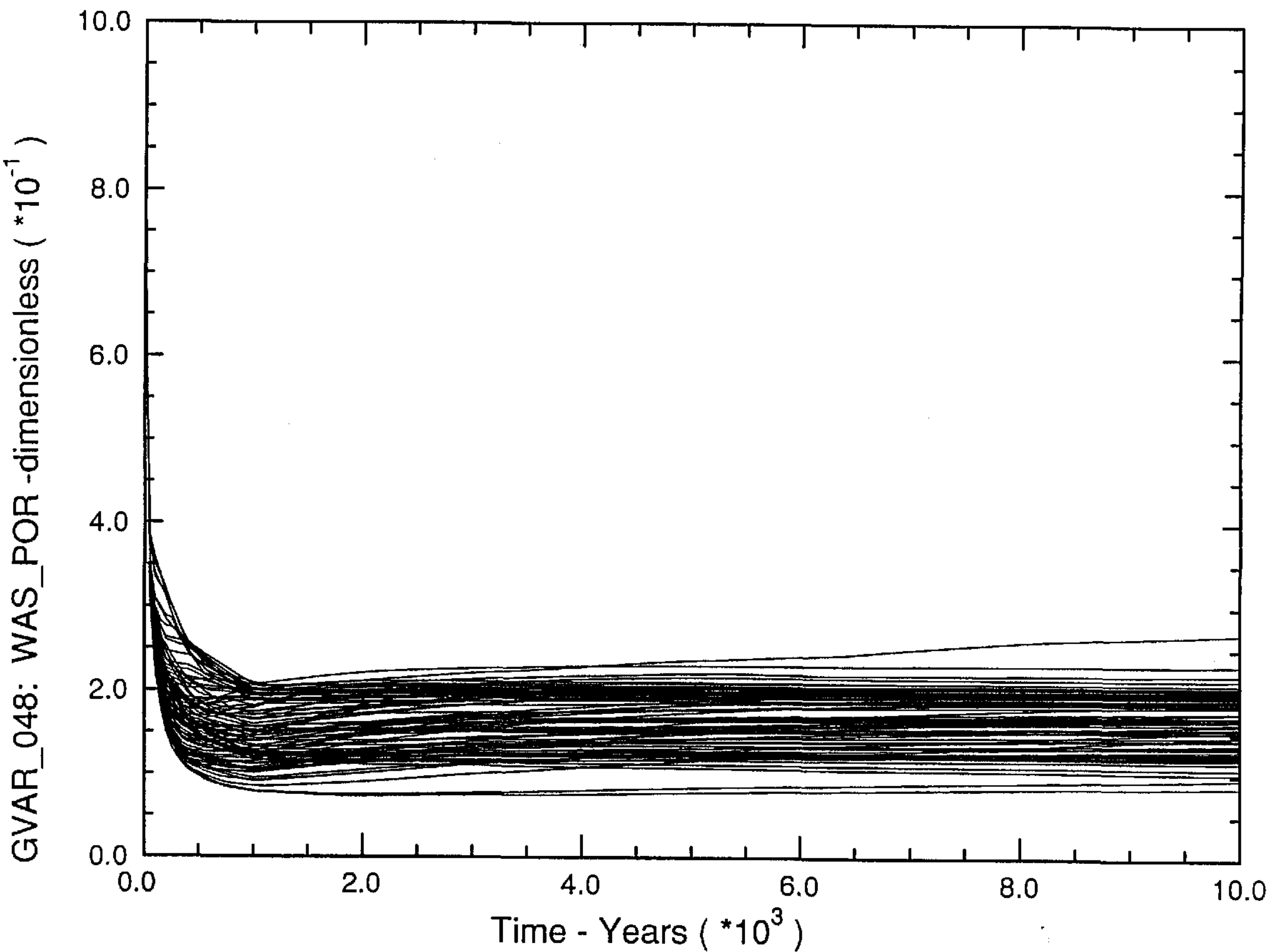
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H157.INP;1

SPLAT_PA96_2 1.02 05/28/97 10:49:49

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Volume-Averaged Porosity in Waste Panel

Fig. A.1-18



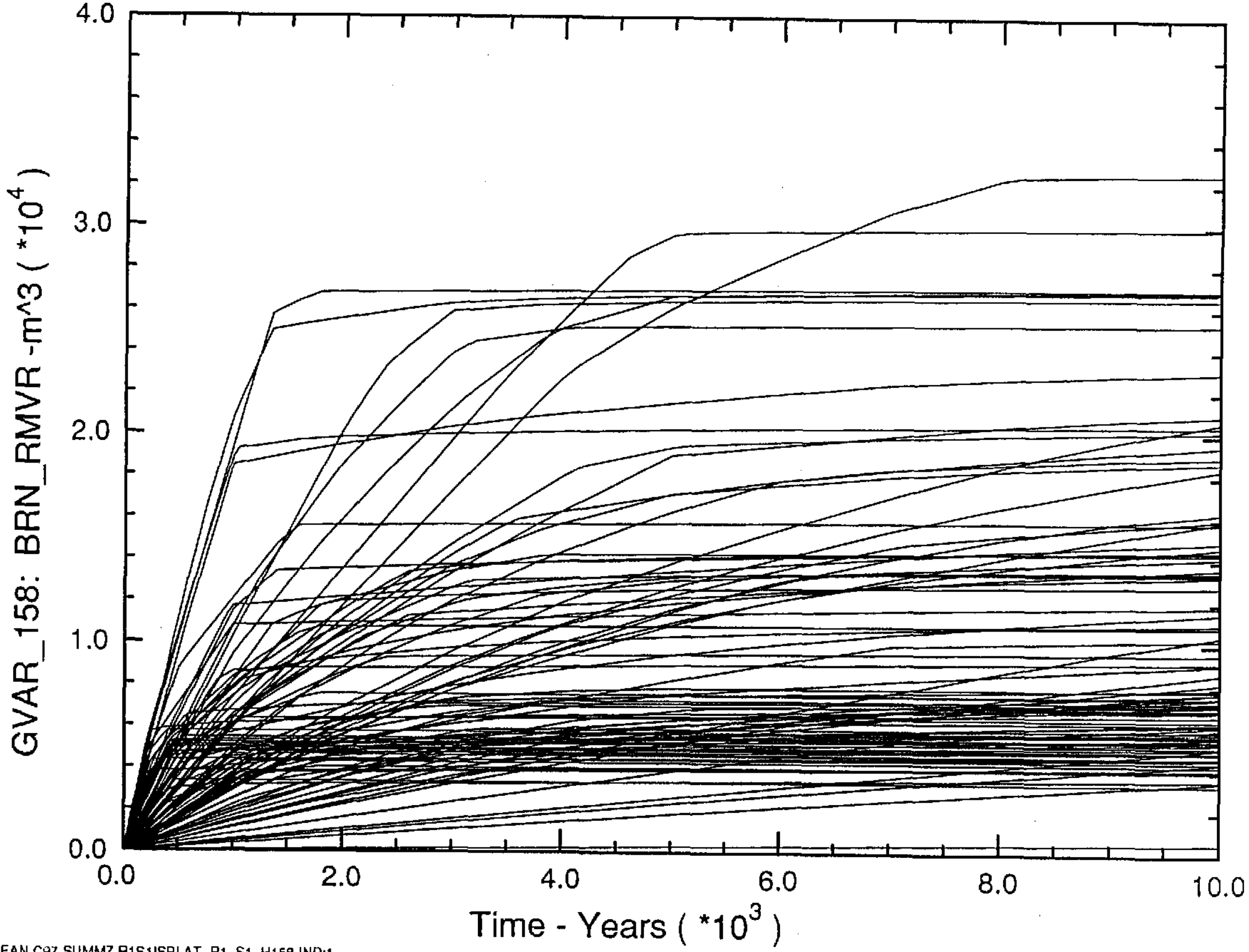
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H048.INP;1

SPLAT_PA96_2 1.02 05/27/97 10:42:00

Fig. A.1-19

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Brine Consumed in Rest of Repository



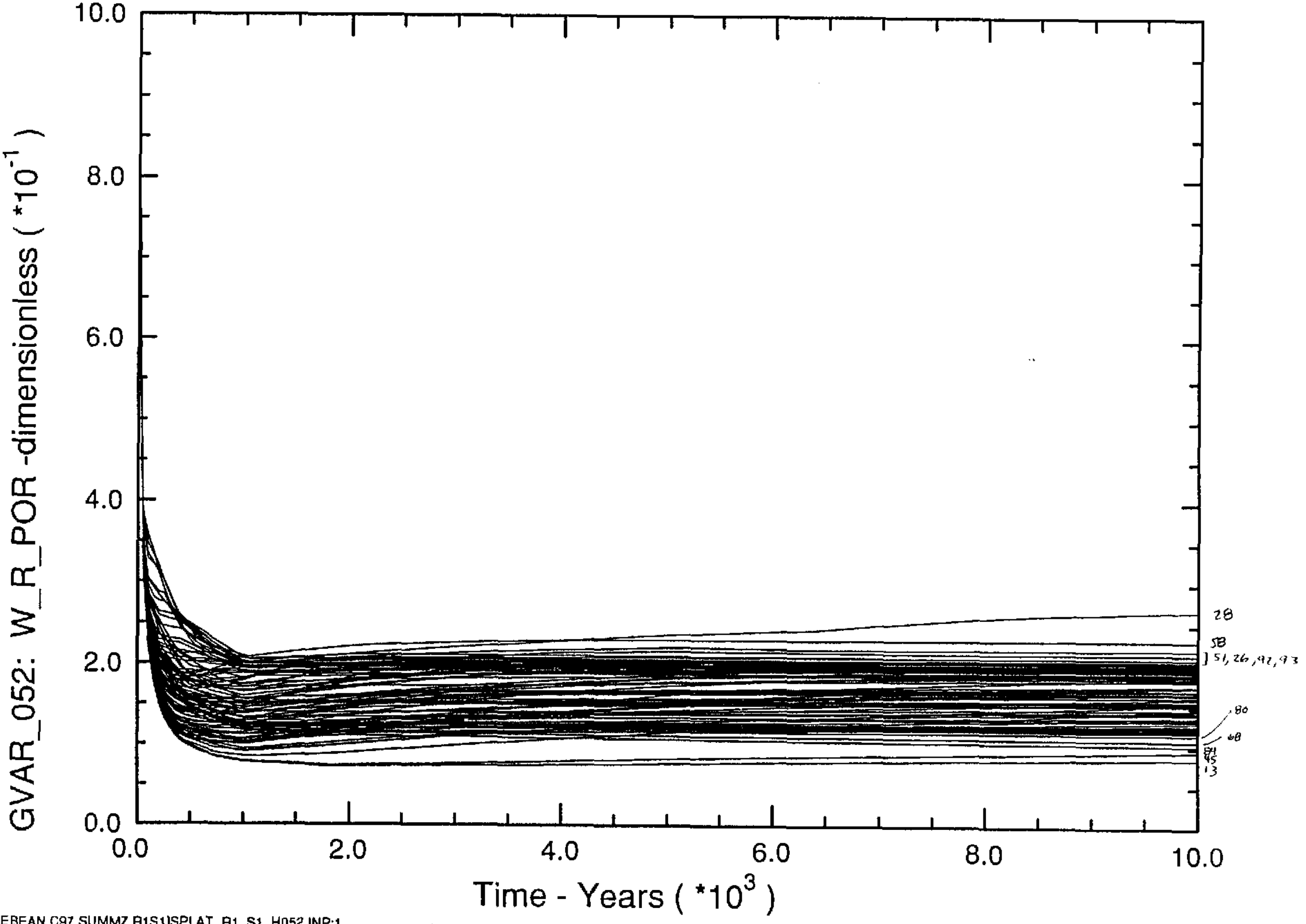
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H158.INP;1

SPLAT_PA96_2 1.02 05/28/97 10:52:42

Fig. A.1-20

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Volume-Averaged Porosity in Waste Panel plus Rest of Repository



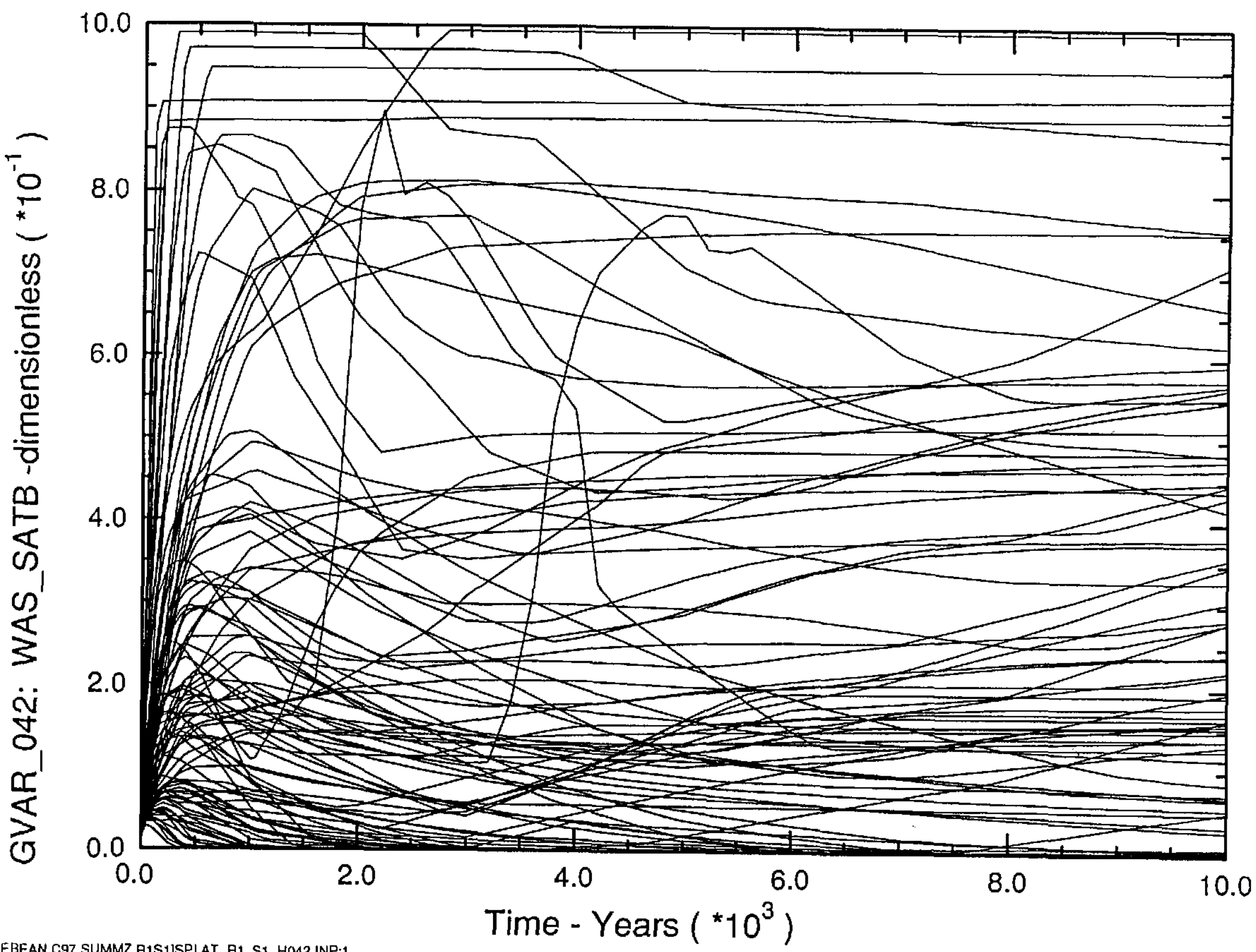
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H052.INP;1

SPLAT_PA96_2 1.02 05/27/97 10:57:23

Fig. A.1-21

SNL WIPP C97: BRAGFLO SI[illegible]LATIONS (C97 R1 S1)

Volume-Averaged Brine Saturation in Waste Panel



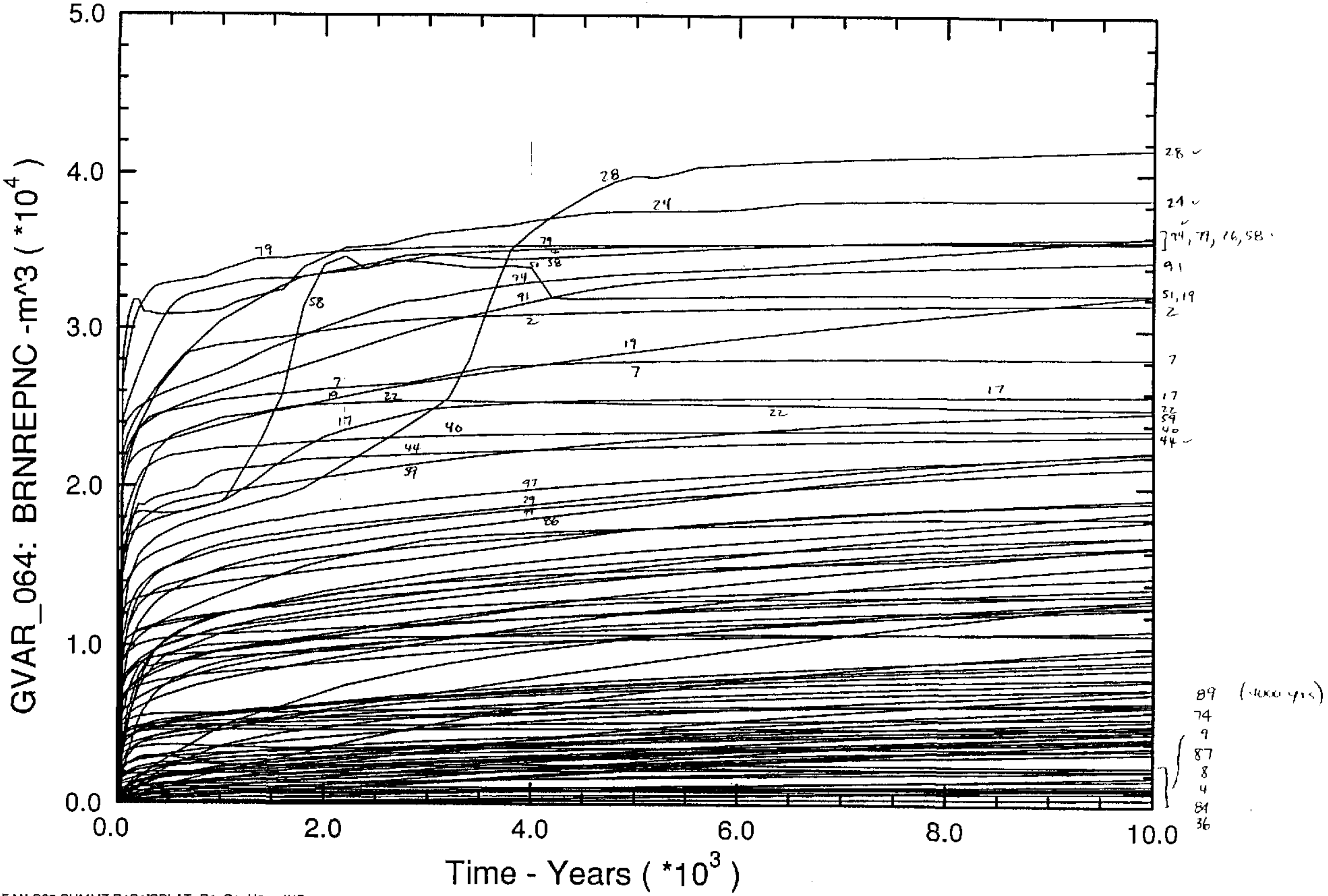
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H042.INP;1

SPLAT_PA96_2 1.02 05/27/97 10:19:03

Fig. A.1-22

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Net Brine Flow into Repository



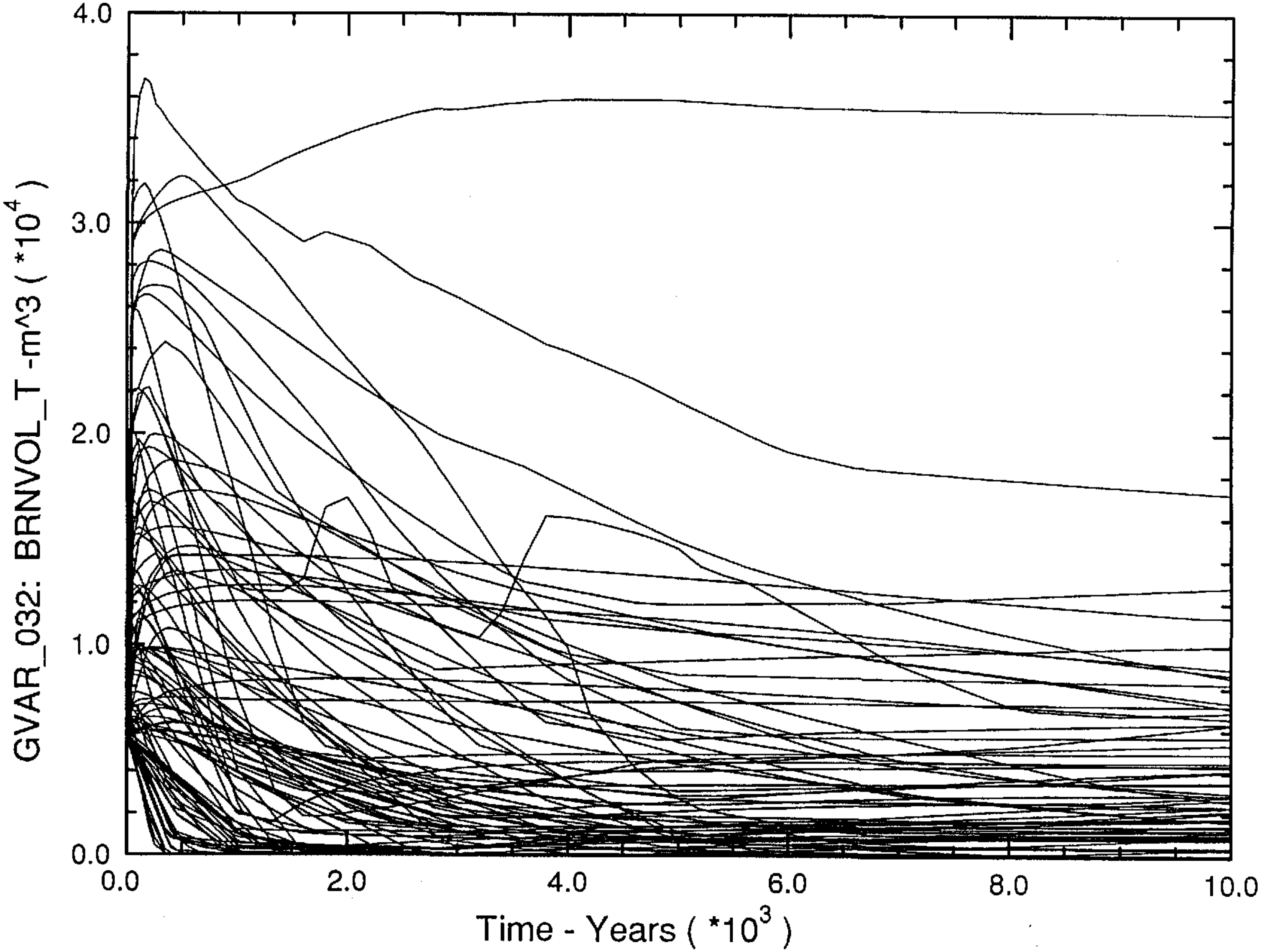
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H064.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:42:15

Fig A.1-23

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S1)

Brine Volume in Waste Panel and Rest of Repository



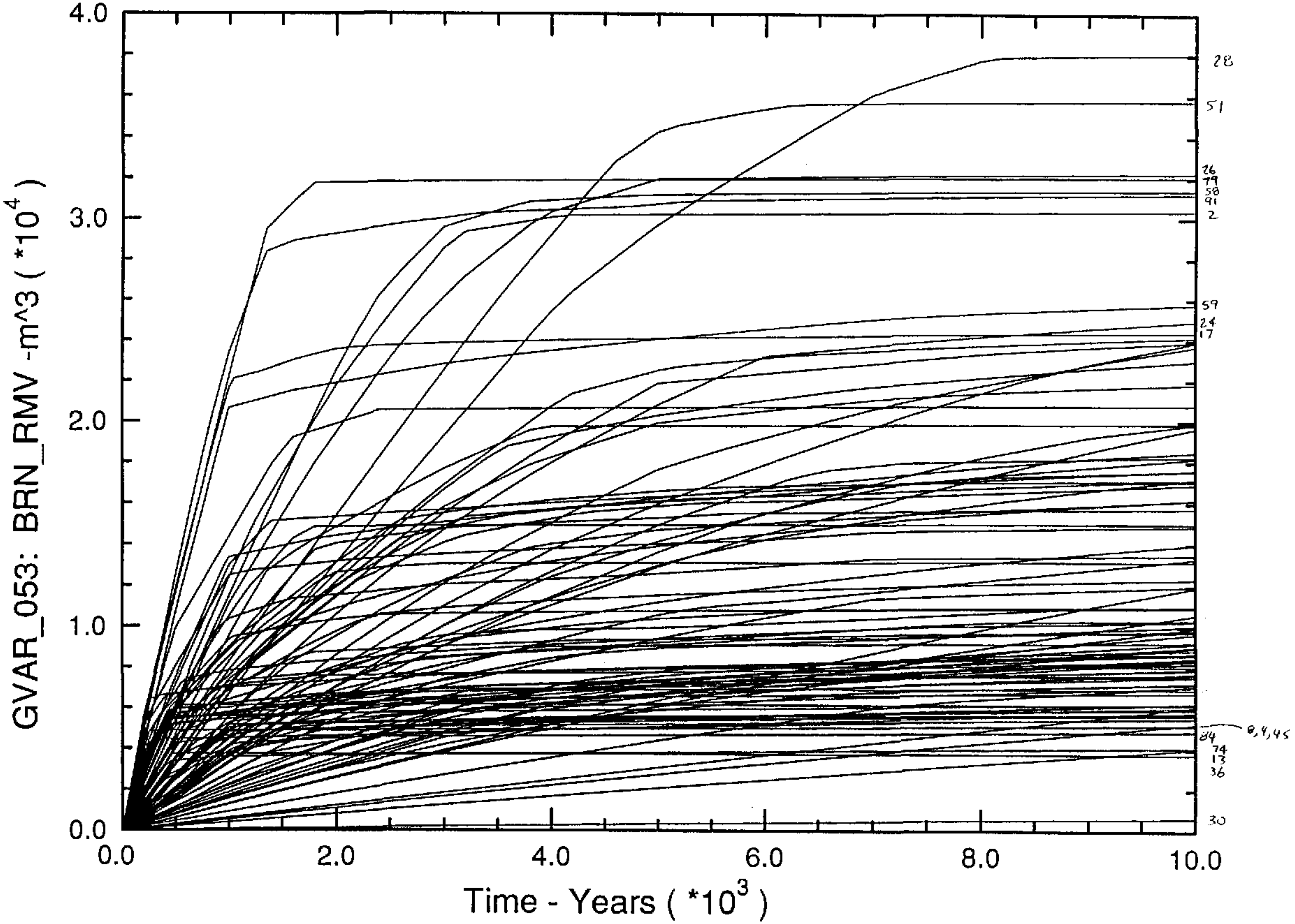
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H032.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:41:34

Fig. A.1-24

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S1)

Brine Consumed



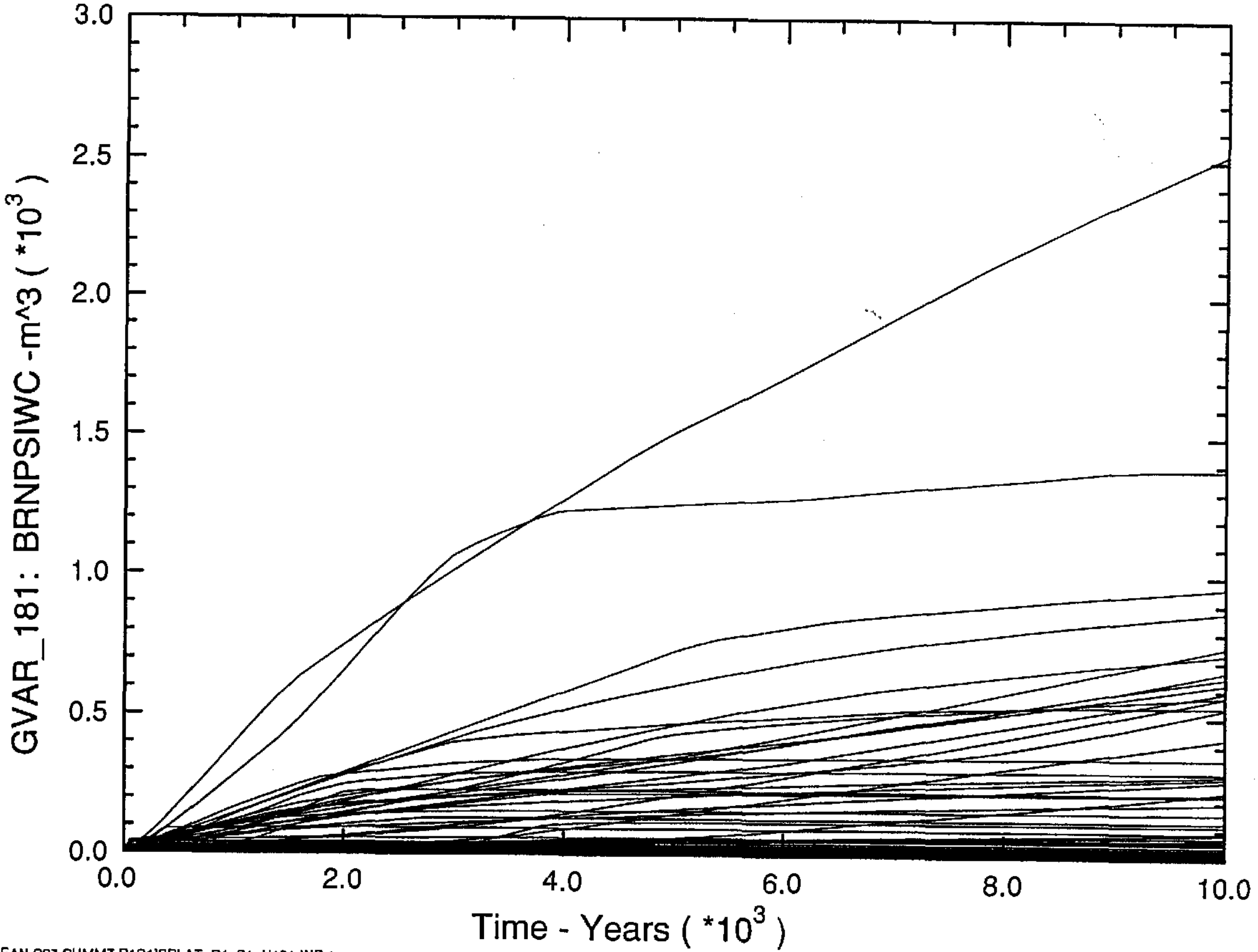
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H053.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:01:17

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow out of Panel Seal into Waste Panel

Fig. A.1-25



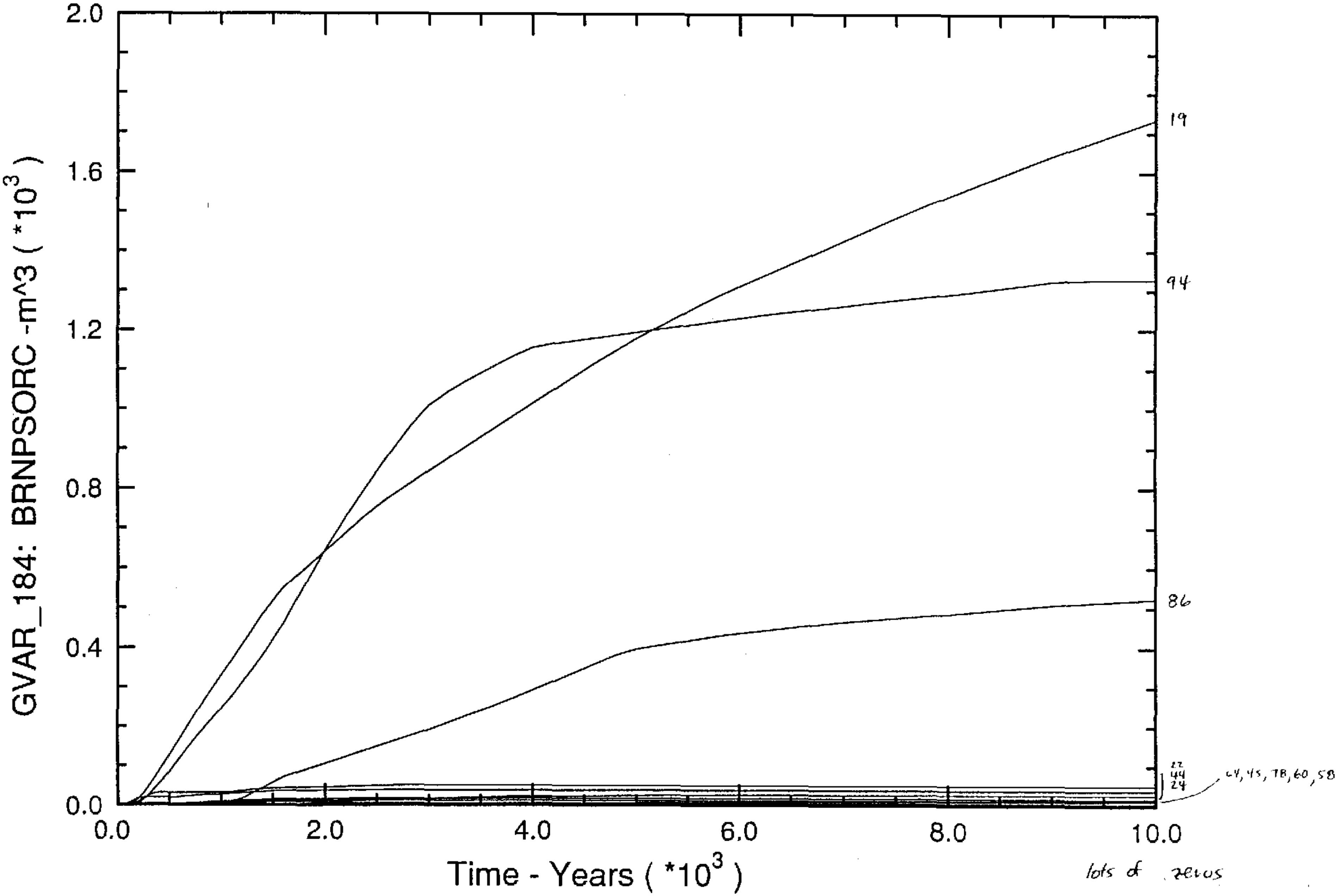
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H181.INP;1

05/28/97 12:06:43

Fig. A.1-26

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S1)

Cumulative Brine Flow into Panel Seal out of Rest of Repository



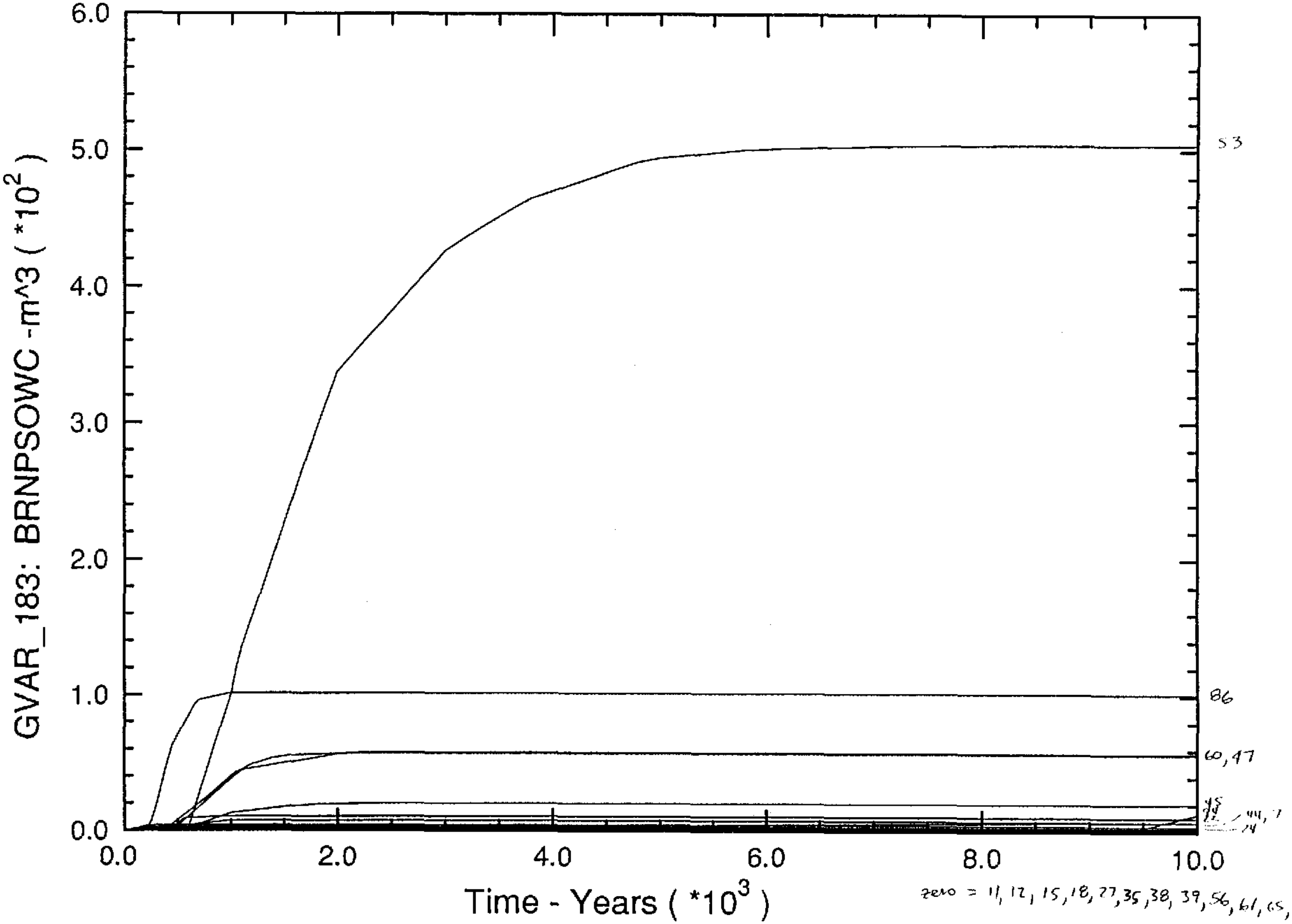
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H184.INP;1

SPLAT_PA96_2 1.02 05/28/97 12:16:32

Fig. A.1-27

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow into Panel Seal out of Waste Panel



zero = 11, 12, 15, 18, 27, 35, 38, 39, 56, 61, 65, 85, 93, 96

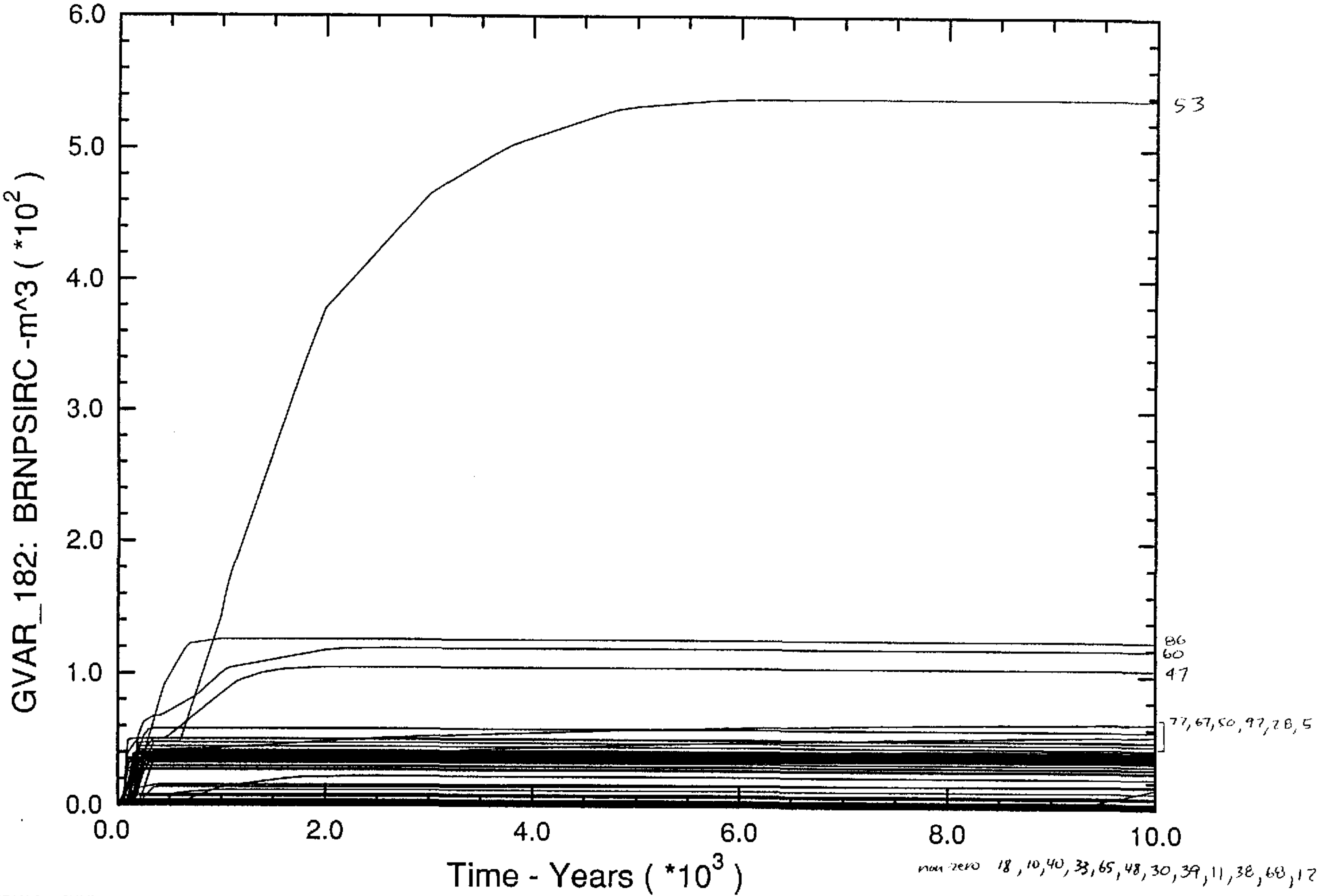
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H183.INP;1

SPLAT_PA96_2 1.02 05/28/97 12:13:16

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow out of Panel Seal into Rest of Repository

Fig. A.1-28



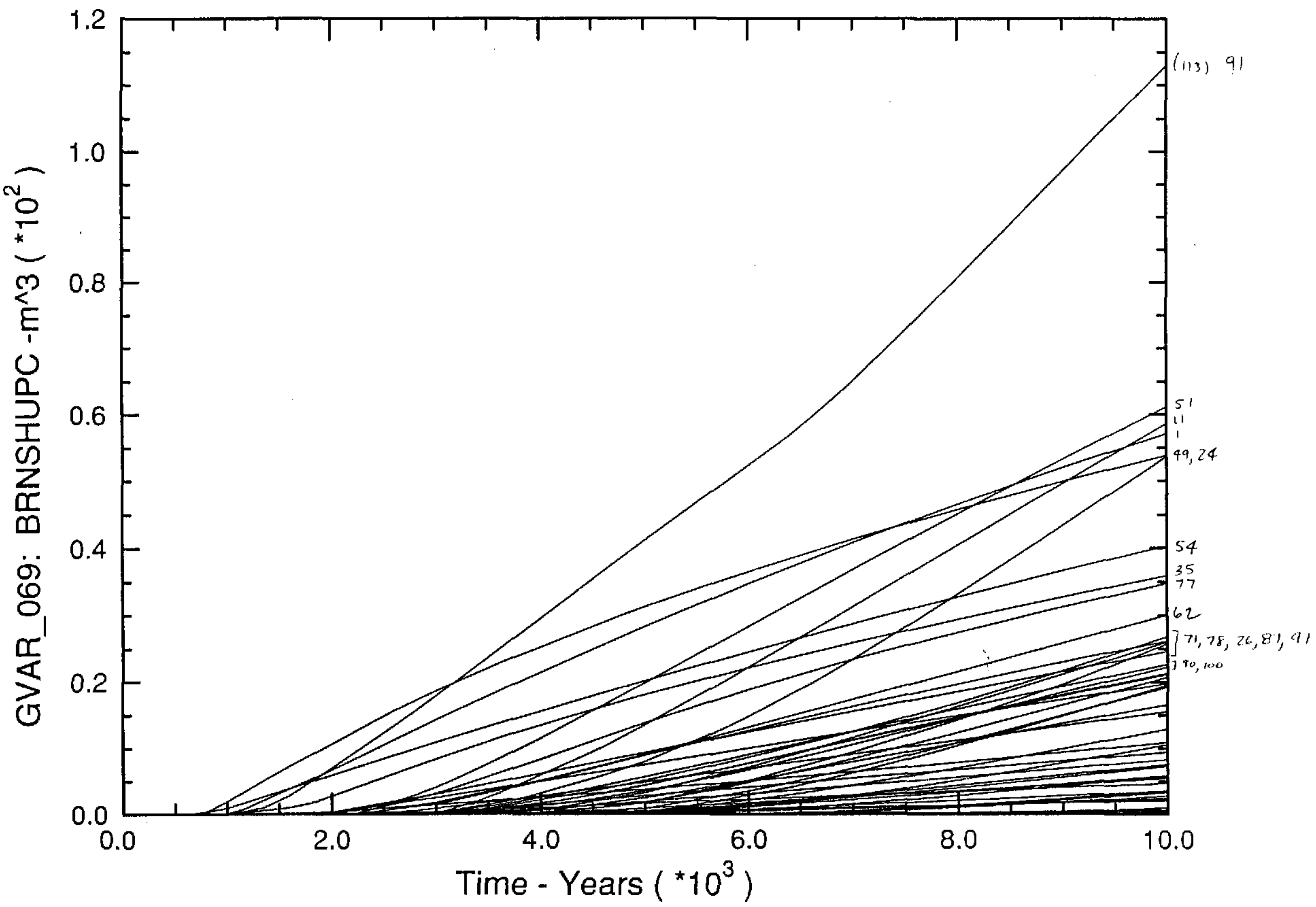
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H182.INP;1

SPLAT_PA96_2 1.02 05/28/97 12:10:01

Fig. A.1-29

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow up Shaft at top of Salado (E:661)



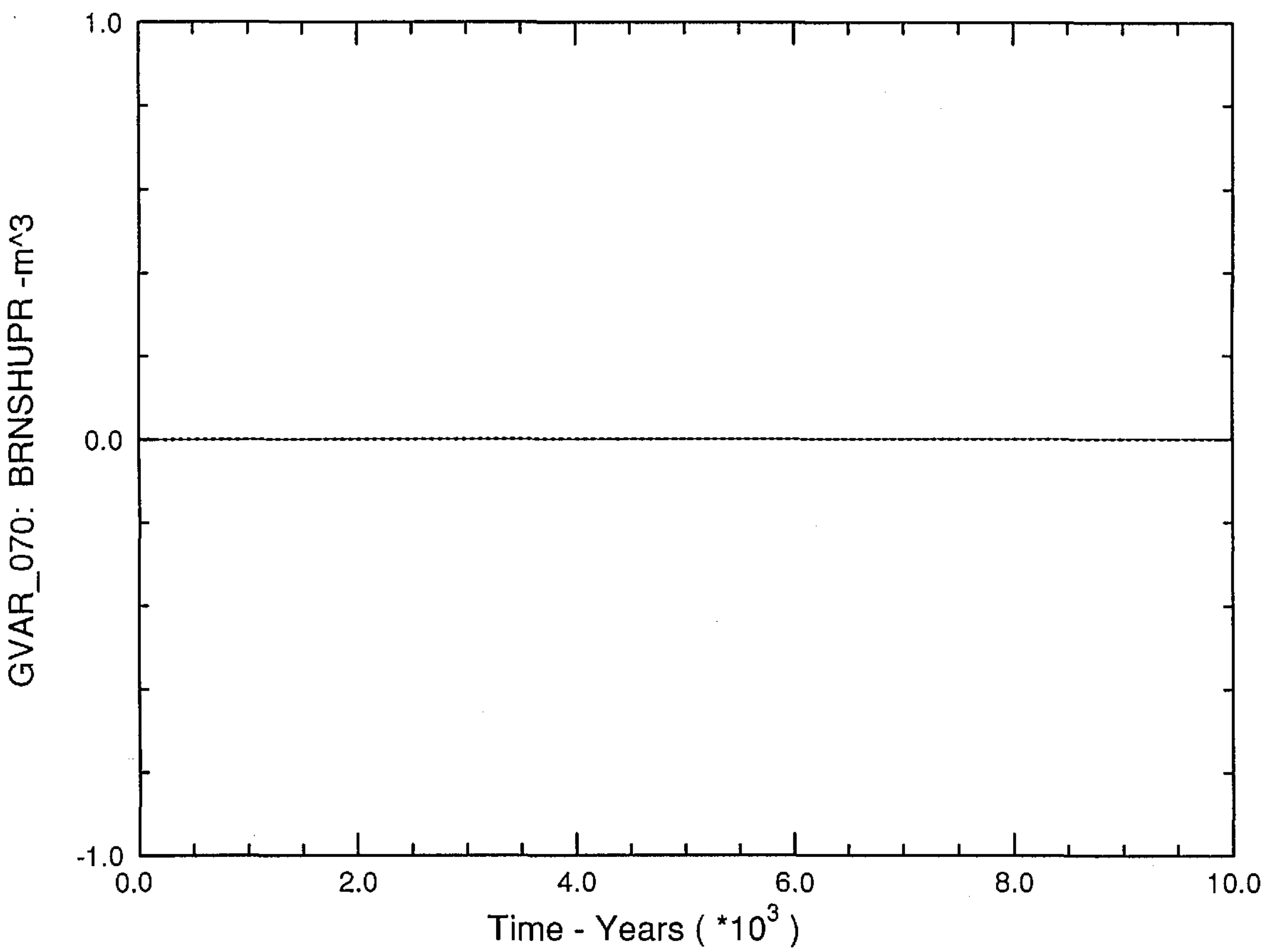
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H069.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:00:39

Fig. A.1-30

SNL WIPP C97: BRAGFLO SIMU[illegible]ATIONS (C97 R1 S1)

Cumulative Brine Flow up Shaft at top of Rustler (E:666)



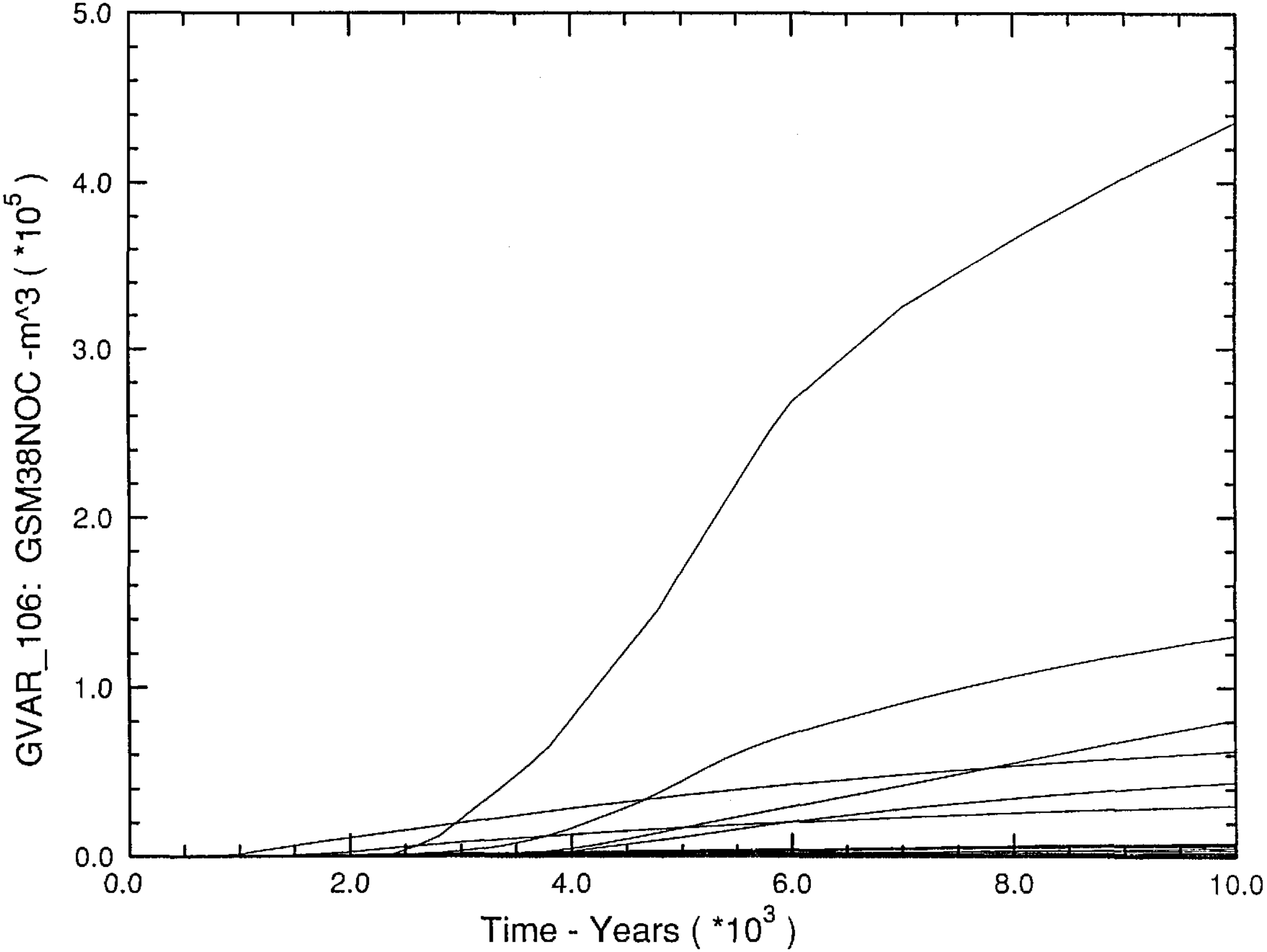
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H070.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:04:23

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Gas Flow from DRZ into North MB 138

Fig. A.1-31



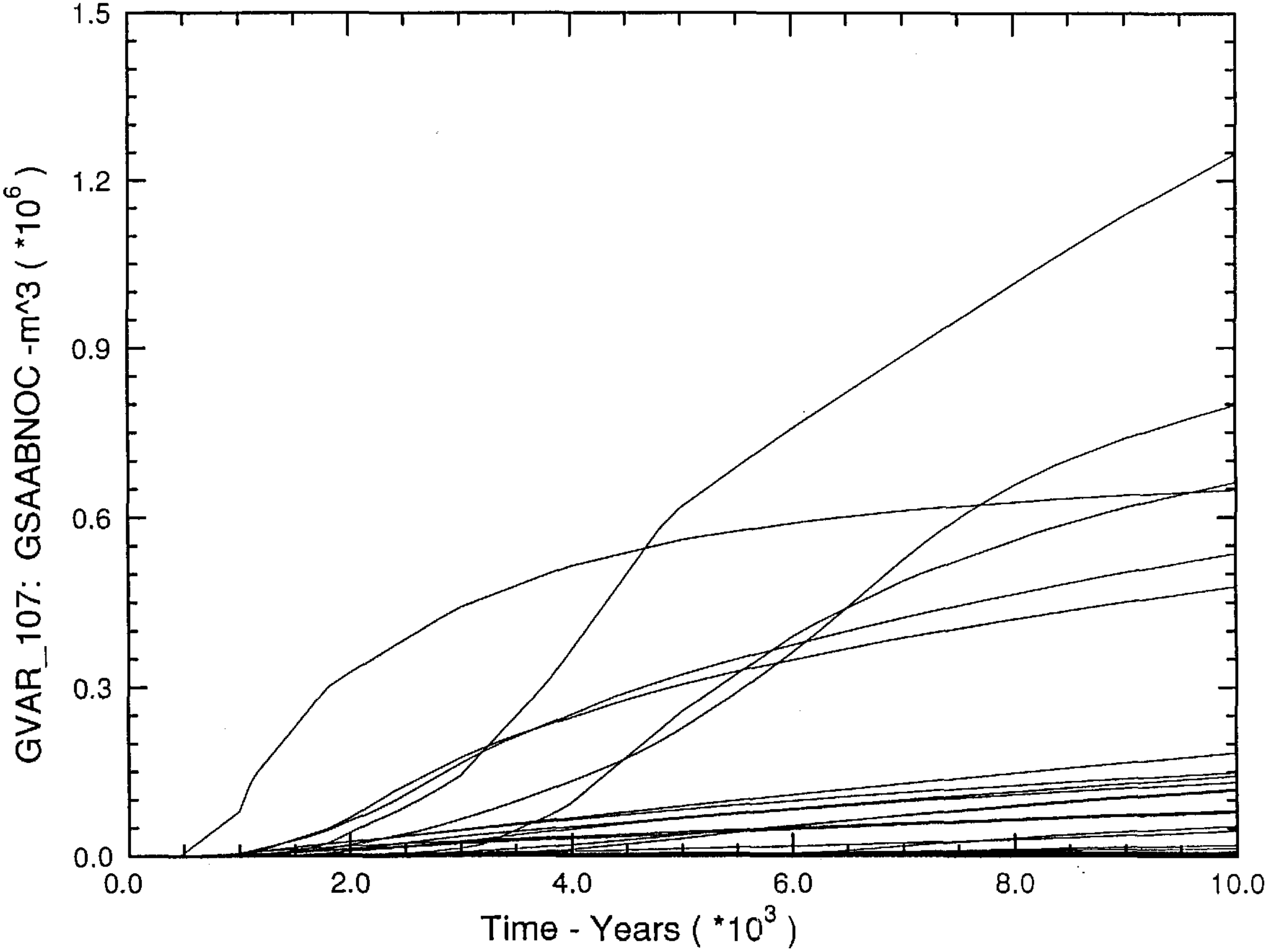
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H106.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:18:57

Fig A.1-32

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S1)

Cumulative Gas Flow from DRZ into North Anhydrite A/B



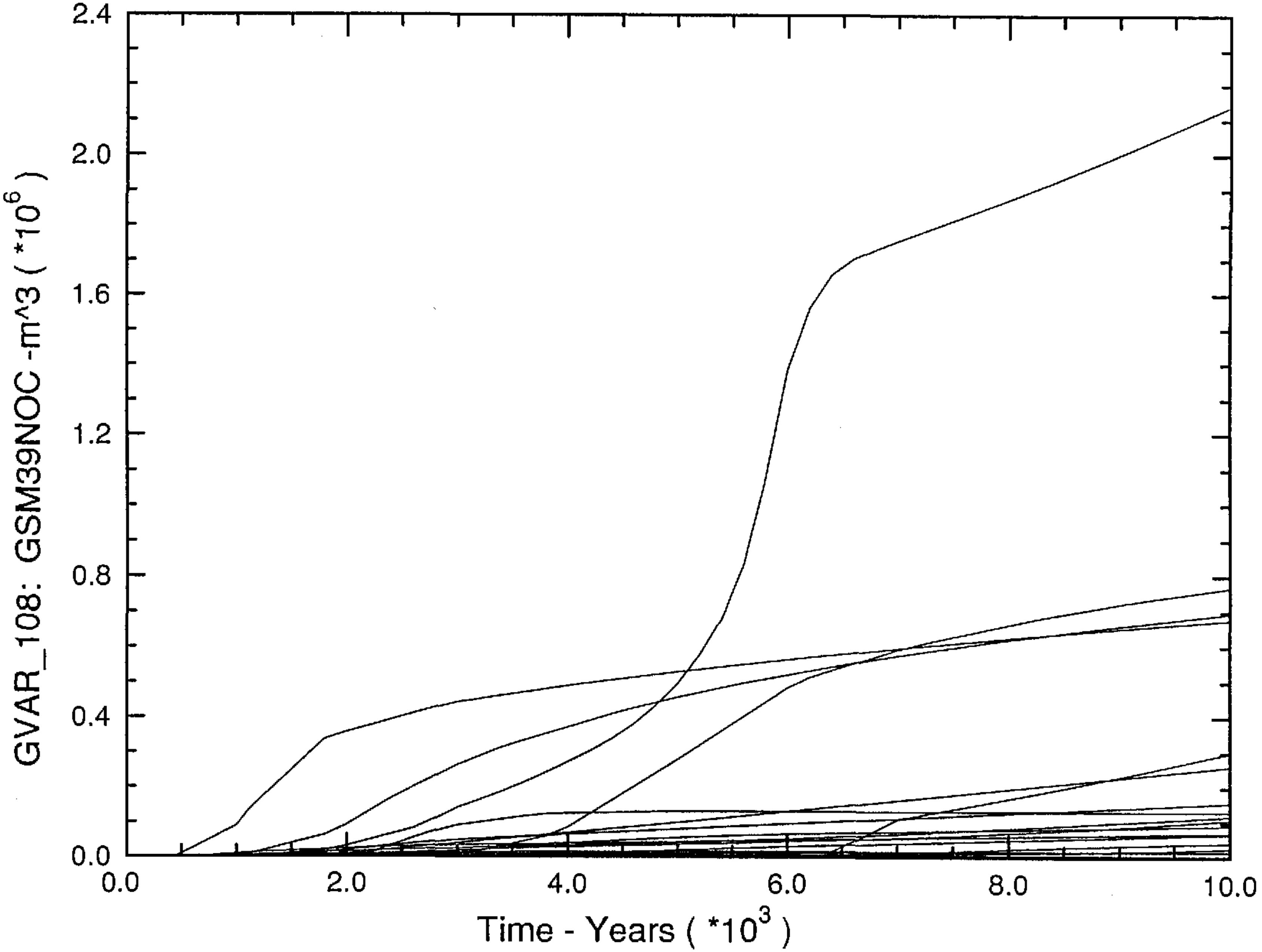
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H107.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:22:43

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Gas Flow from DRZ into North MB 139

Fig. A.1-33



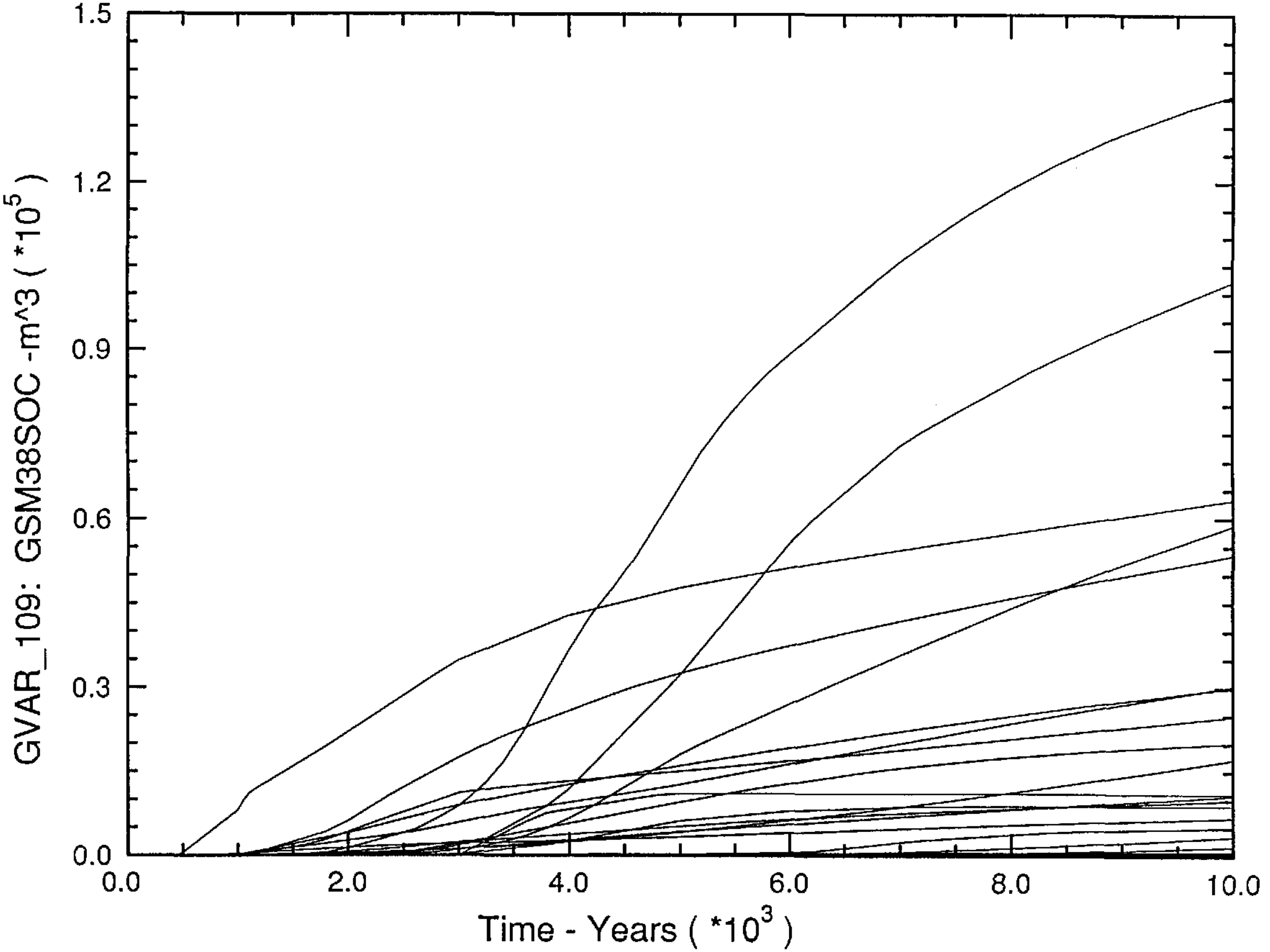
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H108.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:26:32

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Gas Flow from DRZ into South MB 138

Fig. A.1-34



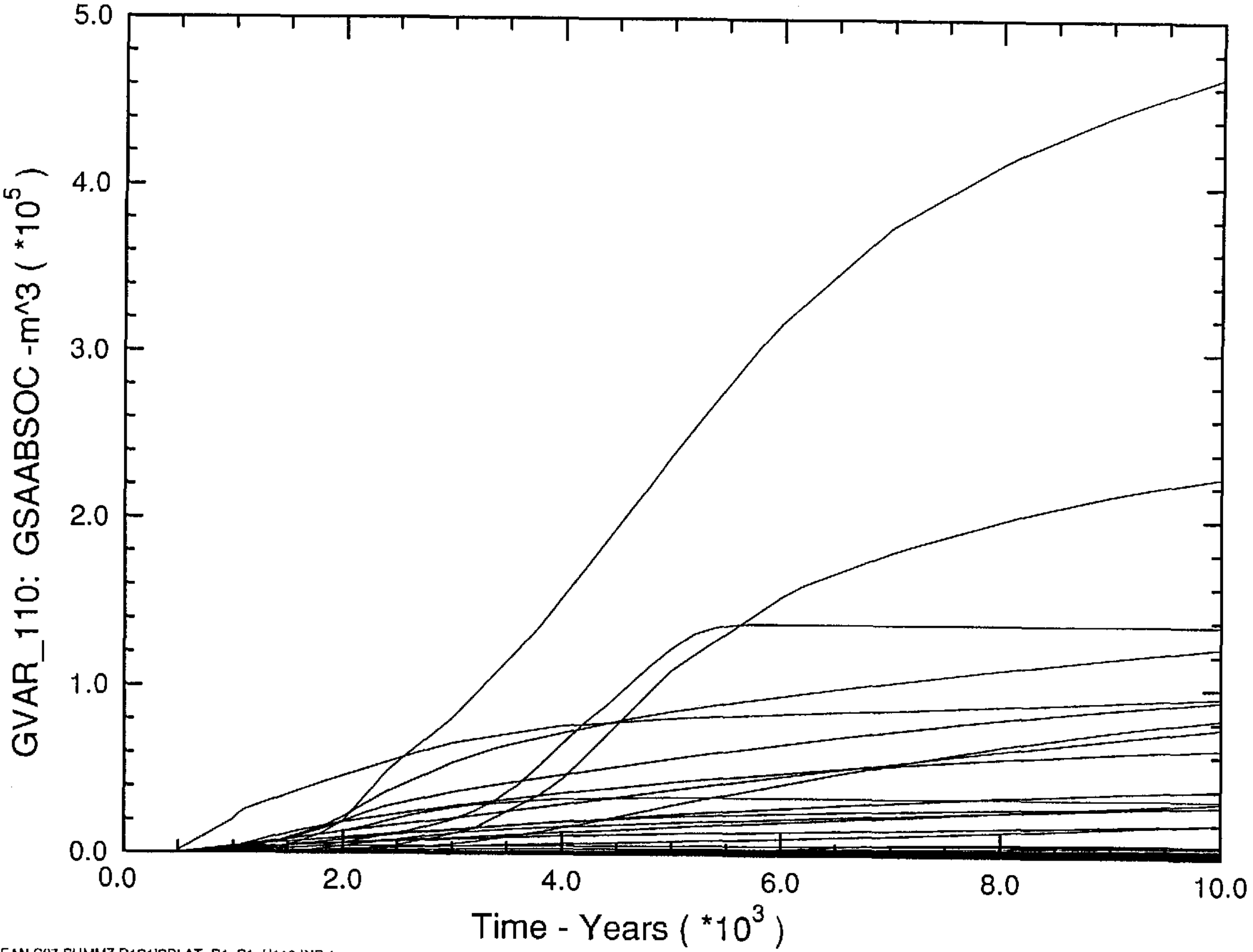
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H109.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:30:22

Fig A.1-35

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S1)

Cumulative Gas Flow from DRZ into South Anhydrite A/B



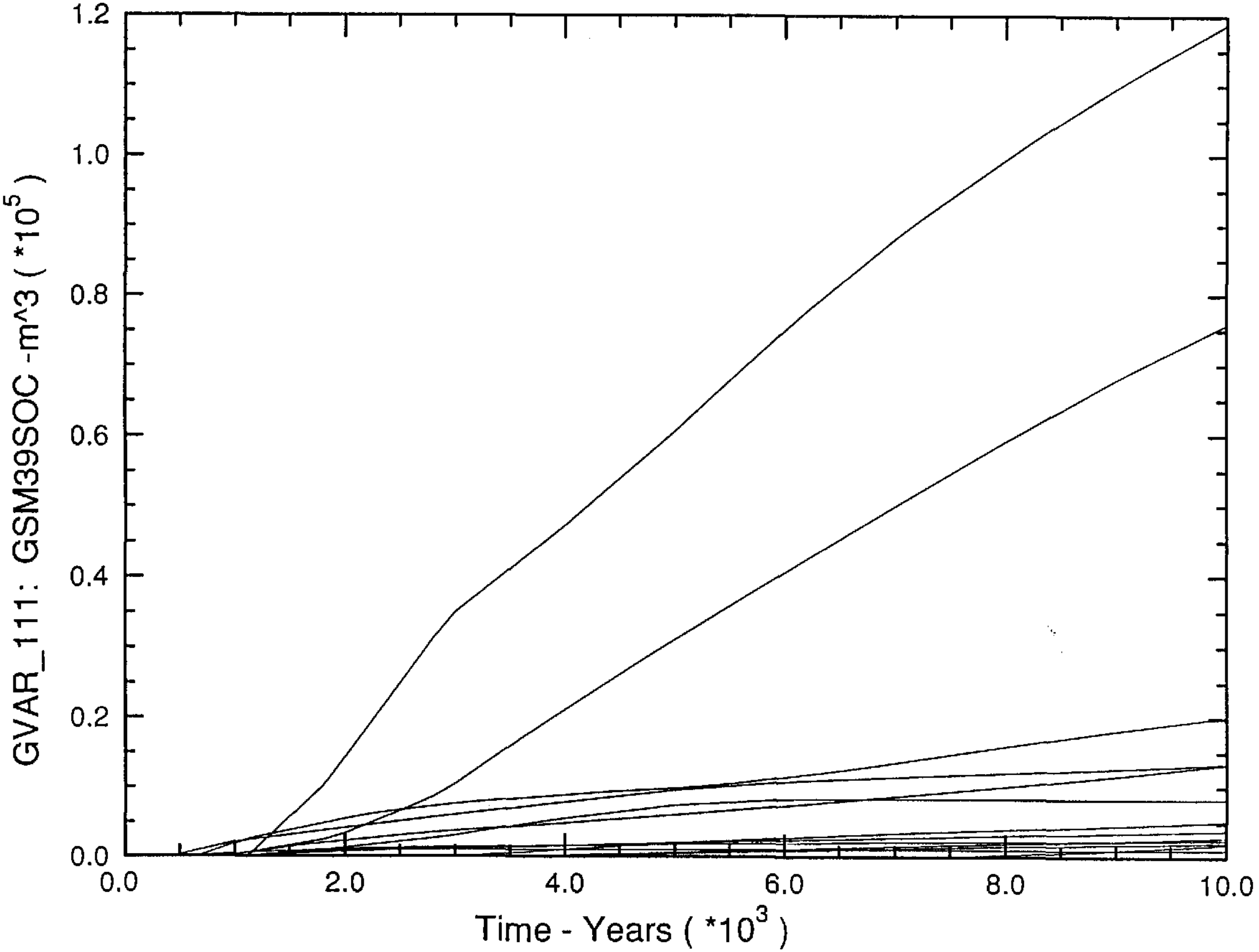
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H110.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:34:13

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Gas Flow from DRZ into South MB 139

Fig. A.1-36



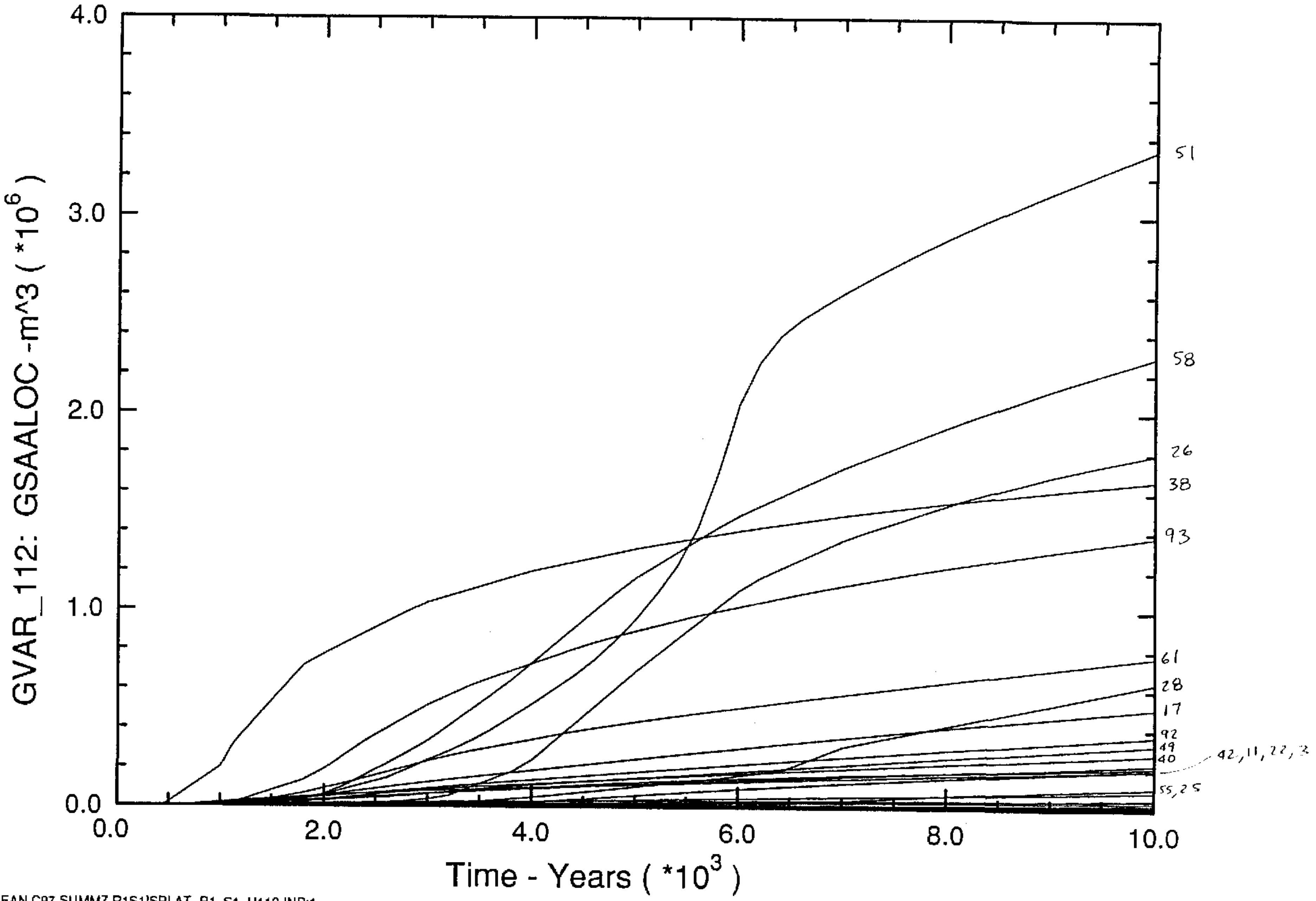
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H111.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:37:59

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Gas Flow from DRZ into Marker Beds

Fig. A.1-37



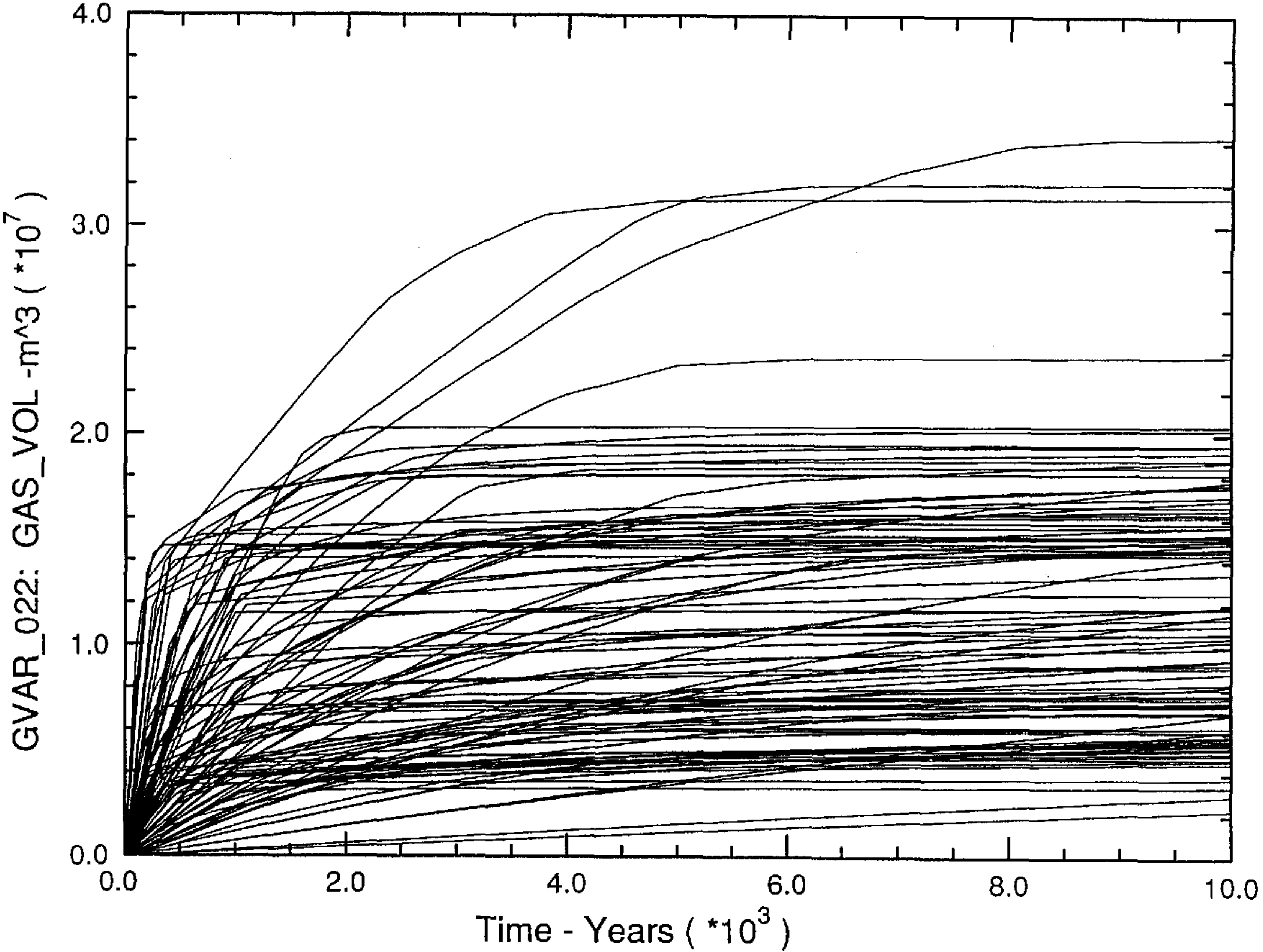
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H112.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:41:42

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S1)

Total Gas Volume Generated

Fig. A.1-38



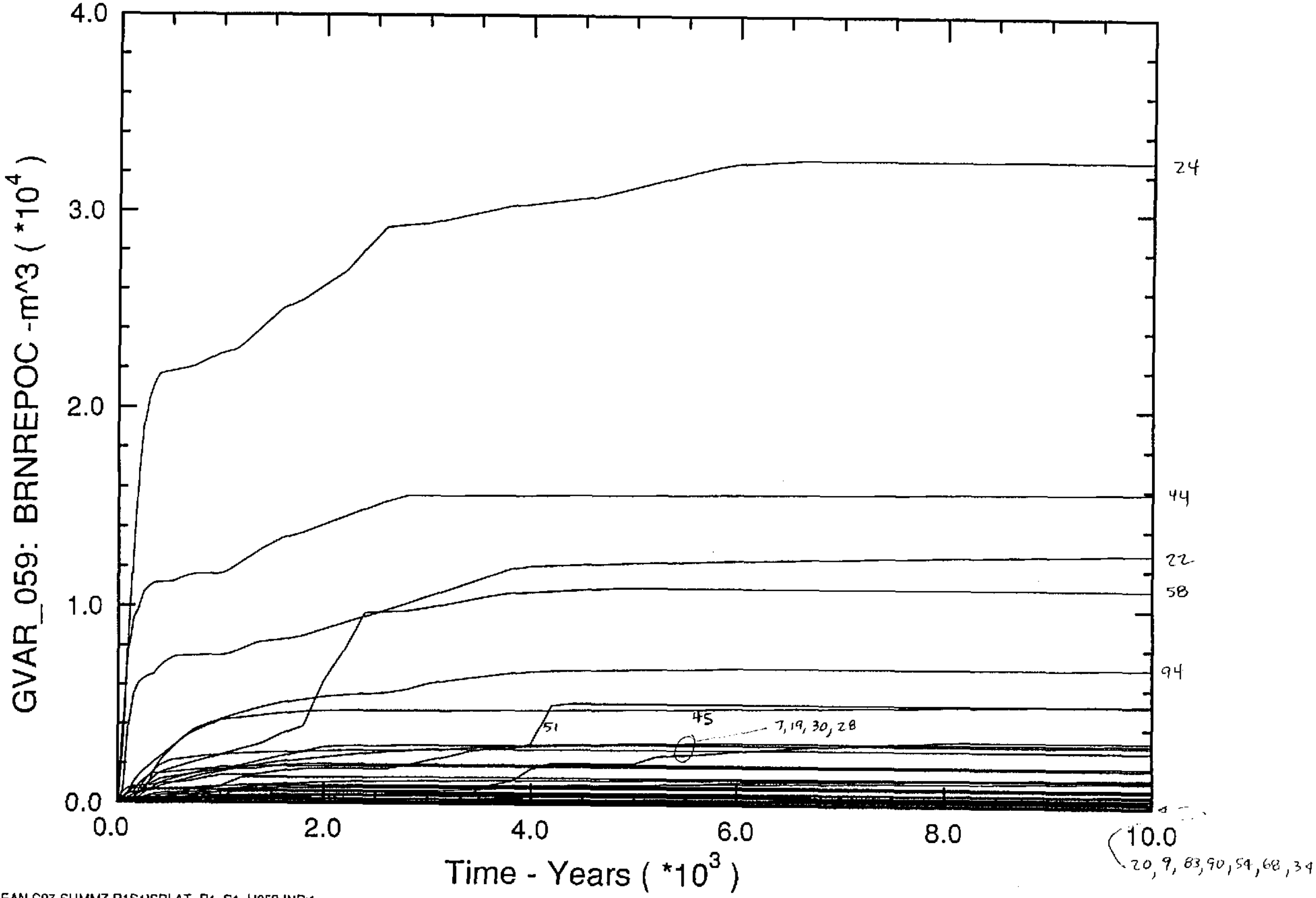
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H022.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:06:46

Fig. A.1-39

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow Out of Repository



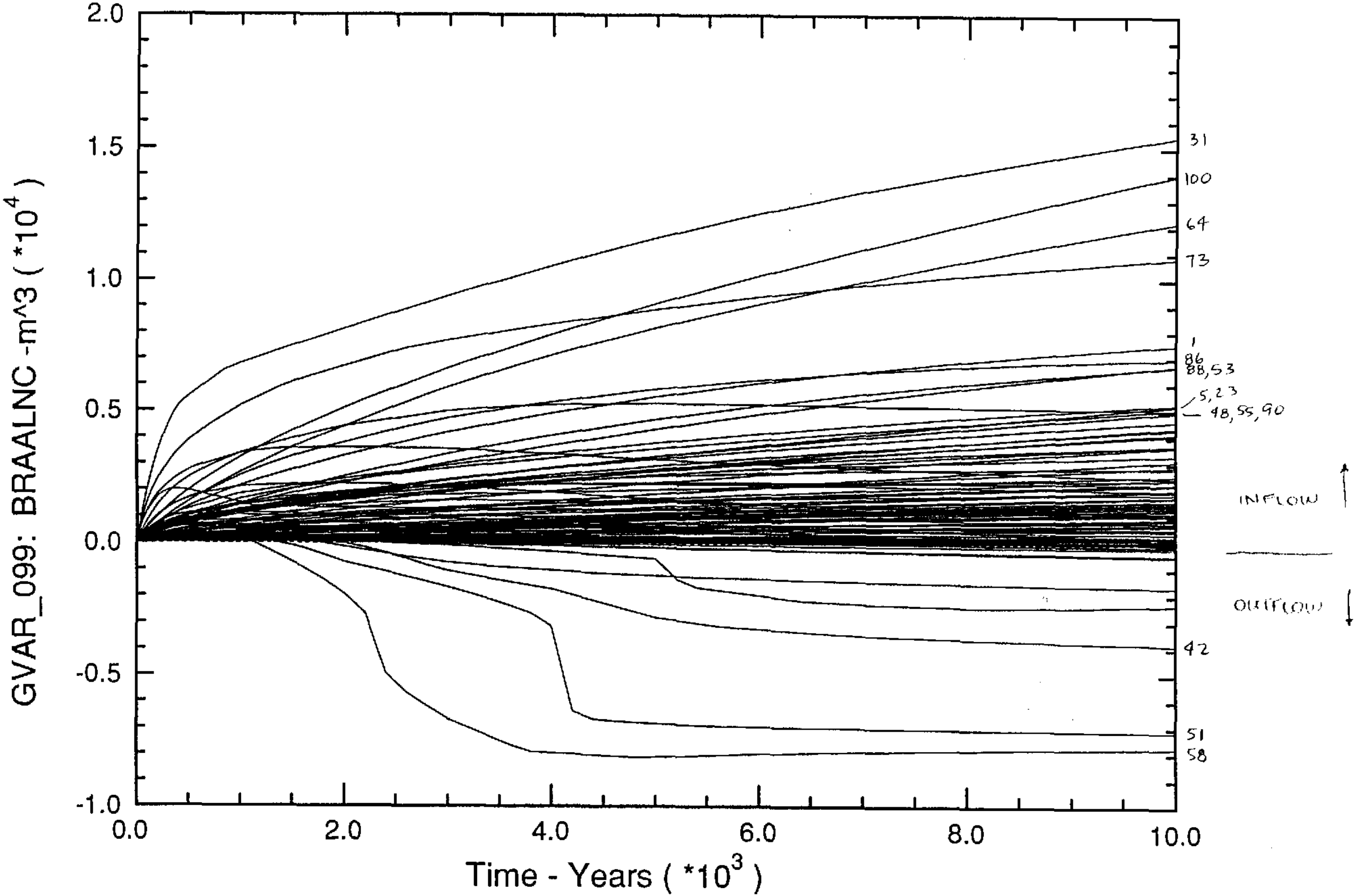
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H059.INP;1

05/27/97 11:23:48

Fig. A.1-40

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S1)

Net Brine Flow into DRZ from All Marker Beds



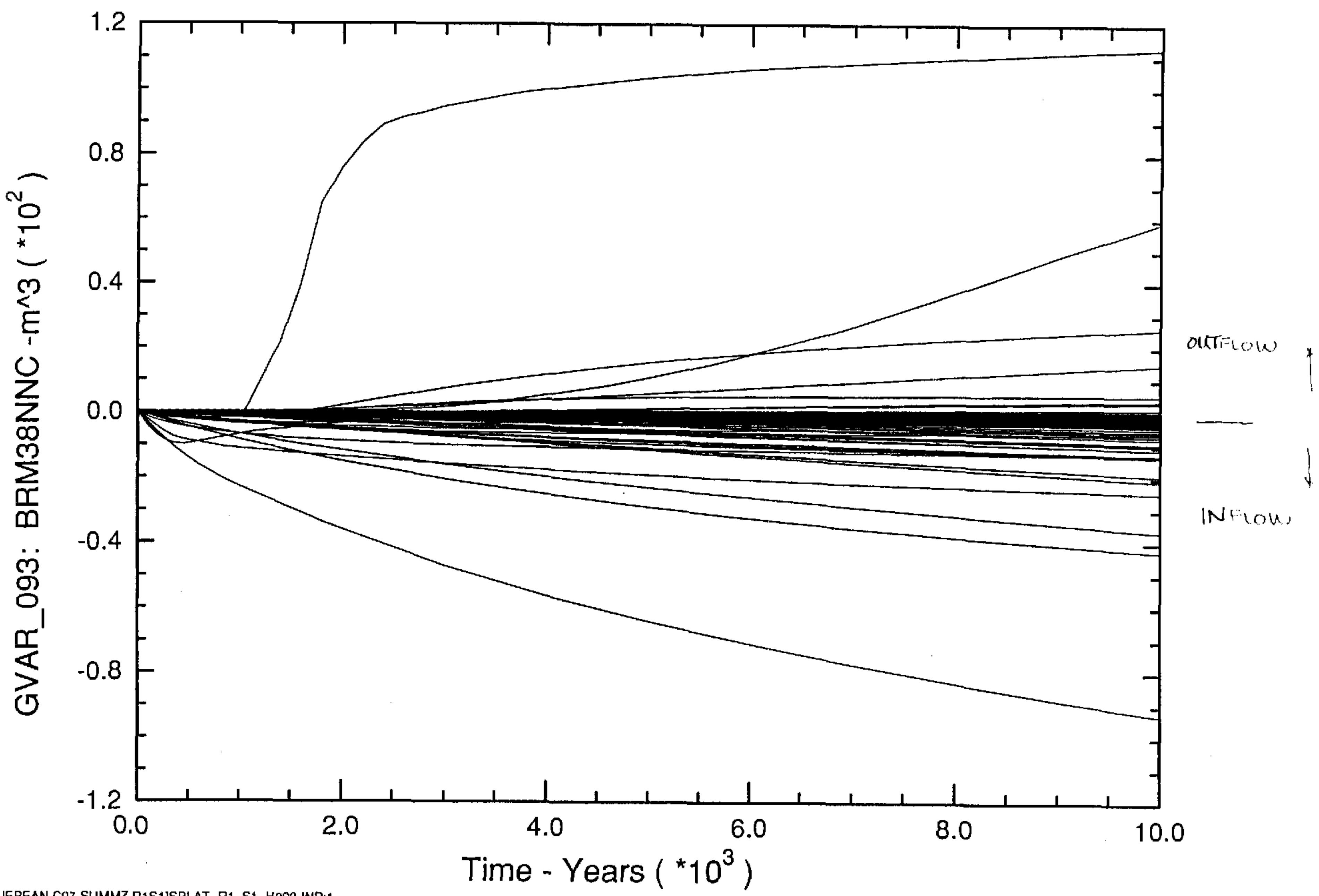
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H099.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:53:59

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Net Brine Flow at North MB 138

Fig. A.1-41



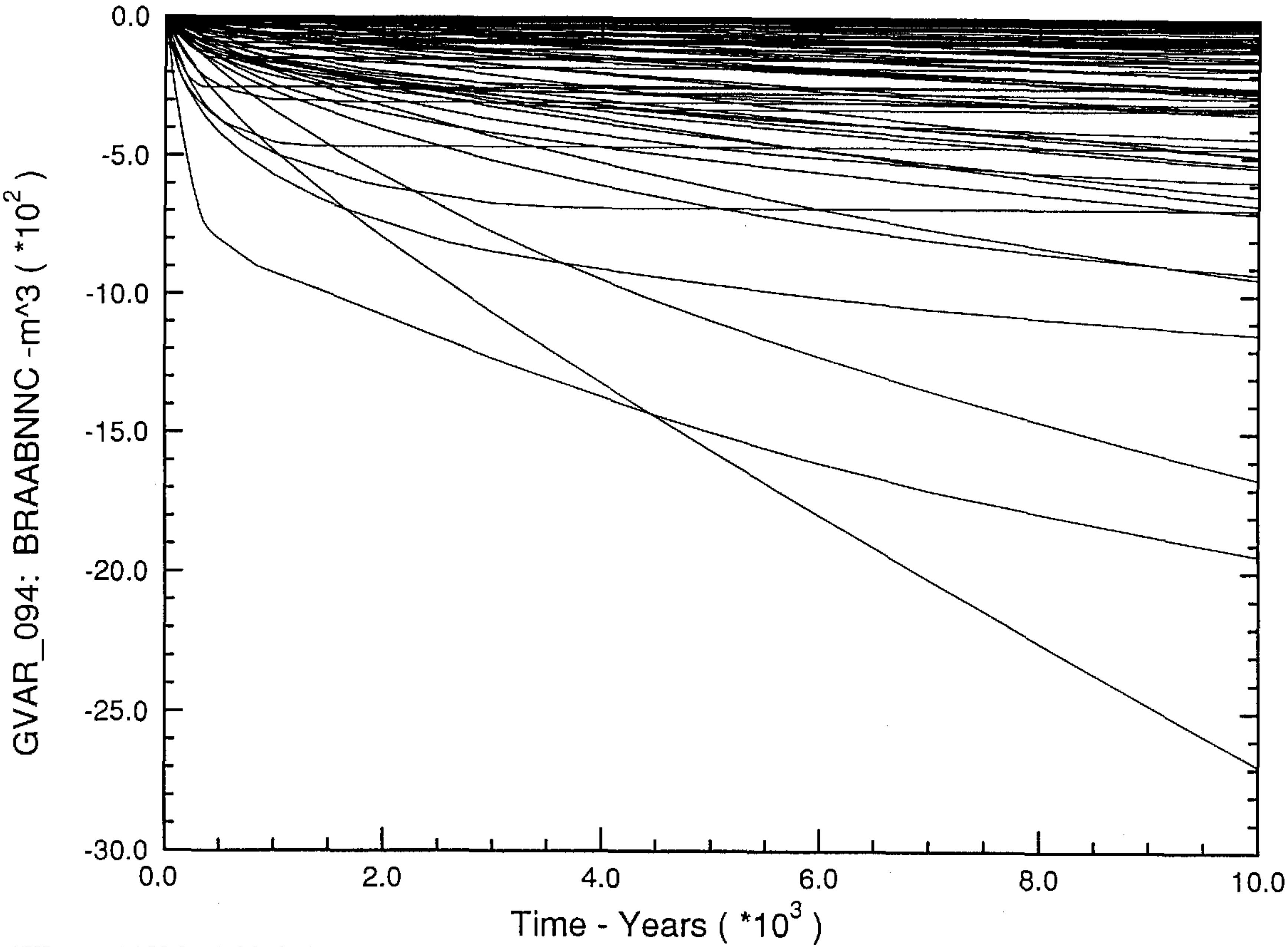
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H093.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:31:11

Fig. A.1-42

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Net Brine Flow at North Anhydrite A/B



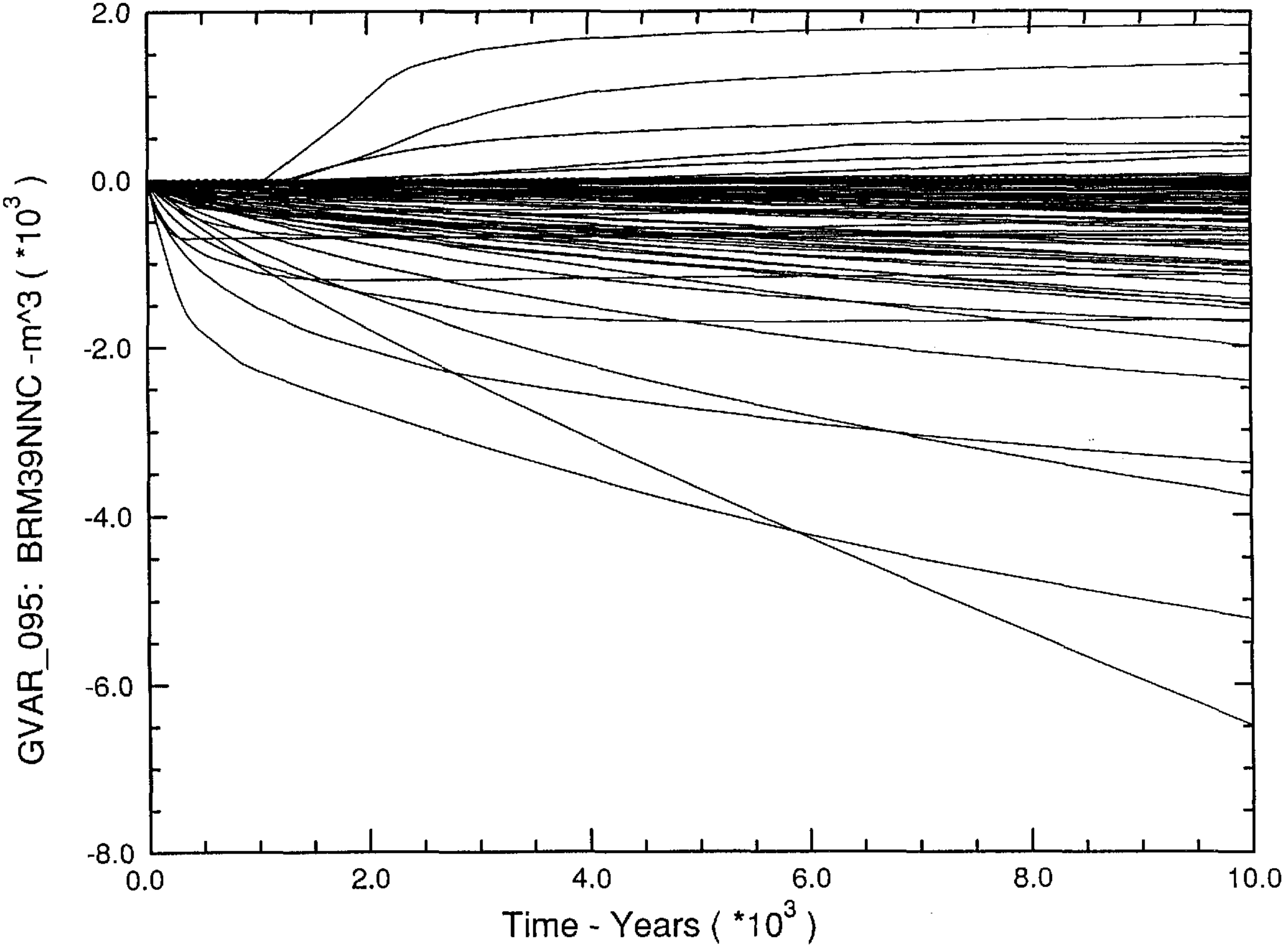
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H094.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:35:01

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S1)

Net Brine Flow at North MB 139

Fig. A.1-43



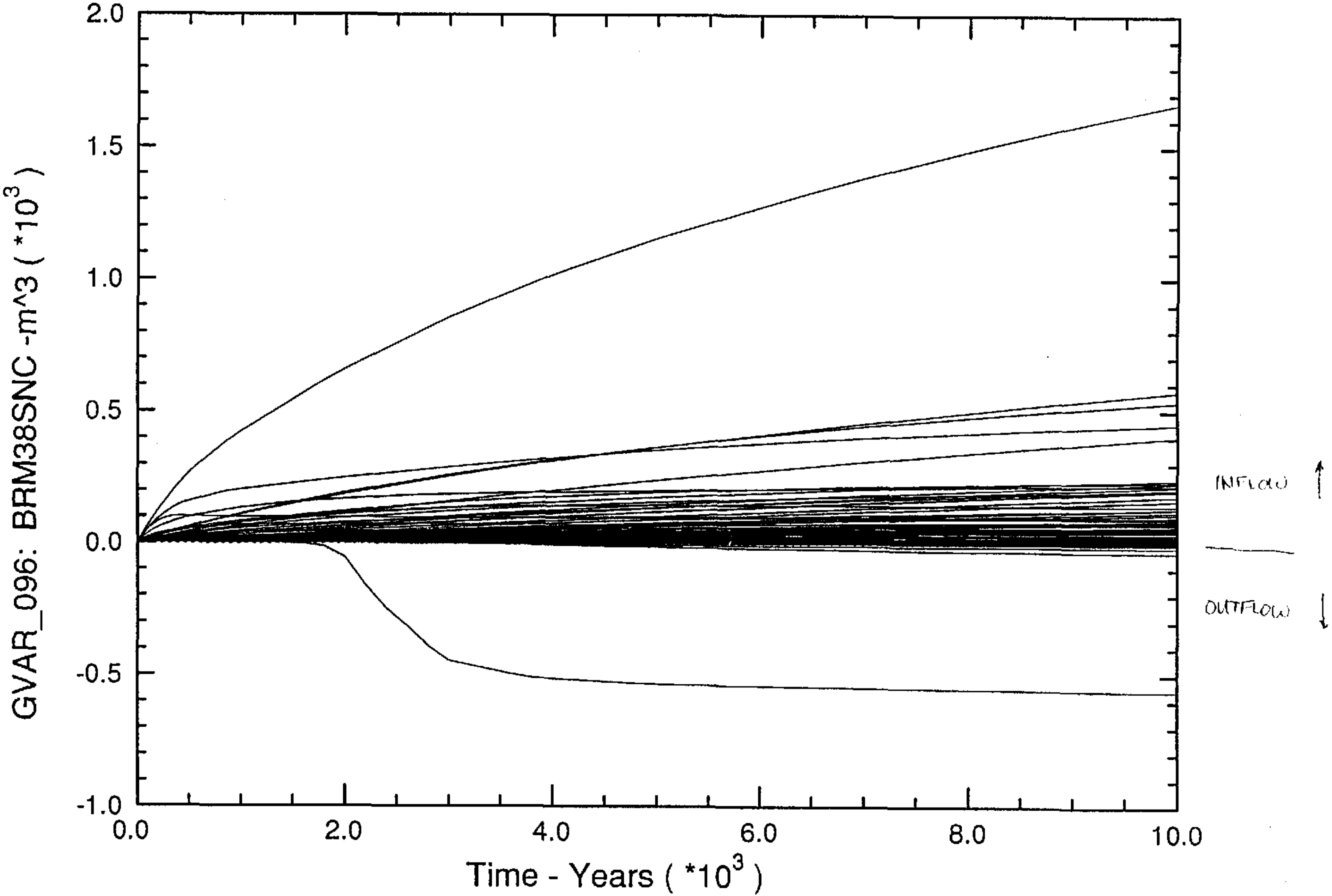
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H095.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:38:47

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S1)

Net Brine Flow at South MB 138

Fig A.1-44



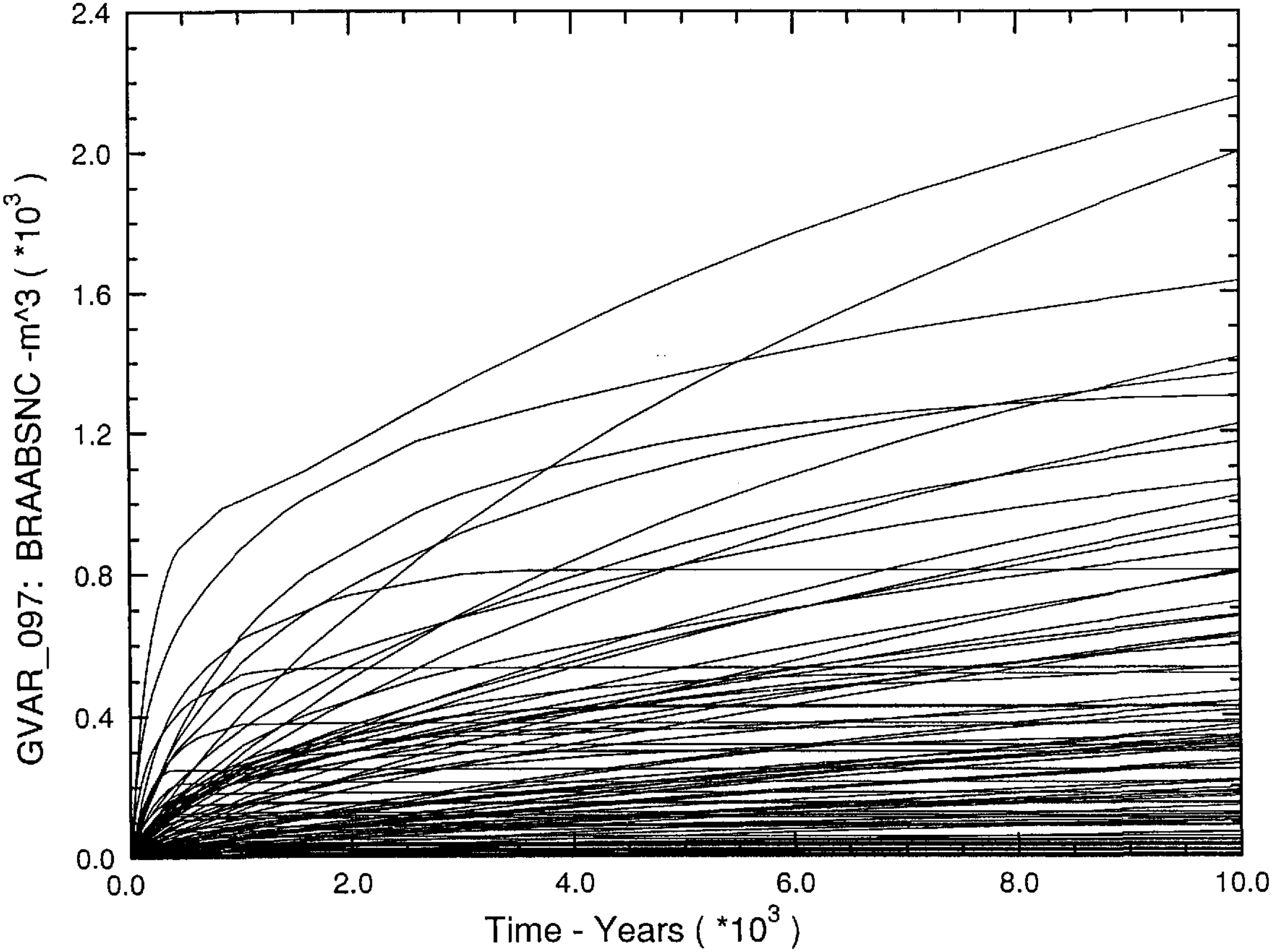
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H096.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:42:33

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Net Brine Flow at South Anhydrite A/B

Fig A.1-45



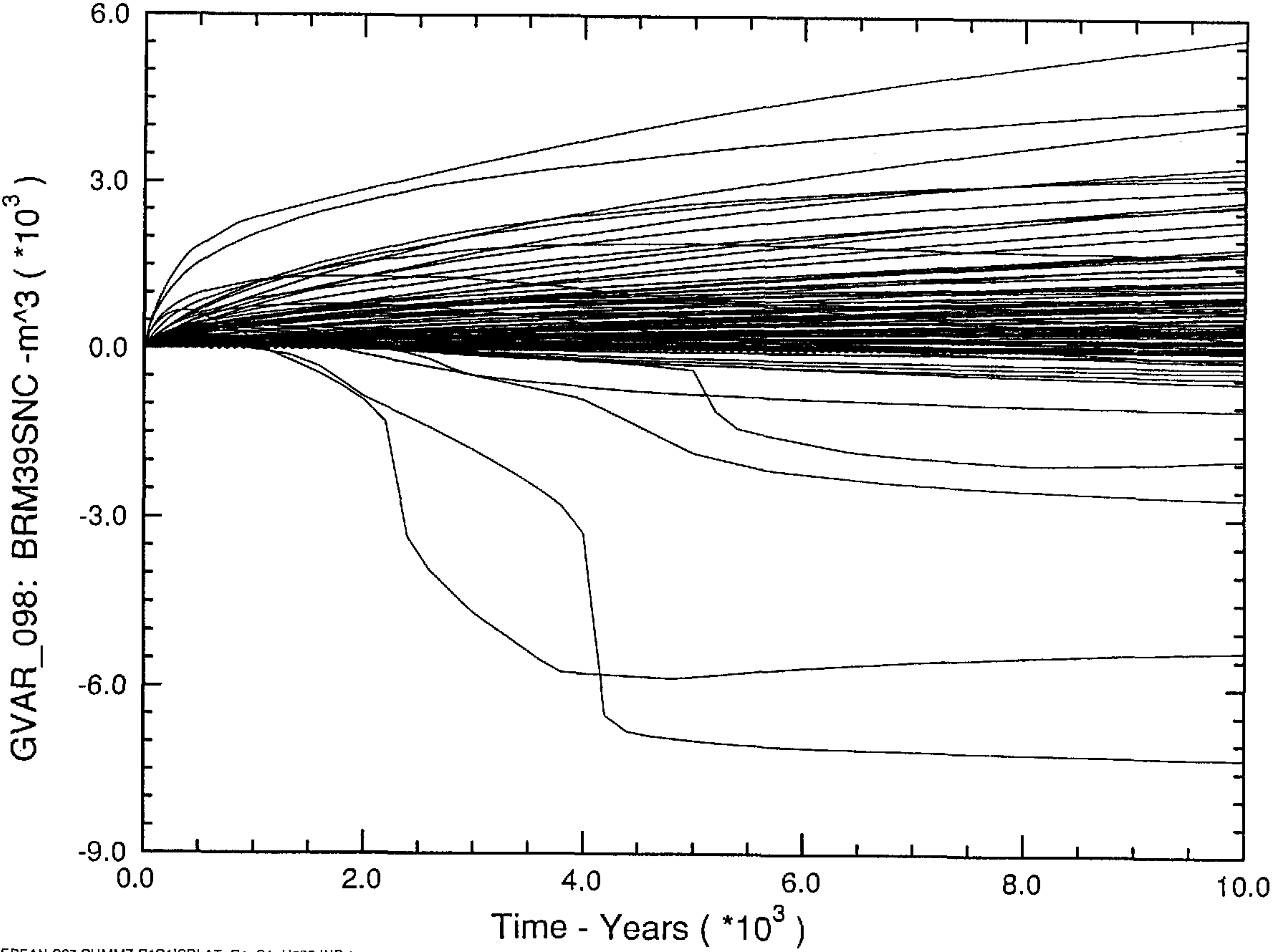
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H097.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:46:16

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Net Brine Flow at South MB 139

Fig. A.1-46



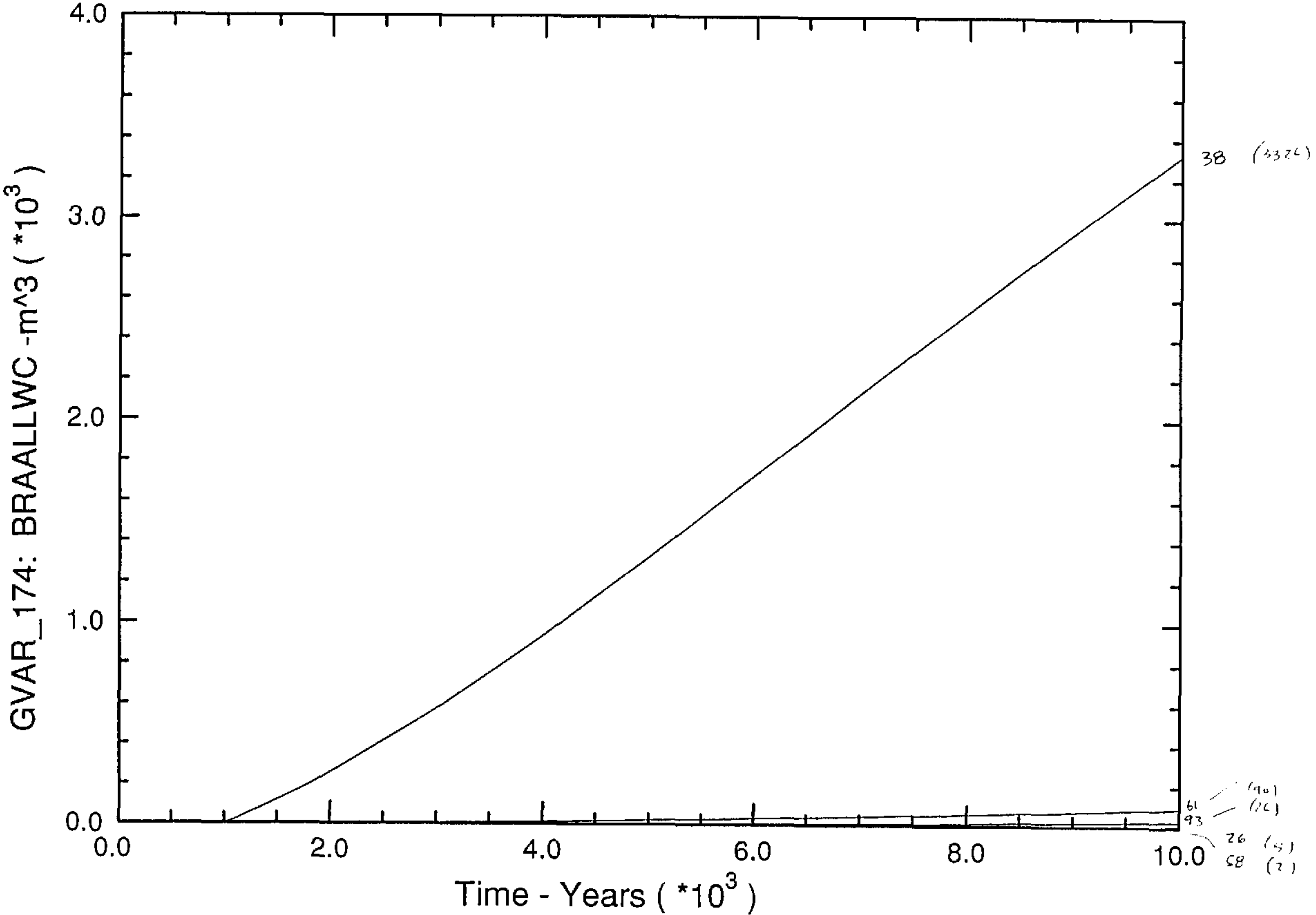
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H098.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:50:03

Fig. A.1-47

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow Out of All Marker Beds Across Land-Withdrawal Boundary



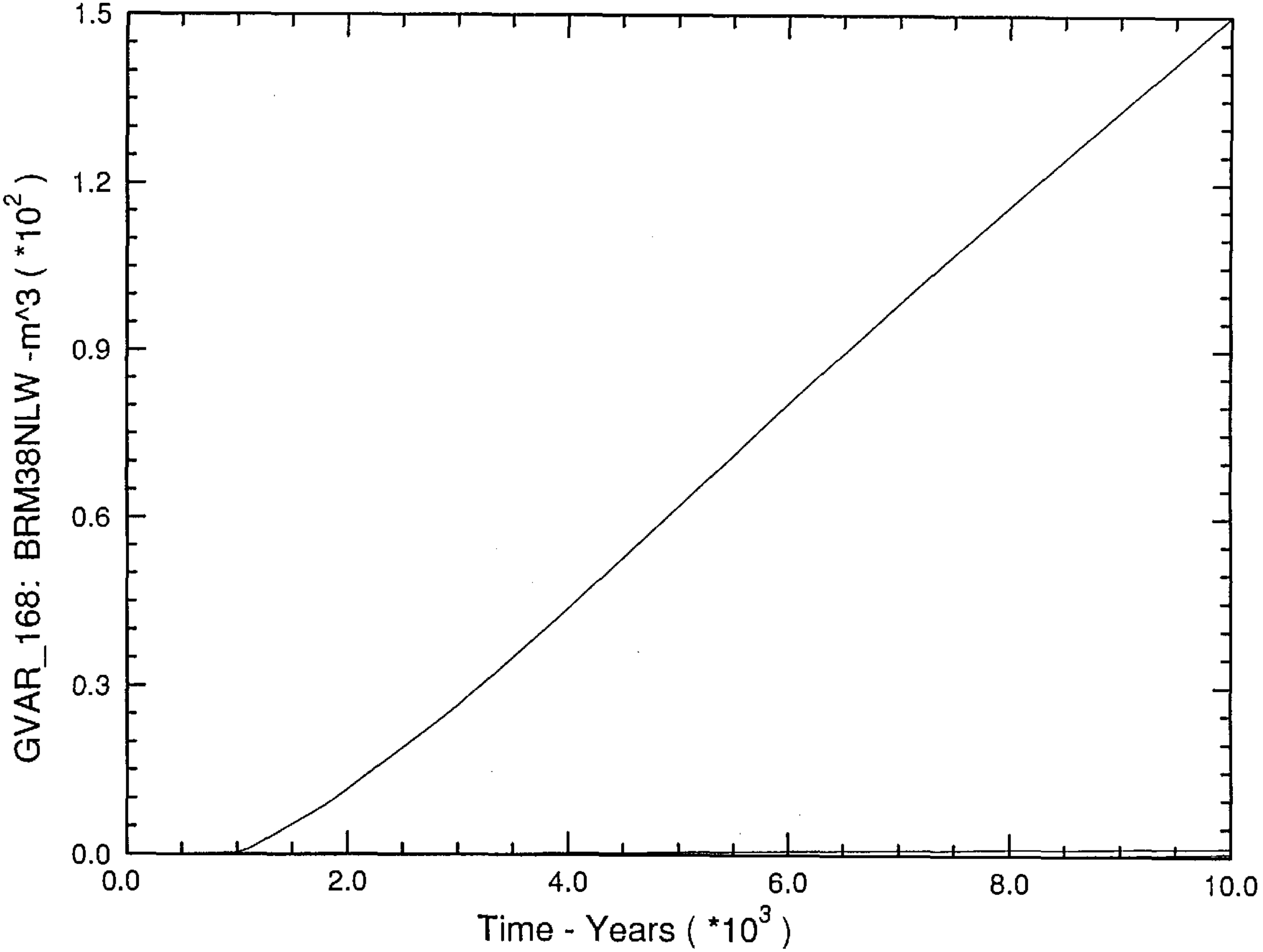
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H174.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:43:34

Fig. A.1-48

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow Out North MB 138 Across Land-Withdrawal Boundary



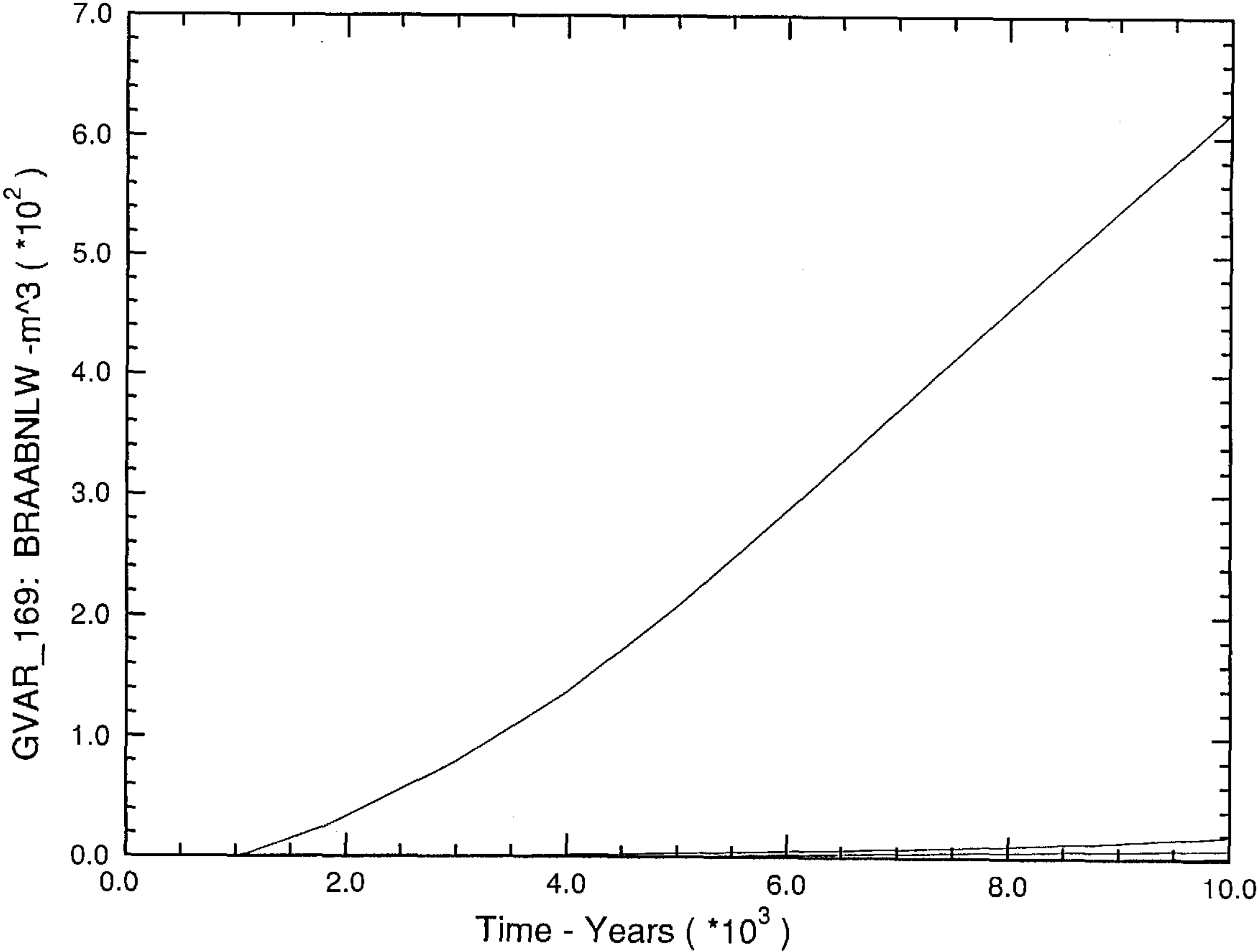
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H168.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:23:57

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow Out North Anhydrite A/B Across Land-Withdrawal Boundary

Fig. A.1-49



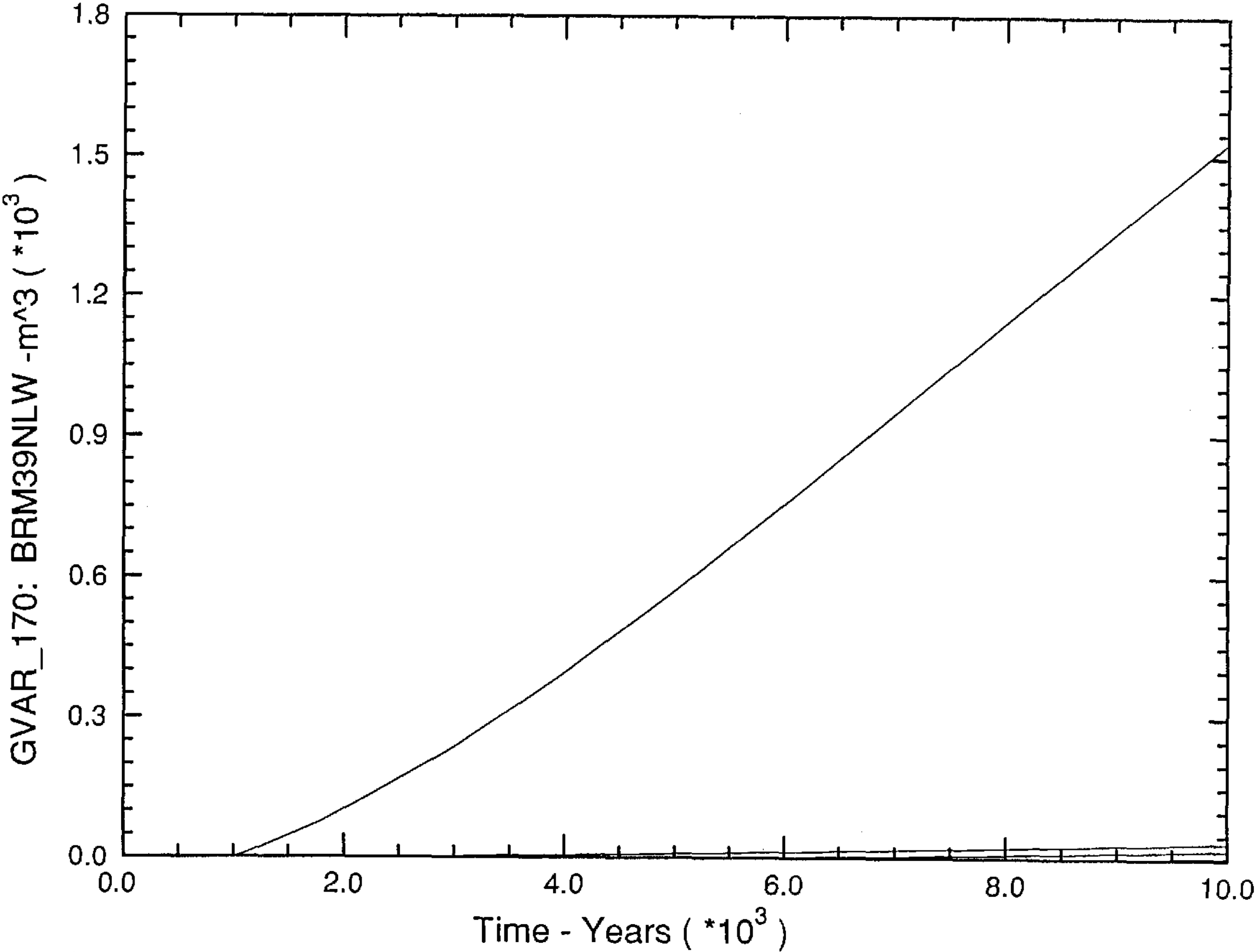
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H169.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:27:07

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow Out North MB 139 Across Land-Withdrawal Boundary

Fig. A.1-50



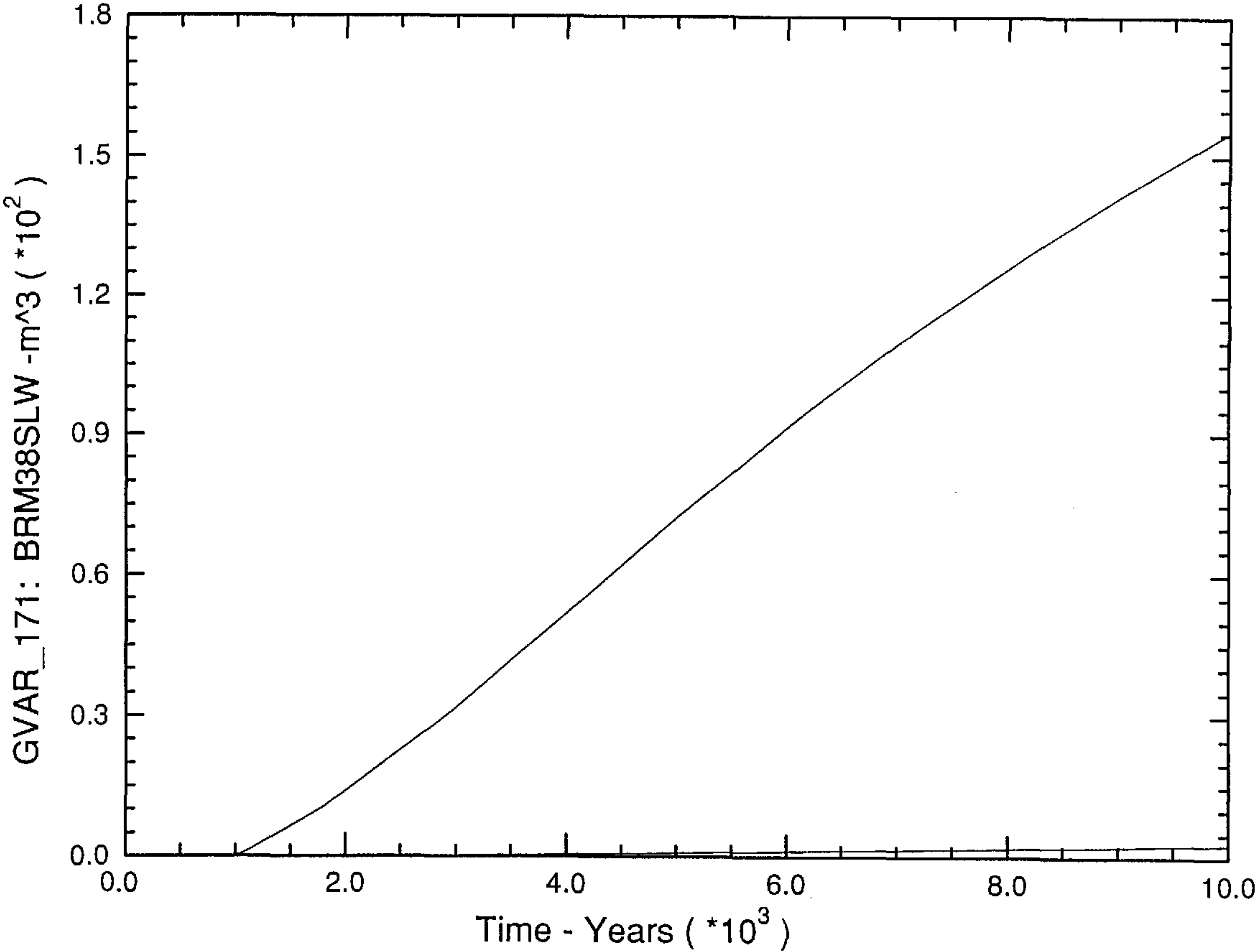
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H170.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:30:22

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow Out South MB 138 Across Land-Withdrawal Boundary

Fig A.1-51



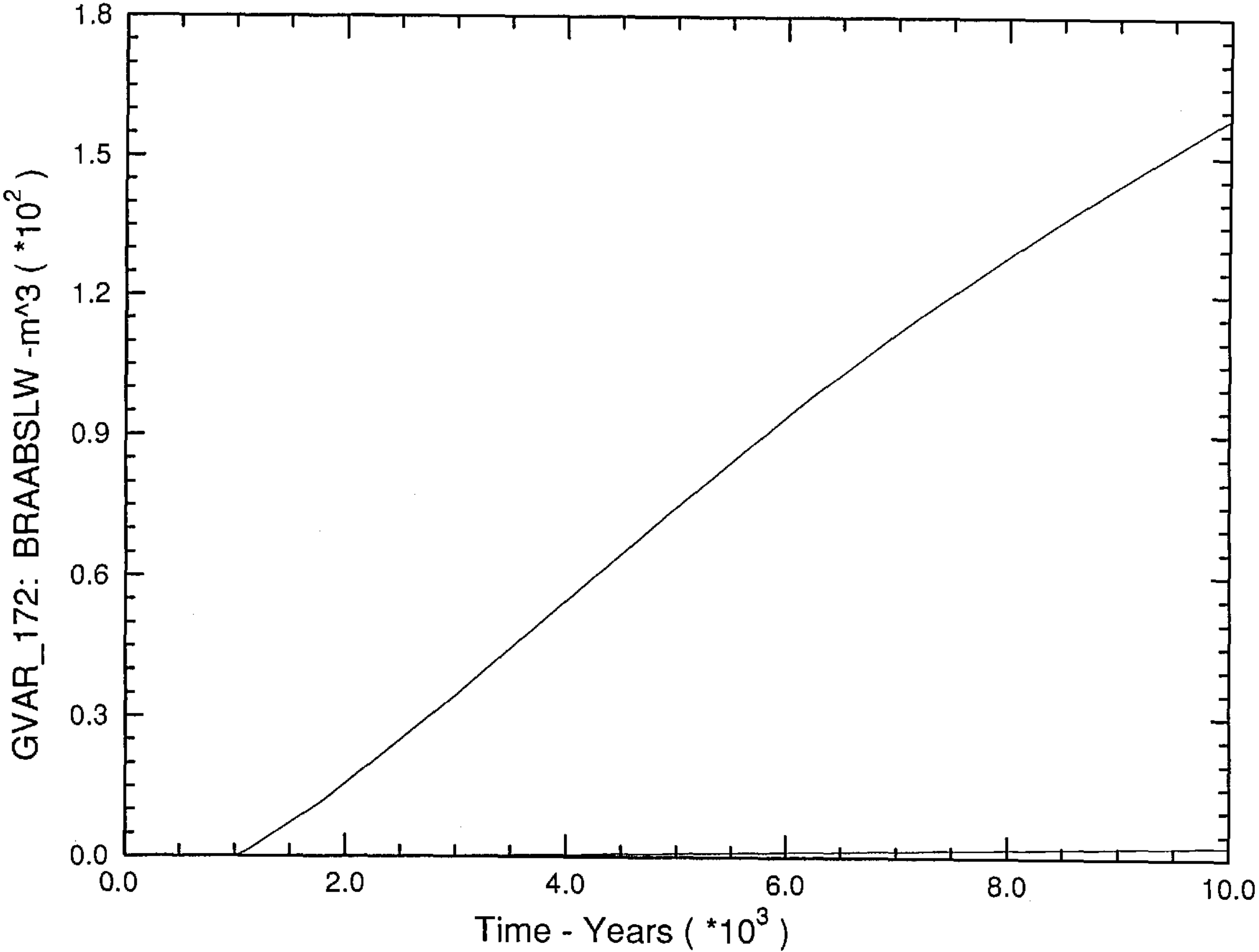
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H171.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:33:37

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Cumulative Brine Flow Out South Anhydrite A/B Across Land-Withdrawal Boundary

Fig. A.1-52



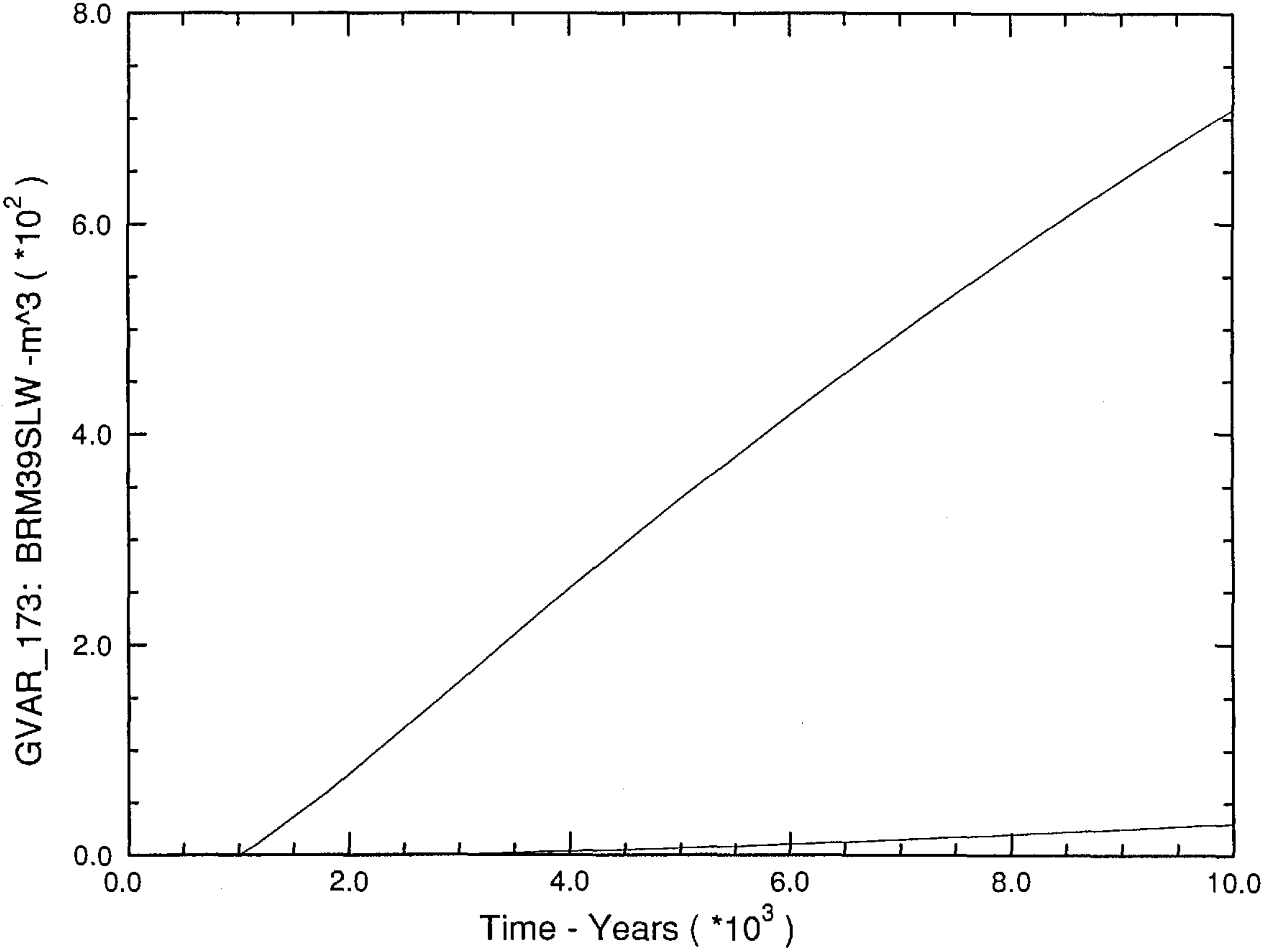
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H172.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:36:52

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S1)

Cumulative Brine Flow Out South MB 139 Across Land-Withdrawal Boundary

Fig. A.1-53



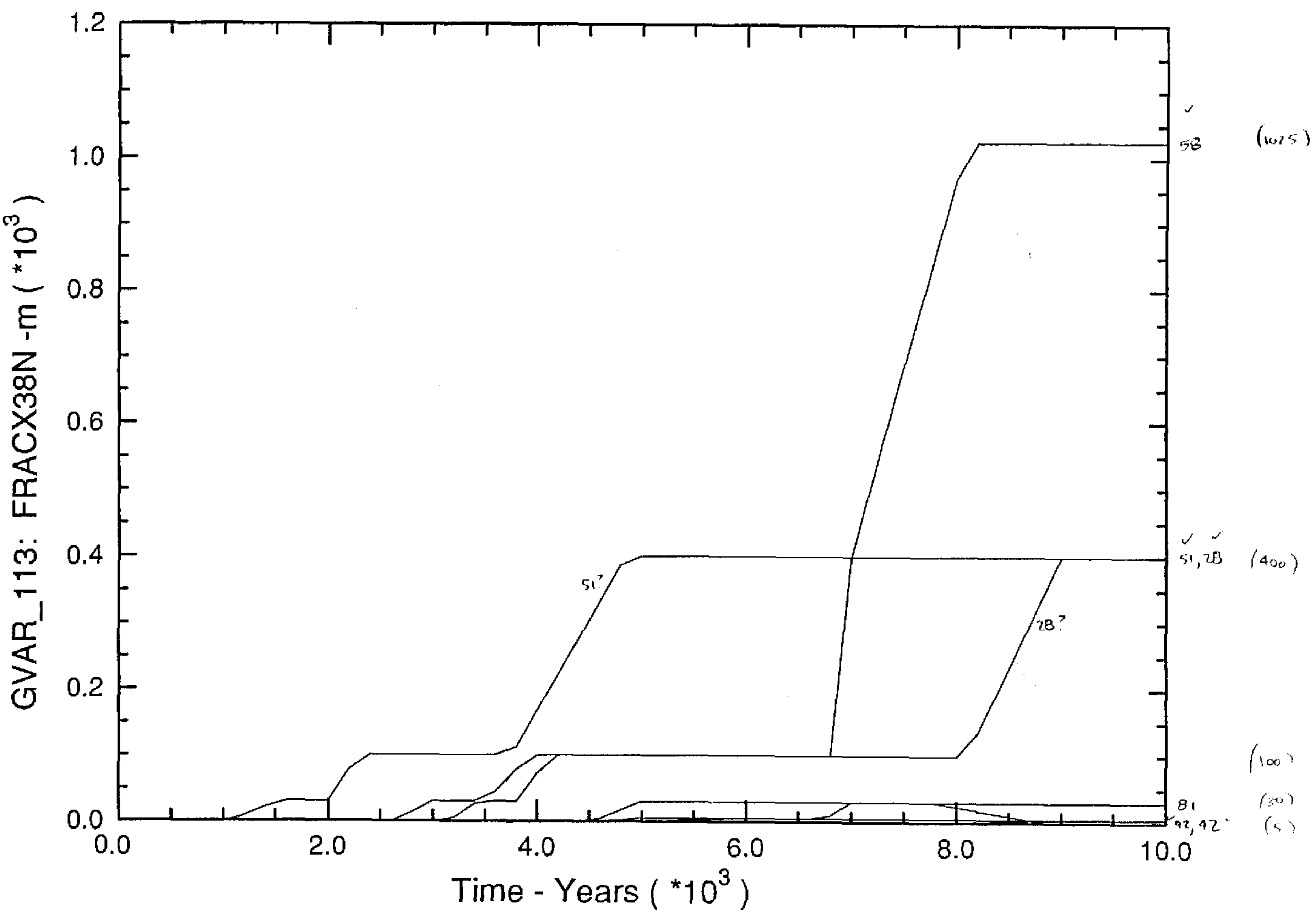
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H173.INP;1

SPLAT_PA90_2 1.02 05/28/97 11:40:09

Fig. A.1-54

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Length of Fractured Zone in North MB 138



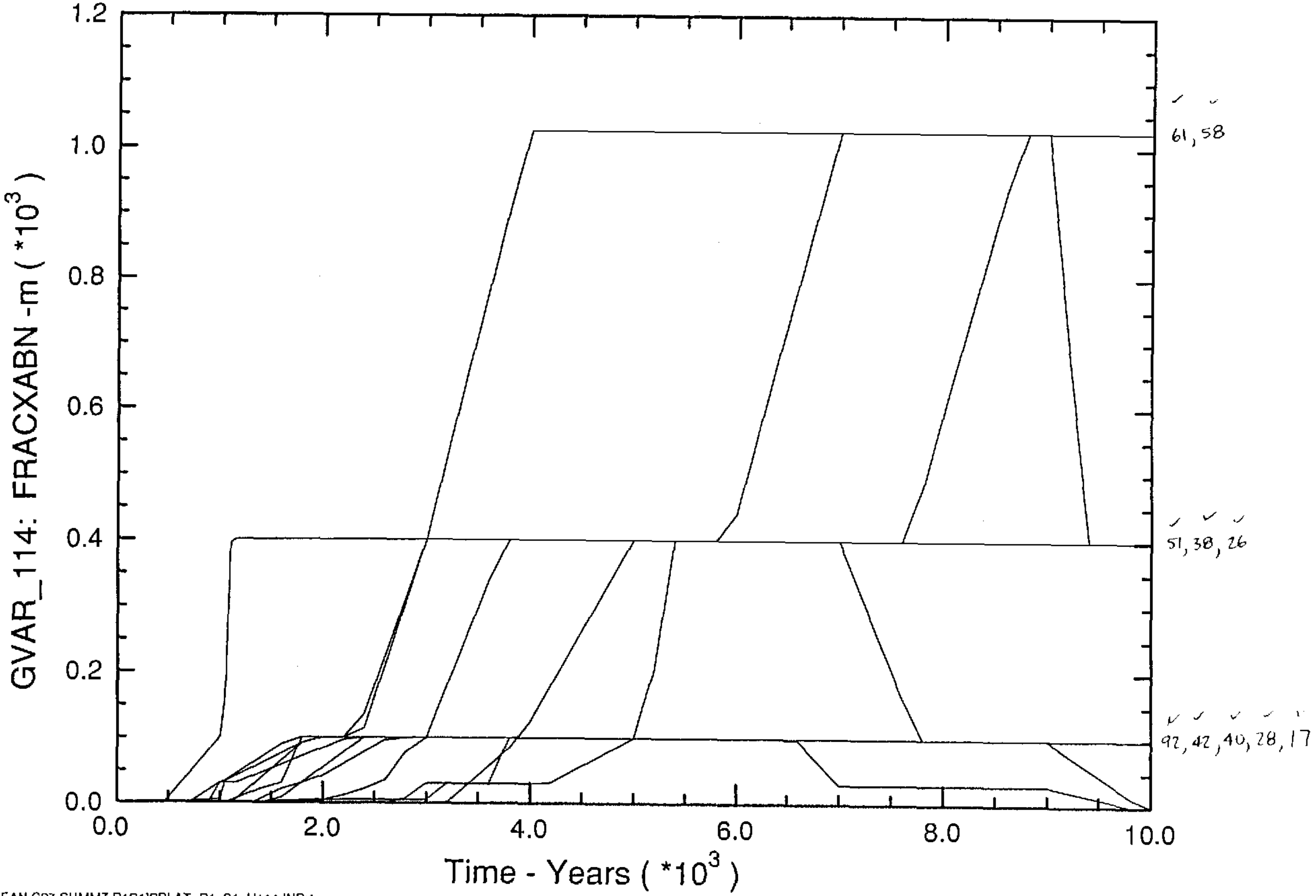
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H113.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:45:20

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Length of Fractured Zone in North Anhydrite A/B

Fig. A.1-55



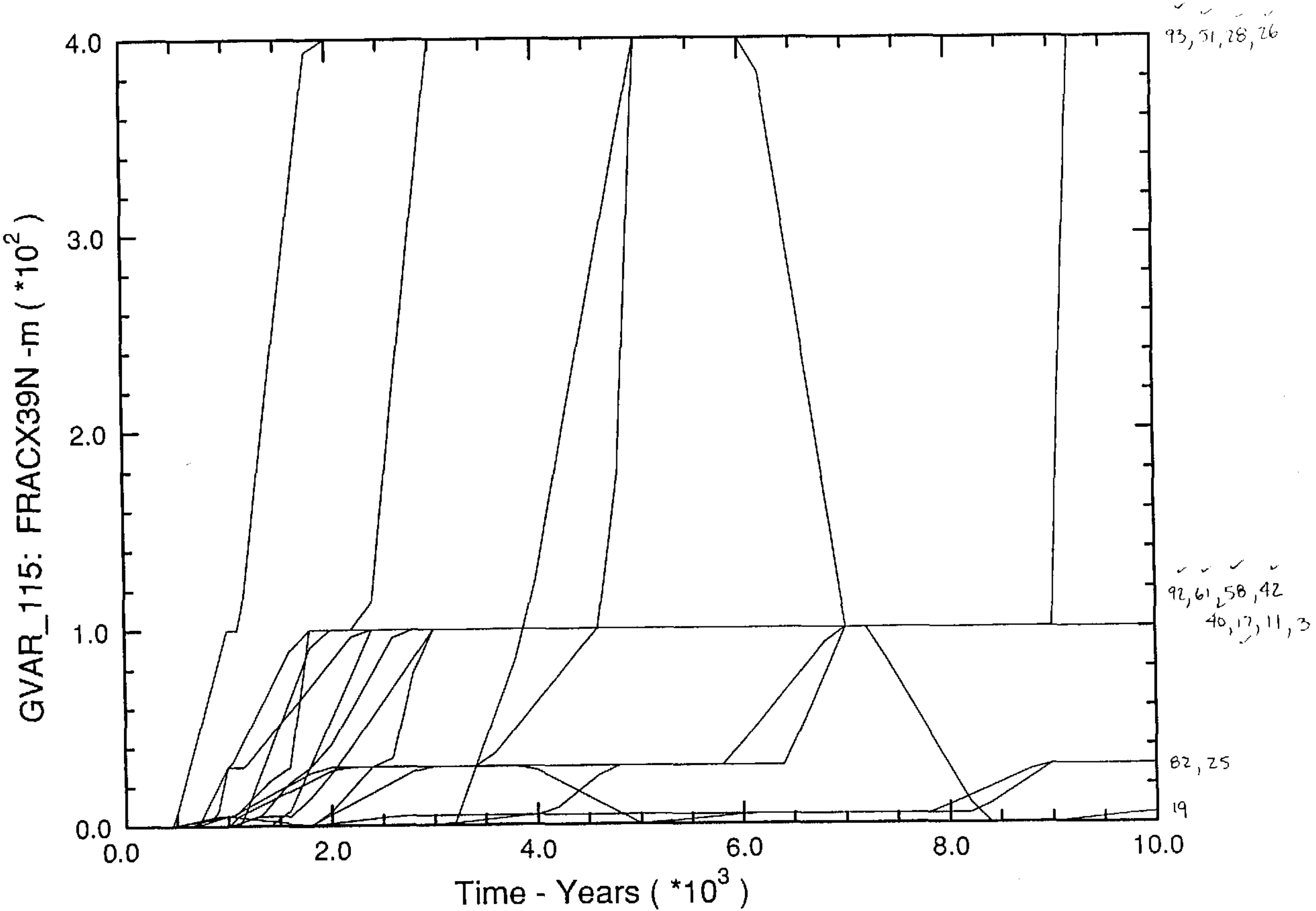
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H114.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:49:00

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Length of Fractured Zone in North MB 139

Fig. A.1-56



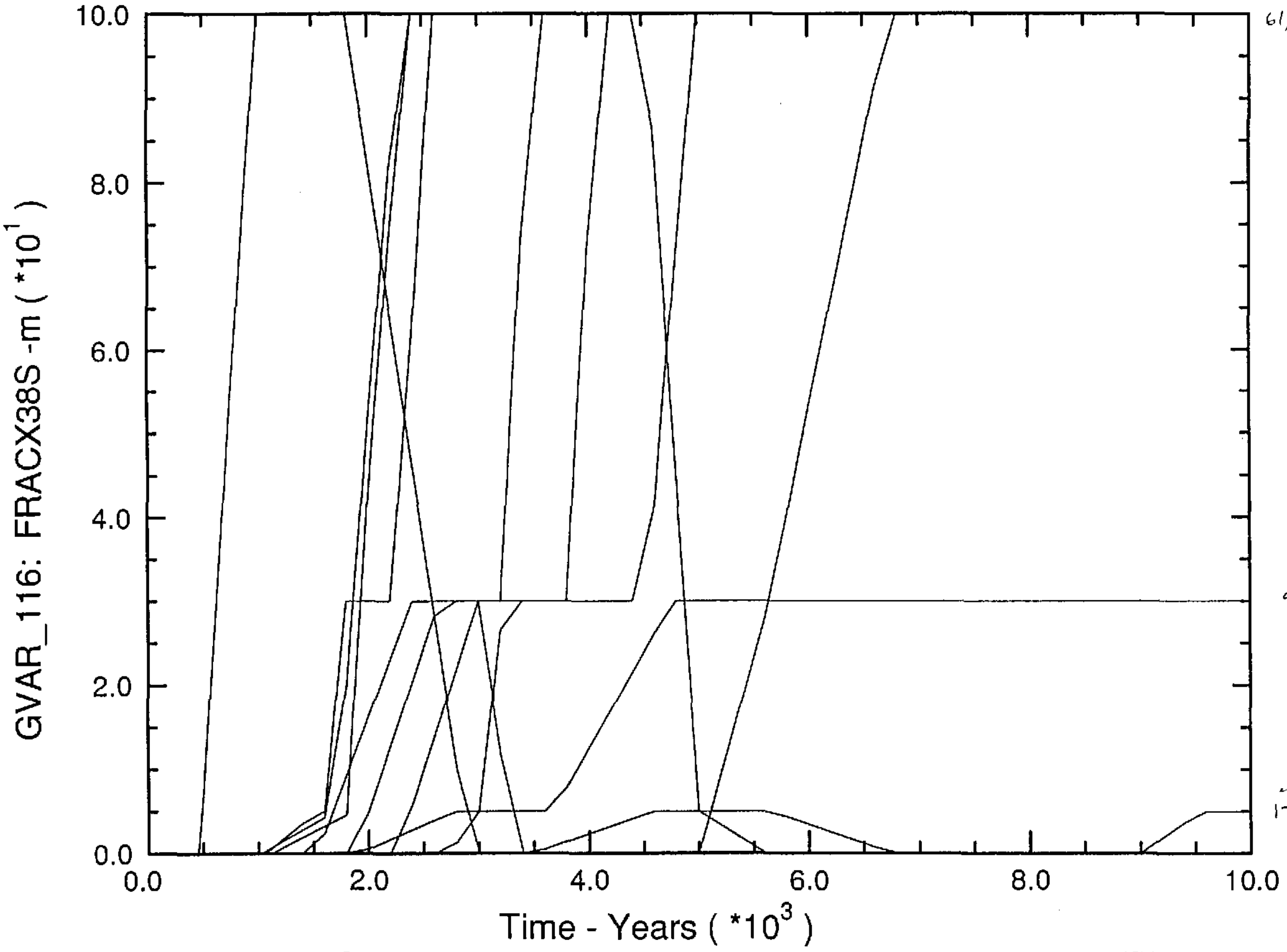
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H115.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:52:24

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S1)

Length of Fractured Zone in South MB 138

Fig. A.1-57



61, 58, 51, 42, 40, 78

92

17

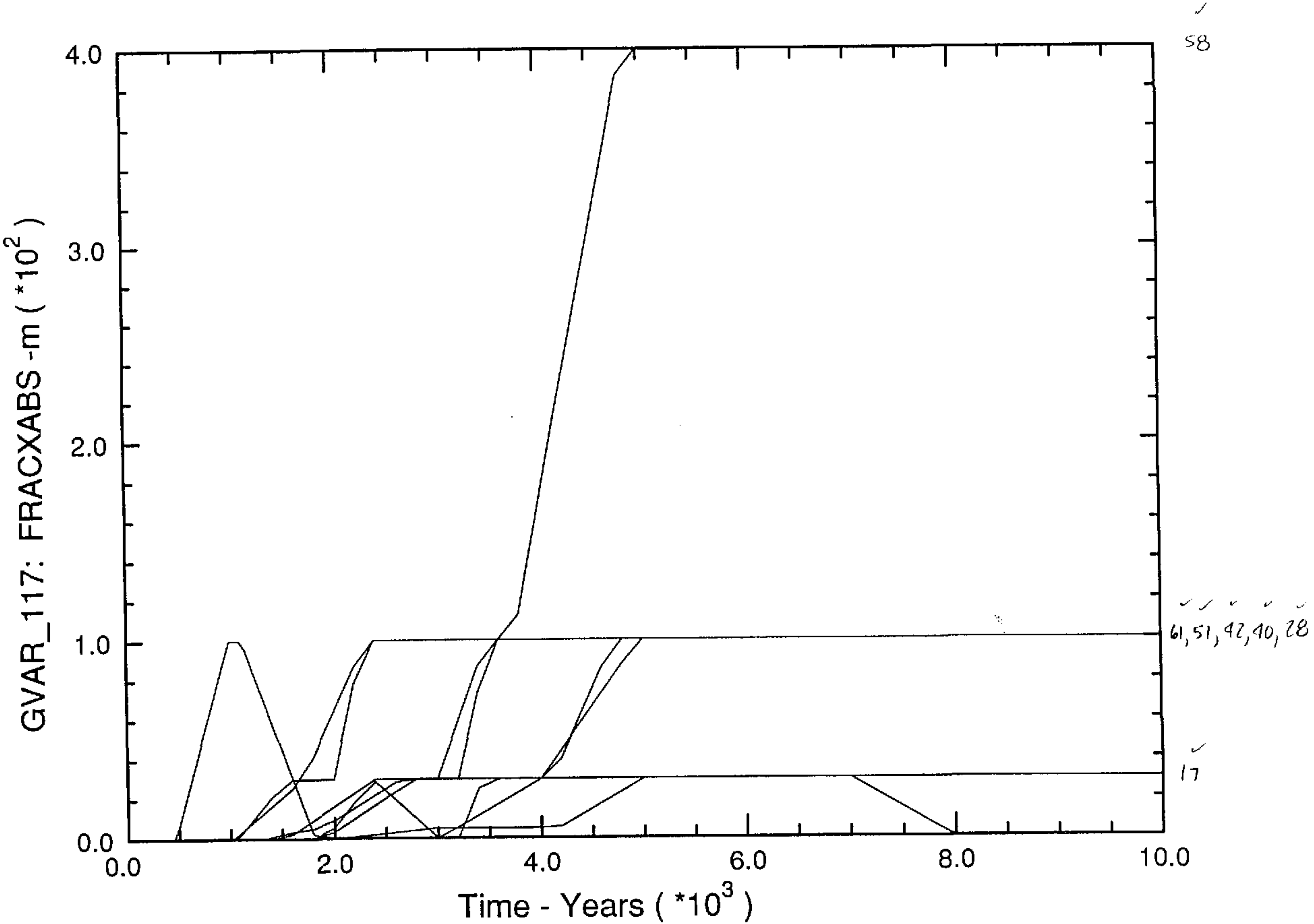
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H116.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:56:06

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Length of Fractured Zone in South Anhydrite A/B

Fig A.1-58



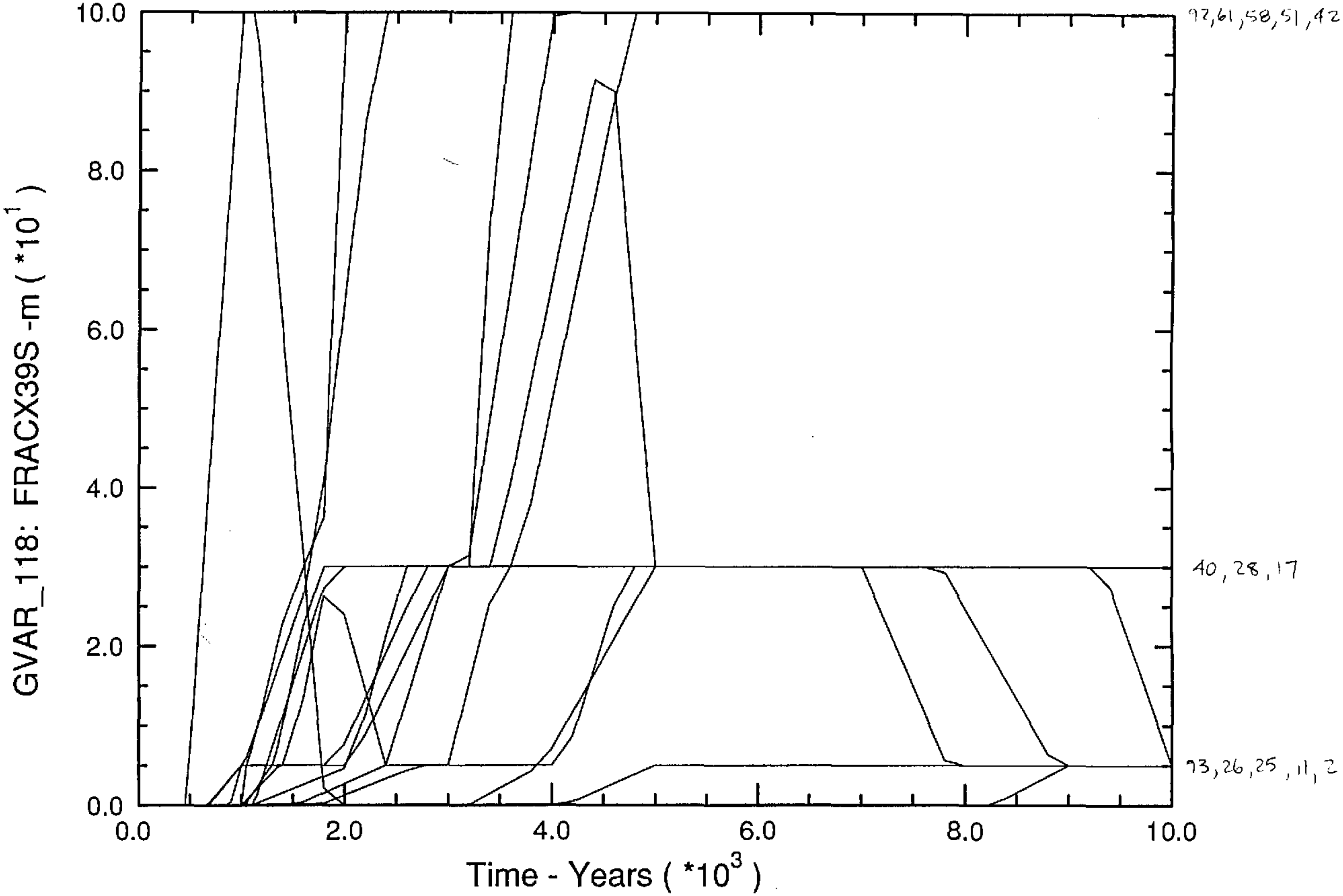
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H117.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:59:19

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S1)

Length of Fractured Zone in South MB 139

Fig A.1-59



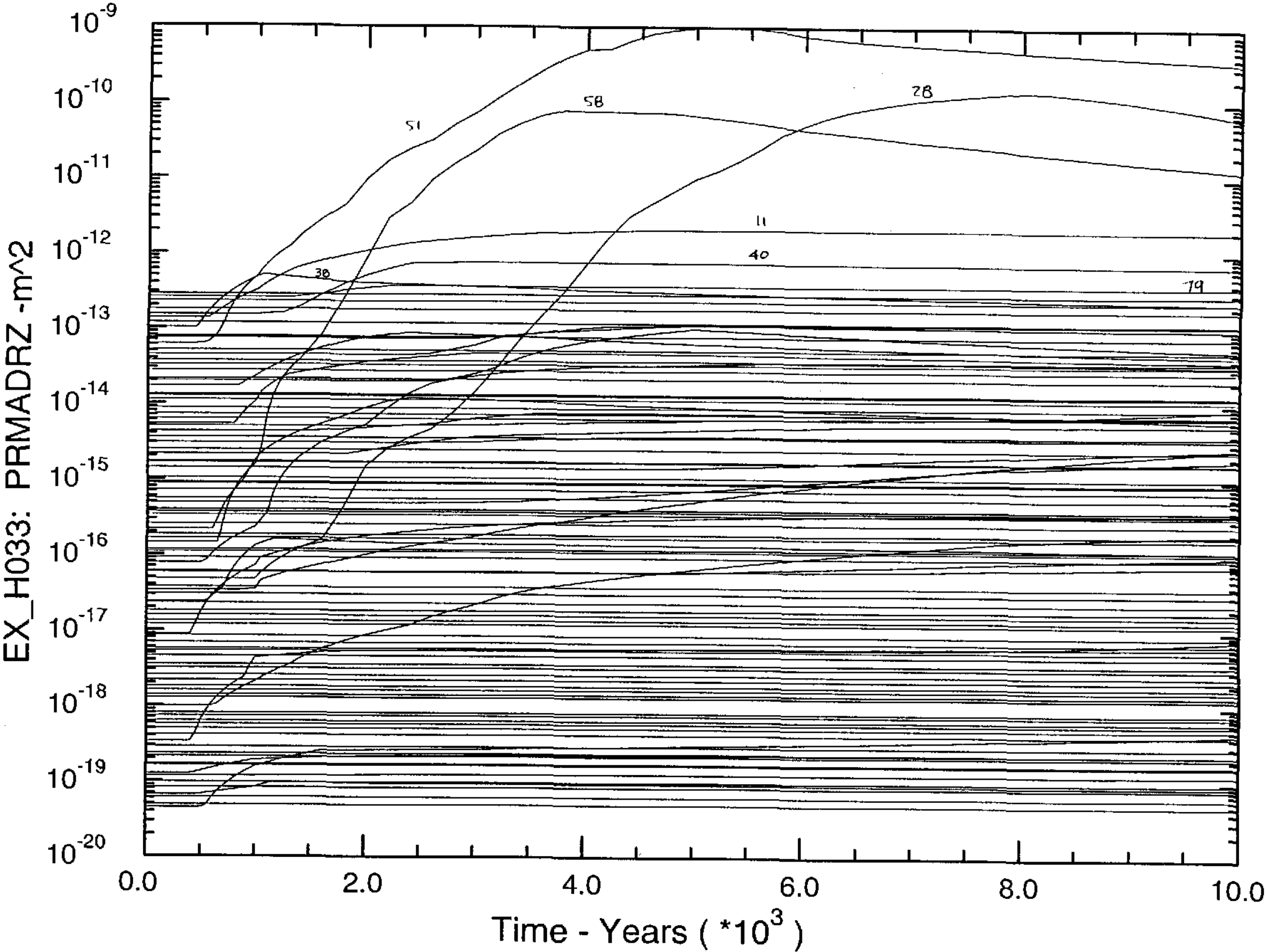
1DRA1:[JEBEAN.C97.SUMMZ.R1S1]SPLAT_R1_S1_H118.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:02:39

SNL WIPP PA: BRAGFLO SIMULATIONS (C97 R1 S1)

Volume-Averaged Permeability in All DRZ Layers

Fig. A.1-60



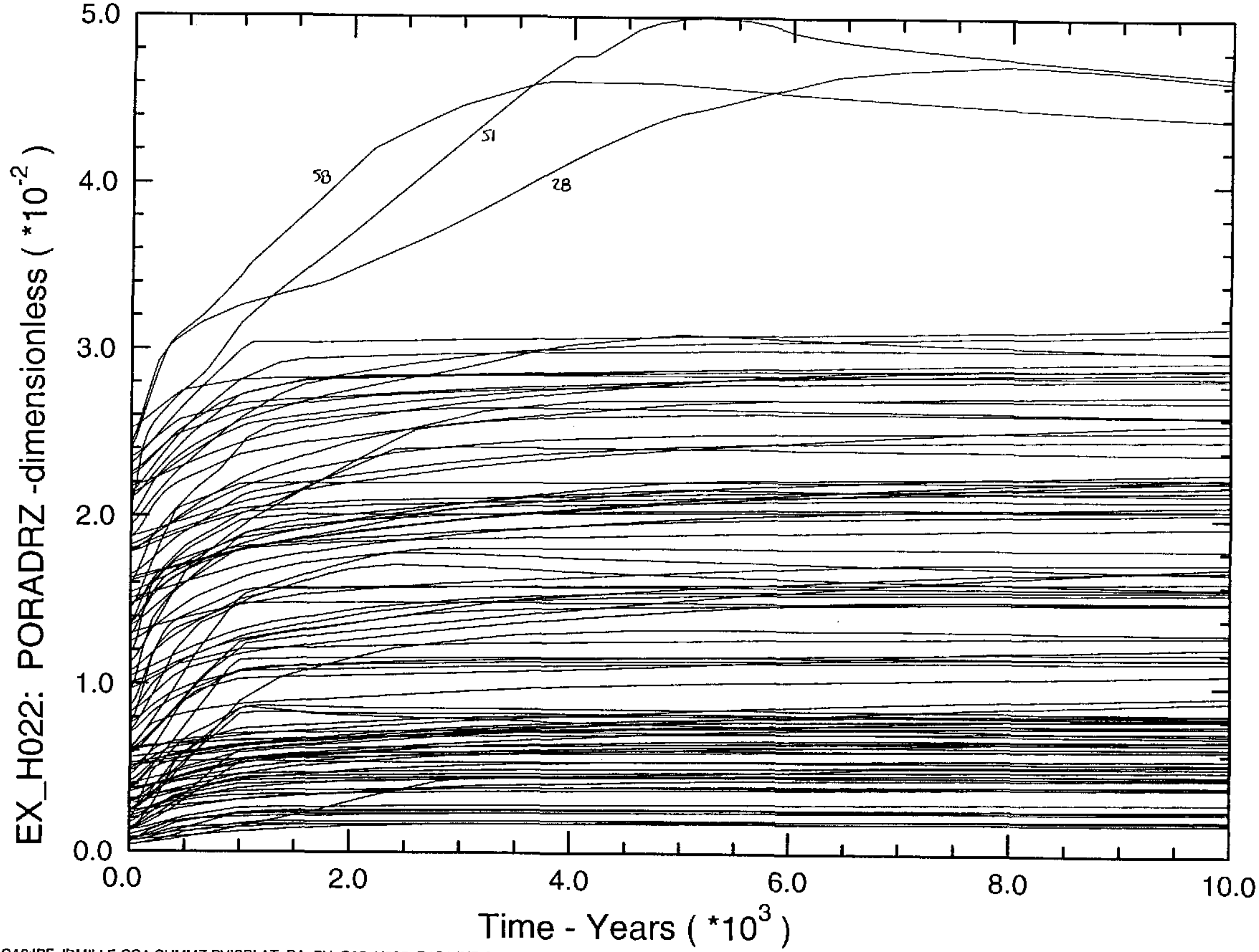
DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PV]SPLAT_PA_PV_C97_H033_R1S1.INP;2

SPLAT_PA96_2 1.02 06/24/97 15:08:18

SNL WIPP PA: BRAGFLO SIMU[illegible]TIONS (C97 R1 S1)

Volume-Averaged Porosity in All DRZ Layers

Fig. A.1-61



DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PV]SPLAT_PA_PV_C97_H022_R1S1.INP;2

SPLAT_PA96_2 1.02 06/24/97 15:06:54

A.2 DISTURBED PERFORMANCE

This section examines repository behavior and the flow of brine and gas for three scenarios: the E1 scenario (Figure A.2-1), the E2 scenario (Figure A.2-2), and the E2E1 scenario (Figure A.2-3). Three potential pathways for migration of radionuclides in dissolved brine are considered. In the first and most likely pathway, contaminated brine may enter the intruding borehole and flow upward toward the Culebra Dolomite Member of the Rustler Formation. As in the undisturbed case, the quantity of brine reaching the Culebra is important because transport may then occur laterally in the Culebra toward the subsurface land withdrawal boundary. In the second pathway, brine may migrate through the panel seals and through the disturbed rock zone (DRZ) surrounding the repository to the shaft and then upward toward the Culebra. In the third pathway, brine may migrate from the repository through the DRZ and laterally toward the subsurface land withdrawal boundary within the anhydrite interbeds.

A.2.1 E1 Intrusion at 1000 Years (S3 Scenario)

In this E1 scenario, a borehole penetrates the waste panel and brine reservoir in the underlying Castile formation at 1000 years. The pressure in the brine reservoir is sampled from a range of 11.1 MPa to 17.0 MPa. It is assumed that the borehole is instantly emplaced and plugged at the time of intrusion. Except for the plugs, the borehole is assumed to have a porosity of 0.32, with the high permeability of 1.0×10^{-9} m^2 (see Section 3.9 Borehole Model). One plug extends from the top of the Salado formation up through the Unnamed member of the Rustler formation. The other plug extends downward from the surface through the Santa Rosa formation. The permeability of the two plugs is sampled from a range of $1.0 \text{ x } 10^{-19}$ to $1.0 \text{ x } 10^{-17}$ m^2. These conditions exist for 200 years. At 200 years after intrusion, the borehole material properties are modified to represent the impact of caving, sloughing, and plug degradation. At this time the borehole is assigned uniform properties, with a permeability sampled from a range of 5.0×10^{-17} to 1.0×10^{-11} m^2. These conditions remain in effect for 1000 years. Then, the section of the borehole from the bottom of the lower DRZ (i. e., the bottom of MB139) down through the Castile is assumed to have undergone creep closure. Creep closure is accounted for by reducing the sampled permeability by a factor of 10.

A.2.1.1 Replicate 1 Results and Discussion

A.2.1.1.1 Repository Behavior

As in the undisturbed scenario, repository behavior is characterized by interactions between creep closure, fluid flow, and gas generation. Creep closure of excavated regions begins immediately because of excavated induced loading. In the waste disposal region, waste consolidation will continue until back-stresses imposed by the compressed waste resist further closure or until fluid pressures become sufficiently high. Pressure in the disposal region is governed by the quantities of brine present in the disposal region, the rates of gas generation, and ease at which fluids can escape the repository. In the Undisturbed scenario, the extent of gas generation in many cases is controlled by the availability of brine, the principal source of which is the halite and anhydrite layers surrounding the repository. In the E1 scenario, the borehole provides a pathway for additional sources of brine from two locations: (1) flow down the borehole from the Rustler and Dewey Lake Formations overlying the Salado, and (2) flow up the borehole from the pressurized brine reservoir in the Castile underlying the Salado. The rate and direction of brine flow in the borehole depends on the hydraulic properties of the borehole fill material and plugs and the head gradient between the Castile brine reservoir and the overlying strata. Because of the increased availability of brine in the repository, significant quantities of gas may be generated.

Pressures in the waste panel and rest of repository (Figures A.2.1-1 [GVAR_023] and A.2.1-2 [GVAR_024]) increase from their initial value of 1 atmosphere. As in the undisturbed scenario, pressure responses in the experimental and operation regions are nearly identical to those in the waste panel and rest of repository because the permeability of excavated regions, drift and panel seals are high and on the order of 10^{-15} m^2. In many realizations, pressure increases rapidly during the first 1000 years. This rapid increase in pressure is caused primarily by gas generation. In these realizations, plastics and rubbers are included in the inventory of biodegradables; this results in a higher net rate of gas generation during the first 1000 years. In some realizations, the pressure reaches a maximum during this initial period and gradually decrease during the remainder of the 10,000 year period. In contrast to this behavior, some realizations (near the bottom of the plot at 1,000 years) exhibit slowly increasing pressures. In these realizations, there is very little gas generation from corrosion (sampled corrosion rates are among the lowest) and none from biodegradation. The third type of behavior exhibited in Figures A.2.1-1 [GVAR_023] and A.2.1-2 [GVAR_024] is a moderately rapid initial rise in pressure. This behavior is a result of creep closure in combination with intermediate gas generation rates.

The observed pressure behavior in the repository prior to intrusion is similar in the PAVT and CCA, with a trend towards slightly higher pressures in the PAVT calculations because of increased corrosion rates. However, after intrusion some distinguishable differences occur because of four factors. Recall that at the time of intrusion the borehole has a high permeability of 1.0×10^{-9} m^2 everywhere except for two low permeability concrete plugs located above the Salado in the Santa Rosa and Unnamed Members. These borehole conditions remain for 200 years after intrusion, at which time the borehole plugs degrade. Note that in the CCA the concrete plugs had a constant permeability of 5.0×10^{-17} m^2. However, in the PAVT, concrete plug permeability is a sampled parameter with lower permeability values that range from 1.0×10^{-19} to 1.0×10^{-17} m^2. The second important factor is the much larger Castile brine reservoir that contains almost two orders of magnitude more brine than it did in the CCA. The third important factor is the higher corrosion rate and the generation of gas at a faster rate. In the PAVT, the inundated corrosion rate is nearly twice as large (uniform distribution in both PAs; range: 0.0 to 3.17×10^{-14} m/s versus 0.0 to 1.58×10^{-14} m/s) as that used in the 1996 calculations. The fourth important factor is the borehole permeability distribution that includes much lower permeability values; in this set of calculations borehole permeability is a sampled parameter that ranges from 5.0×10^{-17} to 1.0×10^{-11} m^2 versus 1.0×10^{-14} to 1.0×10^{-11} m^2 in the CCA. As a consequence of these four factors, pressures in the panel increase immediately after intrusion in all vectors having low panel pressures (less than 7 MPa) at the time of intrusion. This behavior did not occur in the CCA. The range of panel pressures is also narrower and higher during the short 200 year period after intrusion than it was in 1996. Moreover, unlike the CCA, panel pressures in many vectors do increase significantly immediately after intrusion and continue to do so for the remainder of the 10,000 year regulatory period. Pressure behavior after intrusion is described in more detail below.

As in the CCA, three general types of pressure behavior occur after the concrete plugs degrade. In approximately 10% of the realizations, pressures decrease dramatically. In approximately another 10% or so of the realizations, pressures continue to gradually increase for several thousand years. In these realizations, the brine reservoir pressure (a sampled parameter ranging between 11.1 MPa and 17.0 MPa) is sufficiently high to force brine into the panel and maintain increasing pressure conditions. In contrast to the CCA, pressures in many of these vectors continue to increase over the full 10,000 years regulatory period and reach pressures that surpass the long-term pressures predicted in the CCA. Moreover, in the CCA, the highest pressures in the panel occurred prior to intrusion. However, in the PAVT, several vectors ultimately reach pressures that exceed or are near the highest pre-intrusion panel pressures. Corrosion also contributes to the pressure response since corrosion continues in many realizations over the full 10,000 year regulatory period. Gas generation due to microbial degradation in most cases ceases within 1500 years as the cellulose inventory becomes exhausted. Final pressures above hydrostatic pressure occur in those realizations having high corrosion rates and a relatively low borehole permeability that prevents gas from easily escaping the panel and repository. The third and less frequent type of response is for the pressure to rise relatively rapidly following a period of low or slowly decreasing pressure. The time lag between intrusion and repressurization lasts from 500 to over 6000 years. During this time, gas that has filled the panel is driven up the intrusion borehole as brine flows into the waste through the anhydrite layers and down the borehole. Once the borehole is filled with brine, the pressure in the waste reaches hydrostatic pressure relative to the water table in the Dewey Lakes, and then levels off. Pressures below hydrostatic occurs in those realizations where the sampled pressure in the brine reservoir is low and the borehole is filled predominately with gas.

The impact of the borehole on brine availability in the intruded panel and repository is apparent in Figures A.2.1-3 [GVAR_042] and A.2.1-4 [GVAR_046], where numerous realizations have increased brine saturation as compared to the Undisturbed scenario. Prior to the borehole intrusion, profiles of saturation with time are identical to the saturation profiles in the Undisturbed scenario. Note that because of the increased inundated corrosion rate used in the PAVT, repository brine saturations tend to be lower than those predicted in the CCA.

A.2.1.1.1.1 Gas Generation

In the Undisturbed scenario, the extent of gas generation in many realizations is controlled by the availability of brine. The principal source of brine is the halite and anhydrite layers surrounding the repository. In the E1 scenario, the borehole provides a pathway for additional brine.

Consequently, as much as 97% of the initial steel inventory is consumed by corrosion (Figure A.2.1-5 [GVAR_003]) as compared to the Undisturbed scenario where up to 80% of the initial steel inventory is consumed. In the CCA these quantities are 84 % and 60 %, respectively. As in the CCA, cellulose consumption by microbial decay in the E1 Scenario exhibits nearly identical behavior to that observed in the Undisturbed scenario. In all but approximately 10 realizations, the cellulose inventory (which, in 25 of the 100 realizations, includes plastics and rubbers) is completely consumed within 1500 years (Figure A.2.1-6 [GVAR_04]). In contrast to these results, only one realization in the CCA contained a significant amount of cellulose after 10,000 years. This difference in behavior is due in part to the increased corrosion rates in the PAVT and the increased number of vectors where brine is completely consumed in the interior cells of the rest of the repository.

As shown in Figure A.2.1-5 [GVAR_003], the fraction of steel inventory remaining after 10,000 years ranges from 3% to 98%. This wide range in remaining inventories, coupled with the fact that brine saturation in the repository is relatively high in the majority of realizations (Figure A.2.1-4 [GVAR_046]), indicates that the corrosion rate, and not just the availability of brine, plays an important role in determining how much corrosion occurs. This observation was also made in the CCA.

The importance of corrosion rate is also observed in the Undisturbed scenario. In the Undisturbed scenario, steel is present in the panel at the end of 10,000 years in all vectors. In the CCA steel was completely consumed in one vector. In the E1 scenario, the steel inventory in the panel is fully consumed in several realizations because of enhanced brine availability in the intruded down-dip panel via the borehole intrusion (Figure A.2.1-7 [GVAR_144]). In the rest of the repository (Figure A.2.1-8 [GVAR_159]), brine is not as readily available as in the panel for three reasons. First, brine that enters the repository tends to pool in the lower regions and is not available for corrosion in those cells where steel remains. Second, the repository is located up-dip from the intruded panel. Because of gravity effects, this configuration favors the flow of brine from the repository to the intruded panel and the flow of gas from the panel to the up-dip repository. Third, the panel seal, although highly permeable with a permeability of 10^{-15} m^2, does partially inhibit flow between the panel and repository.

The total gas volume generated by corrosion over 10,000 years ranges from about 6×10^5 m^3 to 3.05×10^7 m^3 (Figure A.2.1-9 [GVAR_017]). In the CCA, the total gas volume generated by corrosion over 10,000 years ranges up to 2.65×10^7 m^3. Comparing these quantities with the Undisturbed scenario, in which the amount of gas generated by corrosion ranges from 5×10^5 m^3 to 2.28×10^7 m^3, it is apparent that the increased availability of brine increases the amount of gas generated by corrosion by approximately 35% (40%). The volume of brine consumed by corrosion in the panel ranges from about 100 m^3 to more than 5800 m^3 (Figure A.2.1-10 [GVAR_157]). In the rest of the repository, it ranges from 1000 m^3 to 42,600 m^3 (Figure A.2.1-11 [GVAR_158]). The corresponding values in the CCA range from 100 m^3 to 5800 m^3 in the panel and from 1000 m^3 to 39,000 m^3 in the rest of the repository.

As in the CCA, cellulose consumption by microbial decay in the E1 scenario exhibits very similar behavior to that observed in the Undisturbed scenario, essentially the same amount of microbial gas is generated in the E1 scenario as in the Undisturbed scenario: 3.5×10^6 - 3.7×10^6 m^3 (3.6×10^6 - 3.7×10^6 m^3) at reference conditions (Figure A.2.1-12 [GVAR_020]) when plastics and rubbers are not included and 8.5×10^6 - 1.2×10^7 m^3 (1.2×10^7 - 1.2×10^7 m^3) when plastics and rubbers are included. Note that approximately 10 vectors do not coincide with the two plateaus representing complete cellulose consumption, these are the vectors noted previously that are limited by the availability of brine. In the CCA, gas generated by microbial degradation was limited in only one vector.

In a plot of total gas generated by corrosion and biodegradation (Figure A.2.1-13 [GVAR_022]), three different types of behavior can be seen. Many curves, especially at the bottom of the plot, increase smoothly, and very slowly. These are realizations in which there is no biodegradation occurring, only the comparatively slower but steady corrosion of iron. A second group of curves rise steeply at first. Most of these result from biodegradation, particularly those realizations in which plastics and rubbers are included in the cellulose inventory. Once biodegradation is complete, in most cases within the first 1500 years, the rate of gas generation decreases sharply as corrosion continues at a slower rate. A third group of realizations, having high corrosion rates, are jump-started by the inflowing brine from the intrusion borehole and exhibit relatively high rates of gas generation after intrusion. This latter behavior is more evident in the panel because the influx of brine immediately after the intrusion affects the panel much more than the rest of the repository (Figure A.2.1-14 [GVAR_146]). These three groups of behavior were also observed in the CCA. In addition, the quantities of gas generated are similar in both PAs with the maximum amount of gas generated being 4.18×10^7 and 3.61×10^7 m^3 in the PAVT and CCA, respectively.

A.2.1.1.1.2 Halite Creep

Creep closure of the repository and consolidation of the waste behaves similarly in all realizations as it did in the CCA. In all cases, a very rapid reduction in porosity (Figure A.2.1-15 [GVAR_052]) occurs during the first 300 - 500 years. At the time of intrusion, the waste porosity has mostly leveled off at values ranging from 8% to 20%, depending on the pressure in the waste. When the pressure is high, the porosity remains higher as fluid pressures resist further closure. When the intrusion occurs, the borehole connects the panel with the Castile brine reservoir. However, low permeability plugs located above the Salado in the Santa Rosa and Unnamed Members (see Section 3.3.7) effectively prevent communication with overlying formations for two hundred years subsequent to intrusion. The immediate response depends on the borehole permeability and the Castile brine reservoir pressure relative to the waste pressure. Typically, the borehole has a relatively high permeability and the Castile pressure is higher than the pressure in the waste. The result is an increase in pressure in the waste, in turn causing the porosity to rise slightly at 1000 years.

After 200 years, the plugs in the borehole degrade, raising the borehole permeability to the same sampled value as in the lower portion of the borehole. This increase in permeability generally allows gas and brine to escape up the borehole and reduce pressure in the waste. This pressure reduction causes the waste porosity to decrease. In some cases, the repository pressure and porosity are prevented from decreasing significantly because the borehole permeability is sufficiently low and the gas generation rate is sufficiently high. In other cases, the pressure continues to increase after intrusion. After about 2000 years, the pressure and porosity in the waste generally stabilize. Porosity tends to level off very slowly over time, ranging from 6% up to 22 % of the initial excavated volume by 10,000 years. This range of porosities is slightly broader than that (5 % to 17 %) predicted in the CCA.

As predicted in the CCA, some realizations display more rapid transient responses at later times. In some cases where brine influx is slow but steady, the portion of the borehole above the repository remains gas-filled for hundreds or thousands of years. This gas-filled connection to the overlying formations and ground surface keeps the repository at near-atmospheric pressures. If enough brine flows in, all of the gas (down to residual gas saturation) is eventually driven out of the panel and the panel and borehole fill with brine. This gas is either driven up the borehole or forced up-dip into the rest of the repository and DRZ. As the panel and borehole fill with brine, the pressure in the repository will increase fairly rapidly until hydrostatic pressure relative to the water table in the Dewey Lakes is reached. This relatively rapid increase in pressure, and the resulting increase in porosity, can be seen in some realizations at around 6000 years, both in the pressure plot (Figure A.2.1-1 [GVAR_023]) and in the porosity plot (Figure A.2.1-15 [GVAR_052]). In many other realizations, this process takes place over a much shorter period of time, during the 1000 - 2000 years period following the intrusion. Many realizations tend toward hydrostatic pressures of about 7 MPa and resulting porosities in the range of 11% to 12%.

A.2.1.1.1.3 Fluid Flow

Immediately following the borehole intrusion, there is little upward flow of gas (Figure A.2.1-16 [GVAR_101]) or brine (Figure A.2.1-17 [GVAR_073]) from the panel because the borehole plugs emplaced in the Unnamed and Santa Rosa formations are fairly tight (a sampled parameter from a range of 1.0 x 10^{-19} to 1.0 x 10^{-17} m^2 in the CCA this parameter is a constant 5×10^{-17} m^2). However, brine flows rapidly up from the Castile reservoir into the panel (Figure A.2.1-18 [GVAR_072]) in several realizations. In these realizations, the brine reservoir pressure (a sampled parameter from a range of 11.1 MPa to 17.0 MPa) is appreciably higher than the pressure in the panel. The amount of brine flowing immediately into the panel ranges from 0.0 m^3 to a maximum of nearly 87,000 m^3 (fourth highest vector , #45). The maximum amount is approximately double the maximum amount (44,000 m^3) calculated in the CCA. After 200 years, when the plugs degrade, the rate of inflow tends to decrease sharply.

Another group of realizations shows continual flow from the Castile into the panel after intrusion (Figure A.2.1-18 [GVAR_072]). The maximum amount that flows upward in these vectors is 112,000 m^3 (#28). This maximum amount is approximately 2.5 times the maximum amount

($44{,}000\ m^3$) calculated in the CCA. In most of these realizations, brine flow is small prior to plug degradation, and the panel is already pressurized as a result of gas generation. These realizations typically have high corrosion rates and include plastics and rubbers in the cellulose inventory. When the borehole intrudes at 1000 years, the pressure in the Castile is not high enough to drive brine up into the pressurized panel. Only after the plugs degrade, which allows gas to escape up the borehole and reduce the panel pressure, can brine flow upwards from the Castile. At 2200 years, when creep closure reduces the permeability of the section of the borehole between the Castile and the panel by an order of magnitude, the brine flow from the Castile drops off significantly.

There does seem to be a correlation between Castile reservoir pressure, borehole permeability, and the amount of brine that flows up the borehole (Figure A.2.1-17 [GVAR_073]). The top four realizations (#28, #54, #57,#72) have high borehole permeabilities (ranks of 100, 94, 99, 93, respectively) and high initial Castile reservoir pressures (ranks of 83, 96, 80, 79, respectively). The realizations that show immediate flow into the panel tend to have a low borehole permeability, high Castile pressure, and low panel pressure at the time of intrusion. For example the top two immediate flow realizations, #45 and #69, have Castile pressures at the time of intrusion that rank 95 and 98, borehole permeabilities that rank 30 and 41, and panel pressures that rank 2 and 43.

In many cases, once the borehole plugs degrade (at 1200 years), substantial quantities of brine (up to $18{,}500\ m^3$ compared to $47{,}000\ m^3$ in the CCA) from the Culebra, Magenta, and Dewey Lakes formations flow downward into the panel (Figures A.2.1-19 [GVAR_140] and A.2.1-20 [GVAR_141]). Lower downward flows in the PAVTas compared to the CCA appear to occur because of the range of lower borehole permeabilities in combination with relatively higher panel pressures at the time of intrusion.

In many realizations, substantial amounts of brine (up to $102{,}000\ m^3$) flow up the borehole beyond the top of the panel (Figure A.2.1-17 [GVAR_073]). Only very small amounts (at most 1 m^3) ultimately reach the top of the Rustler (Figure A.2.1-21 [GVAR_075]). Salado transport results (Section 3.3) show that these small amounts of brine were uncontaminated. In many of these vectors, all of the flow occurs over a very short period (less than 100 years) after the borehole plugs disintegrate at 1200 years. In another 20 or so realizations, brine flow continues upwards in the borehole during the remainder of the 10,000 year regulatory period. Brine flow up the borehole into the bottom of the panel exhibited this same behavior (Figure A.2.1-18 [GVAR_072]). In fact, the three highest borehole flows at the top of the panel (vectors #28, #54,and #57) correspond to the three highest flows at the bottom of the panel (vectors #28, #54,and #57). This behavior is different than that observed in the CCA where the top realization resulted from a combination of high borehole permeability, high marker bed permeability, and low gas generation rate. These characteristics produced the following responses. The low gas generation rate left the panel at low pressure when the intrusion occurred. The low panel pressure, in combination with the high borehole permeability, allowed a large quantity of brine to flow down into the panel from the Culebra, Magenta, and Dewey Lakes and fill the panel relatively quickly. The high marker bed permeability enhanced the flow of brine in from the marker beds, which forced the large amount of brine occupying the panel back up the borehole.

Flows up the borehole at the top of the DRZ (i. e., at the bottom interface of MB138) (Figure A.2.1-22 [GVAR_078]) are similar (both in magnitude and trend) to flows up the borehole beyond the top of the panel (Figure A.2.1-17 [GVAR_073]). For example, the top four realizations (#28 (1.02 x 10^5 m^3), #54(7.5 x 10^4 m^3), #57 (6.6 x $10^5 m^3$), and #72 (6.5 x 10^5 m^3)) for flows at the top of the DRZ correspond, to the top four realizations for flows at the top of the panel (#28 (1.01 x 10^5 m^3), #54(7.5 x 10^4 m^3), #57 (6.6 x $10^5 m^3$), and #72 (6.5 x 10^5 m^3)). Note, however, the absence of the realizations that produce, after intrusion, immediate flows beyond the top of the panel. In the CCA, flows up the borehole at the top of the DRZ were substantially lower with maximum quantity at 10,000 yrs of 3.5 x 10^4 m^3.

Gas flow down the borehole and into the Castile reservoir occurs in only six realizations (Figure A.2.1-23 [GVAR_103]). These six realizations are all high gas producers with low initial Castile reservoir pressures. Gas flow takes place during the 200 years following the intrusion, when the section of the borehole between the Castile and the panel is fully open, with a permeability of 1.0×10^{-9} m^2. The amount of gas that flows into the Castile ranges up to 3 x 10^6 m^3 (versus up to 1.4 x 10^5 m^3 in the CCA) resulting in average gas saturations in the brine reservoir ranging from 0.0001 to 0.0038 (Figure A.2.1-24 [GVAR_041]). After 1200 years, gas flow into the Castile ceases. Only a small fraction of the gas that flows into the Castile flows back out (Figure A.2.1-25 [GVAR_104]): about 400 to 2100 m^3.

In the CCA, Latin Hypercube Sampling of Castile brine reservoir properties produced five discrete Castile brine reservoir volumes approximately equal to 3.2 x 10^4 m^3, 6.4 x 10^4 m^3, 9.6 x 10^4 m^3, 12.8 x 10^4 m^3, and 16 x 10^4 m^3. Figure A.2.1-26 [GVAR_139] shows the volumes of brine in the Castile reservoir with time used in the PAVT. Recall that these brine volumes are inversely correlated with the compressibility of the Castile reservoir. Note that brine volumes are approximately two orders of magnitude higher in the PAVT as compared to the CCA. Because brine volumes are so large, the reduction in brine volume at the time of intrusion is relatively insignificant (recall that the largest value of brine flow into the bottom of the panel is 1.12 x 10^5 m^3) and almost undetectible on the plot. The pressure in the Castile reservoir (Figure A.2.1-27 [GVAR_028]) shows a drop in pressure after intrusion followed by a gradual pressure decline in approximately 20% of the realizations or very little pressure decline in the remaining realizations. A few realizations exhibit a slight increase in pressure at the time of intrusion, in these cases the panel pressure at the time of intrusion is sufficiently higher than the initial Castile pressure to force some fluid to flow downward to the Castile.

Brine flow up the shaft (Figure A.2.1-28 [GVAR_069]) is small compared to the flow up the borehole, ranging from 0 m^3 to 67 m^3 (versus 48 m3 in the CCA). It is interesting to note that brine flow up the shaft does not begin until after the borehole intrusion. As in the CCA, this brine is believed to originate in the upper section(s) of the shaft. This conclusion is based on examination of flows at different locations in the shaft for individual realizations and cannot be verified until Salado transport simulations are analyzed.

Small amounts of brine flow in continuously from the panel seal into the panel (Figure A.2.1-29 [GVAR_181]), primarily as a result of the panel being down-dip from both the rest of the repository and the DRZ beneath the repository. In some instances, flow from the seal into the panel stops or is reversed when intrusion occurs and the panel becomes pressurized with Castile brine. The largest flows seen in (Figure A.2.1-29 [GVAR_181]) are a result of brine entering the panel and rest of the repository from either the Castile or the Culebra, or both, and then, at subsequent times, inflow from the marker beds drives brine back through the panel seal and up the borehole. Most flow from the panel seal into the rest of the repository occurs following the intrusion (Figure A.2.1-30 [GVAR_182]) as Castile or Culebra brine fills the excavated regions with brine. Consequently, cumulative brine flows across the panel seal and out of the panel are very similar to cumulative brine flow across the panel seal and into the rest of the repository (Figures A.2.1-30 [GVAR_182] and A.2.1-31 [GVAR_183]): they both show flow in the northerly direction, from the panel towards the rest of the repository. Also, flow from the repository into the panel seal (Figure A.2.1-32 [GVAR_184]) is similar to flow across the panel seal and into the panel (Figure A.2.1-29 [GVAR_181]). The characteristics of the panel seal flows described above are very similar to thos predicted in the CCA.

A.2.1.1.2 Behavior in Formations Surrounding the Repository

A.2.1.1.2.1 Two-Phase Flow

Gas flows into the interbeds are presented in Figures A.2.1-33 [GVAR_106] to A.2.1-39 [GVAR_112]. Relatively few realizations (compared to the Undisturbed scenario) result in gas flow from the DRZ into the marker beds. In MB138, the largest of seven realizations shows 36,000 m^3 (versus 40,000 m^3 in the CCA) flowing to the north (Figure A.2.1-33 [GVAR_106]) and 62,000 m^3 (versus 35,000 m^3 in the CCA) flowing to the south (Figure A.2.1-36 [GVAR_109]). In Anhydrite a and b (Figures A.2.1-34 [GVAR_107] and A.2.1-37 [GVAR_110]), many realizations show small flows of gas (less than 6,000 m^3). In eight (versus 3 in the CCA) realizations more than 10,000 m^3 flow out; the maxima are 400,000 m3 to the north and 130,000 m^3 to the south (versus 133,000 m^3 and 77,000 m^3, respectively, in the CCA). In MB139, a maximum of 800,000 (versus 11,400 m^3 in the CCA) flows to the north (Figure A.2.1-35 [GVAR_108]); to the south, there is substantial gas flow in only two realizations, the larger flow being 66,000 m^3 (versus 9,400 m^3 in the CCA) (Figure A.2.1-38 [GVAR_111]). At the end of the 10,000 year regulatory period, a maximum of 1.25×10^6 m^3 (versus 2.9×10^5 m^3 in the CCA) has flowed from the DRZ into the marker beds (Figure A.2.1-39 [GVAR_112]). Note that in several realizations, the flow of gas out into the interbeds continues well after the borehole penetrates the panel. This behavior is in contrast to the behavior observed in the CCA, where the flow of gas out into the interbeds in all realizations stopped when the borehole plugs degraded.

Once the borehole plugs degrade at 1200 years, large volumes of gas [up to 1.85 x 10^7 m^3(8.5 × 10^6 m^3)] are vented up the borehole (Figure A.2.1-16 [GVAR_101]). In several realizations, gas flow from the panel continues as long as gas is generated. In the CCA, gas flow from the panel generally occurred over a shorter period of time, about 500 years. Larger volumes of gas flow up the borehole from the DRZ (Figure A.2.1-40 [GVAR_102]]). The total amount of gas vented up the borehole ranges up to 38 × 10^6 m^3 (32 × 10^6 m^3). The maximum total amount of gas generated is 42 × 10^6 m^3 (36 × 10^6 $m^{3)}$(Figure A.2.1-13 [GVAR_022]). Thus, as in the CCA, a large fraction of the gas generated eventually flows up the borehole. Very little gas flows up the shaft. Figure A.2.1-41 [GVAR_100] shows that a maximum of 25 m^3 (22 m^3) flows up the shaft at the interface between the Salado and Rustler formations. A detailed examination of gas flows at different locations in the shaft found that this gas came exclusively from the asphalt shaft seal immediately below this interface. None of this gas originates from lower elevations in the shaft, including the repository. Thus, the shaft seals are very effective in keeping gas from flowing up the shaft.

In addition to the shaft and borehole pathways, potentially contaminated brine can get to the land withdrawal boundary by flowing from the repository through the DRZ and into one of the permeable anhydrite layers (MB138 or 139 or the combined Anhydrite a and b). These flows are examined next.

Cumulative net brine flows into and out of the DRZ region surrounding the repository from all anhydrite layers is shown in Figure A.2.1-42 [GVAR_099] and are listed in Table A.2.1-1. In this figure, positive values indicate flow inward. Net inward flow occurs in all but three (zero) realizations, with the maximum being 32,000 m^3 (64,000 m^3). The distribution of net brine flows among the various anhydrite layers to the north and south of the repository are shown in Figures A.2.1-43 [GVAR_093] to A.2.1-45 [GVAR_095] and Figures A.2.1-46 [GVAR_096] to A.2.1-48 [GVAR_098]. In these figures, positive flows are to the north and negative flows are to the south. These figures show that almost all net flows are inward with less than five exceptions.

Table A.2.1-1. Cumulative Net Interbed Brine Flows for
E1 Intrusion at 1000 Years (S3 Scenario)

Marker Bed	Max. Net Brine Flow from MB into DRZ, m^3	Max. Net Brine Flow from DRZ into MB, m^3
MB138 North	40(300)	40(4)
MB138 South	1,080(3,700)	0(0)
Anhydrite a & b North	4,180(8,800)	0(0)
Anhydrite a & b South	5,000(9,800)	0(0)
MB139 North	10,700(20,200)	1,000(100)
MB139 South	10,800(21,200)	2,800(200)
All Marker Beds	32,800(64,000)	3,800(304)

The maximum amount of brine that flows in from the marker beds is about 70% (50%) smaller (greater) than the maximum that flows up the borehole from the Castile, 32,800 m^3(64,000 m^3) vs.112,000 m^3(44,000 m^3). Note that in the CCA this flow condition was reversed with the maximum amount of brine flow from the marker beds 50% greater than the maximum that flows up the borehole from the Castile.

The corresponding cumulative flows out all anhydrite layers and across the land withdrawal boundary are summarized in Figure A.2.1-49 [GVAR_174] and Table A.2.1-2. Flows in individual layers are presented in Figures A.2.1-50 [GVAR_168] to A.2.1-55 [GVAR_173]. As shown, brine flow out across the land withdrawal boundary occurs in only one vector (#38) and the majority of flow occurs northward. The maximum volume released in all marker beds over the 10,000 years regulatory period is 2,630 m^3(1.28 m^3). Note that this amount is much larger than was calculated in the CCA. An examination of the sampled parameter values for vector #38 indicate that this vector had the highest sampled MB139 permeability in combination with the 7th highest sampled DRZ permeability and the 17th lowest borehole permeability. This vector also had a very low DRZ porosity and a low far-field pressure. However, this brine does not come from the repository since at most 1315 m^3 flows to the north into MB139 from the DRZ, which is far less than the pore volume of MB139 which is 155,500 m^3 between the repository and the land withdrawal boundary. This conclusion is verified by the Salado transport calculations analysis.

Table A.2.1-2. Cumulative Interbed Brine Flows Outward Across Land Withdrawal Boundary for E1 Intrusion at 1000 Years (S3 Scenario).

Marker Bed	Maximum Brine Outflow across Land Withdrawal Boundary, m^3
MB138 North	106(0.19)
MB138 South	120(0.0)
Anhydrite a & b North	488(0.27)
Anhydrite a & b South	118(0.0)
MB139 North	1,315(0.82)
MB139 South	483(0.0)
All Marker Beds	2630(1.28)

A.2.1.1.2.2 Mechanical Response

In most realizations, gas is not generated at sufficiently high rates to reach fracture pressures prior to the intrusion at 1000 years. After the intrusion, the borehole prevents pressures from building up in all but a few realizations to the point where fracturing could again take place. As a consequence, fracturing in the interbeds occurs in only a few realizations (A.2.1-56 [GVAR_113] to A.2.1-61 [GVAR_118]). The most extensive fracturing (vector #78) occurs to the north in

Anhydrite a and b and Marker Bed 139, the fracture length is 400 m. In the CCA, most of the fracturing occurs to the north in Marker Bed 138 and Anhydrite a and b, the fracture length up to 100 m. In these layers, the fracture length is 100 m. Other realizations displayed fracturing only in Anhydrite a and b to the north, and in Marker Bed 139, both north and south. In these realizations, the maximum extent was 30 m. Note that fracture curves that go to zero indicate fracture closure as pressures decrease.

DRZ fracturing occurs in about 20 vectors, however, in most vectors DRZ fractures close in less than 500 years after the borehole intrusion. Significant fracturing in the DRZ after intrusion occurs in only about 5 realizations, as indicated by increasing DRZ permeability (Figure A.2.2-62 [EX_H033]). Vector #78 exhibits the largest DRZ permeability increase (vector with highest permeability after 2000 years). This vector had a low borehole permeability (rank of 5), a low marker bed permeability (rank of 8), and a relatively high initial DRZ porosity (rank of 61). Note that this vector also produced the most extensive marker bed fracturing. DRZ porosity increases, indicative of DRZ fracturing are also evident in several realizations (Figure A.2.2-63 [EX_H022]). Only one realization (#78) results in a long-term DRZ permeability greater than $1x10^{-11}$ m^2 and porosity greater than 0.035. Mean, median, and maximum values for DRZ permeability and porosity are shown in Table A.1-3.

A.2.1.2 Comparison with Other Intrusion Time [350-year version of E1 (S2 Scenario)]

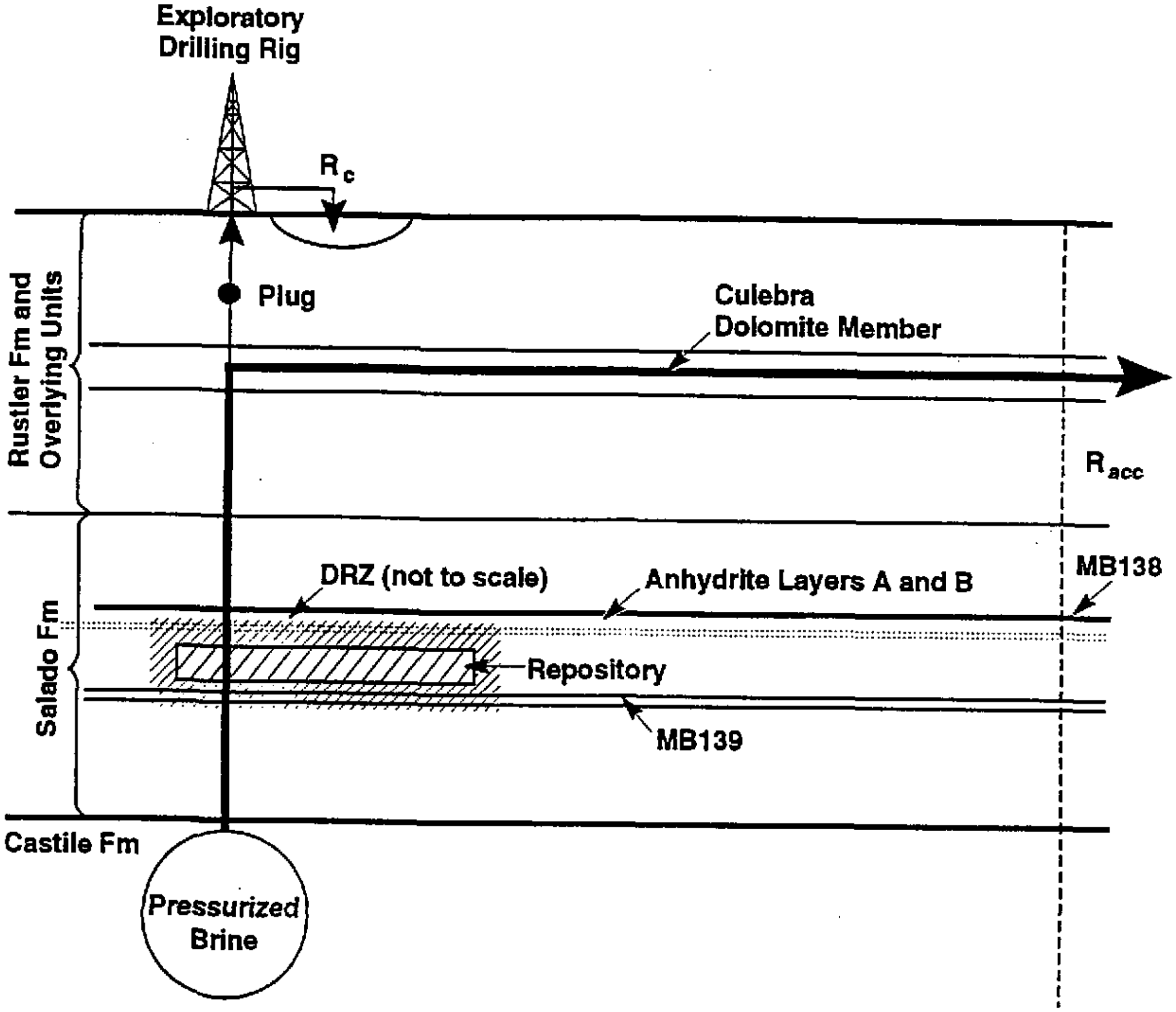
The S2 Scenario is another E1 scenario in which the intrusion occurs at 350 years instead of 1000 years. The borehole properties are the same as in the 1000-year intrusion, but changes take place 650 years earlier. At 350 years, the borehole is open with a permeability of 1.0×10^{-9} m^2 from the Castile brine reservoir up to the surface, except for two plugs, each having a permeability that is sampled from a range of $1.0 \text{ x } 10^{-19}$ to $1.0 \text{ x } 10^{-17}$ m^2 ($5.0 \text{ x } 10^{-17}$ m^2). The plugs are located in the Unnamed Member of the Rustler Formation and in the Santa Rosa Formation. After 200 years, the plugs degrade into silty sand and the rest of the borehole becomes filled silty sand; the entire borehole has a sampled permeability that ranges from 5.0×10^{-17} to 1.0×10^{-11} m^2 (1.0×10^{-14} m^2 to 1.0×10^{-11} m^2). These conditions persist for 1000 years. At 1550 years, the segment of the borehole from the Castile to the waste panel undergoes creep closure, resulting in a decrease in permeability by a factor of 10 from the sampled value. These conditions remain in effect for the remainder of the 10,000 years.

Since the intrusion time is earlier (350 years), not as much gas is generated prior to intrusion. As a result, the pressure in the waste does not build up as high prior to intrusion as in the 1000-year intrusion scenario. The peak pressure observed in the waste panel at the 350-year intrusion is 12.4 MPa (12.2 MPa), compared with 14.0 MPa (14.1 MPa) in the 1000 yr intrusion scenario (S3). However, at later times the peak pressure in S2 is 16.7 MPa versus 15.5 MPa in S6. Because of higher repository pressure at later times, increased fracturing of the marker beds occur. Note that in the CCA, peak repository pressures in the S2 scenario were less than those in the S6 scenario and as a result fracturing did not occur. In the PAVT S2 scenario, the maximum fracture length is 1900 m to the north in MB139 and MB a and b compared to 400 m in S6.

Although peak pressures are higher in S2 than in S3, approximately the same amount of gas is generated over the 10,000 years. The reason for this behavior appears to be that the additional brine provided by the earlier intrusion is used to drive reactions faster. After 1000 years, approximately the same amount of brine is available for the reactions regardless of whether the intrusion occurs at 350 years or 1000 years. The cellulose inventory is again fully consumed in most vectors, as it is in the 1000 yr case, in all but the same 8-10 realizations.

Except for some transients between 350 and 1200 years, the porosity in the waste differs very little from the later intrusion. After the first few hundred years, the porosity is a damped response to pressure and tracks the waste pressure very closely. After about 1200 years, the pressure in the waste behaves similarly in both the earlier and later intrusions. Because the pressure in the waste panel is less at the time of intrusion when the intrusion occurs at 350 years, more brine is able to flow immediately into the panel from the Castile — a maximum of 115,000 m^3 (53,000 m^3) compared with 87,000 (44,000 m^3) immediately following the 1000-year intrusion. However, maximum brine flow up the borehole from the top of the DRZ is approximately the same because the long-term flows, which are the largest, are controlled primarily by the large Castile brine pocket. As in the S3 scenario, only very small amounts of uncontaminated brine (<1.2 m^3) flowed upward in the borehole beyond the top of the Rustler. Since the amount of gas generated is approximately the same regardless off intrusion time, the lower initial pressure results in a correspondingly lower driving force for brine up the borehole. As in all other scenarios and replicates, very little brine flows up the borehole beyond the Rustler in any realization in this scenario; almost all of it flows into the Culebra.

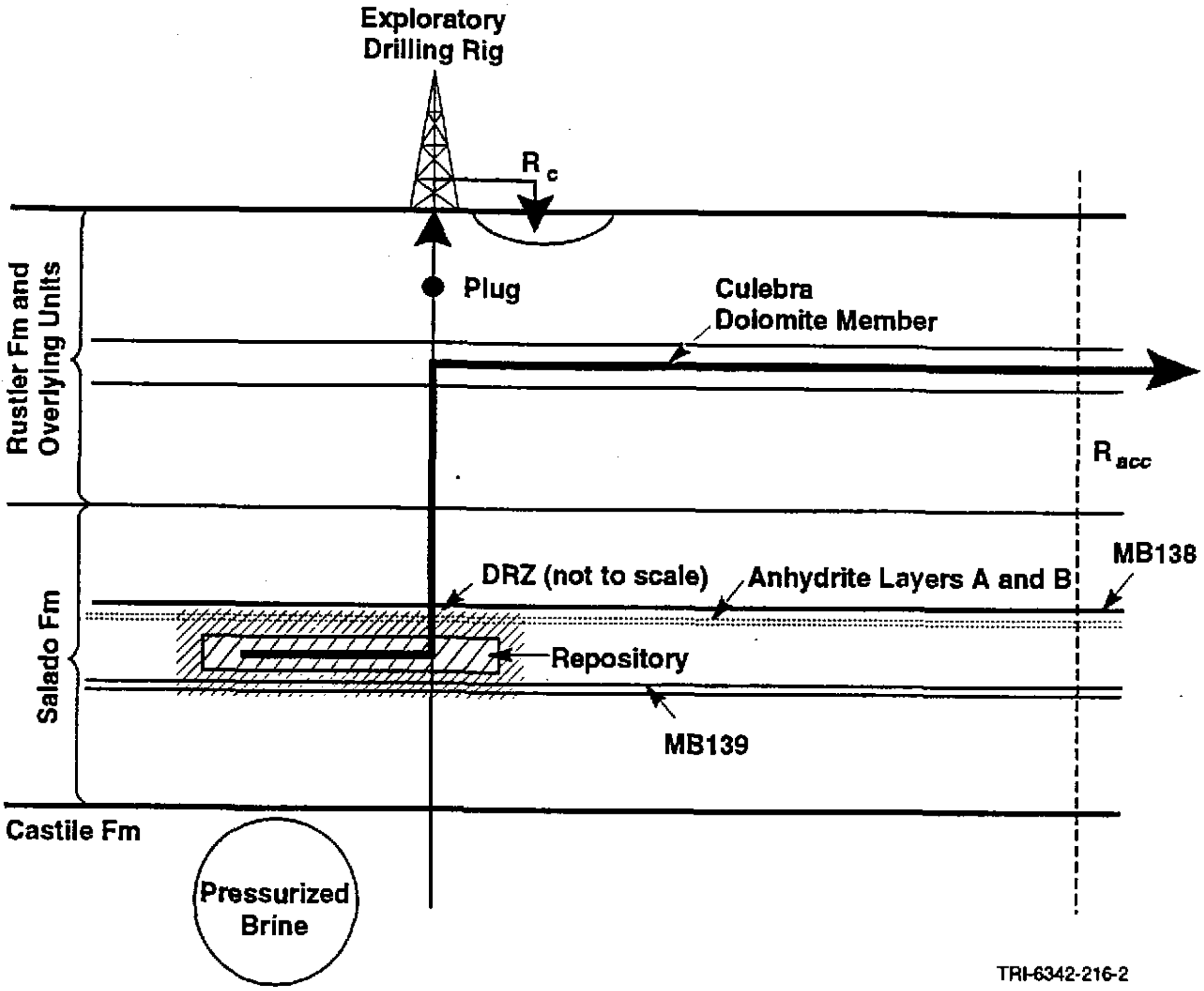
Net brine flow into the DRZ from the marker beds is about the same for the 350-year intrusion as for the 1000-year intrusion. The maximum amount is slightly lower at 26,000 m^3 in S2 than the 32,800 m^3 in S3 (in the CCA the corresponding volumes were 62,000 m^3 vs. 64,000 m^3 in the 1000-year intrusion). Conversely, net brine flow out of the DRZ and into the marker beds is higher in the earlier intrusion. The maximum outflow is 8200 (233 m^3), compared with 3800 m^3 (670 m^3) after the later intrusion. The maximum brine outflow in all marker beds across the land withdrawal boundary is similar in both S2 and S3, 2500 m^3 (0.8 m^3) and 2600 m^3 (1.3 m^3), respectively.



TRI-6342-215-2

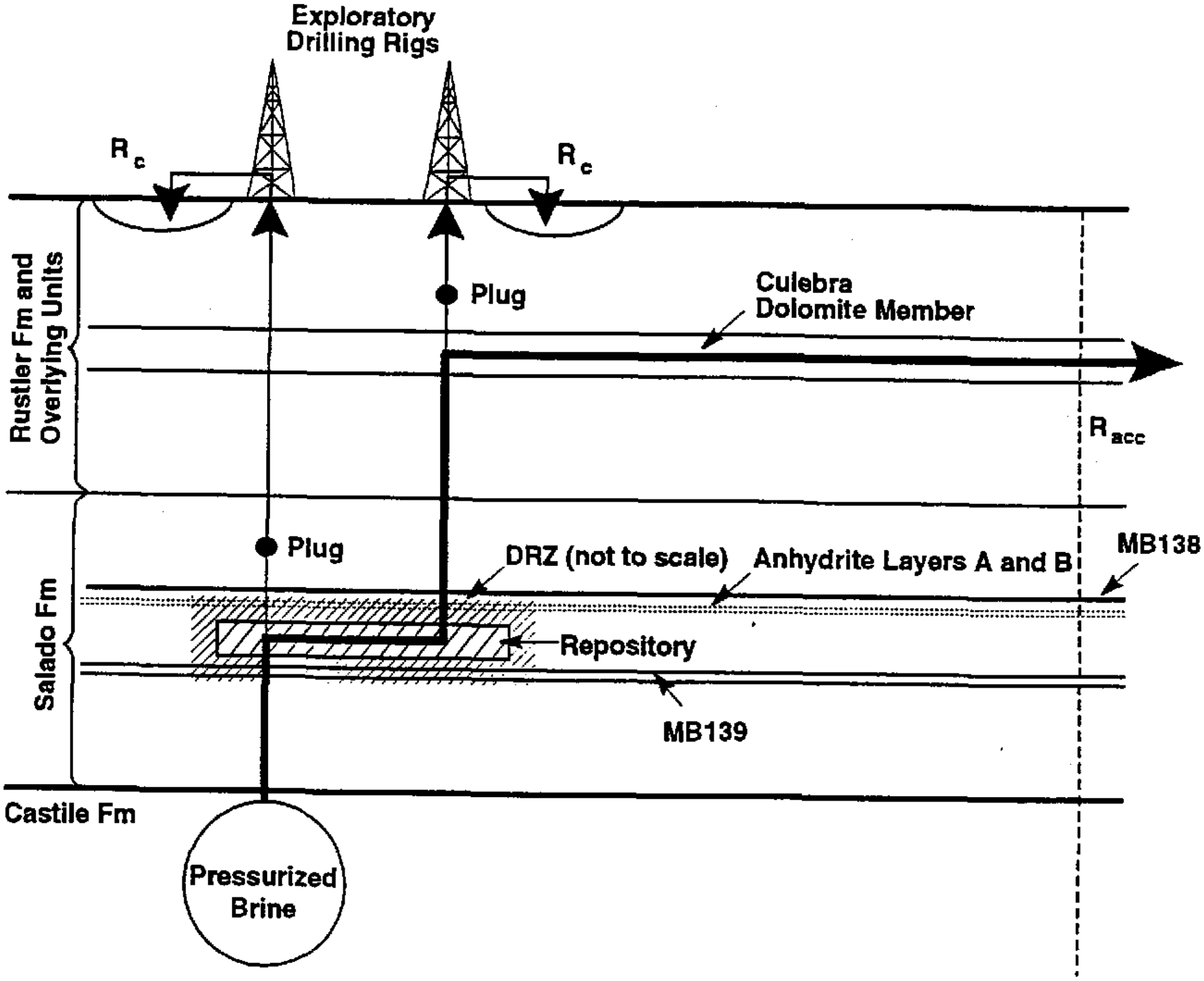
A.2- 1

Figure ~~7.2-1.~~ Conceptual model for scenario E1. Arrows indicate assumed direction of flow. Exploratory borehole penetrates pressurized brine below the repository horizon. R_c is the release of material directly from the drilling operation. R_{acc} is the release at the subsurface boundary of the accessible environment. A plug above the Culebra Dolomite Member is assumed to remain intact for 10,000 years.



A.2-2

Figure ~~7.2-2.~~ Conceptual model for scenario E2. Arrows indicate assumed direction of flow. Exploratory borehole does not penetrate pressurized brine below the repository horizon. R_c is the release of material directly from the drilling operation. R_{acc} is the release at the subsurface boundary of the accessible environment. A plug above the Culebra Dolomite Member is assumed to remain intact for 10,000 years.



A.2-3

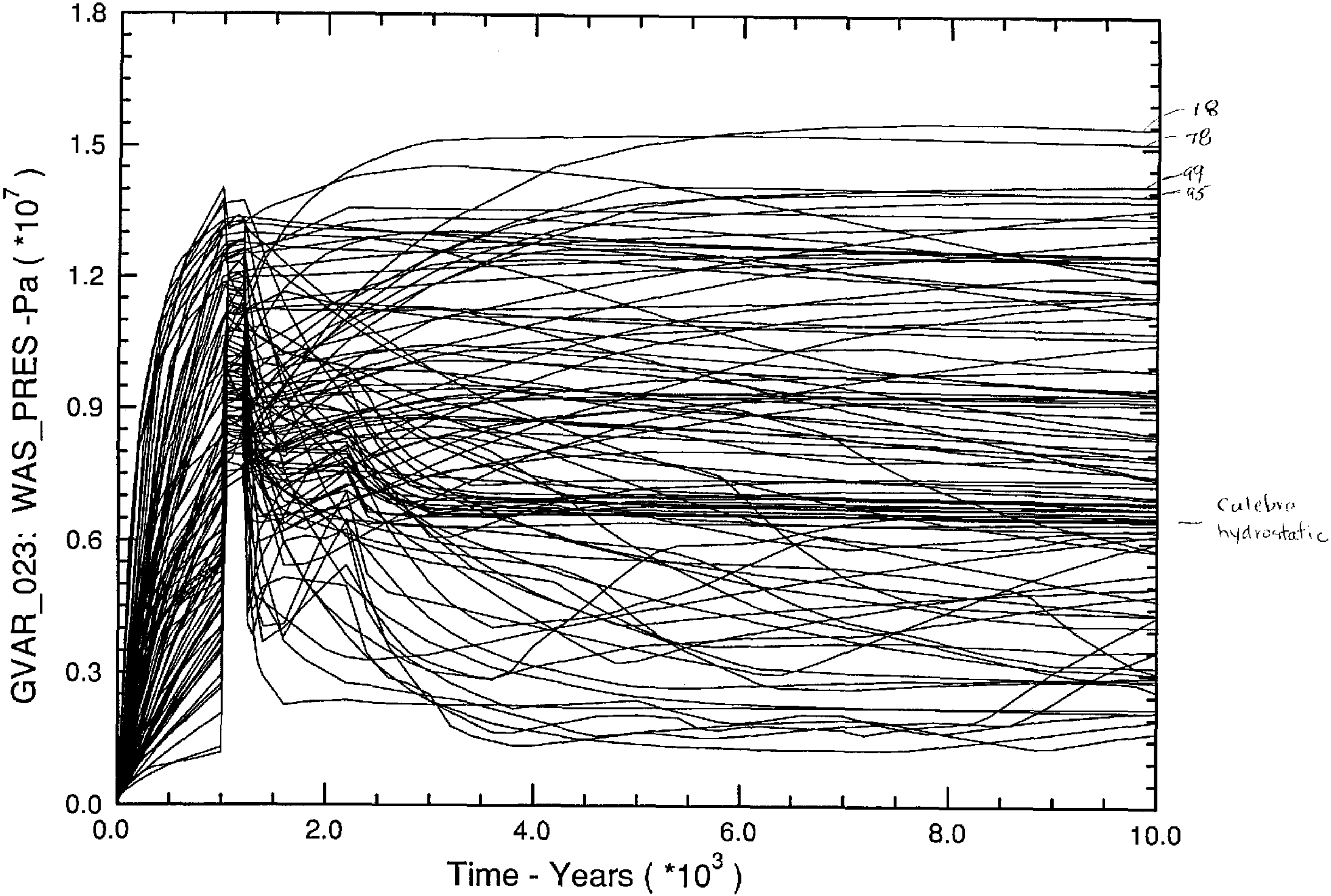
TRI-6342-217-2

Figure ~~7.2-3.~~ Conceptual model for scenario E1E2. Arrows indicate assumed direction of flow. One exploratory borehole penetrates pressurized brine below the repository horizon a plug between the repository and the Culebra Dolomite Member is assumed to remain intact for 10,000 years. The second borehole does not penetrate pressurized brine below the repository; a plug above the Culebra Dolomite Member is assumed to remain intact for 10,000 years. R_c is the release of material directly from the drilling operation. R_{acc} is the release at the subsurface boundary of the accessible environment.

Fig. A.2.1-1

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Volume-Averaged Pressure in Waste Panel



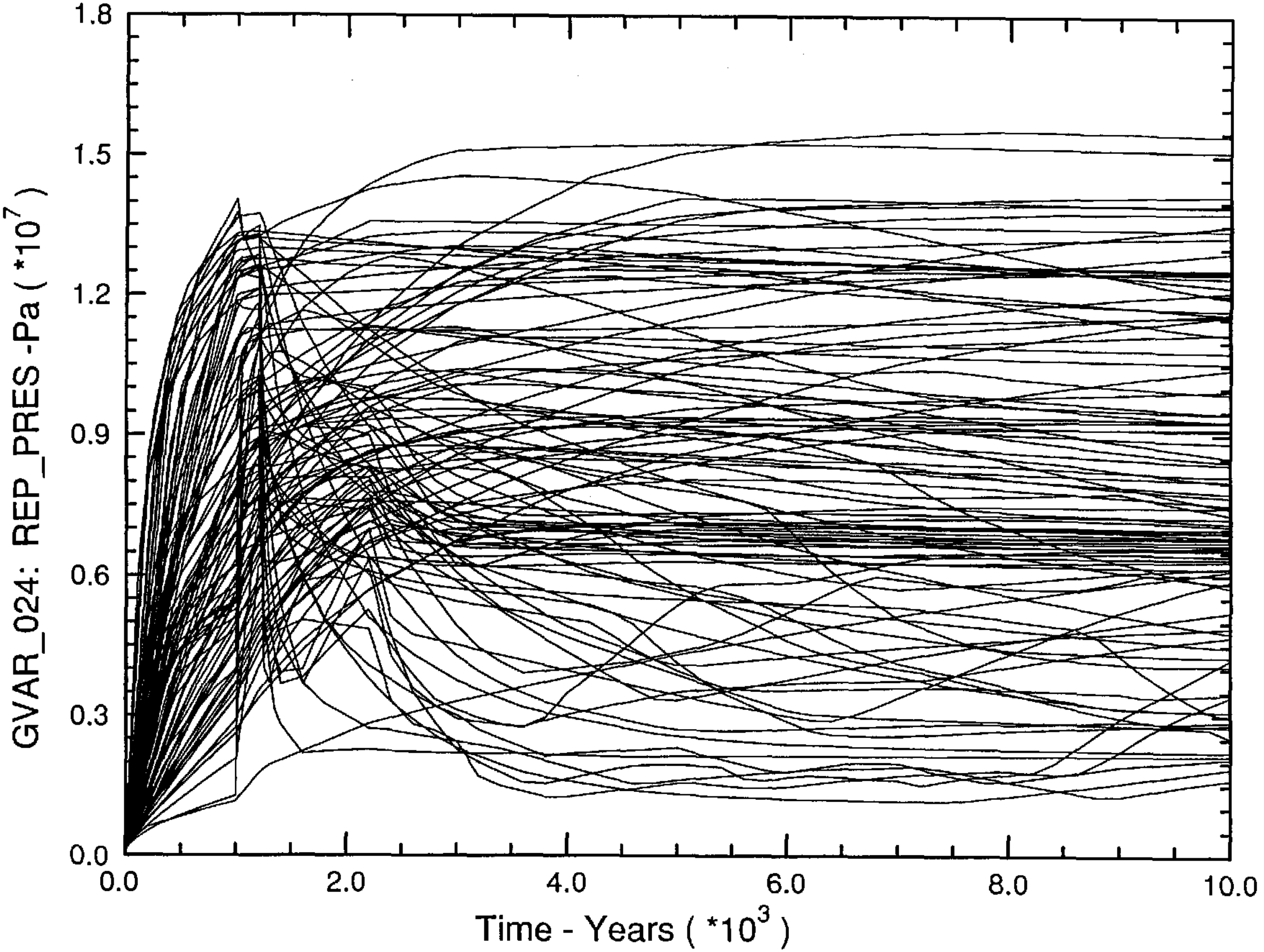
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H023.INP;1

SPLAT_PA96_2 1.02 05/27/97 08:49:36

Fig. A.2.1-2

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S3)

Volume-Averaged Pressure in Rest of Repository



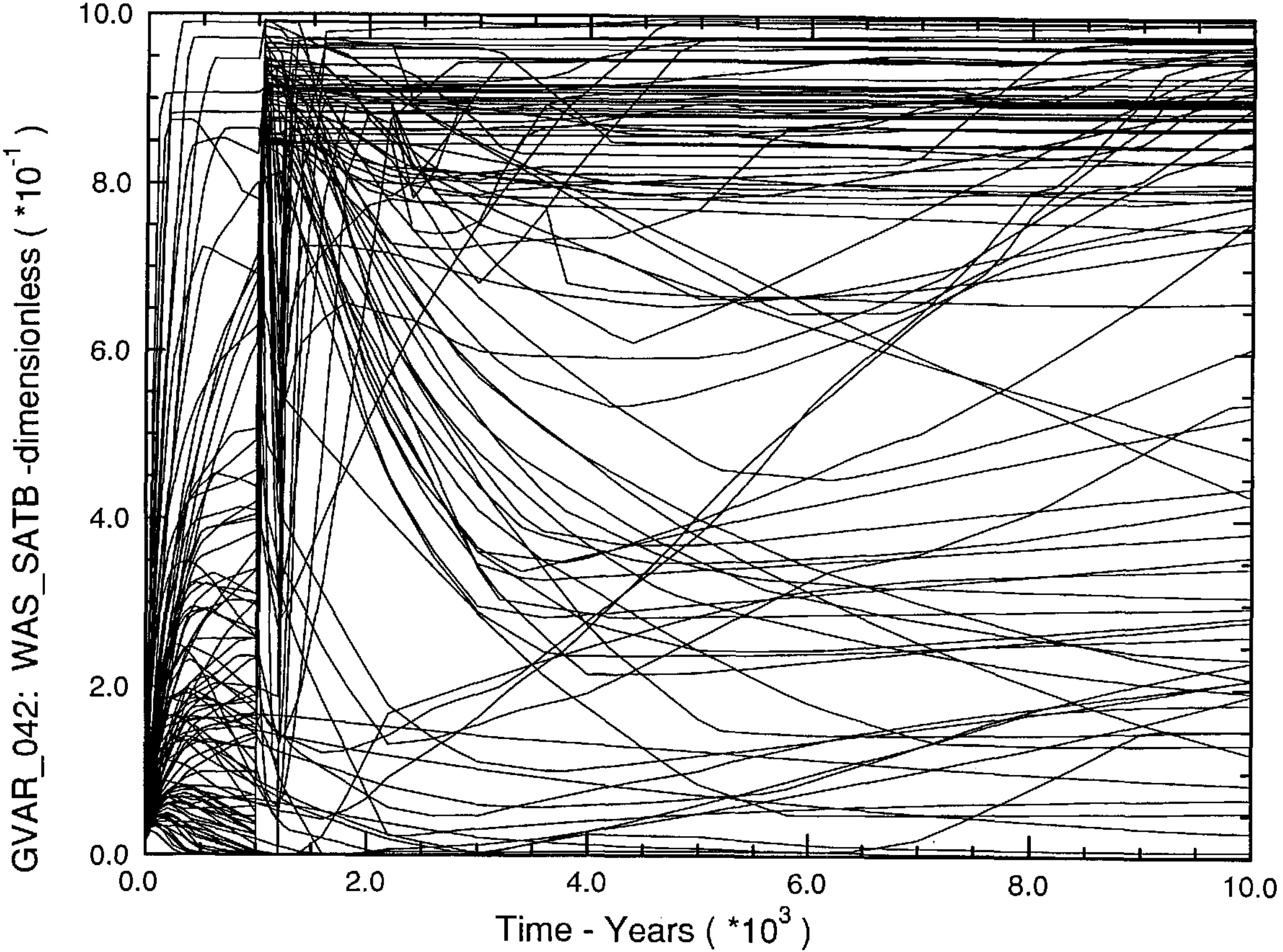
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H024.INP;1

SPLAT_PA96_2 1.02 05/27/97 08:52:26

Fig. A.2.1-3

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S3)

Volume-Averaged Brine Saturation in Waste Panel



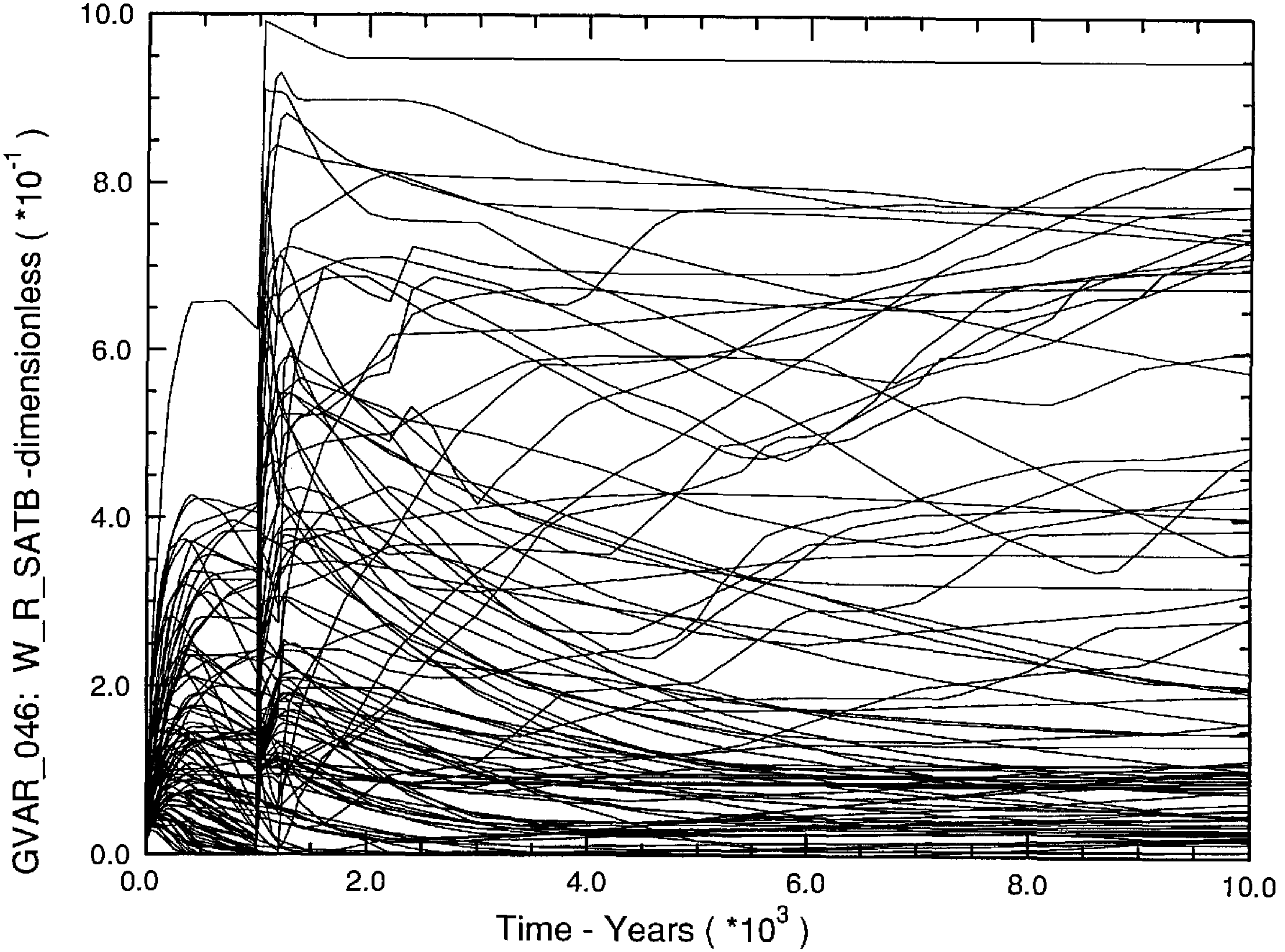
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H042.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:40:24

Fig. 4.2.1-4

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Volume-Averaged Brine Saturation in Waste Panel plus Rest of Repository



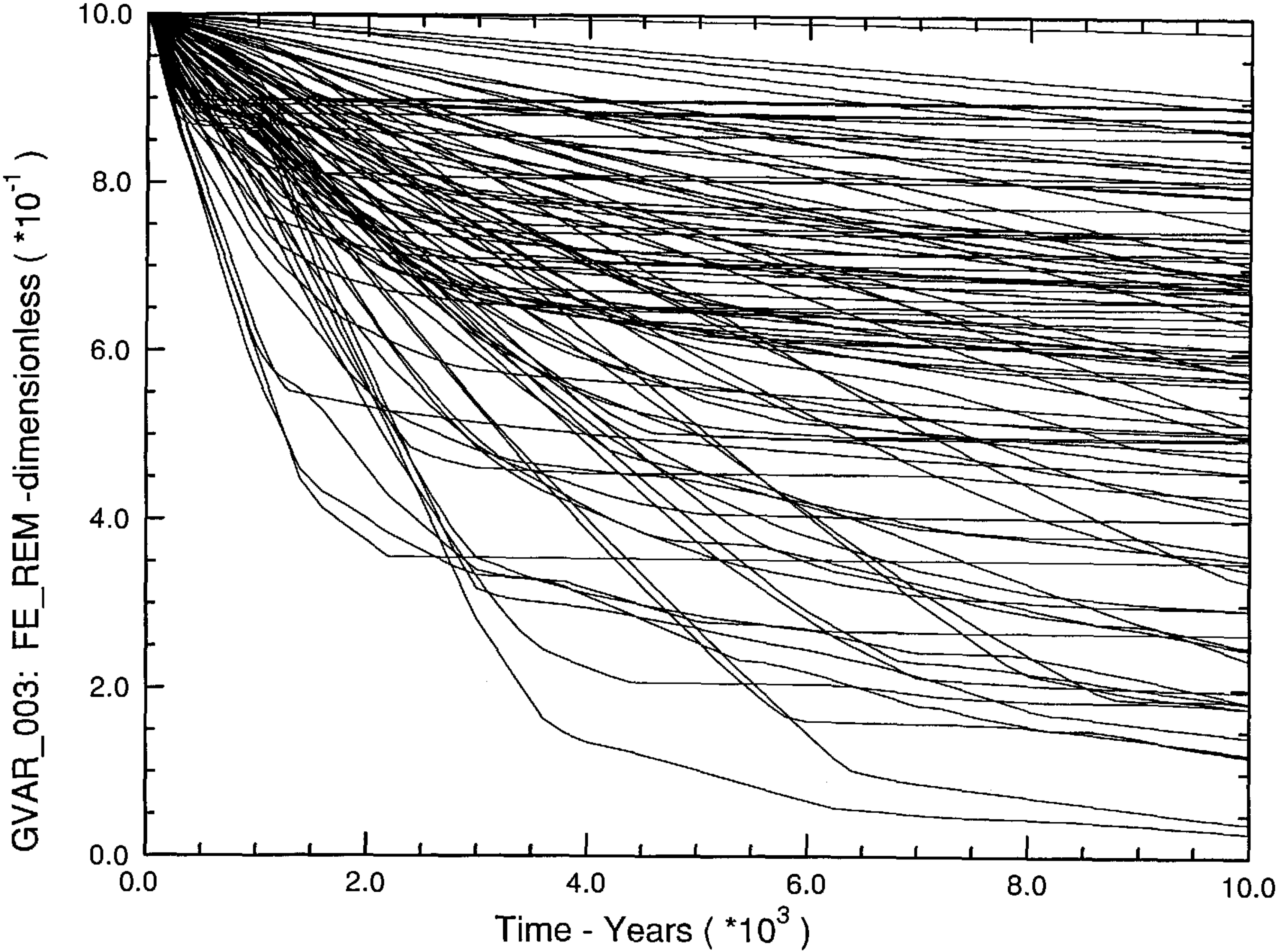
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H046.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:51:00

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Remaining Fraction of Steel Inventory

Fig. A.2.1-5



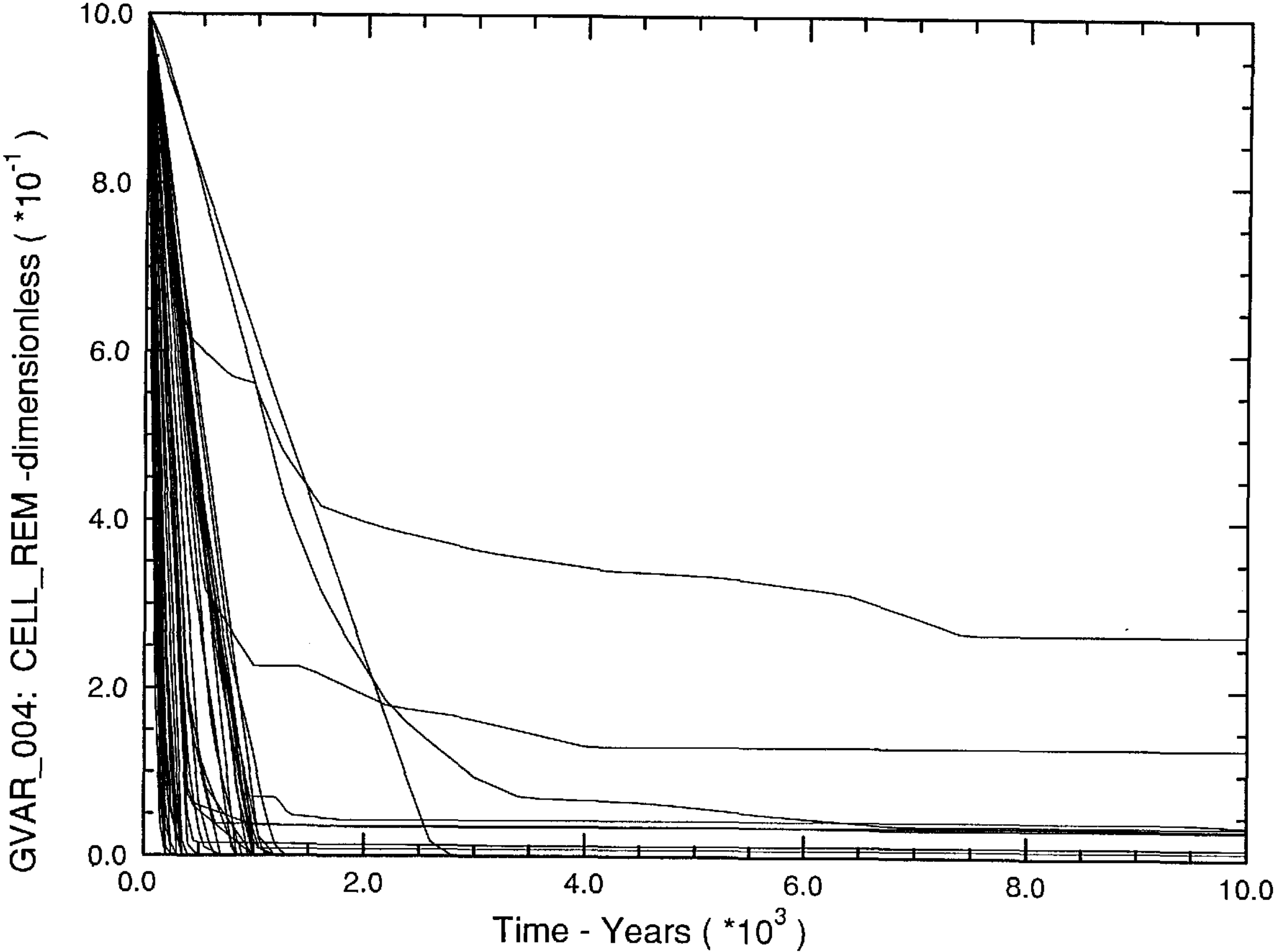
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H003.INP;1

SPLAT_PA96_2 1.02 05/27/97 07:56:59

Fig. A.2.1-6

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Remaining Fraction of Cellulose Inventory



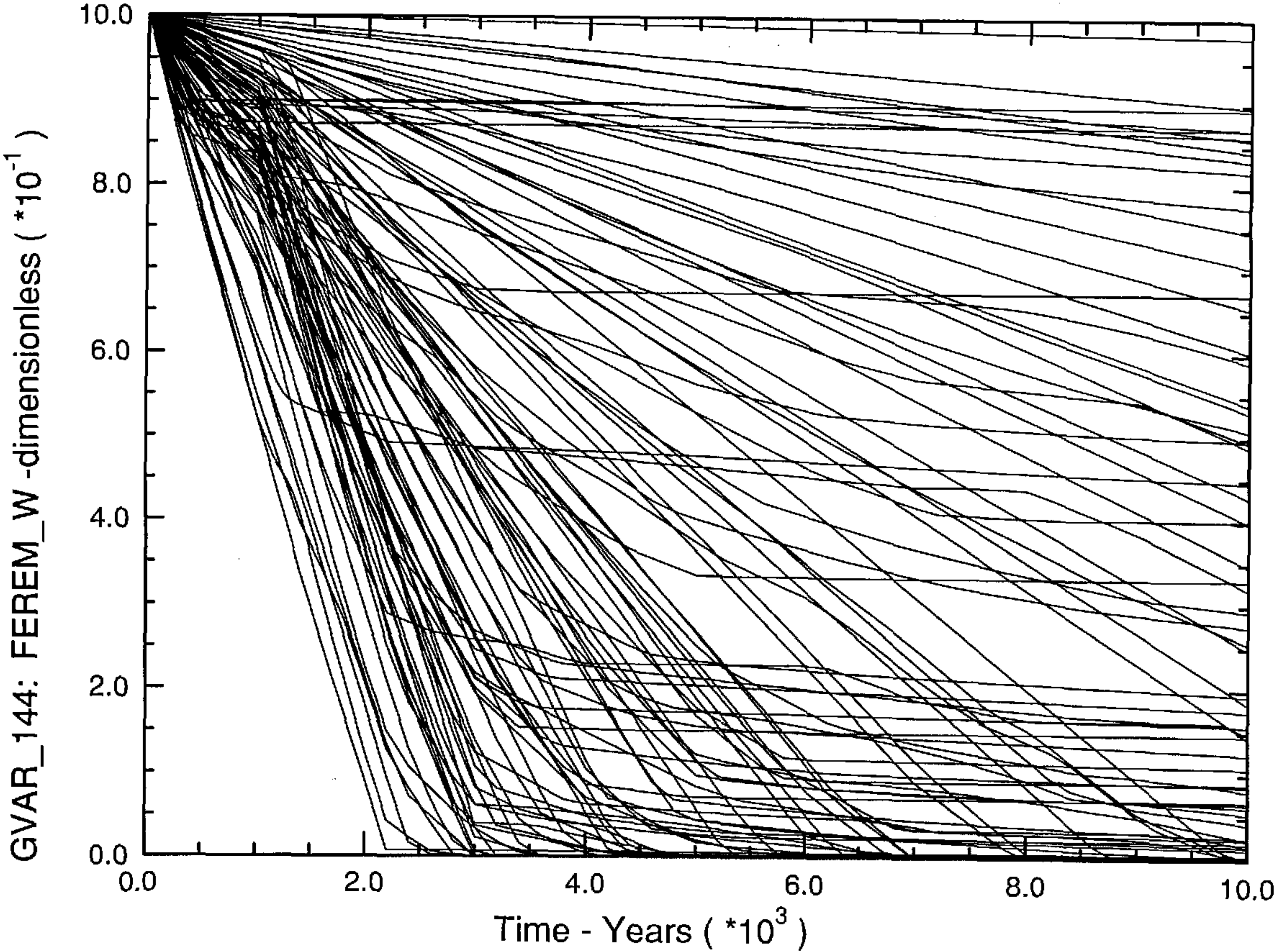
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H004.INP;1

SPLAT_PA96_2 1.02 05/27/97 07:59:34

Fig. A.2.1-7

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S3)

Remaining Fraction of Steel Inventory in Waste Panel



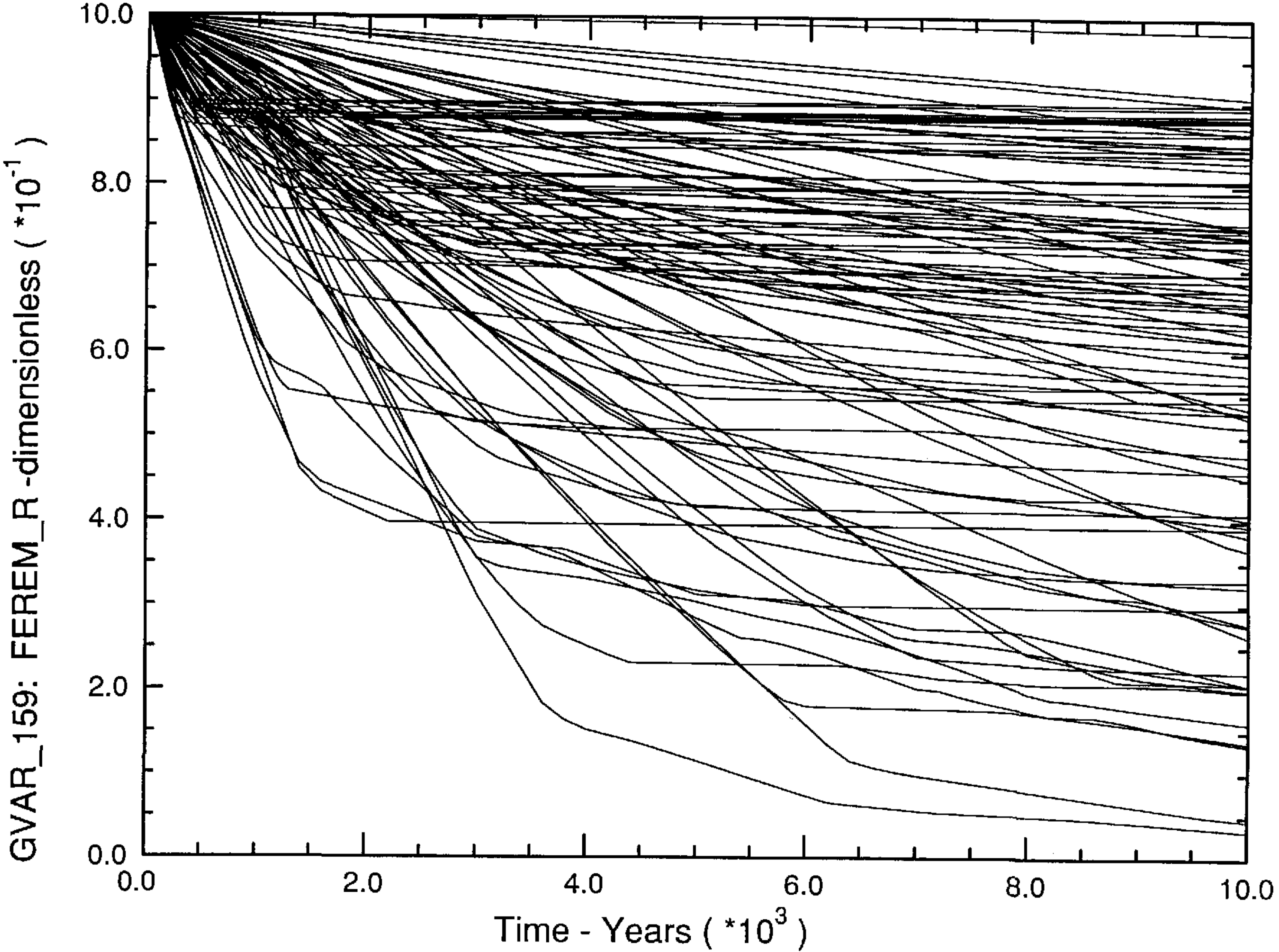
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H144.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:13:01

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Remaining Fraction of Steel Inventory in Rest of Repository

Fig. A.2.1-8



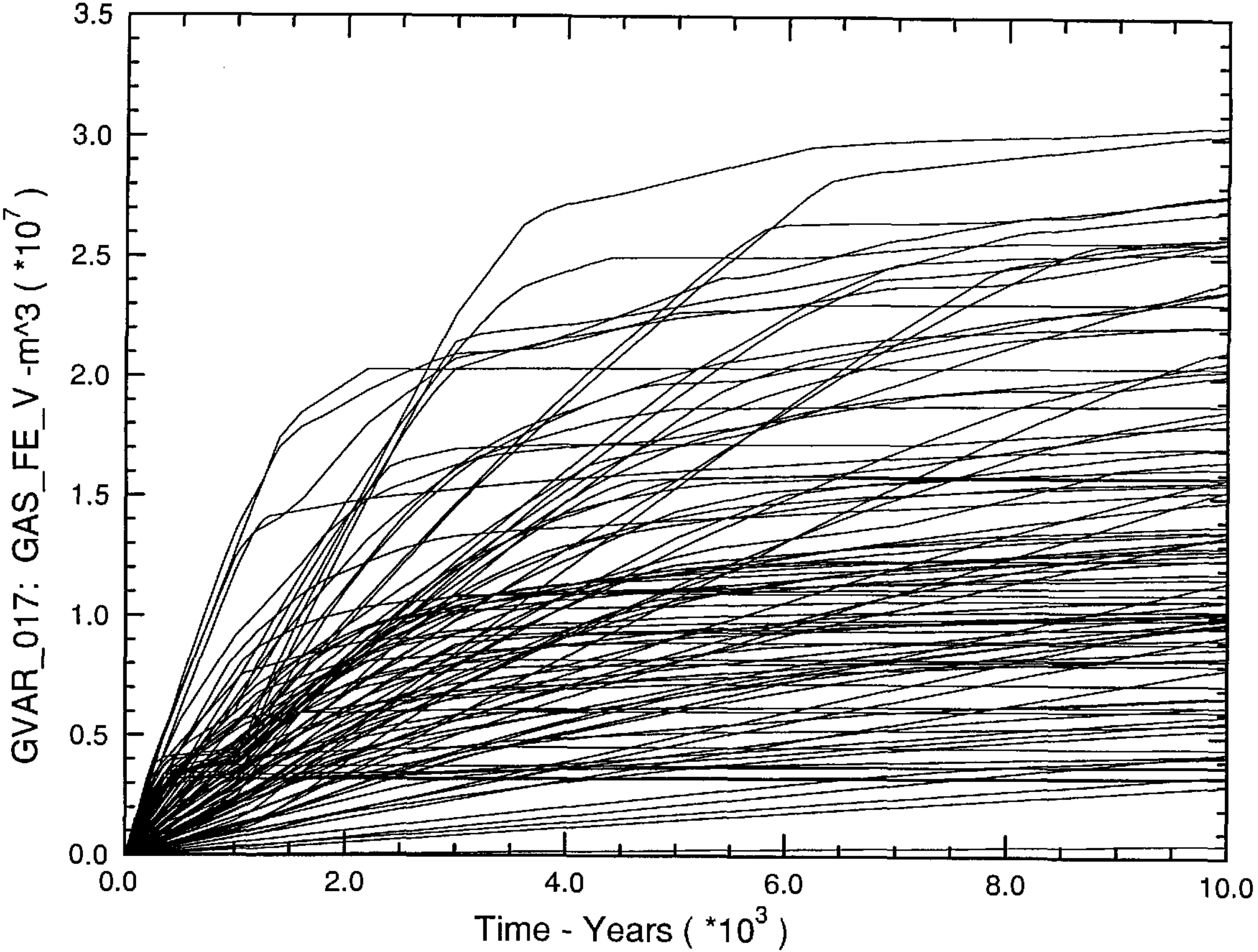
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H159.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:52:46

Fig. A.2.1-9

SNL WIPP C97: BRAGFLO SIM●ATIONS (C97 R1 S3)

Total Gas Volume Generated by Corrosion



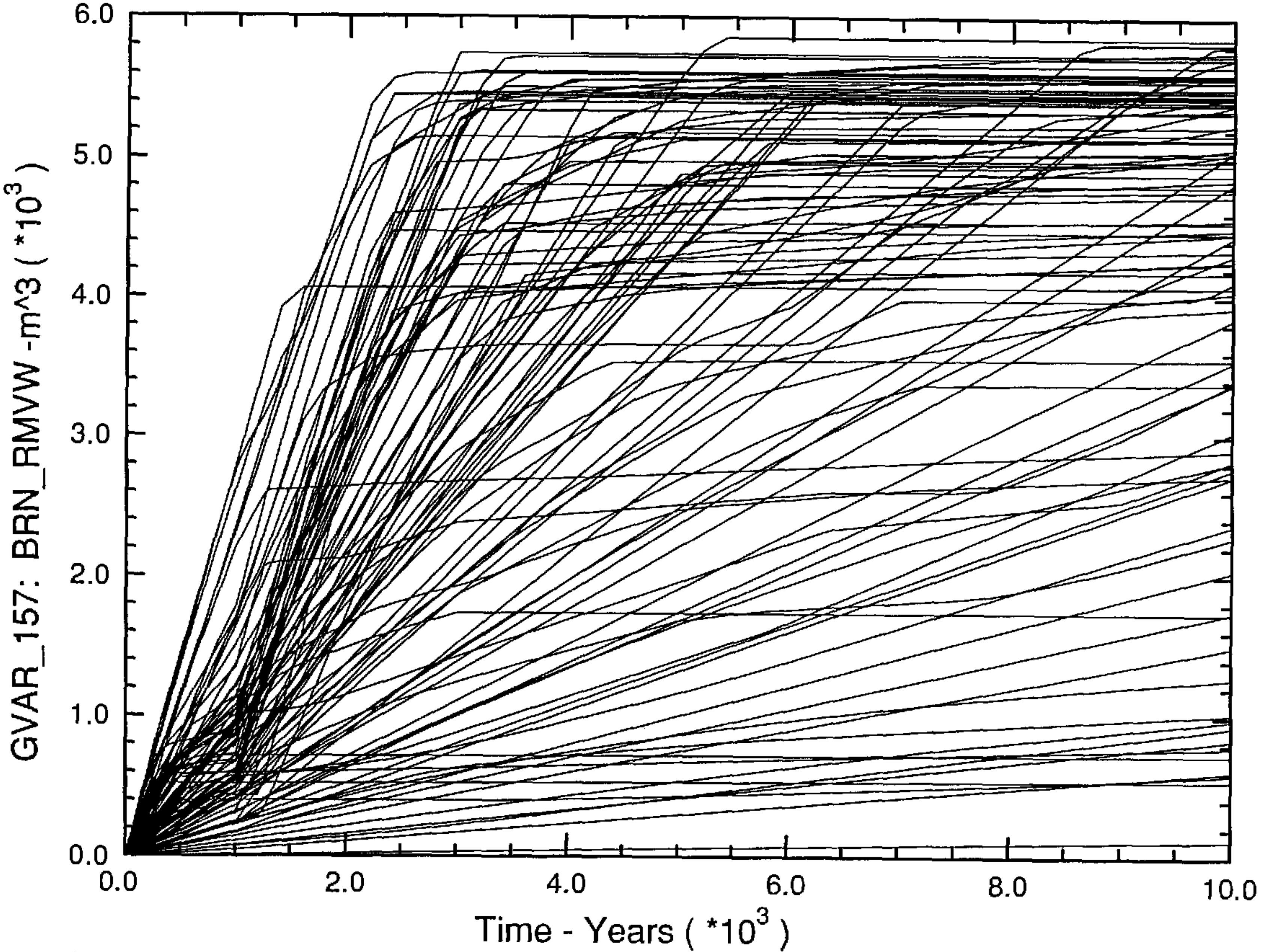
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H017.INP;1

SPLAT_PA96_2 1.02 05/27/97 08:33:17

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Brine Consumed in Waste Panel

Fig. A.2.1-10



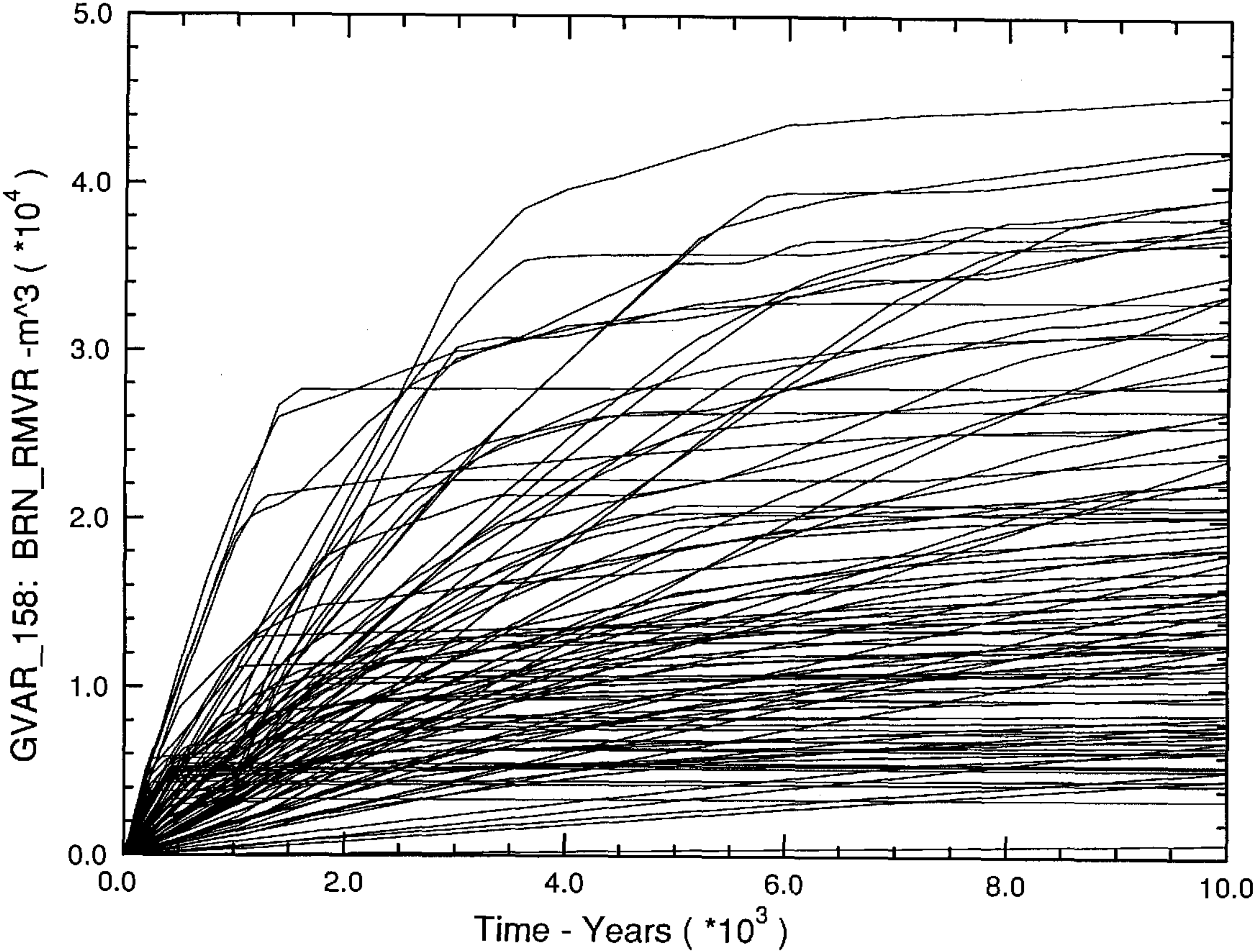
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H157.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:47:28

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Brine Consumed in Rest of Repository

Fig A.2.1-11



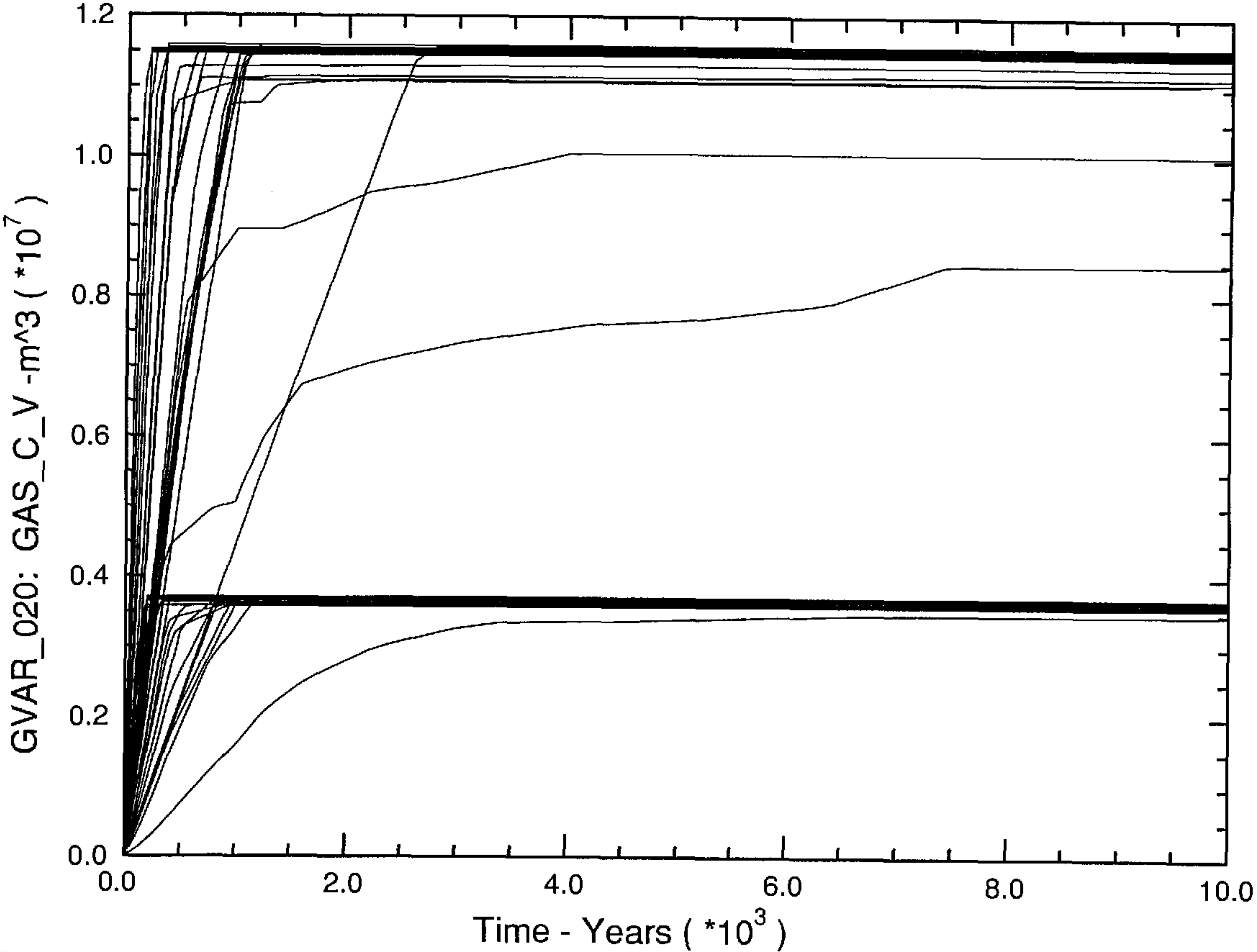
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H158.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:50:07

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Total Gas Volume Generated by Microbial

Fig. A.2.1-12



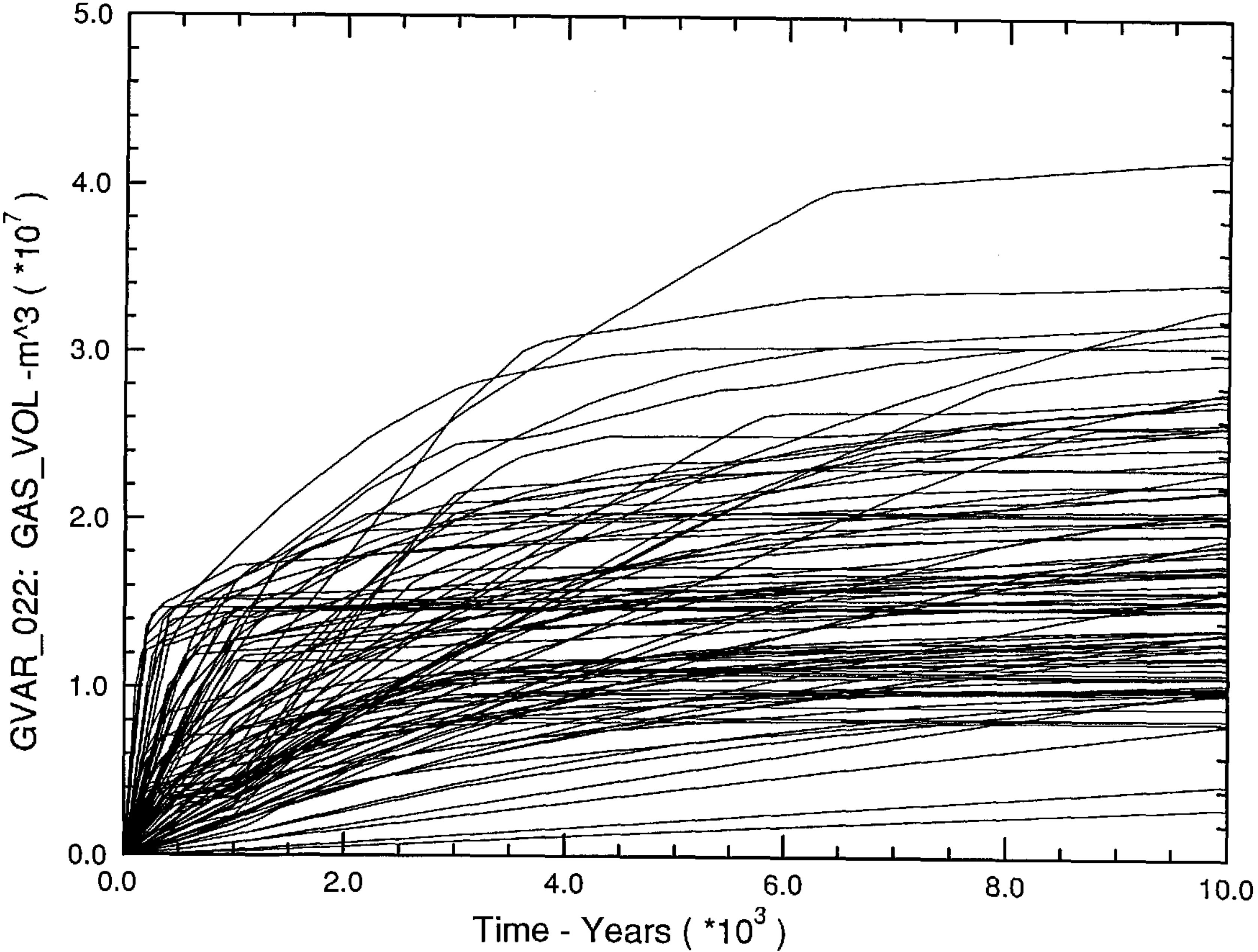
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H020.INP;1

SPLAT_PA96_2 1.02 05/27/97 08:41:25

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S3)

Total Gas Volume Generated

Fig. A.2.1-13



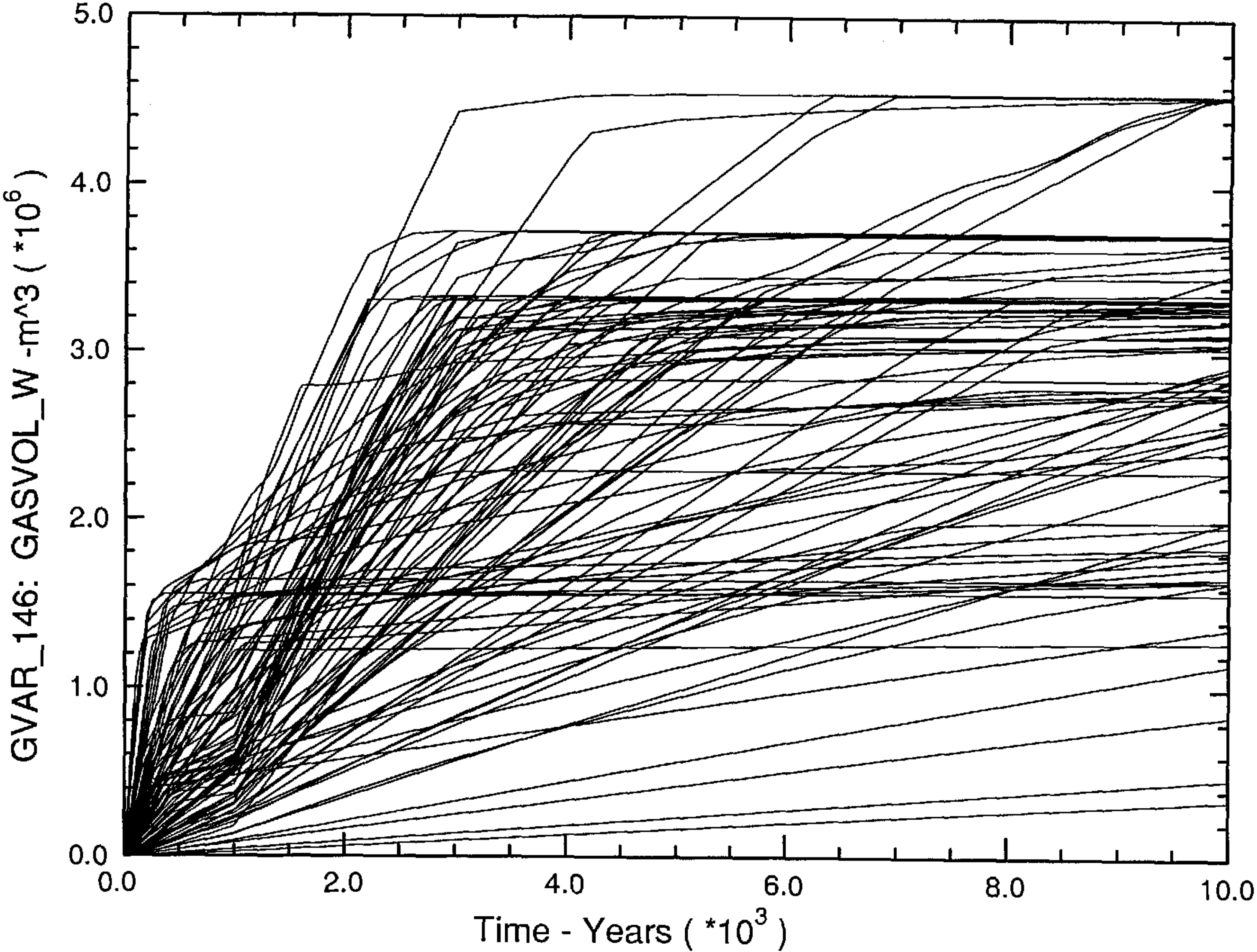
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H022.INP;1

SPLAT_PA96_2 1.02 05/27/97 08:46:51

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Total Gas Volume Generated in Waste Panel

Fig. A.2.1-14



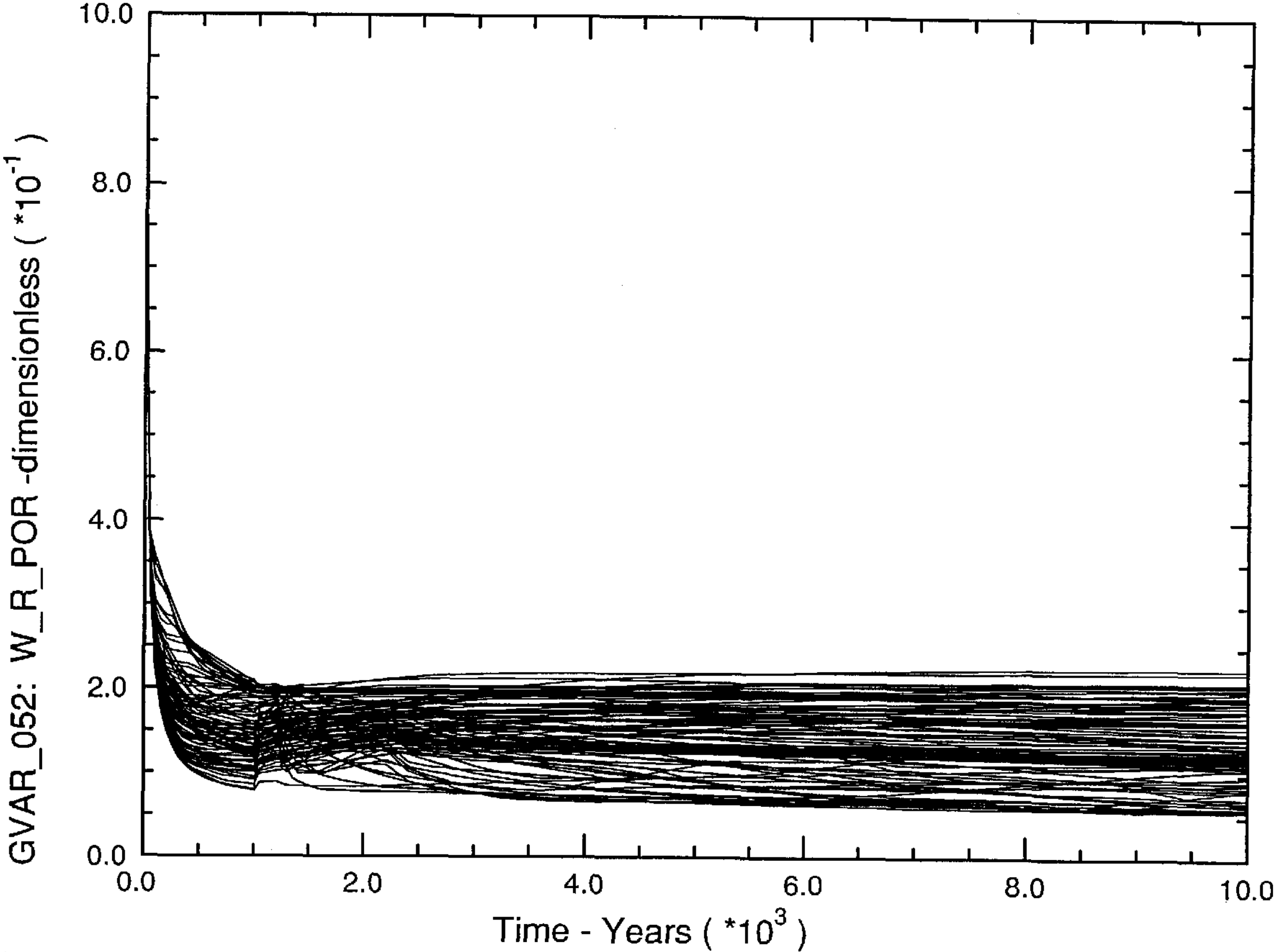
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H146.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:18:20

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Volume-Averaged Porosity in Waste Panel plus Rest of Repository

Fig. A.2.1-15



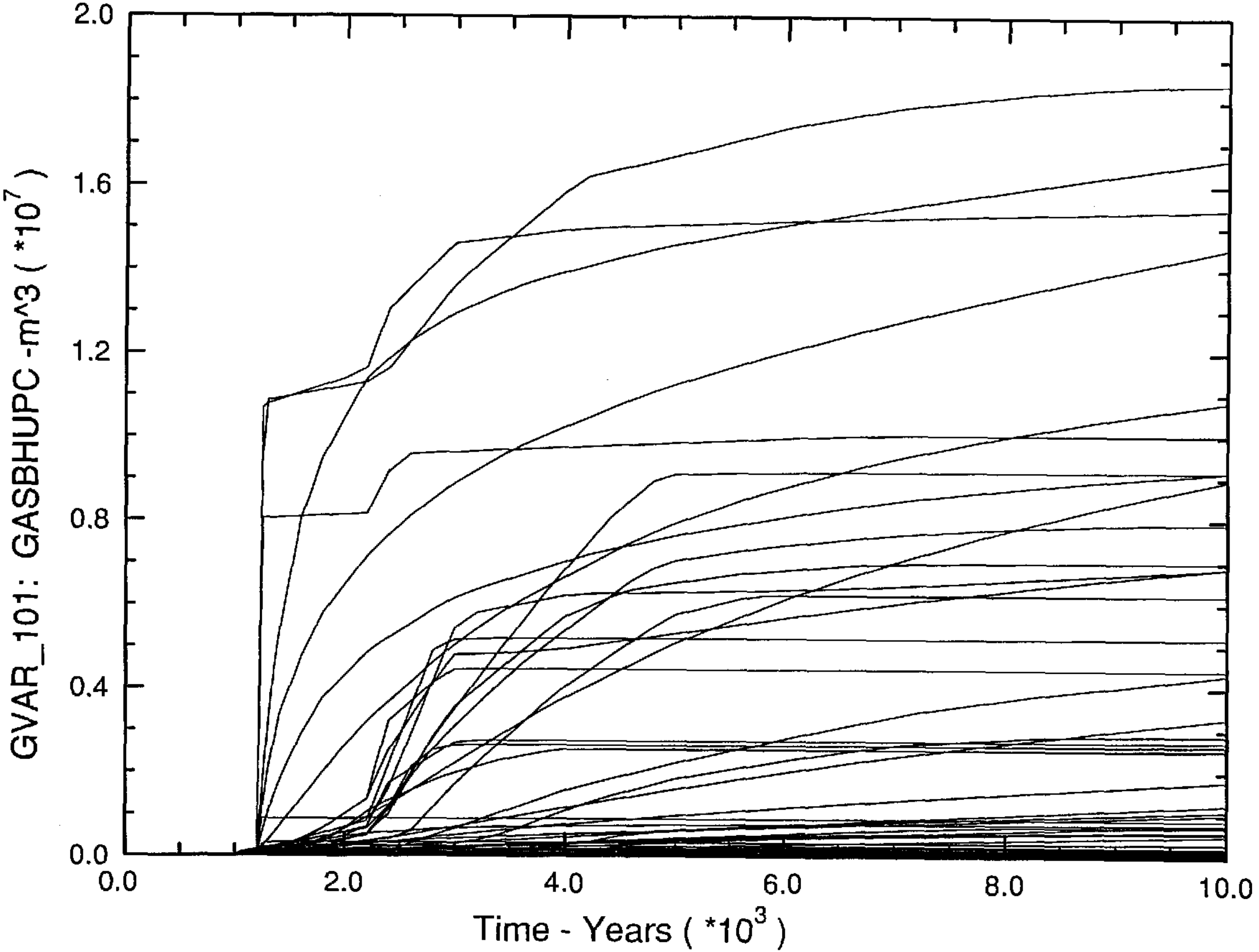
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H052.INP;1

SPLAT_PA96_2 1.02 05/27/97 10:07:02

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S3)

Cumulative Gas Flow up Borehole at Top of Panel (E:471)

Fig. A.2.1-16



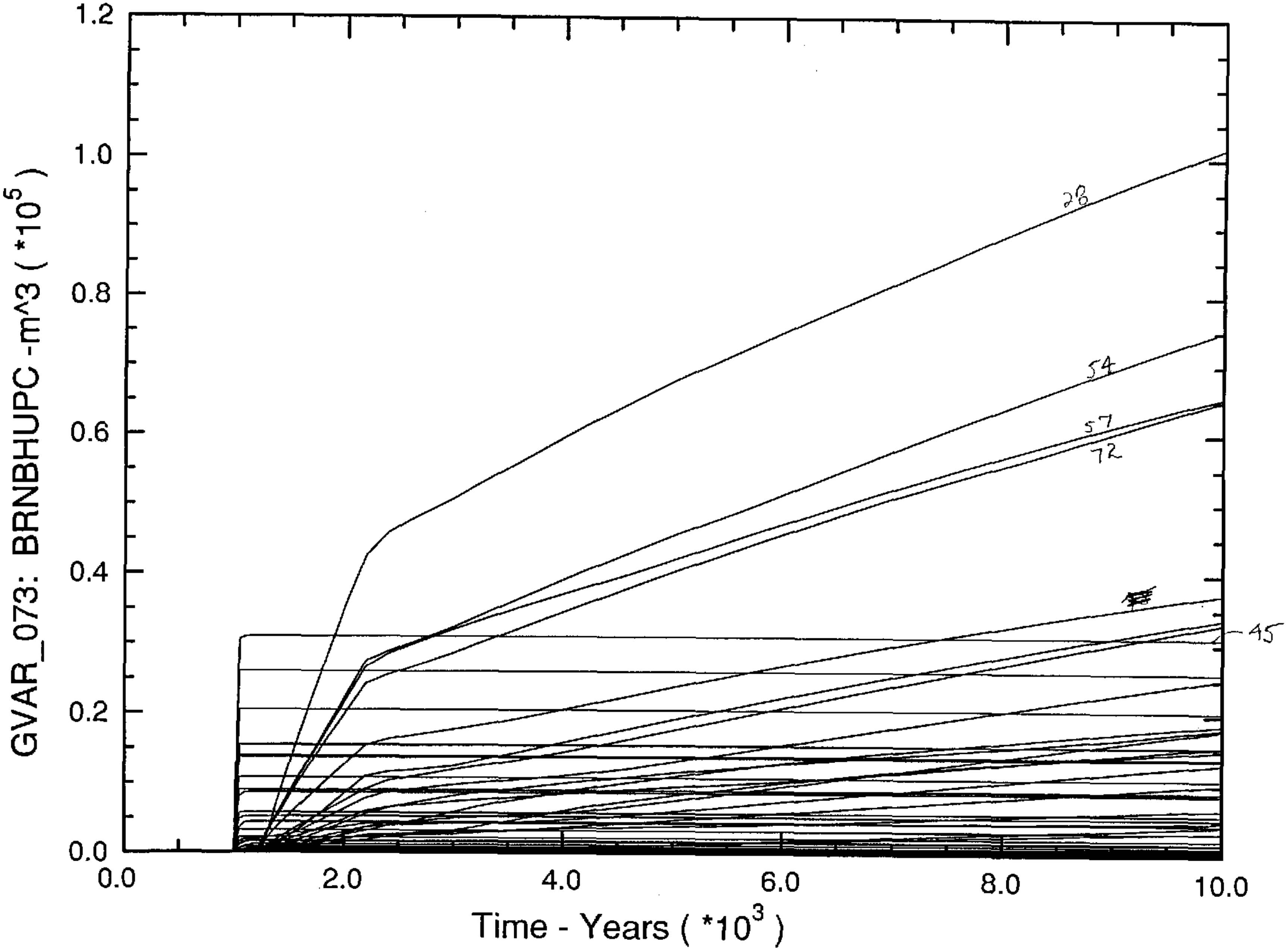
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H101.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:18:22

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Brine Flow Up Borehole at Top of Panel

Fig. A.2.1-17



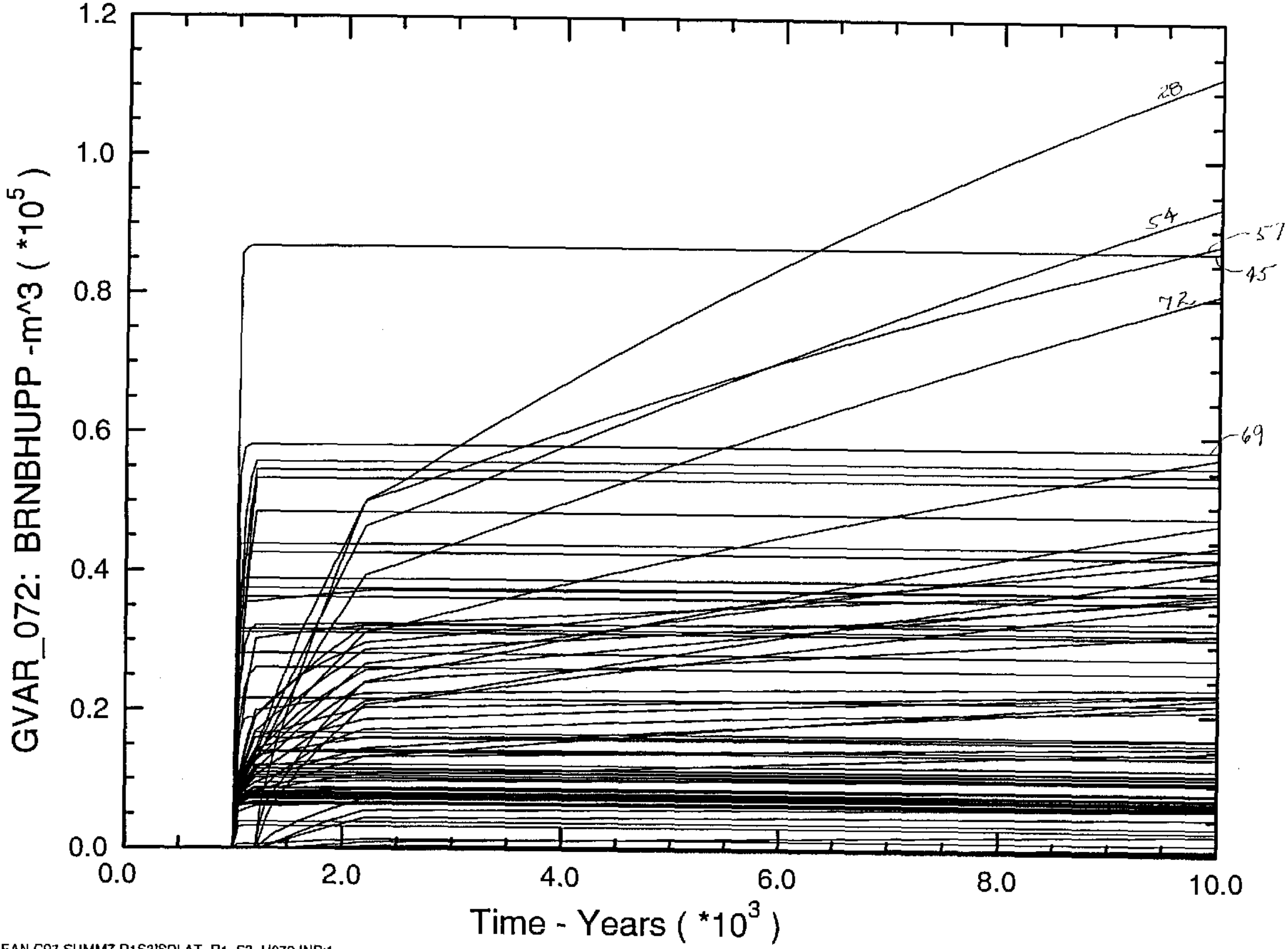
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H073.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:03:38

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S3)

Cumulative Brine Flow up Borehole at Bottom of Panel (E:599)

Fig. A.2.1-18



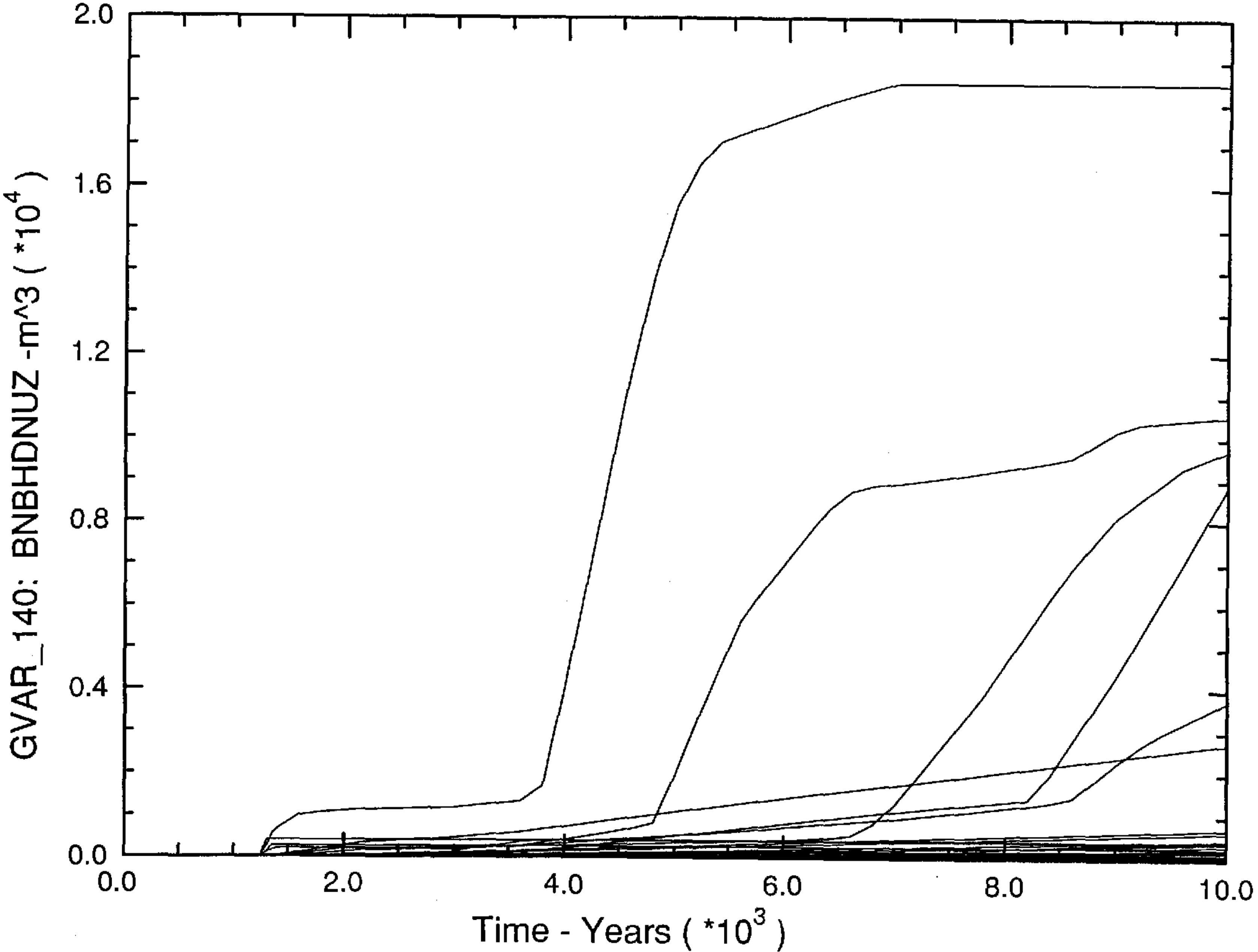
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H072.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:00:54

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Brine Flow Down Borehole at MB 138 (E:223)

Fig. A.2.1-19



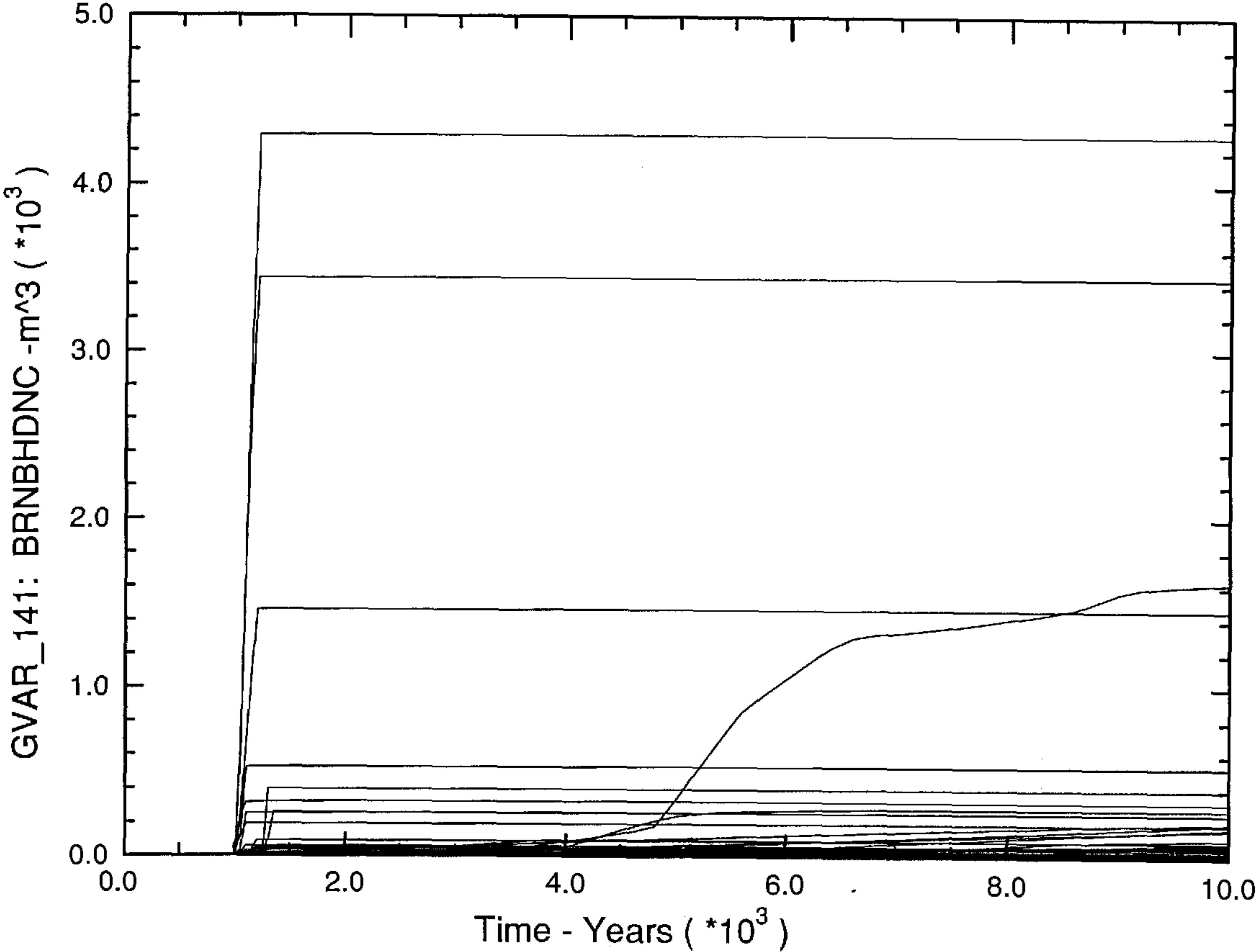
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H140.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:02:22

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Brine Flow Down Borehole at Top of Panel (E:471)

Fig A.2.1-20



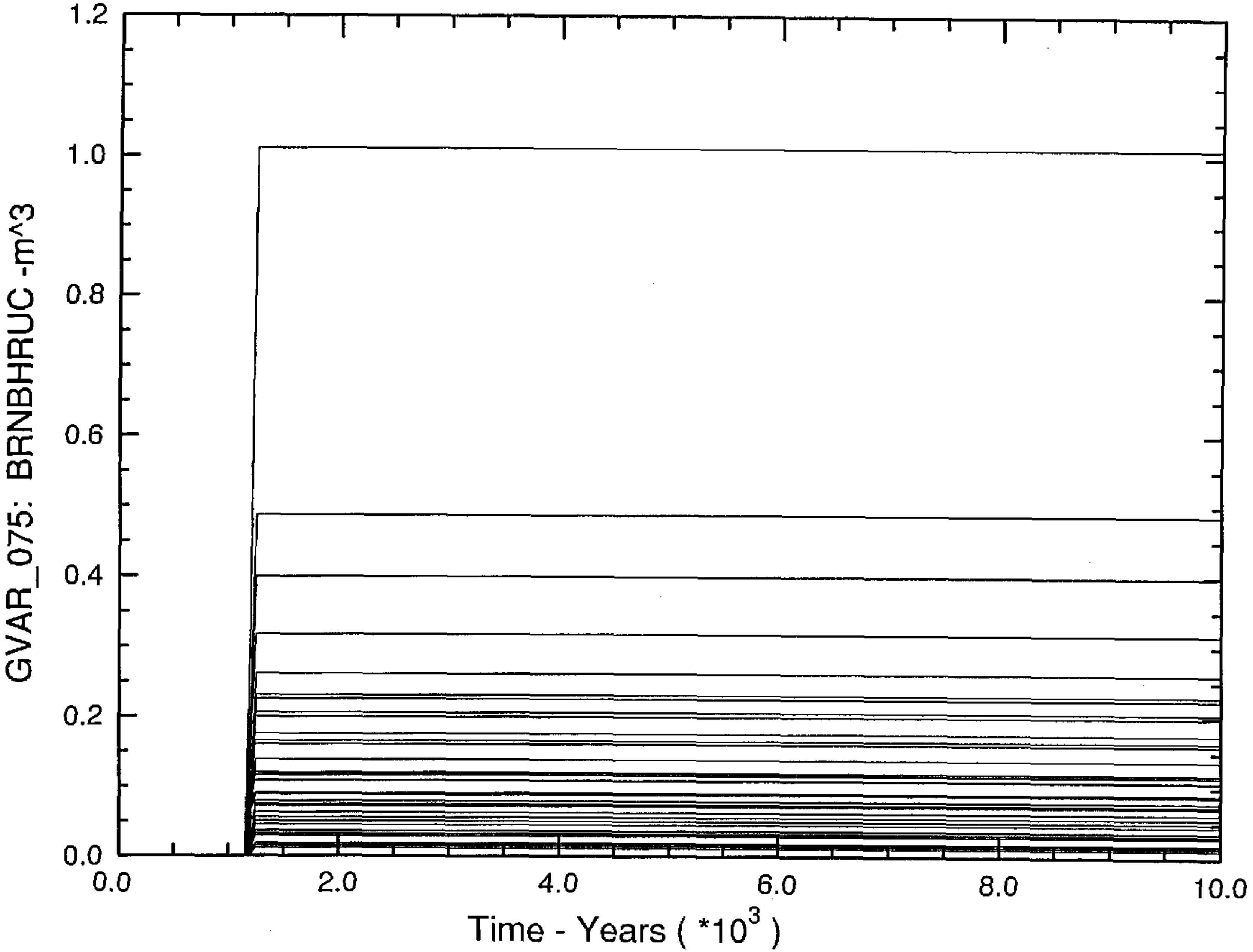
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H141.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:04:59

Fig. A.2.1-21

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Brine Flow up Borehole at Top of Rustler (E:841)



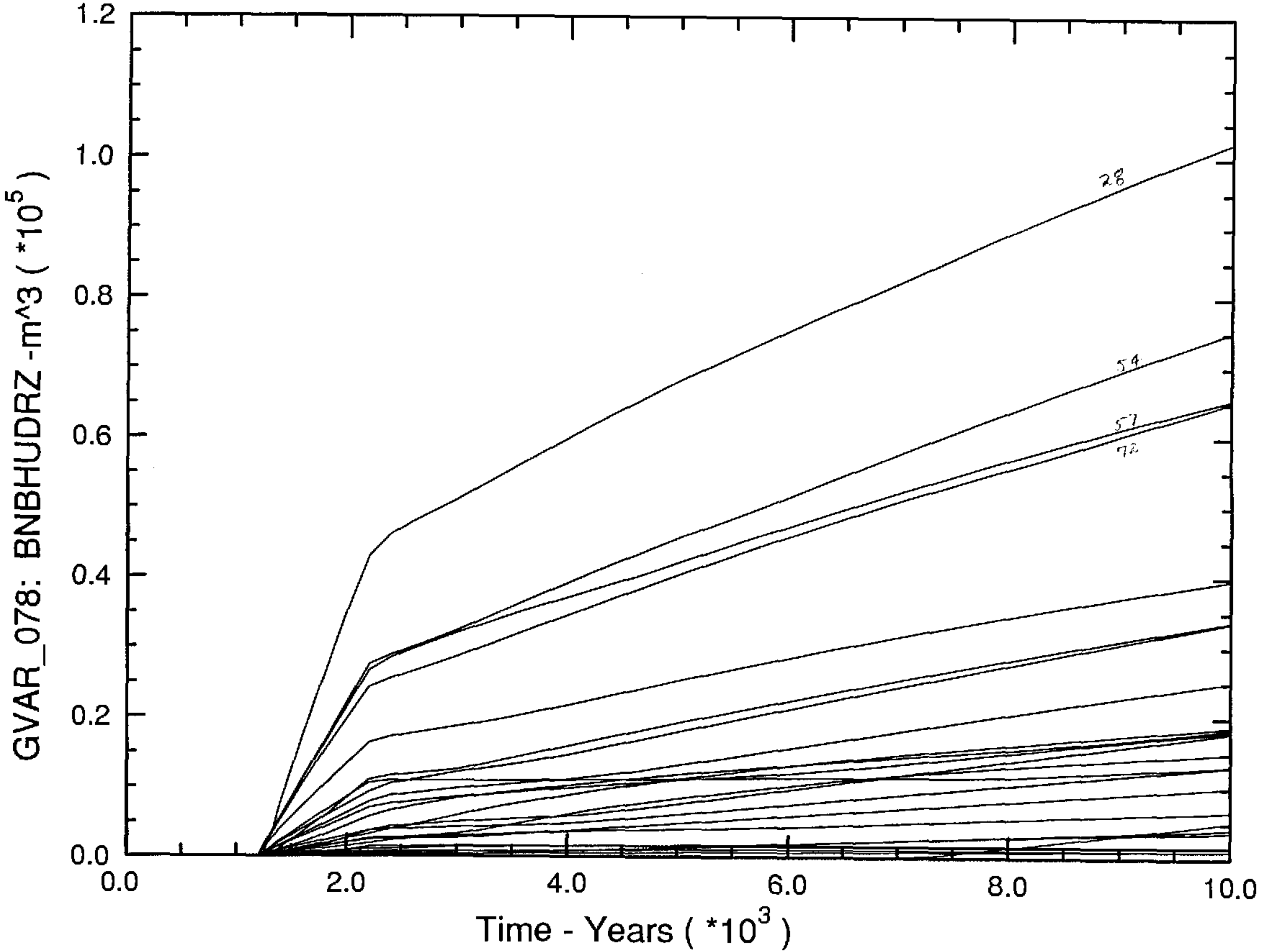
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H075.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:08:54

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S3)

Cumulative Brine Flow up Borehole from Top of Upper DRZ (E:575)

Fig. A.2.1-22



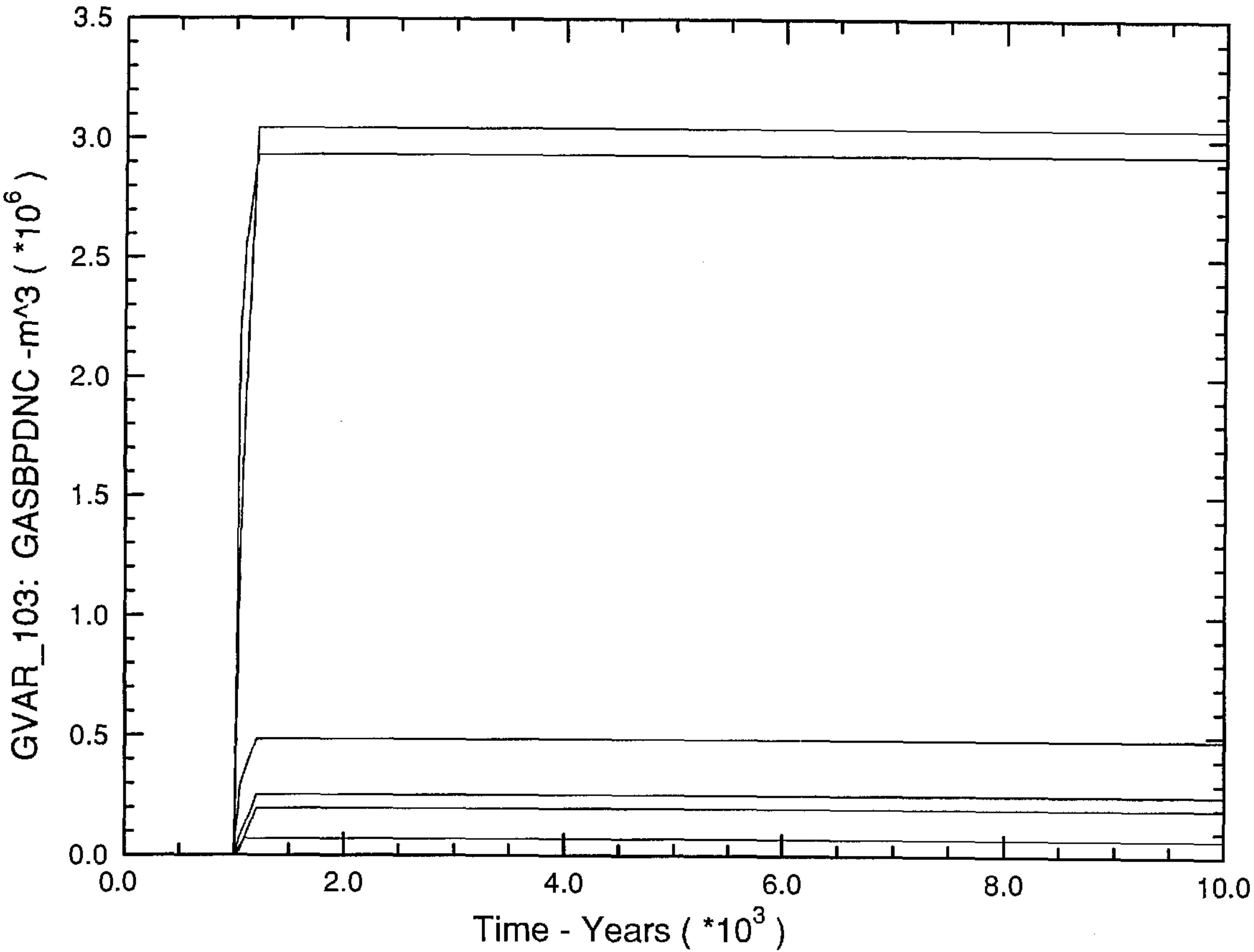
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H078.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:17:31

Fig. A.2.1-23

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Gas Flow into Brine Pocket (E:985)



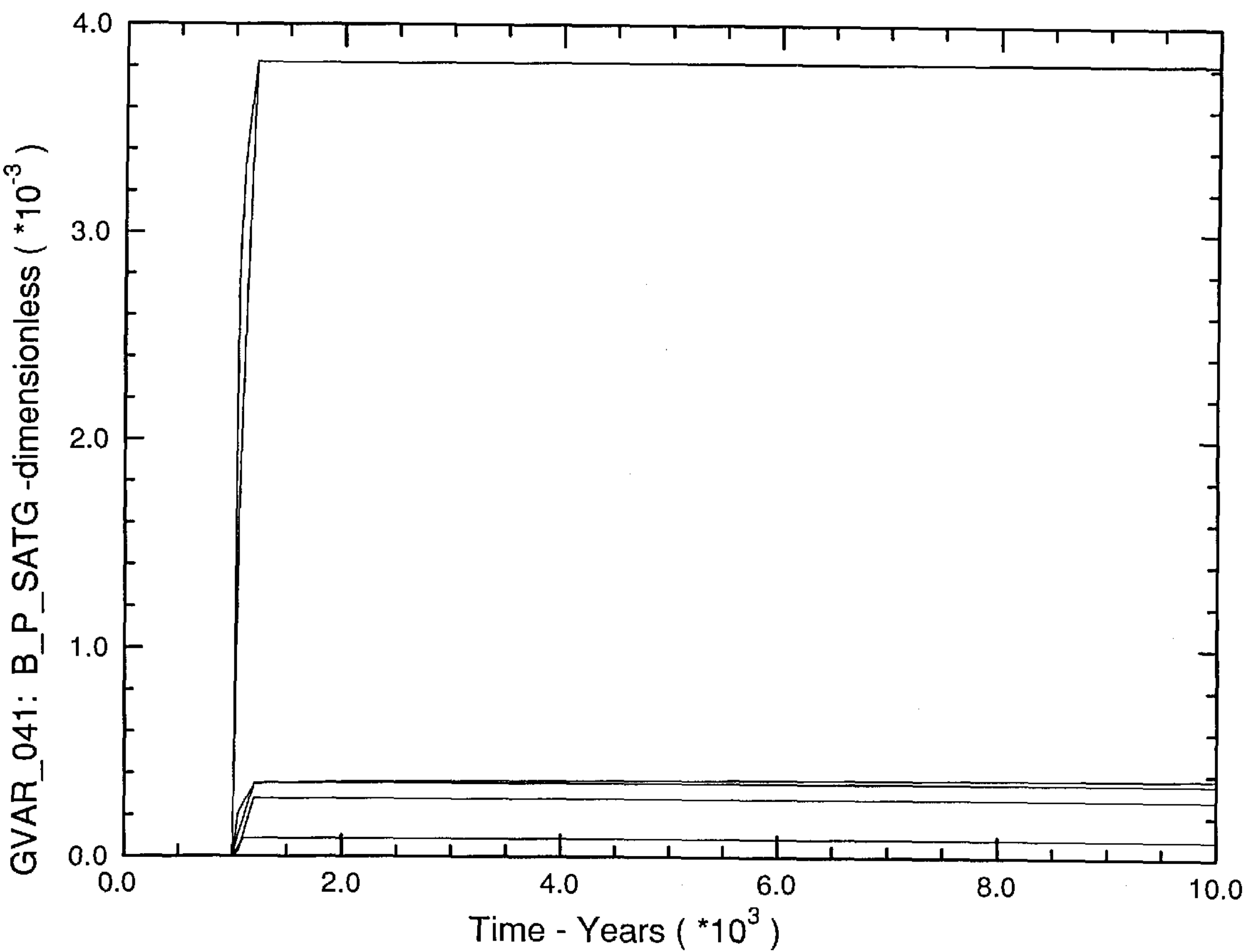
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H103.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:23:37

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Gas Saturation in Brine Pool

Fig. A.2.1-24



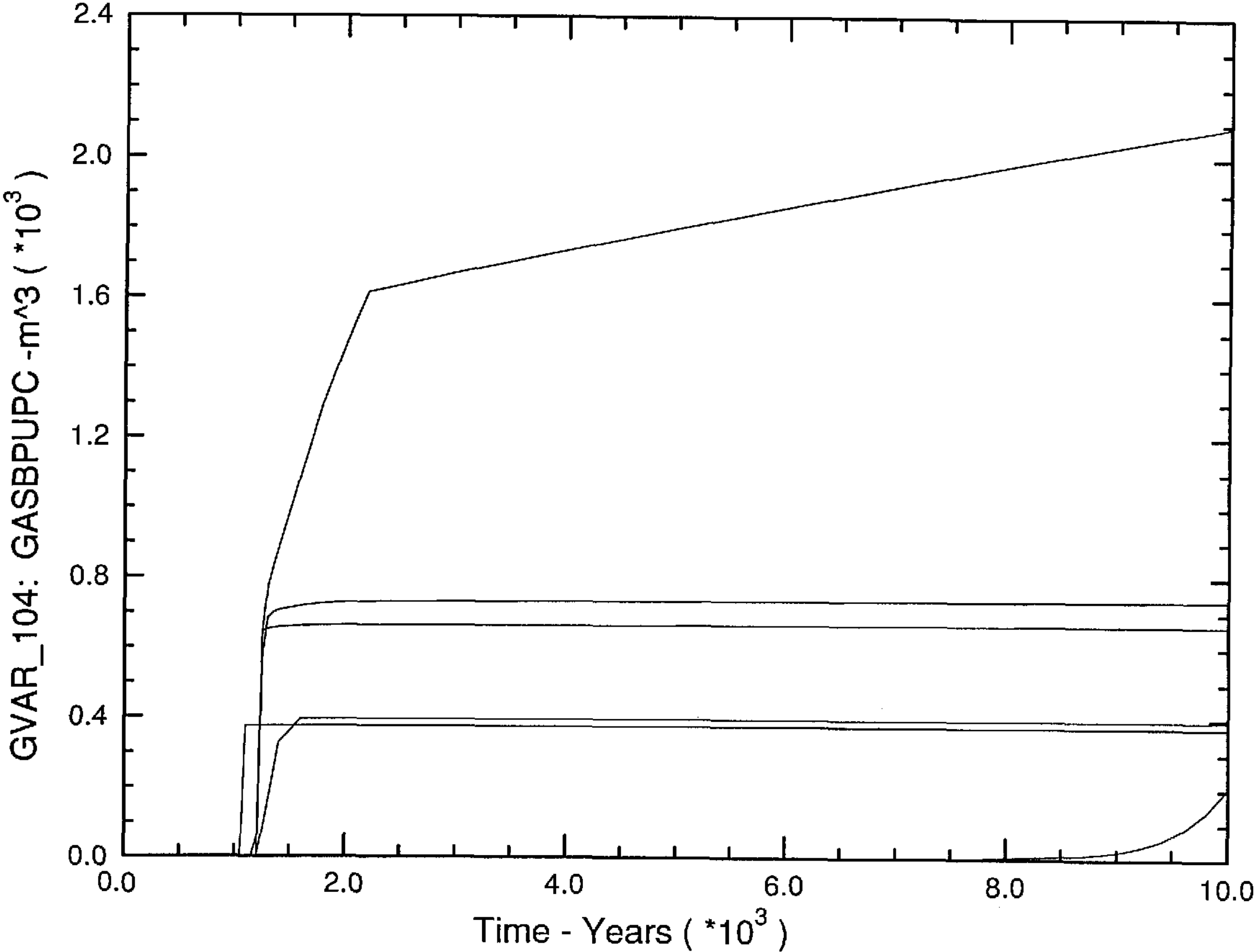
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H041.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:37:45

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Gas Flow Out of Brine Pocket (E:985)

Fig. A.2.1-25



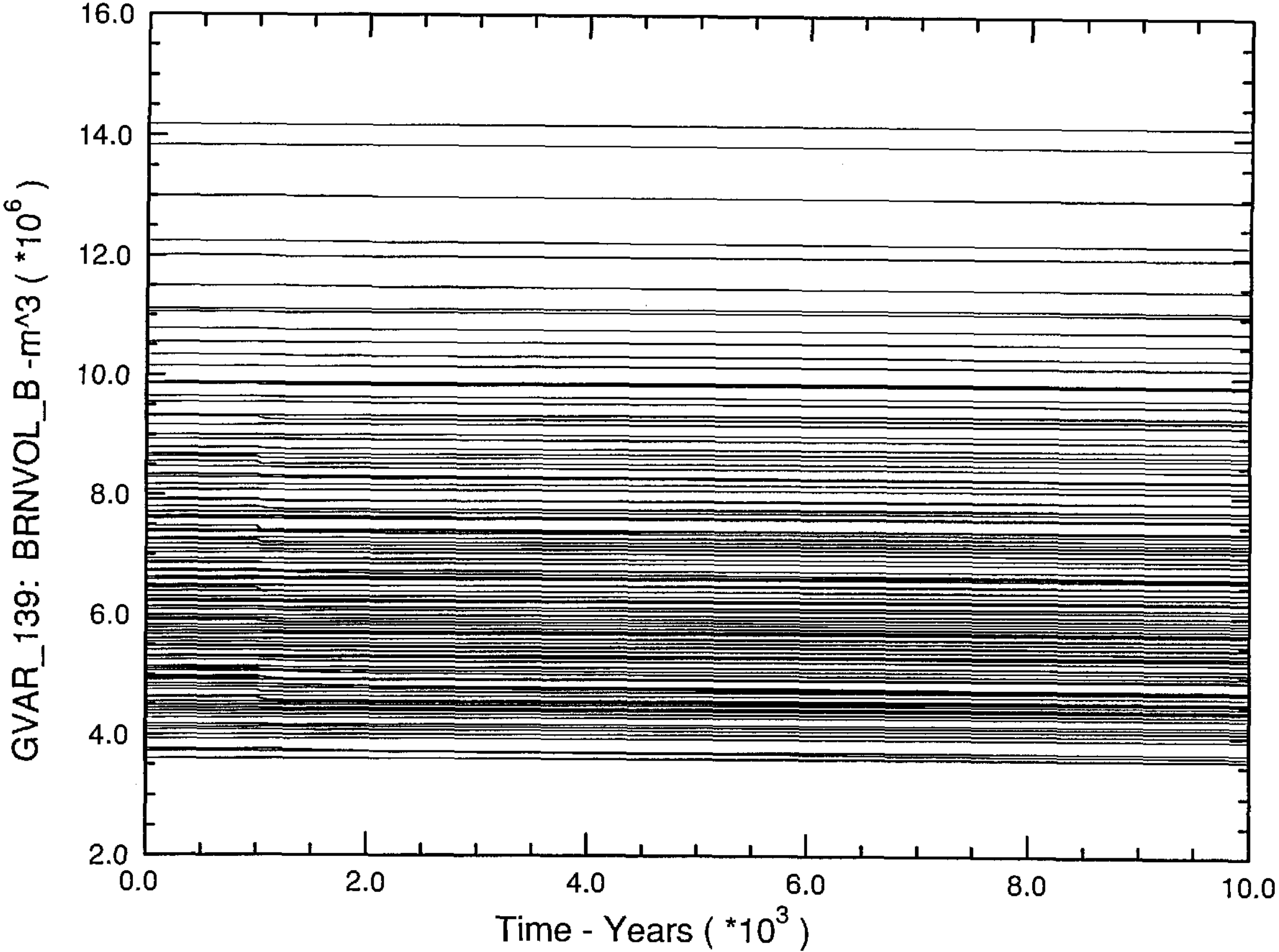
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H104.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:26:14

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Brine Volume in Brine Pocket

Fig. A.2.1-26



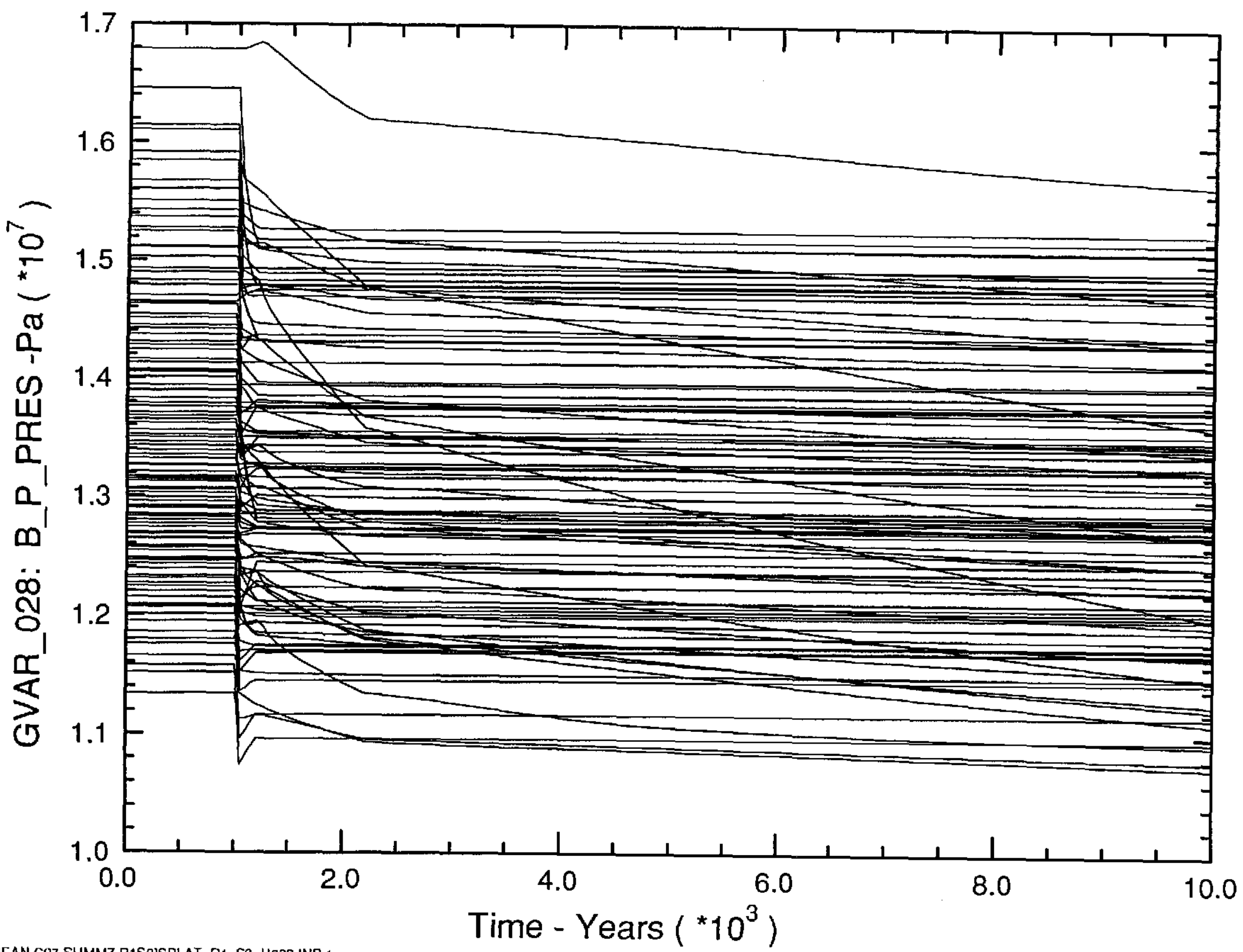
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H139.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:59:45

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Volume-Averaged Pressure in Brine Pocket

Fig. A.2.1-27



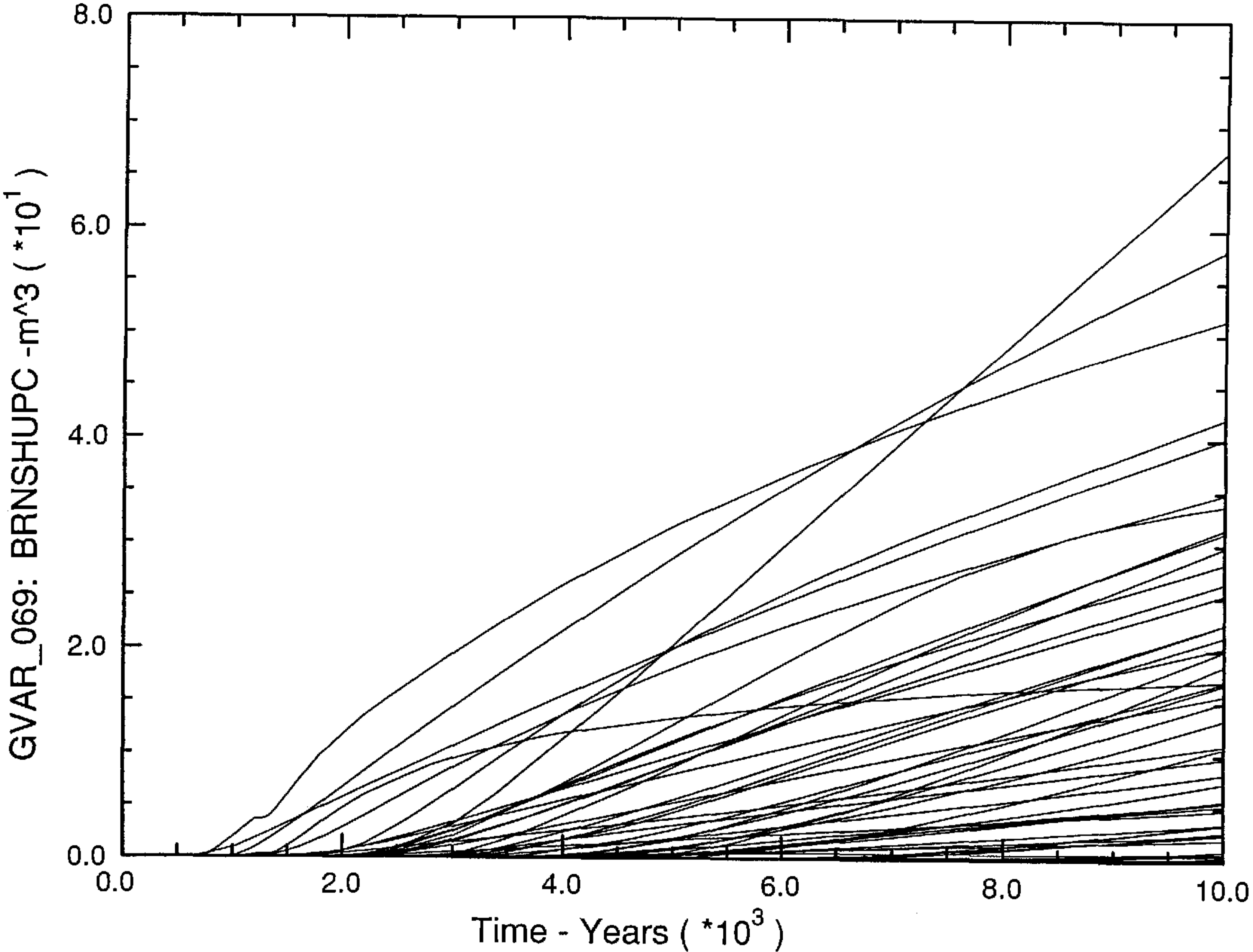
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H028.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:03:07

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Brine Flow up Shaft at top of Salado (E:661)

Fig. A.2.1-28



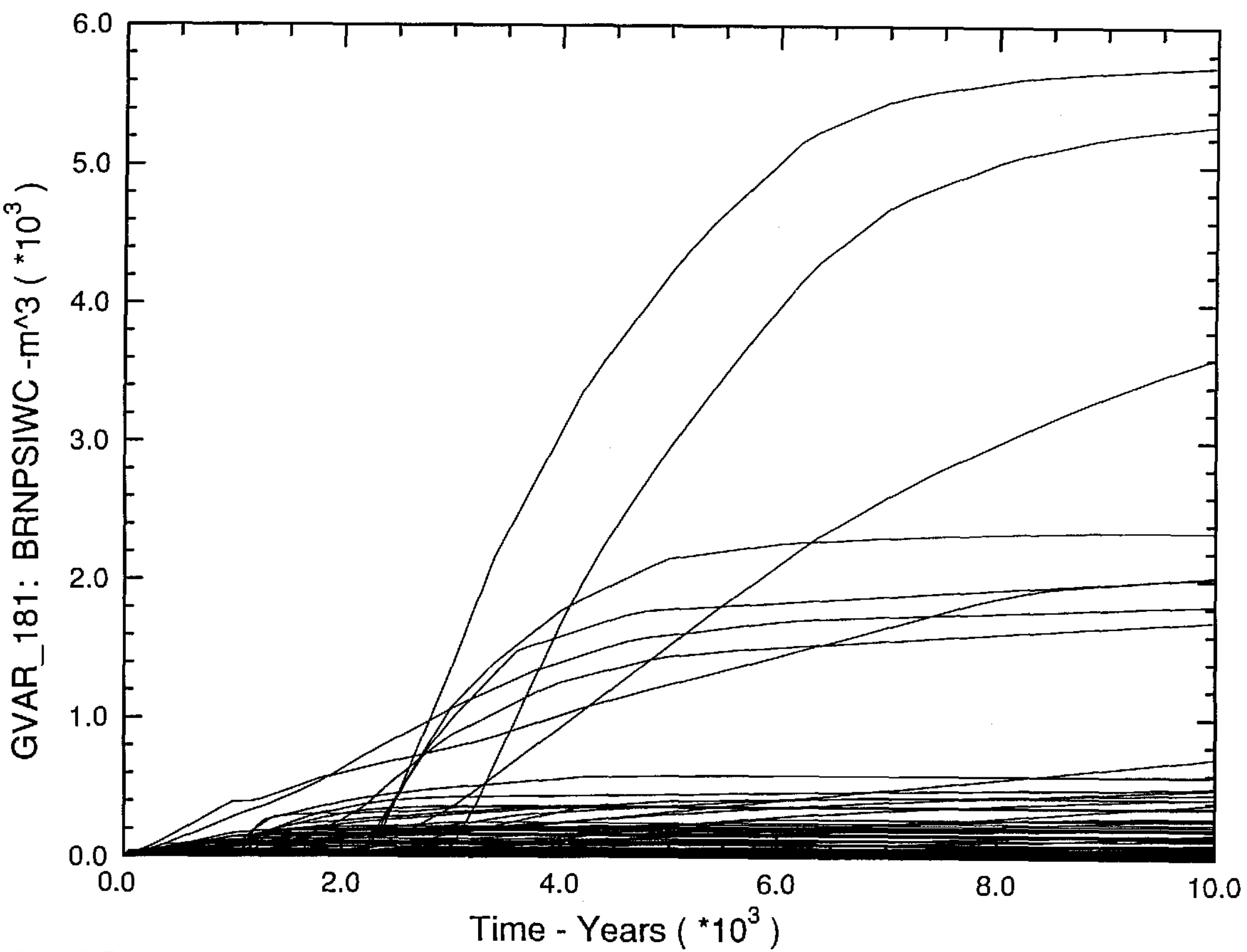
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H069.INP;1

SPLAT_PA96_2 1.02 05/27/97 10:52:52

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Brine Flow out of Panel Seal into Waste Panel

Fig. A.2.1-29



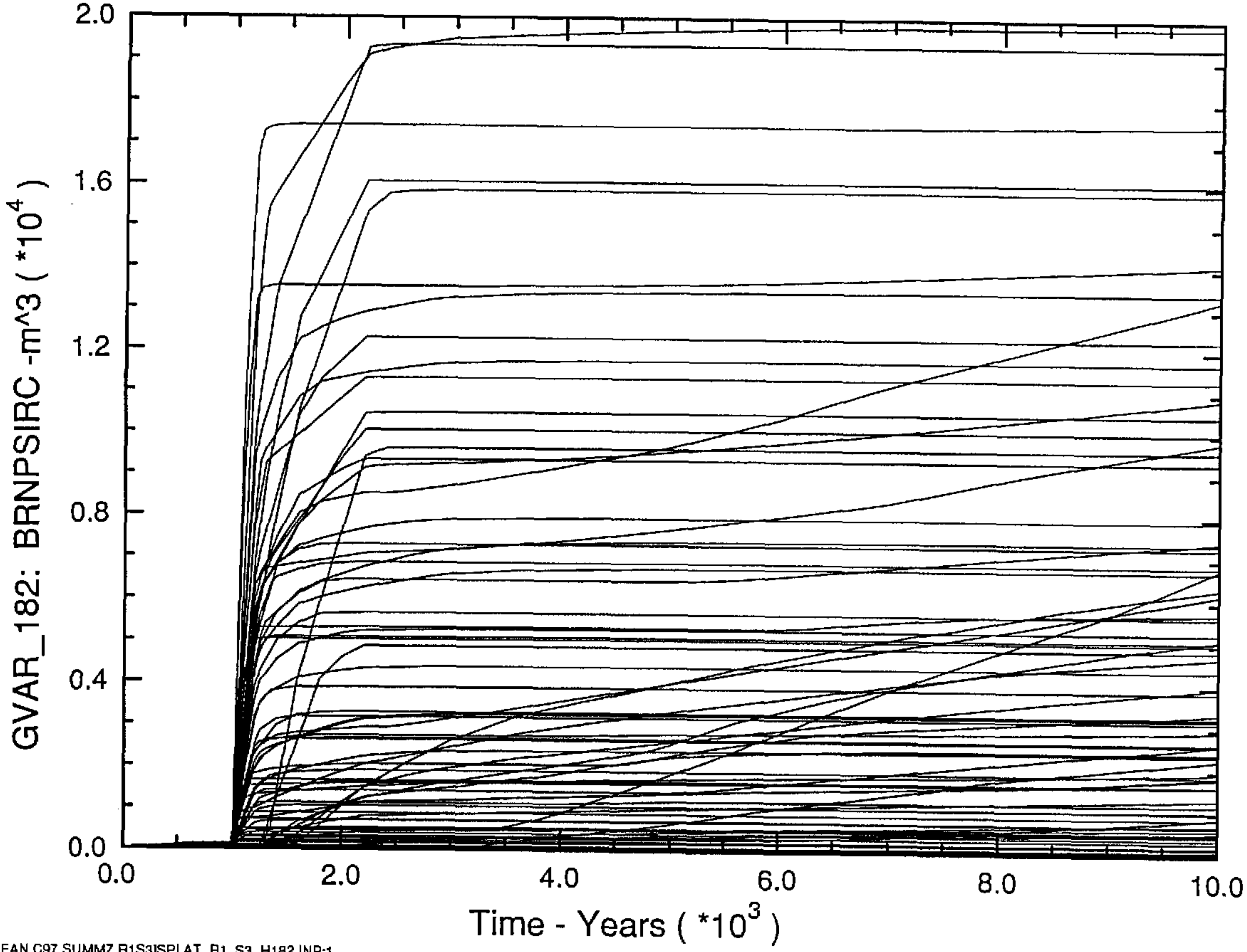
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H181.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:52:12

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Brine Flow out of Panel Seal into Rest of Repository

Fig. A.2.1-30



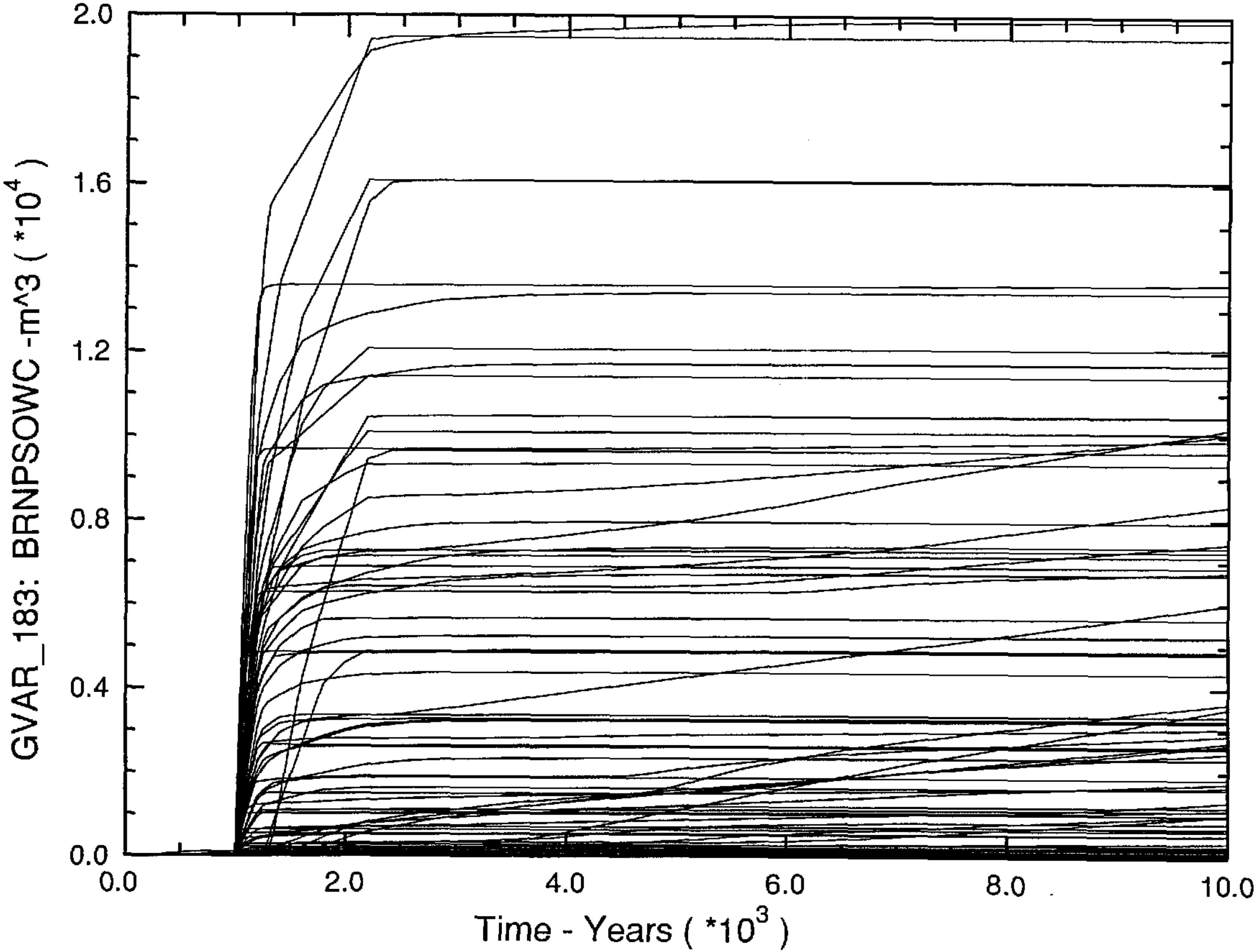
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H182.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:54:52

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Brine Flow into Panel Seal out of Waste Panel

Fig. A.2.1-31



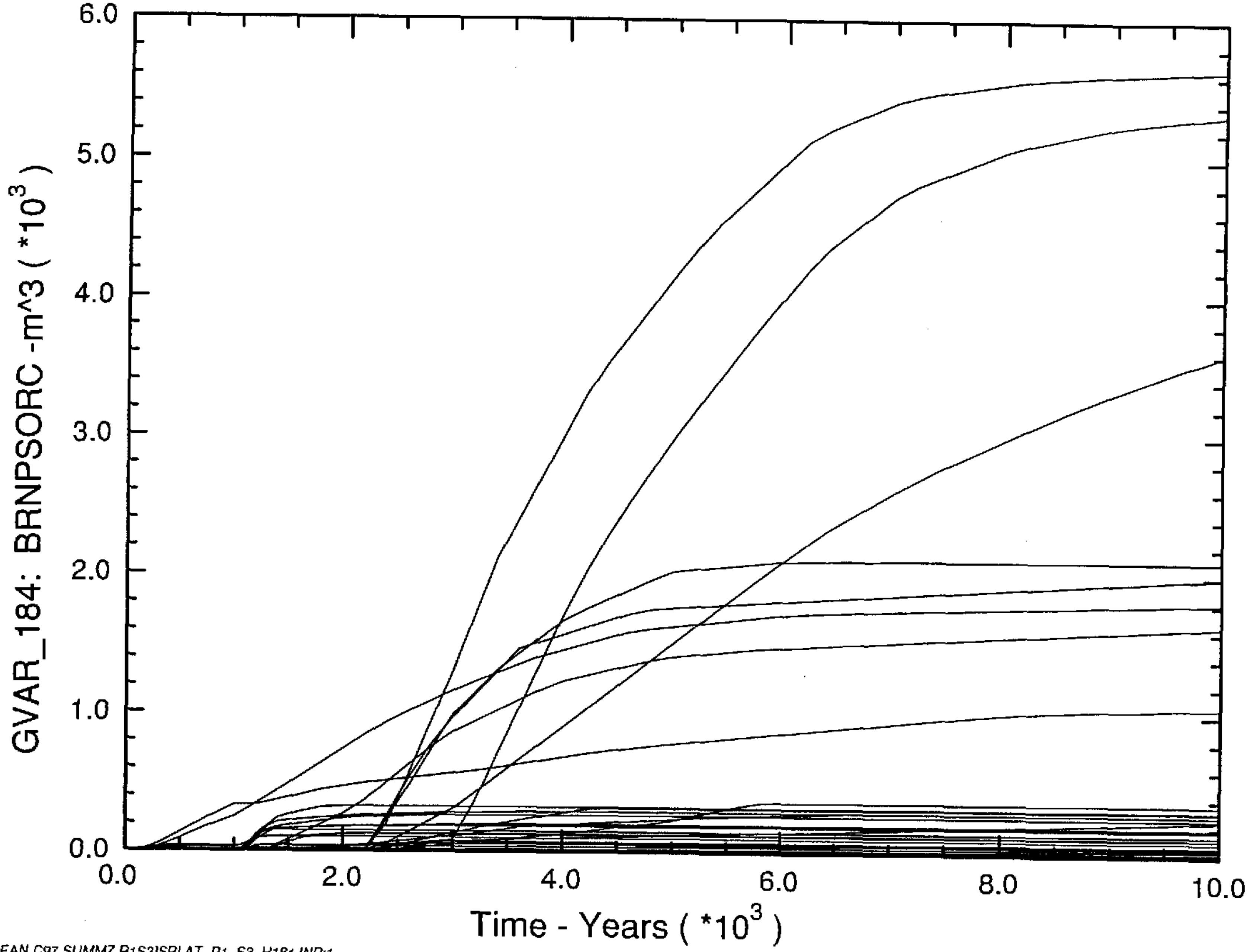
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H183.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:57:32

Fig 4.2.1-32

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Brine Flow into Panel Seal out of Rest of Repository



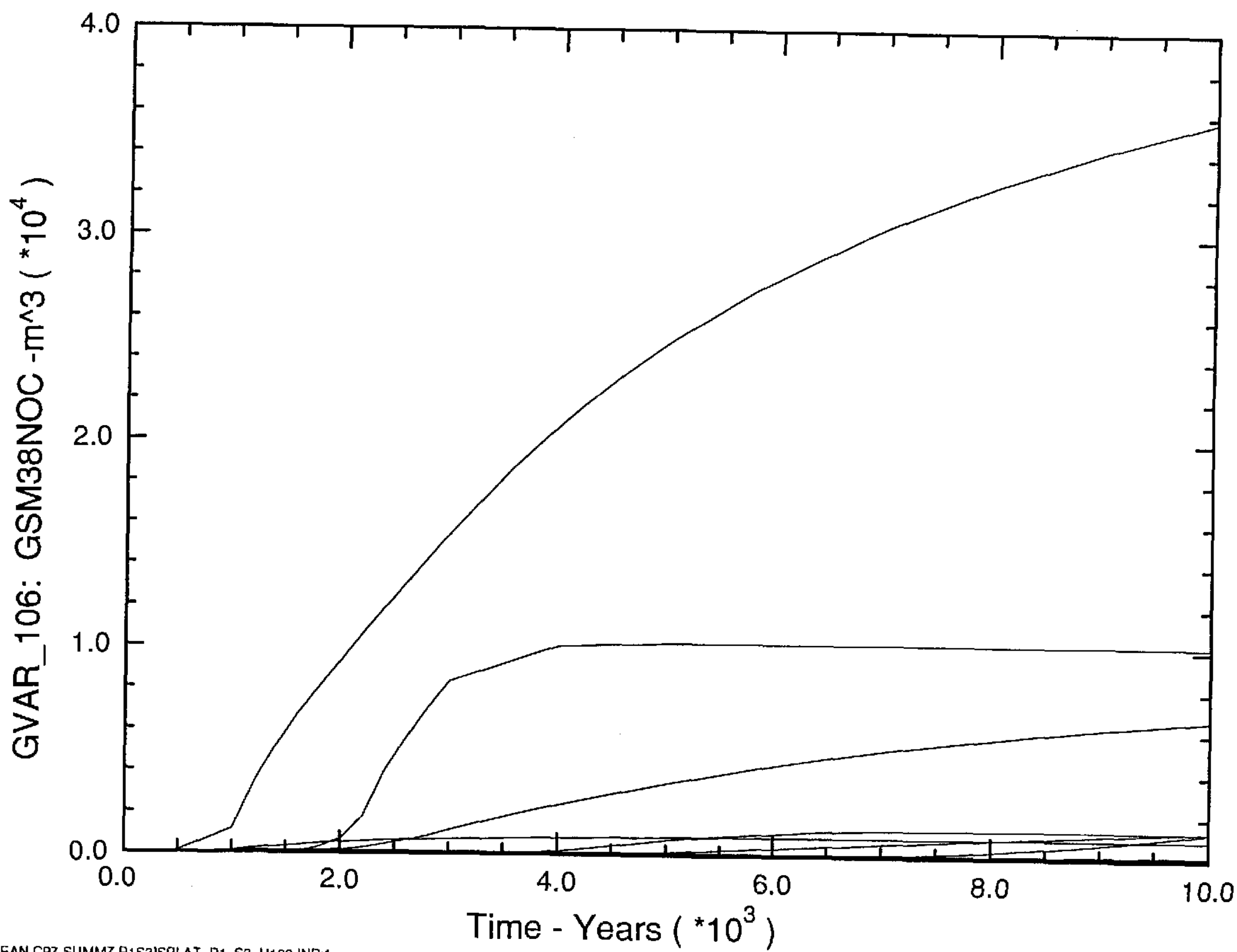
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H184.INP;1

SPLAT_PA96_2 1.02 05/27/97 16:00:14

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Gas Flow from DRZ into North MB 138

Fig. A.2.1-33



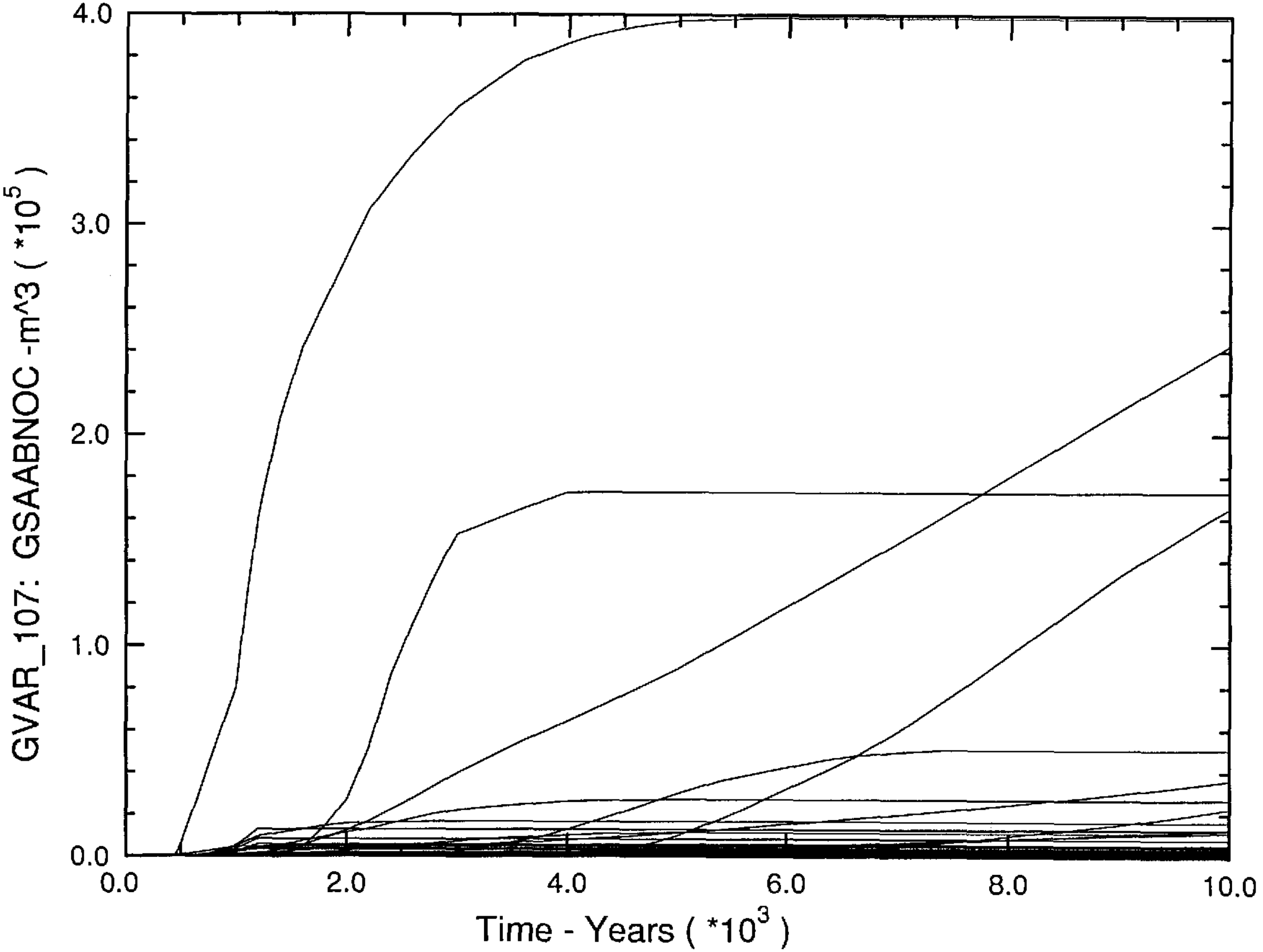
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H106.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:31:41

Fig. 4.2.1-34

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Gas Flow from DRZ into North Anhydrite A/B



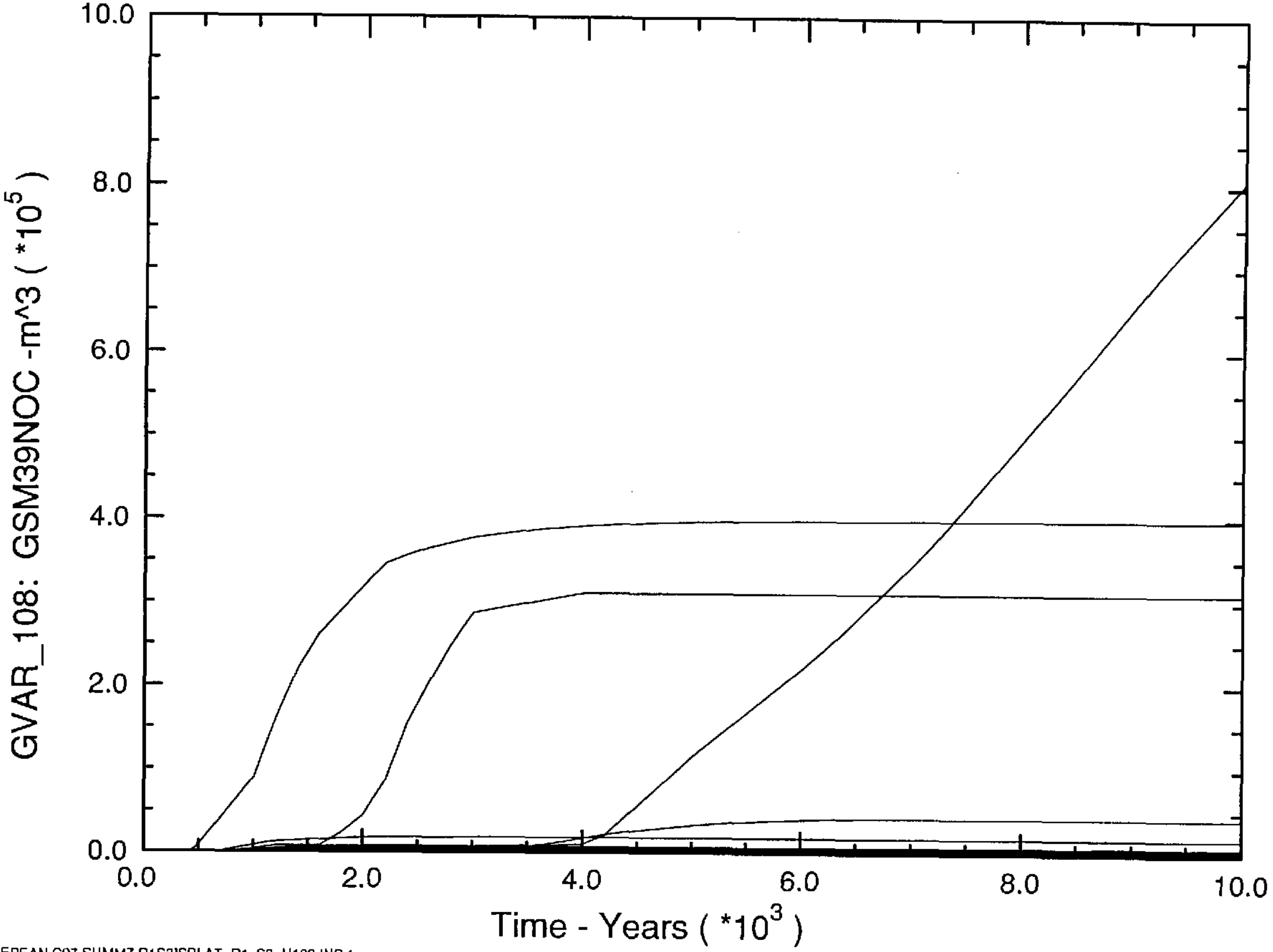
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H107.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:34:19

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Gas Flow from DRZ into North MB 139

Fig. A.2.1-35



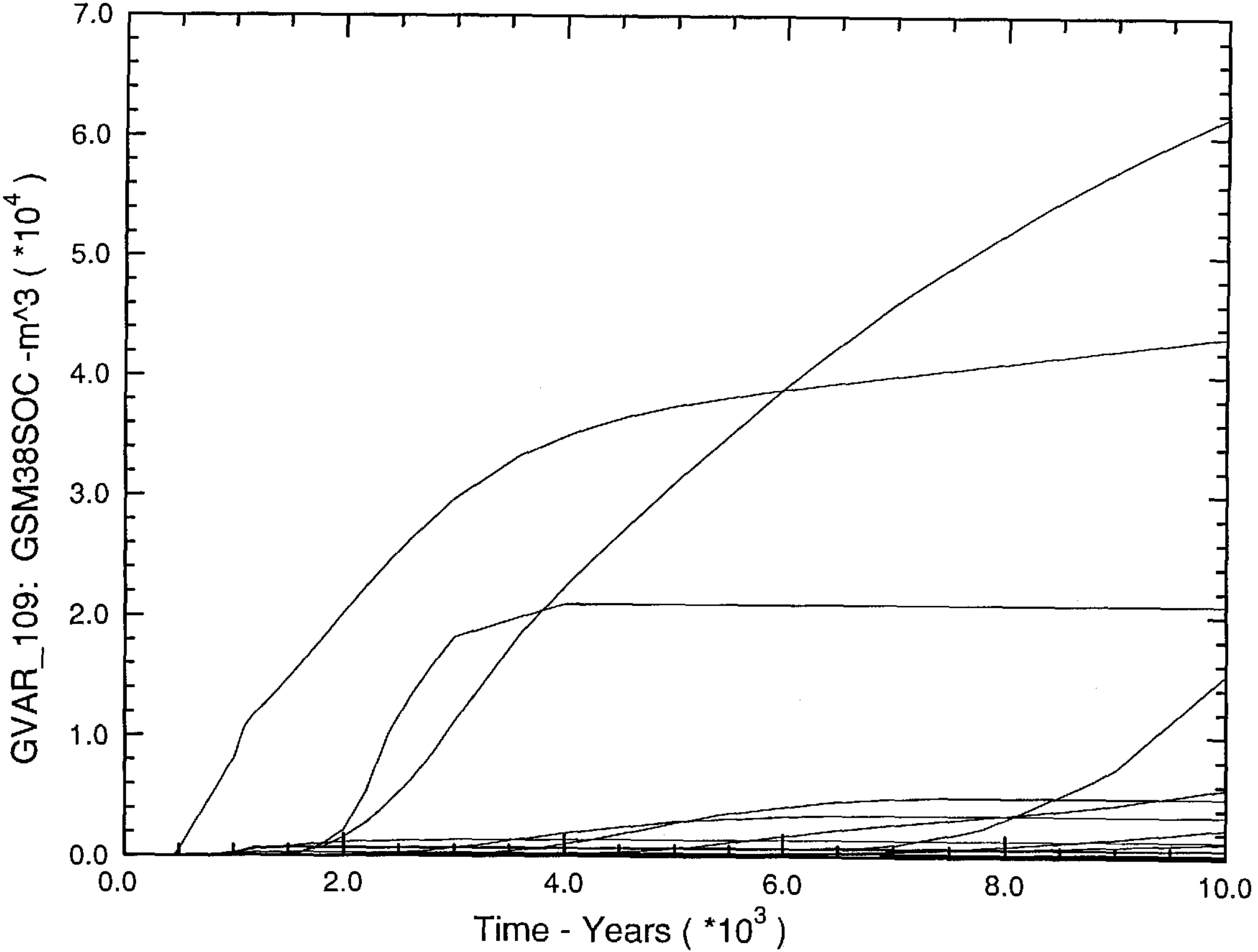
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H108.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:36:58

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Gas Flow from DRZ into South MB 138

Fig. A.2.1-36



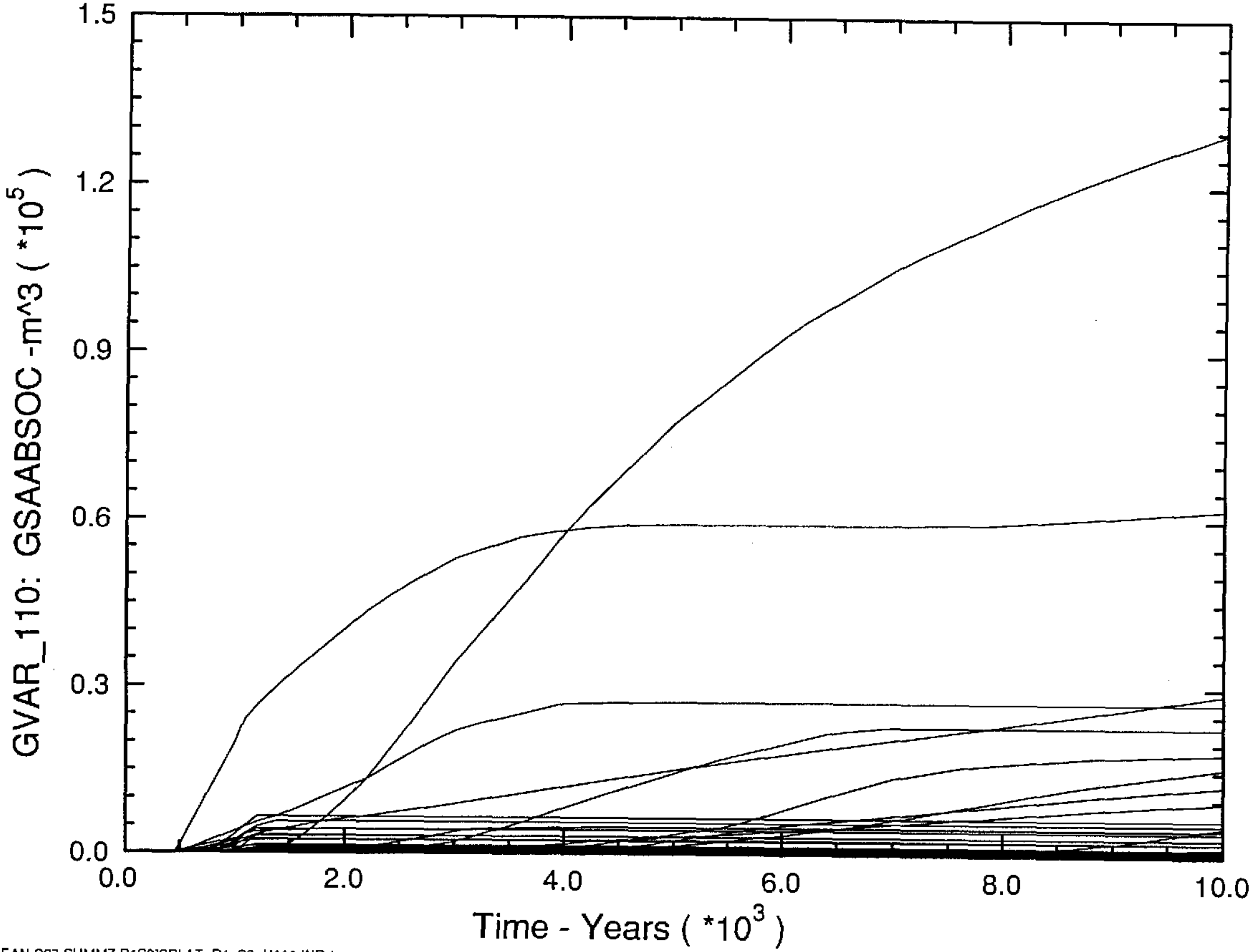
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H109.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:39:39

Fig. 4.2.1-37

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Gas Flow from DRZ into South Anhydrite A/B



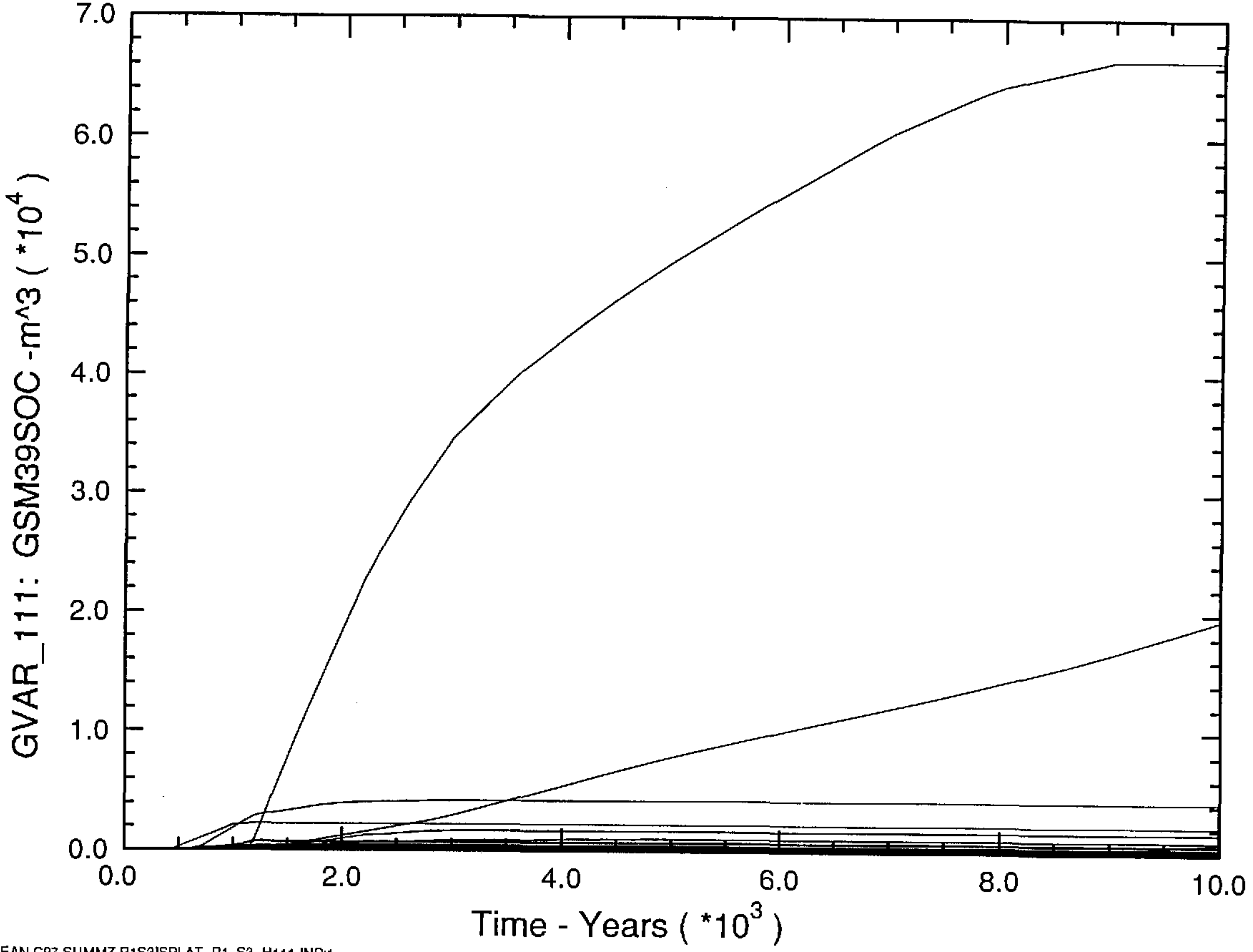
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H110.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:42:19

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Gas Flow from DRZ into South MB 139

Fig A.2.1-38



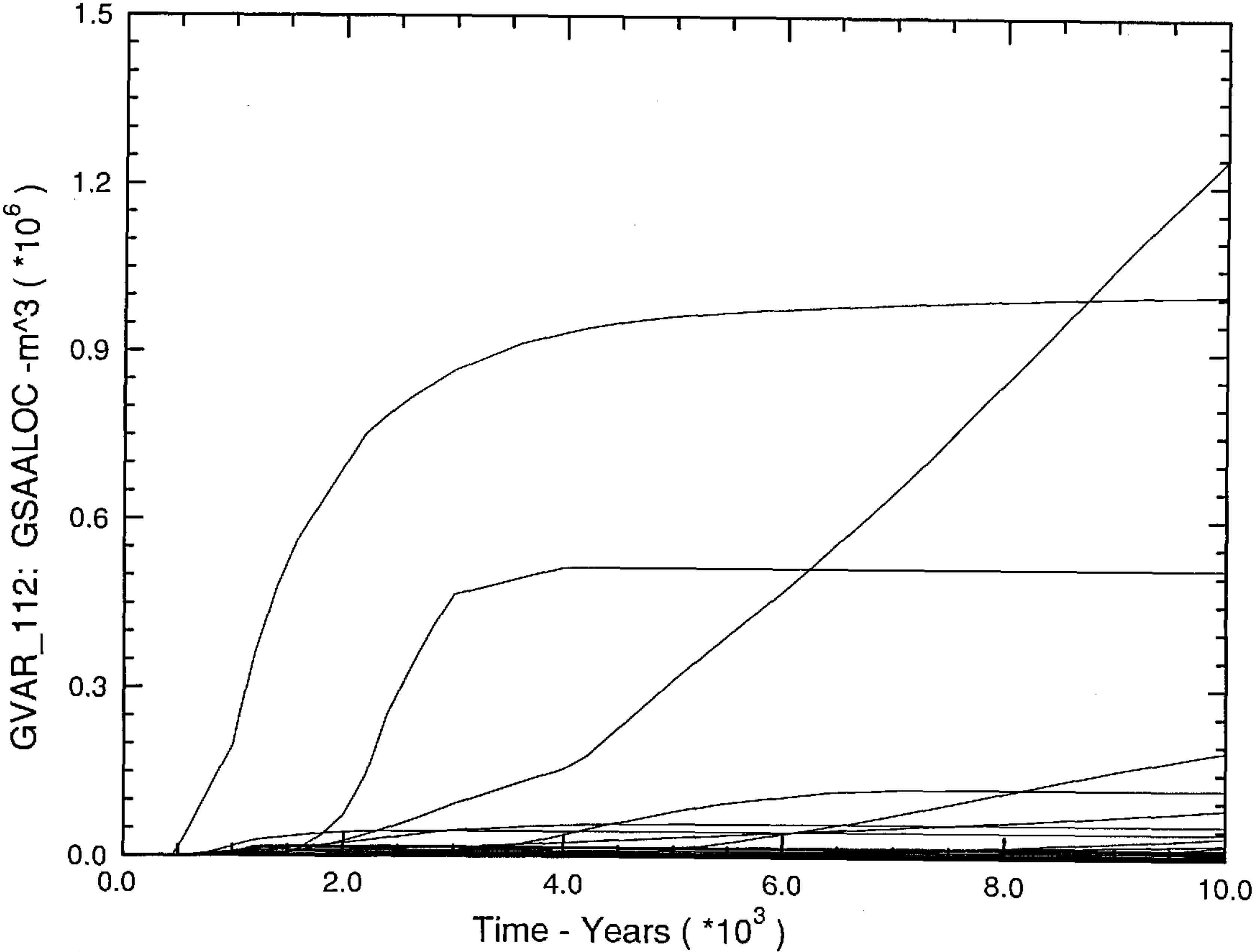
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H111.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:44:59

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Gas Flow from DRZ into Marker Beds

Fig. A.2.1 - 39



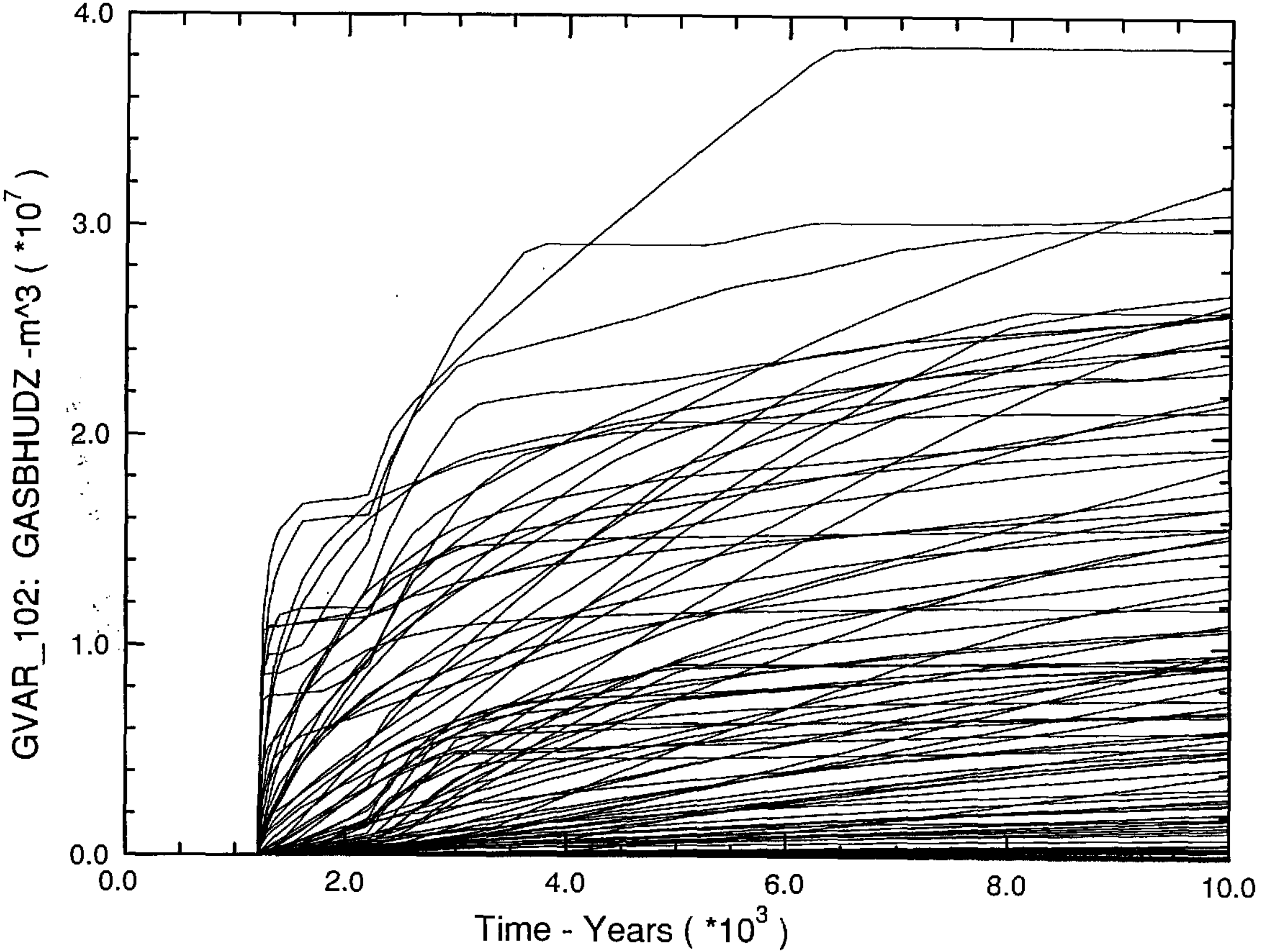
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H112.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:47:39

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Gas Flow Out of Upper DRZ at Borehole (E:575)

Fig. A.2.1-40



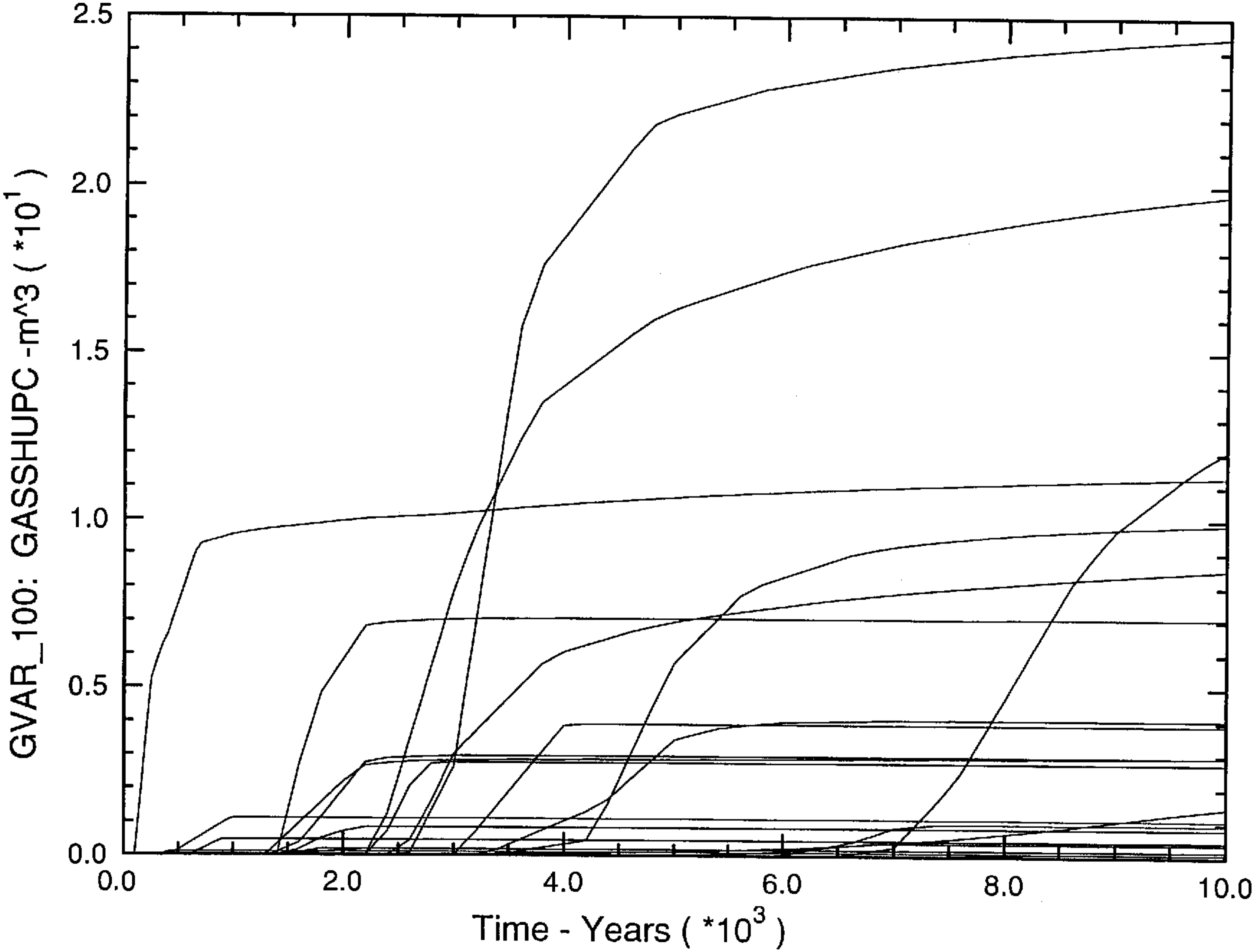
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H102.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:20:59

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Gas Flow up Shaft at Top of Salado (E:661)

Fig. A.2.1-41



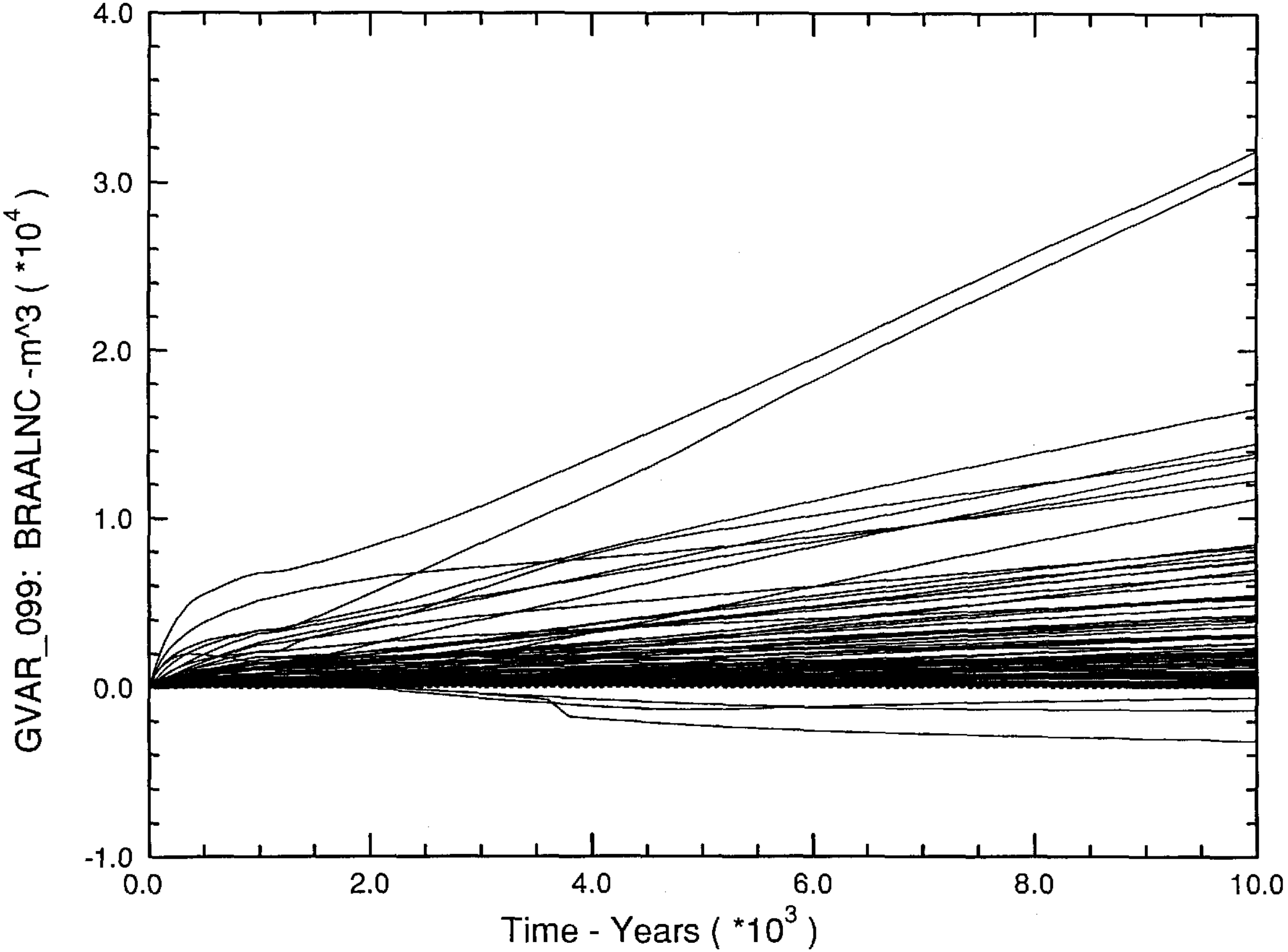
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H100.INP;1

05/27/97 12:15:45

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S3)

Net Brine Flow into DRZ from All Marker Beds

Fig. A.2.1-42



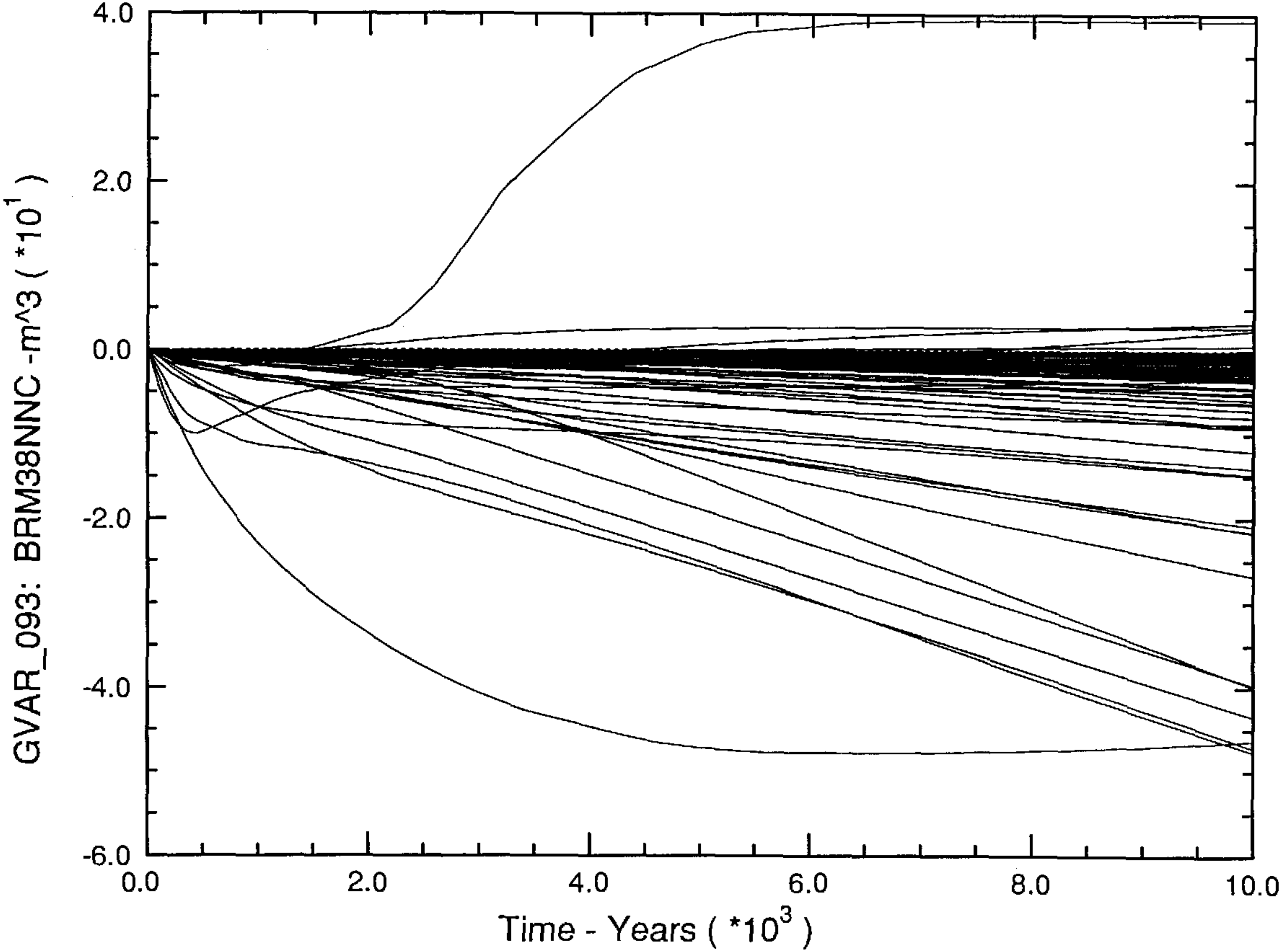
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H099.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:13:07

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Net Brine Flow at North MB 138

Fig. A.2.1-43



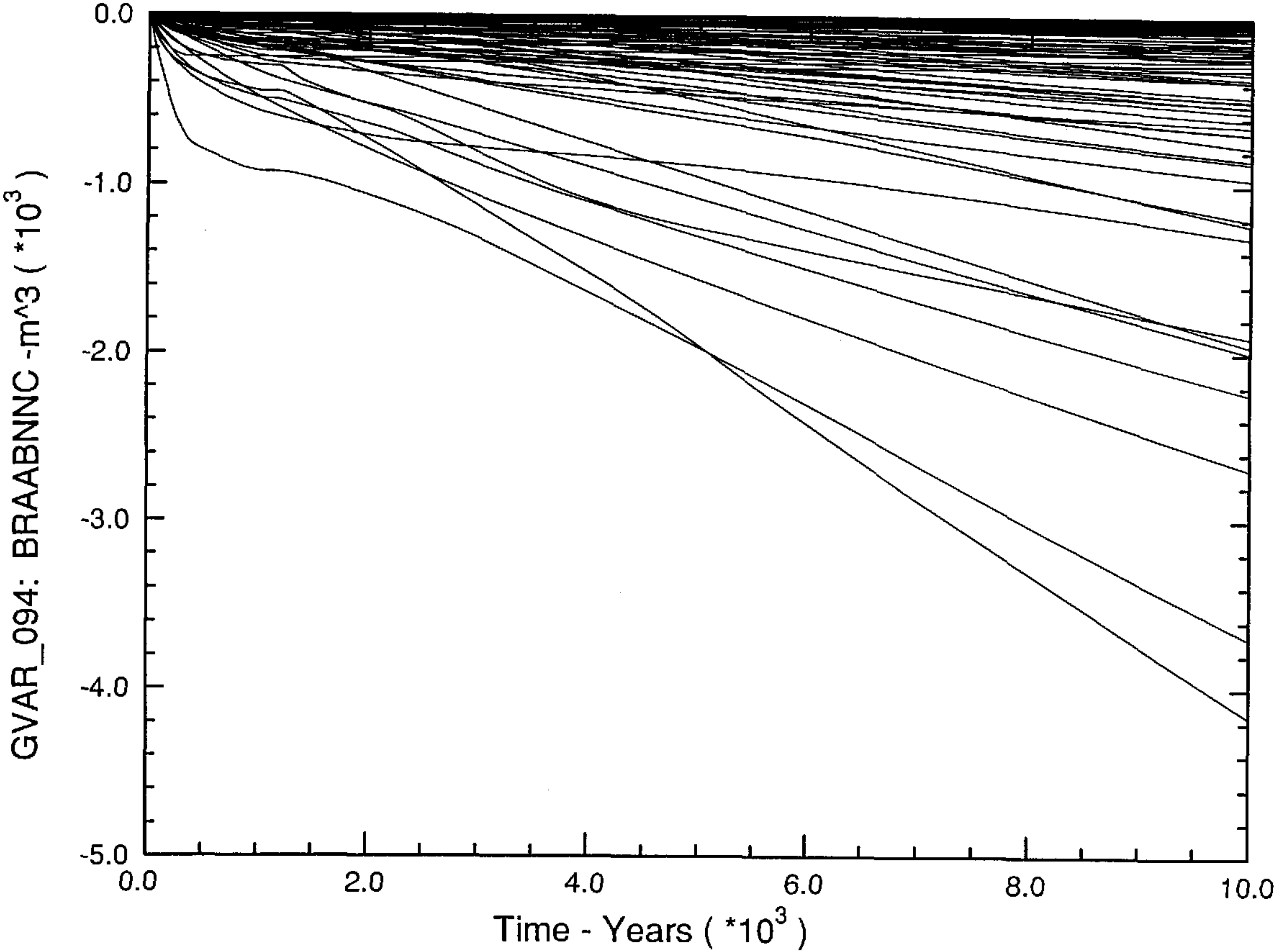
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H093.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:57:17

Fig A.2.1-44

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Net Brine Flow at North Anhydrite A/B



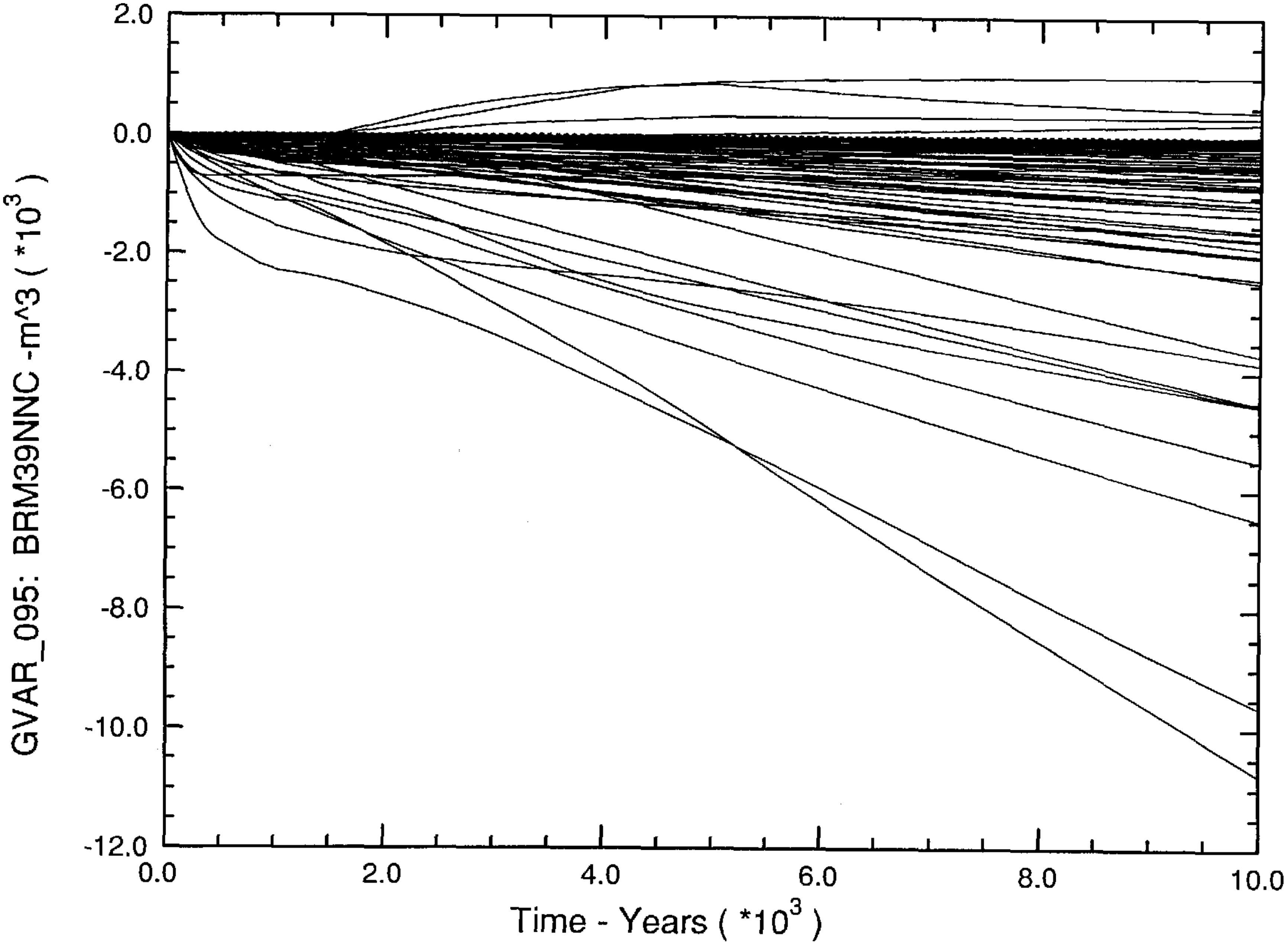
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H094.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:59:54

Fig. A 2.1-45

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S3)

Net Brine Flow at North MB 139



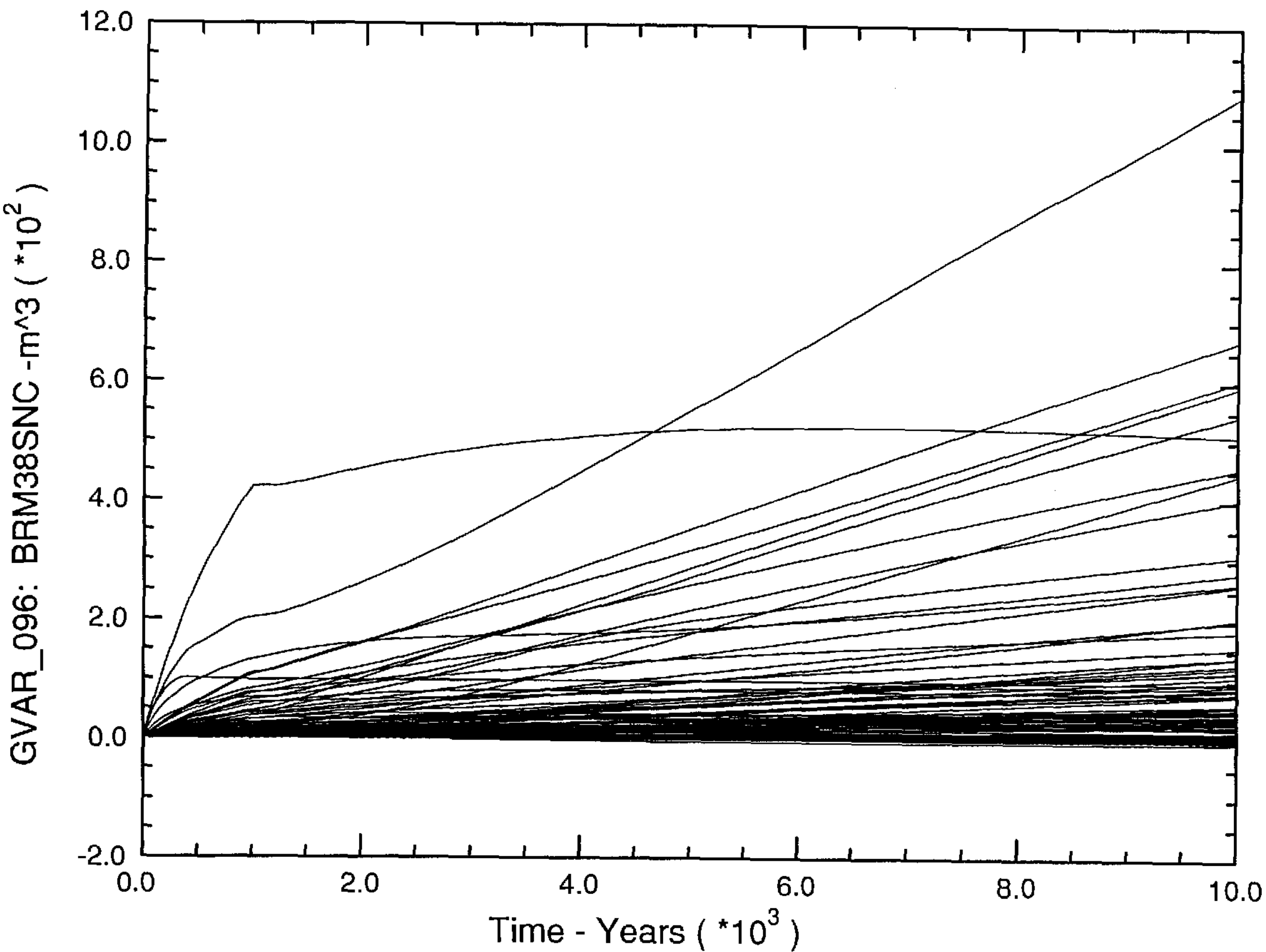
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H095.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:02:31

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Net Brine Flow at South MB 138

Fig. A.2.1-46



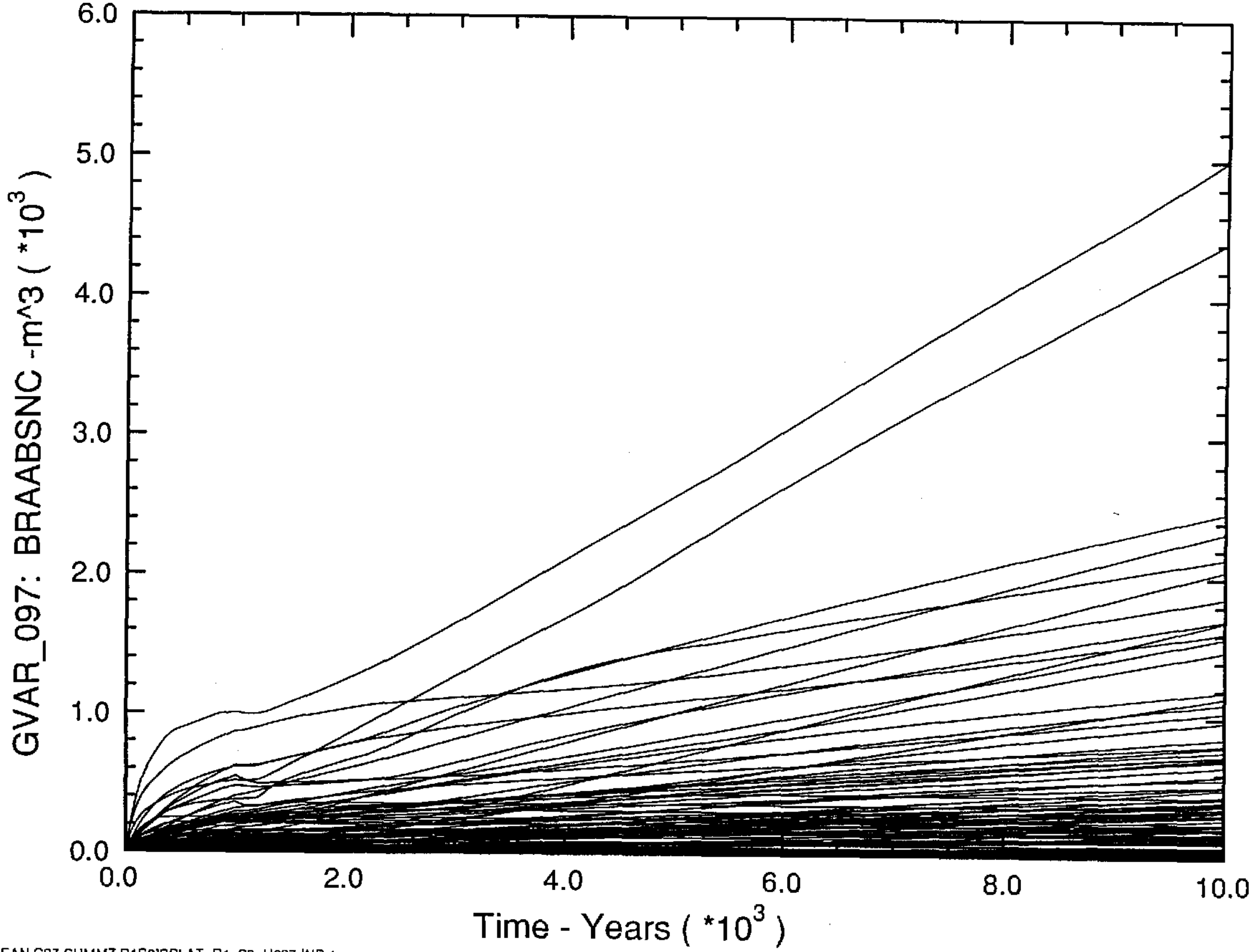
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H096.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:05:10

Fig A.2.1-47

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Net Brine Flow at South Anhydrite A/B



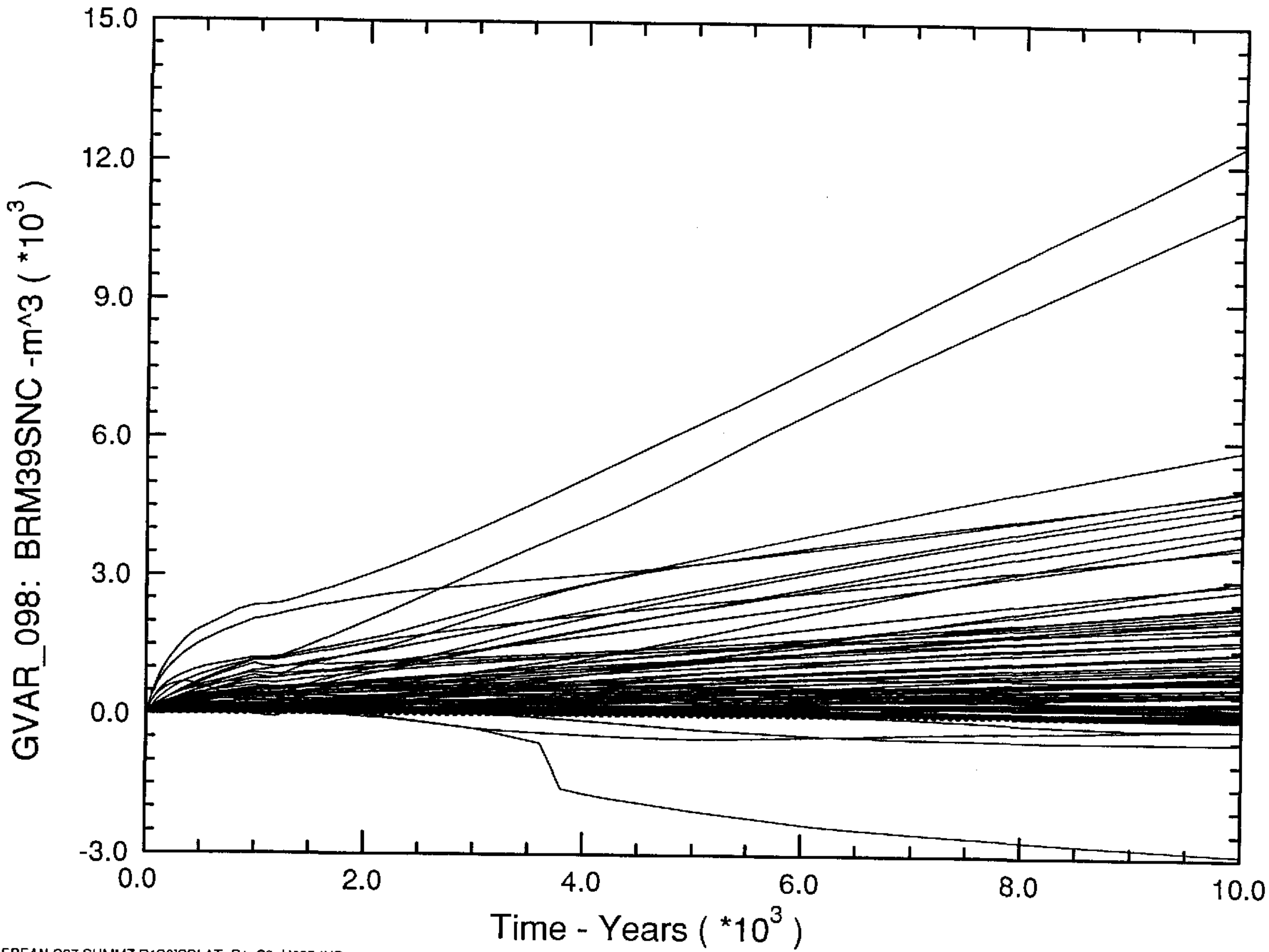
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H097.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:07:52

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Net Brine Flow at South MB 139

Fig A.2.1-48



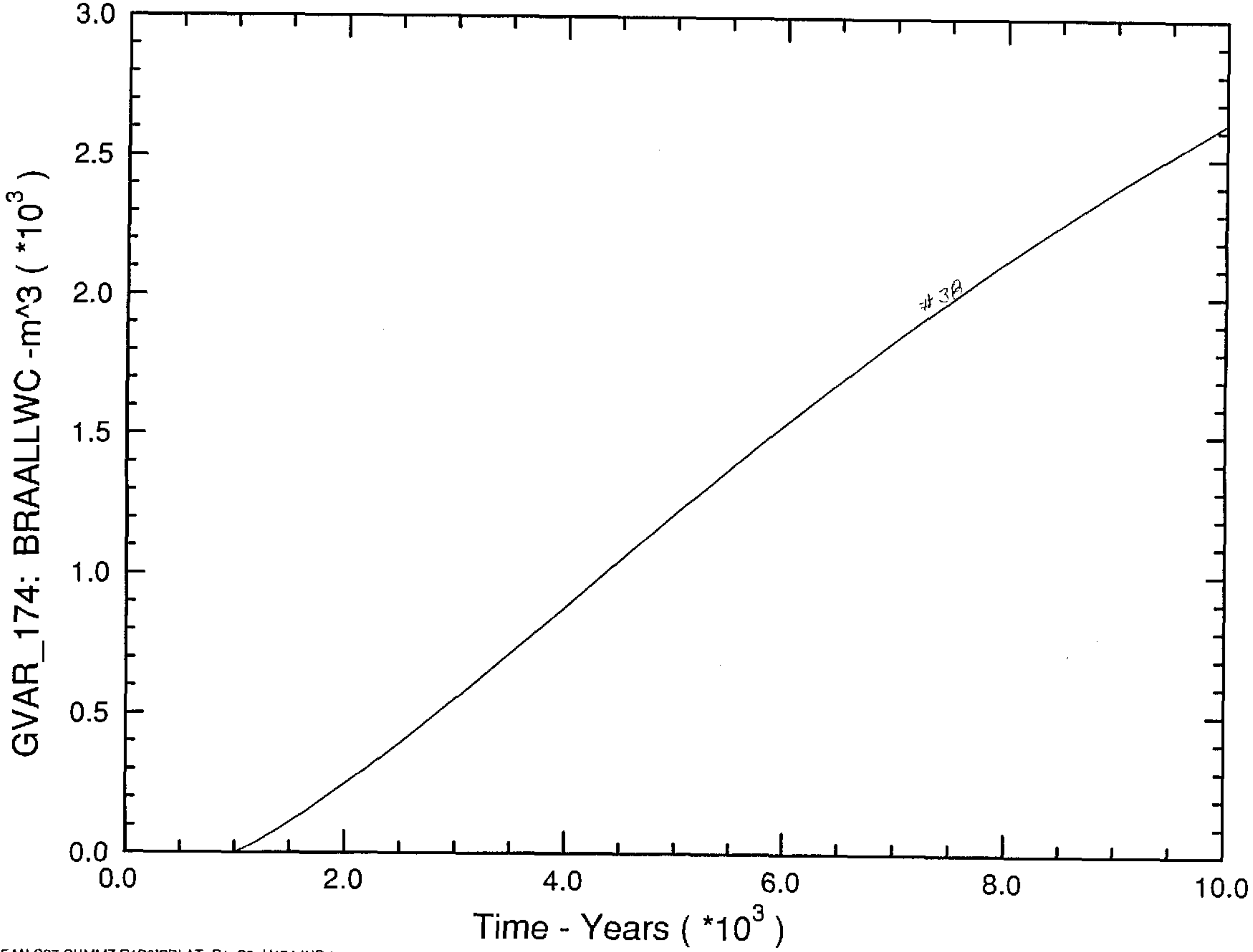
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H098.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:10:29

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S3)

Cumulative Brine Flow Out of All Marker Beds Across Land-Withdrawal Boundary

Fig. A.2.1-49



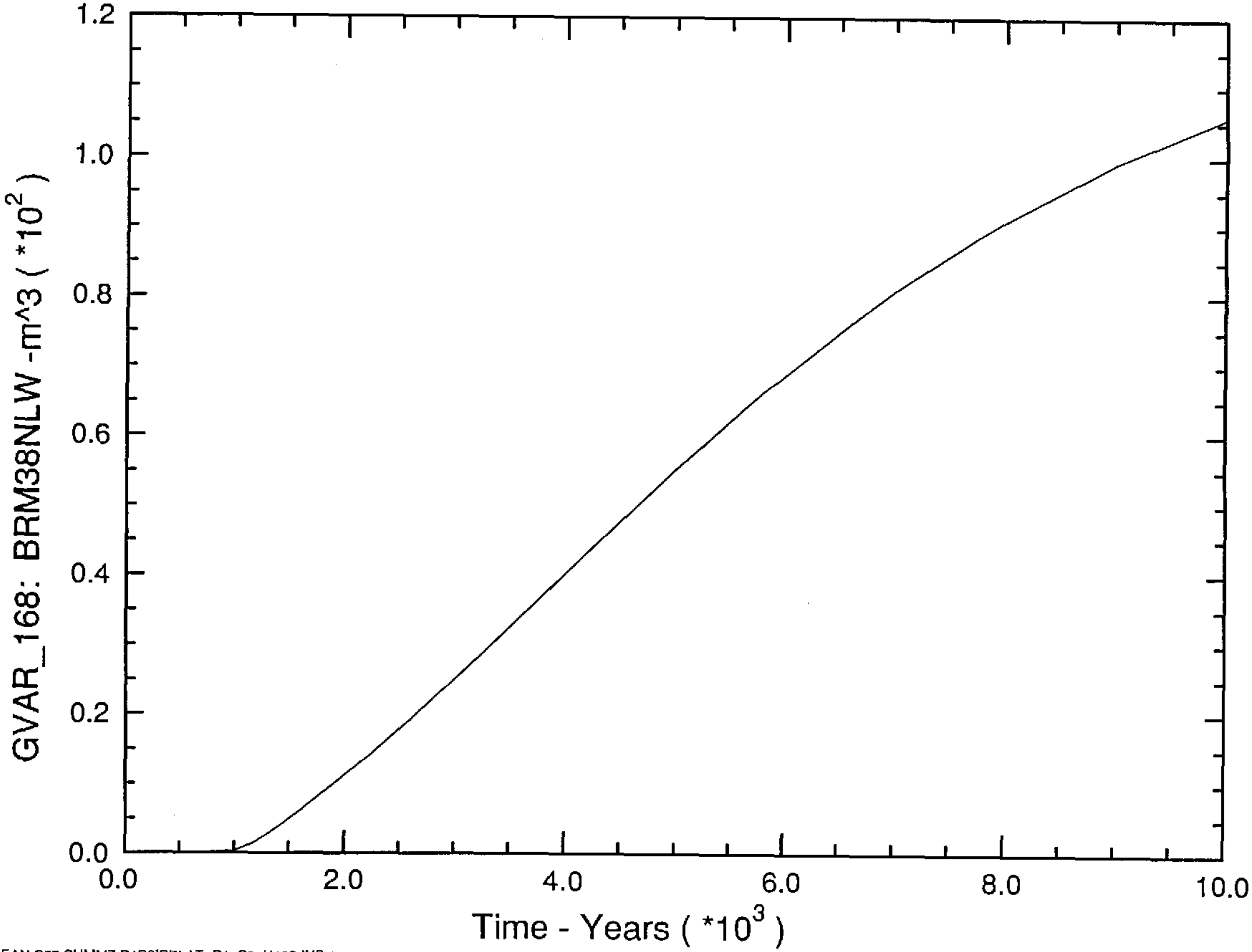
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H174.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:33:20

Fig. A.2.1-50

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Brine Flow Out North MB 138 Across Land-Withdrawal Boundary



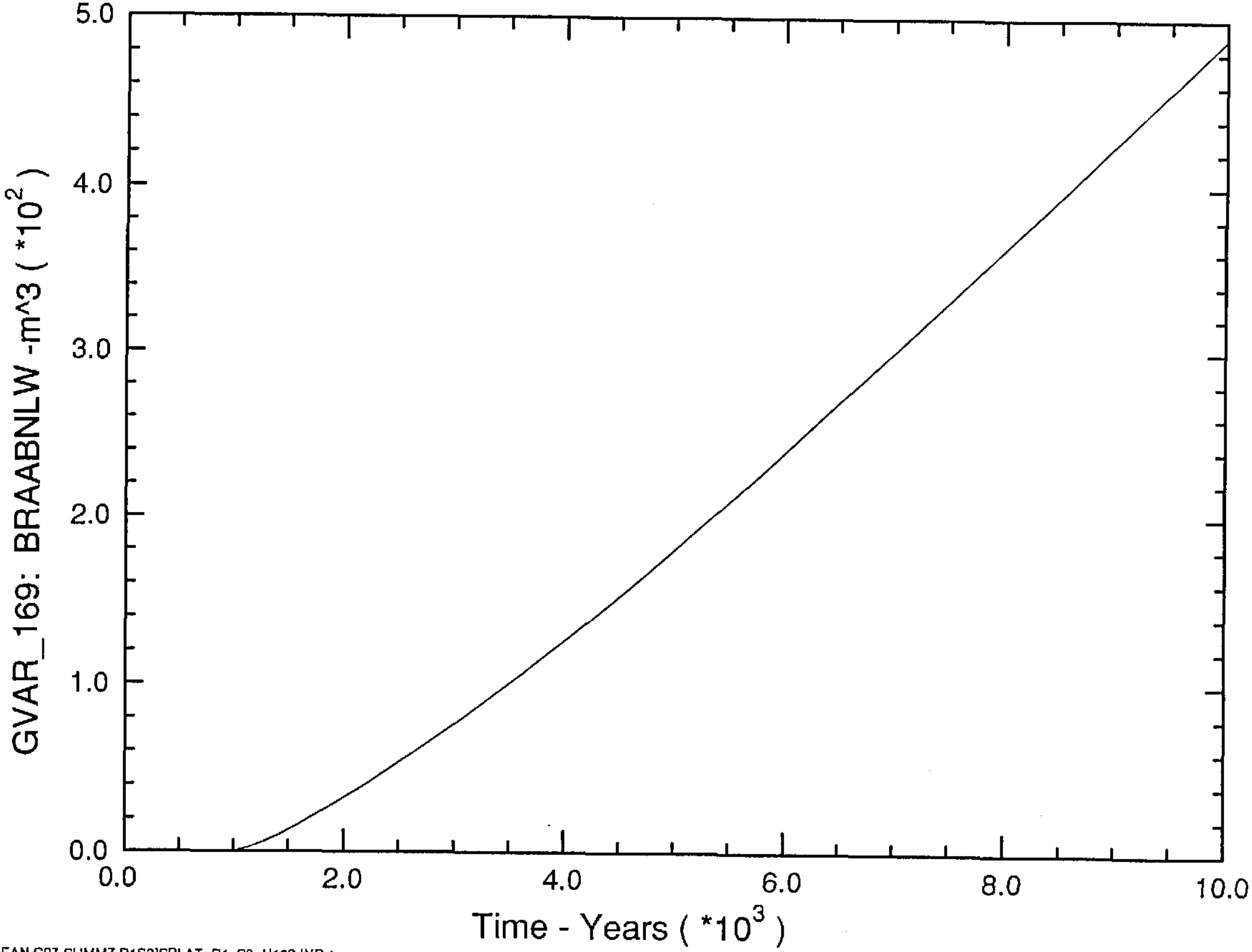
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H168.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:17:12

Fig. A 2.1-51

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Brine Flow Out North Anhydrite A/B Across Land-Withdrawal Boundary



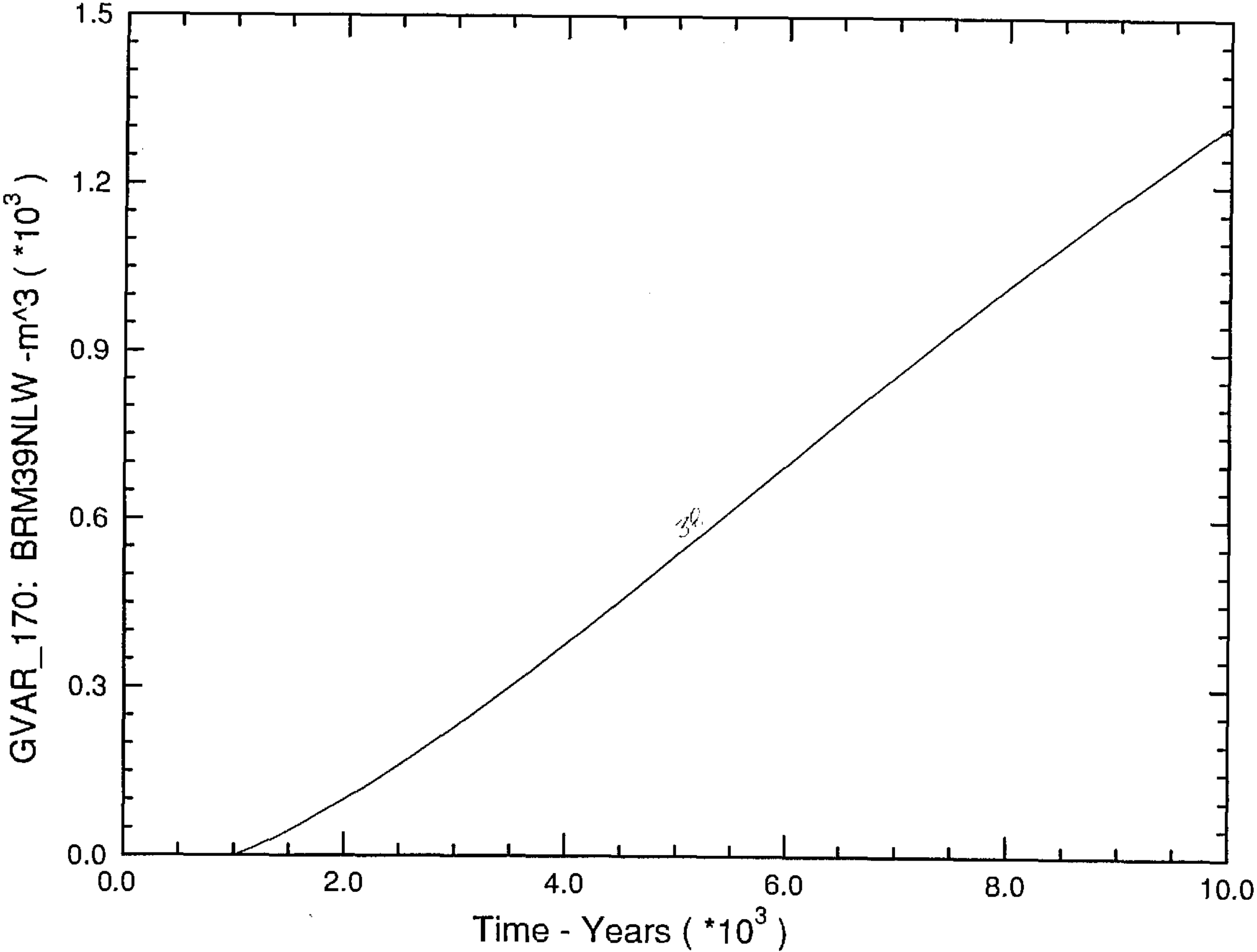
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H169.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:19:55

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Brine Flow Out North MB 139 Across Land-Withdrawal Boundary

Fig. A.2.1-52



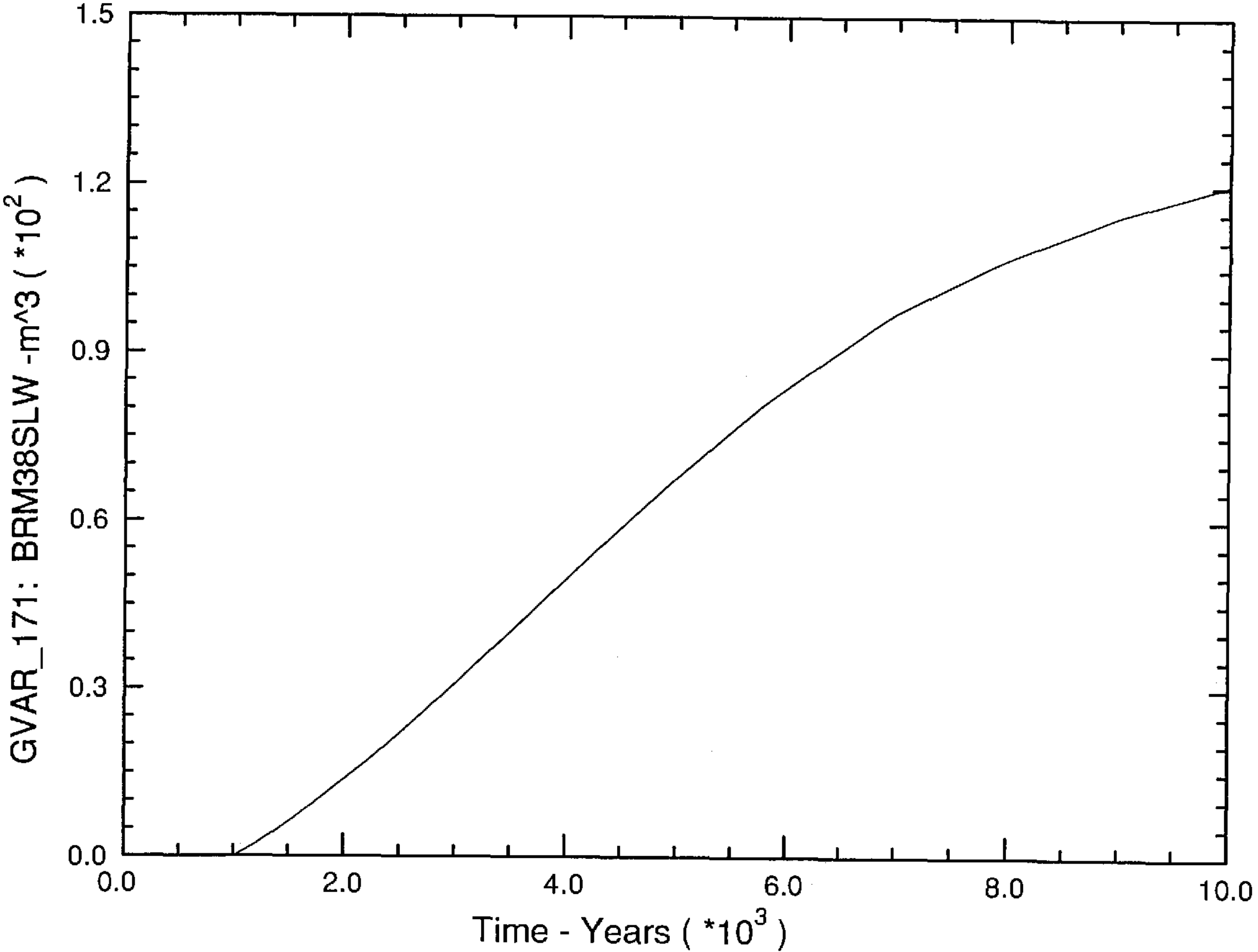
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H170.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:22:36

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Brine Flow Out South MB 138 Across Land-Withdrawal Boundary

Fig. A.2.1-53



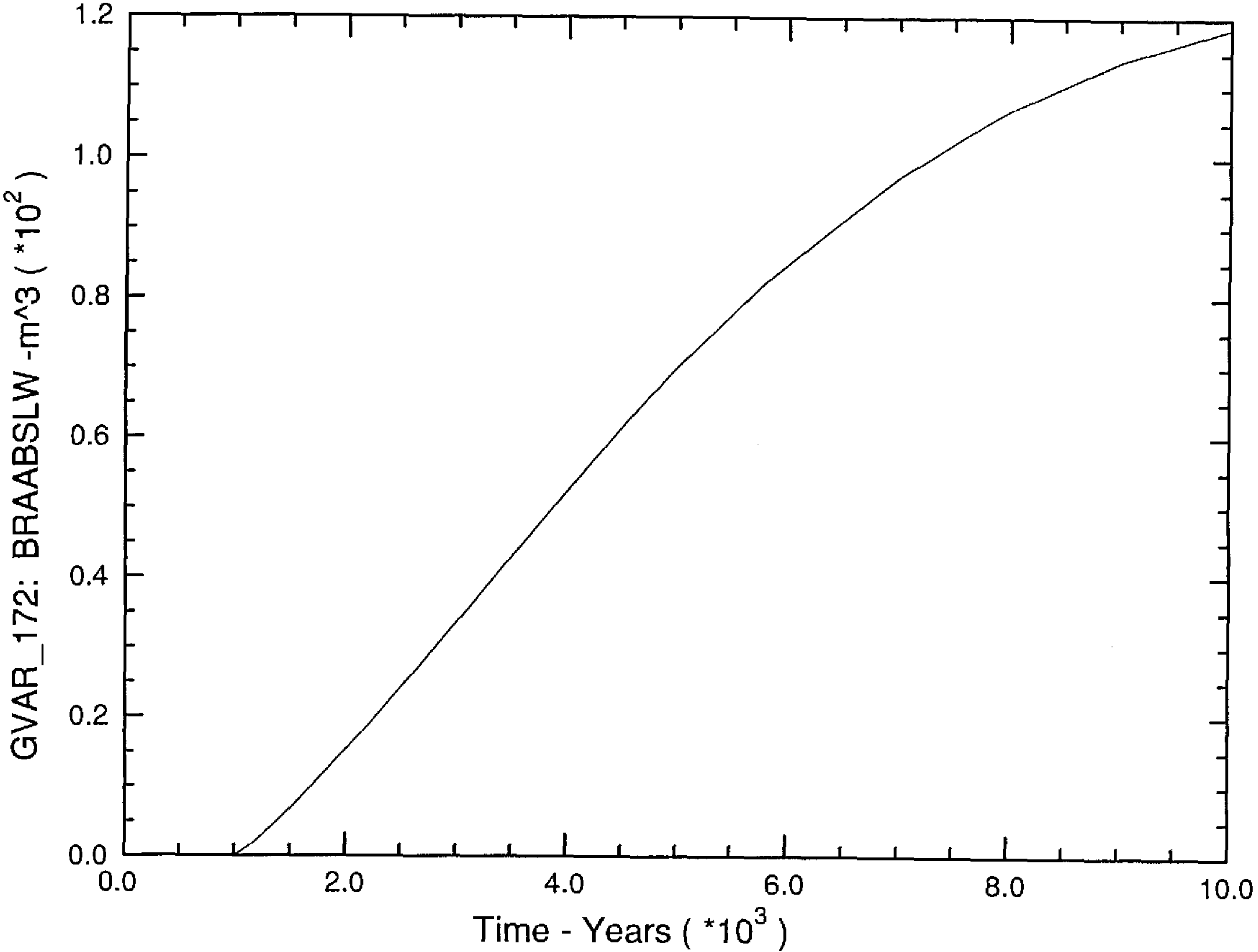
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H171.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:25:20

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Cumulative Brine Flow Out South Anhydrite A/B Across Land-Withdrawal Boundary

Fig A.2.1-54



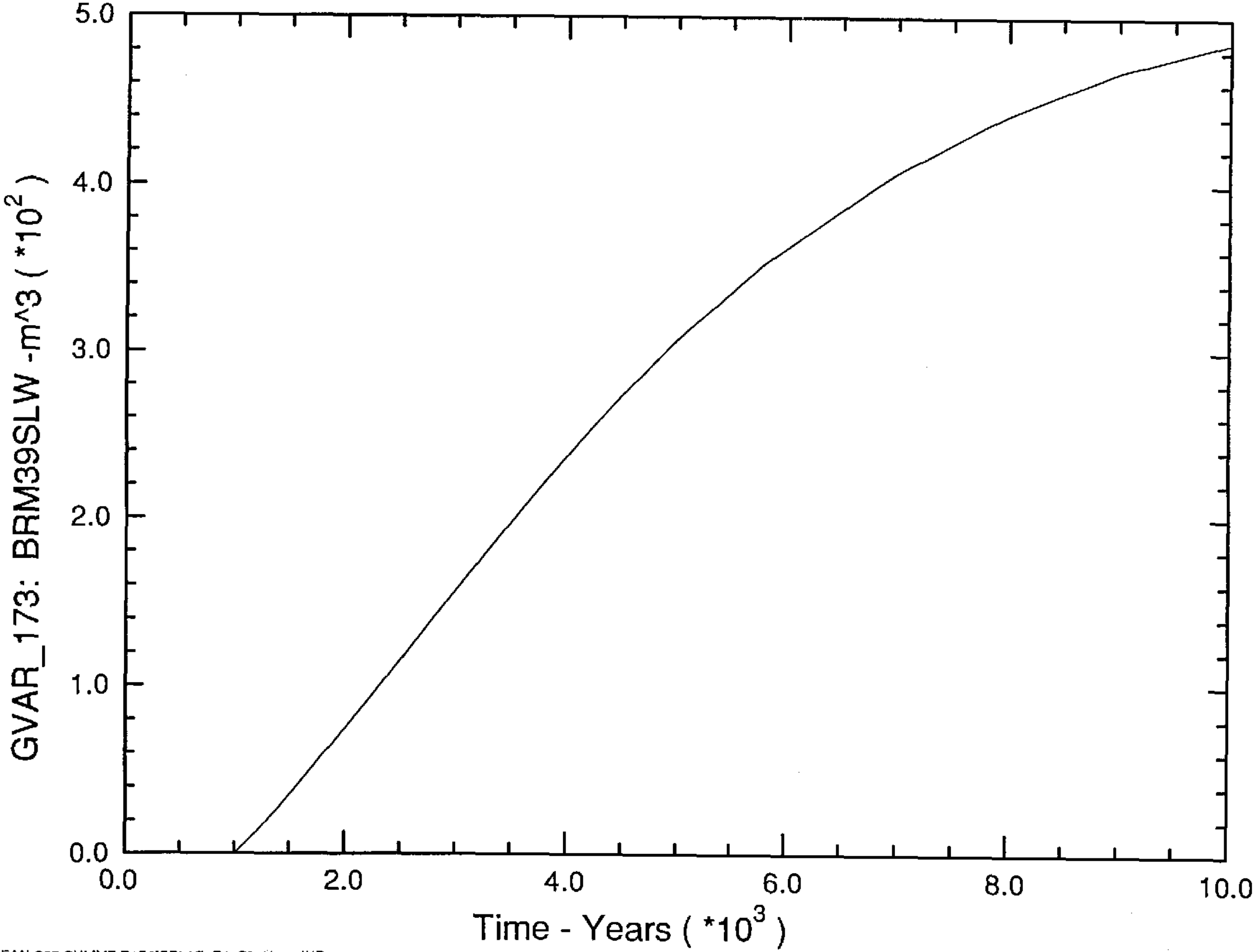
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H172.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:28:02

Fig A.2.1-55

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S3)

Cumulative Brine Flow Out South MB 139 Across Land-Withdrawal Boundary



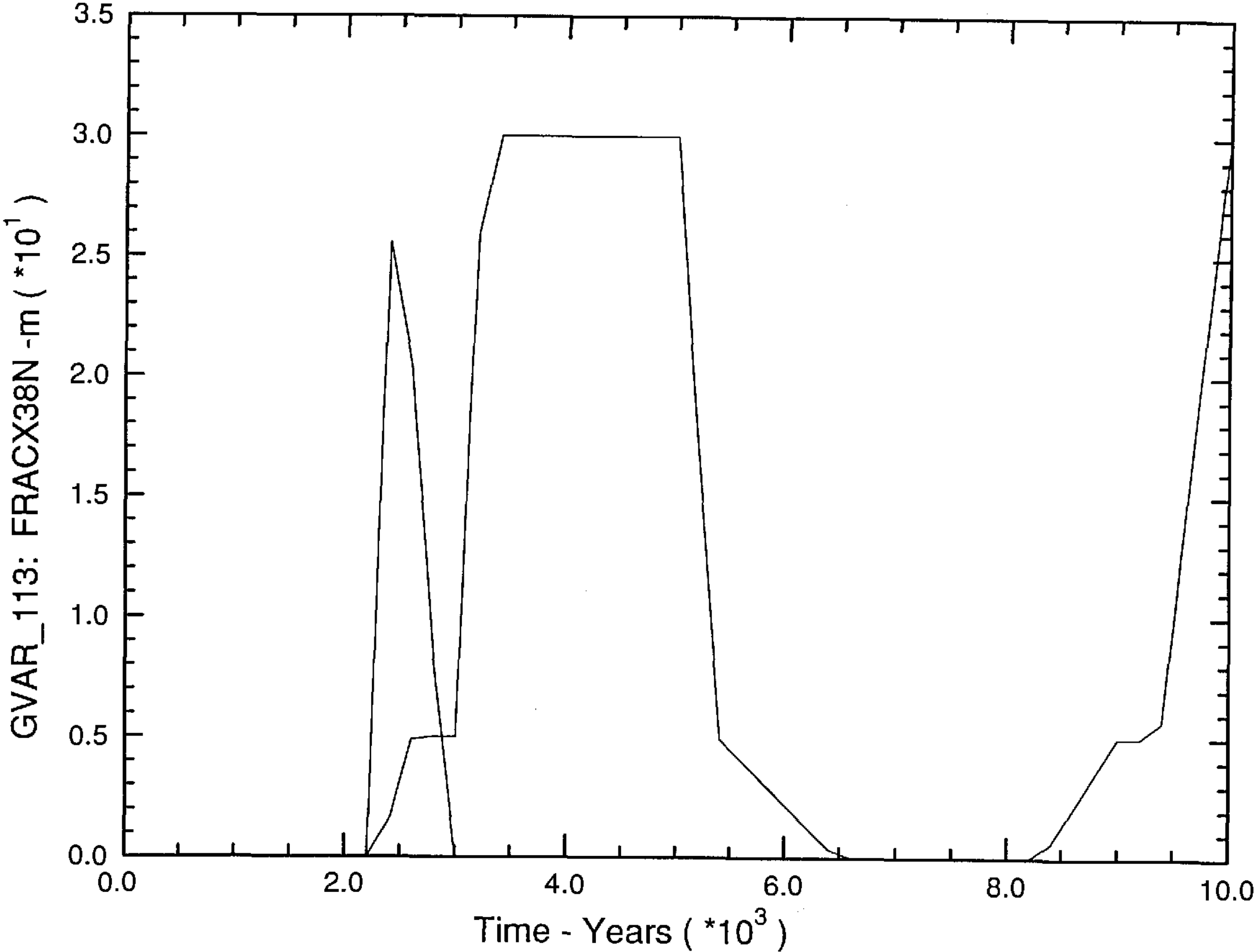
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H173.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:30:42

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Length of Fractured Zone in North MB 138

Fig. A.2.1-56



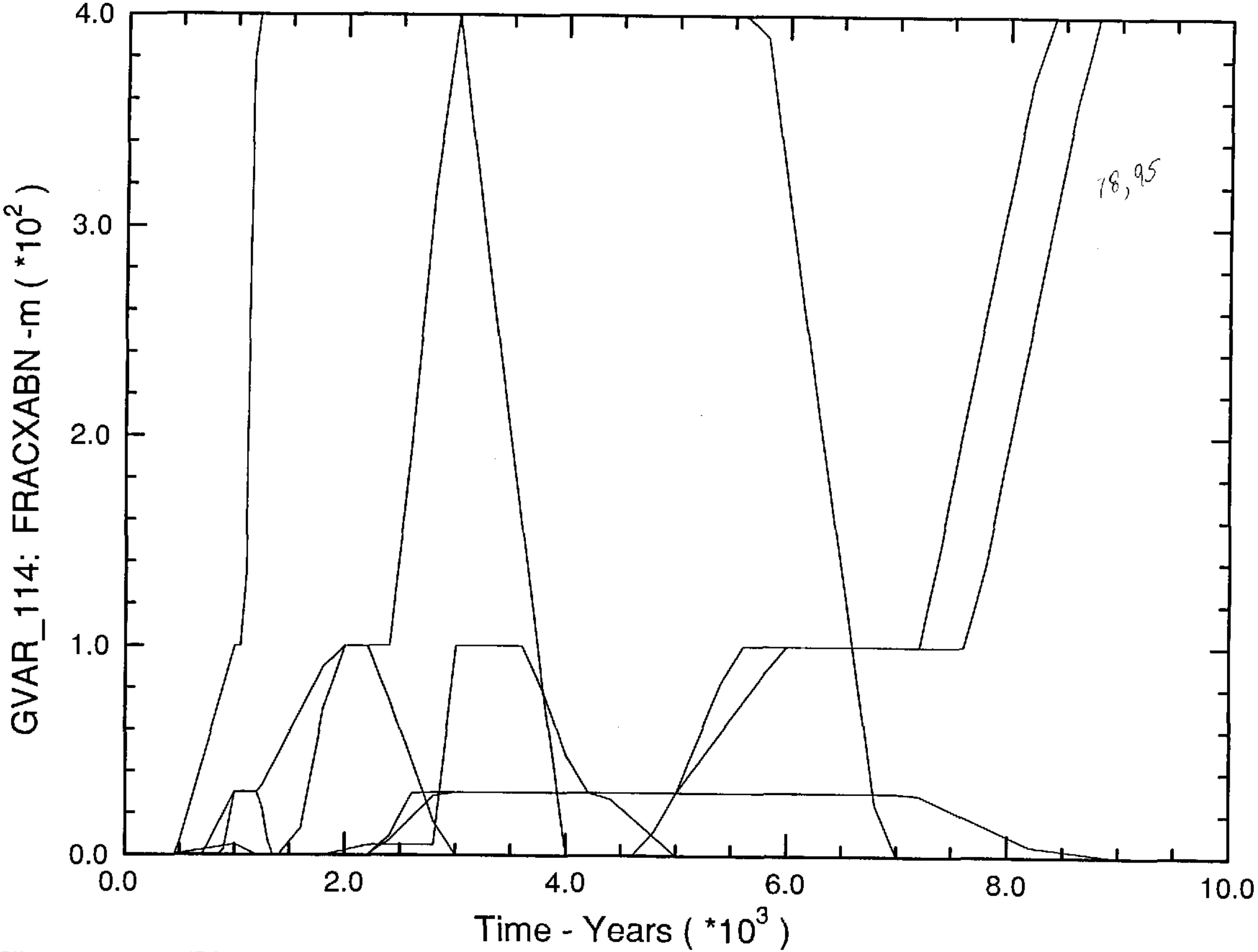
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H113.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:50:18

Fig. A.2.1-57

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Length of Fractured Zone in North Anhydrite A/B



78,95

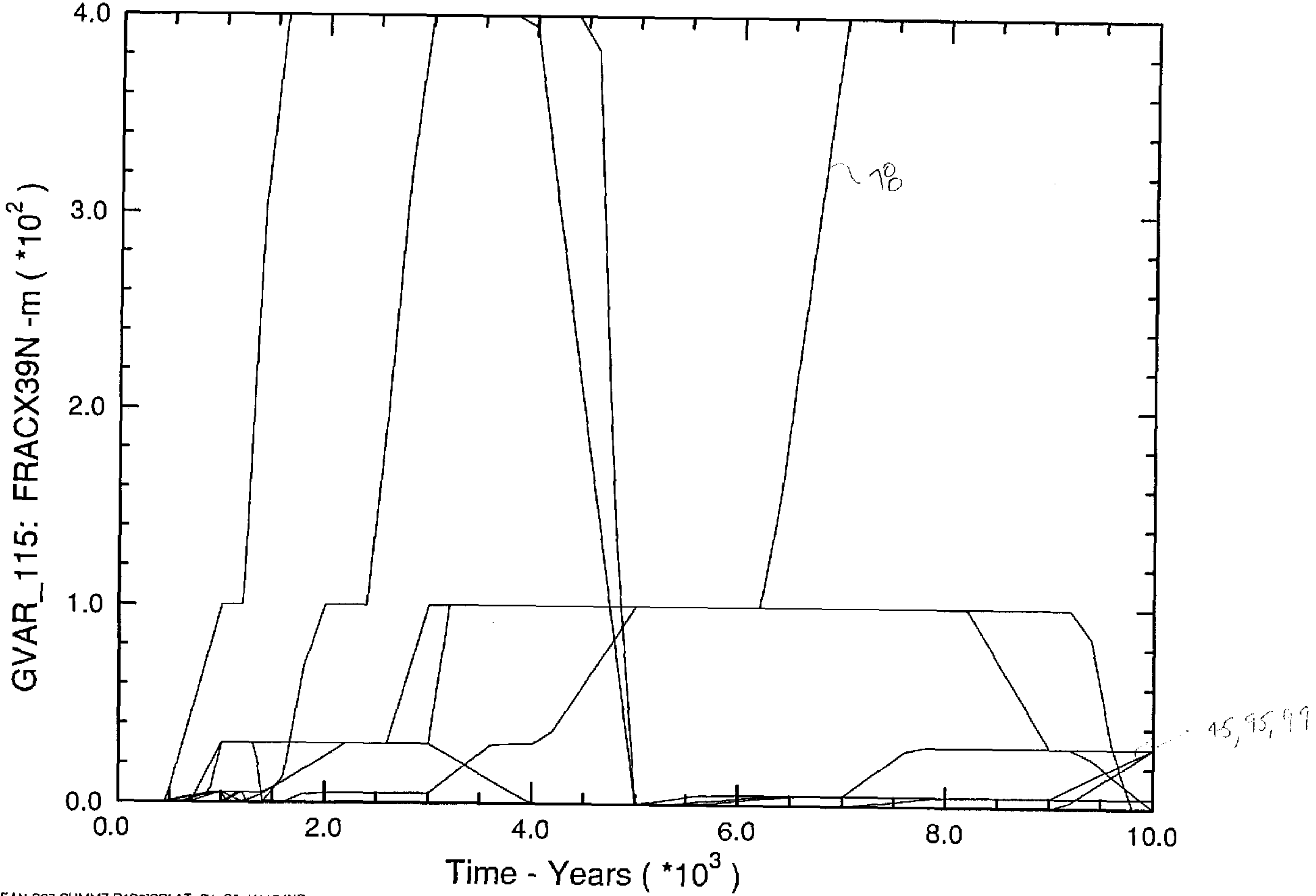
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H114.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:52:56

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Length of Fractured Zone in North MB 139

Fig. A.2.1-58



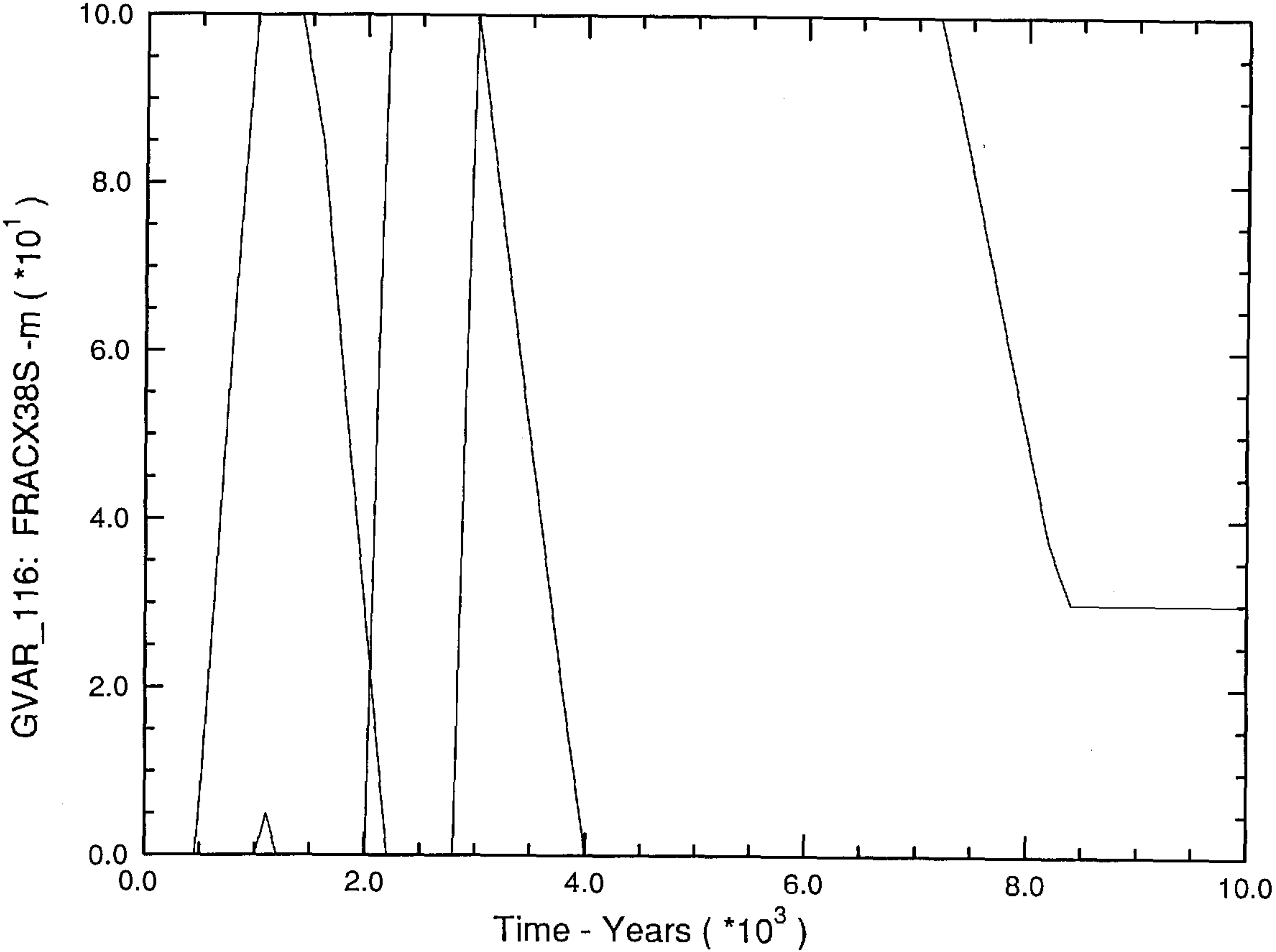
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H115.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:55:35

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Length of Fractured Zone in South MB 138

Fig. A.2.1-59



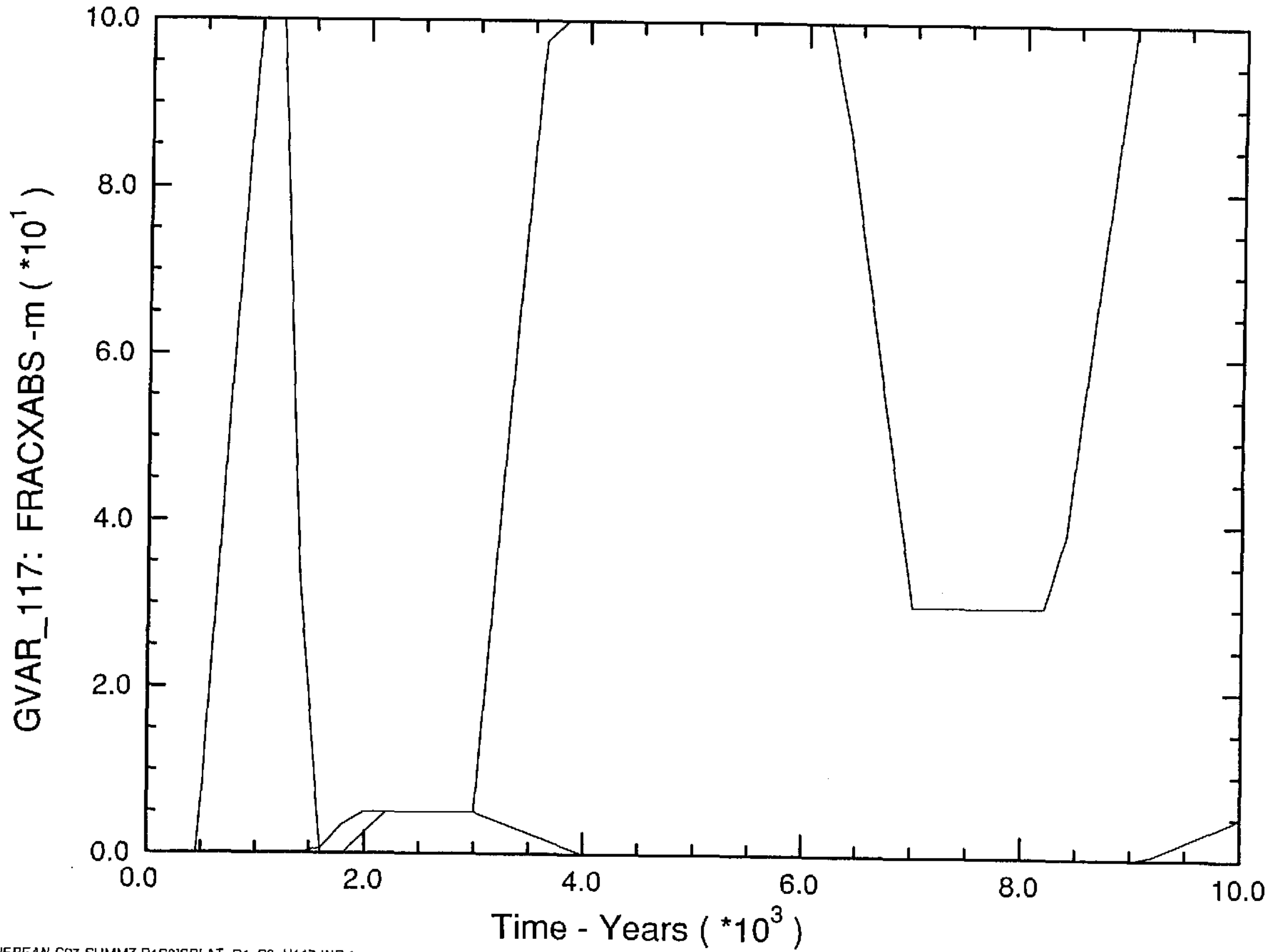
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H116.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:58:14

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Length of Fractured Zone in South Anhydrite A/B

Fig. A.2.1-60



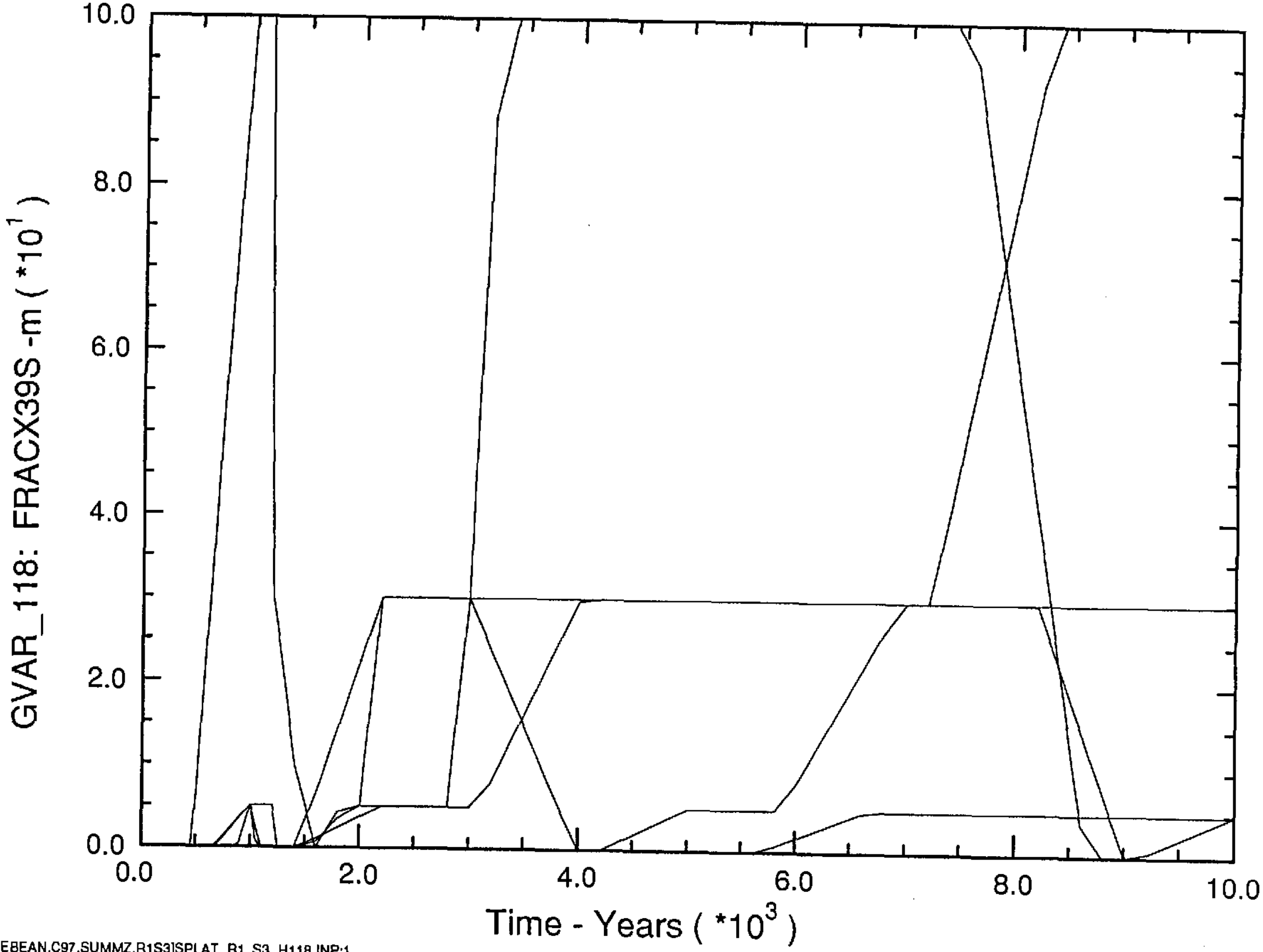
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H117.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:00:54

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S3)

Length of Fractured Zone in South MB 139

Fig. A.2.1-61



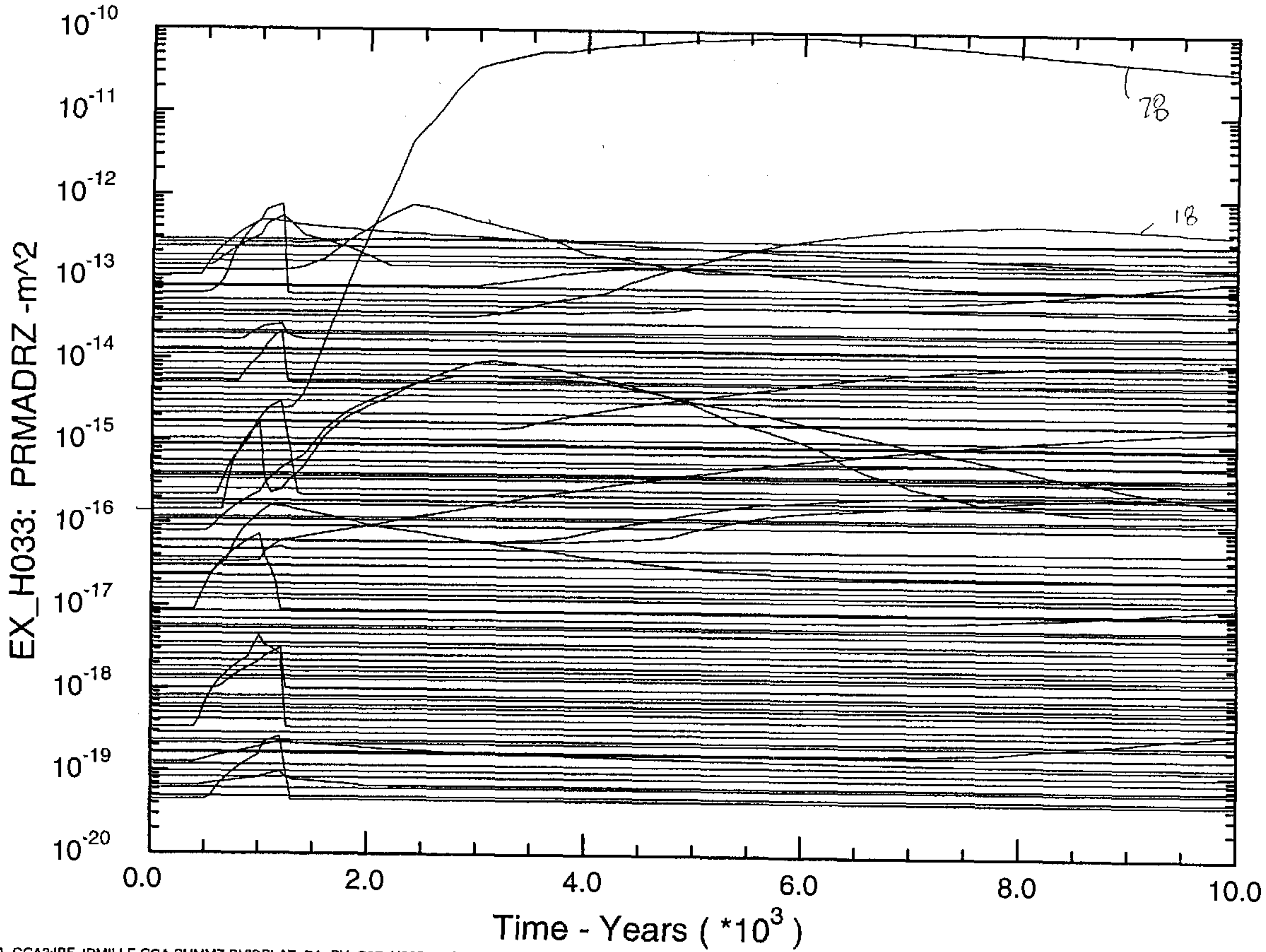
1DRA1:[JEBEAN.C97.SUMMZ.R1S3]SPLAT_R1_S3_H118.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:03:35

Fig. A.2.1 - 62

SNL WIPP PA: BRAGFLO SIMULATIONS (C97 R1 S3)

Volume-Averaged Permeability in All DRZ Layers



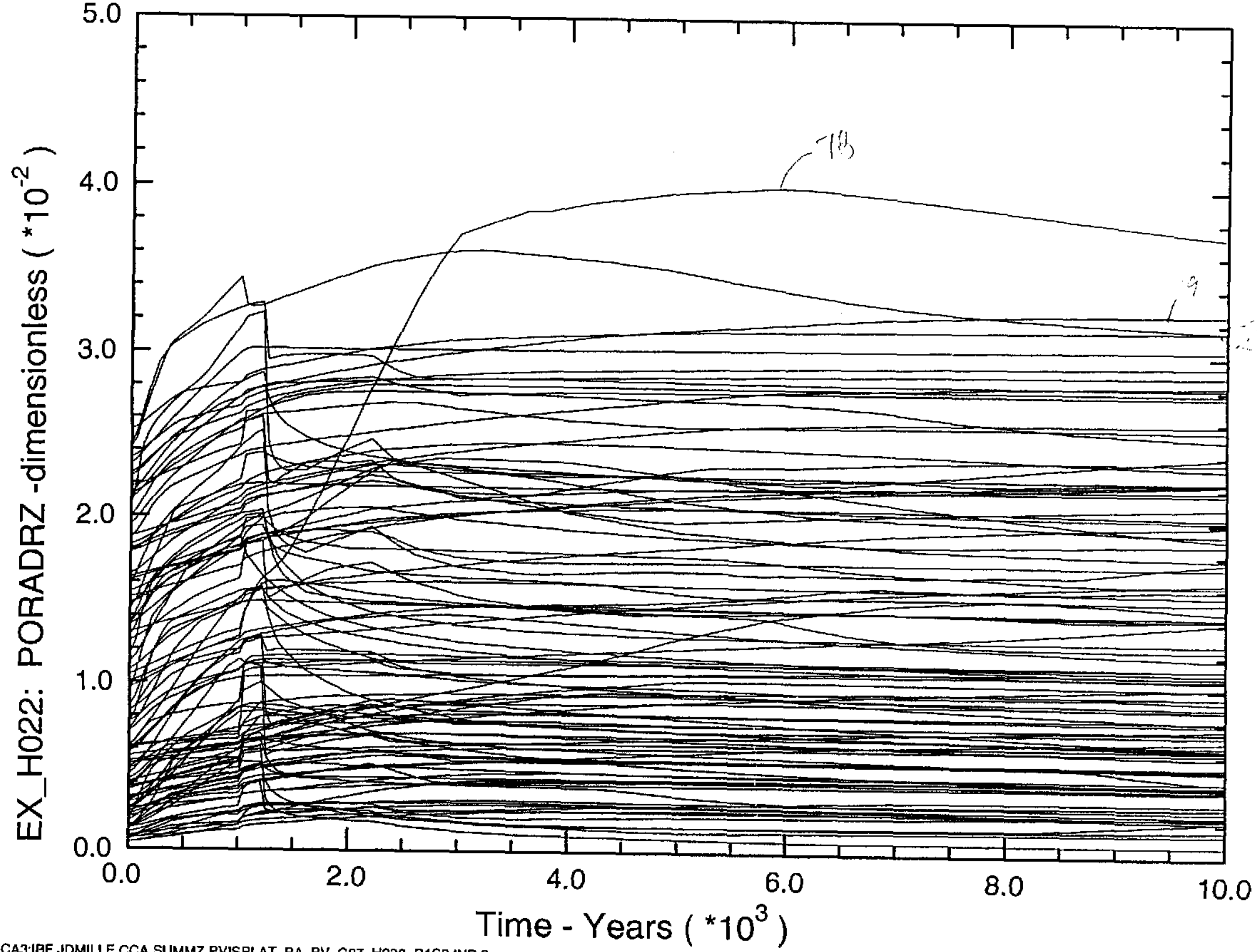
DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PV]SPLAT_PA_PV_C97_H033_R1S3.INP;3

SPLAT_PA96_2 1.02 06/26/97 17:50:14

Fig. A2.1-63

SNL WIPP PA: BRAGFLO SIMULATIONS (C97 R1 S3)

Volume-Averaged Porosity in All DRZ Layers



DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PV]SPLAT_PA_PV_C97_H022_R1S3.INP;3

SPLAT_PA96_2 1.02 06/26/97 17:34:14

A.2.2 E2 Intrusion at 1000 Years (S5 Scenario)

Scenario E2, like Scenario E1, also involves a borehole that penetrates the waste-filled panel. Unlike the E1 scenario, however, the borehole does not go beyond the panel and into the underlying brine reservoir. The borehole is assumed to be emplaced instantaneously and plugged at the time of intrusion. Except for the plugs, the borehole is assumed to have a porosity of 0.32, with the high permeability of 1.0×10^{-9} m^2. One plug extends from the top of the Salado formation up through the Unnamed member of the Rustler formation. The other plug extends downward from the surface through the Santa Rosa formation. The permeability of the two plugs ranges from 1.0×10^{-19} to 1.0×10^{-17} m^2 (is 5.0×10^{-17} m^2). These conditions exist for 200 years. At 200 years after intrusion, the borehole material properties are modified to represent the impact of caving, sloughing, and plug degradation. At this time the borehole is assigned uniform properties, with a permeability sampled from a range of 5×10^{-17} to 1×10^{-11} m^2 (10^{-14} to 10^{-11} m^2). These conditions persist for the remainder of the 10,000 years.

A.2.2.1 Replicate 1 Results and Discussion

A.2.2.1.1 Repository Behavior

The time dependence of pressures in the waste panel and rest of repository are shown in Figures A.2.2-1 [GVAR_023] and A.2.2-2 [GVAR_024]. As in the E1 scenario, pressure responses in the experimental and operation regions are nearly identical to those in the waste panel and rest of repository because the permeability of excavated regions, drift and panel seals, and the DRZ are high and on the order of 10^{-15} m^2. In a few realizations where the DRZ or lower shaft permeability is low, on the order of 10^{-18} m^2, the experimental area shows a slower pressure response, however, this behavior does not influence the rest of the repository or the surrounding formations. In many realizations, pressures increase rapidly during the first 1000 years. These rapid increases in pressure are caused by a high gas generation rate coupled with creep closure. In these realizations, plastics and rubbers are included in the inventory of biodegradables; this results in a higher net rate of gas generation during the first 1000 years. In some realizations, the pressure reaches a maximum. In contrast to this behavior, some realizations (near the bottom of the plots) exhibit slowly increasing pressures. In these realizations, there is very little gas generation from corrosion (sampled corrosion rates are among the lowest) and none from biodegradation. The third type of behavior exhibited in Figures A.2.2-1 [GVAR_023] and A.2.2-2 [GVAR_024] is a moderately rapid initial rise in pressure. This behavior is a result of creep closure in combination with intermediate gas generation rates.

After intrusion, the rate of pressure increase tends to decrease slightly for 200 years. Recall that at the time of intrusion, the borehole has a high permeability of 1.0×10^{-9} m^2 everywhere except for two concrete plugs having a permeability ranging from 1.0×10^{-19} to 1.0×10^{-17} m^2 (5.0×10^{-17} m^2). These plugs are located above the Salado in the Santa Rosa and Unnamed Members. These borehole conditions remain for 200 years after intrusion, at which time the borehole plugs degrade. Four (Three) general types of pressure behavior then follow. In approximately 20% of the realizations, pressures decrease dramatically. In approximately 10% (5%) of the realizations, pressures continue to gradually increase for several thousand years followed by a period of decreasing pressure. In these realizations, sufficient quantities of brine flow into the panel to maintain relatively high gas generation rates due to corrosion and increasing pressure conditions. Corrosion continues in many realizations over the full 10,000 years regulatory period. Gas generation due to microbial degradation, however, has largely ceased as the cellulose inventory has been exhausted, generally within 1500 years. The third type of response is for the pressure to rise relatively rapidly following a period of low or slowly decreasing pressure. The time lag between intrusion and repressurization lasts from 500 to over 5000 years. During this time gas that has filled the panel is driven up the intrusion borehole as brine flows into the waste through the anhydrite layers. Once the borehole is filled with brine, the pressure in the waste reaches hydrostatic pressure relative to the water table in the Dewey Lakes, and then levels off. Note that in the E2 scenario more realizations take longer for the pressure in the repository to rise to hydrostatic pressure than did in the E1 scenario. Final pressures above hydrostatic pressure occur in those realizations having high corrosion rates and a relatively low borehole permeability (sampled parameter ranging from 5.0×10^{-17} to 1.0×10^{-11} m^2 (1.0×10^{-14} to 1.0×10^{-11} m^2)) that prevents gas from easily escaping the panel and repository. Pressures below hydrostatic occur in those realizations where the borehole is filled predominately with gas. The fourth type of response (approximately 15% of the realizations) is for the pressure to remain relatively constant following intrusion. This behavior is centered in two pressure ranges, 8-9 MPa and 12-13 MPa. The driving factors for this fourth type of behavior are similar to the third type, the difference being that for the fourth type post-intrusion pressures are already above hydrostatic.

A.2.2.1.1.1 Gas Generation

The fraction of the initial steel inventory that remains after 10,000 years (Figure A.2.2-3 [GVAR_003]) ranges from about 3% to 98% (3% to 82%), compared with 3 % to 97% (3% to 84%) in the E1 scenario. The profiles of steel consumption with time are also very similar to the E1 results. Approximately one third of the realizations show slow but steady corrosion over the full 10,000 years, indicating that corrosion is controlled by the corrosion rate rather than by the availability of brine. In numerous other realizations, steel consumption slows significantly after varying lengths of time, indicating that corrosion eventually becomes controlled by the amount of brine available, rather than the corrosion rate. In some realizations, corrosion slows fairly early, between 1000 and 2000 years, and the rate never picks up again. It is also interesting to note that the intrusion has an insignificant impact on corrosion in the majority of realizations.

The consumption of cellulose (Figure A.2.2-4 [GVAR_004]) is nearly identical to both the E1 and Undisturbed scenarios. As in these preceding scenarios, the biodegradation rate is much faster than the corrosion rate and nearly all of the cellulose is reacted before corrosion consumes the brine needed for reactions to take place. Only in nine (two) realizations does any appreciable amount of cellulose remain after the intrusion.

The total amount of gas generated is similar to that generated in the E1 scenario, ranging from about 2.4×10^6 m^3 to 3.5×10^7 m^3 (1.5×10^6 m^3 to 3.6×10^7 m^3) at reference conditions over 10,000 years. The distribution of amounts generated differs slightly, with the mean gas volume being higher in the E1 scenario (1.72×10^7 m^3 (1.74×10^7 m^3)) than in the E2 scenario (1.39×10^7 m^3 (1.60×10^7 m^3)), reflecting the greater availability of brine from the Castile Formation. Similar amounts of brine are consumed in the E2 and E1 scenarios, a maximum of 49,600 m^3 (41,000 m^3) in the E2 scenario compared with 48,400 m^3 (44,000 m^3) in the E1 scenario.

A.2.2.1.1.2 Halite Creep

Creep closure of the repository and consolidation of the waste behaves similarly in all realizations, as it did in the E1 scenario. In all cases, a very rapid reduction in porosity (Figure A.2.2-5 [GVAR_052]) occurs during the first 300 - 500 years. At the time of intrusion, the waste porosity has mostly leveled off at values ranging from 8% to 22% (8% to 20%), depending on the pressure in the waste. When the pressure is high, the porosity remains higher as fluid pressures resist further closure. When the intrusion occurs, the borehole connects the panel with the overlying formations and atmosphere. However, the low permeability plugs located above the Salado in the Santa Rosa and Unnamed Members effectively prevent communication with overlying formations for two hundred years subsequent to intrusion. After 200 years, the plugs in the borehole degrade, raising the borehole permeability to the sampled value. This increase in permeability allows gas and brine to escape up the borehole, reducing the pressure in the waste, and causing the porosity to further decrease. In some cases, the repository pressure and porosity are prevented from decreasing significantly because the borehole permeability is sufficiently low and the gas generation rate is sufficiently high. In other cases, the pressure continues to increase after intrusion. After about 2000 years, the pressure and porosity in the waste generally stabilize. The minimum porosity tends to drift very slowly downward over time, reaching approximately 5% by 10,000 years. This porosity is just slightly greater than the minimum porosity computed by SANTOS for a repository at low pressure. The maximum porosities level off at about 21% (18%), corresponding to pressures ranging up to 14 MPa (9 MPa).

Some realizations display more rapid transient responses at later times. In some cases where brine influx is slow but steady, the portion of the borehole above the repository remains gas-filled for hundreds or thousands of years. This gas-filled connection to the overlying formations and the surface keeps the repository at near-atmospheric pressures. If enough brine flows in, all of the gas (down to residual gas saturation) is eventually driven out of the panel and both the panel and borehole fill with brine. This gas is either driven up the borehole or forced up-dip into the rest of the repository and DRZ. As the panel and borehole fill with brine, the pressure in the repository will increase fairly rapidly until hydrostatic pressure relative to the water table in the Dewey Lakes is reached. This relatively rapid increase in pressure, and the resulting increase in porosity, can be seen in some realizations between 2000 and 8000 years, both in the pressure plot (Figure A.2.2-1 [GVAR_023]) and in the porosity plot (Figure A.2.2-5 [GVAR_052]).

A.2.2.1.1.3 Fluid Flow

Cumulative brine flow into the repository is shown in Figure A.2.2-6 [GVAR_054]. Amounts of brine entering the repository during the first 1000 years range from nearly zero to about 35,000 m^3 (30,000 m^3) with one extreme realization (#24) having almost 55,000 m^3. Most of this inflow occurs very early, as the repository equilibrates with the surrounding formations. At 1200 years, when the borehole plugs degrade and their permeability increases, the rate of brine inflow increases in several realizations. In most cases, this increase is caused by brine flowing down the borehole from the overlying Culebra and Dewey Lakes Formations. The majority of realizations exhibit a slow but steady increase in brine inflow, reflecting the continual inflow from the marker beds. Those realizations that display a rapid increase in brine inflow over the 2000 years following the intrusion eventually experience a rather sharp decline in inflow rate. This decline in inflow rate occurs when the panel and rest of the repository fill, to the extent possible, with brine flowing down the borehole. Thereafter, the rate of inflow is an indication of the sampled permeability of the marker beds. After 10,000 years, the cumulative brine inflow ranges from 240 to 133,000 m^3 (3,000 to 137,000 m^3).

Brine outflow from the repository (Figure A.2.2-7 [GVAR_059]) shows similar behavior to brine inflow except that the outflow is delayed by the amount of time needed to fill the repository and is much lower in quantity, ranging from zero to 45,000 m^3 (91,000 m^3) at 10,000 years. Those realizations in which large amounts flow in by way of the borehole also have a lot of brine flowing out by way of the borehole. The amount flowing out of the repository reflects a combination of brine being driven out (either up the borehole or simply into the DRZ) by continual brine inflow from the interbeds and by gas generated by corrosion. Brine outflow is reduced when high corrosion rates consume brine. In many realizations, the brine consumption rate is high enough that all brine inflow is consumed, keeping the brine outflow at or near zero.

Brine flow up the shaft ranges from 0 m^3 to 57 m^3 (0 m^3 to 48 m^3) (Figure A.2.2-8 [GVAR_069]). There is no upward flow of brine from the repository level.–This brine is believed to originate in the upper section(s) of the shaft. This conclusion is based on examination of flows at different locations in the shaft for individual realizations and is verified in Section 3.0 describing the Salado transport analysis.

Flow up the borehole at the top of the panel (Figure A.2.2-9 [GVAR_073]) occurs in 20 (5) realizations, in amounts ranging from less than 1 m^3 to 4,400 m^3 (120 m^3 to 21,900 m^3). The realizations with the highest flows up the borehole all have a very high borehole permeability and a low DRZ permeability. Brine flow up the borehole at the elevation of the Culebra (Figure A.2.2-10 [GVAR_074]) is similar to flow at the top of the panel. At most 0.7 m^3 (5.3 m^3) of brine flows up past the top of the Rustler (Figure A.2.2-11 [GVAR_075]), and none reaches the surface.

A.2.2.1.2 Behavior in Formations Surrounding the Repository

A.2.2.1.2.1 Two-Phase Flow

Once the borehole plugs degrade at 1200 years, large volumes of gas (up to 1.6 x 10^7 m^3) (up to 9.5 × 10^6 m^3) are vented up the borehole (Figure A.2.2-12 [GVAR_101]). Large amounts continue to flow from the DRZ for as long as gas is generated (Figure A.2.2-13[GVAR_102]). The total amount of gas vented up the borehole ranges from about 300 m^3 up to 35 × 10^6 m^3 (1.0 × 10^6 m^3 up to 32 × 10^6 m^3). The maximum total amount of gas generated is 35 × 10^6 m^3 (36 × 10^6 m^3) (Figure A.2.2-14 [GVAR_022]). Thus, a large fraction of the gas generated eventually flows up the borehole. Very little gas (less than 25 (22) m^3) flows up the shaft (Figure A.2.2-15 [GVAR_100]).

Gas flow into the interbeds occurs in only 10 to 20% of the (a few) realizations, and the amounts are very small compared to flow up the borehole. In MB138, the largest of the realizations shows 38,000 m^3 (40,000 m^3) flowing to the north (Figure A.2.2-16 [GVAR_106]) and 44,000 m^3 (35,000 m^3) flowing to the south (Figure A.2.2-17 [GVAR_109]). In Anhydrite a and b (Figures A.2.2-18 [GVAR_107] and A.2.2-19 [GVAR_110]), several realizations show small flows of gas (less than 3,000 m^3), but only in six (three) realizations does more than 10,000 m^3 flow out; the maximum is 430,000 m^3 (133,000 m^3) to the north. In MB139, a maximum of 420,000 m^3 (11,000 m^3) flows to the north (Figure A.2.2-20 [GVAR_108]); to the south, the maximum flow is 550,000 m^3 (4,000 m^3) (Figure A.2.2-21 [GVAR_111]).

Brine flow into and out of the marker beds in the E2 scenario are similar to that in the E1 scenario (Figures A.2.2-22 [GVAR_079] to A.2.2-42 [GVAR_099]). The maximum net flows (Table A.2.2-1) are similar in the two scenarios. The highest flows out of the DRZ are into Marker Bed 139, with about half as much flowing northward as to the south. Compared to the amount that flows into the DRZ, outflows are very small, about 10% (less than 1%) as large as inflows.

Table A.2.2.-1. Cumulative Net Interbed Brine Flows for
E2 Intrusion at 1000 Years (S5 Scenario)

Marker Bed	Max. Net Brine Flow from MB into DRZ, m^3	Max. Net Brine Flow from DRZ into MB, m^3
MB138 North	90 (300)	100 (4)
MB138 South	1650 (3700)	17 (0)
Anhydrite a & b North	4300 (8800)	0 (0)
Anhydrite a & b South	5300 (9800)	0 (0)
MB139 North	11,100 (20,200)	1700 (100)
MB139 South	12,600 (21,200)	3300 (100)
All Marker Beds	34,000 (64,000)	5200 (200)

The cumulative flows out all anhydrite layers and across the land withdrawal boundary are summarized in Figure A.2.2-43 [GVAR_174] and Table A.2.2-2. Flows in individual layers are presented in Figures A.2.2-44 [GVAR_168] to A.2.2-49 [GVAR_173]. As shown, only one realization (#38) has brine flow out across the land withdrawal boundary. The maximum volume released in all marker beds over the 10,000 years regulatory period is 2735 m^3 (1.28 m^3). The high flow across the land withdrawal boundary in vector #38 is due to the combination of low borehole permeability, very high DRZ and marker bed permeabilities, a very low DRZ porosity, and a low far-field pressure. The brine that flows across the land withdrawal boundary does not originate in the repository; rather, it is brine that is initially present in the marker beds, as is demonstrated in Section 3.0 describing the Salado transport analysis. This result is not surprising since the pore volume of Marker Bed 139 (which provides most of the flow in vector #38) between the repository and the land withdrawal boundary is greater than 155,000 m^3.

Table A.2.2-2. Cumulative Interbed Brine Flows Across Land Withdrawal Boundary for E2 Intrusion at 1000 Years (S5 Scenario)

Marker Bed	Maximum Brine Outflow across Land Withdrawal Boundary, m^3
MB138 North	110 (0.19)
MB138 South	125 (0.0)
Anhydrite a & b North	520 (0.27)
Anhydrite a & b South	120 (0.0)
MB139 North	1350 (0.82)
MB139 South	510 (0.0)
All Marker Beds	2735 (1.28)

A.2.2.1.2.2 Mechanical Response

As in the E1 scenario, gas is not generated at sufficiently high rates in most realizations to reach fracture pressures prior to the intrusion at 1000 years. After the intrusion, the borehole prevents pressures from building up to the point where fracturing could again take place. As a consequence, fracturing occurs in less than 10 (only four) realizations (Figures A.2.2-50 [GVAR_113] to A.2.2-55 [GVAR_118]). Only two realizations, #58 and #38, have significant fracturing. In realization #58 fracture lengths are 400 m in Anhydrite a and b north and 100 m in other marker beds. In realization #38 fracture lengths are 400 m in Anhydrite a and b north and Marker Bed 139 north. All marker bed fractures in realization #38 close up before 10,000 years.

Significant fracturing in the DRZ occurs in only about 3 realizations, as indicated by increasing DRZ permeability (Figure A.2.2-56 [EX_H033]). Note that the permeability increase around

1000 years in all realizations with permeability less than about 10^{-16} m^2 is an artifact of the volume averaging scheme (which includes the 10^{-9} m^2 borehole) and is not indicative of fracturing. DRZ porosity increases, indicative of lesser DRZ fracturing are also evident in some of the realizations (Figure A.2.2-57 [EX_H022]). Only one realization (#58) results in DRZ permeabilities greater than $1x10^{-12}$ m^2 and porosities greater than 0.03. Mean, median, and maximum values for DRZ permeability and porosity are shown in Table A.1-3.

A.2.2.2 Comparison with Other Intrusion Time [350-year version of E2 (S4 Scenario)]

The S4 scenario is another E2 scenario in which the intrusion occurs at 350 years instead of at 1000 years as in the S5 scenario. The borehole properties are the same as in the 1000-year intrusion, but changes take place 650 years earlier.

Because the S4 intrusion time is earlier (350 years), not as much gas is generated prior to intrusion, and the pressure in the waste does not build up as high prior to intrusion as in the S5 1000-year intrusion. The peak pressure observed in the waste panel in the 350-year intrusion is 10.5 MPa, compared with 14.0 MPa in the 1000 yr intrusion case. By 10,000 years nearly the same amount of gas is generated. The reason for this is that sufficient brine is available for both corrosion and biodegradation to proceed at their full rates for at least 1000 years without requiring any supplemental brine from outside sources. Therefore, the earlier intrusion does not provide any additional brine that can be used to drive the reactions faster. After 1000 years, approximately the same amount of brine is available for the reactions regardless of whether the intrusion occurs at 350 years or 1000 years. The cellulose inventory is again fully consumed, as it is in the later intrusion case, within 1000 years in all but the same 8-10 realizations.

Except for some transients between 350 and 1200 years, the porosity in the waste differs very little from the later intrusion. After the first few hundred years, the porosity is a highly damped response to the pressure, and the waste porosity tracks the waste pressure very closely. After about 1200 years, the pressure in the waste behaves similarly in both the earlier and later intrusions.

The largest brine outflows occur in realizations in which large amounts of brine first flow down the borehole from overlying formations. This initial downflow is greater in the S4 scenario because the pressure in the waste is lower. Maximum brine flow up the borehole at the Rustler/Culebra interface is 4800 m^3 for S4 and 4500 m^3 for S5. As in all other scenarios and replicates, none of the brine flowing up the borehole reaches the surface in any realization in this scenario; almost all of it flows into the Culebra.

Brine flow into the DRZ from the marker beds is slightly higher (about the same) for the 350-year intrusion as for the 1000-year intrusion. The maximum is 35,000 m^3 for S4 vs. 34,000 m^3 for S5. Brine flow out of the DRZ into the marker beds is lower in the earlier intrusion. The maximum outflow is 4500 m^3, compared with 5200 m^3 after the later intrusion. The maximum brine outflow in all marker beds across the land withdrawal boundary is about

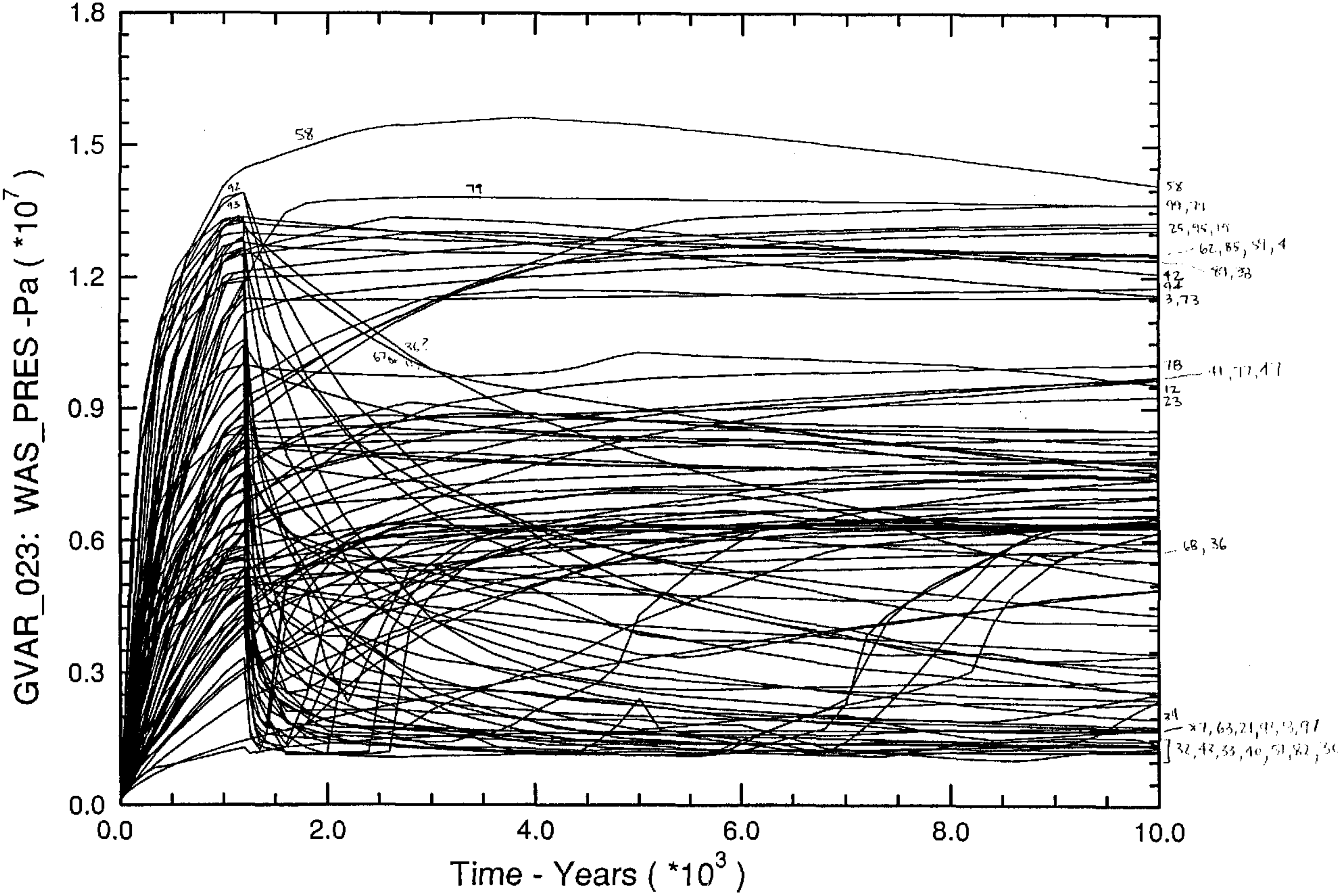
2600 m^3 for S4 and about 2700 m^3 for S5. The outflow across the LWB in all other realizations in both scenarios is insignificant.

Gas flow up the borehole at the top of the panel is slightly greater than in the later intrusion, with a maximum of 1.96×10^7 m^3 (at reference conditions), compared with 1.94×10^7 m^3 in the 1000-year intrusion. The maximum gas flow from the DRZ into the marker beds is also similar (more than an order of magnitude lower than with the 1000-year intrusion). Because the shaft seals are very effective in preventing brine or gas flow up the shaft, gas flow at the top of the Salado originating in the asphalt seal is essentially independent of repository behavior, so those flows are virtually identical (and insignificant at 24 m^3) in both intrusion times.

Fig. A.2.2-1

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Volume-Averaged Pressure in Waste Panel



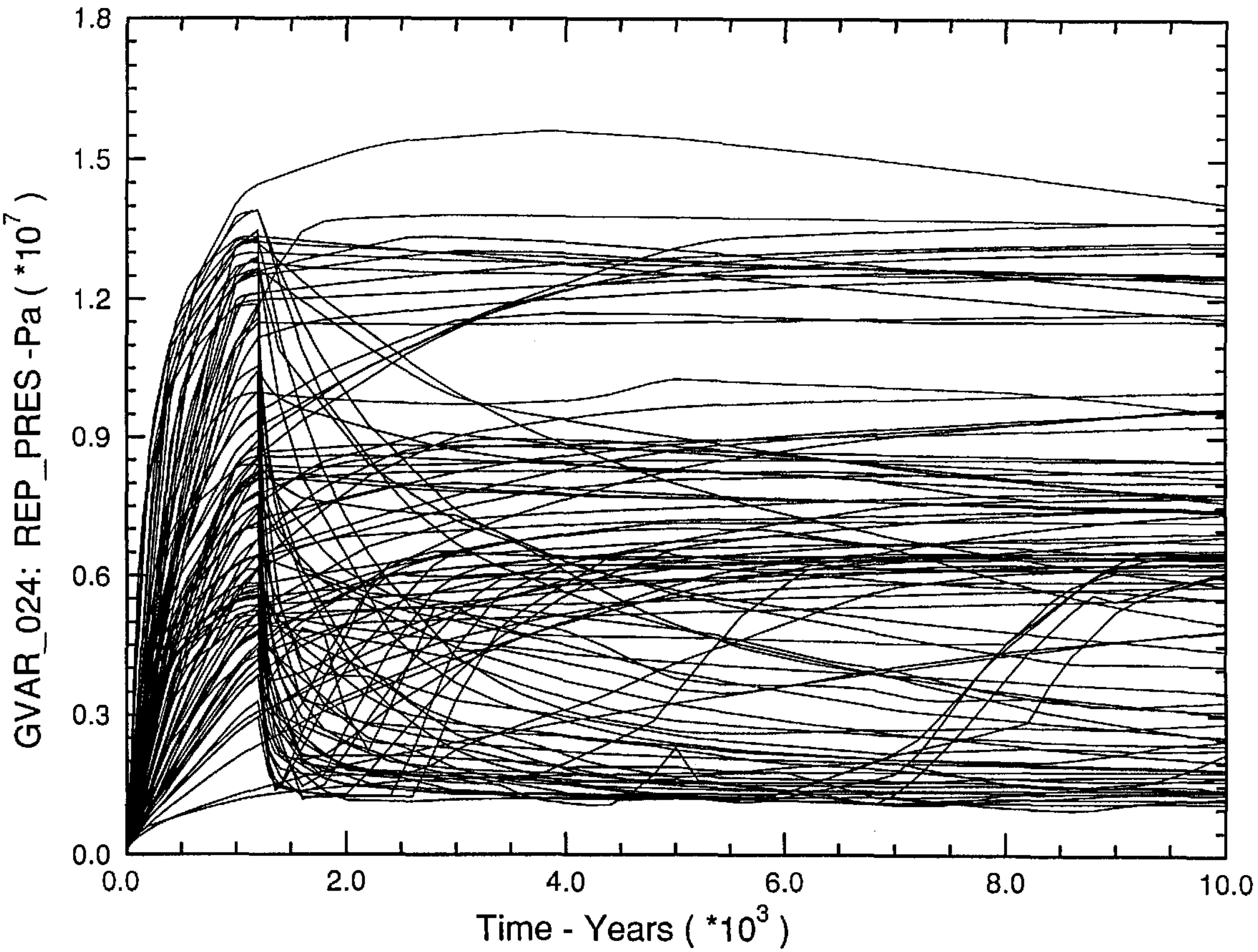
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H023.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:12:48

Fig. A.2.2-2

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Volume-Averaged Pressure in Rest of Repository



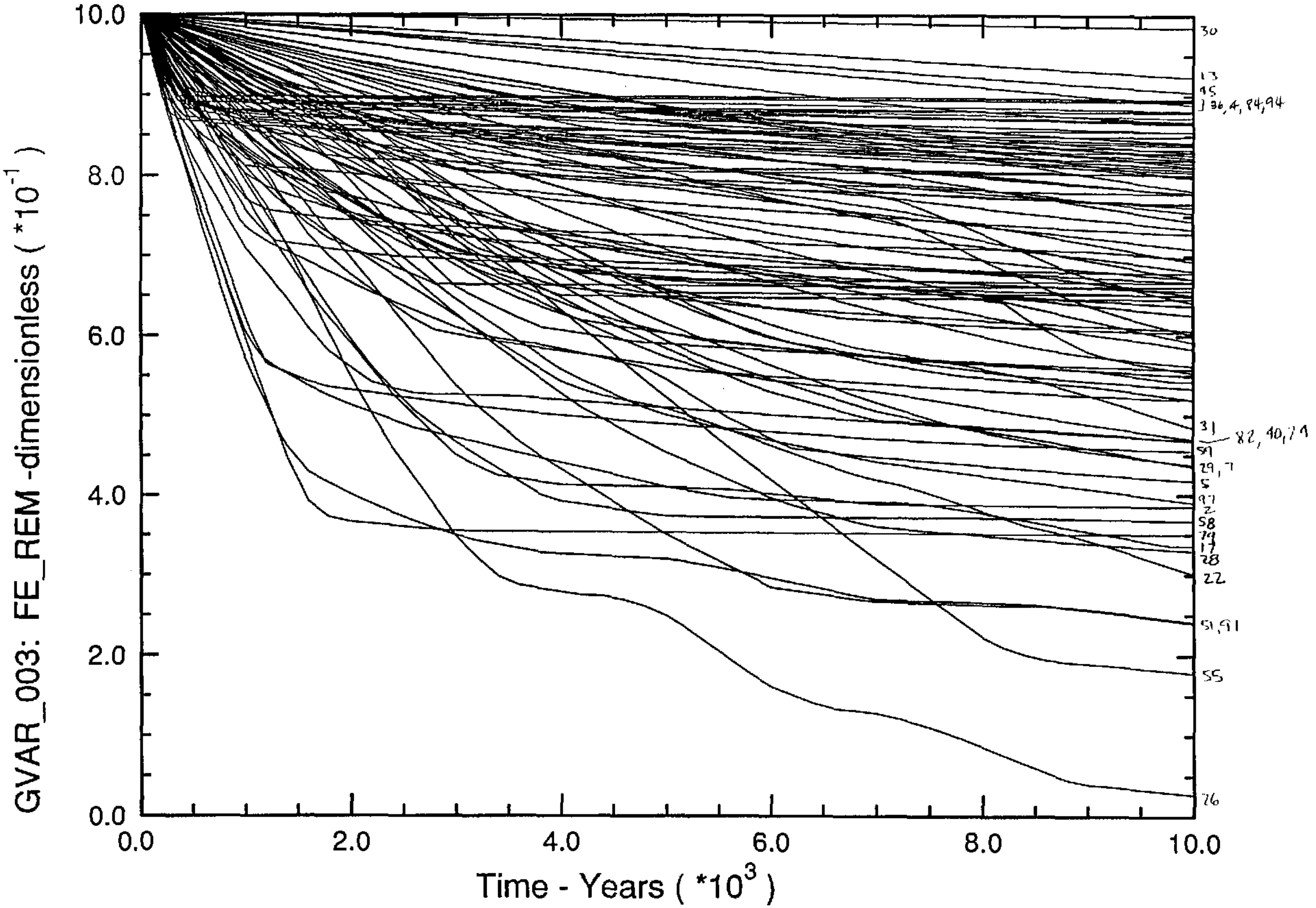
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H024.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:16:11

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Remaining Fraction of Steel Inventory

Fig. A.2.2-3



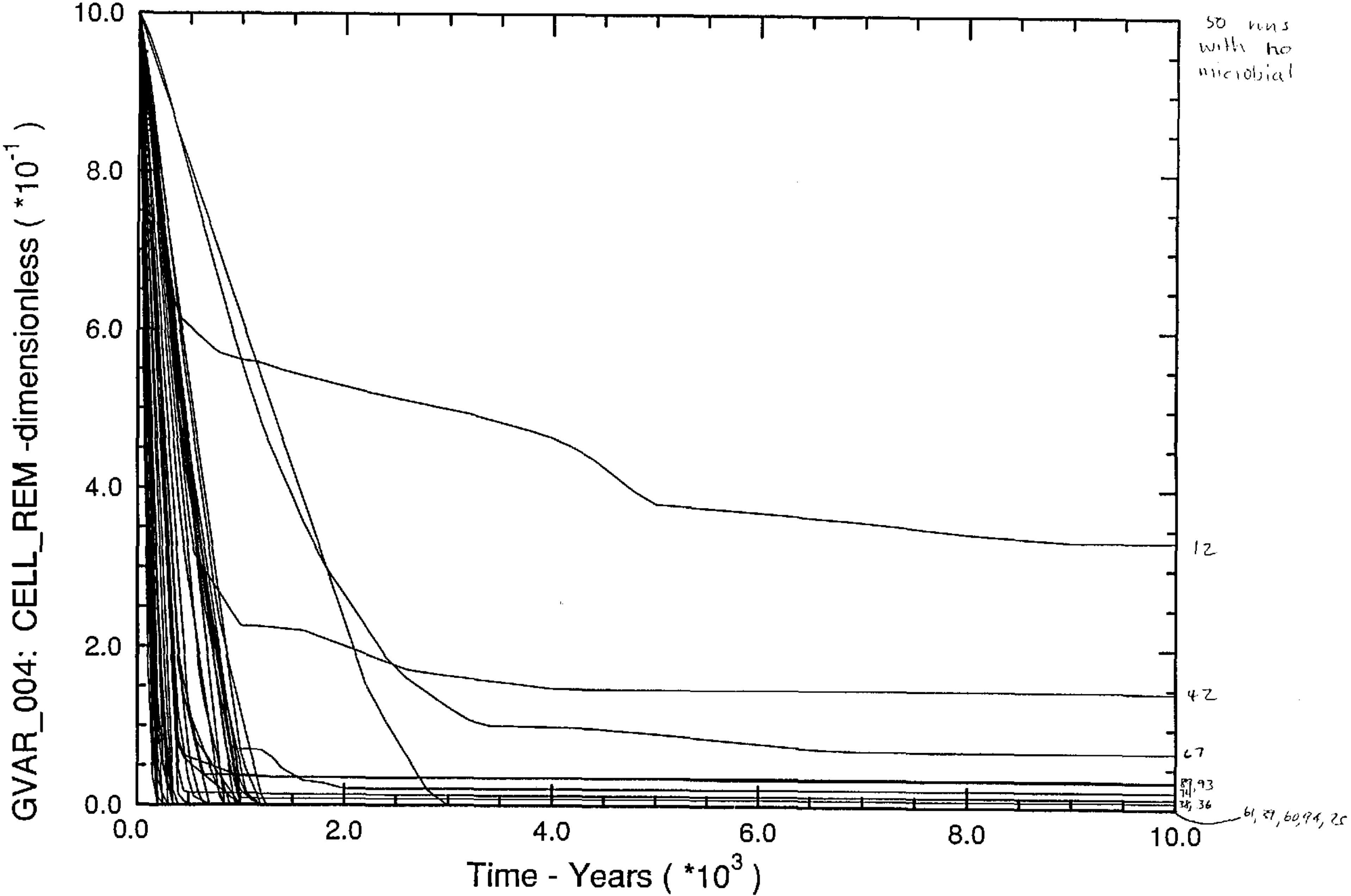
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H003.INP;1

SPLAT_PA96_2 1.02 05/27/97 08:00:07

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Remaining Fraction of Cellulose Inventory

Fig. A.2.2-4



50 runs with no microbial

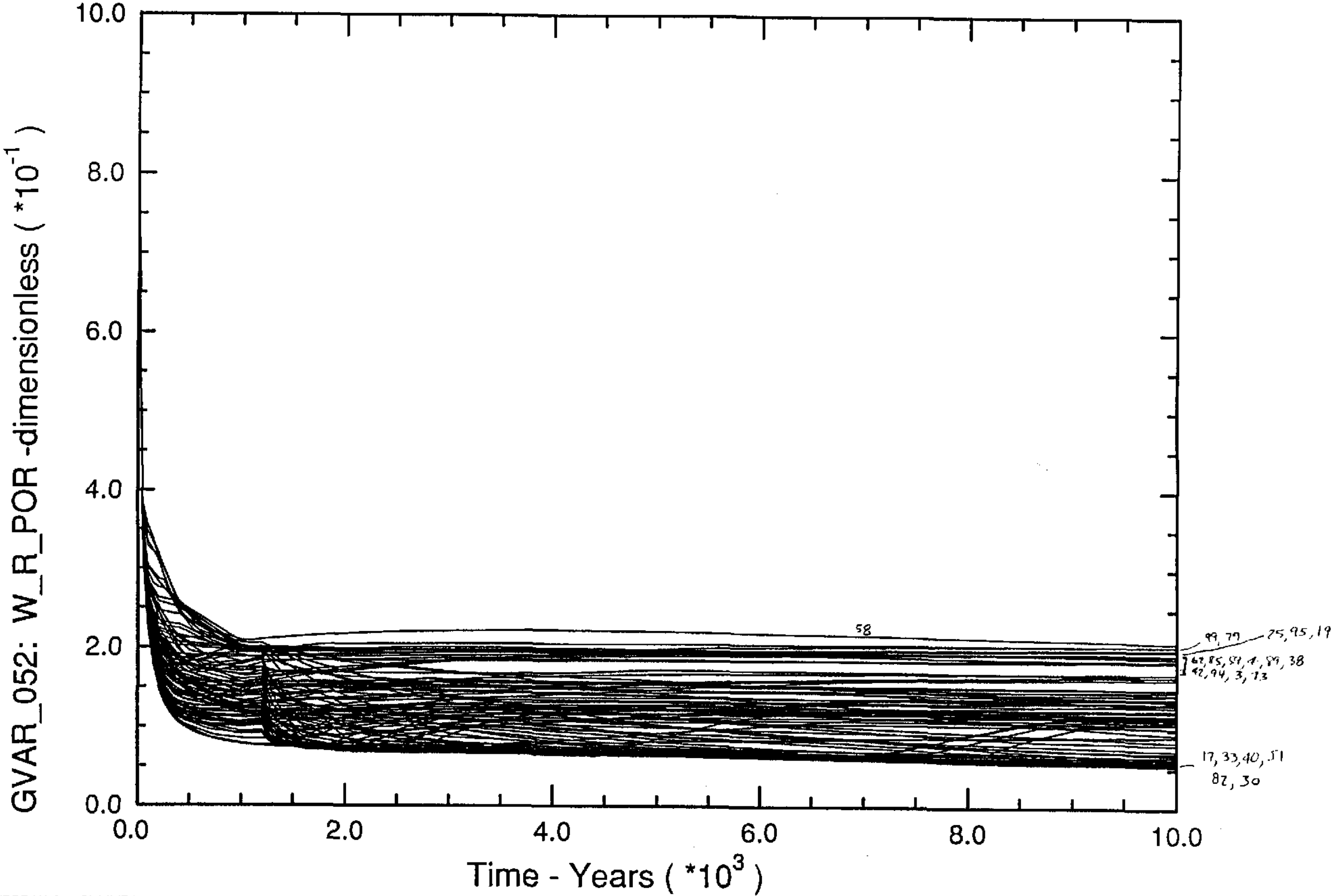
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H004.INP;1

SPLAT_PA96_2 1.02 05/27/97 08:03:59

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S5)

Volume-Averaged Porosity in Waste Panel plus Rest of Repository

Fig. A.2.2-5



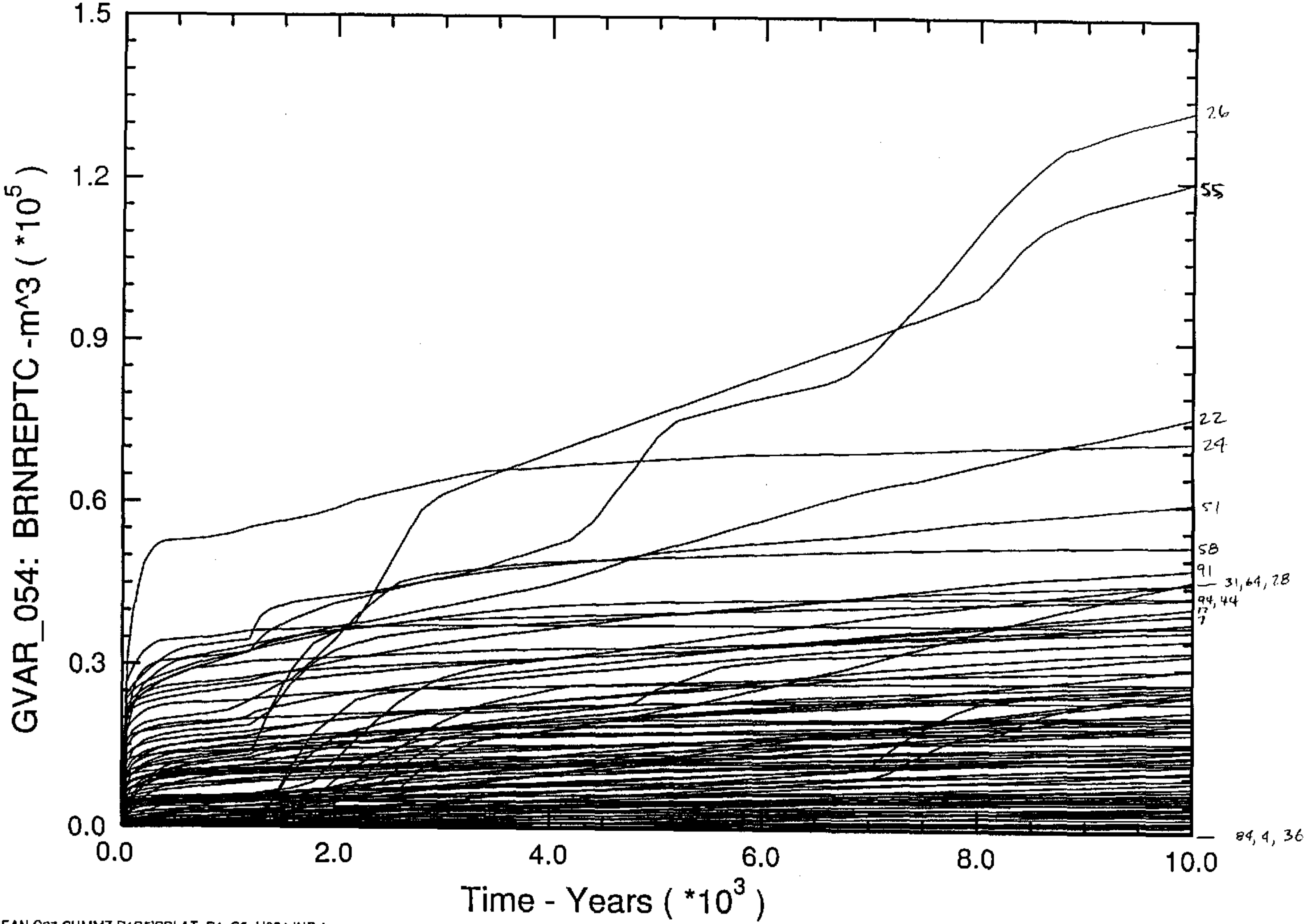
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H052.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:00:55

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Brine Flow into Repository

Fig. A.2.2-6



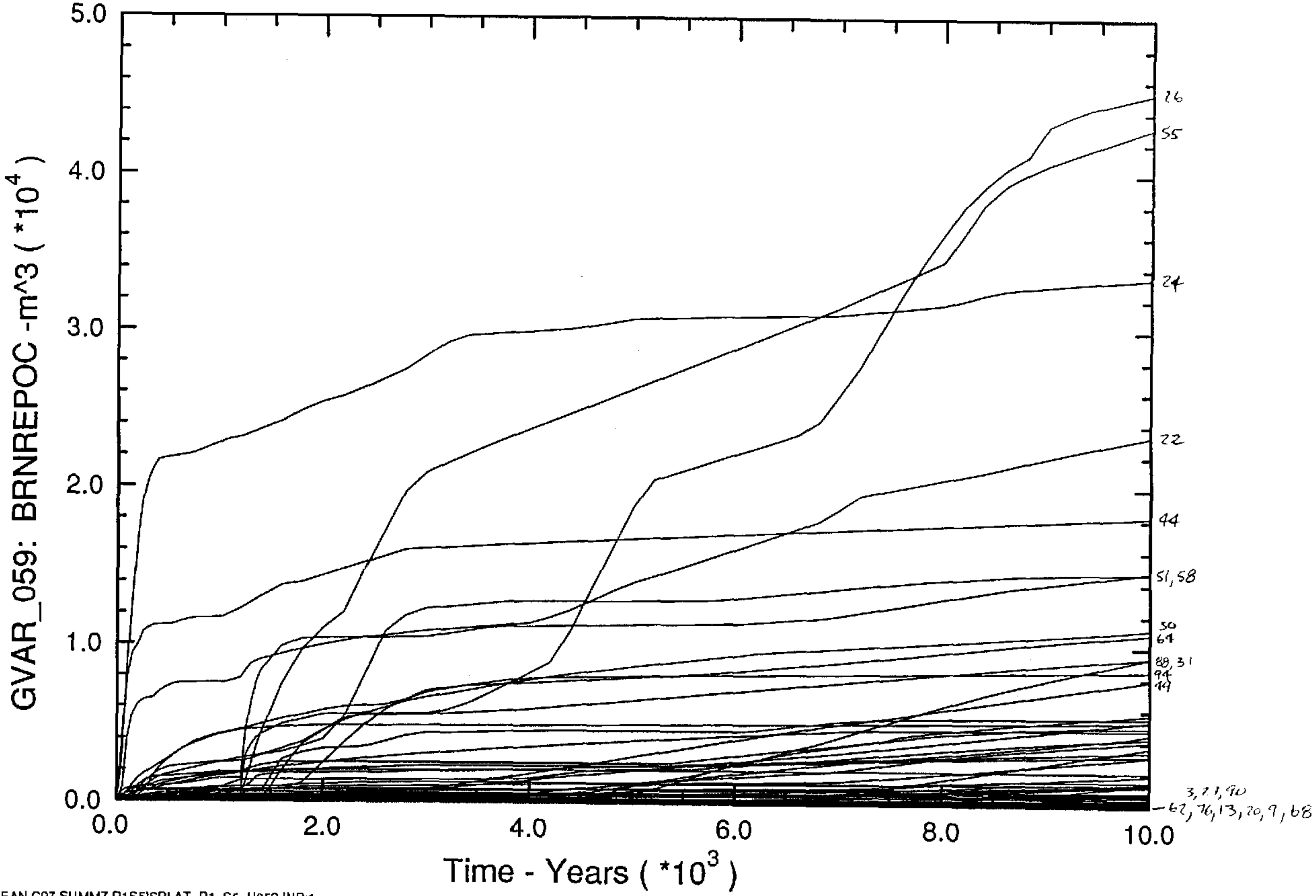
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H054.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:08:22

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out of Repository

Fig. A.2.2-7



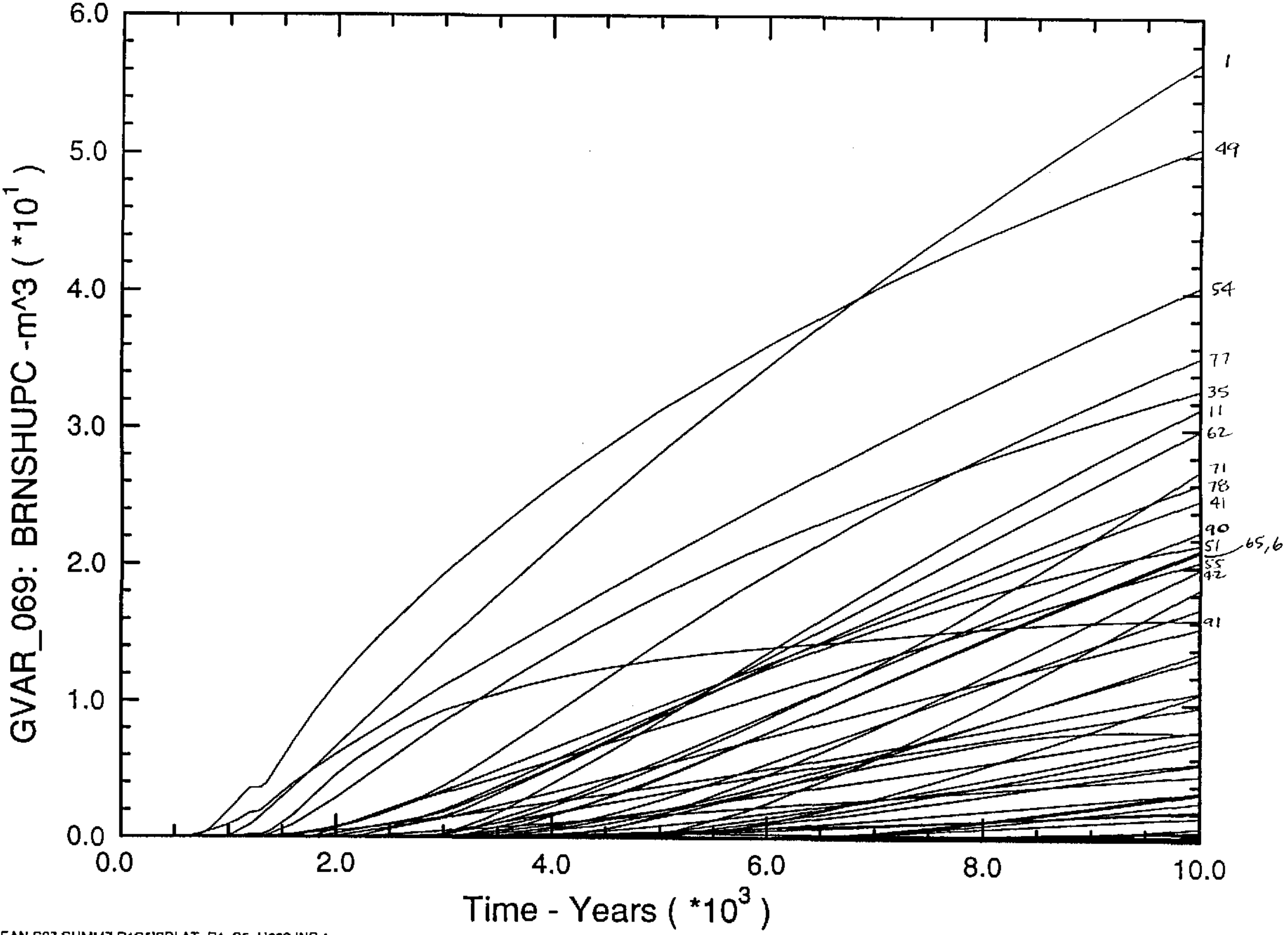
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H059.INP;1

SPLAT_PA96_2 1.02 05/27/97 11:27:37

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Brine Flow up Shaft at top of Salado (E:661)

Fig. A.2.2-8



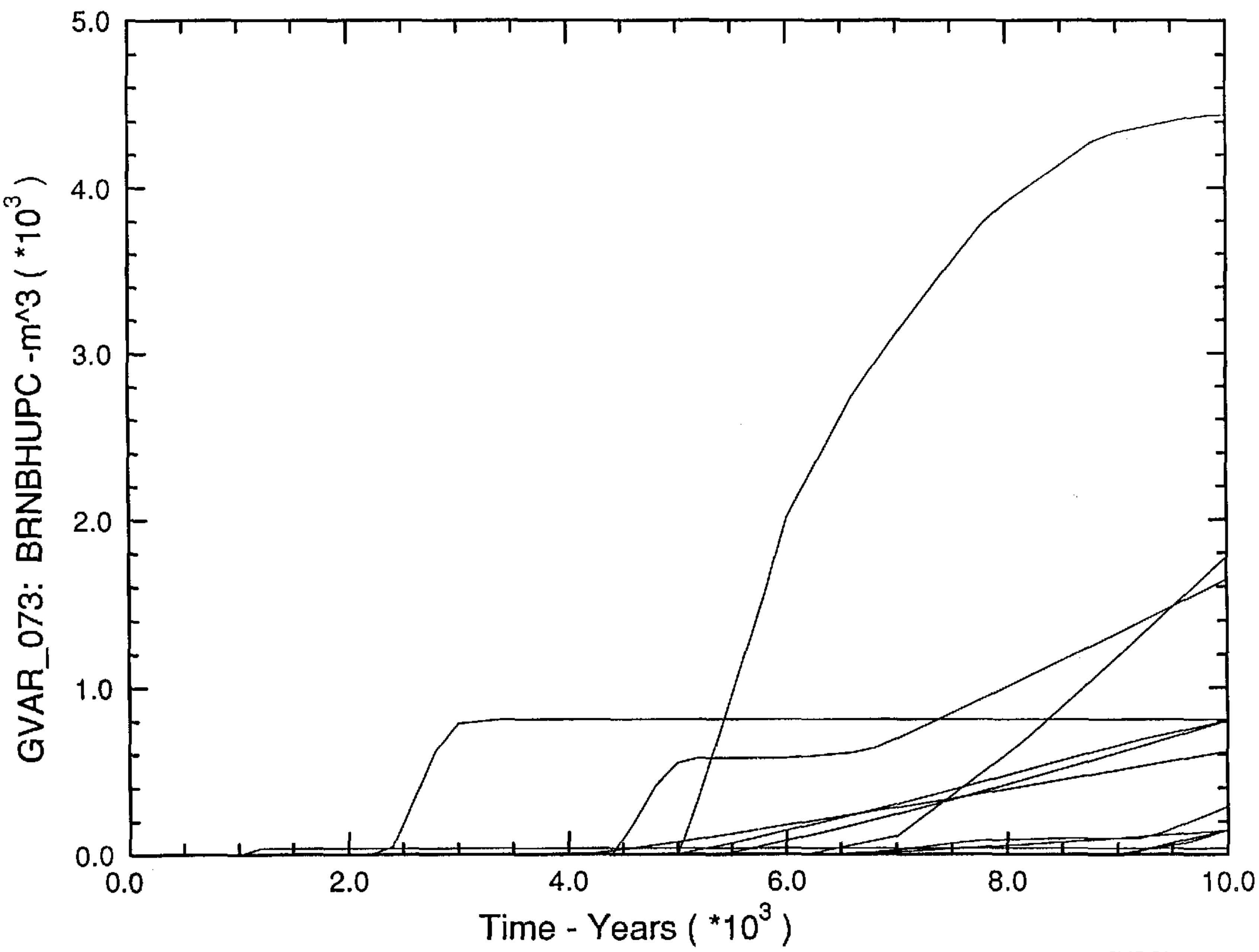
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H069.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:05:22

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Brine Flow Up Borehole at Top of Panel

Fig. A.2.2-9



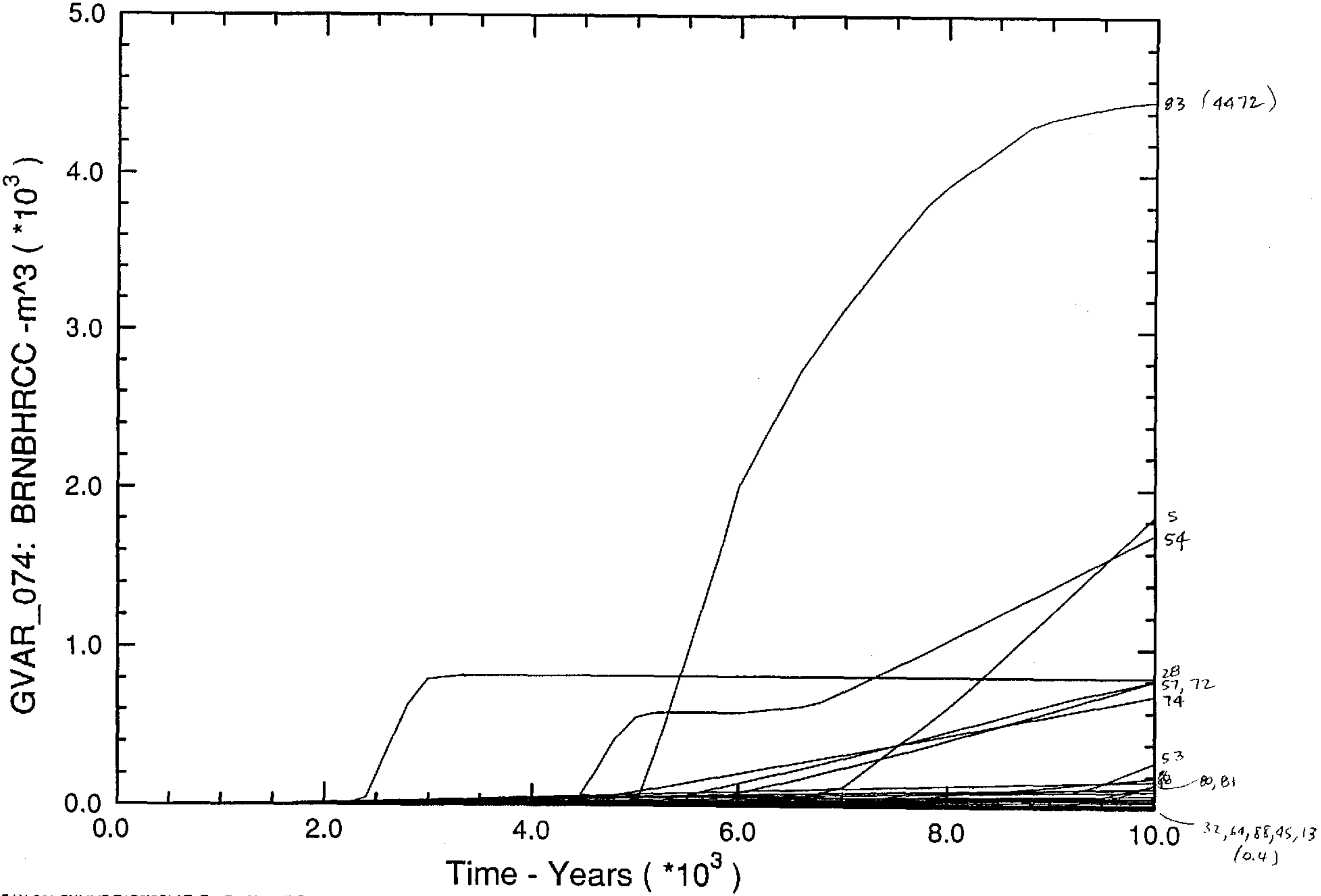
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H073.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:20:50

Fig. A.2.2-10

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow up Borehole at Rustler/Culebra Interface (E:713)



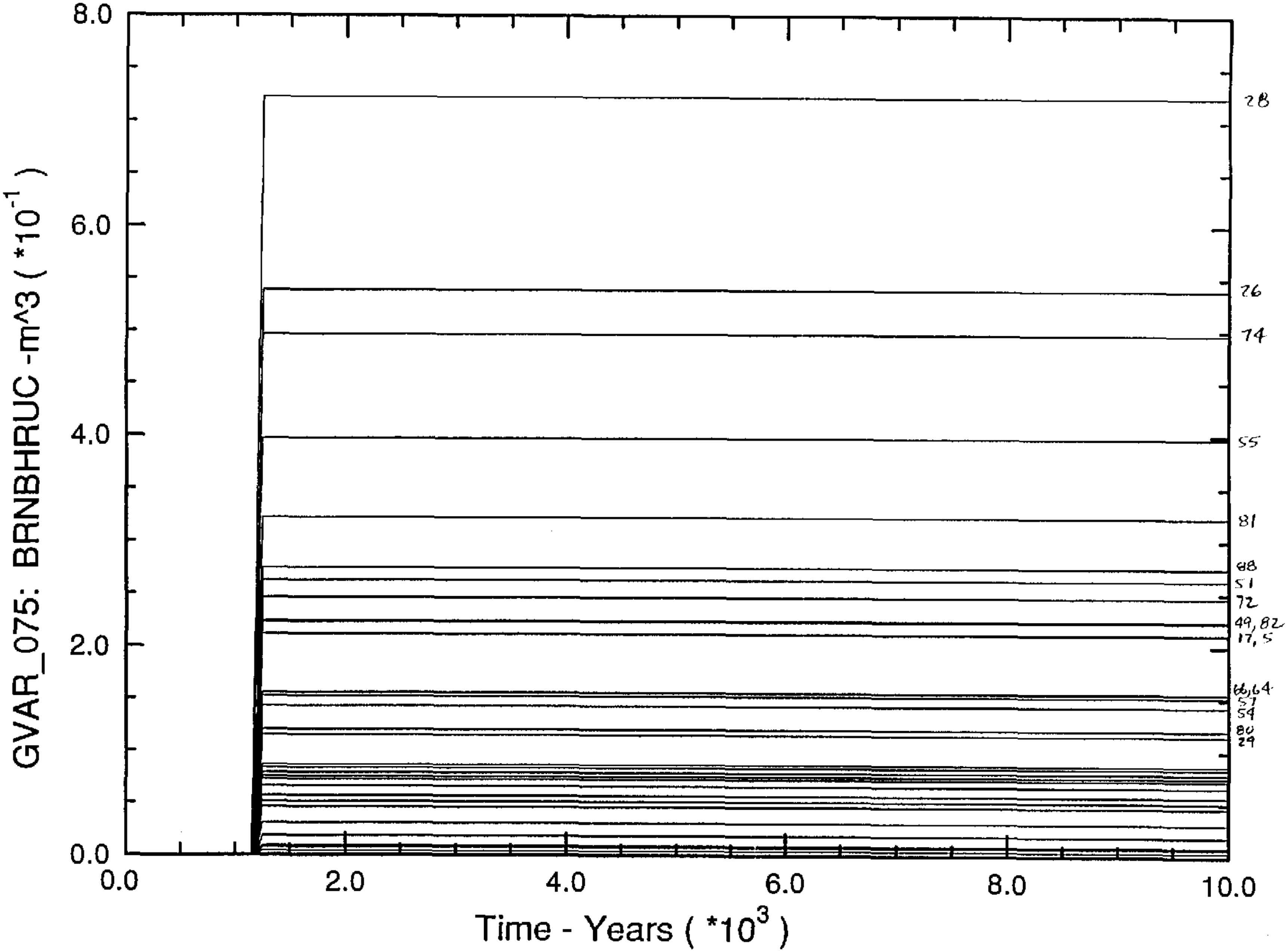
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H074.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:24:42

Fig A.2.2-11

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Brine Flow up Borehole at Top of Rustler (E:841)



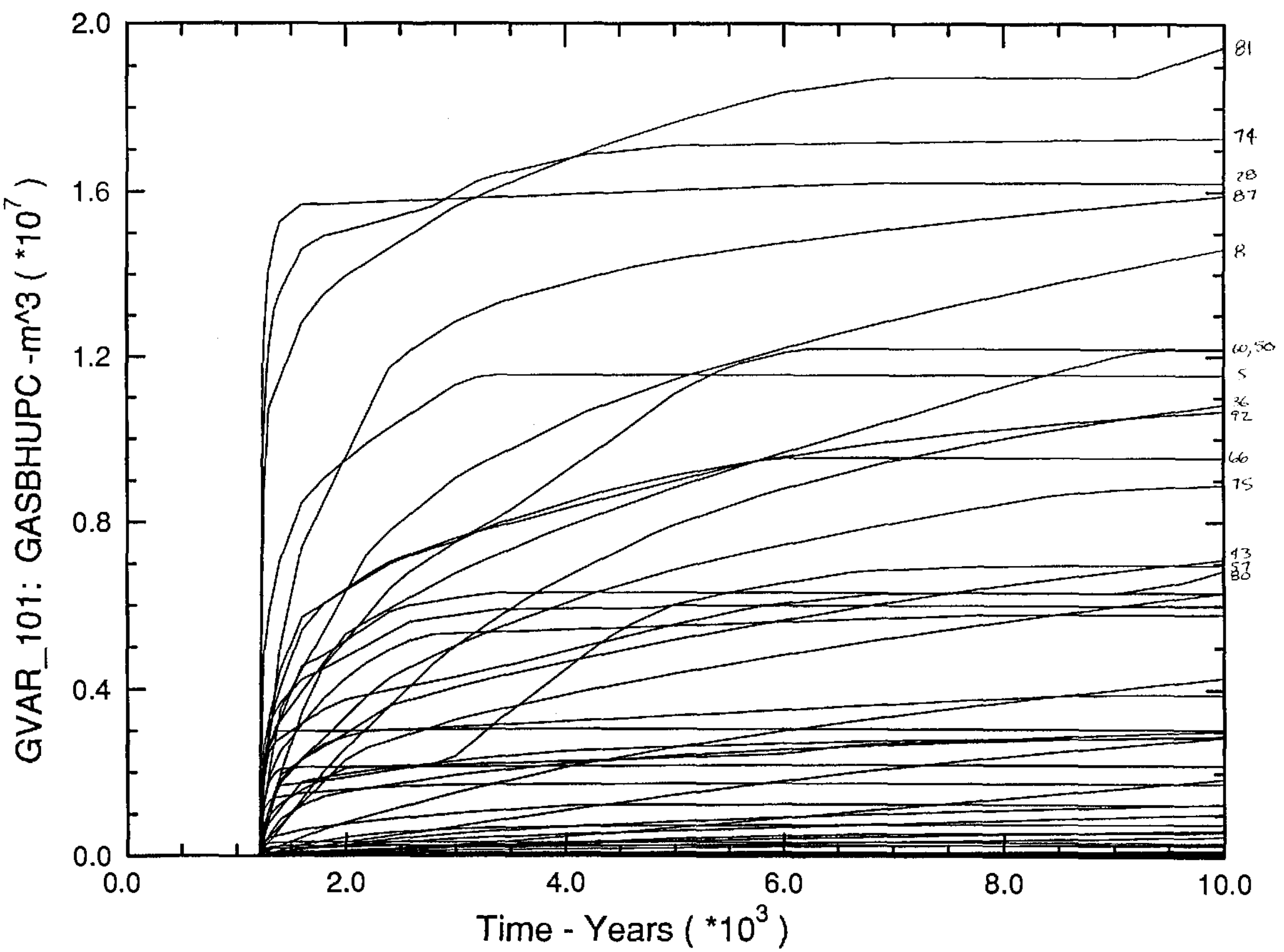
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H075.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:28:31

Fig. A.2.2-12

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Gas Flow up Borehole at Top of Panel (E:471)



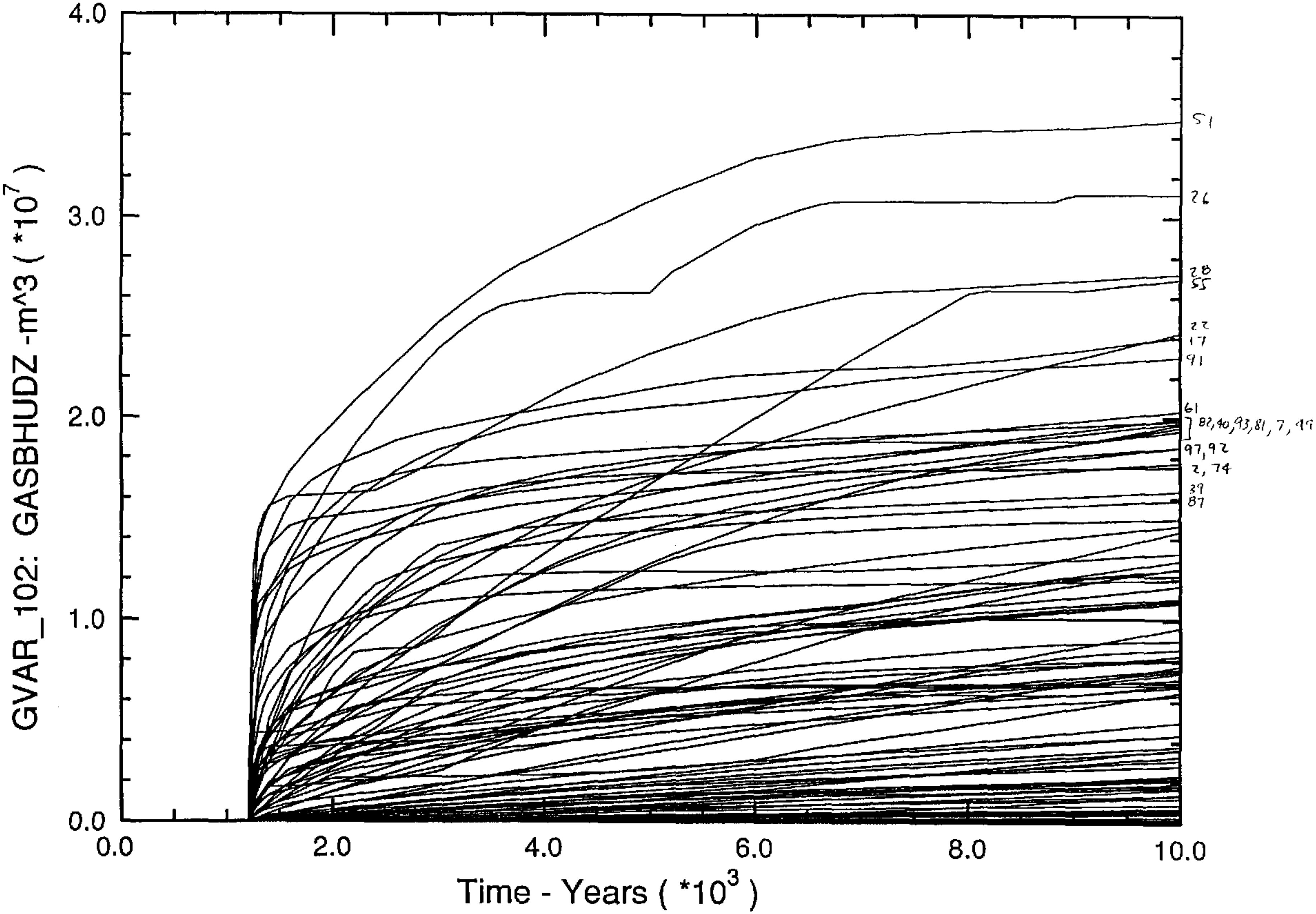
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H101.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:07:31

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Gas Flow Out of Upper DRZ at Borehole (E:575)

Fig. A.2.2-13



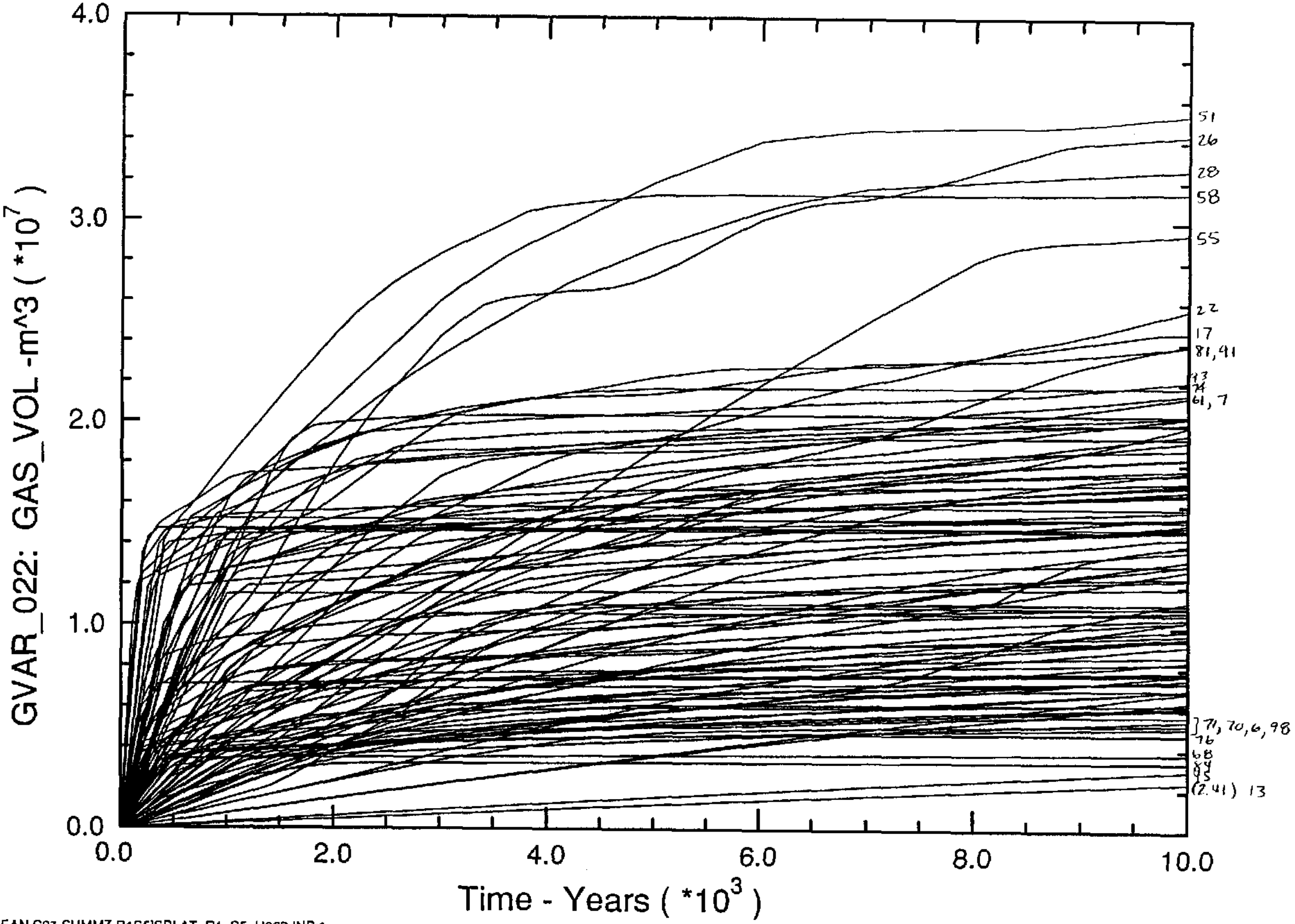
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H102.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:11:04

Fig A.2.2-14

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Total Gas Volume Generated



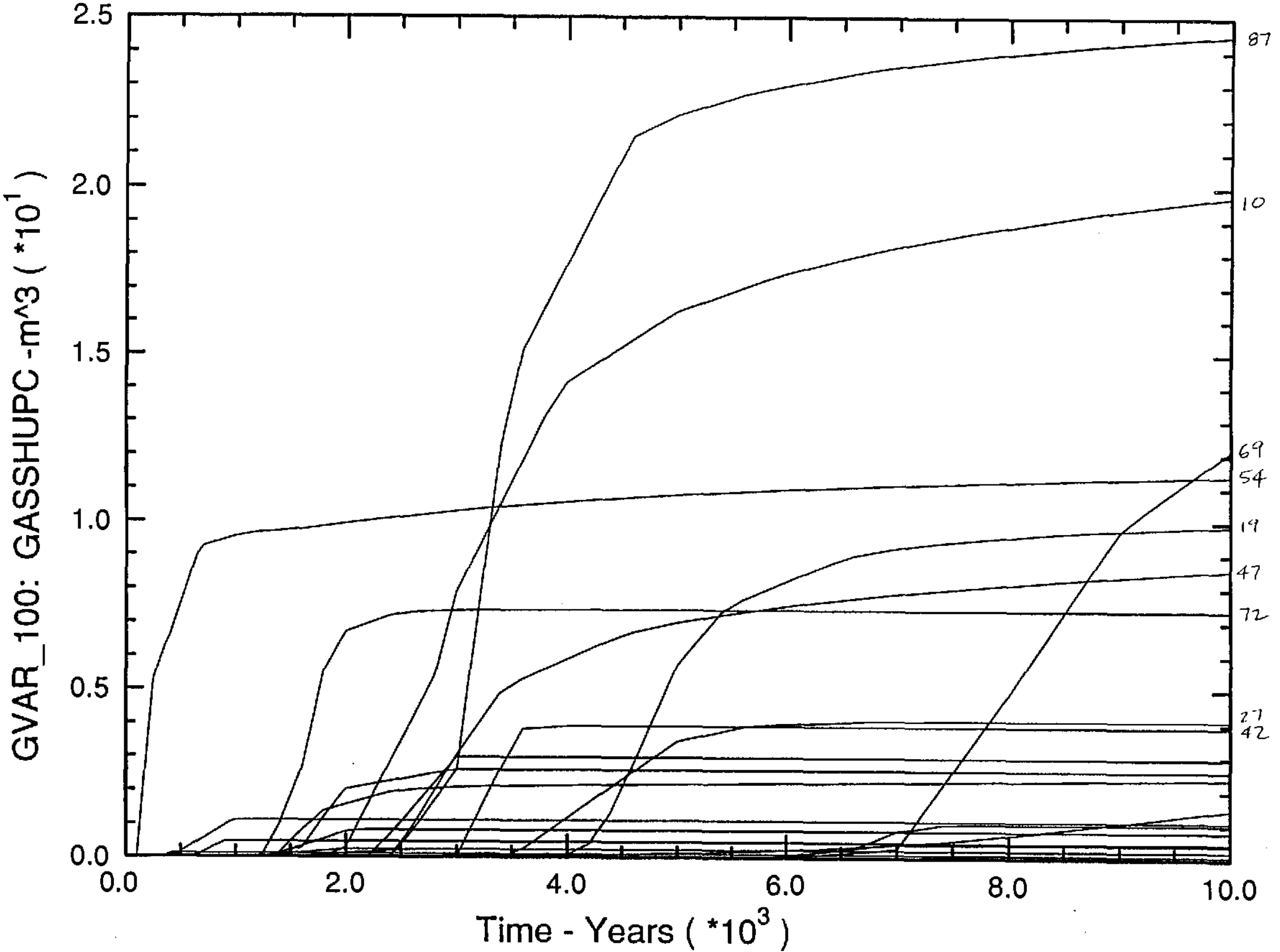
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H022.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:09:19

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Gas Flow up Shaft at Top of Salado (E:661)

Fig. A.2.2-15



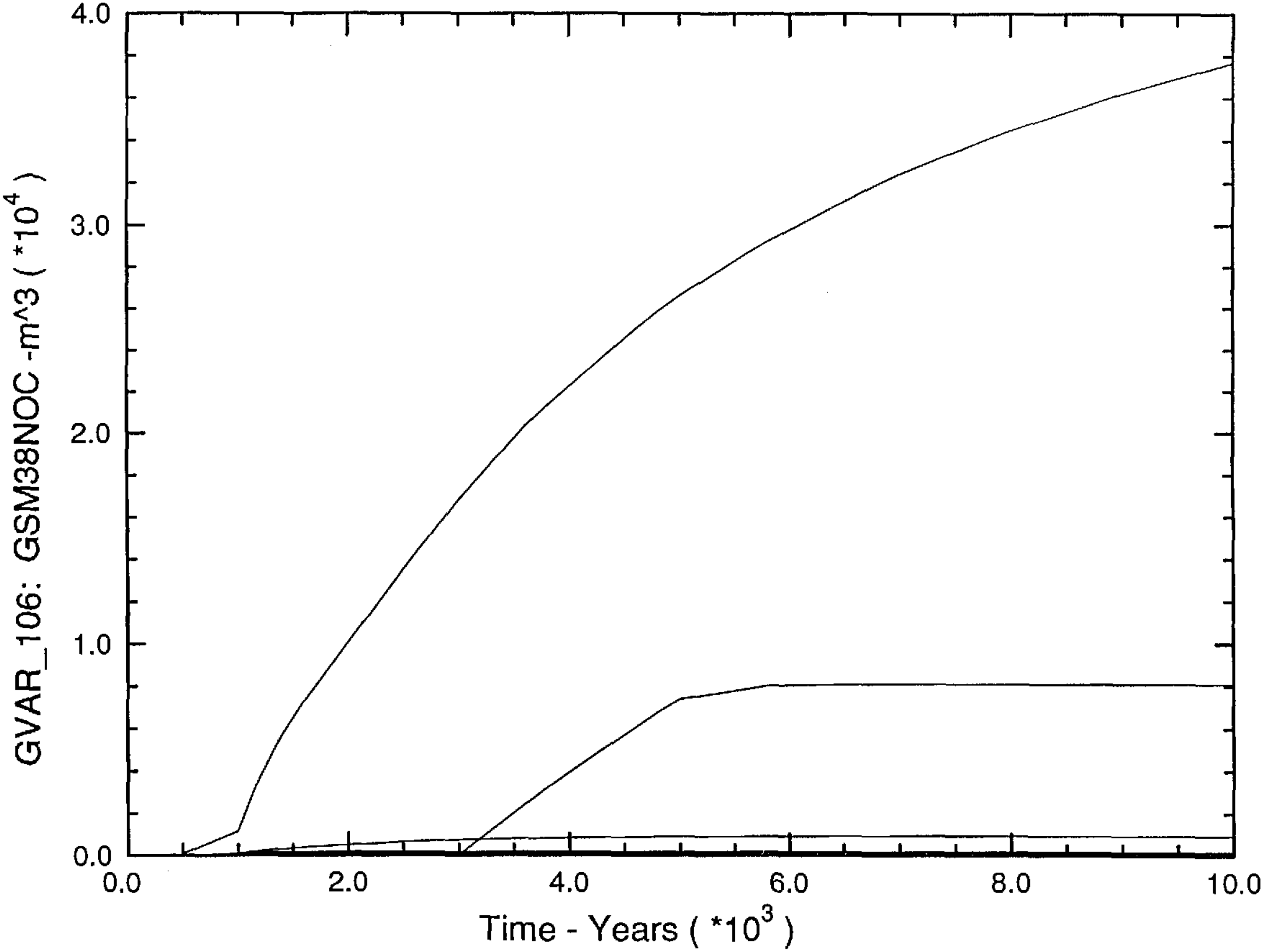
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H100.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:03:52

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Gas Flow from DRZ into North MB 138

Fig. A.2.2-16



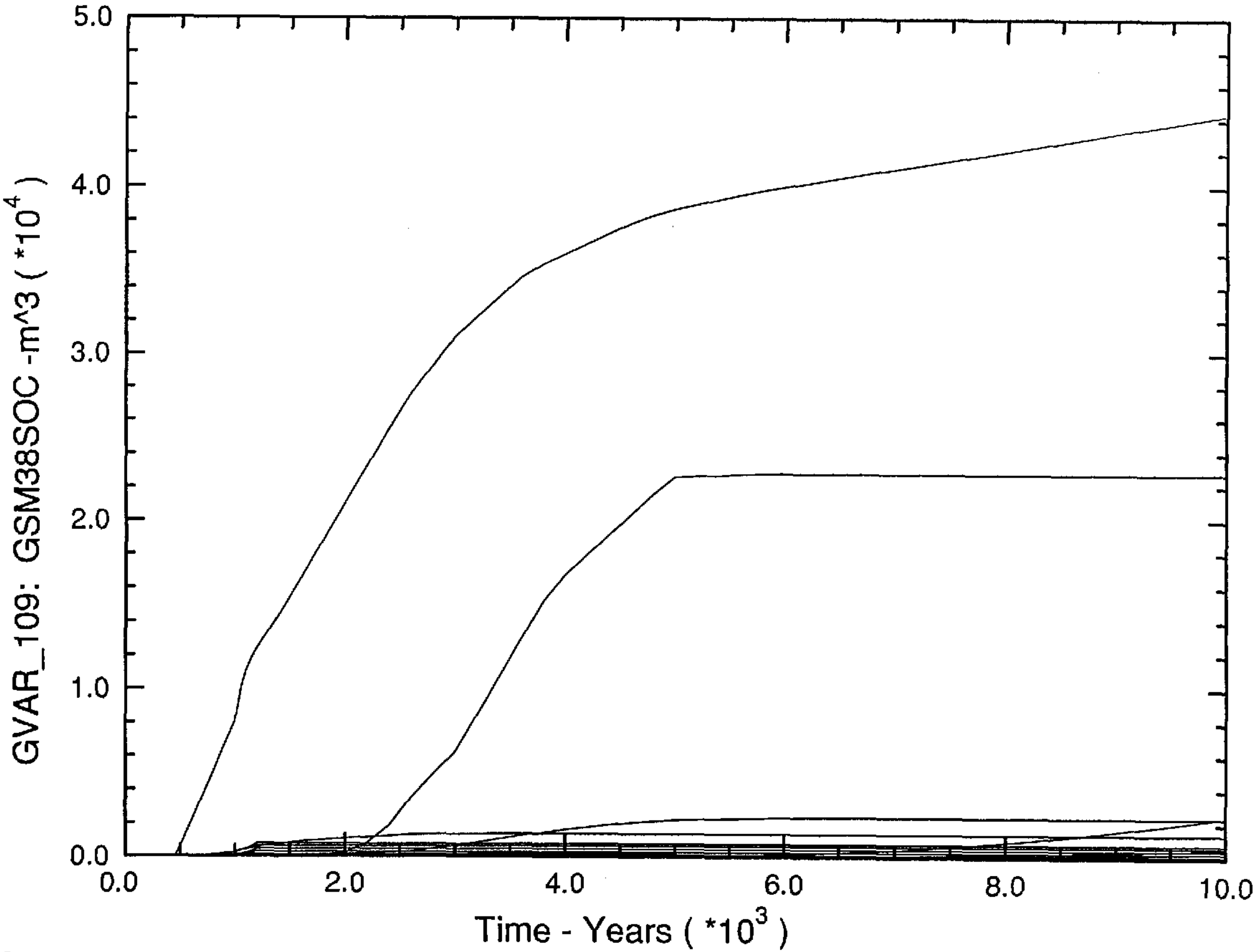
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H106.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:25:44

Fig. 4.2.2-17

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Gas Flow from DRZ into South MB 138



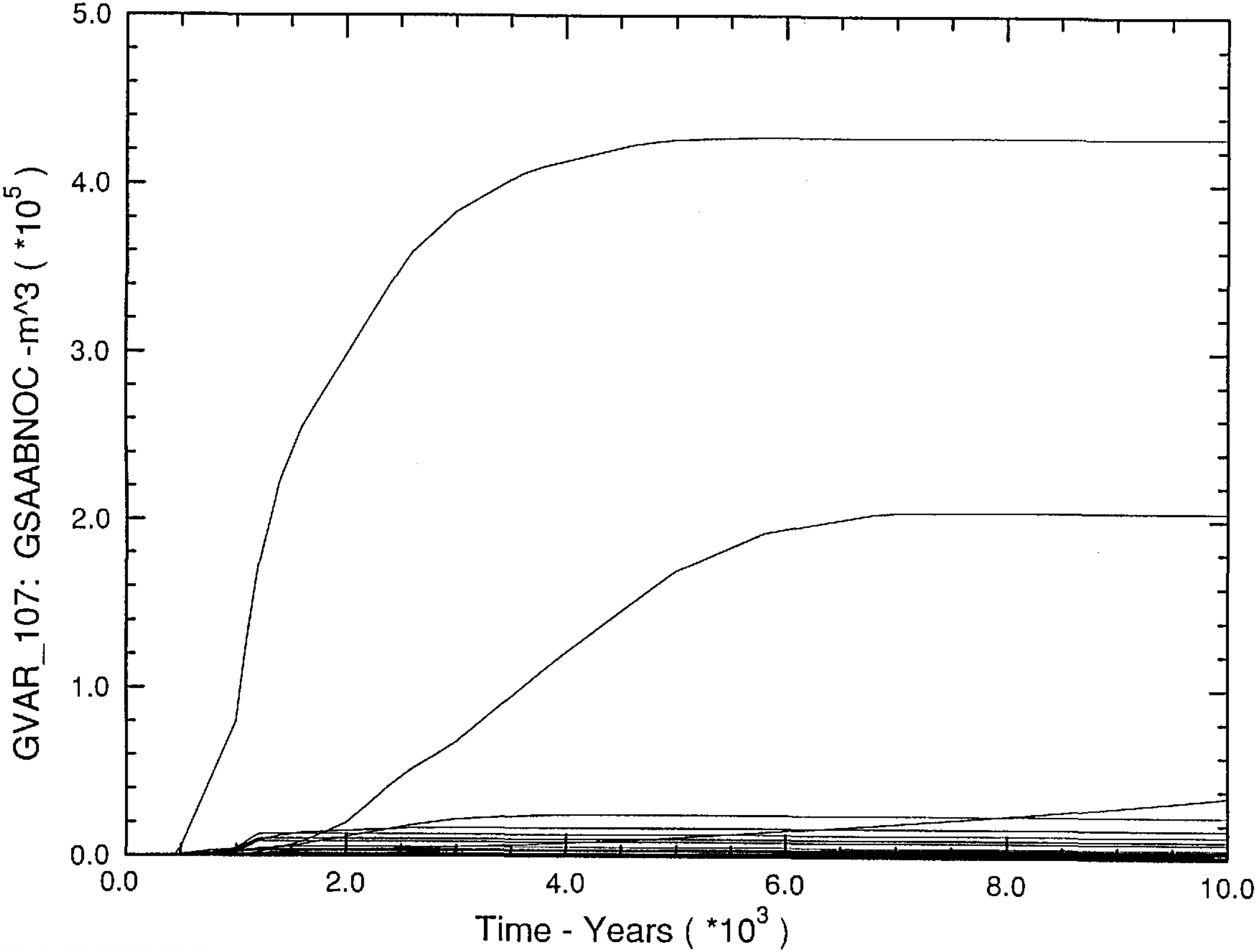
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H109.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:37:07

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Gas Flow from DRZ into North Anhydrite A/B

Fig A.2.2-18



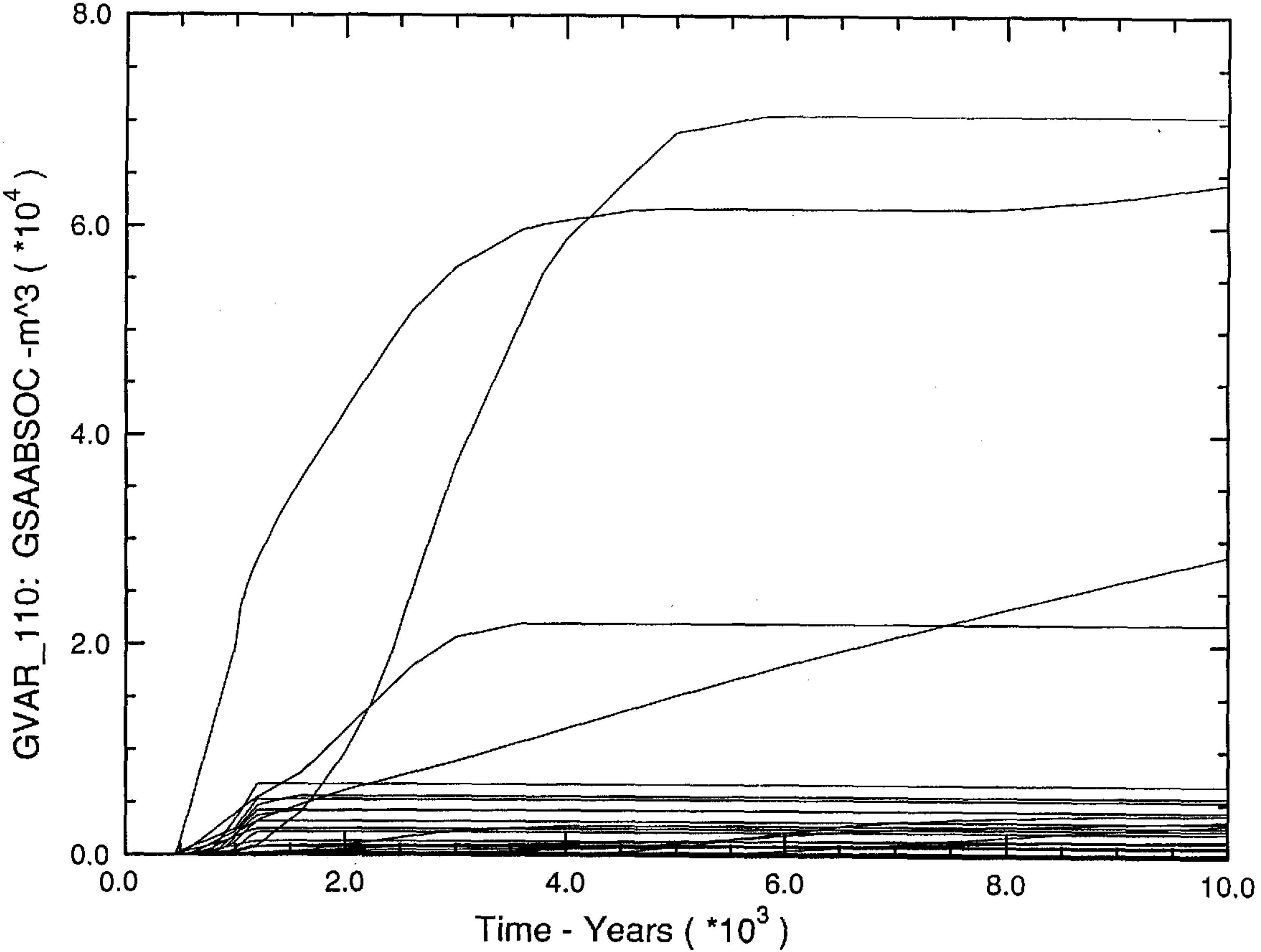
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H107.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:29:35

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Gas Flow from DRZ into South Anhydrite A/B

Fig. A 2.2-19



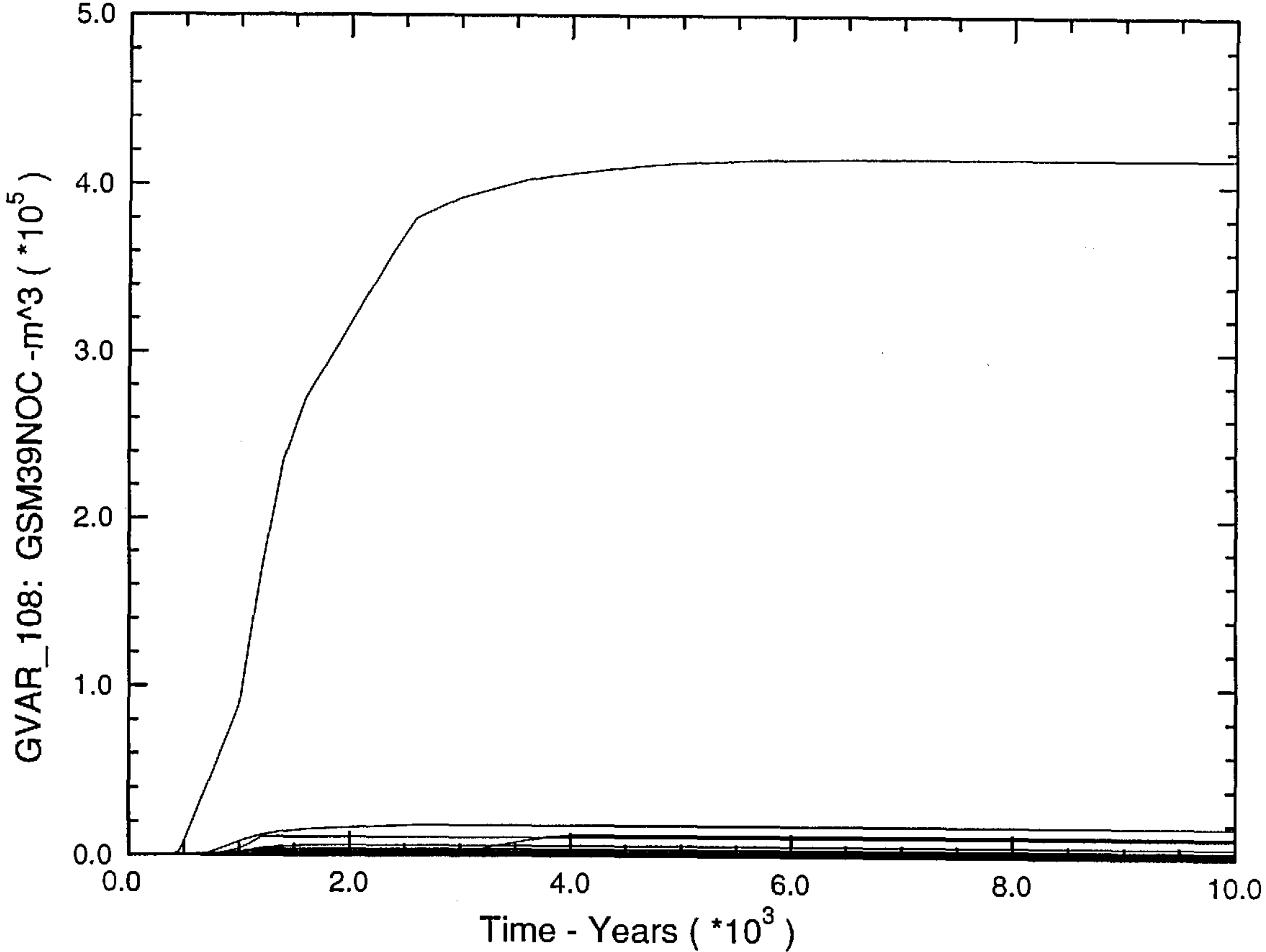
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H110.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:40:56

Fig. A.2.2-20

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Gas Flow from DRZ into North MB 139



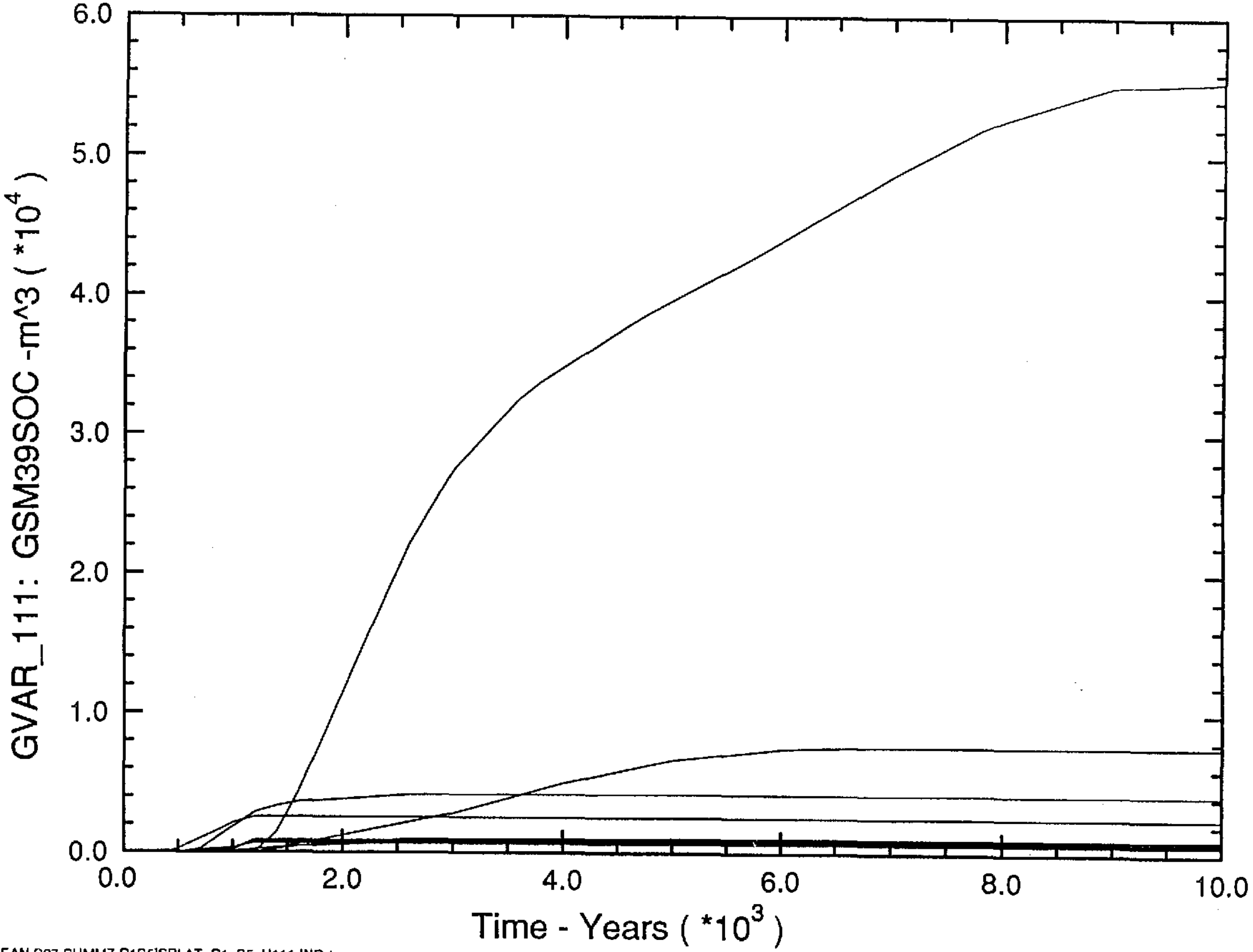
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H108.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:33:23

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Gas Flow from DRZ into South MB 139

Fig. A.2.2-21



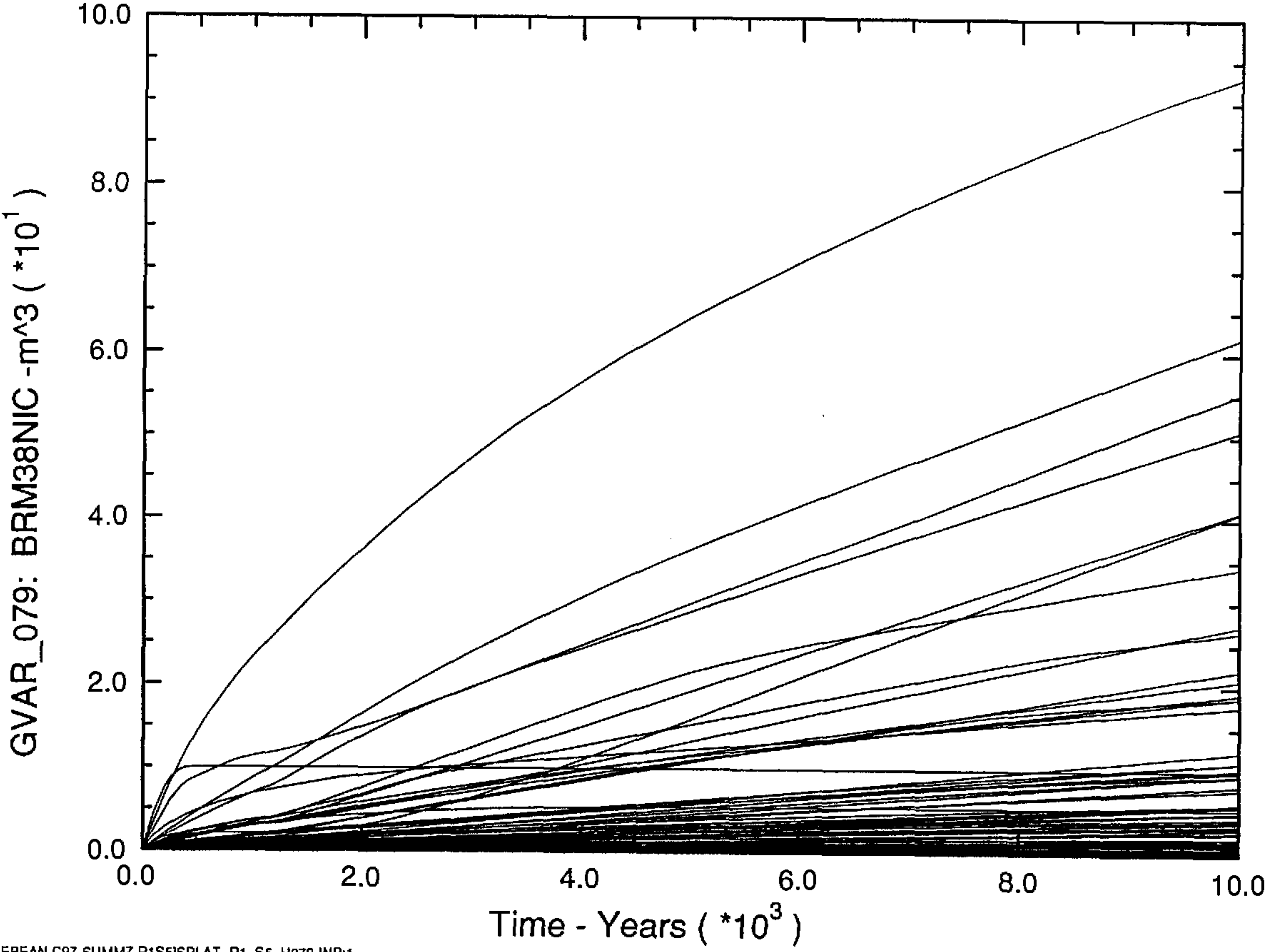
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H111.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:44:42

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out of North MB 138 into DRZ

Fig. A.2.2-22



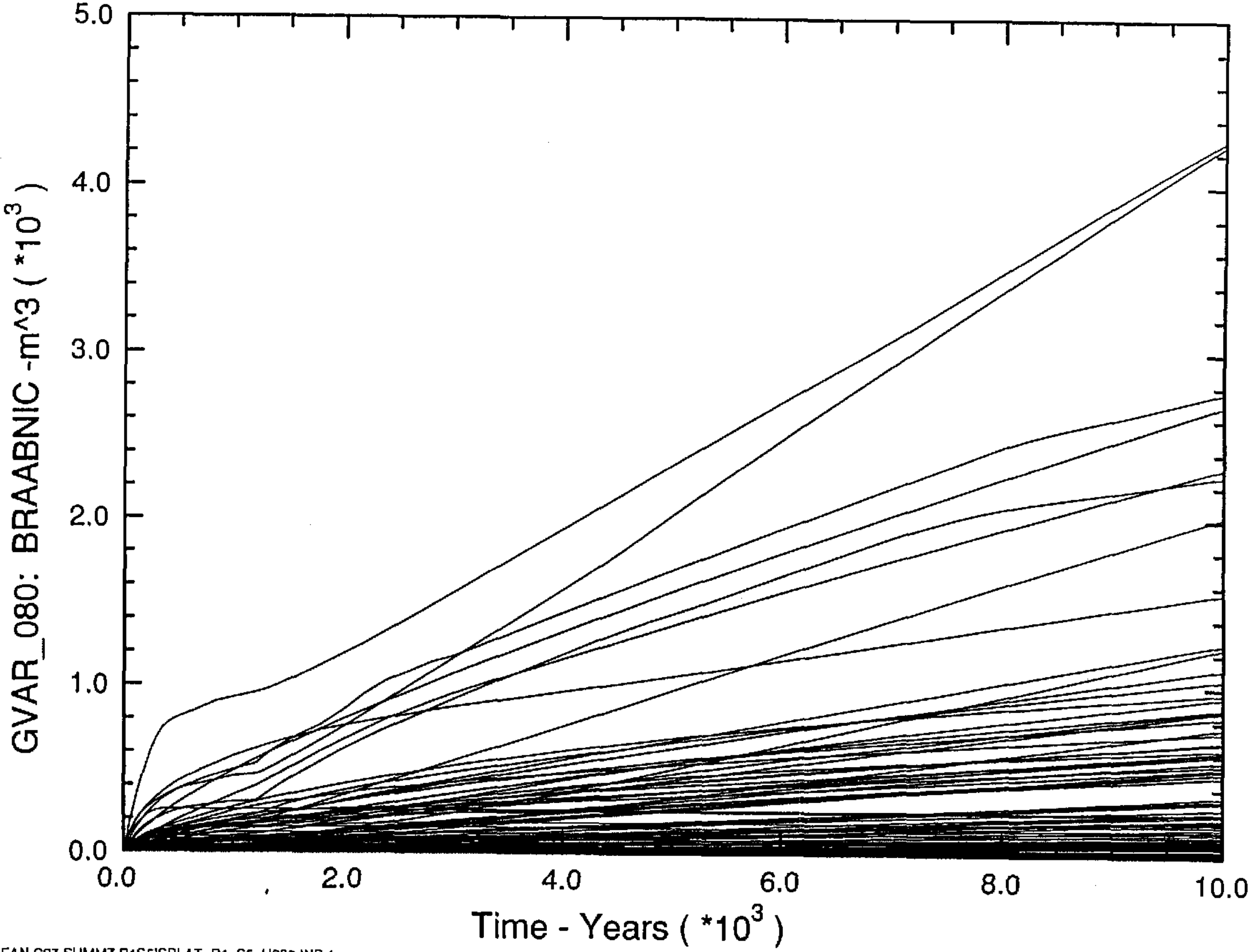
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H079.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:43:45

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out of North Anhydrite A/B into DRZ

Fig. A.2.2-23



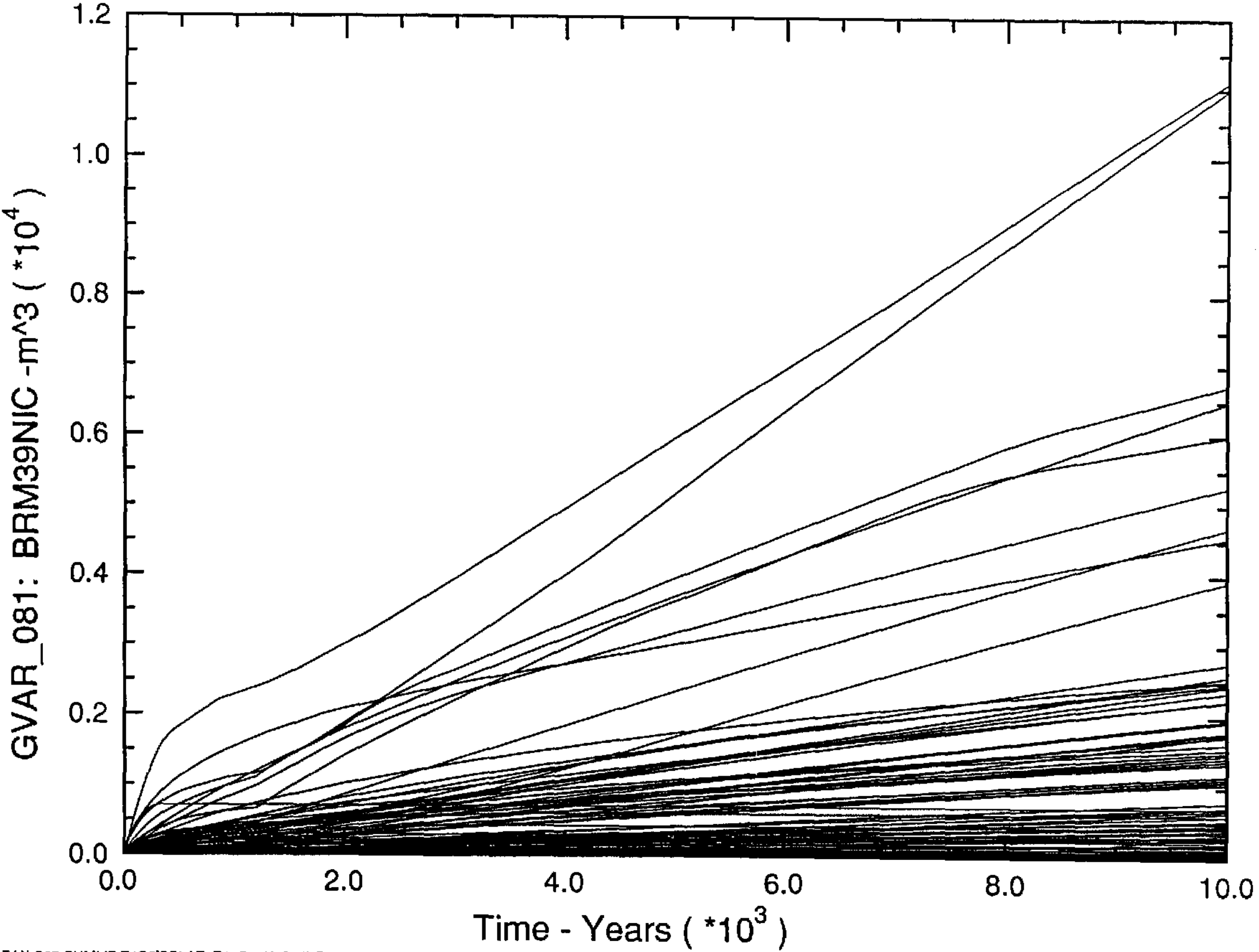
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H080.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:47:36

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Brine Flow Out of North MB 139 into DRZ

Fig. 4.2.2-24



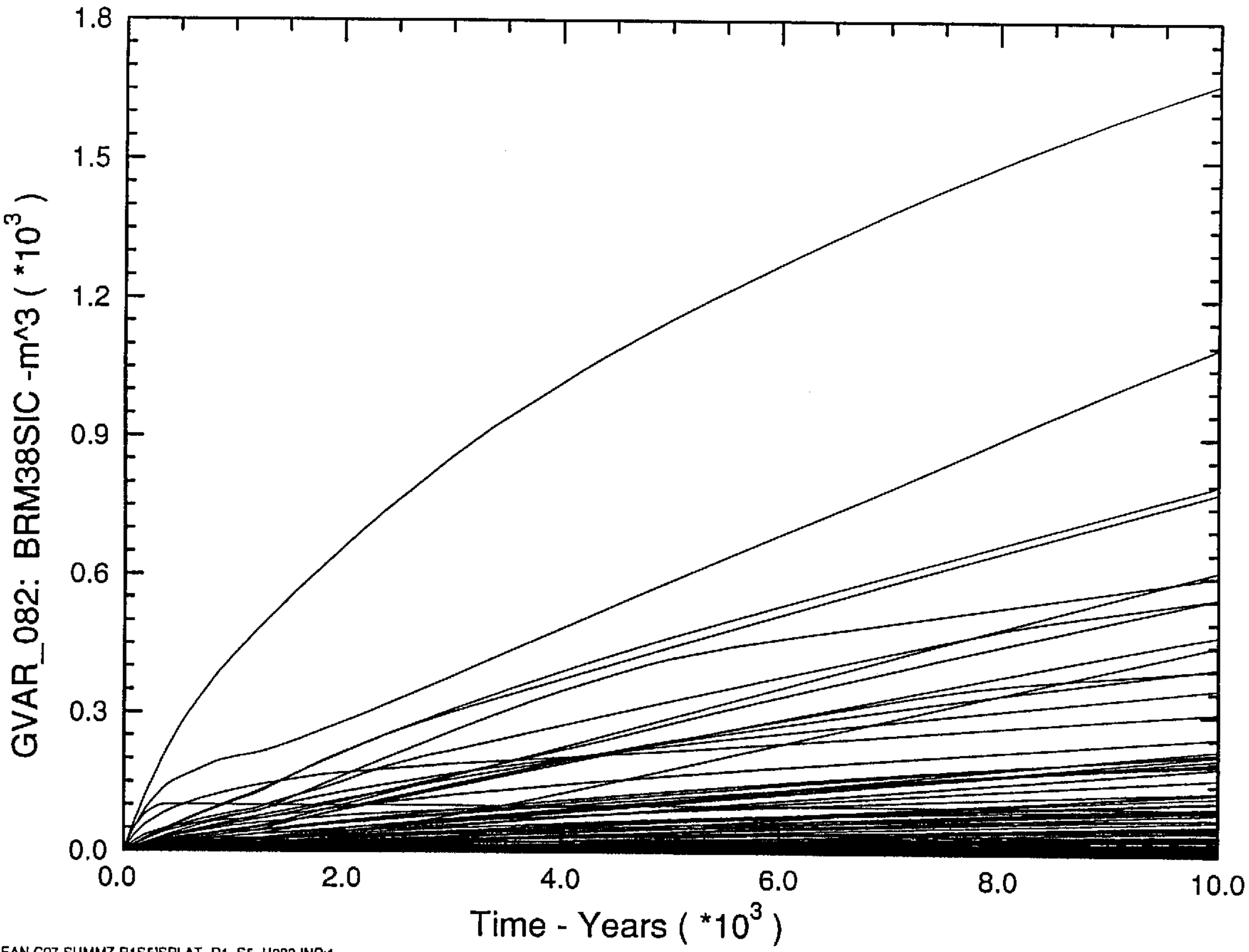
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H081.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:51:27

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out of South MB 138 into DRZ

Fig. A.2.2-25



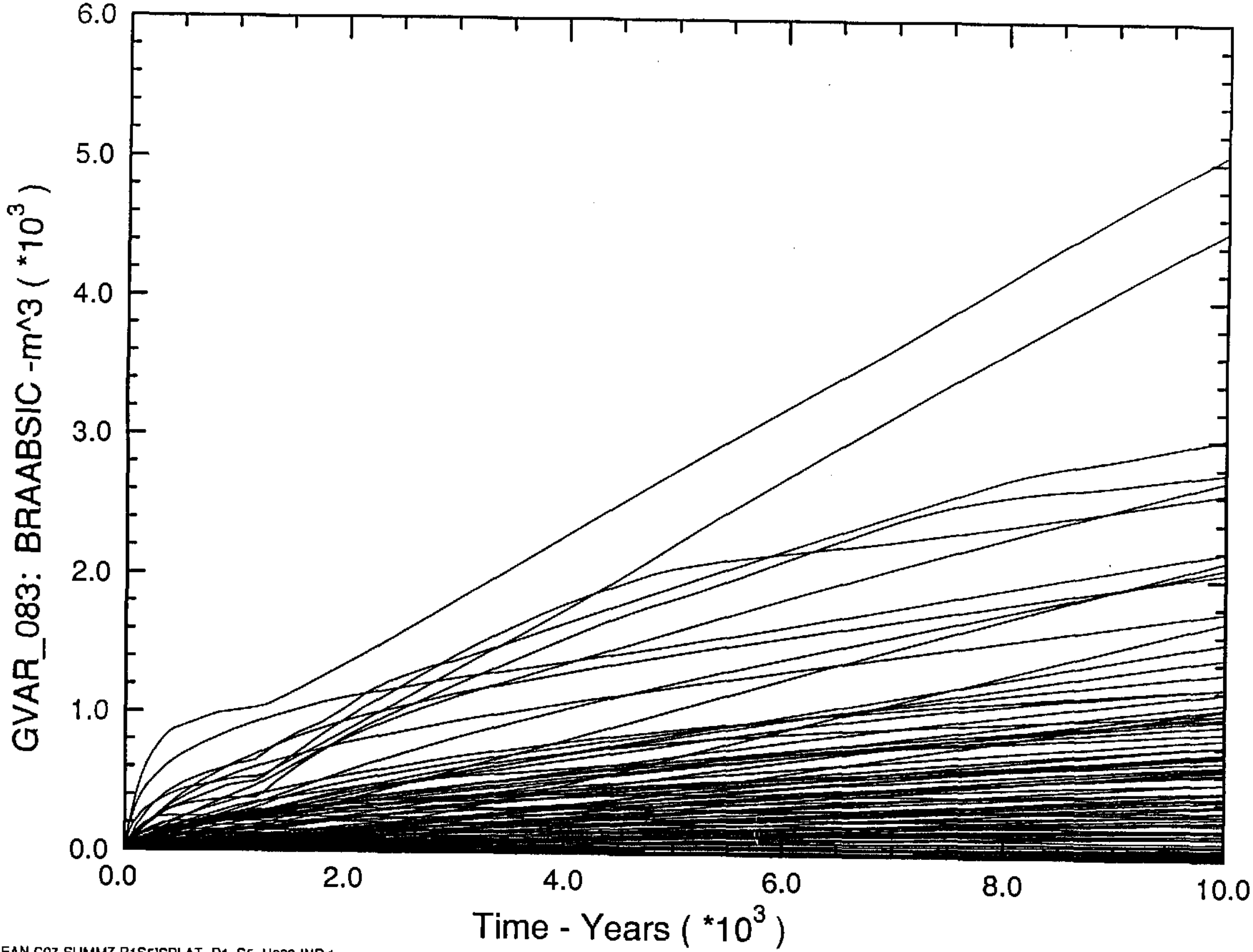
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H082.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:55:18

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out of South Anhydrite A/B into DRZ

Fig. A.2.2-26



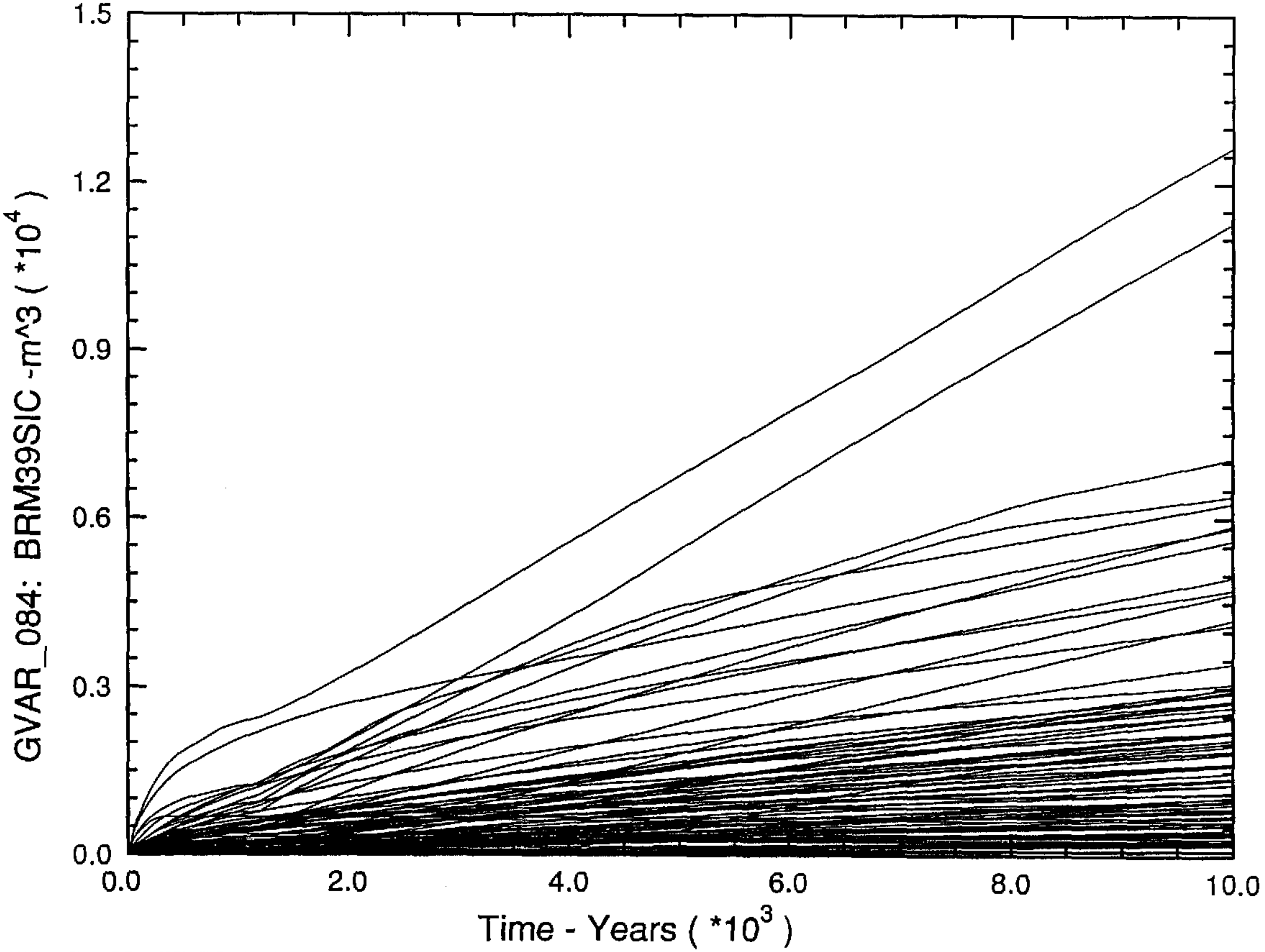
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H083.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:59:11

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S5)

Cumulative Brine Flow Out of South MB 139 into DRZ

Fig. A.2.2-27



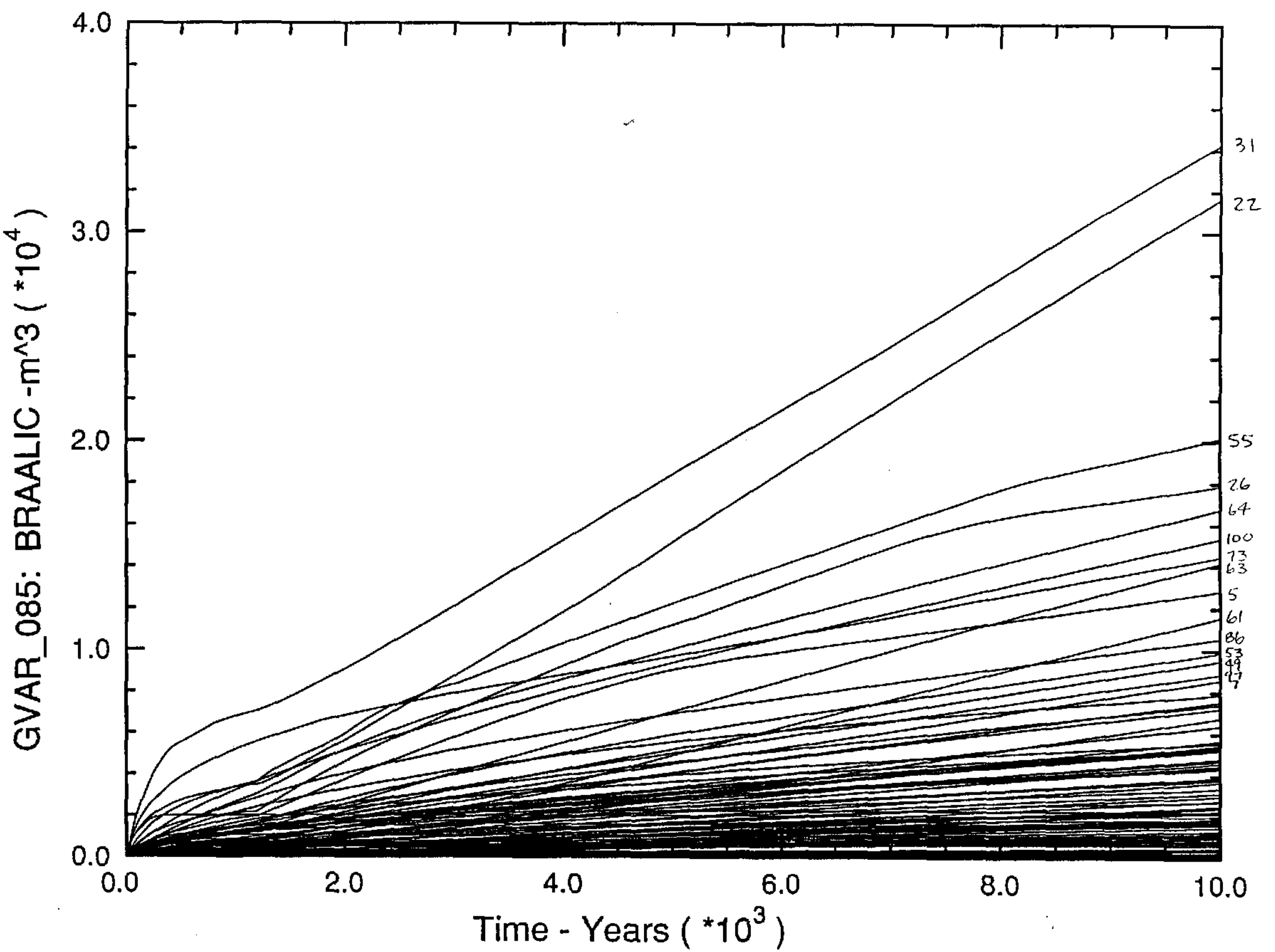
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H084.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:03:02

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow into DRZ from All Marker Beds

Fig. A.2.2-28



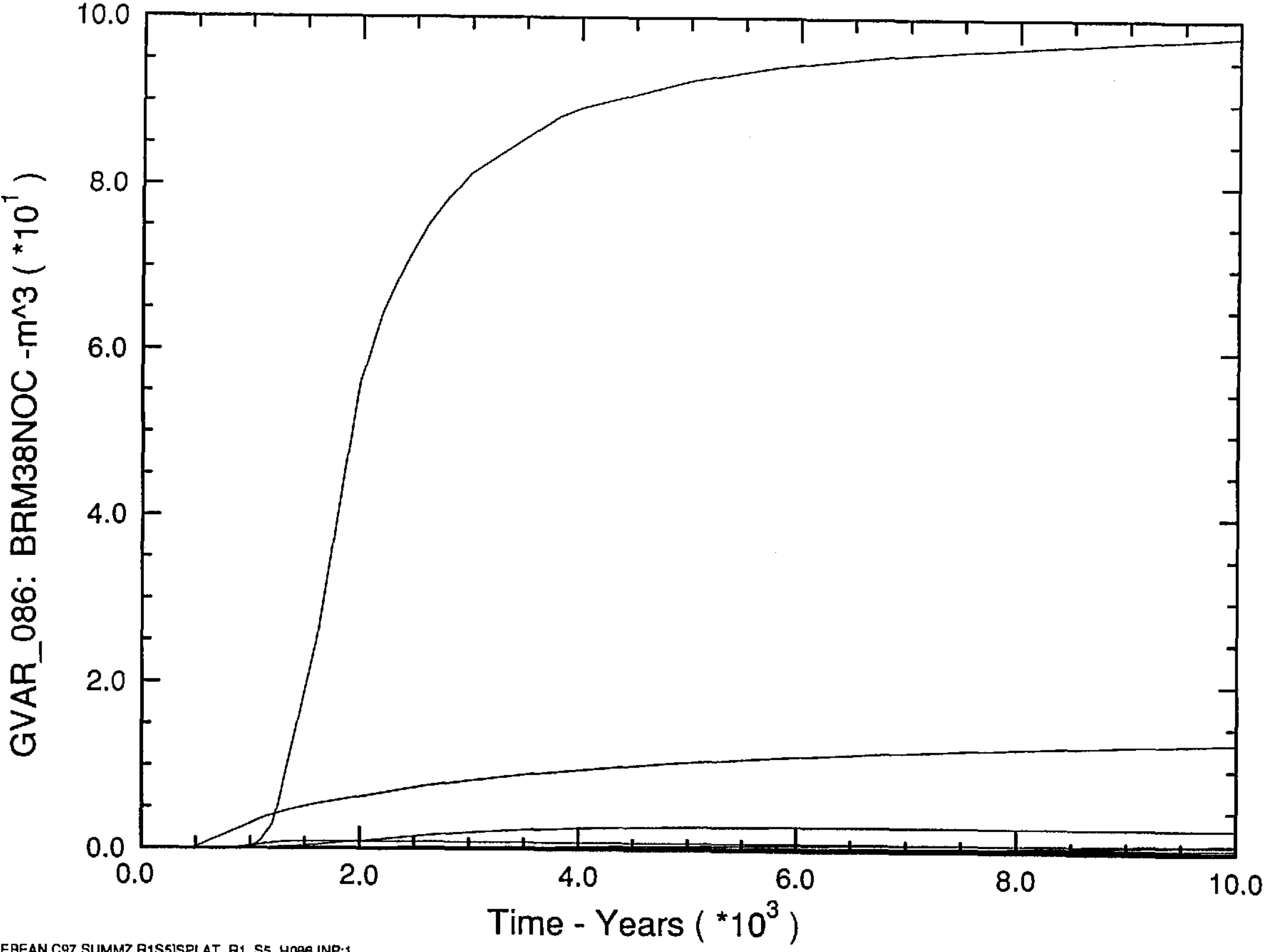
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H085.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:06:56

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Brine Flow Out of DRZ into North MB 138

Fig. A.2.2.-29



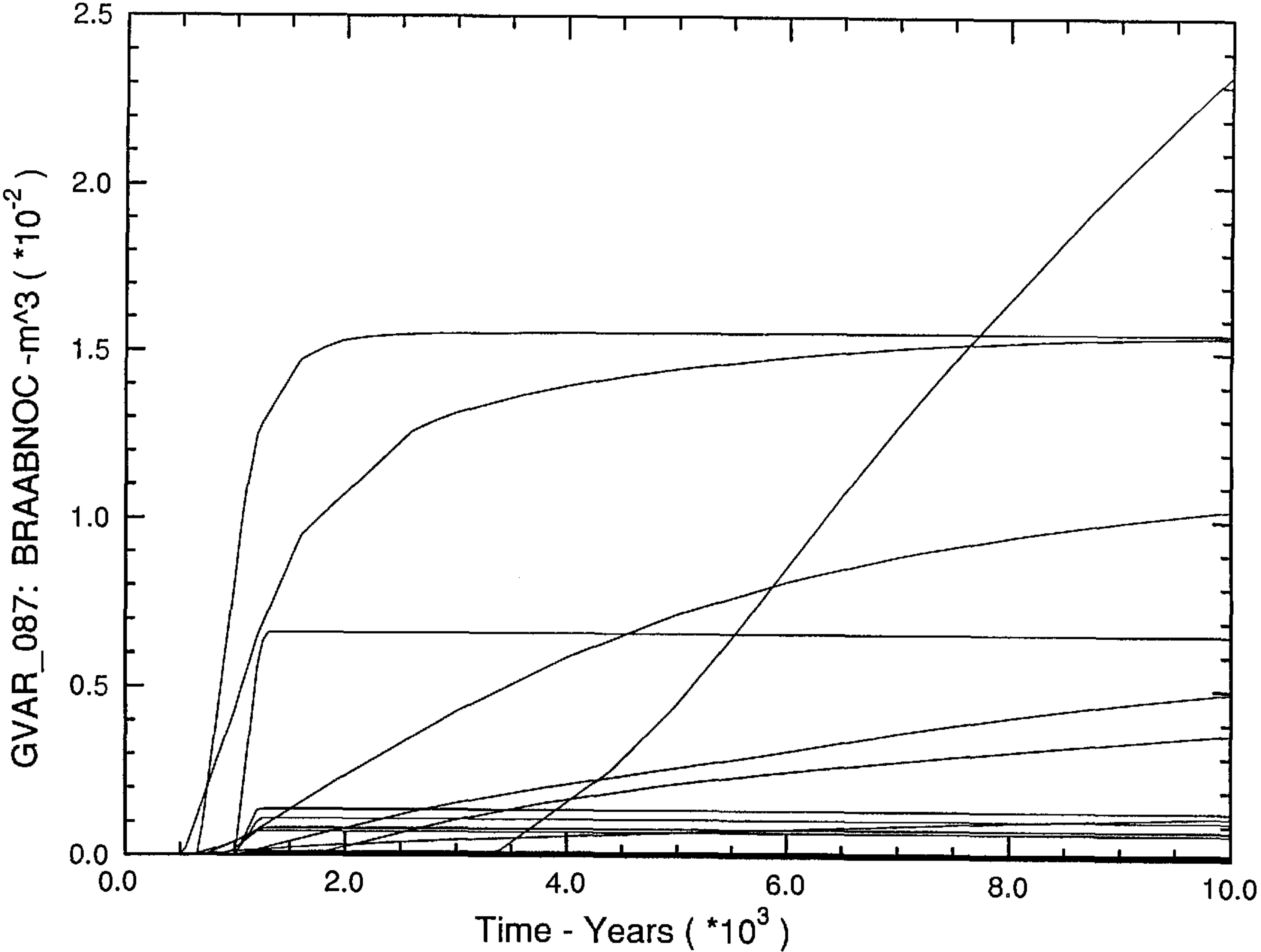
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H086.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:10:48

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out of DRZ into North Anhydrite A/B

Fig. 4.2.2-30



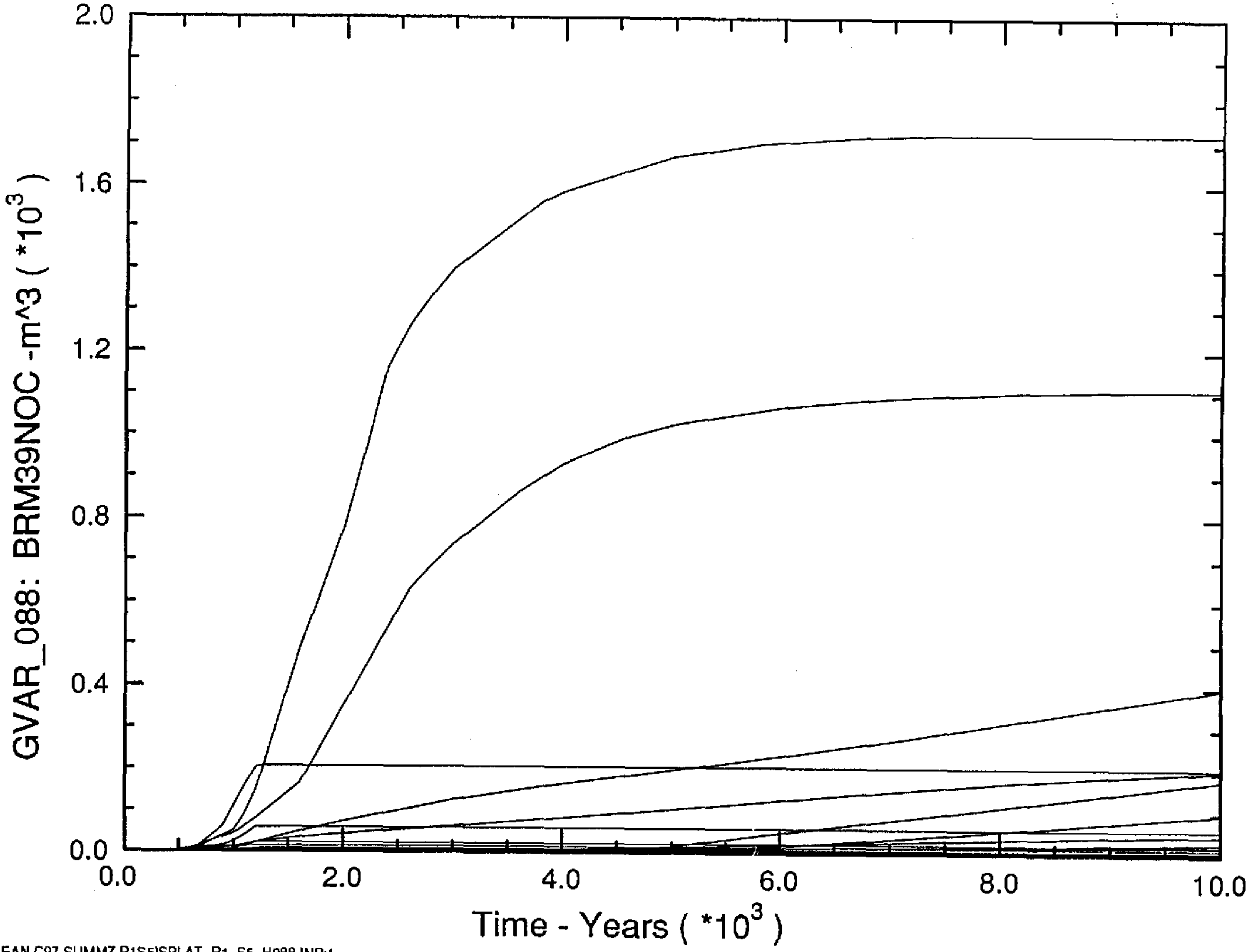
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H087.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:14:47

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S5)

Cumulative Brine Flow Out of DRZ into North MB 139

Fig. A.2.2-31



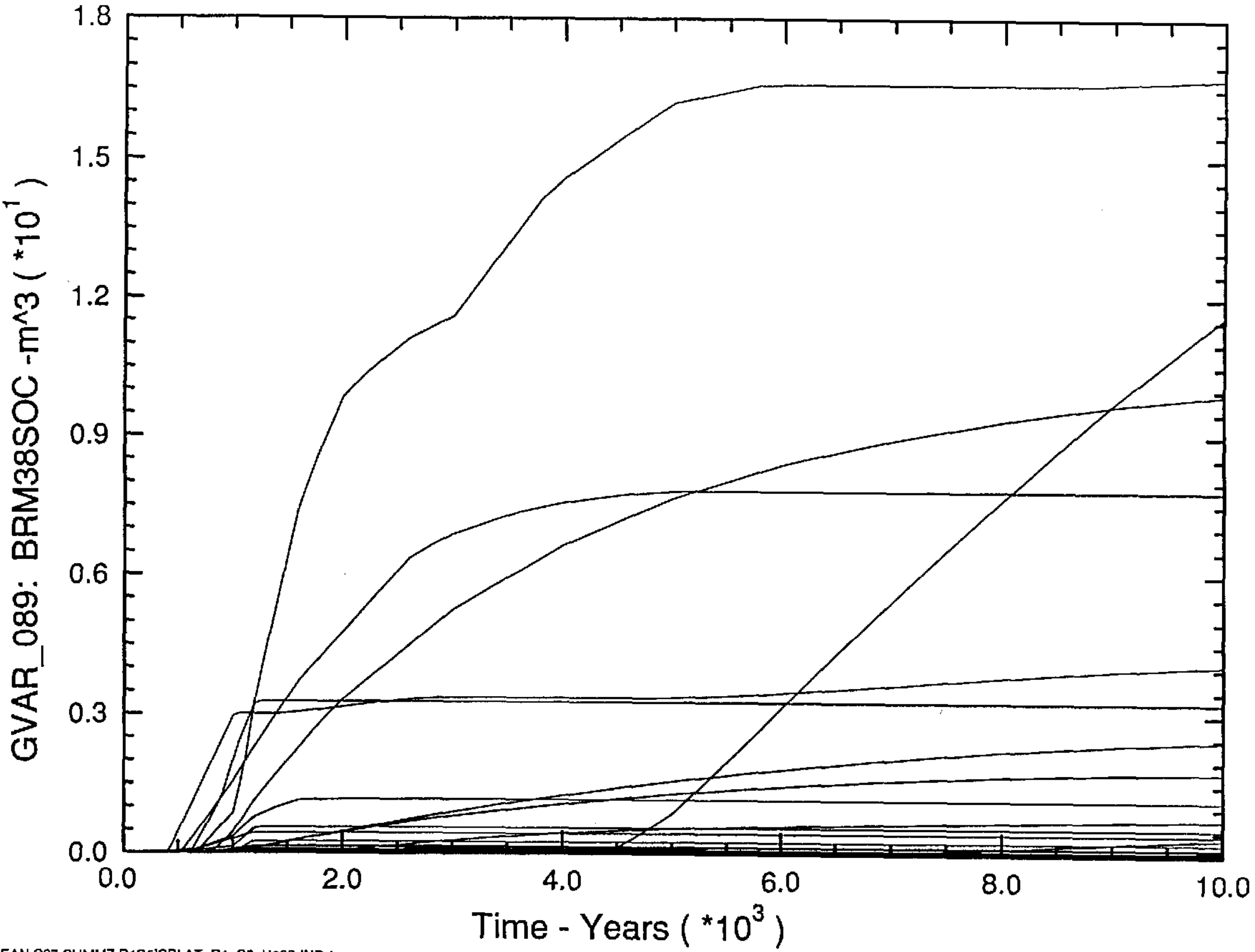
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H088.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:18:35

Fig. A.2.2-32

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out of DRZ into South MB 138



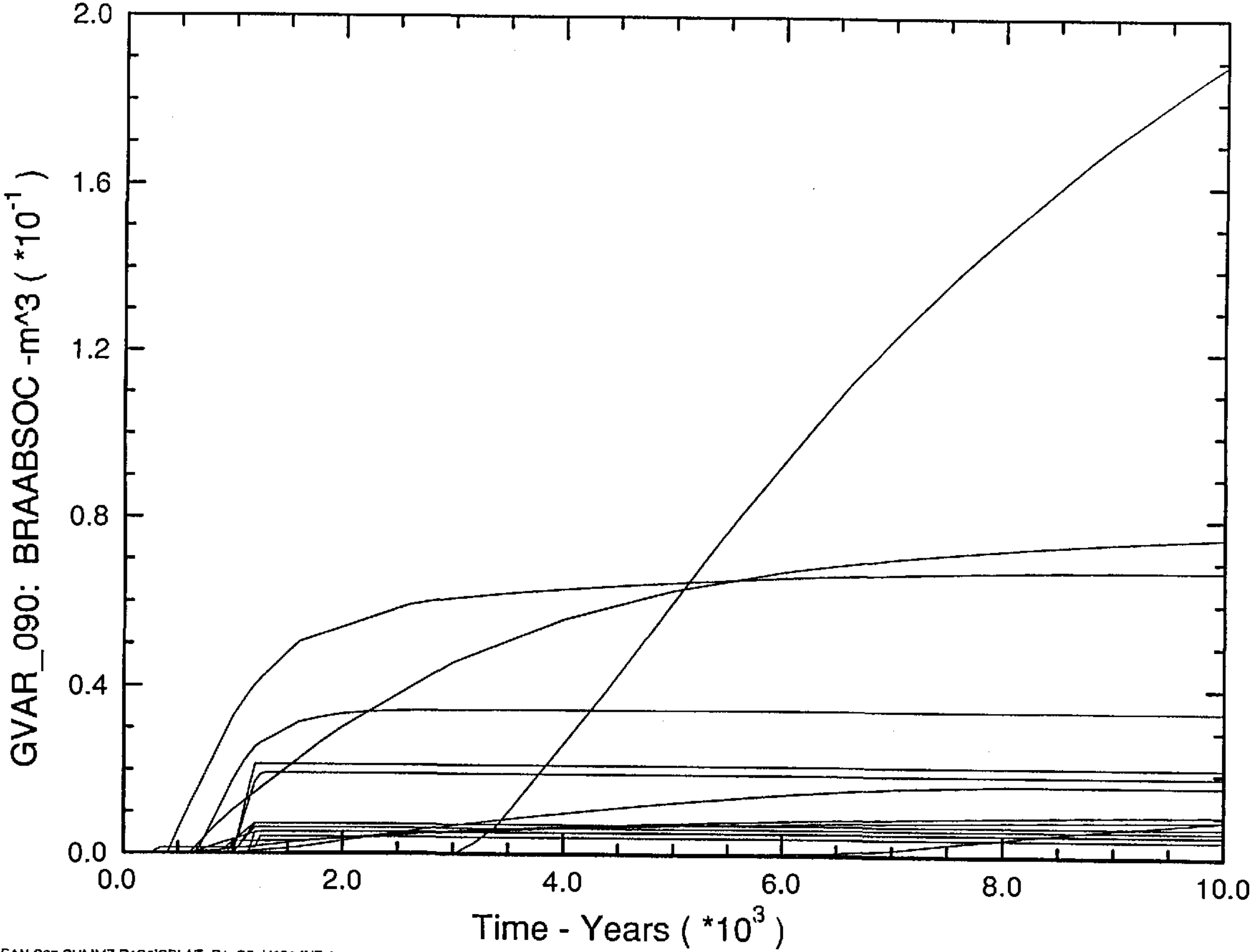
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H089.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:22:29

Fig. A.2.2-33

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out of DRZ into South Anhydrite A/B



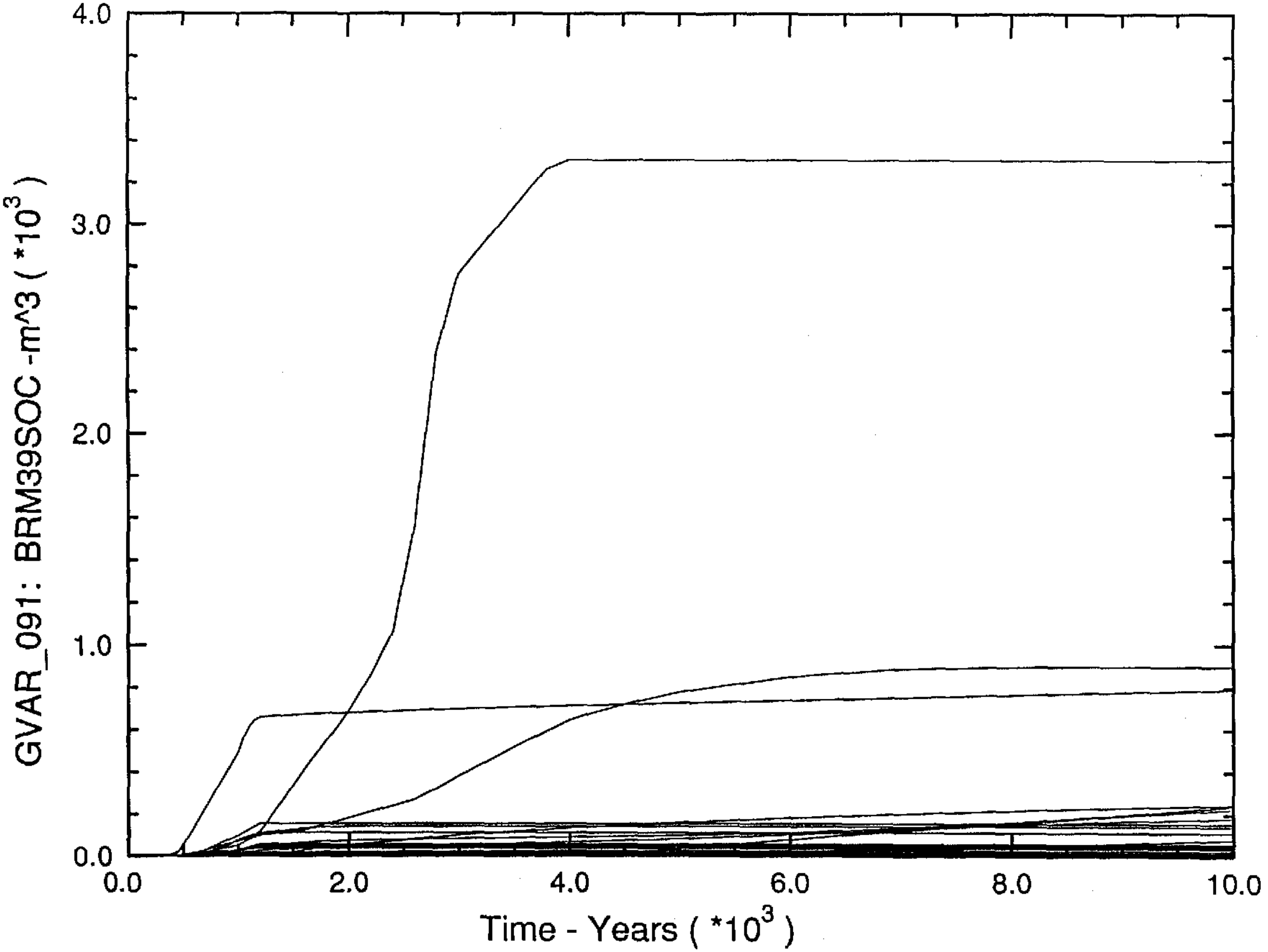
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H090.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:25:55

Fig. A.2 2-34

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Brine Flow Out of DRZ into South MB 139



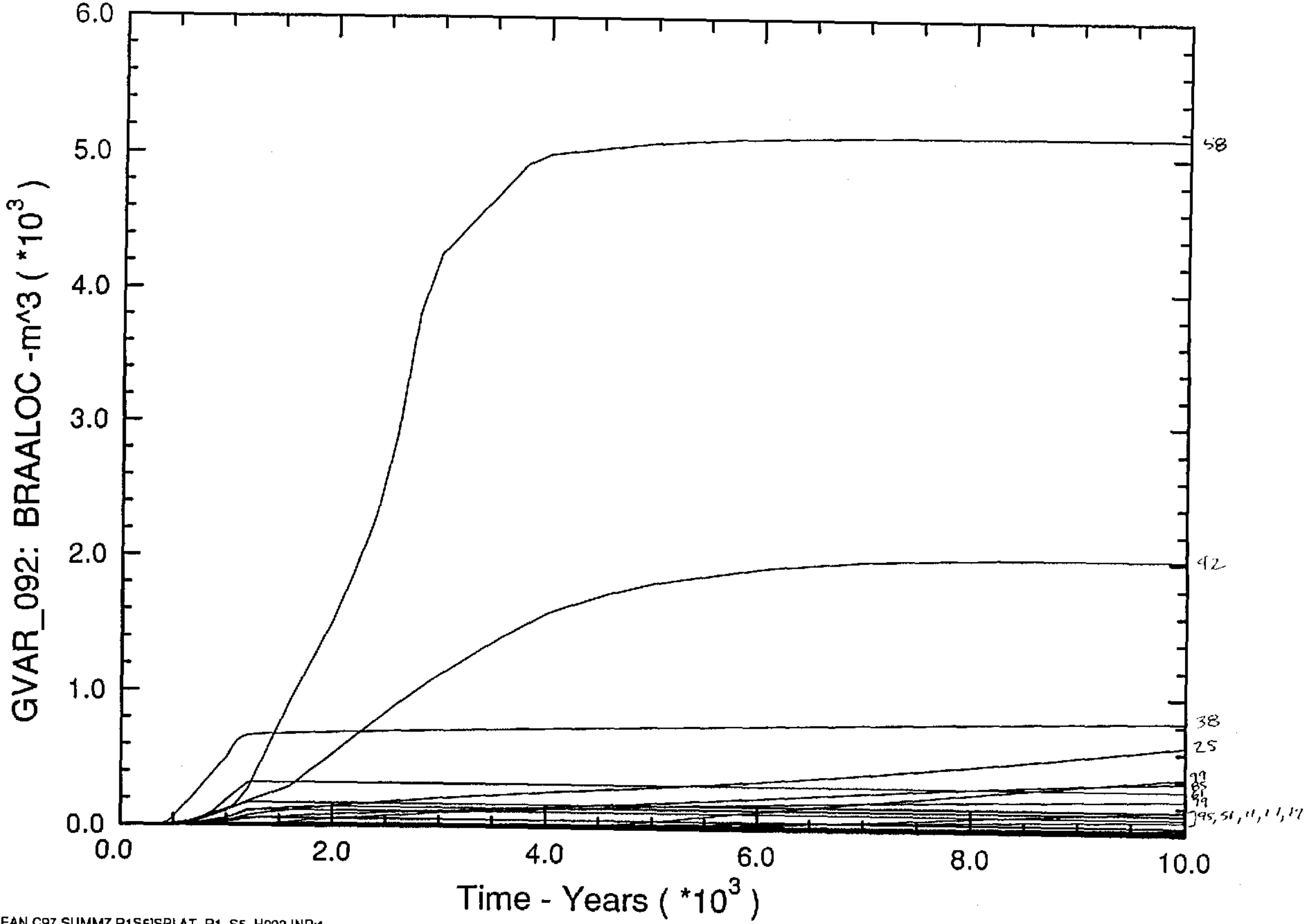
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H091.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:29:22

Fig. A.2.2-35

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Brine Flow Out of DRZ into All Marker Beds



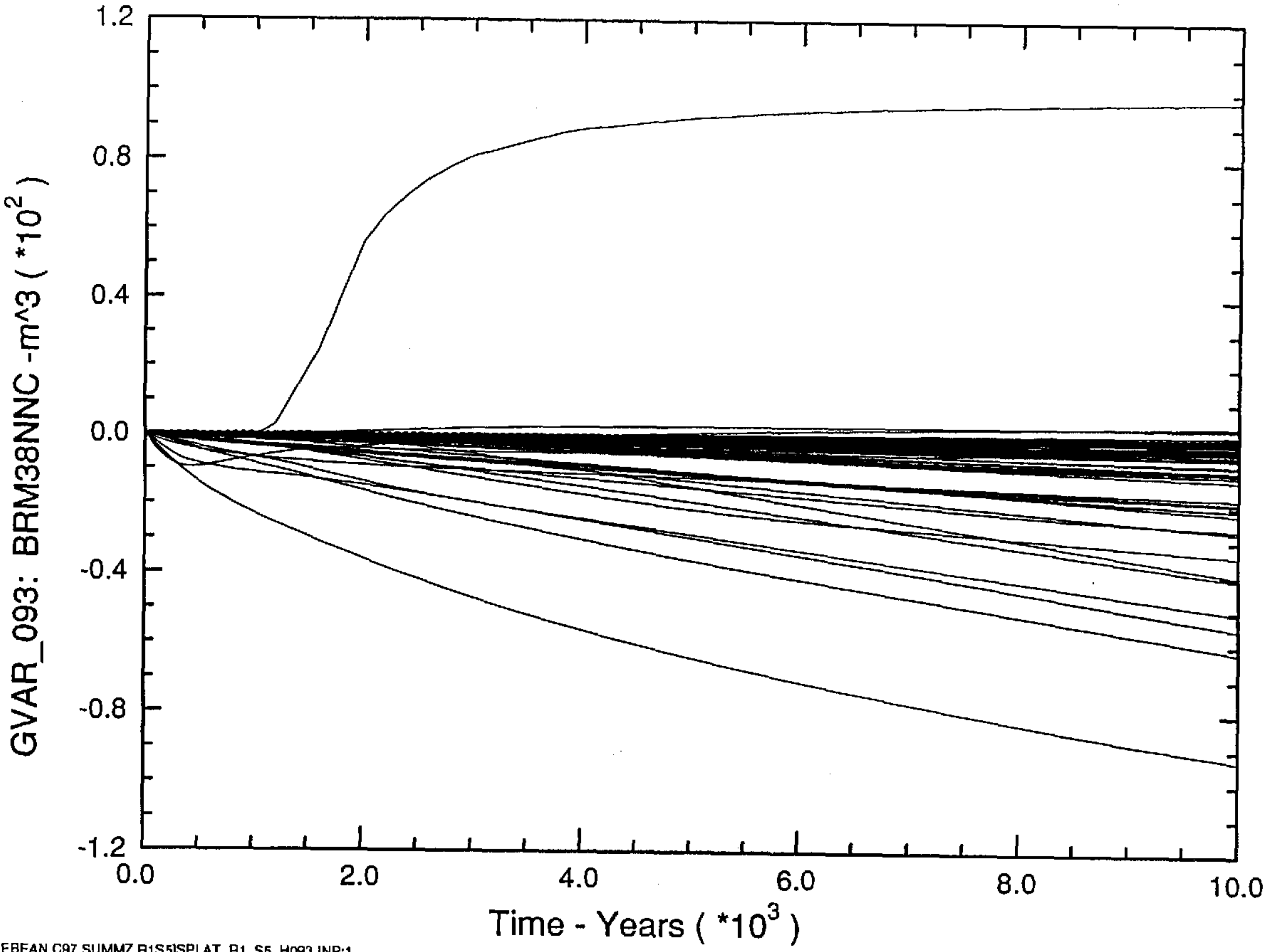
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H092.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:33:15

Fig. A.2.2-36

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Net Brine Flow at North MB 138



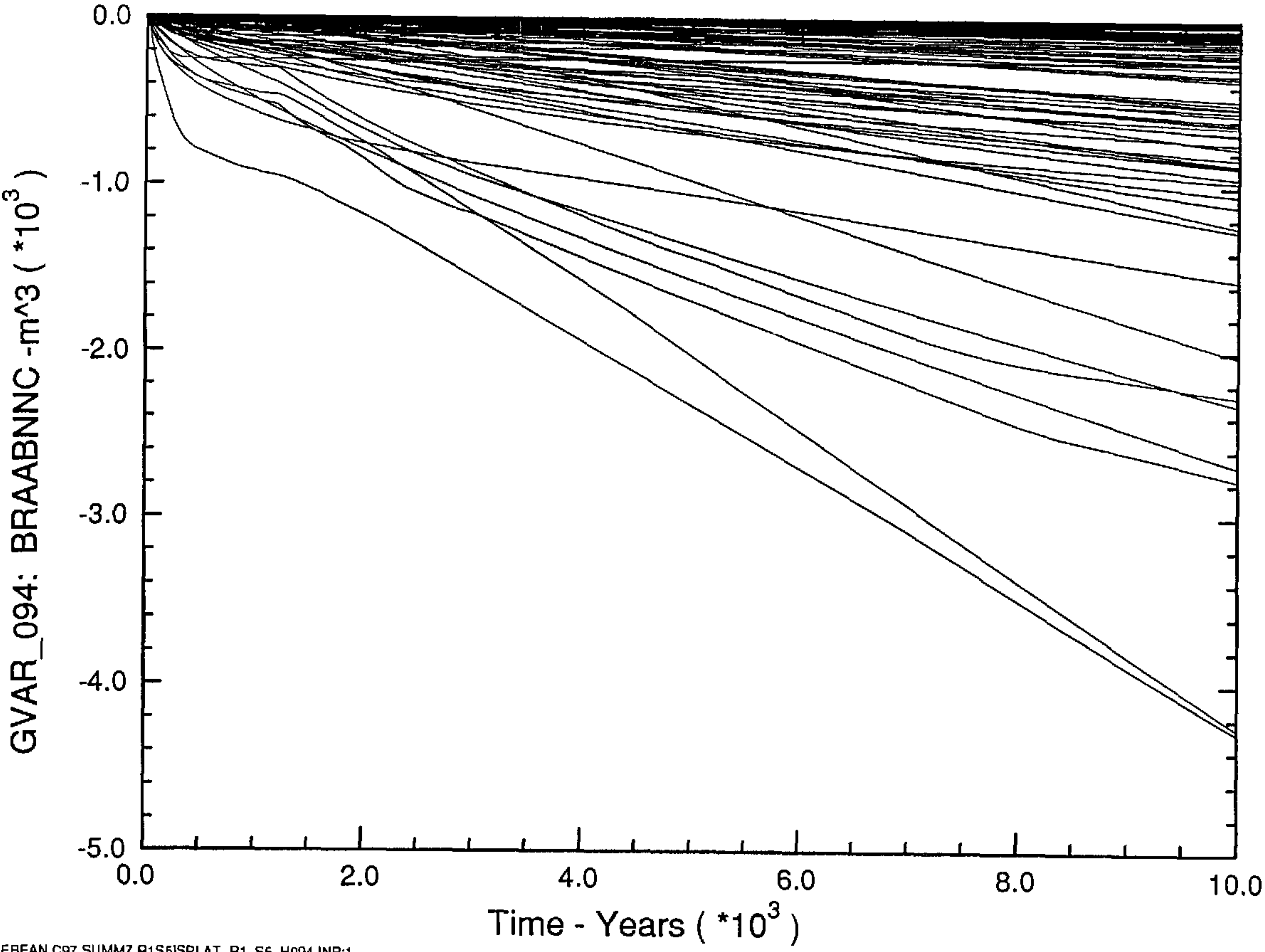
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H093.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:37:03

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Net Brine Flow at North Anhydrite A/B

Fig. 4.2.2-37



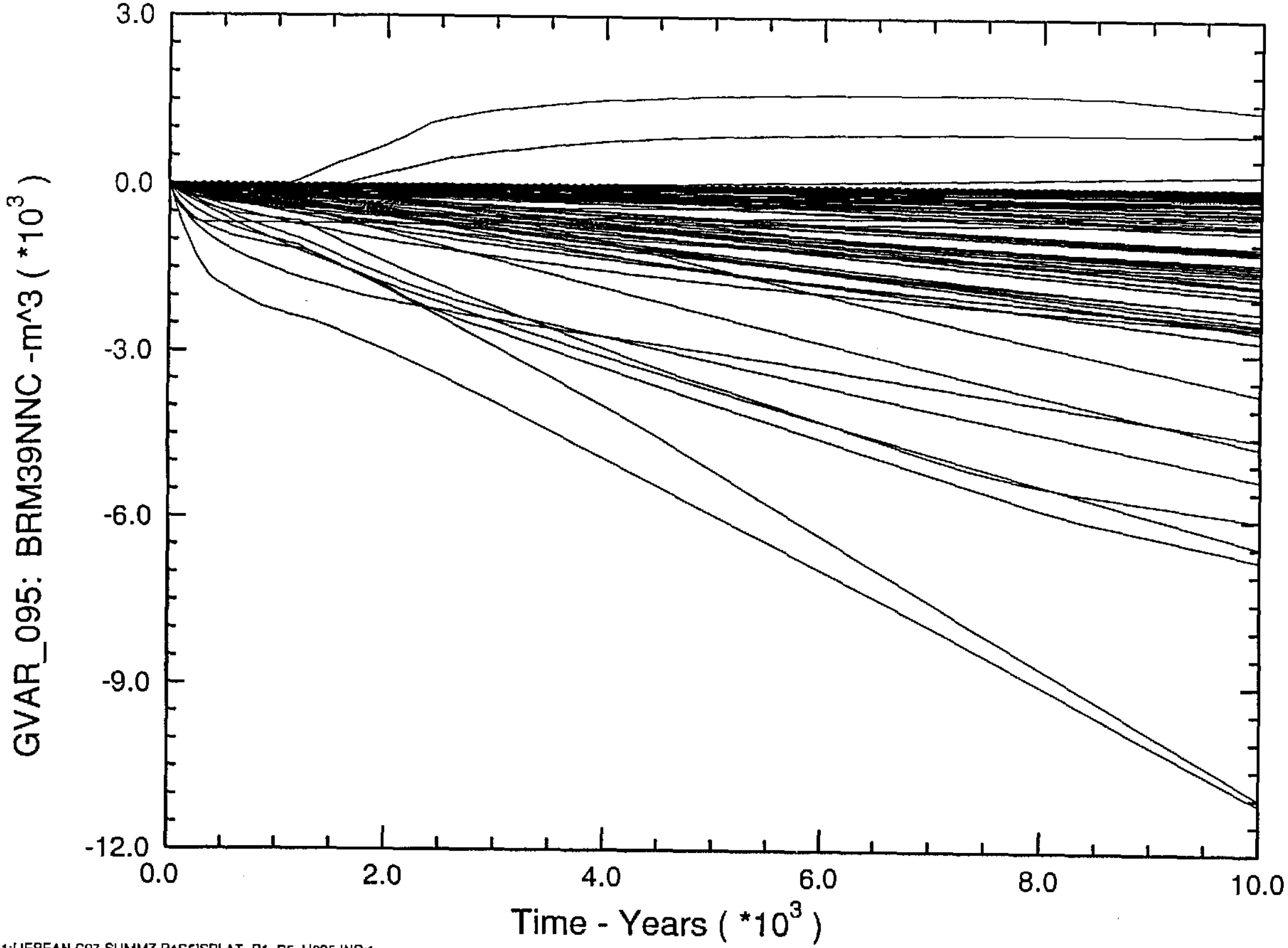
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H094.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:40:51

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Net Brine Flow at North MB 139

Fig. A.2.2-38



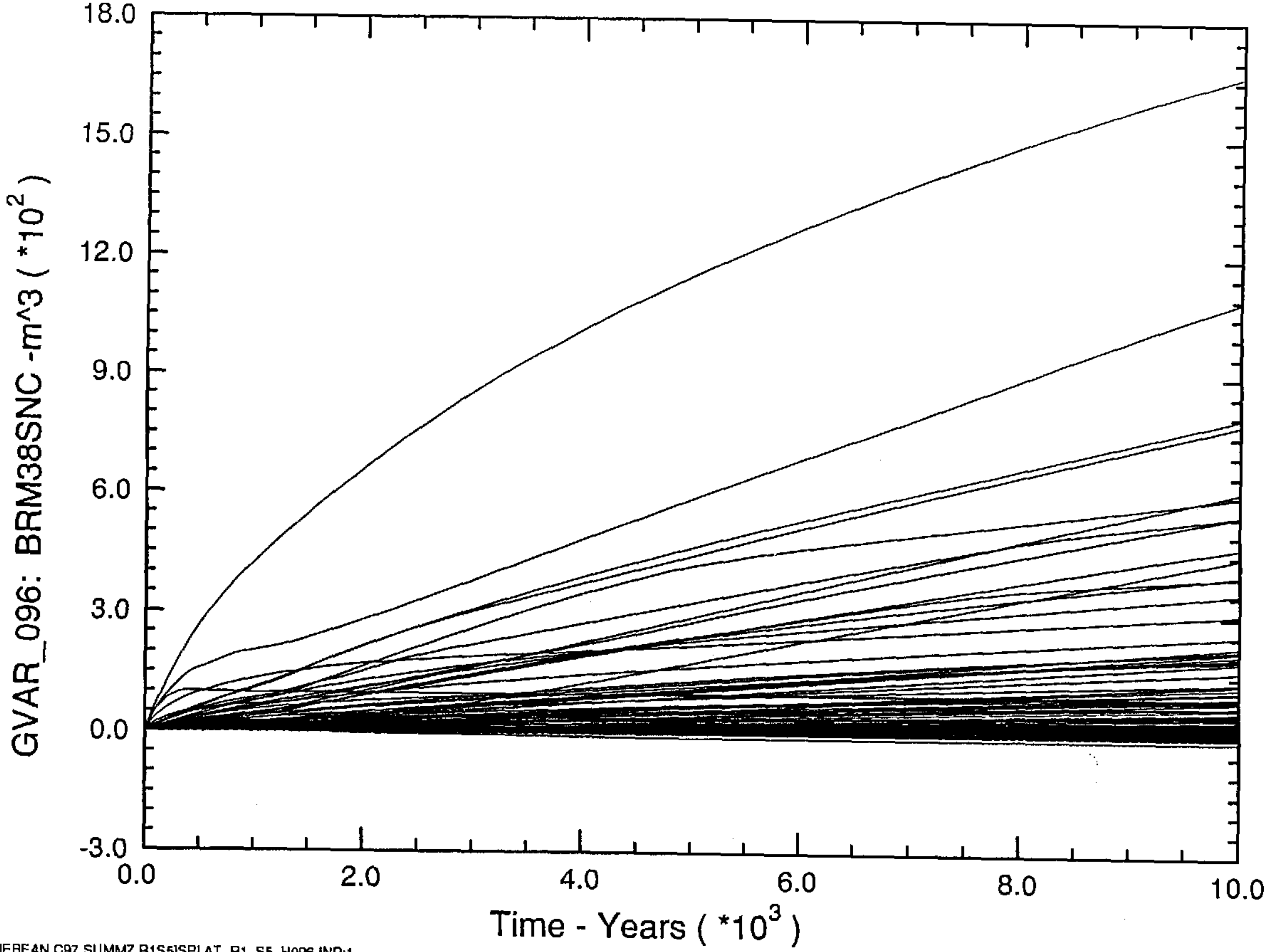
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H095.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:44:40

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Net Brine Flow at South MB 138

Fig. A.2.2-39



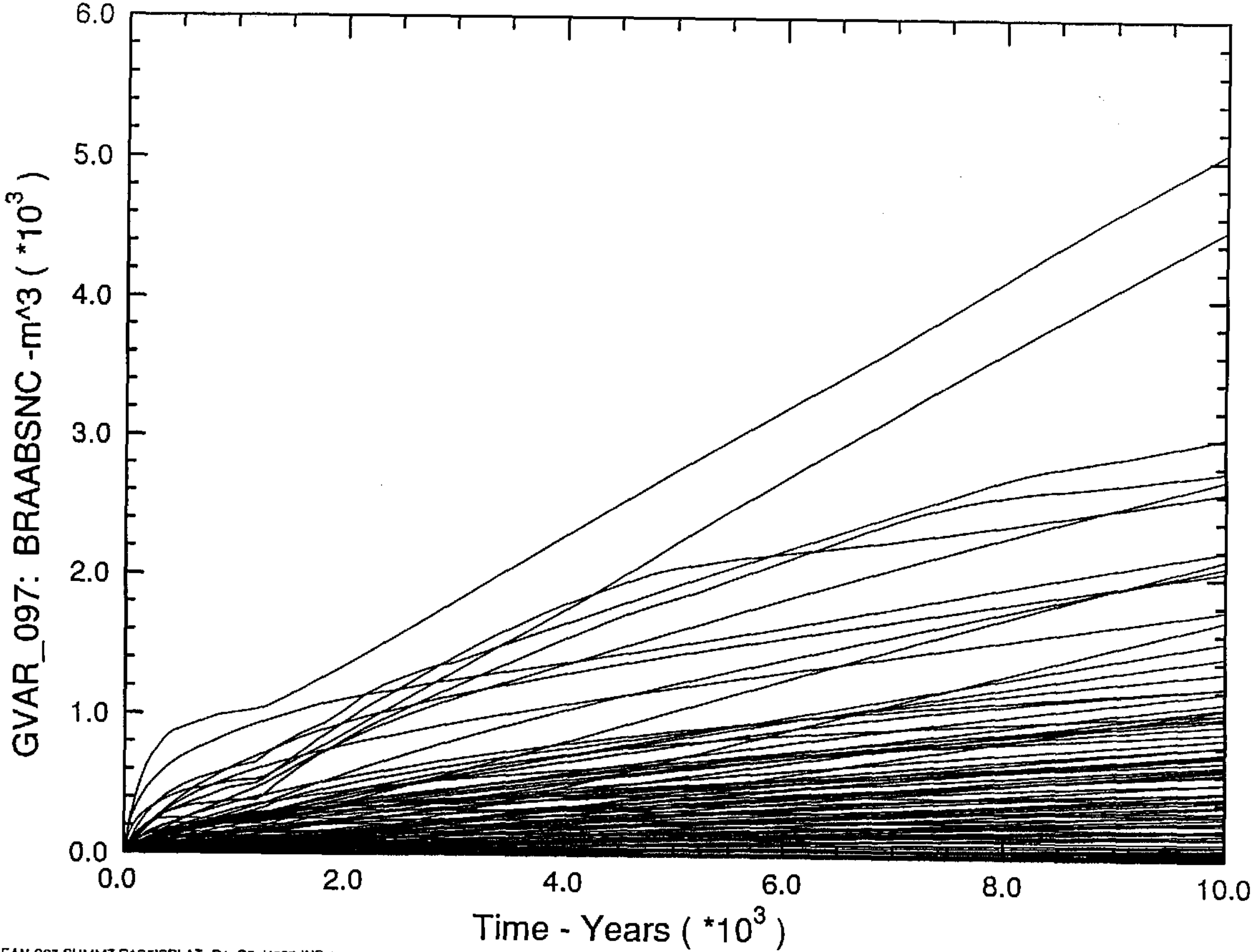
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H096.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:48:30

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Net Brine Flow at South Anhydrite A/B

Fig. 4.2.2-40



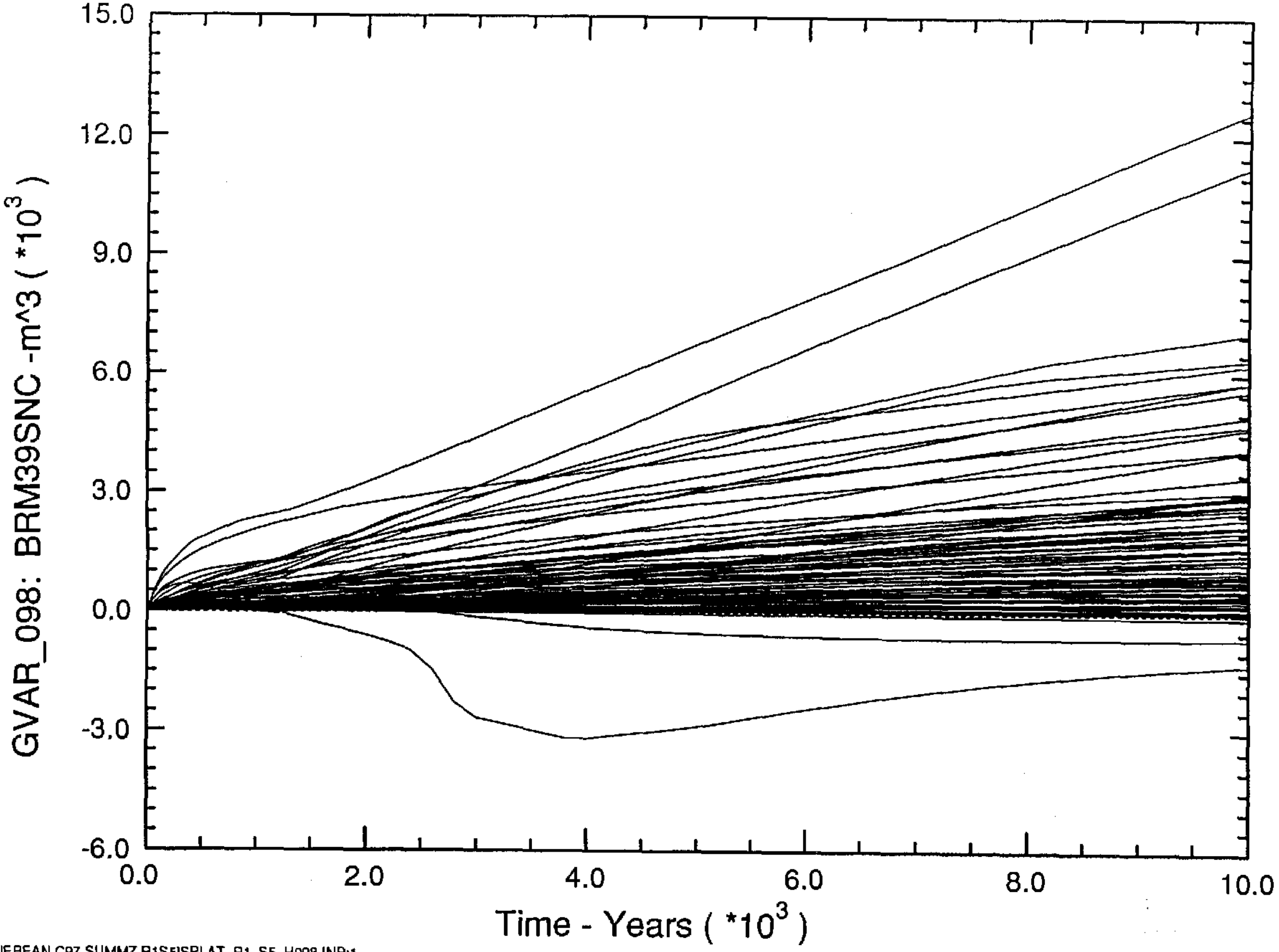
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H097.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:52:19

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Net Brine Flow at South MB 139

Fig. A.2.2-41



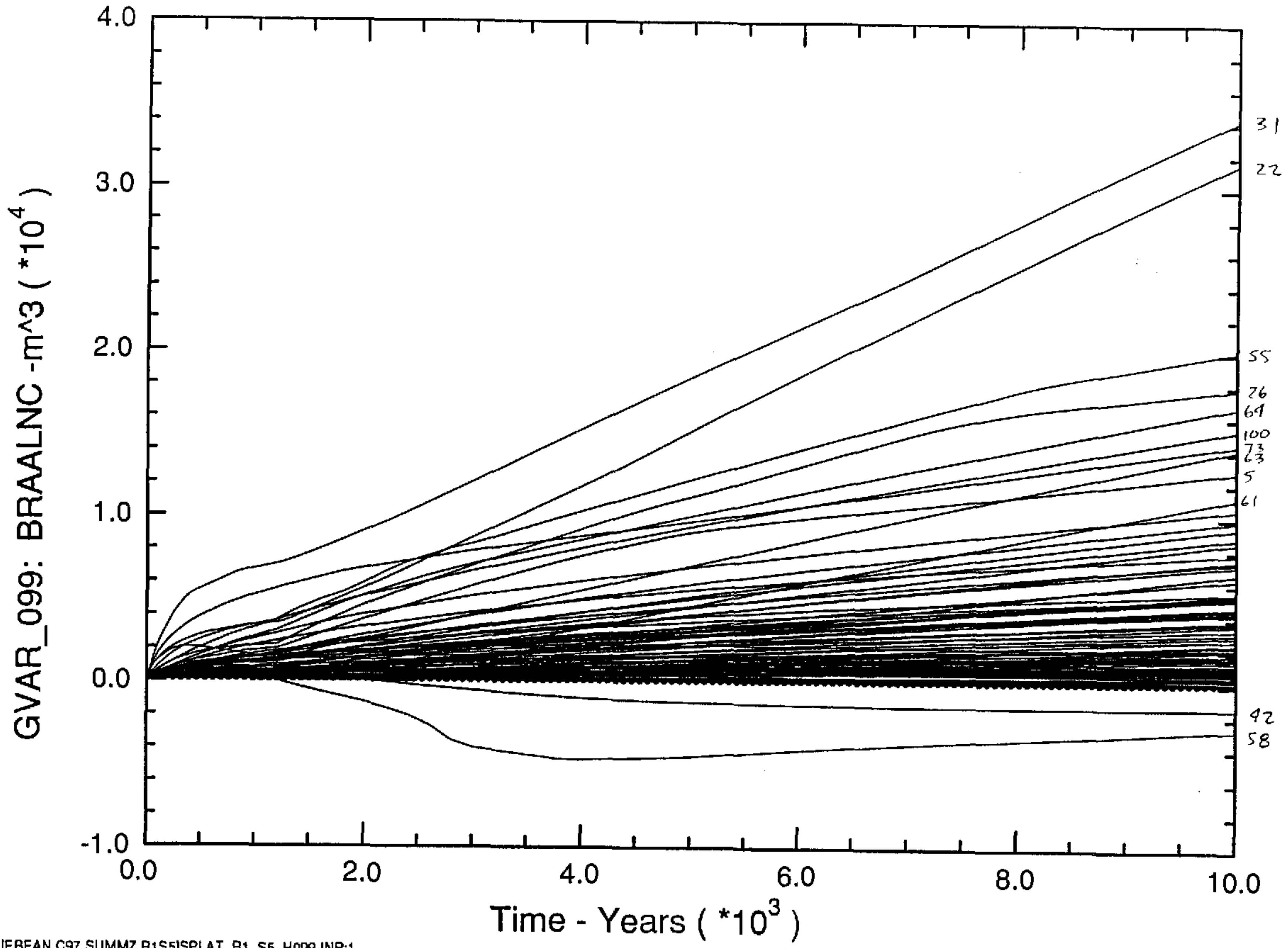
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H098.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:56:15

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Net Brine Flow into DRZ from All Marker Beds

Fig. A.2.2-42



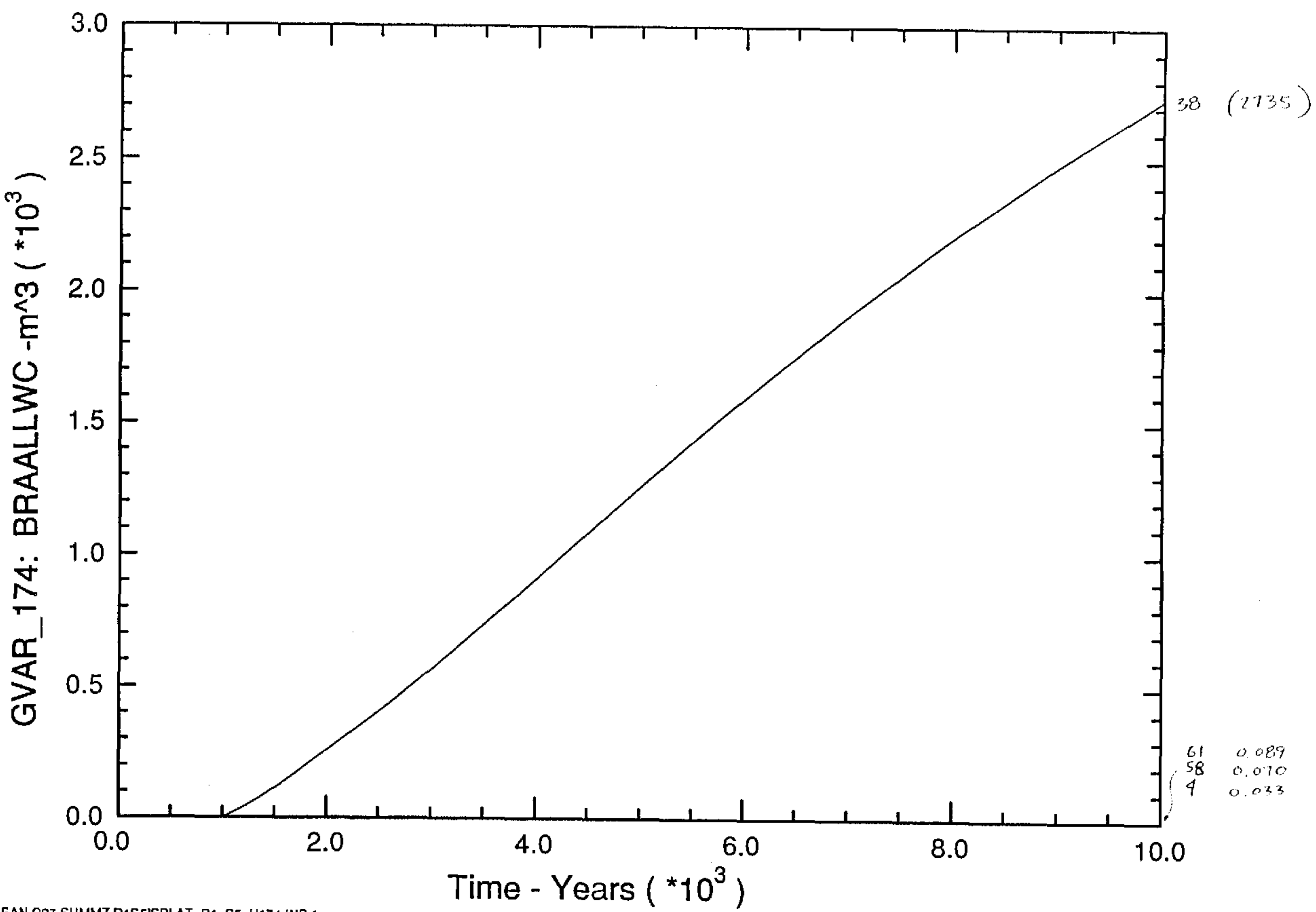
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H099.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:00:02

Fig. A.2.2-43

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out of All Marker Beds Across Land-Withdrawal Boundary



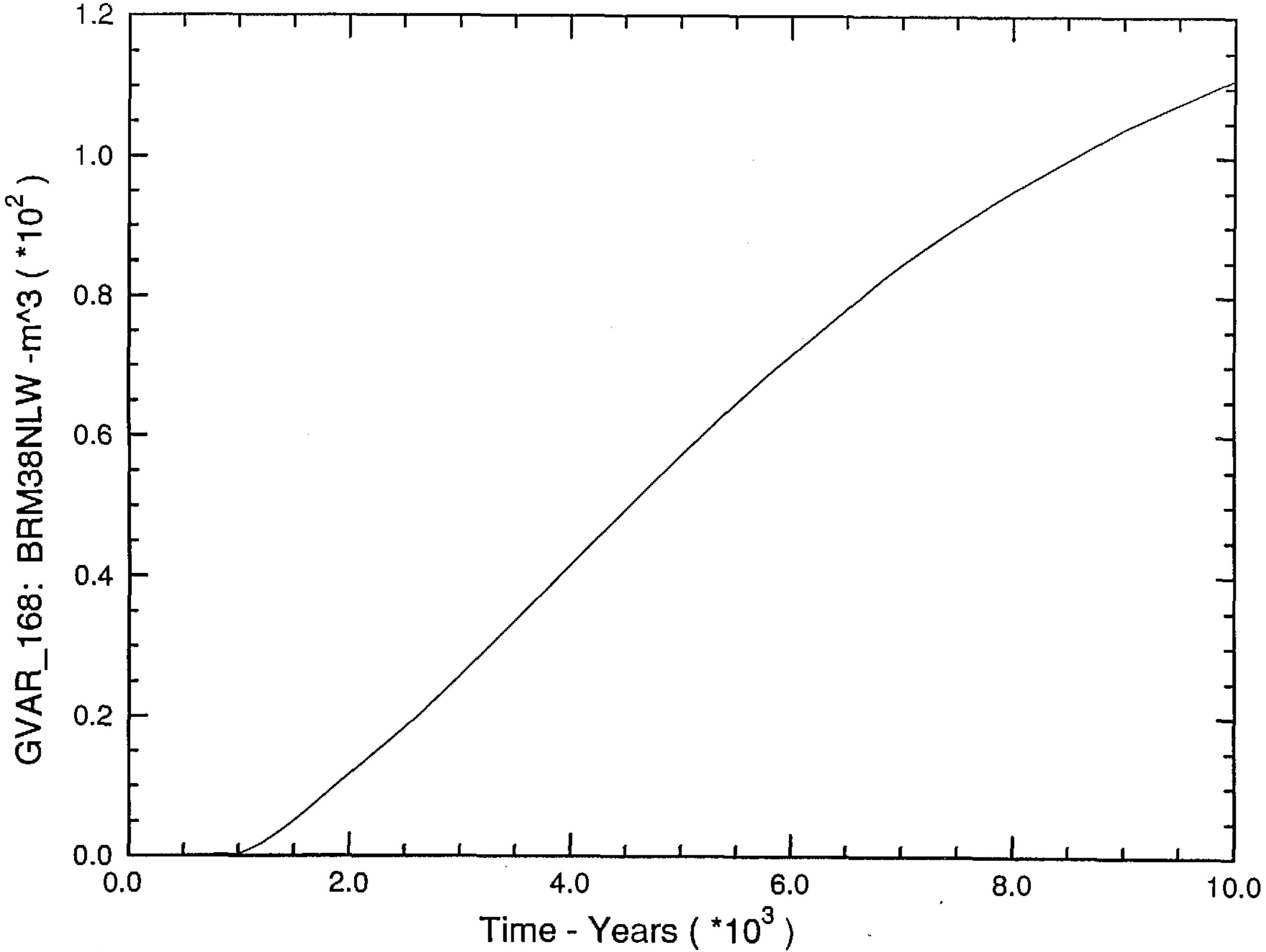
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H174.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:41:35

F1g. A.2.2-44

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out North MB 138 Across Land-Withdrawal Boundary



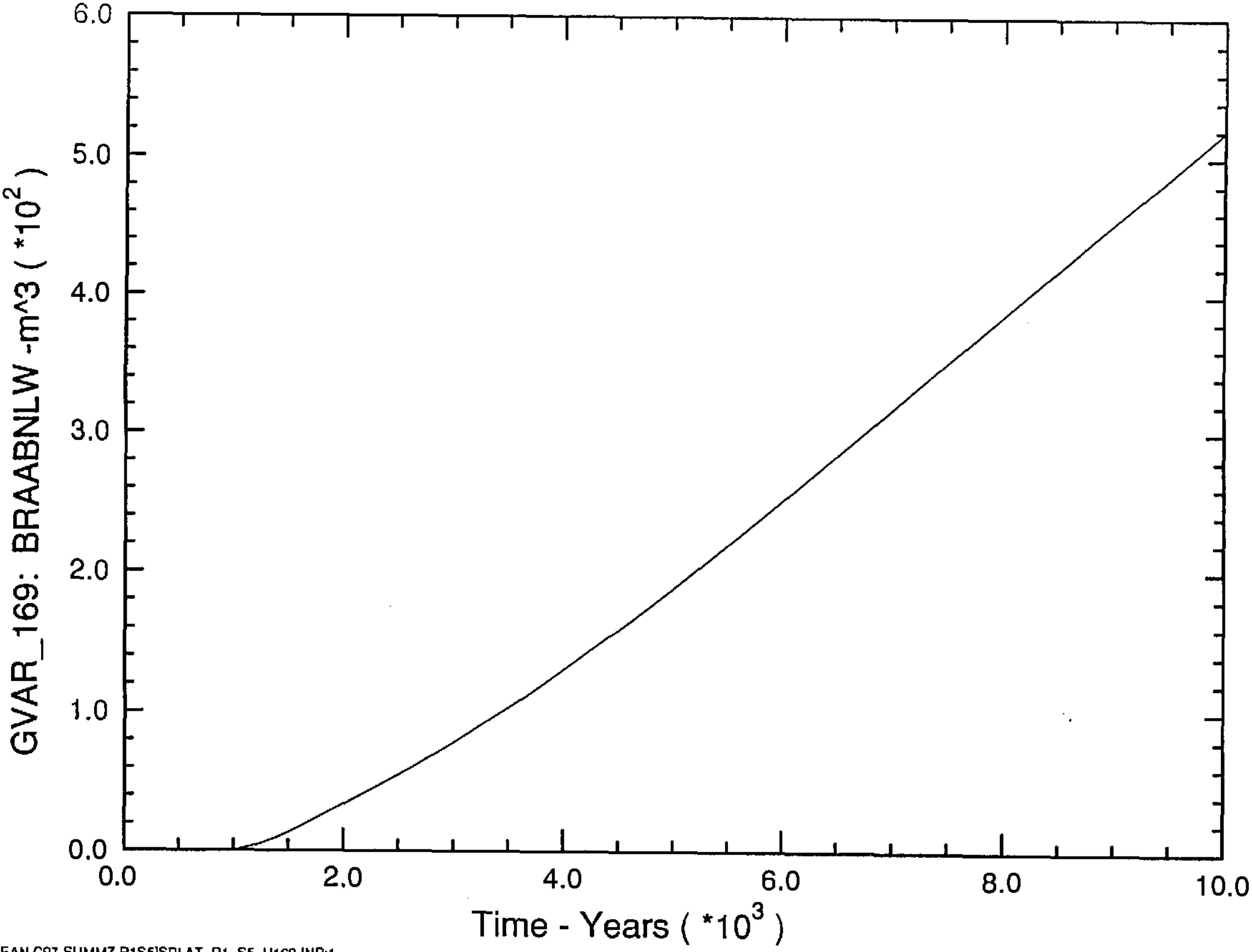
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H168.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:26:31

Fig. A.2.2-45

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Brine Flow Out North Anhydrite A/B Across Land-Withdrawal Boundary



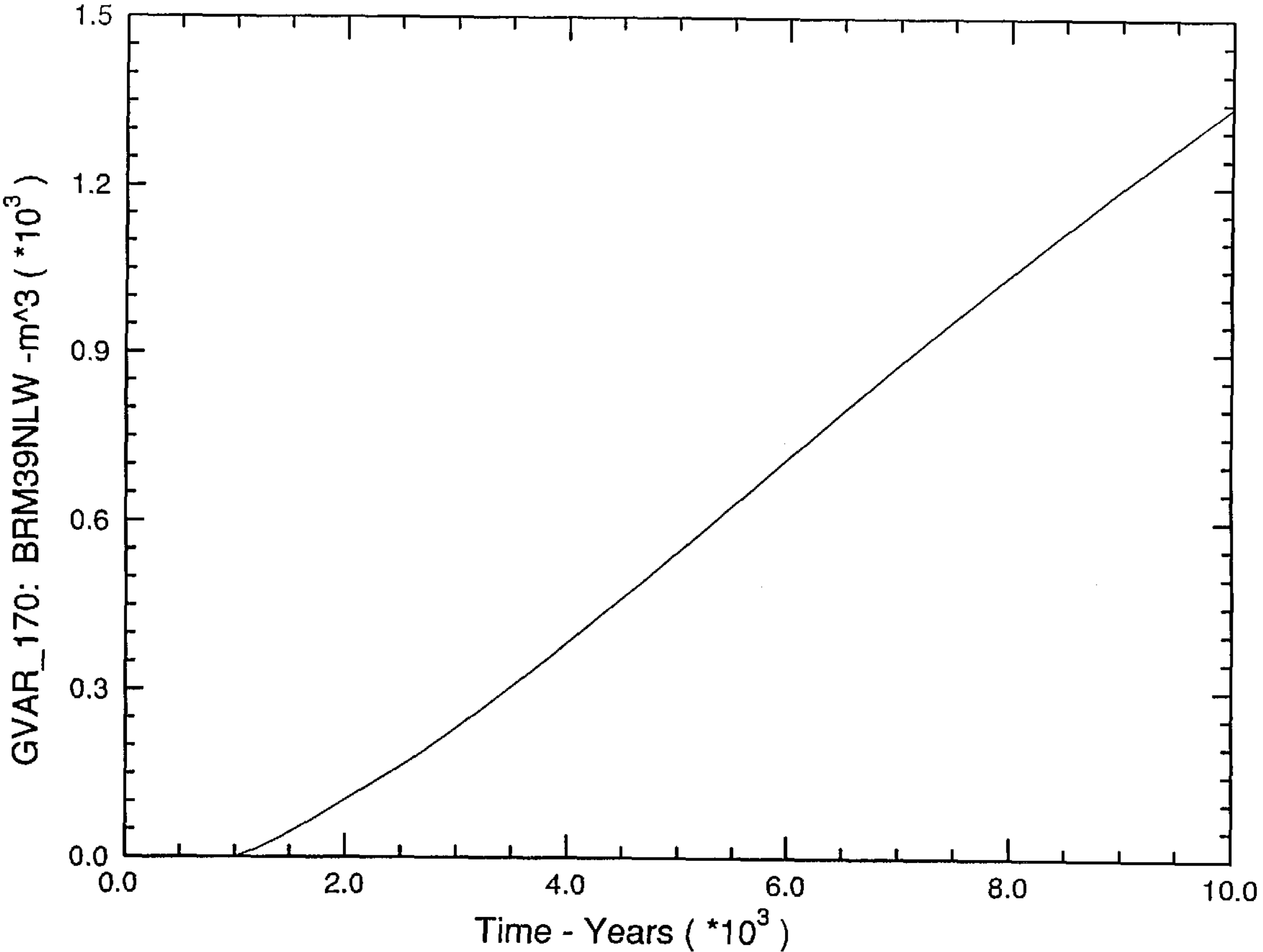
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H169.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:29:01

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out North MB 139 Across Land-Withdrawal Boundary

Fig. A.2.2-46



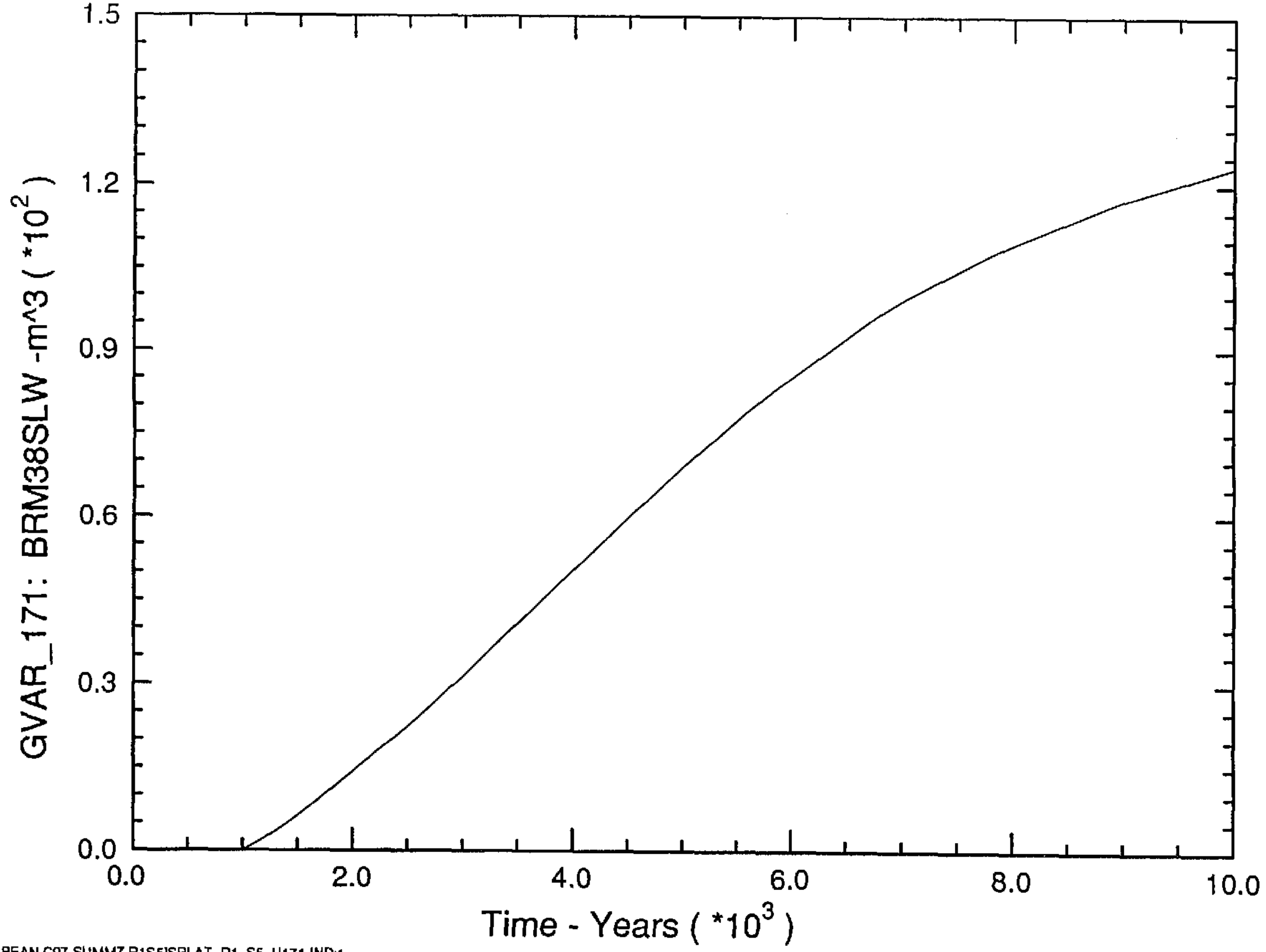
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H170.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:31:30

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Cumulative Brine Flow Out South MB 138 Across Land-Withdrawal Boundary

Fig. A.2.2-47



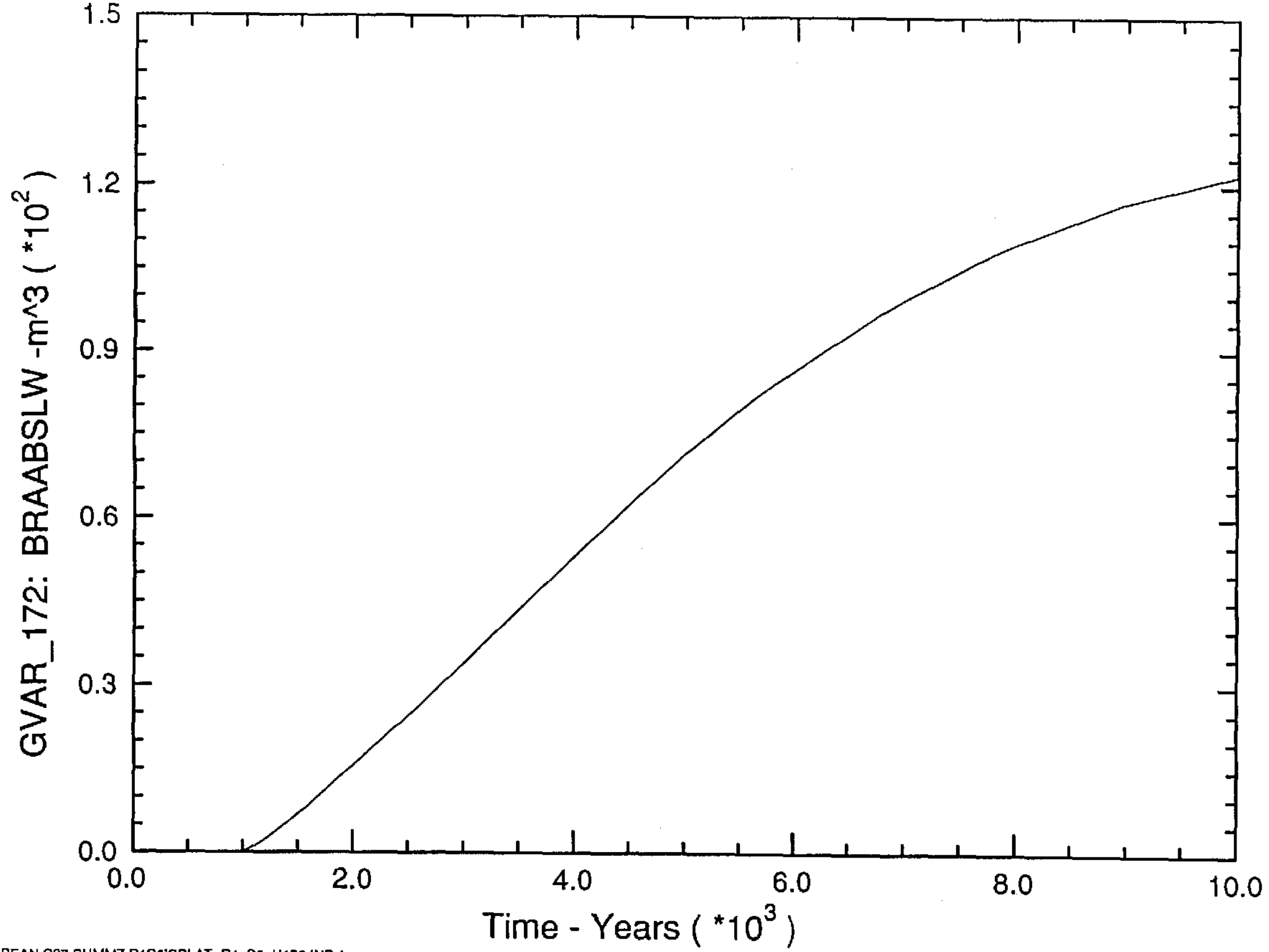
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H171.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:34:00

SNL WIPP C97: BRAGFLO SIM ATIONS (C97 R1 S5)

Cumulative Brine Flow Out South Anhydrite A/B Across Land-Withdrawal Boundary

Fig. A.2.2-48



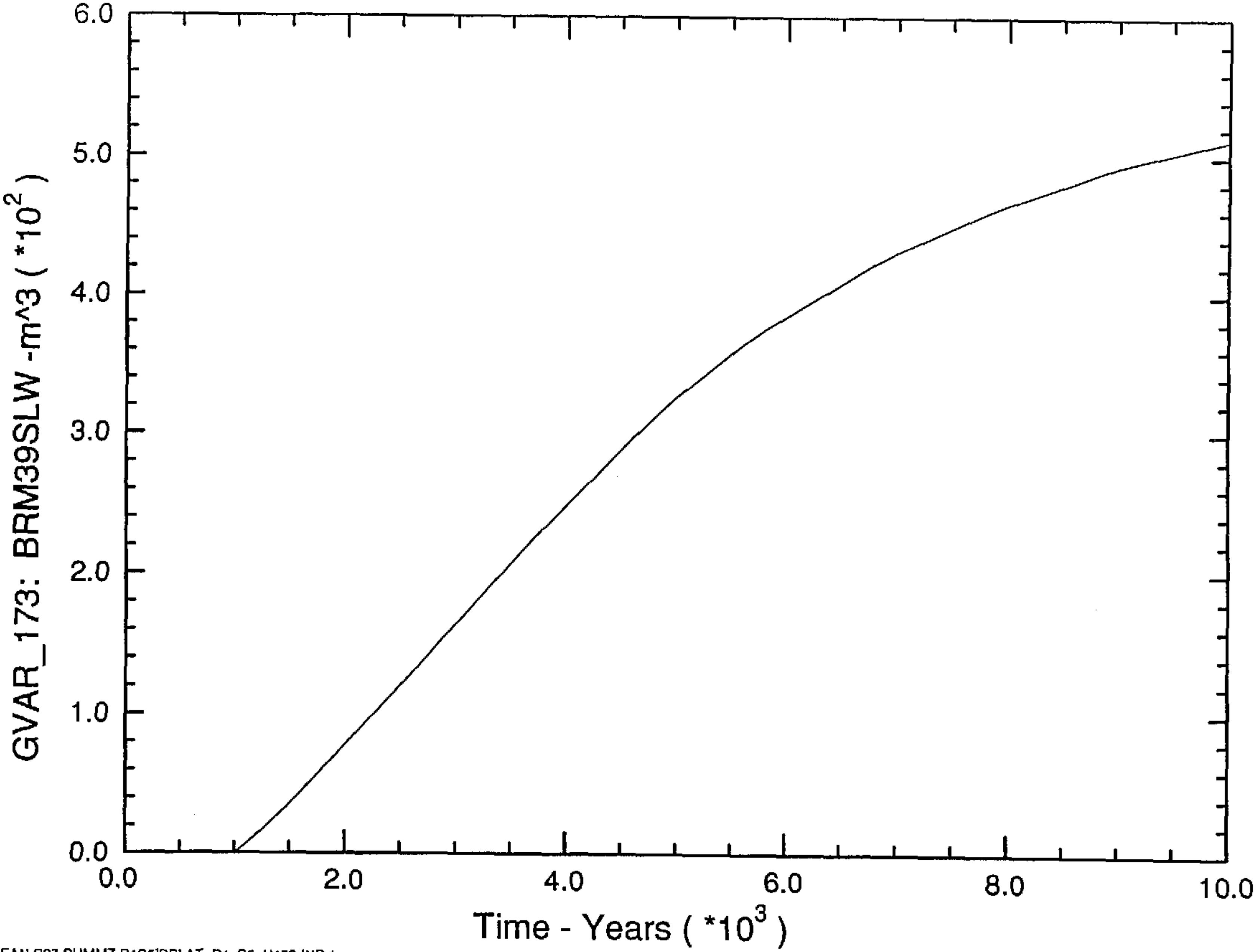
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H172.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:36:31

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Cumulative Brine Flow Out South MB 139 Across Land-Withdrawal Boundary

Fig A.2.2-49



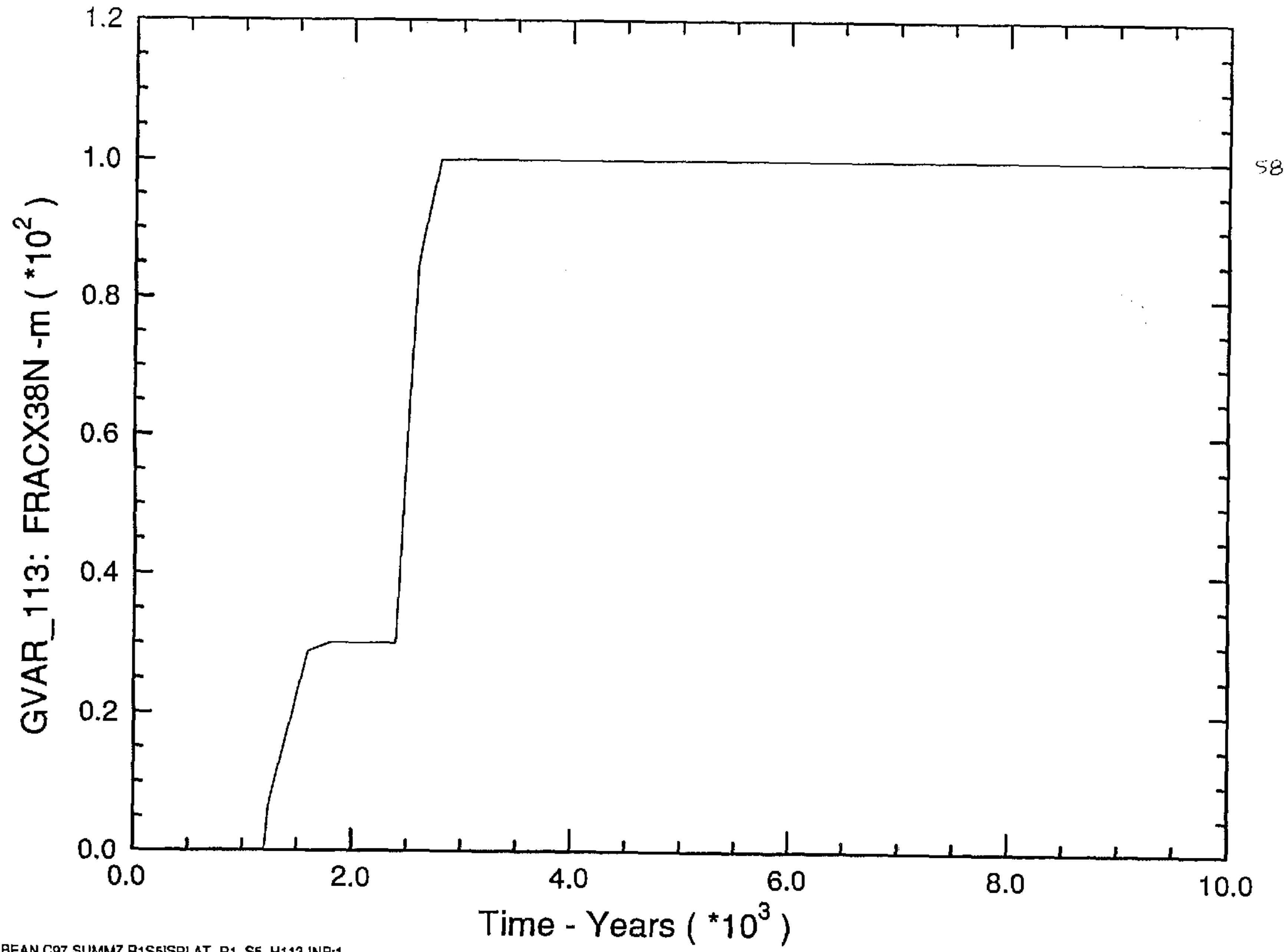
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H173.INP;1

SPLAT_PA96_2 1.02 05/28/97 11:39:04

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Length of Fractured Zone in North MB 138

Fig. A.2.2-50



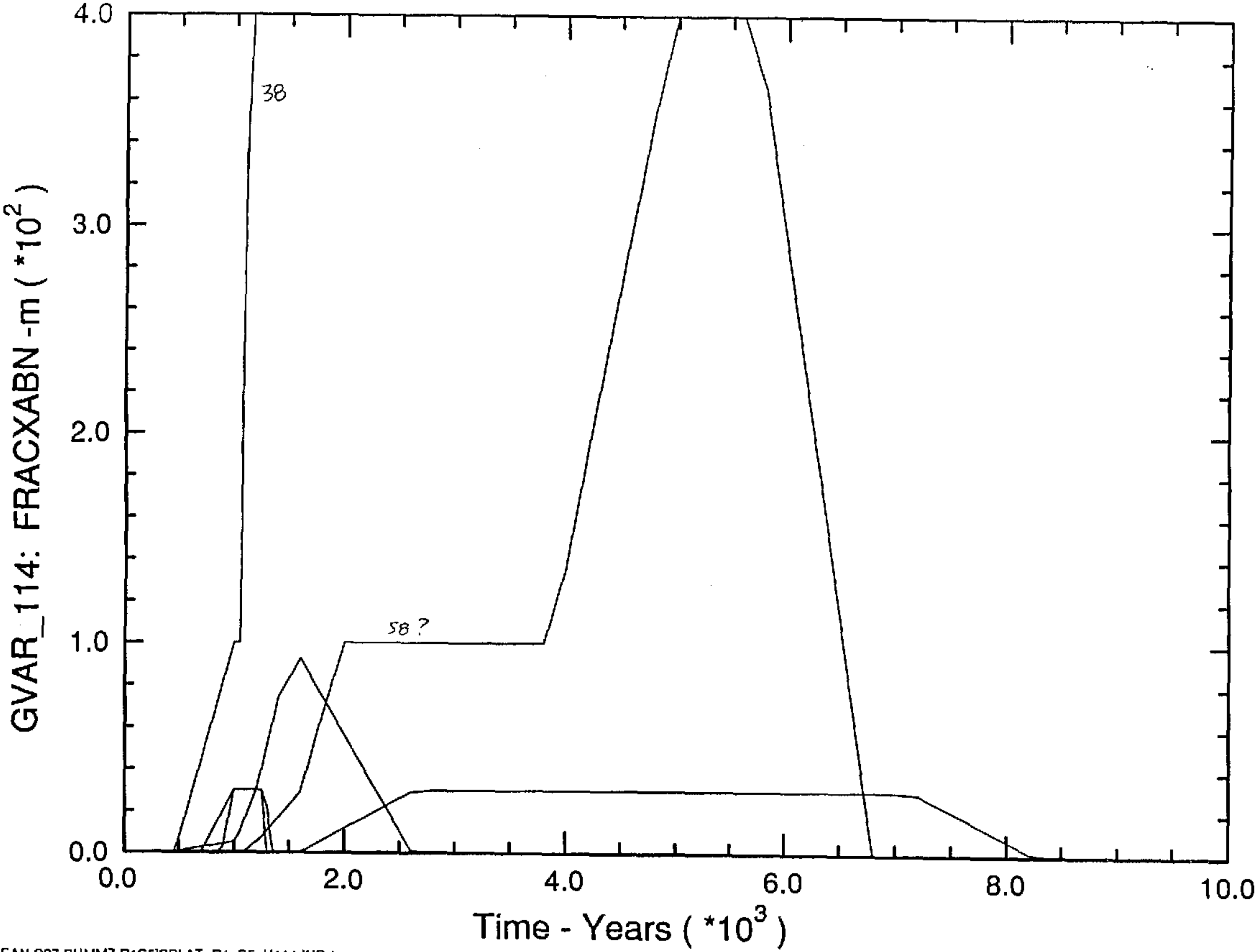
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H113.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:52:03

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Length of Fractured Zone in North Anhydrite A/B

Fig. A.2.2-51



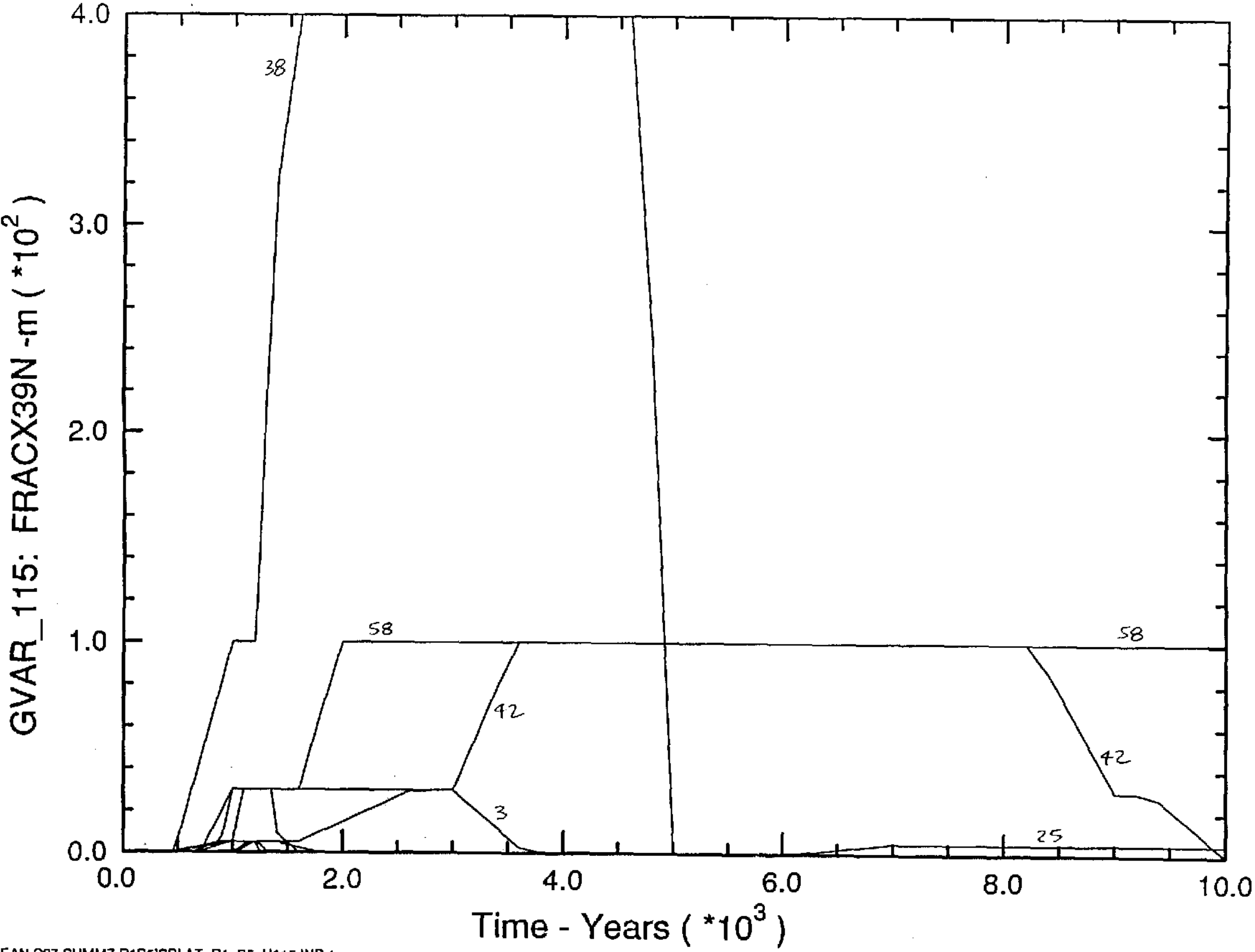
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H114.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:55:48

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Length of Fractured Zone in North MB 139

Fig A 2.2-52



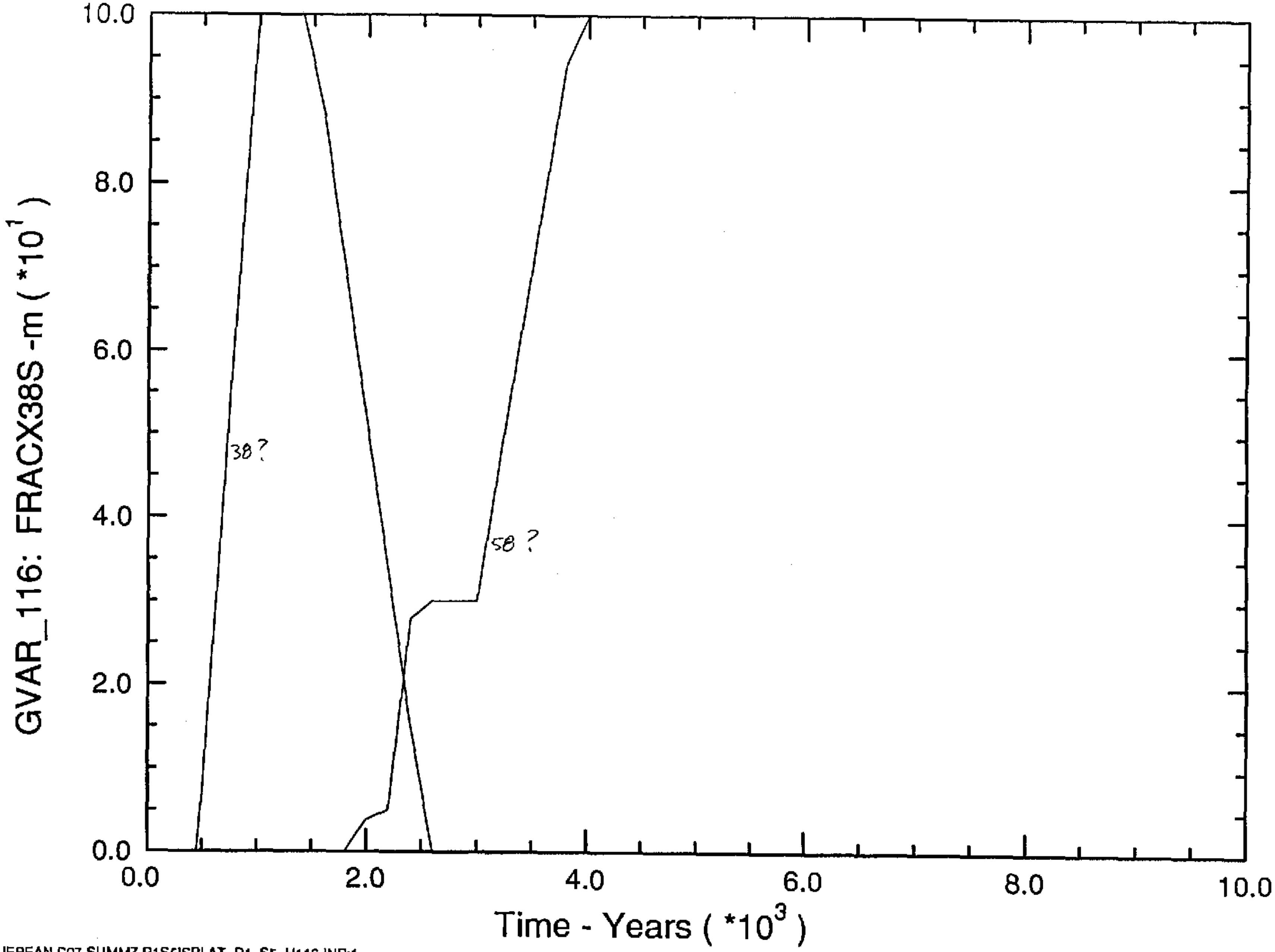
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H115.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:59:04

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Length of Fractured Zone in South MB 138

Fig A.2.2-53



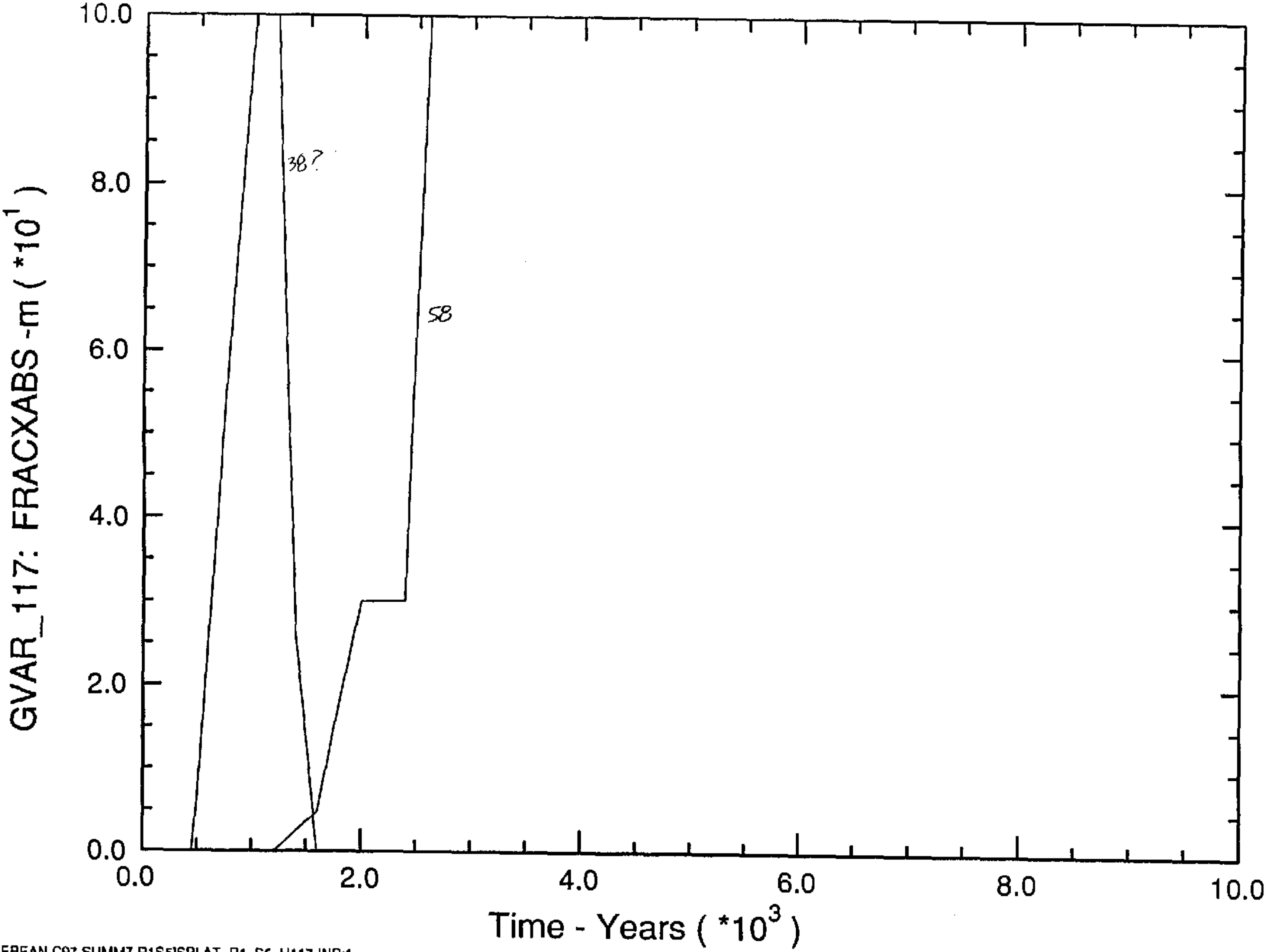
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H116.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:02:23

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S5)

Length of Fractured Zone in South Anhydrite A/B

Fig. A.2.2-54



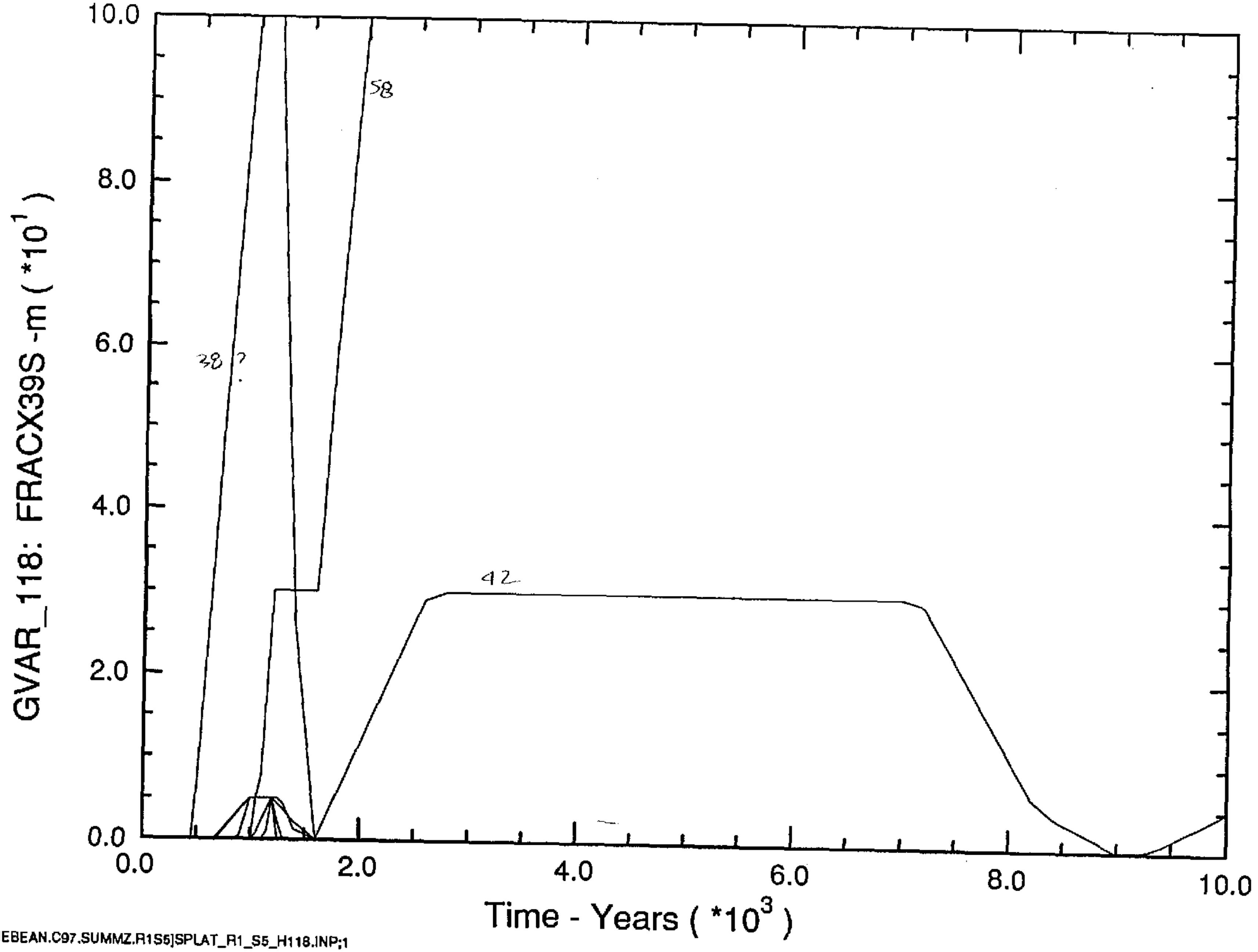
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H117.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:05:58

SNL WIPP C97: BRAGFLO SIM[illegible]ATIONS (C97 R1 S5)

Length of Fractured Zone in South MB 139

Fig. A.2.2-55



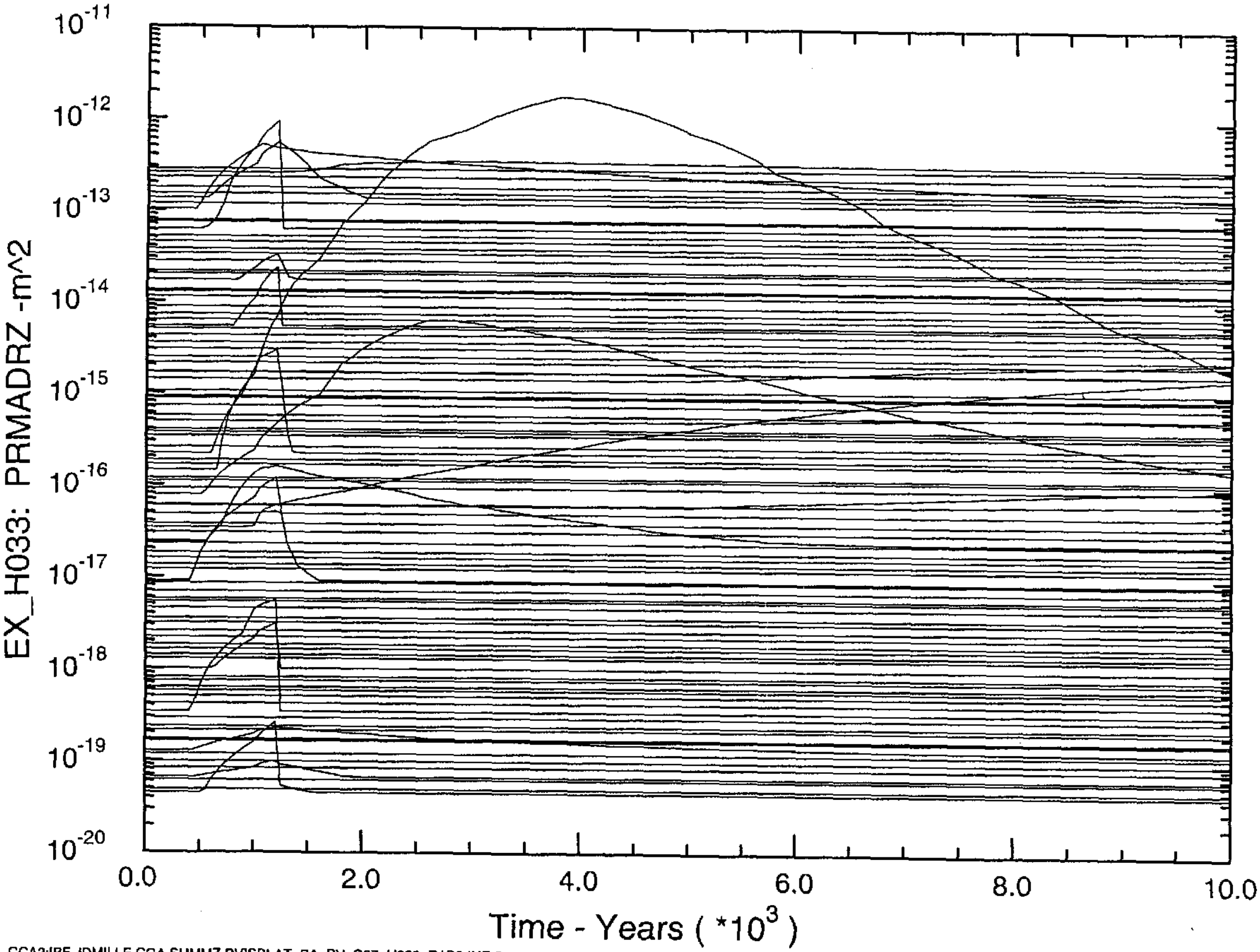
1DRA1:[JEBEAN.C97.SUMMZ.R1S5]SPLAT_R1_S5_H118.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:09:29

Fig. A 2.2-56

SNL WIPP PA: BRAGFLO SIMULATIONS (C97 R1 S5)

Volume-Averaged Permeability in All DRZ Layers



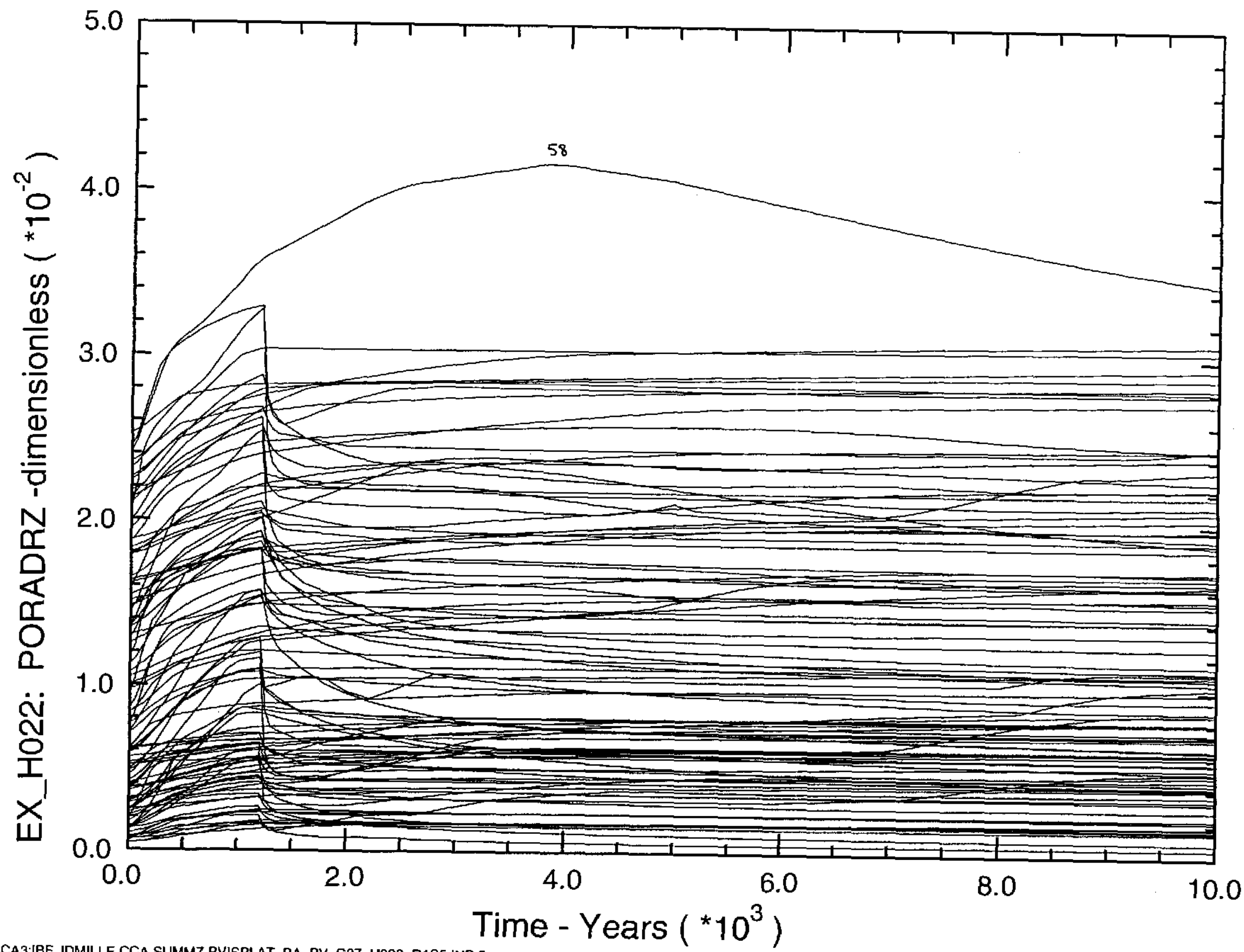
DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PV]SPLAT_PA_PV_C97_H033_R1S5.INP;3

SPLAT_PA96_2 1.02 06/26/97 15:55:56

SNL WIPP PA: BRAGFLO SIMULATIONS (C97 R1 S5)

Volume-Averaged Porosity in All DRZ Layers

Fig. A.2.2-57



DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PV]SPLAT_PA_PV_C97_H022_R1S5.INP;3

SPLAT_PA96_2 1.02 06/24/97 15:15:12

A.2.3 E2E1 Intrusion (S6 Scenario)

In the S6 scenario, one borehole penetrates the waste-filled panel at 1000 years (an E2 intrusion) and a second borehole, drilled at the same location, penetrates the panel and underlying Castile brine reservoir at 2000 years (an E1 intrusion). The borehole from the panel to the surface is assumed to be sand-filled from 1000 years to 10,000 years. At 2000 years, an additional borehole segment is emplaced that extends from the bottom of the panel to the Castile brine reservoir. This lower segment is assumed to be an open borehole for 200 years and sand-filled borehole from 2200 years to 3200 years. At 3200 years, as in an E1 intrusion (S3 and S2 scenarios), the segment of the borehole that extends from the Castile brine reservoir up to the bottom of MB139 is assumed to creep shut, attaining a lower permeability. The different time periods and borehole conditions are summarized in Table A.2.3-1.

Table A.2.3-1. Changes in Borehole Properties in E2E1 Intrusion Scenario (S6)

Time (years)	Borehole Portion	Behavior	Permeability (m^2)
0 - 1000	All	Undisturbed conditions	Undisturbed conditions
1000 - 2000	Above panel Below panel	Silty sand Undisturbed conditions	$10^{-16.3}$ - 10^{-11} Undisturbed conditions
2000 - 2200	Above panel Below panel	Silty sand Open borehole	$10^{-16.3}$ - 10^{-11} 10^{-9}
2200 - 3200	Above panel Below panel	Silty sand Silty sand	$10^{-16.3}$- 10^{-11} $10^{-16.3}$- 10^{-11}
3200 - 10,000	Above panel Below panel	Silty sand Tight silty sand	$10^{-16.3}$- 10^{-11} $10^{-17.3}$- 10^{-12}

A.2.3.1 Replicate 1 Results and Discussion

A.2.3.1.1 Repository Behavior

The time dependence of pressures in the waste panel is shown in Figure A.2.3-1 [GVAR_023]. As in the previous scenarios, pressure responses in the experimental and operation regions are nearly identical to those in the waste panel and rest of repository because the permeability of excavated regions, drift and panel seals, and the DRZ are high, on the order of 10^{-15} m^2. Up to the time of the first intrusion, 1000 years, the behavior is identical to that in the other scenarios. In most cases, the pressure rises steadily, at widely varying rates, until the intrusion occurs. During the time between the first and second intrusion, the behavior differs insignificantly from the S5 scenario (E2 intrusion at 1000 years). The slight differences arise from the presence of two low permeability plugs in the borehole in the S5 scenario. In the majority of realizations, the pressure undergoes rapid transients immediately following the first intrusion. In some cases, there is a relatively rapid depressurization when the intrusion borehole connects the pressurized panel with the lower-pressure Dewey Lakes Formation. In other cases, pressures level off or increase after the first intrusion. Another type of response is for the pressure to rise from a very low pressure relatively rapidly following the first intrusion. In these realizations, brine flows into the waste from the overlying formations and through the anhydrite layers, and as the borehole is filled with brine, the pressure in the waste tends toward hydrostatic pressure until the time of the second intrusion, 2000 years.

The repository behavior described thus far is not significantly different than the behavior predicted in the CCA, with the exception of repository pressures at the time of both intrusions tending to be slightly higher in the PAVT calculations because of increased corrosion rates. However, as was observed in the S3 scenario (E1 intrusion at 1000 years), after the borehole penetrates the brine reservoir some distinguishable differences do occur. These differences include the following. Pressures in the panel increase immediately after intrusion in all vectors having low panel pressures (less than 7 MPa) at the time of intrusion. This behavior did not occur in the CCA. The range of panel pressures is also narrower and higher during the short 200 year period after the second intrusion than it was in the CCA. Moreover, unlike the CCA, panel pressures in many vectors do increase significantly immediately after intrusion and continue to do so for the remainder of the 10,000 year regulatory period. In several cases (e.g., vectors #38 and #3), the second intrusion has no significant impact on pressure and pressure continues to either gradually decrease or increase for several thousand years. In these realizations, the borehole permeability is low and sufficient quantities of brine flow into the panel from the DRZ and through the anhydrite layers to maintain relatively high gas generation rates and increasing pressure conditions. Pressure behavior after intrusion is described in more detail below.

At the time of the second intrusion, many realizations again undergo rapid transients. In some cases, the pressure in the waste increases suddenly when the borehole connects the panel with the pressurized Castile brine reservoir. In these realizations, the brine reservoir pressure (a sampled parameter from a range of 11.1 MPa to 17.0 MPa) is appreciably higher than the pressure in the panel. A less frequent type of response is for the pressure to rise following a period of low or slowly decreasing pressure. The time lag between intrusion and repressurization lasts from 500 to over 4000 years. During this time, gas that has filled the panel is driven up the intrusion borehole as brine flows into the waste through the anhydrite layers and down the borehole. Once the borehole is filled with brine, the pressure in the waste approaches hydrostatic pressure relative to the water table in the Dewey Lakes. Note that final pressures above hydrostatic pressure occur in those realizations having relatively high corrosion rates and a low borehole permeability (sampled parameter ranging from $1.0 \times 10^{-16.3}$ to 1.0×10^{-11} m^2) that prevents gas from easily escaping the panel and repository. Pressures below hydrostatic occur in those realizations where the sampled pressure in the brine reservoir is low and the borehole is filled predominately with gas.

The E2E1 intrusion scenario generally results in more brine being present in the repository (Figure A.2.3-2 [GVAR_046]) than in an E1 intrusion, even though the E1 intrusion has the same borehole properties after 3200 years. This behavior was observed in the CCA as well and for the following two reasons. First, in those realizations in which most of the brine inflow to the repository is from flow down the borehole, the E2E1 (S6) scenario has an additional 200 years during which brine is readily available. Recall that the E1 (S3 and S2) scenarios have low permeability plugs emplaced in the borehole for two hundred years following intrusion. Second, in realizations where the Castile is the principal source of brine, the 1000-year period between intrusions with an open borehole allows the pressure in the repository to drop, so that when the borehole to the Castile opens, the amount of flow from the Castile is greater.

A.2.3.1.1.1 Gas Generation

Profiles of total gas generated with time (Figure A.2.3-3 [GVAR_022]) are similar to those in the E1 (S3) and E2 (S5) scenarios. The 25 realizations in which plastics and rubbers are included in the cellulose inventory again display the most rapid gas generation during the first 1000 years. Once all of the cellulose is consumed (in less than 1750 years, and much sooner, in most cases, as in the S5 scenario), the rate of gas generation tends to drop off in a large fraction of the realizations. In realizations in which the cellulose inventory is zero, gas generation tends to proceed at a very uniform rate (the curves are smooth and more-or-less straight), unless the corrosion rate is high enough to deplete the brine in parts of the waste. In these cases, there are breaks in the curves indicating that gas generation has stopped or decreased in some grid cells. This same behavior occurs when the steel inventory has been consumed in some parts of the waste region. Overall, more gas is generated in this scenario than in the other intrusion scenarios. The maximum amount generated is slightly higher, almost 4.3×10^7 m^3 (3.9×10^7 m^3)(at reference conditions), compared with 3.5×10^7 m^3 in S5 and 3.1×10^7 m^3 in S3 (3.6×10^7 m^3 in S5 and 2.7×10^7 m^3 in S3) in the other intrusion scenarios. Slightly more steel is consumed in S6 than in any other scenario, to a maximum of 100% (96%) versus 97% (83 %) in S3. In the panel, the entire steel inventory (less than 1% remaining) is consumed in 42 (48) of the realizations, compared with 41 (43) realizations in the E1(S3) Scenario. As noted in the preceding section, brine saturations in the repository are generally higher in this scenario than in the other intrusion scenarios. When corrosion is controlled by the rate, the amount of gas generated by corrosion is less, and the results are nearly indistinguishable from other scenarios.

A.2.3.1.1.2 Halite Creep

The reduction in porosity resulting from halite creep is similar to other intrusion scenarios, except for some transients between 1000 and 3000 years. After the initial rapid change in porosity during the first 300 - 500 years, the porosity tracks the pressure response in the waste very closely. After 3000 years, the porosities again range from 7 % to 21% (7 % to 18%), and, after 10,000 years, from 7 to 23 % (5% to 17%).

A.2.3.1.1.3 Fluid Flow

Immediately following the first borehole intrusion, there is substantial upward flow of gas

(Figure A.2.3-4 [GVAR_101]) and no upward flow of brine (Figure A.2.3-5 [GVAR_073]) from the panel. However, brine flows rapidly down the borehole from overlying formations in several realizations (Figure A.2.3-6 [GVAR_140]). The maximum flow down the borehole from overlying formations is similar to that in other scenarios, 16,500 m^3 (49,000 m^3), compared with 18,500 m^3 (47,000 m^3) in E1(S3) and 46,480 m^3 (48,000) in E2 (S5), although the behavior of individual realizations differs greatly among the three scenarios. Although brine could flow up the borehole starting at 1000 years, none does flow upward until after the Castile intrusion at 2000 years (Figure A.2.3-7 [GVAR_078]). In only a few realizations, inflow from the marker beds is sufficient to drive small amounts of brine up the borehole without any contribution from the Castile. However, in most cases, without the Castile flow, not enough brine will flow into the repository over 10,000 years to cause brine flow up the borehole. This behavior was also observed in 1996. Profiles of brine flow into the panel from the Castile are shown in Figure A.2.3-8 [GVAR_072]. Note that brine flows rapidly up from the Castile reservoir into the panel in several realizations. In these realizations, the brine reservoir pressure (a sampled parameter from a range of 11.1 MPa to 17.0 MPa) is appreciably higher than the pressure in the panel. The amount of brine flowing immediately into the panel ranges from 0.0 m^3 to a maximum of nearly 90,000 m^3 (fourth highest vector , #45). The maximum amount is approximately 1.5 times greater than the maximum amount (60,000 m^3) calculated in the CCA. As was noted in the S3 scenario, the realizations that show immediate flow into the panel tend to have a low borehole permeability, high Castile pressure, and low panel pressure at the time of intrusion. In S6, the top two immediate flow realizations, #51 and #17, have Castile pressures at the time of intrusion that rank 100 and 87, borehole permeabilities that rank 79 and 80, and panel pressures that rank 19 and 18. In this scenario, the borehole permeabilites of the top two realizations are not low indicating that there may be another factor involved that reduces upwards flow into the panel after intrusion. Low Castile compressibility may be a contributor to reducing upward flow after intrusion; Castile compressibility in realizations # 51 and #17 rank 6 and 59, respectively.

As in the S3 scenario, one group of realizations shows continual flow from the Castile into the panel after the second intrusion. Again, this behavior did not occur in the CCA. The maximum amount that flows upward in these vectors is 120,000 m^3 (66,000 m^3). This maximum amount is slightly larger than the 112,000 m^3 calculated in S3 and approximately two times the maximum amount (66,000 m^3) calculated in the CCA. In most of these realizations, brine flow is small prior to plug degradation, and the panel is already pressurized as a result of gas generation. These realizations typically have high corrosion rates and include plastics and rubbers in the cellulose inventory. When the borehole intrudes at 2000 years, the pressure in the Castile is not quite high enough to immediately drive large quantities of brine up into the pressurized panel. At 3200 years, when creep closure reduces the permeability of the section of the borehole between the Castile and the panel by an order of magnitude, the brine flow rate drops off significantly.

The plot of brine flow up the borehole at the top of the panel (Figure A.2.3-5 [GVAR_073]) is again dominated by four realizations, #28, #54, #57, and #72. As noted in the S3 scenario, these top four realizations have high borehole permeabilities (ranks of 100, 94, 99, 93, respectively) and high initial Castile reservoir pressures (ranks of 83, 96, 80, 79, respectively). These four vectors also correspond to the top four continual flows into the bottom of the panel (Figure A.2.3-8 [GVAR_072]) indicating that these flows are primarily comprised of Castile brine. The maximum flow up the borehole is 108,000 m^3 (22,500 m^3). Note that flows up the borehole at both the bottom and top of the panel are larger in the S6 scenario than in the S3 scenario. The reason for this increase in flow is the fact that the panel has a longer period to depressurize before the Castile flow started; with the greater initial pressure drop between the Castile and the panel, more brine flows up from the Castile and continues upwards toward the Culebra. As in the S3 scenario, the brine flow up the borehole at the top of the DRZ is nearly equal (only slightly higher) to the borehole flow at the top of the panel. The maximum flow at this location in this scenario (Figure A.2.3-7 [GVAR_078]) is slightly higher than in the E1 scenario, 109,000 m^3 vs. 103,000 m^3 (37,000 m^3 vs. 35,000 m^3). Also, no brine (at most 0.2 m^3 in CCA) ultimately reaches the top of the Rustler.

A.2.3.1.2 Behavior in Formations Surrounding the Repository

A.2.3.1.2.1 Two-Phase Flow

Gas flow into the interbeds are presented in Figures A.2.3-16 [GVAR_106] to A.2.3-22 [GVAR_112]. In general, gas flows into the interbeds tend to be larger in the PAVT as compared to the CCA. As in the E1 scenario, fewer realizations (as compared to the Undisturbed Scenario) result in gas flow from the DRZ into the marker beds. This behavior is is similar to that predicted in the CCA. In MB138, the largest of the realizations shows 55,000 m^3 (5,800 m^3) flowing to the north (Figure A.2.3-16 [GVAR_106]) and 58,000 m^3 (11,500 m^3) flowing to the south (Figure A.2.3-19 [GVAR_109]). In Anhydrite a and b (Figures A.2.3-17 [GVAR_107] and A.2.3-20 [GVAR_110]), the maximum flows are 570,000 m^3 (85,000 m^3) to the north and 84,000 m^3 (43,000 m^3) to the south. In MB139, a maximum of 580,000 m^3 (13,200 m^3) flows to the north (Figure A.2.3-18 [GVAR_108]); to the south, the maximim gas flow is 105,000 m^3 (3,300 m^3)(Figure A.2.3-21 [GVAR_111]). In all marker beds, a total maximum of 1.45×10^6 m^3 (1.58×10^5 m^3) flows from the DRZ into the marker beds (Figure A.2.3 -22 [GVAR_112]).

After the second intrusion at 1000 years, large volumes of gas (up to 15.5×10^6 m^3) (up to 8.0×10^6 m^3 in the CCA) are quickly vented up the borehole (Figure A.2.3-23 [GVAR_101]). Gas continues to flow up the borehole in several vectors for the remainder of the 10,000 years, with a maximum of 23.0×10^6 m^3. This behavior is different than was predicted in the CCA where gas flow from the panel generally occurred only over a short period of time, about 1000 years. However, in both the PAVT and the CCA, larger amounts continue to flow from the DRZ for as long as gas is generated (Figure A.2.3-24 [GVAR_102]). The total amount of gas vented up the borehole ranges from about 0.0 m^3 up to 38×10^6 m^3 (1.0×10^6 m^3 up to 36×10^6 m^3). The maximum total amount of gas generated is 43×10^6 m^3 (39×10^6 m^3) (Figure A.2.3-3 [GVAR_022]). Thus, a large fraction of the gas generated eventually flows up the borehole. Very little gas flows up the shaft. Figure A.2.3-25 [GVAR_100] shows that a maximum of 23 m^3 (22 m^3) flows up the shaft at the interface between the Salado and Rustler formations. A detailed examination of gas flows at different locations in the shaft shows that this gas came exclusively from the asphalt shaft seal immediately below this interface. None of this gas originates from lower elevations in the shaft, including the repository. Thus, the shaft seals are very effective in keeping gas from flowing up the shaft.

Brine flow out of the marker beds and into the DRZ (Figures A.2.3-26 [GVAR_079] to A.2.3-46 [GVAR_099]) ranges up to 31,000 m^3 (63,500 m^3) (A.2.3-32 [GVAR_085]). Brine flow out of the DRZ into MB138 and Anhydrite a and b is essentially zero, nearly identical to E1 scenario, in which a maximum of 40 m^3 (4 m^3) flows out Marker Bed 138 to the north. Flows out of the DRZ surrounding the repository and into MB139 are also nearly identical to the E1 scenario. The interbed flows are summarized in Table A.2.3-2.

The maximum amount of brine that flows in from the marker beds is about 75% (equal) smaller than the maximum that flows up the borehole from the Castile, 31,000 m^3 vs. 120,000 m^3 (63,500 m^3 vs. 66,000 m^3) up from the Castile. Relatively small amounts of brine flow out of the DRZ and into the marker beds, primarily into Marker Bed 139, into which a maximum of about 2800 m^3 (200 m^3) flows, or less than 10% (1%) of the amount that flows into the DRZ from the marker beds.

Table A.2.3-2. Cumulative Net Interbed Brine Flows for E2E1 Intrusion Scenario (S6).

Marker Bed	Max. Net Brine Flow from MB into DRZ, m^3	Max. Net Brine Flow from DRZ into MB, m^3
MB138 North	55 (300)	70 (0)
MB138 South	1000 (3650)	0 (0)
Anhydrite a & b North	3800 (8700)	0 (0)
Anhydrite a & b South	4650 (9800)	0 (0)
MB139 North	10,000 (20,000)	1200 (100)
MB139 South	11,500 (21,100)	1600 (100)
All Marker Beds	31,000 (63,500)	2870 (200)

As shown in Table A.2.3-3 larger quantities of brine flow out across the land withdrawal boundary in the PAVT, whereas in the CCA only very small amounts of brine crossed the land withdrawal boundary. These increased releases occur, as in S3, in vector #38. The maximum in all marker beds is 3203 m^3 (1.66 m^3). As noted previously in the S3 scenario, the sampled parameter values for vector #38 indicate that this vector had the highest sampled MB139 permeability in combination with the 7th highest sampled DRZ permeability and the 17th lowest borehole permeability. However, this brine does not come from the repository since at most 1380 m^3 (180 m^3) flows to the north into MB139 from the DRZ (Figure A.2.3-35 [GVAR_088]), which is far less than the pore volume of MB139 which is 155,500 m^3 between the repository and land withdrawal boundary. This conclusion is verified by the Salado transport calculations described in Section 3.0.

Table A.2.3-3. Cumulative Interbed Brine Flows Across Land Withdrawal Boundary for E2E1 Intrusion Scenario (S6).

Marker Bed	Maximum Brine Outflow across Land Withdrawal Boundary, m^3
MB138 North	142 (0.22)
MB138 South	149 (0.0)
Anhydrite a & b North	604 (0.34)
Anhydrite a & b South	149 (0.0)
MB139 North	1492 (1.1)
MB139 South	669 (0.0)
All Marker Beds	3203 (1.66)

A.2.3.1.2.2 Mechanical Response

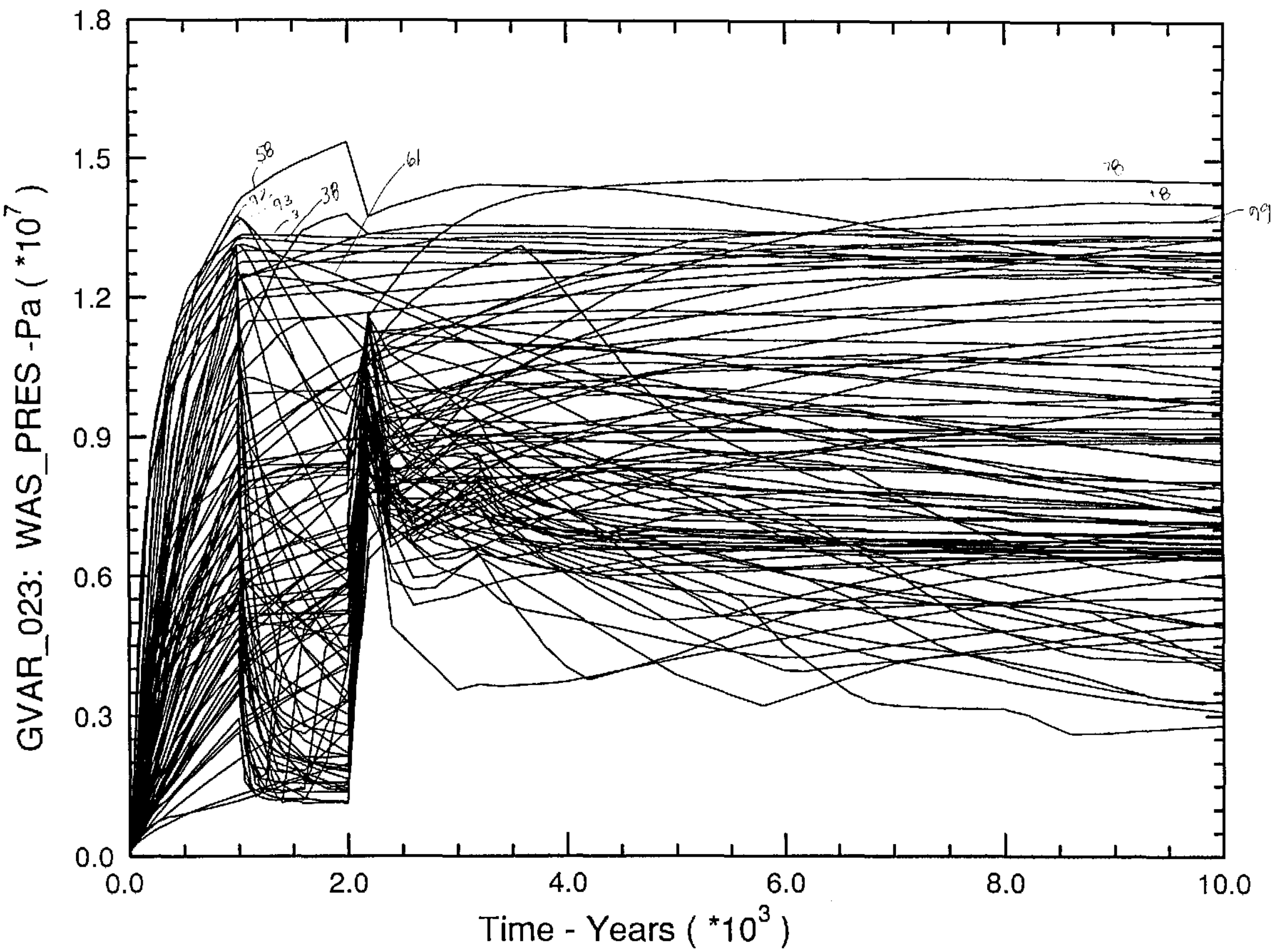
In most realizations, gas is not generated at sufficiently high rates to reach fracture pressures prior to the first intrusion at 1000 years. After the intrusion, the borehole prevents pressures from building up in all but a few realizations to the point where fracturing could again take place. As a consequence, fracturing in the interbeds occurs in only a few realizations (A.2.3-47 [GVAR_113] to A.2.3-52 [GVAR_118]). The most extensive fracturing occurs to the north in Anhydrite a and b and Marker Bed 139, the maximum fracture length is 1000 m and 400 m, respectively. These fracture lengths decreases at later times. In the CCA, most of the fracturing occurs to the north in Marker Bed 138 and Anhydrite a and b, up to 100m.

As in the S3 scenario, DRZ fracturing occurs in about 20 vectors and in most vectors DRZ fractures close in less than 500 years after the borehole intrusion. Significant fracturing in the DRZ occurs in only about 5 realizations, as indicated by increasing DRZ permeability (Figure A.2.3-53 [EX_H033]). Vector #78 exhibits the largest DRZ permeability increase (vector with highest permeability after 4000 years). This vector had a low borehole permeability (rank of 5), a low marker bed permeability (rank of 8), and a relatively high initial DRZ porosity (rank of 61). DRZ porosity increases, indicative of DRZ fracturing are also evident in several realizations (Figure A.2.3-54 [EX_H022]). Only one realization (#78) results in a long-term DRZ permeability greater than 1×10^{-12} m^2 and porosity greater than 0.03. Mean, median, and maximum values for DRZ permeability and porosity are shown in Table A.1-3.

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Volume-Averaged Pressure in Waste Panel

Fig. A.2.3-1



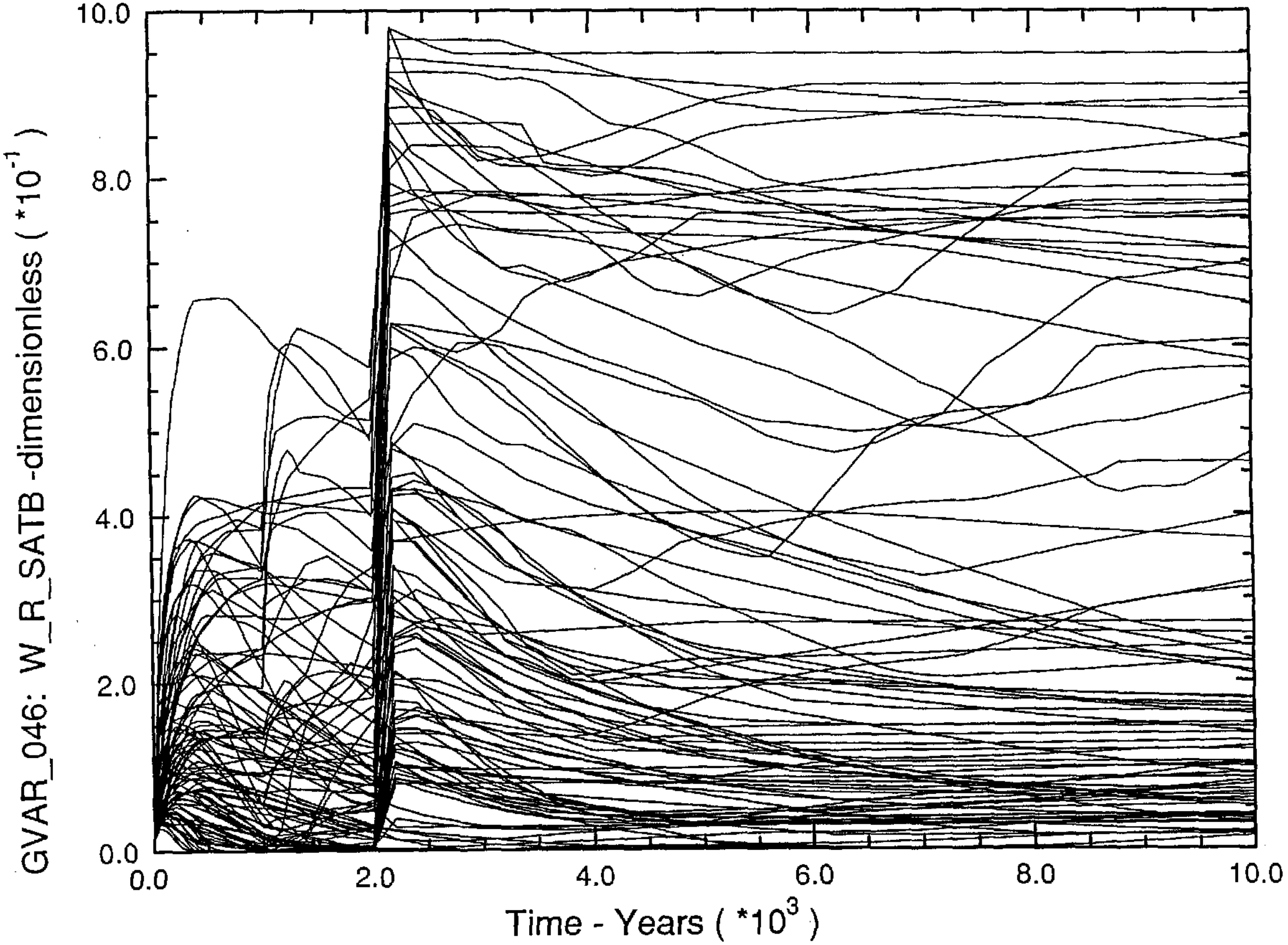
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H023.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:25:46

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Volume-Averaged Brine Saturation in Waste Panel plus Rest of Repository

Fig. A.2.3-2



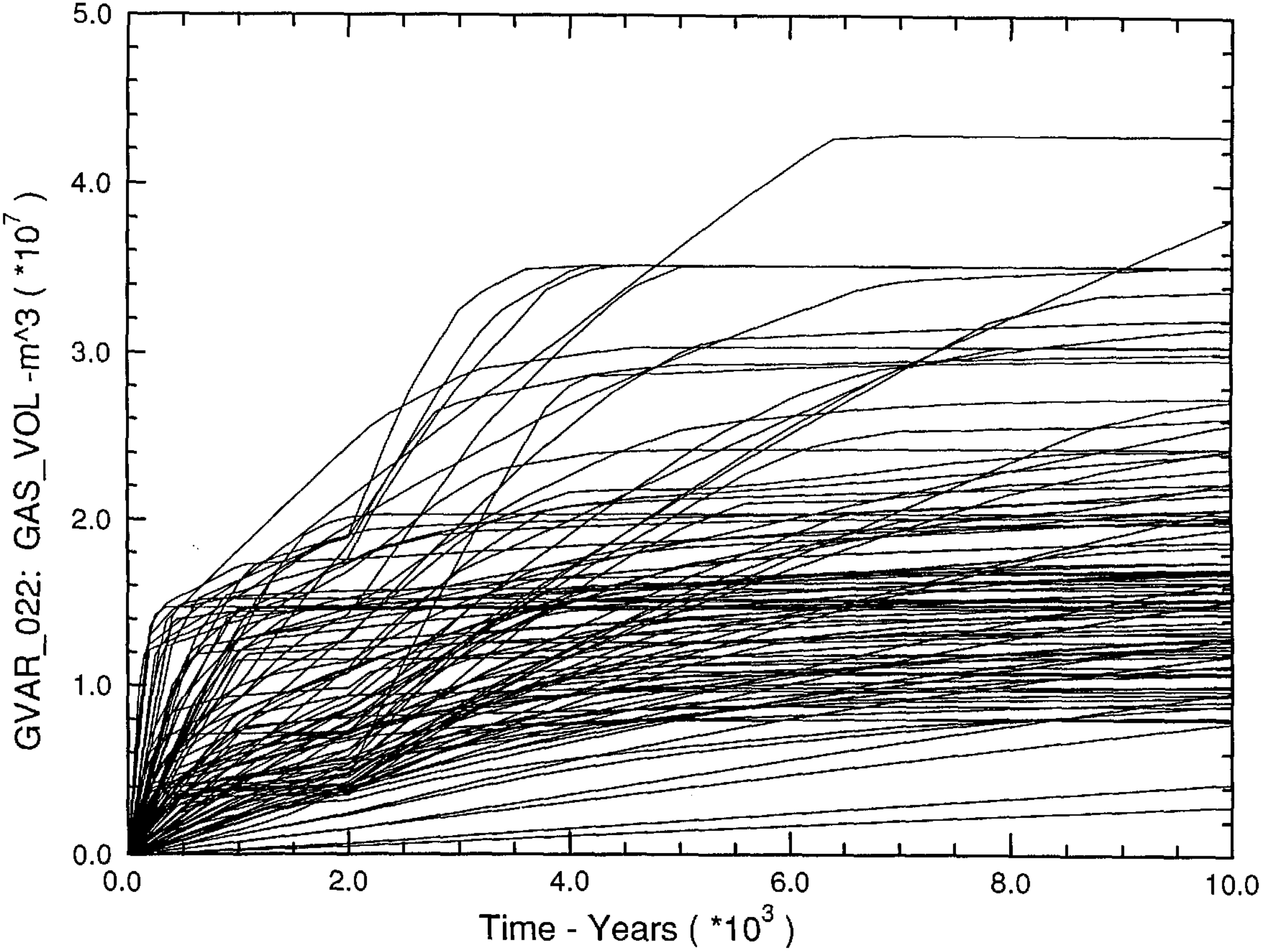
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H046.INP;1

SPLAT_PA96_2 1.02 05/27/97 10:54:29

Fig. A.2.3-3

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Total Gas Volume Generated



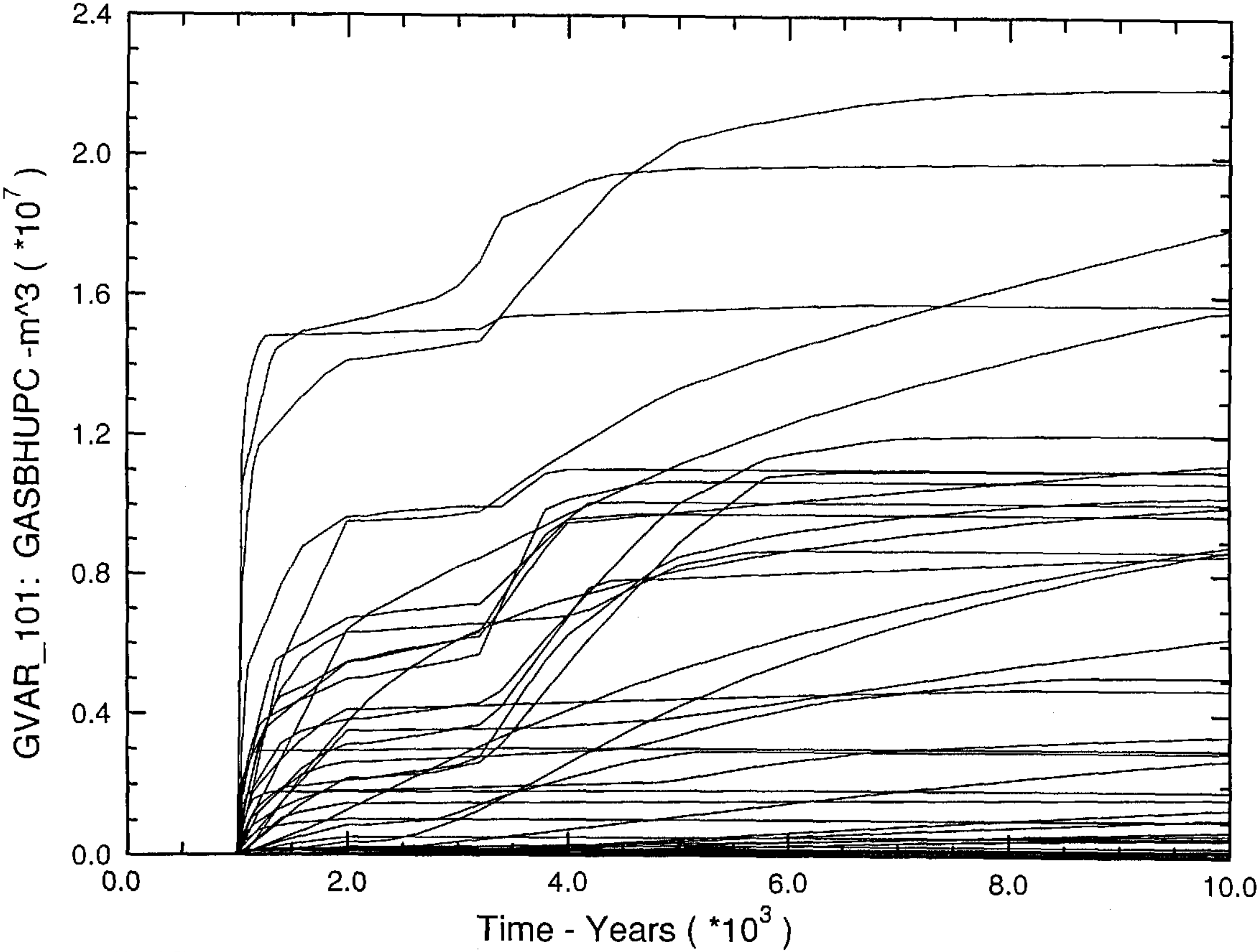
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H022.INP;1

SPLAT_PA96_2 1.02 05/27/97 09:21:45

Fig. A.2.3-4

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Gas Flow up Borehole at Top of Panel (E:471)



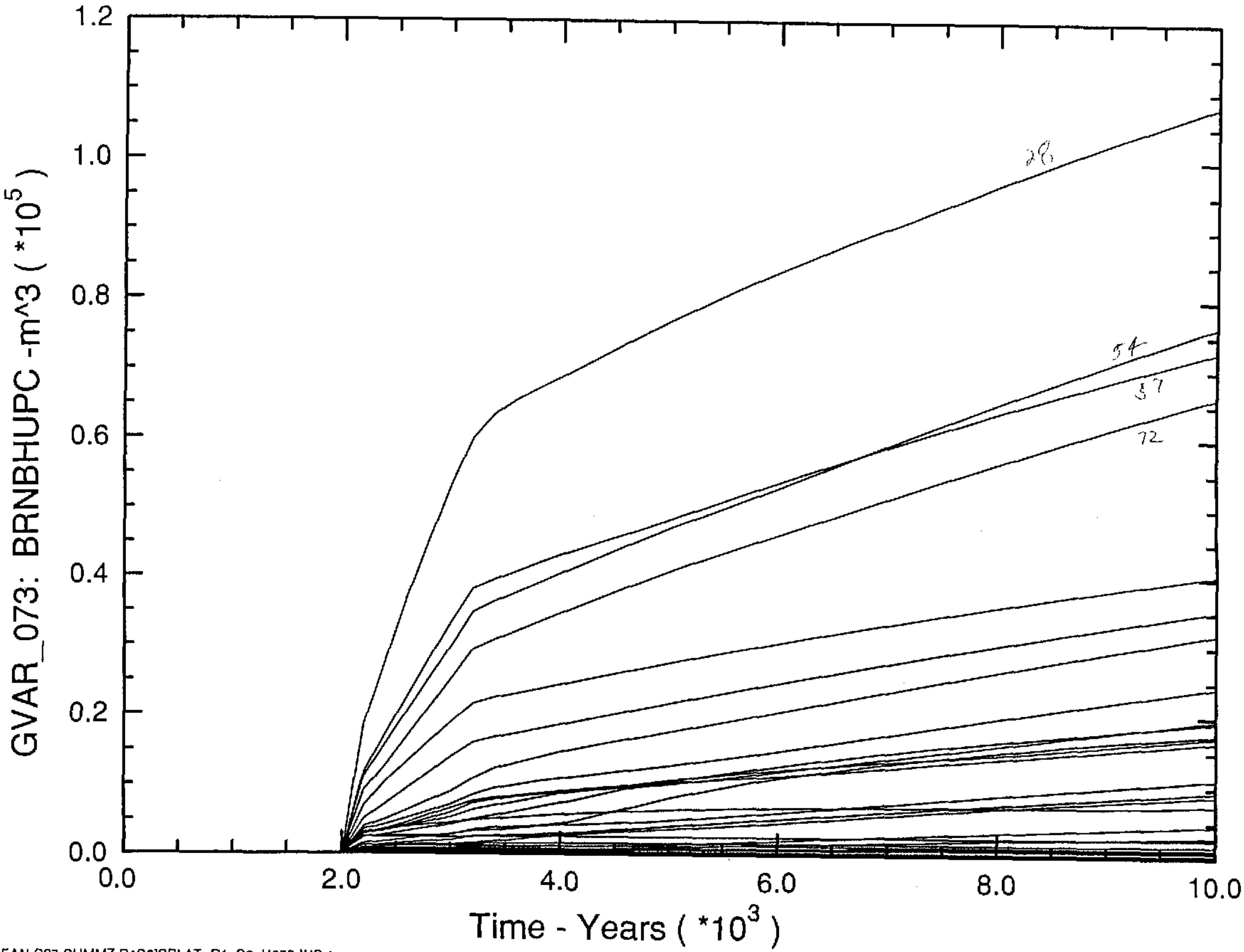
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H101.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:16:41

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Up Borehole at Top of Panel

Fig. A.2.3-5



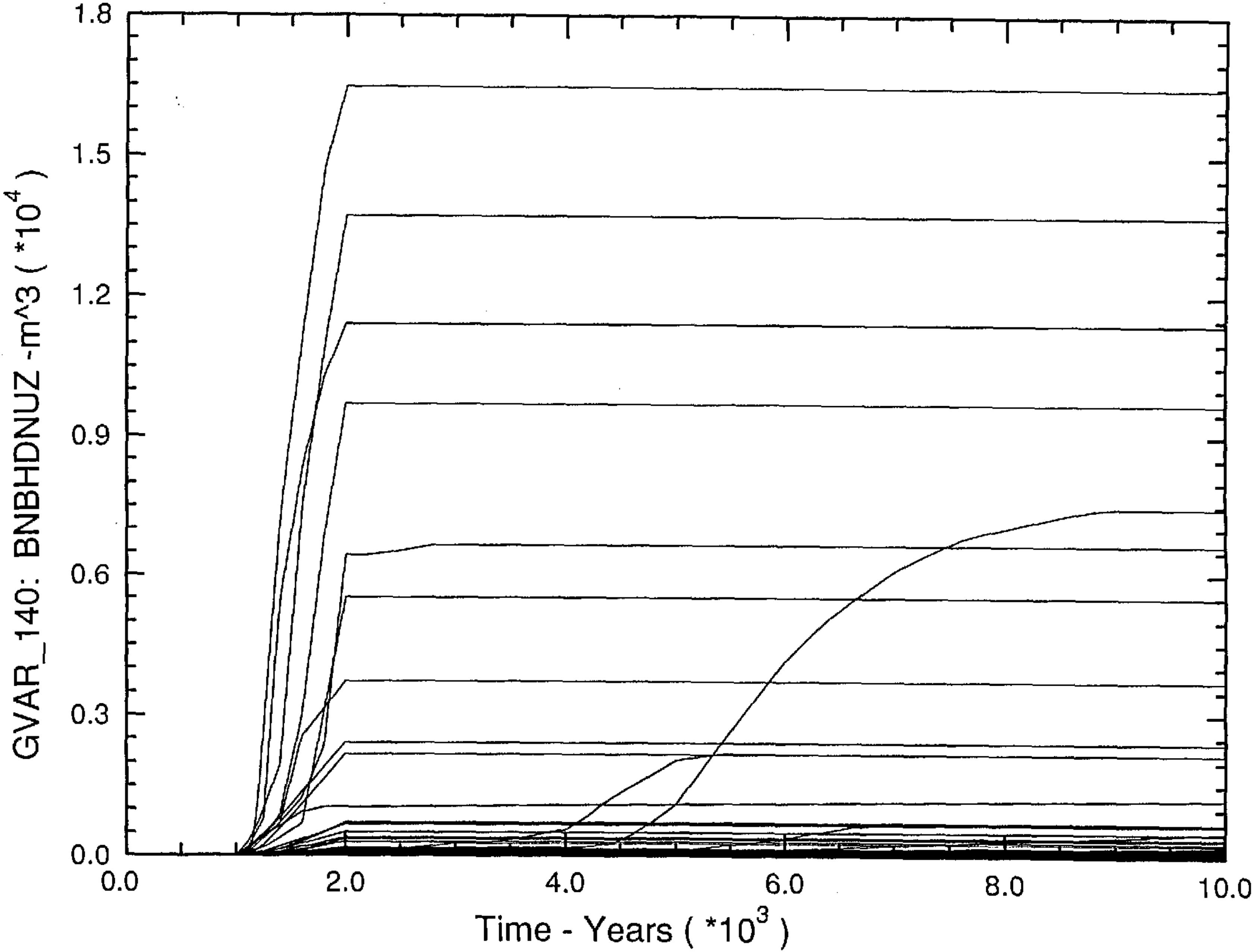
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H073.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:36:33

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Down Borehole at MB 138 (E:223)

Fig. A.2.3-6



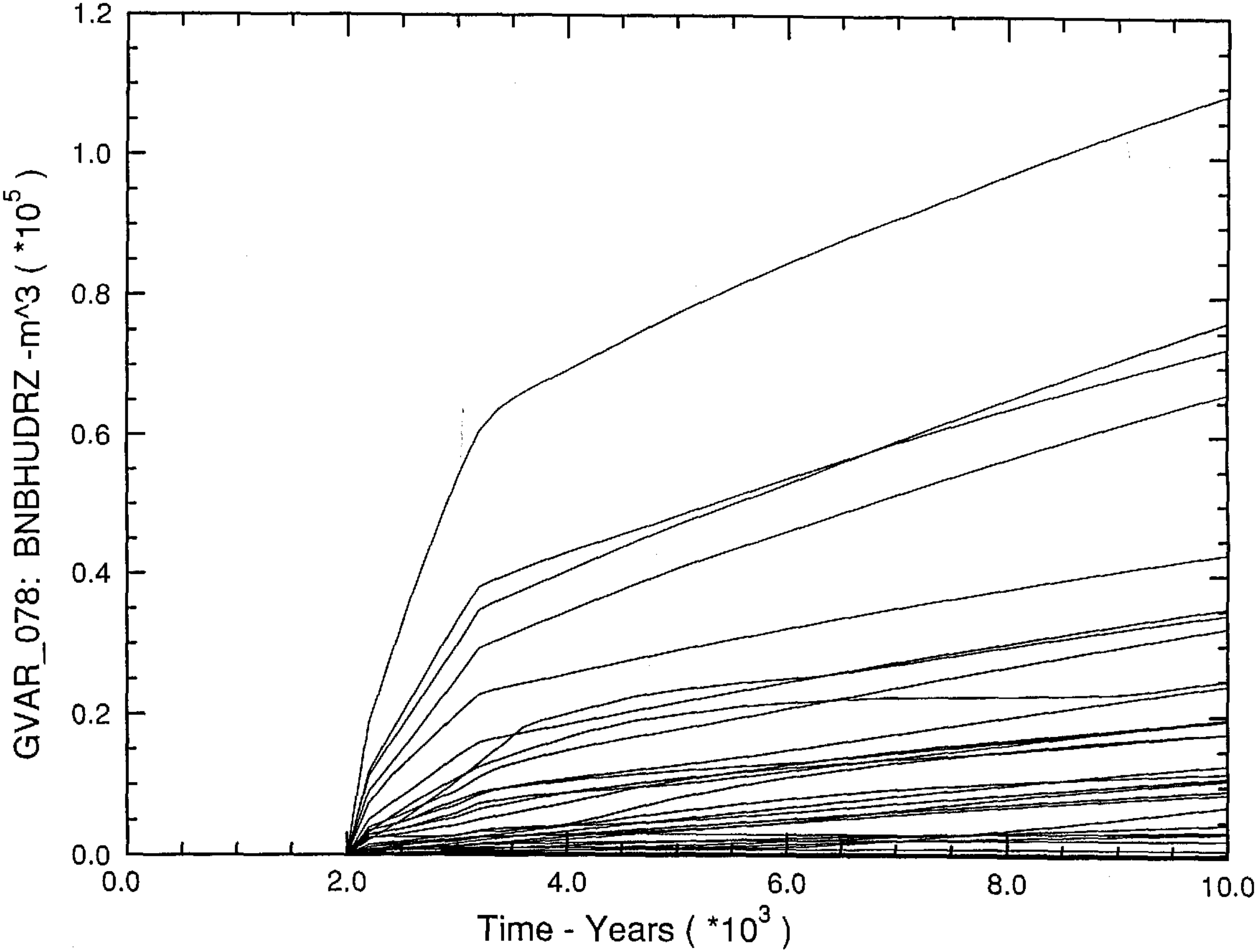
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H140.INP;1

SPLAT_PA96_2 1.02 05/28/97 10:17:39

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow up Borehole from Top of Upper DRZ (E:575)

Fig A.2.3-7



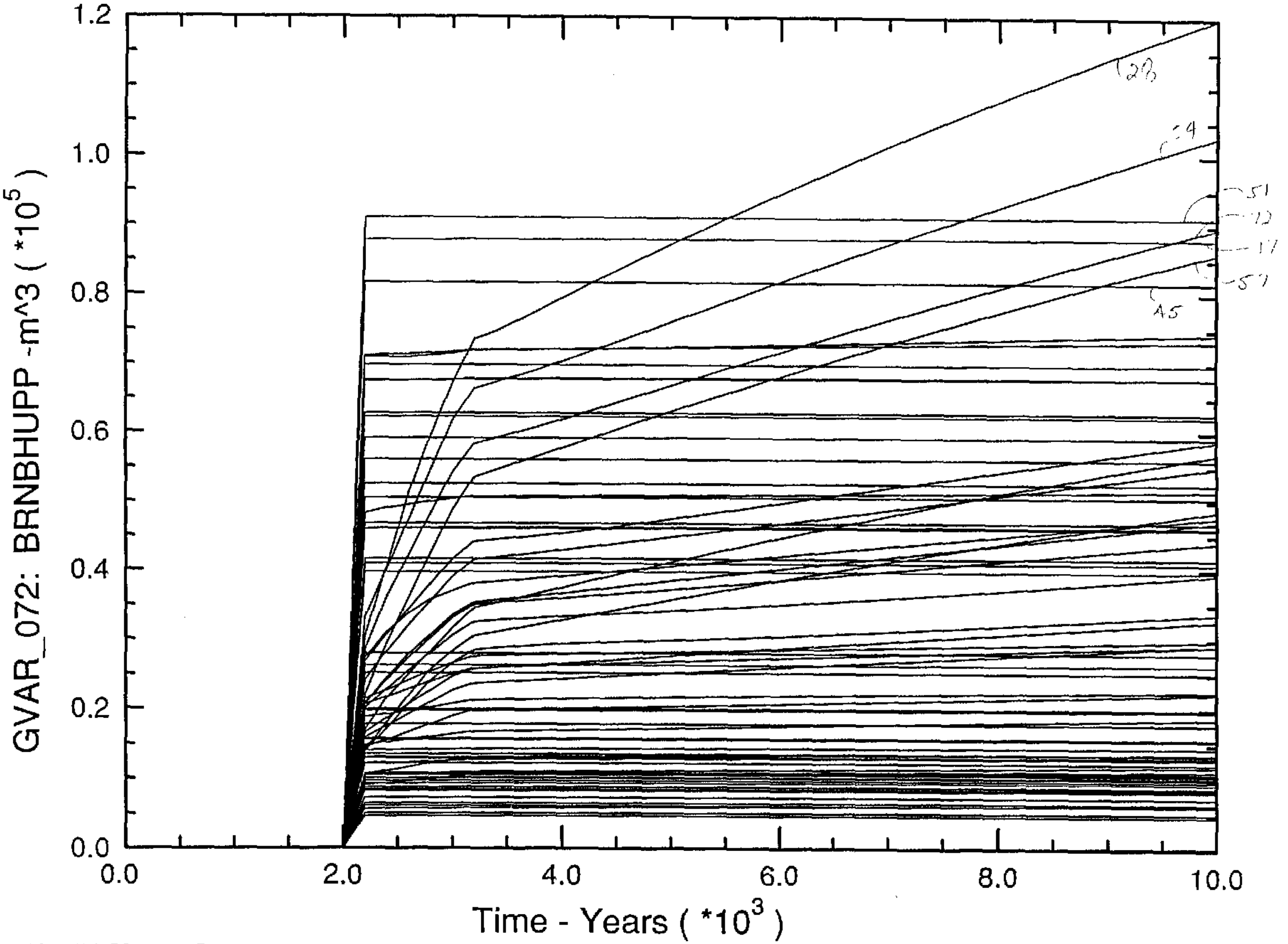
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H078.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:54:21

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow up Borehole at Bottom of Panel (E:599)

Fig. A.2.3-8



1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H072.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:33:03

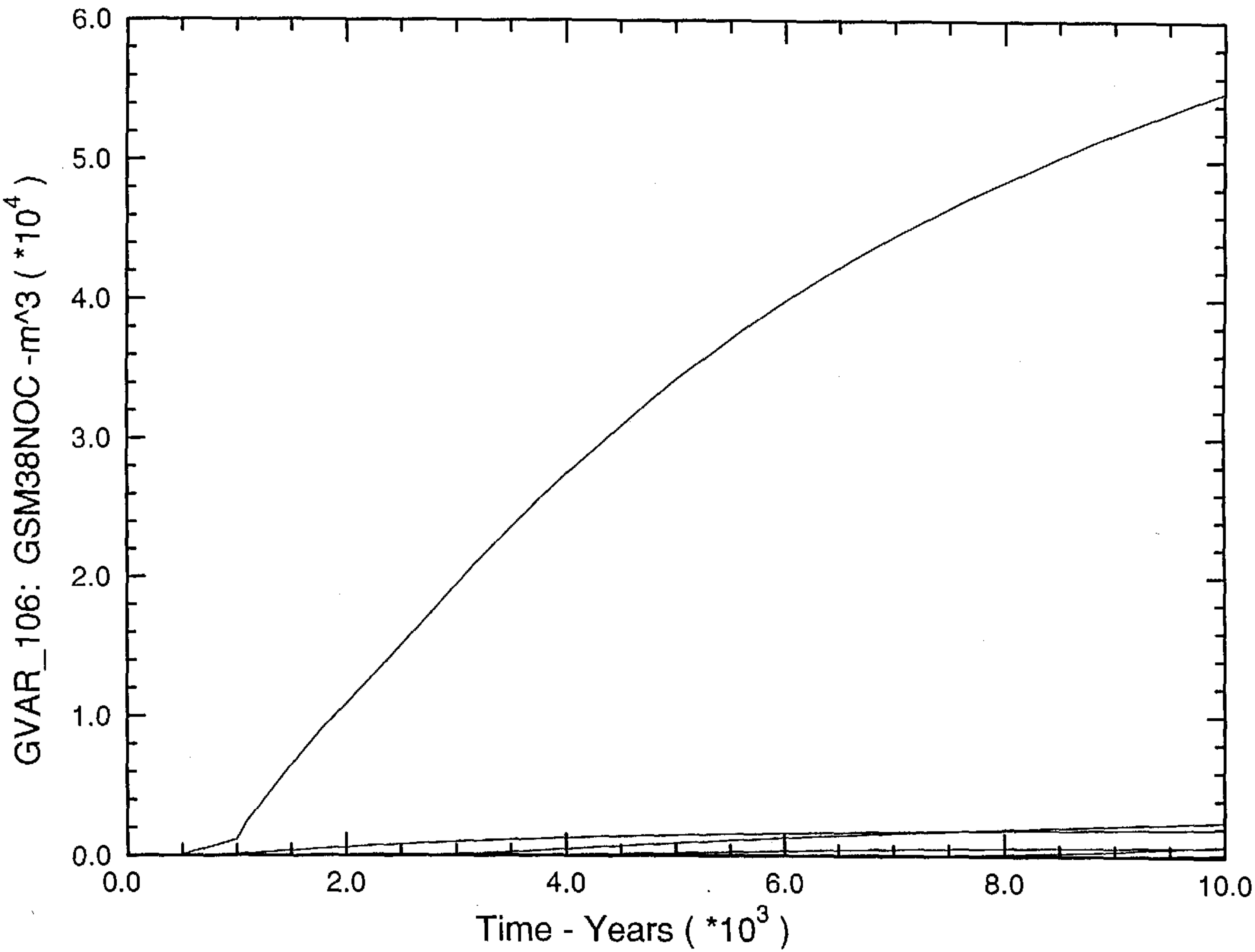
Figures corresponding to the following CCA Figures were not used.

CCA Fig. 7.2.3-9
-10
-11
-12
-13
-14
-15

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Gas Flow from DRZ into North MB 138

Fig. A.2.3-16



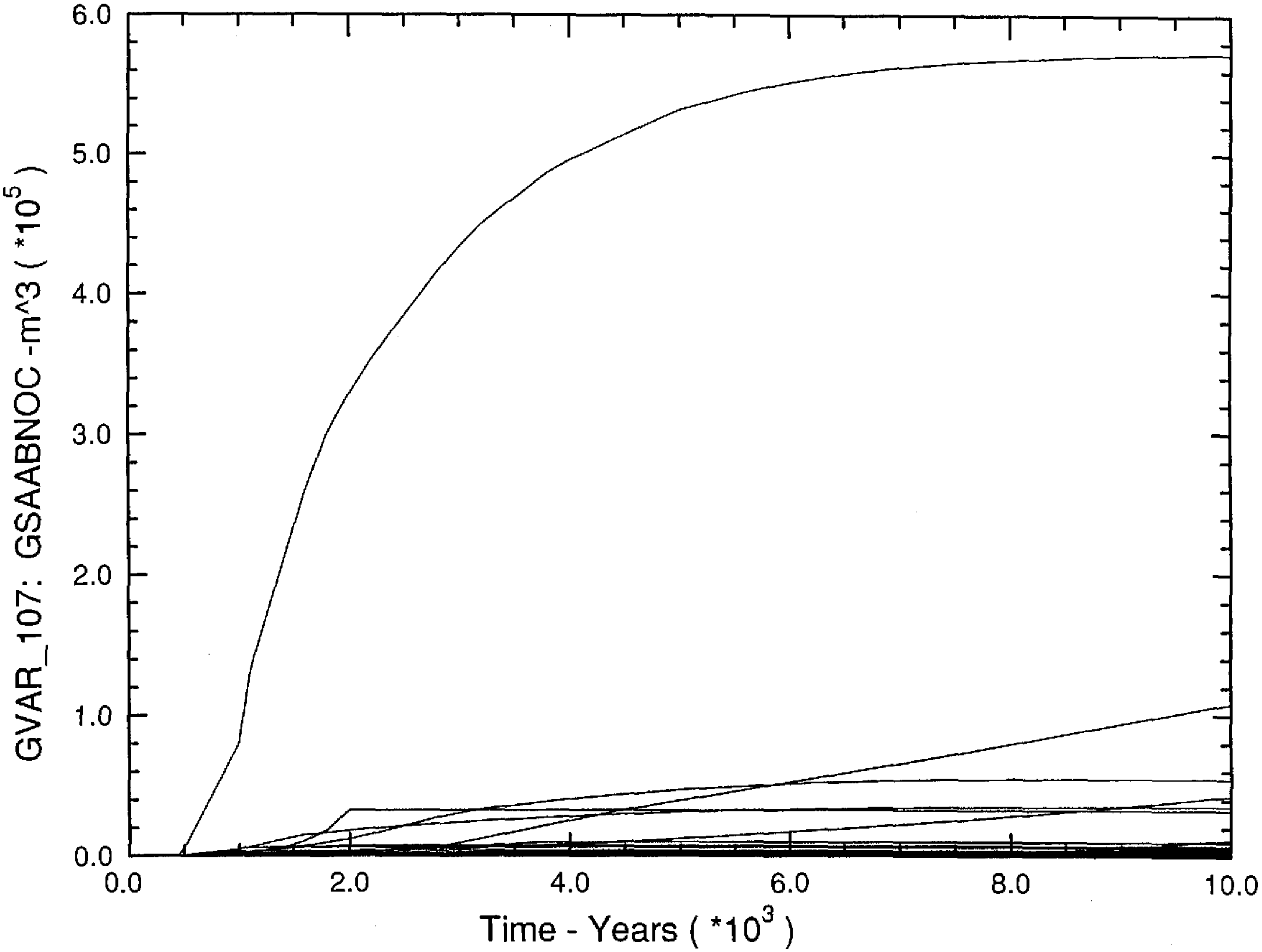
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H106.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:34:55

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Gas Flow from DRZ into North Anhydrite A/B

Fig. A.2.3-17



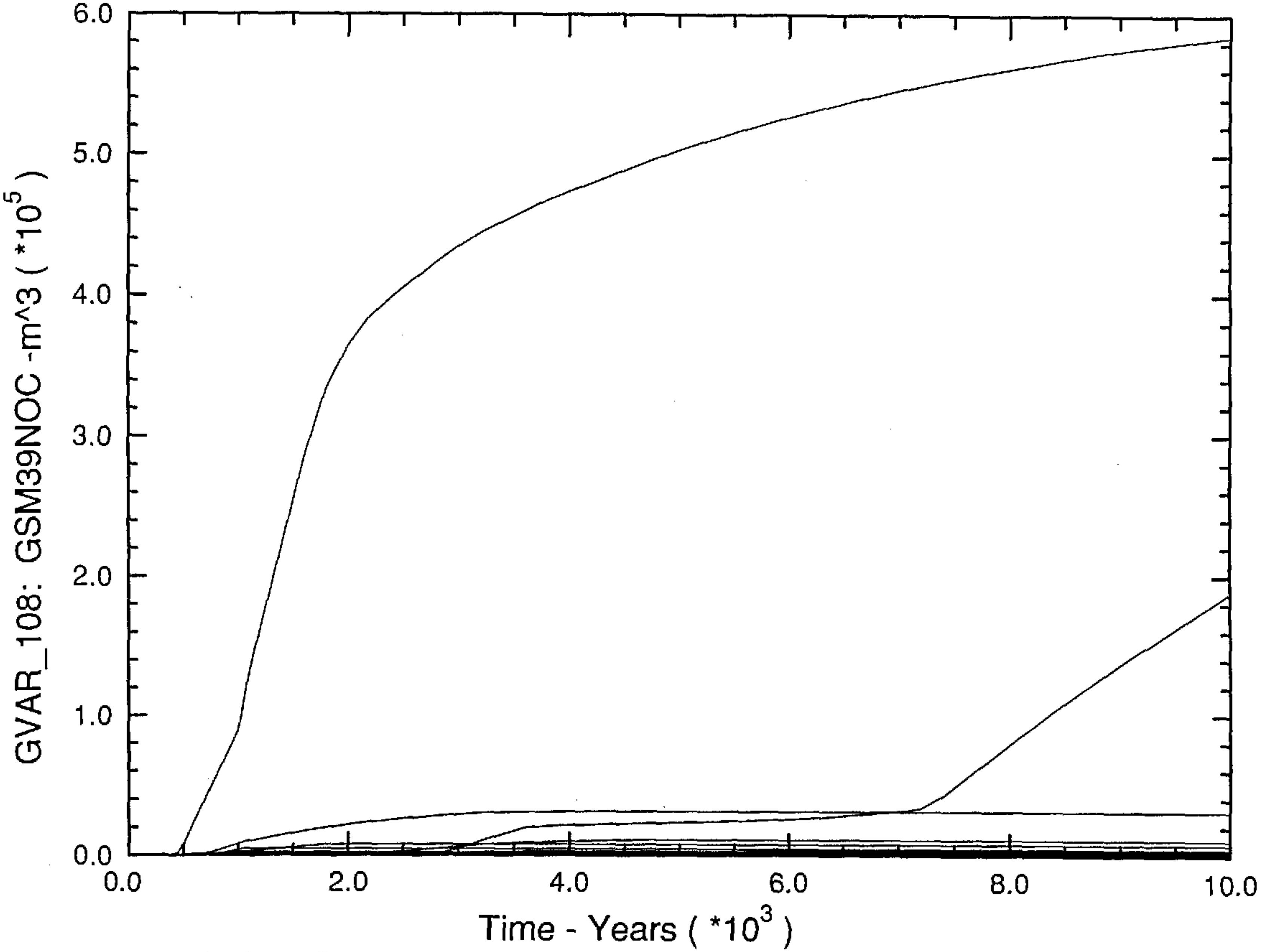
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H107.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:38:26

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Gas Flow from DRZ into North MB 139

Fig. A.2.3-18



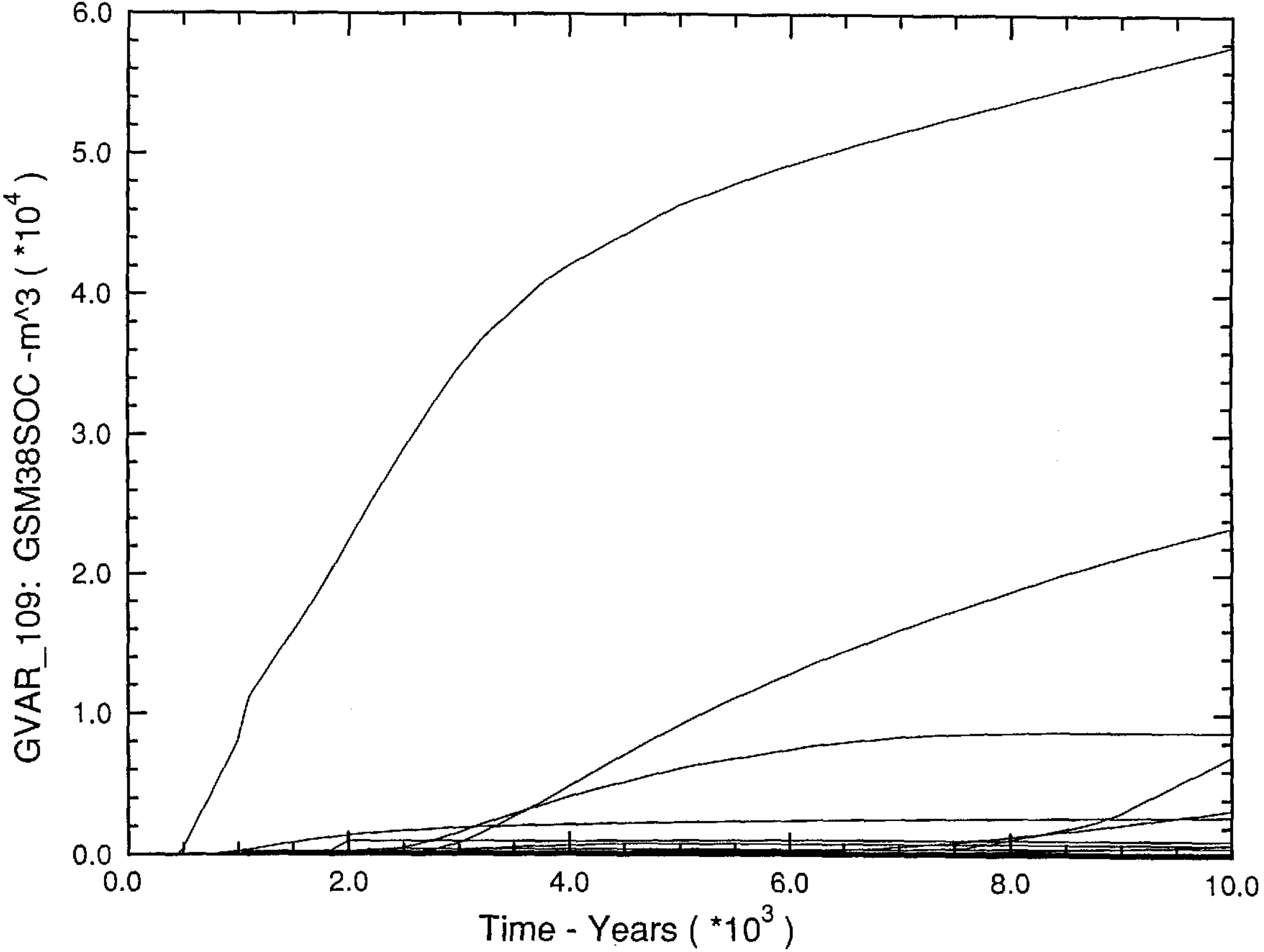
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H108.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:41:58

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Gas Flow from DRZ into South MB 138

Fig A.2.3-19



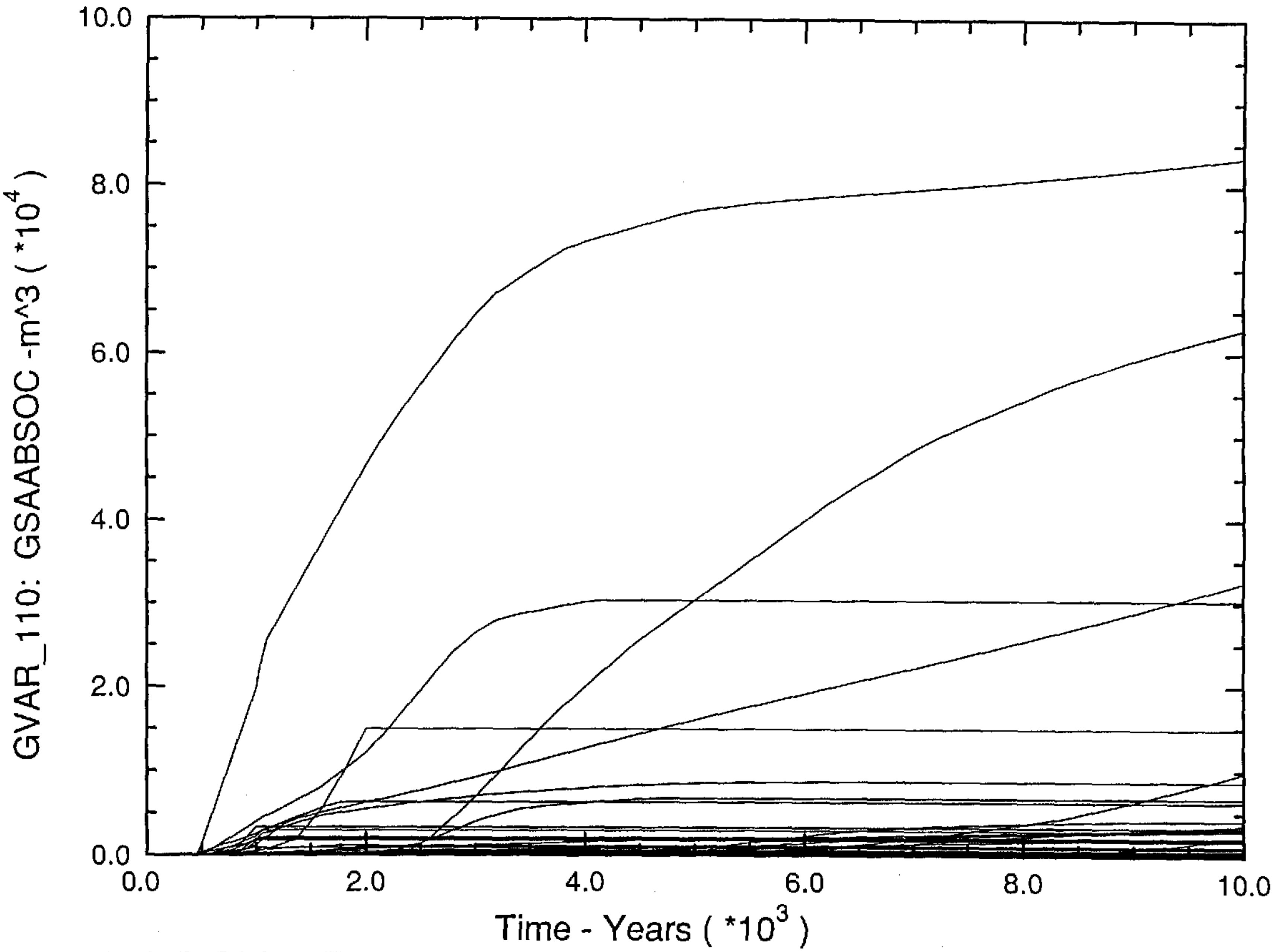
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H109.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:45:29

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Gas Flow from DRZ into South Anhydrite A/B

Fig. A.2.3-20



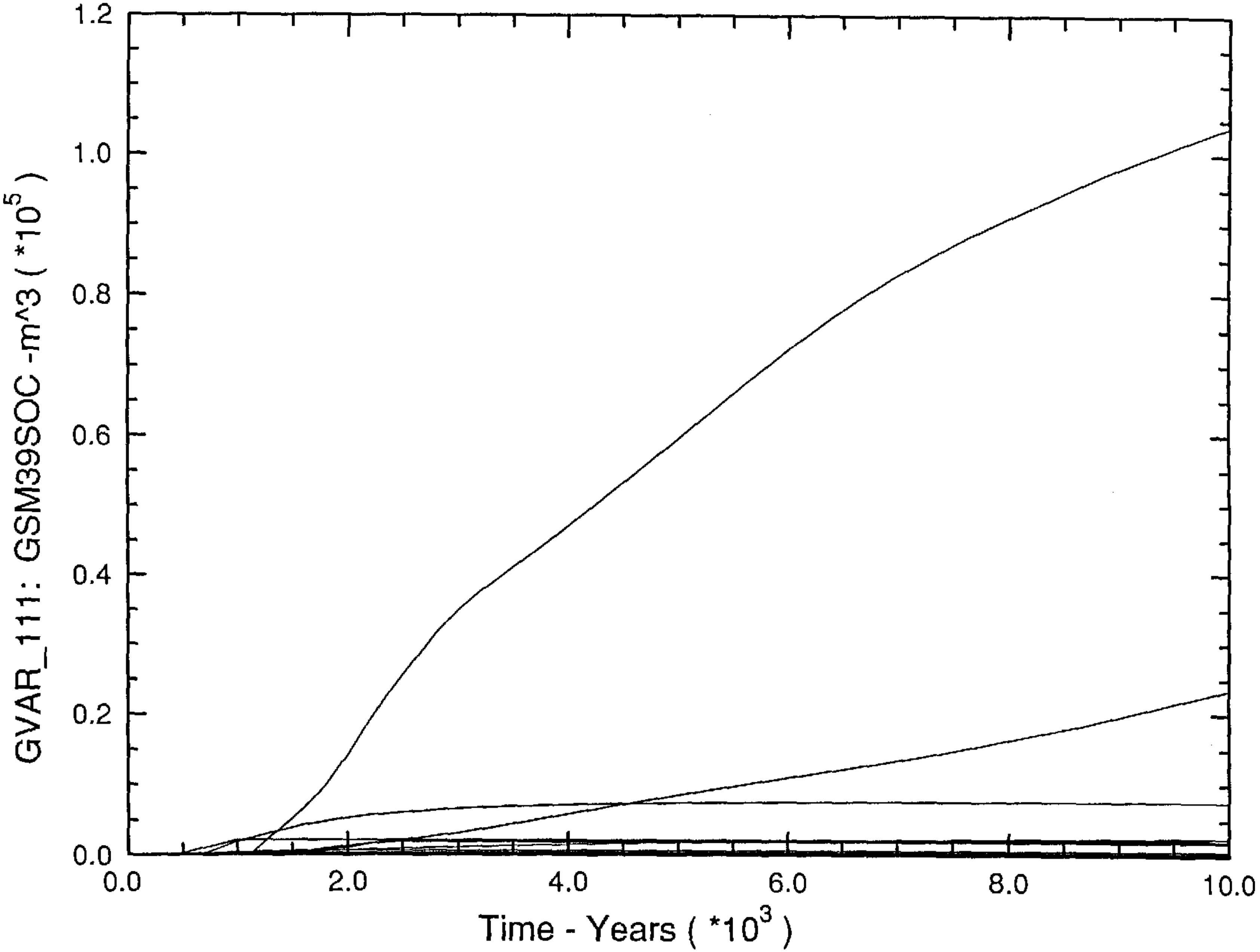
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H110.INP;1

05/27/97 14:49:00

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Gas Flow from DRZ into South MB 139

Fig. A.2.3-21



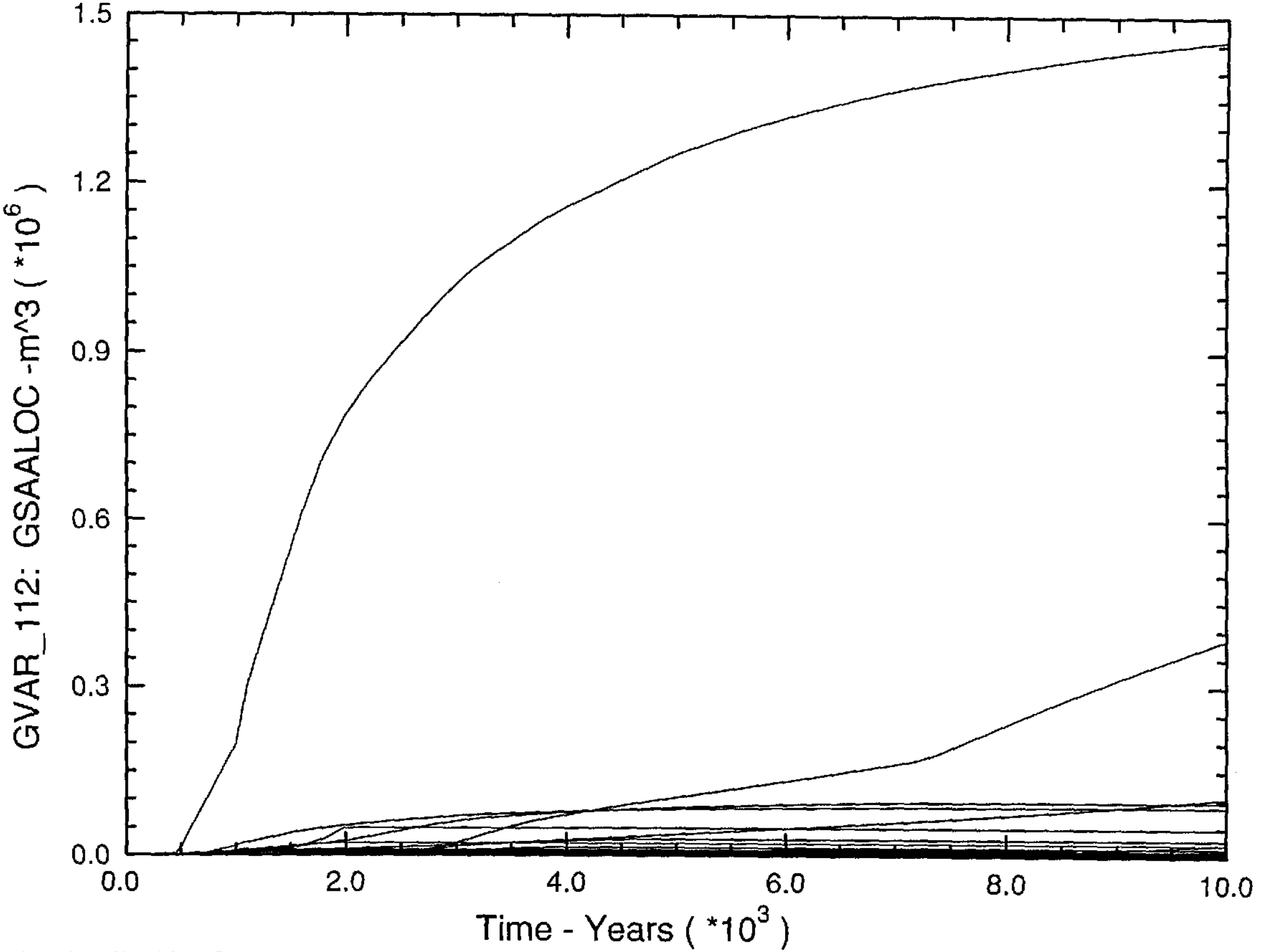
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H111.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:52:56

SNL WIPP C97: BRAGFLO SIMU TIONS (C97 R1 S6)

Cumulative Gas Flow from DRZ into Marker Beds

Fig. A.2.3-22



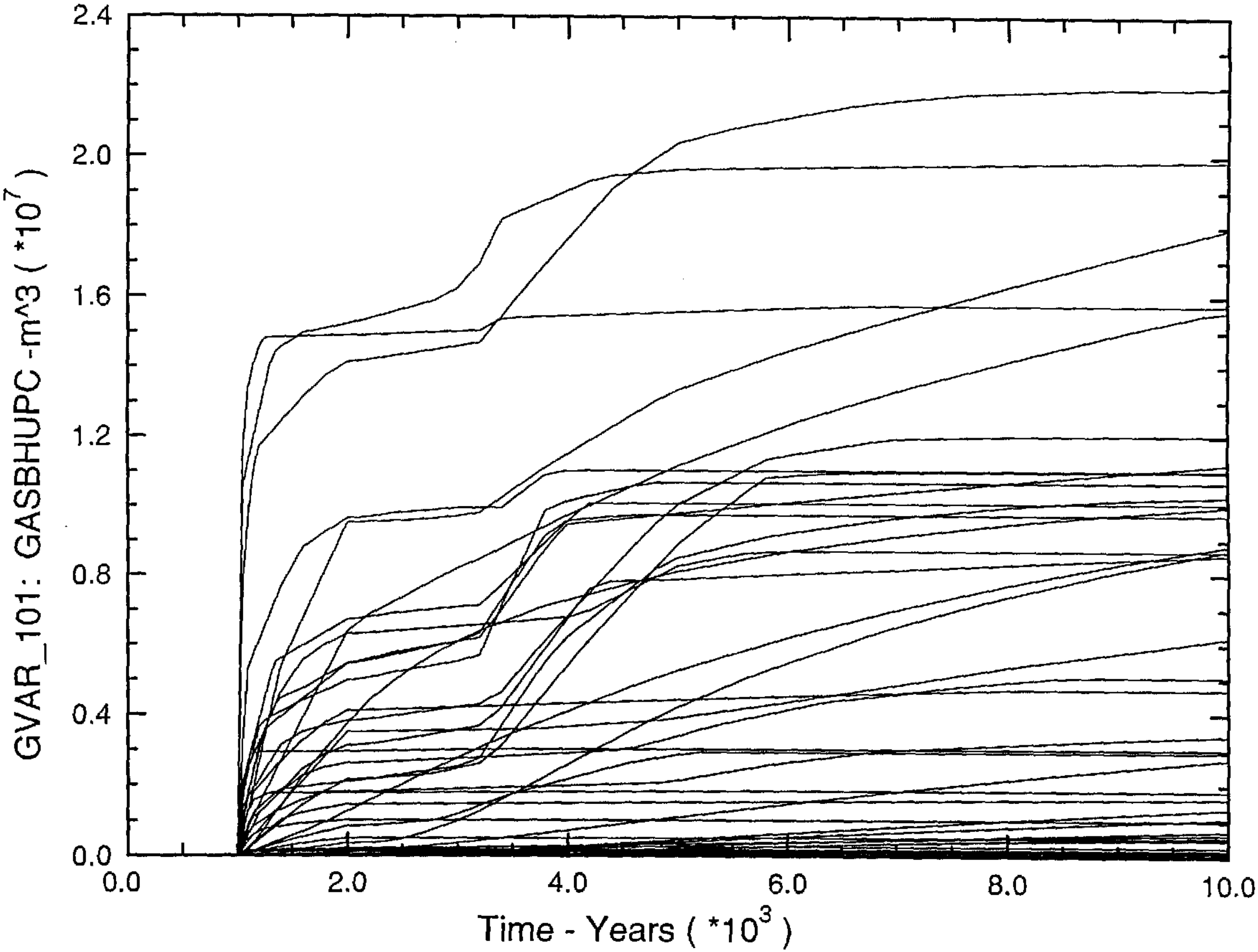
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H112.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:56:42

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Gas Flow up Borehole at Top of Panel (E:471)

Fig. A.2.3-23



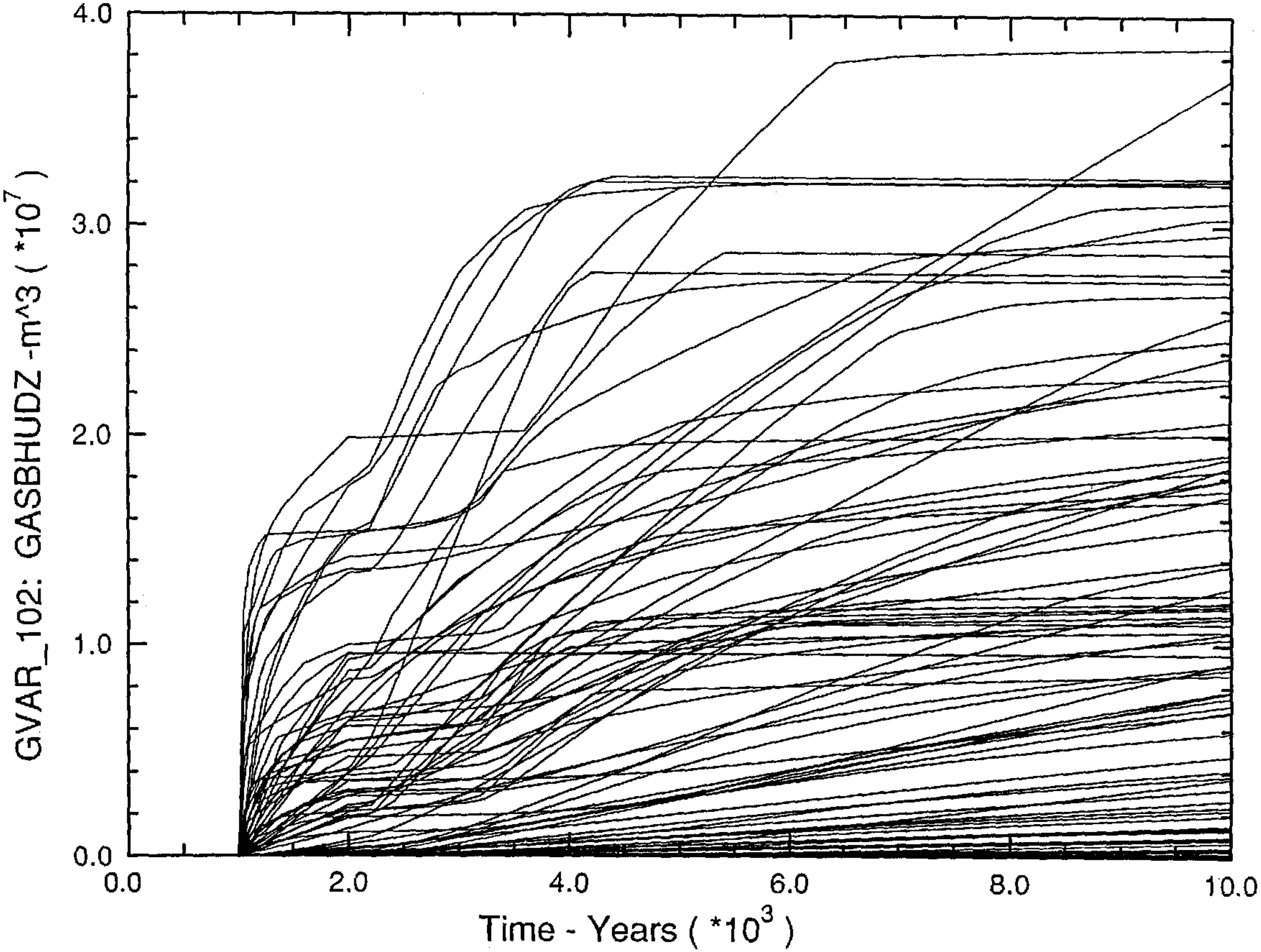
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H101.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:16:41

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Gas Flow Out of Upper DRZ at Borehole (E:575)

Fig. A.7.3-24



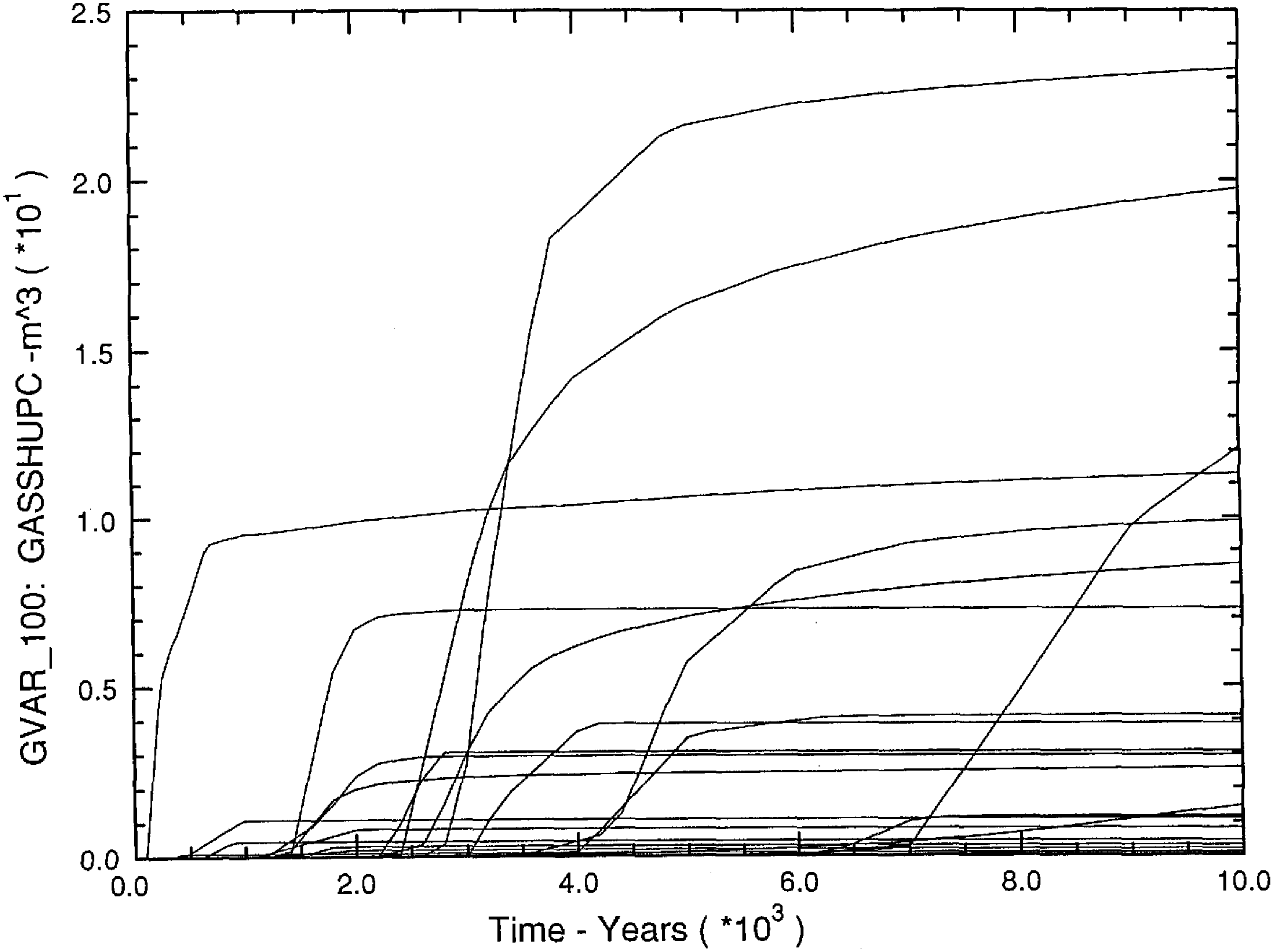
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H102.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:20:33

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Gas Flow up Shaft at Top of Salado (E:661)

Fig. A.2.3-25



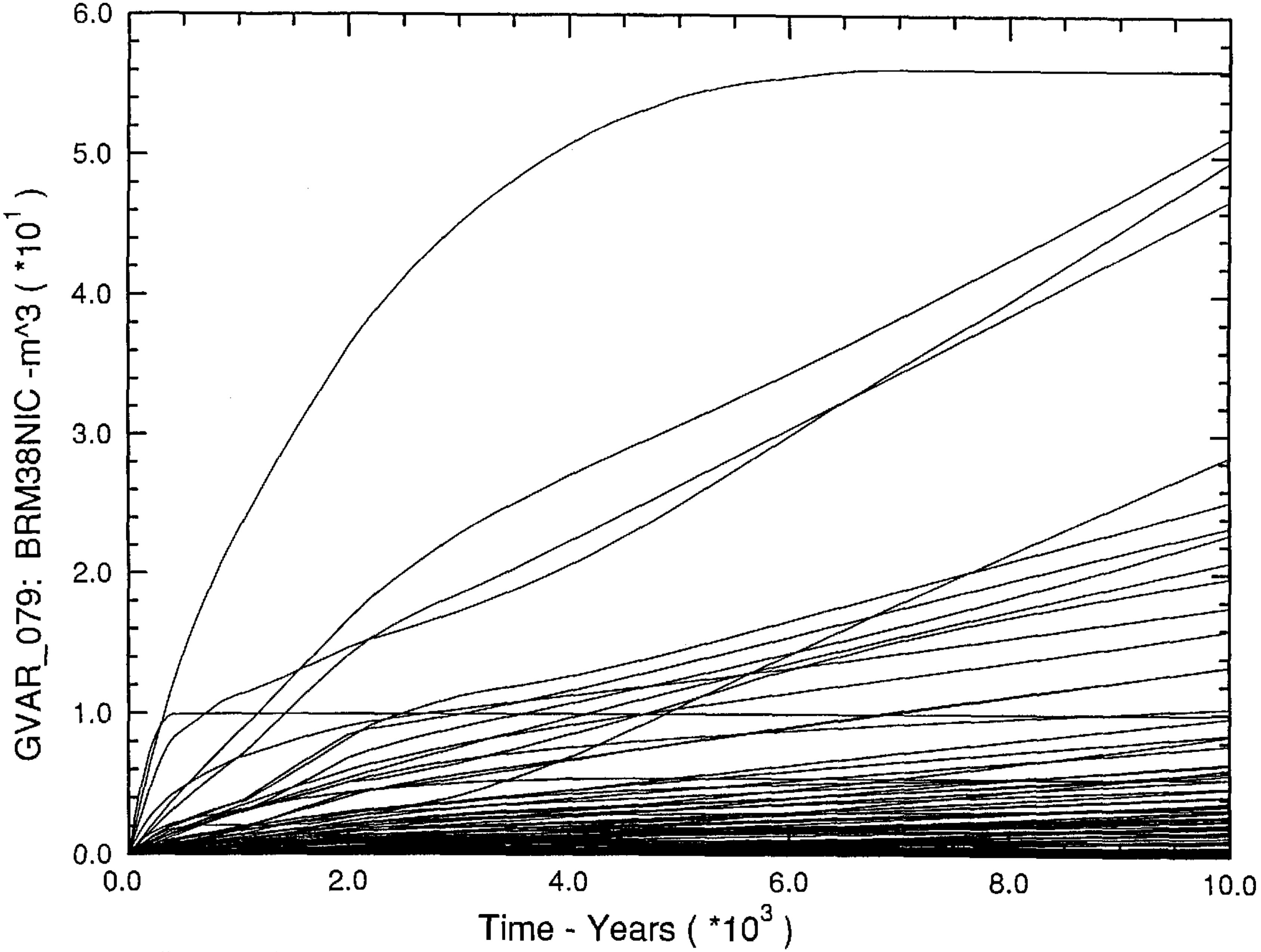
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H100.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:13:10

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of North MB 138 into DRZ

Fig. A.2.3 - 26



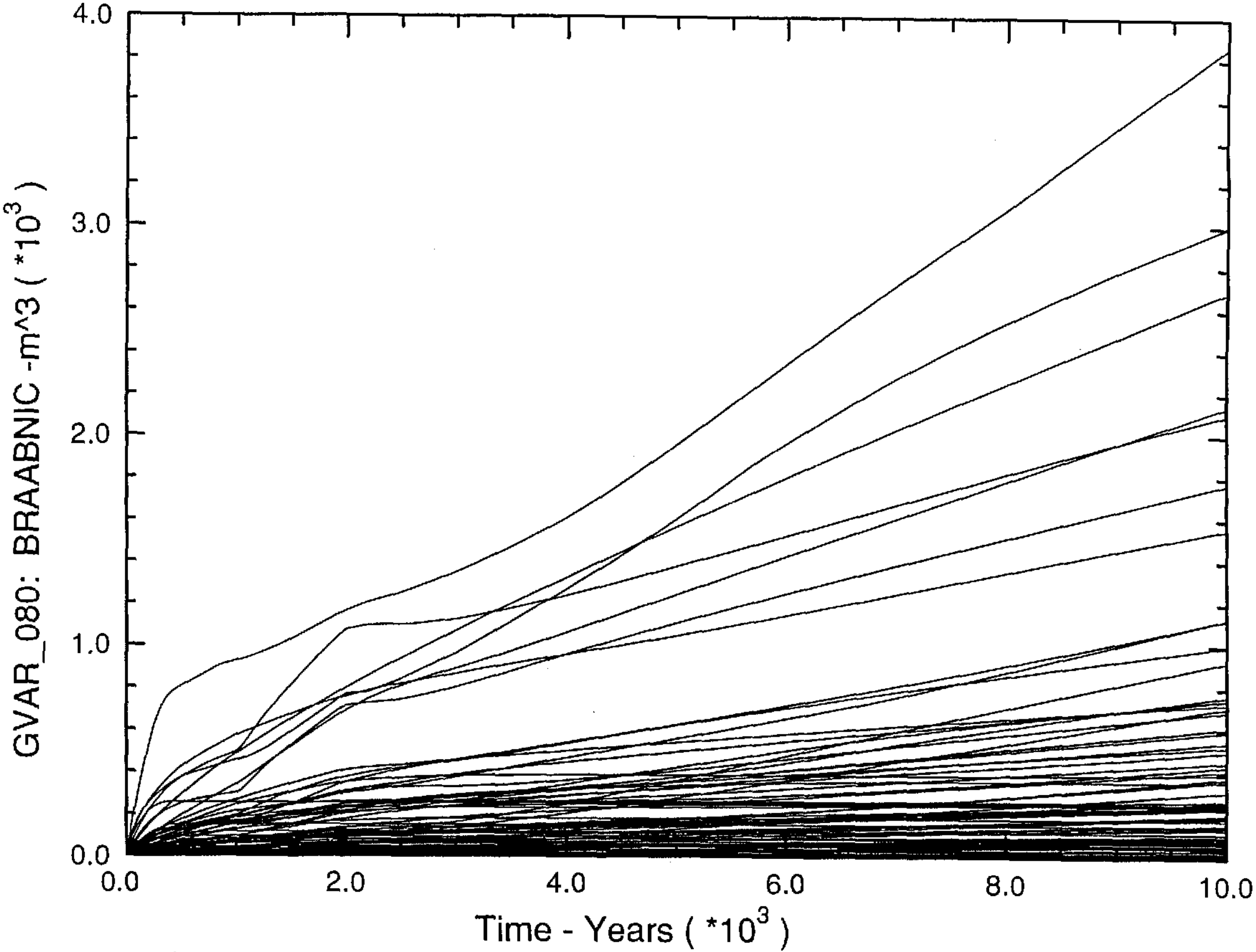
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H079.INP;1

SPLAT_PA96_2 1.02 05/27/97 12:57:47

Fig A.2.3-27

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of North Anhydrite A/B into DRZ



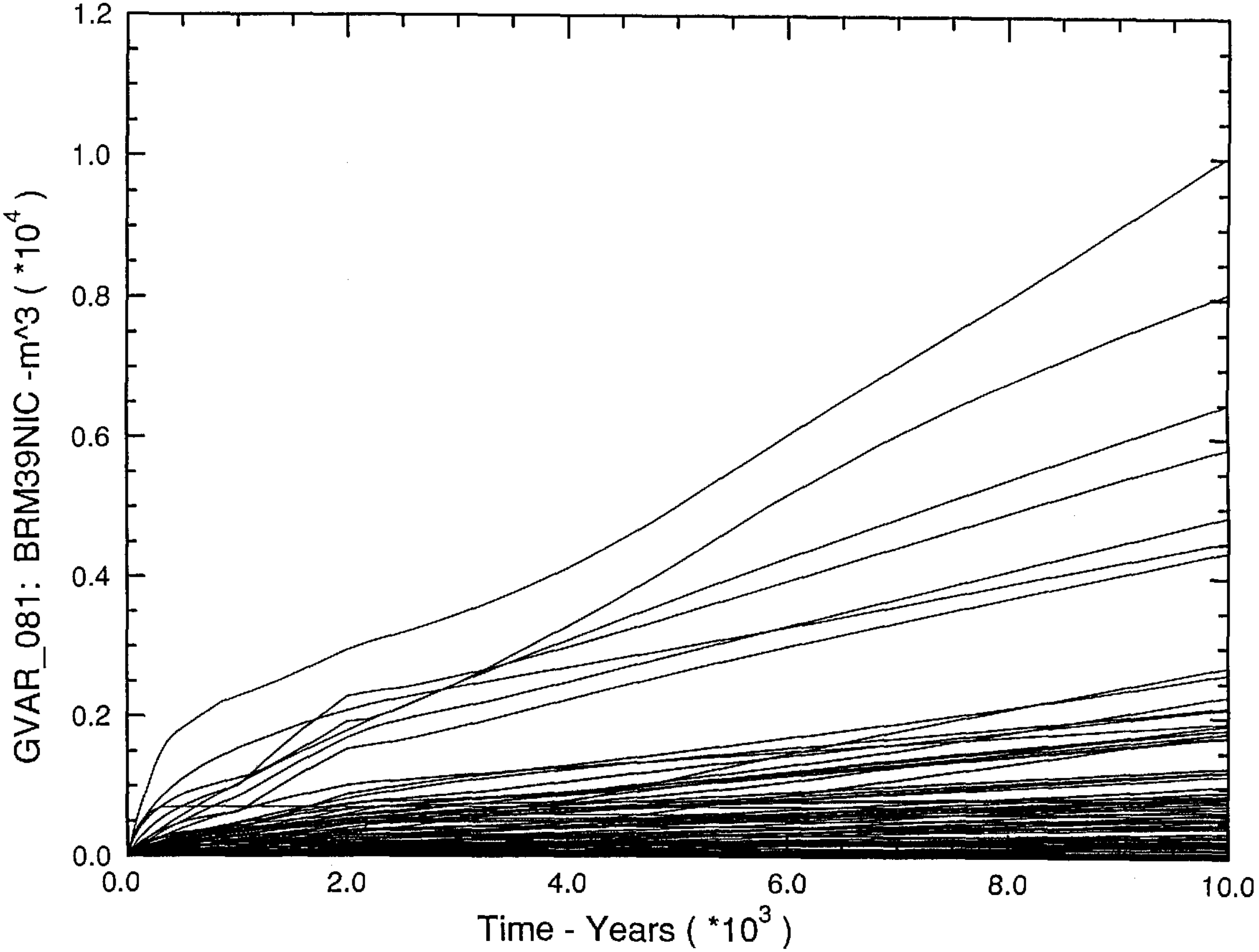
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H080.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:01:17

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of North MB 139 into DRZ

Fig. A.2.3-28



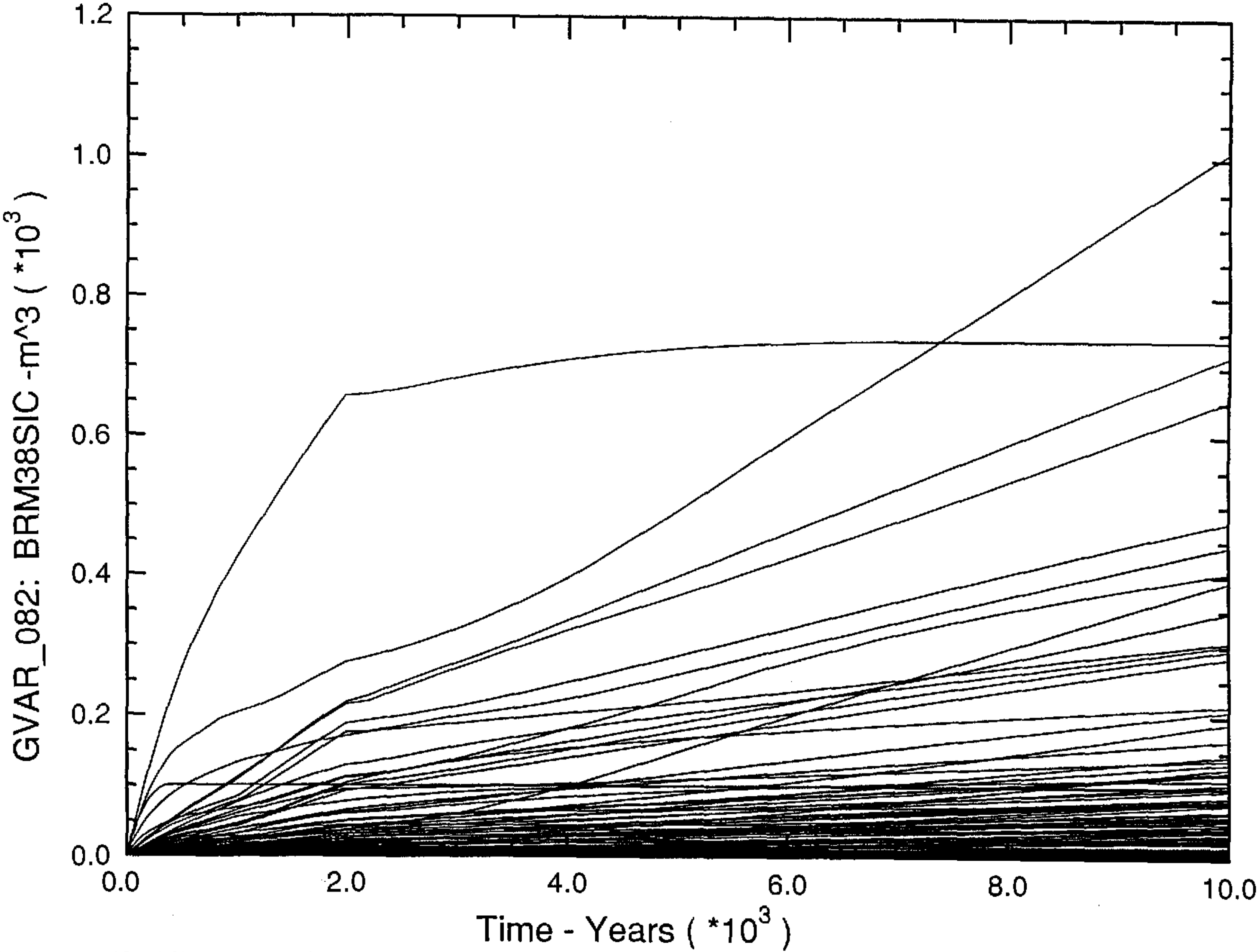
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H081.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:04:57

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of South MB 138 into DRZ

Fig. A.2.3-29



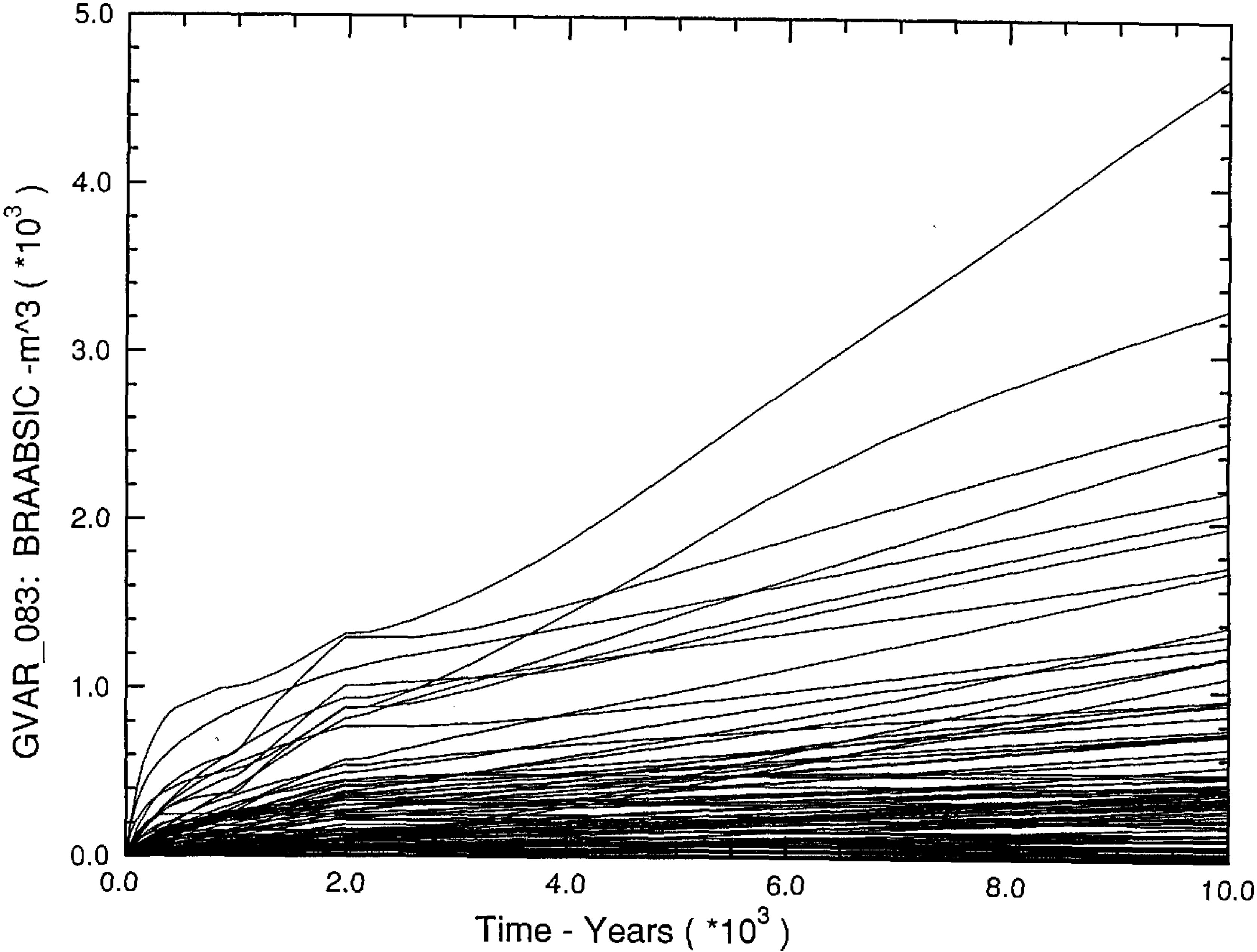
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H082.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:08:35

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of South Anhydrite A/B into DRZ

Fig A.2.3-30



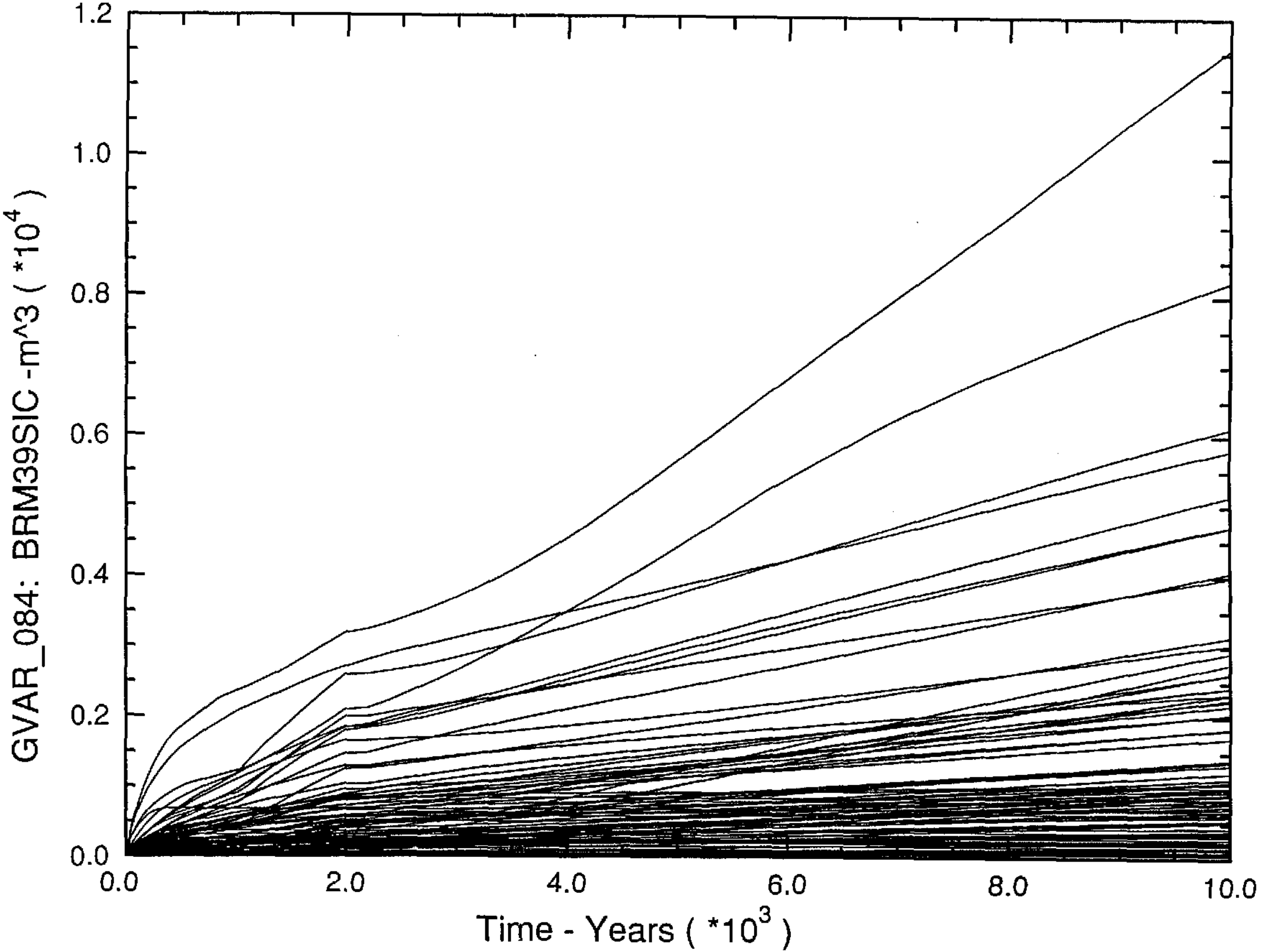
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H083.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:12:23

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of South MB 139 into DRZ

Fig A.2.3-31



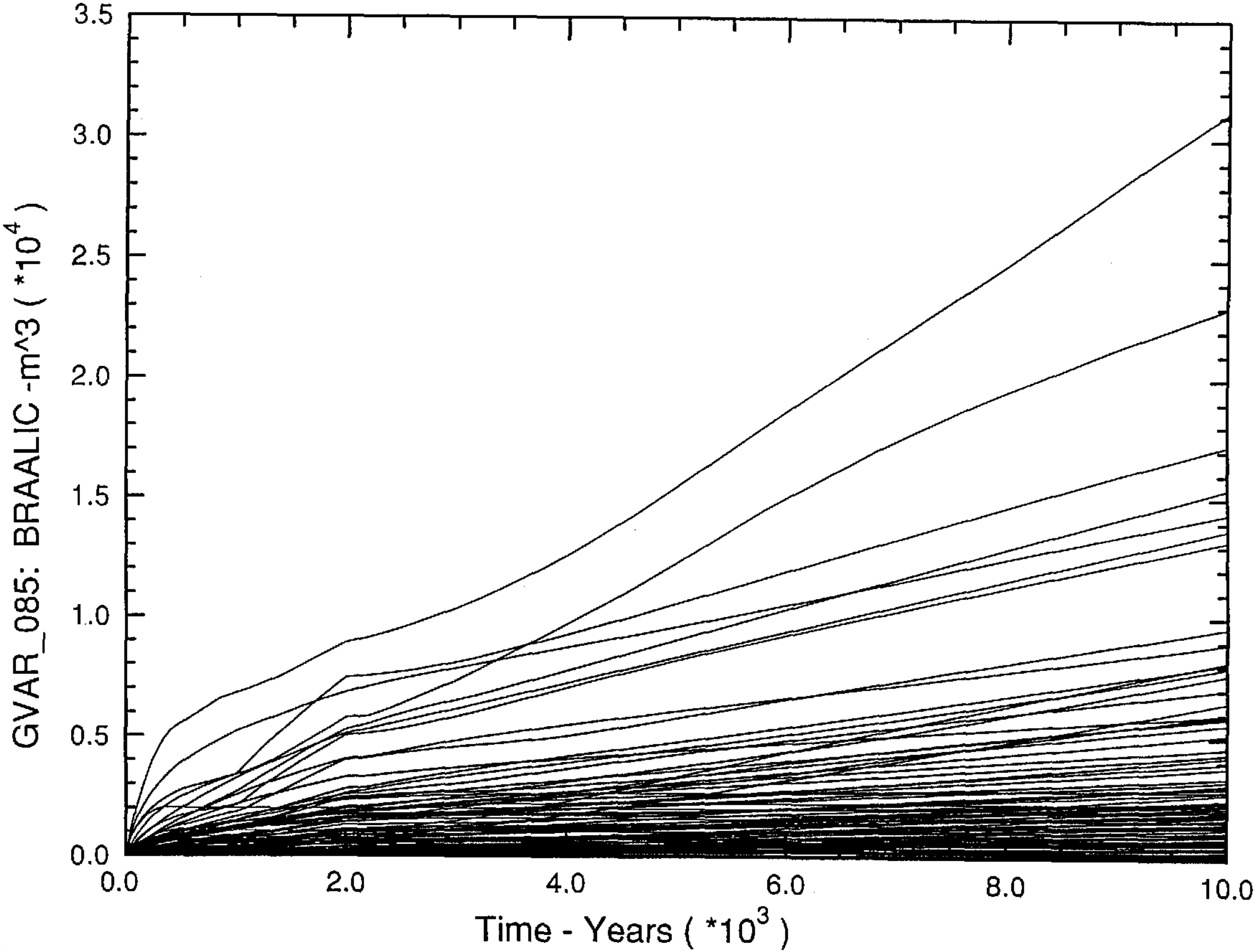
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H084.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:16:09

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow into DRZ from All Marker Beds

Fig A.2.3-32



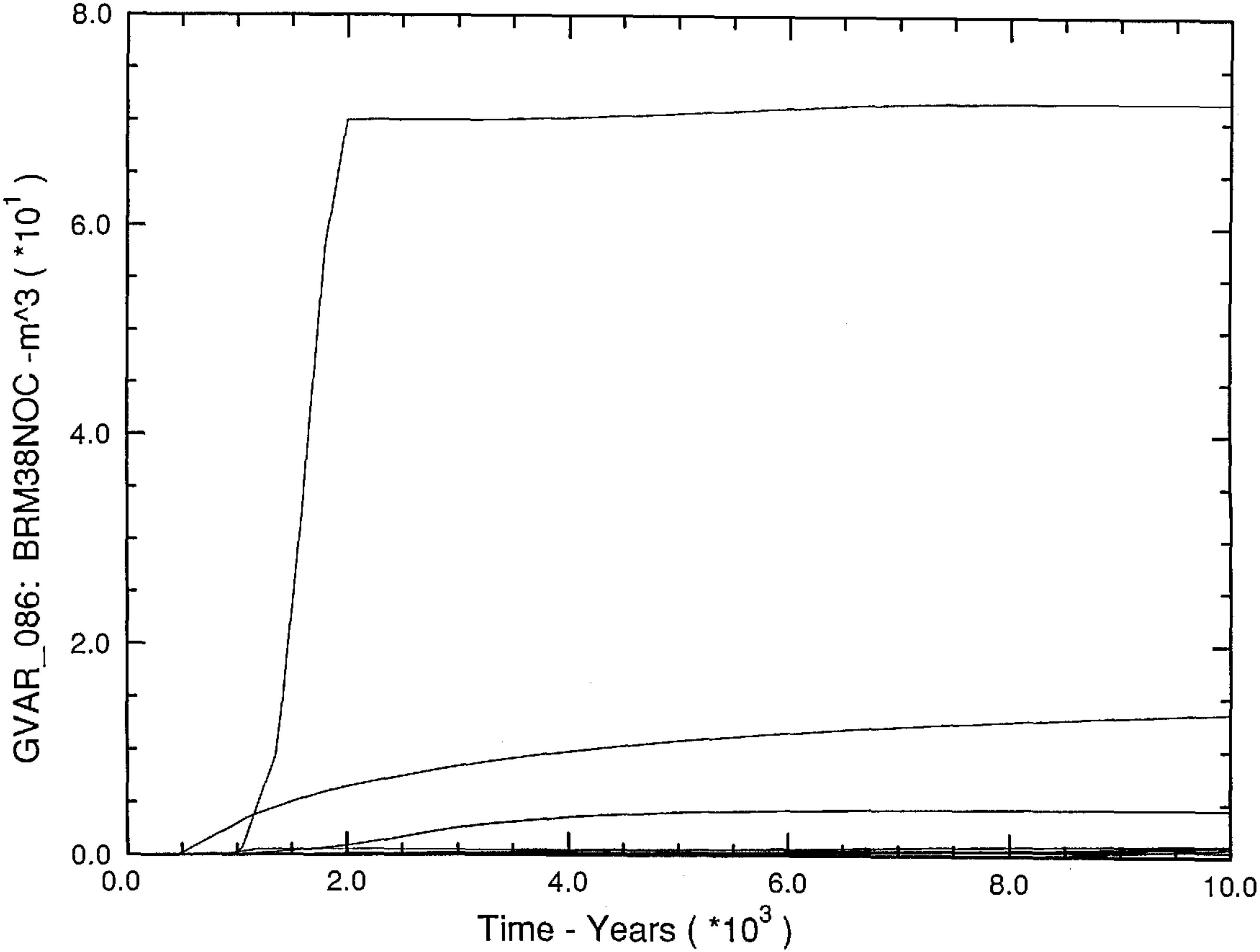
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H085.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:19:51

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of DRZ into North MB 138

Fig A.2.3-33



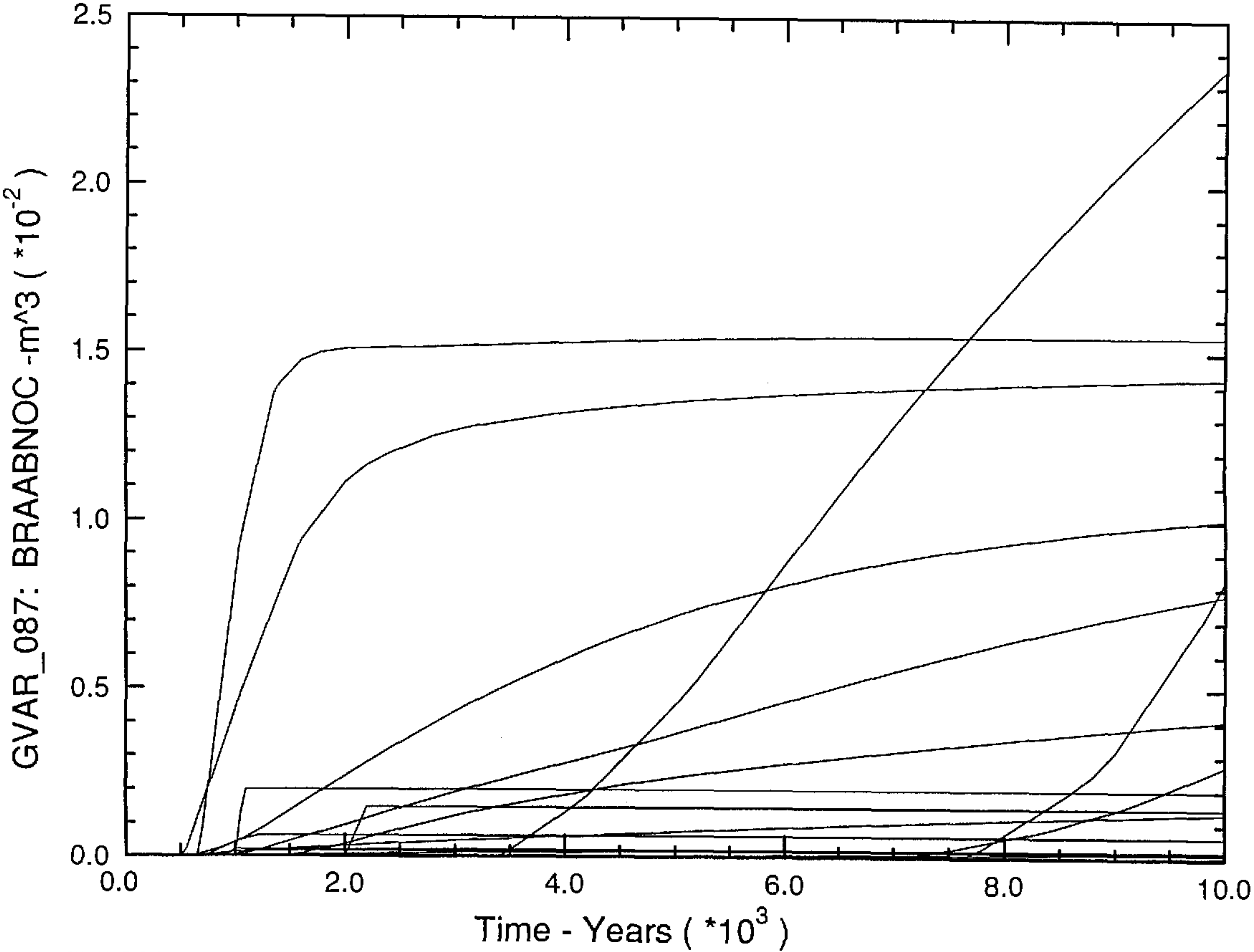
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H086.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:23:30

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of DRZ into North Anhydrite A/B

Fig A.2.3-34



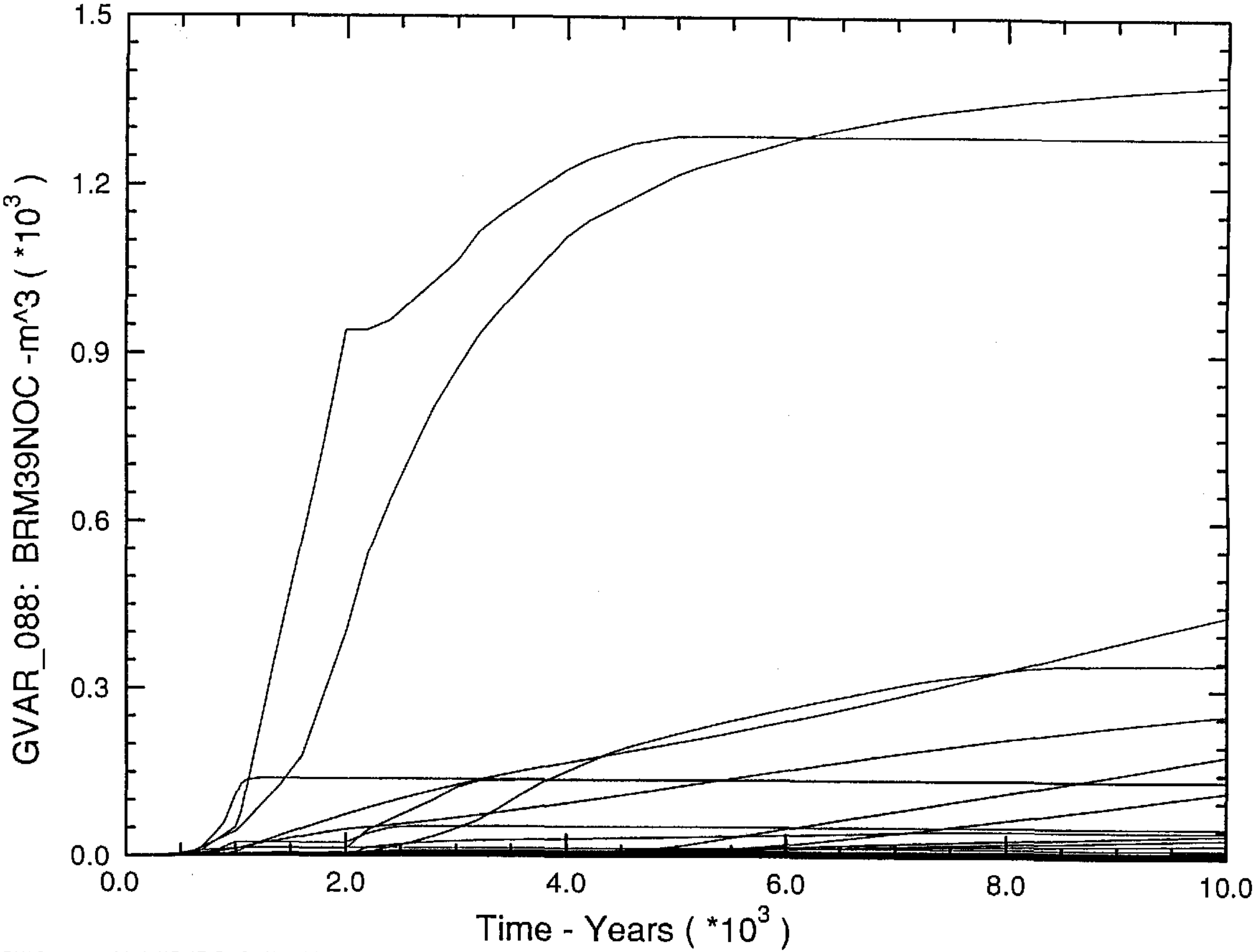
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H087.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:26:48

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of DRZ into North MB 139

Fig A.2.3-35



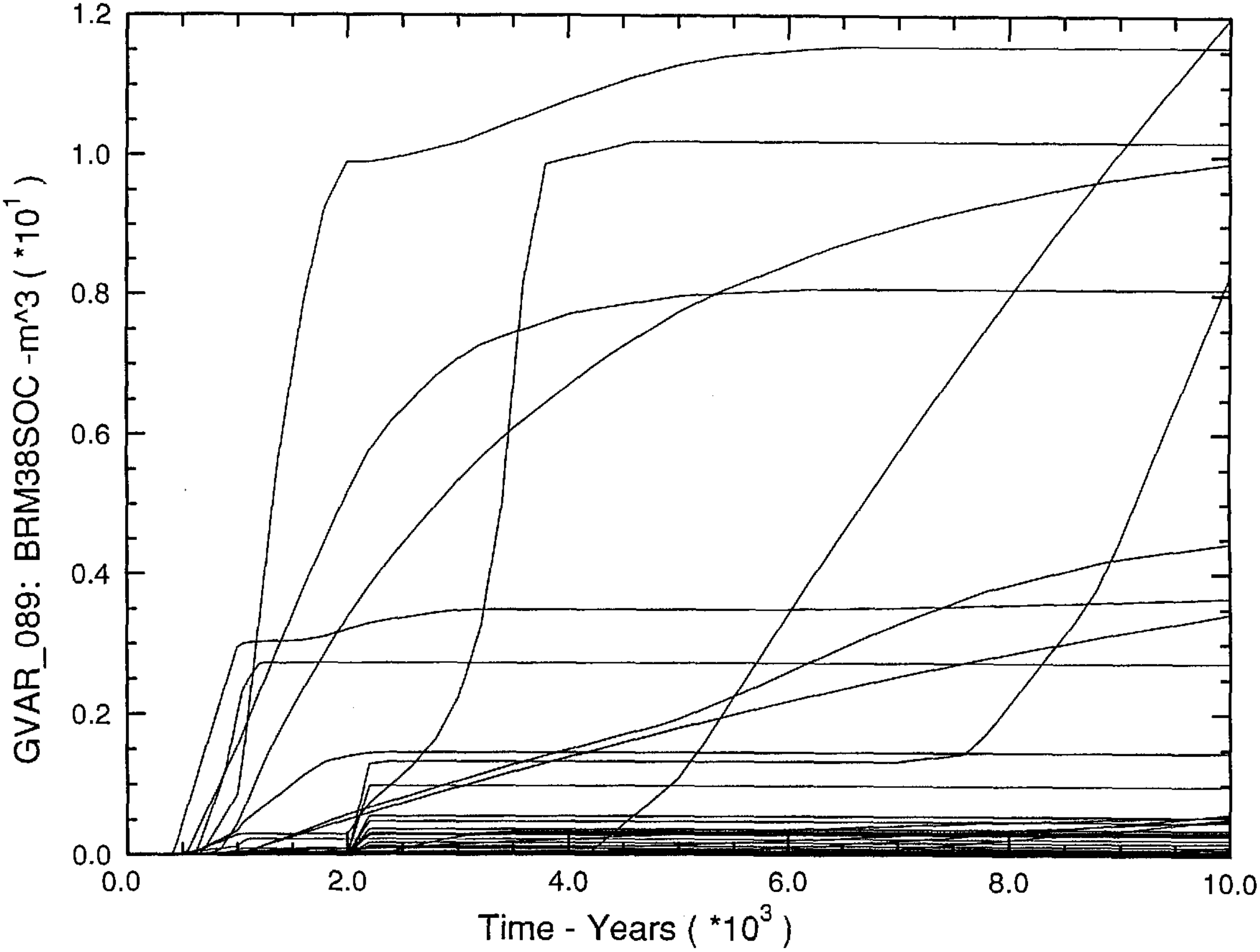
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H088.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:30:23

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of DRZ into South MB 138

Fig A.2.3-36



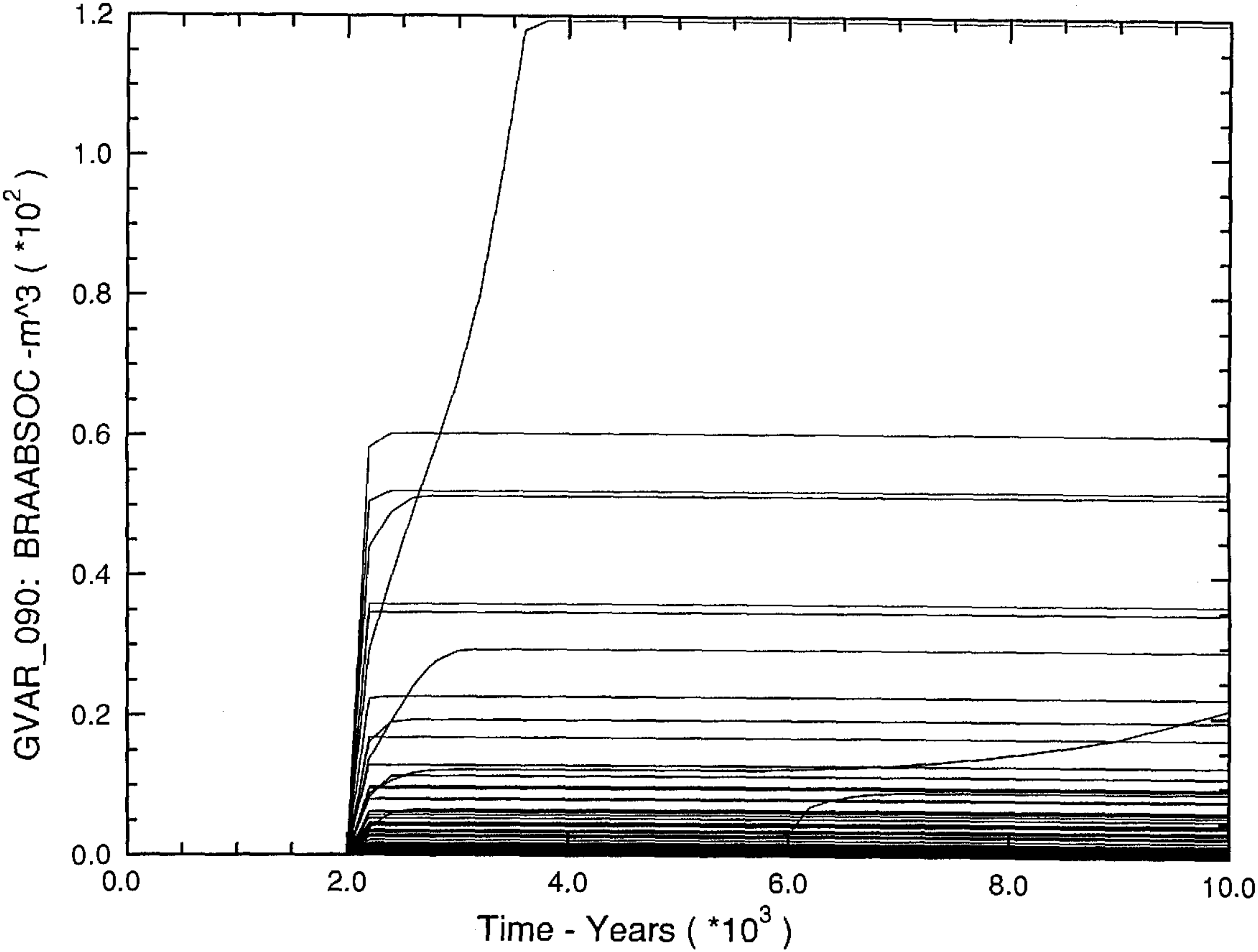
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H089.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:33:52

SNL WIPP C97: BRAGFLO SIMU[illegible]TIONS (C97 R1 S6)

Cumulative Brine Flow Out of DRZ into South Anhydrite A/B

Fig A.2.3-37



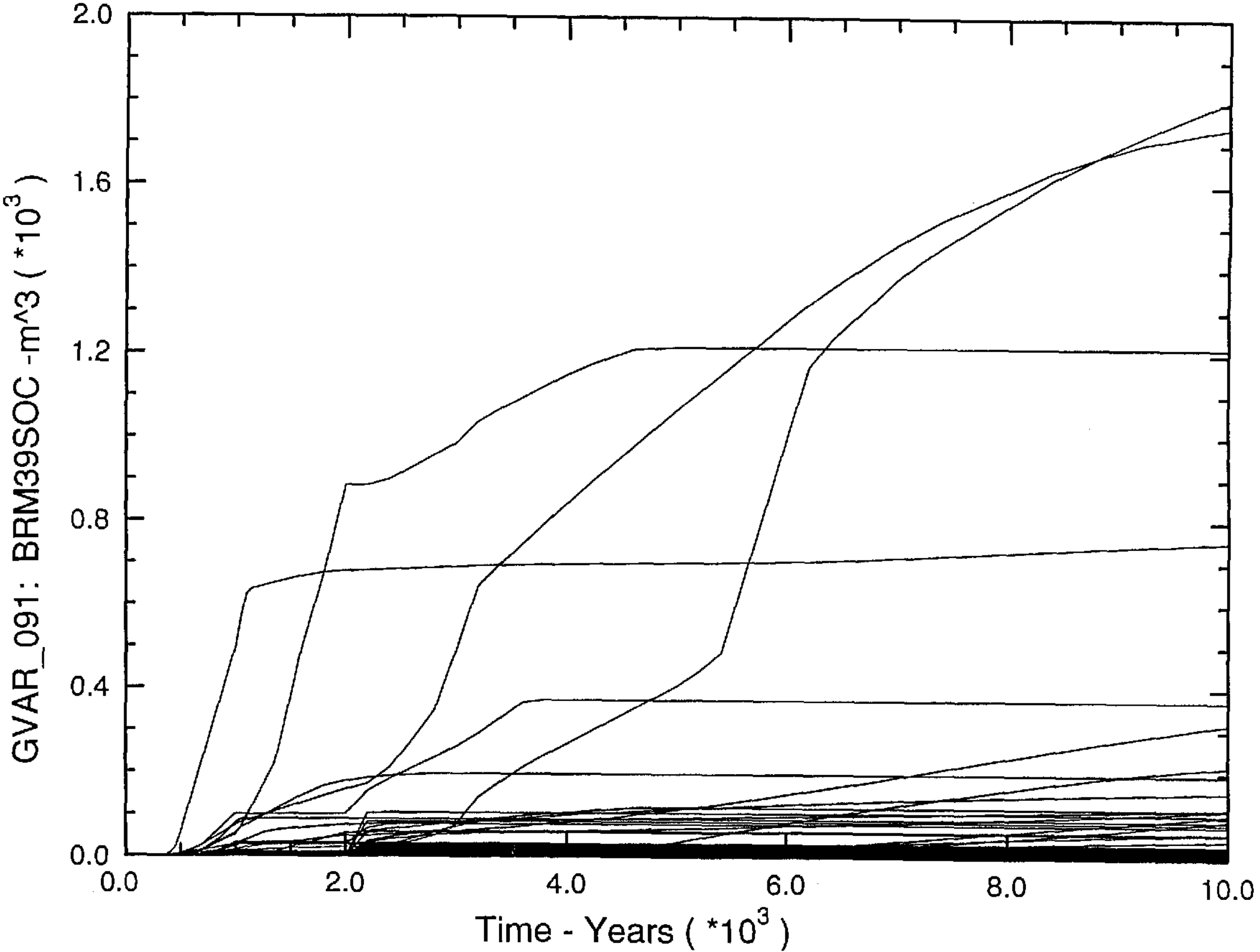
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H090.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:37:32

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of DRZ into South MB 139

Fig 4.2.3-39



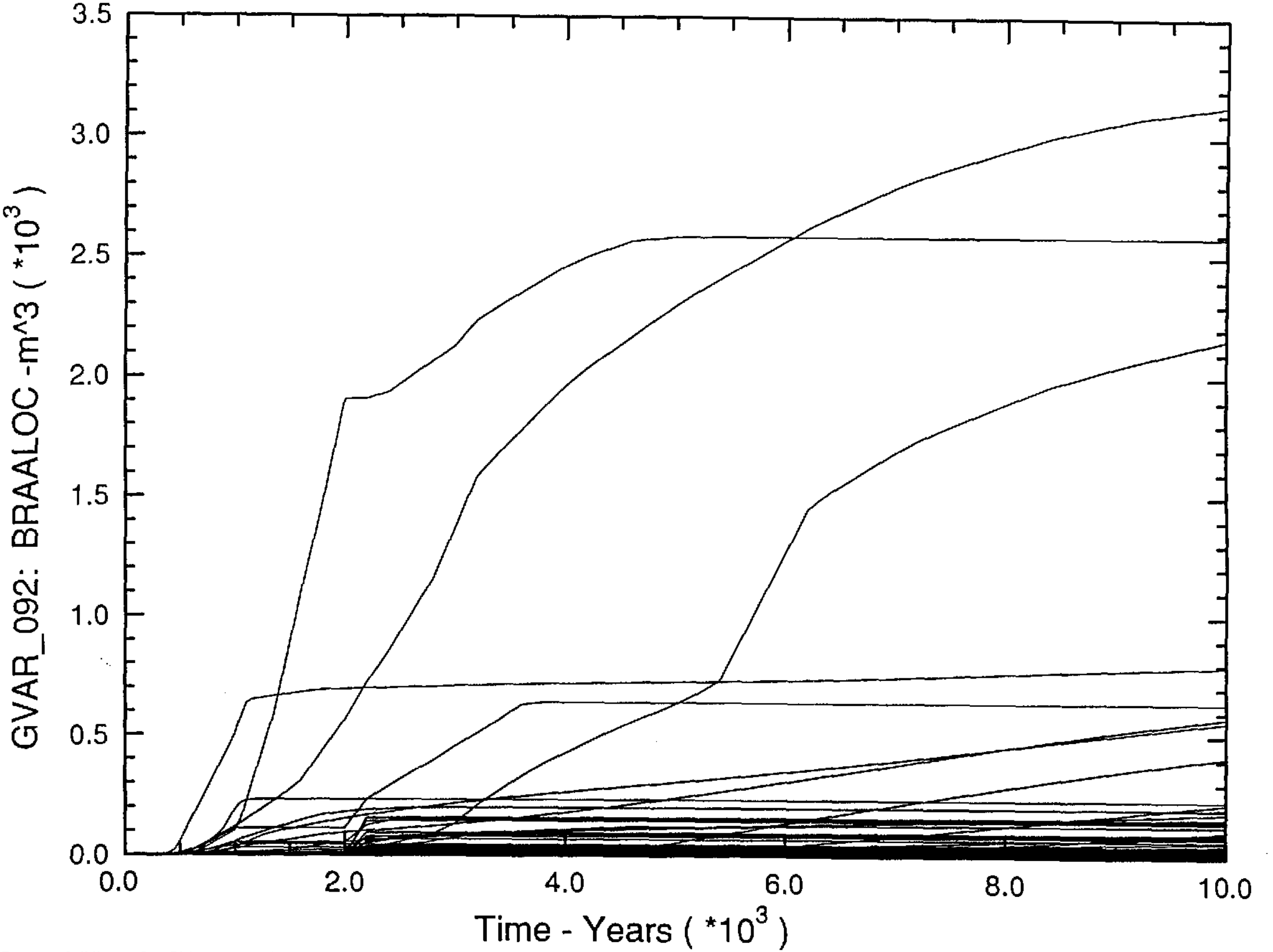
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H091.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:41:00

Fig A.2.3-39

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Cumulative Brine Flow Out of DRZ into All Marker Beds



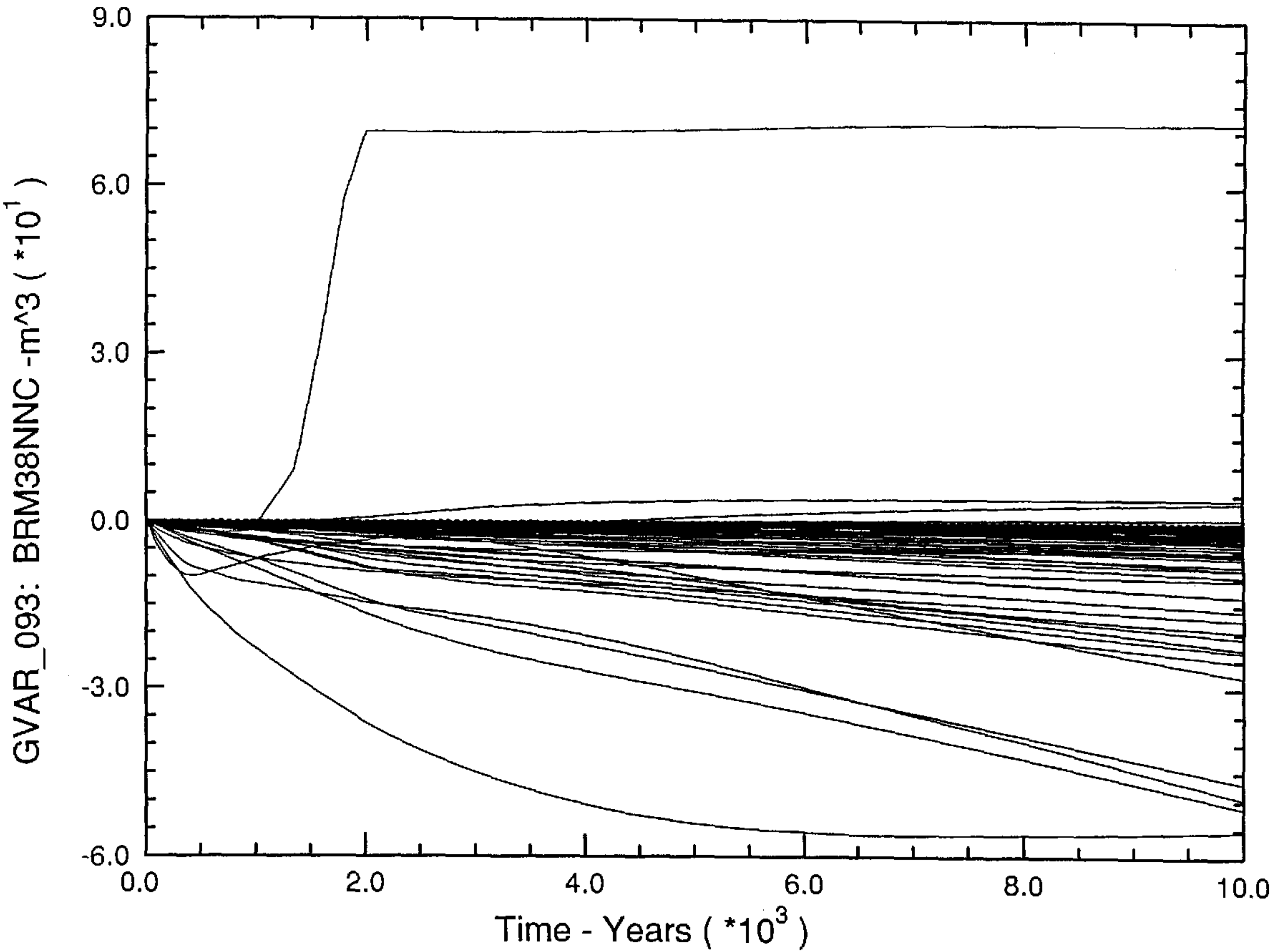
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H092.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:44:35

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Net Brine Flow at North MB 138

Fig A.2.3-40



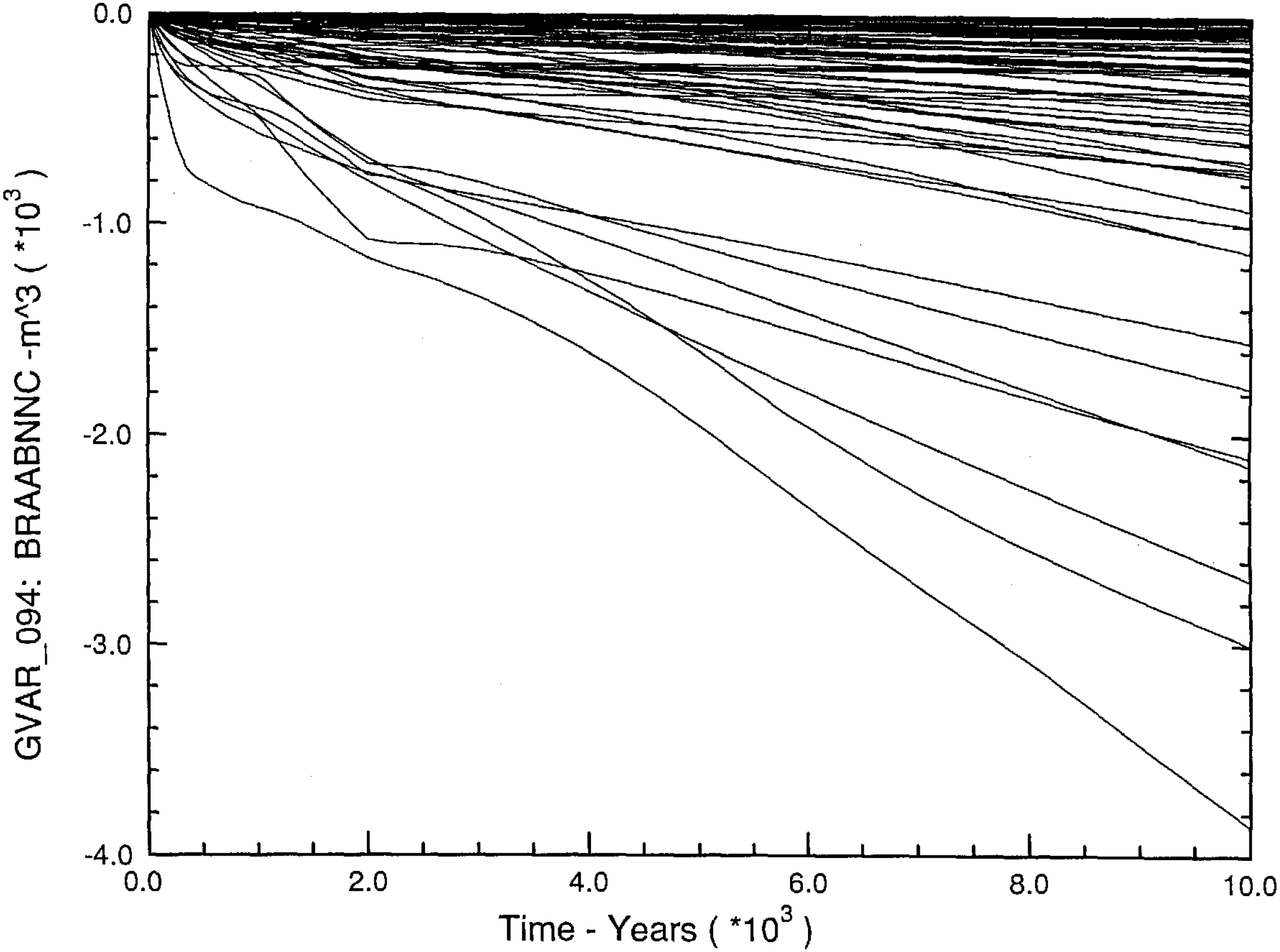
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H093.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:48:26

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Net Brine Flow at North Anhydrite A/B

Fig. A.2.3-41



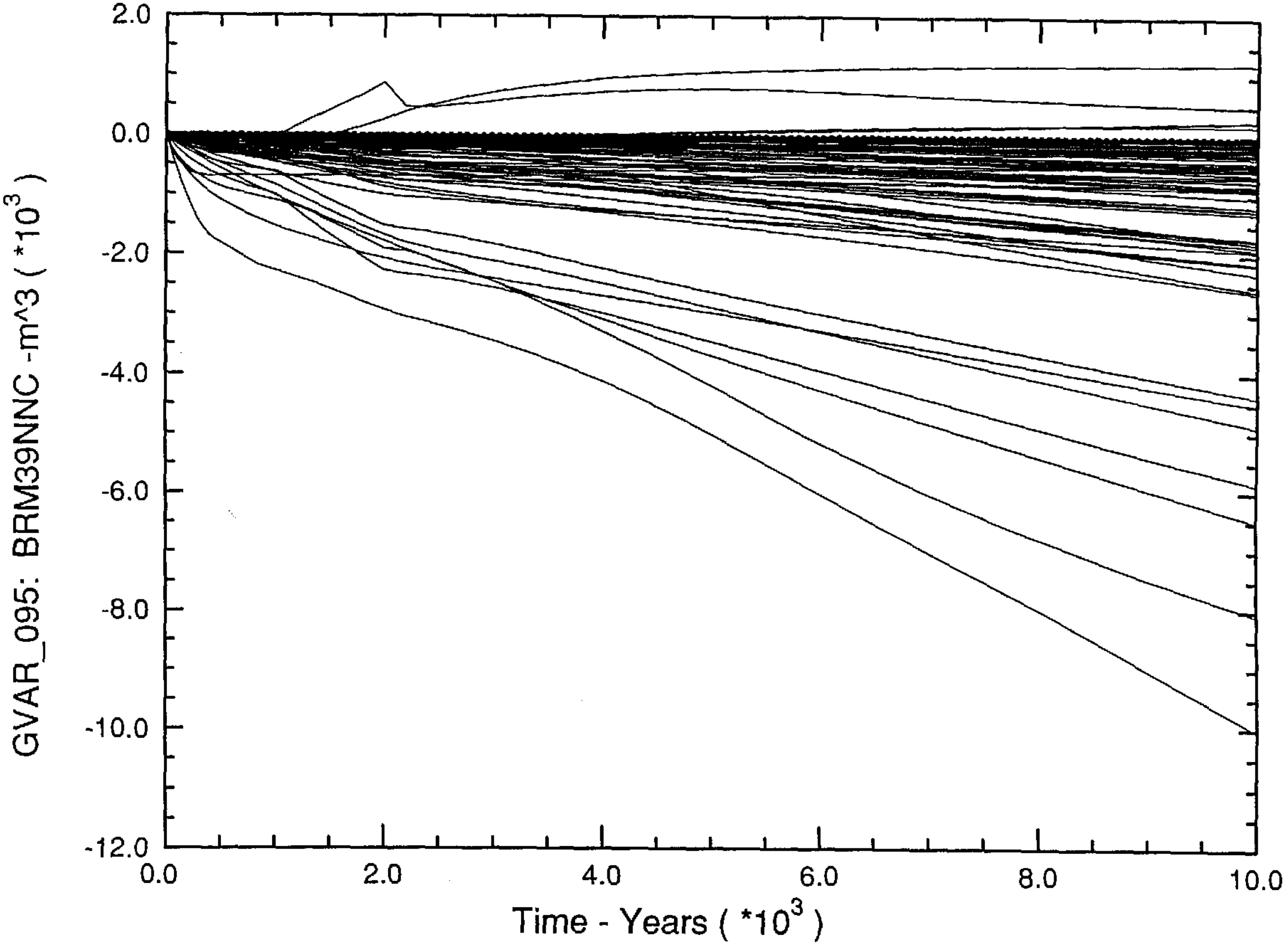
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H094.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:51:55

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Net Brine Flow at North MB 139

Fig. A.2.3-42



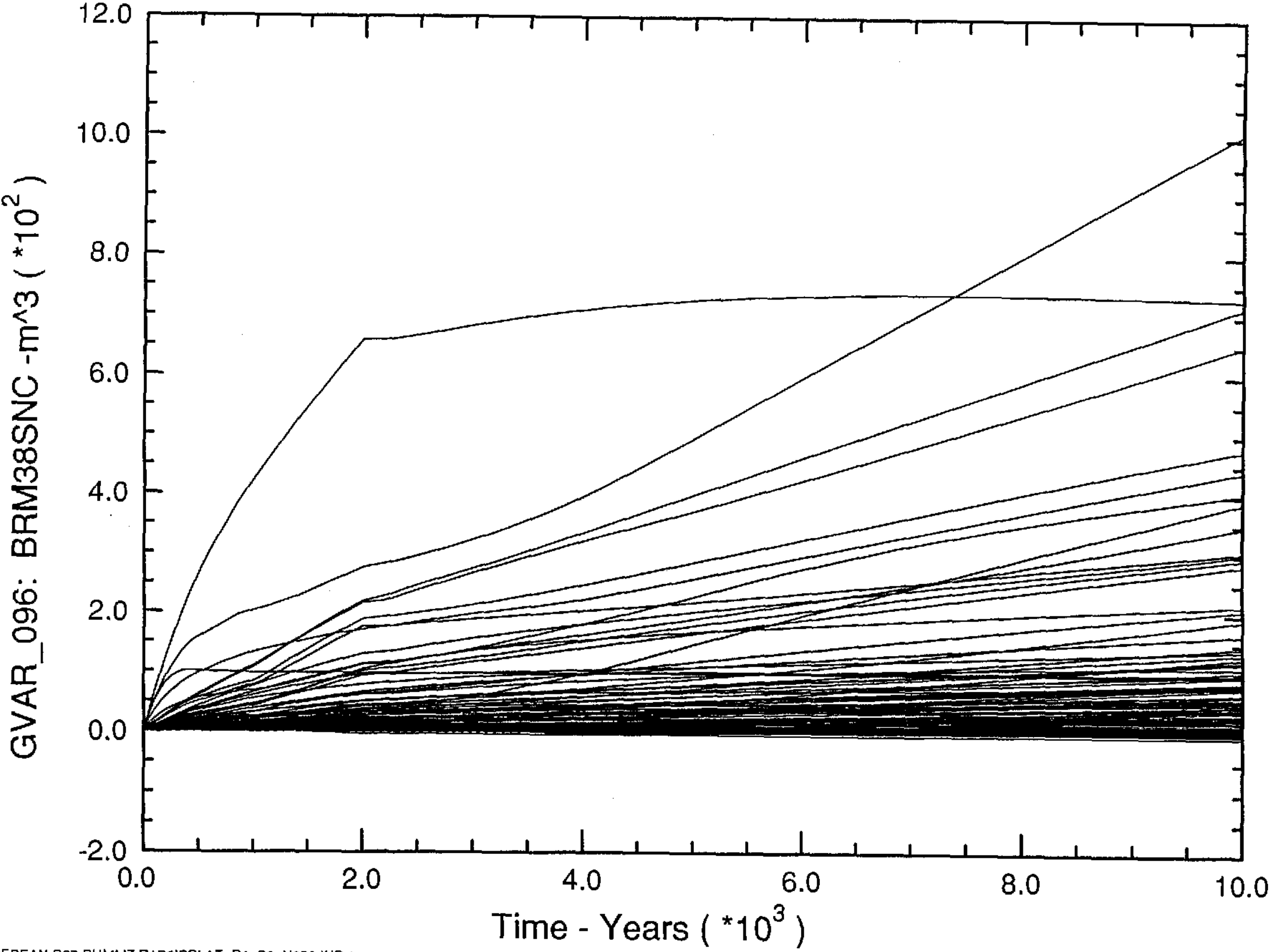
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H095.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:55:31

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Net Brine Flow at South MB 138

Fig. 4.2.3-43



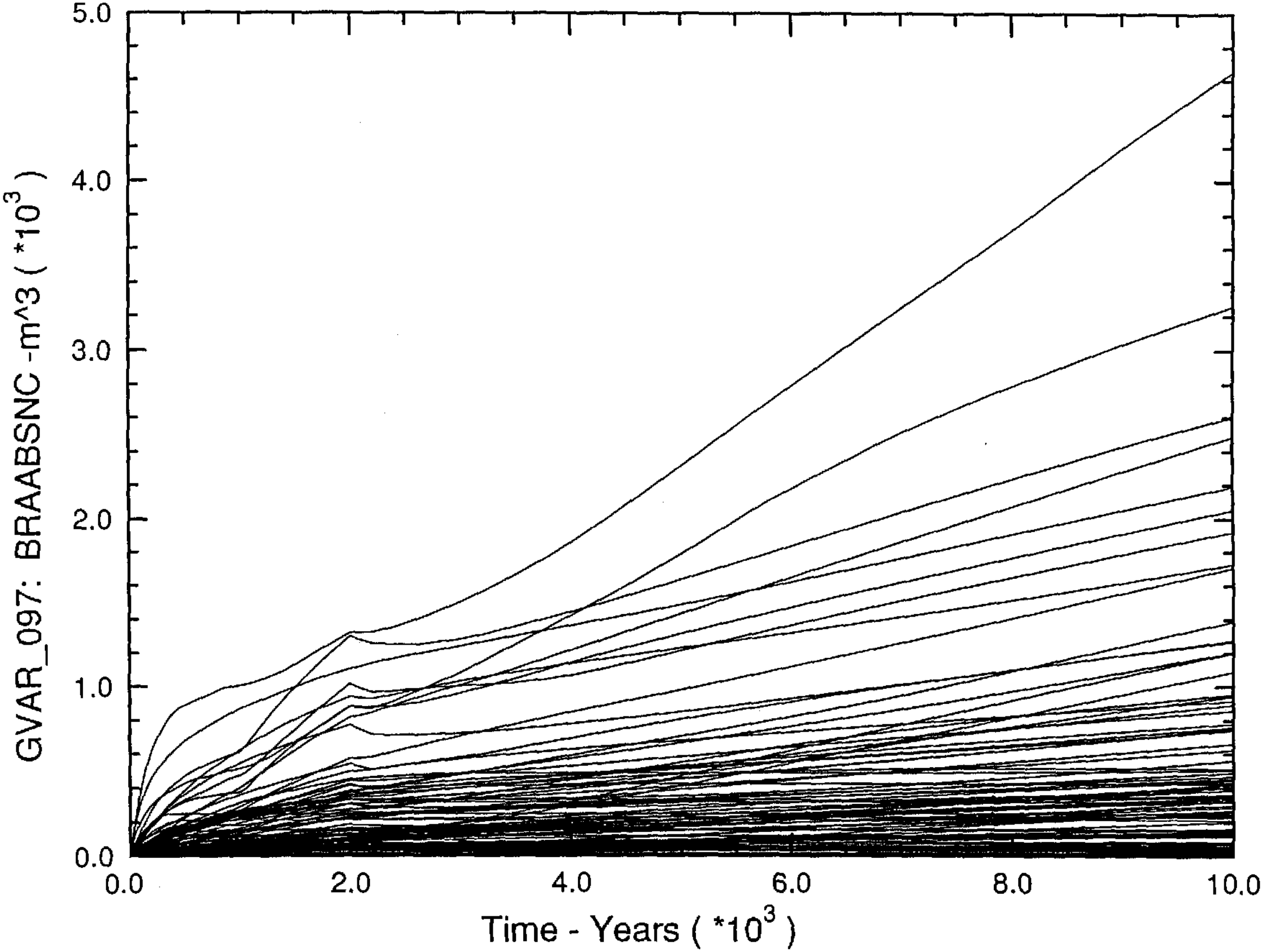
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H096.INP;1

SPLAT_PA96_2 1.02 05/27/97 13:59:02

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Net Brine Flow at South Anhydrite A/B

Fig A.2.3-44



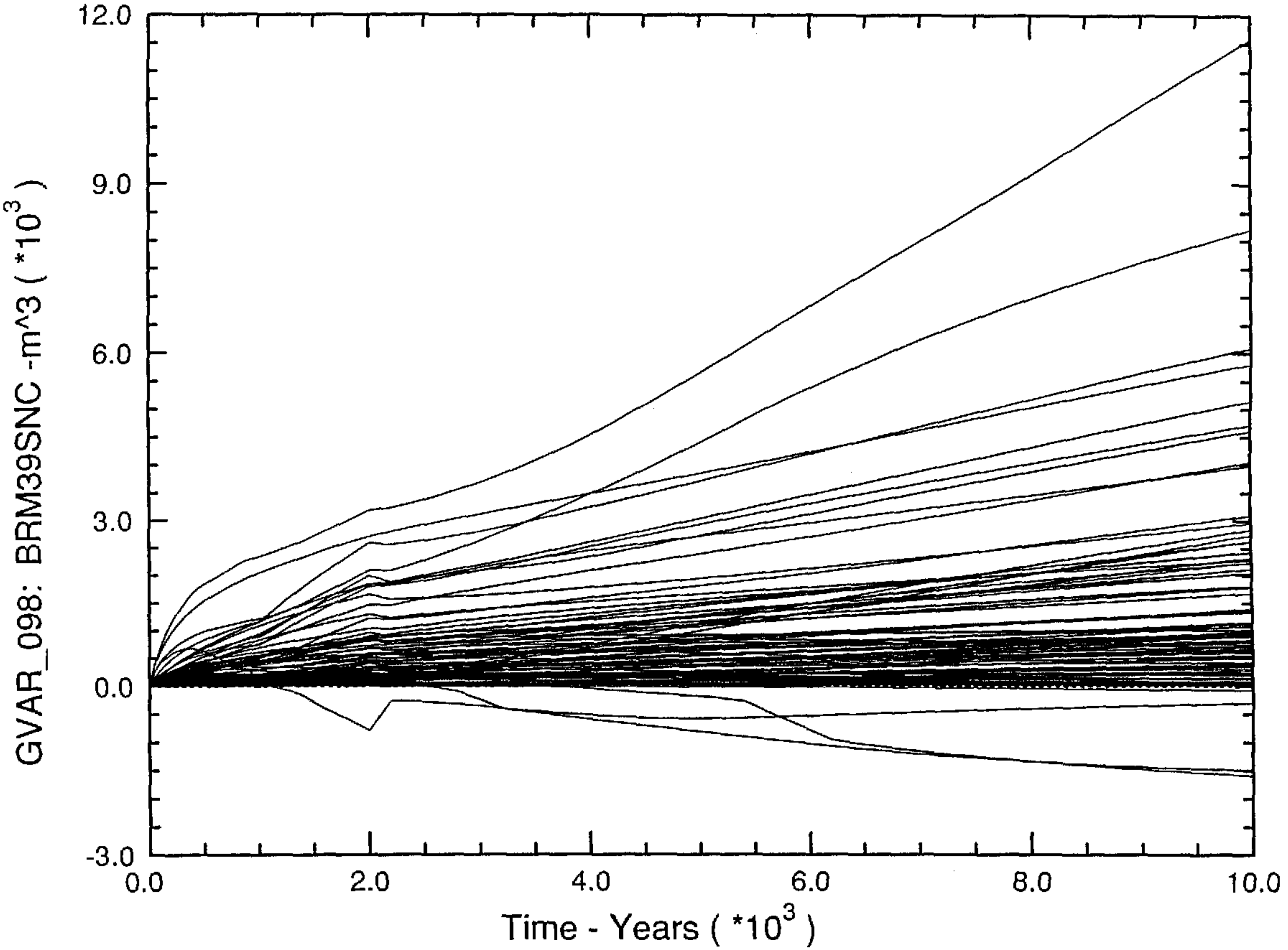
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H097.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:02:32

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Net Brine Flow at South MB 139

Fig 4.2.3-45



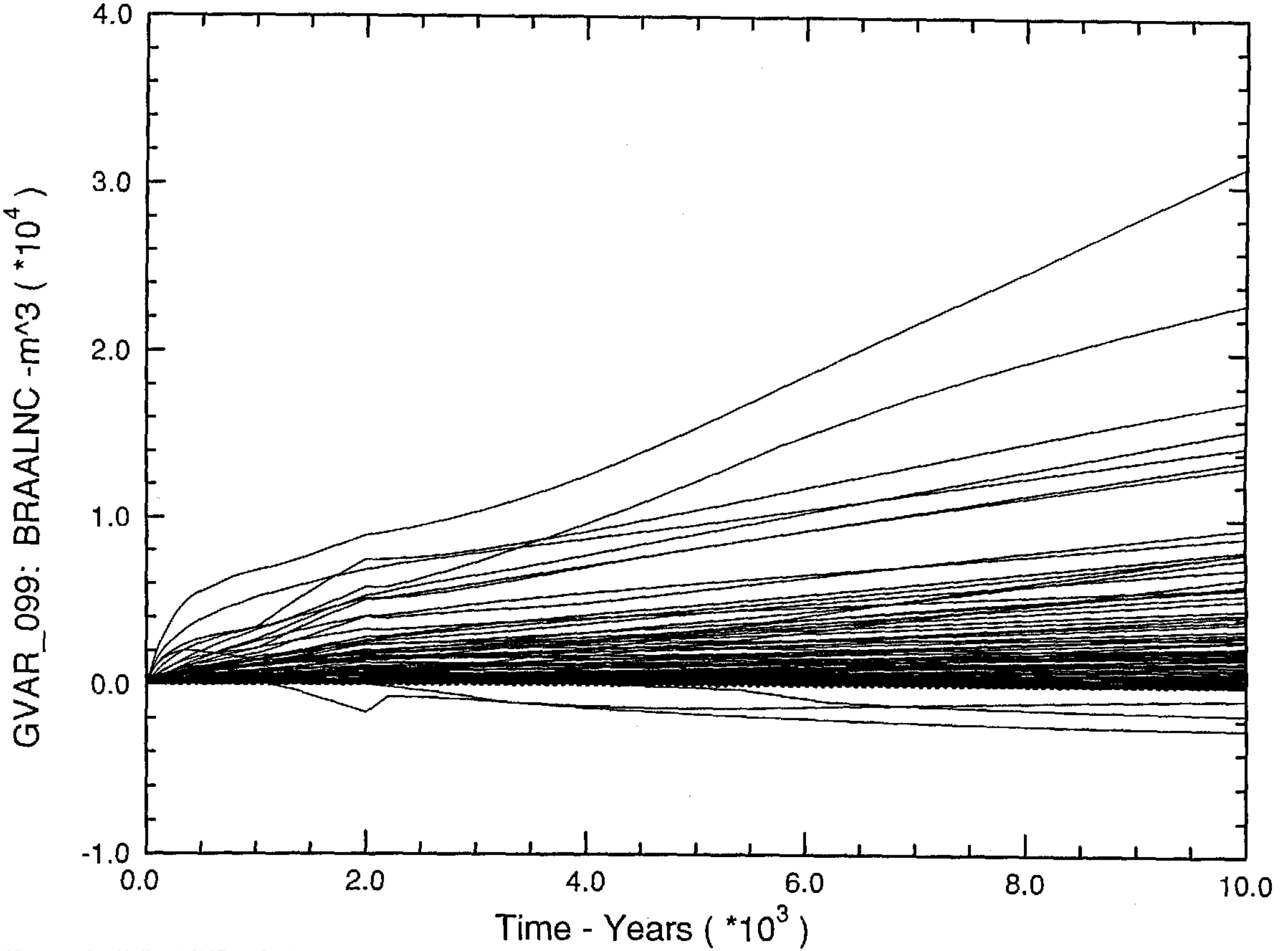
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H098.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:06:02

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Net Brine Flow into DRZ from All Marker Beds

Fig A.2.3-46



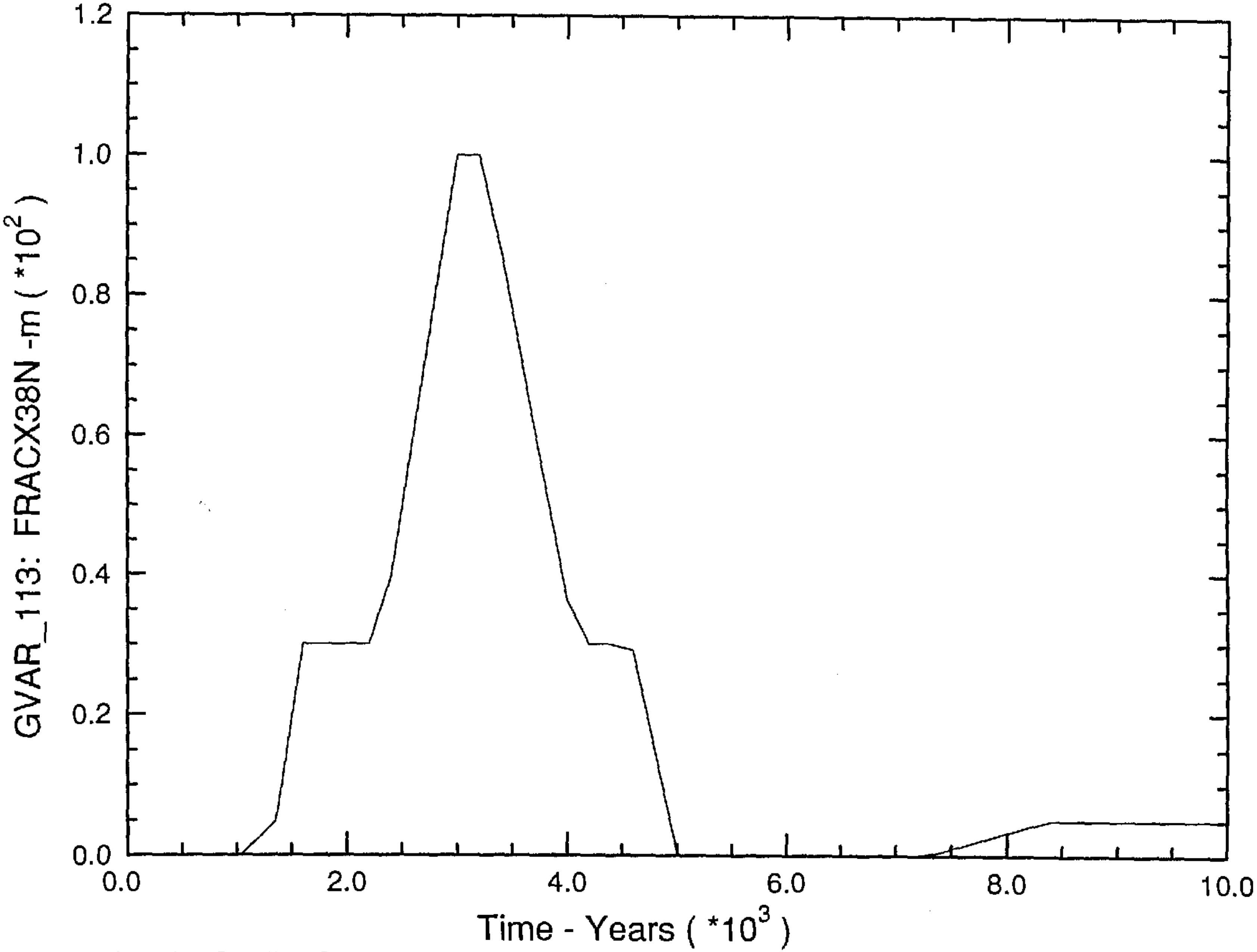
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H099.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:09:37

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Length of Fractured Zone in North MB 138

Fig A.2.3-47



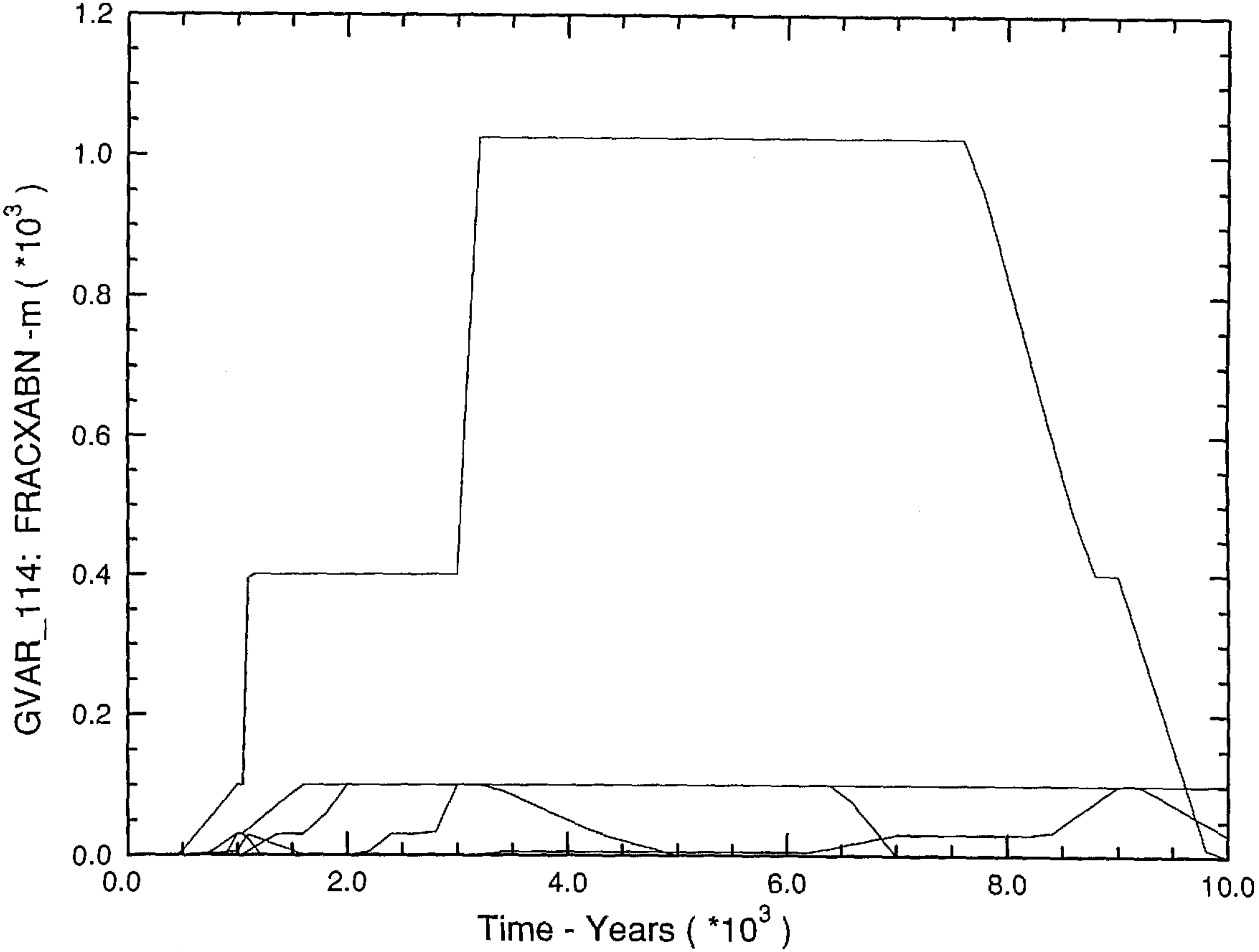
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H113.INP;1

SPLAT_PA96_2 1.02 05/27/97 14:59:56

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Length of Fractured Zone in North Anhydrite A/B

Fig A.2.3-48



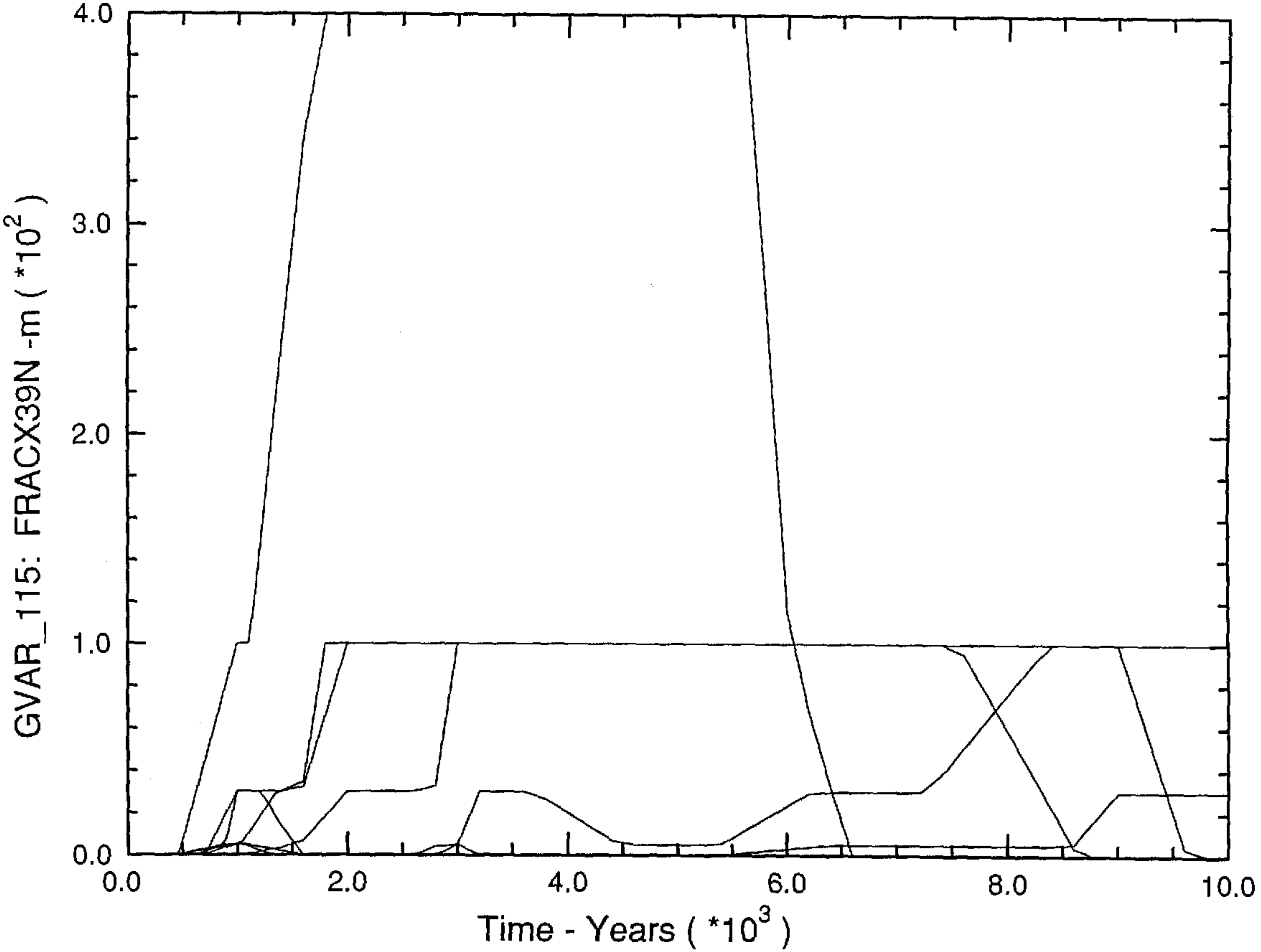
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H114.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:03:14

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Length of Fractured Zone in North MB 139

Fig A.2.3-49



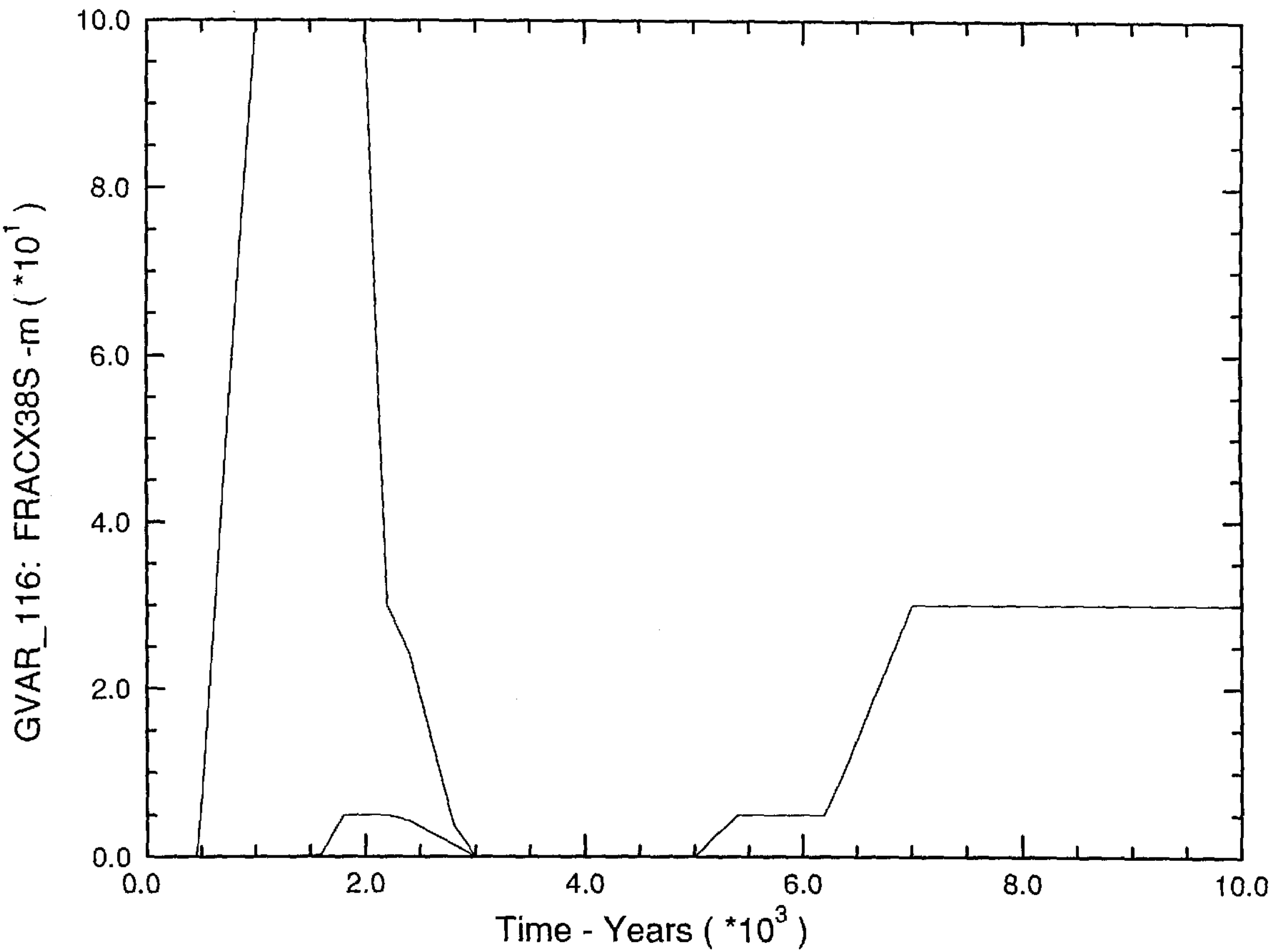
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H115.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:06:45

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Length of Fractured Zone in South MB 138

Fig. A.2.3-50



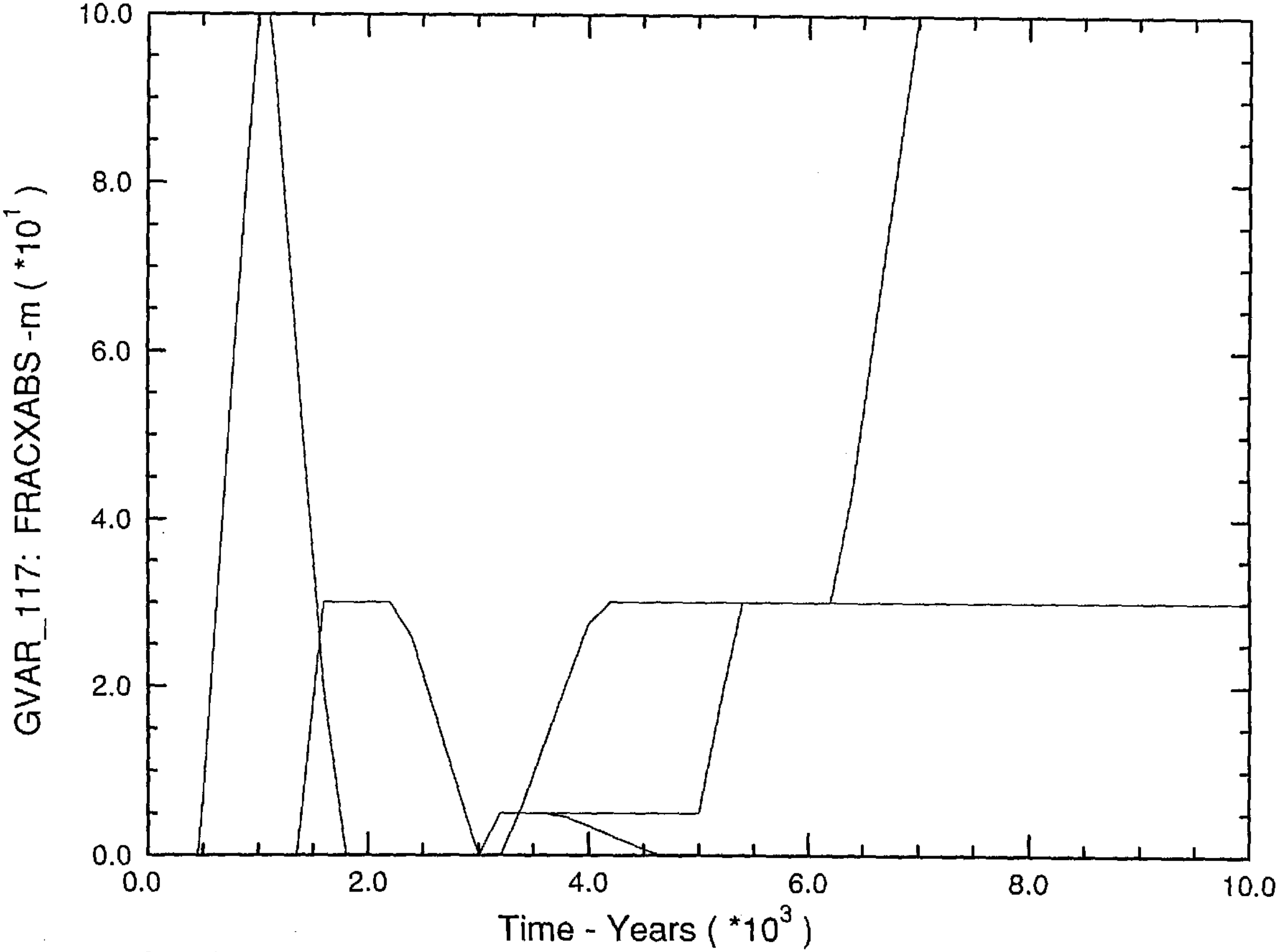
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H116.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:10:16

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Length of Fractured Zone in South Anhydrite A/B

Fig. A.2.3-51



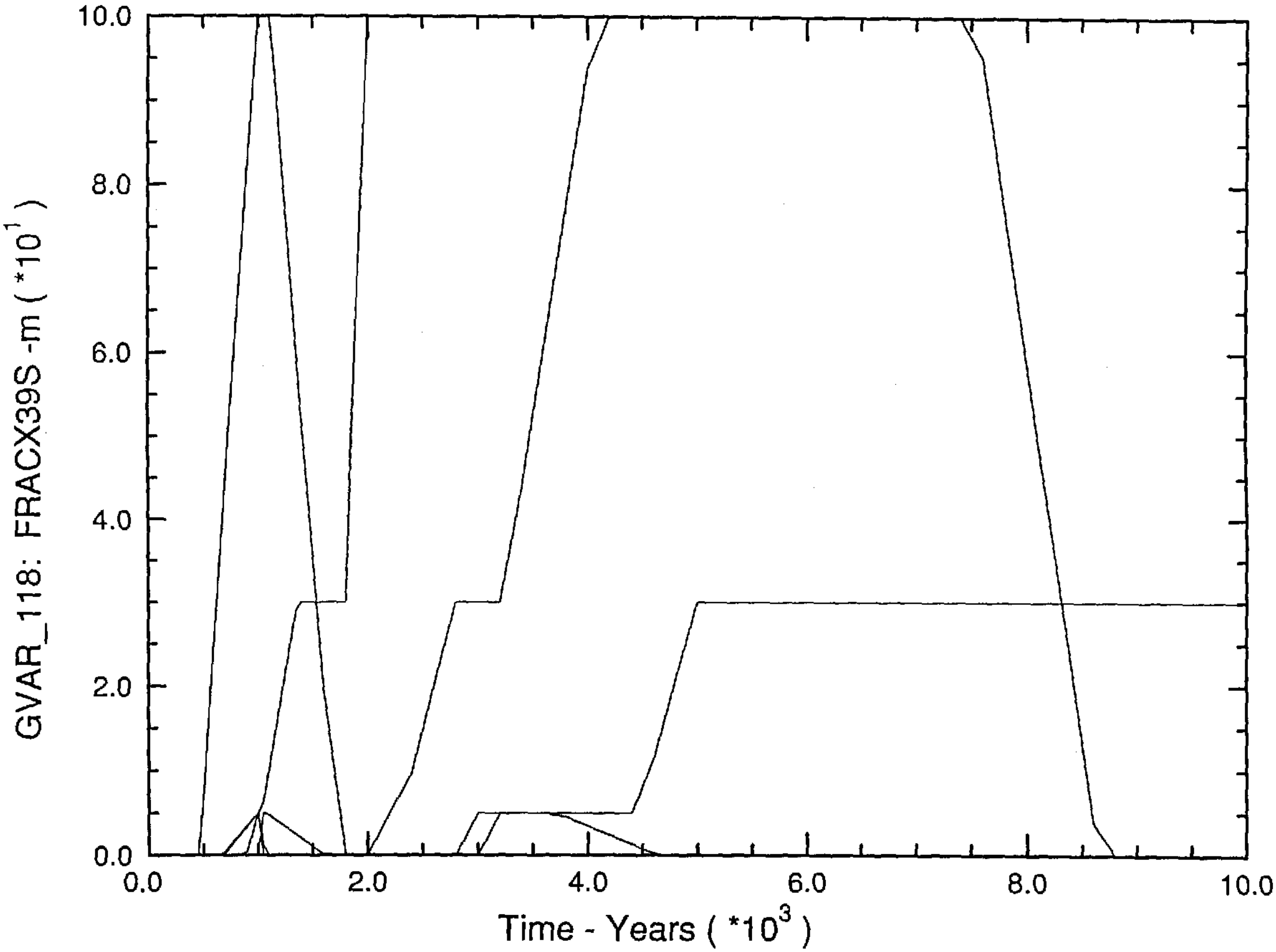
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H117.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:13:46

SNL WIPP C97: BRAGFLO SIMULATIONS (C97 R1 S6)

Length of Fractured Zone in South MB 139

Fig A.2.3-52



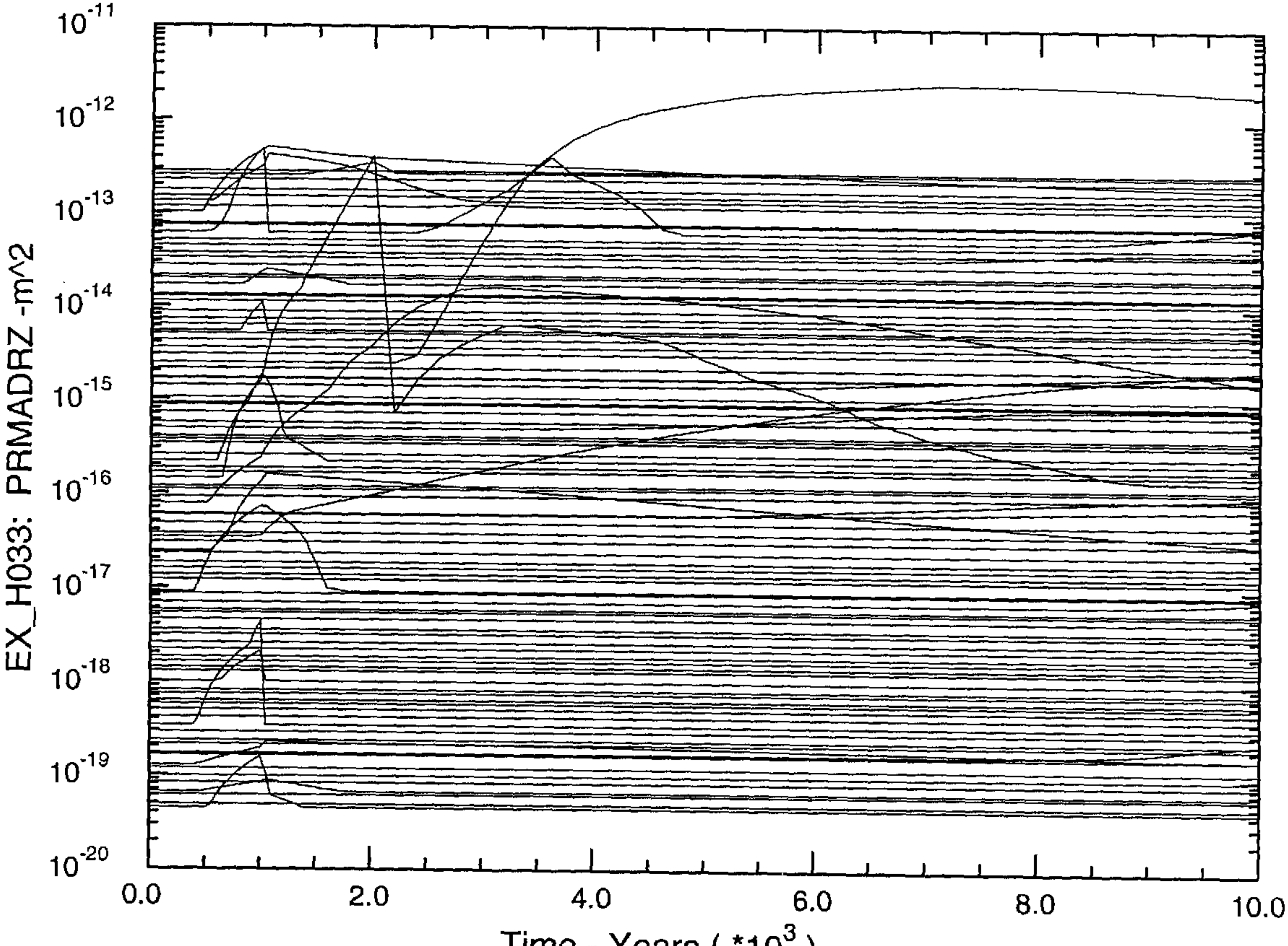
1DRA1:[JEBEAN.C97.SUMMZ.R1S6]SPLAT_R1_S6_H118.INP;1

SPLAT_PA96_2 1.02 05/27/97 15:17:17

SNL WIPP PA: BRAGFLO SIMU[illegible]TIONS (C97 R1 S6)

Volume-Averaged Permeability in All DRZ Layers

Fig 4.2.3-53



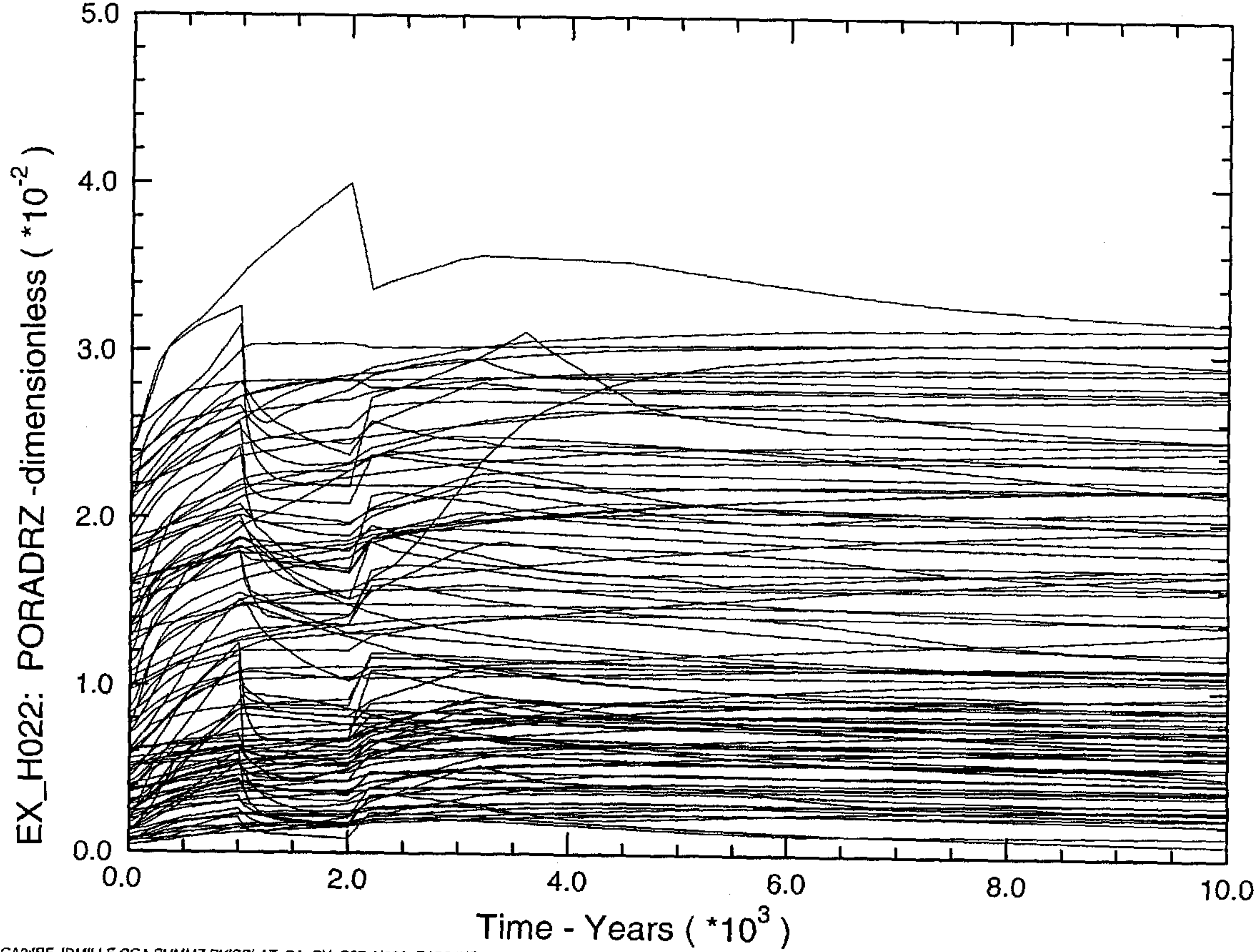
DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PV]SPLAT_PA_PV_C97_H033_R1S6.INP;3

SPLAT_PA96_2 1.02 06/26/97 19:28:42

SNL WIPP PA: BRAGFLO SIMULATIONS (C97 R1 S6)

Volume-Averaged Porosity in All DRZ Layers

Fig A.2.3-54



DISK$TINA_CCA3:[BF.JDMILLE.CCA.SUMMZ.PV]SPLAT_PA_PV_C97_H022_R1S6.INP;3

SPLAT_PA96_2 1.02 06/26/97 19:13:29

APPENDIX B

DIFFERENCES BETWEEN BRAGFLO RESULTS FROM PAVT AND CCA SIMULATIONS

B.1 S1 SCENARIO

The following discussion outlines, in bullet form, the major differences in the PAVT results relative to the CCA results.

Repository Behavior

- Pressure in the waste panel plus rest of repository is higher during first 2000 years due to larger gas volume generated by higher corrosion rates. By 10,000 years pressures are slightly lower.
- Brine saturation in the waste panel plus rest of repository is lower at all times. This condition is due to more brine consumption at early time and lower brine inflow from the DRZ in realizations with low DRZ permeabilities.

Gas Generation

- More gas is generated by corrosion at early time, a similar volume is generated over 10,000 years. Steel remaining in the repository is similar but there is less steel remaining in waste panel. Gas generated by corrosion is limited both by brine and waste panel steel inventories being depleted.
- Brine consumption due to corrosion is higher at early time. By 10,000 years there are a few more high consumption vectors and a few less low consumption vectors, but the median and mean values are slightly lower.
- Gas generated by microbial is slightly less because gas generation is shut off by lack of brine in several realizations.

Halite Creep

- Creep closure is not noticeably different despite higher early time pressures.

Fluid Flow

- Brine inflow to the repository is similar, a little higher at 90th percentile, a little lower at 10th percentile. These differences are due to the range in DRZ permeability, high permeability enhances inflow relative to the CCA, low permeability reduces inflow.
- Brine flow up the shaft is negligible, as in the CCA.

Two-Phase Flow

- Brine flow out of the repository is similar but has greater spread consistent with the variation in DRZ permeability. Three vectors (#24,#44,#22) have rapid (within 200 years) outflow. These vectors have high DRZ permeability, high brine saturation, and low residual brine saturation. Additionally, there are a few more vectors with greater than 10,000 m^3 outflow at 10,000 years and a few more vectors with zero outflow.

- Brine flow into the DRZ from the marker beds is similar but the maximums are not as high because of the higher repository pressures at early time. Note that one CCA vector is much higher than all others.

- Brine flow out of the DRZ to the marker beds is also similar with 2 vectors higher than the CCA maximum. These two vectors have flow increases at 2000 years (#58) and 4000 years (#51), respectively, coincident with significant fracturing in the DRZ and marker beds.

- Brine flow to the Land-Withdrawal Boundary is slightly less (only 3 vectors with greater than 5 m^3), although 1 vector (#38) is much larger (3300 m^3) than the CCA maximum. The high flow to the LWB in vector #38 is due to the combination of very high DRZ and marker bed permeabilities, a high pressure at 1000 years, a very low DRZ porosity, and a low far-field pressure.

- Gas flow from DRZ into the marker beds is lower.

Mechanical Response

- Significant DRZ fracturing in about 20% of the realizations. Three realizations (#51, #58, #28) result in DRZ permeabilities greater than $1x10^{-11}$ m^2 and porosities greater than 0.03.

- Marker Bed fracture lengths are shorter.

B.2 S3 SCENARIO

The following discussion outlines, in bullet form, the major differences in the PAVT results relative to the CCA results.

Repository Behavior

- Pressure in the waste panel plus rest of repository is higher during first 1200 years due to larger gas volume generated by higher corrosion rates. After intrusion there are more realizations with intermediate (7-10 MPa) and higher (12-14 MPa) pressures. These realizations correspond to low borehole permeabilities. There are more high pressure realizations because the low end of the log permeability range was changed from -14 to -16.3.

- Brine saturation in the waste panel and waste panel plus rest of repository tends to be lower at all times. This condition is due to more brine consumption at early time and lower brine inflow from the DRZ in realizations with low DRZ permeabilities and lower downward flow from overlying formations in realizations with low borehole permeabilities.

Gas Generation

- More gas is generated at early time (due to higher corrosion rate), a similar volume (15 % more) is generated over 10,000 years. Steel remaining in the repository is lower, 2 % vs 17%.

- Gas generated by microbial is nearly identical, nine realizations have cellulose remaining at 10,000 years.

Halite Creep

- Slightly higher 10,000 year porosities corresponding to vectors that had high post-intrusion repository pressures (> 13 MPa) due to low borehole permeabilities.

Fluid Flow

- Brine inflow to the repository is similar prior to intrusion, a little higher at 90th percentile, a little lower at 10th percentile. These differences are due to the range in DRZ permeability, high permeability enhances inflow relative to the CCA, low permeability reduces inflow. The inflow following intrusion is lower because of i) reduced inflow down the borehole due to lower borehole permeabilities, and ii) reduced inflow from DRZ and marker beds due to higher pressures in the repository.

- Brine flow up the shaft is similar and negligible.

- Brine flows and in particular maximum brine flows up the borehole are higher. The maximums are higher because they have high borehole permeabilities and high initial Castile pressures. Overall, brine flows tend to be higher because the brine reservoir is significantly larger.

Two-Phase Flow

- Brine flow out of the repository prior to intrusion is similar but has greater spread consistent with the variation in DRZ permeability. Three vectors (#24,#44,#22) have rapid (within 200 years) outflow. These vectors have high DRZ permeability, high brine saturation, and low residual brine saturation. Brine outflow following intrusion is lower due to lower borehole permeabilities and lower brine saturations.

- Brine flow into the DRZ from the marker beds is lower due to higher repository pressures.

- Brine flow out of the DRZ to the marker beds is higher due to higher repository pressures.

- Only one vector (#38) showed significant flow to the Land Withdrawal Boundary. The flow (2630 m^3) was much larger than the CCA maximum (1.3 m^3). The high flow to the LWB in vector #38 is due to the combination of very high DRZ and marker bed permeabilities, low borehole permeability, a very low DRZ porosity, and a low far-field pressure.

- Gas flow volumes up the borehole are similar but several maximums are larger.

- Gas flow volumes from the DRZ into the marker beds are higher.

Mechanical Response

- Significant DRZ fracturing in only about 20 realizations. Only three realizations (#28, #51, #58) had a DRZ permeability greater than $1x10^{-11}$ m^2 and a porosity greater than 0.03.

- Marker Bed fracturing occurs in about the same number of realizations but in two realizations fracture lengths to the north in marker beds 139 and a and b are much longer (#58, #61).

B.3 S5 SCENARIO

The following discussion outlines, in bullet form, the major differences in the PAVT results relative to the CCA results.

Repository Behavior

- Pressure in the waste panel plus rest of repository is higher during first 1200 years due to larger gas volume generated by higher corrosion rates. After intrusion there are more realizations with intermediate (7-10 MPa) and high (12-14 MPa) pressures. These realizations correspond to low borehole permeabilities. There are more realizations because the low end of the log permeability range was changed from -14 to -16.3.

- Brine saturation in the waste panel plus rest of repository is lower at all times. This condition is due to more brine consumption at early time and lower brine inflow from the DRZ in realizations with low DRZ permeabilities. Brine inflow is also lower due to higher repository pressures.

Gas Generation

- More gas is generated at early time (due to higher corrosion rate), a similar volume (slightly lower) is generated over 10,000 years. Steel remaining in the repository is similar except for one realization (#28) that has only 3% remaining.

- Maximum brine consumption at 10,000 years is slightly higher. By 10,000 years there are a few more high-consumption and a few less low-consumption vectors.

- Gas generated by microbial is slightly less, nine realizations have cellulose remaining at 10,000 years.

Halite Creep

- Slightly higher 10,000 year porosities corresponding to vectors that had high post-intrusion repository pressures (> 13 MPa) due to low borehole permeabilities.

Fluid Flow

- Brine inflow to the repository is similar prior to intrusion, a little higher at 90th percentile, a little lower at 10th percentile. These differences are due to the range in DRZ permeability, high permeability enhances inflow relative to the CCA, low permeability reduces inflow. The inflow following intrusion is lower because of i) reduced inflow down the borehole due to lower borehole permeabilities, and ii) reduced inflow from DRZ and marker beds due to higher pressures in the repository.

- Brine flow up the shaft is similar and negligible.

- The maximum brine flows up the borehole are lower but more realizations have non-zero flow. The maximums are lower because of the changes to the DRZ permeability. In the CCA most of the brine flow out of the repository flowed up the borehole. Additional brine flowed into the borehole from the DRZ. In the PAVT there is no additional brine contribution from DRZ to the borehole (maximums occur in realizations with high borehole permeability and low DRZ permeability). In cases where the DRZ permeability is high, the repository pressures tend to be lower and there is not as much of a driving force for brine up the borehole.

Two-Phase Flow

- Brine flow out of the repository prior to intrusion is similar but has greater spread consistent with the variation in DRZ permeability. Three vectors (#24,#44,#22) have rapid (within 200 years) outflow. These vectors have high DRZ permeability, high brine saturation, and low residual brine saturation. Brine outflow following intrusion is lower due to lower borehole permeabilities and lower brine saturations.

- Brine flow into the DRZ from the marker beds is lower due to higher repository pressures.

- Brine flow out of the DRZ to the marker beds is higher due to higher repository pressures.

- Only one vector (#38) showed significant flow to the Land Withdrawal Boundary. The flow (2735 m^3) was much larger than the CCA maximum (1.3 m^3). The high flow to the LWB in vector #38 is due to the combination of very high DRZ and marker bed permeabilities, a high pressure at 1000 years (caused in part by low borehole permeability), a very low DRZ porosity, and a low far-field pressure.

- Gas flow up borehole has similar maximums but lower minimums. Lower minimums are due to lower borehole permeabilities at low end of range.

- Gas flow from the DRZ into the marker beds is higher.

Mechanical Response

- Significant DRZ fracturing in only about 3 realizations. Only one realization (#58) had a DRZ permeability greater than 1×10^{-12} m^2 and a porosity greater than 0.03.

- Marker Bed fracture lengths are longer and occur in a few more realizations.

B.4 S6 SCENARIO

The following discussion outlines, in bullet form, the major differences in the PAVT results relative to the CCA results.

Repository Behavior

- Pressure in the waste panel plus rest of repository is higher during first 1000 years due to larger gas volume generated by higher corrosion rates. After the second intrusion there are more realizations with intermediate (7-10 MPa) and higher (12-14 MPa) pressures. These realizations correspond to low borehole permeabilities. There are more high pressure realizations because the low end of the log permeability range was changed from -14 to -16.3. Also, pressure in the brine reservoir remains higher because of the much larger brine reservoir volume.

- Brine saturation in the waste panel plus rest of repository tends to be lower for all times, especially prior to the second intrusion. This condition is due to more brine consumption at early time and lower brine inflow from the DRZ in realizations with low DRZ permeabilities and lower downward flow from overlying formations in realizations with low borehole permeabilities.

Gas Generation

- More gas is generated at early time (due to higher corrosion rate), a similar volume (10 % more) is generated over 10,000 years. Steel remaining in the repository is lower, 0 % vs 4%.

- Gas generated by microbial is nearly identical, nine realizations have cellulose remaining at 10,000 years.

Halite Creep

- Slightly higher 10,000 year porosities corresponding to vectors that had high post-intrusion repository pressures (> 13 MPa) due to low borehole permeabilities.

Fluid Flow

- Brine inflow to the repository is similar prior to the first intrusion, a little higher at 90th percentile, a little lower at 10th percentile. These differences are due to the range in DRZ permeability, high permeability enhances inflow relative to the CCA, low permeability reduces inflow. The inflow following the first intrusion is lower because of i) reduced inflow down the borehole due to lower borehole permeabilities, and ii) reduced inflow from DRZ and marker beds due to higher pressures in the repository. Brine inflow after the second intrusion , however, is much larger due to the larger brine reservoir that doesn't deplete as readily.

- Brine flow up the shaft is similar and negligible.
- Brine flows and in particular maximum brine flows up the borehole are higher. The maximums are higher because they have high borehole permeabilities and high initial Castile pressures. Overall, brine flows tend to be higher because the brine reservoir is significantly larger.

Two-Phase Flow

- Brine flow out of the repository prior to the first intrusion is similar but has greater spread consistent with the variation in DRZ permeability. Three vectors (#24,#44,#22) have rapid (within 200 years) outflow. These vectors have high DRZ permeability, high brine saturation, and low residual brine saturation. Brine outflow after the second intrusion is higher due to brine from the larger brine reservoir.
- Brine flow into the DRZ from the marker beds is lower due to higher repository pressures.
- Brine flow out of the DRZ to the marker beds is higher due to higher repository pressures.
- Only one vector (#38) showed significant flow to the Land Withdrawal Boundary. The flow (3203 m^3) was much larger than the CCA maximum (1.7 m^3). The high flow to the LWB in vector #38 is due to the combination of very high DRZ and marker bed permeabilities, low borehole permeability, a very low DRZ porosity, and a low far-field pressure.
- Gas flow volumes up the borehole are similar but several maximums are larger.
- Gas flow volumes from the DRZ into the marker beds are larger.

Mechanical Response

- Significant DRZ fracturing in only about 20 realizations. Only three realizations (#28, #51, #58) had a DRZ permeability greater than $1x10^{-11}$ m^2 and a porosity greater than 0.03.
- Marker Bed fracturing occurs in about the same number of realizations but in two realizations fracture lengths to the north in marker beds 139 and a and b are much longer (#58, #61).

B.5 INPUT FOR S2 SCENARIO VECTOR 78

The following outlines changes to BRAGFLO input reflecting tolerance changes required to run S2 vector #78 in PAVT replicate 1 (C97 R1 S2 V078).

PARAMETER	**ORIGINAL**	**FINAL**
EPSNORM(2)	1.0E-2	1.0E-3
EPSLOOSE(1)	3.0	2.0
EPSLOOSE(2)	1.0E-2	1.0E-3
FTOLLOOSE(1)	1.0E-2	1.0
IJACSWITCH	41	0
IJACRESET	5	10

Where

EPSNORM(2) = Maximum relative change in brine pressure allowed over a time step.
EPSLOOSE(1) = Number of digits of accuracy to the right of the decimal in the change in gas saturation required for convergence when looser tolerances are invoked.
EPSLOOSE(2) = Same as EPSNORM(2) but used when looser tolerances are invoked.
FTOLLOOSE(1) = Value of normalized residual for gas conservation equation required for convergence when looser tolerances have been invoked.
IJACSWITCH = Number of time step reductions allowed before looser tolerances are invoked.
IJACRESET = Number of timesteps during which looser tolerances are in effect.

Following a non-converged step in BRAGFLO, looser tolerances are invoked for the next 10 steps. After these 10 steps the tolerances are returned to their original values.

APPENDIX C

NUTS AND PANEL RESULTS FOR SALADO TRANSPORT

Appendix C includes the following Figures and Tables which contain results from Salado transport calculations performed using NUTS (for S1 through S5) and PANEL (for S6).

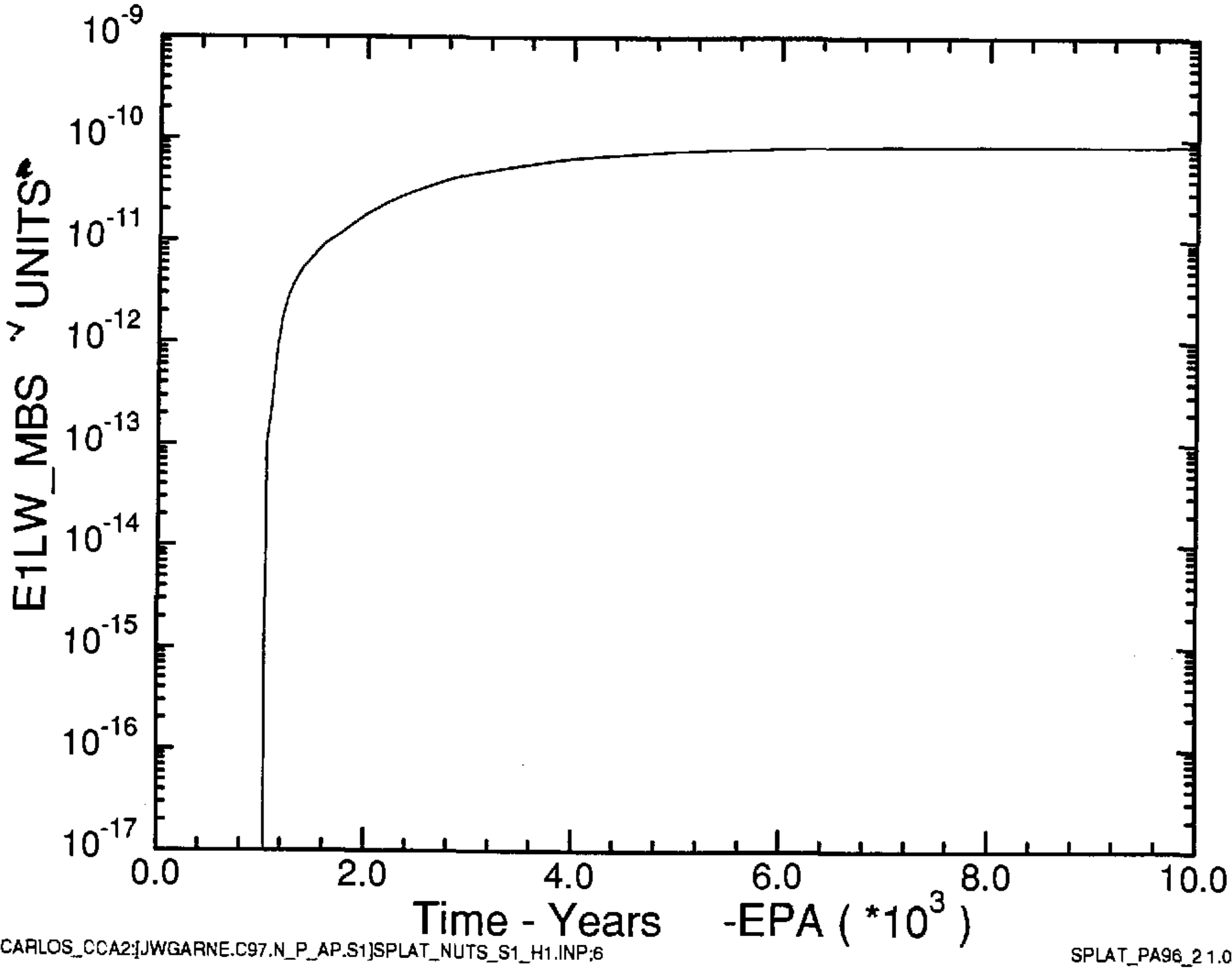
Figures

Tables

Note: Tables contain discharges for screened in vectors only.

SNL WIPP PA96: NUTS SIMULATIONS (C97 S1)

Am-241 Integrated Discharge out MBs at South LWB



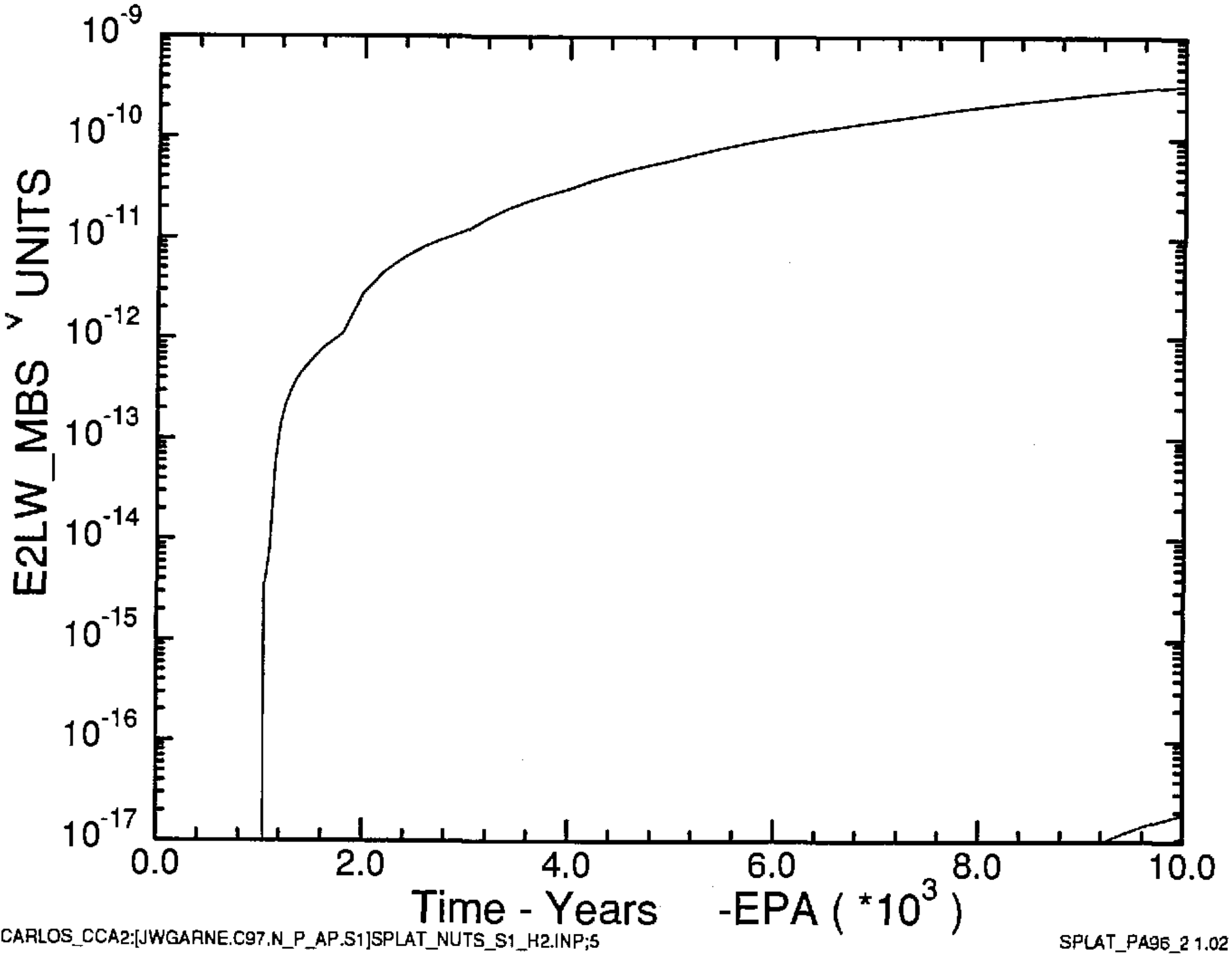
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S1]SPLAT_NUTS_S1_H1.INP;6

SPLAT_PA96_2 1.02 07/01/97 12:49:1

C1

SNL WIPP PA96: NUTS SIMULATIONS (C97 S1)

Pu-239 Integrated Discharge out MBs at South LWB



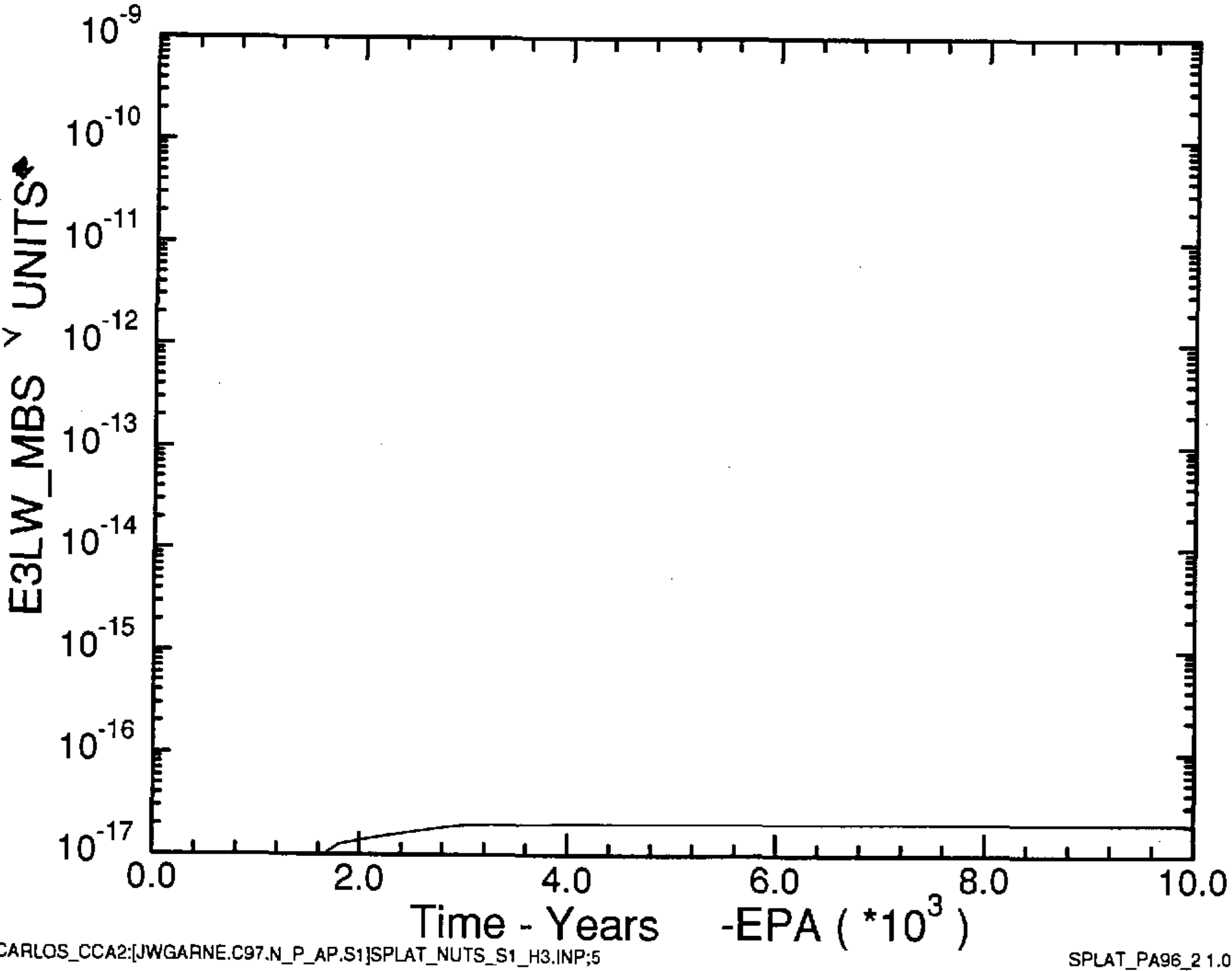
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S1]SPLAT_NUTS_S1_H2.INP;5

SPLAT_PA96_2 1.02 07/01/97 12:49:2

C2

SNL WIPP PA96: NUTS SIMULATIONS (C97 S1)

Pu-238 Integrated Discharge out MBs at South LWB

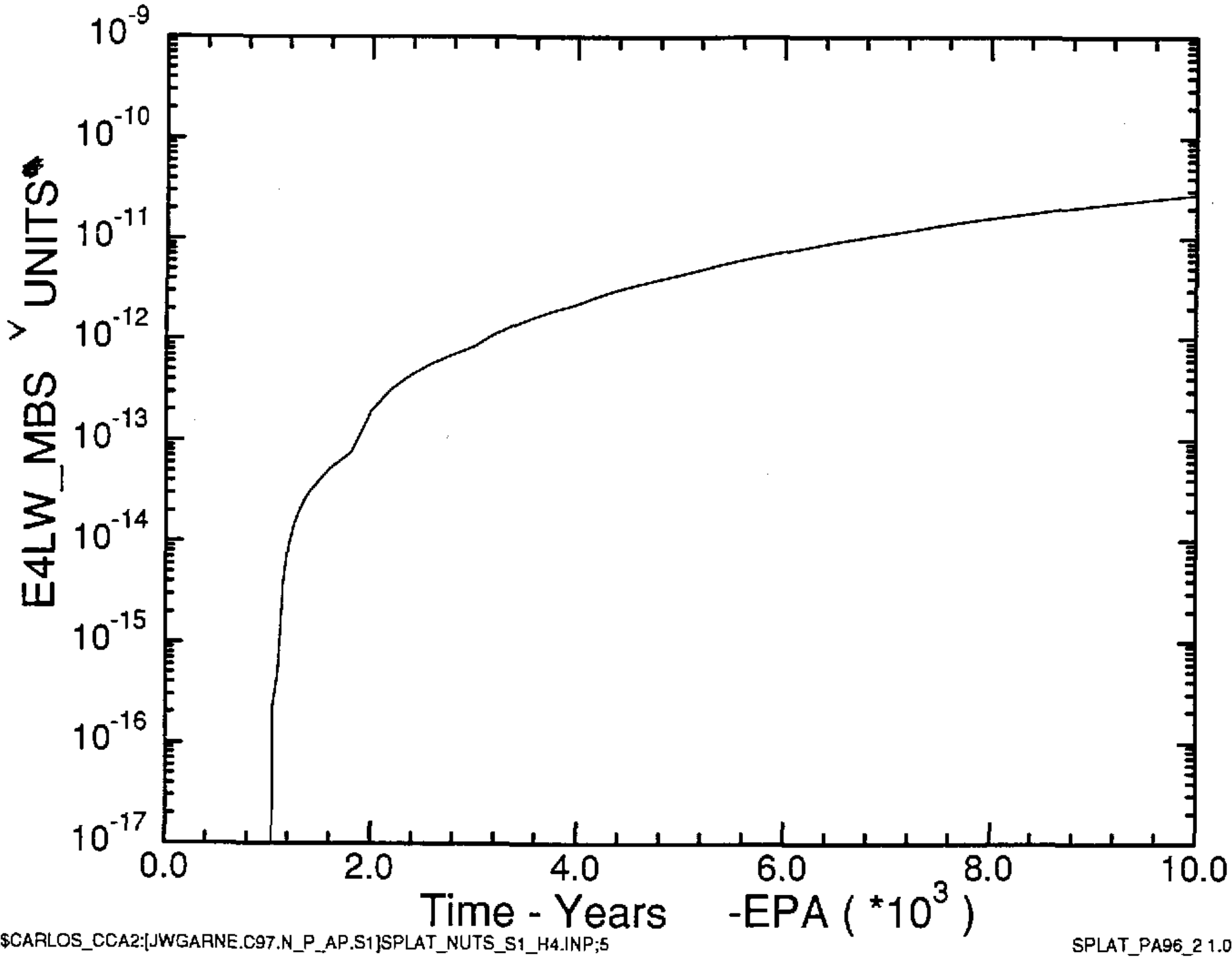


DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S1]SPLAT_NUTS_S1_H3.INP;5

SPLAT_PA96_2 1.02 07/01/97 12:49:

C3

SNL WIPP PA96: NUTS SIMULATIONS (C97 S1)
U-234 Integrated Discharge out MBs at South LWB



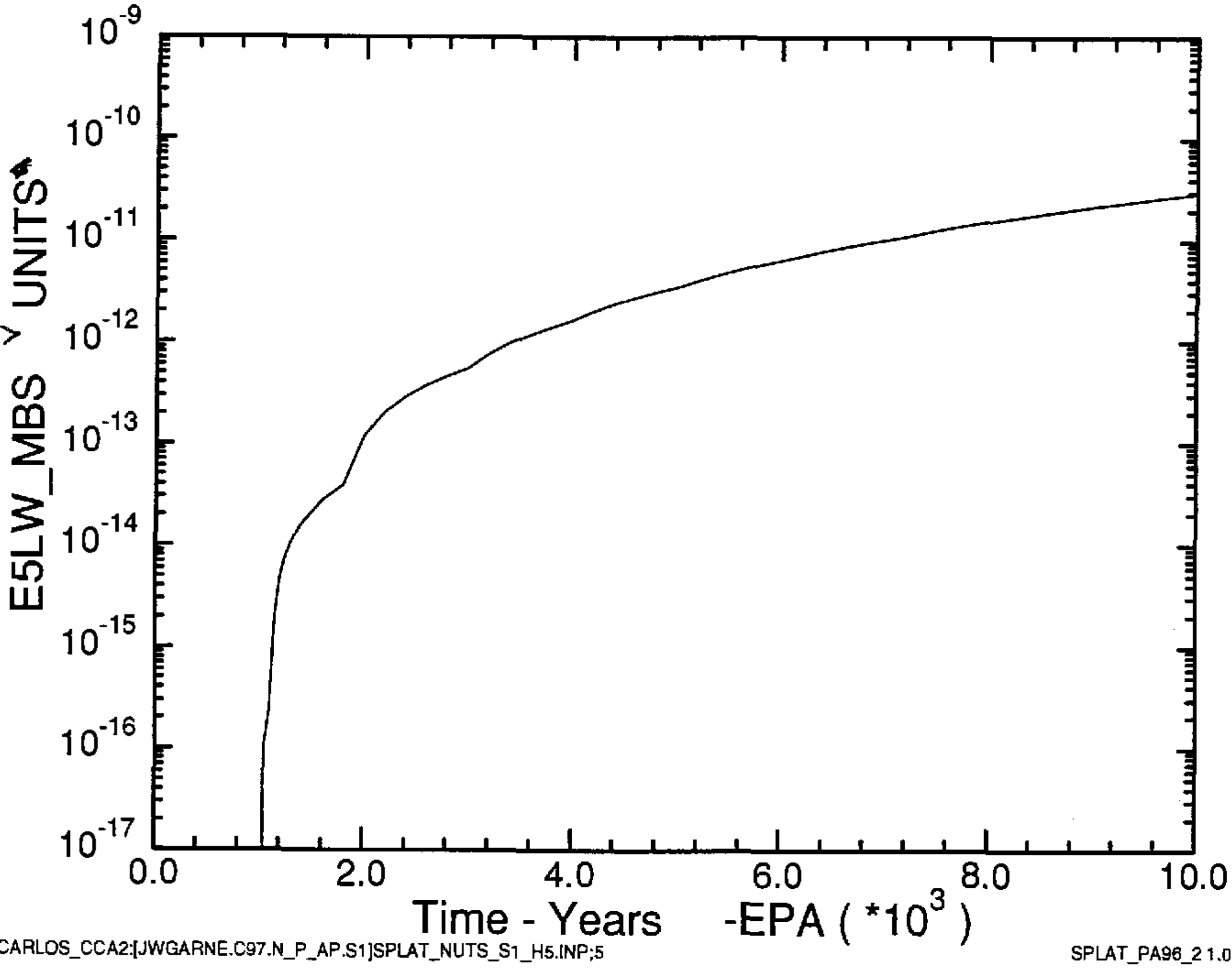
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S1]SPLAT_NUTS_S1_H4.INP;5

SPLAT_PA96_2 1.02 07/01/97 12:49:2

C4

SNL WIPP PA96: NUTS SIMULATIONS (C97 S1)

Th-230 Integrated Discharge out MBs at South LWB



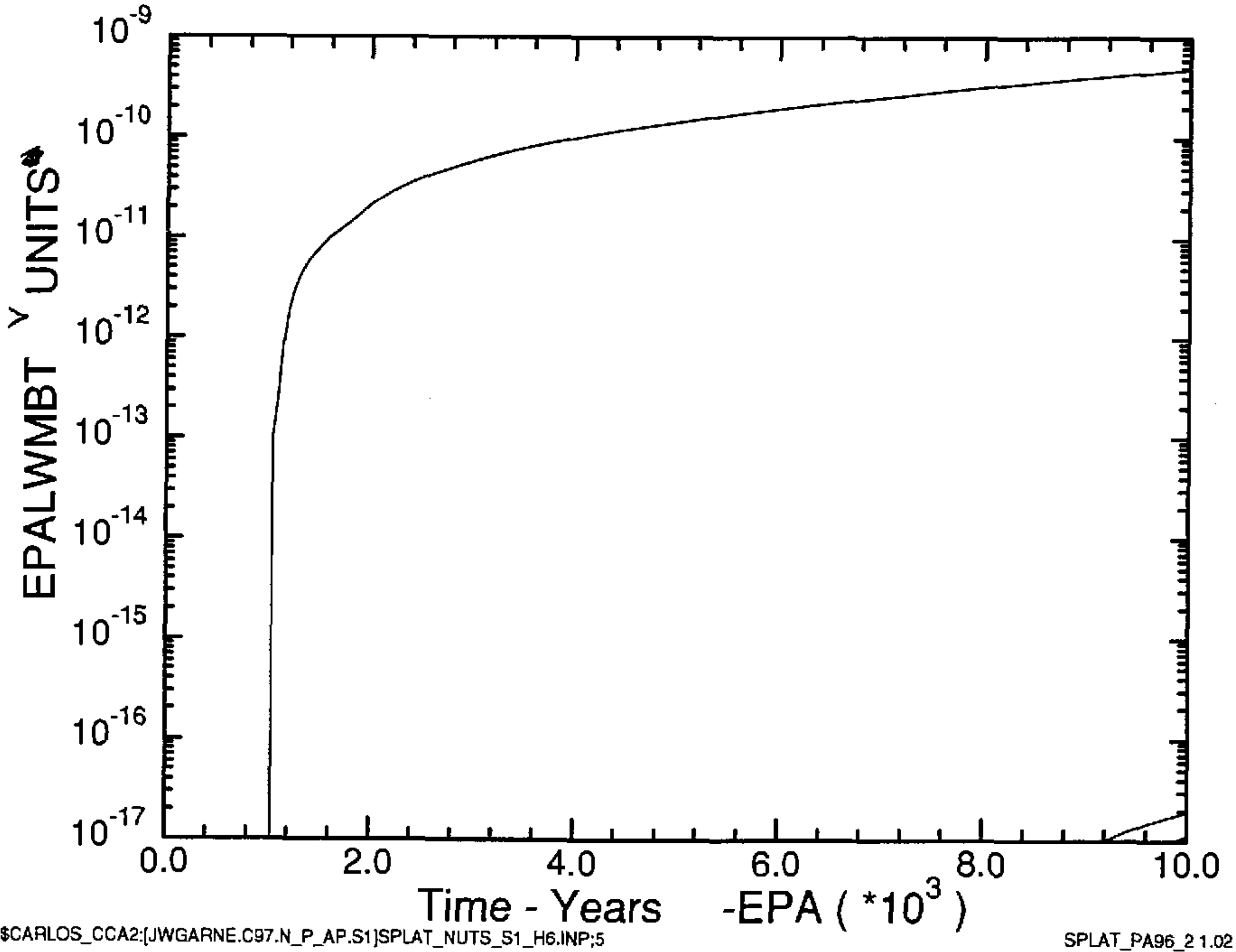
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S1]SPLAT_NUTS_S1_H5.INP;5

SPLAT_PA96_2 1.02 07/01/97 12:49:3

C5

SNL WIPP PA96: NUTS SIMULATIONS (C97 S1)

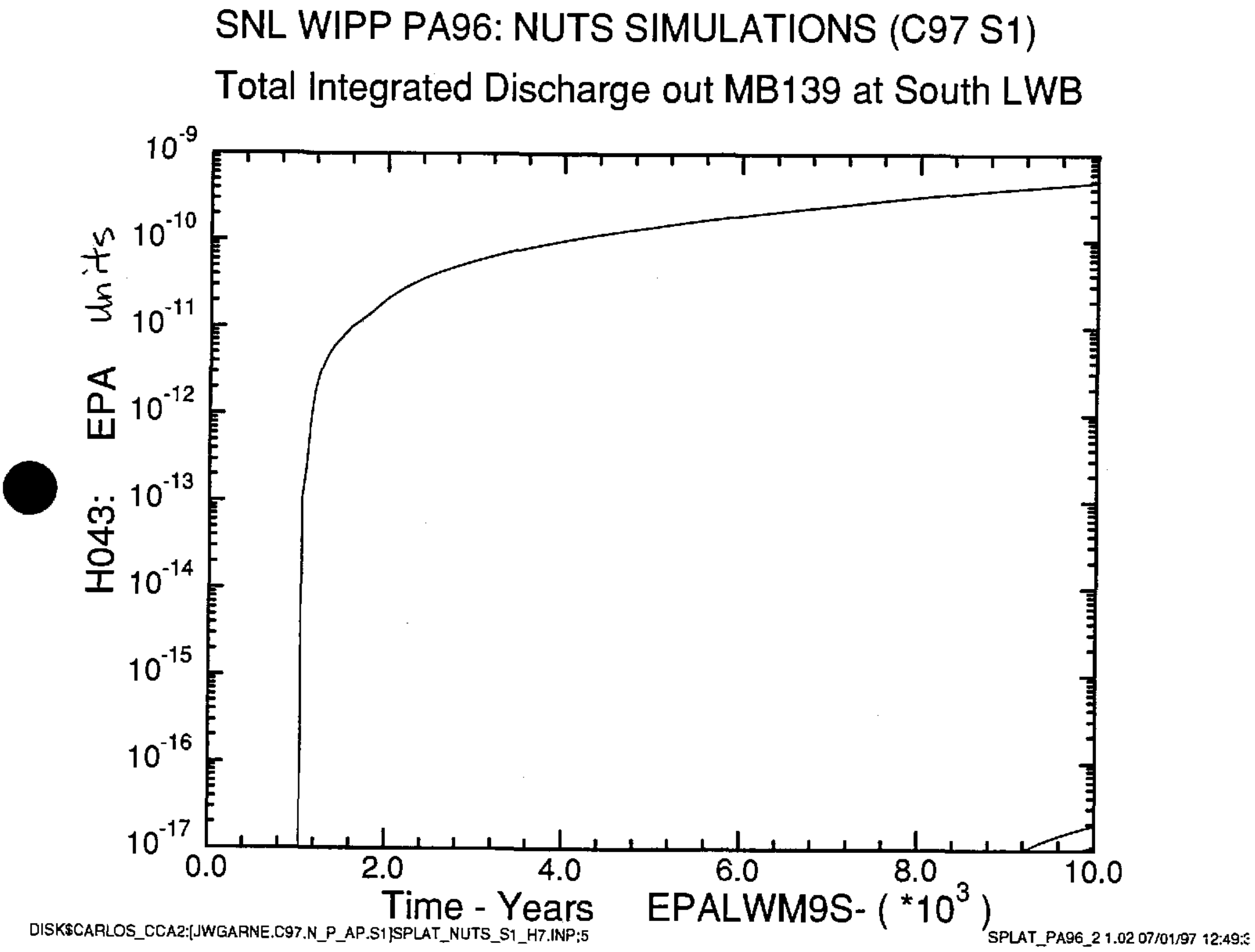
Total Integrated Discharge out MBs at South LWB



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S1]SPLAT_NUTS_S1_H6.INP;5

SPLAT_PA96_2 1.02 07/01/97 12:49:3

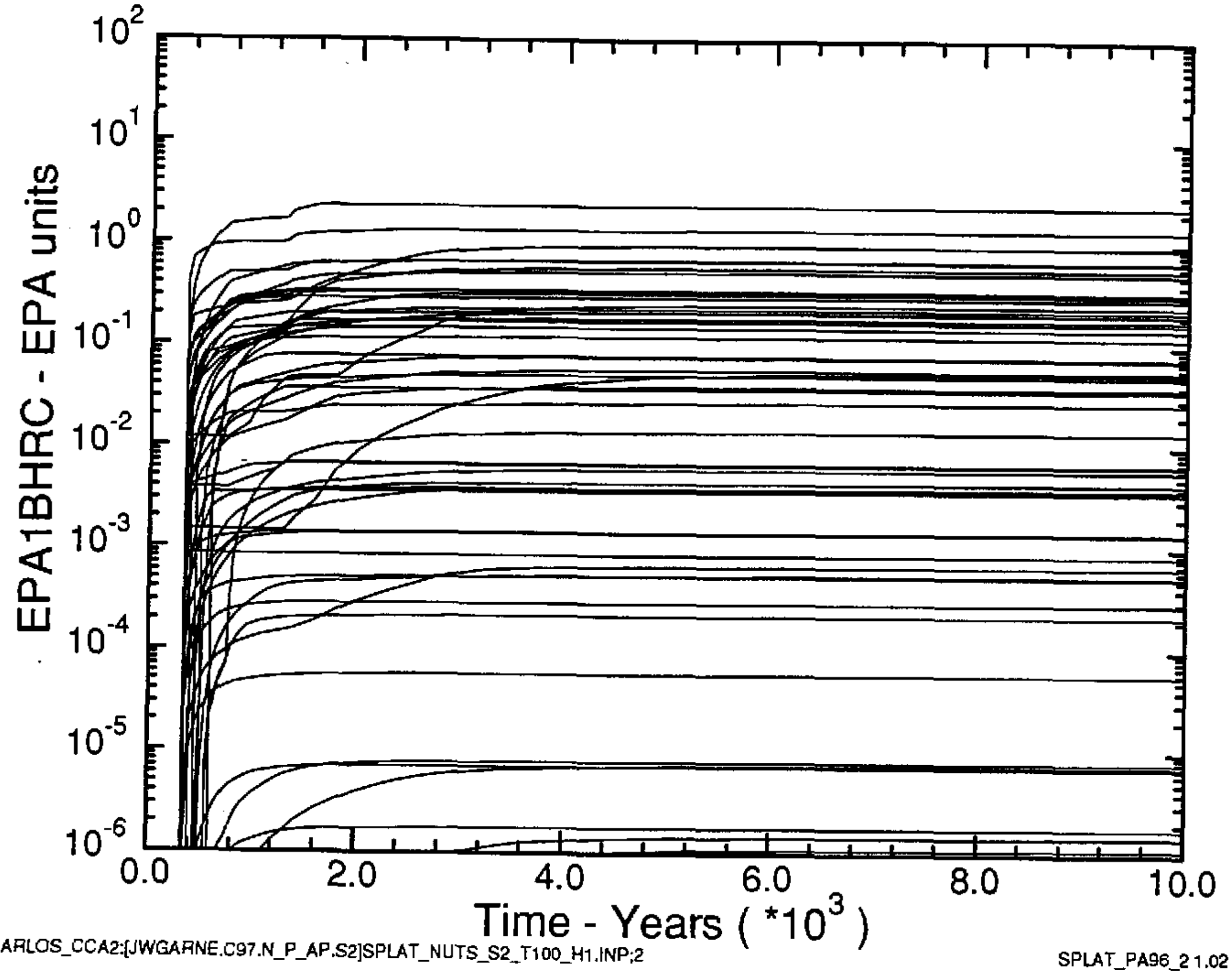
C6


SNL WIPP PA96: NUTS SIMULATIONS (C97 S1)
Total Integrated Discharge out MB139 at South LWB
H043: EPA units
10^-9
10^-10
10^-11
10^-12
10^-13
10^-14
10^-15
10^-16
10^-17
0.0
2.0
4.0
6.0
8.0
10.0
Time - Years EPALWM9S- (*10^3)
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S1]SPLAT_NUTS_S1_H7.INP;5
SPLAT_PA96_2 1.02 07/01/97 12:49:3

C7

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T100)

Am-241 Integrated Discharge up Borehole at MB138



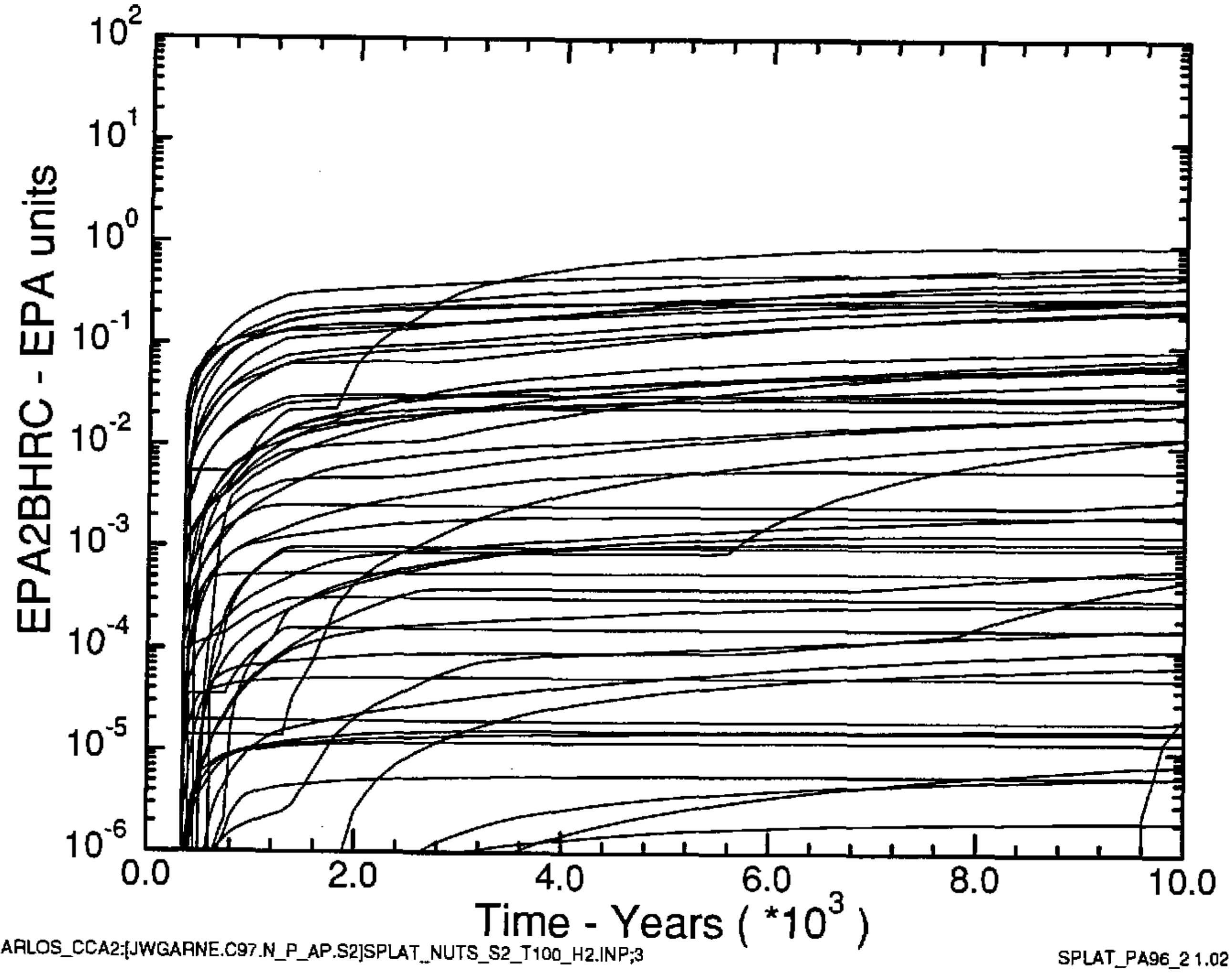
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T100_H1.INP;2

SPLAT_PA96_2 1.02 06/30/97 10:43:1

C8

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T100)

Pu-239 Integrated Discharge up Borehole at MB138



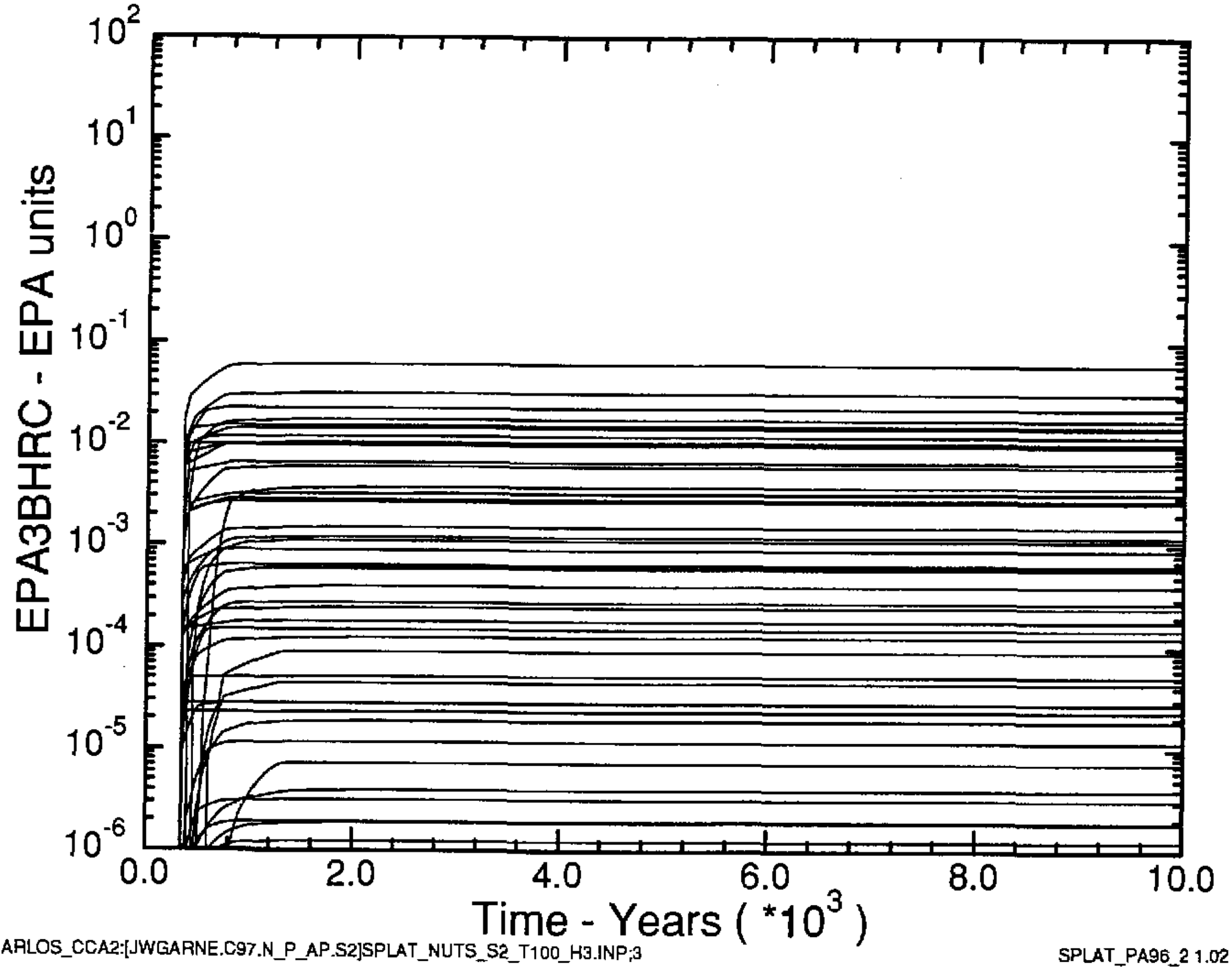
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T100_H2.INP;3

SPLAT_PA96_2 1.02 06/30/97 10:43:2

C9

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T100)

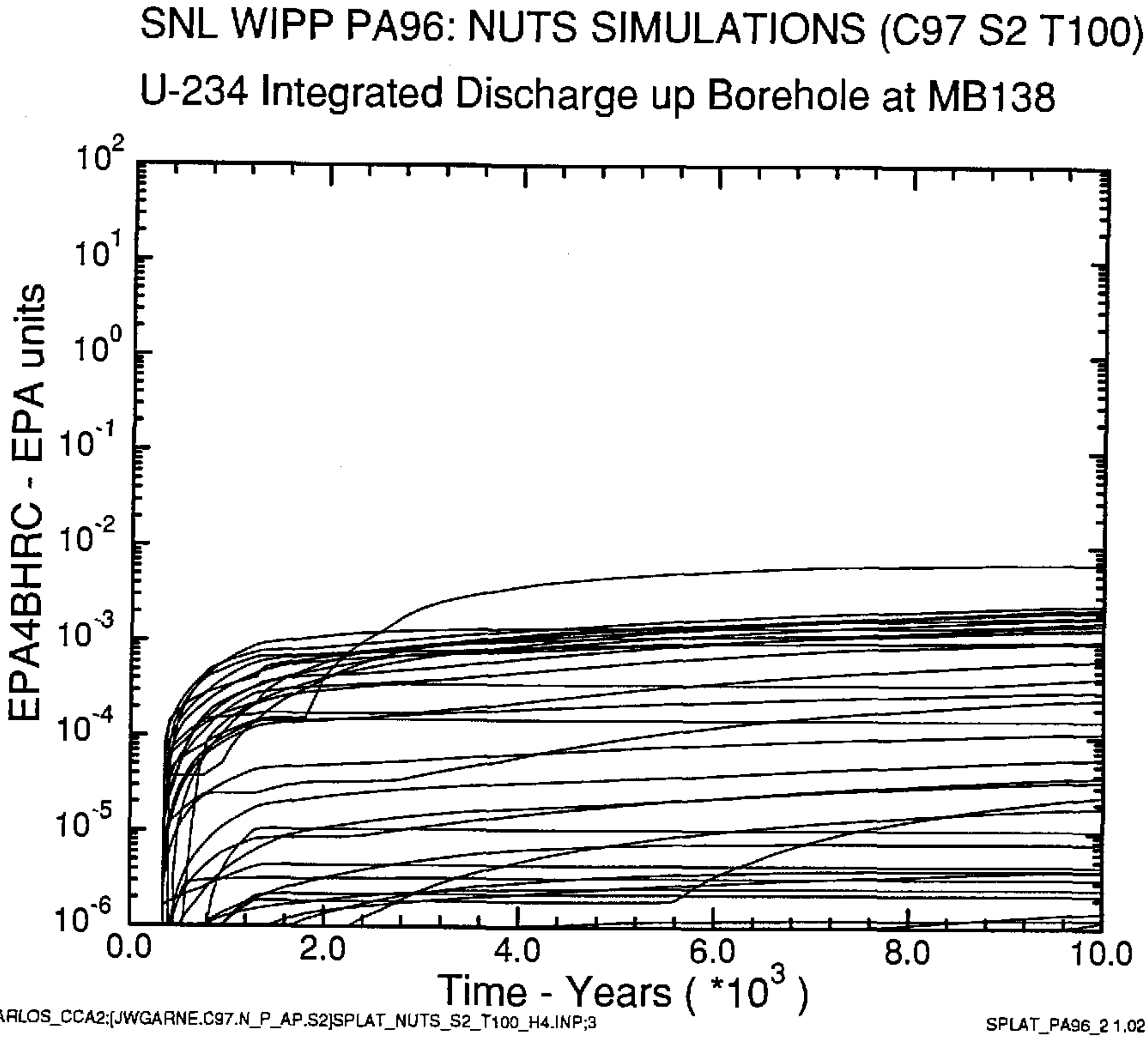
Pu-238 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T100_H3.INP;3

SPLAT_PA96_2 1.02 06/30/97 10:43:3

C10



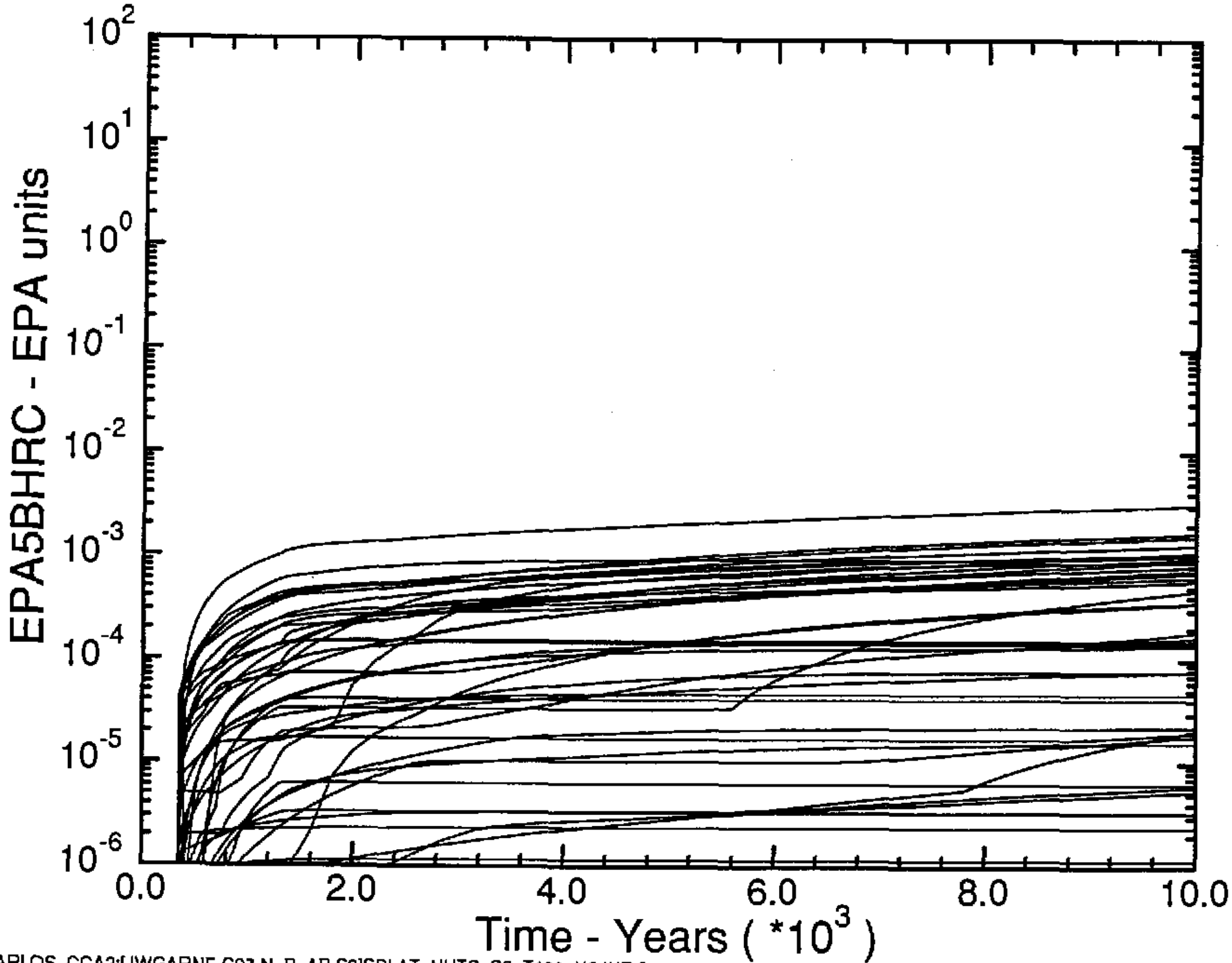
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T100_H4.INP;3

SPLAT_PA96_2 1.02 06/30/97 10:43:4

C11

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T100)

Th-230 Integrated Discharge up Borehole at MB138



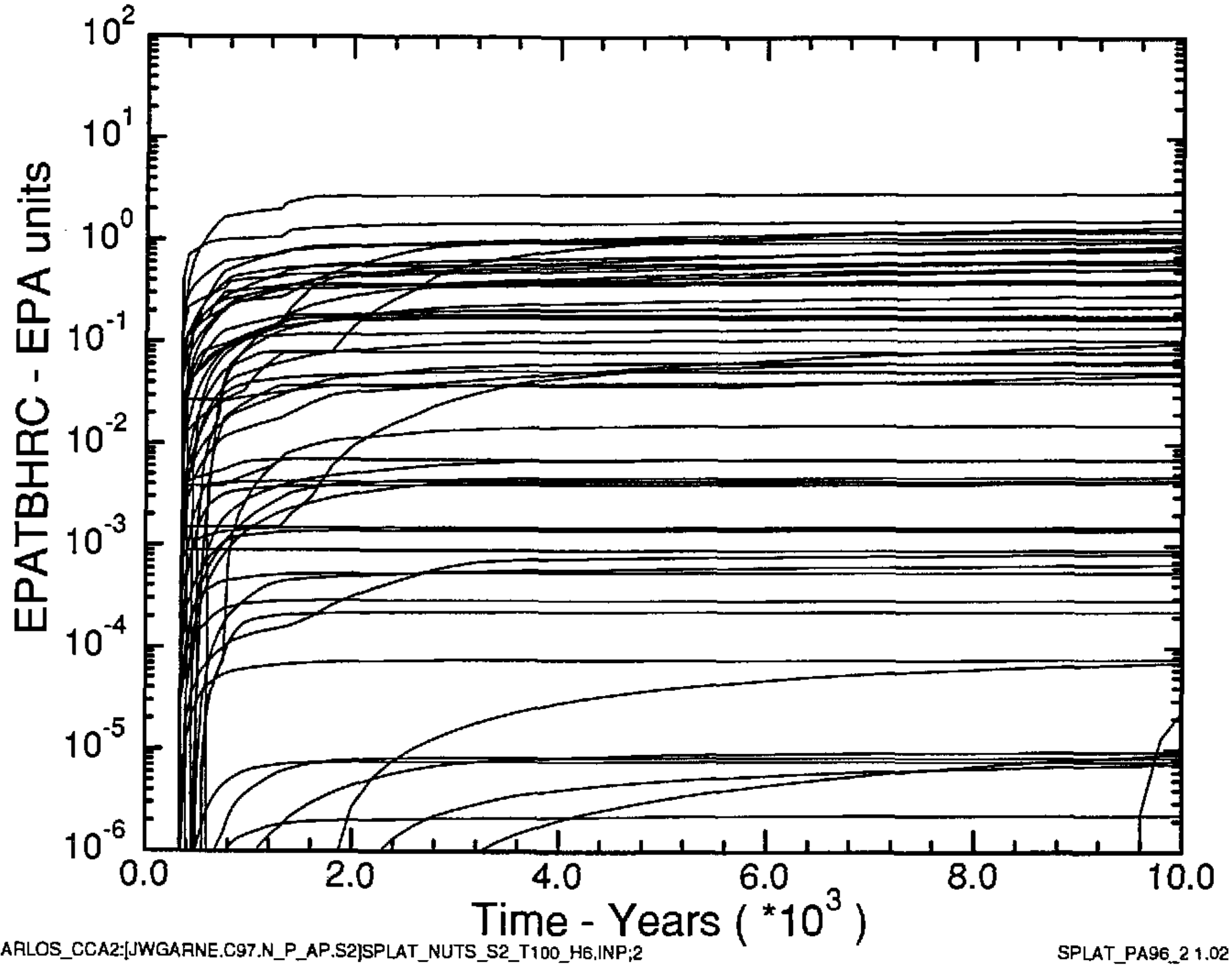
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T100_H5.INP;3

SPLAT_PA96_2 1.02 06/30/97 10:43:5

C12

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T100)

Total Integrated Discharge up Borehole at MB138



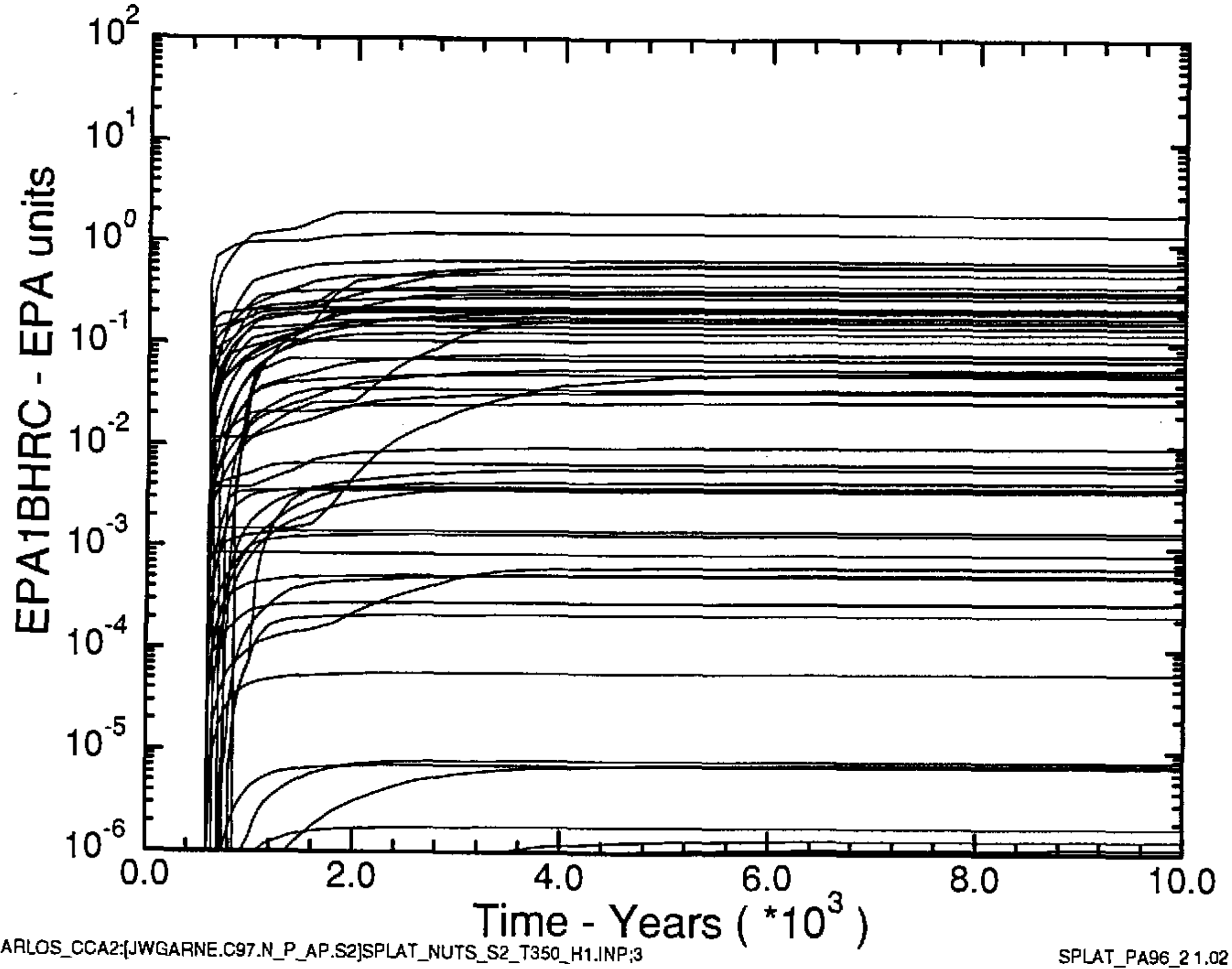
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T100_H6.INP;2

SPLAT_PA96_2 1.02 06/30/97 10:44:

C13

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T350)

Am-241 Integrated Discharge up Borehole at MB138



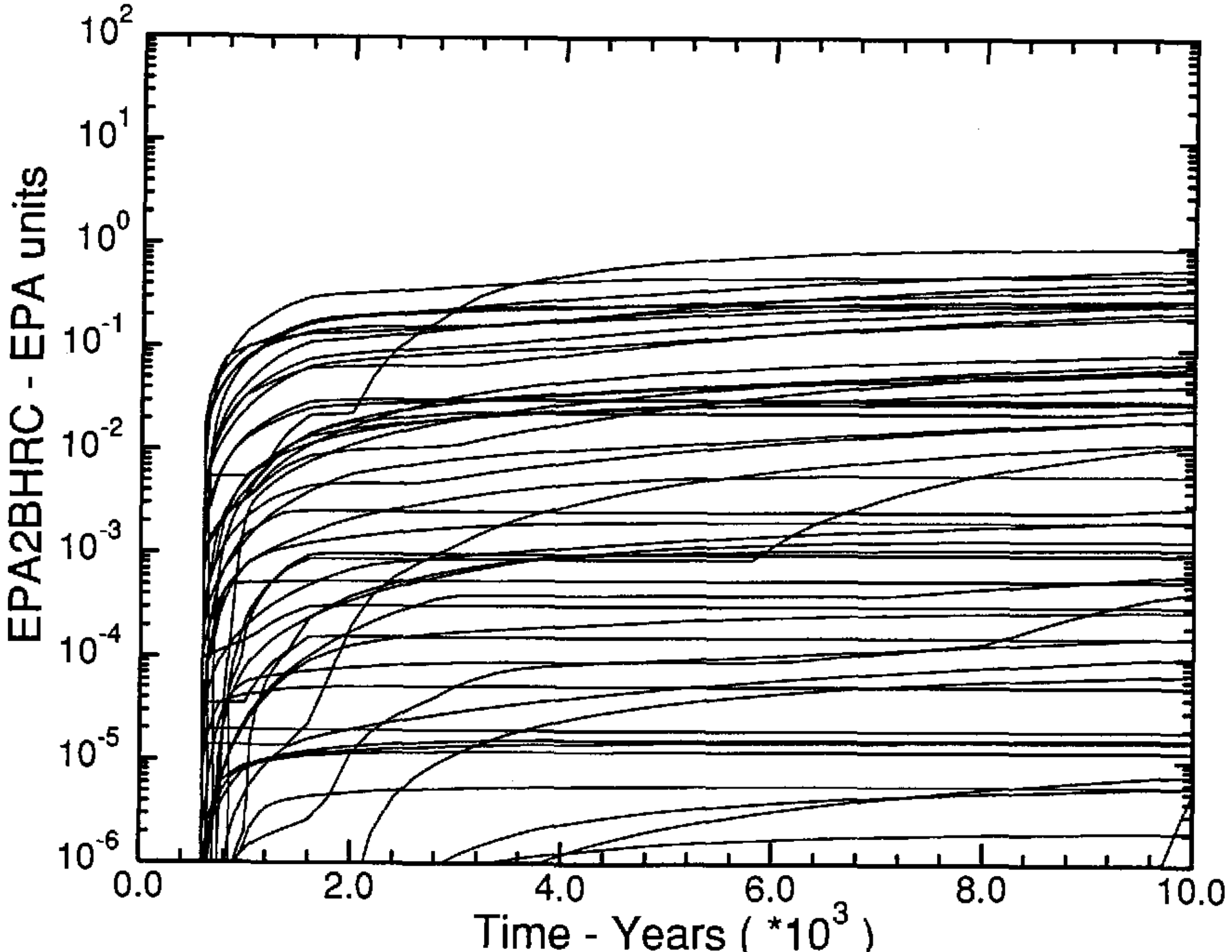
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T350_H1.INP;3

SPLAT_PA96_2 1.02 06/30/97 10:44:1

C14

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T350)

Pu-239 Integrated Discharge up Borehole at MB138



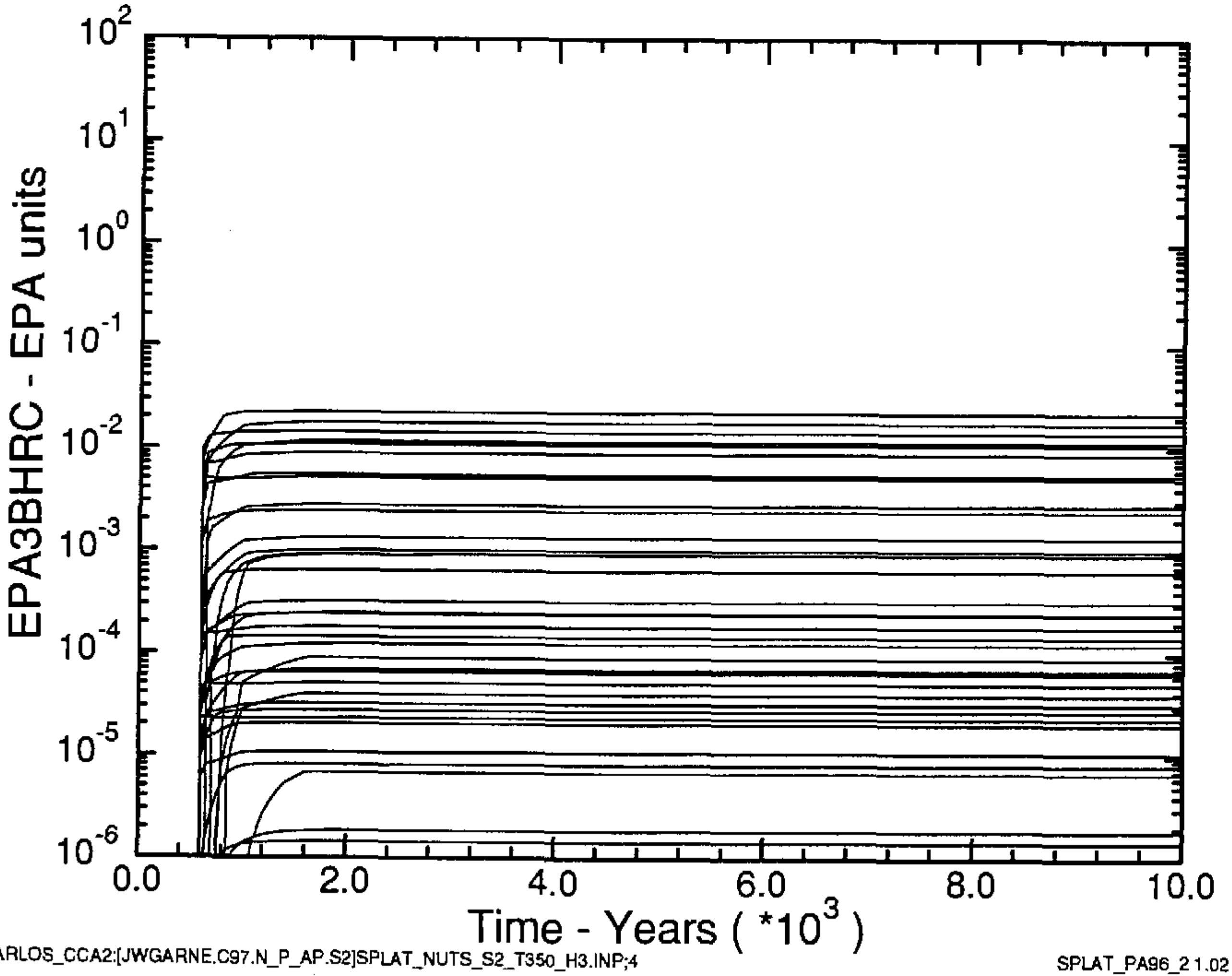
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T350_H2.INP;4

SPLAT_PA96_2 1.02 06/30/97 10:44:1

C15

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T350)

Pu-238 Integrated Discharge up Borehole at MB138



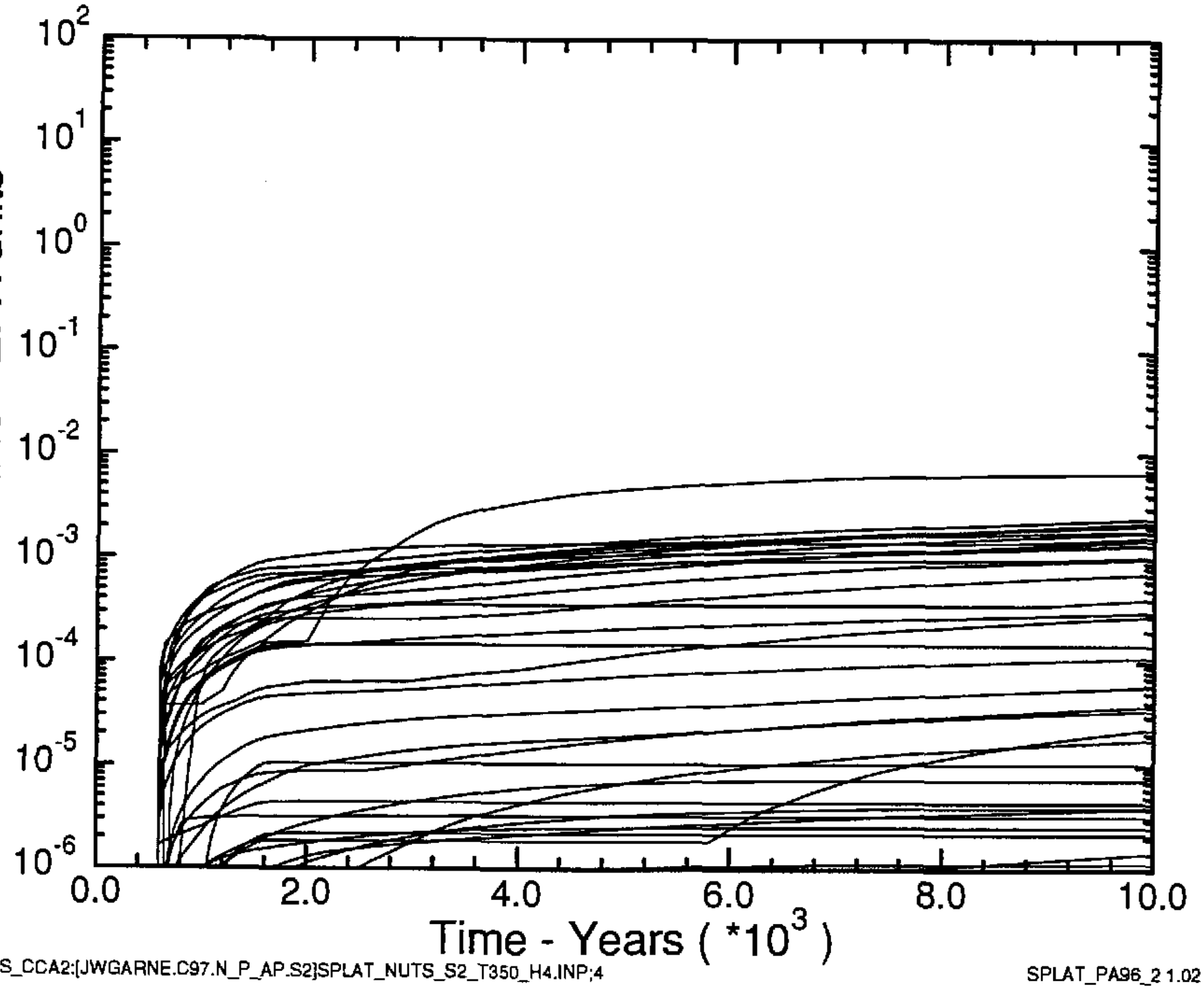
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T350_H3.INP;4

SPLAT_PA96_2 1.02 06/30/97 10:44:2

C16

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T350)

U-234 Integrated Discharge up Borehole at MB138



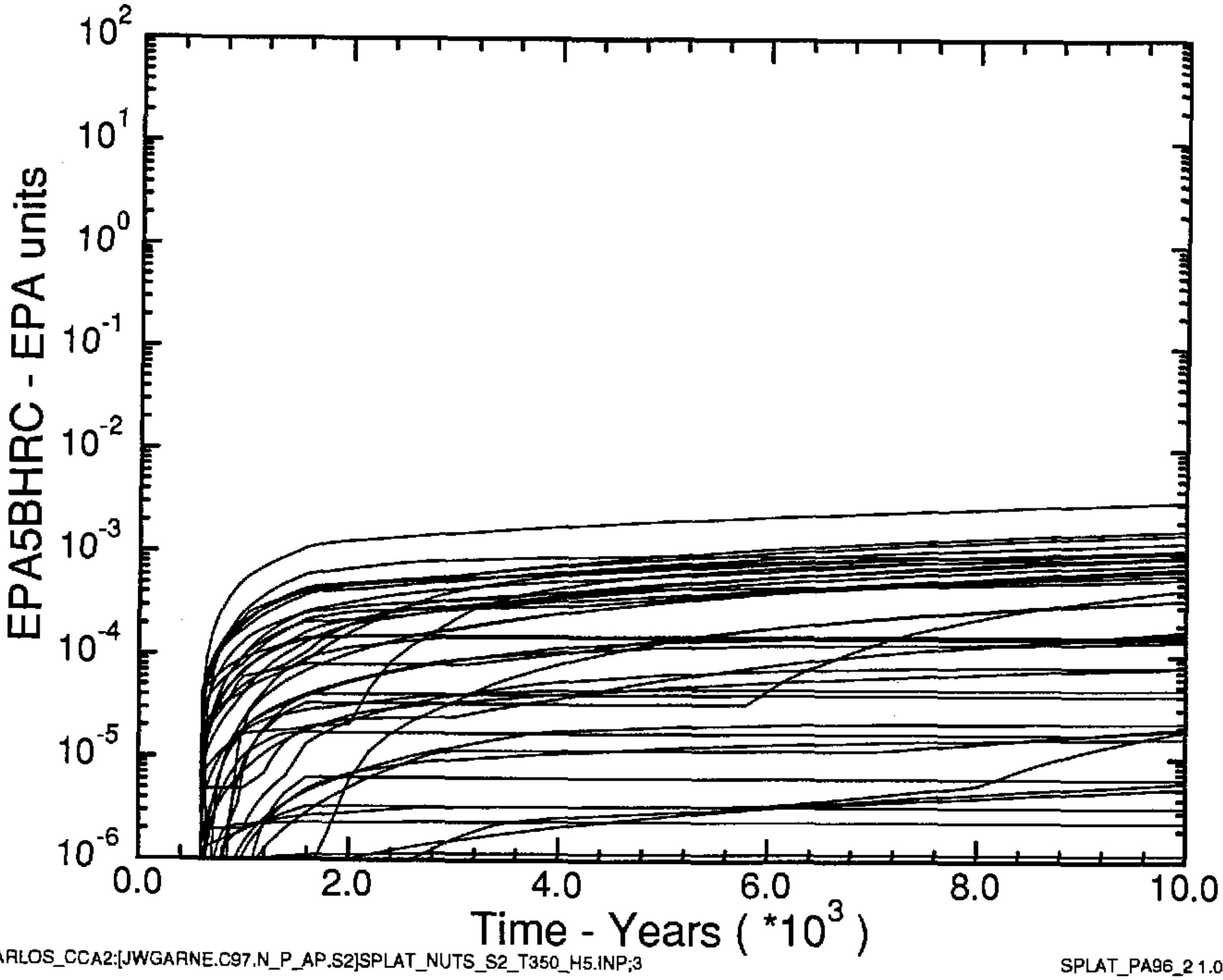
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T350_H4.INP;4

SPLAT_PA96_2 1.02 06/30/97 10:44:

C17

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T350)

Th-230 Integrated Discharge up Borehole at MB138



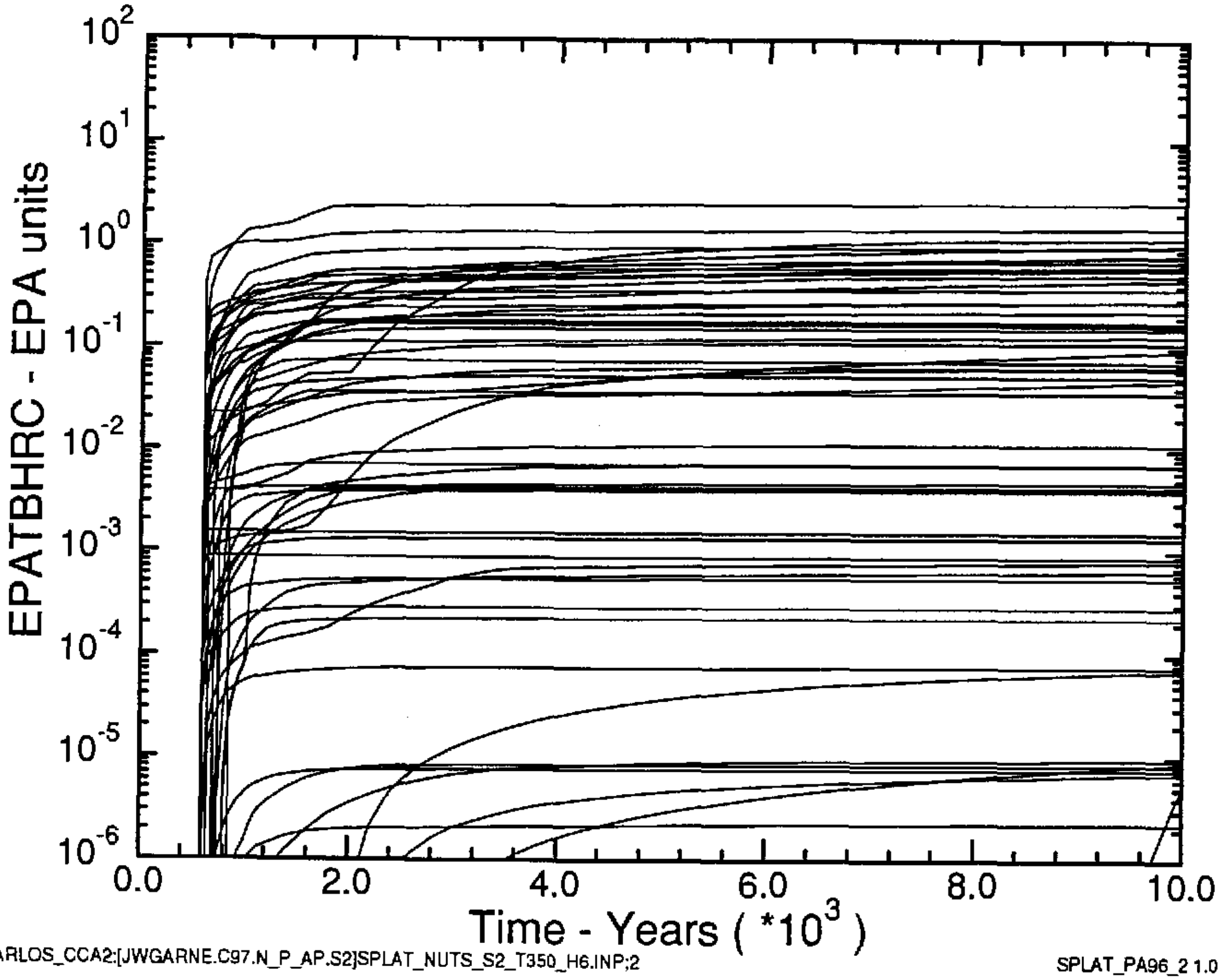
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T350_H5.INP;3

SPLAT_PA96_2 1.02 06/30/97 10:44:4

C18

SNL WIPP PA96: NUTS SIMULATIONS (C97 S2 T350)

Total Integrated Discharge up Borehole at MB138



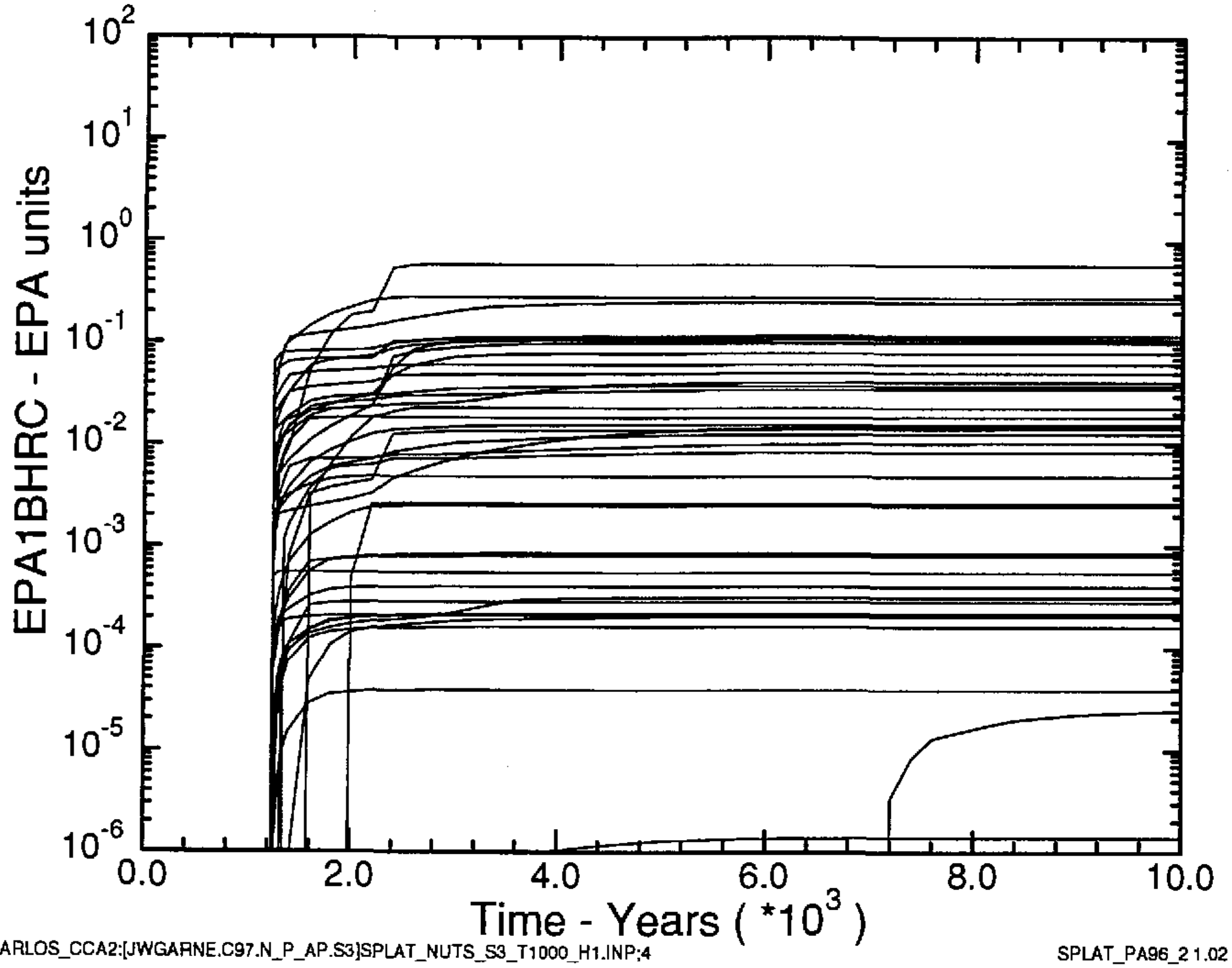
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S2]SPLAT_NUTS_S2_T350_H6.INP;2

SPLAT_PA96_2 1.02 06/30/97 10:44:5

C19

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T1000)

Am-241 Integrated Discharge up Borehole at MB138



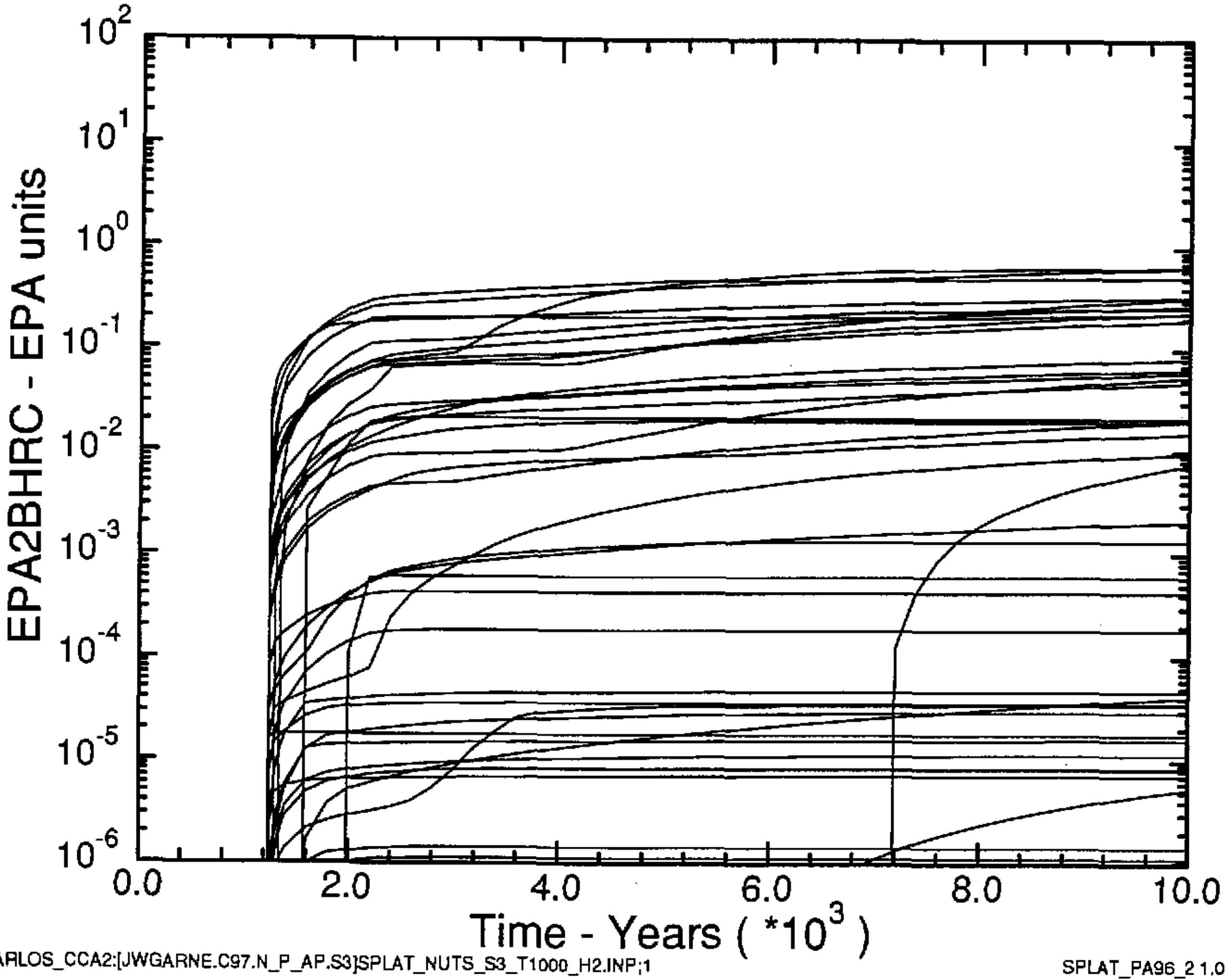
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T1000_H1.INP;4

SPLAT_PA96_2 1.02 06/30/97 14:28:1

C 20

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T1000)

Pu-239 Integrated Discharge up Borehole at MB138



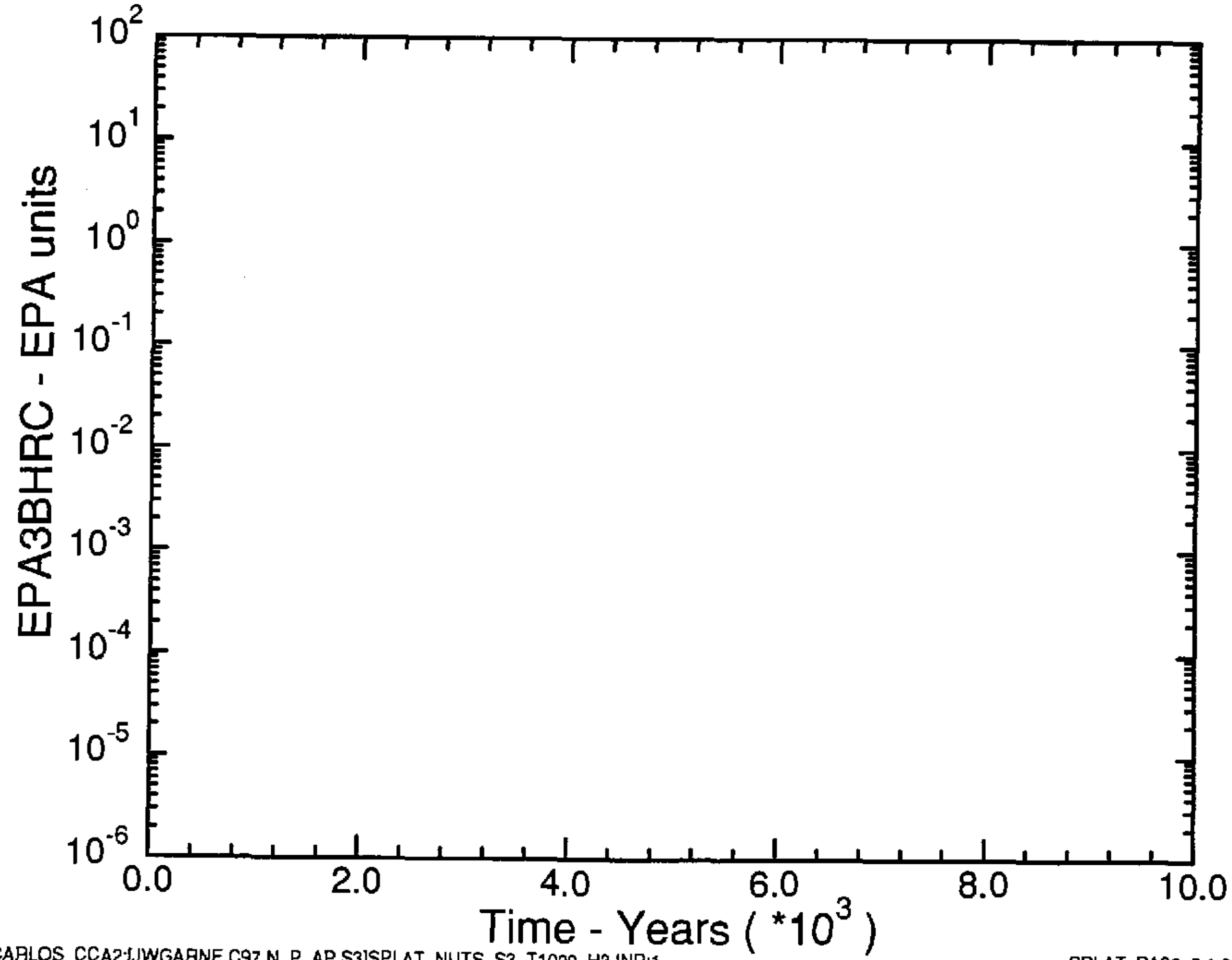
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T1000_H2.INP;1

SPLAT_PA96_2 1.02 06/30/97 14:28:2

C21

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T1000)

Pu-238 Integrated Discharge up Borehole at MB138



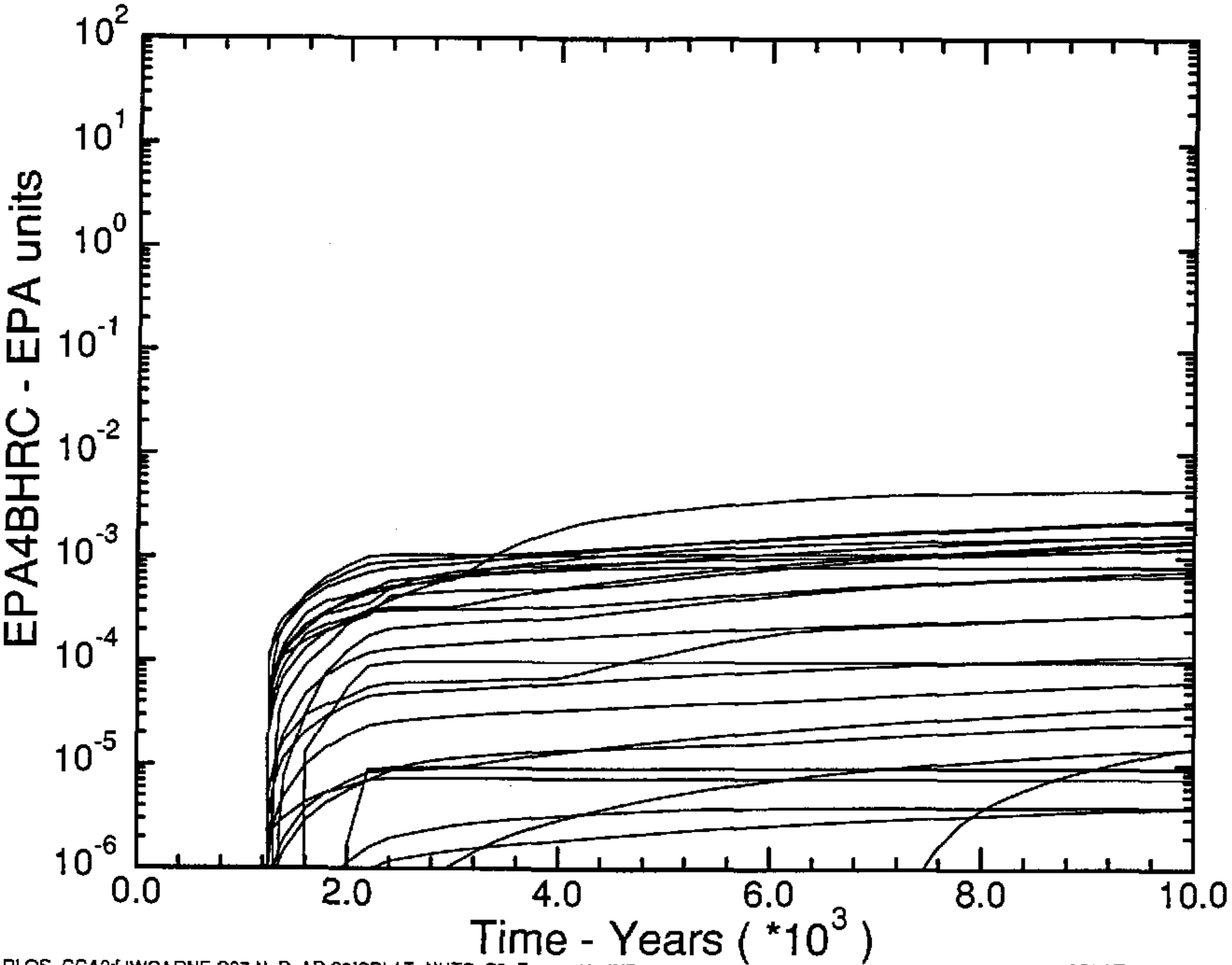
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T1000_H3.INP;1

SPLAT_PA96_2 1.02 06/30/97 14:28:2

C22

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T1000)

U-234 Integrated Discharge up Borehole at MB138



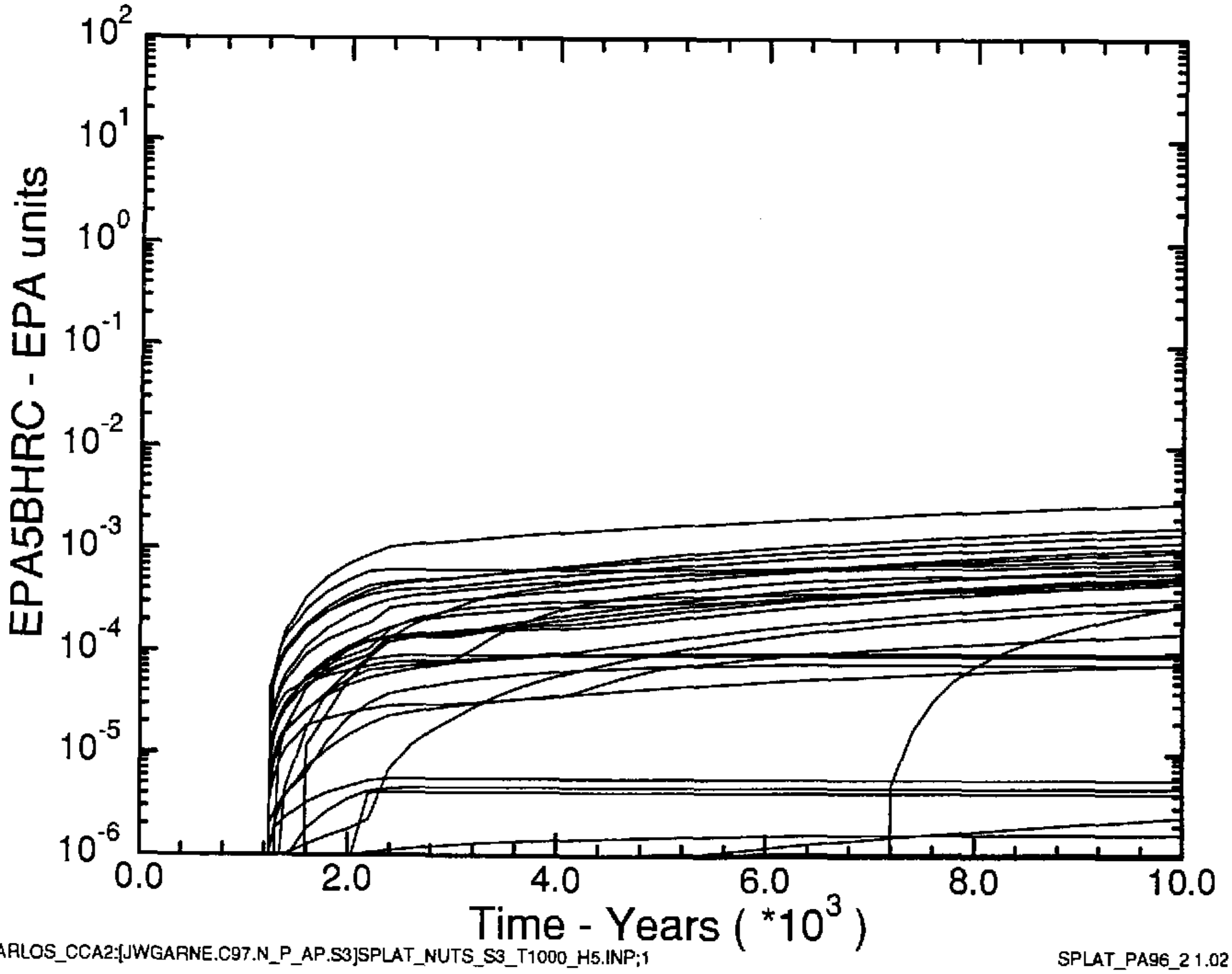
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T1000_H4.INP;1

SPLAT_PA96_2 1.02 06/30/97 14:28:3

C23

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T1000)

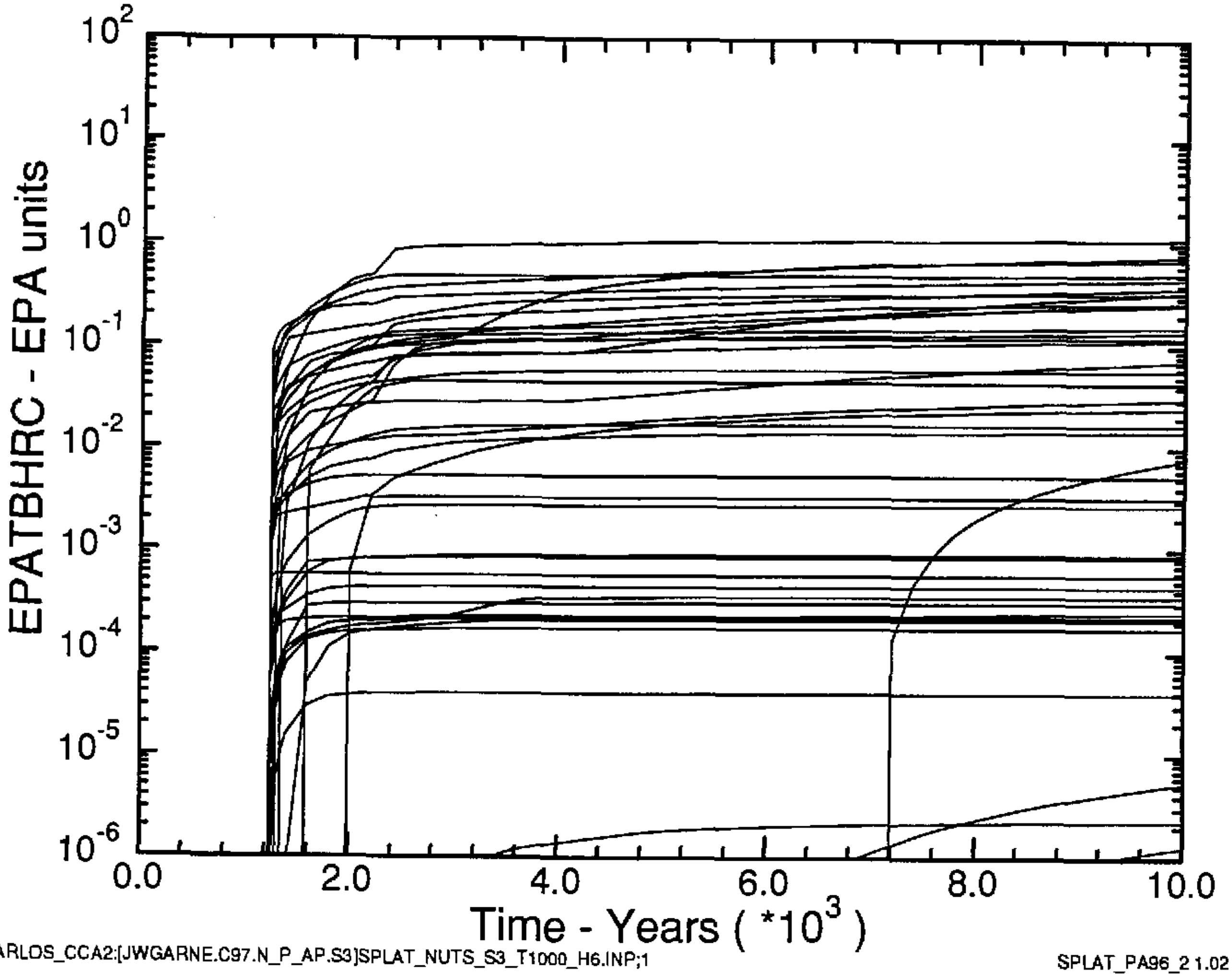
Th-230 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T1000_H5.INP;1

SPLAT_PA96_2 1.02 06/30/97 14:28:3

C24



SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T1000)

Total Integrated Discharge up Borehole at MB138

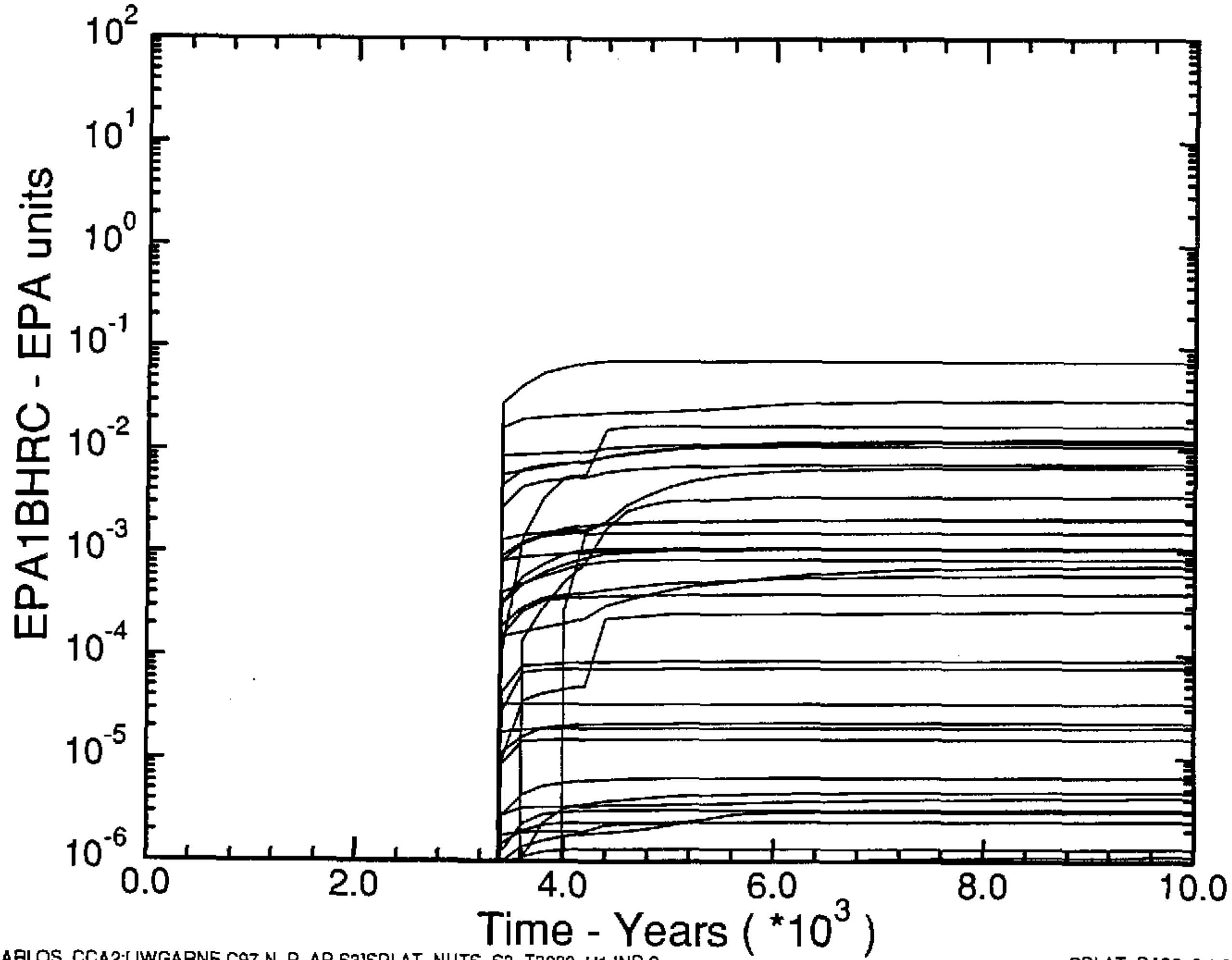
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T1000_H6.INP;1

SPLAT_PA96_2 1.02 06/30/97 14:28:4

C25

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T3000)

Am-241 Integrated Discharge up Borehole at MB138



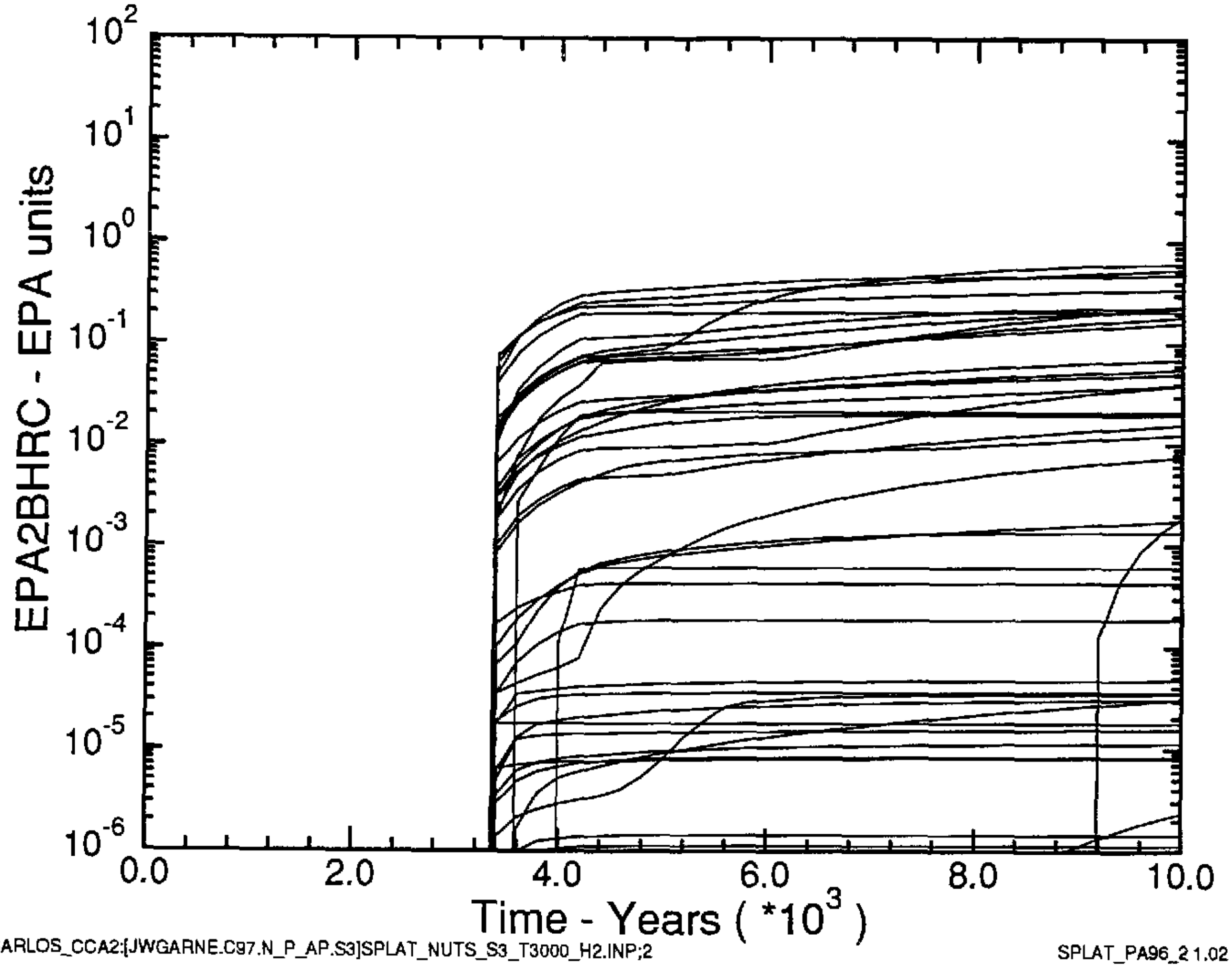
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T3000_H1.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:29:2

C26

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T3000)

Pu-239 Integrated Discharge up Borehole at MB138



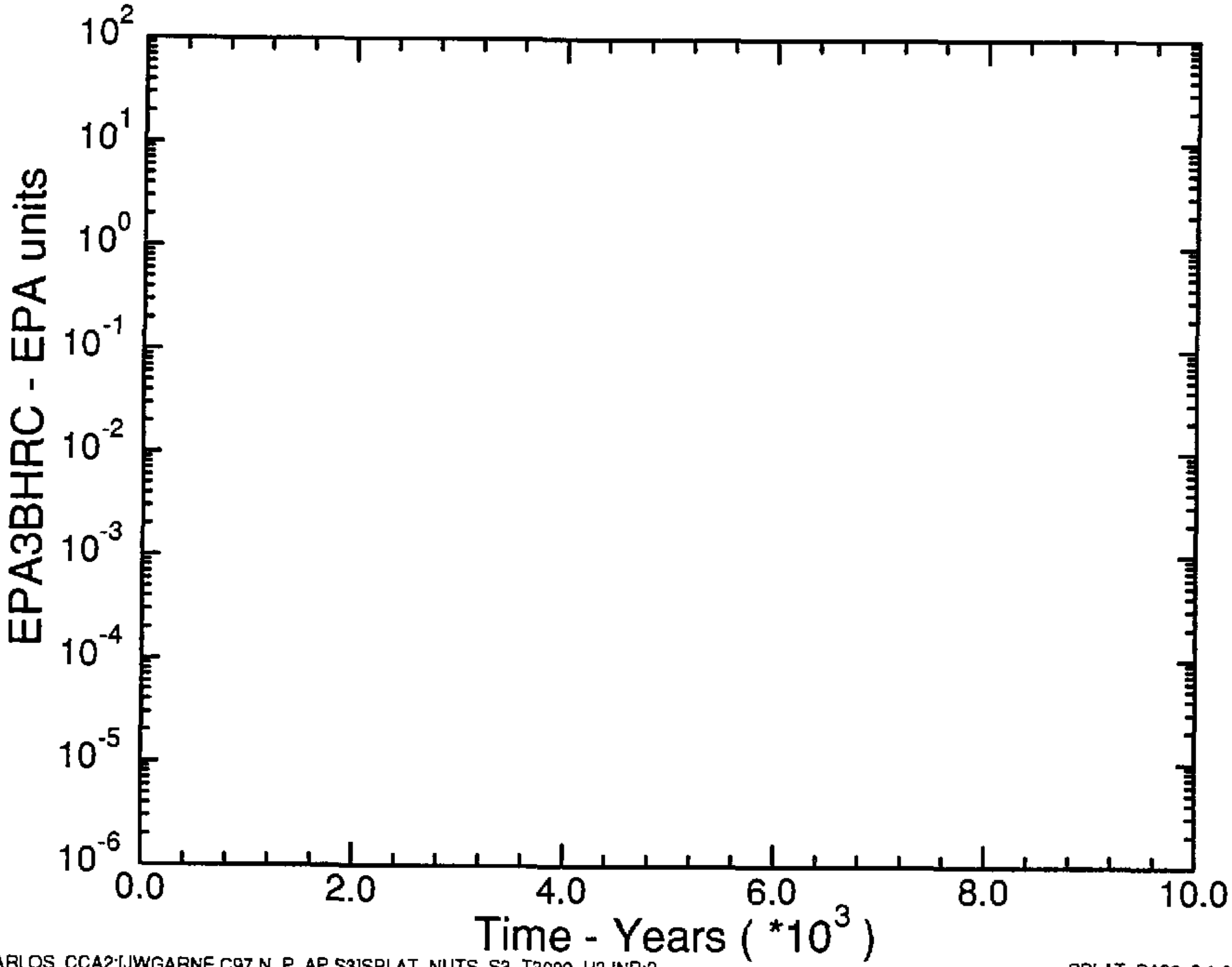
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T3000_H2.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:29:2

C27

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T3000)

Pu-238 Integrated Discharge up Borehole at MB138



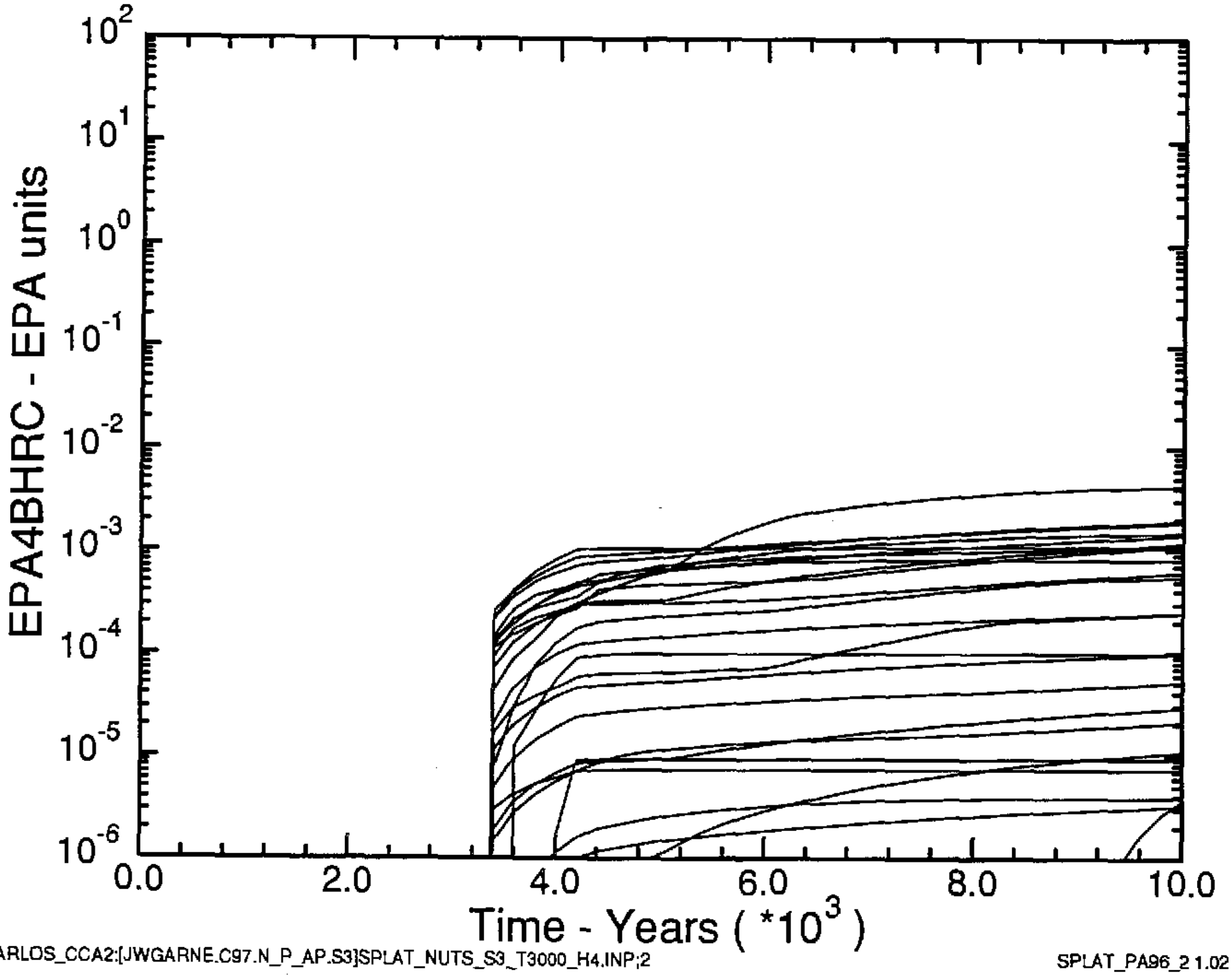
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T3000_H3.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:29:3

C28

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T3000)

U-234 Integrated Discharge up Borehole at MB138



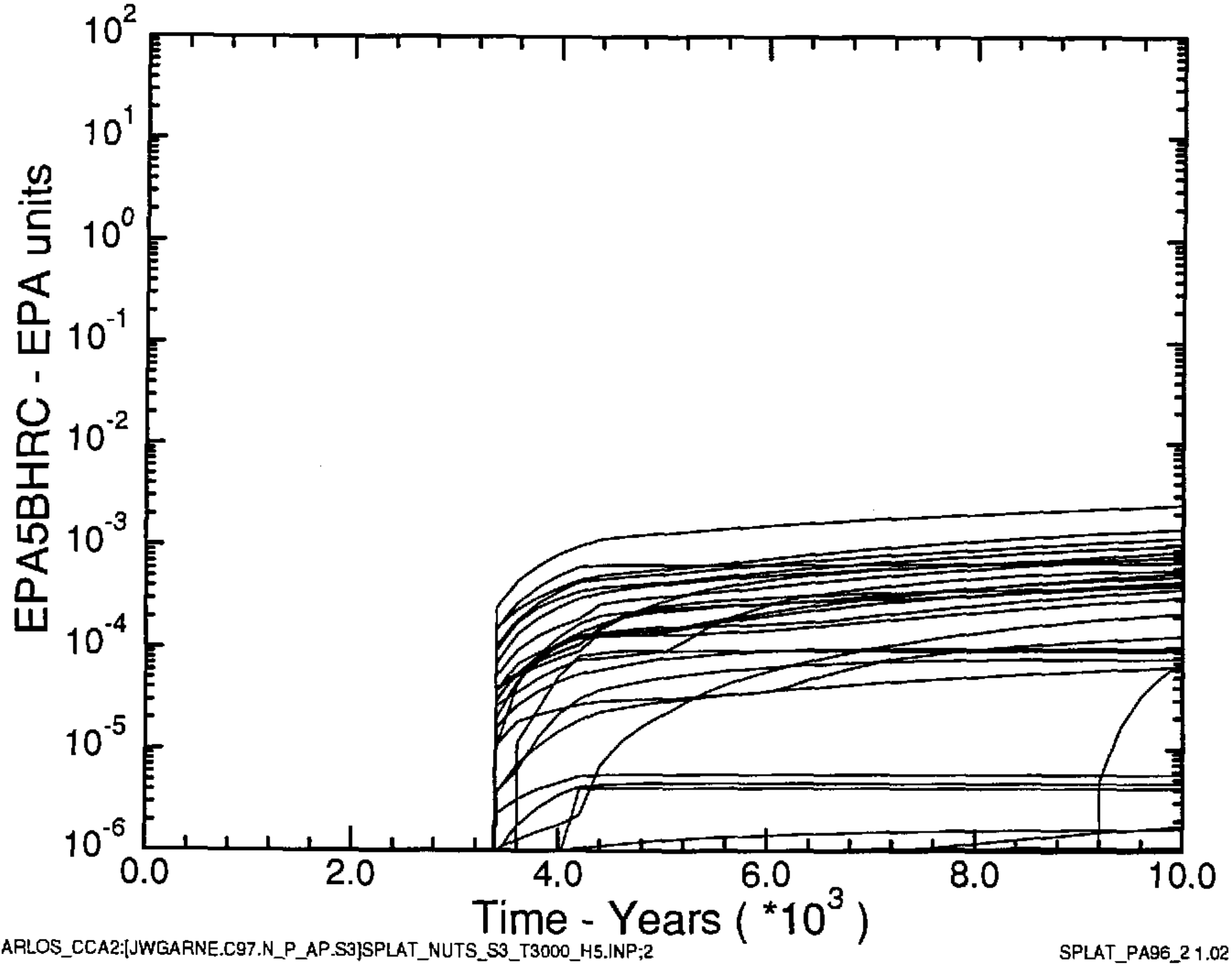
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T3000_H4.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:29:3

C29

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T3000)

Th-230 Integrated Discharge up Borehole at MB138



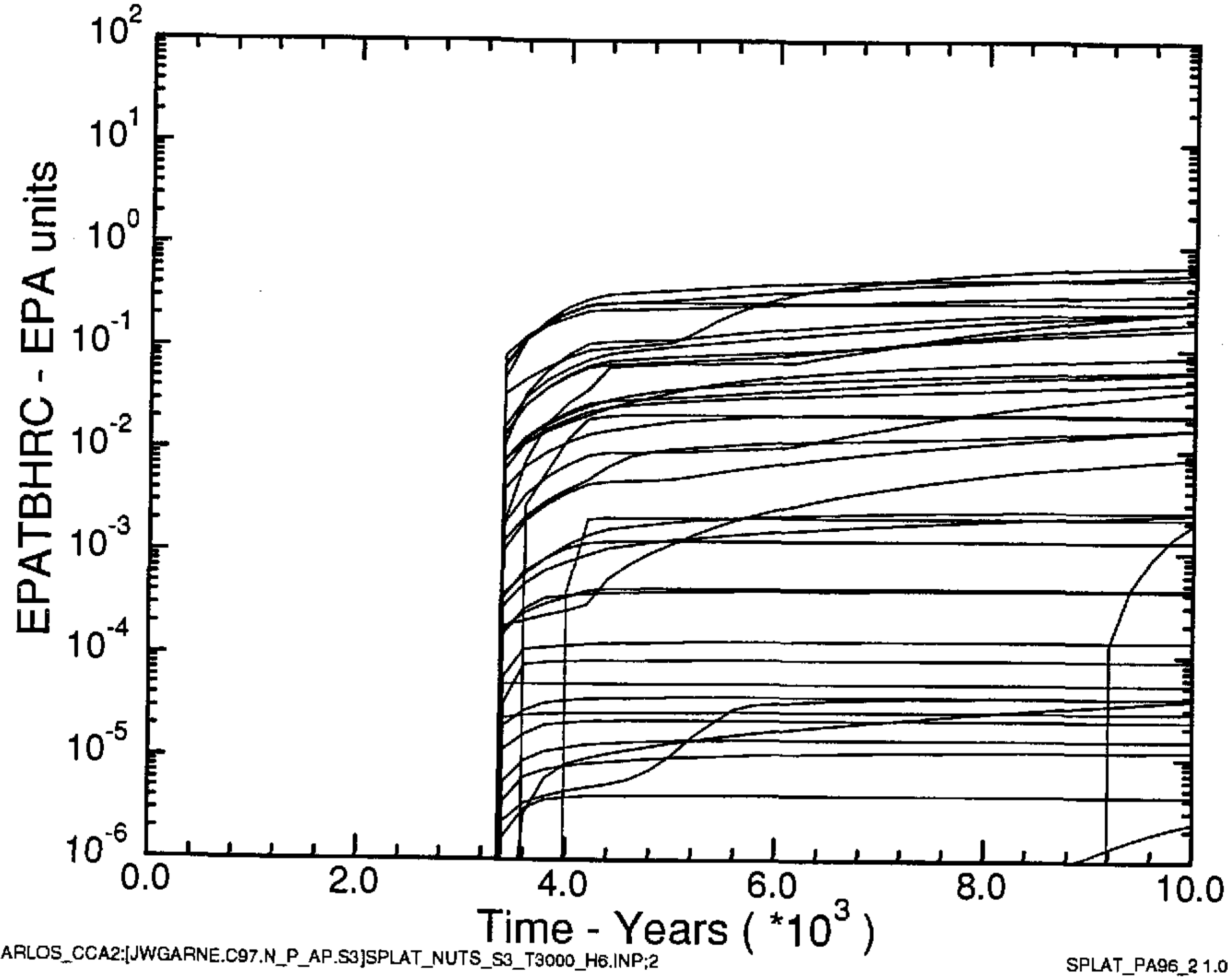
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T3000_H5.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:29:3

C30

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T3000)

Total Integrated Discharge up Borehole at MB138



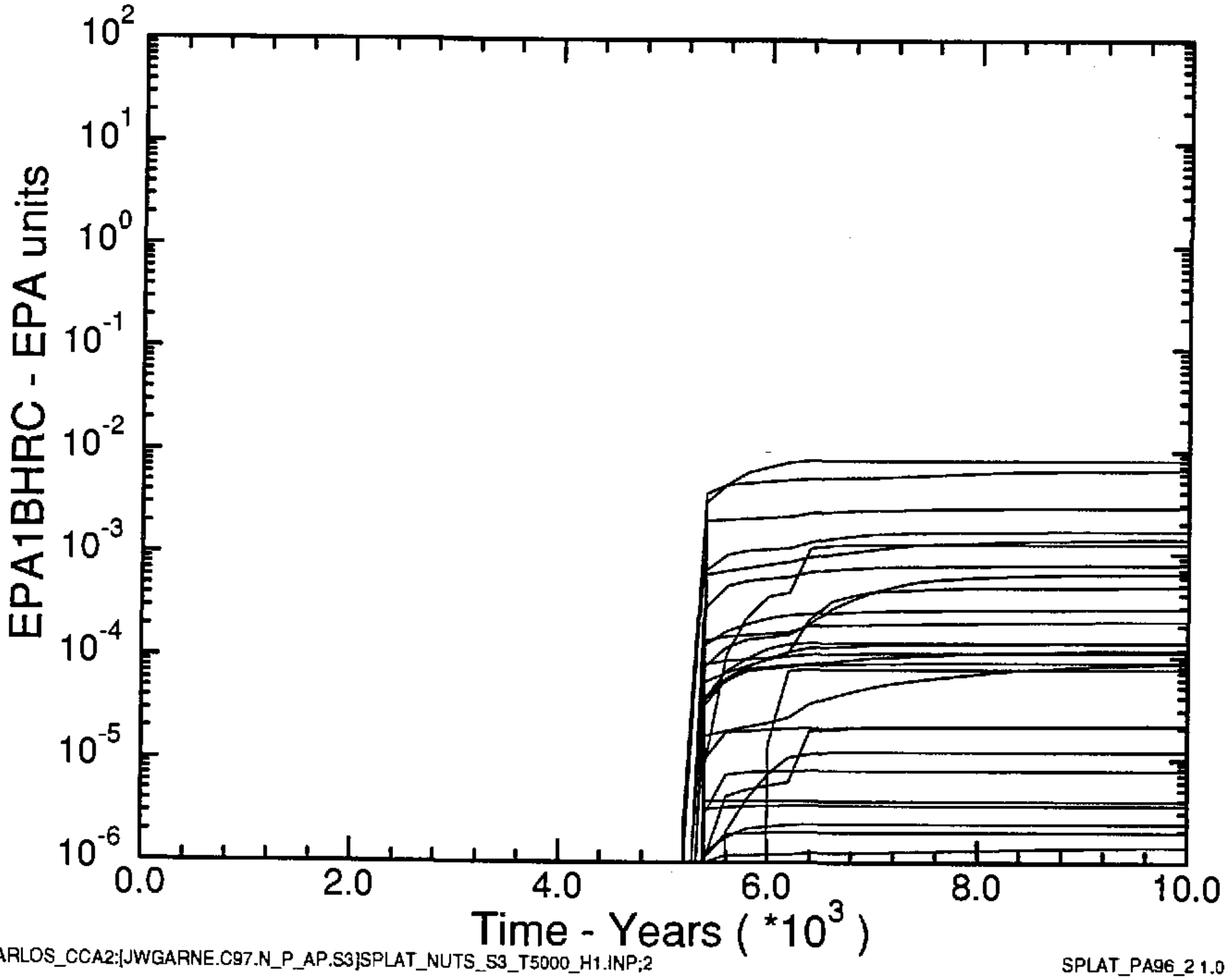
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T3000_H6.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:29:4

C31

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T5000)

Am-241 Integrated Discharge up Borehole at MB138



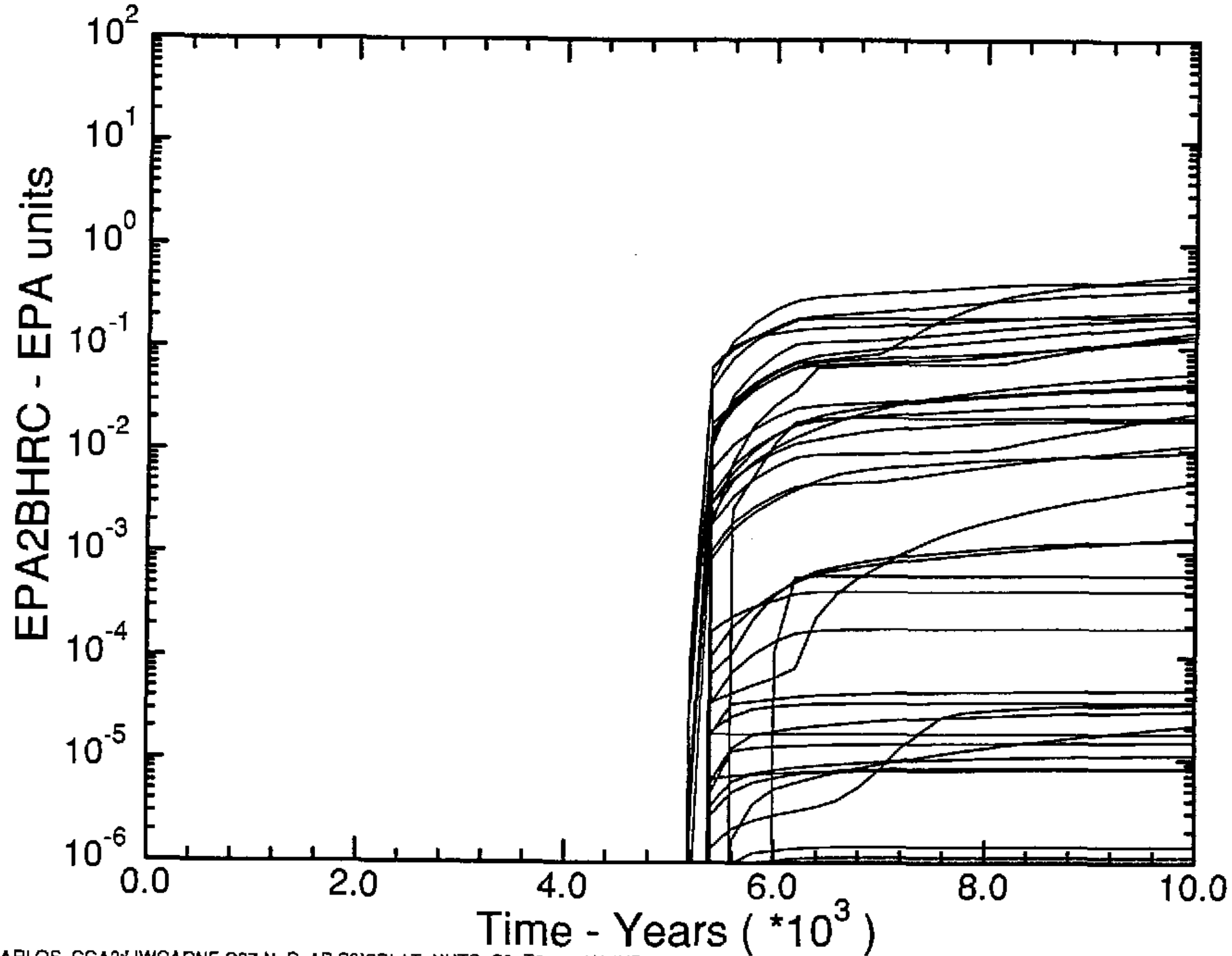
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T5000_H1.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:30:2

C32

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T5000)

Pu-239 Integrated Discharge up Borehole at MB138



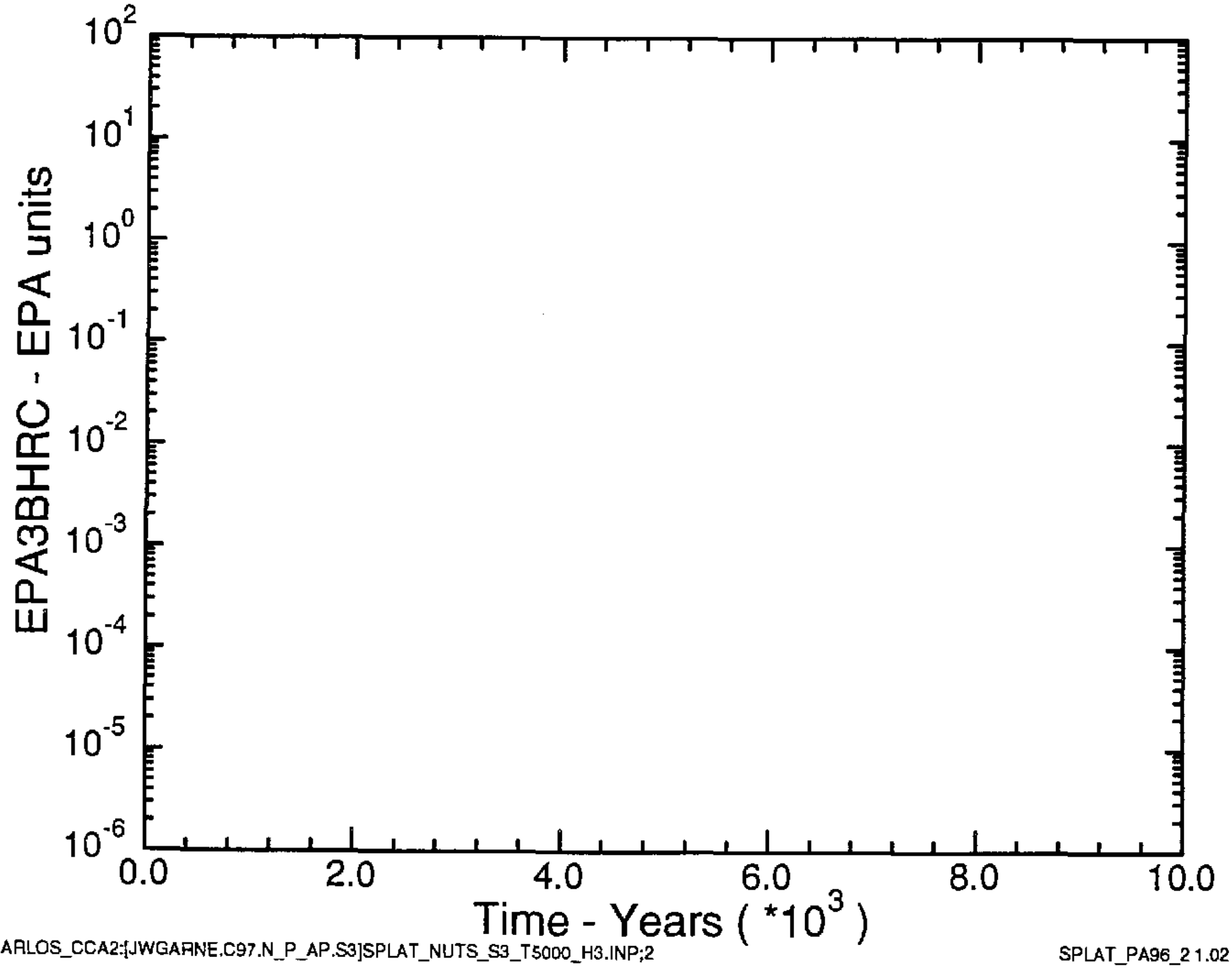
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T5000_H2.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:30:2

C33

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T5000)

Pu-238 Integrated Discharge up Borehole at MB138



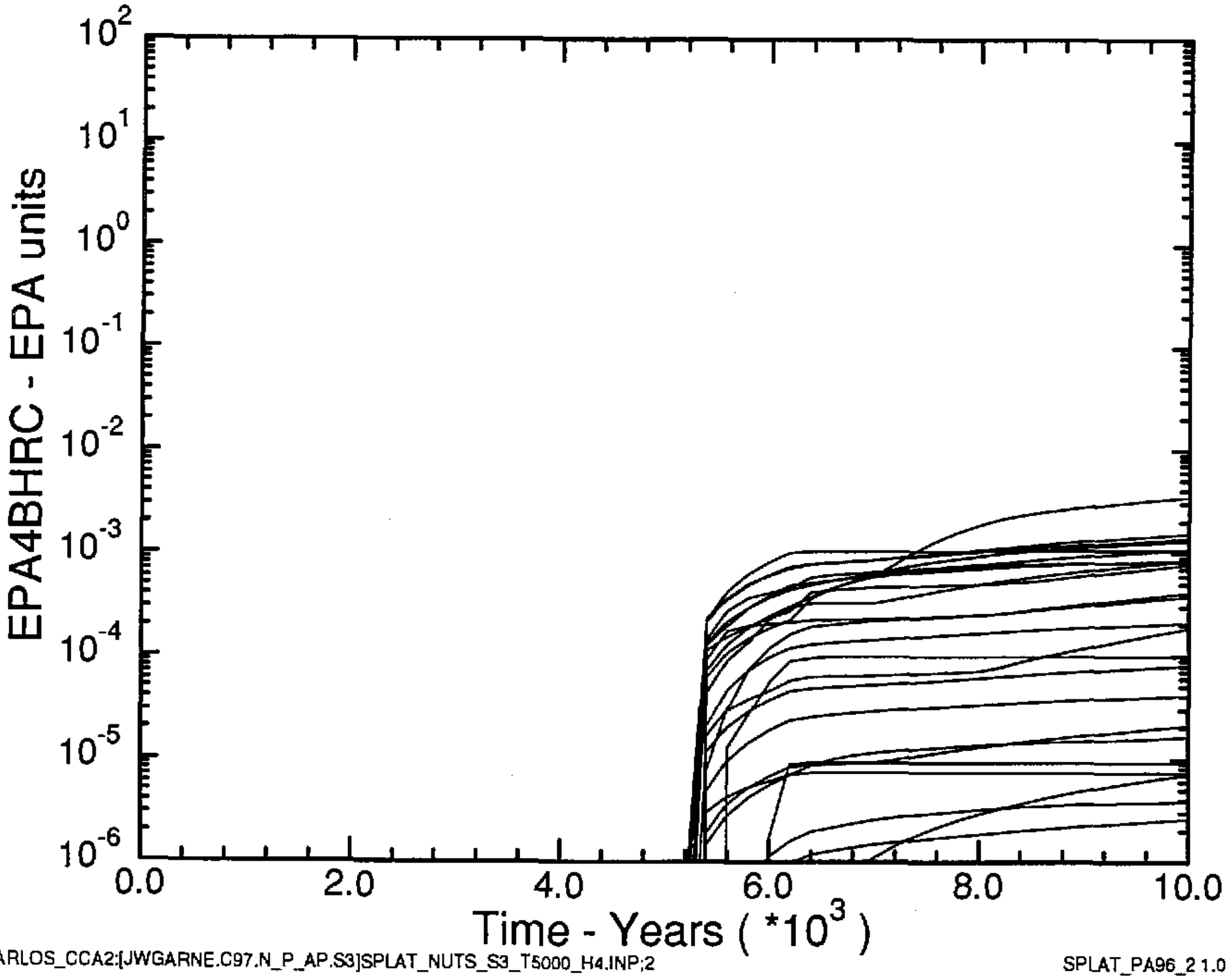
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T5000_H3.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:30:2

C34

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T5000)

U-234 Integrated Discharge up Borehole at MB138



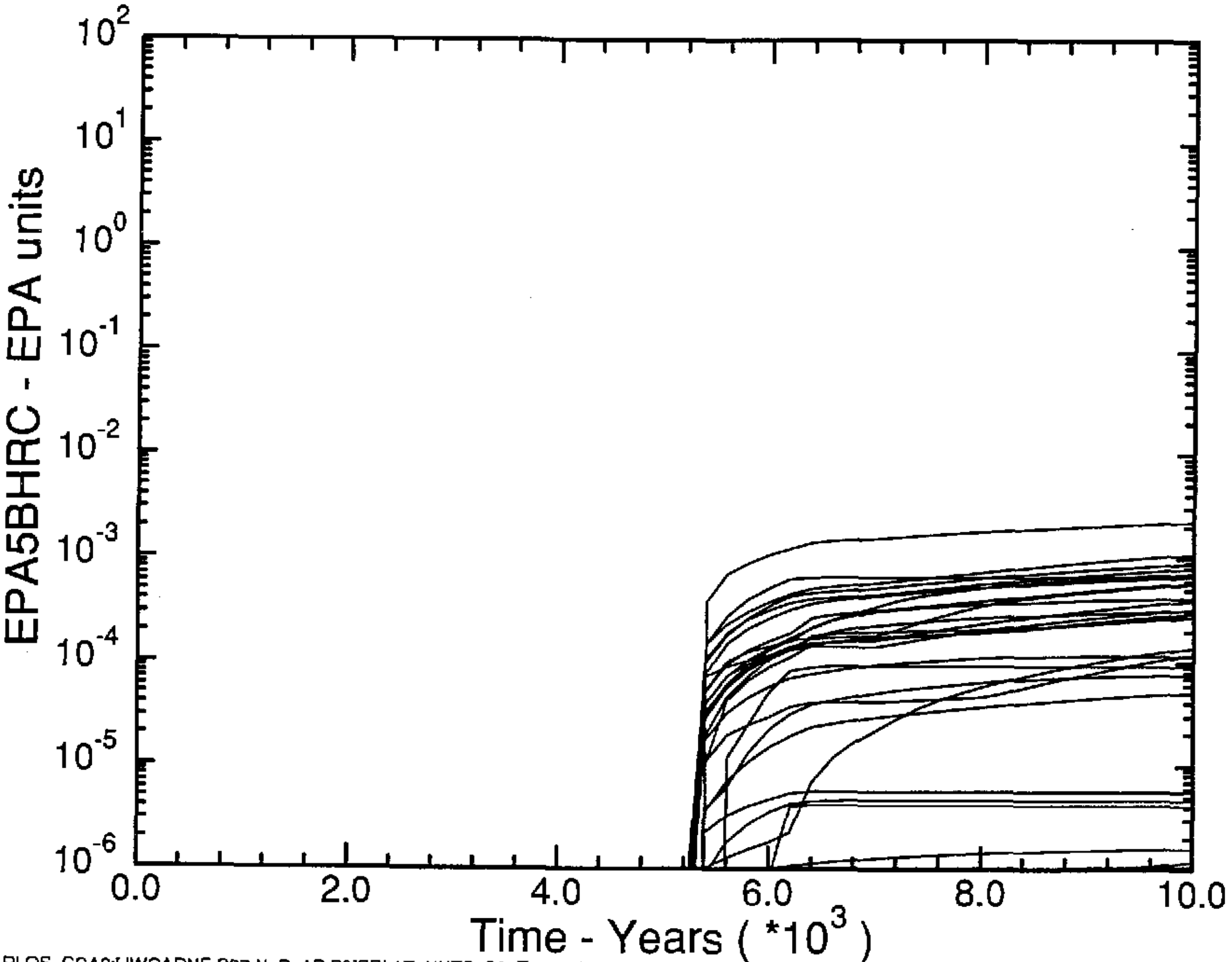
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T5000_H4.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:30:3

C35

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T5000)

Th-230 Integrated Discharge up Borehole at MB138



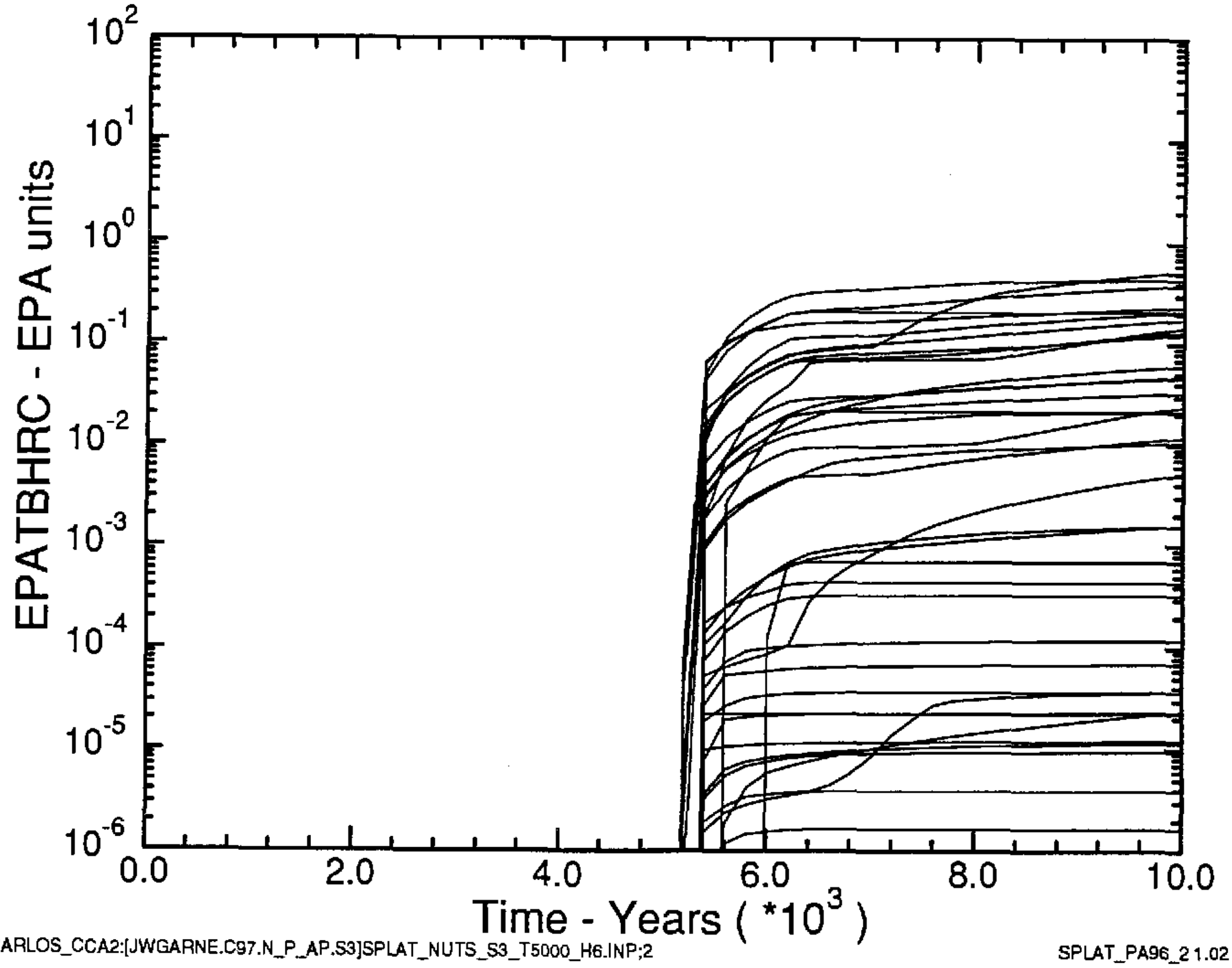
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T5000_H5.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:30:3

C36

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T5000)

Total Integrated Discharge up Borehole at MB138



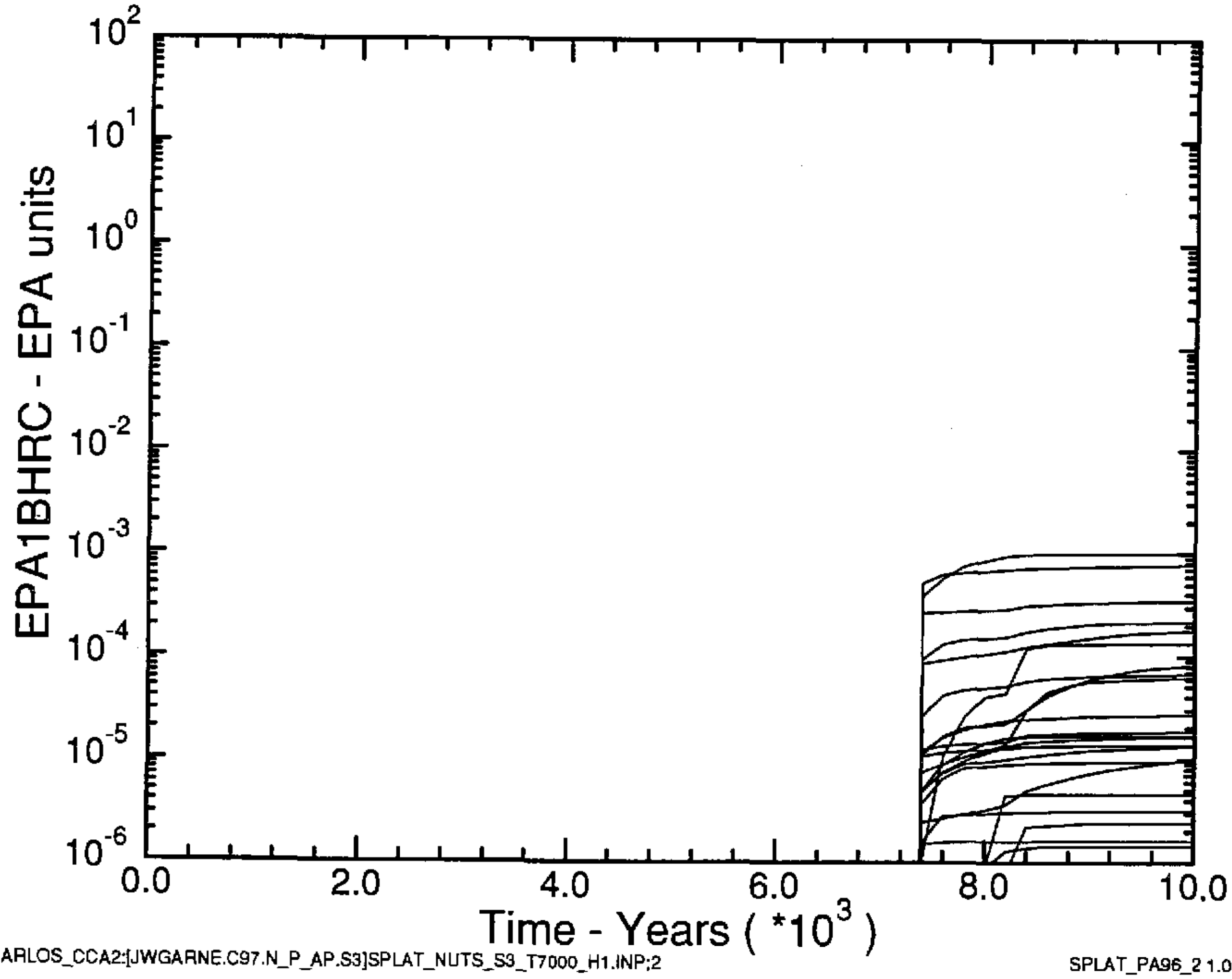
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T5000_H6.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:30:4

C 37

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T7000)

Am-241 Integrated Discharge up Borehole at MB138



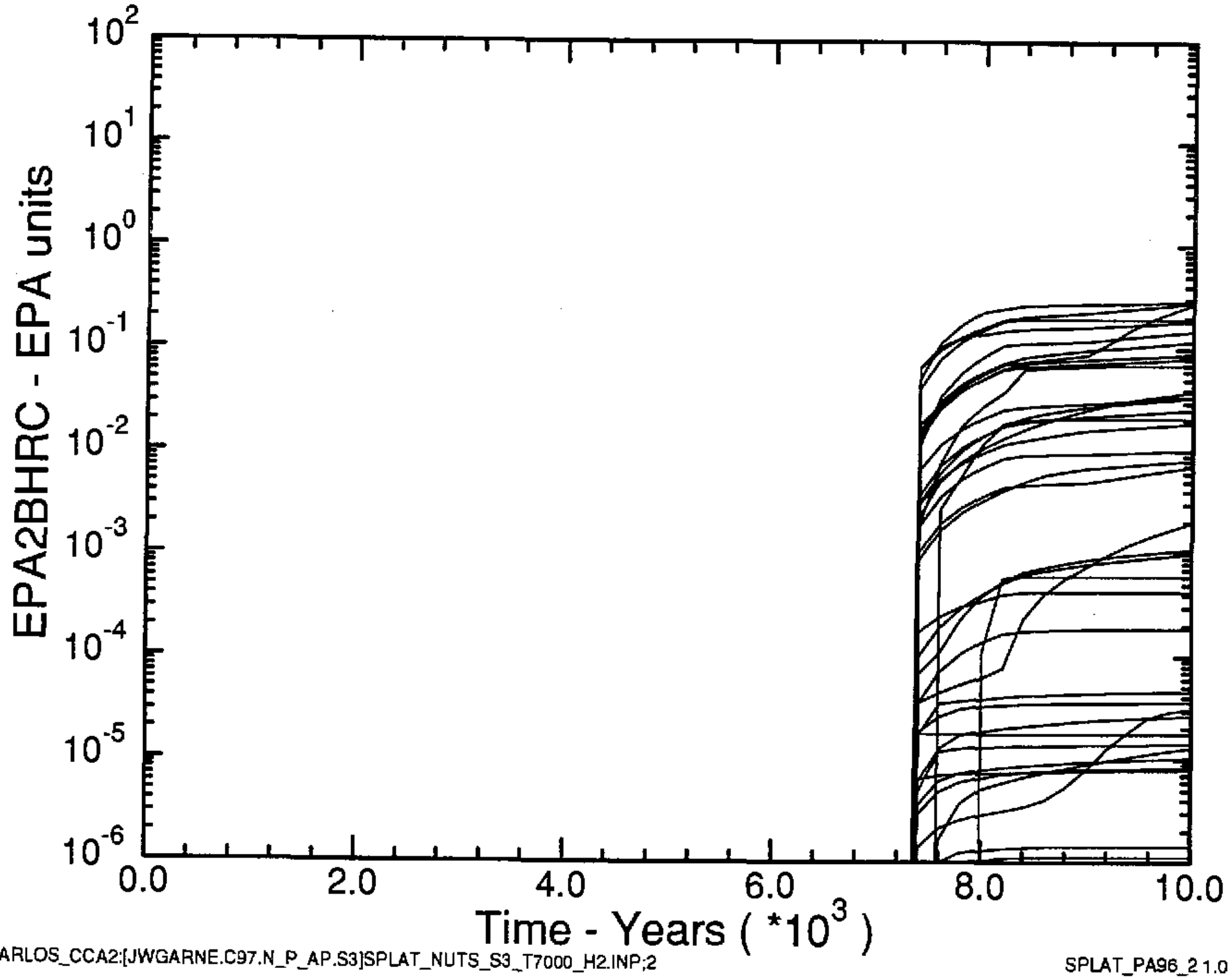
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T7000_H1.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:32:3

C38

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T7000)

Pu-239 Integrated Discharge up Borehole at MB138



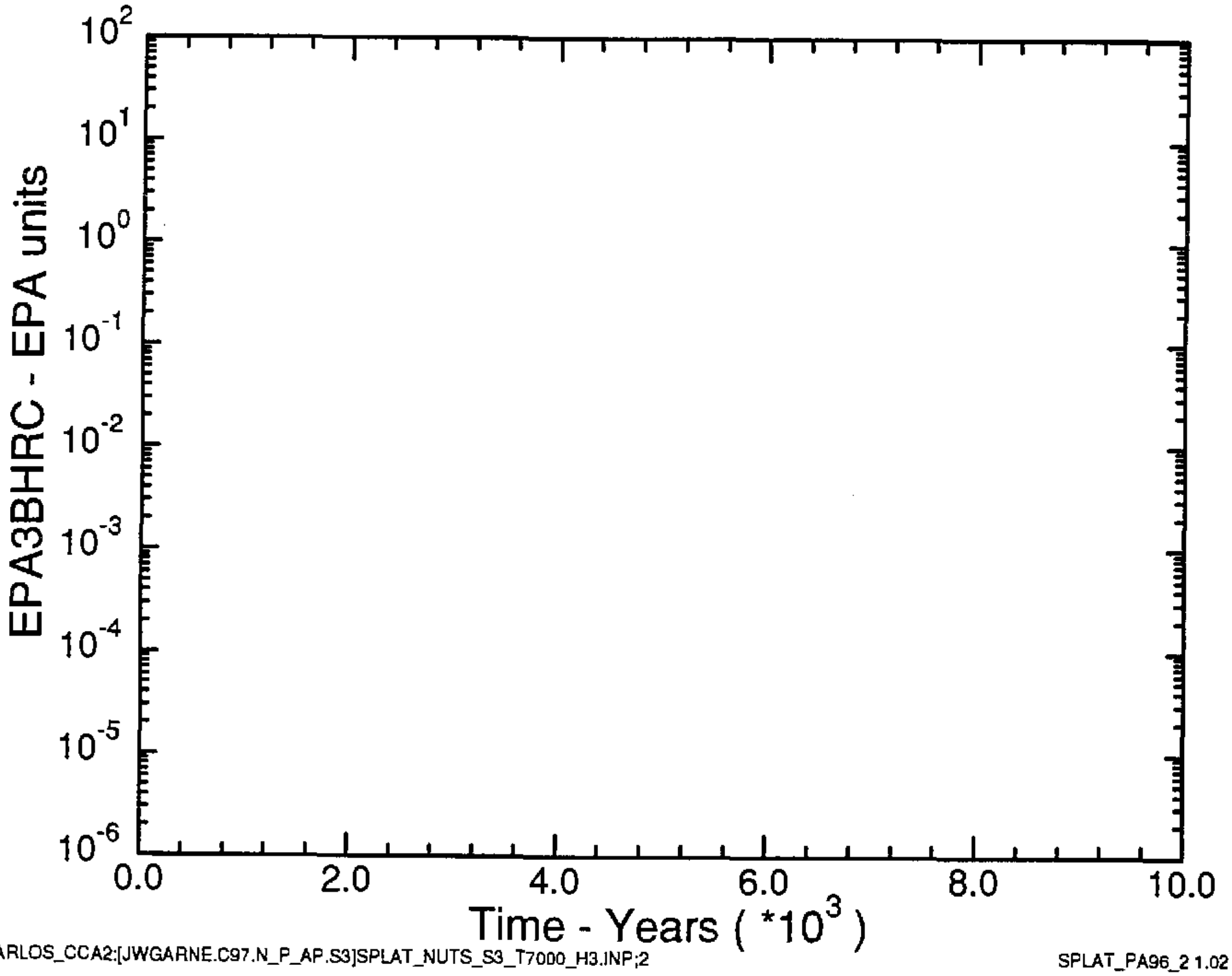
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T7000_H2.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:32:3

C39

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T7000)

Pu-238 Integrated Discharge up Borehole at MB138



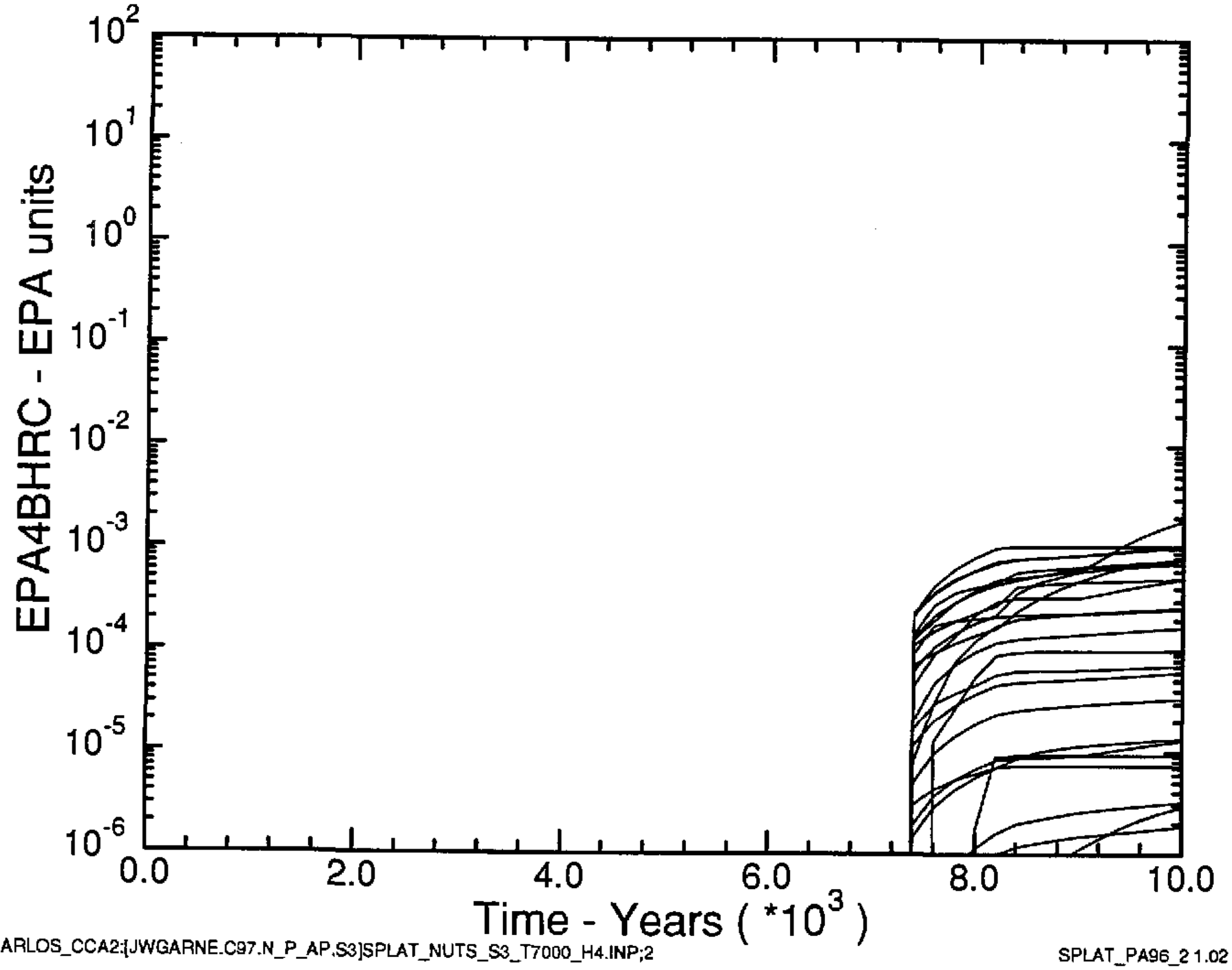
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T7000_H3.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:32:4

C40

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T7000)

U-234 Integrated Discharge up Borehole at MB138



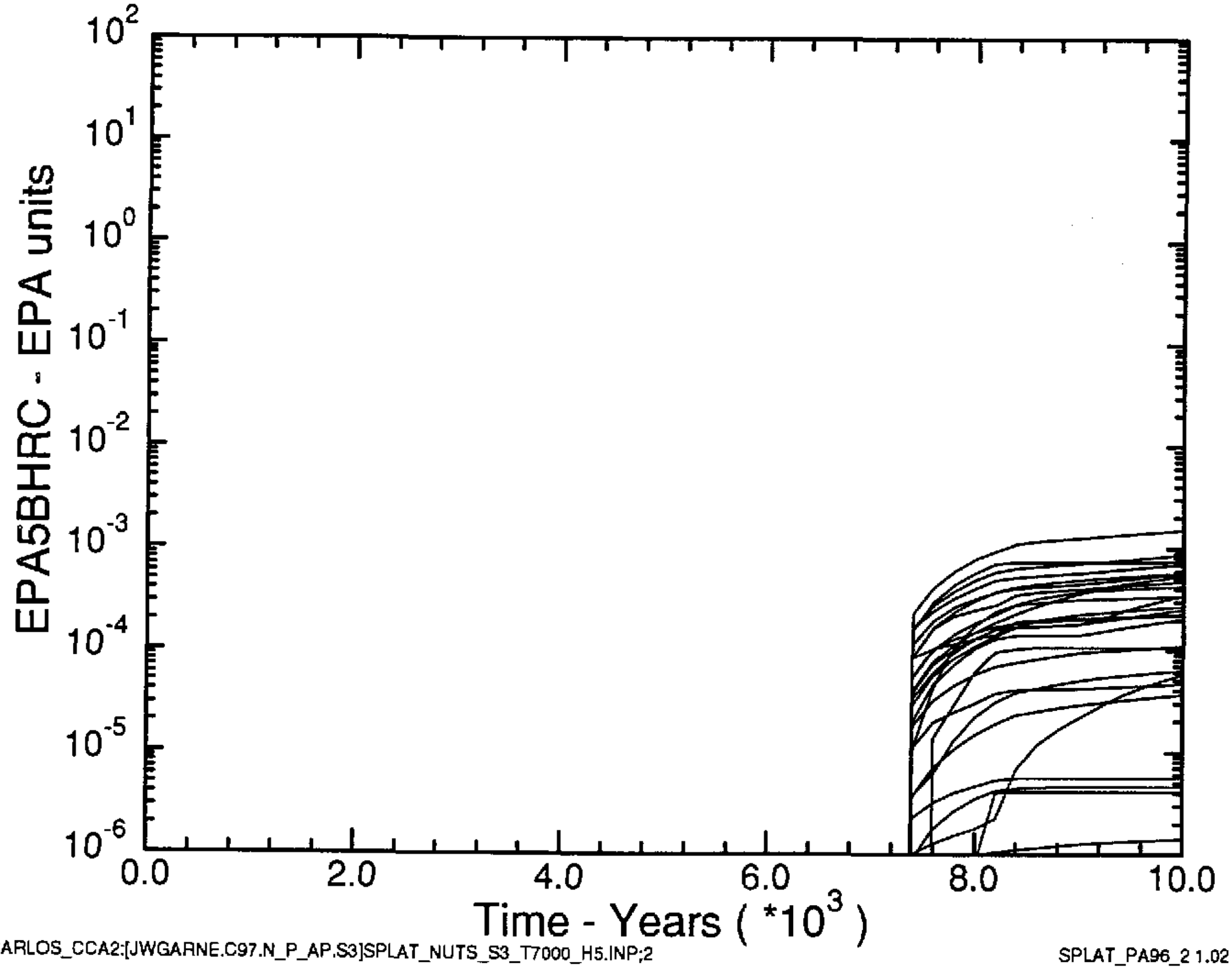
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T7000_H4.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:32:4

C41

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T7000)

Th-230 Integrated Discharge up Borehole at MB138



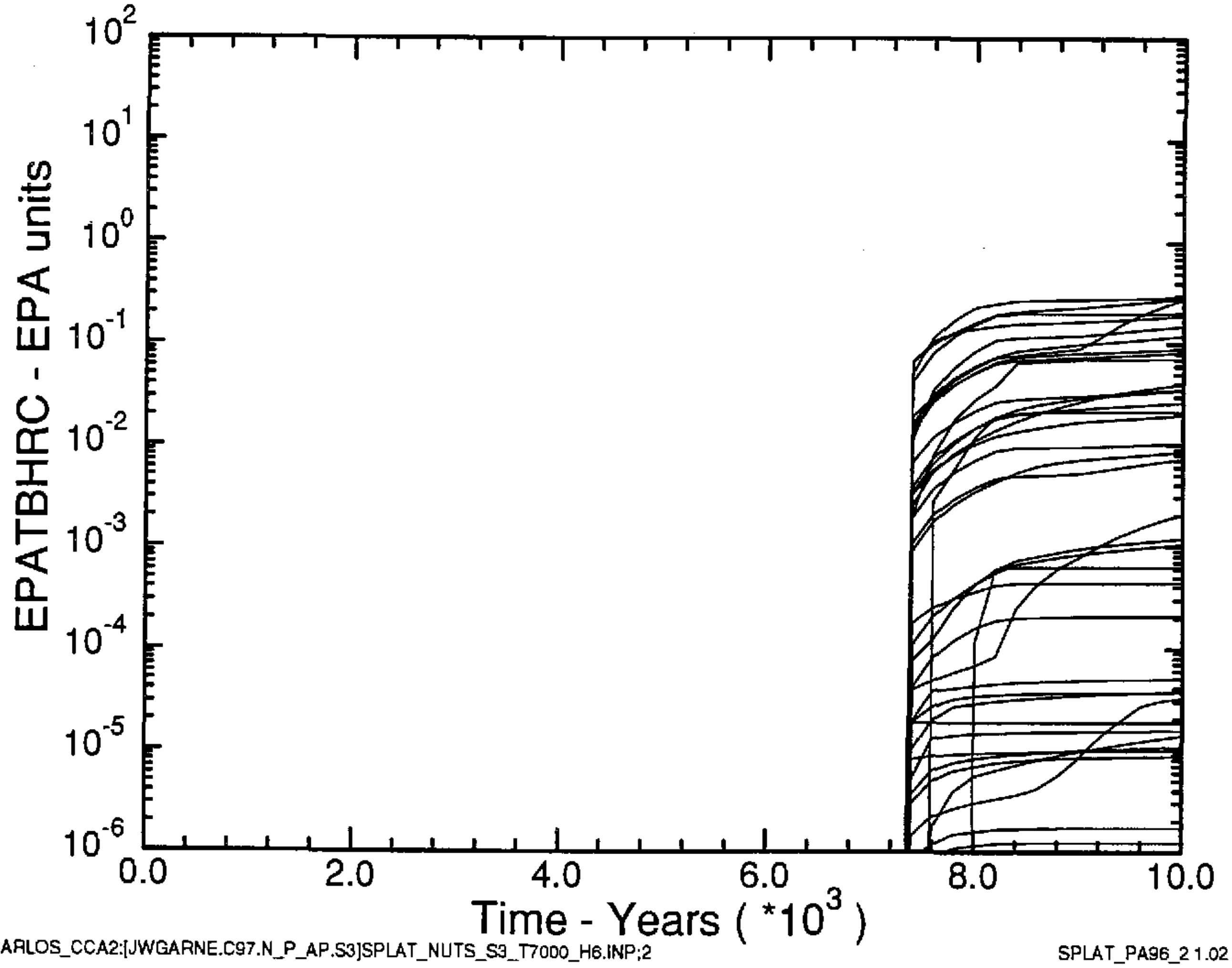
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T7000_H5.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:32:5

C42

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T7000)

Total Integrated Discharge up Borehole at MB138



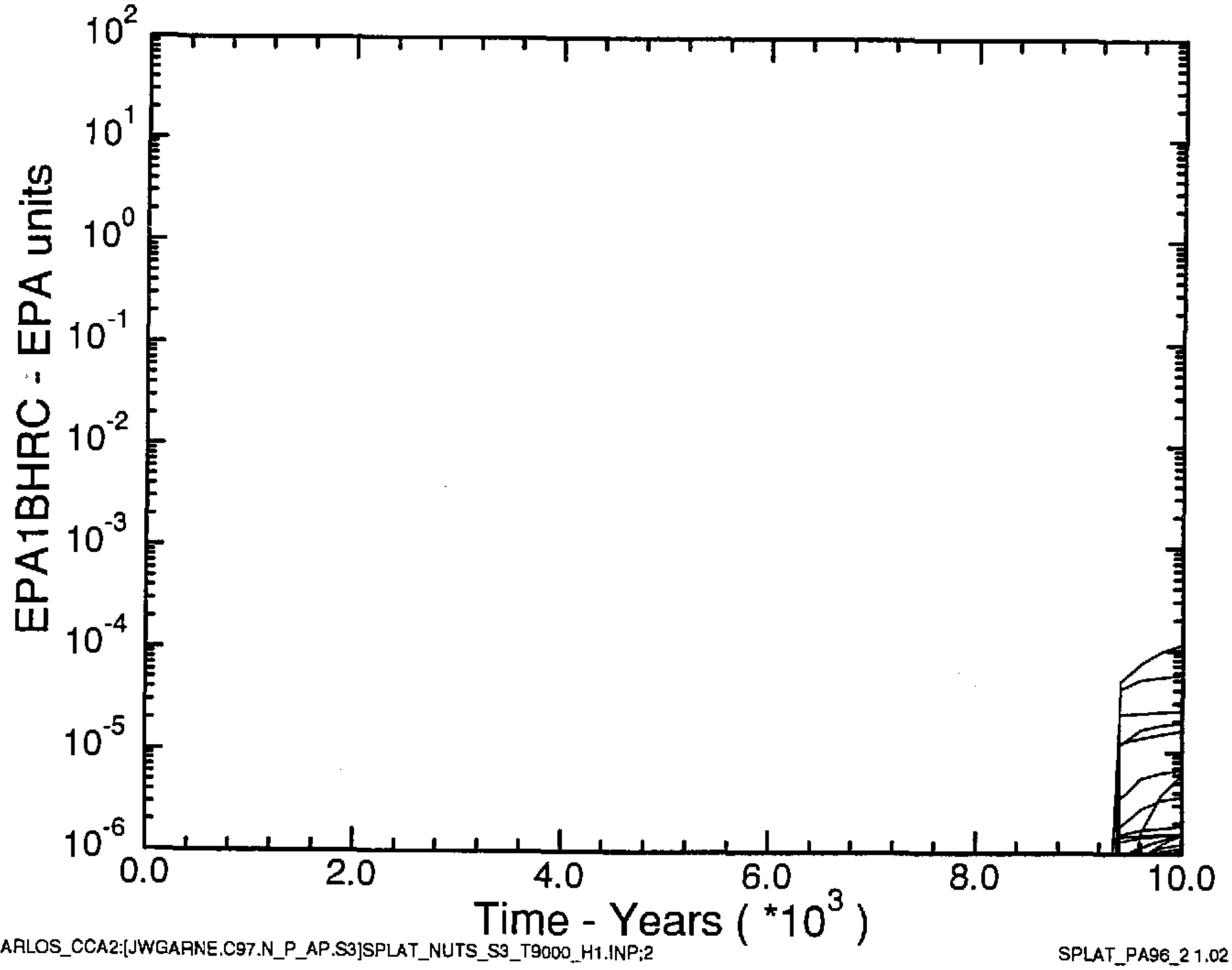
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T7000_H6.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:32:5

C43

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T9000)

Am-241 Integrated Discharge up Borehole at MB138



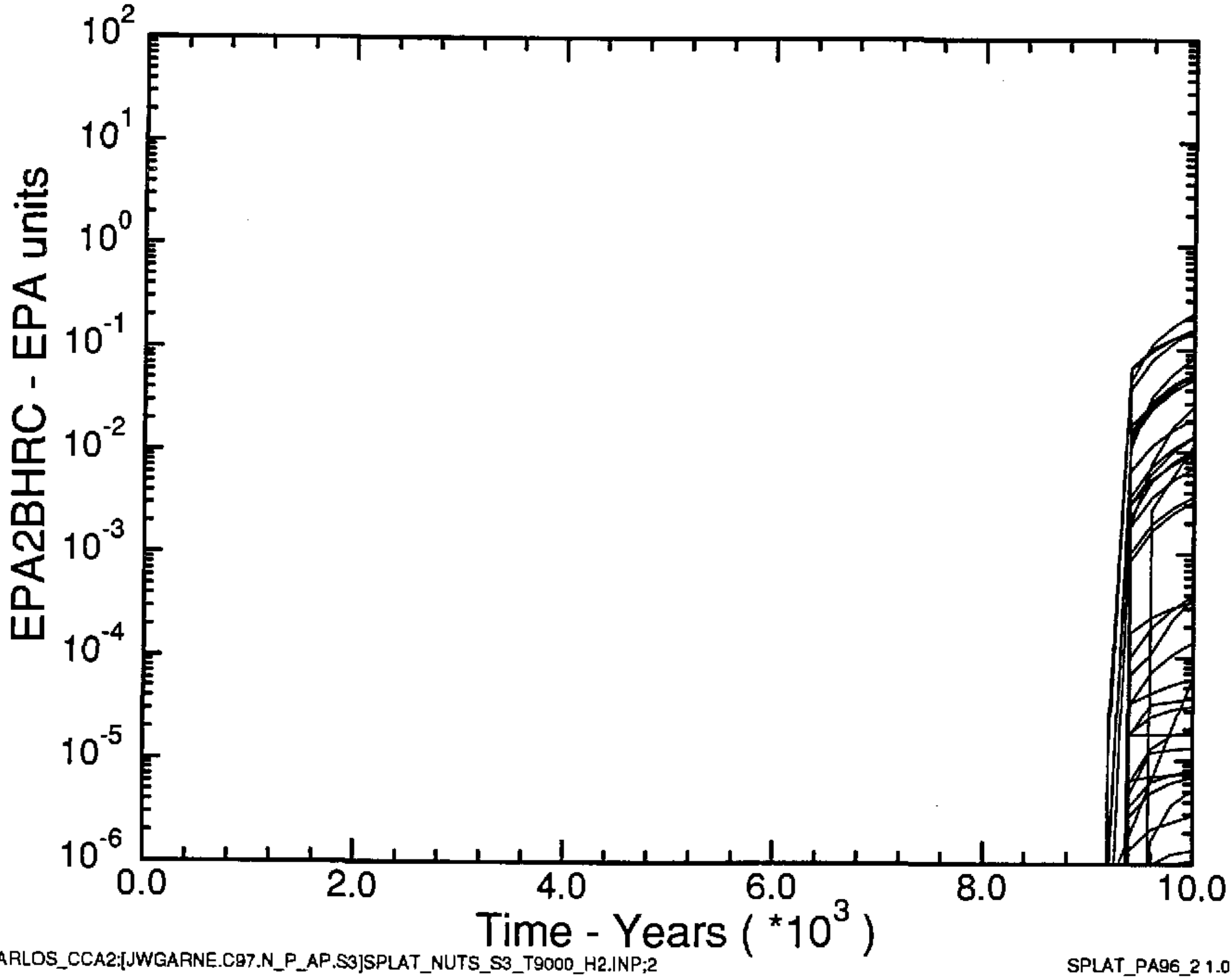
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T9000_H1.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:33:2

C44

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T9000)

Pu-239 Integrated Discharge up Borehole at MB138



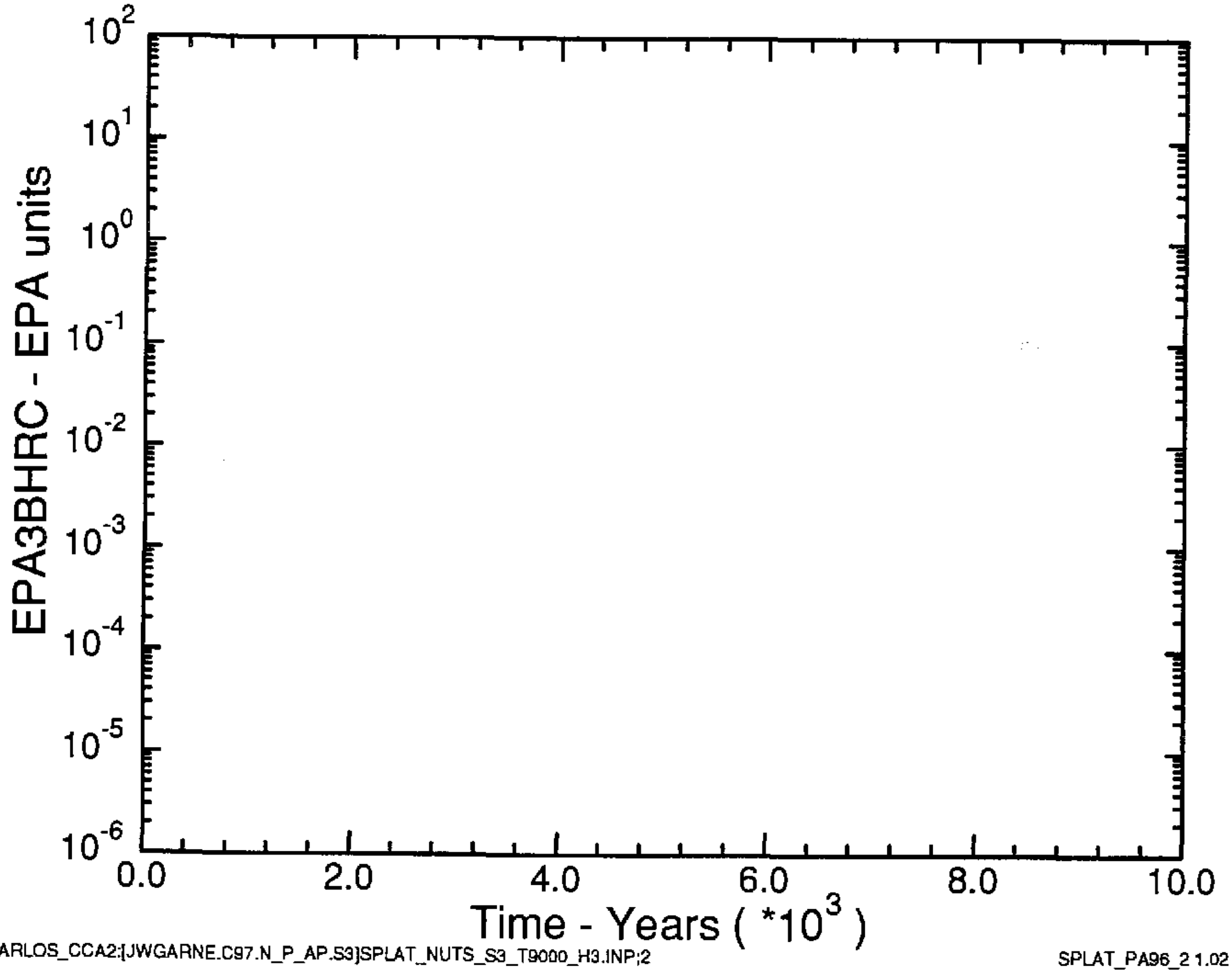
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T9000_H2.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:33:2

C45

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T9000)

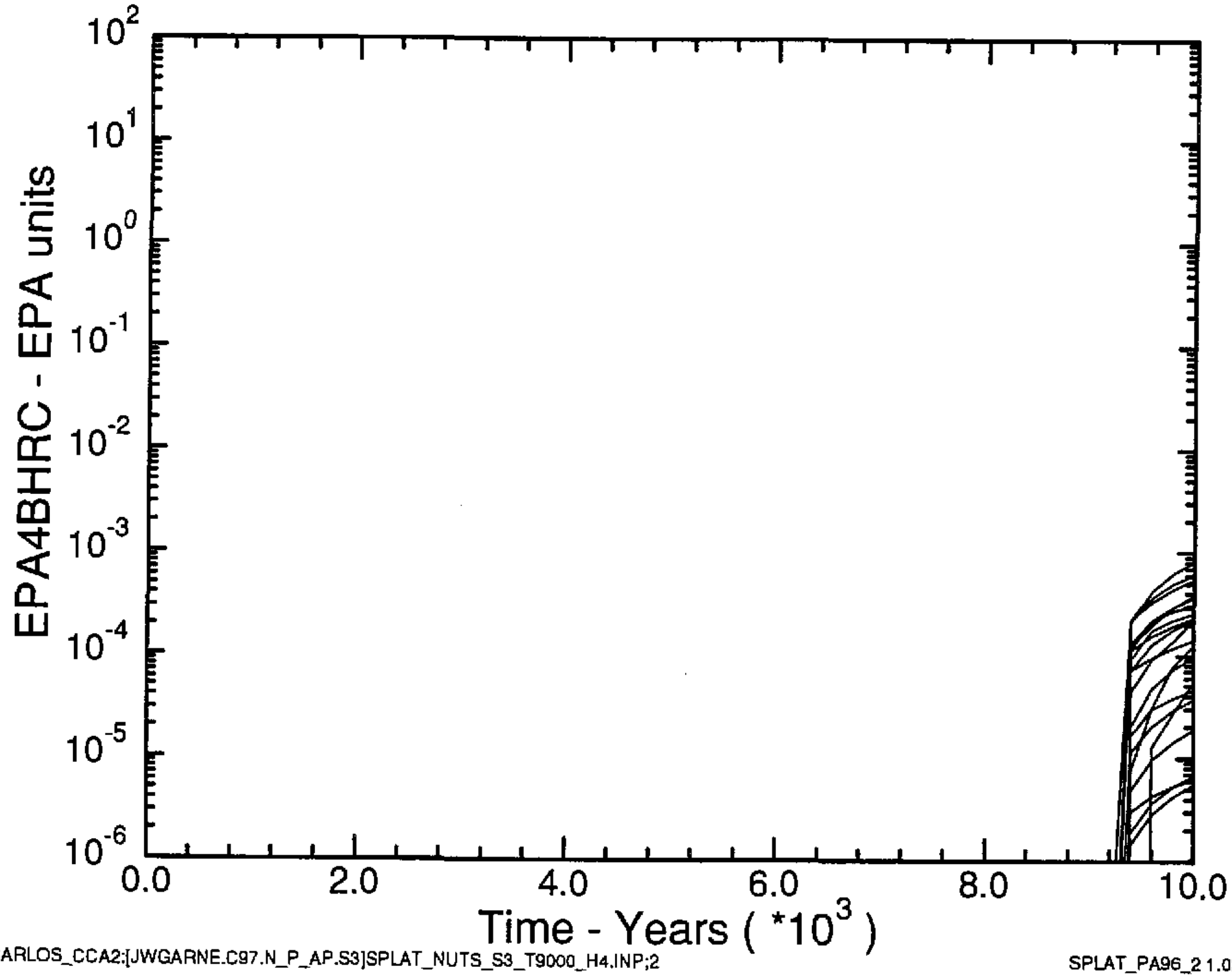
Pu-238 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T9000_H3.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:33:2

C46



SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T9000)

U-234 Integrated Discharge up Borehole at MB138

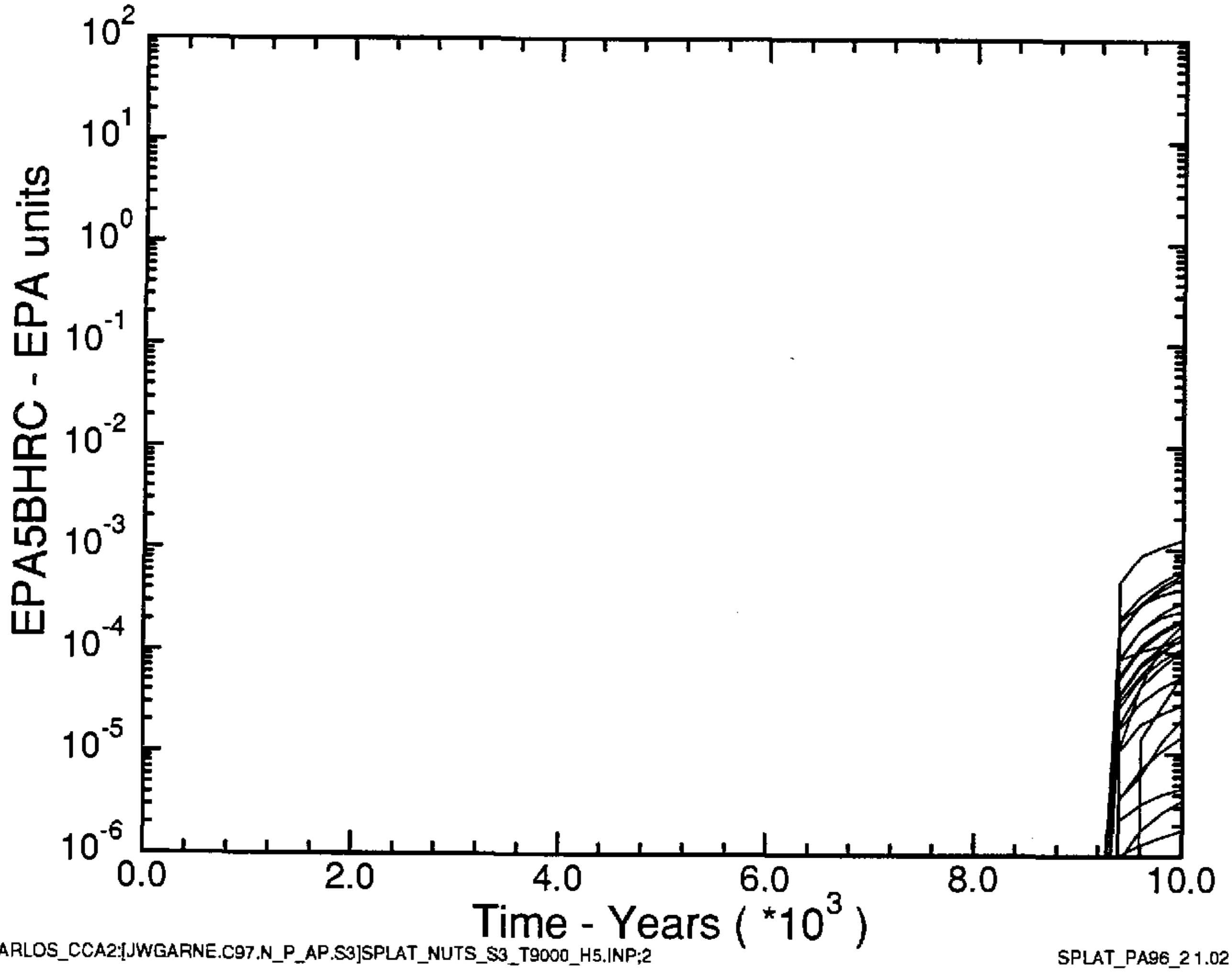
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T9000_H4.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:33:3

C47

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T9000)

Th-230 Integrated Discharge up Borehole at MB138



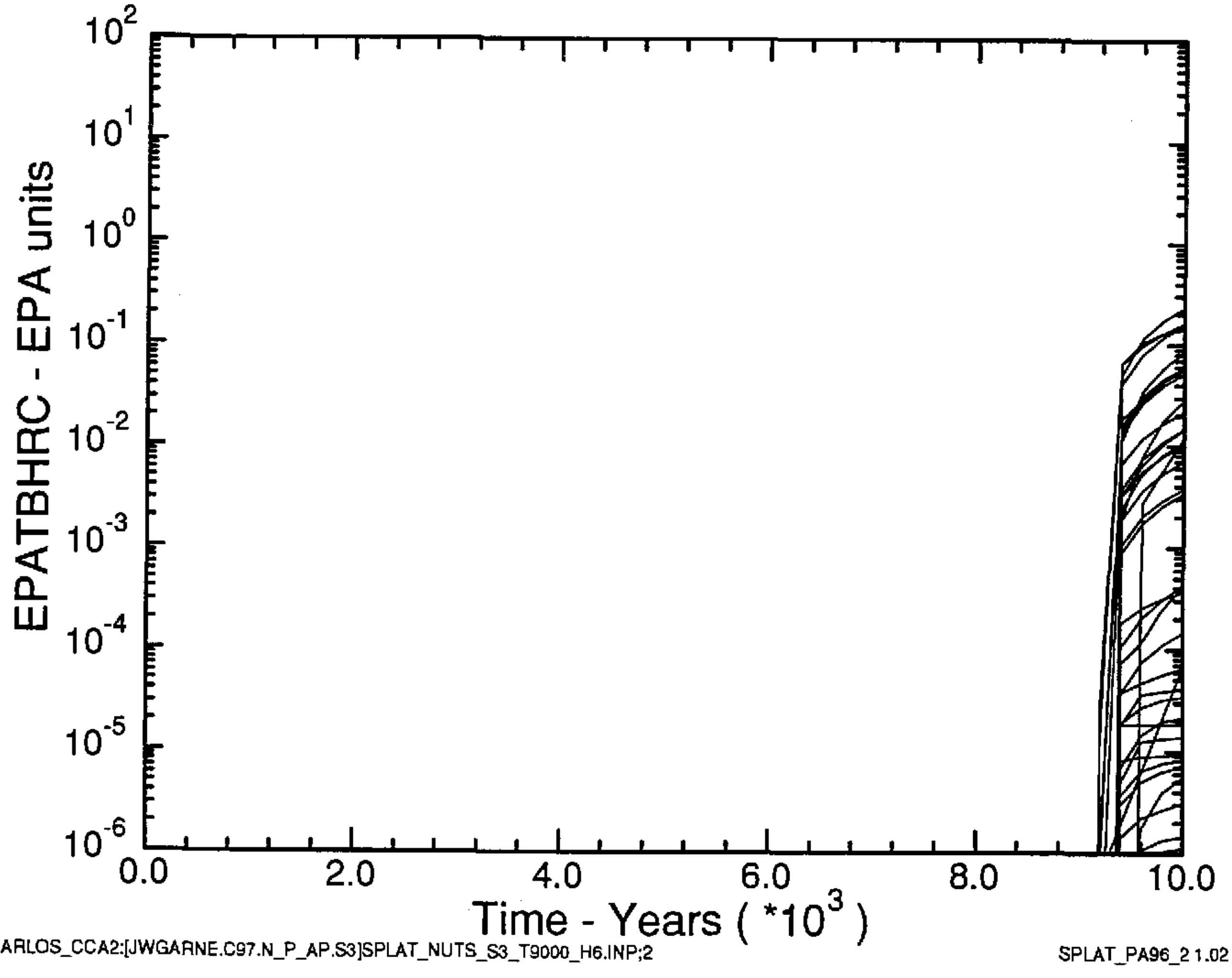
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T9000_H5.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:33:3

C48

SNL WIPP PA96: NUTS SIMULATIONS (C97 S3 T9000)

Total Integrated Discharge up Borehole at MB138



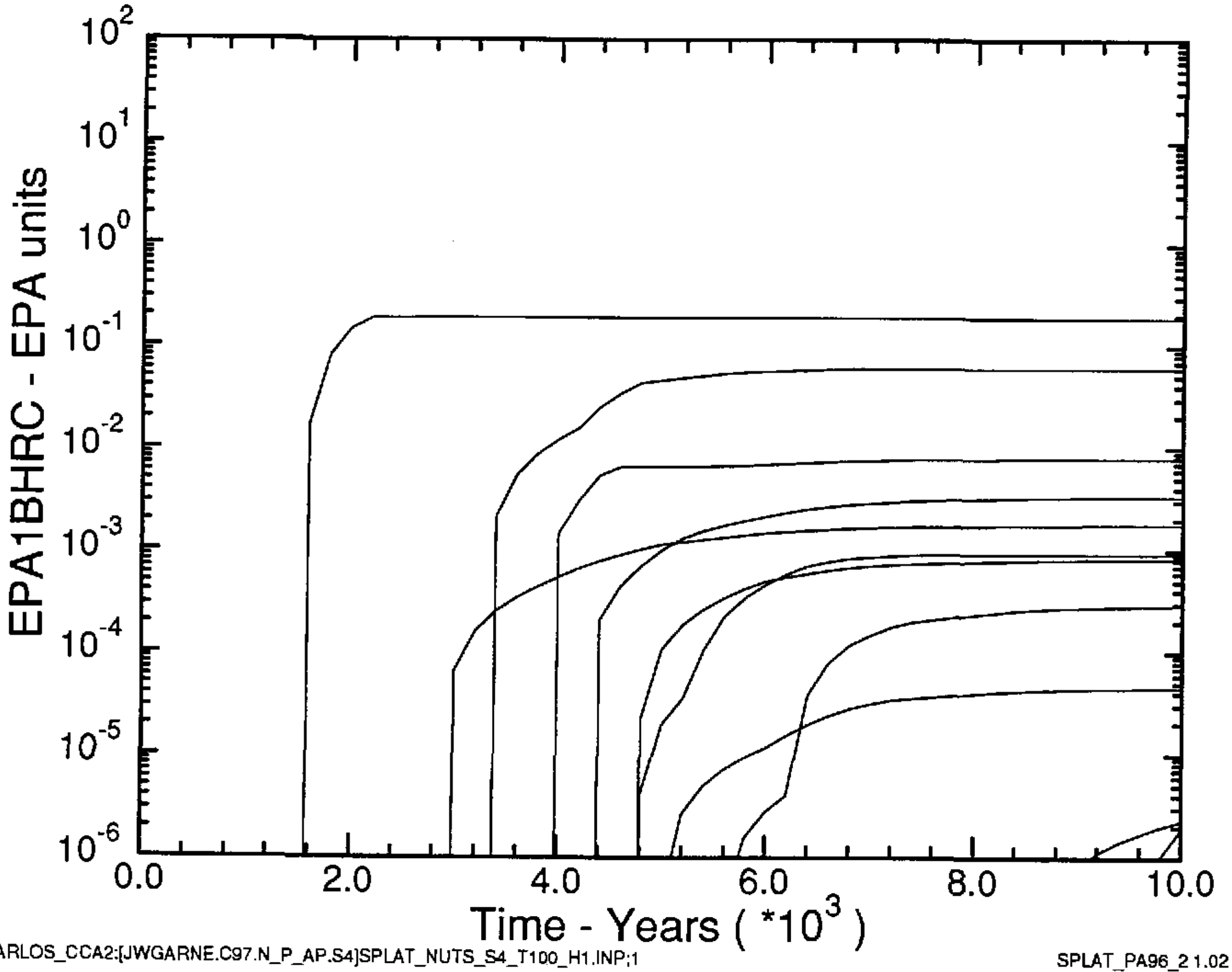
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S3]SPLAT_NUTS_S3_T9000_H6.INP;2

SPLAT_PA96_2 1.02 06/30/97 14:33:3

C49

SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T100)

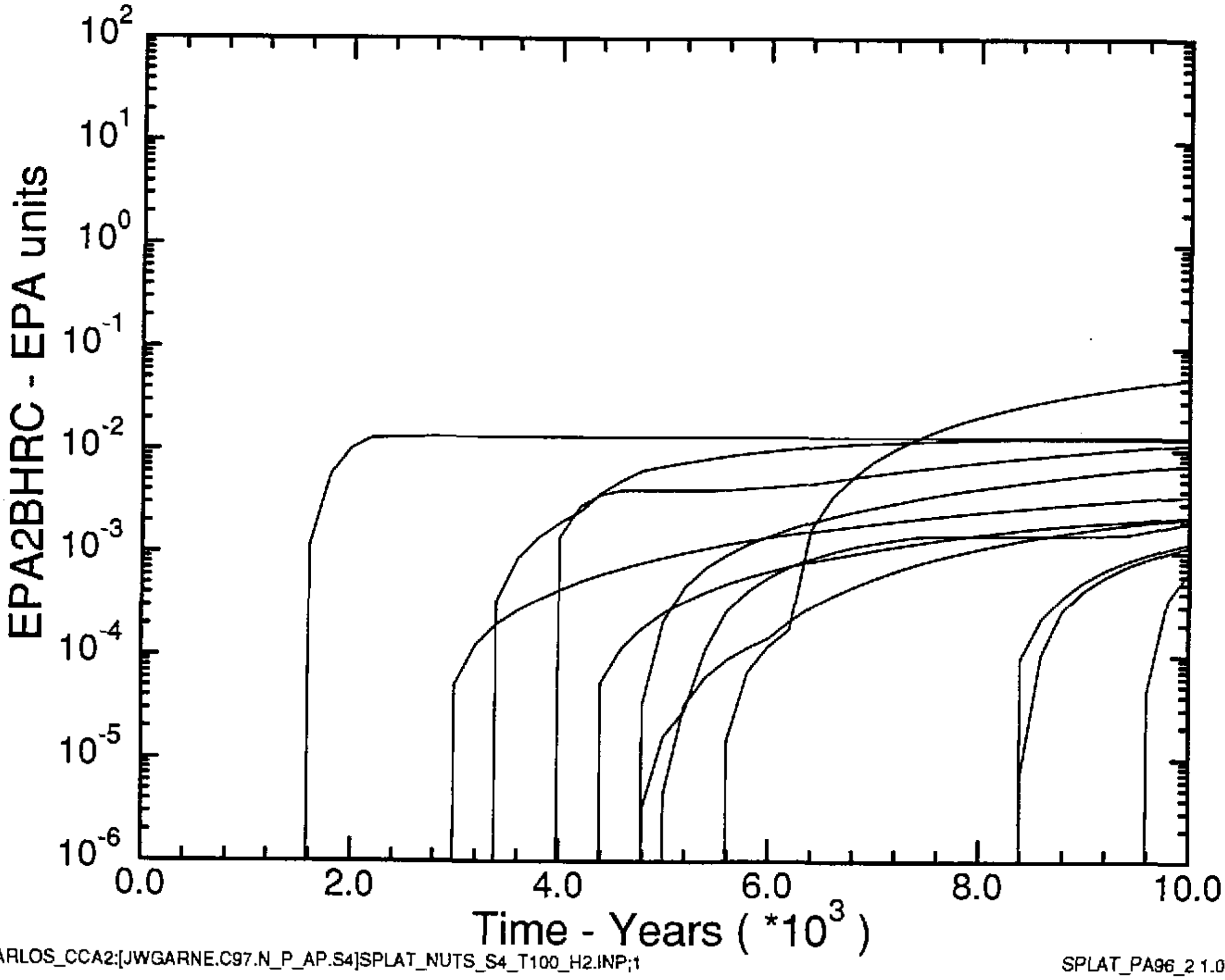
Am-241 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T100_H1.INP;1

SPLAT_PA96_2 1.02 06/30/97 16:04:1

C50



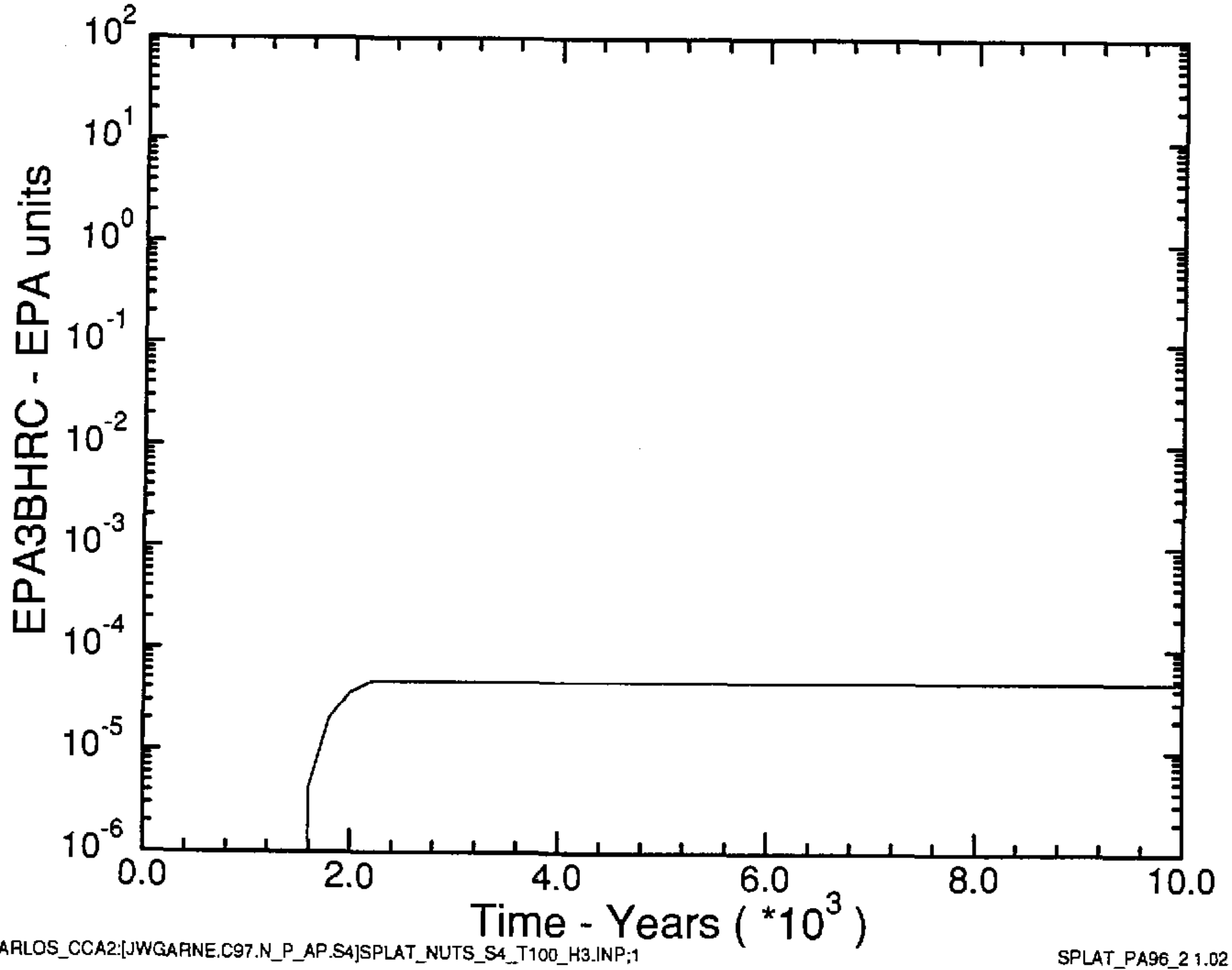
SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T100)

Pu-239 Integrated Discharge up Borehole at MB138

DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T100_H2.INP;1

SPLAT_PA96_2 1.02 06/30/97 16:04:2

C51


SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T100)

Pu-238 Integrated Discharge up Borehole at MB138

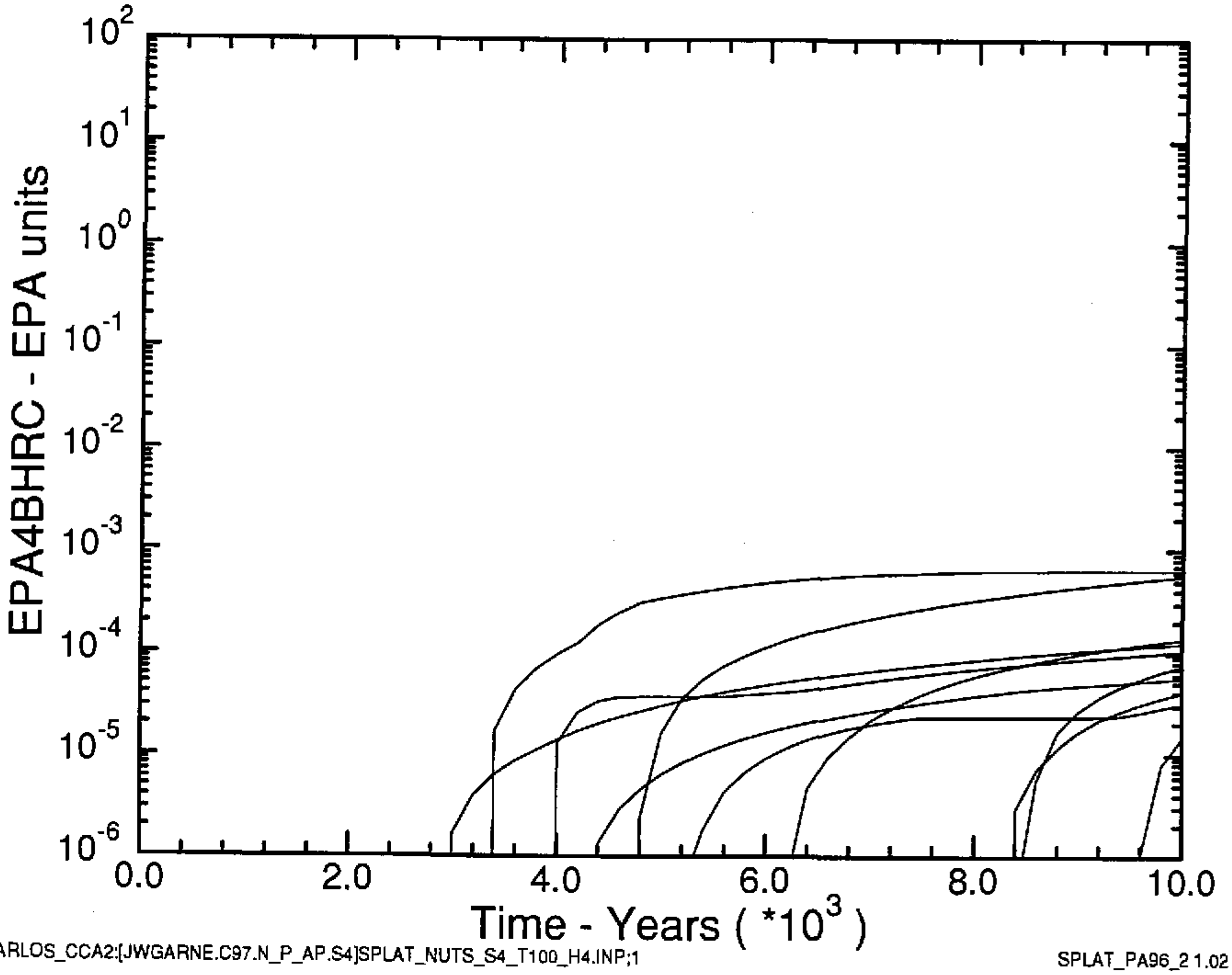
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T100_H3.INP;1

SPLAT_PA96_2 1.02 06/30/97 16:04:2

C52

SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T100)

U-234 Integrated Discharge up Borehole at MB138



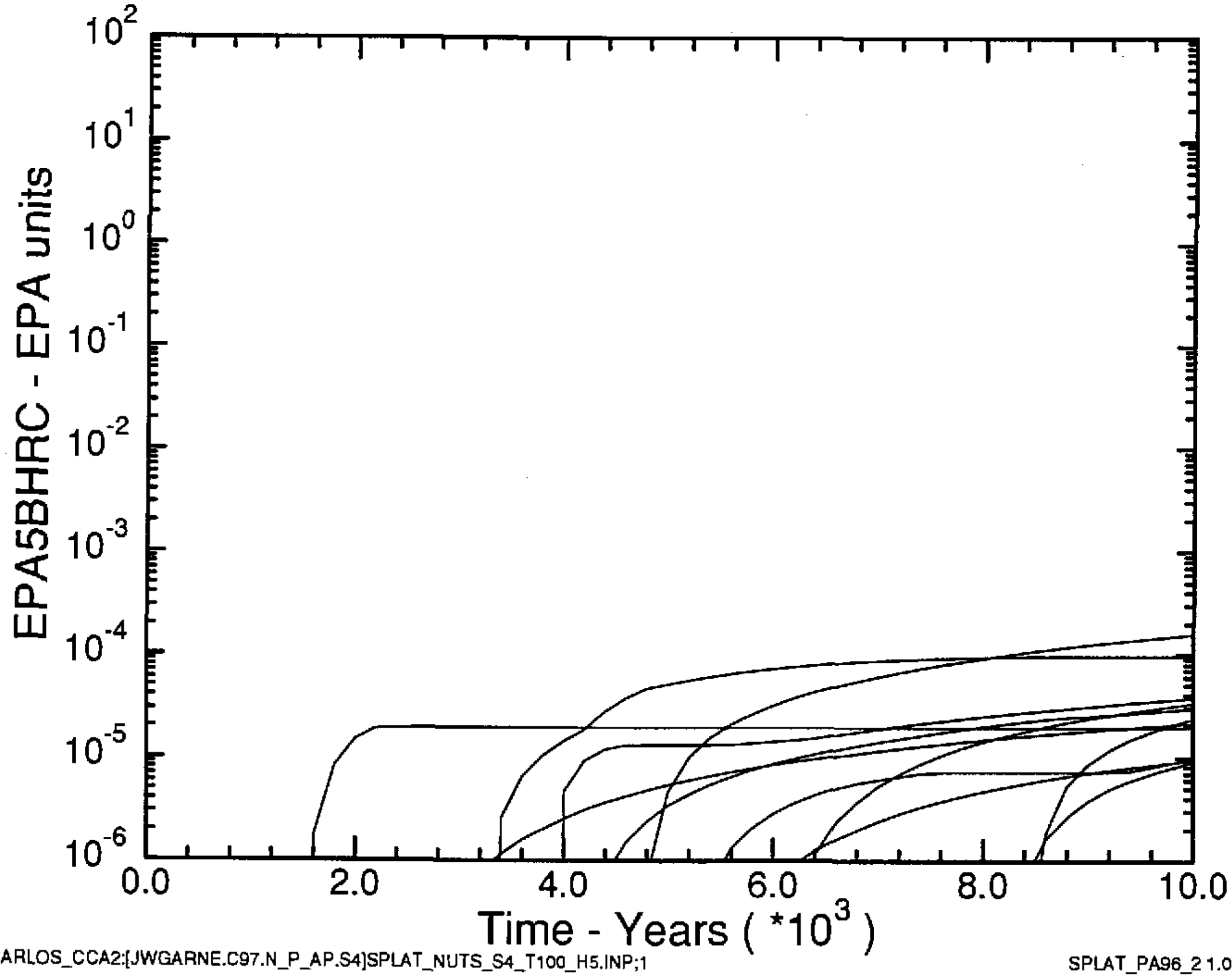
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T100_H4.INP;1

SPLAT_PA96_2 1.02 06/30/97 16:04:3

C53

SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T100)

Th-230 Integrated Discharge up Borehole at MB138



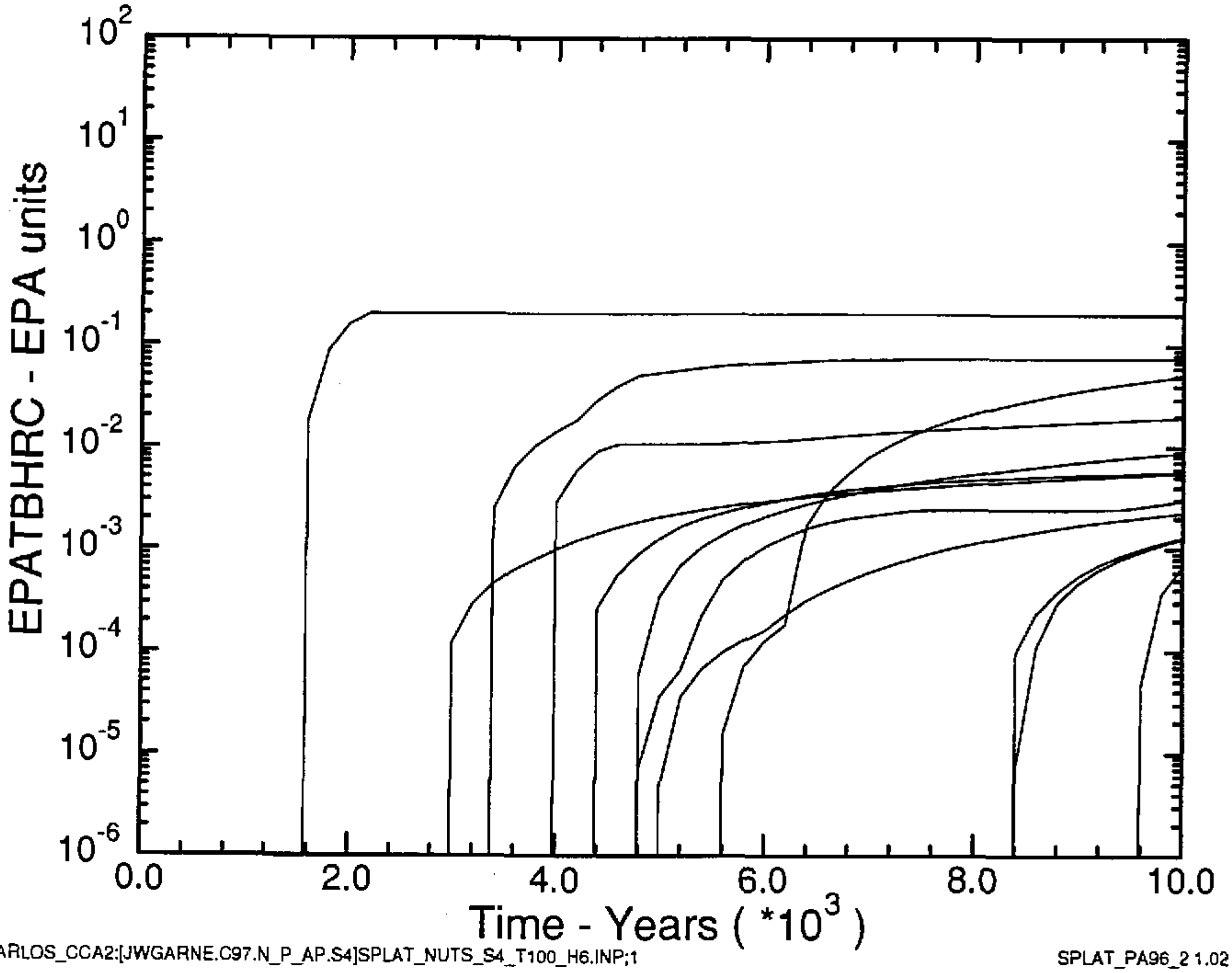
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T100_H5.INP;1

SPLAT_PA96_2 1.02 06/30/97 16:04:3

C54

SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T100)

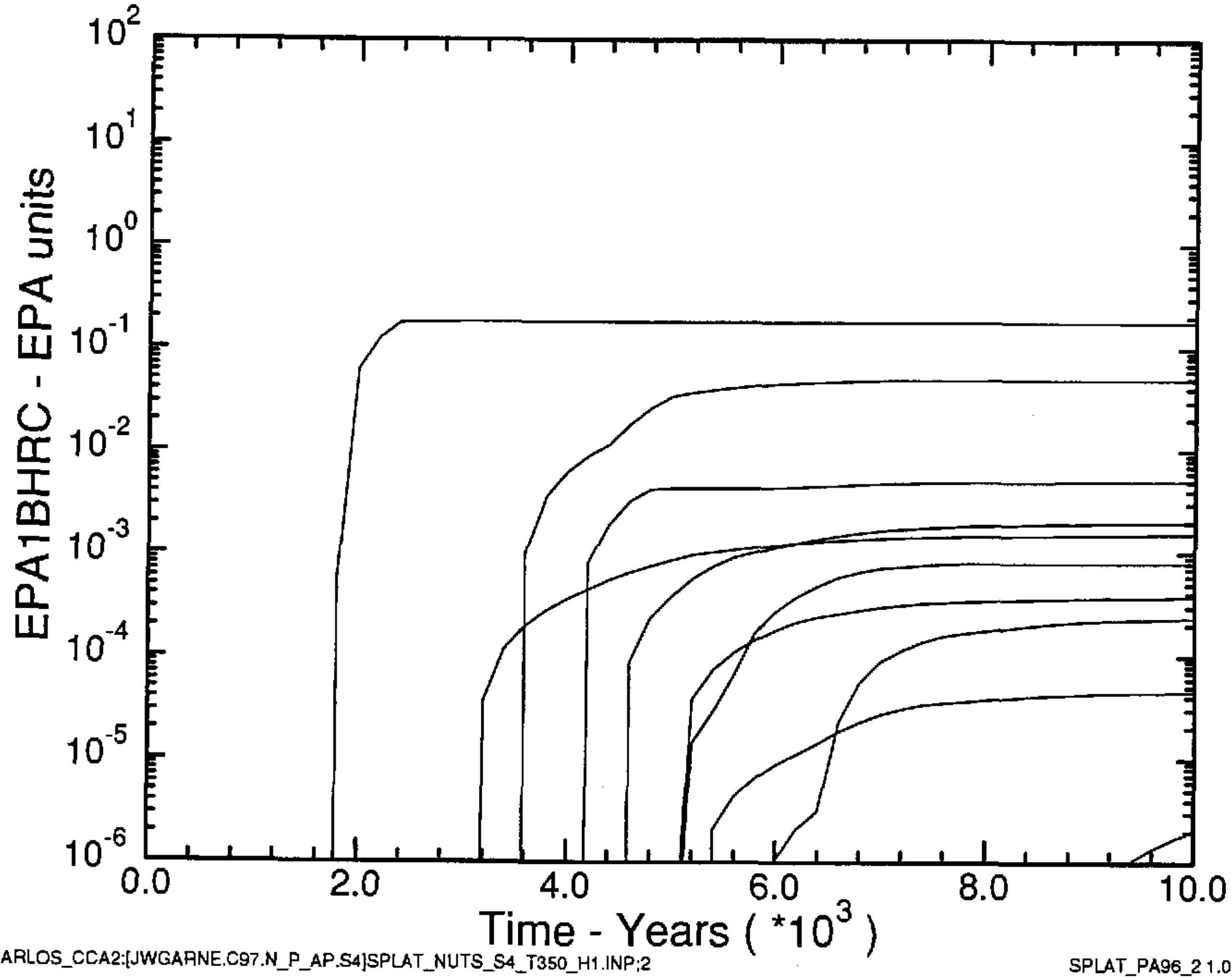
Total Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T100_H6.INP;1

SPLAT_PA96_2 1.02 06/30/97 16:04:3

C55



SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T350)

Am-241 Integrated Discharge up Borehole at MB138

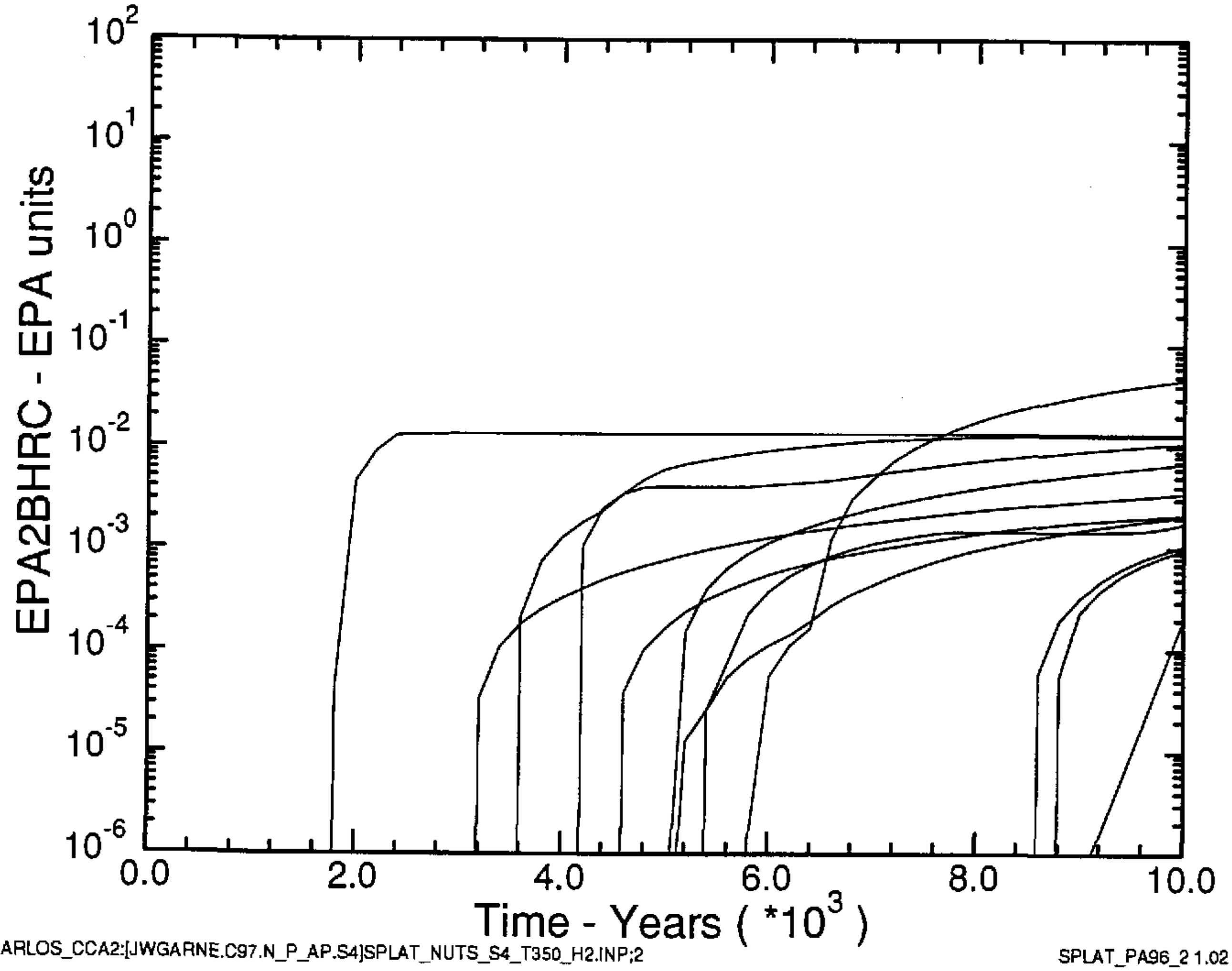
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T350_H1.INP;2

SPLAT_PA96_2 1.02 06/30/97 16:04:4

C56

SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T350)

Pu-239 Integrated Discharge up Borehole at MB138



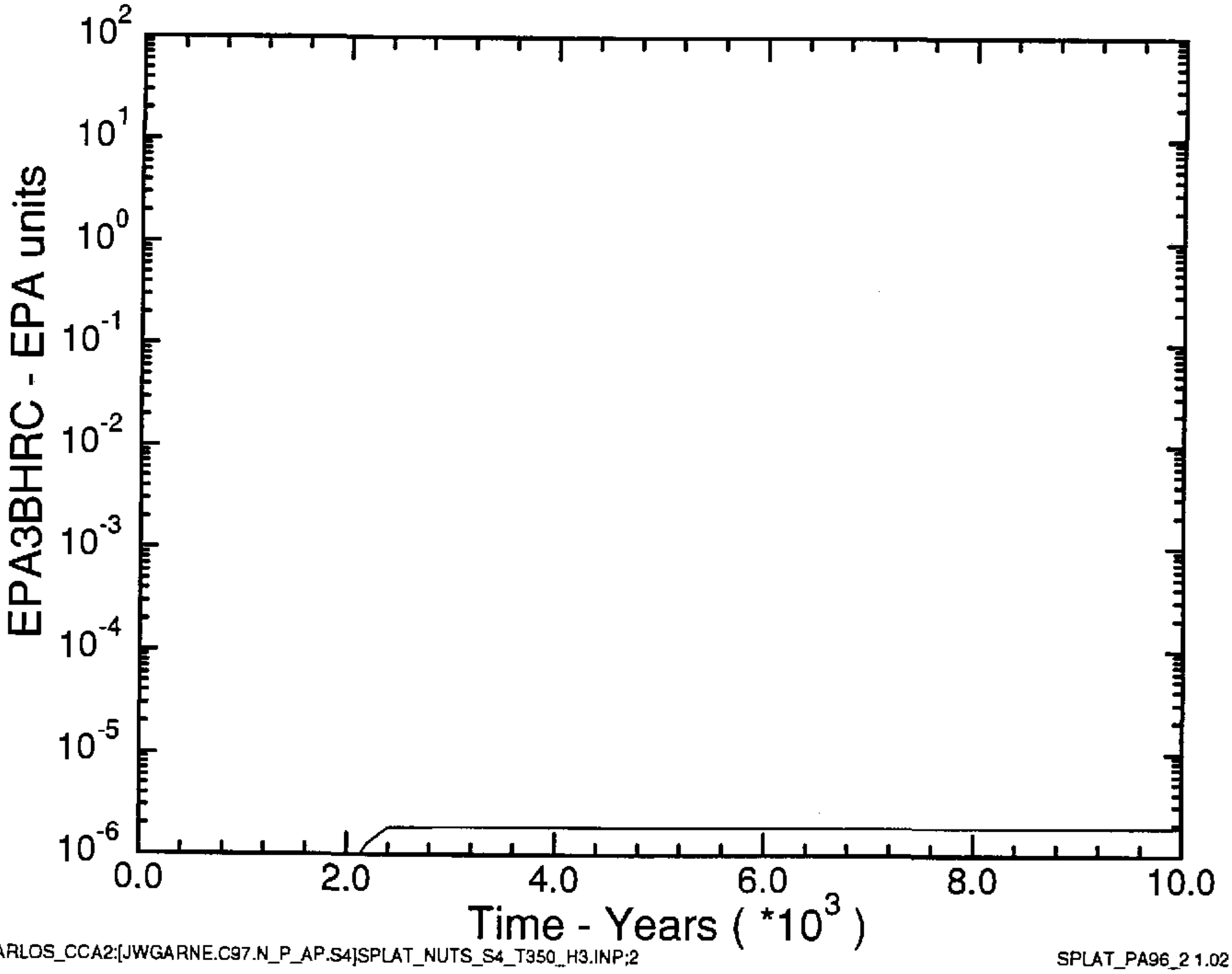
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T350_H2.INP;2

SPLAT_PA96_2 1.02 06/30/97 16:04:4

C57

SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T350)

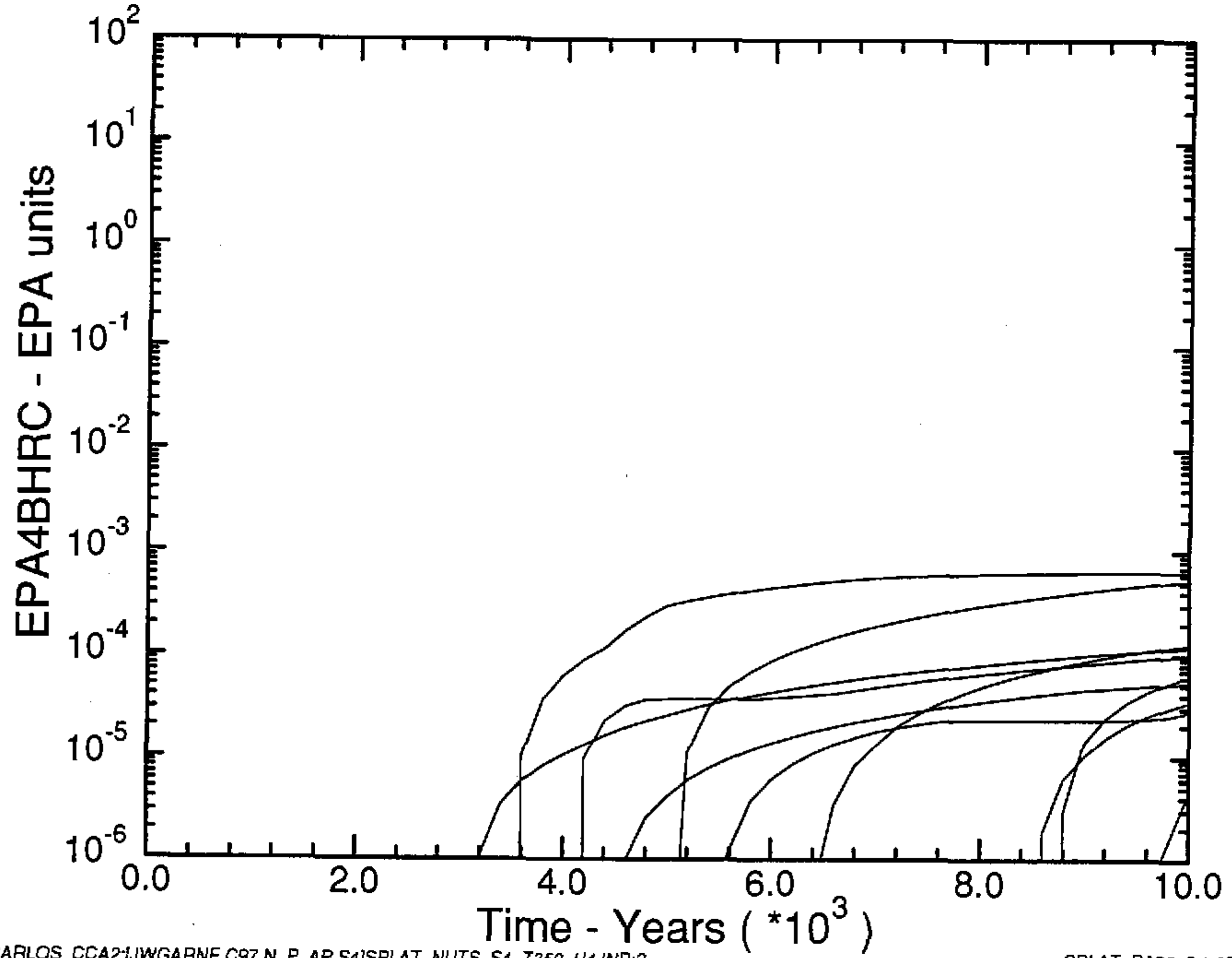
Pu-238 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T350_H3.INP;2

SPLAT_PA96_2 1.02 06/30/97 16:04:5

C58



SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T350)

U-234 Integrated Discharge up Borehole at MB138

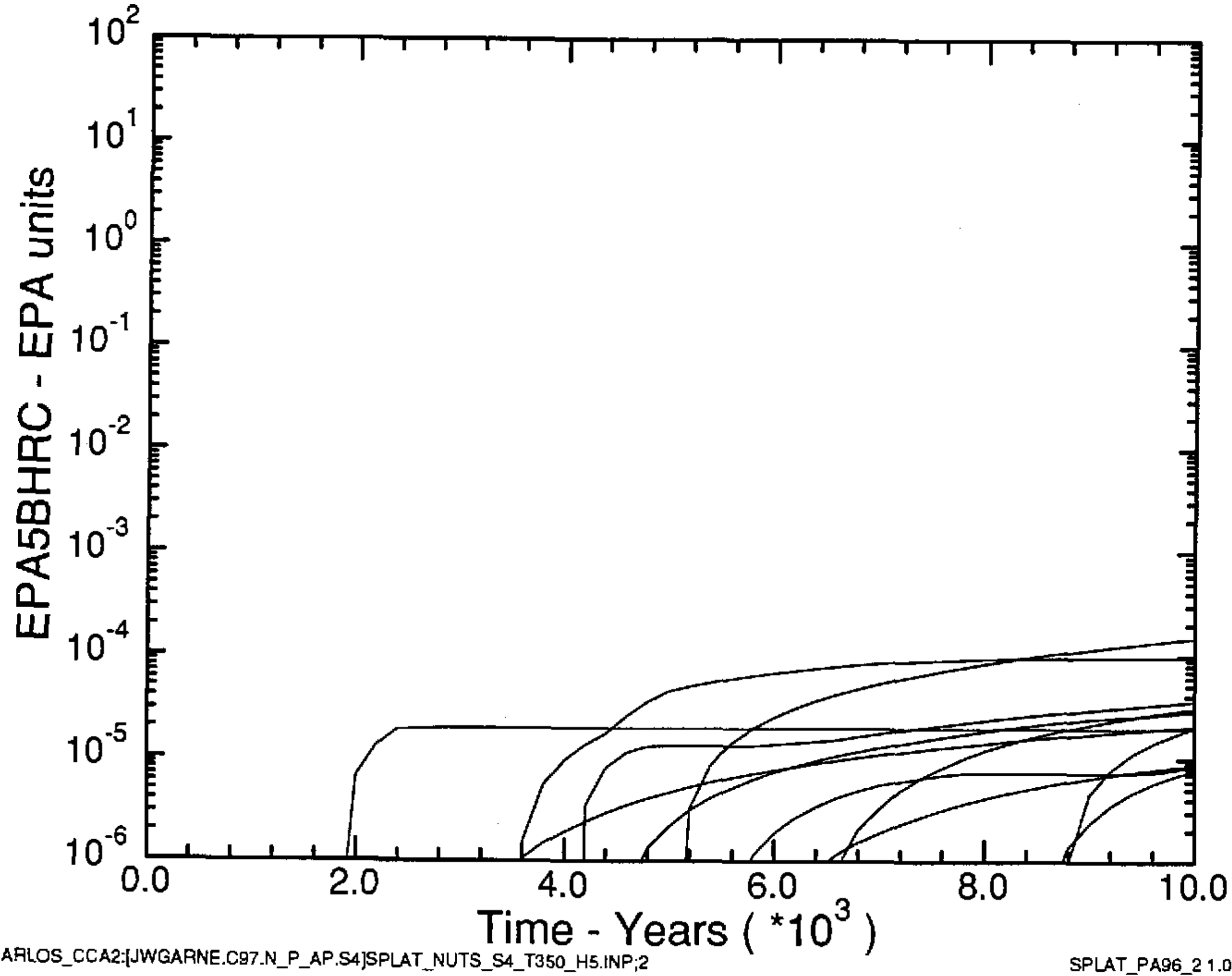
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T350_H4.INP;2

SPLAT_PA96_2 1.02 06/30/97 16:04:5

C59

SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T350)

Th-230 Integrated Discharge up Borehole at MB138



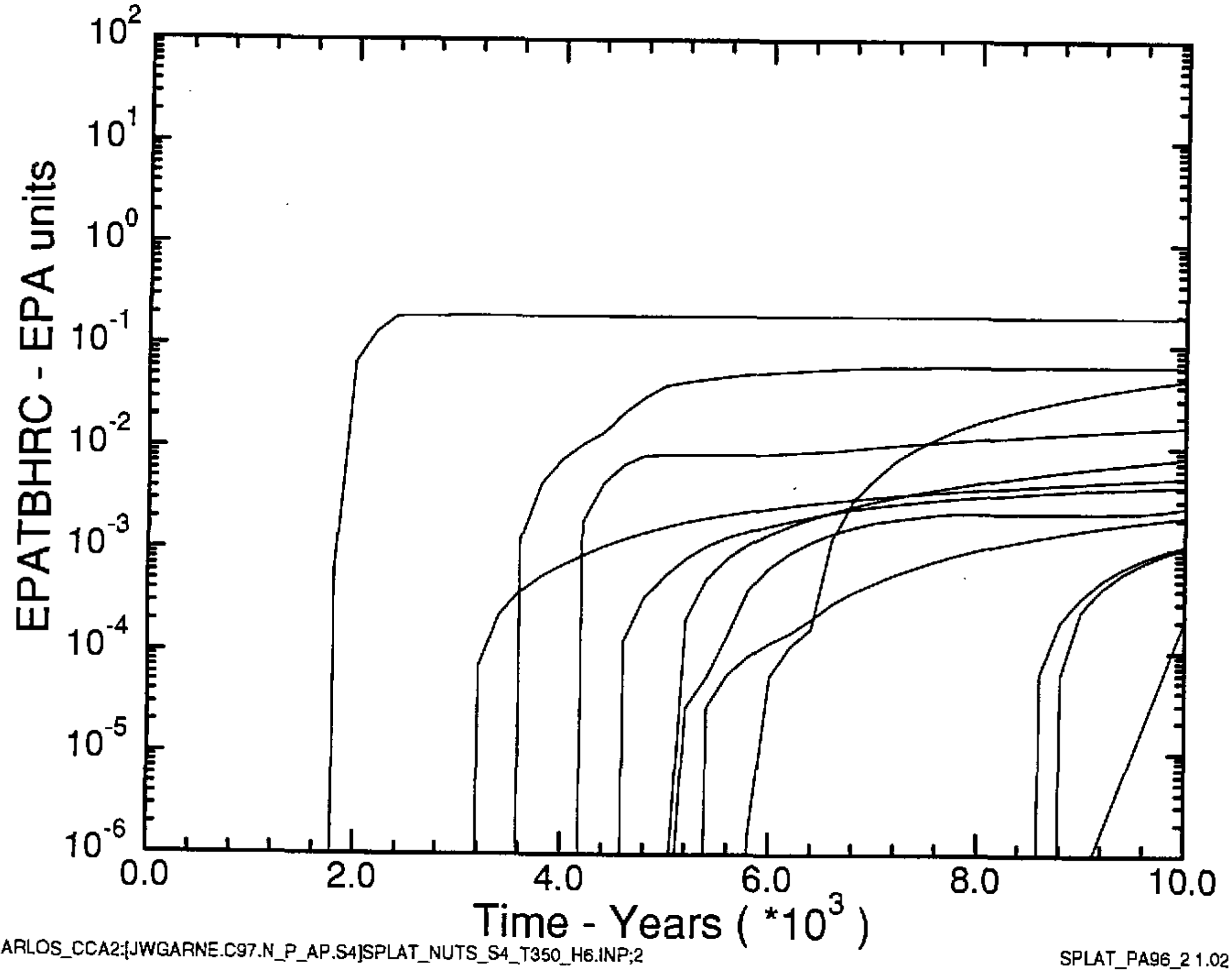
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T350_H5.INP;2

SPLAT_PA96_2 1.02 06/30/97 16:04:5

C60

SNL WIPP PA96: NUTS SIMULATIONS (C97 S4 T350)

Total Integrated Discharge up Borehole at MB138



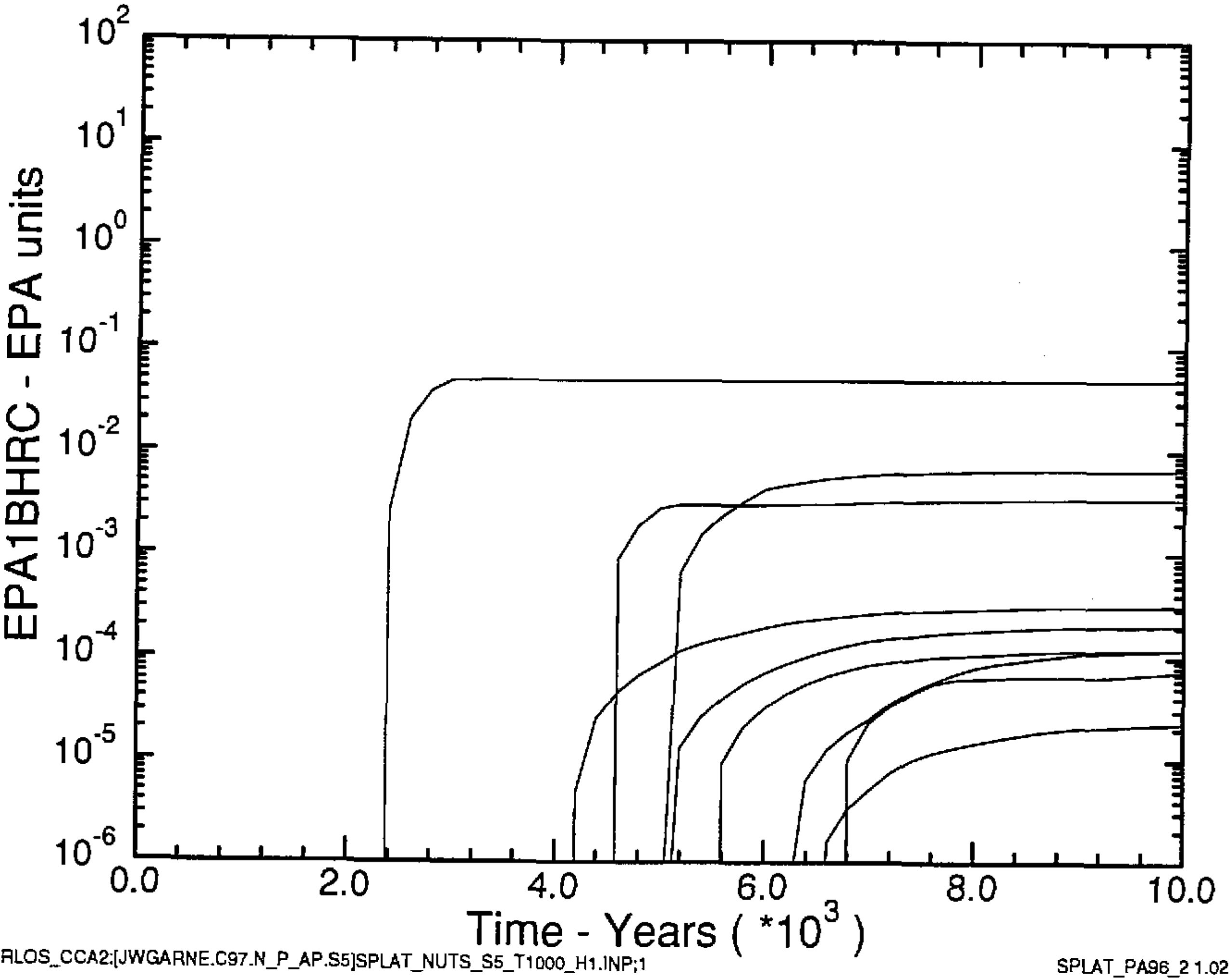
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S4]SPLAT_NUTS_S4_T350_H6.INP;2

SPLAT_PA96_2 1.02 06/30/97 16:05:(

C61

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T1000)

Am-241 Integrated Discharge up Borehole at MB138



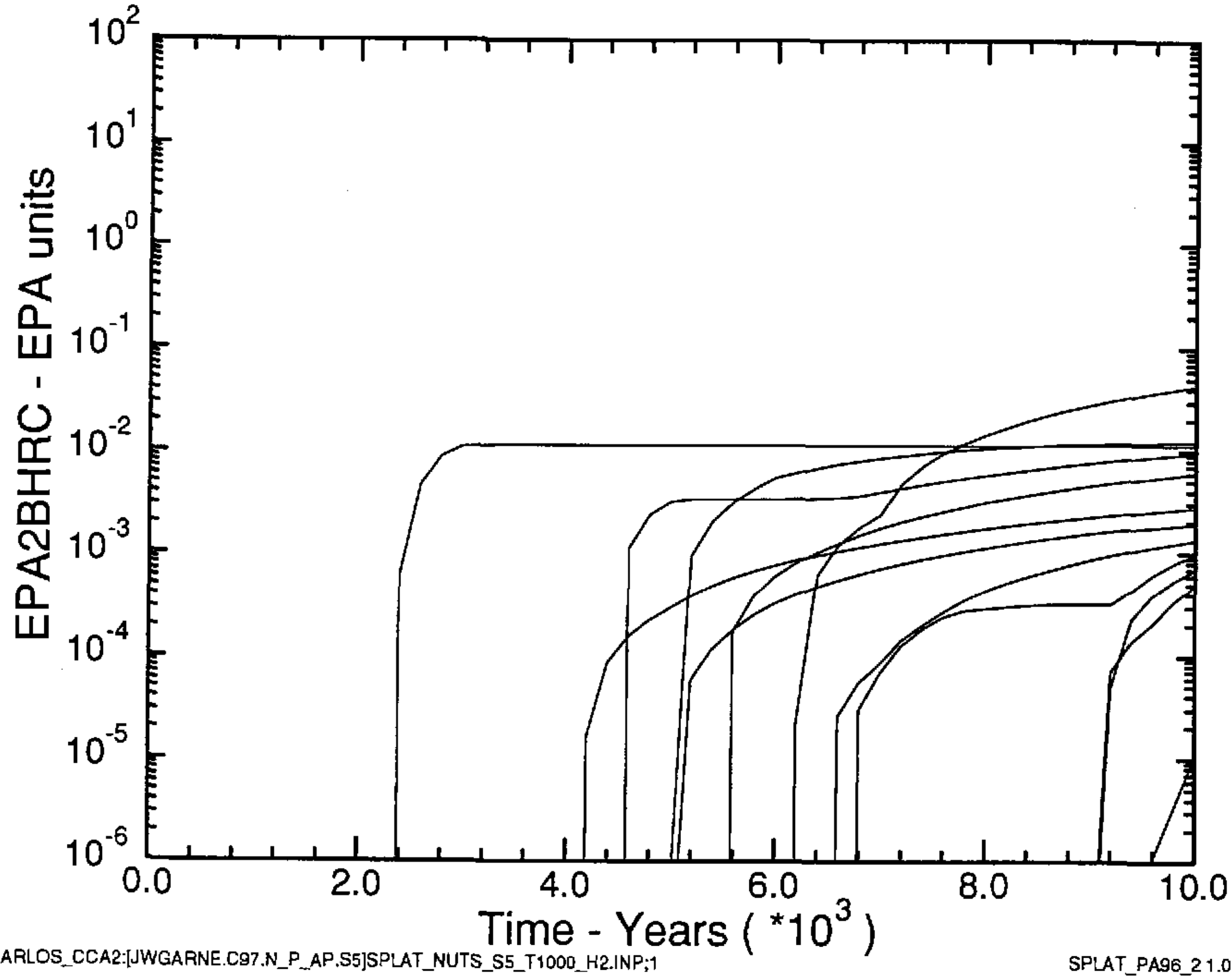
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T1000_H1.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:40:4

C 62

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T1000)

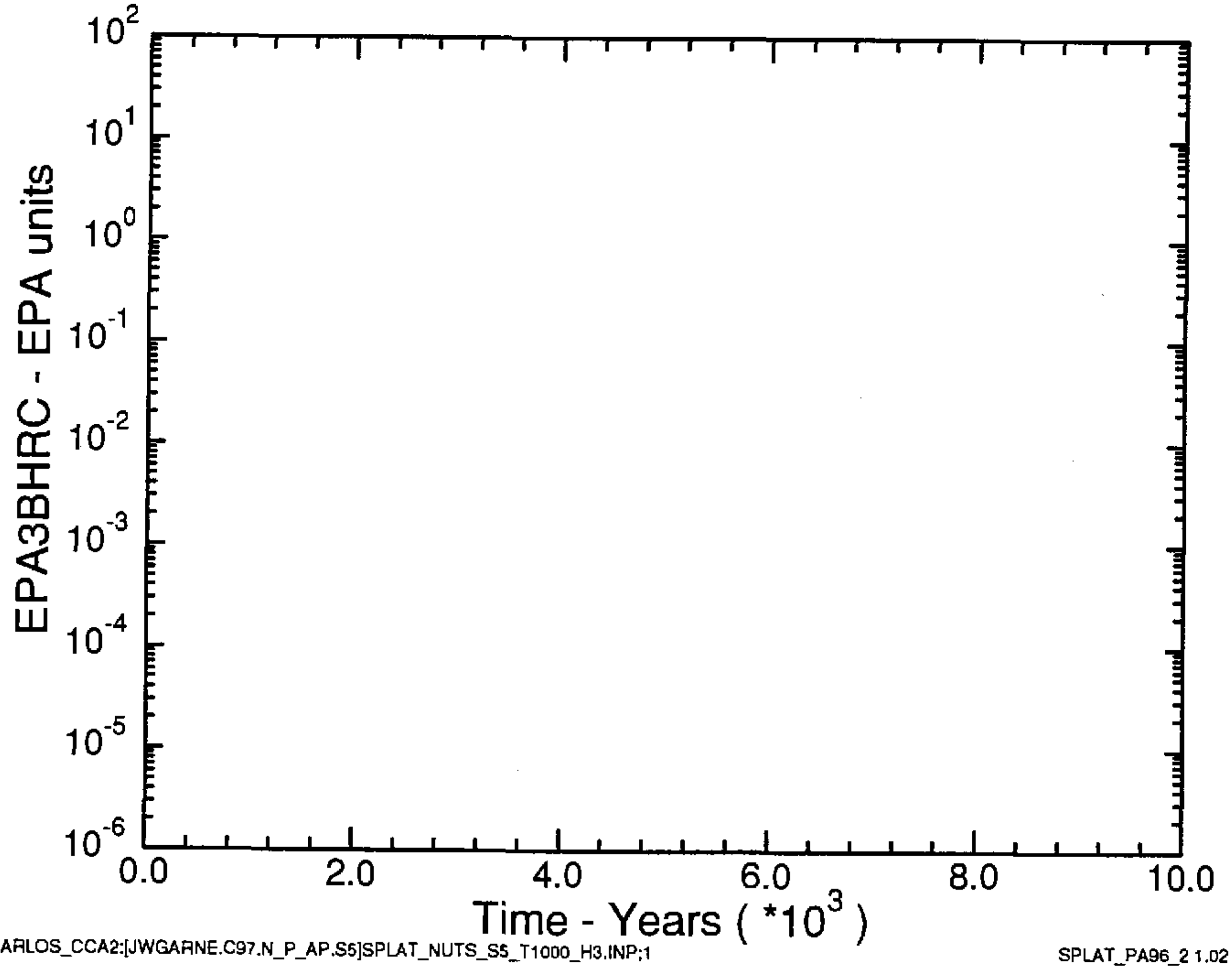
Pu-239 Integrated Discharge up Borehole at MB138



C 63

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T1000)

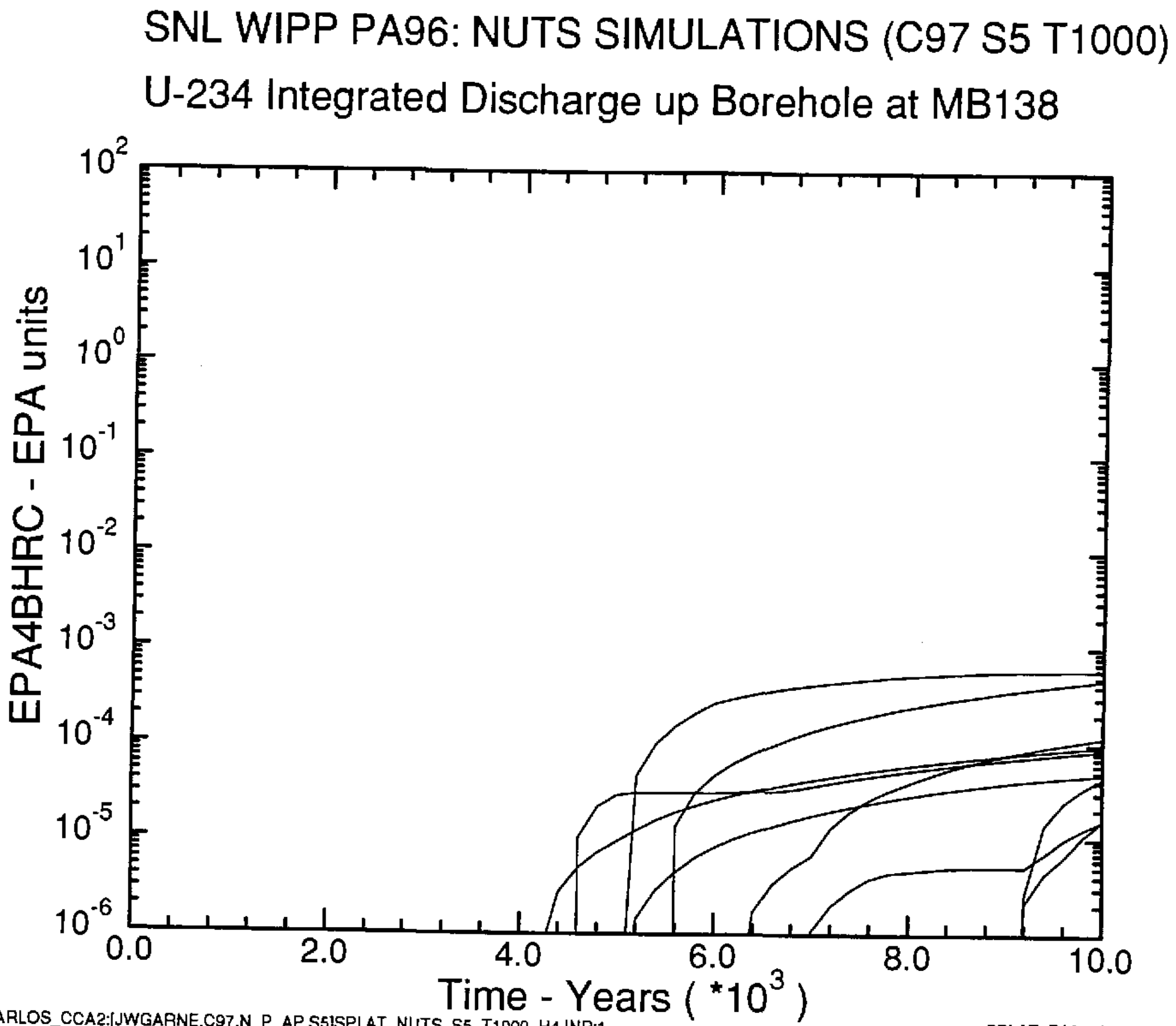
Pu-238 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T1000_H3.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:40:4

C64



SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T1000)

U-234 Integrated Discharge up Borehole at MB138

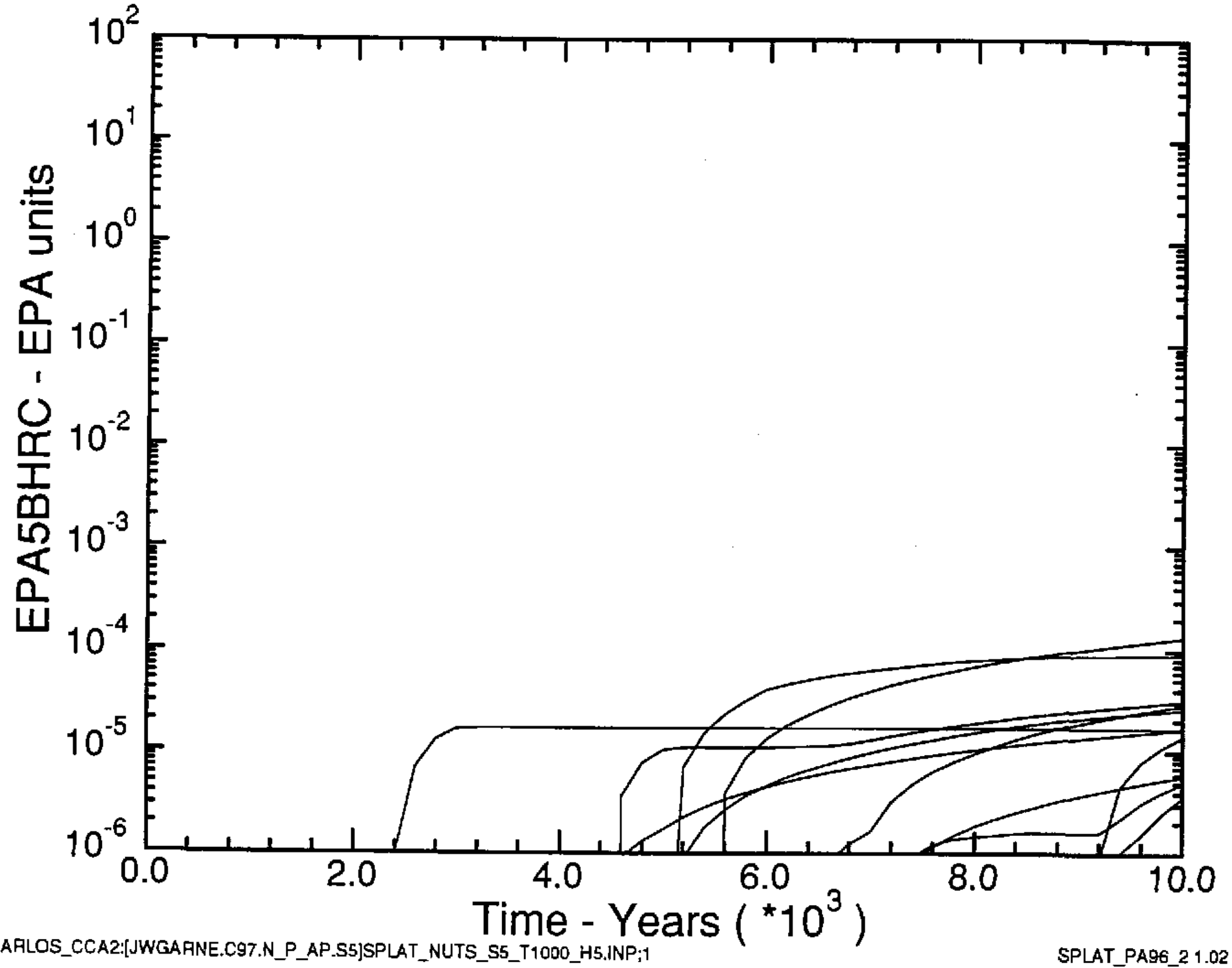
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T1000_H4.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:40:5

C65

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T1000)

Th-230 Integrated Discharge up Borehole at MB138



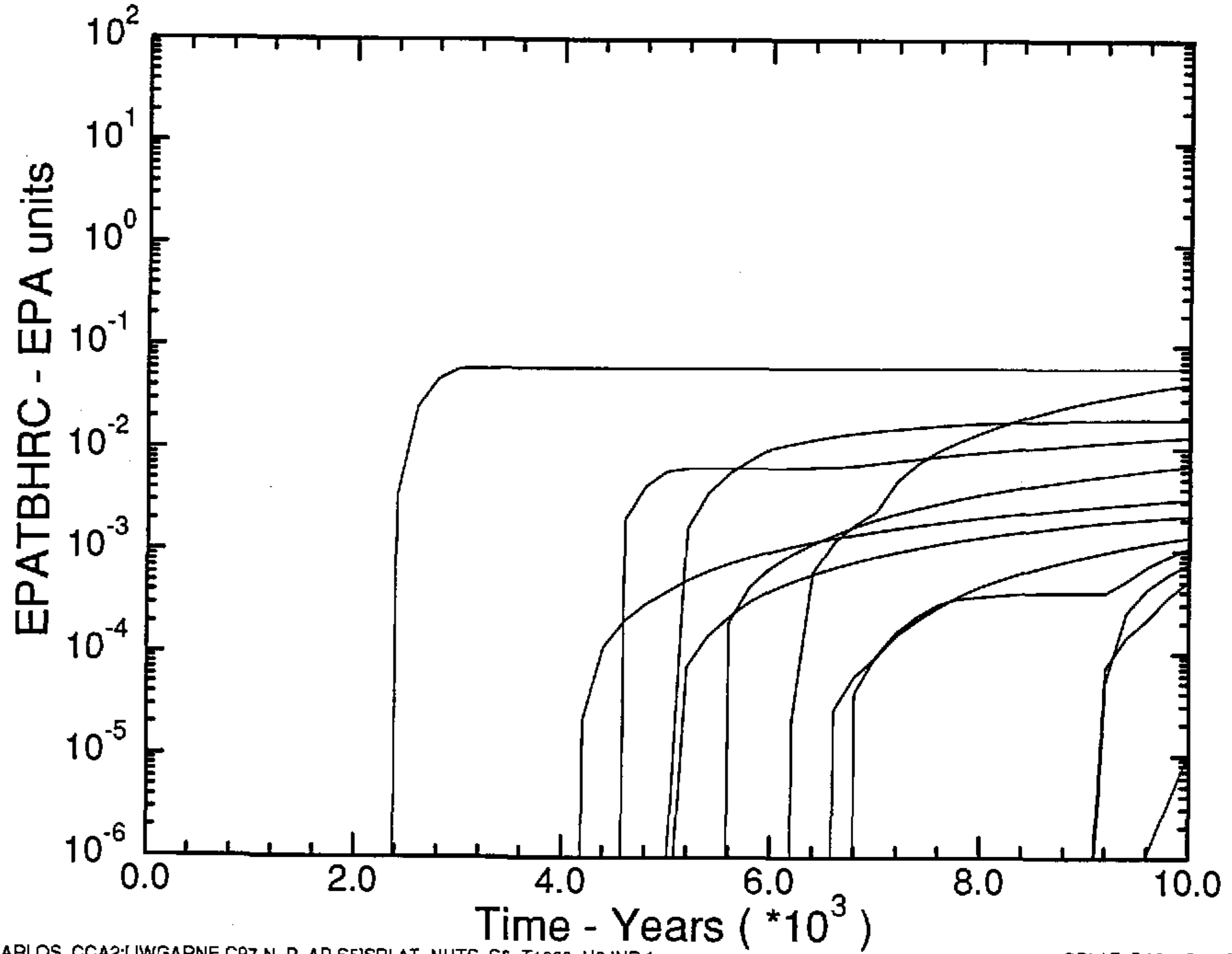
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T1000_H5.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:40:5

C66

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T1000)

Total Integrated Discharge up Borehole at MB138



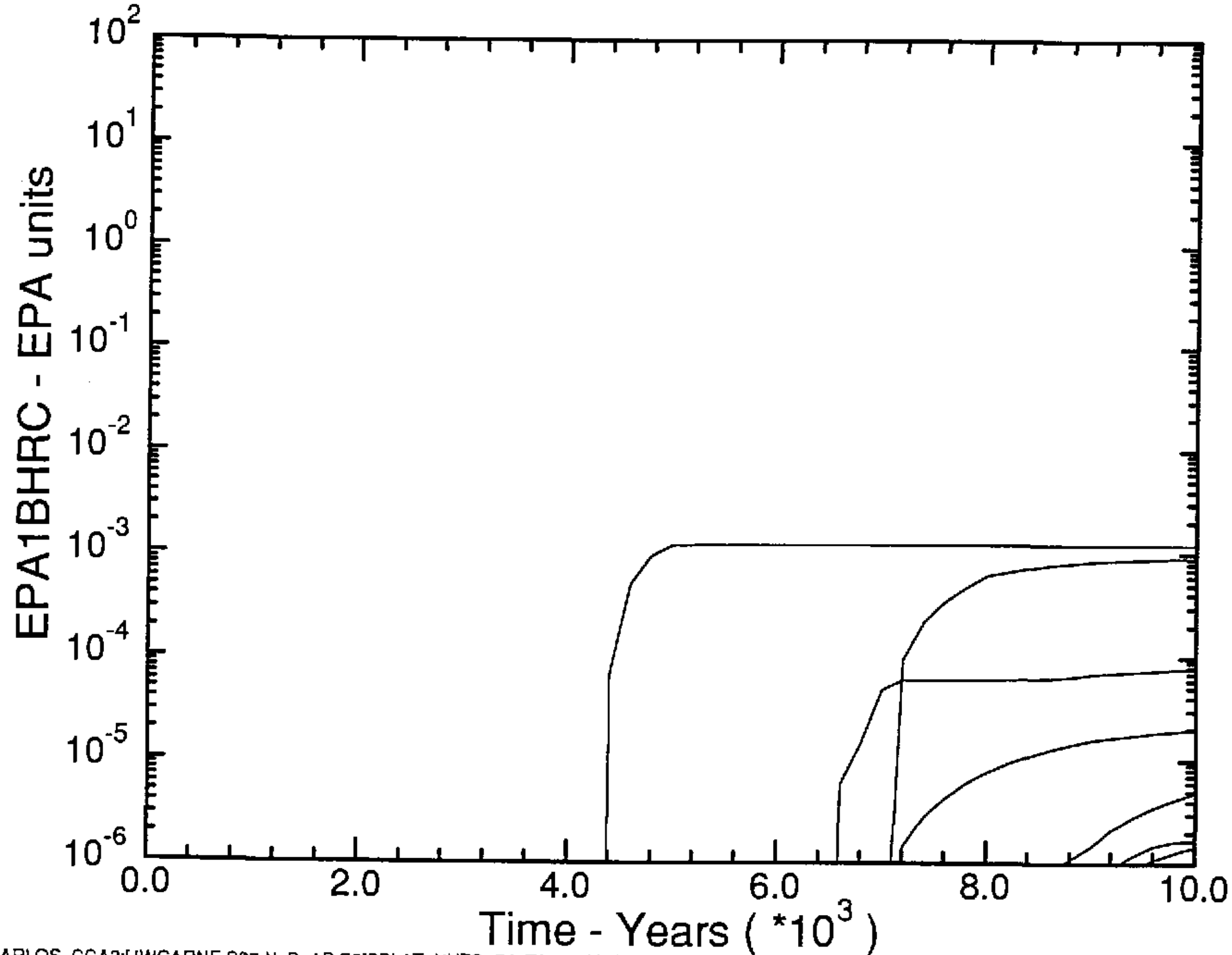
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T1000_H6.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:40:5

C67

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T3000)

Am-241 Integrated Discharge up Borehole at MB138



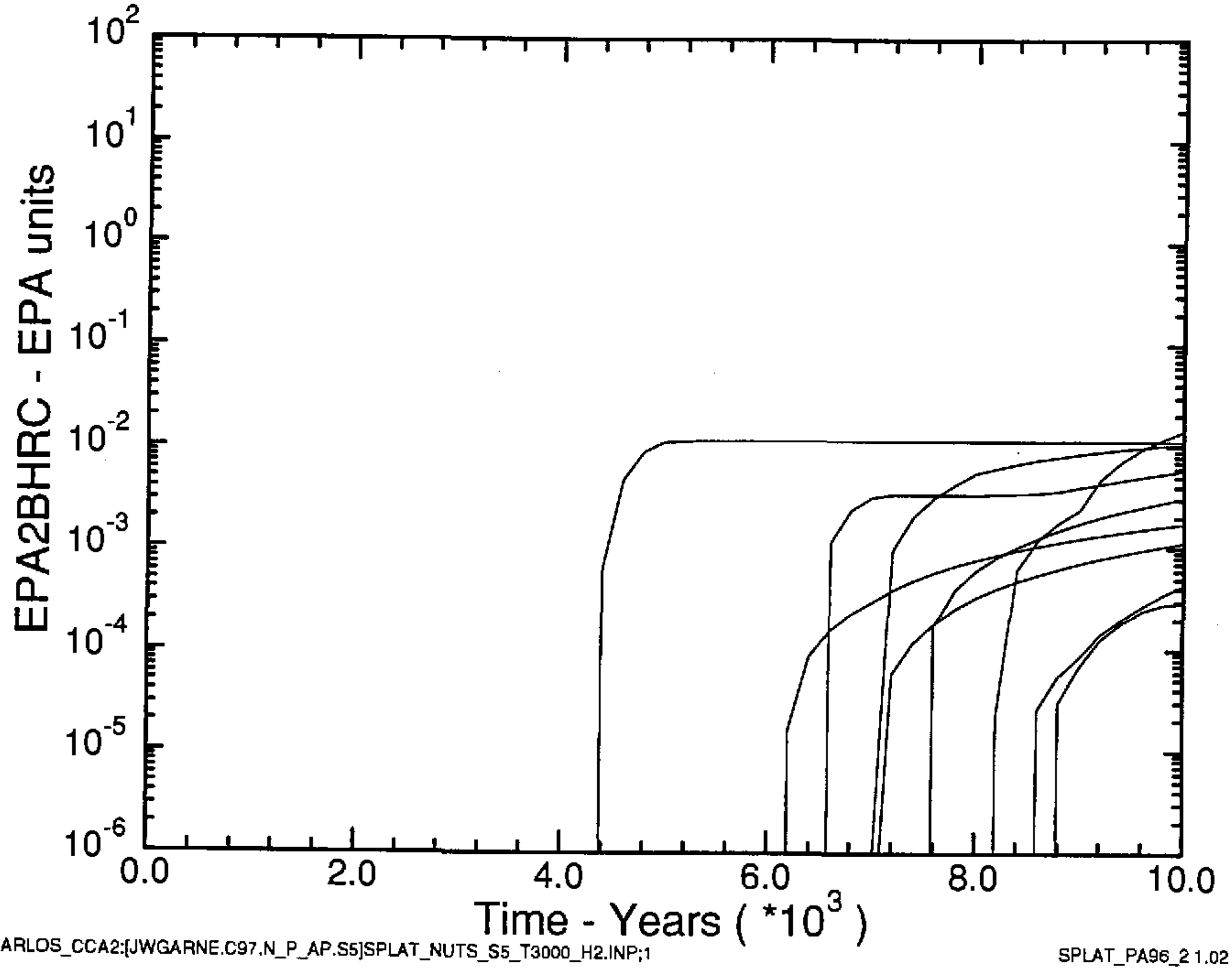
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T3000_H1.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:1

C68

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T3000)

Pu-239 Integrated Discharge up Borehole at MB138



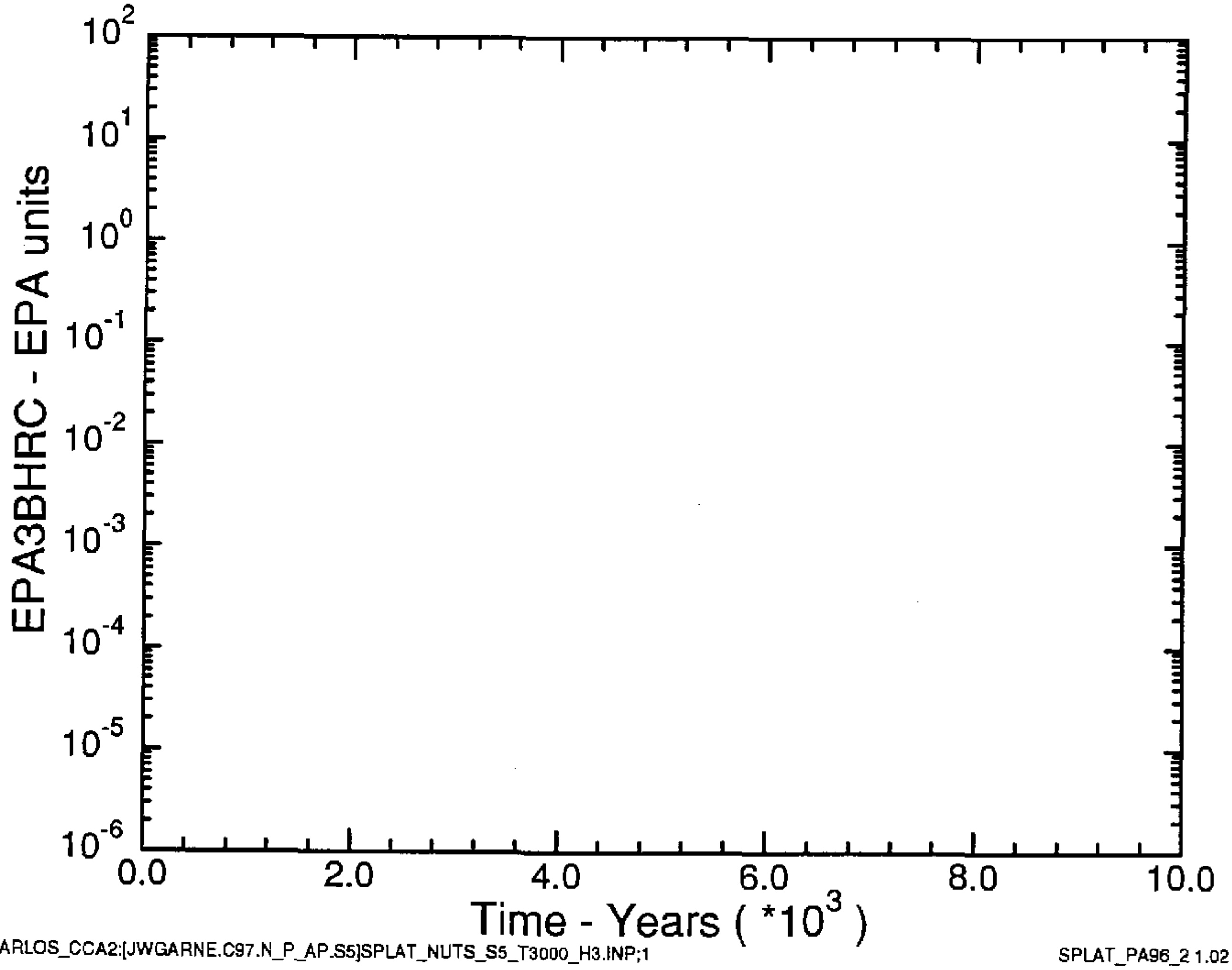
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T3000_H2.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:2

C69

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T3000)

Pu-238 Integrated Discharge up Borehole at MB138



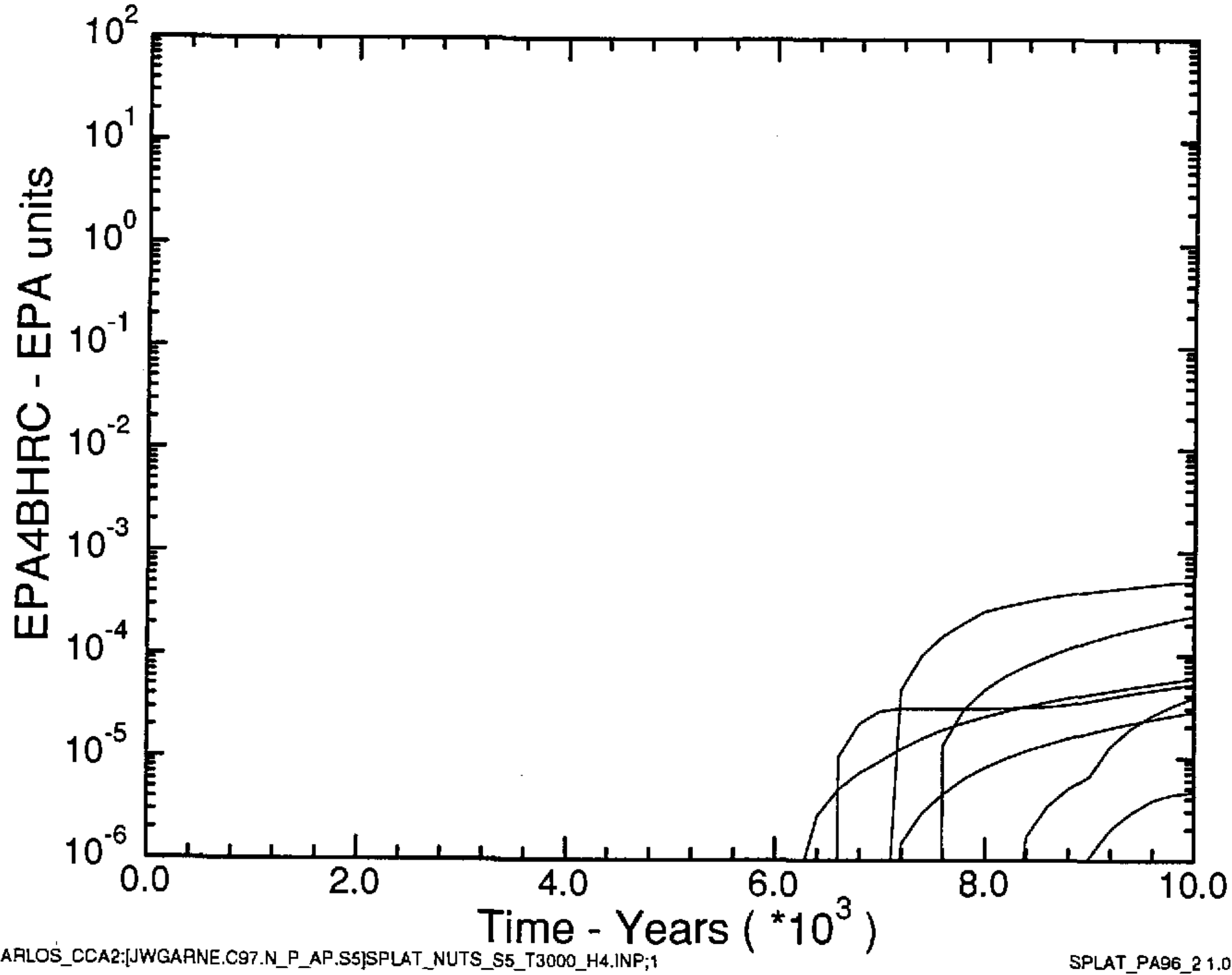
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T3000_H3.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:2

C70

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T3000)

U-234 Integrated Discharge up Borehole at MB138



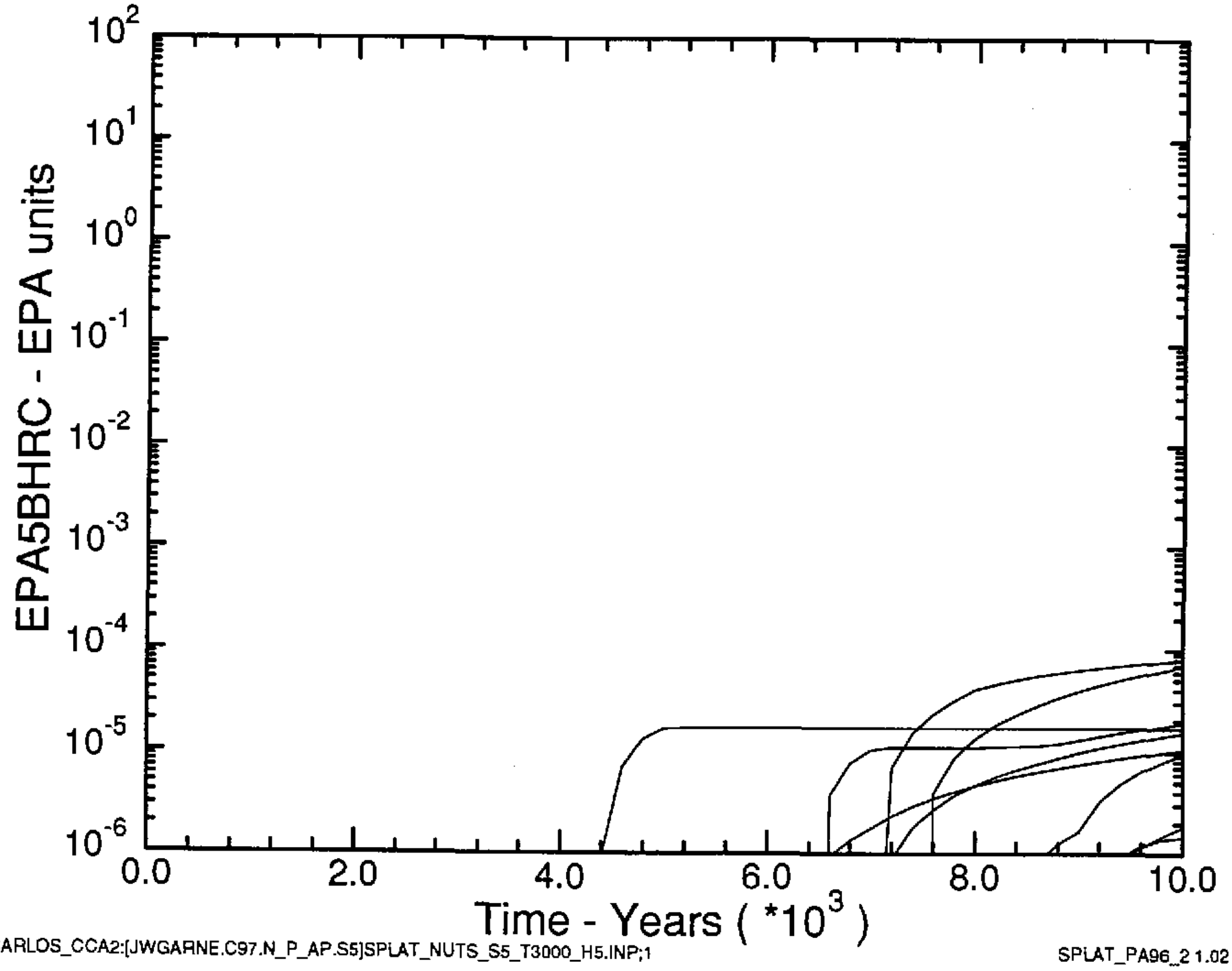
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T3000_H4.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:2

C71

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T3000)

Th-230 Integrated Discharge up Borehole at MB138



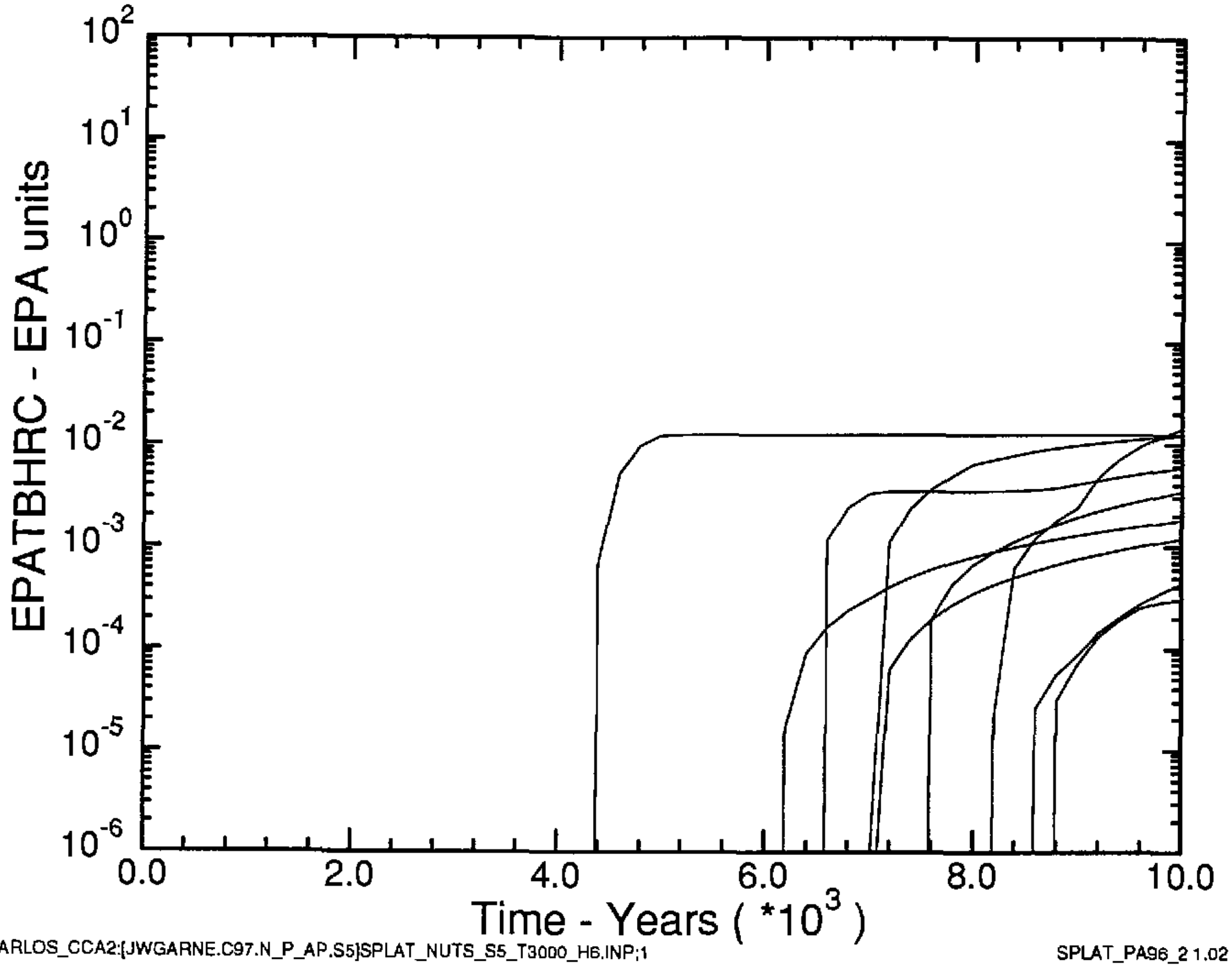
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T3000_H5.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:2

C72

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T3000)

Total Integrated Discharge up Borehole at MB138



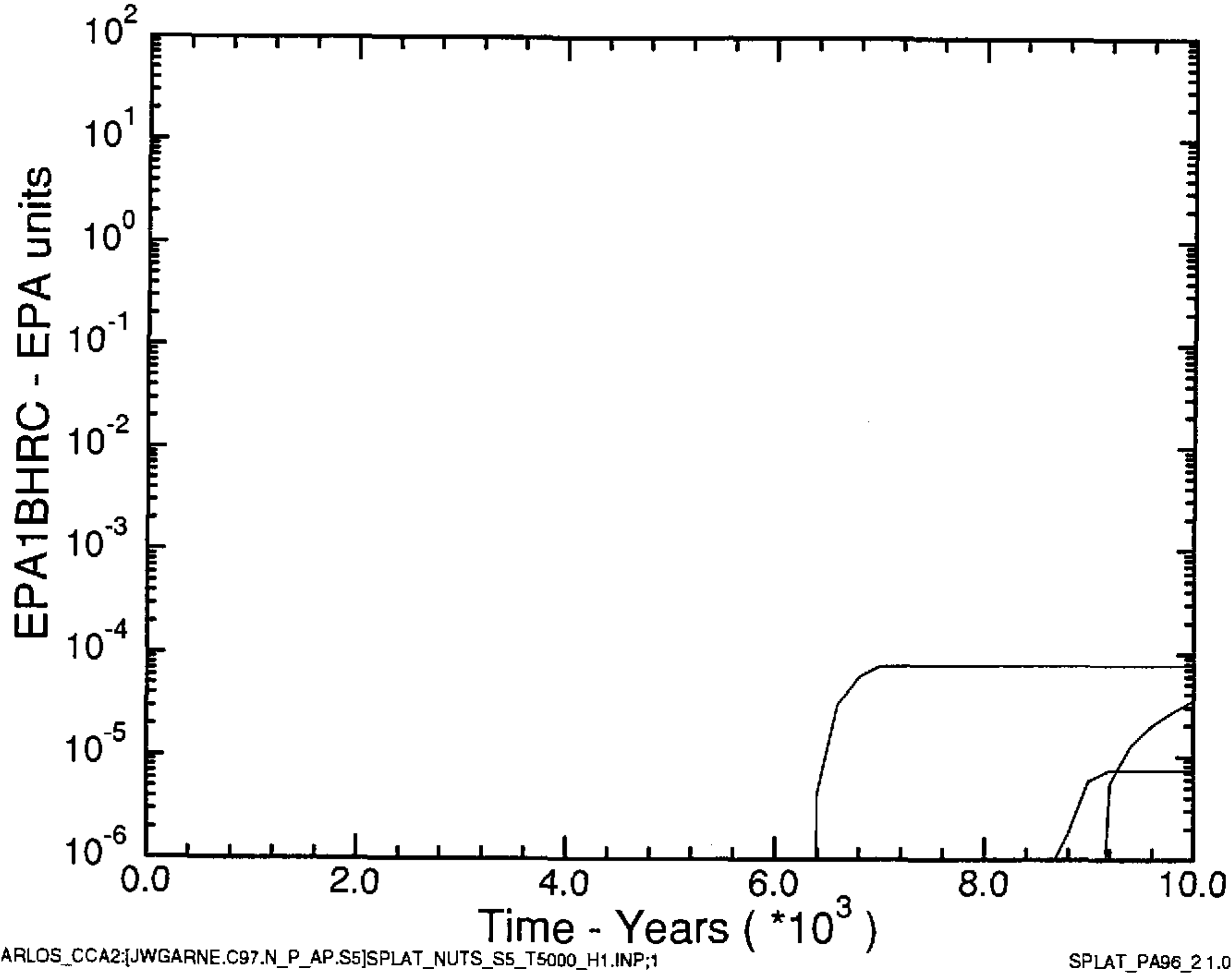
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T3000_H6.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:3

C73

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T5000)

Am-241 Integrated Discharge up Borehole at MB138



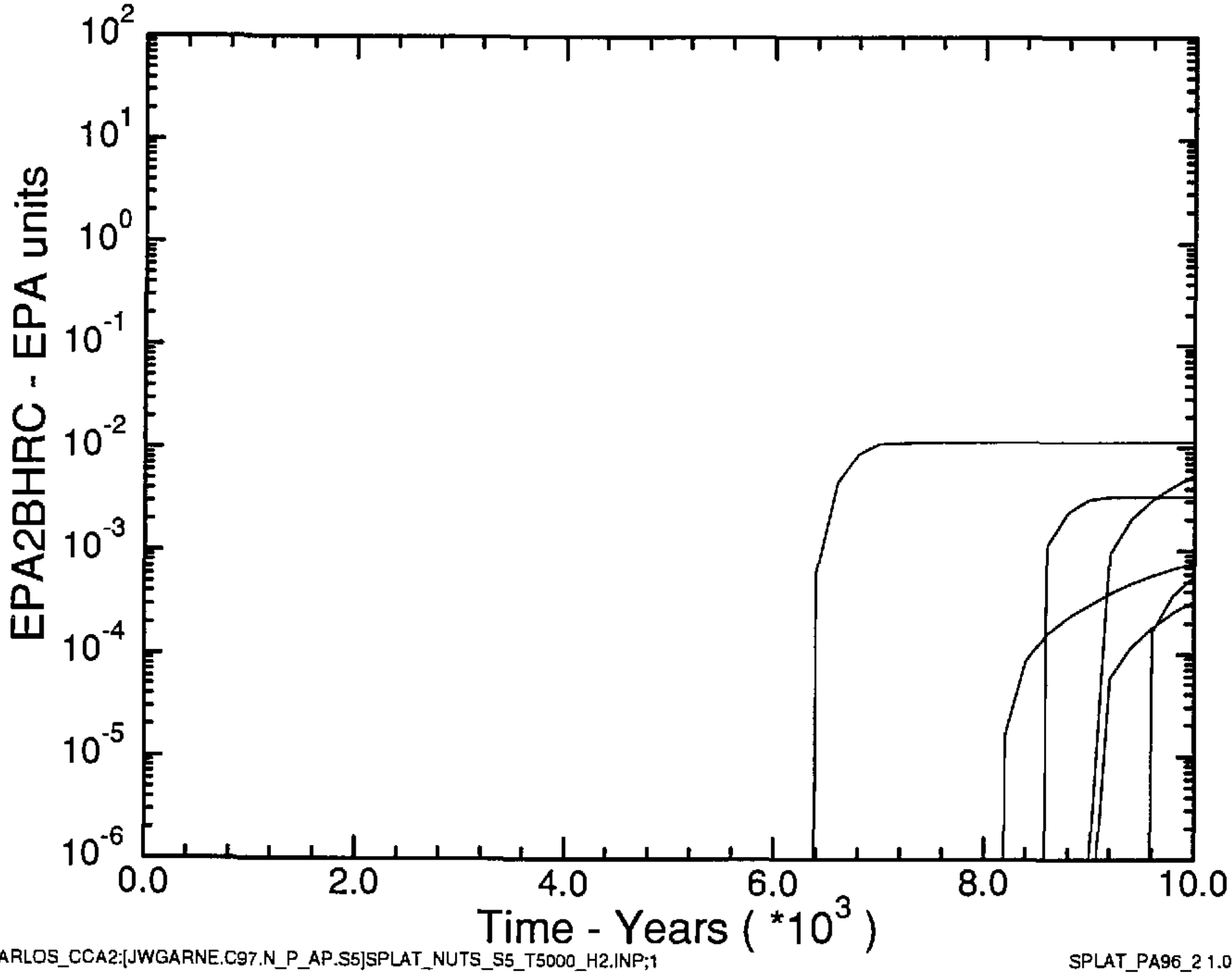
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T5000_H1.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:4

C74

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T5000)

Pu-239 Integrated Discharge up Borehole at MB138



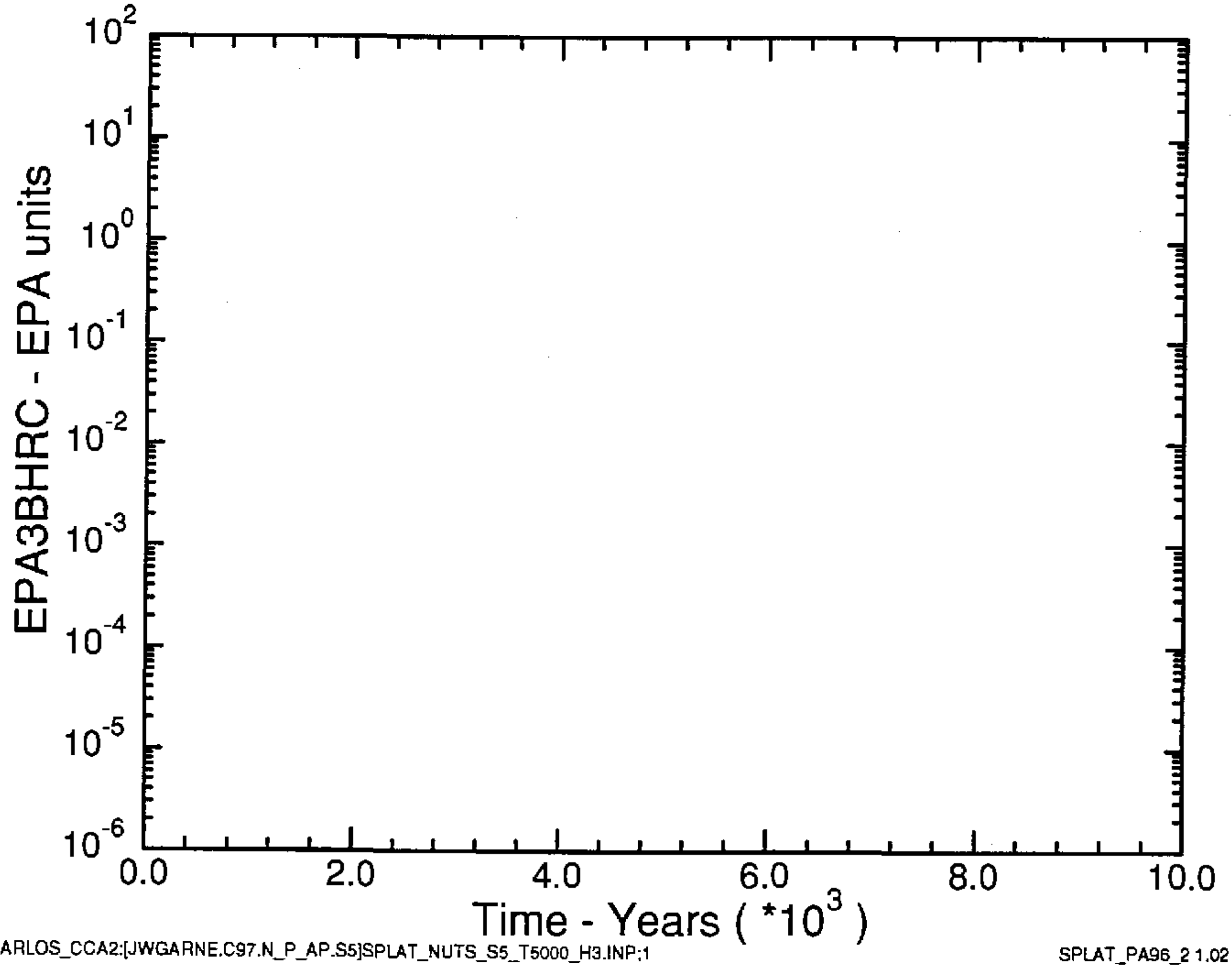
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T5000_H2.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:5

C75

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T5000)

Pu-238 Integrated Discharge up Borehole at MB138

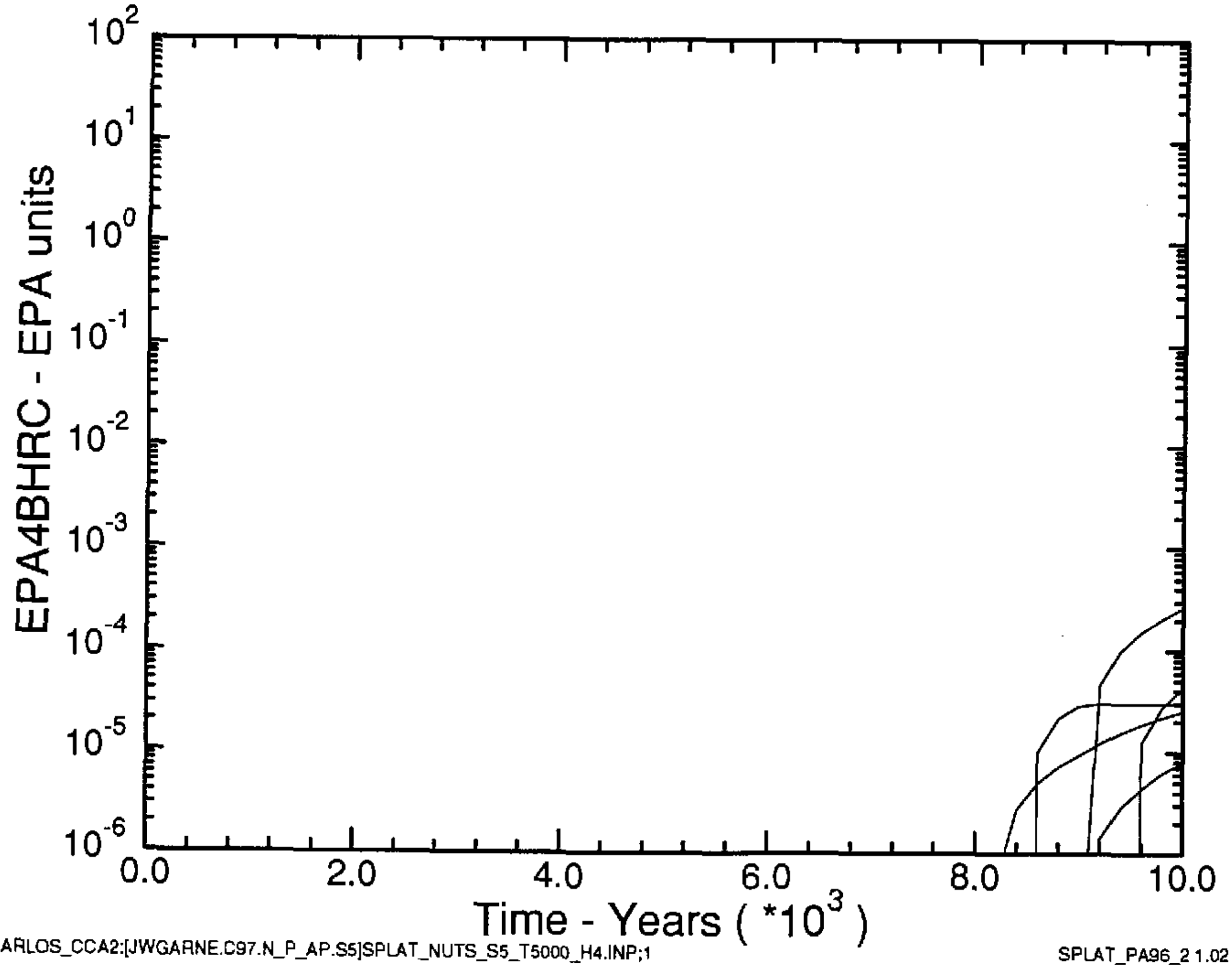


DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T5000_H3.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:5

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T5000)

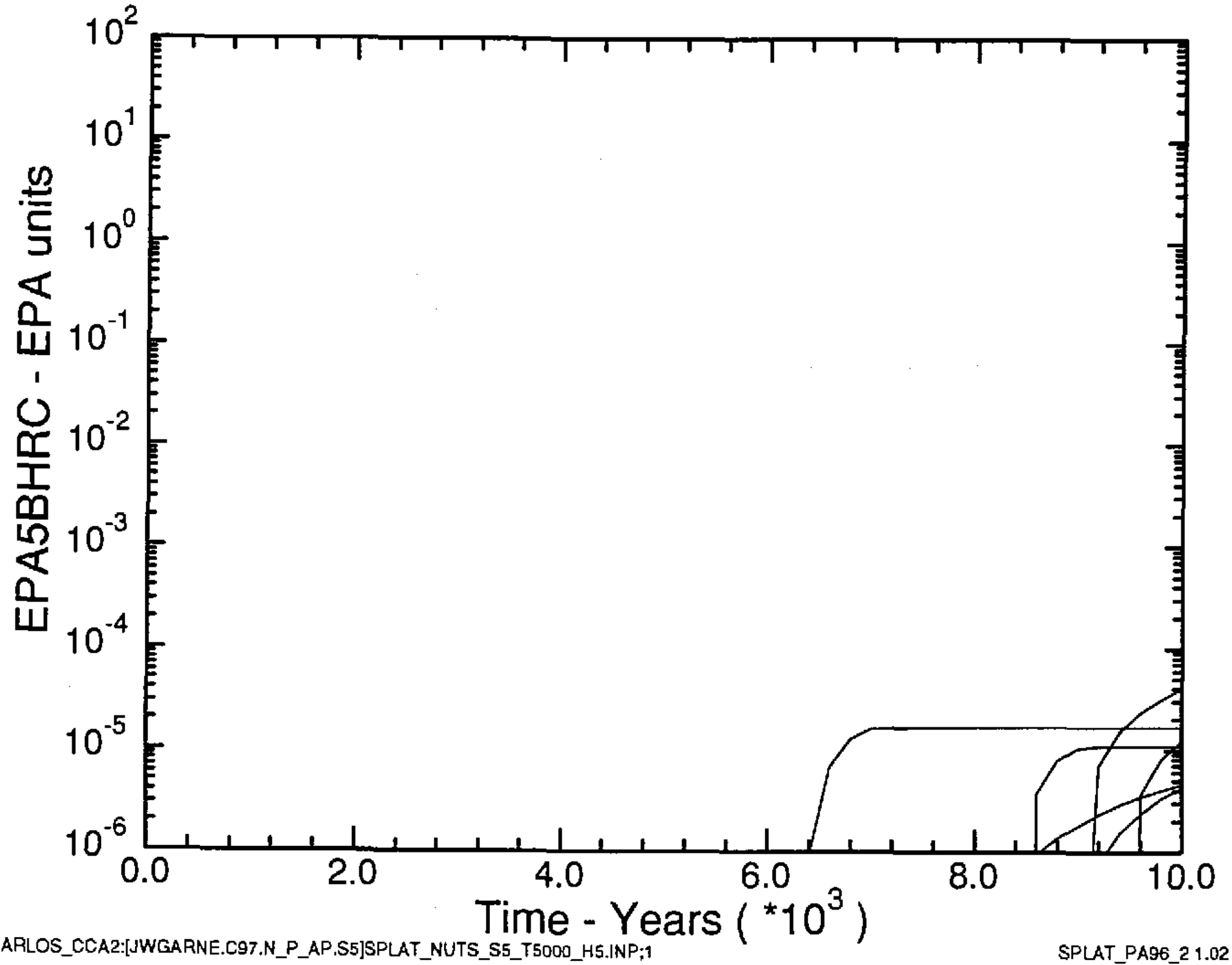
U-234 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T5000_H4.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:5

C77



SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T5000)

Th-230 Integrated Discharge up Borehole at MB138

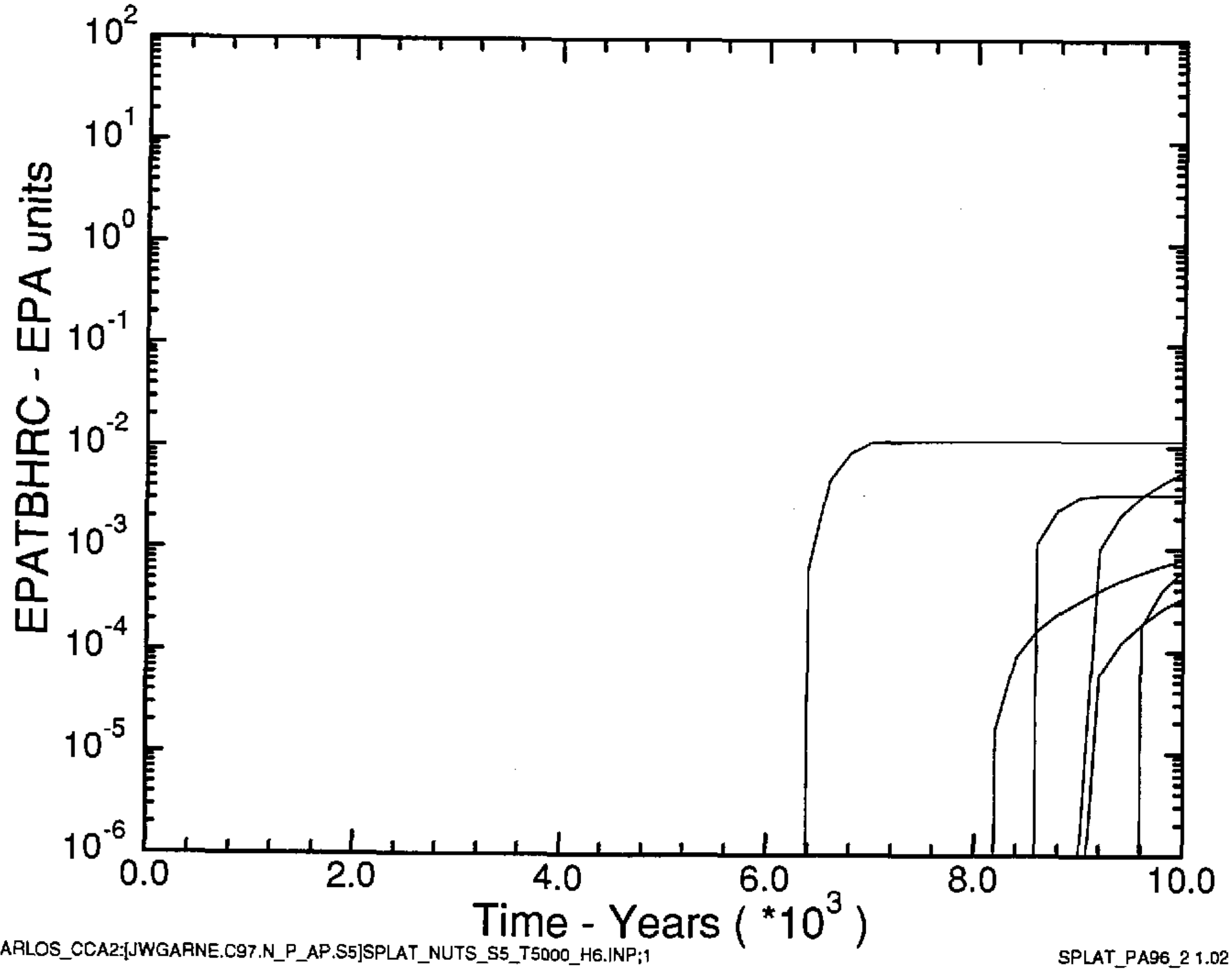
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T5000_H5.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:5

C78

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T5000)

Total Integrated Discharge up Borehole at MB138

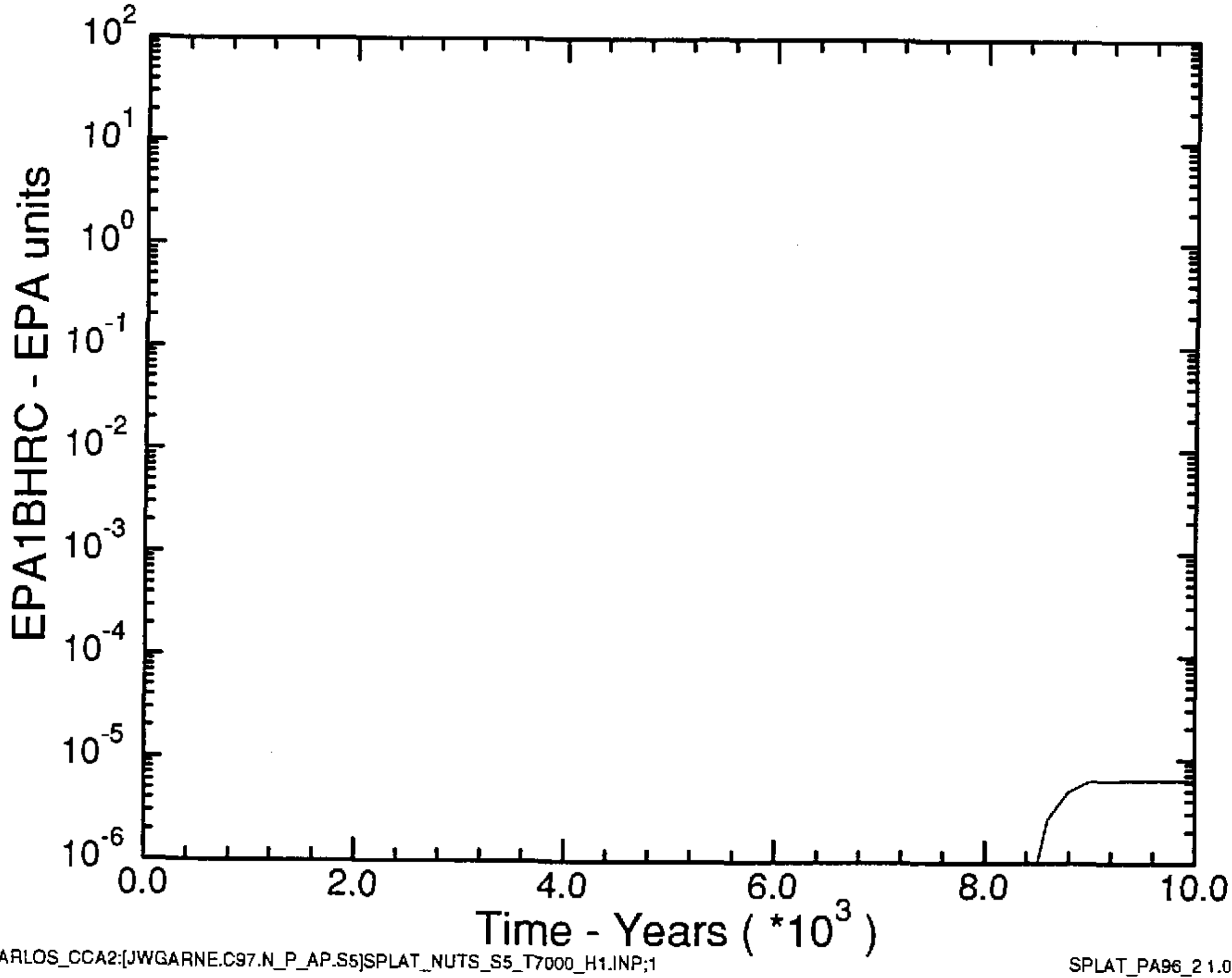


DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T5000_H6.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:41:5

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T7000)

Am-241 Integrated Discharge up Borehole at MB138



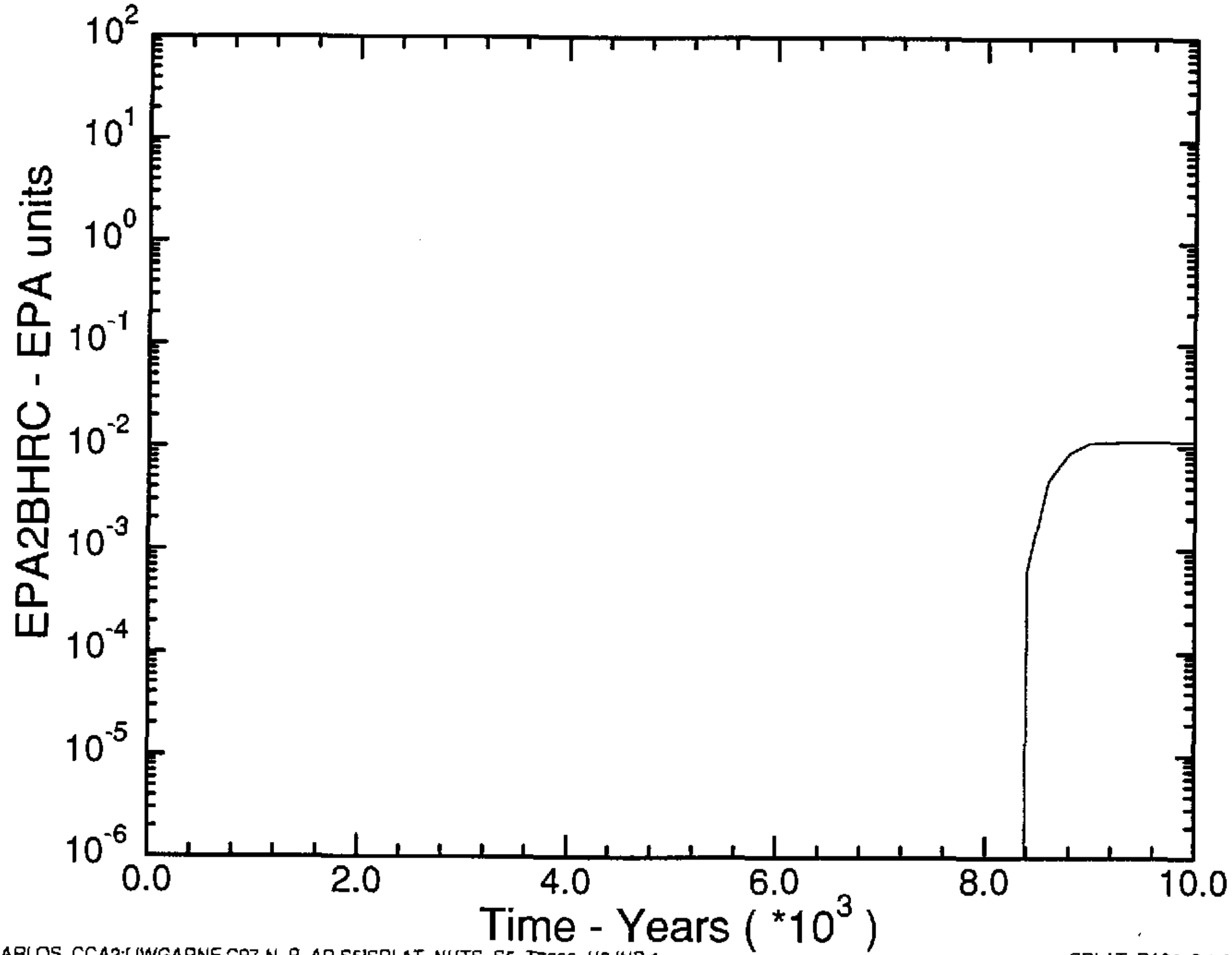
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T7000_H1.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:1

C80

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T7000)

Pu-239 Integrated Discharge up Borehole at MB138



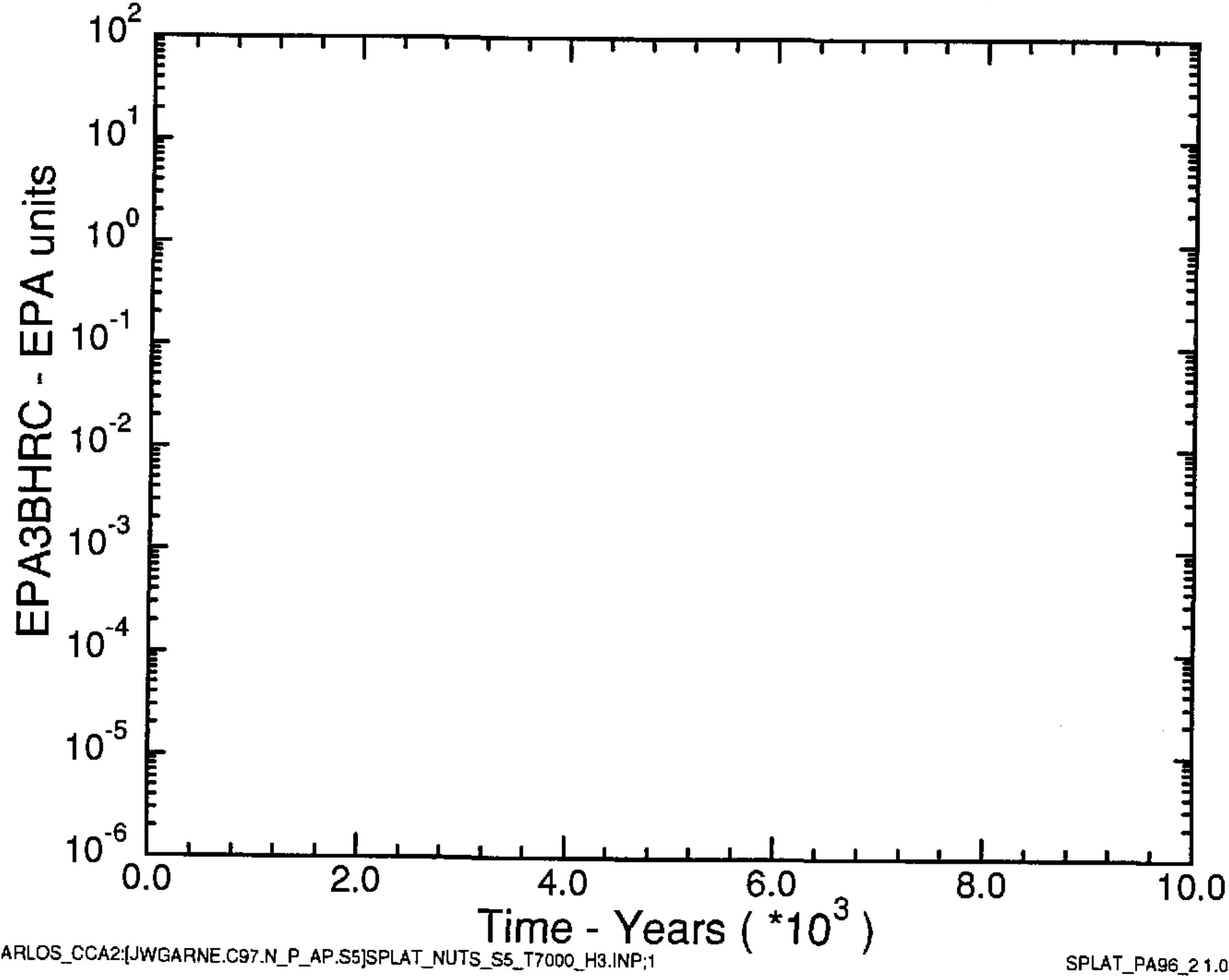
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T7000_H2.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:1

C81

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T7000)

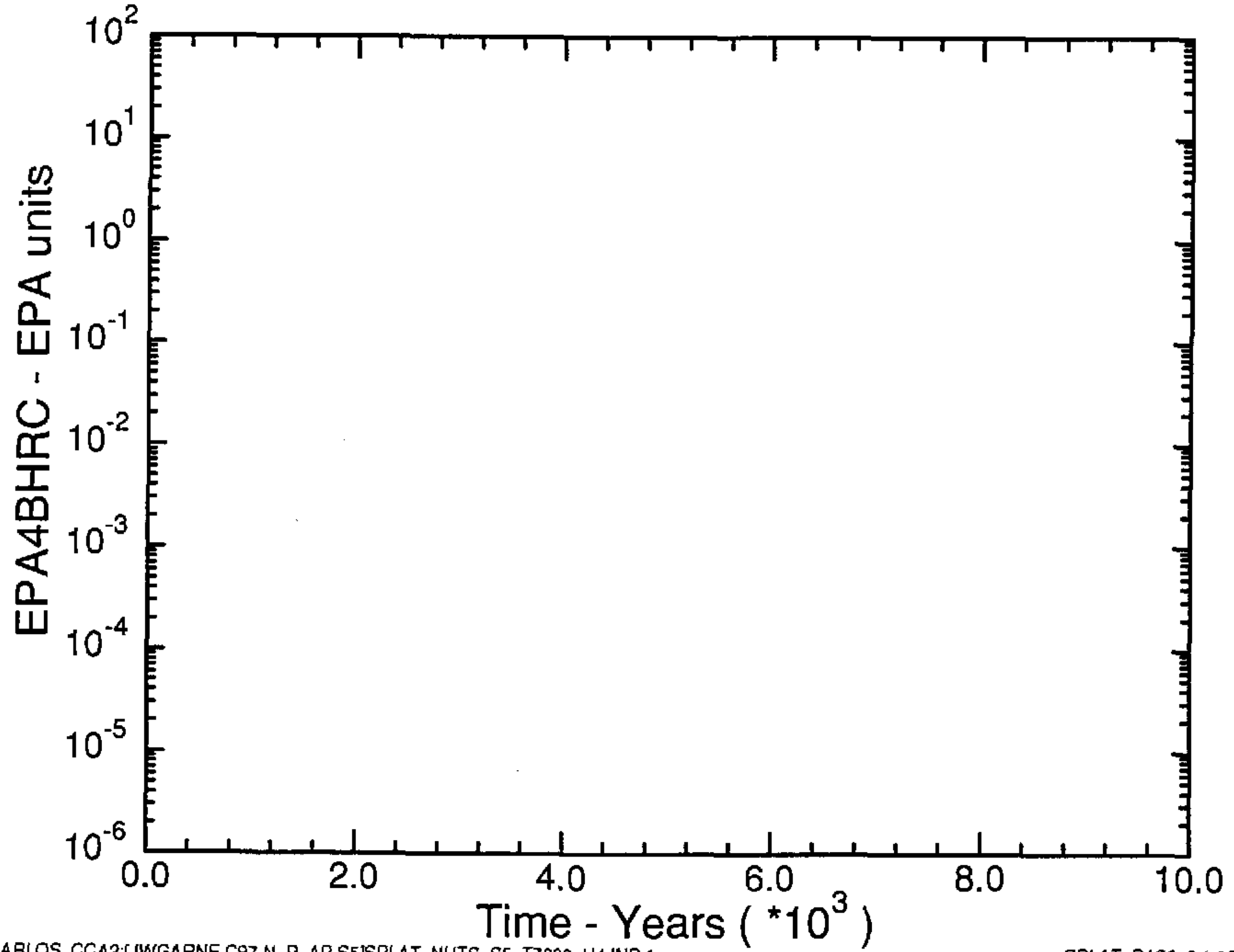
Pu-238 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T7000_H3.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:2

C82



SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T7000)

U-234 Integrated Discharge up Borehole at MB138

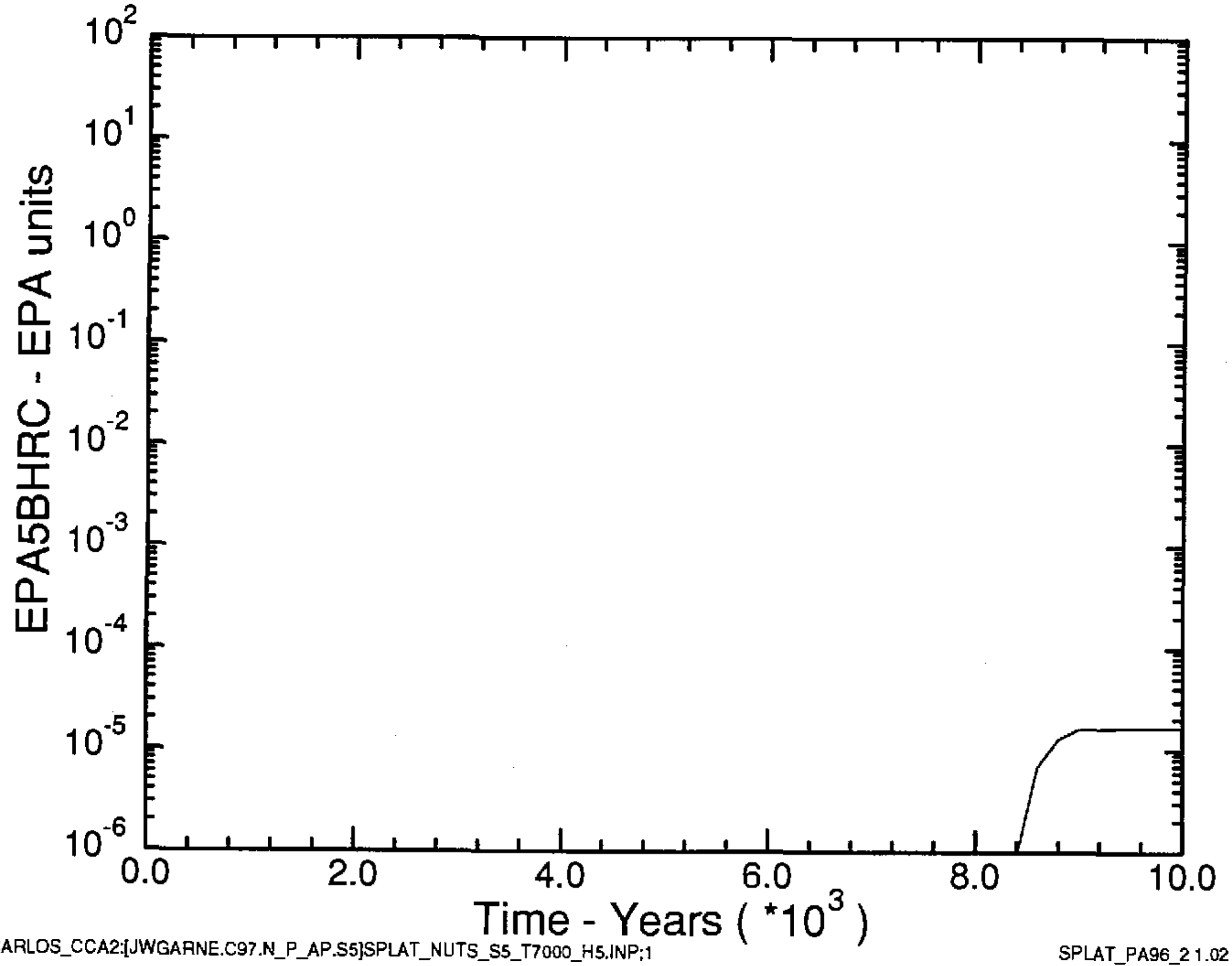
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T7000_H4.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:2

C83

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T7000)

Th-230 Integrated Discharge up Borehole at MB138



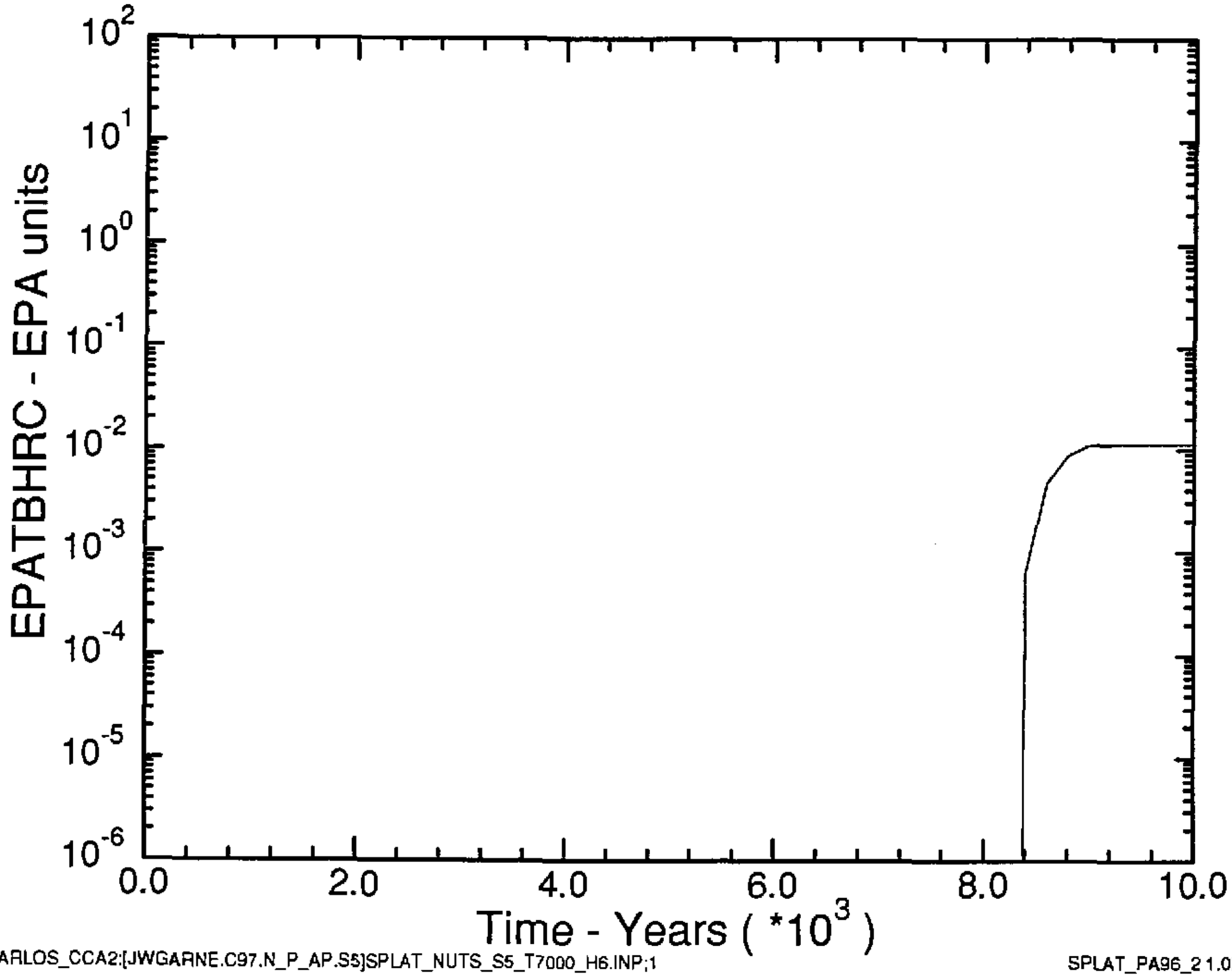
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T7000_H5.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:2

C84

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T7000)

Total Integrated Discharge up Borehole at MB138



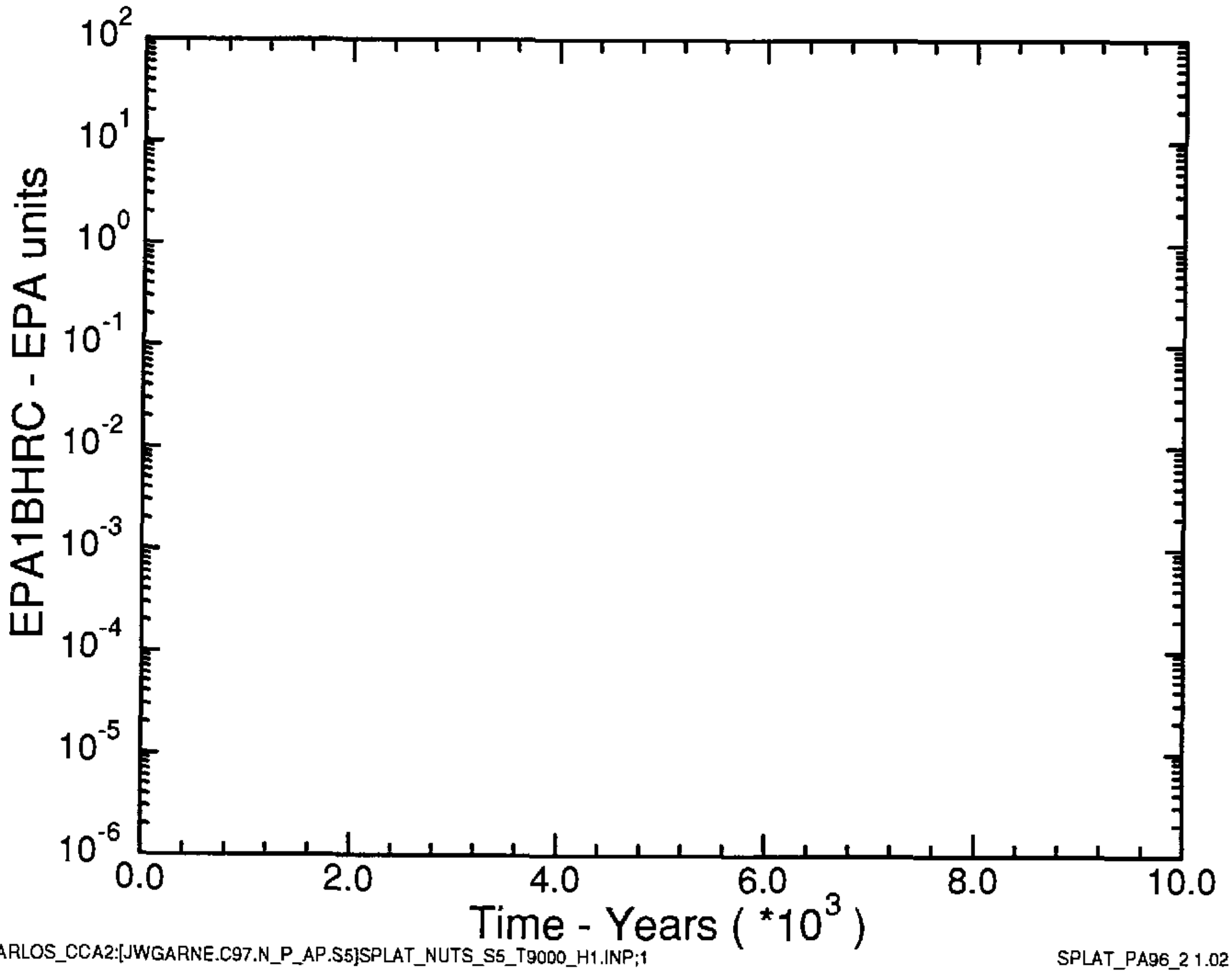
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T7000_H6.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:3

C85

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T9000)

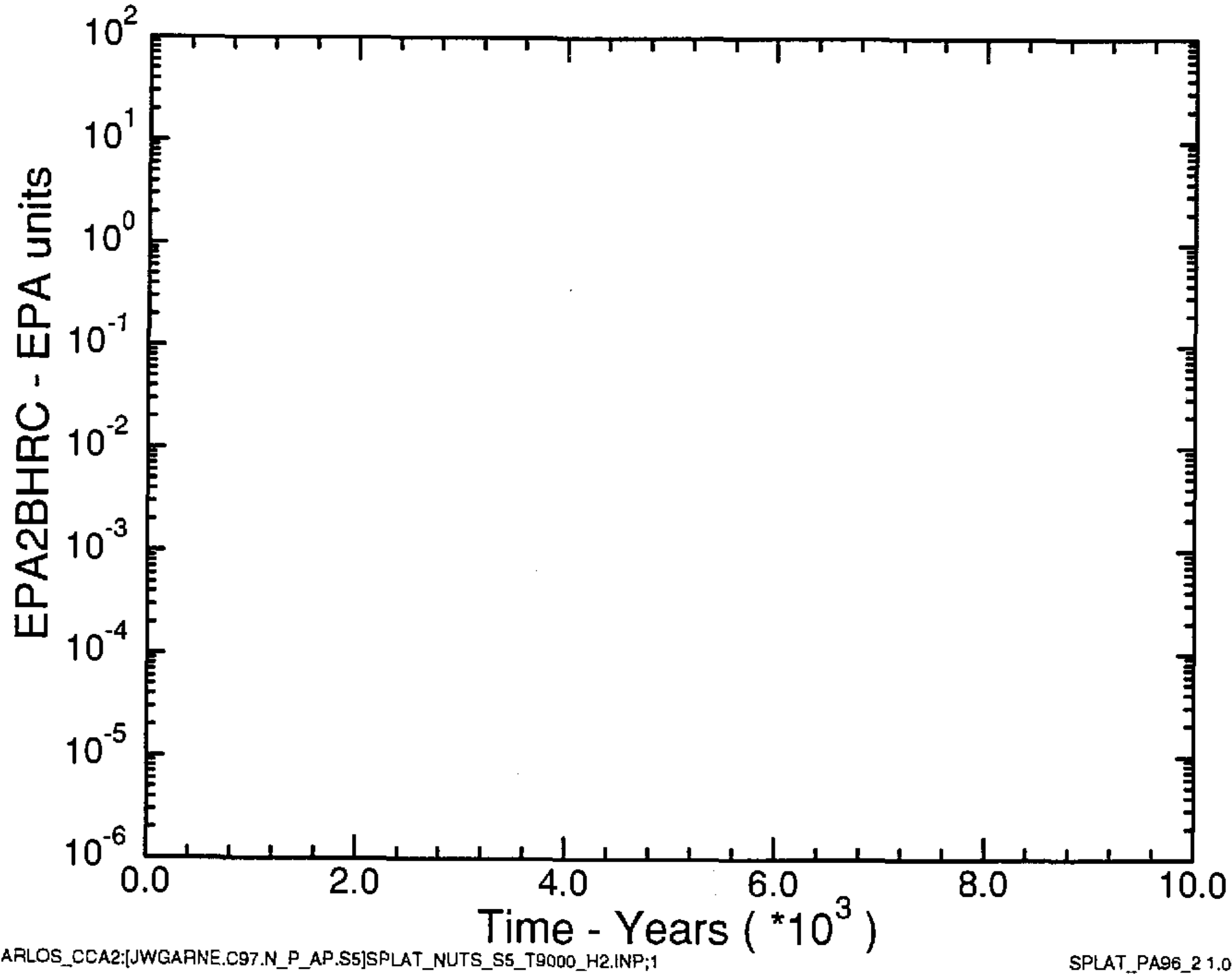
Am-241 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T9000_H1.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:4

C86



SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T9000)
Pu-239 Integrated Discharge up Borehole at MB138

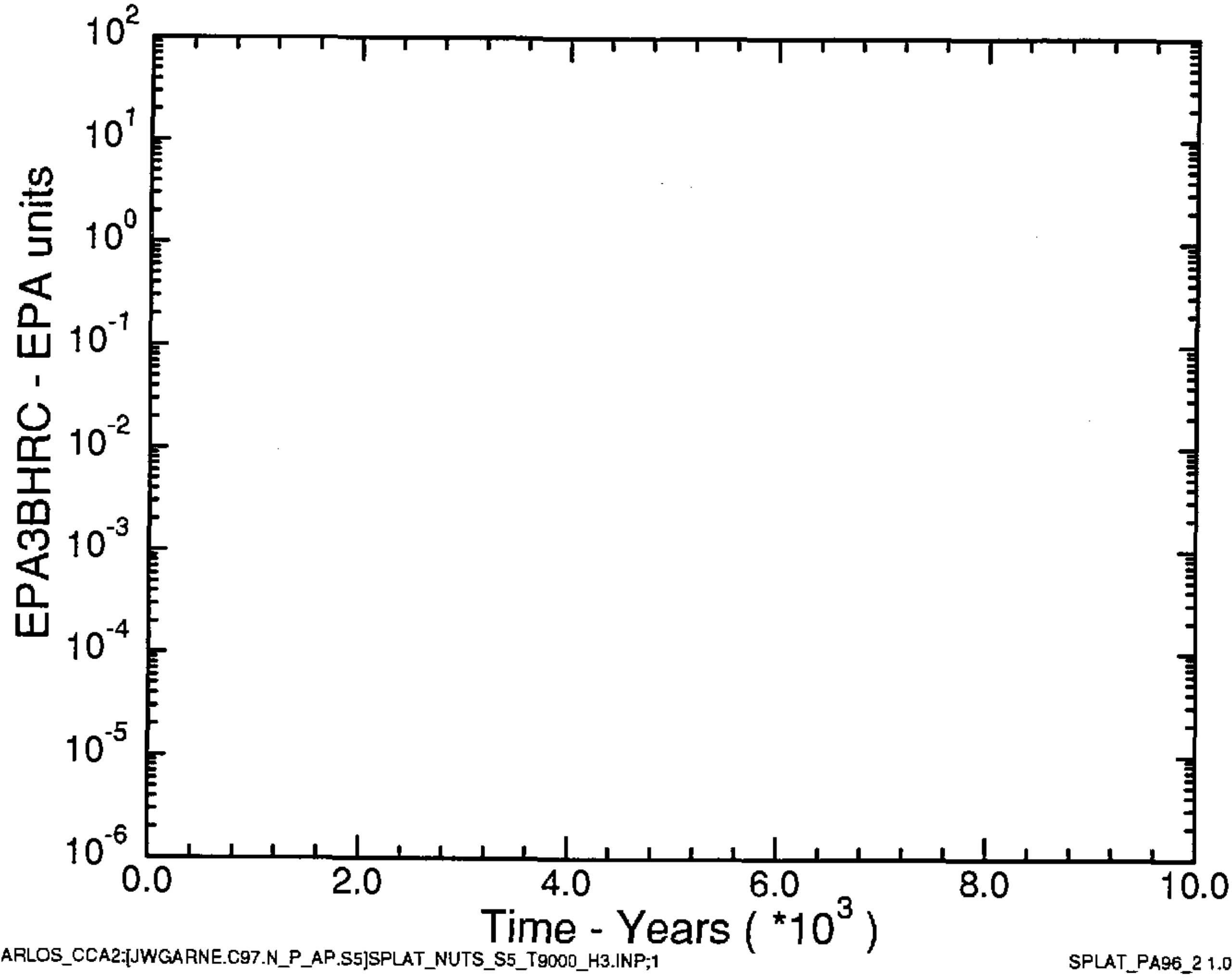
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T9000_H2.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:5

C87

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T9000)

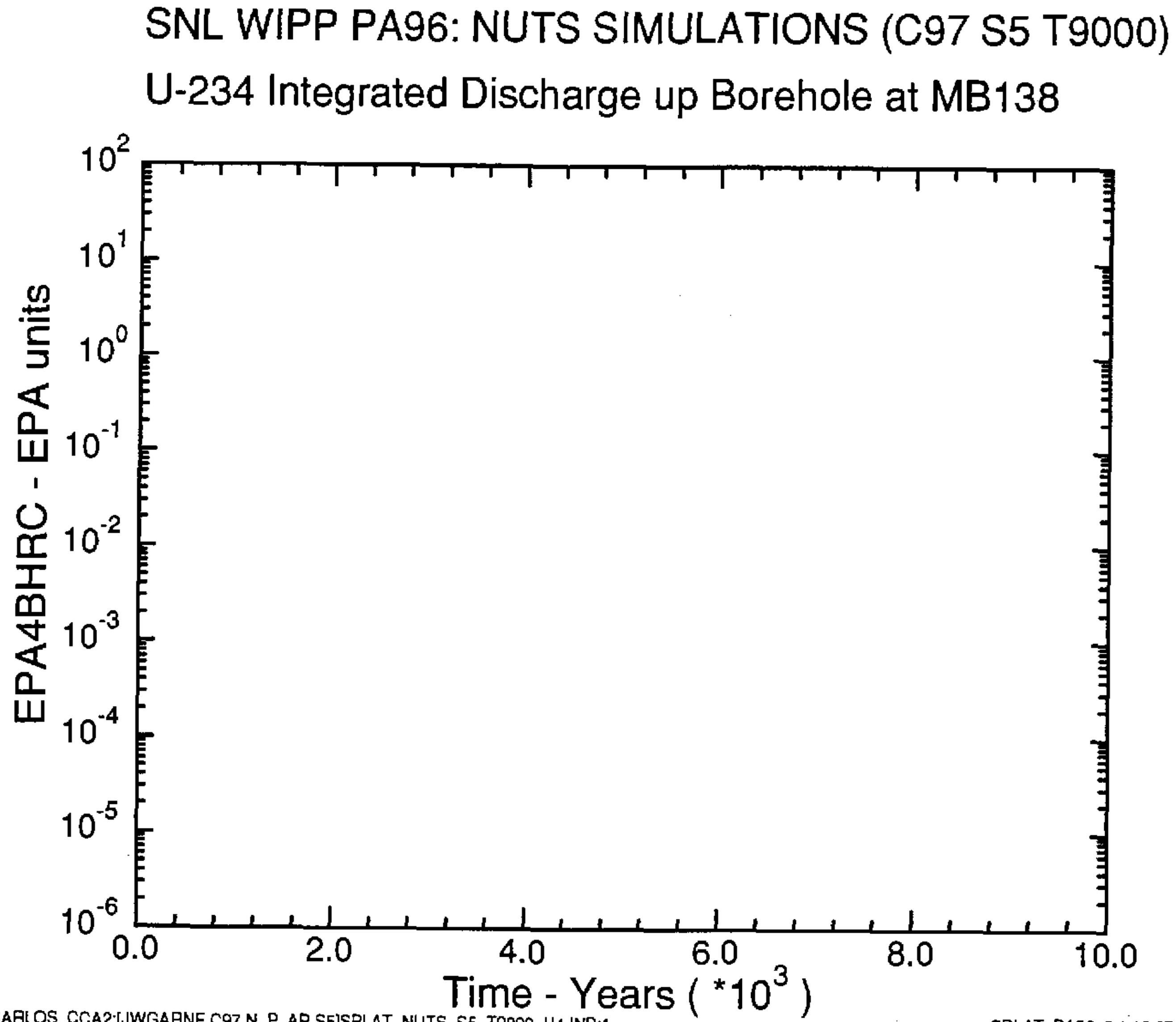
Pu-238 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T9000_H3.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:5

C88



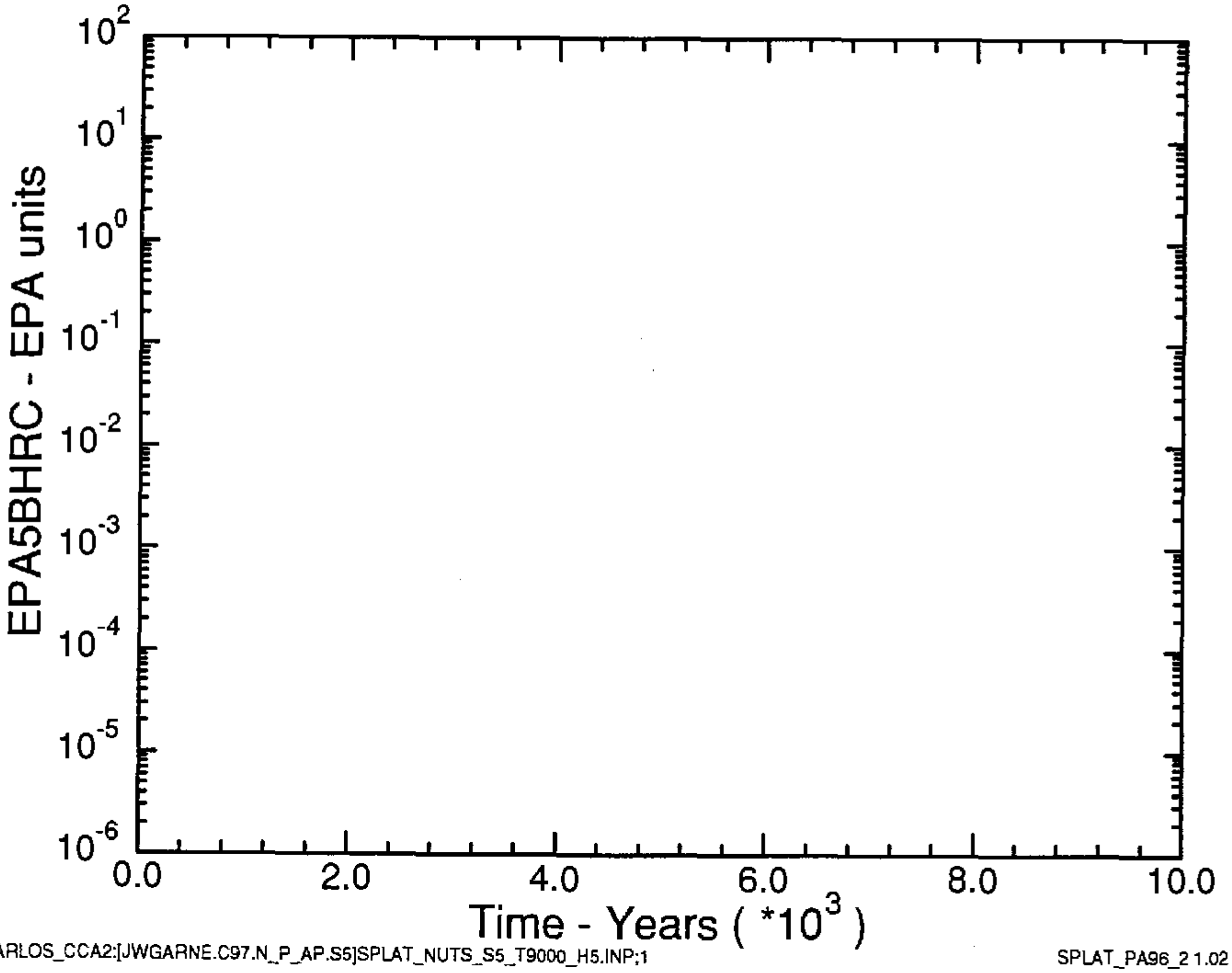
SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T9000)

U-234 Integrated Discharge up Borehole at MB138

DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T9000_H4.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:5

C89



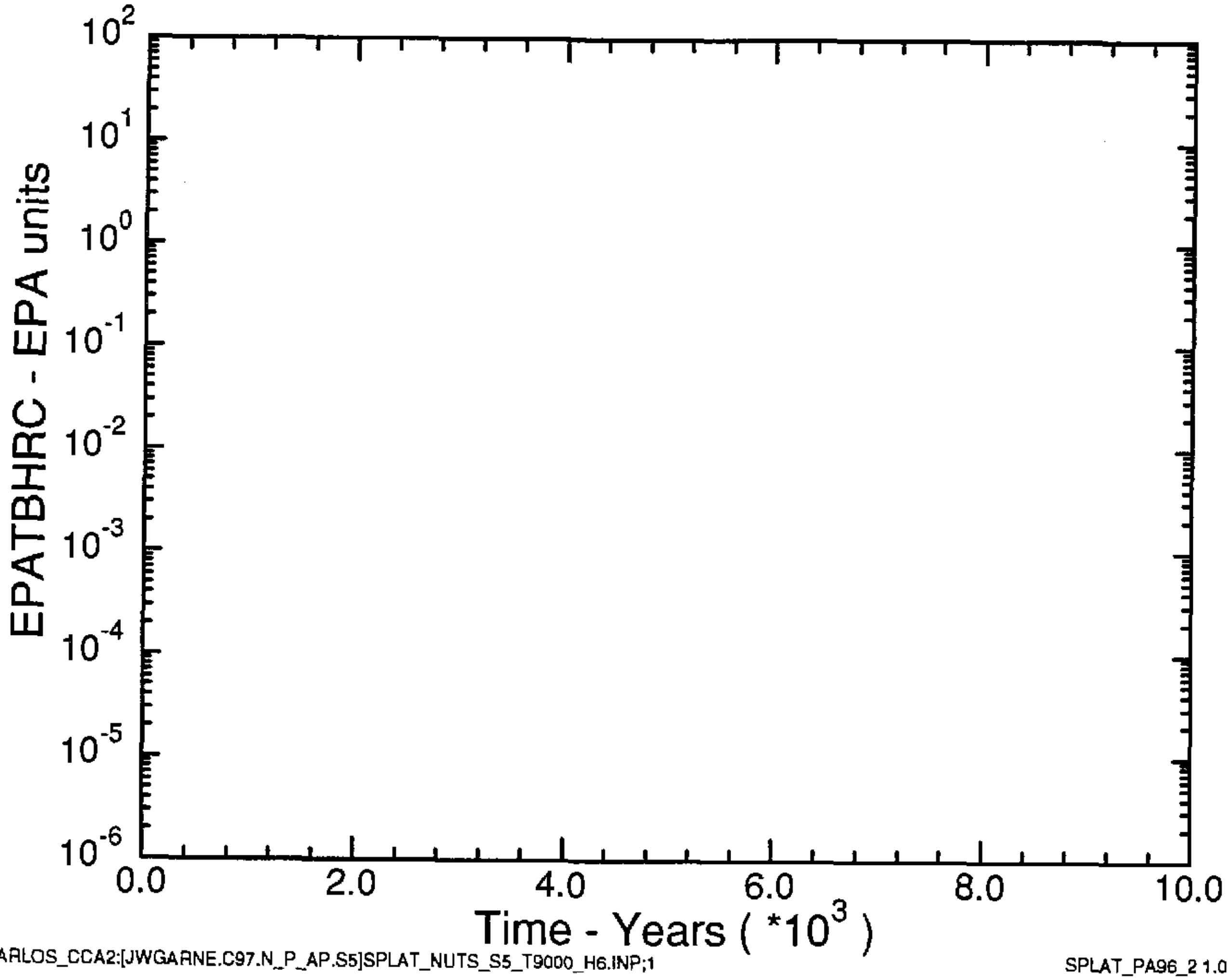
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T9000_H5.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:5

C90

SNL WIPP PA96: NUTS SIMULATIONS (C97 S5 T9000)

Total Integrated Discharge up Borehole at MB138



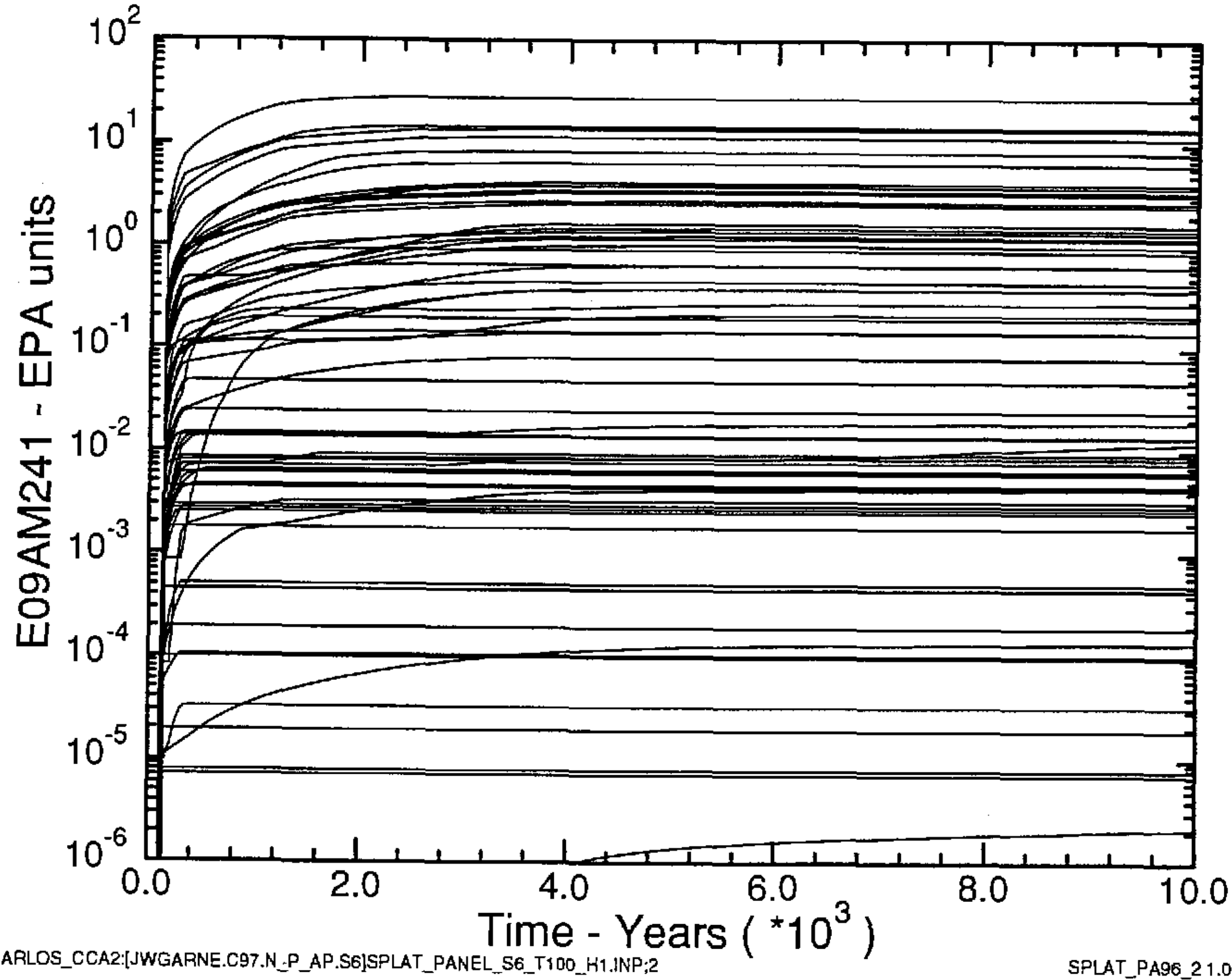
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S5]SPLAT_NUTS_S5_T9000_H6.INP;1

SPLAT_PA96_2 1.02 07/01/97 09:42:5

C91

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T100)

Am-241 Integrated Discharge up Borehole at MB138



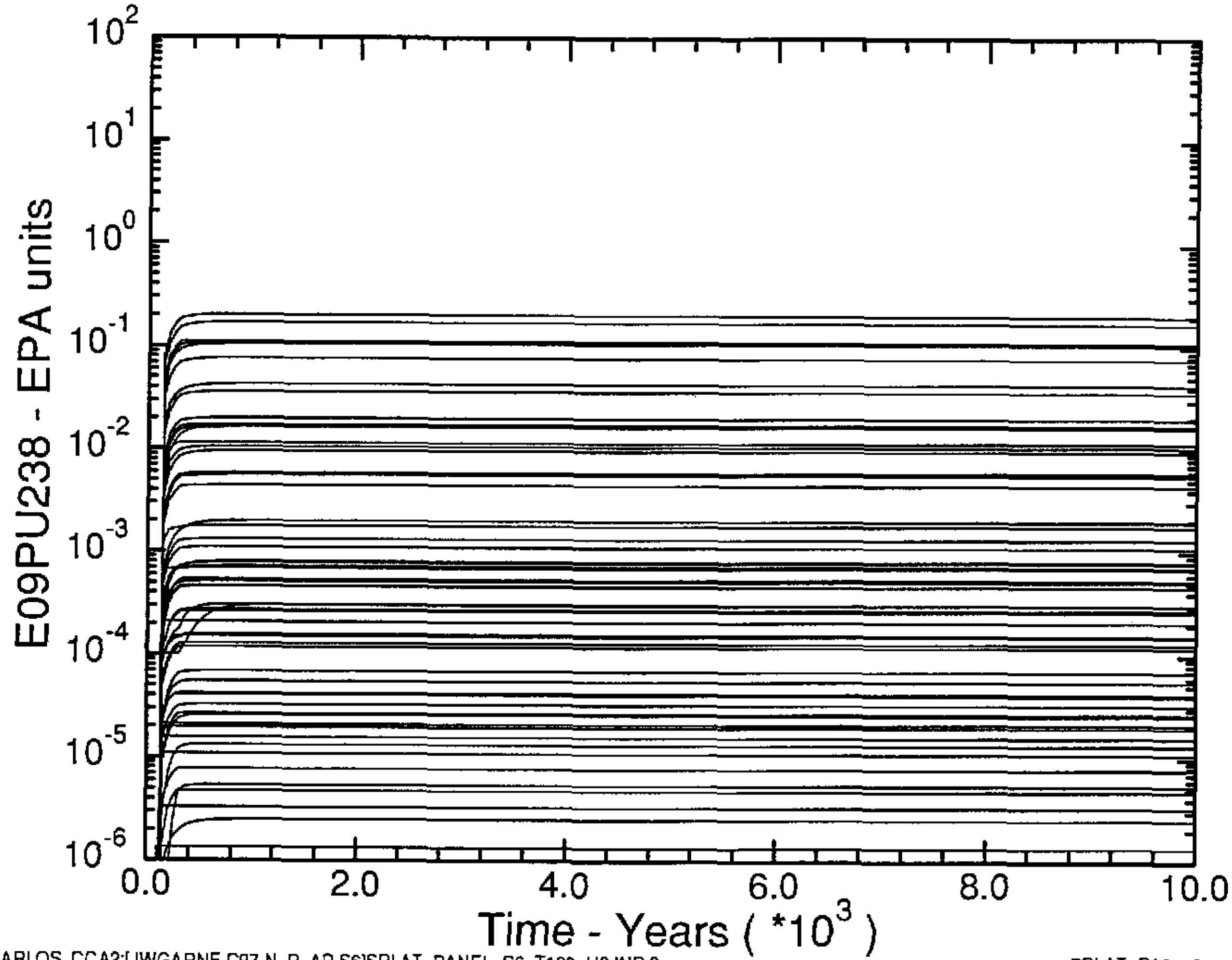
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T100_H1.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:56:0

C92

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T100)

Pu-238 Integrated Discharge up Borehole at MB138



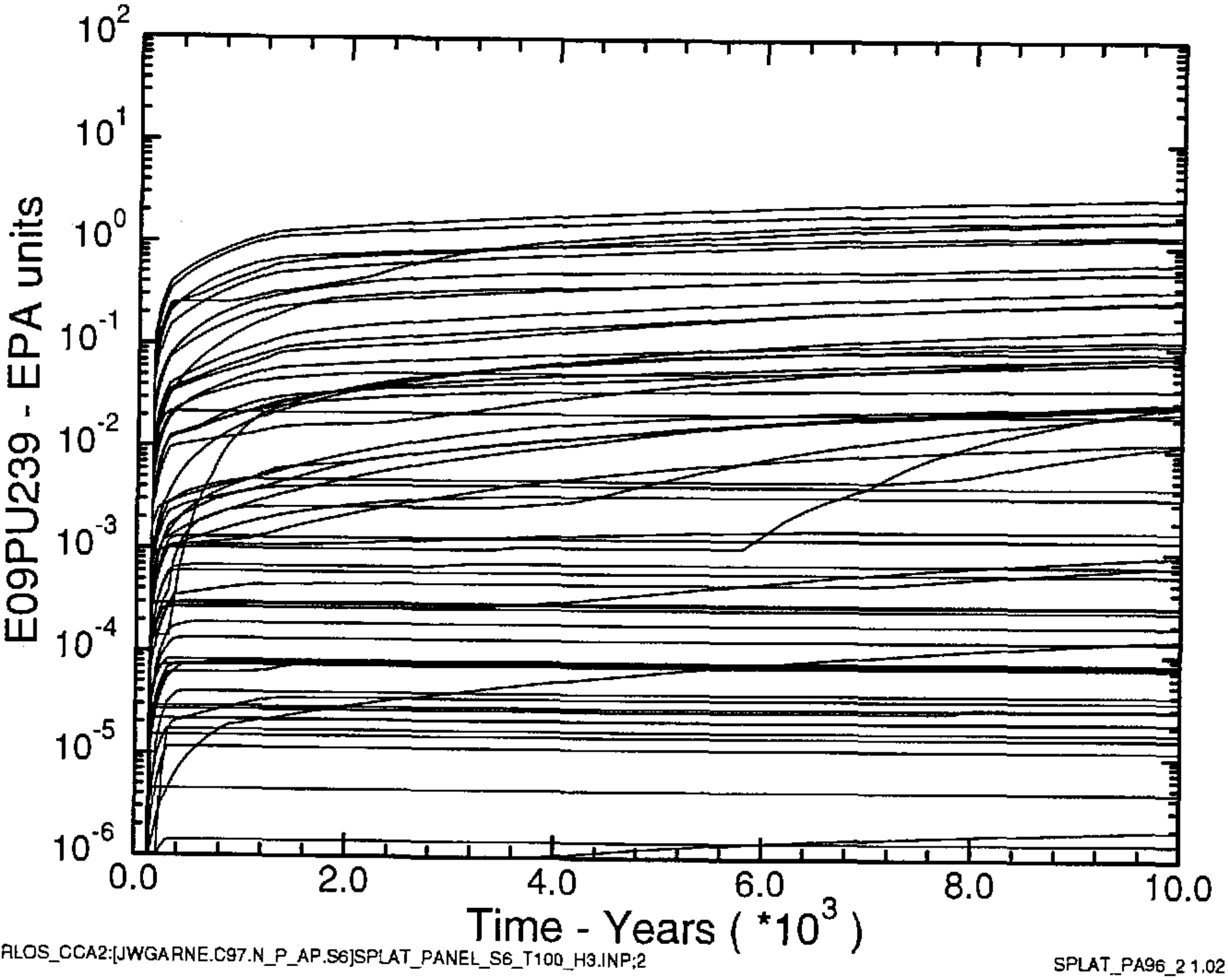
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T100_H2.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:56:1

C93

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T100)

Pu-239 Integrated Discharge up Borehole at MB138



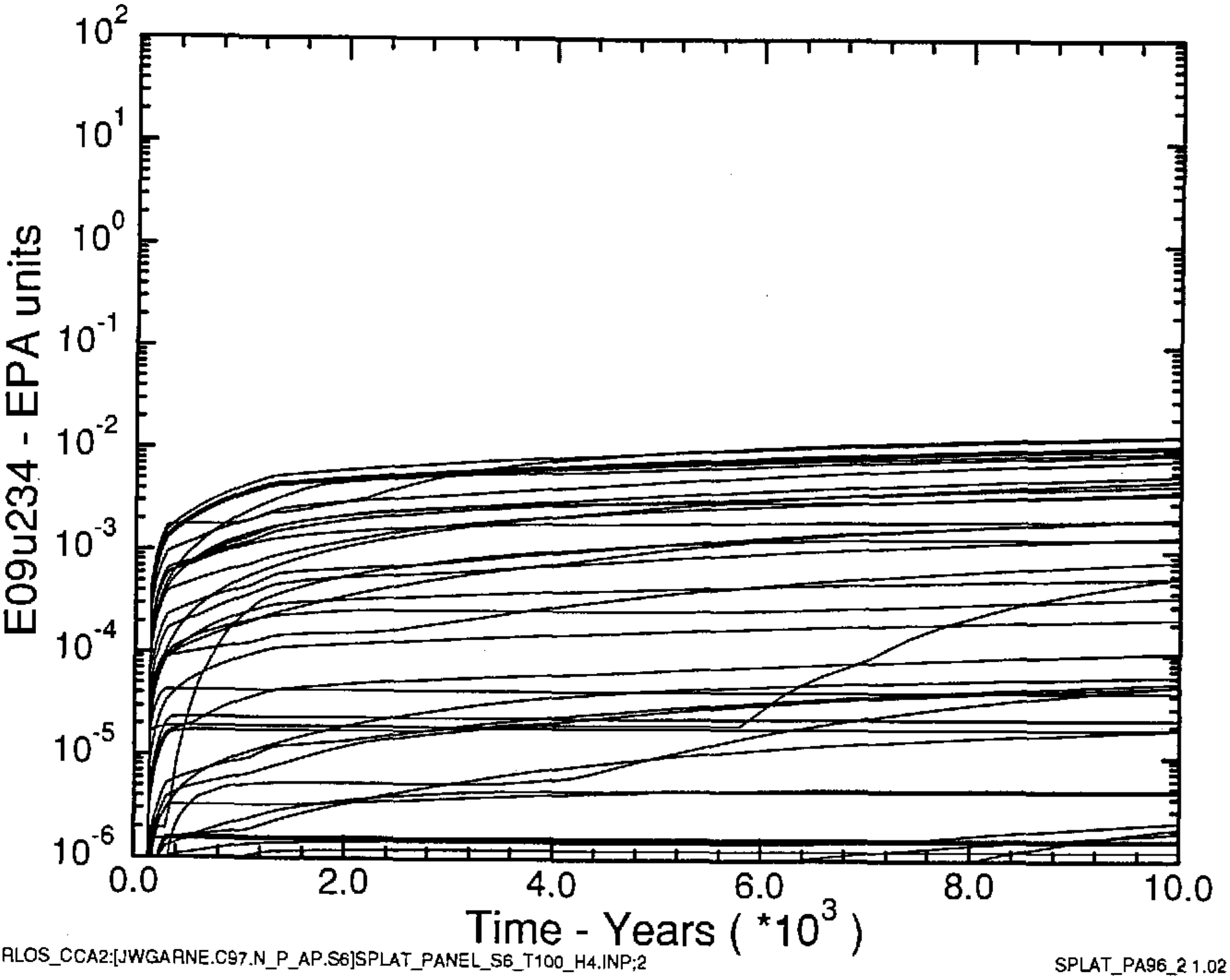
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T100_H3.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:56:2

C94

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T100)

U-234 Integrated Discharge up Borehole at MB138



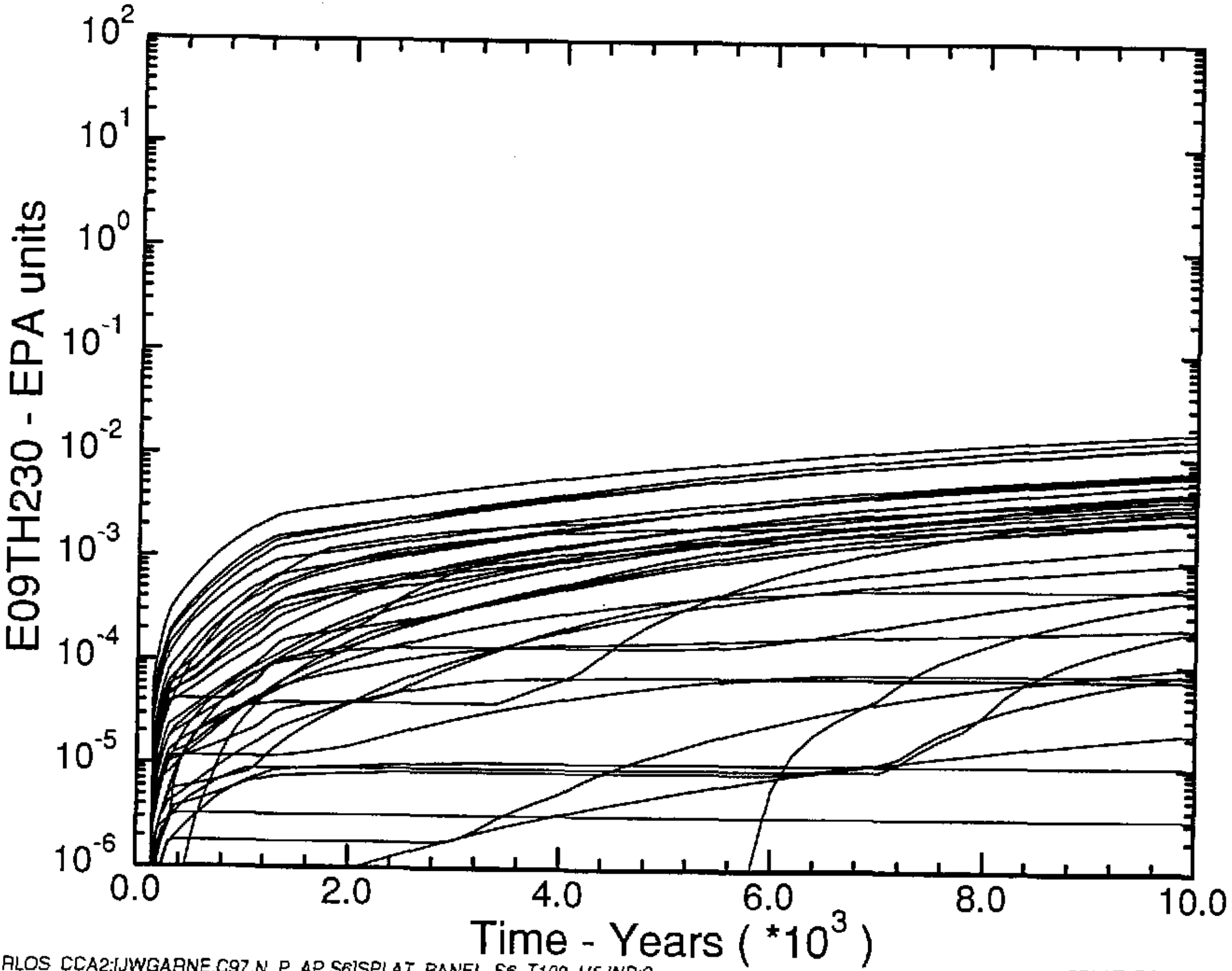
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T100_H4.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:56:3

C95

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T100)

Th-230 Integrated Discharge up Borehole at MB138



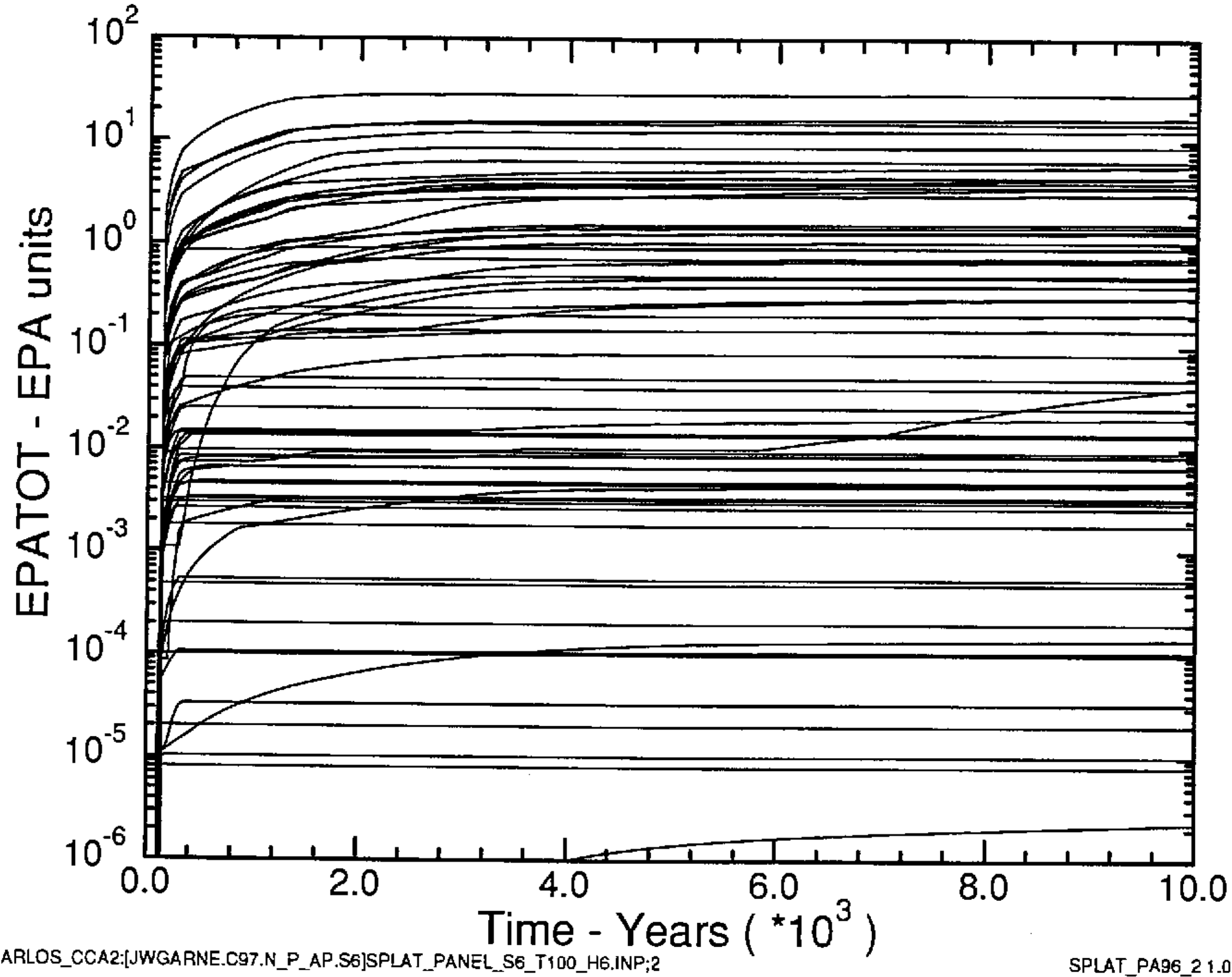
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T100_H5.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:56:4

C 96

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T100)

Total Integrated Discharge up Borehole at MB138



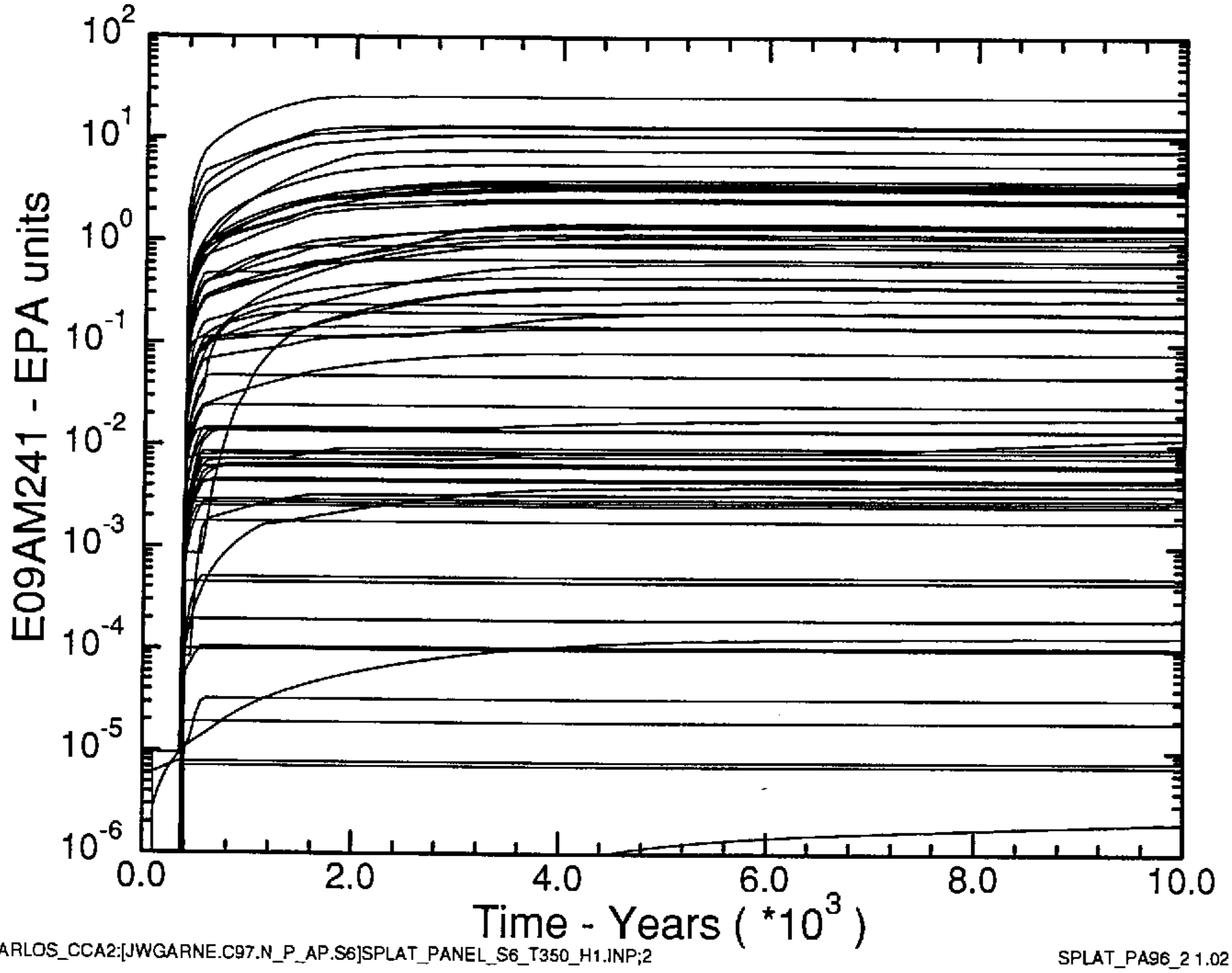
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T100_H6.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:56:5

C97

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T350)

Am-241 Integrated Discharge up Borehole at MB138



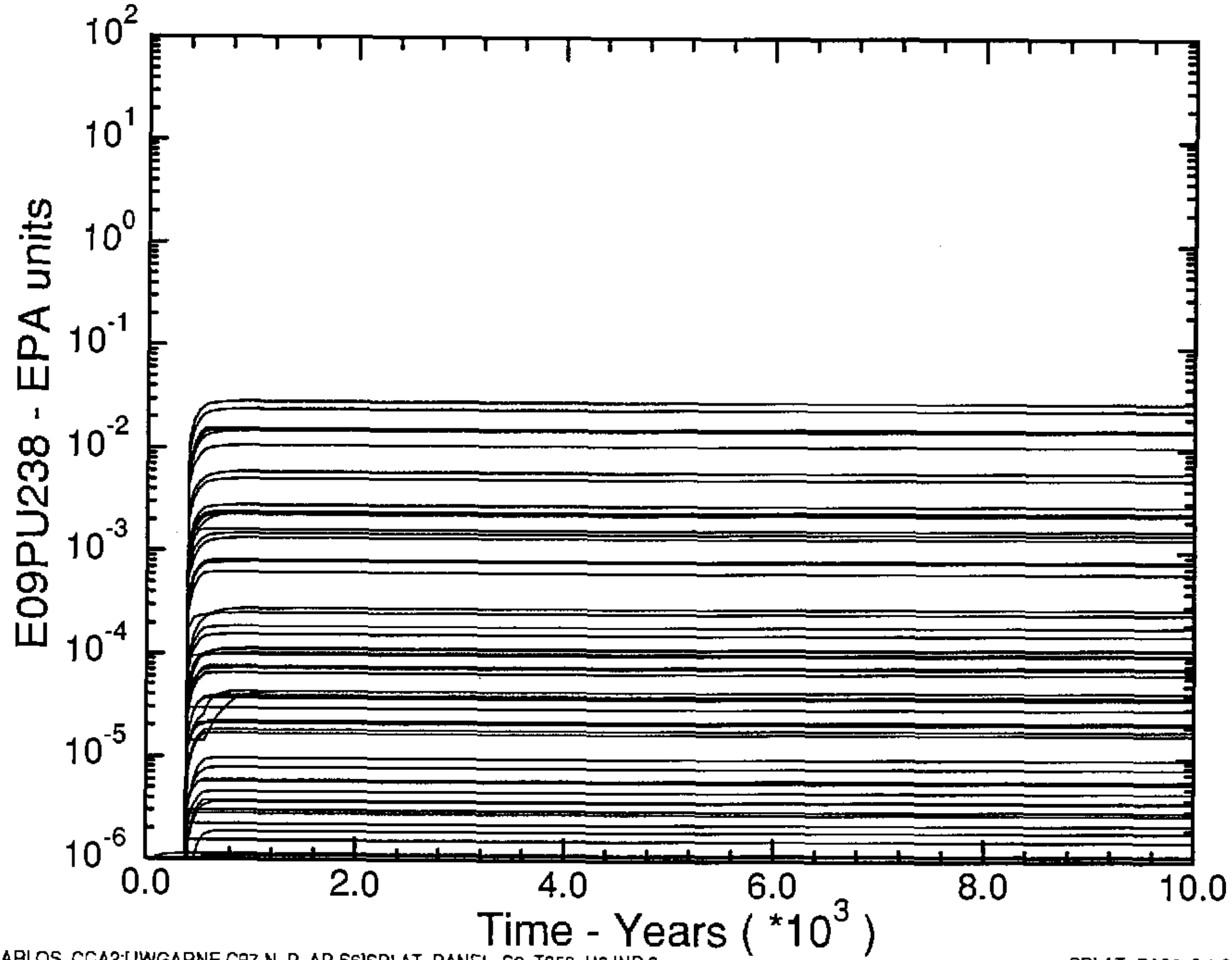
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T350_H1.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:57:0

C98

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T350)

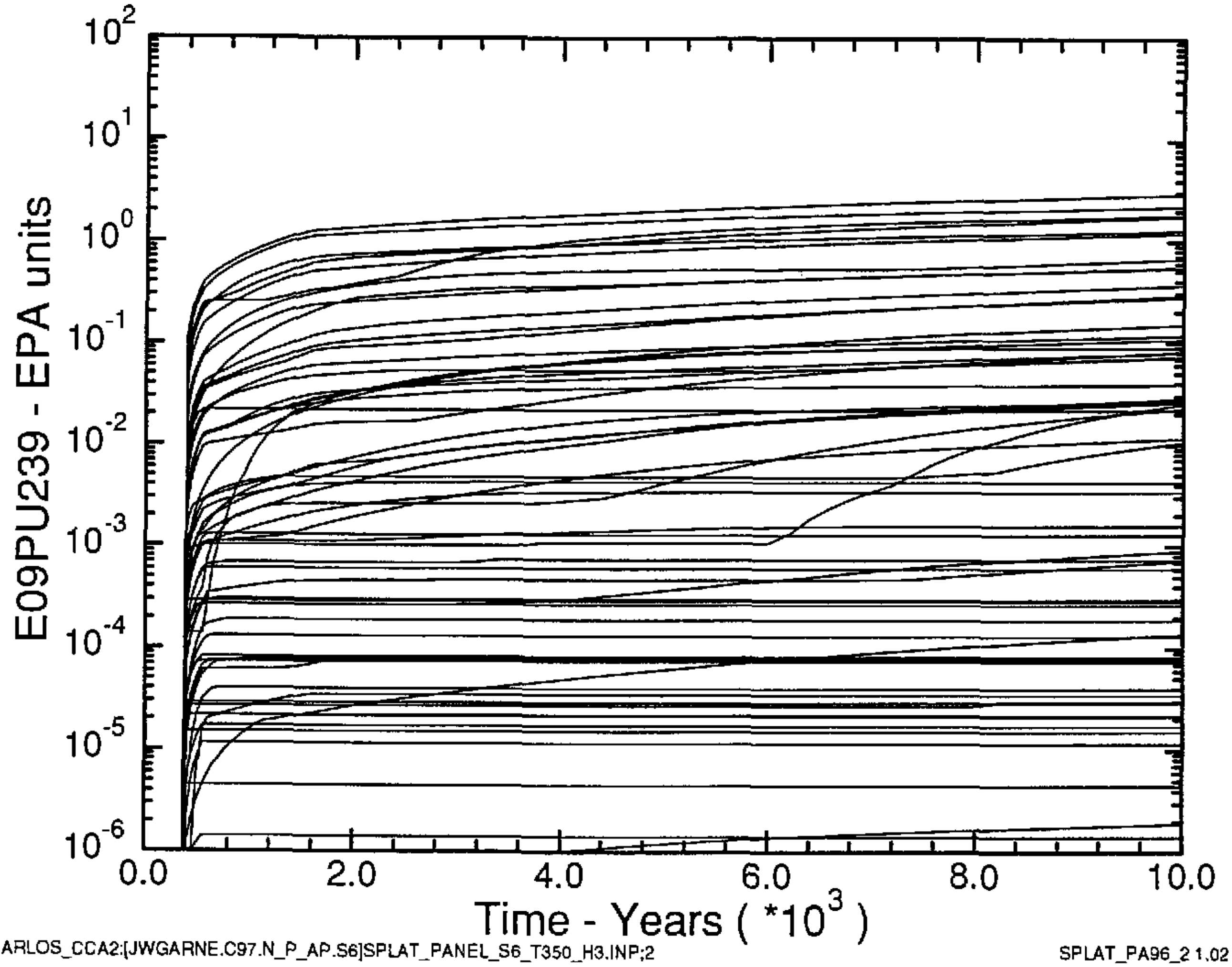
Pu-238 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T350_H2.INP;3

SPLAT_PA96_2 1.02 07/02/97 10:57:1

C99



SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T350)

Pu-239 Integrated Discharge up Borehole at MB138

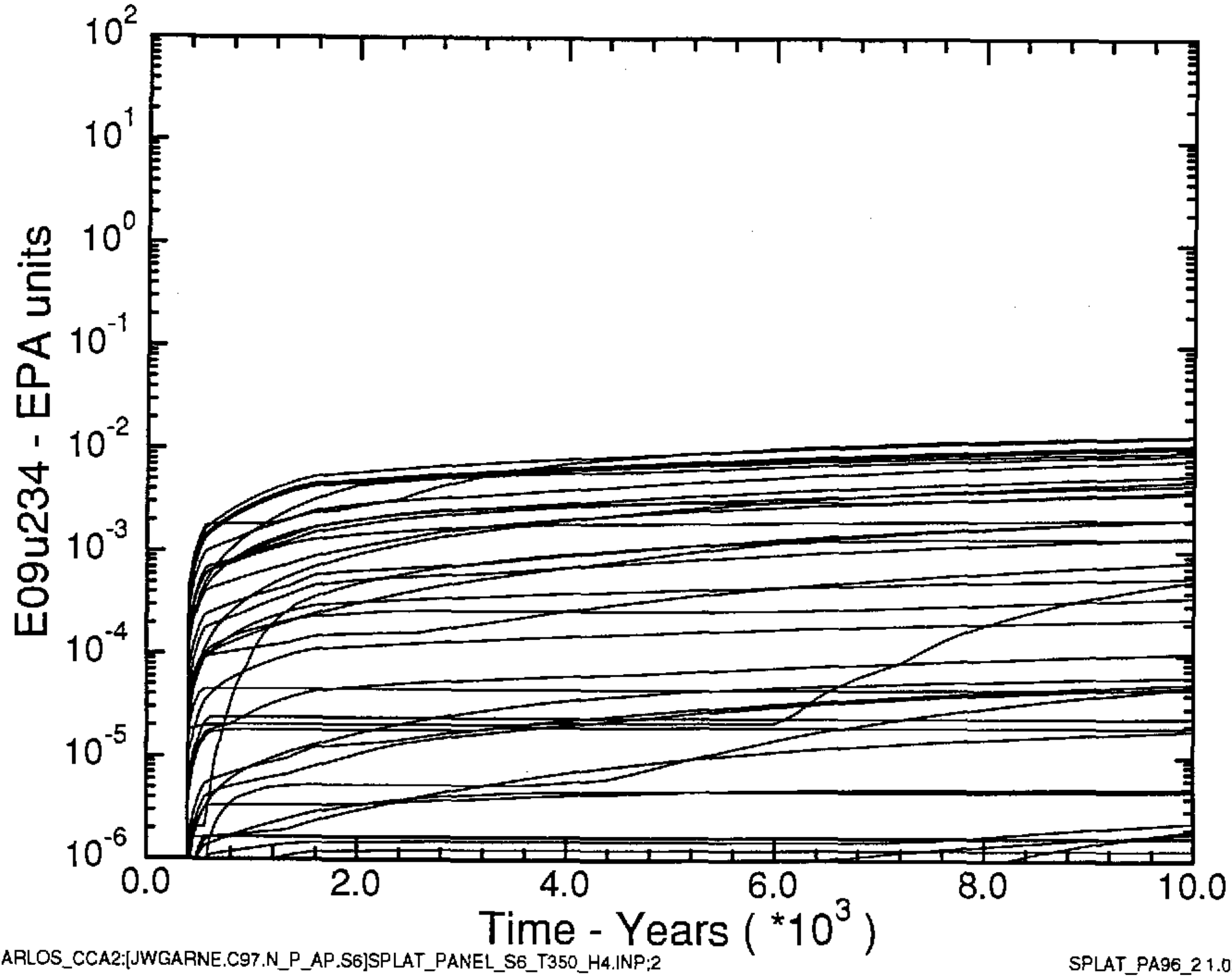
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T350_H3.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:57:2

C100

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T350)

U-234 Integrated Discharge up Borehole at MB138



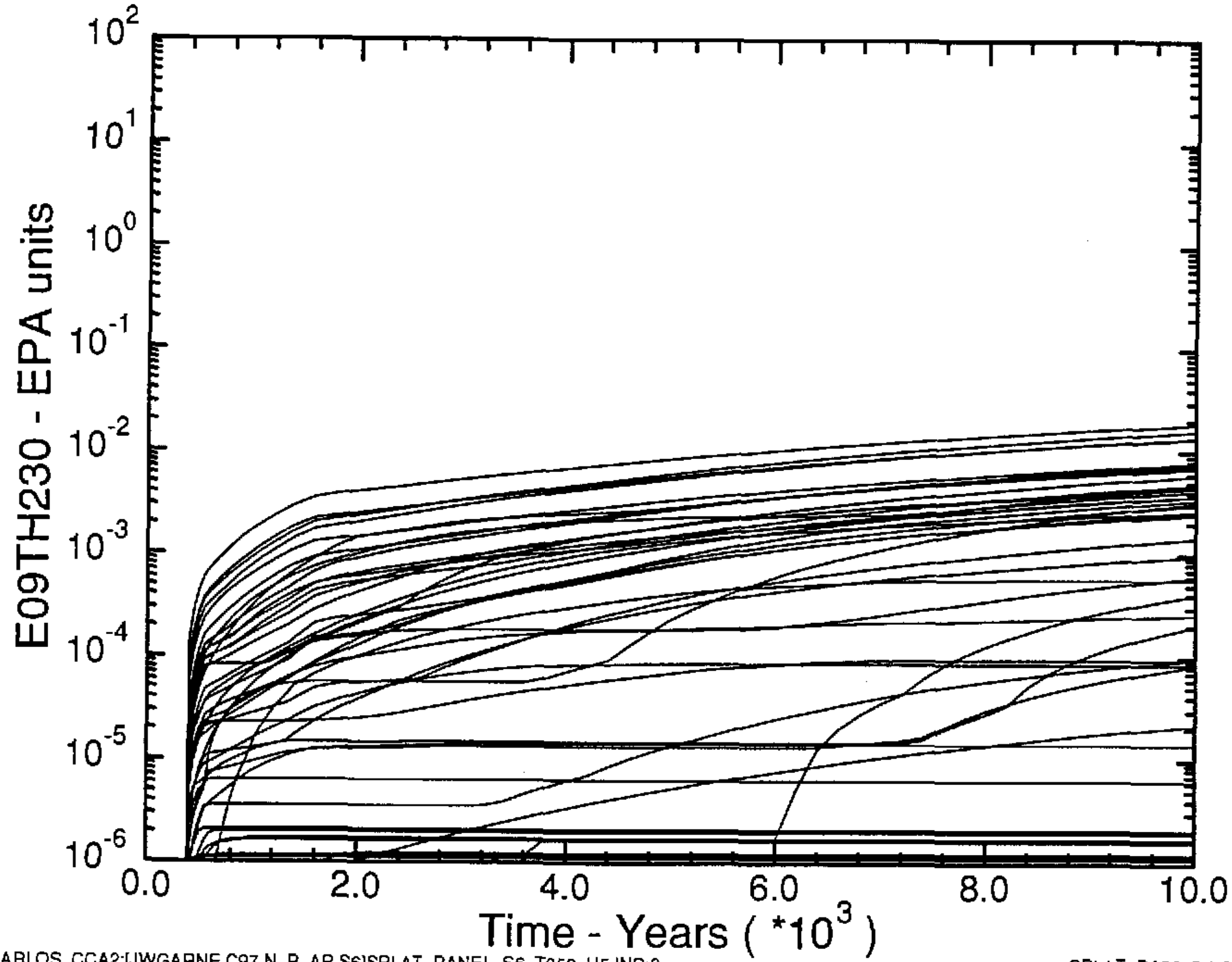
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T350_H4.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:57:3

C101

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T350)

Th-230 Integrated Discharge up Borehole at MB138



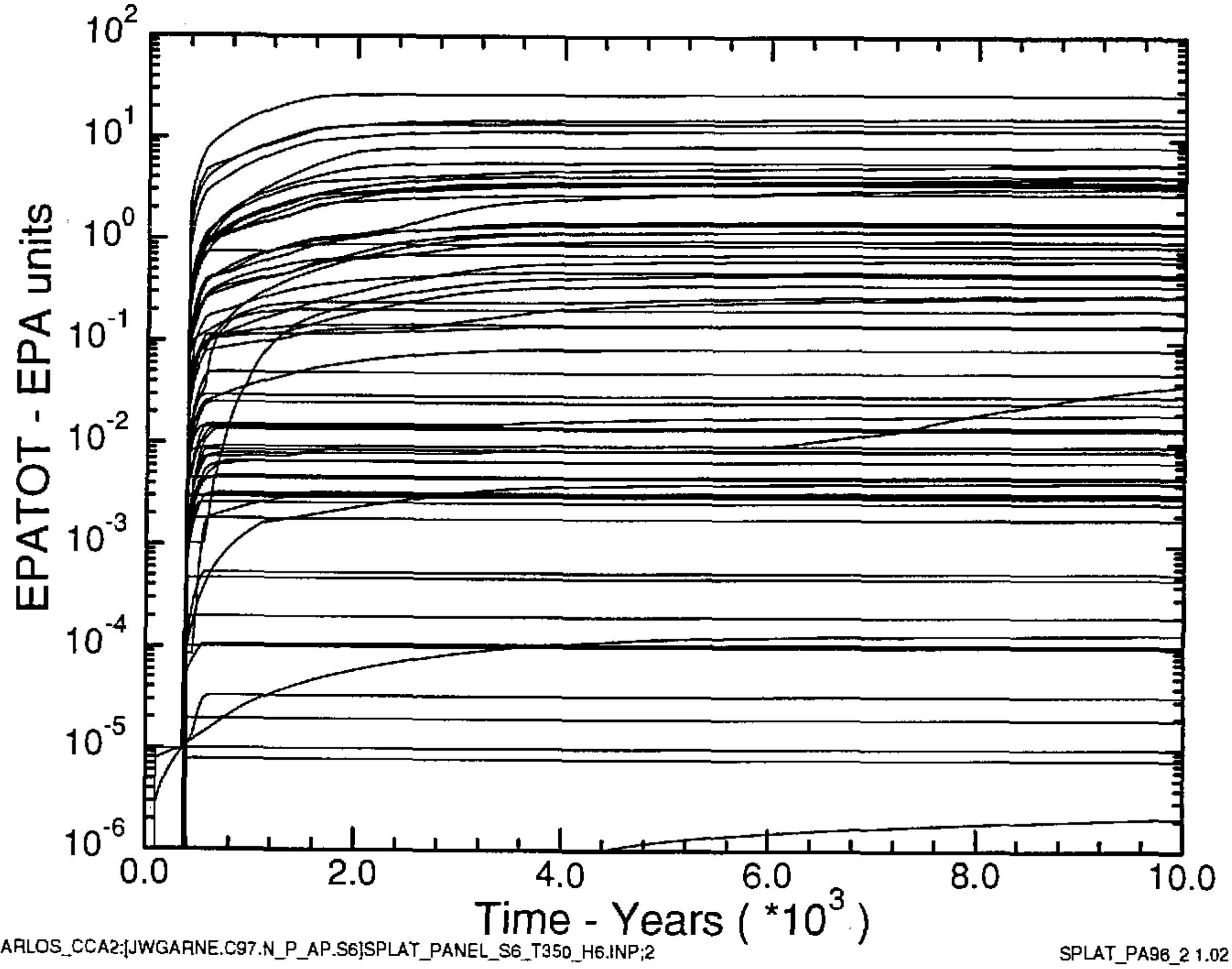
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T350_H5.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:57:4

C102

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T350)

Total Integrated Discharge up Borehole at MB138



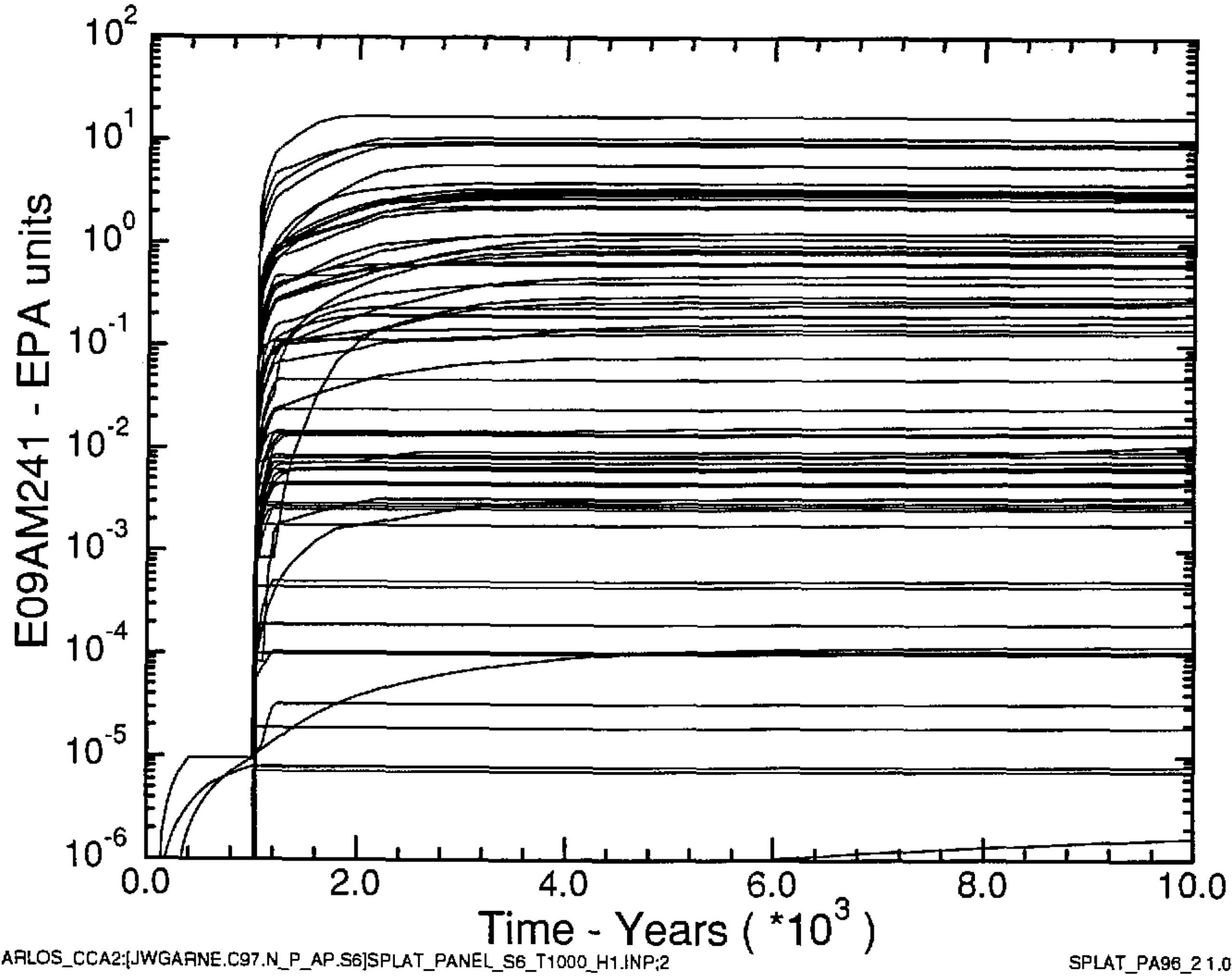
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T350_H6.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:57:5

C103

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T1000)

Am-241 Integrated Discharge up Borehole at MB138



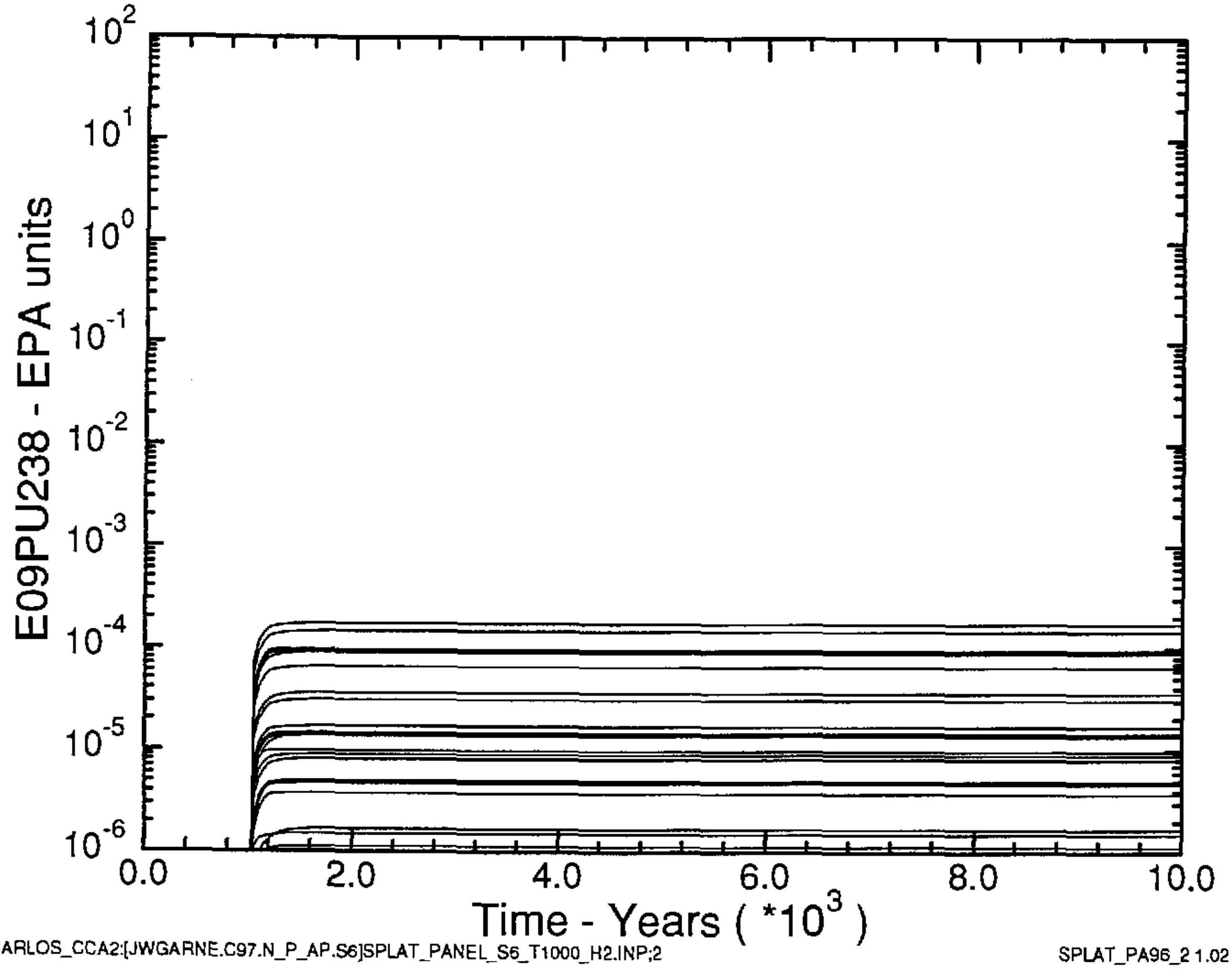
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T1000_H1.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:58:0

C104

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T1000)

Pu-238 Integrated Discharge up Borehole at MB138



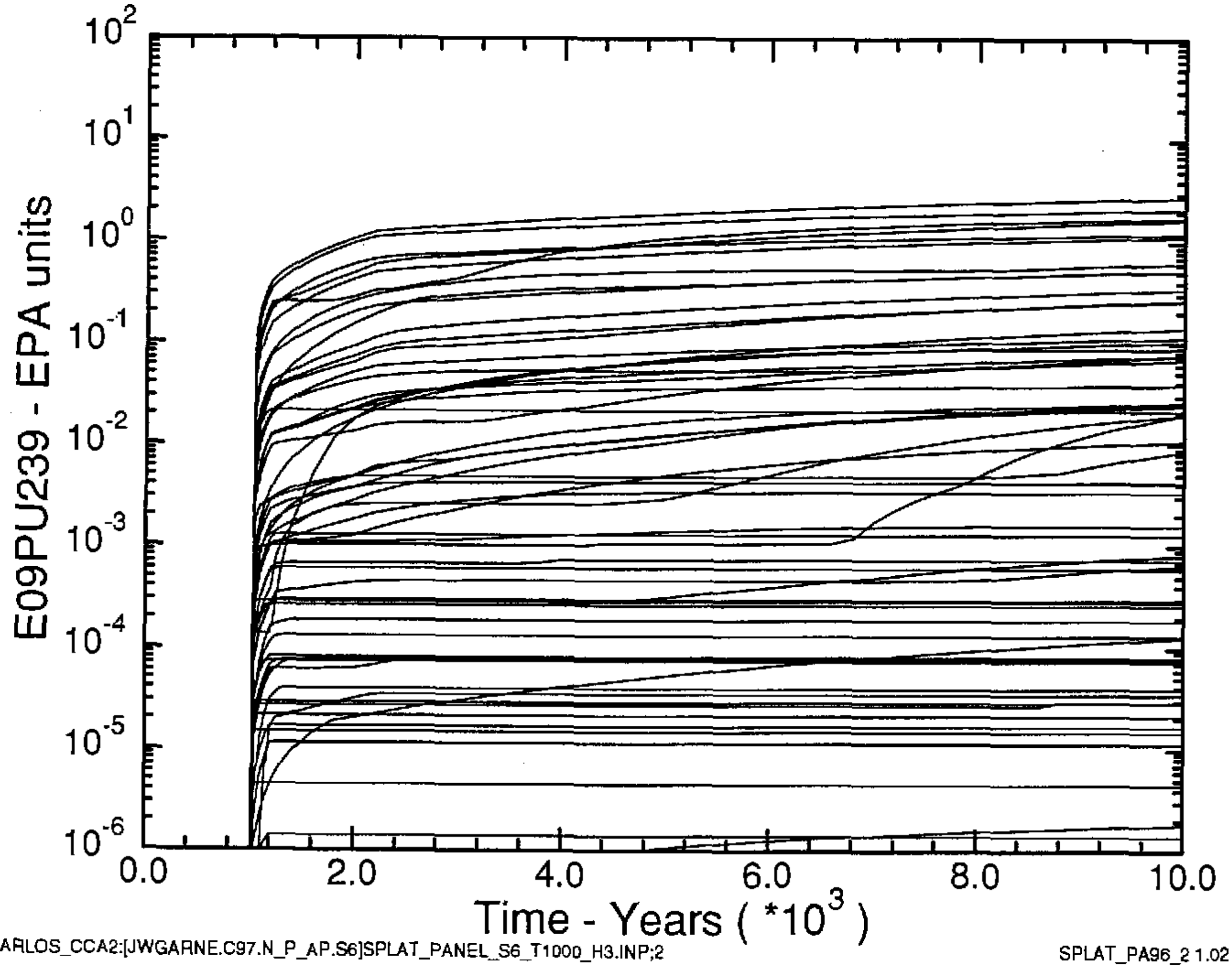
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T1000_H2.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:58:1

C105

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T1000)

Pu-239 Integrated Discharge up Borehole at MB138



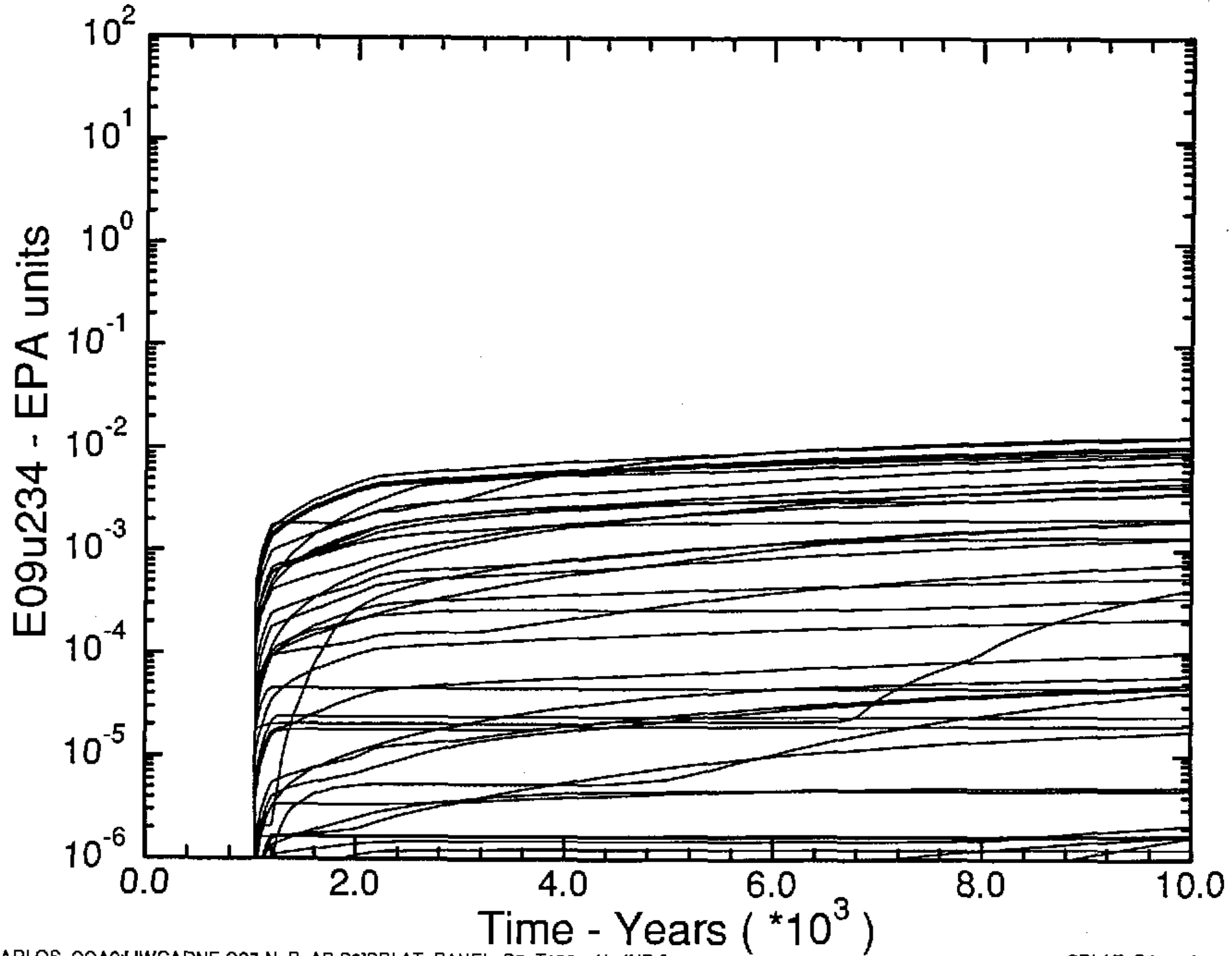
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T1000_H3.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:58:2

C106

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T1000)

U-234 Integrated Discharge up Borehole at MB138



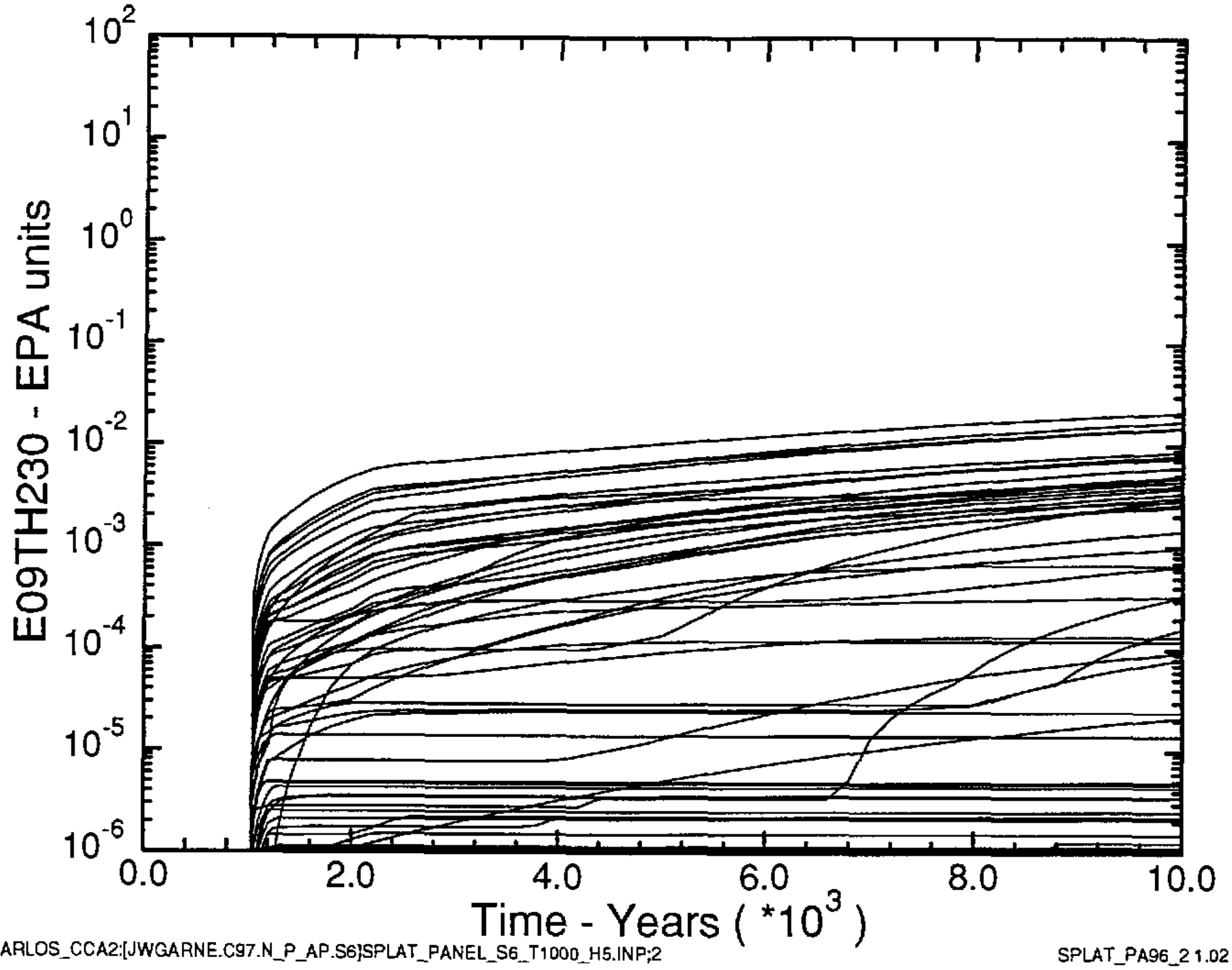
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T1000_H4.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:58:3

C107

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T1000)

Th-230 Integrated Discharge up Borehole at MB138



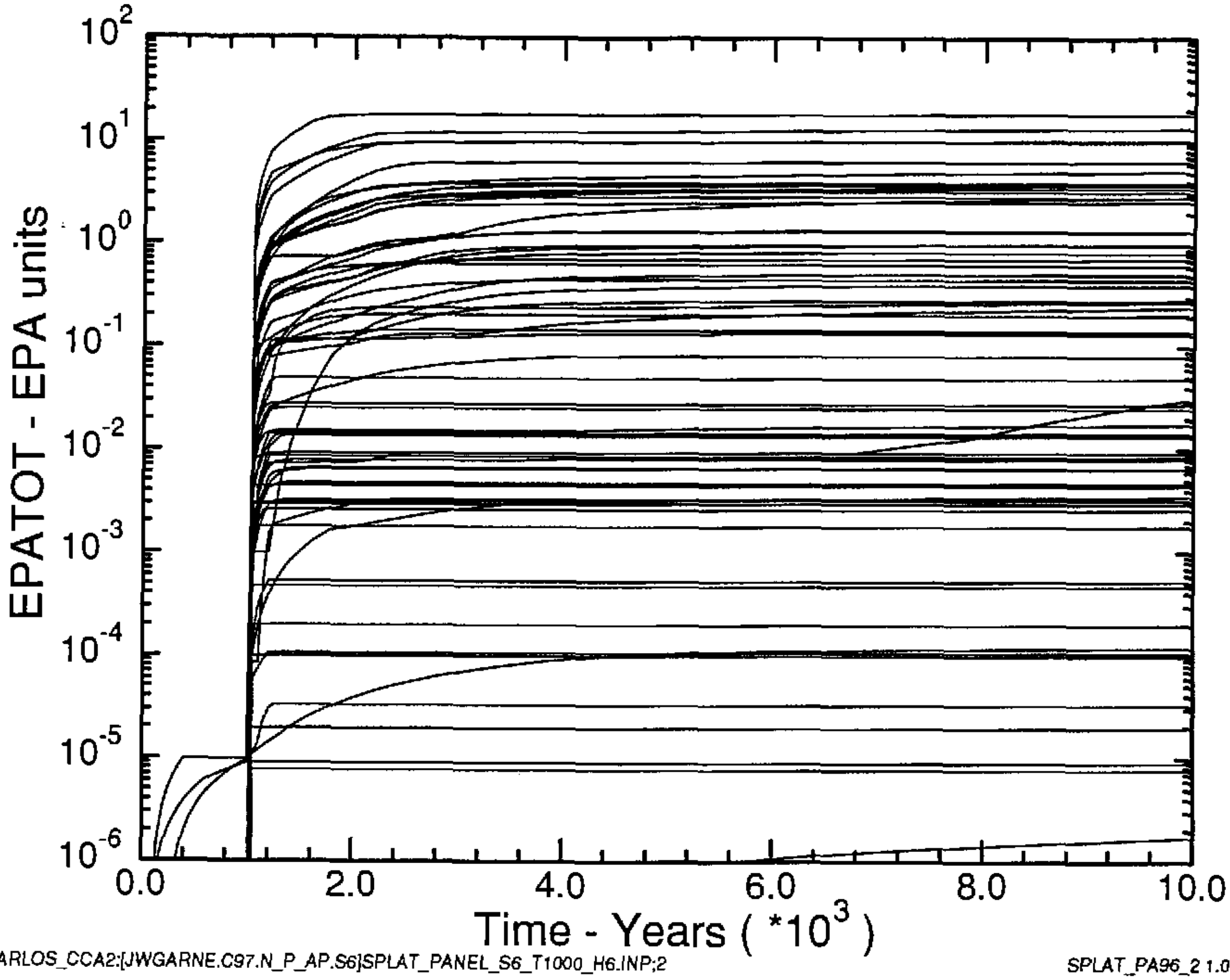
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T1000_H5.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:58:4

C108

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T1000)

Total Integrated Discharge up Borehole at MB138



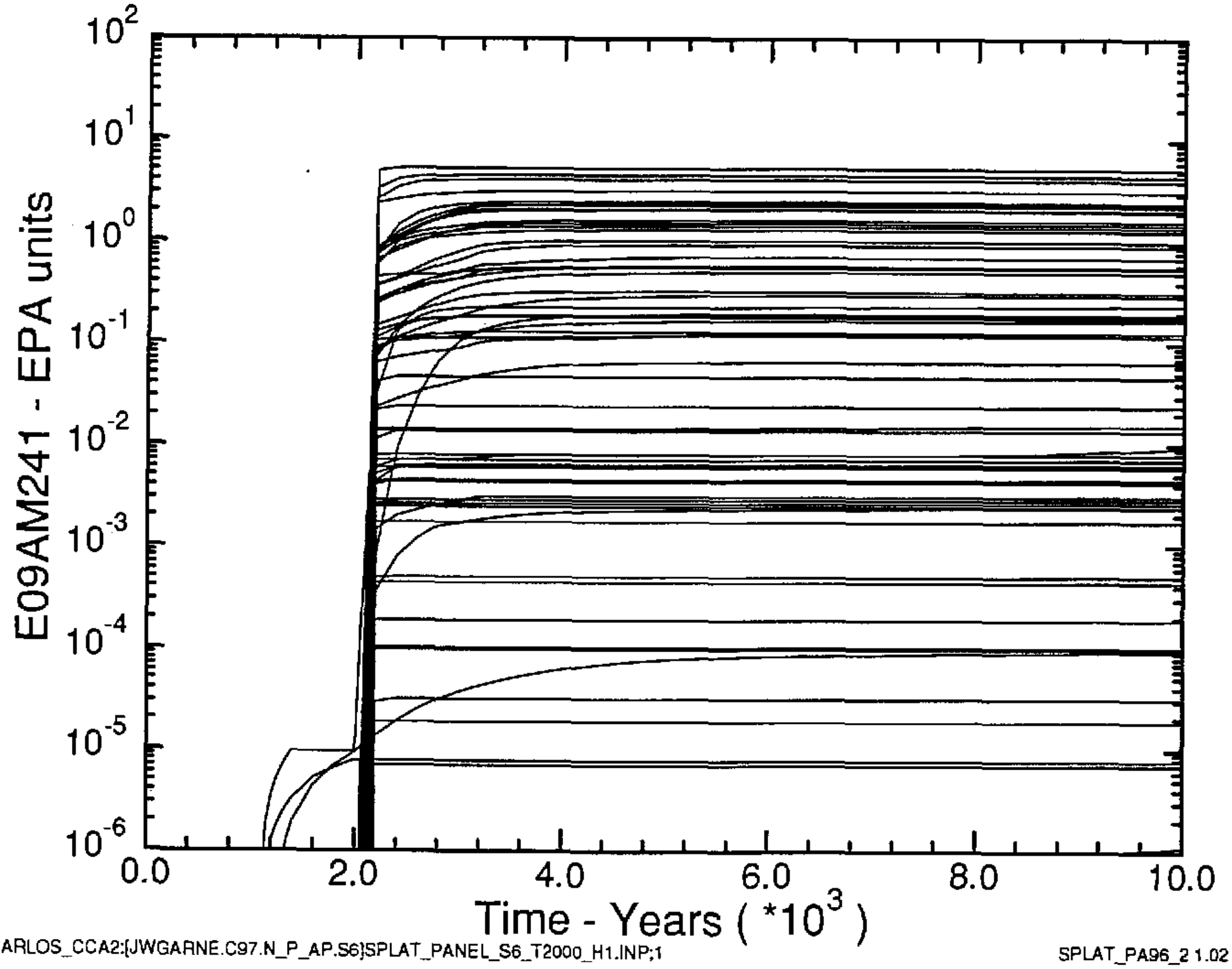
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T1000_H6.INP;2

SPLAT_PA96_2 1.02 07/02/97 10:58:5

C109

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T2000)

Am-241 Integrated Discharge up Borehole at MB138



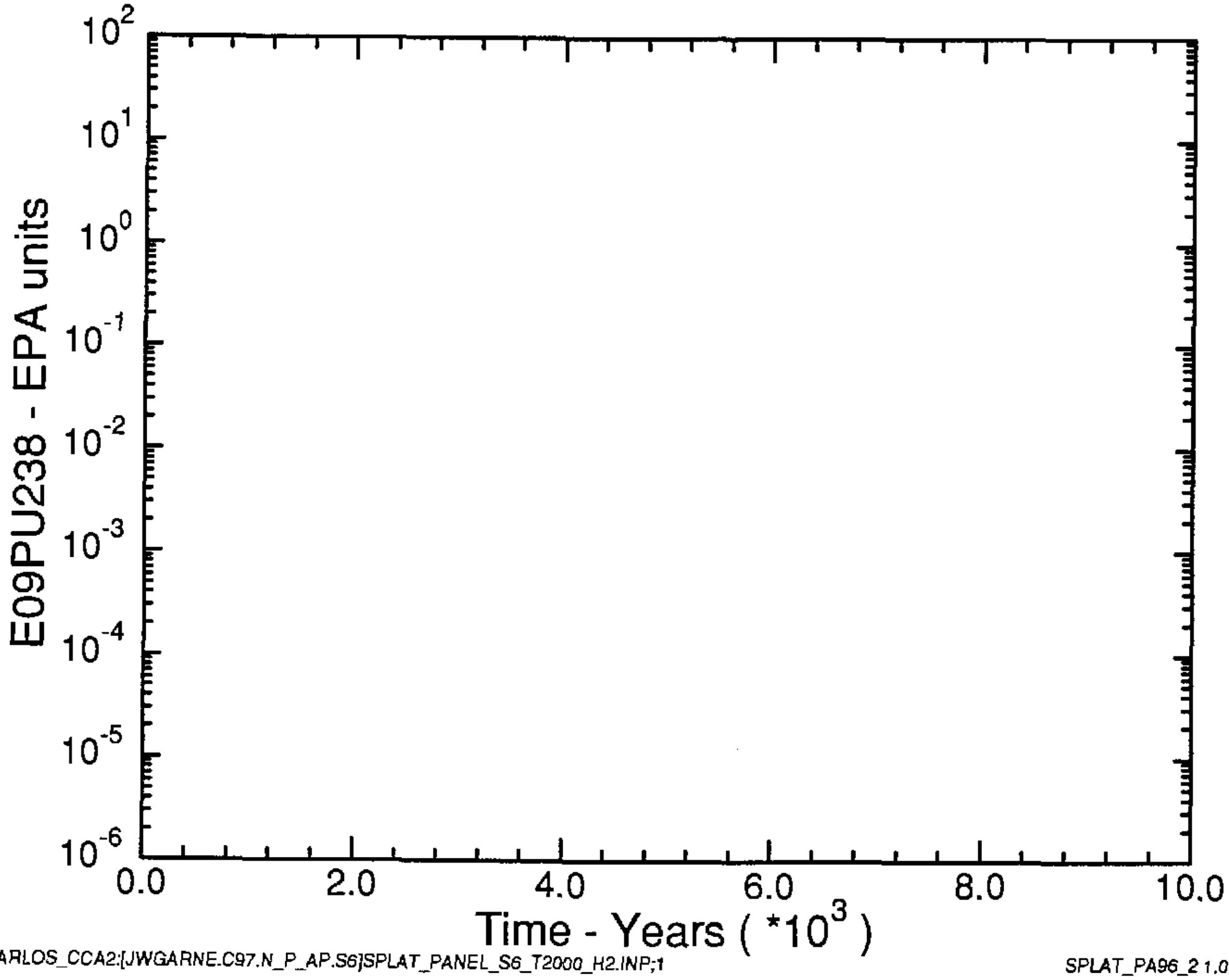
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T2000_H1.INP;1

SPLAT_PA96_2 1.02 07/02/97 10:59:0

C110

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T2000)

Pu-238 Integrated Discharge up Borehole at MB138



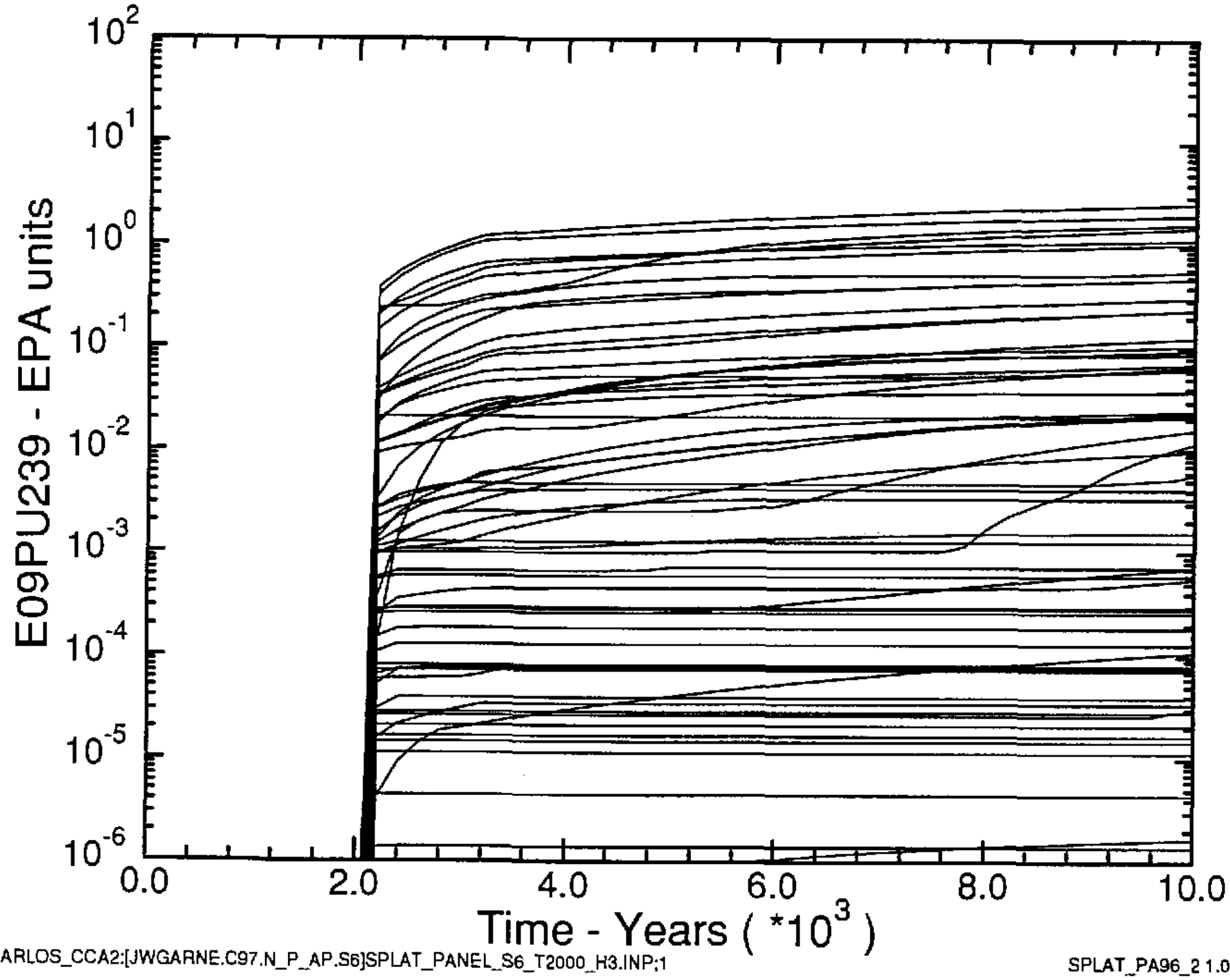
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T2000_H2.INP;1

SPLAT_PA96_2 1.02 07/02/97 10:59:1

C111

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T2000)

Pu-239 Integrated Discharge up Borehole at MB138



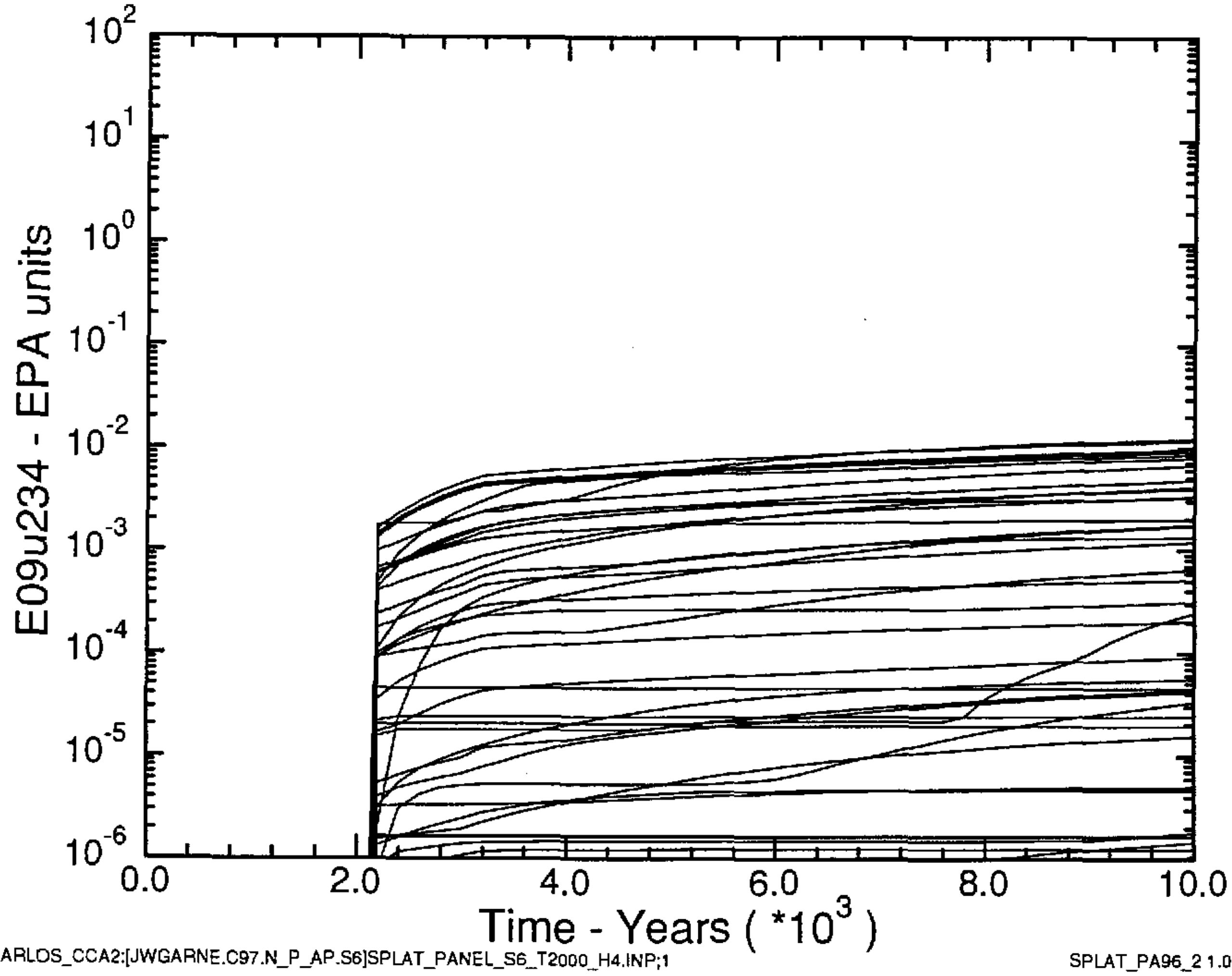
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T2000_H3.INP;1

SPLAT_PA96_2 1.02 07/02/97 10:59:2

C112

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T2000)

U-234 Integrated Discharge up Borehole at MB138



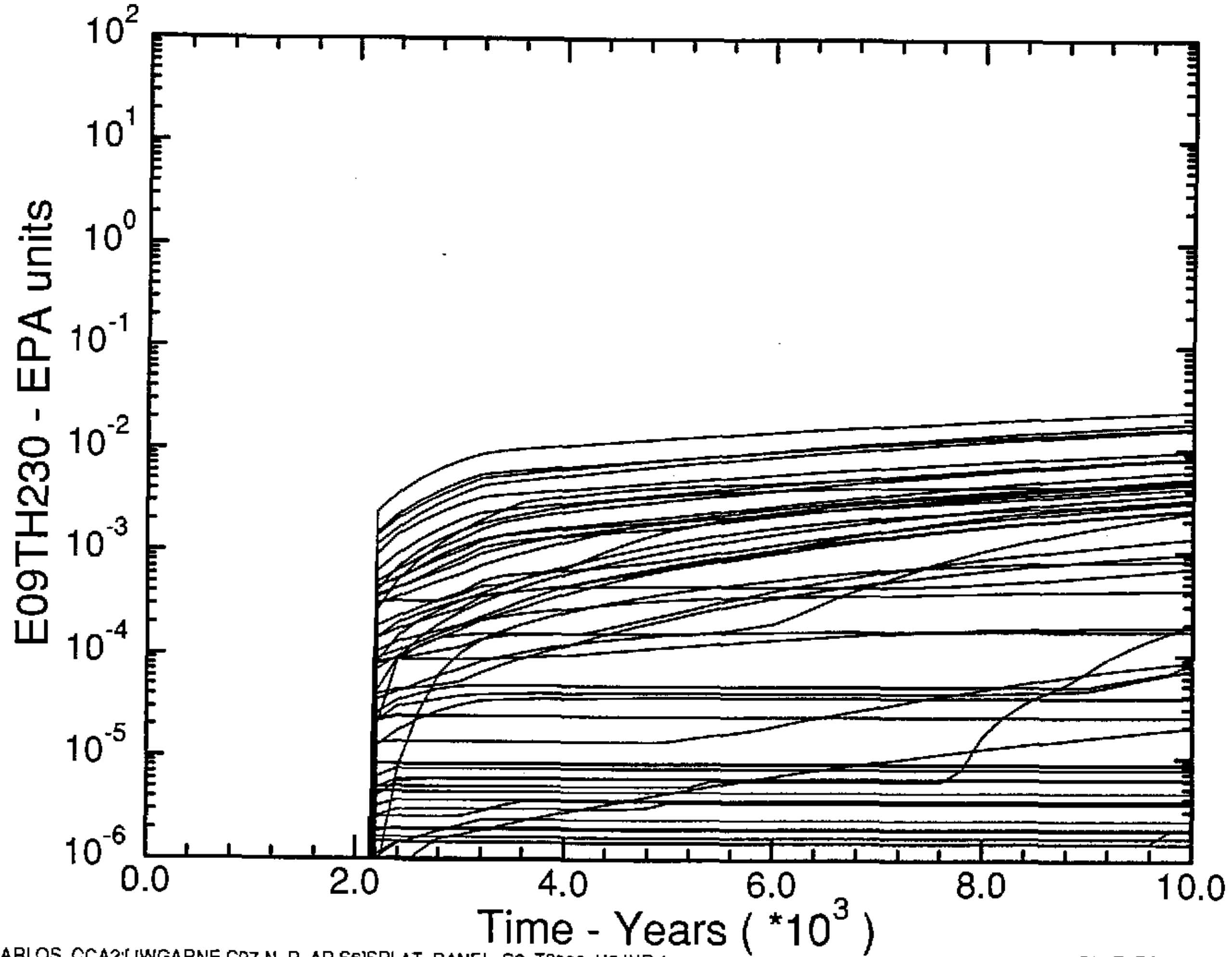
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T2000_H4.INP;1

SPLAT_PA96_2 1.02 07/02/97 10:59:3

C113

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T2000)

Th-230 Integrated Discharge up Borehole at MB138



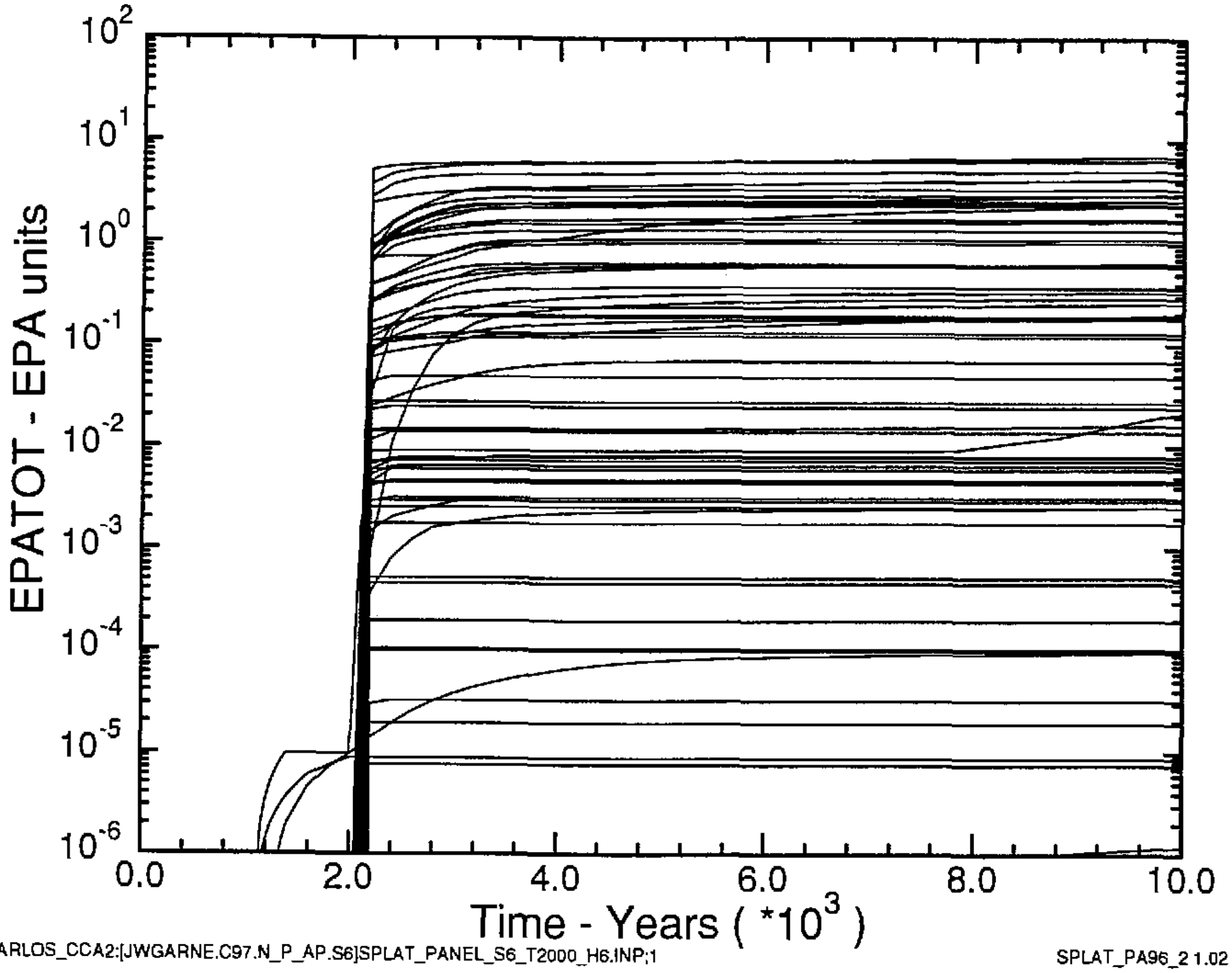
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T2000_H5.INP;1

SPLAT_PA96_2 1.02 07/02/97 10:59:4

C114

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T2000)

Total Integrated Discharge up Borehole at MB138



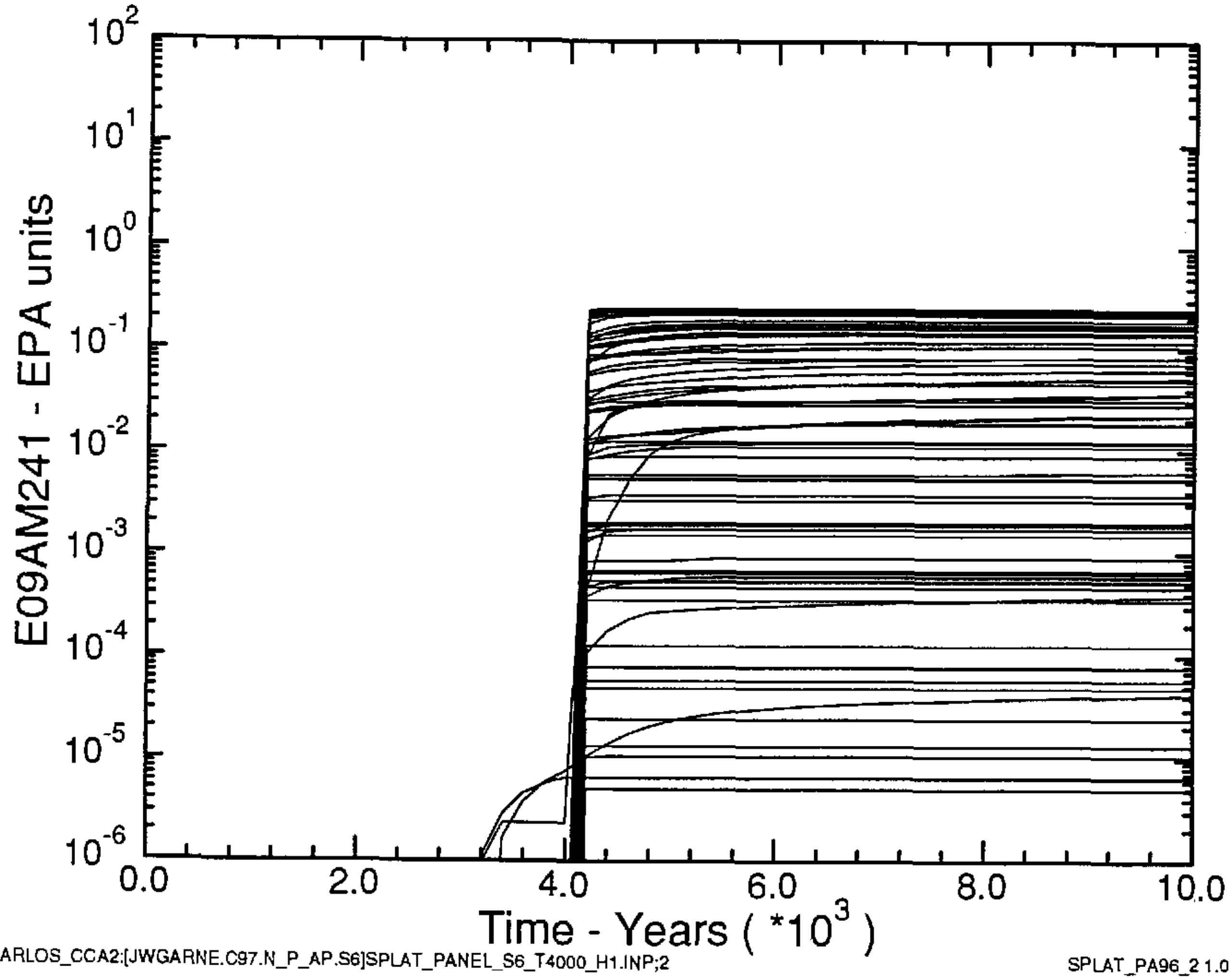
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T2000_H6.INP;1

SPLAT_PA96_2 1.02 07/02/97 10:59:5

C115

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T4000)

Am-241 Integrated Discharge up Borehole at MB138



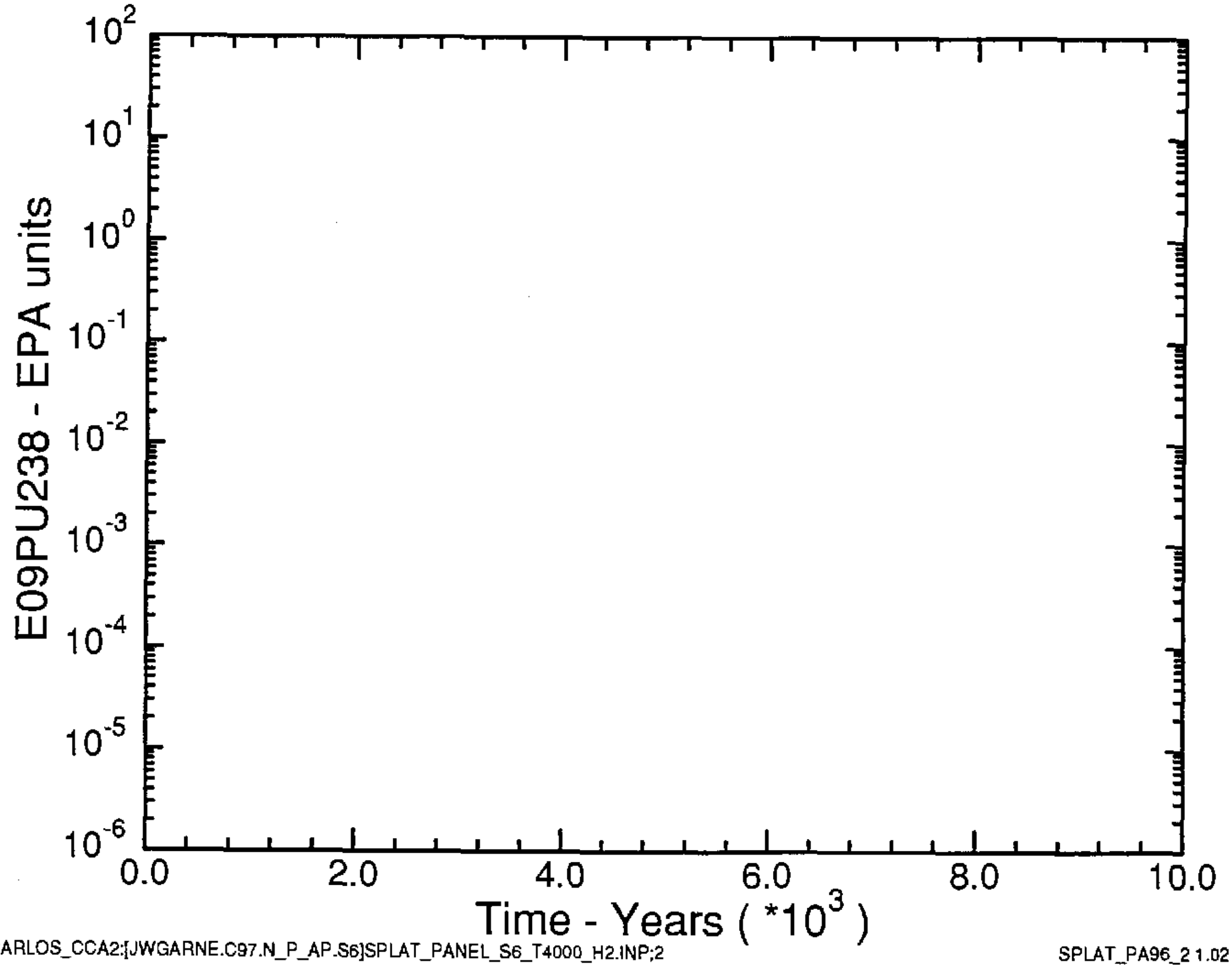
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T4000_H1.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:00:0

C116

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T4000)

Pu-238 Integrated Discharge up Borehole at MB138



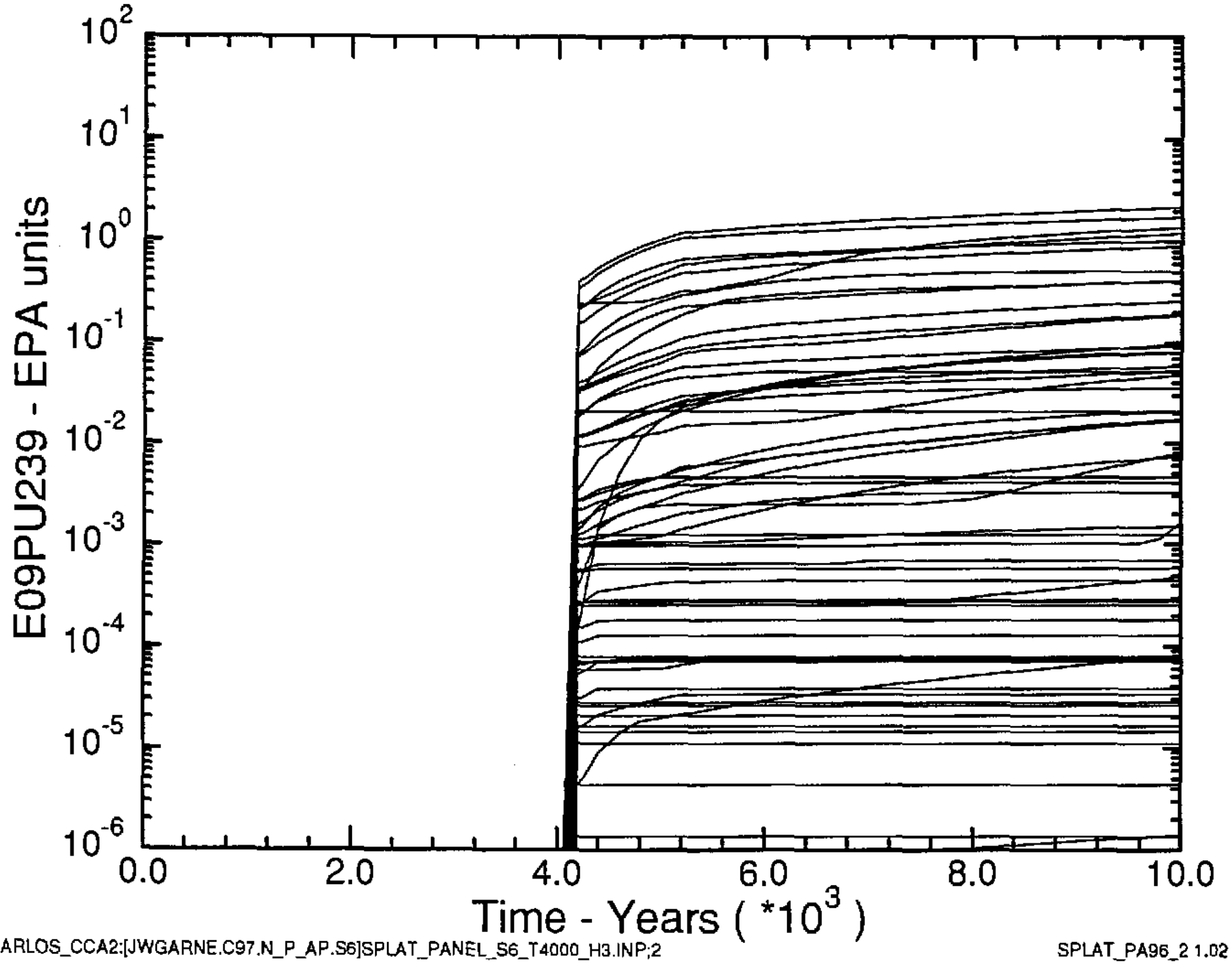
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T4000_H2.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:00:1

C117

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T4000)

Pu-239 Integrated Discharge up Borehole at MB138



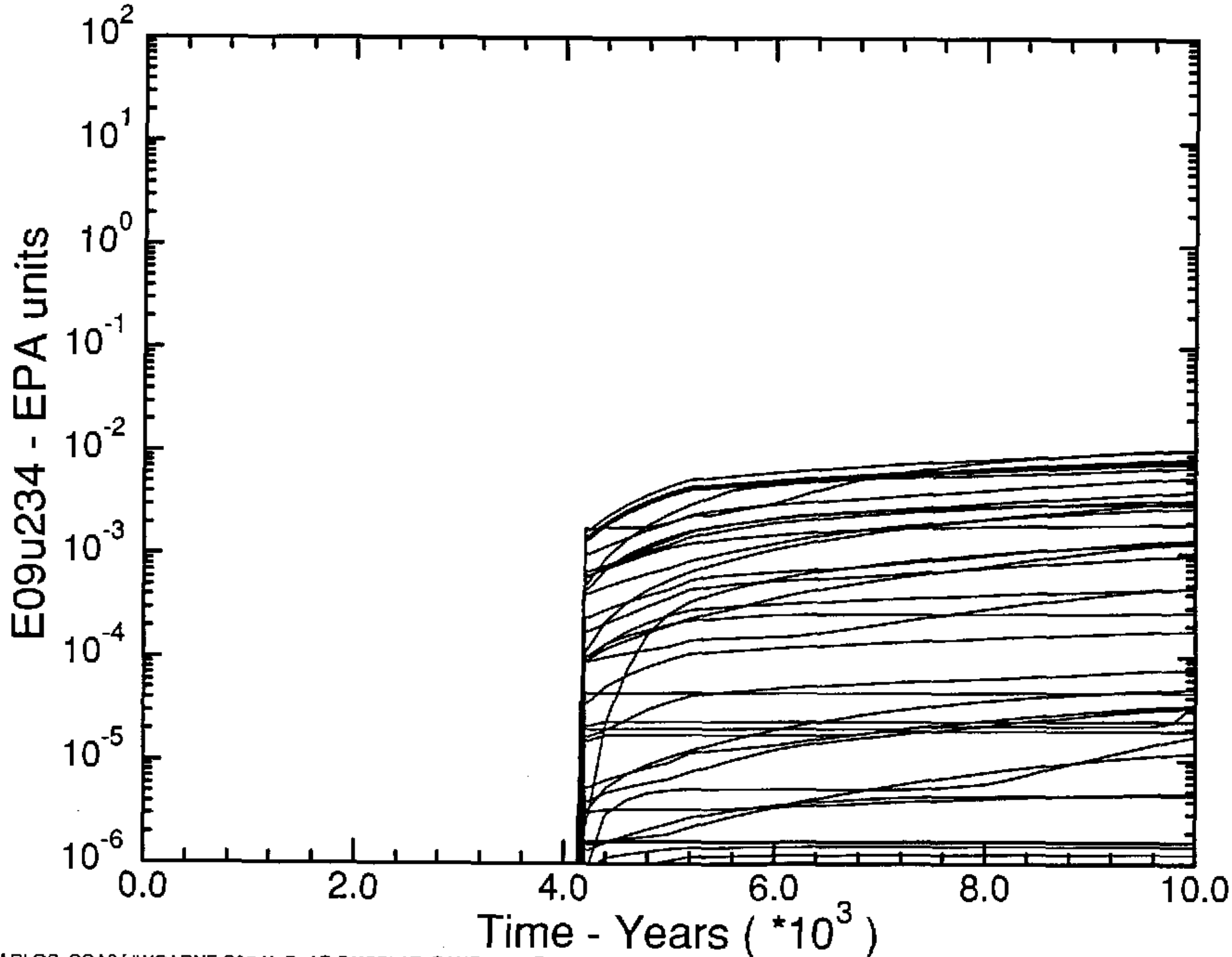
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T4000_H3.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:00:2

C118

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T4000)

U-234 Integrated Discharge up Borehole at MB138



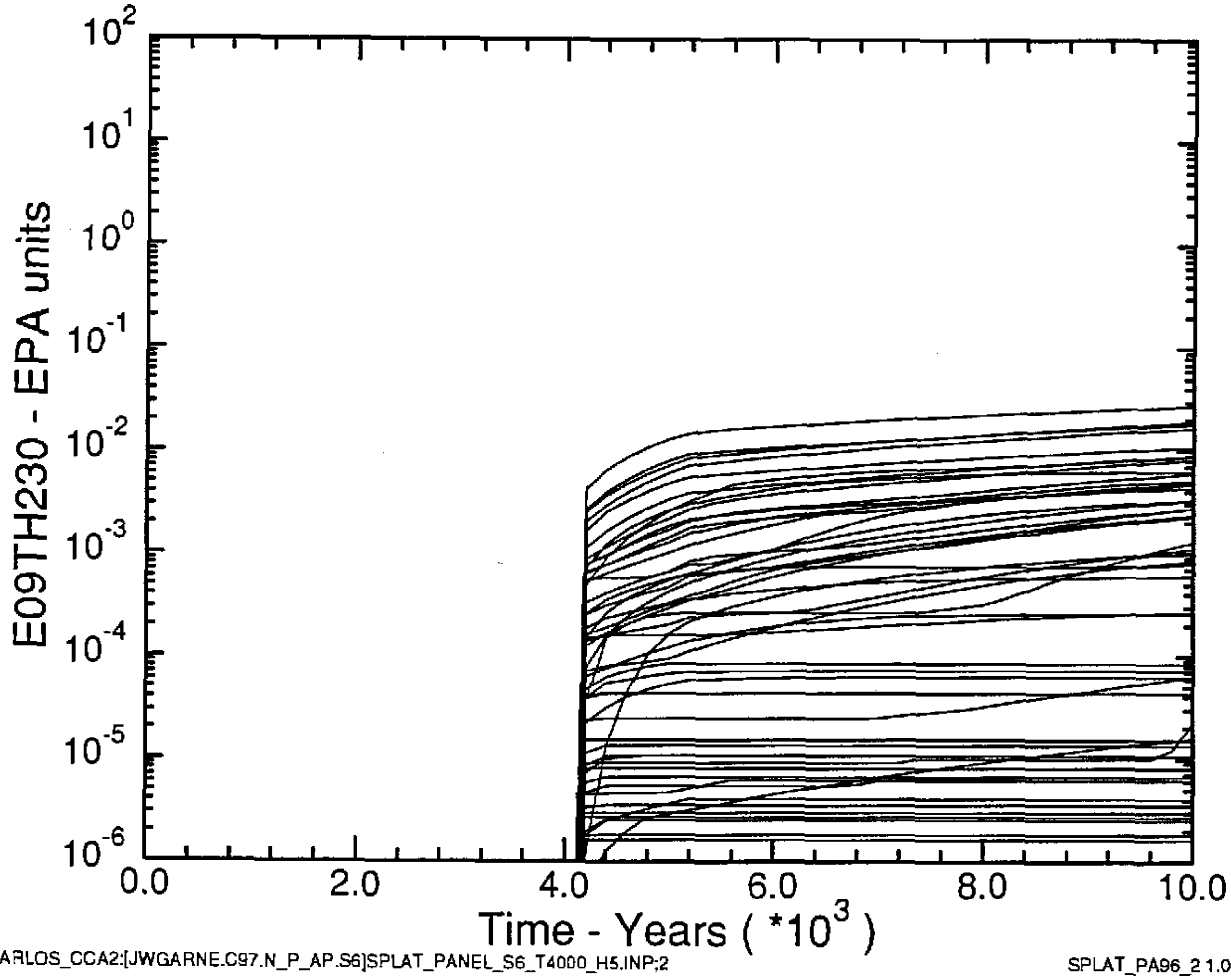
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T4000_H4.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:00:3

C119

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T4000)

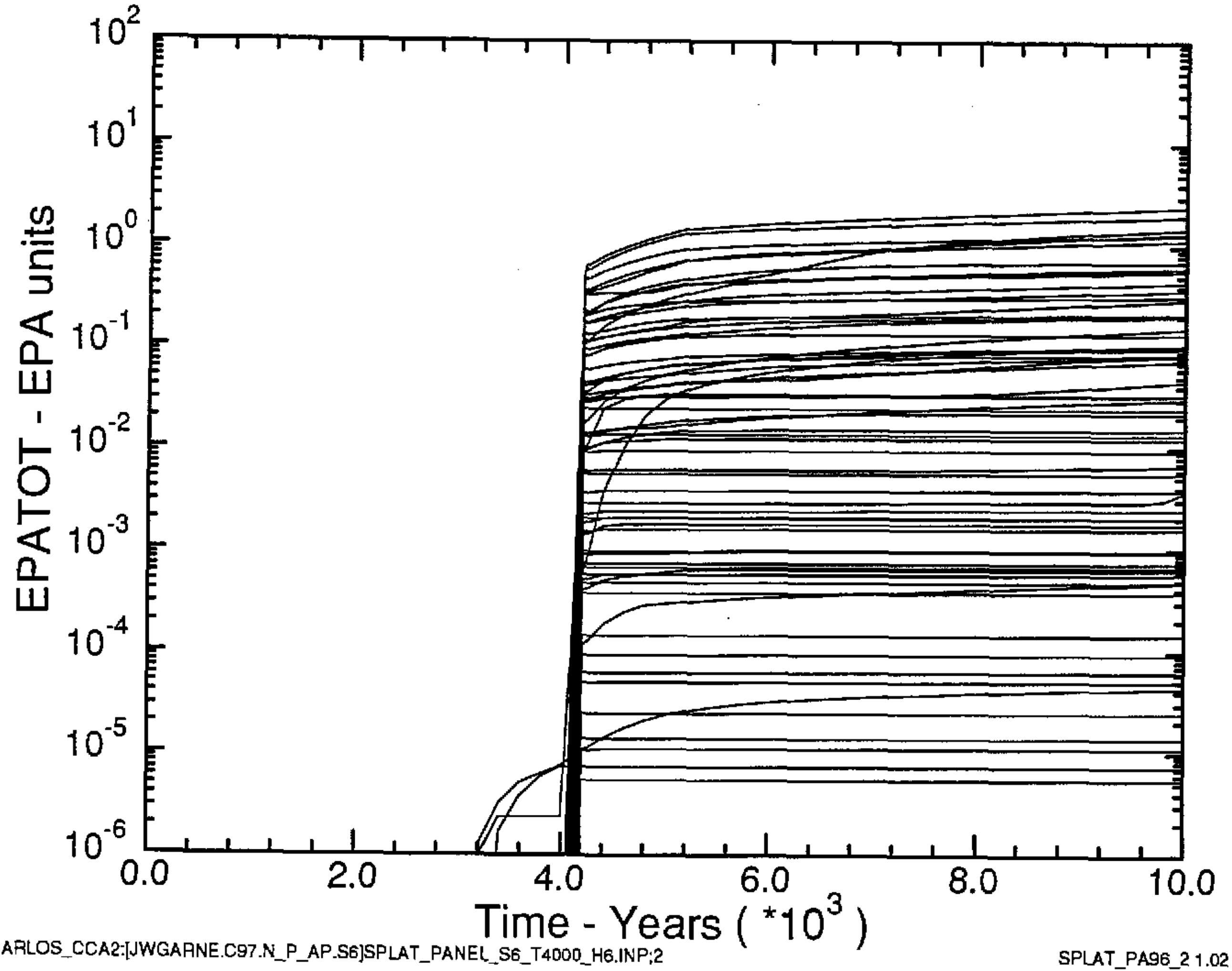
Th-230 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T4000_H5.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:00:4

C120



SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T4000)

Total Integrated Discharge up Borehole at MB138

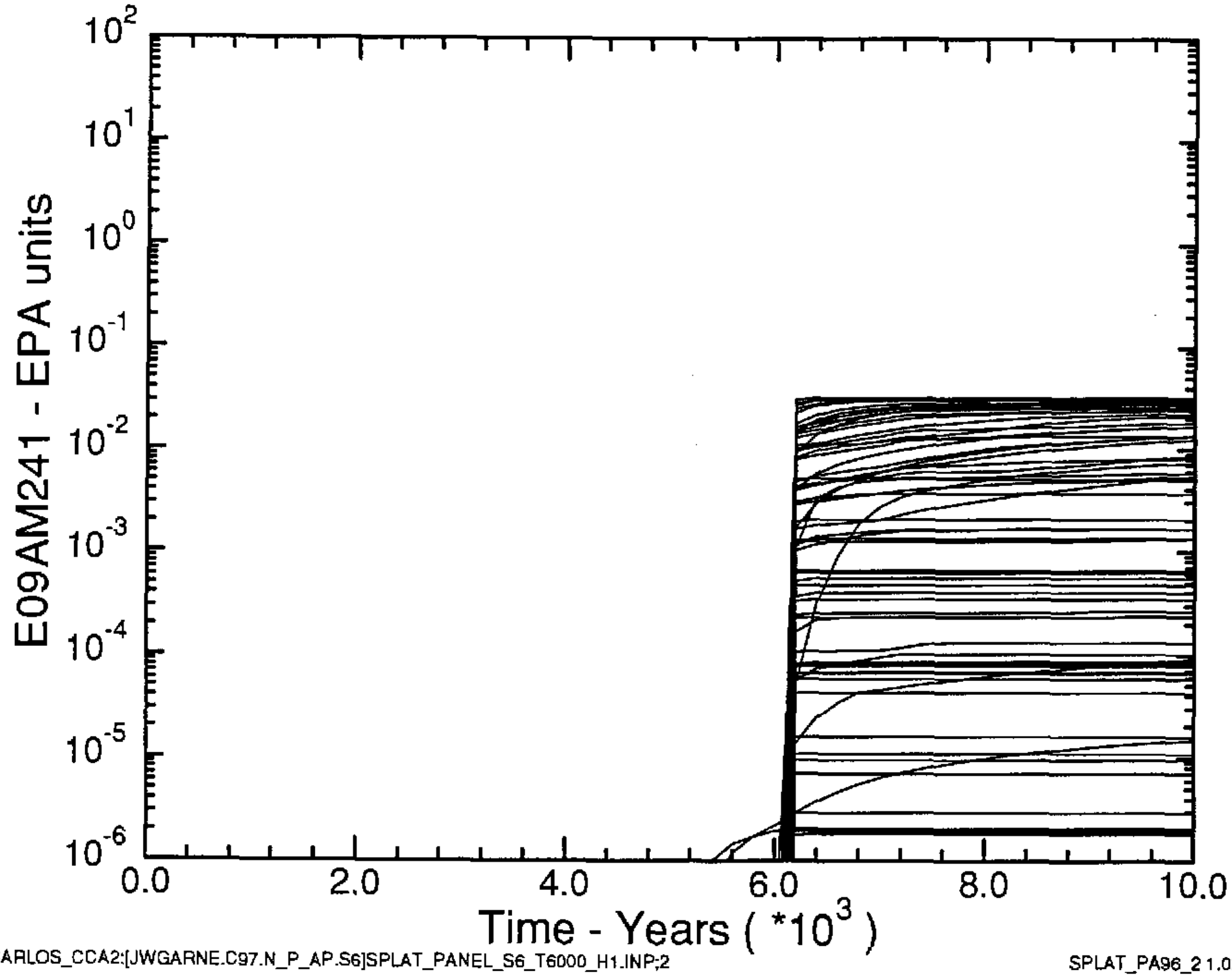
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T4000_H6.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:00:5

C121

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T6000)

Am-241 Integrated Discharge up Borehole at MB138



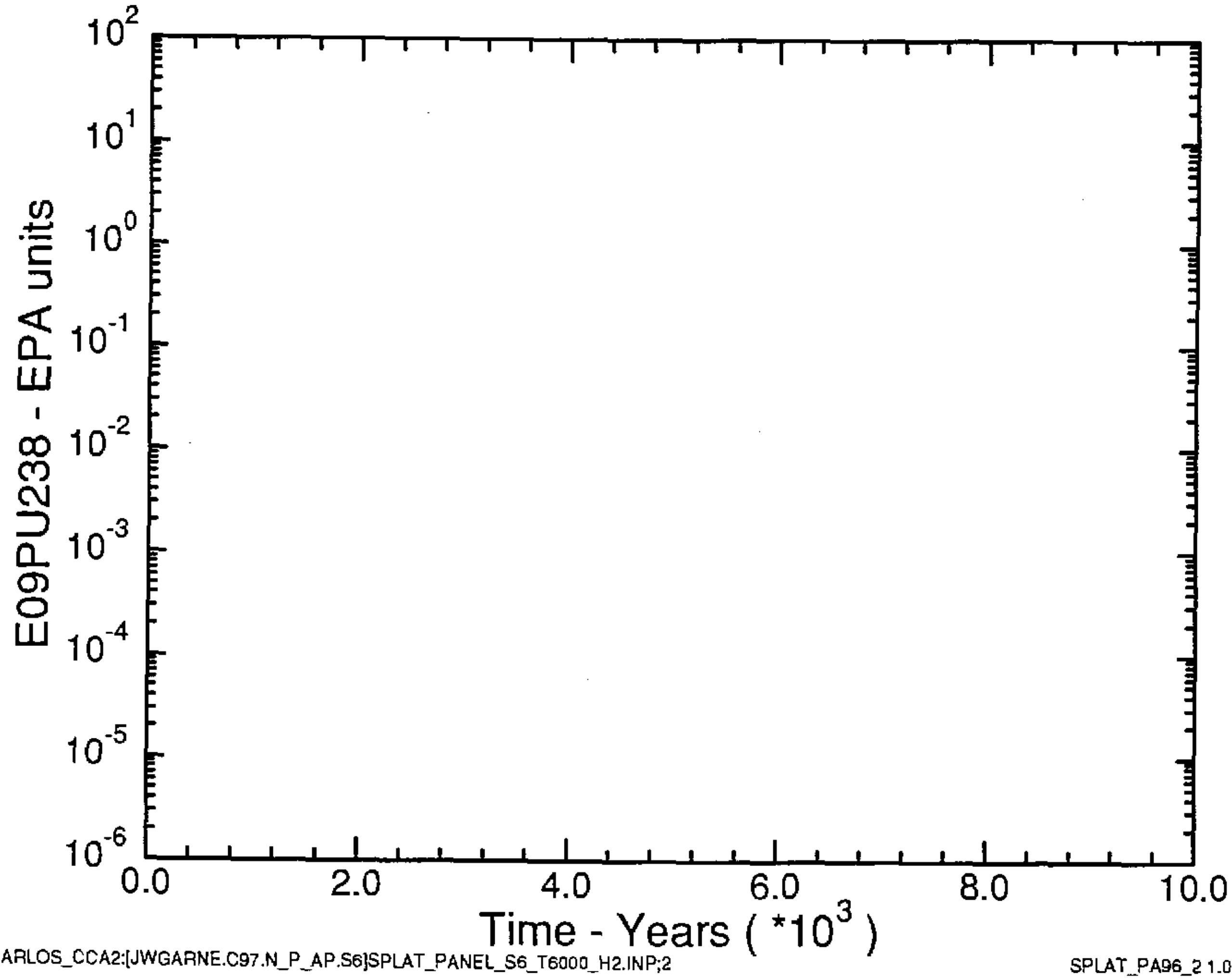
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T6000_H1.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:00:5

C122

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T6000)

Pu-238 Integrated Discharge up Borehole at MB138



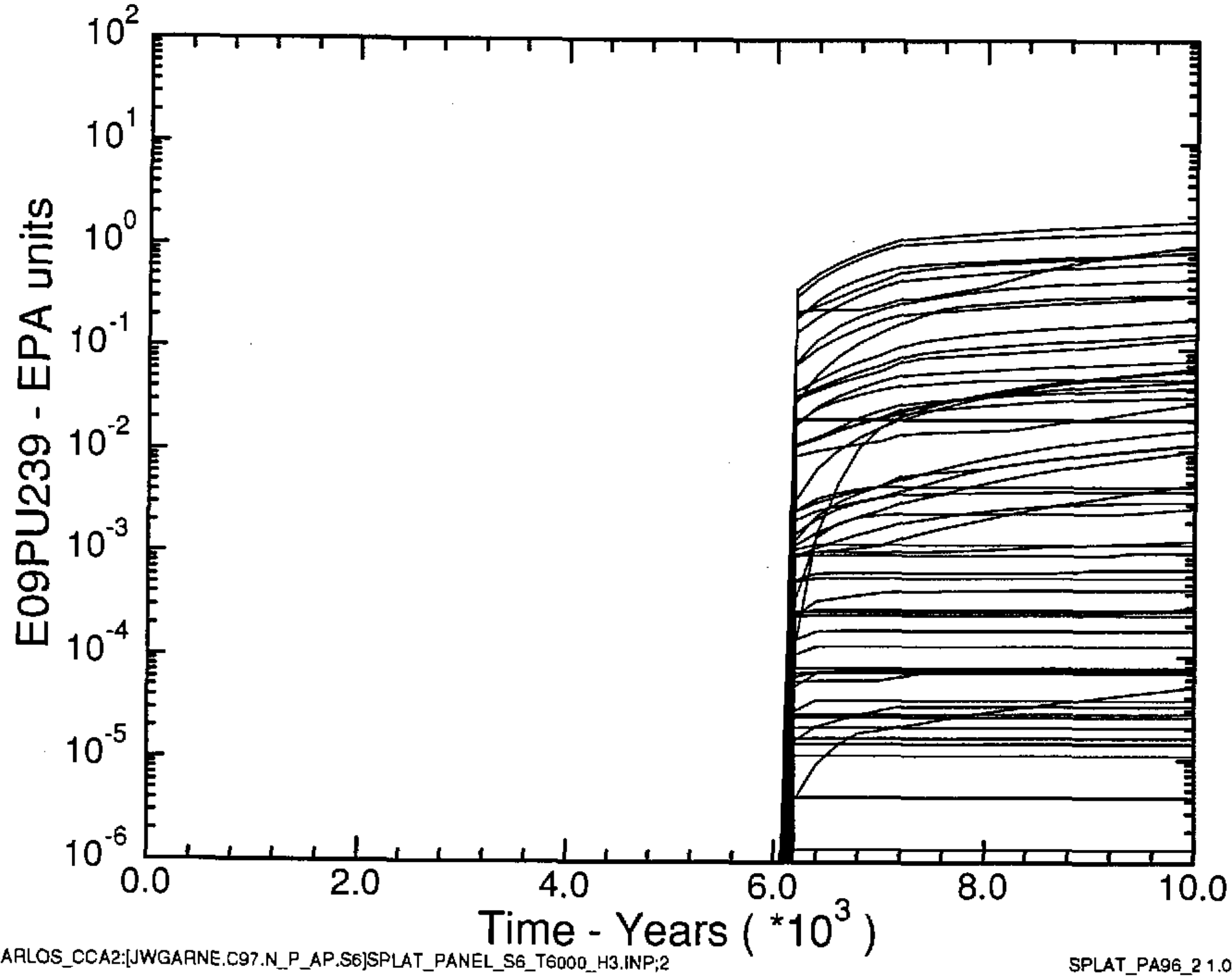
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T6000_H2.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:01:(

C123

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T6000)

Pu-239 Integrated Discharge up Borehole at MB138



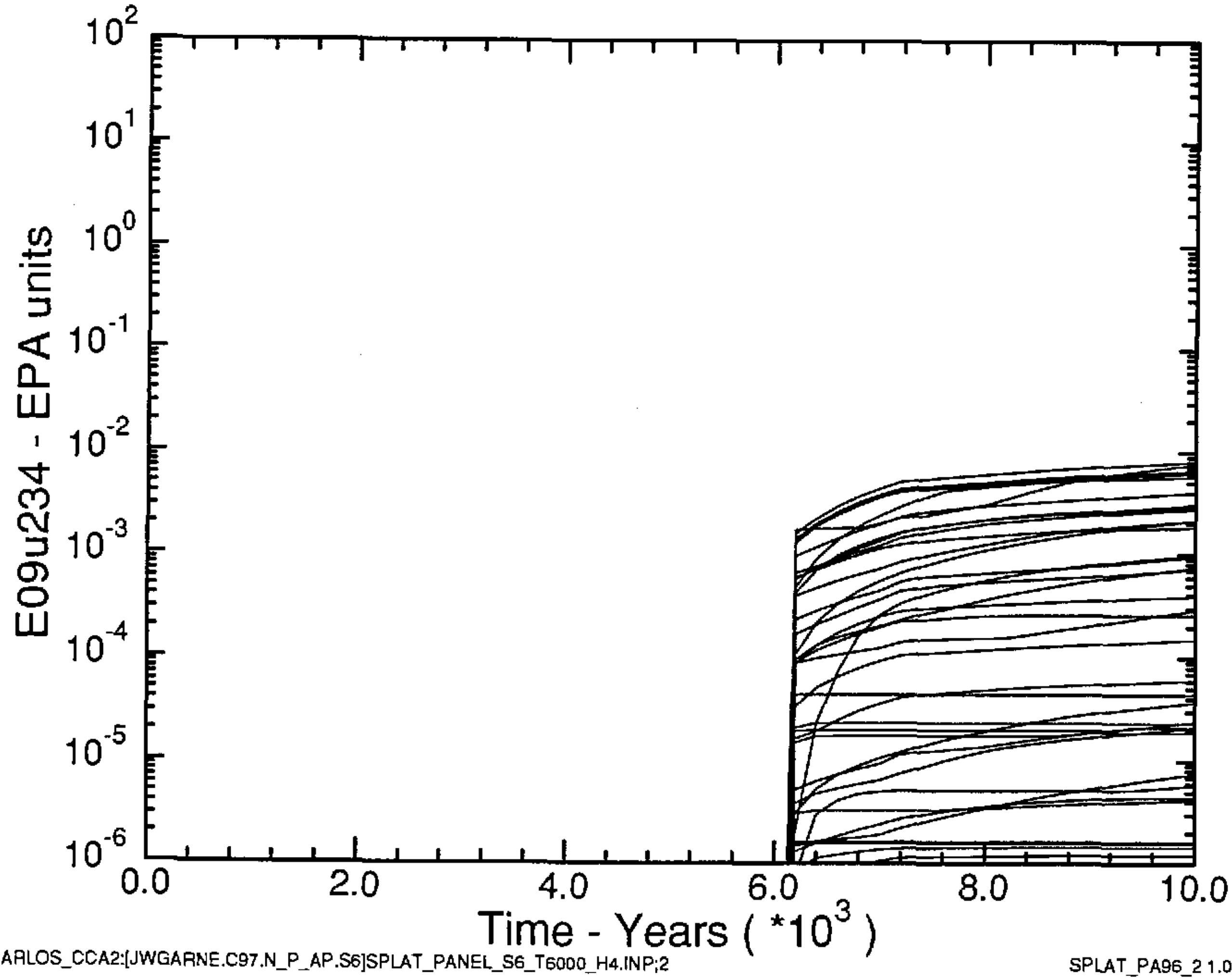
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T6000_H3.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:01:1

C124

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T6000)

U-234 Integrated Discharge up Borehole at MB138



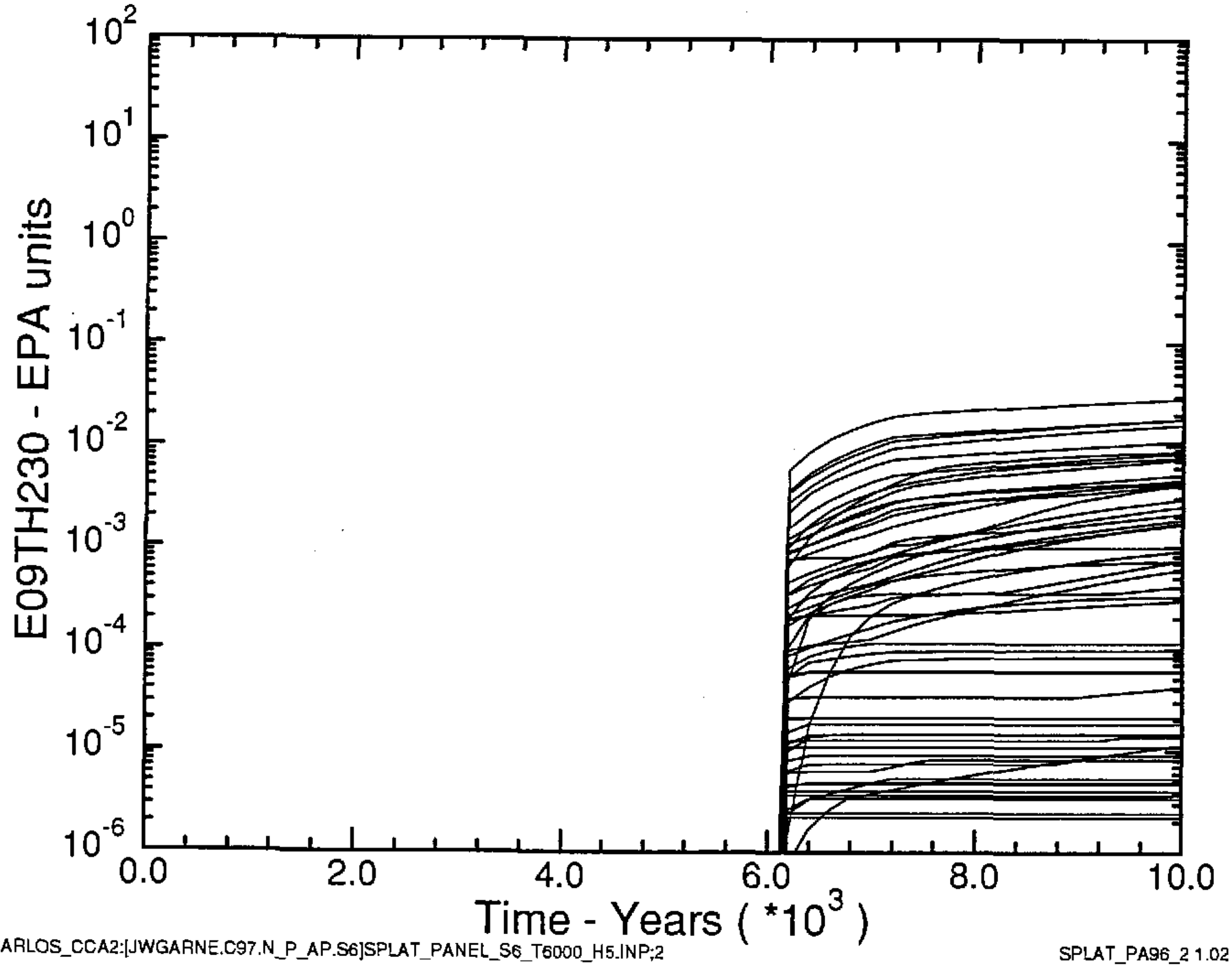
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T6000_H4.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:01:2

0125

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T6000)

Th-230 Integrated Discharge up Borehole at MB138



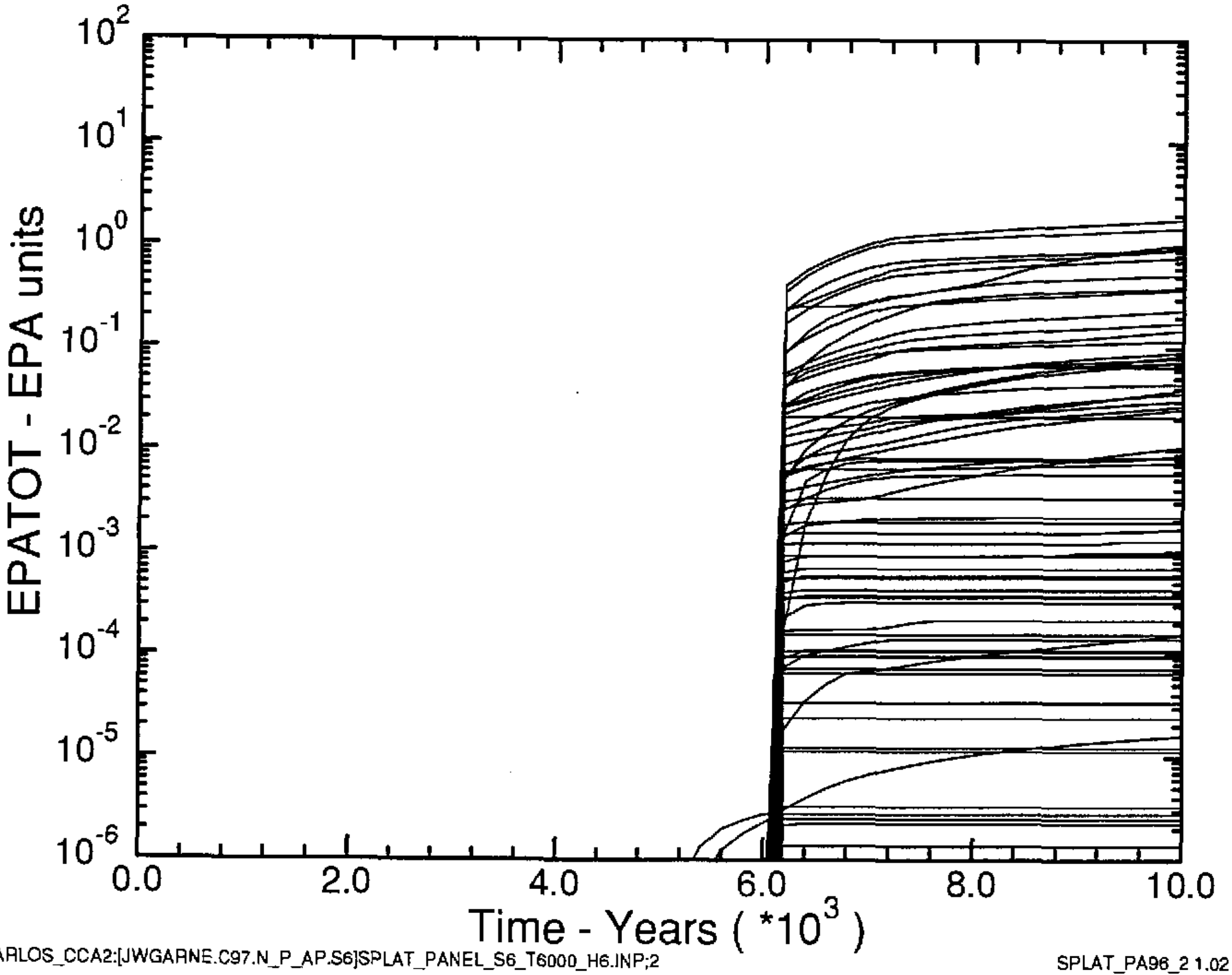
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T6000_H5.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:01:3

C126

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T6000)

Total Integrated Discharge up Borehole at MB138



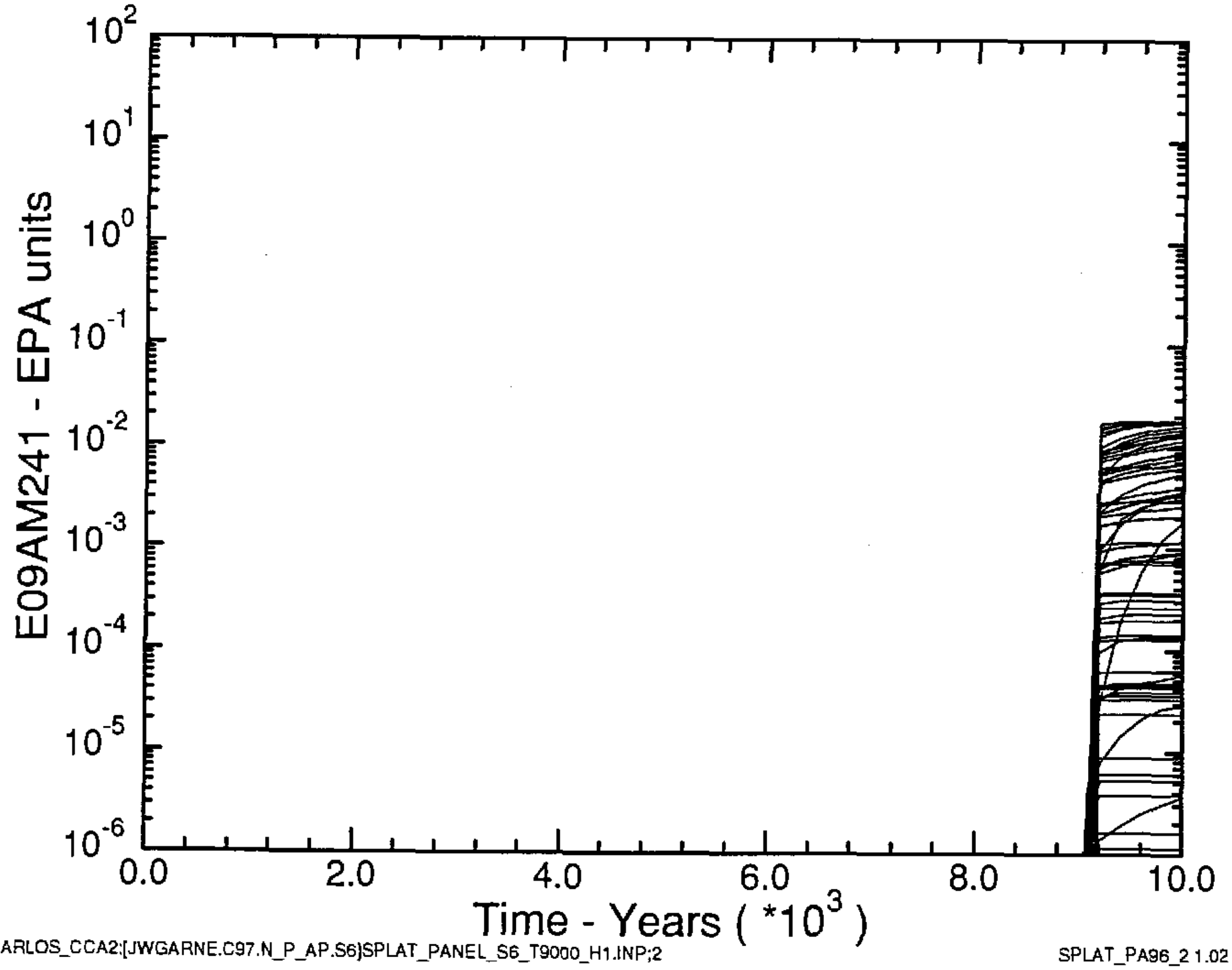
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T6000_H6.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:01:4

C127

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T9000)

Am-241 Integrated Discharge up Borehole at MB138



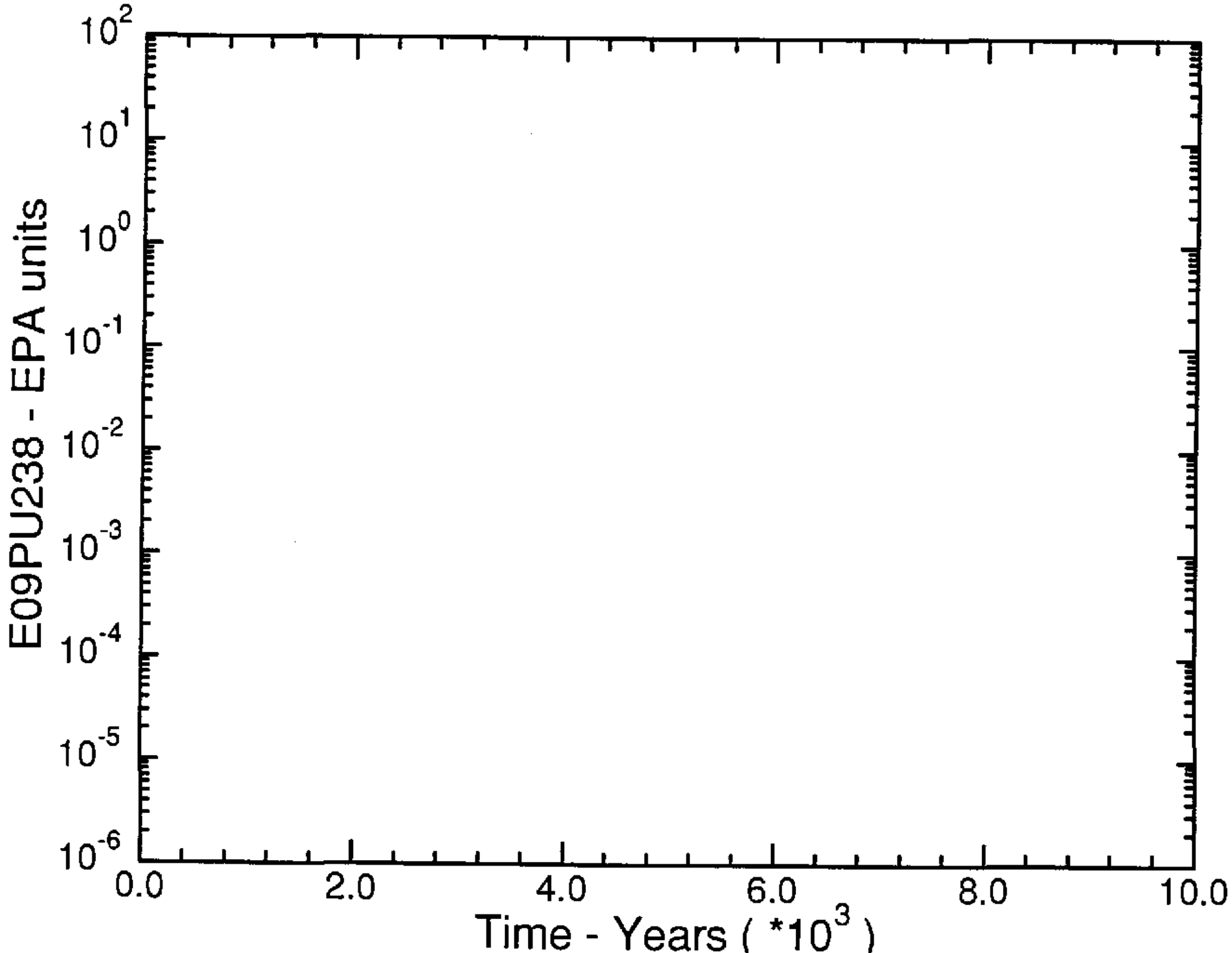
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T9000_H1.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:01:5

C128

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T9000)

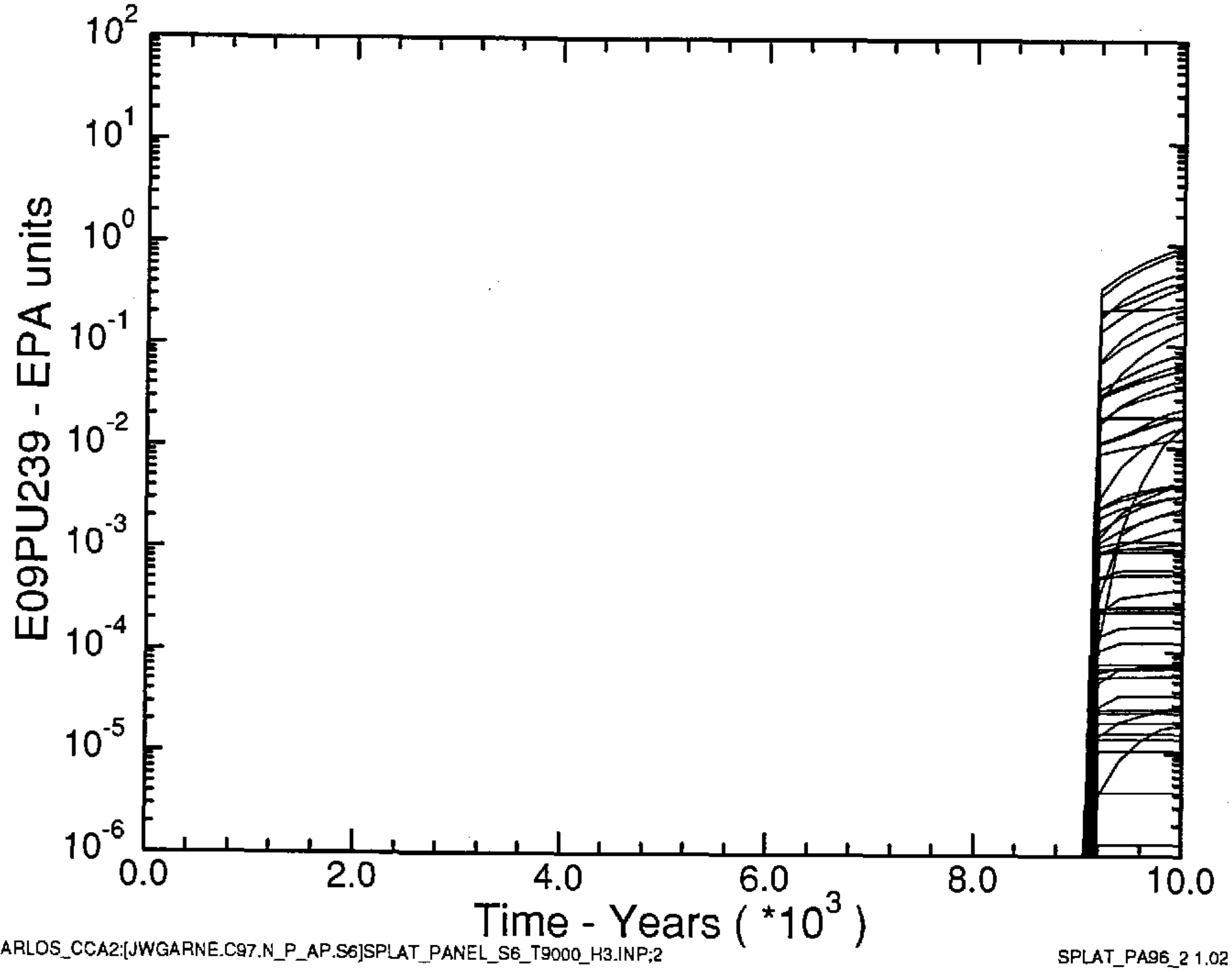
Pu-238 Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T9000_H2.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:02:0

C129



SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T9000)

Pu-239 Integrated Discharge up Borehole at MB138

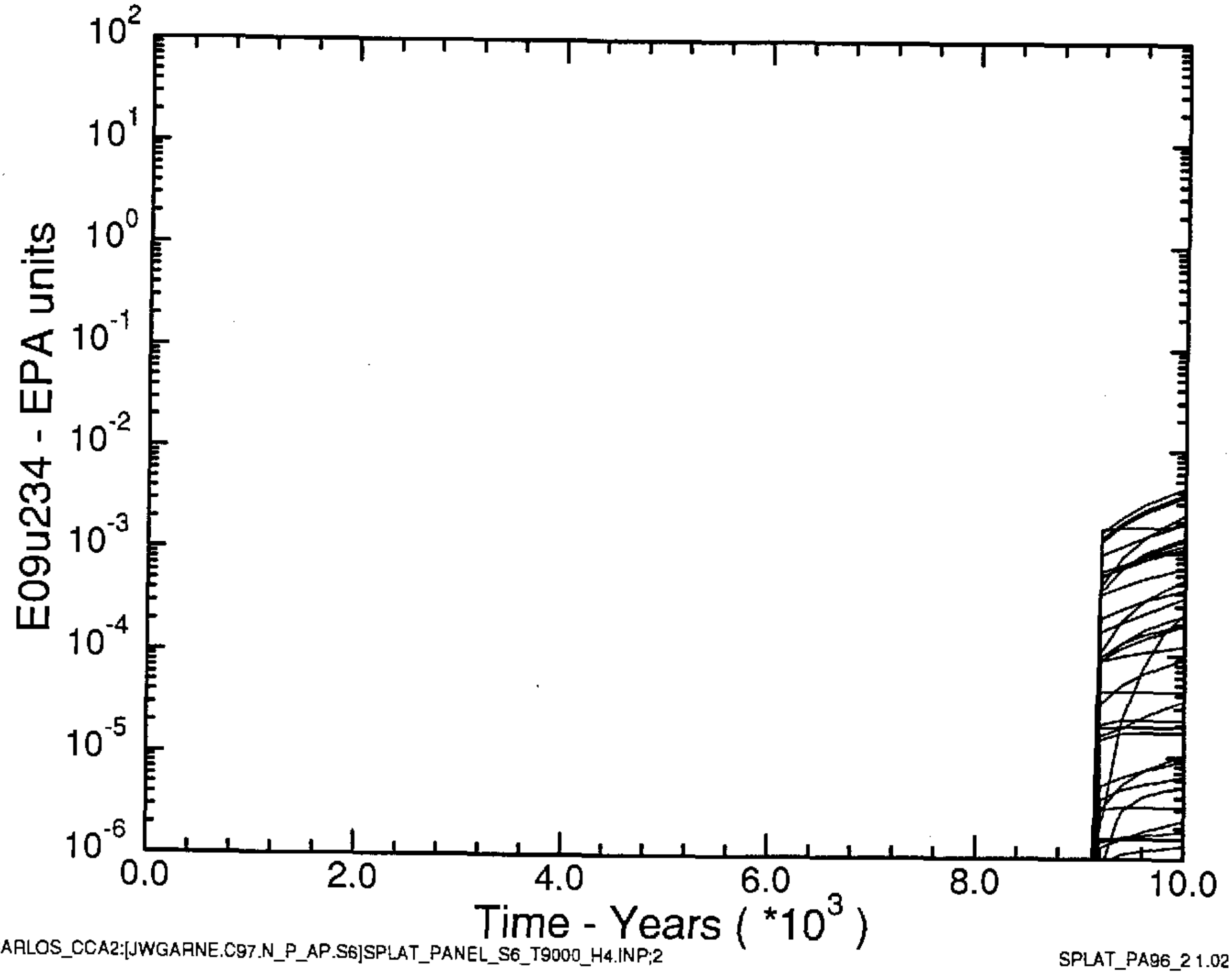
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T9000_H3.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:02:(

C130

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T9000)

U-234 Integrated Discharge up Borehole at MB138



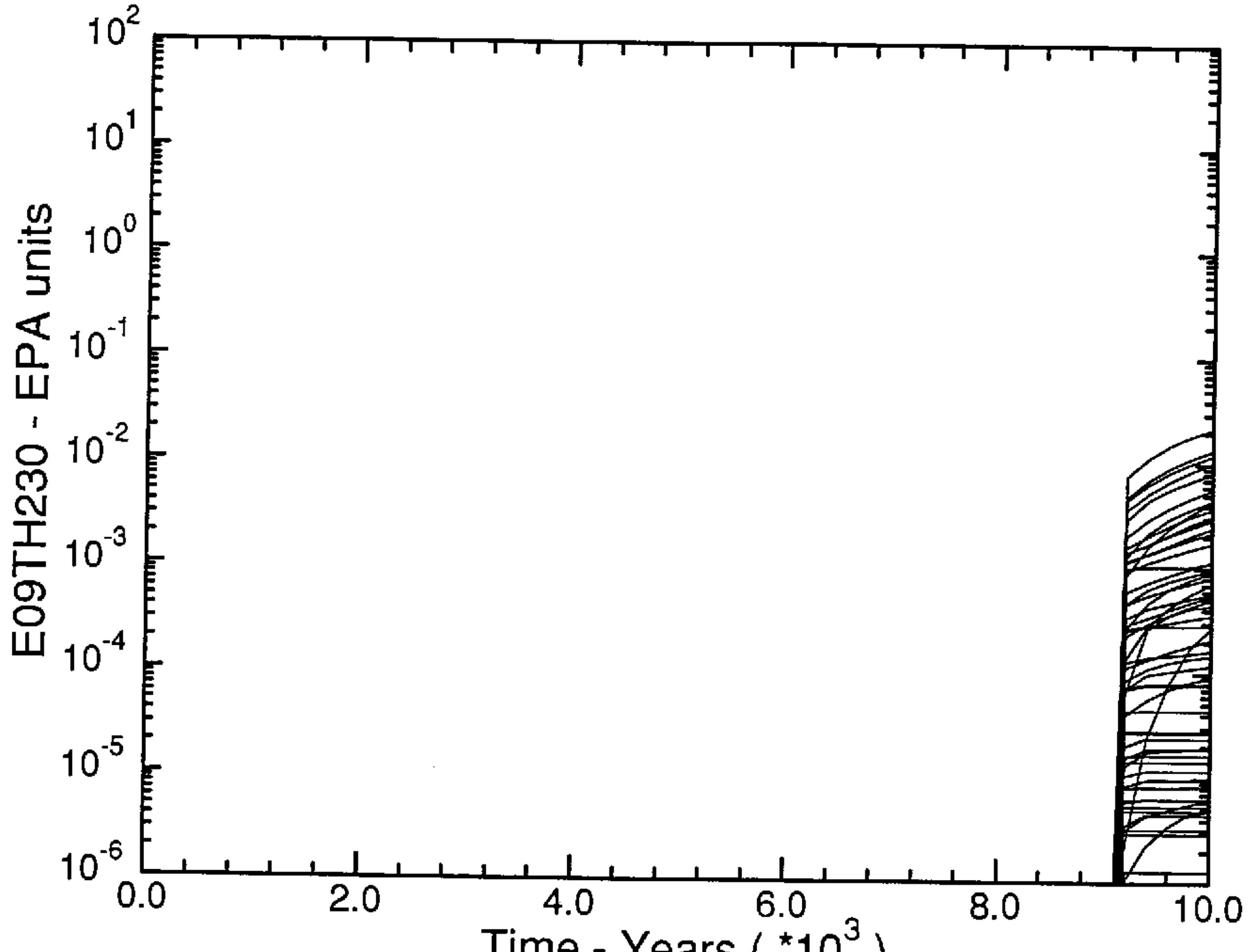
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T9000_H4.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:02:1

C131

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T9000)

Th-230 Integrated Discharge up Borehole at MB138



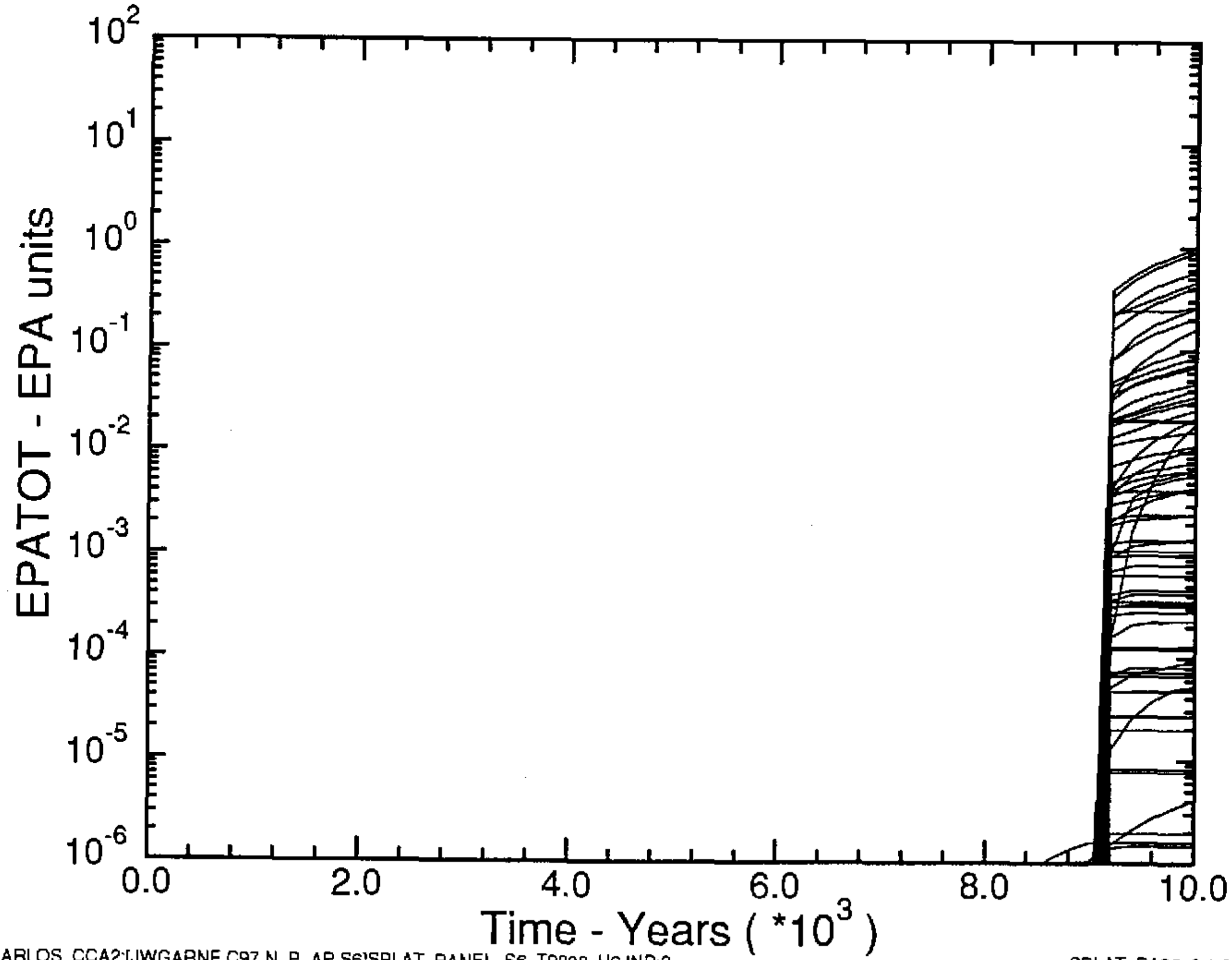
DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T9000_H5.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:02:2

C132

SNL WIPP PA96: PANEL SIMULATIONS (C97 S6 T9000)

Total Integrated Discharge up Borehole at MB138



DISK$CARLOS_CCA2:[JWGARNE.C97.N_P_AP.S6]SPLAT_PANEL_S6_T9000_H6.INP;2

SPLAT_PA96_2 1.02 07/02/97 11:02:3

C133

Table C.1. S1.

vector	time	E1LW_MBS ^{241}Am	E2LW_MBS ^{239}Pu	E3LW_MBS ^{238}Pu	E4LW_MBS ^{234}U	E5LW_MBS ^{230}Th	EPALWMBT Total - All MB	EPALWM9S Total - MB139S
38	10000	8.67E-11	3.40E-10	2.05E-17	2.74E-11	2.96E-11	4.84E-10	4.84E-10
58	10000	3.15E-20	1.87E-17	3.52E-30	1.38E-19	3.80E-19	1.93E-17	1.93E-17
26	10000	8.94E-23	1.12E-17	0.00E+00	2.82E-21	2.35E-20	1.13E-17	1.13E-17
8	10000	1.46E-21	3.59E-19	0.00E+00	2.56E-20	2.80E-20	4.14E-19	4.14E-19

Table C.2. s2 at 100.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	2.33E+00	5.36E-01	3.15E-02	3.06E-04	3.15E-03	2.90E+00
80	10000	1.34E+00	2.19E-01	1.20E-02	1.83E-03	6.34E-04	1.58E+00
54	10000	6.83E-01	6.44E-01	1.53E-02	2.14E-03	1.56E-03	1.35E+00
83	10000	2.50E-01	9.66E-01	1.01E-02	6.59E-03	8.86E-04	1.23E+00
53	10000	9.59E-01	9.13E-02	3.24E-03	1.86E-03	1.02E-03	1.06E+00
55	10000	6.69E-01	3.09E-01	1.75E-02	1.65E-03	1.11E-03	9.99E-01
81	10000	3.42E-01	4.80E-01	6.07E-02	1.01E-03	9.13E-04	8.84E-01
5	10000	5.21E-01	2.79E-01	1.04E-02	1.54E-03	9.62E-04	8.14E-01
72	10000	3.46E-01	3.01E-01	6.60E-03	2.48E-03	1.30E-03	6.58E-01
57	10000	2.27E-01	3.94E-01	2.28E-02	1.36E-03	1.08E-03	6.46E-01
60	10000	5.75E-01	2.09E-02	2.48E-04	3.50E-05	6.89E-04	5.97E-01
66	10000	2.97E-01	2.33E-01	9.77E-03	6.49E-04	3.52E-04	5.41E-01
74	10000	2.09E-01	3.06E-01	1.44E-02	2.16E-03	8.05E-04	5.32E-01
88	10000	3.47E-01	6.36E-02	9.05E-04	1.12E-04	1.68E-03	4.13E-01
29	10000	3.22E-01	6.11E-02	2.69E-03	1.40E-03	5.75E-04	3.88E-01
30	10000	2.11E-01	7.56E-02	3.75E-03	2.29E-03	6.97E-04	2.94E-01
64	10000	1.83E-01	4.51E-02	1.52E-03	5.97E-05	1.08E-03	2.31E-01
82	10000	1.48E-01	3.11E-02	5.98E-03	1.49E-04	1.53E-04	1.86E-01
51	10000	1.48E-01	2.80E-02	1.12E-03	4.32E-04	1.87E-04	1.78E-01
49	10000	1.70E-01	9.89E-04	9.07E-05	2.16E-06	4.10E-05	1.72E-01
50	10000	1.21E-01	2.10E-02	6.47E-04	3.87E-05	7.39E-04	1.43E-01
97	10000	7.52E-02	3.00E-02	1.21E-03	1.04E-03	1.39E-04	1.08E-01
43	10000	2.72E-02	6.88E-02	2.85E-03	2.53E-04	1.65E-04	9.93E-02
33	10000	7.69E-02	2.94E-03	5.98E-04	5.33E-07	1.99E-05	8.05E-02
86	10000	5.35E-02	1.25E-02	2.32E-05	1.83E-05	3.59E-04	6.64E-02
39	10000	5.70E-02	5.76E-03	3.98E-04	7.63E-06	1.46E-04	6.33E-02
35	10000	4.98E-02	2.02E-03	2.76E-04	2.54E-06	4.68E-05	5.22E-02
26	10000	3.67E-02	1.22E-02	4.44E-05	2.41E-05	4.68E-04	4.95E-02
75	10000	3.89E-02	2.14E-03	1.25E-04	3.99E-06	7.83E-05	4.12E-02
32	10000	1.40E-02	1.34E-03	5.13E-05	3.94E-06	7.70E-05	1.54E-02
21	10000	6.60E-03	3.13E-04	1.80E-04	4.42E-06	3.36E-06	7.11E-03
69	10000	5.92E-03	1.13E-03	1.88E-05	1.22E-06	2.24E-05	7.08E-03
17	10000	6.85E-03	1.58E-04	7.23E-06	1.04E-05	6.25E-06	7.04E-03

100	10000	4.40E-03	2.84E-04	3.93E-06	8.75E-07	1.58E-05	4.71E-03
52	10000	3.86E-03	4.83E-04	1.16E-05	1.17E-06	2.04E-05	4.38E-03
2	10000	3.58E-03	5.52E-04	1.51E-04	3.26E-06	2.38E-06	4.29E-03
24	10000	3.60E-03	6.32E-04	1.87E-06	1.46E-06	1.83E-05	4.25E-03
34	10000	1.44E-03	5.19E-05	2.81E-05	7.55E-08	1.15E-06	1.52E-03
46	10000	1.40E-03	1.22E-05	1.23E-06	1.98E-08	3.01E-07	1.42E-03
1	10000	6.67E-04	1.65E-04	2.37E-07	3.18E-07	5.36E-06	8.38E-04
45	10000	5.42E-04	1.03E-04	2.28E-07	3.79E-07	5.97E-06	6.52E-04
16	10000	5.26E-04	1.53E-05	3.14E-06	3.33E-08	5.40E-07	5.45E-04
90	10000	2.89E-04	7.36E-07	2.32E-07	2.69E-09	4.35E-08	2.90E-04
7	10000	2.18E-04	5.73E-06	1.63E-07	1.38E-08	2.29E-07	2.24E-04
31	10000	5.78E-05	1.62E-05	1.93E-06	1.28E-08	7.05E-08	7.60E-05
27	10000	1.10E-06	6.97E-05	1.59E-11	7.02E-08	9.93E-08	7.09E-05
22	10000	8.57E-09	2.23E-05	1.47E-18	4.64E-07	1.97E-07	2.30E-05
98	10000	7.32E-06	2.06E-06	3.85E-10	5.72E-09	7.80E-08	9.47E-06
9	10000	4.92E-07	7.61E-06	1.68E-13	8.30E-07	2.06E-07	9.13E-06
96	10000	7.85E-06	4.87E-07	7.40E-09	1.28E-09	1.92E-08	8.37E-06
73	10000	7.08E-06	5.26E-07	1.24E-08	1.34E-09	1.79E-08	7.64E-06
67	10000	1.46E-06	5.69E-06	6.69E-12	6.84E-09	4.33E-08	7.20E-06
56	10000	1.78E-06	4.71E-07	3.67E-09	1.98E-09	6.55E-09	2.26E-06
14	10000	1.36E-08	5.48E-07	1.88E-15	8.53E-10	8.15E-09	5.70E-07
20	10000	6.56E-10	1.62E-07	3.08E-18	5.13E-09	7.96E-09	1.76E-07
84	10000	5.96E-11	1.18E-07	2.07E-19	4.44E-09	4.56E-09	1.27E-07
23	10000	6.34E-13	3.41E-08	6.91E-21	8.78E-12	6.87E-11	3.41E-08
70	10000	1.50E-11	2.45E-10	6.75E-17	4.18E-13	5.35E-12	2.66E-10
95	10000	5.28E-19	7.30E-11	0.00E+00	7.39E-14	6.48E-14	7.32E-11
99	10000	9.85E-14	5.57E-11	4.09E-22	1.20E-13	1.72E-12	5.77E-11
77	10000	2.64E-13	2.78E-11	3.93E-20	6.41E-13	6.89E-13	2.94E-11
78	10000	2.64E-13	2.78E-11	3.93E-20	6.41E-13	6.89E-13	2.94E-11
68	10000	4.65E-17	1.39E-12	1.58E-26	6.41E-14	8.24E-14	1.54E-12
44	10000	3.00E-17	8.05E-13	5.71E-28	9.03E-16	1.24E-14	8.18E-13
42	10000	1.86E-20	6.39E-18	4.50E-24	3.13E-20	2.29E-20	6.47E-18
13	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
48	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.3. s2 at 350 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	1.96E+00	5.32E-01	1.79E-02	3.02E-04	3.15E-03	2.51E+00
80	10000	1.23E+00	2.08E-01	1.09E-02	1.79E-03	6.22E-04	1.45E+00
83	10000	1.82E-01	9.62E-01	5.14E-03	6.57E-03	8.82E-04	1.16E+00
54	10000	3.81E-01	6.10E-01	1.44E-02	2.10E-03	1.53E-03	1.01E+00
55	10000	6.64E-01	2.99E-01	1.17E-02	1.60E-03	1.08E-03	9.78E-01
81	10000	3.38E-01	4.69E-01	3.18E-04	9.92E-04	9.19E-04	8.09E-01

5	10000	4.92E-01	2.76E-01	8.95E-03	1.49E-03	9.39E-04	7.79E-01
53	10000	6.08E-01	8.98E-02	3.21E-05	1.84E-03	1.01E-03	7.01E-01
57	10000	2.25E-01	3.87E-01	2.23E-02	1.34E-03	1.07E-03	6.37E-01
60	10000	5.78E-01	2.05E-02	2.48E-04	3.43E-05	6.76E-04	6.00E-01
72	10000	2.88E-01	2.97E-01	5.54E-03	2.43E-03	1.27E-03	5.94E-01
74	10000	2.07E-01	3.04E-01	2.79E-03	2.13E-03	7.89E-04	5.17E-01
66	10000	2.32E-01	2.32E-01	6.46E-05	7.14E-04	3.50E-04	4.65E-01
29	10000	3.15E-01	5.98E-02	2.43E-03	1.37E-03	5.64E-04	3.80E-01
30	10000	2.11E-01	7.38E-02	9.14E-04	2.23E-03	6.80E-04	2.89E-01
88	10000	2.20E-01	6.27E-02	2.03E-05	1.10E-04	1.66E-03	2.85E-01
64	10000	1.84E-01	4.41E-02	1.34E-03	5.84E-05	1.05E-03	2.30E-01
82	10000	1.48E-01	3.11E-02	6.91E-05	1.46E-04	1.54E-04	1.79E-01
49	10000	1.68E-01	9.89E-04	8.95E-05	2.16E-06	4.10E-05	1.69E-01
51	10000	1.28E-01	2.66E-02	9.25E-04	4.09E-04	1.76E-04	1.56E-01
50	10000	1.09E-01	2.04E-02	6.40E-04	3.77E-05	7.20E-04	1.31E-01
97	10000	7.93E-02	2.98E-02	1.01E-03	1.01E-03	1.37E-04	1.11E-01
43	10000	2.70E-02	6.69E-02	1.07E-05	2.76E-04	1.63E-04	9.44E-02
33	10000	7.05E-02	2.82E-03	6.89E-07	4.85E-07	1.90E-05	7.33E-02
86	10000	5.27E-02	1.22E-02	2.31E-05	1.79E-05	3.50E-04	6.53E-02
39	10000	5.70E-02	5.76E-03	8.02E-07	7.38E-06	1.45E-04	6.29E-02
35	10000	4.98E-02	2.02E-03	2.41E-04	2.54E-06	4.68E-05	5.21E-02
26	10000	3.54E-02	1.15E-02	3.95E-05	2.28E-05	4.42E-04	4.74E-02
75	10000	3.38E-02	2.11E-03	1.24E-04	3.93E-06	7.72E-05	3.61E-02
32	10000	9.66E-03	1.34E-03	5.08E-05	3.94E-06	7.73E-05	1.11E-02
21	10000	6.61E-03	3.13E-04	1.79E-04	4.43E-06	3.36E-06	7.11E-03
69	10000	5.92E-03	1.12E-03	6.50E-08	1.14E-06	2.22E-05	7.06E-03
100	10000	4.40E-03	2.82E-04	1.53E-07	8.12E-07	1.57E-05	4.70E-03
52	10000	3.86E-03	4.38E-04	8.07E-06	1.05E-06	1.86E-05	4.33E-03
24	10000	3.65E-03	6.34E-04	1.84E-06	1.45E-06	1.98E-05	4.30E-03
2	10000	3.58E-03	5.52E-04	1.44E-04	3.24E-06	2.38E-06	4.29E-03
17	10000	3.83E-03	1.56E-04	6.72E-06	1.04E-05	6.25E-06	4.01E-03
34	10000	1.44E-03	5.19E-05	2.74E-05	7.52E-08	1.15E-06	1.52E-03
46	10000	1.32E-03	1.22E-05	2.50E-08	1.55E-08	3.01E-07	1.34E-03
13	10000	8.55E-04	1.95E-05	2.62E-07	2.86E-08	5.61E-07	8.76E-04
1	10000	6.41E-04	1.60E-04	1.06E-08	2.68E-07	5.18E-06	8.07E-04
45	10000	5.42E-04	1.01E-04	2.27E-07	3.68E-07	5.81E-06	6.49E-04
16	10000	5.26E-04	1.53E-05	1.32E-08	2.75E-08	5.39E-07	5.42E-04
90	10000	2.83E-04	7.07E-07	2.25E-07	2.59E-09	4.35E-08	2.84E-04
7	10000	2.17E-04	5.69E-06	1.63E-07	1.38E-08	2.30E-07	2.23E-04
31	10000	5.78E-05	1.62E-05	1.42E-06	1.05E-08	7.07E-08	7.54E-05
27	10000	1.10E-06	6.86E-05	5.66E-13	4.92E-08	8.72E-08	6.99E-05
98	10000	7.33E-06	2.05E-06	8.46E-13	3.95E-09	7.72E-08	9.46E-06
9	10000	4.13E-07	7.37E-06	2.43E-15	8.01E-07	1.99E-07	8.78E-06
96	10000	7.86E-06	4.85E-07	6.35E-09	1.24E-09	1.92E-08	8.37E-06
73	10000	7.08E-06	4.73E-07	1.09E-08	1.20E-09	1.79E-08	7.58E-06
67	10000	1.33E-06	5.62E-06	6.62E-12	6.64E-09	4.26E-08	7.00E-06
22	10000	2.76E-09	5.19E-06	7.14E-19	1.08E-07	4.60E-08	5.34E-06

56	10000	1.78E-06	4.71E-07	1.16E-10	1.66E-09	6.50E-09	2.26E-06
14	10000	1.19E-08	5.34E-07	8.50E-16	8.11E-10	7.92E-09	5.55E-07
20	10000	6.52E-10	1.11E-07	3.96E-20	4.74E-09	7.38E-09	1.24E-07
84	10000	5.91E-11	1.08E-07	1.94E-19	4.05E-09	4.12E-09	1.17E-07
23	10000	6.22E-13	3.05E-08	3.28E-21	7.38E-12	6.07E-11	3.05E-08
70	10000	1.50E-11	2.38E-10	3.78E-20	3.17E-13	5.12E-12	2.58E-10
99	10000	9.84E-14	5.09E-11	4.06E-22	1.10E-13	1.60E-12	5.27E-11
77	10000	2.62E-13	2.41E-11	2.56E-20	6.12E-13	6.55E-13	2.56E-11
78	10000	2.62E-13	2.41E-11	2.56E-20	6.12E-13	6.55E-13	2.56E-11
68	10000	4.39E-17	1.00E-12	1.80E-28	4.53E-14	5.72E-14	1.11E-12
44	10000	1.69E-17	3.27E-13	5.44E-29	3.64E-16	5.01E-15	3.32E-13
95	10000	3.72E-22	4.13E-19	0.00E+00	1.49E-21	2.49E-20	4.40E-19
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
42	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
48	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.4. s3 at 1000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	5.83E-01	5.20E-01	2.95E-06	2.84E-04	2.82E-03	1.11E+00
54	10000	1.16E-01	6.46E-01	2.93E-05	2.21E-03	1.42E-03	7.66E-01
83	10000	4.11E-02	6.53E-01	5.00E-05	4.45E-03	5.94E-04	6.99E-01
55	10000	2.79E-01	2.31E-01	8.47E-05	1.21E-03	7.54E-04	5.12E-01
72	10000	1.17E-01	3.39E-01	4.03E-08	2.32E-03	1.19E-03	4.60E-01
57	10000	3.08E-02	3.86E-01	7.08E-05	1.31E-03	9.92E-04	4.19E-01
5	10000	1.00E-01	2.76E-01	4.97E-06	1.69E-03	9.60E-04	3.79E-01
81	10000	1.44E-02	3.27E-01	3.36E-07	6.68E-04	5.15E-04	3.43E-01
53	10000	2.51E-01	8.20E-02	1.56E-06	1.63E-03	8.15E-04	3.36E-01
74	10000	8.47E-03	2.60E-01	3.58E-10	1.47E-03	5.46E-04	2.71E-01
66	10000	3.49E-02	2.33E-01	5.56E-07	7.44E-04	3.36E-04	2.69E-01
80	10000	6.14E-02	1.97E-01	7.57E-06	1.41E-03	4.72E-04	2.61E-01
64	10000	1.08E-01	4.77E-02	4.88E-06	6.29E-05	1.05E-03	1.57E-01
29	10000	7.89E-02	6.03E-02	4.91E-06	1.24E-03	4.71E-04	1.41E-01
60	10000	1.08E-01	1.52E-02	3.87E-07	2.55E-05	5.03E-04	1.24E-01
88	10000	5.04E-02	6.46E-02	5.62E-07	1.13E-04	1.66E-03	1.17E-01
43	10000	1.85E-02	5.41E-02	2.53E-07	2.89E-04	1.52E-04	7.30E-02
97	10000	3.75E-02	1.97E-02	5.60E-06	8.04E-04	9.73E-05	5.81E-02
82	10000	2.28E-02	2.11E-02	2.21E-07	9.86E-05	9.21E-05	4.41E-02
50	10000	1.04E-02	2.01E-02	3.76E-08	3.70E-05	6.94E-04	3.11E-02
86	10000	1.51E-02	9.69E-03	2.49E-07	1.41E-05	2.78E-04	2.51E-02
32	10000	1.57E-02	1.35E-03	3.99E-07	3.91E-06	7.67E-05	1.72E-02
75	10000	1.26E-02	2.09E-03	1.44E-07	3.87E-06	7.63E-05	1.48E-02
26	10000	2.45E-05	7.50E-03	1.33E-16	1.45E-05	2.86E-04	7.82E-03
21	10000	4.86E-03	4.29E-04	2.75E-07	7.39E-06	5.62E-06	5.31E-03
51	10000	2.66E-03	6.09E-04	7.95E-08	9.26E-06	4.13E-06	3.28E-03

39	10000	2.51E-03	1.84E-04	1.62E-08	2.34E-07	4.61E-06	2.70E-03
100	10000	8.71E-04	2.99E-05	3.53E-09	8.40E-08	1.65E-06	9.02E-04
69	10000	8.10E-04	4.75E-05	5.63E-09	4.61E-08	9.22E-07	8.58E-04
13	10000	5.52E-04	1.78E-05	1.28E-08	2.60E-08	5.10E-07	5.70E-04
34	10000	4.03E-04	3.60E-05	5.05E-09	4.09E-08	9.12E-07	4.40E-04
1	10000	3.15E-04	3.50E-05	7.71E-10	5.50E-08	1.07E-06	3.51E-04
24	10000	2.87E-04	1.59E-05	1.32E-08	2.51E-08	4.43E-07	3.03E-04
45	10000	2.04E-04	4.18E-05	9.71E-11	1.24E-07	2.42E-06	2.49E-04
46	10000	2.19E-04	8.38E-06	4.57E-10	1.06E-08	2.06E-07	2.28E-04
52	10000	2.11E-04	7.14E-06	2.40E-08	1.47E-08	2.57E-07	2.18E-04
90	10000	2.08E-04	1.43E-06	8.54E-10	4.51E-09	8.83E-08	2.10E-04
16	10000	1.62E-04	1.13E-05	1.58E-10	2.03E-08	3.99E-07	1.74E-04
35	10000	3.87E-05	1.12E-06	6.21E-10	1.31E-09	2.57E-08	3.99E-05
27	10000	6.05E-10	5.35E-06	1.43E-19	4.02E-09	8.26E-09	5.37E-06
98	10000	1.40E-06	8.55E-07	8.88E-17	1.66E-09	3.26E-08	2.29E-06
9	10000	8.64E-10	1.09E-06	6.45E-21	1.07E-07	6.91E-08	1.27E-06
67	10000	5.27E-11	2.41E-07	1.56E-22	2.22E-10	2.08E-09	2.43E-07
84	10000	1.28E-11	3.48E-08	5.01E-24	1.24E-09	1.23E-09	3.73E-08
14	10000	6.12E-13	5.90E-09	8.39E-26	4.91E-12	9.40E-11	5.99E-09
23	10000	3.59E-14	3.11E-09	1.98E-24	4.26E-13	5.87E-12	3.12E-09
70	10000	5.17E-13	3.05E-11	1.21E-23	4.05E-14	7.83E-13	3.19E-11
68	10000	5.14E-17	1.12E-12	0.00E+00	4.92E-14	6.11E-14	1.23E-12
41	10000	1.20E-16	1.62E-13	8.81E-29	3.97E-16	7.50E-15	1.70E-13
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.5. s3 at 3000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
83	10000	3.03E-02	6.15E-01	2.03E-08	4.20E-03	5.69E-04	6.50E-01
54	10000	1.18E-02	5.42E-01	2.94E-08	1.87E-03	1.17E-03	5.57E-01
28	10000	1.72E-02	4.78E-01	2.29E-08	2.48E-04	2.46E-03	4.98E-01
57	10000	1.29E-02	3.38E-01	1.36E-06	1.13E-03	8.44E-04	3.53E-01
72	10000	2.43E-06	3.46E-01	2.28E-10	1.93E-03	9.91E-04	3.49E-01
55	10000	7.29E-02	2.08E-01	2.14E-07	1.09E-03	6.76E-04	2.82E-01
81	10000	2.69E-04	2.37E-01	1.29E-10	5.47E-04	4.94E-04	2.39E-01
5	10000	6.69E-03	2.25E-01	4.12E-08	1.40E-03	7.79E-04	2.34E-01
74	10000	4.77E-08	2.31E-01	1.14E-12	1.17E-03	4.41E-04	2.32E-01
66	10000	1.10E-06	1.84E-01	9.36E-11	6.06E-04	3.05E-04	1.85E-01
80	10000	1.07E-03	1.60E-01	2.51E-08	1.11E-03	3.70E-04	1.63E-01
53	10000	1.24E-02	7.03E-02	2.21E-08	1.48E-03	7.49E-04	8.49E-02
29	10000	1.09E-02	5.05E-02	1.51E-07	1.06E-03	3.97E-04	6.28E-02
88	10000	2.13E-03	5.59E-02	1.21E-08	9.82E-05	1.43E-03	5.96E-02
64	10000	7.24E-03	3.93E-02	5.55E-08	5.18E-05	8.59E-04	4.74E-02
43	10000	1.54E-05	3.90E-02	5.51E-10	2.44E-04	1.29E-04	3.93E-02
97	10000	2.08E-03	1.97E-02	1.66E-08	8.04E-04	9.70E-05	2.27E-02
82	10000	8.59E-04	2.11E-02	4.55E-10	9.86E-05	9.20E-05	2.21E-02

60	10000	3.47E-03	1.26E-02	5.34E-09	2.11E-05	4.15E-04	1.65E-02
50	10000	4.09E-06	1.58E-02	1.32E-10	2.91E-05	5.38E-04	1.64E-02
86	10000	7.34E-04	7.50E-03	2.27E-09	1.09E-05	2.16E-04	8.46E-03
32	10000	1.10E-03	1.35E-03	1.57E-08	3.91E-06	7.67E-05	2.53E-03
75	10000	5.99E-04	1.76E-03	2.40E-09	3.26E-06	6.43E-05	2.43E-03
51	10000	1.56E-03	6.09E-04	5.06E-11	9.25E-06	4.13E-06	2.18E-03
26	10000	2.39E-07	1.89E-03	7.17E-19	3.65E-06	7.20E-05	1.97E-03
39	10000	1.10E-03	1.84E-04	2.80E-11	2.41E-07	4.62E-06	1.29E-03
21	10000	1.31E-06	4.29E-04	5.01E-10	7.39E-06	5.63E-06	4.44E-04
100	10000	3.96E-04	3.06E-05	3.66E-10	8.57E-08	1.64E-06	4.28E-04
69	10000	8.81E-05	4.77E-05	3.27E-11	4.62E-08	9.01E-07	1.37E-04
24	10000	7.40E-05	1.55E-05	2.54E-11	2.53E-08	4.27E-07	8.99E-05
13	10000	3.38E-05	1.78E-05	1.30E-09	2.60E-08	5.10E-07	5.21E-05
34	10000	2.42E-06	3.60E-05	2.19E-10	4.11E-08	8.17E-07	3.93E-05
1	10000	3.04E-06	3.49E-05	2.68E-12	5.49E-08	1.08E-06	3.91E-05
45	10000	4.68E-06	3.13E-05	1.23E-13	9.03E-08	1.76E-06	3.78E-05
52	10000	1.98E-05	8.16E-06	1.66E-08	1.68E-08	2.87E-07	2.82E-05
90	10000	2.20E-05	1.43E-06	1.56E-11	4.51E-09	8.84E-08	2.35E-05
46	10000	6.51E-06	8.41E-06	3.74E-12	1.13E-08	2.07E-07	1.51E-05
16	10000	6.42E-08	1.13E-05	9.06E-13	2.03E-08	3.98E-07	1.18E-05
35	10000	3.15E-06	1.13E-06	1.17E-11	1.31E-09	2.57E-08	4.31E-06
27	10000	6.19E-11	2.35E-06	2.22E-23	1.72E-09	3.42E-09	2.35E-06
98	10000	6.16E-11	7.93E-07	1.15E-18	1.54E-09	3.01E-08	8.25E-07
9	10000	1.89E-12	4.56E-07	1.33E-23	4.40E-08	2.67E-08	5.27E-07
67	10000	3.30E-12	6.62E-08	1.15E-25	6.00E-11	5.58E-10	6.68E-08
84	10000	2.61E-14	1.05E-08	2.67E-27	3.65E-10	3.33E-10	1.12E-08
23	10000	3.25E-15	5.20E-10	2.34E-27	6.67E-14	9.48E-13	5.21E-10
14	10000	8.38E-15	1.81E-10	5.45E-25	1.62E-12	3.77E-12	1.86E-10
70	10000	5.27E-17	2.13E-11	5.43E-26	6.10E-13	8.56E-13	2.27E-11
68	10000	3.55E-22	5.18E-14	0.00E+00	2.17E-15	2.36E-15	5.63E-14
41	10000	3.16E-19	2.33E-14	4.89E-30	5.51E-17	1.07E-15	2.44E-14
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.6. s3 at 5000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
83	10000	6.60E-03	5.10E-01	1.53E-10	3.48E-03	5.64E-04	5.21E-01
28	10000	1.26E-03	4.38E-01	3.69E-12	2.09E-04	2.25E-03	4.42E-01
54	10000	2.86E-03	3.80E-01	1.46E-10	1.38E-03	8.95E-04	3.85E-01
57	10000	1.88E-03	2.86E-01	1.31E-06	1.10E-03	7.17E-04	2.90E-01
72	10000	3.59E-07	2.32E-01	2.88E-12	1.54E-03	8.02E-04	2.34E-01
55	10000	8.20E-03	2.02E-01	8.86E-10	1.08E-03	6.75E-04	2.12E-01
74	10000	1.17E-08	2.07E-01	1.44E-14	8.45E-04	3.25E-04	2.08E-01
5	10000	6.46E-04	1.73E-01	3.29E-11	1.09E-03	5.87E-04	1.75E-01
81	10000	2.19E-05	1.45E-01	5.11E-13	4.12E-04	2.96E-04	1.46E-01
66	10000	1.50E-07	1.32E-01	7.81E-13	3.80E-04	2.74E-04	1.32E-01

80	10000	1.09E-04	1.22E-01	2.36E-10	7.72E-04	2.97E-04	1.23E-01
53	10000	1.40E-03	5.70E-02	1.19E-08	1.31E-03	7.20E-04	6.04E-02
88	10000	2.20E-04	4.60E-02	1.53E-10	8.07E-05	1.09E-03	4.74E-02
29	10000	1.68E-03	4.29E-02	1.91E-09	8.51E-04	4.16E-04	4.59E-02
64	10000	7.93E-04	3.12E-02	5.79E-11	4.12E-05	6.67E-04	3.27E-02
43	10000	1.97E-06	2.35E-02	3.26E-12	1.84E-04	1.19E-04	2.38E-02
82	10000	1.18E-05	2.11E-02	9.08E-13	9.86E-05	9.20E-05	2.13E-02
97	10000	2.90E-04	1.97E-02	1.52E-10	8.04E-04	1.15E-04	2.09E-02
50	10000	1.41E-06	1.14E-02	6.57E-13	2.10E-05	3.94E-04	1.18E-02
60	10000	4.76E-04	9.78E-03	4.58E-11	1.64E-05	3.22E-04	1.06E-02
86	10000	8.65E-05	4.84E-03	1.37E-11	7.05E-06	1.39E-04	5.07E-03
75	10000	1.16E-04	1.41E-03	2.99E-11	2.61E-06	5.14E-05	1.58E-03
32	10000	1.36E-04	1.33E-03	9.23E-11	3.85E-06	7.58E-05	1.54E-03
51	10000	7.55E-05	6.09E-04	5.90E-15	9.25E-06	4.13E-06	6.98E-04
21	10000	1.77E-07	4.29E-04	3.83E-12	7.39E-06	5.64E-06	4.43E-04
39	10000	1.38E-04	1.84E-04	1.42E-13	2.41E-07	4.62E-06	3.27E-04
100	10000	8.82E-05	2.96E-05	9.80E-13	8.28E-08	1.58E-06	1.20E-04
69	10000	2.07E-05	4.74E-05	2.77E-13	4.59E-08	8.95E-07	6.91E-05
34	10000	4.82E-08	3.60E-05	1.54E-12	4.11E-08	8.18E-07	3.69E-05
1	10000	4.24E-07	3.45E-05	2.82E-14	5.43E-08	1.07E-06	3.61E-05
45	10000	5.84E-07	2.16E-05	6.39E-16	6.06E-08	1.18E-06	2.34E-05
24	10000	7.79E-06	1.49E-05	4.04E-14	2.49E-08	4.20E-07	2.31E-05
13	10000	3.93E-06	1.78E-05	5.76E-12	2.60E-08	5.12E-07	2.22E-05
52	10000	3.58E-06	8.14E-06	1.65E-08	1.68E-08	2.88E-07	1.20E-05
16	10000	1.71E-08	1.11E-05	4.51E-15	2.03E-08	3.91E-07	1.15E-05
46	10000	8.17E-07	8.40E-06	2.12E-14	1.13E-08	2.09E-07	9.44E-06
90	10000	2.38E-06	1.43E-06	6.18E-14	4.51E-09	8.85E-08	3.91E-06
35	10000	5.03E-07	1.13E-06	9.45E-14	1.31E-09	2.57E-08	1.66E-06
98	10000	8.90E-12	6.50E-07	1.46E-20	1.25E-09	2.45E-08	6.76E-07
27	10000	2.23E-12	2.56E-07	8.80E-26	1.82E-10	3.46E-10	2.56E-07
9	10000	6.79E-14	6.13E-08	6.15E-26	5.82E-09	3.37E-09	7.05E-08
84	10000	1.63E-17	7.41E-10	2.25E-29	2.50E-11	2.10E-11	7.87E-10
67	10000	2.04E-14	7.33E-10	2.42E-28	6.38E-13	5.91E-12	7.39E-10
23	10000	8.25E-17	1.56E-11	1.11E-29	1.95E-15	2.74E-14	1.57E-11
70	10000	1.81E-17	1.13E-11	2.88E-28	3.17E-13	4.24E-13	1.20E-11
14	10000	2.50E-18	1.04E-13	3.83E-27	7.53E-14	3.65E-14	2.15E-13
68	10000	4.94E-24	8.52E-16	0.00E+00	3.39E-17	3.17E-17	9.17E-16
41	10000	9.03E-22	4.06E-17	2.05E-33	8.58E-20	1.64E-18	4.23E-17
26	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.7. s3 at 7000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	1.34E-04	2.90E-01	8.41E-15	1.67E-04	1.51E-03	2.91E-01
54	10000	3.49E-04	2.79E-01	7.73E-13	1.04E-03	7.06E-04	2.82E-01

83	10000	7.73E-04	2.73E-01	8.35E-13	1.86E-03	3.47E-04	2.76E-01
57	10000	2.57E-04	2.34E-01	1.31E-06	9.14E-04	6.99E-04	2.36E-01
55	10000	9.96E-04	1.97E-01	2.66E-12	1.05E-03	7.39E-04	1.99E-01
72	10000	4.82E-08	1.86E-01	2.20E-14	1.08E-03	5.68E-04	1.88E-01
74	10000	1.38E-09	1.49E-01	1.83E-16	5.00E-04	2.02E-04	1.50E-01
5	10000	8.18E-05	1.18E-01	3.57E-13	7.77E-04	4.77E-04	1.20E-01
80	10000	1.39E-05	8.87E-02	1.39E-12	5.00E-04	2.19E-04	8.94E-02
66	10000	1.53E-08	8.28E-02	3.35E-15	2.53E-04	2.30E-04	8.33E-02
81	10000	2.42E-06	7.03E-02	2.79E-15	2.61E-04	3.40E-04	7.10E-02
53	10000	1.80E-04	3.85E-02	1.18E-08	7.99E-04	5.36E-04	4.00E-02
88	10000	1.86E-05	3.48E-02	1.54E-09	6.10E-05	8.67E-04	3.57E-02
29	10000	2.18E-04	3.36E-02	1.45E-11	7.13E-04	4.28E-04	3.50E-02
64	10000	6.74E-05	2.56E-02	6.94E-14	3.37E-05	5.80E-04	2.62E-02
82	10000	1.44E-06	2.11E-02	4.00E-15	9.86E-05	1.07E-04	2.13E-02
97	10000	2.74E-05	1.88E-02	6.20E-13	7.62E-04	1.09E-04	1.97E-02
43	10000	2.40E-07	1.03E-02	1.64E-14	7.13E-05	4.67E-05	1.04E-02
60	10000	6.25E-05	8.16E-03	5.06E-13	1.37E-05	2.69E-04	8.50E-03
50	10000	2.85E-07	7.03E-03	3.72E-15	1.30E-05	2.52E-04	7.29E-03
86	10000	1.01E-05	2.00E-03	1.10E-13	2.91E-06	5.74E-05	2.07E-03
32	10000	1.65E-05	1.11E-03	4.64E-13	3.23E-06	6.35E-05	1.20E-03
75	10000	1.36E-05	1.00E-03	2.80E-13	1.86E-06	3.67E-05	1.06E-03
51	10000	4.61E-06	6.09E-04	3.79E-19	9.25E-06	4.13E-06	6.27E-04
21	10000	2.22E-08	4.29E-04	2.09E-14	7.39E-06	5.64E-06	4.42E-04
39	10000	1.70E-05	1.84E-04	7.36E-16	2.41E-07	4.62E-06	2.06E-04
69	10000	3.17E-06	4.62E-05	3.53E-15	4.47E-08	8.71E-07	5.03E-05
100	10000	9.56E-06	2.67E-05	3.32E-15	7.40E-08	1.41E-06	3.77E-05
34	10000	7.13E-09	3.60E-05	1.95E-14	4.11E-08	8.05E-07	3.69E-05
1	10000	6.10E-08	3.13E-05	3.55E-16	4.91E-08	9.65E-07	3.24E-05
13	10000	4.38E-07	1.78E-05	1.92E-14	2.60E-08	5.12E-07	1.88E-05
24	10000	7.98E-07	1.43E-05	6.63E-17	2.43E-08	4.12E-07	1.55E-05
45	10000	7.10E-08	1.31E-05	3.19E-18	3.57E-08	7.00E-07	1.39E-05
16	10000	2.16E-09	1.04E-05	2.55E-17	1.89E-08	3.65E-07	1.08E-05
52	10000	1.62E-06	7.94E-06	1.65E-08	1.63E-08	2.81E-07	9.87E-06
46	10000	1.13E-07	8.34E-06	1.76E-16	1.12E-08	2.08E-07	8.68E-06
90	10000	1.94E-07	1.43E-06	2.60E-16	4.51E-09	8.85E-08	1.72E-06
35	10000	7.43E-08	1.13E-06	1.20E-15	1.31E-09	2.57E-08	1.23E-06
98	10000	1.06E-12	3.44E-07	1.82E-22	6.50E-10	1.28E-08	3.57E-07
27	10000	1.04E-15	3.08E-10	1.45E-29	2.15E-13	3.91E-13	3.09E-10
9	10000	5.40E-18	1.97E-11	1.19E-30	1.85E-12	1.09E-12	2.26E-11
70	10000	1.25E-18	2.67E-12	1.82E-30	7.33E-14	9.25E-14	2.84E-12
84	10000	6.34E-21	2.54E-13	0.00E+00	8.09E-15	5.18E-15	2.67E-13
67	10000	7.19E-19	4.16E-14	0.00E+00	3.47E-17	3.20E-16	4.19E-14
14	10000	1.33E-21	1.50E-15	4.85E-29	3.25E-15	8.24E-16	5.58E-15
23	10000	3.00E-20	2.74E-15	0.00E+00	3.46E-19	4.45E-18	2.74E-15
41	10000	4.69E-24	1.05E-17	0.00E+00	2.04E-20	3.75E-19	1.09E-17
68	10000	7.78E-27	1.93E-18	0.00E+00	7.40E-20	5.94E-20	2.06E-18
26	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.8. s3 at 9000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	6.01E-06	2.29E-01	5.98E-17	9.71E-05	1.26E-03	2.30E-01
54	10000	2.54E-05	1.61E-01	2.02E-07	5.53E-04	6.31E-04	1.62E-01
55	10000	1.13E-04	1.53E-01	1.56E-14	8.21E-04	5.76E-04	1.55E-01
57	10000	1.84E-05	1.45E-01	1.31E-06	5.80E-04	4.84E-04	1.46E-01
72	10000	4.85E-09	1.40E-01	1.19E-16	6.07E-04	4.19E-04	1.41E-01
74	10000	3.09E-11	8.46E-02	8.83E-19	2.25E-04	1.04E-04	8.50E-02
5	10000	3.61E-06	5.96E-02	4.20E-15	2.24E-04	2.51E-04	6.01E-02
83	10000	5.70E-05	5.74E-02	4.11E-15	3.91E-04	1.37E-04	5.79E-02
80	10000	1.57E-06	5.20E-02	6.92E-15	2.33E-04	1.30E-04	5.24E-02
66	10000	1.10E-09	5.15E-02	1.72E-17	2.56E-04	2.01E-04	5.19E-02
81	10000	1.04E-07	2.80E-02	1.86E-17	1.25E-04	1.89E-04	2.83E-02
88	10000	1.85E-06	2.13E-02	1.51E-09	3.73E-05	5.28E-04	2.18E-02
29	10000	1.93E-05	1.42E-02	7.75E-14	3.10E-04	2.12E-04	1.47E-02
64	10000	6.69E-06	1.44E-02	4.60E-16	1.89E-05	3.14E-04	1.47E-02
82	10000	1.31E-07	1.19E-02	2.93E-17	5.55E-05	5.99E-05	1.20E-02
53	10000	1.63E-05	1.08E-02	1.18E-08	1.41E-04	1.51E-04	1.11E-02
97	10000	1.56E-06	9.74E-03	3.04E-15	3.70E-04	5.75E-05	1.02E-02
43	10000	2.92E-08	7.03E-03	8.32E-17	4.60E-05	3.00E-05	7.11E-03
50	10000	1.52E-07	3.66E-03	3.08E-17	6.76E-06	1.33E-04	3.80E-03
60	10000	1.58E-06	3.32E-03	2.31E-15	5.57E-06	1.10E-04	3.44E-03
75	10000	1.24E-06	4.07E-04	1.63E-15	7.54E-07	1.49E-05	4.24E-04
32	10000	1.55E-06	3.87E-04	2.26E-15	1.12E-06	2.19E-05	4.11E-04
21	10000	2.66E-09	3.49E-04	1.03E-16	6.09E-06	4.64E-06	3.60E-04
39	10000	1.13E-06	1.41E-04	3.52E-18	1.84E-07	3.51E-06	1.45E-04
51	10000	5.97E-08	6.56E-05	8.37E-23	9.93E-07	4.38E-07	6.70E-05
86	10000	3.78E-07	6.32E-05	2.64E-16	9.25E-08	1.80E-06	6.55E-05
69	10000	4.40E-07	3.96E-05	3.31E-17	3.82E-08	7.44E-07	4.08E-05
34	10000	1.02E-09	3.33E-05	2.47E-16	3.80E-08	7.44E-07	3.41E-05
100	10000	1.13E-06	1.92E-05	2.99E-17	5.28E-08	1.00E-06	2.14E-05
13	10000	5.70E-08	1.78E-05	1.34E-16	2.60E-08	5.12E-07	1.84E-05
24	10000	9.94E-08	1.32E-05	3.75E-19	2.25E-08	3.86E-07	1.37E-05
52	10000	1.57E-06	7.42E-06	1.65E-08	1.52E-08	2.61E-07	9.28E-06
16	10000	2.75E-10	7.95E-06	2.11E-19	1.43E-08	2.77E-07	8.25E-06
46	10000	1.51E-08	6.89E-06	2.18E-18	9.24E-09	1.71E-07	7.08E-06
45	10000	6.48E-09	5.19E-06	1.73E-20	1.38E-08	2.71E-07	5.48E-06
1	10000	4.20E-09	2.95E-06	1.31E-18	4.44E-09	8.75E-08	3.04E-06
90	10000	2.32E-08	1.34E-06	1.51E-18	4.22E-09	8.29E-08	1.45E-06
35	10000	1.02E-08	1.08E-06	1.11E-17	1.25E-09	2.46E-08	1.11E-06
98	10000	5.98E-16	1.33E-09	8.44E-27	2.51E-12	4.94E-11	1.38E-09
14	10000	1.87E-22	3.62E-16	6.12E-31	8.14E-16	1.72E-17	1.19E-15
41	10000	2.97E-25	2.77E-18	0.00E+00	5.32E-21	1.00E-19	2.88E-18

9	10000	2.50E-29	2.77E-20	0.00E+00	9.26E-24	1.98E-22	2.79E-20
27	10000	7.99E-26	7.20E-21	0.00E+00	4.65E-24	7.34E-24	7.21E-21
23	10000	4.30E-26	5.31E-22	0.00E+00	1.47E-21	2.45E-22	2.24E-21
67	10000	4.08E-31	3.39E-25	0.00E+00	1.81E-25	2.93E-25	8.14E-25
68	10000	0.00E+00	4.31E-29	0.00E+00	0.00E+00	6.87E-29	1.12E-28
26	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
70	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
84	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.9. s4 at 100 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	1.90E-01	1.34E-02	4.66E-05	9.52E-07	1.95E-05	2.03E-01
83	10000	6.12E-02	1.29E-02	2.61E-10	6.32E-04	9.59E-05	7.48E-02
5	10000	2.91E-04	5.00E-02	9.88E-14	1.36E-04	3.33E-05	5.04E-02
54	10000	8.00E-03	1.15E-02	6.11E-12	1.03E-04	3.75E-05	1.96E-02
72	10000	8.38E-04	7.22E-03	5.52E-15	5.58E-04	1.57E-04	8.78E-03
57	10000	3.37E-03	2.26E-03	1.95E-12	5.64E-05	2.99E-05	5.72E-03
74	10000	1.81E-03	3.59E-03	7.97E-12	1.23E-04	2.15E-05	5.55E-03
53	10000	9.33E-04	2.00E-03	1.68E-12	3.16E-05	9.79E-06	2.97E-03
86	10000	4.55E-05	2.21E-03	7.79E-12	7.02E-07	9.42E-06	2.27E-03
80	10000	2.28E-06	1.25E-03	1.55E-18	4.06E-05	9.04E-06	1.30E-03
81	10000	3.09E-07	1.16E-03	1.87E-18	7.41E-05	2.37E-05	1.26E-03
29	10000	1.90E-06	6.62E-04	2.67E-18	1.47E-05	1.03E-06	6.80E-04
26	10000	3.21E-12	2.18E-07	3.59E-25	5.17E-11	3.77E-10	2.18E-07
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.10. s4 at 350 years.

4	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	1.79E-01	1.34E-02	1.84E-06	9.50E-07	1.95E-05	1.92E-01
83	10000	4.96E-02	1.29E-02	2.57E-10	6.32E-04	9.59E-05	6.33E-02
5	10000	2.33E-04	4.64E-02	9.88E-14	1.27E-04	3.10E-05	4.68E-02
54	10000	5.07E-03	1.10E-02	5.50E-12	9.91E-05	3.59E-05	1.62E-02
72	10000	3.76E-04	6.85E-03	5.52E-15	5.29E-04	1.48E-04	7.90E-03
74	10000	1.54E-03	3.45E-03	7.93E-12	1.18E-04	2.06E-05	5.13E-03
57	10000	2.01E-03	2.17E-03	1.95E-12	5.39E-05	2.86E-05	4.26E-03
53	10000	8.12E-04	1.78E-03	1.32E-13	2.81E-05	8.71E-06	2.62E-03
86	10000	4.53E-05	2.08E-03	7.79E-12	6.59E-07	8.85E-06	2.13E-03
80	10000	2.03E-06	1.07E-03	1.52E-18	3.48E-05	7.76E-06	1.12E-03
81	10000	5.65E-07	9.84E-04	1.41E-19	6.25E-05	2.00E-05	1.07E-03
29	10000	5.03E-07	2.02E-04	1.37E-18	4.49E-06	3.13E-07	2.08E-04

26	10000	7.71E-13	2.84E-08	1.58E-25	7.07E-12	4.94E-11	2.85E-08
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.11. s5 at 1000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	4.91E-02	1.13E-02	2.02E-08	8.06E-07	1.70E-05	6.05E-02
5	10000	1.20E-04	4.28E-02	3.70E-14	1.17E-04	2.86E-05	4.31E-02
83	10000	6.61E-03	1.21E-02	9.76E-13	5.92E-04	8.98E-05	1.94E-02
54	10000	3.46E-03	9.57E-03	5.83E-13	8.65E-05	3.13E-05	1.31E-02
72	10000	1.21E-04	6.08E-03	3.70E-17	4.71E-04	1.32E-04	6.81E-03
74	10000	3.17E-04	2.79E-03	9.40E-16	9.53E-05	1.66E-05	3.22E-03
57	10000	2.06E-04	1.94E-03	1.50E-13	4.82E-05	2.60E-05	2.22E-03
86	10000	2.28E-05	1.35E-03	9.33E-14	4.27E-07	5.75E-06	1.38E-03
53	10000	7.34E-05	9.97E-04	7.67E-16	1.58E-05	4.98E-06	1.09E-03
81	10000	1.82E-07	6.99E-04	1.27E-20	4.41E-05	1.42E-05	7.57E-04
80	10000	5.29E-08	4.98E-04	4.54E-20	1.58E-05	3.63E-06	5.17E-04
29	10000	1.69E-08	1.05E-05	2.90E-20	2.33E-07	1.68E-08	1.08E-05
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.12. s5 at 3000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
5	10000	4.90E-06	1.43E-02	1.17E-16	3.90E-05	9.56E-06	1.43E-02
28	10000	1.22E-03	1.13E-02	1.06E-10	8.06E-07	1.70E-05	1.26E-02
83	10000	9.23E-04	1.07E-02	1.23E-14	5.20E-04	7.87E-05	1.22E-02
54	10000	7.83E-05	5.80E-03	2.95E-15	5.24E-05	1.90E-05	5.95E-03
72	10000	2.24E-09	3.14E-03	3.93E-19	2.43E-04	6.87E-05	3.45E-03
74	10000	2.44E-09	1.75E-03	7.36E-18	5.93E-05	1.05E-05	1.82E-03
57	10000	2.00E-05	1.13E-03	9.82E-16	2.82E-05	1.54E-05	1.20E-03
86	10000	1.45E-06	4.31E-04	2.29E-16	1.36E-07	1.84E-06	4.34E-04
53	10000	1.69E-06	2.91E-04	6.03E-18	4.61E-06	1.45E-06	2.98E-04
29	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.13. s5 at 5000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB

28	10000	7.66E-05	1.13E-02	1.52E-14	8.06E-07	1.66E-05	1.14E-02
83	10000	3.52E-05	5.48E-03	5.09E-17	2.67E-04	4.04E-05	5.82E-03
54	10000	7.35E-06	3.35E-03	1.46E-17	3.02E-05	1.09E-05	3.40E-03
74	10000	2.51E-10	7.64E-04	8.90E-20	2.52E-05	4.59E-06	7.94E-04
72	10000	1.29E-10	5.65E-04	3.35E-21	4.30E-05	1.24E-05	6.20E-04
57	10000	1.08E-06	3.25E-04	4.12E-18	7.96E-06	4.30E-06	3.39E-04
86	10000	3.89E-25	3.77E-24	0.00E+00	1.23E-27	1.66E-26	4.18E-24
5	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
53	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.14. s5 at 7000 years.

vector	time	EPA1BHRC	EPA2BHRC	EPA3BHRC	EPA4BHRC	EPA5BHRC	EPATBHRC
		^{241}Am	^{239}Pu	^{238}Pu	^{234}U	^{230}Th	Total - All MB
28	10000	6.29E-06	1.13E-02	3.27E-17	8.06E-07	1.66E-05	1.14E-02
5	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
53	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
54	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
72	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
74	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
83	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
86	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.15. s5 at 9000 years.

vector	time	EPA1BHRC	EPA2BHRC	EPA3BHRC	EPA4BHRC	EPA5BHRC	EPATBHRC
		^{241}Am	^{239}Pu	^{238}Pu	^{234}U	^{230}Th	Total - All MB
5	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
28	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
53	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
54	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

72	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
74	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
83	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
86	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.16. s6 at 100 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	2.75E+01	1.29E+00	1.05E-01	5.64E-04	1.77E-02	2.89E+01
54	10000	1.37E+01	2.99E+00	2.02E-01	1.11E-02	1.55E-02	1.69E+01
80	10000	1.46E+01	2.83E-01	1.74E-02	7.89E-03	5.83E-03	1.49E+01
72	10000	1.14E+01	1.22E+00	7.62E-02	1.33E-02	1.33E-02	1.27E+01
51	10000	8.27E+00	5.54E-01	1.68E-02	8.97E-03	6.72E-03	8.86E+00
49	10000	6.40E+00	2.71E-02	8.08E-04	6.16E-05	2.55E-03	6.43E+00
57	10000	3.32E+00	2.27E+00	1.70E-01	9.51E-03	1.30E-02	5.78E+00
55	10000	3.83E+00	6.79E-01	4.24E-02	3.92E-03	4.59E-03	4.56E+00
5	10000	4.14E+00	3.71E-01	2.00E-02	5.60E-03	7.57E-03	4.55E+00
81	10000	2.56E+00	1.81E+00	1.09E-01	1.42E-03	4.78E-03	4.49E+00
74	10000	3.42E+00	5.61E-01	3.62E-02	1.04E-02	7.11E-03	4.04E+00
53	10000	3.86E+00	1.10E-01	5.84E-03	3.74E-03	4.38E-03	3.98E+00
88	10000	3.50E+00	1.19E-01	9.56E-03	2.25E-04	7.51E-03	3.63E+00
83	10000	1.65E+00	1.85E+00	1.12E-01	1.36E-02	4.05E-03	3.62E+00
66	10000	2.74E+00	2.95E-01	1.62E-02	2.14E-03	3.05E-03	3.05E+00
29	10000	1.49E+00	8.09E-02	5.84E-03	4.52E-03	3.67E-03	1.58E+00
64	10000	1.39E+00	7.38E-02	5.88E-03	1.05E-04	4.08E-03	1.48E+00
30	10000	1.19E+00	1.54E-01	1.99E-03	4.97E-03	3.70E-03	1.36E+00
60	10000	1.26E+00	2.71E-02	1.11E-03	4.93E-05	2.45E-03	1.29E+00
50	10000	1.02E+00	2.66E-02	1.33E-03	5.33E-05	2.61E-03	1.06E+00
87	10000	9.13E-01	4.27E-03	7.85E-04	1.23E-06	1.04E-05	9.18E-01
82	10000	6.61E-01	7.31E-02	1.06E-02	3.64E-04	5.86E-04	7.45E-01
17	10000	6.56E-01	2.90E-02	7.19E-04	2.15E-03	3.41E-03	6.91E-01
97	10000	4.48E-01	3.94E-02	5.57E-03	2.06E-03	2.28E-04	4.96E-01
63	10000	3.85E-01	8.88E-02	3.08E-04	1.35E-03	5.23E-04	4.76E-01
86	10000	3.85E-01	1.18E-02	4.58E-04	1.86E-05	9.74E-04	3.99E-01
26	10000	2.82E-01	2.36E-02	3.07E-04	4.96E-05	3.34E-03	3.09E-01
43	10000	2.18E-01	8.40E-02	4.43E-03	8.18E-04	1.47E-03	3.09E-01
33	10000	1.98E-01	1.12E-02	1.78E-03	2.06E-06	2.17E-04	2.11E-01
40	10000	1.46E-01	7.38E-04	1.58E-04	2.35E-06	8.44E-05	1.47E-01
32	10000	1.44E-01	1.59E-03	4.63E-04	4.82E-06	8.01E-05	1.46E-01
39	10000	8.10E-02	3.41E-03	5.17E-04	4.57E-06	7.17E-05	8.50E-02
21	10000	4.75E-02	1.29E-03	5.40E-04	2.33E-05	3.26E-06	4.93E-02
22	10000	1.20E-02	2.70E-02	6.90E-04	5.65E-04	4.34E-04	4.07E-02
91	10000	6.06E-03	2.16E-02	1.15E-02	4.30E-05	1.00E-06	3.92E-02
13	10000	2.44E-02	6.04E-04	2.63E-04	9.04E-07	3.24E-06	2.52E-02

75	10000	1.92E-02	9.28E-04	1.19E-04	1.85E-06	9.74E-05	2.03E-02
35	10000	1.41E-02	2.64E-04	1.50E-04	3.08E-07	9.38E-07	1.45E-02
52	10000	1.40E-02	1.32E-04	5.52E-05	2.77E-07	1.04E-06	1.42E-02
46	10000	1.35E-02	3.99E-05	1.33E-05	5.18E-08	2.11E-07	1.36E-02
1	10000	9.32E-03	7.86E-05	2.68E-05	1.21E-07	8.26E-07	9.42E-03
61	10000	7.72E-03	7.33E-04	2.76E-04	1.88E-05	7.54E-07	8.75E-03
90	10000	8.57E-03	1.16E-05	4.74E-06	3.71E-08	1.34E-07	8.58E-03
34	10000	6.42E-03	1.88E-04	6.88E-05	2.19E-07	8.78E-07	6.68E-03
100	10000	6.55E-03	7.86E-05	2.59E-05	2.21E-07	9.84E-07	6.65E-03
16	10000	4.64E-03	7.57E-05	3.25E-05	1.36E-07	4.97E-07	4.75E-03
96	10000	4.41E-03	8.21E-05	4.25E-05	1.64E-07	5.30E-07	4.54E-03
15	10000	4.48E-03	2.90E-05	2.12E-05	7.15E-07	3.59E-08	4.53E-03
45	10000	4.28E-03	1.42E-04	2.50E-06	4.05E-07	2.22E-05	4.44E-03
31	10000	2.91E-03	3.01E-04	1.30E-04	7.33E-08	2.65E-07	3.34E-03
8	10000	3.24E-03	3.49E-05	5.40E-06	8.08E-08	6.02E-07	3.28E-03
2	10000	2.72E-03	2.87E-04	2.10E-04	1.51E-06	1.52E-07	3.22E-03
7	10000	2.94E-03	2.95E-05	1.98E-05	5.93E-08	5.64E-07	2.99E-03
69	10000	2.54E-03	7.35E-05	4.02E-05	7.10E-08	2.20E-07	2.65E-03
24	10000	1.78E-03	2.16E-05	1.58E-05	3.25E-08	8.25E-08	1.81E-03
9	10000	5.08E-04	1.71E-05	7.80E-06	1.61E-06	2.17E-08	5.34E-04
44	10000	4.50E-04	1.50E-05	1.09E-05	8.58E-09	2.18E-08	4.76E-04
48	10000	1.93E-04	4.50E-06	3.29E-06	1.94E-09	4.92E-09	2.01E-04
89	10000	1.38E-04	1.94E-06	1.37E-07	5.68E-09	2.55E-07	1.40E-04
98	10000	1.04E-04	1.40E-06	7.80E-07	2.52E-09	7.90E-09	1.06E-04
18	10000	9.94E-05	3.28E-07	2.39E-07	4.50E-10	1.14E-09	9.99E-05
41	10000	3.24E-05	4.02E-07	1.74E-07	7.72E-10	2.79E-09	3.29E-05
14	10000	1.91E-05	4.58E-07	3.34E-07	2.87E-10	7.30E-10	1.99E-05
92	10000	7.89E-06	8.73E-07	1.33E-06	4.66E-09	2.21E-10	1.01E-05
84	10000	7.14E-06	4.96E-07	3.62E-07	1.45E-08	3.09E-10	8.02E-06
4	10000	2.16E-06	1.07E-07	5.62E-12	2.90E-10	1.86E-08	2.29E-06
70	10000	9.32E-07	2.08E-08	1.52E-08	2.30E-11	5.85E-11	9.69E-07
36	10000	3.99E-07	1.95E-08	2.13E-08	8.97E-12	1.93E-11	4.39E-07
76	10000	2.25E-08	1.44E-09	1.06E-09	1.69E-11	1.31E-12	2.51E-08
68	10000	7.07E-09	3.70E-10	2.86E-10	1.18E-11	3.13E-13	7.74E-09
62	10000	3.53E-09	1.02E-09	1.64E-09	2.62E-12	8.43E-14	6.20E-09
11	10000	5.40E-09	1.54E-11	2.47E-11	3.00E-14	3.74E-14	5.44E-09
58	10000	4.63E-09	1.01E-10	1.62E-10	4.99E-12	1.56E-13	4.90E-09
67	10000	3.37E-09	1.37E-10	2.19E-10	8.91E-14	5.10E-14	3.72E-09
3	10000	3.38E-09	1.37E-11	2.19E-11	1.97E-14	2.45E-14	3.41E-09
85	10000	2.99E-09	2.16E-11	3.47E-11	1.99E-12	7.15E-14	3.05E-09
42	10000	1.71E-09	3.89E-10	6.22E-10	1.19E-12	9.19E-14	2.72E-09
37	10000	1.72E-09	7.74E-12	1.24E-11	1.61E-14	2.00E-14	1.74E-09
25	10000	1.15E-09	6.25E-12	1.00E-11	1.57E-14	1.96E-14	1.17E-09
27	10000	4.14E-10	1.40E-10	2.24E-10	7.52E-14	6.46E-15	7.78E-10
20	10000	3.93E-10	8.58E-12	1.37E-11	2.63E-13	1.41E-14	4.16E-10
78	10000	2.18E-10	1.29E-10	4.69E-27	2.54E-13	1.92E-11	3.67E-10
79	10000	9.82E-11	3.22E-12	5.15E-12	6.93E-15	3.58E-16	1.07E-10

23	10000	2.54E-11	1.30E-11	2.07E-11	1.11E-15	1.03E-15	5.92E-11
95	10000	4.75E-11	3.24E-13	5.19E-13	6.27E-16	7.81E-16	4.84E-11
94	10000	1.59E-11	5.36E-12	8.59E-12	2.71E-14	1.15E-15	2.99E-11
19	10000	1.56E-11	1.21E-13	1.93E-13	2.58E-16	3.22E-16	1.59E-11
38	10000	2.94E-12	2.62E-13	4.20E-13	2.72E-15	2.02E-16	3.63E-12
93	10000	2.97E-12	9.47E-14	1.52E-13	1.18E-15	7.36E-17	3.22E-12
10	10000	1.64E-12	5.31E-14	8.51E-14	3.86E-15	3.73E-17	1.78E-12
56	10000	1.09E-12	5.68E-14	9.10E-14	1.69E-16	4.08E-17	1.23E-12
59	10000	3.29E-14	5.14E-15	8.23E-15	3.01E-17	1.01E-18	4.63E-14
12	10000	3.72E-14	1.35E-15	2.16E-15	1.84E-18	2.29E-18	4.07E-14
6	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
47	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
77	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
99	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.17. s6 at 350 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	2.58E+01	1.28E+00	1.47E-02	5.61E-04	1.86E-02	2.71E+01
54	10000	1.30E+01	2.94E+00	2.84E-02	1.09E-02	1.59E-02	1.60E+01
80	10000	1.35E+01	2.77E-01	2.44E-03	7.77E-03	5.92E-03	1.38E+01
72	10000	1.09E+01	1.20E+00	1.07E-02	1.32E-02	1.37E-02	1.21E+01
51	10000	7.79E+00	5.45E-01	2.36E-03	8.86E-03	6.95E-03	8.36E+00
49	10000	5.67E+00	2.67E-02	1.13E-04	6.09E-05	2.64E-03	5.70E+00
57	10000	3.22E+00	2.23E+00	2.39E-02	9.44E-03	1.36E-02	5.50E+00
55	10000	3.71E+00	6.65E-01	5.94E-03	3.86E-03	4.72E-03	4.39E+00
5	10000	3.96E+00	3.64E-01	2.80E-03	5.51E-03	7.71E-03	4.34E+00
81	10000	2.47E+00	1.77E+00	1.52E-02	1.39E-03	4.84E-03	4.26E+00
74	10000	3.30E+00	5.51E-01	5.07E-03	1.03E-02	7.33E-03	3.87E+00
53	10000	3.55E+00	1.08E-01	8.19E-04	3.70E-03	4.49E-03	3.67E+00
88	10000	3.40E+00	1.17E-01	1.34E-03	2.23E-04	7.84E-03	3.52E+00
83	10000	1.50E+00	1.82E+00	1.57E-02	1.35E-02	4.16E-03	3.35E+00
66	10000	2.62E+00	2.88E-01	2.28E-03	2.10E-03	3.07E-03	2.91E+00
29	10000	1.43E+00	7.94E-02	8.18E-04	4.47E-03	3.77E-03	1.52E+00
64	10000	1.36E+00	7.24E-02	8.24E-04	1.04E-04	4.18E-03	1.43E+00
30	10000	1.10E+00	1.50E-01	2.79E-04	4.87E-03	3.73E-03	1.26E+00
60	10000	1.18E+00	2.65E-02	1.55E-04	4.85E-05	2.47E-03	1.21E+00
50	10000	9.63E-01	2.60E-02	1.86E-04	5.23E-05	2.62E-03	9.92E-01
87	10000	8.83E-01	4.26E-03	1.10E-04	1.25E-06	1.44E-05	8.87E-01
82	10000	6.59E-01	7.17E-02	1.48E-03	3.62E-04	6.07E-04	7.33E-01
17	10000	6.07E-01	2.82E-02	1.01E-04	2.10E-03	3.41E-03	6.41E-01
97	10000	4.40E-01	3.92E-02	7.81E-04	2.08E-03	2.57E-04	4.82E-01
63	10000	3.64E-01	8.86E-02	4.31E-05	1.34E-03	5.65E-04	4.55E-01

86	10000	3.53E-01	1.15E-02	6.43E-05	1.83E-05	9.78E-04	3.66E-01
26	10000	2.71E-01	2.26E-02	4.30E-05	4.75E-05	3.23E-03	2.97E-01
43	10000	2.03E-01	8.17E-02	6.21E-04	7.99E-04	1.46E-03	2.87E-01
33	10000	1.97E-01	1.05E-02	2.49E-04	1.95E-06	2.02E-04	2.08E-01
40	10000	1.46E-01	7.14E-04	2.21E-05	2.32E-06	8.35E-05	1.46E-01
32	10000	1.40E-01	1.59E-03	6.49E-05	4.94E-06	9.50E-05	1.42E-01
39	10000	8.02E-02	3.40E-03	7.25E-05	4.63E-06	8.56E-05	8.38E-02
21	10000	4.74E-02	1.29E-03	7.57E-05	2.42E-05	6.29E-06	4.88E-02
22	10000	1.16E-02	2.50E-02	9.68E-05	5.24E-04	4.05E-04	3.76E-02
91	10000	6.06E-03	2.15E-02	1.62E-03	4.51E-05	2.10E-06	2.93E-02
13	10000	2.44E-02	6.03E-04	3.69E-05	9.40E-07	6.32E-06	2.50E-02
75	10000	1.83E-02	8.99E-04	1.67E-05	1.81E-06	9.65E-05	1.94E-02
35	10000	1.40E-02	2.64E-04	2.10E-05	3.25E-07	2.01E-06	1.43E-02
52	10000	1.40E-02	1.32E-04	7.74E-06	2.87E-07	1.98E-06	1.41E-02
46	10000	1.35E-02	3.99E-05	1.86E-06	5.34E-08	3.86E-07	1.35E-02
1	10000	9.31E-03	7.85E-05	3.75E-06	1.25E-07	1.23E-06	9.39E-03
90	10000	8.56E-03	1.15E-05	6.65E-07	3.85E-08	2.60E-07	8.57E-03
61	10000	7.59E-03	7.32E-04	3.86E-05	1.95E-05	1.16E-06	8.38E-03
100	10000	6.54E-03	7.85E-05	3.63E-06	2.27E-07	1.72E-06	6.62E-03
34	10000	6.41E-03	1.88E-04	9.64E-06	2.27E-07	1.62E-06	6.61E-03
16	10000	4.64E-03	7.56E-05	4.56E-06	1.41E-07	9.60E-07	4.72E-03
15	10000	4.48E-03	2.90E-05	2.97E-06	7.66E-07	8.60E-08	4.51E-03
96	10000	4.41E-03	8.20E-05	5.96E-06	1.72E-07	1.10E-06	4.50E-03
45	10000	4.01E-03	1.38E-04	3.50E-07	3.94E-07	2.20E-05	4.17E-03
8	10000	3.24E-03	3.49E-05	7.57E-07	8.18E-08	8.63E-07	3.27E-03
31	10000	2.91E-03	3.00E-04	1.82E-05	7.61E-08	5.15E-07	3.23E-03
2	10000	2.72E-03	2.87E-04	2.94E-05	1.62E-06	3.65E-07	3.03E-03
7	10000	2.94E-03	2.95E-05	2.77E-06	6.30E-08	7.64E-07	2.97E-03
69	10000	2.53E-03	7.34E-05	5.64E-06	7.47E-08	4.66E-07	2.61E-03
24	10000	1.78E-03	2.16E-05	2.22E-06	3.48E-08	1.98E-07	1.80E-03
9	10000	5.07E-04	1.70E-05	1.09E-06	1.68E-06	4.33E-08	5.27E-04
44	10000	4.49E-04	1.50E-05	1.54E-06	9.18E-09	5.22E-08	4.66E-04
48	10000	1.93E-04	4.50E-06	4.61E-07	2.07E-09	1.18E-08	1.98E-04
89	10000	1.32E-04	1.91E-06	5.94E-08	5.60E-09	2.59E-07	1.34E-04
98	10000	1.04E-04	1.40E-06	1.09E-07	2.65E-09	1.66E-08	1.06E-04
18	10000	9.93E-05	3.28E-07	3.36E-08	4.82E-10	2.74E-09	9.97E-05
41	10000	3.23E-05	4.01E-07	2.44E-08	8.03E-10	5.42E-09	3.28E-05
14	10000	1.91E-05	4.58E-07	4.69E-08	3.08E-10	1.75E-09	1.96E-05
92	10000	7.89E-06	8.74E-07	1.14E-06	4.79E-09	3.22E-10	9.91E-06
84	10000	7.14E-06	4.96E-07	5.08E-08	1.55E-08	7.41E-10	7.70E-06
4	10000	2.00E-06	1.03E-07	5.62E-12	2.80E-10	1.83E-08	2.12E-06
70	10000	9.32E-07	2.08E-08	2.13E-09	2.46E-11	1.40E-10	9.55E-07
36	10000	3.98E-07	1.95E-08	7.02E-09	9.75E-12	4.36E-11	4.25E-07
76	10000	2.25E-08	1.44E-09	1.57E-10	1.80E-11	3.13E-12	2.42E-08
68	10000	7.07E-09	3.70E-10	6.48E-11	1.25E-11	7.39E-13	7.52E-09
62	10000	3.53E-09	1.02E-09	1.64E-09	2.62E-12	8.43E-14	6.20E-09
11	10000	5.40E-09	1.54E-11	2.47E-11	3.00E-14	3.74E-14	5.44E-09

58	10000	4.63E-09	1.01E-10	1.62E-10	4.99E-12	1.56E-13	4.90E-09
67	10000	3.37E-09	1.37E-10	2.19E-10	8.91E-14	5.10E-14	3.72E-09
3	10000	3.38E-09	1.37E-11	2.19E-11	1.97E-14	2.45E-14	3.41E-09
85	10000	2.99E-09	2.16E-11	3.47E-11	1.99E-12	7.15E-14	3.05E-09
42	10000	1.71E-09	3.89E-10	6.22E-10	1.19E-12	9.19E-14	2.72E-09
37	10000	1.72E-09	7.74E-12	1.24E-11	1.61E-14	2.00E-14	1.74E-09
25	10000	1.15E-09	6.25E-12	1.00E-11	1.57E-14	1.96E-14	1.17E-09
27	10000	4.14E-10	1.40E-10	2.24E-10	7.52E-14	6.46E-15	7.78E-10
20	10000	3.93E-10	8.58E-12	1.37E-11	2.63E-13	1.41E-14	4.16E-10
78	10000	1.86E-10	1.22E-10	6.56E-28	2.41E-13	1.84E-11	3.27E-10
79	10000	9.82E-11	3.22E-12	5.15E-12	6.93E-15	3.58E-16	1.07E-10
23	10000	2.54E-11	1.30E-11	2.07E-11	1.11E-15	1.03E-15	5.92E-11
95	10000	4.75E-11	3.24E-13	5.19E-13	6.27E-16	7.81E-16	4.84E-11
94	10000	1.59E-11	5.36E-12	8.59E-12	2.71E-14	1.15E-15	2.99E-11
19	10000	1.56E-11	1.21E-13	1.93E-13	2.58E-16	3.22E-16	1.59E-11
38	10000	2.94E-12	2.62E-13	4.20E-13	2.72E-15	2.02E-16	3.63E-12
93	10000	2.97E-12	9.47E-14	1.52E-13	1.18E-15	7.36E-17	3.22E-12
10	10000	1.64E-12	5.31E-14	8.51E-14	3.86E-15	3.73E-17	1.78E-12
56	10000	1.09E-12	5.68E-14	9.10E-14	1.69E-16	4.08E-17	1.23E-12
59	10000	3.29E-14	5.14E-15	8.23E-15	3.01E-17	1.01E-18	4.63E-14
12	10000	3.72E-14	1.35E-15	2.16E-15	1.84E-18	2.29E-18	4.07E-14
6	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
47	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
77	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
99	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.18. s6 at 1000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
28	10000	1.70E+01	1.23E+00	8.85E-05	5.43E-04	2.08E-02	1.82E+01
54	10000	1.05E+01	2.80E+00	1.71E-04	1.05E-02	1.70E-02	1.33E+01
72	10000	8.95E+00	1.15E+00	6.43E-05	1.26E-02	1.47E-02	1.01E+01
80	10000	9.51E+00	2.62E-01	1.47E-05	7.37E-03	6.10E-03	9.79E+00
51	10000	5.77E+00	5.22E-01	1.42E-05	8.50E-03	7.49E-03	6.30E+00
57	10000	2.96E+00	2.15E+00	1.44E-04	9.09E-03	1.49E-02	5.13E+00
81	10000	2.22E+00	1.67E+00	9.18E-05	1.32E-03	4.97E-03	3.90E+00
49	10000	3.87E+00	2.57E-02	6.82E-07	5.88E-05	2.83E-03	3.89E+00
55	10000	3.22E+00	6.30E-01	3.57E-05	3.67E-03	5.00E-03	3.86E+00
5	10000	3.42E+00	3.45E-01	1.68E-05	5.24E-03	8.00E-03	3.78E+00
74	10000	2.96E+00	5.26E-01	3.05E-05	9.89E-03	7.83E-03	3.50E+00
88	10000	3.11E+00	1.13E-01	8.06E-06	2.15E-04	8.64E-03	3.23E+00
53	10000	2.77E+00	1.03E-01	4.93E-06	3.54E-03	4.73E-03	2.88E+00
83	10000	1.11E+00	1.75E+00	9.43E-05	1.30E-02	4.42E-03	2.88E+00

66	10000	2.32E+00	2.70E-01	1.37E-05	1.97E-03	3.08E-03	2.60E+00
29	10000	1.27E+00	7.57E-02	4.92E-06	4.27E-03	3.99E-03	1.35E+00
64	10000	1.25E+00	6.88E-02	4.96E-06	9.87E-05	4.39E-03	1.33E+00
30	10000	8.64E-01	1.41E-01	1.68E-06	4.58E-03	3.76E-03	1.01E+00
60	10000	9.54E-01	2.50E-02	9.33E-07	4.58E-05	2.51E-03	9.82E-01
50	10000	8.05E-01	2.43E-02	1.12E-06	4.91E-05	2.64E-03	8.32E-01
82	10000	6.49E-01	6.79E-02	8.91E-06	3.44E-04	6.53E-04	7.18E-01
87	10000	6.17E-01	4.23E-03	6.78E-07	1.24E-06	2.42E-05	6.21E-01
17	10000	4.83E-01	2.63E-02	6.07E-07	1.96E-03	3.38E-03	5.15E-01
97	10000	4.08E-01	3.85E-02	4.70E-06	2.05E-03	3.30E-04	4.48E-01
63	10000	3.05E-01	8.80E-02	2.63E-07	1.34E-03	6.69E-04	3.95E-01
86	10000	2.73E-01	1.08E-02	3.87E-07	1.72E-05	9.82E-04	2.85E-01
26	10000	2.54E-01	1.99E-02	2.58E-07	4.18E-05	2.94E-03	2.77E-01
43	10000	1.67E-01	7.56E-02	3.74E-06	7.41E-04	1.43E-03	2.45E-01
33	10000	1.96E-01	8.64E-03	1.50E-06	1.61E-06	1.59E-04	2.05E-01
40	10000	1.44E-01	6.50E-04	1.33E-07	2.12E-06	8.01E-05	1.44E-01
32	10000	1.32E-01	1.58E-03	3.91E-07	4.94E-06	1.32E-04	1.34E-01
39	10000	7.67E-02	3.38E-03	4.36E-07	4.62E-06	1.20E-04	8.02E-02
21	10000	4.73E-02	1.28E-03	4.56E-07	2.42E-05	1.39E-05	4.86E-02
22	10000	1.07E-02	1.97E-02	5.82E-07	4.14E-04	3.26E-04	3.11E-02
91	10000	6.04E-03	2.14E-02	9.72E-06	4.53E-05	4.84E-06	2.75E-02
13	10000	2.43E-02	5.99E-04	2.22E-07	9.42E-07	1.40E-05	2.49E-02
75	10000	1.67E-02	8.25E-04	1.00E-07	1.67E-06	9.33E-05	1.77E-02
35	10000	1.40E-02	2.62E-04	1.26E-07	3.26E-07	4.69E-06	1.43E-02
52	10000	1.39E-02	1.31E-04	4.66E-08	2.88E-07	4.34E-06	1.40E-02
46	10000	1.35E-02	3.96E-05	1.12E-08	5.34E-08	8.22E-07	1.35E-02
1	10000	9.24E-03	7.79E-05	2.26E-08	1.25E-07	2.23E-06	9.32E-03
90	10000	8.53E-03	1.15E-05	4.00E-09	3.85E-08	5.75E-07	8.54E-03
61	10000	7.32E-03	7.27E-04	2.33E-07	1.95E-05	2.17E-06	8.06E-03
100	10000	6.51E-03	7.79E-05	2.18E-08	2.28E-07	3.58E-06	6.60E-03
34	10000	6.39E-03	1.87E-04	5.80E-08	2.27E-07	3.47E-06	6.58E-03
16	10000	4.62E-03	7.50E-05	2.75E-08	1.42E-07	2.12E-06	4.70E-03
15	10000	4.46E-03	2.88E-05	1.79E-08	7.71E-07	2.11E-07	4.49E-03
96	10000	4.39E-03	8.14E-05	3.59E-08	1.72E-07	2.51E-06	4.48E-03
45	10000	3.35E-03	1.27E-04	2.10E-09	3.63E-07	2.14E-05	3.49E-03
8	10000	3.22E-03	3.46E-05	4.59E-09	8.16E-08	1.51E-06	3.25E-03
31	10000	2.90E-03	2.98E-04	1.09E-07	7.63E-08	1.14E-06	3.20E-03
2	10000	2.71E-03	2.85E-04	1.77E-07	1.63E-06	8.98E-07	2.99E-03
7	10000	2.93E-03	2.93E-05	1.67E-08	6.34E-08	1.27E-06	2.96E-03
69	10000	2.53E-03	7.29E-05	3.40E-08	7.50E-08	1.08E-06	2.60E-03
24	10000	1.77E-03	2.15E-05	1.33E-08	3.50E-08	4.86E-07	1.79E-03
9	10000	5.06E-04	1.69E-05	6.61E-09	1.68E-06	9.74E-08	5.24E-04
44	10000	4.48E-04	1.49E-05	9.24E-09	9.24E-09	1.28E-07	4.63E-04
48	10000	1.92E-04	4.47E-06	2.78E-09	2.09E-09	2.90E-08	1.97E-04
89	10000	1.17E-04	1.82E-06	4.13E-09	5.36E-09	2.70E-07	1.19E-04
98	10000	1.04E-04	1.39E-06	6.59E-10	2.66E-09	3.85E-08	1.05E-04
18	10000	9.90E-05	3.25E-07	2.02E-10	4.85E-10	6.74E-09	9.93E-05

41	10000	3.22E-05	3.98E-07	1.47E-10	8.05E-10	1.20E-08	3.26E-05
14	10000	1.90E-05	4.55E-07	3.07E-10	3.10E-10	4.30E-09	1.95E-05
92	10000	7.88E-06	8.74E-07	1.53E-07	5.44E-09	1.37E-09	8.91E-06
84	10000	7.12E-06	4.92E-07	3.05E-10	1.56E-08	1.82E-09	7.63E-06
4	10000	1.60E-06	9.41E-08	5.62E-12	2.56E-10	1.75E-08	1.71E-06
70	10000	9.29E-07	2.07E-08	1.28E-11	2.48E-11	3.44E-10	9.50E-07
36	10000	3.97E-07	1.94E-08	1.64E-10	1.01E-11	1.27E-10	4.17E-07
76	10000	2.25E-08	1.43E-09	1.07E-11	1.82E-11	7.71E-12	2.39E-08
68	10000	7.05E-09	3.68E-10	2.90E-11	1.26E-11	1.81E-12	7.46E-09
62	10000	3.53E-09	1.02E-09	1.64E-09	2.62E-12	8.43E-14	6.20E-09
11	10000	5.40E-09	1.54E-11	2.47E-11	3.00E-14	3.74E-14	5.44E-09
58	10000	4.63E-09	1.01E-10	1.62E-10	4.99E-12	1.56E-13	4.90E-09
67	10000	3.37E-09	1.37E-10	2.19E-10	8.91E-14	5.10E-14	3.72E-09
3	10000	3.38E-09	1.37E-11	2.19E-11	1.97E-14	2.45E-14	3.41E-09
85	10000	2.99E-09	2.16E-11	3.47E-11	1.99E-12	7.15E-14	3.05E-09
42	10000	1.71E-09	3.89E-10	6.22E-10	1.19E-12	9.19E-14	2.72E-09
37	10000	1.72E-09	7.74E-12	1.24E-11	1.61E-14	2.00E-14	1.74E-09
25	10000	1.15E-09	6.25E-12	1.00E-11	1.57E-14	1.96E-14	1.17E-09
27	10000	4.14E-10	1.40E-10	2.24E-10	7.52E-14	6.46E-15	7.78E-10
20	10000	3.93E-10	8.58E-12	1.37E-11	2.63E-13	1.41E-14	4.16E-10
78	10000	1.33E-10	1.06E-10	3.94E-30	2.08E-13	1.64E-11	2.55E-10
79	10000	9.82E-11	3.22E-12	5.15E-12	6.93E-15	3.58E-16	1.07E-10
23	10000	2.54E-11	1.30E-11	2.07E-11	1.11E-15	1.03E-15	5.92E-11
95	10000	4.75E-11	3.24E-13	5.19E-13	6.27E-16	7.81E-16	4.84E-11
94	10000	1.59E-11	5.36E-12	8.59E-12	2.71E-14	1.15E-15	2.99E-11
19	10000	1.56E-11	1.21E-13	1.93E-13	2.58E-16	3.22E-16	1.59E-11
38	10000	2.94E-12	2.62E-13	4.20E-13	2.72E-15	2.02E-16	3.63E-12
93	10000	2.97E-12	9.47E-14	1.52E-13	1.18E-15	7.36E-17	3.22E-12
10	10000	1.64E-12	5.31E-14	8.51E-14	3.86E-15	3.73E-17	1.78E-12
56	10000	1.09E-12	5.68E-14	9.10E-14	1.69E-16	4.08E-17	1.23E-12
59	10000	3.29E-14	5.14E-15	8.23E-15	3.01E-17	1.01E-18	4.63E-14
12	10000	3.72E-14	1.35E-15	2.16E-15	1.84E-18	2.29E-18	4.07E-14
6	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
47	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
77	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
99	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.19. s6 at 2000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
54	10000	4.48E+00	2.60E+00	6.54E-08	9.75E-03	1.82E-02	7.11E+00
28	10000	5.28E+00	1.16E+00	3.41E-08	5.14E-04	2.37E-02	6.47E+00
72	10000	4.06E+00	1.07E+00	2.47E-08	1.18E-02	1.58E-02	5.15E+00

57	10000	2.25E+00	2.01E+00	5.50E-08	8.55E-03	1.65E-02	4.29E+00
80	10000	3.14E+00	2.39E-01	5.63E-09	6.73E-03	6.25E-03	3.39E+00
81	10000	1.51E+00	1.52E+00	3.55E-08	1.20E-03	5.05E-03	3.04E+00
51	10000	2.47E+00	4.87E-01	5.44E-09	7.95E-03	8.13E-03	2.97E+00
55	10000	2.03E+00	5.76E-01	1.37E-08	3.36E-03	5.29E-03	2.61E+00
74	10000	2.11E+00	4.89E-01	1.17E-08	9.21E-03	8.41E-03	2.61E+00
88	10000	2.30E+00	1.06E-01	3.09E-09	2.03E-04	9.64E-03	2.42E+00
5	10000	2.06E+00	3.16E-01	6.45E-09	4.81E-03	8.27E-03	2.39E+00
83	10000	7.09E-01	1.64E+00	3.61E-08	1.22E-02	4.74E-03	2.37E+00
53	10000	1.62E+00	9.57E-02	1.93E-09	3.30E-03	5.01E-03	1.73E+00
66	10000	1.41E+00	2.42E-01	5.25E-09	1.77E-03	3.05E-03	1.66E+00
49	10000	1.30E+00	2.42E-02	2.61E-10	5.55E-05	3.08E-03	1.33E+00
64	10000	1.03E+00	6.32E-02	1.90E-09	9.09E-05	4.61E-03	1.09E+00
29	10000	9.31E-01	7.01E-02	1.89E-09	3.96E-03	4.24E-03	1.01E+00
30	10000	5.04E-01	1.27E-01	6.42E-10	4.14E-03	3.73E-03	6.39E-01
82	10000	5.63E-01	6.21E-02	3.44E-09	3.15E-04	7.02E-04	6.26E-01
50	10000	5.85E-01	2.18E-02	4.29E-10	4.42E-05	2.61E-03	6.09E-01
60	10000	5.72E-01	2.27E-02	3.57E-10	4.17E-05	2.53E-03	5.97E-01
97	10000	3.26E-01	3.75E-02	1.80E-09	2.01E-03	4.32E-04	3.66E-01
17	10000	3.03E-01	2.34E-02	2.32E-10	1.74E-03	3.27E-03	3.32E-01
63	10000	1.96E-01	8.72E-02	3.40E-10	1.33E-03	8.16E-04	2.86E-01
26	10000	2.38E-01	1.57E-02	9.90E-11	3.31E-05	2.43E-03	2.56E-01
43	10000	1.28E-01	6.63E-02	1.43E-09	6.51E-04	1.36E-03	1.97E-01
87	10000	1.87E-01	4.18E-03	3.14E-10	1.24E-06	3.83E-05	1.91E-01
33	10000	1.79E-01	5.78E-03	5.75E-10	1.07E-06	8.60E-05	1.85E-01
86	10000	1.70E-01	9.73E-03	1.48E-10	1.55E-05	9.71E-04	1.80E-01
40	10000	1.29E-01	5.53E-04	5.11E-11	1.81E-06	7.19E-05	1.30E-01
32	10000	1.19E-01	1.56E-03	1.50E-10	4.91E-06	1.85E-04	1.20E-01
39	10000	6.47E-02	3.34E-03	1.67E-10	4.59E-06	1.70E-04	6.82E-02
21	10000	4.63E-02	1.27E-03	1.75E-10	2.41E-05	2.47E-05	4.76E-02
91	10000	5.92E-03	2.12E-02	3.76E-09	4.50E-05	8.76E-06	2.71E-02
13	10000	2.38E-02	5.93E-04	8.51E-11	9.36E-07	2.50E-05	2.44E-02
22	10000	9.38E-03	1.17E-02	2.23E-10	2.46E-04	1.96E-04	2.15E-02
75	10000	1.55E-02	7.12E-04	3.84E-11	1.44E-06	8.63E-05	1.63E-02
35	10000	1.37E-02	2.60E-04	4.83E-11	3.24E-07	8.51E-06	1.40E-02
52	10000	1.36E-02	1.30E-04	1.88E-11	2.86E-07	7.69E-06	1.38E-02
1	10000	7.96E-03	7.71E-05	8.66E-12	1.25E-07	3.67E-06	8.04E-03
61	10000	7.06E-03	7.19E-04	1.44E-10	1.94E-05	3.60E-06	7.80E-03
46	10000	7.15E-03	3.92E-05	4.28E-12	5.31E-08	1.44E-06	7.19E-03
100	10000	6.37E-03	7.71E-05	8.37E-12	2.26E-07	6.22E-06	6.45E-03
34	10000	6.25E-03	1.85E-04	2.22E-11	2.25E-07	6.11E-06	6.44E-03
90	10000	5.93E-03	1.13E-05	1.53E-12	3.83E-08	1.03E-06	5.94E-03
16	10000	4.53E-03	7.42E-05	1.50E-11	1.41E-07	3.77E-06	4.61E-03
15	10000	4.38E-03	2.85E-05	7.39E-12	7.66E-07	3.90E-07	4.41E-03
96	10000	4.31E-03	8.06E-05	1.38E-11	1.71E-07	4.52E-06	4.39E-03
8	10000	3.10E-03	3.42E-05	2.13E-12	8.11E-08	2.44E-06	3.14E-03
31	10000	2.84E-03	2.95E-04	4.19E-11	7.58E-08	2.03E-06	3.14E-03

2	10000	2.66E-03	2.82E-04	7.14E-11	1.62E-06	1.66E-06	2.94E-03
7	10000	2.88E-03	2.90E-05	6.55E-12	6.30E-08	1.98E-06	2.91E-03
69	10000	2.48E-03	7.21E-05	1.31E-11	7.45E-08	1.96E-06	2.55E-03
45	10000	2.40E-03	1.10E-04	8.19E-13	3.15E-07	1.99E-05	2.53E-03
24	10000	1.74E-03	2.13E-05	5.13E-12	3.48E-08	8.97E-07	1.76E-03
9	10000	4.96E-04	1.67E-05	1.59E-11	1.67E-06	1.74E-07	5.14E-04
44	10000	4.40E-04	1.47E-05	3.58E-12	9.18E-09	2.37E-07	4.55E-04
48	10000	1.89E-04	4.42E-06	1.23E-12	2.08E-09	5.36E-08	1.93E-04
98	10000	1.02E-04	1.38E-06	2.82E-13	2.65E-09	6.97E-08	1.03E-04
18	10000	9.72E-05	3.22E-07	2.18E-13	4.82E-10	1.24E-08	9.76E-05
89	10000	9.26E-05	1.68E-06	2.18E-11	4.97E-09	2.82E-07	9.45E-05
41	10000	3.16E-05	3.94E-07	5.63E-14	8.00E-10	2.14E-08	3.20E-05
14	10000	1.87E-05	4.50E-07	3.22E-12	3.08E-10	7.94E-09	1.91E-05
92	10000	7.81E-06	8.65E-07	3.28E-10	5.51E-09	3.75E-09	8.69E-06
84	10000	6.99E-06	4.87E-07	1.17E-13	1.55E-08	3.36E-09	7.50E-06
4	10000	1.10E-06	8.02E-08	8.75E-13	2.18E-10	1.59E-08	1.19E-06
70	10000	9.12E-07	2.04E-08	4.91E-15	2.46E-11	6.36E-10	9.33E-07
36	10000	3.91E-07	1.92E-08	3.05E-11	1.00E-11	2.47E-10	4.11E-07
76	10000	2.21E-08	1.42E-09	3.79E-12	1.81E-11	1.42E-11	2.35E-08
68	10000	6.93E-09	3.64E-10	1.55E-11	1.26E-11	3.34E-12	7.32E-09
11	10000	5.39E-09	1.54E-11	1.20E-13	3.60E-14	3.91E-13	5.40E-09
58	10000	4.63E-09	1.01E-10	1.78E-11	5.89E-12	1.38E-12	4.75E-09
62	10000	3.52E-09	1.02E-09	2.95E-11	3.14E-12	7.34E-13	4.58E-09
67	10000	3.36E-09	1.37E-10	3.54E-11	1.04E-13	3.42E-13	3.53E-09
3	10000	3.38E-09	1.37E-11	1.38E-11	2.12E-14	5.96E-14	3.40E-09
85	10000	2.98E-09	2.17E-11	5.62E-13	2.39E-12	5.52E-13	3.01E-09
42	10000	1.71E-09	3.88E-10	5.30E-12	1.42E-12	8.98E-13	2.10E-09
37	10000	1.72E-09	7.75E-12	3.26E-12	1.85E-14	1.05E-13	1.73E-09
25	10000	1.15E-09	6.24E-12	1.86E-14	1.89E-14	2.20E-13	1.16E-09
27	10000	4.14E-10	1.40E-10	1.22E-10	8.22E-14	1.89E-14	6.76E-10
20	10000	3.93E-10	8.60E-12	6.19E-12	2.92E-13	4.45E-14	4.08E-10
78	10000	8.79E-11	7.96E-11	1.51E-33	1.57E-13	1.30E-11	1.81E-10
79	10000	9.82E-11	3.22E-12	5.15E-12	6.93E-15	3.58E-16	1.07E-10
23	10000	2.54E-11	1.30E-11	1.70E-11	1.15E-15	1.69E-15	5.54E-11
95	10000	4.74E-11	3.24E-13	5.80E-15	7.52E-16	7.38E-15	4.78E-11
94	10000	1.59E-11	5.37E-12	1.31E-12	3.18E-14	7.23E-15	2.26E-11
19	10000	1.56E-11	1.21E-13	1.93E-13	2.58E-16	3.22E-16	1.59E-11
38	10000	2.94E-12	2.62E-13	3.79E-13	2.77E-15	2.49E-16	3.59E-12
93	10000	2.97E-12	9.48E-14	3.13E-14	1.37E-15	4.23E-16	3.09E-12
10	10000	1.64E-12	5.32E-14	4.79E-14	4.21E-15	1.21E-16	1.75E-12
56	10000	1.08E-12	5.66E-14	5.20E-17	2.03E-16	5.22E-16	1.14E-12
59	10000	3.29E-14	5.14E-15	8.23E-15	3.01E-17	1.01E-18	4.63E-14
12	10000	3.72E-14	1.35E-15	2.16E-15	1.84E-18	2.29E-18	4.07E-14
6	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
47	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

73	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
77	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
99	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table C.20. s6 at 4000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
54	10000	2.44E-01	2.19E+00	9.59E-15	8.25E-03	1.92E-02	2.46E+00
57	10000	2.36E-01	1.74E+00	-3.90E-11	7.44E-03	1.83E-02	2.00E+00
83	10000	1.07E-01	1.38E+00	5.30E-15	1.03E-02	4.85E-03	1.50E+00
81	10000	1.46E-01	1.21E+00	-5.65E-13	9.61E-04	4.81E-03	1.36E+00
28	10000	2.50E-01	1.03E+00	4.99E-15	4.56E-04	2.75E-02	1.31E+00
72	10000	2.29E-01	9.01E-01	-4.65E-13	9.98E-03	1.67E-02	1.16E+00
55	10000	1.78E-01	5.13E-01	-4.12E-08	3.01E-03	6.28E-03	7.01E-01
74	10000	1.91E-01	4.12E-01	1.71E-15	7.81E-03	8.88E-03	6.20E-01
51	10000	1.47E-01	4.15E-01	-1.92E-08	6.81E-03	8.74E-03	5.78E-01
5	10000	1.76E-01	2.58E-01	9.46E-16	3.94E-03	8.18E-03	4.46E-01
80	10000	1.68E-01	1.91E-01	-5.53E-14	5.42E-03	6.01E-03	3.71E-01
88	10000	2.18E-01	9.23E-02	4.53E-16	1.78E-04	1.08E-02	3.21E-01
66	10000	1.07E-01	1.86E-01	7.69E-16	1.37E-03	2.74E-03	2.97E-01
64	10000	1.60E-01	5.22E-02	-9.97E-12	7.54E-05	4.70E-03	2.17E-01
53	10000	1.18E-01	8.02E-02	-1.06E-13	2.77E-03	5.15E-03	2.06E-01
29	10000	1.39E-01	5.83E-02	2.76E-16	3.31E-03	4.36E-03	2.05E-01
30	10000	5.10E-02	9.77E-02	-1.87E-10	3.19E-03	3.33E-03	1.55E-01
82	10000	8.17E-02	5.27E-02	-1.53E-11	2.69E-04	7.87E-04	1.35E-01
63	10000	2.24E-02	8.14E-02	-3.67E-09	1.25E-03	9.98E-04	1.06E-01
50	10000	8.33E-02	1.69E-02	6.28E-17	3.42E-05	2.36E-03	1.03E-01
49	10000	7.35E-02	2.09E-02	3.83E-17	4.83E-05	3.31E-03	9.78E-02
43	10000	3.66E-02	4.79E-02	2.10E-16	4.71E-04	1.11E-03	8.61E-02
97	10000	4.56E-02	3.57E-02	2.64E-16	1.92E-03	6.05E-04	8.39E-02
60	10000	6.29E-02	1.75E-02	5.24E-17	3.23E-05	2.27E-03	8.28E-02
17	10000	5.27E-02	1.74E-02	3.41E-17	1.30E-03	2.78E-03	7.41E-02
26	10000	3.68E-02	8.05E-03	1.45E-17	1.70E-05	1.29E-03	4.61E-02
32	10000	3.18E-02	1.51E-03	2.20E-17	4.77E-06	2.70E-04	3.35E-02
33	10000	2.84E-02	4.63E-03	-1.92E-10	8.62E-07	8.45E-05	3.31E-02
86	10000	2.24E-02	7.40E-03	2.17E-17	1.18E-05	8.56E-04	3.06E-02
91	10000	3.26E-03	2.07E-02	-3.34E-08	4.45E-05	1.56E-05	2.41E-02
39	10000	1.86E-02	3.28E-03	2.45E-17	4.54E-06	2.57E-04	2.21E-02
87	10000	1.11E-02	4.10E-03	4.61E-17	1.22E-06	6.27E-05	1.52E-02
21	10000	1.23E-02	1.24E-03	2.56E-17	2.38E-05	4.35E-05	1.36E-02
40	10000	1.19E-02	4.46E-04	-8.44E-10	1.46E-06	7.23E-05	1.24E-02
13	10000	8.75E-03	5.81E-04	-4.62E-13	9.25E-07	4.42E-05	9.38E-03
75	10000	6.23E-03	4.79E-04	5.63E-18	9.72E-07	6.34E-05	6.78E-03
35	10000	5.32E-03	2.54E-04	7.09E-18	3.20E-07	1.52E-05	5.59E-03
52	10000	3.69E-03	1.27E-04	-1.47E-09	2.83E-07	1.35E-05	3.83E-03
22	10000	1.97E-03	1.67E-03	-1.45E-08	3.49E-05	2.22E-05	3.70E-03

61	10000	1.73E-03	7.05E-04	-2.67E-11	1.91E-05	6.11E-06	2.46E-03
34	10000	1.89E-03	1.81E-04	3.26E-18	2.23E-07	1.07E-05	2.08E-03
96	10000	1.98E-03	7.90E-05	-3.38E-12	1.69E-07	8.03E-06	2.06E-03
100	10000	1.71E-03	7.56E-05	1.23E-18	2.23E-07	1.08E-05	1.80E-03
16	10000	1.51E-03	7.28E-05	-5.98E-14	1.39E-07	6.65E-06	1.59E-03
1	10000	9.10E-04	7.56E-05	1.27E-18	1.23E-07	6.16E-06	9.92E-04
2	10000	6.85E-04	2.76E-04	-1.05E-08	1.60E-06	2.98E-06	9.66E-04
31	10000	6.64E-04	2.89E-04	-5.06E-10	7.49E-08	3.58E-06	9.57E-04
69	10000	6.64E-04	7.07E-05	-3.62E-09	7.36E-08	3.49E-06	7.38E-04
15	10000	6.42E-04	2.80E-05	-1.91E-10	7.57E-07	7.02E-07	6.71E-04
8	10000	5.95E-04	3.36E-05	3.13E-19	8.02E-08	4.06E-06	6.33E-04
7	10000	5.45E-04	2.61E-05	-4.62E-09	5.70E-08	2.68E-06	5.73E-04
46	10000	5.29E-04	3.84E-05	6.28E-19	5.25E-08	2.53E-06	5.70E-04
45	10000	3.87E-04	7.80E-05	-3.25E-10	2.24E-07	1.59E-05	4.81E-04
90	10000	4.63E-04	1.11E-05	2.25E-19	3.78E-08	1.81E-06	4.76E-04
24	10000	3.53E-04	2.08E-05	-2.30E-11	3.44E-08	1.61E-06	3.75E-04
9	10000	1.26E-04	1.64E-05	-6.92E-13	1.65E-06	3.09E-07	1.44E-04
44	10000	7.81E-05	1.44E-05	-2.08E-09	9.07E-09	4.26E-07	9.29E-05
48	10000	5.78E-05	4.34E-06	-6.89E-09	2.05E-09	9.63E-08	6.22E-05
98	10000	4.88E-05	1.35E-06	4.14E-20	2.62E-09	1.24E-07	5.03E-05
89	10000	4.23E-05	1.38E-06	3.22E-18	4.10E-09	2.80E-07	4.39E-05
18	10000	2.43E-05	3.15E-07	-1.33E-10	4.76E-10	2.24E-08	2.47E-05
14	10000	1.33E-05	4.41E-07	-2.01E-12	3.04E-10	1.43E-08	1.38E-05
41	10000	1.06E-05	3.86E-07	8.25E-21	7.90E-10	3.78E-08	1.10E-05
92	10000	6.51E-06	8.47E-07	4.83E-17	5.44E-09	7.90E-09	7.38E-06
84	10000	4.99E-06	4.77E-07	1.72E-20	1.53E-08	6.05E-09	5.49E-06
70	10000	6.51E-07	2.00E-08	7.21E-22	2.43E-11	1.14E-09	6.73E-07
4	10000	5.41E-07	5.21E-08	1.29E-19	1.42E-10	1.15E-08	6.05E-07
36	10000	2.89E-07	1.88E-08	-7.16E-14	9.91E-12	4.55E-10	3.09E-07
76	10000	1.58E-08	1.39E-09	5.59E-19	1.79E-11	2.56E-11	1.72E-08
68	10000	5.03E-09	3.57E-10	2.29E-18	1.25E-11	6.16E-12	5.41E-09
58	10000	4.35E-09	9.90E-11	-3.39E-11	6.13E-12	5.30E-12	4.43E-09
62	10000	3.33E-09	1.00E-09	4.33E-18	3.11E-12	2.62E-12	4.34E-09
11	10000	4.49E-09	1.39E-11	-3.89E-10	1.29E-13	8.79E-12	4.13E-09
67	10000	3.21E-09	1.34E-10	-1.55E-12	1.06E-13	1.51E-12	3.34E-09
3	10000	3.29E-09	1.34E-11	2.04E-18	2.34E-14	6.34E-13	3.30E-09
85	10000	2.84E-09	2.12E-11	-4.77E-12	2.42E-12	2.29E-12	2.86E-09
42	10000	1.60E-09	3.80E-10	7.77E-19	1.41E-12	2.94E-12	1.99E-09
37	10000	1.65E-09	7.58E-12	-5.31E-12	2.05E-14	6.76E-13	1.65E-09
25	10000	1.07E-09	6.11E-12	2.74E-21	1.86E-14	6.50E-13	1.08E-09
20	10000	3.82E-10	8.43E-12	9.13E-19	3.12E-13	3.74E-13	3.91E-10
78	10000	2.94E-11	2.93E-11	0.00E+00	5.79E-14	5.15E-12	6.39E-11
95	10000	4.47E-11	3.17E-13	8.52E-22	7.44E-16	2.48E-14	4.50E-11
23	10000	2.48E-11	1.28E-11	-1.55E-12	1.34E-15	2.69E-14	3.61E-11
19	10000	1.53E-11	1.19E-13	2.85E-20	3.08E-16	7.94E-15	1.54E-11
93	10000	2.85E-12	9.29E-14	4.62E-21	1.40E-15	2.11E-15	2.94E-12
56	10000	9.92E-13	5.54E-14	7.63E-24	2.00E-16	1.41E-15	1.05E-12

59	10000	3.22E-14	5.06E-15	1.22E-21	3.58E-17	2.49E-17	3.73E-14
6	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
47	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
77	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
99	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	10000	-1.08E-11	-3.10E-13	-9.87E-11	1.67E-14	1.35E-12	-1.08E-10
27	10000	3.94E-10	1.35E-10	-7.23E-10	1.37E-13	4.39E-13	-1.94E-10
38	10000	-3.33E-11	-2.30E-12	-8.11E-10	1.04E-12	5.03E-12	-8.41E-10
10	10000	-9.34E-11	-2.38E-12	-7.73E-10	6.95E-12	4.37E-12	-8.58E-10
94	10000	-7.91E-12	-9.22E-13	-1.96E-09	1.26E-12	3.42E-12	-1.97E-09
79	10000	-7.71E-09	-2.00E-10	-6.44E-08	1.71E-11	5.76E-11	-7.22E-08

Table C.21. s6 at 6000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
54	10000	3.17E-02	1.76E+00	1.40E-21	6.66E-03	1.82E-02	1.82E+00
57	10000	3.15E-02	1.45E+00	-4.41E-11	6.21E-03	1.83E-02	1.50E+00
83	10000	2.13E-02	1.01E+00	7.76E-22	7.61E-03	4.08E-03	1.04E+00
28	10000	3.21E-02	8.81E-01	7.31E-22	3.93E-04	2.87E-02	9.42E-01
81	10000	2.45E-02	9.07E-01	-6.00E-13	7.22E-04	4.14E-03	9.36E-01
72	10000	3.10E-02	7.26E-01	-4.88E-13	8.07E-03	1.59E-02	7.81E-01
55	10000	2.79E-02	4.83E-01	-4.40E-08	2.85E-03	7.48E-03	5.21E-01
51	10000	2.61E-02	3.46E-01	-2.05E-08	5.71E-03	8.72E-03	3.87E-01
74	10000	2.88E-02	3.32E-01	2.51E-22	6.32E-03	8.47E-03	3.76E-01
5	10000	2.76E-02	1.98E-01	1.38E-22	3.04E-03	7.29E-03	2.36E-01
80	10000	2.63E-02	1.43E-01	-5.85E-14	4.07E-03	5.17E-03	1.79E-01
66	10000	1.83E-02	1.29E-01	1.13E-22	9.54E-04	2.14E-03	1.51E-01
88	10000	3.04E-02	7.74E-02	6.63E-23	1.50E-04	1.10E-02	1.19E-01
53	10000	2.25E-02	6.17E-02	-1.11E-13	2.14E-03	4.60E-03	9.09E-02
30	10000	1.37E-02	6.57E-02	-2.04E-10	2.15E-03	2.51E-03	8.41E-02
29	10000	2.39E-02	4.85E-02	4.05E-23	2.76E-03	4.33E-03	7.95E-02
63	10000	7.39E-03	6.37E-02	-3.86E-09	9.81E-04	9.11E-04	7.29E-02
64	10000	2.56E-02	4.19E-02	-1.04E-11	6.07E-05	4.45E-03	7.19E-02
82	10000	1.34E-02	5.03E-02	-1.60E-11	2.58E-04	9.83E-04	6.49E-02
97	10000	8.04E-03	3.36E-02	3.86E-23	1.82E-03	7.29E-04	4.42E-02
43	10000	8.65E-03	2.92E-02	3.08E-23	2.88E-04	7.38E-04	3.88E-02
49	10000	1.68E-02	1.60E-02	5.61E-24	3.71E-05	2.93E-03	3.58E-02
50	10000	1.67E-02	1.18E-02	9.20E-24	2.39E-05	1.85E-03	3.04E-02
60	10000	1.35E-02	1.16E-02	7.67E-24	2.14E-05	1.67E-03	2.68E-02
17	10000	1.25E-02	9.97E-03	4.99E-24	7.47E-04	1.73E-03	2.50E-02
91	10000	6.19E-04	2.04E-02	-3.54E-08	4.39E-05	2.12E-05	2.11E-02
86	10000	5.37E-03	4.72E-03	3.18E-24	7.55E-06	6.03E-04	1.07E-02
26	10000	5.44E-03	2.77E-03	2.13E-24	5.84E-06	4.14E-04	8.63E-03

39	10000	4.97E-03	3.20E-03	3.59E-24	4.44E-06	3.25E-04	8.50E-03
33	10000	3.68E-03	4.54E-03	-2.12E-10	8.52E-07	1.14E-04	8.34E-03
32	10000	5.83E-03	1.32E-03	3.22E-24	4.21E-06	2.95E-04	7.45E-03
87	10000	1.65E-03	4.03E-03	6.75E-24	1.21E-06	8.31E-05	5.76E-03
21	10000	2.05E-03	1.22E-03	3.75E-24	2.35E-05	5.91E-05	3.36E-03
40	10000	1.65E-03	4.38E-04	-8.94E-10	1.45E-06	9.71E-05	2.19E-03
13	10000	1.34E-03	5.71E-04	-5.09E-13	9.14E-07	6.01E-05	1.97E-03
75	10000	1.34E-03	3.00E-04	8.24E-25	6.11E-07	4.25E-05	1.68E-03
22	10000	2.38E-04	1.01E-03	-1.62E-08	2.12E-05	1.36E-05	1.28E-03
61	10000	2.63E-04	6.93E-04	-2.83E-11	1.89E-05	8.19E-06	9.83E-04
35	10000	6.56E-04	2.50E-04	1.04E-24	3.16E-07	2.07E-05	9.27E-04
52	10000	5.53E-04	1.25E-04	-1.69E-09	2.79E-07	1.84E-05	6.96E-04
34	10000	4.01E-04	1.78E-04	4.77E-25	2.20E-07	1.45E-05	5.93E-04
96	10000	4.72E-04	7.76E-05	-3.54E-12	1.67E-07	1.10E-05	5.61E-04
16	10000	3.47E-04	7.15E-05	-6.33E-14	1.37E-07	9.04E-06	4.27E-04
31	10000	8.51E-05	2.84E-04	-5.71E-10	7.41E-08	4.87E-06	3.74E-04
2	10000	8.31E-05	2.72E-04	-1.11E-08	1.58E-06	4.08E-06	3.60E-04
100	10000	2.32E-04	7.42E-05	1.80E-25	2.21E-07	1.46E-05	3.22E-04
1	10000	1.30E-04	7.43E-05	1.86E-25	1.22E-07	8.24E-06	2.13E-04
69	10000	8.29E-05	6.95E-05	-3.90E-09	7.28E-08	4.76E-06	1.57E-04
45	10000	9.19E-05	5.06E-05	-3.44E-10	1.46E-07	1.14E-05	1.54E-04
8	10000	1.02E-04	3.30E-05	4.58E-26	7.93E-08	5.41E-06	1.40E-04
46	10000	6.84E-05	3.77E-05	9.19E-26	5.19E-08	3.43E-06	1.10E-04
15	10000	7.79E-05	2.75E-05	-1.99E-10	7.48E-07	9.61E-07	1.07E-04
7	10000	6.61E-05	2.56E-05	-4.92E-09	5.64E-08	3.67E-06	9.54E-05
90	10000	5.86E-05	1.09E-05	3.29E-26	3.74E-08	2.46E-06	7.20E-05
24	10000	4.28E-05	2.05E-05	-2.41E-11	3.40E-08	2.21E-06	6.55E-05
9	10000	1.59E-05	1.61E-05	-7.42E-13	1.63E-06	4.20E-07	3.41E-05
44	10000	9.47E-06	1.42E-05	-2.18E-09	8.97E-09	5.84E-07	2.42E-05
89	10000	1.49E-05	1.02E-06	4.71E-25	3.03E-09	2.36E-07	1.61E-05
98	10000	1.09E-05	1.33E-06	6.06E-27	2.59E-09	1.69E-07	1.24E-05
48	10000	7.00E-06	4.26E-06	-7.49E-09	2.03E-09	1.32E-07	1.14E-05
18	10000	2.95E-06	3.10E-07	-1.39E-10	4.71E-10	3.06E-08	3.29E-06
92	10000	1.94E-06	8.32E-07	7.08E-24	5.38E-09	1.14E-08	2.79E-06
14	10000	2.07E-06	4.33E-07	-2.24E-12	3.01E-10	1.96E-08	2.53E-06
41	10000	1.83E-06	3.79E-07	1.21E-27	7.81E-10	5.14E-08	2.26E-06
84	10000	8.79E-07	4.69E-07	2.51E-27	1.51E-08	8.28E-09	1.37E-06
4	10000	2.32E-07	2.31E-08	1.89E-26	6.33E-11	5.52E-09	2.61E-07
70	10000	1.66E-07	1.97E-08	1.06E-28	2.41E-11	1.57E-09	1.87E-07
36	10000	7.27E-08	1.85E-08	-7.49E-14	9.80E-12	6.29E-10	9.19E-08
76	10000	3.78E-09	1.37E-09	8.19E-26	1.76E-11	3.51E-11	5.20E-09
62	10000	1.78E-09	9.84E-10	6.34E-25	3.07E-12	4.20E-12	2.77E-09
58	10000	1.91E-09	9.68E-11	-3.65E-11	6.07E-12	8.62E-12	1.99E-09
67	10000	1.35E-09	1.32E-10	-1.62E-12	1.05E-13	2.48E-12	1.48E-09
68	10000	1.09E-09	3.50E-10	3.36E-25	1.24E-11	8.50E-12	1.46E-09
42	10000	8.38E-10	3.73E-10	1.14E-25	1.39E-12	4.64E-12	1.22E-09
85	10000	1.19E-09	2.07E-11	-5.01E-12	2.39E-12	3.75E-12	1.21E-09

3	10000	1.14E-09	1.32E-11	2.99E-25	2.31E-14	1.11E-12	1.15E-09
37	10000	5.27E-10	7.39E-12	-5.55E-12	2.03E-14	1.16E-12	5.30E-10
25	10000	2.65E-10	5.99E-12	4.01E-28	1.84E-14	1.01E-12	2.72E-10
20	10000	2.55E-10	8.27E-12	1.34E-25	3.09E-13	6.47E-13	2.64E-10
23	10000	1.73E-11	1.25E-11	-1.62E-12	1.32E-15	4.79E-14	2.82E-11
19	10000	1.09E-11	1.16E-13	4.18E-27	3.04E-16	1.43E-14	1.10E-11
95	10000	8.38E-12	3.11E-13	1.25E-28	7.35E-16	3.92E-14	8.73E-12
93	10000	1.22E-12	9.11E-14	6.77E-28	1.39E-15	3.51E-15	1.31E-12
56	10000	4.58E-13	5.44E-14	1.12E-30	1.98E-16	2.15E-15	5.15E-13
59	10000	2.30E-14	4.96E-15	1.78E-28	3.53E-17	4.47E-17	2.80E-14
6	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
47	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
77	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
78	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
99	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	10000	-1.10E-10	-9.92E-13	-1.03E-10	1.68E-14	2.59E-12	-2.11E-10
27	10000	1.70E-10	1.27E-10	-7.86E-10	1.39E-13	8.32E-13	-4.88E-10
38	10000	-3.76E-10	-8.14E-12	-8.72E-10	1.08E-12	9.93E-12	-1.25E-09
10	10000	-9.76E-10	-7.83E-12	-8.19E-10	7.08E-12	8.49E-12	-1.79E-09
94	10000	-2.33E-10	-1.51E-11	-2.10E-09	1.29E-12	6.71E-12	-2.34E-09
11	10000	-7.42E-09	1.09E-11	-4.09E-10	1.30E-13	1.65E-11	-7.80E-09
79	10000	-1.99E-07	-6.53E-10	-6.81E-08	1.74E-11	1.12E-10	-2.68E-07

Table C.22. s6 at 9000 years.

vector	time	EPA1BHRC ^{241}Am	EPA2BHRC ^{239}Pu	EPA3BHRC ^{238}Pu	EPA4BHRC ^{234}U	EPA5BHRC ^{230}Th	EPATBHRC Total - All MB
54	10000	1.80E-02	9.73E-01	7.81E-32	3.70E-03	1.23E-02	1.01E+00
57	10000	1.80E-02	8.80E-01	-4.66E-11	3.79E-03	1.37E-02	9.16E-01
28	10000	1.82E-02	5.48E-01	4.01E-32	2.46E-04	2.21E-02	5.89E-01
81	10000	1.17E-02	4.49E-01	-6.12E-13	3.59E-04	2.47E-03	4.64E-01
72	10000	1.77E-02	3.88E-01	-4.96E-13	4.34E-03	1.03E-02	4.21E-01
83	10000	6.93E-03	2.59E-01	4.34E-32	1.96E-03	1.16E-03	2.69E-01
55	10000	1.51E-02	2.38E-01	-4.50E-08	1.41E-03	4.49E-03	2.59E-01
74	10000	1.62E-02	1.85E-01	1.38E-32	3.54E-03	5.75E-03	2.11E-01
51	10000	1.36E-02	1.43E-01	-2.10E-08	2.37E-03	4.37E-03	1.63E-01
5	10000	1.41E-02	8.55E-02	7.62E-33	1.32E-03	3.76E-03	1.05E-01
80	10000	1.30E-02	6.76E-02	-5.94E-14	1.93E-03	2.93E-03	8.55E-02
88	10000	1.74E-02	4.72E-02	3.40E-33	9.17E-05	8.24E-03	7.29E-02
66	10000	7.87E-03	5.89E-02	6.27E-33	4.37E-04	1.16E-03	6.84E-02
82	10000	7.01E-03	3.88E-02	-1.63E-11	2.00E-04	9.83E-04	4.70E-02
64	10000	1.33E-02	2.43E-02	-1.06E-11	3.55E-05	3.18E-03	4.09E-02
29	10000	1.08E-02	2.08E-02	2.22E-33	1.19E-03	2.22E-03	3.51E-02
53	10000	8.83E-03	2.05E-02	-1.13E-13	7.12E-04	1.76E-03	3.18E-02

97	10000	3.65E-03	2.05E-02	2.14E-33	1.11E-03	5.51E-04	2.58E-02
30	10000	3.76E-03	1.66E-02	-2.11E-10	5.43E-04	7.19E-04	2.16E-02
91	10000	3.45E-04	1.99E-02	-3.62E-08	4.32E-05	2.80E-05	2.03E-02
63	10000	1.83E-03	1.64E-02	-3.94E-09	2.54E-04	2.73E-04	1.88E-02
43	10000	3.32E-03	1.23E-02	1.72E-33	1.22E-04	3.57E-04	1.61E-02
50	10000	6.32E-03	4.50E-03	4.87E-34	9.18E-06	8.20E-04	1.16E-02
49	10000	5.55E-03	4.49E-03	2.68E-34	1.04E-05	9.39E-04	1.10E-02
60	10000	4.01E-03	3.47E-03	4.15E-34	6.42E-06	5.72E-04	8.06E-03
17	10000	3.52E-03	2.58E-03	2.61E-34	1.94E-04	5.06E-04	6.80E-03
33	10000	2.09E-03	4.42E-03	-2.20E-10	8.35E-07	1.48E-04	6.66E-03
26	10000	3.06E-03	2.33E-03	6.92E-35	4.94E-06	4.43E-04	5.84E-03
39	10000	2.62E-03	1.69E-03	1.94E-34	2.36E-06	2.11E-04	4.52E-03
87	10000	8.98E-04	3.44E-03	3.74E-34	1.04E-06	9.28E-05	4.43E-03
32	10000	2.92E-03	1.01E-03	1.55E-34	3.22E-06	2.84E-04	4.22E-03
86	10000	1.18E-03	1.16E-03	1.76E-34	1.86E-06	1.65E-04	2.51E-03
21	10000	1.15E-03	1.19E-03	2.10E-34	2.31E-05	7.78E-05	2.44E-03
40	10000	9.23E-04	4.04E-04	-9.15E-10	1.34E-06	1.19E-04	1.45E-03
13	10000	7.51E-04	5.57E-04	-5.29E-13	8.99E-07	7.91E-05	1.39E-03
22	10000	1.27E-04	9.36E-04	-1.69E-08	1.97E-05	1.67E-05	1.10E-03
75	10000	7.04E-04	2.47E-04	4.56E-35	5.05E-07	4.44E-05	9.96E-04
61	10000	1.43E-04	6.27E-04	-2.90E-11	1.72E-05	9.76E-06	7.97E-04
35	10000	3.65E-04	2.44E-04	5.80E-35	3.11E-07	2.73E-05	6.36E-04
52	10000	3.09E-04	1.22E-04	-1.79E-09	2.74E-07	2.42E-05	4.55E-04
34	10000	2.26E-04	1.74E-04	2.64E-35	2.17E-07	1.91E-05	4.19E-04
96	10000	2.62E-04	7.58E-05	-3.59E-12	1.64E-07	1.44E-05	3.52E-04
31	10000	4.81E-05	2.78E-04	-5.99E-10	7.28E-08	6.41E-06	3.32E-04
2	10000	4.57E-05	2.65E-04	-1.13E-08	1.55E-06	5.39E-06	3.18E-04
16	10000	1.93E-04	6.98E-05	-6.46E-14	1.35E-07	1.19E-05	2.75E-04
100	10000	1.35E-04	7.25E-05	8.00E-36	2.17E-07	1.92E-05	2.27E-04
1	10000	6.25E-05	5.75E-05	1.03E-35	9.47E-08	8.34E-06	1.28E-04
69	10000	4.63E-05	6.79E-05	-4.02E-09	7.16E-08	6.28E-06	1.20E-04
8	10000	5.71E-05	2.91E-05	1.77E-36	7.04E-08	6.30E-06	9.26E-05
46	10000	3.88E-05	3.69E-05	4.96E-36	5.10E-08	4.50E-06	8.02E-05
15	10000	4.29E-05	2.68E-05	-2.02E-10	7.36E-07	1.27E-06	7.17E-05
7	10000	3.63E-05	2.50E-05	-5.05E-09	5.54E-08	4.85E-06	6.62E-05
45	10000	2.85E-05	1.88E-05	-3.51E-10	5.45E-08	4.91E-06	5.23E-05
90	10000	3.30E-05	1.07E-05	1.56E-36	3.68E-08	3.24E-06	4.69E-05
24	10000	2.36E-05	2.00E-05	-2.44E-11	3.34E-08	2.92E-06	4.65E-05
9	10000	8.87E-06	1.57E-05	-7.61E-13	1.61E-06	5.53E-07	2.68E-05
44	10000	5.20E-06	1.38E-05	-2.22E-09	8.82E-09	7.71E-07	1.98E-05
48	10000	3.78E-06	4.16E-06	-7.77E-09	1.99E-09	1.74E-07	8.11E-06
98	10000	6.06E-06	1.30E-06	2.16E-37	2.54E-09	2.23E-07	7.58E-06
89	10000	3.62E-06	3.20E-07	2.57E-35	9.56E-10	8.53E-08	4.02E-06
18	10000	1.61E-06	3.03E-07	-1.42E-10	4.63E-10	4.05E-08	1.96E-06
14	10000	1.14E-06	4.23E-07	-2.35E-12	2.96E-10	2.58E-08	1.59E-06
92	10000	7.49E-07	8.12E-07	3.96E-34	5.29E-09	1.55E-08	1.58E-06
41	10000	1.02E-06	3.71E-07	0.00E+00	7.68E-10	6.76E-08	1.46E-06

84	10000	4.84E-07	4.58E-07	0.00E+00	1.49E-08	1.09E-08	9.68E-07
70	10000	9.15E-08	1.92E-08	0.00E+00	2.37E-11	2.07E-09	1.13E-07
36	10000	3.76E-08	1.81E-08	-7.63E-14	9.64E-12	8.36E-10	5.65E-08
76	10000	2.06E-09	1.33E-09	4.41E-36	1.74E-11	4.65E-11	3.46E-09
62	10000	3.47E-10	9.59E-10	3.52E-35	3.02E-12	6.07E-12	1.31E-09
68	10000	5.09E-10	3.42E-10	1.87E-35	1.22E-11	1.13E-11	8.75E-10
42	10000	3.37E-10	3.63E-10	6.06E-36	1.37E-12	6.66E-12	7.08E-10
67	10000	1.78E-10	1.28E-10	-1.64E-12	1.03E-13	3.63E-12	3.09E-10
3	10000	1.09E-10	1.28E-11	1.65E-35	2.27E-14	1.68E-12	1.24E-10
58	10000	1.72E-11	9.40E-11	-3.77E-11	5.96E-12	1.26E-11	9.21E-11
20	10000	6.22E-11	8.06E-12	7.20E-36	3.03E-13	9.73E-13	7.15E-11
85	10000	4.79E-11	2.02E-11	-5.12E-12	2.35E-12	5.51E-12	7.08E-11
25	10000	5.94E-11	5.84E-12	0.00E+00	1.81E-14	1.43E-12	6.67E-11
4	10000	3.34E-11	3.29E-12	8.50E-37	8.97E-15	6.86E-13	3.73E-11
23	10000	4.00E-12	1.22E-11	-1.64E-12	1.30E-15	7.31E-14	1.46E-11
95	10000	1.57E-12	3.03E-13	0.00E+00	7.22E-16	5.65E-14	1.93E-12
19	10000	1.46E-12	1.13E-13	2.34E-37	2.99E-16	2.18E-14	1.60E-12
93	10000	1.64E-13	8.88E-14	0.00E+00	1.36E-15	5.18E-15	2.59E-13
56	10000	1.61E-13	5.30E-14	0.00E+00	1.94E-16	3.03E-15	2.17E-13
59	10000	4.58E-15	4.84E-15	0.00E+00	3.47E-17	6.84E-17	9.52E-15
6	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
47	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
77	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
78	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
99	10000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
37	10000	-2.40E-10	7.15E-12	-5.65E-12	1.99E-14	1.75E-12	-2.37E-10
12	10000	-5.64E-10	-1.93E-12	-1.05E-10	1.61E-14	4.20E-12	-6.66E-10
27	10000	-5.33E-10	1.16E-10	-8.16E-10	1.36E-13	1.33E-12	-1.23E-09
38	10000	-1.96E-09	-1.63E-11	-8.97E-10	1.05E-12	1.62E-11	-2.86E-09
94	10000	-1.24E-09	-3.46E-11	-2.16E-09	1.26E-12	1.09E-11	-3.42E-09
10	10000	-5.56E-09	-1.54E-11	-8.38E-10	6.85E-12	1.38E-11	-6.39E-09
11	10000	-4.03E-08	6.75E-12	-4.17E-10	1.26E-13	2.64E-11	-4.06E-08
79	10000	-6.64E-07	-1.28E-09	-6.96E-08	1.68E-11	1.82E-10	-7.34E-07

APPENDIX D

SECOTP2D RESULTS FOR CULEBRA TRANSPORT

Appendix D includes two Tables (one for partial mining and one for full mining) which contain results from Culebra transport calculations performed using SECOTP2D. Each Table contains the following values:

Column	Description
1	Rank according to ^{234}U discharge
2	Vector number
3	Integrated discharge of ^{234}U (kg) to LWB from a 1 kg source (Conditional Fraction of Source Released)
4	MINP_FAC - mining impact factor
5	CLIMTIDX - climate index
6	APOROS - fracture porosity
7	DPOROS - matrix porosity
8	HMBLKT - half-block length of the matrix
9	OXSTAT - actinide oxidation state parameter
10	MKD_U - k_d value for matrix sorption

Appendix D also includes the following Figures:

Figures	
D.1 - D.5	Mass Balance Errors for Partial Mining
D.6 - D.10	Mass Balance Errors for Full Mining

```
_$249$DKA0:[BF.MJSHORT.JLR]SRTREL.OUT;1        9-JUL-1997 15:23        Page 1

U234 CUMULATIVE RELEASE R1 PARTIALLY MINED

RNK VEC  CUM REL MINP_FAC CLIMTIDX   APOROS    DPOROS    HMBLKT    OXSTAT     MKD_U
--- --- -------- -------- -------- -------- --------  --------  --------  --------
  1  79 9.19E-01    562.5     1.64 7.10E-03    0.155     0.421     0.647  1.38E-04
     33 5.74E-01    349.0     1.93 1.13E-04    0.164     0.330     0.617  1.17E-04
  3  51 4.82E-01    374.2     1.72 3.32E-04    0.168     0.241     0.864  9.07E-05
  4  71 4.16E-01    901.7     2.19 4.32E-03    0.165     0.277     0.904  5.54E-05
  5  43 3.73E-01    429.3     1.25 6.63E-04    0.106     0.434     0.841  3.26E-05
  6  54 2.48E-01    518.2     1.81 3.69E-03    0.133     0.246     0.638  1.30E-04
  7  85 2.29E-01    794.6     1.05 1.36E-03    0.106     0.249     0.778  3.49E-05
  8  27 9.10E-02    915.6     1.09 2.80E-04    0.110     0.152     0.560  5.98E-05
  9  91 8.14E-02    458.0     1.08 2.08E-03    0.150     0.129     0.504  1.05E-04
 10  58 5.33E-02    492.9     1.21 1.47E-03    0.166     0.054     0.528  1.78E-04
 11  97 4.09E-02    609.1     1.19 2.82E-03    0.168     0.226     0.746  6.02E-05
 12  74 1.20E-02     45.6     1.23 6.30E-03    0.205     0.075     0.534  7.91E-05
 13  84 1.13E-02    312.1     1.21 6.47E-04    0.126     0.326     0.513  4.75E-05
 14  42 7.86E-04    706.7     1.10 5.33E-04    0.104     0.339     0.786  5.41E-04
 15  68 1.70E-04    589.7     1.12 2.00E-04    0.144     0.445     0.715  6.53E-04
 16  66 9.25E-05    598.1     1.03 1.14E-03    0.178     0.411     0.728  4.96E-05
 17  80 8.22E-06    870.6     1.12 1.37E-04    0.115     0.066     0.732  5.77E-04
 18  92 4.21E-07    632.4     1.17 2.11E-03    0.101     0.317     0.543  4.53E-04
 19  67 2.73E-07    333.8     1.54 5.84E-04    0.231     0.465     0.938  1.58E-04
 20  57 1.67E-07    885.4     1.08 7.25E-03    0.250     0.286     0.805  6.59E-05
 21  17 5.06E-08    802.0     2.02 7.90E-04    0.151     0.362     0.828  1.69E-03
 22  72 8.38E-09    224.8     1.07 3.61E-04    0.143     0.450     0.582  1.47E-04
 23  56 1.03E-11    670.3     1.14 5.04E-03    0.111     0.460     0.687  1.28E-03
 24  22 7.54E-15    159.0     1.25 5.09E-04    0.116     0.192     0.966  8.60E-04
 25   9 2.93E-15     77.8     1.23 1.00E-03    0.120     0.116     0.668  9.72E-04
 26 100 1.00E-15    434.6     1.70 3.11E-03    0.123     0.273     0.240  3.09E+00
 2   98 1.00E-15    771.7     1.02 1.47E-04    0.213     0.087     0.185  4.86E+00
     88 1.00E-15    385.4     1.19 2.32E-03    0.118     0.410     0.445  2.49E+00
 29  87 1.00E-15    688.0     1.17 2.98E-04    0.188     0.320     0.099  8.34E+00
 30  86 1.00E-15    415.2     1.12 9.15E-04    0.176     0.103     0.345  1.42E+00
 31  94 1.00E-15    257.6     1.22 7.45E-04    0.120     0.258     0.833  1.53E-03
 32  75 1.00E-15    276.8     1.79 2.36E-04    0.117     0.376     0.338  1.09E+01
 33  99 1.00E-15    784.1     1.18 1.39E-04    0.127     0.417     0.285  3.68E+00
 34  73 1.00E-15    614.8     1.10 5.51E-03    0.170     0.385     0.012  1.29E+00
 35  69 1.00E-15     56.1     2.08 8.18E-04    0.171     0.215     0.147  4.51E+00
 36  89 1.00E-15    711.4     1.14 4.77E-03    0.161     0.358     0.005  1.08E+00
 37  64 1.00E-15    403.2     1.07 3.26E-04    0.147     0.490     0.317  6.47E+00
 38  63 1.00E-15    576.3     2.17 3.86E-04    0.174     0.063     0.627  2.08E-02
 39  62 1.00E-15    973.8     1.03 1.57E-04    0.177     0.299     0.988  3.49E-03
 40  61 1.00E-15    966.7     1.22 4.67E-04    0.122     0.428     0.594  2.21E-02
 41  60 1.00E-15      5.4     1.58 1.94E-04    0.108     0.478     0.112  1.50E+01
 42  95 1.00E-15    526.3     1.02 2.16E-04    0.183     0.134     0.216  8.62E+00
 43  70 1.00E-15    463.1     1.84 4.31E-04    0.163     0.162     0.044  2.59E+00
 44  82 1.00E-15    172.5     1.11 5.56E-04    0.190     0.210     0.653  3.57E-03
 45  81 1.00E-15    955.8     1.15 5.79E-03    0.109     0.206     0.701  8.94E-03
 46  55 1.00E-15    690.8     1.24 4.44E-03    0.169     0.452     0.819  7.88E-03
 47  90 1.00E-15     65.0     1.20 1.27E-04    0.105     0.108     0.229  9.89E-01
 48  65 1.00E-15    756.2     1.97 3.67E-04    0.113     0.057     0.758  4.91E-03
 49  52 1.00E-15    651.9     2.05 3.57E-03    0.119     0.070     0.462  1.16E+01
 50  76 1.00E-15    105.8     1.23 2.22E-03    0.129     0.297     0.922  1.30E-02
```

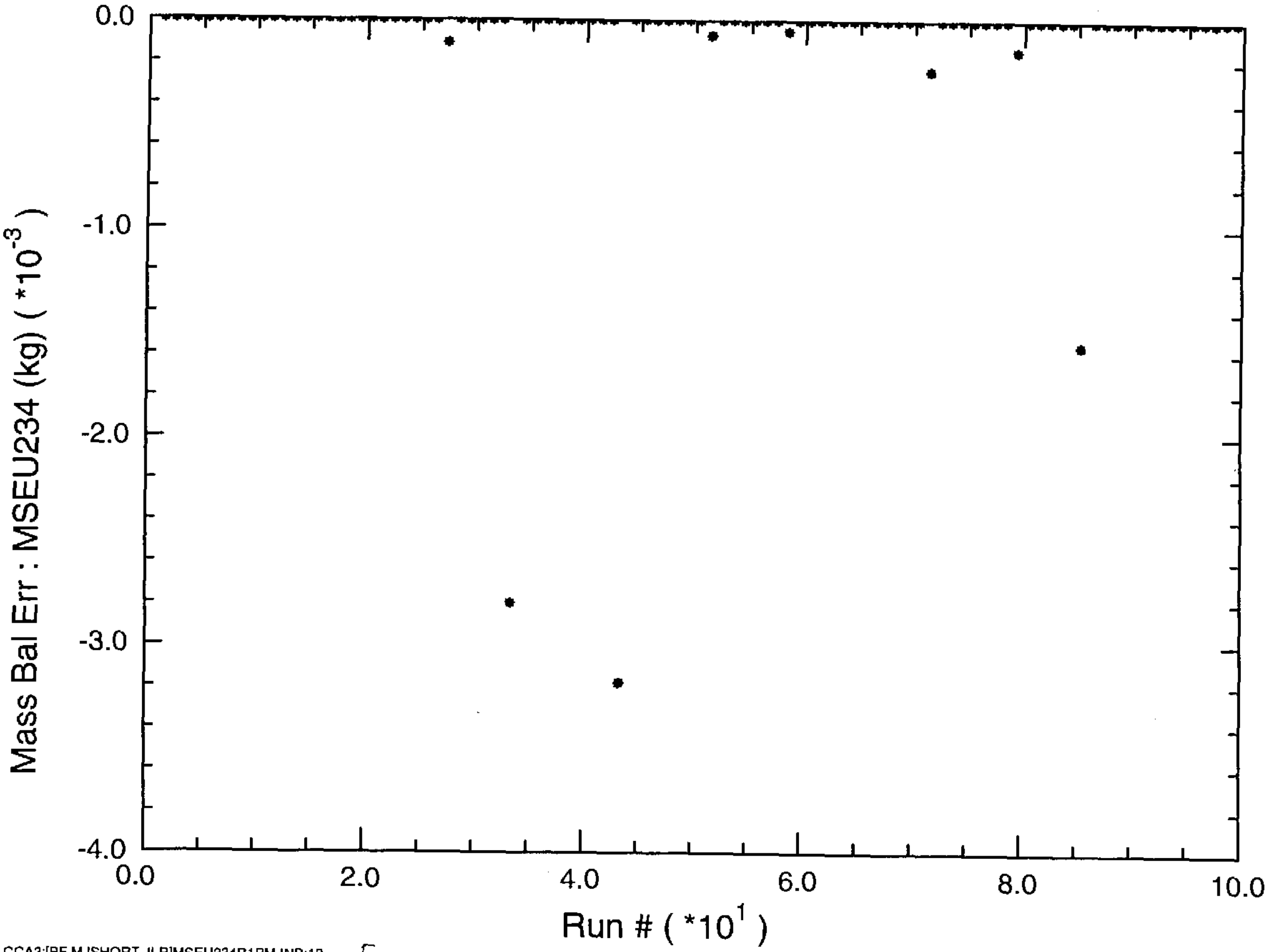
```
U234 CUMULATIVE RELEASE R1 PARTIALLY MINED

RNK VEC  CUM REL MINP_FAC CLIMTIDX   APOROS    DPOROS    HMBLKT    OXSTAT     MKD_U
--- --- -------- -------- -------- -------- -------- -------- -------- --------
 51  50 1.00E-15    327.3     1.15 7.04E-04    0.159    0.235    0.268 1.26E+01
[illegible]  49 1.00E-15    503.3     1.11 1.42E-03    0.101    0.282    0.368 9.39E+00
 53  48 1.00E-15    449.1     1.13 2.72E-04    0.180    0.425    0.167 1.04E+00
 54  96 1.00E-15    111.7     1.02 4.83E-04    0.176    0.492    0.021 9.63E+00
 55  46 1.00E-15    766.4     1.23 3.38E-03    0.173    0.486    0.383 8.67E+00
 56  45 1.00E-15    168.2     1.04 1.18E-03    0.173    0.382    0.451 1.36E+01
 57  44 1.00E-15    925.7     1.18 9.02E-03    0.114    0.337    0.054 1.63E+00
 58  93 1.00E-15    534.5     1.06 1.01E-04    0.216    0.307    0.900 3.95E-04
 59  78 1.00E-15    940.2     1.09 4.06E-04    0.155    0.091    0.352 9.99E+00
 60  53 1.00E-15    816.7     1.06 2.29E-04    0.160    0.220    0.916 1.44E-02
 61  40 1.00E-15    671.6     1.05 2.40E-04    0.183    0.398    0.086 4.03E+00
 62  39 1.00E-15    857.0     1.06 1.26E-03    0.140    0.200    0.075 3.82E+00
 63  38 1.00E-15    356.3     1.04 9.79E-04    0.114    0.082    0.693 3.78E-05
 64  37 1.00E-15    893.9     1.14 4.06E-03    0.179    0.174    0.439 1.32E+01
 65  36 1.00E-15    194.0     1.60 2.54E-03    0.142    0.119    0.196 1.96E+00
 66  35 1.00E-15    187.3     1.01 1.91E-03    0.183    0.253    0.280 4.29E+00
 67  34 1.00E-15    285.0     1.20 1.16E-04    0.198    0.197    0.327 1.89E+01
 68  83 1.00E-15    551.2     1.13 3.13E-04    0.182    0.157    0.564 1.36E-02
 69  32 1.00E-15    548.7     2.14 1.68E-03    0.167    0.183    0.064 5.62E+00
 70  31 1.00E-15    241.6     1.04 1.78E-03    0.172    0.126    0.292 1.71E+01
 71  30 1.00E-15    737.8     1.17 4.85E-03    0.188    0.395    0.882 1.07E-03
 72  41 1.00E-15    743.2     1.21 6.16E-04    0.235    0.149    0.493 3.45E+00
 73  28 1.00E-15    861.4     1.20 2.72E-03    0.112    0.078    0.308 3.32E+00
 74  77 1.00E-15    984.4     1.08 8.80E-04    0.179    0.170    0.764 2.63E-02
 75  26 1.00E-15    293.9     1.75 1.88E-04    0.116    0.267    0.416 1.44E+01
 76  25 1.00E-15    261.2     1.87 2.58E-04    0.185    0.477    0.152 1.42E+01
[illegible]  24 1.00E-15    826.7     1.12 1.05E-04    0.137    0.343    0.179 1.51E+00
[illegible]  23 1.00E-15    145.5     1.15 3.96E-03    0.193    0.222    0.990 1.65E-03
 79  47 1.00E-15    481.9     1.68 4.38E-04    0.189    0.312    0.945 5.03E-04
 80  21 1.00E-15     24.8     1.00 1.90E-03    0.117    0.167    0.959 6.58E-03
 81  20 1.00E-15    841.0     1.16 2.47E-03    0.148    0.500    0.871 5.52E-03
 82  19 1.00E-15     34.0     1.04 8.13E-03    0.130    0.187    0.489 7.63E+00
 83  18 1.00E-15     96.8     2.25 3.02E-03    0.222    0.177    0.376 1.02E+01
 84  29 1.00E-15    625.2     2.11 5.41E-03    0.139    0.304    0.675 6.78E-04
 85  16 1.00E-15    835.3     1.24 3.20E-03    0.187    0.470    0.123 1.94E+00
 86  15 1.00E-15    138.3     1.01 9.40E-03    0.135    0.109    0.576 1.58E-02
 87  14 1.00E-15    123.9     1.11 1.22E-03    0.102    0.391    0.473 2.16E+00
 88  13 1.00E-15    996.7     1.20 1.06E-03    0.158    0.352    0.102 2.51E+00
 89  12 1.00E-15    647.8     1.99 1.24E-04    0.162    0.097    0.031 1.11E+00
 90  11 1.00E-15    725.2     1.51 7.83E-03    0.174    0.230    0.130 5.38E+00
 91  10 1.00E-15    238.4     1.15 6.44E-03    0.186    0.351    0.972 3.01E-03
 92  59 1.00E-15    364.5     1.91 1.75E-04    0.132    0.458    0.794 2.83E-02
 93   8 1.00E-15    217.3     1.17 6.74E-03    0.181    0.367    0.203 1.24E+01
 94   7 1.00E-15    478.7     1.16 1.58E-03    0.185    0.293    0.399 1.17E+00
 95   6 1.00E-15    306.8     1.03 8.55E-04    0.110    0.266    0.255 9.02E+00
 96   5 1.00E-15    391.8     1.09 1.61E-04    0.242    0.137    0.606 2.32E-02
 97   4 1.00E-15     85.7     1.19 1.61E-03    0.185    0.440    0.407 6.07E+00
 98   3 1.00E-15    936.3     1.10 8.34E-03    0.165    0.371    0.430 1.78E+01
 99   2 1.00E-15    202.2     1.07 1.72E-04    0.112    0.404    0.850 4.18E-03
100   1 1.00E-15     13.5     1.00 9.77E-03    0.153    0.144    0.234 1.62E+00
```

```
_$249$DKA0:[BF.MJSHORT.JLR]SRTREL.OUT;1          9-JUL-1997 15:23             Page 3

U234 CUMULATIVE RELEASE R1 FULLY MINED

RNK VEC  CUM REL  MINP_FAC CLIMTIDX  APOROS    DPOROS    HMBLKT    OXSTAT    MKD_U
--- --- --------  -------- -------- --------  --------  --------  --------  --------
  1  79 1.00E+00    562.5     1.64  7.10E-03    0.155     0.421     0.647   1.38E-04
     74 9.20E-01     45.6     1.23  6.30E-03    0.205     0.075     0.534   7.91E-05
  3  85 8.56E-01    794.6     1.05  1.36E-03    0.106     0.249     0.778   3.49E-05
  4  33 7.86E-01    349.0     1.93  1.13E-04    0.164     0.330     0.617   1.17E-04
  5  51 6.81E-01    374.2     1.72  3.32E-04    0.168     0.241     0.864   9.07E-05
  6  43 6.70E-01    429.3     1.25  6.63E-04    0.106     0.434     0.841   3.26E-05
  7  57 4.41E-01    885.4     1.08  7.25E-03    0.250     0.286     0.805   6.59E-05
  8  58 2.07E-01    492.9     1.21  1.47E-03    0.166     0.054     0.528   1.78E-04
  9  84 3.85E-02    312.1     1.21  6.47E-04    0.126     0.326     0.513   4.75E-05
 10  68 3.06E-02    589.7     1.12  2.00E-04    0.144     0.445     0.715   6.53E-04
 11  67 2.40E-02    333.8     1.54  5.84E-04    0.231     0.465     0.938   1.58E-04
 12  80 1.02E-02    870.6     1.12  1.37E-04    0.115     0.066     0.732   5.77E-04
 13  54 8.82E-03    518.2     1.81  3.69E-03    0.133     0.246     0.638   1.30E-04
 14  71 1.76E-03    901.7     2.19  4.32E-03    0.165     0.277     0.904   5.54E-05
 15  66 9.59E-04    598.1     1.03  1.14E-03    0.178     0.411     0.728   4.96E-05
 16  72 7.77E-04    224.8     1.07  3.61E-04    0.143     0.450     0.582   1.47E-04
 17  42 2.88E-04    706.7     1.10  5.33E-04    0.104     0.339     0.786   5.41E-04
 18  97 3.93E-05    609.1     1.19  2.82E-03    0.168     0.226     0.746   6.02E-05
 19  92 1.64E-08    632.4     1.17  2.11E-03    0.101     0.317     0.543   4.53E-04
 20  82 1.20E-10    172.5     1.11  5.56E-04    0.190     0.210     0.653   3.57E-03
 21  22 1.98E-11    159.0     1.25  5.09E-04    0.116     0.192     0.966   8.60E-04
 22  47 3.58E-12    481.9     1.68  4.38E-04    0.189     0.312     0.945   5.03E-04
 23  89 1.00E-15    711.4     1.14  4.77E-03    0.161     0.358     0.005   1.08E+00
 24  98 1.00E-15    771.7     1.02  1.47E-04    0.213     0.087     0.185   4.86E+00
 25  77 1.00E-15    984.4     1.08  8.80E-04    0.179     0.170     0.764   2.63E-02
 26  87 1.00E-15    688.0     1.17  2.98E-04    0.188     0.320     0.099   8.34E+00
     86 1.00E-15    415.2     1.12  9.15E-04    0.176     0.103     0.345   1.42E+00
    100 1.00E-15    434.6     1.70  3.11E-03    0.123     0.273     0.240   3.09E+00
 29  75 1.00E-15    276.8     1.79  2.36E-04    0.117     0.376     0.338   1.09E+01
 30  95 1.00E-15    526.3     1.02  2.16E-04    0.183     0.134     0.216   8.62E+00
 31  88 1.00E-15    385.4     1.19  2.32E-03    0.118     0.410     0.445   2.49E+00
 32  81 1.00E-15    955.8     1.15  5.79E-03    0.109     0.206     0.701   8.94E-03
 33  99 1.00E-15    784.1     1.18  1.39E-04    0.127     0.417     0.285   3.68E+00
 34  73 1.00E-15    614.8     1.10  5.51E-03    0.170     0.385     0.012   1.29E+00
 35  90 1.00E-15     65.0     1.20  1.27E-04    0.105     0.108     0.229   9.89E-01
 36  65 1.00E-15    756.2     1.97  3.67E-04    0.113     0.057     0.758   4.91E-03
 37  64 1.00E-15    403.2     1.07  3.26E-04    0.147     0.490     0.317   6.47E+00
 38  63 1.00E-15    576.3     2.17  3.86E-04    0.174     0.063     0.627   2.08E-02
 39  62 1.00E-15    973.8     1.03  1.57E-04    0.177     0.299     0.988   3.49E-03
 40  61 1.00E-15    966.7     1.22  4.67E-04    0.122     0.428     0.594   2.21E-02
 41  60 1.00E-15      5.4     1.58  1.94E-04    0.108     0.478     0.112   1.50E+01
 42  96 1.00E-15    111.7     1.02  4.83E-04    0.176     0.492     0.021   9.63E+00
 43  94 1.00E-15    257.6     1.22  7.45E-04    0.120     0.258     0.833   1.53E-03
 44  69 1.00E-15     56.1     2.08  8.18E-04    0.171     0.215     0.147   4.51E+00
 45  56 1.00E-15    670.3     1.14  5.04E-03    0.111     0.460     0.687   1.28E-03
 46  55 1.00E-15    690.8     1.24  4.44E-03    0.169     0.452     0.819   7.88E-03
 47  78 1.00E-15    940.2     1.09  4.06E-04    0.155     0.091     0.352   9.99E+00
 48  53 1.00E-15    816.7     1.06  2.29E-04    0.160     0.220     0.916   1.44E-02
 49  52 1.00E-15    651.9     2.05  3.57E-03    0.119     0.070     0.462   1.16E+01
 50  76 1.00E-15    105.8     1.23  2.22E-03    0.129     0.297     0.922   1.30E-02
```

```
U234 CUMULATIVE RELEASE R1 FULLY MINED

RNK VEC  CUM REL MINP_FAC CLIMTIDX  APOROS    DPOROS    HMBLKT    OXSTAT    MKD_U
--- --- -------- -------- -------- -------- -------- -------- -------- --------
 51  50 1.00E-15    327.3     1.15 7.04E-04    0.159    0.235    0.268 1.26E+01
[illegible]  49 1.00E-15    503.3     1.11 1.42E-03    0.101    0.282    0.368 9.39E+00
 53  48 1.00E-15    449.1     1.13 2.72E-04    0.180    0.425    0.167 1.04E+00
 54  59 1.00E-15    364.5     1.91 1.75E-04    0.132    0.458    0.794 2.83E-02
 55  70 1.00E-15    463.1     1.84 4.31E-04    0.163    0.162    0.044 2.59E+00
 56  45 1.00E-15    168.2     1.04 1.18E-03    0.173    0.382    0.451 1.36E+01
 57  44 1.00E-15    925.7     1.18 9.02E-03    0.114    0.337    0.054 1.63E+00
 58  93 1.00E-15    534.5     1.06 1.01E-04    0.216    0.307    0.900 3.95E-04
 59  91 1.00E-15    458.0     1.08 2.08E-03    0.150    0.129    0.504 1.05E-04
 60  41 1.00E-15    743.2     1.21 6.16E-04    0.235    0.149    0.493 3.45E+00
 61  40 1.00E-15    671.6     1.05 2.40E-04    0.183    0.398    0.086 4.03E+00
 62  39 1.00E-15    857.0     1.06 1.26E-03    0.140    0.200    0.075 3.82E+00
 63  38 1.00E-15    356.3     1.04 9.79E-04    0.114    0.082    0.693 3.78E-05
 64  37 1.00E-15    893.9     1.14 4.06E-03    0.179    0.174    0.439 1.32E+01
 65  36 1.00E-15    194.0     1.60 2.54E-03    0.142    0.119    0.196 1.96E+00
 66  35 1.00E-15    187.3     1.01 1.91E-03    0.183    0.253    0.280 4.29E+00
 67  46 1.00E-15    766.4     1.23 3.38E-03    0.173    0.486    0.383 8.67E+00
 68  83 1.00E-15    551.2     1.13 3.13E-04    0.182    0.157    0.564 1.36E-02
 69  32 1.00E-15    548.7     2.14 1.68E-03    0.167    0.183    0.064 5.62E+00
 70  31 1.00E-15    241.6     1.04 1.78E-03    0.172    0.126    0.292 1.71E+01
 71  30 1.00E-15    737.8     1.17 4.85E-03    0.188    0.395    0.882 1.07E-03
 72  29 1.00E-15    625.2     2.11 5.41E-03    0.139    0.304    0.675 6.78E-04
 73  28 1.00E-15    861.4     1.20 2.72E-03    0.112    0.078    0.308 3.32E+00
 74  27 1.00E-15    915.6     1.09 2.80E-04    0.110    0.152    0.560 5.98E-05
 75  26 1.00E-15    293.9     1.75 1.88E-04    0.116    0.267    0.416 1.44E+01
 76  25 1.00E-15    261.2     1.87 2.58E-04    0.185    0.477    0.152 1.42E+01
[illegible]  24 1.00E-15    826.7     1.12 1.05E-04    0.137    0.343    0.179 1.51E+00
[illegible]  23 1.00E-15    145.5     1.15 3.96E-03    0.193    0.222    0.990 1.65E-03
 79  34 1.00E-15    285.0     1.20 1.16E-04    0.198    0.197    0.327 1.89E+01
 80  21 1.00E-15     24.8     1.00 1.90E-03    0.117    0.167    0.959 6.58E-03
 81  20 1.00E-15    841.0     1.16 2.47E-03    0.148    0.500    0.871 5.52E-03
 82  19 1.00E-15     34.0     1.04 8.13E-03    0.130    0.187    0.489 7.63E+00
 83  18 1.00E-15     96.8     2.25 3.02E-03    0.222    0.177    0.376 1.02E+01
 84  17 1.00E-15*   802.0     2.02 7.90E-04    0.151    0.362    0.828 1.69E-03
 85  16 1.00E-15    835.3     1.24 3.20E-03    0.187    0.470    0.123 1.94E+00
 86  15 1.00E-15    138.3     1.01 9.40E-03    0.135    0.109    0.576 1.58E-02
 87  14 1.00E-15    123.9     1.11 1.22E-03    0.102    0.391    0.473 2.16E+00
 88  13 1.00E-15    996.7     1.20 1.06E-03    0.158    0.352    0.102 2.51E+00
 89  12 1.00E-15    647.8     1.99 1.24E-04    0.162    0.097    0.031 1.11E+00
 90  11 1.00E-15    725.2     1.51 7.83E-03    0.174    0.230    0.130 5.38E+00
 91  10 1.00E-15    238.4     1.15 6.44E-03    0.186    0.351    0.972 3.01E-03
 92   9 1.00E-15     77.8     1.23 1.00E-03    0.120    0.116    0.668 9.72E-04
 93   8 1.00E-15    217.3     1.17 6.74E-03    0.181    0.367    0.203 1.24E+01
 94   7 1.00E-15    478.7     1.16 1.58E-03    0.185    0.293    0.399 1.17E+00
 95   6 1.00E-15    306.8     1.03 8.55E-04    0.110    0.266    0.255 9.02E+00
 96   5 1.00E-15    391.8     1.09 1.61E-04    0.242    0.137    0.606 2.32E-02
 97   4 1.00E-15     85.7     1.19 1.61E-03    0.185    0.440    0.407 6.07E+00
 98   3 1.00E-15    936.3     1.10 8.34E-03    0.165    0.371    0.430 1.78E+01
 99   2 1.00E-15    202.2     1.07 1.72E-04    0.112    0.404    0.850 4.18E-03
.00   1 1.00E-15     13.5     1.00 9.77E-03    0.153    0.144    0.234 1.62E+00
```

SECOTP2D, U-234, R1, PM

Run # vs Mass Balance Error (MSEU234)



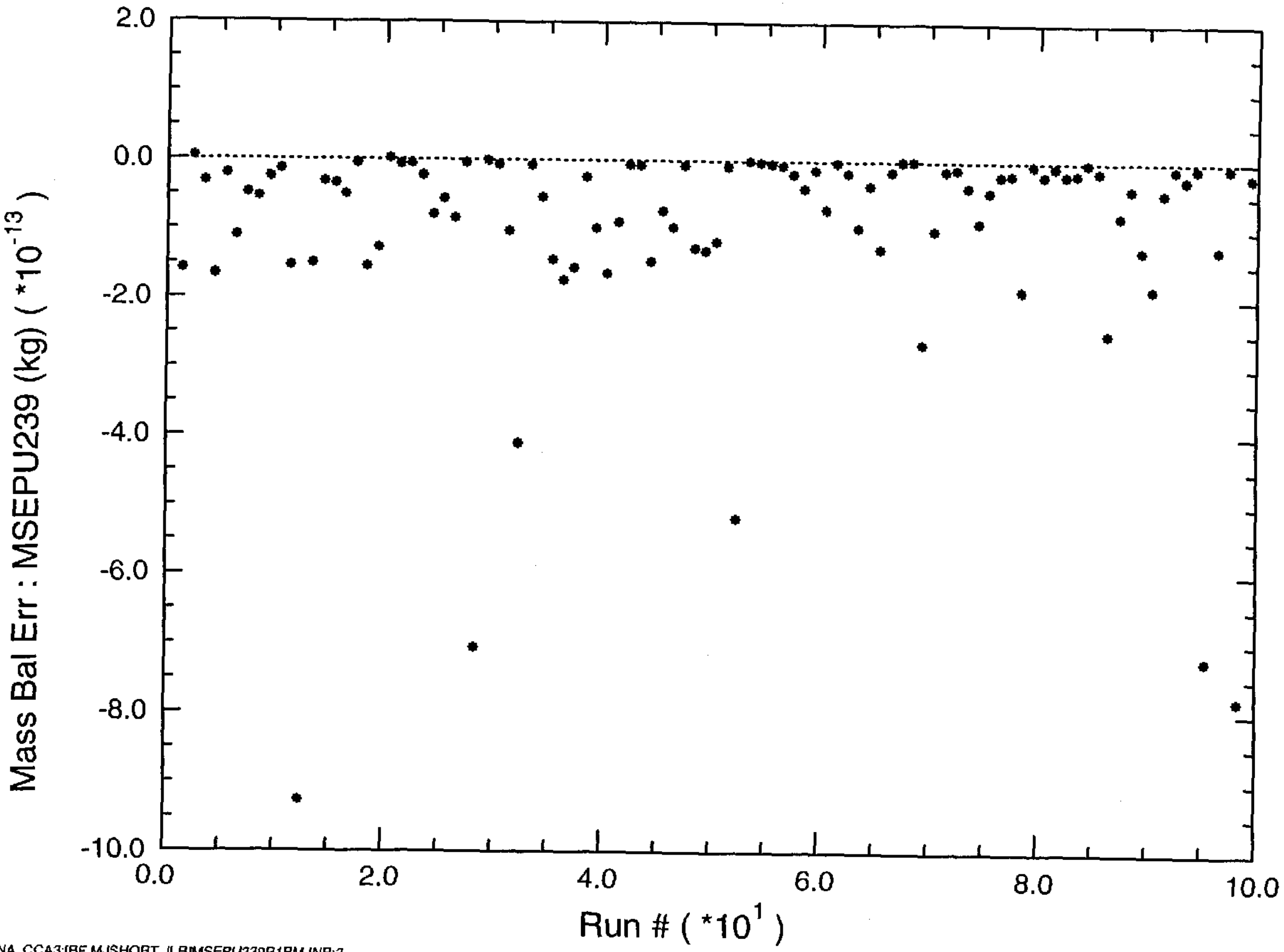
DISK$TINA_CCA3:[BF.MJSHORT.JLR]MSEU234R1PM.INP;12

Figure D.1

SPLAT_PA96_2 1.02 07/09/97 14:30:21

SECOTP2D, PU-239, R1, PM

Run # vs Mass Balance Error (MSEPU239)



DISK$TINA_CCA3:[BF.MJSHORT.JLR]MSEPU239R1PM.INP;3

SPLAT_PA96_2 1.02 07/09/97 14:30:28

Figure D.2

APPENDIX E

CUTTINGS_S RESULTS FOR CUTTINGS, CAVINGS, AND SPALLINGS RELEASES

Appendix E includes Tables and Figures which contain results from cuttings, cavings, and spallings calculations performed using CUTTINGS_S.

Tables

E.1	Total volume removed (S1 with lower intrusion at 10,000 years)
E.2	Total volume removed (S2 with second intrusion at 10,000 years)
E.3	Total volume removed (S3 with second intrusion at 10,000 years)
E.4	Total volume removed (S4 with second intrusion at 10,000 years)
E.5	Total volume removed (S5 with second intrusion at 10,000 years)

Each Table contains the following values:

Column	Description
1	Vector number
2	TAUFAIL - sampled waste shear strength (Pa)
3	PRESGAS0 - repository pressure from BRAGFLO (Pa)
4	VOL_C - cuttings and cavings volume removed (m^3)
5	VOL_S - spallings volume removed (m^3)
6	VOL_T - total cuttings/cavings plus spallings volume (m^3)

Figures

E.1		PAVT cuttings and cavings volumes
E.2	- E.6	PAVT spallings volumes (S1 through S5)
E.7		PAVT cuttings and cavings releases (EPA units)
E.8	- E.12	PAVT spallings release (EPA units) (S1 through S5)
E.13		CCA cuttings and cavings volumes
E.14	- E.18	CCA spallings volumes (S1 through S5)
E.19		CCA cuttings and cavings releases (EPA units)
E.20	- E.24	CCA spallings release (EPA units) (S1 through S5)

Vector	TAUFAIL	PRESGAS0	VOL_C	VOL_S	VOL_T
1	1.881000E+01	8.313978E+06	3.410087E-01	3.513000E+00	3.854008E+00
2	1.856000E-01	1.304271E+07	1.527955E+00	2.425000E+00	3.952954E+00
3	8.527000E-02	1.324386E+07	2.338110E+00	3.825000E+00	6.163110E+00
4	5.363000E+00	1.302371E+07	4.686572E-01	1.599000E+00	2.067657E+00
5	1.307000E+00	1.064915E+07	7.783863E-01	3.869999E+00	4.648386E+00
6	1.665000E+00	6.983255E+06	1.004044E+00	0.000000E+00	1.004044E+00
7	6.758000E+01	1.349429E+07	3.011097E-01	7.293000E-01	1.030410E+00
8	4.290000E+01	1.306052E+07	3.011097E-01	1.719000E+00	2.020110E+00
9	4.501000E+00	8.624728E+06	5.203530E-01	3.043000E+00	3.563353E+00
10	3.408000E+00	7.533316E+06	5.401012E-01	0.000000E+00	5.401012E-01
11	2.629000E-01	1.327372E+07	1.506051E+00	3.304000E+00	4.810051E+00
12	2.512000E-01	1.168348E+07	1.510852E+00	3.204000E+00	4.714851E+00
13	2.191000E-01	4.522048E+06	1.544774E+00	0.000000E+00	1.544774E+00
14	2.677000E+01	8.058337E+06	3.059013E-01	9.920999E-01	1.298001E+00
15	2.879000E+01	8.034358E+06	3.504883E-01	1.655000E+00	2.005488E+00
16	3.997000E+01	7.050389E+06	3.300808E-01	0.000000E+00	3.300808E-01
17	3.024000E+01	1.313897E+07	3.280894E-01	2.021000E+00	2.349089E+00
18	4.025000E+00	7.491482E+06	5.199128E-01	0.000000E+00	5.199128E-01
19	1.170000E+00	1.316570E+07	8.439972E-01	2.695000E+00	3.538997E+00
20	1.595000E+01	8.832614E+06	3.659891E-01	6.424999E-01	1.008489E+00
21	5.307000E-02	6.902767E+06	3.937950E+00	0.000000E+00	3.937950E+00
22	4.204000E-01	1.272474E+07	1.242349E+00	3.378000E+00	4.620349E+00
23	1.067000E+01	9.299010E+06	4.607563E-01	2.743000E+00	3.203756E+00
24	1.471000E+01	1.176252E+07	3.906219E-01	3.547000E+00	3.937622E+00
25	1.159000E-01	1.338674E+07	2.291612E+00	5.713000E-01	2.862912E+00
26	2.891000E+00	1.462004E+07	6.177633E-01	3.717999E+00	4.335763E+00
27	7.333000E+01	8.864839E+06	3.011097E-01	3.300000E+00	3.601110E+00
28	5.119000E-01	1.683461E+07	1.091107E+00	1.537000E+00	2.628106E+00
29	7.923000E-02	1.159344E+07	2.397515E+00	3.839999E+00	6.237515E+00
30	1.227000E+01	1.205750E+07	3.947803E-01	7.084000E-01	1.103180E+00
[illegible]	5.314000E-01	1.222787E+07	9.645854E-01	2.887000E+00	3.851585E+00
32	1.966000E+01	7.146465E+06	3.492019E-01	0.000000E+00	3.492019E-01
33	1.291000E+01	6.839583E+06	3.902639E-01	0.000000E+00	3.902639E-01
34	3.983000E-01	8.686502E+06	1.376624E+00	1.186000E+00	2.562624E+00
35	1.402000E+01	8.089325E+06	4.537664E-01	1.355000E+00	1.808766E+00
36	5.004000E+00	1.316047E+07	5.526043E-01	1.230000E+00	1.782604E+00
37	7.433000E-01	9.732669E+06	9.596525E-01	2.282000E+00	3.241652E+00
38	9.944000E-02	1.278467E+07	2.164160E+00	2.046000E+00	4.210160E+00
39	1.989000E-01	1.375919E+07	1.750881E+00	1.740000E+00	3.490881E+00
40	4.705000E+01	1.298037E+07	3.011097E-01	3.924999E+00	4.226109E+00
41	6.327000E+01	9.727151E+06	3.011097E-01	3.121000E+00	3.422110E+00
42	1.707000E+01	1.371927E+07	3.234804E-01	3.424000E+00	3.747480E+00
43	3.711000E+01	7.129679E+06	3.198346E-01	0.000000E+00	3.198346E-01
44	1.734000E+00	9.791367E+06	6.452036E-01	2.457000E+00	3.102204E+00
45	5.943000E+00	5.125256E+06	4.657365E-01	0.000000E+00	4.657365E-01
46	3.466000E-01	9.754826E+06	1.382688E+00	3.623000E+00	5.005688E+00
47	5.680000E+00	9.641884E+06	4.817018E-01	2.193000E+00	2.674702E+00
48	5.527000E-02	8.157126E+06	3.384981E+00	6.075999E-01	3.992581E+00
49	3.108000E-01	1.362422E+07	1.379820E+00	2.389000E+00	3.768820E+00
50	1.047000E-01	8.863648E+06	2.011564E+00	1.822000E+00	3.833564E+00
51	6.825000E-01	1.505480E+07	1.228051E+00	1.850000E+00	3.078051E+00
52	7.967000E+00	1.017515E+07	5.047065E-01	1.501000E+00	2.005707E+00
53	8.730000E-01	1.073825E+07	9.183298E-01	2.615000E+00	3.533330E+00
54	9.179000E-02	7.225482E+06	2.305037E+00	0.000000E+00	2.305037E+00
55	1.832000E+00	1.227937E+07	8.002669E-01	9.075000E-01	1.707767E+00
56	5.001000E+01	9.230021E+06	3.011097E-01	9.730999E-01	1.274210E+00
[illegible]	9.015000E+00	7.067443E+06	4.179258E-01	0.000000E+00	4.179258E-01
58	1.508000E+00	1.594324E+07	9.178399E-01	2.293000E+00	3.210840E+00
59	7.061000E+00	1.261428E+07	4.990718E-01	2.843000E+00	3.342072E+00
60	2.222000E+00	1.198334E+07	6.345150E-01	2.498000E+00	3.132515E+00
61	1.043000E+01	1.351048E+07	3.987798E-01	1.677000E+00	2.075780E+00
62	4.675000E-01	1.355103E+07	1.201360E+00	3.502000E+00	4.703360E+00
63	1.005000E+00	1.013145E+07	1.004293E+00	1.274000E+00	2.278293E+00

```
  64    1.734000E-01    9.165395E+06    2.623177E+00    3.770999E+00    6.394176E+00
  65    7.423000E+00    8.906859E+06    4.155226E-01    2.644000E+00    3.059522E+00
  66    2.028000E-01    8.308152E+06    1.931292E+00    2.723000E+00    4.654292E+00
  67    2.059000E+00    1.136445E+07    6.883314E-01    3.132000E+00    3.820331E+00
  68    3.820000E-01    5.917095E+06    1.195122E+00    0.000000E+00    1.195122E+00
   9    2.732000E+00    9.780546E+06    6.098419E-01    3.345000E+00    3.954842E+00
  70    1.077000E+00    6.956504E+06    9.598312E-01    0.000000E+00    9.598312E-01
  71    5.858000E-02    7.643066E+06    2.679279E+00    0.000000E+00    2.679279E+00
  72    4.283000E+00    6.975935E+06    5.305738E-01    0.000000E+00    5.305738E-01
  73    3.304000E+01    1.285784E+07    3.526376E-01    1.142000E+00    1.494637E+00
  74    9.577000E+00    1.259078E+07    4.620377E-01    1.117000E+00    1.579038E+00
  75    3.352000E-01    8.960540E+06    1.166569E+00    1.405000E+00    2.571569E+00
  76    1.240000E+00    6.669798E+06    7.172954E-01    0.000000E+00    7.172954E-01
  77    2.503000E+01    9.689947E+06    3.155217E-01    9.376999E-01    1.253222E+00
  78    6.296000E-01    1.002229E+07    1.046829E+00    1.441000E+00    2.487828E+00
  79    1.458000E+00    1.388339E+07    8.188234E-01    1.911000E+00    2.729823E+00
  80    5.362000E+01    6.402442E+06    3.011097E-01    0.000000E+00    3.011097E-01
  81    7.468000E-02    1.320602E+07    2.461991E+00    2.235000E+00    4.696990E+00
  82    1.412000E-01    1.251061E+07    2.023001E+00    2.801000E+00    4.824001E+00
  83    3.638000E+01    6.664872E+06    3.011097E-01    0.000000E+00    3.011097E-01
  84    1.275000E-01    5.561441E+06    2.046814E+00    0.000000E+00    2.046814E+00
  85    6.647000E+00    1.338759E+07    4.658266E-01    3.080000E+00    3.545826E+00
  86    3.079000E+00    1.058925E+07    5.676489E-01    3.165000E+00    3.732648E+00
  87    2.170000E+01    1.298074E+07    3.276996E-01    1.551000E+00    1.878699E+00
  88    8.823000E-01    7.332448E+06    8.914734E-01    0.000000E+00    8.914734E-01
  89    6.472000E-02    1.311729E+07    2.484345E+00    3.999000E+00    6.483345E+00
  90    2.333000E+01    7.771526E+06    3.228688E-01    0.000000E+00    3.228688E-01
  91    2.320000E+00    1.354565E+07    5.954627E-01    8.163999E-01    1.411863E+00
  92    6.055000E+01    1.419827E+07    3.170681E-01    2.109000E+00    2.426068E+00
  93    5.883000E-01    1.413344E+07    9.196289E-01    1.030000E+00    1.949629E+00
   4    1.397000E-01    1.292715E+07    2.057867E+00    1.883000E+00    3.940867E+00
        7.976000E-01    1.330346E+07    9.513561E-01    1.079000E+00    2.030356E+00
  96    2.489000E+00    7.661889E+06    6.020899E-01    0.000000E+00    6.020899E-01
  97    2.764000E-01    1.195490E+07    1.225604E+00    5.526999E-01    1.778304E+00
  98    6.877000E-02    6.784410E+06    2.710916E+00    0.000000E+00    2.710916E+00
  99    3.784000E+00    1.370664E+07    5.359645E-01    8.500999E-01    1.386064E+00
 100    1.541000E-01    8.725798E+06    1.780258E+00    1.952000E+00    3.732258E+00
```

{JDMILLE.C97.CUSP.RESULTS}CUSP_C97_R1S2_L_T10000_REPORT.TBL;2 TABLE 6 2

Vector	TAUFAIL	PRESGAS0	VOL_C	VOL_S	VOL_T
1	1.881000E+01	1.061974E+07	3.410087E-01	3.513000E+00	3.854008E+00
2	1.856000E-01	6.132006E+06	1.527955E+00	0.000000E+00	1.527955E+00
3	8.527000E-02	1.149932E+07	2.338110E+00	3.825000E+00	6.163110E+00
4	5.363000E+00	1.321200E+07	4.686572E-01	1.599000E+00	2.067657E+00
5	1.307000E+00	7.235729E+06	7.783863E-01	0.000000E+00	7.783863E-01
6	1.665000E+00	1.160827E+07	1.004044E+00	2.170000E+00	3.174044E+00
7	6.758000E+01	3.918475E+06	3.011097E-01	0.000000E+00	3.011097E-01
8	4.290000E+01	4.321392E+06	3.011097E-01	0.000000E+00	3.011097E-01
9	4.501000E+00	1.028654E+07	5.203530E-01	3.043000E+00	3.563353E+00
10	3.408000E+00	1.637367E+07	5.401012E-01	3.723000E+00	4.263101E+00
11	2.629000E-01	8.568891E+06	1.506051E+00	3.304000E+00	4.810051E+00
12	2.512000E-01	1.018060E+07	1.510852E+00	3.204000E+00	4.714851E+00
13	2.191000E-01	6.388645E+06	1.544774E+00	0.000000E+00	1.544774E+00
14	2.677000E+01	1.310919E+07	3.059013E-01	9.920999E-01	1.298001E+00
15	2.879000E+01	7.038021E+06	3.504883E-01	0.000000E+00	3.504883E-01
16	3.997000E+01	4.974028E+06	3.300808E-01	0.000000E+00	3.300808E-01
17	3.024000E+01	5.907770E+06	3.280894E-01	0.000000E+00	3.280894E-01
18	4.025000E+00	1.656518E+07	5.199128E-01	2.129000E+00	2.648913E+00
19	1.170000E+00	1.577660E+07	8.439972E-01	2.695000E+00	3.538997E+00
20	1.595000E+01	9.167451E+06	3.659891E-01	6.424999E-01	1.008489E+00
21	5.307000E-02	5.290967E+06	3.937950E+00	0.000000E+00	3.937950E+00
22	4.204000E-01	6.426157E+06	1.242349E+00	0.000000E+00	1.242349E+00
23	1.067000E+01	1.387111E+07	4.607563E-01	2.743000E+00	3.203756E+00
24	1.471000E+01	9.112451E+06	3.906219E-01	3.547000E+00	3.937622E+00
25	1.159000E-01	1.424351E+07	2.291612E+00	5.713000E-01	2.862912E+00
26	2.891000E+00	6.582791E+06	6.177633E-01	0.000000E+00	6.177633E-01
27	7.333000E+01	1.085524E+07	3.011097E-01	3.300000E+00	3.601110E+00
28	5.119000E-01	6.643082E+06	1.091107E+00	0.000000E+00	1.091107E+00
29	7.923000E-02	6.756796E+06	2.397515E+00	0.000000E+00	2.397515E+00
30	1.227000E+01	8.777186E+06	3.947803E-01	7.084000E-01	1.103180E+00
[illegible]	5.314000E-01	7.868657E+06	9.645854E-01	0.000000E+00	9.645854E-01
32	1.966000E+01	6.248678E+06	3.492019E-01	0.000000E+00	3.492019E-01
33	1.291000E+01	6.382814E+06	3.902639E-01	0.000000E+00	3.902639E-01
34	3.983000E-01	5.126832E+06	1.376624E+00	0.000000E+00	1.376624E+00
35	1.402000E+01	4.994385E+06	4.537664E-01	0.000000E+00	4.537664E-01
36	5.004000E+00	6.321558E+06	5.526043E-01	0.000000E+00	5.526043E-01
37	7.433000E-01	1.162162E+07	9.596525E-01	2.282000E+00	3.241652E+00
38	9.944000E-02	1.235670E+07	2.164160E+00	2.046000E+00	4.210160E+00
39	1.989000E-01	4.903277E+06	1.750881E+00	0.000000E+00	1.750881E+00
40	4.705000E+01	1.482279E+06	3.011097E-01	0.000000E+00	3.011097E-01
41	6.327000E+01	1.249988E+07	3.011097E-01	3.121000E+00	3.422110E+00
42	1.707000E+01	1.310746E+07	3.234804E-01	3.424000E+00	3.747480E+00
43	3.711000E+01	7.473561E+06	3.198346E-01	0.000000E+00	3.198346E-01
44	1.734000E+00	1.027050E+07	6.452036E-01	2.457000E+00	3.102204E+00
45	5.943000E+00	1.456674E+07	4.657365E-01	1.471000E+00	1.936736E+00
46	3.466000E-01	8.636536E+06	1.382688E+00	3.623000E+00	5.005688E+00
47	5.680000E+00	1.240746E+07	4.817018E-01	2.193000E+00	2.674702E+00
48	5.527000E-02	1.203693E+07	3.384981E+00	6.075999E-01	3.992581E+00
49	3.108000E-01	6.039826E+06	1.379820E+00	0.000000E+00	1.379820E+00
50	1.047000E-01	6.911268E+06	2.011564E+00	0.000000E+00	2.011564E+00
51	6.825000E-01	6.539583E+06	1.228051E+00	0.000000E+00	1.228051E+00
52	7.967000E+00	7.341537E+06	5.047065E-01	0.000000E+00	5.047065E-01
53	8.730000E-01	7.085047E+06	9.183298E-01	0.000000E+00	9.183298E-01
54	9.179000E-02	6.873937E+06	2.305037E+00	0.000000E+00	2.305037E+00
55	1.832000E+00	6.547234E+06	8.002669E-01	0.000000E+00	8.002669E-01
56	5.001000E+01	8.868146E+06	3.011097E-01	9.730999E-01	1.274210E+00
[illegible]	9.015000E+00	6.565757E+06	4.179258E-01	0.000000E+00	4.179258E-01
58	1.508000E+00	1.390700E+07	9.178399E-01	2.293000E+00	3.210840E+00
59	7.061000E+00	1.436763E+07	4.990718E-01	2.843000E+00	3.342072E+00
60	2.222000E+00	7.165047E+06	6.345150E-01	0.000000E+00	6.345150E-01
61	1.043000E+01	4.336847E+06	3.987798E-01	0.000000E+00	3.987798E-01
62	4.675000E-01	1.315802E+07	1.201360E+00	3.502000E+00	4.703360E+00
63	1.005000E+00	4.514606E+06	1.004293E+00	0.000000E+00	1.004293E+00

```
  64    1.734000E-01    6.528115E+06    2.623177E+00    0.000000E+00    2.623177E+00
  65    7.423000E+00    1.033233E+07    4.155226E-01    2.644000E+00    3.059522E+00
  66    2.028000E-01    6.770005E+06    1.931292E+00    0.000000E+00    1.931292E+00
  67    2.059000E+00    8.869872E+06    6.883314E-01    3.132000E+00    3.820331E+00
  68    3.820000E-01    1.169466E+07    1.195122E+00    2.993000E+00    4.188122E+00
   9    2.732000E+00    1.311927E+07    6.098419E-01    3.345000E+00    3.954842E+00
  70    1.077000E+00    1.085960E+07    9.598312E-01    2.966000E+00    3.925831E+00
  71    5.858000E-02    1.016860E+07    2.679279E+00    1.987000E+00    4.666279E+00
  72    4.283000E+00    6.718355E+06    5.305738E-01    0.000000E+00    5.305738E-01
  73    3.304000E+01    1.185325E+07    3.526376E-01    1.142000E+00    1.494637E+00
  74    9.577000E+00    6.535665E+06    4.620377E-01    0.000000E+00    4.620377E-01
  75    3.352000E-01    6.775627E+06    1.166569E+00    0.000000E+00    1.166569E+00
  76    1.240000E+00    1.006877E+07    7.172954E-01    3.593000E+00    4.310295E+00
  77    2.503000E+01    1.201037E+07    3.155217E-01    9.376999E-01    1.253222E+00
  78    6.296000E-01    1.564535E+07    1.046829E+00    1.441000E+00    2.487828E+00
  79    1.458000E+00    1.614196E+07    8.188234E-01    1.911000E+00    2.729823E+00
  80    5.362000E+01    6.836704E+06    3.011097E-01    0.000000E+00    3.011097E-01
  81    7.468000E-02    6.716209E+06    2.461991E+00    0.000000E+00    2.461991E+00
  82    1.412000E-01    6.145746E+06    2.023001E+00    0.000000E+00    2.023001E+00
  83    3.638000E+01    6.458604E+06    3.011097E-01    0.000000E+00    3.011097E-01
  84    1.275000E-01    1.004375E+07    2.046814E+00    2.921000E+00    4.967814E+00
  85    6.647000E+00    1.269335E+07    4.658266E-01    3.080000E+00    3.545826E+00
  86    3.079000E+00    7.774510E+06    5.676489E-01    0.000000E+00    5.676489E-01
  87    2.170000E+01    2.180029E+06    3.276996E-01    0.000000E+00    3.276996E-01
  88    8.823000E-01    6.480118E+06    8.914734E-01    0.000000E+00    8.914734E-01
  89    6.472000E-02    1.238657E+07    2.484345E+00    3.999000E+00    6.483345E+00
  90    2.333000E+01    7.987342E+06    3.228688E-01    0.000000E+00    3.228688E-01
  91    2.320000E+00    2.510562E+06    5.954627E-01    0.000000E+00    5.954627E-01
  92    6.055000E+01    3.099275E+06    3.170681E-01    0.000000E+00    3.170681E-01
  93    5.883000E-01    4.218196E+06    9.196289E-01    0.000000E+00    9.196289E-01
  94    1.397000E-01    1.419074E+07    2.057867E+00    1.883000E+00    3.940867E+00
        7.976000E-01    1.443610E+07    9.513561E-01    1.079000E+00    2.030356E+00
  96    2.489000E+00    2.553392E+06    6.020899E-01    0.000000E+00    6.020899E-01
  97    2.764000E-01    6.439211E+06    1.225604E+00    0.000000E+00    1.225604E+00
  98    6.877000E-02    8.345177E+06    2.710916E+00    7.807999E-01    3.491716E+00
  99    3.784000E+00    1.489029E+07    5.359645E-01    8.500999E-01    1.386064E+00
 100    1.541000E-01    9.316133E+06    1.780258E+00    1.952000E+00    3.732258E+00
```

[JDMILLE.C97.CUSP.RESULTS]CUSP_C97_R1S3_L_T10000_REPORT.TBL;2 E.3

Vector	TAUFAIL	PRESGAS0	VOL_C	VOL_S	VOL_T
1	1.881000E+01	9.181916E+06	3.410087E-01	3.513000E+00	3.854008E+00
2	1.856000E-01	2.833049E+06	1.527955E+00	0.000000E+00	1.527955E+00
3	8.527000E-02	1.159213E+07	2.338110E+00	3.825000E+00	6.163110E+00
4	5.363000E+00	1.251198E+07	4.686572E-01	1.599000E+00	2.067657E+00
5	1.307000E+00	7.278415E+06	7.783863E-01	0.000000E+00	7.783863E-01
6	1.665000E+00	1.051156E+07	1.004044E+00	2.170000E+00	3.174044E+00
7	6.758000E+01	3.171819E+06	3.011097E-01	0.000000E+00	3.011097E-01
8	4.290000E+01	4.383452E+06	3.011097E-01	0.000000E+00	3.011097E-01
9	4.501000E+00	9.390775E+06	5.203530E-01	3.043000E+00	3.563353E+00
10	3.408000E+00	1.391770E+07	5.401012E-01	3.723000E+00	4.263101E+00
11	2.629000E-01	7.682560E+06	1.506051E+00	0.000000E+00	1.506051E+00
12	2.512000E-01	9.888308E+06	1.510852E+00	3.204000E+00	4.714851E+00
13	2.191000E-01	6.173831E+06	1.544774E+00	0.000000E+00	1.544774E+00
14	2.677000E+01	1.153201E+07	3.059013E-01	9.920999E-01	1.298001E+00
15	2.879000E+01	7.460009E+06	3.504883E-01	0.000000E+00	3.504883E-01
16	3.997000E+01	4.688450E+06	3.300808E-01	0.000000E+00	3.300808E-01
17	3.024000E+01	3.521227E+06	3.280894E-01	0.000000E+00	3.280894E-01
18	4.025000E+00	1.544172E+07	5.199128E-01	2.129000E+00	2.648913E+00
19	1.170000E+00	1.379737E+07	8.439972E-01	2.695000E+00	3.538997E+00
20	1.595000E+01	8.354388E+06	3.659891E-01	6.424999E-01	1.008489E+00
21	5.307000E-02	5.292574E+06	3.937950E+00	0.000000E+00	3.937950E+00
22	4.204000E-01	3.551260E+06	1.242349E+00	0.000000E+00	1.242349E+00
23	1.067000E+01	1.292133E+07	4.607563E-01	2.743000E+00	3.203756E+00
24	1.471000E+01	5.831318E+06	3.906219E-01	0.000000E+00	3.906219E-01
25	1.159000E-01	1.325589E+07	2.291612E+00	5.713000E-01	2.862912E+00
26	2.891000E+00	6.636365E+06	6.177633E-01	0.000000E+00	6.177633E-01
27	7.333000E+01	9.317105E+06	3.011097E-01	3.300000E+00	3.601110E+00
28	5.119000E-01	6.650263E+06	1.091107E+00	0.000000E+00	1.091107E+00
29	7.923000E-02	6.764035E+06	2.397515E+00	0.000000E+00	2.397515E+00
30	1.227000E+01	1.966041E+06	3.947803E-01	0.000000E+00	3.947803E-01
[illegible]	5.314000E-01	7.413066E+06	9.645854E-01	0.000000E+00	9.645854E-01
32	1.966000E+01	6.246676E+06	3.492019E-01	0.000000E+00	3.492019E-01
33	1.291000E+01	4.320345E+06	3.902639E-01	0.000000E+00	3.902639E-01
34	3.983000E-01	4.962924E+06	1.376624E+00	0.000000E+00	1.376624E+00
35	1.402000E+01	3.049466E+06	4.537664E-01	0.000000E+00	4.537664E-01
36	5.004000E+00	5.798375E+06	5.526043E-01	0.000000E+00	5.526043E-01
37	7.433000E-01	8.835626E+06	9.596525E-01	2.282000E+00	3.241652E+00
38	9.944000E-02	1.237712E+07	2.164160E+00	2.046000E+00	4.210160E+00
39	1.989000E-01	2.622305E+06	1.750881E+00	0.000000E+00	1.750881E+00
40	4.705000E+01	1.693863E+06	3.011097E-01	0.000000E+00	3.011097E-01
41	6.327000E+01	1.203676E+07	3.011097E-01	3.121000E+00	3.422110E+00
42	1.707000E+01	1.218296E+07	3.234804E-01	3.424000E+00	3.747480E+00
43	3.711000E+01	7.383605E+06	3.198346E-01	0.000000E+00	3.198346E-01
44	1.734000E+00	9.357676E+06	6.452036E-01	2.457000E+00	3.102204E+00
45	5.943000E+00	1.359956E+07	4.657365E-01	1.471000E+00	1.936736E+00
46	3.466000E-01	8.405049E+06	1.382688E+00	3.623000E+00	5.005688E+00
47	5.680000E+00	1.161298E+07	4.817018E-01	2.193000E+00	2.674702E+00
48	5.527000E-02	1.116739E+07	3.384981E+00	6.075999E-01	3.992581E+00
49	3.108000E-01	4.794402E+06	1.379820E+00	0.000000E+00	1.379820E+00
50	1.047000E-01	6.914397E+06	2.011564E+00	0.000000E+00	2.011564E+00
51	6.825000E-01	5.986023E+06	1.228051E+00	0.000000E+00	1.228051E+00
52	7.967000E+00	4.354629E+06	5.047065E-01	0.000000E+00	5.047065E-01
53	8.730000E-01	7.044989E+06	9.183298E-01	0.000000E+00	9.183298E-01
54	9.179000E-02	6.885277E+06	2.305037E+00	0.000000E+00	2.305037E+00
55	1.832000E+00	6.410676E+06	8.002669E-01	0.000000E+00	8.002669E-01
56	5.001000E+01	8.138215E+06	3.011097E-01	9.730999E-01	1.274210E+00
[illegible]	9.015000E+00	6.574536E+06	4.179258E-01	0.000000E+00	4.179258E-01
58	1.508000E+00	1.193428E+07	9.178399E-01	2.293000E+00	3.210840E+00
59	7.061000E+00	1.251928E+07	4.990718E-01	2.843000E+00	3.342072E+00
60	2.222000E+00	6.986306E+06	6.345150E-01	0.000000E+00	6.345150E-01
61	1.043000E+01	2.944606E+06	3.987798E-01	0.000000E+00	3.987798E-01
62	4.675000E-01	1.254759E+07	1.201360E+00	3.502000E+00	4.703360E+00
63	1.005000E+00	2.235494E+06	1.004293E+00	0.000000E+00	1.004293E+00

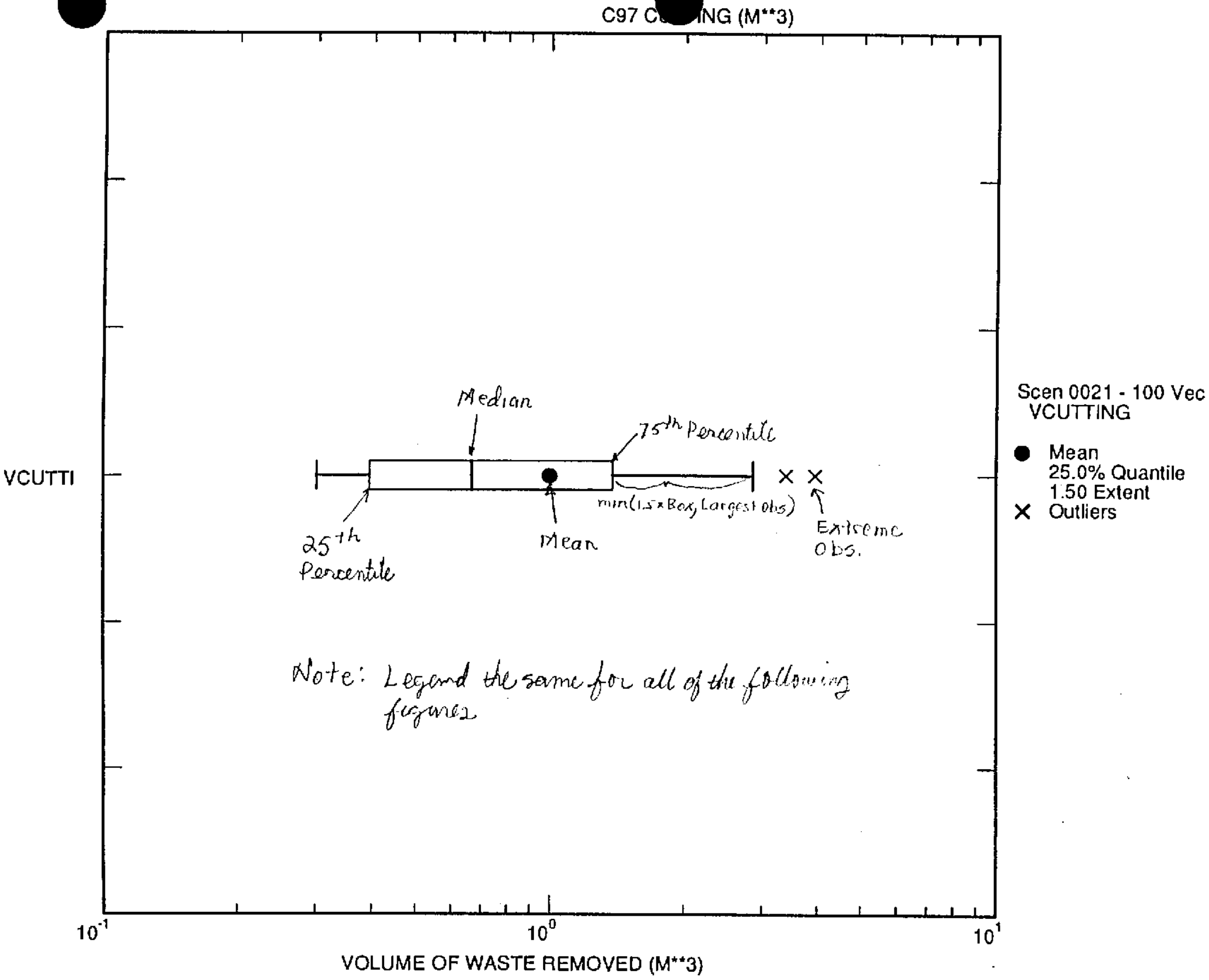
```
  64    1.734000E-01    6.555175E+06    2.623177E+00    0.000000E+00    2.623177E+00
  65    7.423000E+00    9.457559E+06    4.155226E-01    2.644000E+00    3.059522E+00
  66    2.028000E-01    6.776978E+06    1.931292E+00    0.000000E+00    1.931292E+00
  67    2.059000E+00    8.445699E+06    6.883314E-01    3.132000E+00    3.820331E+00
  68    3.820000E-01    1.077540E+07    1.195122E+00    2.993000E+00    4.188122E+00
[illegible] 2.732000E+00    1.063478E+07    6.098419E-01    3.345000E+00    3.954842E+00
  70    1.077000E+00    9.946805E+06    9.598312E-01    2.966000E+00    3.925831E+00
  71    5.858000E-02    9.345084E+06    2.679279E+00    1.987000E+00    4.666279E+00
  72    4.283000E+00    6.732134E+06    5.305738E-01    0.000000E+00    5.305738E-01
  73    3.304000E+01    1.172813E+07    3.526376E-01    1.142000E+00    1.494637E+00
  74    9.577000E+00    6.539473E+06    4.620377E-01    0.000000E+00    4.620377E-01
  75    3.352000E-01    6.756383E+06    1.166569E+00    0.000000E+00    1.166569E+00
  76    1.240000E+00    9.259678E+06    7.172954E-01    3.593000E+00    4.310295E+00
  77    2.503000E+01    1.115312E+07    3.155217E-01    9.376999E-01    1.253222E+00
  78    6.296000E-01    1.511478E+07    1.046829E+00    1.441000E+00    2.487828E+00
  79    1.458000E+00    1.340298E+07    8.188234E-01    1.911000E+00    2.729823E+00
  80    5.362000E+01    6.852417E+06    3.011097E-01    0.000000E+00    3.011097E-01
  81    7.468000E-02    6.733849E+06    2.461991E+00    0.000000E+00    2.461991E+00
  82    1.412000E-01    6.140312E+06    2.023001E+00    0.000000E+00    2.023001E+00
  83    3.638000E+01    6.467567E+06    3.011097E-01    0.000000E+00    3.011097E-01
  84    1.275000E-01    9.122174E+06    2.046814E+00    2.921000E+00    4.967814E+00
  85    6.647000E+00    1.254713E+07    4.658266E-01    3.080000E+00    3.545826E+00
  86    3.079000E+00    7.506445E+06    5.676489E-01    0.000000E+00    5.676489E-01
  87    2.170000E+01    2.149525E+06    3.276996E-01    0.000000E+00    3.276996E-01
  88    8.823000E-01    6.497376E+06    8.914734E-01    0.000000E+00    8.914734E-01
  89    6.472000E-02    1.240858E+07    2.484345E+00    3.999000E+00    6.483345E+00
  90    2.333000E+01    7.922006E+06    3.228688E-01    0.000000E+00    3.228688E-01
  91    2.320000E+00    2.168951E+06    5.954627E-01    0.000000E+00    5.954627E-01
  92    6.055000E+01    3.031410E+06    3.170681E-01    0.000000E+00    3.170681E-01
  93    5.883000E-01    4.096848E+06    9.196289E-01    0.000000E+00    9.196289E-01
[illegible] 1.397000E-01    1.160782E+07    2.057867E+00    1.883000E+00    3.940867E+00
[illegible] 7.976000E-01    1.394175E+07    9.513561E-01    1.079000E+00    2.030356E+00
  96    2.489000E+00    2.889166E+06    6.020899E-01    0.000000E+00    6.020899E-01
  97    2.764000E-01    6.301345E+06    1.225604E+00    0.000000E+00    1.225604E+00
  98    6.877000E-02    7.958956E+06    2.710916E+00    0.000000E+00    2.710916E+00
  99    3.784000E+00    1.414957E+07    5.359645E-01    8.500999E-01    1.386064E+00
 100    1.541000E-01    7.853370E+06    1.780258E+00    0.000000E+00    1.780258E+00
```

Vector	TAUFAIL	PRESGAS0	VOL_C	VOL_S	VOL_T
1	1.881000E+01	7.364022E+06	3.410087E-01	0.000000E+00	3.410087E-01
2	1.856000E-01	2.526431E+06	1.527955E+00	0.000000E+00	1.527955E+00
3	8.527000E-02	1.150084E+07	2.338110E+00	3.825000E+00	6.163110E+00
4	5.363000E+00	1.249490E+07	4.686572E-01	1.599000E+00	2.067657E+00
5	1.307000E+00	6.531023E+06	7.783863E-01	0.000000E+00	7.783863E-01
6	1.665000E+00	6.996461E+06	1.004044E+00	0.000000E+00	1.004044E+00
7	6.758000E+01	3.168365E+06	3.011097E-01	0.000000E+00	3.011097E-01
8	4.290000E+01	4.248073E+06	3.011097E-01	0.000000E+00	3.011097E-01
9	4.501000E+00	7.437265E+06	5.203530E-01	0.000000E+00	5.203530E-01
10	3.408000E+00	7.483395E+06	5.401012E-01	0.000000E+00	5.401012E-01
11	2.629000E-01	7.704410E+06	1.506051E+00	0.000000E+00	1.506051E+00
12	2.512000E-01	9.561047E+06	1.510852E+00	3.204000E+00	4.714851E+00
13	2.191000E-01	1.708907E+06	1.544774E+00	0.000000E+00	1.544774E+00
14	2.677000E+01	7.669393E+06	3.059013E-01	0.000000E+00	3.059013E-01
15	2.879000E+01	5.550863E+06	3.504883E-01	0.000000E+00	3.504883E-01
16	3.997000E+01	3.424555E+06	3.300808E-01	0.000000E+00	3.300808E-01
17	3.024000E+01	1.170526E+06	3.280894E-01	0.000000E+00	3.280894E-01
18	4.025000E+00	7.205866E+06	5.199128E-01	0.000000E+00	5.199128E-01
19	1.170000E+00	1.312598E+07	8.439972E-01	2.695000E+00	3.538997E+00
20	1.595000E+01	7.397721E+06	3.659891E-01	0.000000E+00	3.659891E-01
21	5.307000E-02	1.779050E+06	3.937950E+00	0.000000E+00	3.937950E+00
22	4.204000E-01	3.427146E+06	1.242349E+00	0.000000E+00	1.242349E+00
23	1.067000E+01	9.274472E+06	4.607563E-01	2.743000E+00	3.203756E+00
24	1.471000E+01	5.052162E+06	3.906219E-01	0.000000E+00	3.906219E-01
25	1.159000E-01	1.328498E+07	2.291612E+00	5.713000E-01	2.862912E+00
26	2.891000E+00	6.337056E+06	6.177633E-01	0.000000E+00	6.177633E-01
27	7.333000E+01	7.415667E+06	3.011097E-01	0.000000E+00	3.011097E-01
28	5.119000E-01	6.323043E+06	1.091107E+00	0.000000E+00	1.091107E+00
29	7.923000E-02	6.367837E+06	2.397515E+00	0.000000E+00	2.397515E+00
30	1.227000E+01	1.218354E+06	3.947803E-01	0.000000E+00	3.947803E-01
[illegible]	5.314000E-01	7.951466E+06	9.645854E-01	0.000000E+00	9.645854E-01
32	1.966000E+01	1.440322E+06	3.492019E-01	0.000000E+00	3.492019E-01
33	1.291000E+01	1.361270E+06	3.902639E-01	0.000000E+00	3.902639E-01
34	3.983000E-01	1.936708E+06	1.376624E+00	0.000000E+00	1.376624E+00
35	1.402000E+01	2.406716E+06	4.537664E-01	0.000000E+00	4.537664E-01
36	5.004000E+00	5.694559E+06	5.526043E-01	0.000000E+00	5.526043E-01
37	7.433000E-01	8.473705E+06	9.596525E-01	2.282000E+00	3.241652E+00
38	9.944000E-02	1.237620E+07	2.164160E+00	2.046000E+00	4.210160E+00
39	1.989000E-01	1.397828E+06	1.750881E+00	0.000000E+00	1.750881E+00
40	4.705000E+01	1.365788E+06	3.011097E-01	0.000000E+00	3.011097E-01
41	6.327000E+01	9.723825E+06	3.011097E-01	3.121000E+00	3.422110E+00
42	1.707000E+01	1.221530E+07	3.234804E-01	3.424000E+00	3.747480E+00
43	3.711000E+01	1.410218E+06	3.198346E-01	0.000000E+00	3.198346E-01
44	1.734000E+00	8.256639E+06	6.452036E-01	2.457000E+00	3.102204E+00
45	5.943000E+00	4.925884E+06	4.657365E-01	0.000000E+00	4.657365E-01
46	3.466000E-01	7.719559E+06	1.382688E+00	0.000000E+00	1.382688E+00
47	5.680000E+00	9.649041E+06	4.817018E-01	2.193000E+00	2.674702E+00
48	5.527000E-02	7.835438E+06	3.384981E+00	0.000000E+00	3.384981E+00
49	3.108000E-01	1.582511E+06	1.379820E+00	0.000000E+00	1.379820E+00
50	1.047000E-01	2.583637E+06	2.011564E+00	0.000000E+00	2.011564E+00
51	6.825000E-01	1.110775E+06	1.228051E+00	0.000000E+00	1.228051E+00
52	7.967000E+00	2.612925E+06	5.047065E-01	0.000000E+00	5.047065E-01
53	8.730000E-01	6.449974E+06	9.183298E-01	0.000000E+00	9.183298E-01
54	9.179000E-02	6.363511E+06	2.305037E+00	0.000000E+00	2.305037E+00
55	1.832000E+00	6.157295E+06	8.002669E-01	0.000000E+00	8.002669E-01
56	5.001000E+01	8.041371E+06	3.011097E-01	9.730999E-01	1.274210E+00
[illegible]	9.015000E+00	6.349460E+06	4.179258E-01	0.000000E+00	4.179258E-01
58	1.508000E+00	1.391216E+07	9.178399E-01	2.293000E+00	3.210840E+00
59	7.061000E+00	1.254465E+07	4.990718E-01	2.843000E+00	3.342072E+00
60	2.222000E+00	5.321256E+06	6.345150E-01	0.000000E+00	6.345150E-01
61	1.043000E+01	2.965174E+06	3.987798E-01	0.000000E+00	3.987798E-01
62	4.675000E-01	1.277453E+07	1.201360E+00	3.502000E+00	4.703360E+00
63	1.005000E+00	1.771434E+06	1.004293E+00	0.000000E+00	1.004293E+00

```
  64    1.734000E-01    6.247018E+06    2.623177E+00    0.000000E+00    2.623177E+00
  65    7.423000E+00    8.484323E+06    4.155226E-01    2.644000E+00    3.059522E+00
  66    2.028000E-01    6.261475E+06    1.931292E+00    0.000000E+00    1.931292E+00
  67    2.059000E+00    7.640246E+06    6.883314E-01    0.000000E+00    6.883314E-01
  68    3.820000E-01    5.805614E+06    1.195122E+00    0.000000E+00    1.195122E+00
   9    2.732000E+00    8.355479E+06    6.098419E-01    3.345000E+00    3.954842E+00
  70    1.077000E+00    6.962780E+06    9.598312E-01    0.000000E+00    9.598312E-01
  71    5.858000E-02    7.482187E+06    2.679279E+00    0.000000E+00    2.679279E+00
  72    4.283000E+00    6.349355E+06    5.305738E-01    0.000000E+00    5.305738E-01
  73    3.304000E+01    1.151474E+07    3.526376E-01    1.142000E+00    1.494637E+00
  74    9.577000E+00    6.344317E+06    4.620377E-01    0.000000E+00    4.620377E-01
  75    3.352000E-01    2.625988E+06    1.166569E+00    0.000000E+00    1.166569E+00
  76    1.240000E+00    6.581329E+06    7.172954E-01    0.000000E+00    7.172954E-01
  77    2.503000E+01    9.679260E+06    3.155217E-01    9.376999E-01    1.253222E+00
  78    6.296000E-01    1.001448E+07    1.046829E+00    1.441000E+00    2.487828E+00
  79    1.458000E+00    1.370243E+07    8.188234E-01    1.911000E+00    2.729823E+00
  80    5.362000E+01    6.407749E+06    3.011097E-01    0.000000E+00    3.011097E-01
  81    7.468000E-02    6.383651E+06    2.461991E+00    0.000000E+00    2.461991E+00
  82    1.412000E-01    1.191179E+06    2.023001E+00    0.000000E+00    2.023001E+00
  83    3.638000E+01    6.329577E+06    3.011097E-01    0.000000E+00    3.011097E-01
  84    1.275000E-01    5.551087E+06    2.046814E+00    0.000000E+00    2.046814E+00
  85    6.647000E+00    1.251637E+07    4.658266E-01    3.080000E+00    3.545826E+00
  86    3.079000E+00    6.542744E+06    5.676489E-01    0.000000E+00    5.676489E-01
  87    2.170000E+01    1.815961E+06    3.276996E-01    0.000000E+00    3.276996E-01
  88    8.823000E-01    6.287146E+06    8.914734E-01    0.000000E+00    8.914734E-01
  89    6.472000E-02    1.239389E+07    2.484345E+00    3.999000E+00    6.483345E+00
  90    2.333000E+01    6.708617E+06    3.228688E-01    0.000000E+00    3.228688E-01
  91    2.320000E+00    1.733497E+06    5.954627E-01    0.000000E+00    5.954627E-01
  92    6.055000E+01    2.938097E+06    3.170681E-01    0.000000E+00    3.170681E-01
  93    5.883000E-01    4.596281E+06    9.196289E-01    0.000000E+00    9.196289E-01
        1.397000E-01    1.174389E+07    2.057867E+00    1.883000E+00    3.940867E+00
        7.976000E-01    1.317699E+07    9.513561E-01    1.079000E+00    2.030356E+00
  96    2.489000E+00    2.331007E+06    6.020899E-01    0.000000E+00    6.020899E-01
  97    2.764000E-01    1.742225E+06    1.225604E+00    0.000000E+00    1.225604E+00
  98    6.877000E-02    6.292651E+06    2.710916E+00    0.000000E+00    2.710916E+00
  99    3.784000E+00    1.368746E+07    5.359645E-01    8.500999E-01    1.386064E+00
 100    1.541000E-01    5.936306E+06    1.780258E+00    0.000000E+00    1.780258E+00
```

```
Vector   TAUFAIL        PRESGAS0        VOL_C           VOL_S           VOL_T
   1   1.881000E+01   7.373383E+06   3.410087E-01   0.000000E+00   3.410087E-01
   2   1.856000E-01   2.535215E+06   1.527955E+00   0.000000E+00   1.527955E+00
   3   8.527000E-02   1.159446E+07   2.338110E+00   3.825000E+00   6.163110E+00
   4   5.363000E+00   1.251483E+07   4.686572E-01   1.599000E+00   2.067657E+00
   5   1.307000E+00   6.531374E+06   7.783863E-01   0.000000E+00   7.783863E-01
   6   1.665000E+00   6.994745E+06   1.004044E+00   0.000000E+00   1.004044E+00
   7   6.758000E+01   3.144333E+06   3.011097E-01   0.000000E+00   3.011097E-01
   8   4.290000E+01   4.321098E+06   3.011097E-01   0.000000E+00   3.011097E-01
   9   4.501000E+00   7.457330E+06   5.203530E-01   0.000000E+00   5.203530E-01
  10   3.408000E+00   7.478015E+06   5.401012E-01   0.000000E+00   5.401012E-01
  11   2.629000E-01   7.698039E+06   1.506051E+00   0.000000E+00   1.506051E+00
  12   2.512000E-01   9.548139E+06   1.510852E+00   3.204000E+00   4.714851E+00
  13   2.191000E-01   1.708567E+06   1.544774E+00   0.000000E+00   1.544774E+00
  14   2.677000E+01   7.645779E+06   3.059013E-01   0.000000E+00   3.059013E-01
  15   2.879000E+01   5.520873E+06   3.504883E-01   0.000000E+00   3.504883E-01
  16   3.997000E+01   3.444735E+06   3.300808E-01   0.000000E+00   3.300808E-01
  17   3.024000E+01   1.395969E+06   3.280894E-01   0.000000E+00   3.280894E-01
  18   4.025000E+00   7.183680E+06   5.199128E-01   0.000000E+00   5.199128E-01
  19   1.170000E+00   1.307667E+07   8.439972E-01   2.695000E+00   3.538997E+00
  20   1.595000E+01   7.405975E+06   3.659891E-01   0.000000E+00   3.659891E-01
  21   5.307000E-02   1.754674E+06   3.937950E+00   0.000000E+00   3.937950E+00
  22   4.204000E-01   3.394991E+06   1.242349E+00   0.000000E+00   1.242349E+00
  23   1.067000E+01   9.271284E+06   4.607563E-01   2.743000E+00   3.203756E+00
  24   1.471000E+01   5.049310E+06   3.906219E-01   0.000000E+00   3.906219E-01
  25   1.159000E-01   1.325597E+07   2.291612E+00   5.713000E-01   2.862912E+00
  26   2.891000E+00   6.190234E+06   6.177633E-01   0.000000E+00   6.177633E-01
  27   7.333000E+01   7.392509E+06   3.011097E-01   0.000000E+00   3.011097E-01
  28   5.119000E-01   6.324246E+06   1.091107E+00   0.000000E+00   1.091107E+00
  29   7.923000E-02   6.351389E+06   2.397515E+00   0.000000E+00   2.397515E+00
       1.227000E+01   1.213401E+06   3.947803E-01   0.000000E+00   3.947803E-01
       5.314000E-01   7.896204E+06   9.645854E-01   0.000000E+00   9.645854E-01
  32   1.966000E+01   1.388802E+06   3.492019E-01   0.000000E+00   3.492019E-01
  33   1.291000E+01   1.351480E+06   3.902639E-01   0.000000E+00   3.902639E-01
  34   3.983000E-01   1.960507E+06   1.376624E+00   0.000000E+00   1.376624E+00
  35   1.402000E+01   2.407676E+06   4.537664E-01   0.000000E+00   4.537664E-01
  36   5.004000E+00   5.783576E+06   5.526043E-01   0.000000E+00   5.526043E-01
  37   7.433000E-01   8.487429E+06   9.596525E-01   2.282000E+00   3.241652E+00
  38   9.944000E-02   1.239152E+07   2.164160E+00   2.046000E+00   4.210160E+00
  39   1.989000E-01   1.399488E+06   1.750881E+00   0.000000E+00   1.750881E+00
  40   4.705000E+01   1.343836E+06   3.011097E-01   0.000000E+00   3.011097E-01
  41   6.327000E+01   9.722180E+06   3.011097E-01   3.121000E+00   3.422110E+00
  42   1.707000E+01   1.209046E+07   3.234804E-01   3.424000E+00   3.747480E+00
  43   3.711000E+01   1.365489E+06   3.198346E-01   0.000000E+00   3.198346E-01
  44   1.734000E+00   8.170832E+06   6.452036E-01   2.457000E+00   3.102204E+00
  45   5.943000E+00   4.894963E+06   4.657365E-01   0.000000E+00   4.657365E-01
  46   3.466000E-01   7.747220E+06   1.382688E+00   0.000000E+00   1.382688E+00
  47   5.680000E+00   9.659723E+06   4.817018E-01   2.193000E+00   2.674702E+00
  48   5.527000E-02   7.804548E+06   3.384981E+00   0.000000E+00   3.384981E+00
  49   3.108000E-01   1.470191E+06   1.379820E+00   0.000000E+00   1.379820E+00
  50   1.047000E-01   2.390125E+06   2.011564E+00   0.000000E+00   2.011564E+00
  51   6.825000E-01   1.312145E+06   1.228051E+00   0.000000E+00   1.228051E+00
  52   7.967000E+00   2.588183E+06   5.047065E-01   0.000000E+00   5.047065E-01
  53   8.730000E-01   6.487796E+06   9.183298E-01   0.000000E+00   9.183298E-01
  54   9.179000E-02   6.363378E+06   2.305037E+00   0.000000E+00   2.305037E+00
  55   1.832000E+00   6.164639E+06   8.002669E-01   0.000000E+00   8.002669E-01
       5.001000E+01   8.053402E+06   3.011097E-01   9.730999E-01   1.274210E+00
       9.015000E+00   6.348591E+06   4.179258E-01   0.000000E+00   4.179258E-01
  58   1.508000E+00   1.410361E+07   9.178399E-01   2.293000E+00   3.210840E+00
  59   7.061000E+00   1.252872E+07   4.990718E-01   2.843000E+00   3.342072E+00
  60   2.222000E+00   4.906160E+06   6.345150E-01   0.000000E+00   6.345150E-01
  61   1.043000E+01   2.867572E+06   3.987798E-01   0.000000E+00   3.987798E-01
  62   4.675000E-01   1.254951E+07   1.201360E+00   3.502000E+00   4.703360E+00
  63   1.005000E+00   1.757106E+06   1.004293E+00   0.000000E+00   1.004293E+00
```

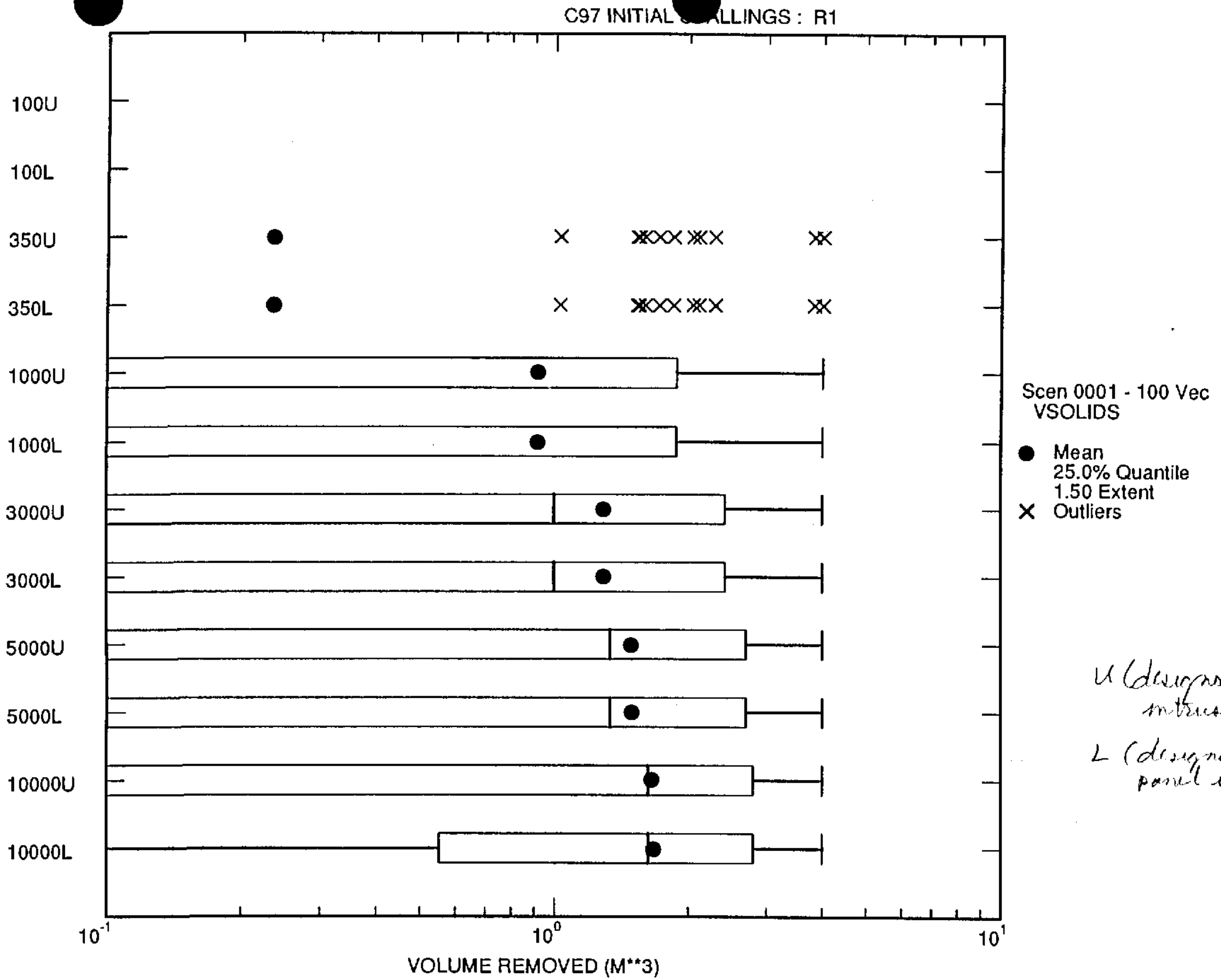
```
  64    1.734000E-01    6.291995E+06    2.623177E+00    0.000000E+00    2.623177E+00
  65    7.423000E+00    8.489412E+06    4.155226E-01    2.644000E+00    3.059522E+00
  66    2.028000E-01    6.174565E+06    1.931292E+00    0.000000E+00    1.931292E+00
  67    2.059000E+00    7.541346E+06    6.883314E-01    0.000000E+00    6.883314E-01
  68    3.820000E-01    5.803846E+06    1.195122E+00    0.000000E+00    1.195122E+00
 [illegible]9    2.732000E+00    8.354590E+06    6.098419E-01    3.345000E+00    3.954842E+00
 [illegible].0    1.077000E+00    6.962229E+06    9.598312E-01    0.000000E+00    9.598312E-01
  71    5.858000E-02    7.481840E+06    2.679279E+00    0.000000E+00    2.679279E+00
  72    4.283000E+00    6.349888E+06    5.305738E-01    0.000000E+00    5.305738E-01
  73    3.304000E+01    1.155038E+07    3.526376E-01    1.142000E+00    1.494637E+00
  74    9.577000E+00    6.343445E+06    4.620377E-01    0.000000E+00    4.620377E-01
  75    3.352000E-01    2.528426E+06    1.166569E+00    0.000000E+00    1.166569E+00
  76    1.240000E+00    6.576579E+06    7.172954E-01    0.000000E+00    7.172954E-01
  77    2.503000E+01    9.672822E+06    3.155217E-01    9.376999E-01    1.253222E+00
  78    6.296000E-01    1.001228E+07    1.046829E+00    1.441000E+00    2.487828E+00
  79    1.458000E+00    1.365678E+07    8.188234E-01    1.911000E+00    2.729823E+00
  80    5.362000E+01    6.431414E+06    3.011097E-01    0.000000E+00    3.011097E-01
  81    7.468000E-02    6.386720E+06    2.461991E+00    0.000000E+00    2.461991E+00
  82    1.412000E-01    1.258591E+06    2.023001E+00    0.000000E+00    2.023001E+00
  83    3.638000E+01    6.338787E+06    3.011097E-01    0.000000E+00    3.011097E-01
  84    1.275000E-01    5.546087E+06    2.046814E+00    0.000000E+00    2.046814E+00
  85    6.647000E+00    1.254539E+07    4.658266E-01    3.080000E+00    3.545826E+00
  86    3.079000E+00    6.525979E+06    5.676489E-01    0.000000E+00    5.676489E-01
  87    2.170000E+01    1.794556E+06    3.276996E-01    0.000000E+00    3.276996E-01
  88    8.823000E-01    6.289411E+06    8.914734E-01    0.000000E+00    8.914734E-01
  89    6.472000E-02    1.241163E+07    2.484345E+00    3.999000E+00    6.483345E+00
  90    2.333000E+01    6.718701E+06    3.228688E-01    0.000000E+00    3.228688E-01
  91    2.320000E+00    1.748745E+06    5.954627E-01    0.000000E+00    5.954627E-01
  92    6.055000E+01    2.959483E+06    3.170681E-01    0.000000E+00    3.170681E-01
  93    5.883000E-01    4.116444E+06    9.196289E-01    0.000000E+00    9.196289E-01
 [illegible]    1.397000E-01    1.176670E+07    2.057867E+00    1.883000E+00    3.940867E+00
 [illegible]    7.976000E-01    1.316561E+07    9.513561E-01    1.079000E+00    2.030356E+00
  96    2.489000E+00    2.321361E+06    6.020899E-01    0.000000E+00    6.020899E-01
  97    2.764000E-01    1.694501E+06    1.225604E+00    0.000000E+00    1.225604E+00
  98    6.877000E-02    6.294055E+06    2.710916E+00    0.000000E+00    2.710916E+00
  99    3.784000E+00    1.367937E+07    5.359645E-01    8.500999E-01    1.386064E+00
 100    1.541000E-01    5.947879E+06    1.780258E+00    0.000000E+00    1.780258E+00
```



Note: Legend the same for all of the following figures

E.1 PAVT Cuttings Results (Volume)

NUCPLOT PA96 1.19 07/16/97 09:38

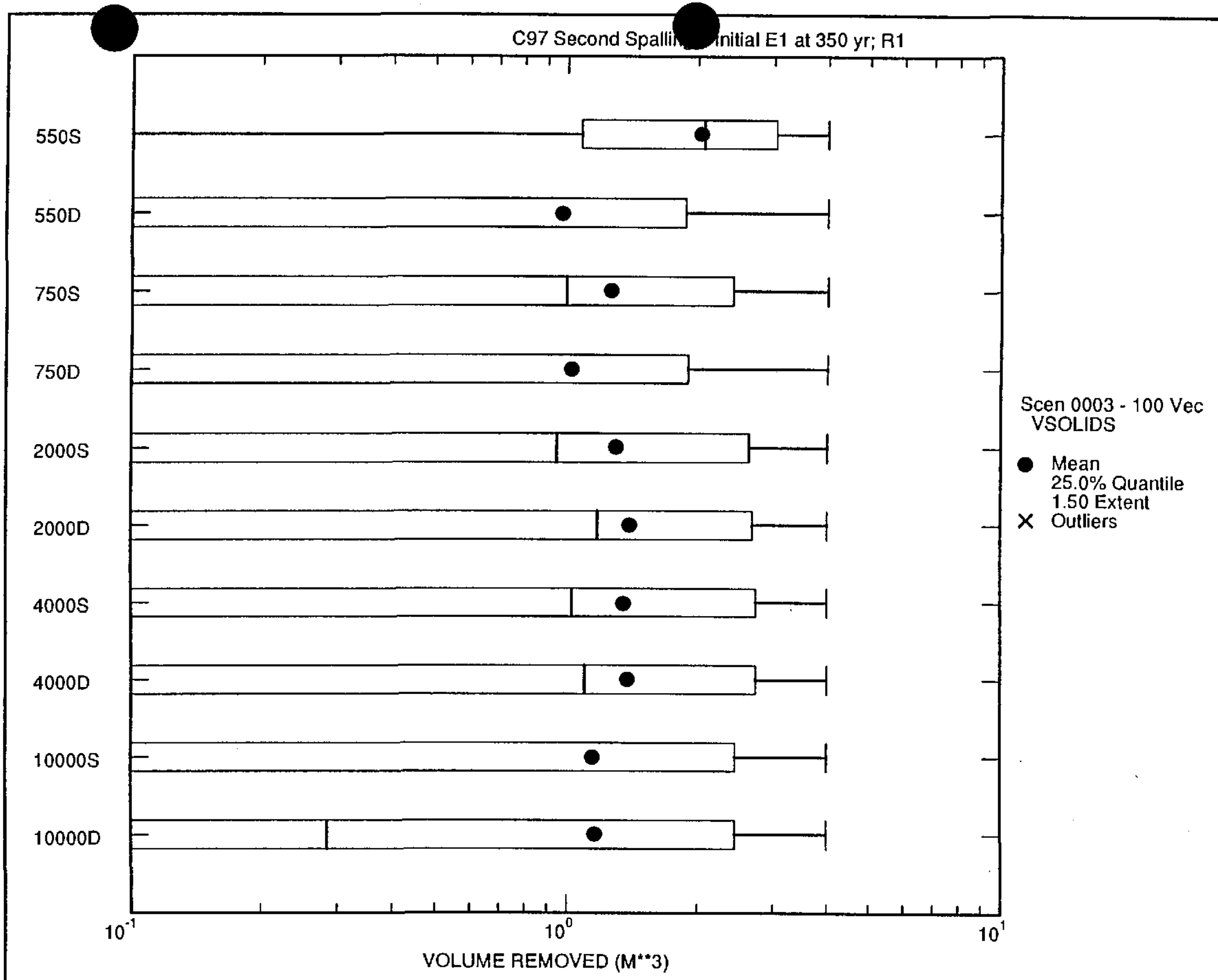


U (designates upper intrusion)

L (designate lower panel intrusion)

E.2 PAVT Spalling Results for S1 (Volume)

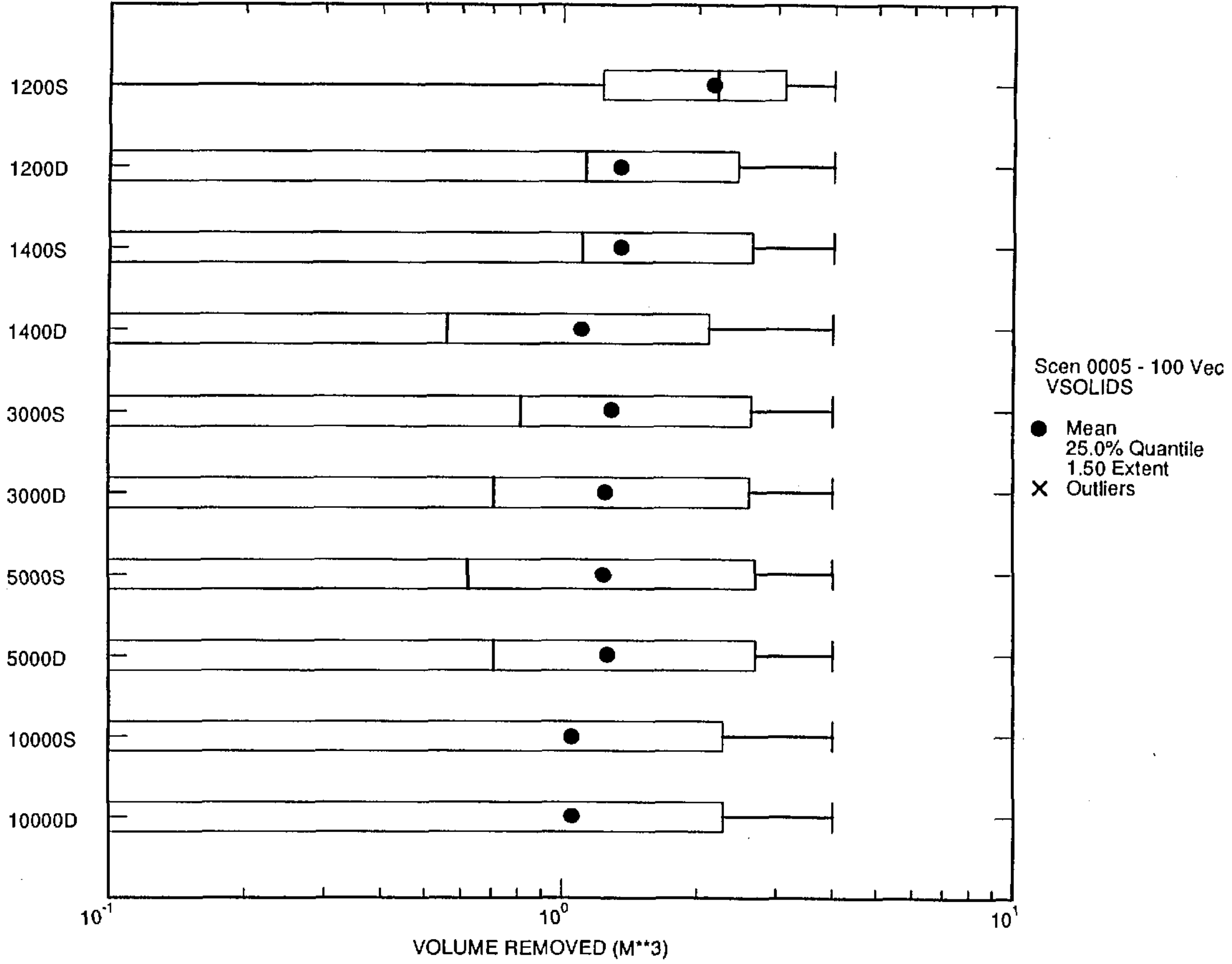
NUCPLOT PA96 1.19 07/16/97 09:50



E3 PAVT Spalling Results (S2) (Volume)

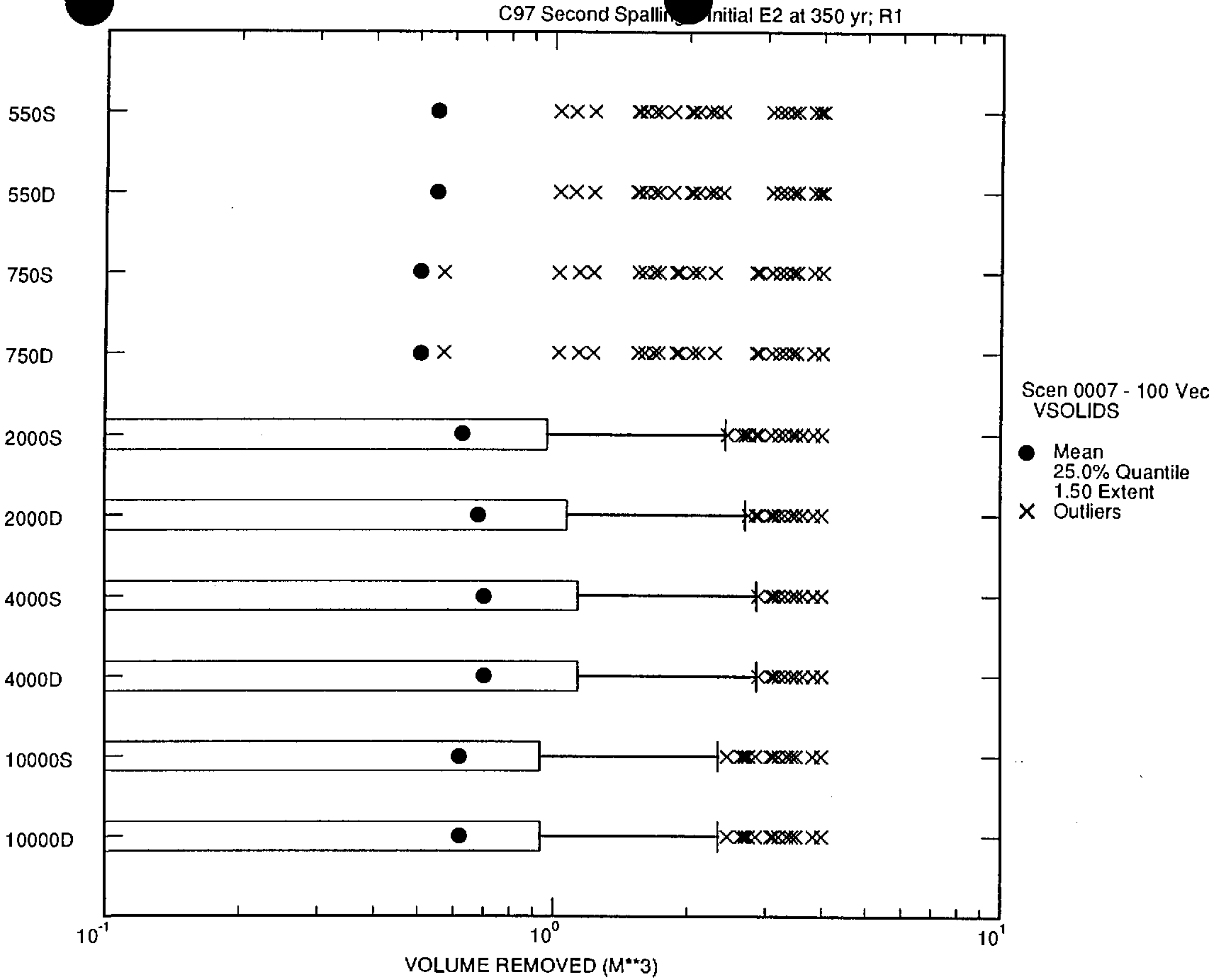
NUCPLOT_PA96 1.19 07/16/97 09:50

C97 Second Spallin[illegible]nitial E1 at 1000 yr; R1



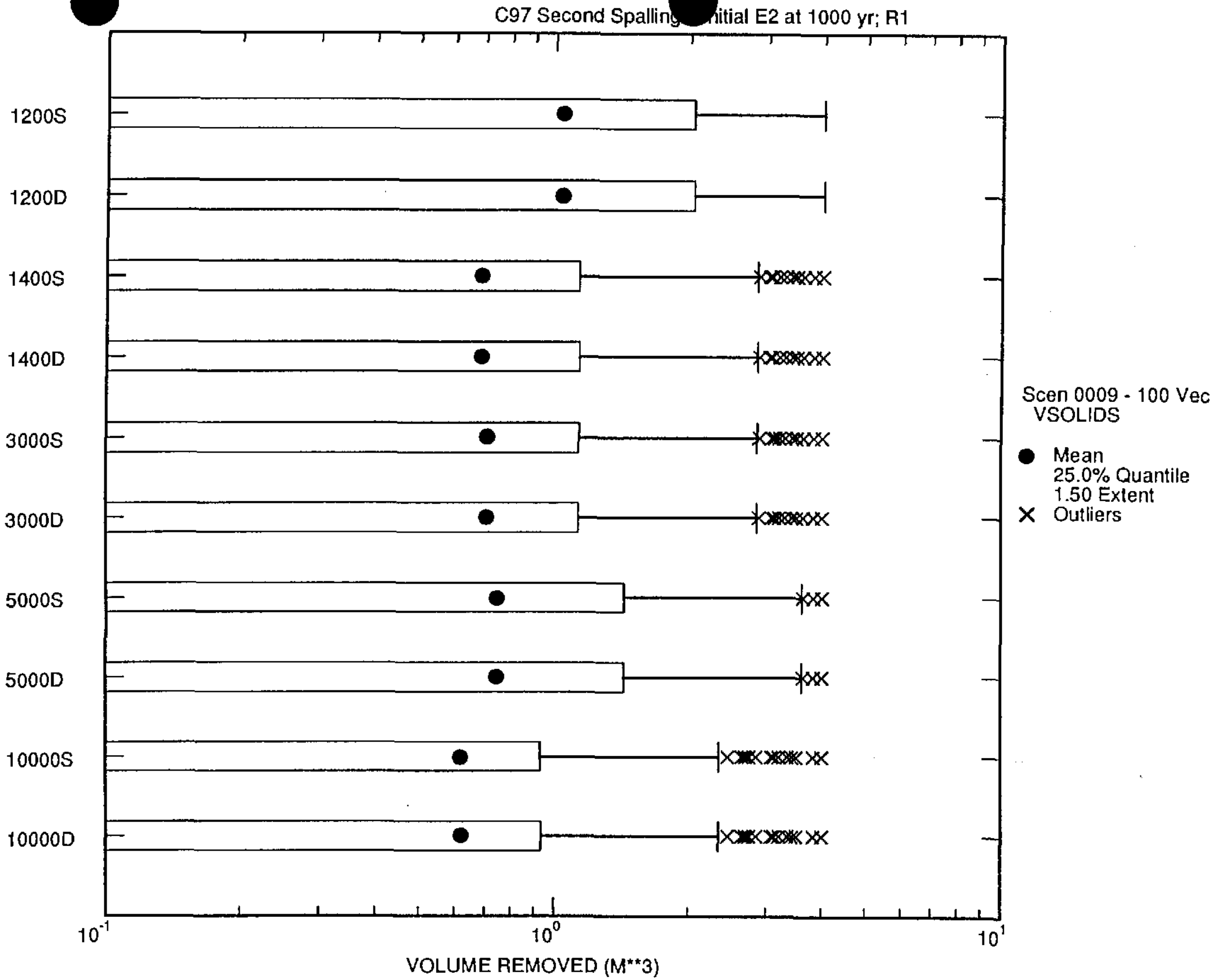
E.4 PAVT Spalling Results (S3) (Volume)

NUCPLOT PA96 1.19 07/16/97 09:50



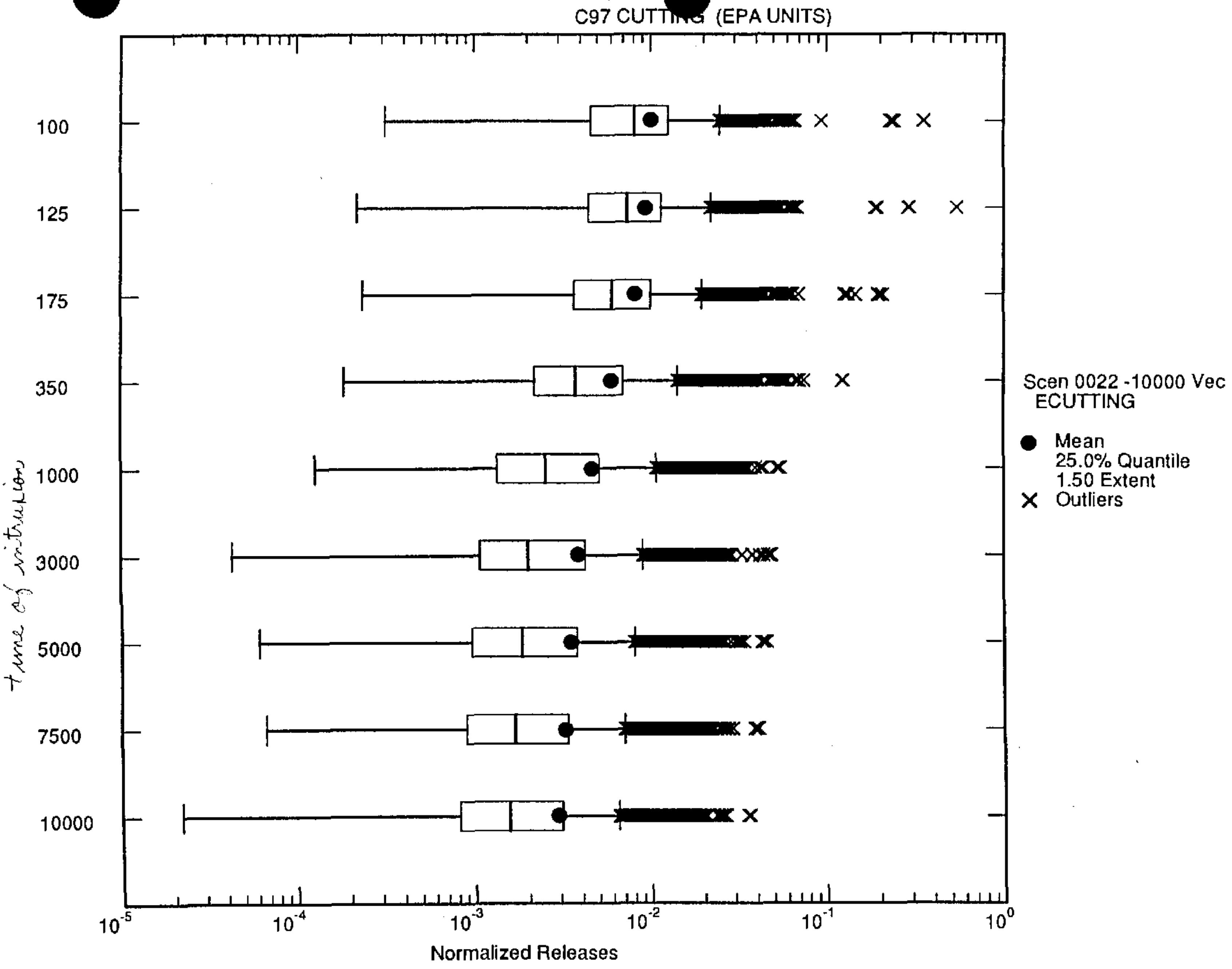
E.5 PAVT Spalling Results (54) (Volume)

NUCPLOT_PA96 1.19 07/16/97 09:50



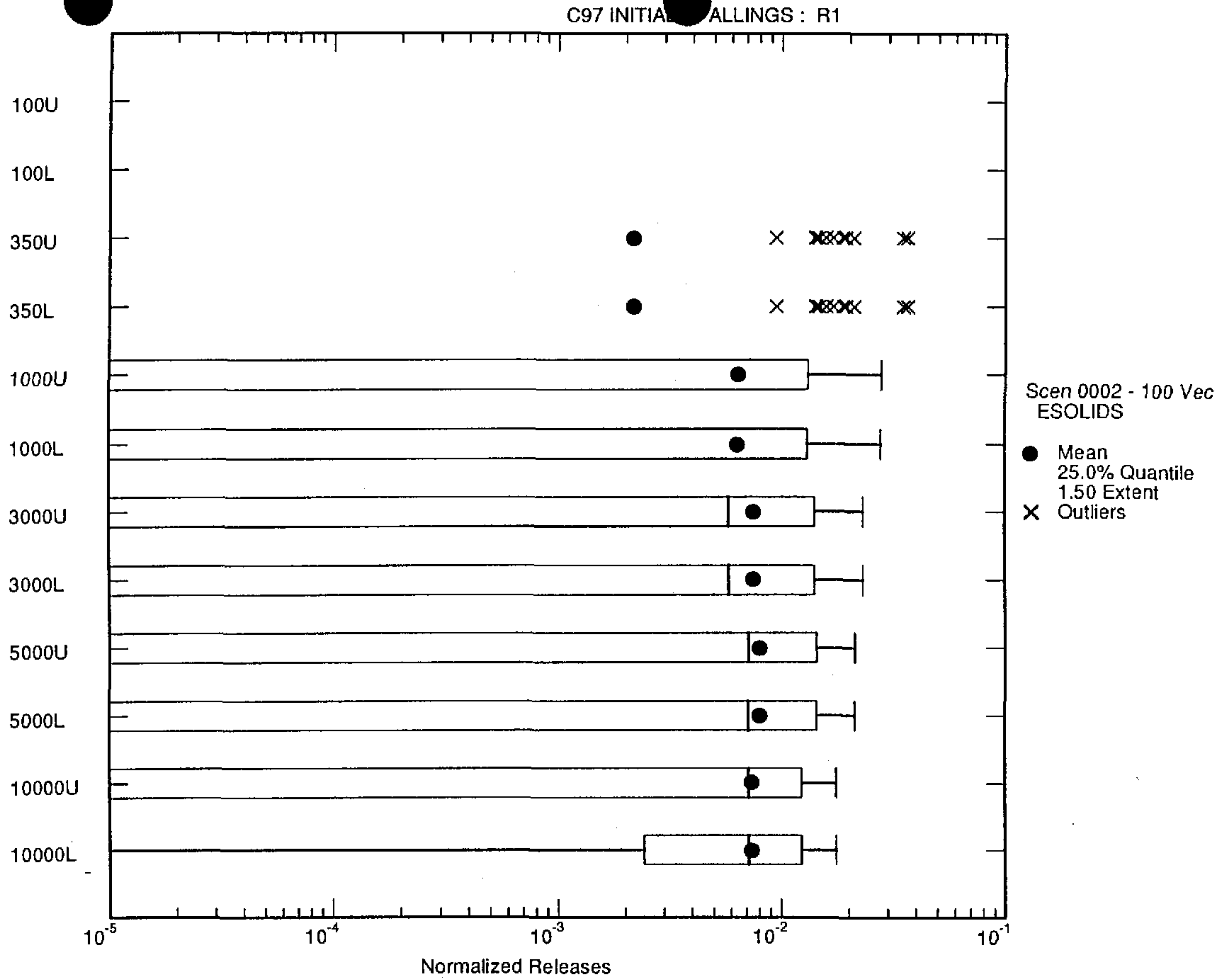
E.6 PAVT Spalling Results (55) (Volume)

NUCPLOT PA96 1.19 07/16/97 09:50



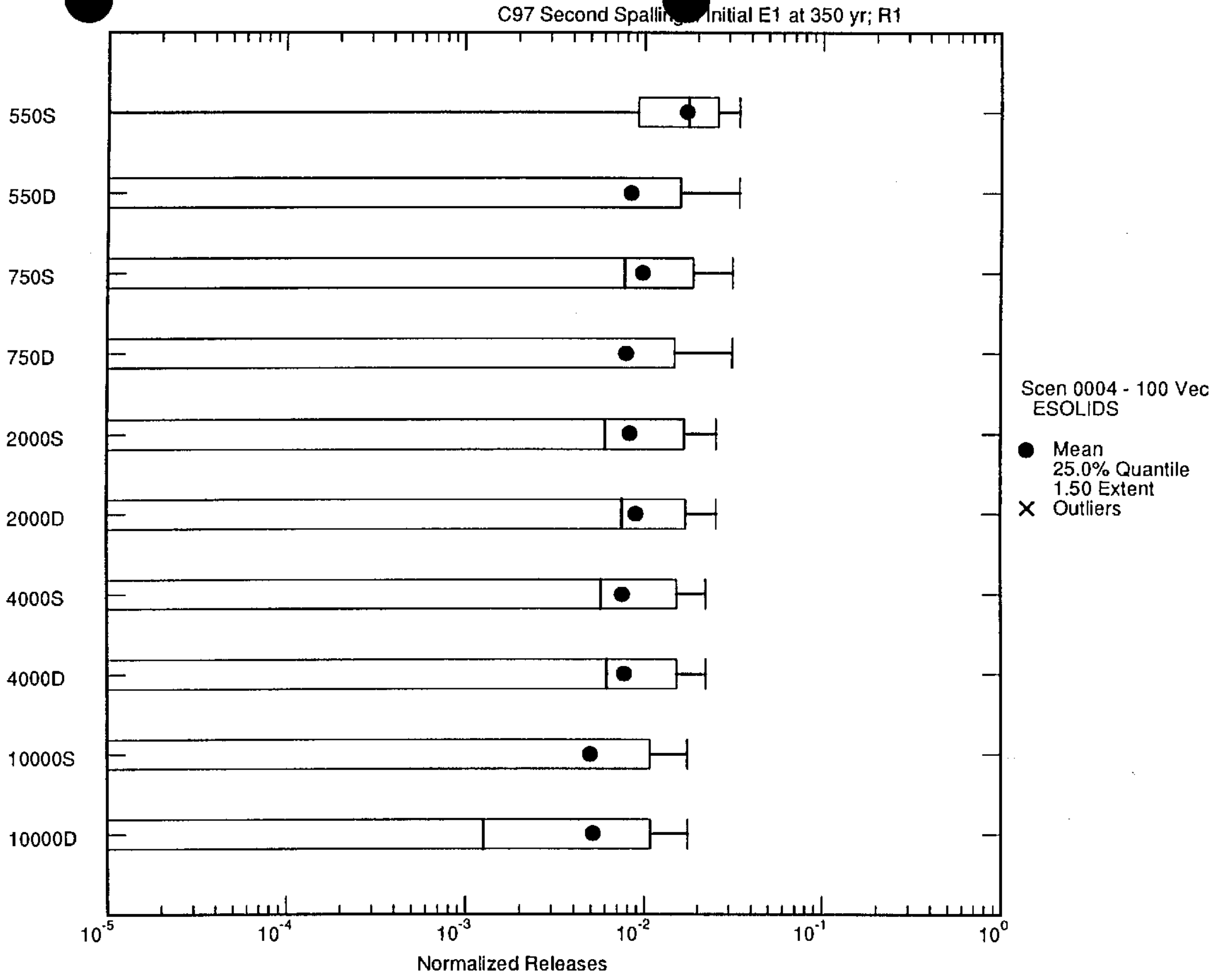
E.7 PAVT Cuttings Results (EPA units)

NUCPLOT PA96 1.19 07/16/97 09:36



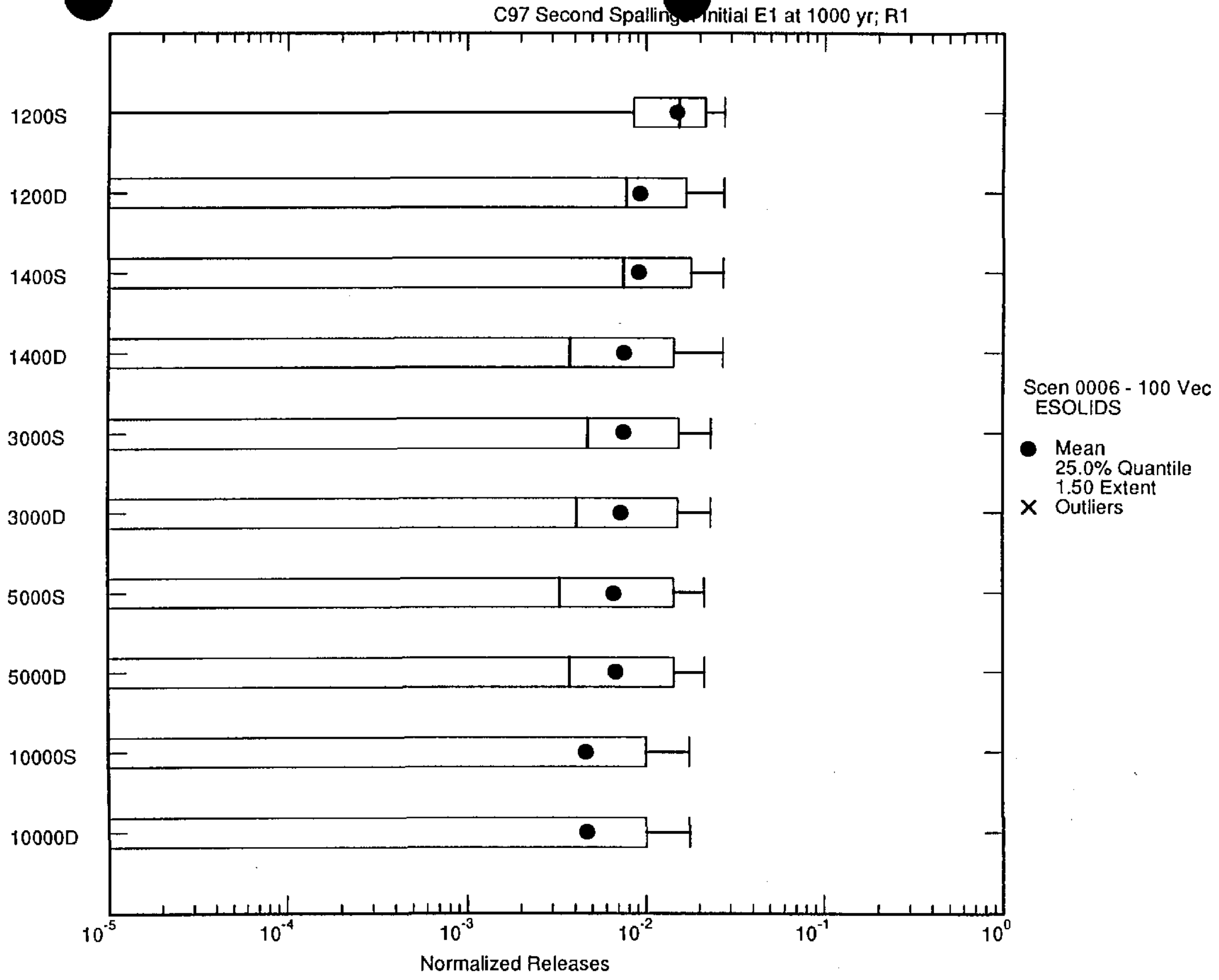
E.8 PAVT Spalling Results (S1) (EPA Units)

NUCPLOT PA96 1.19 07/16/97 09:49



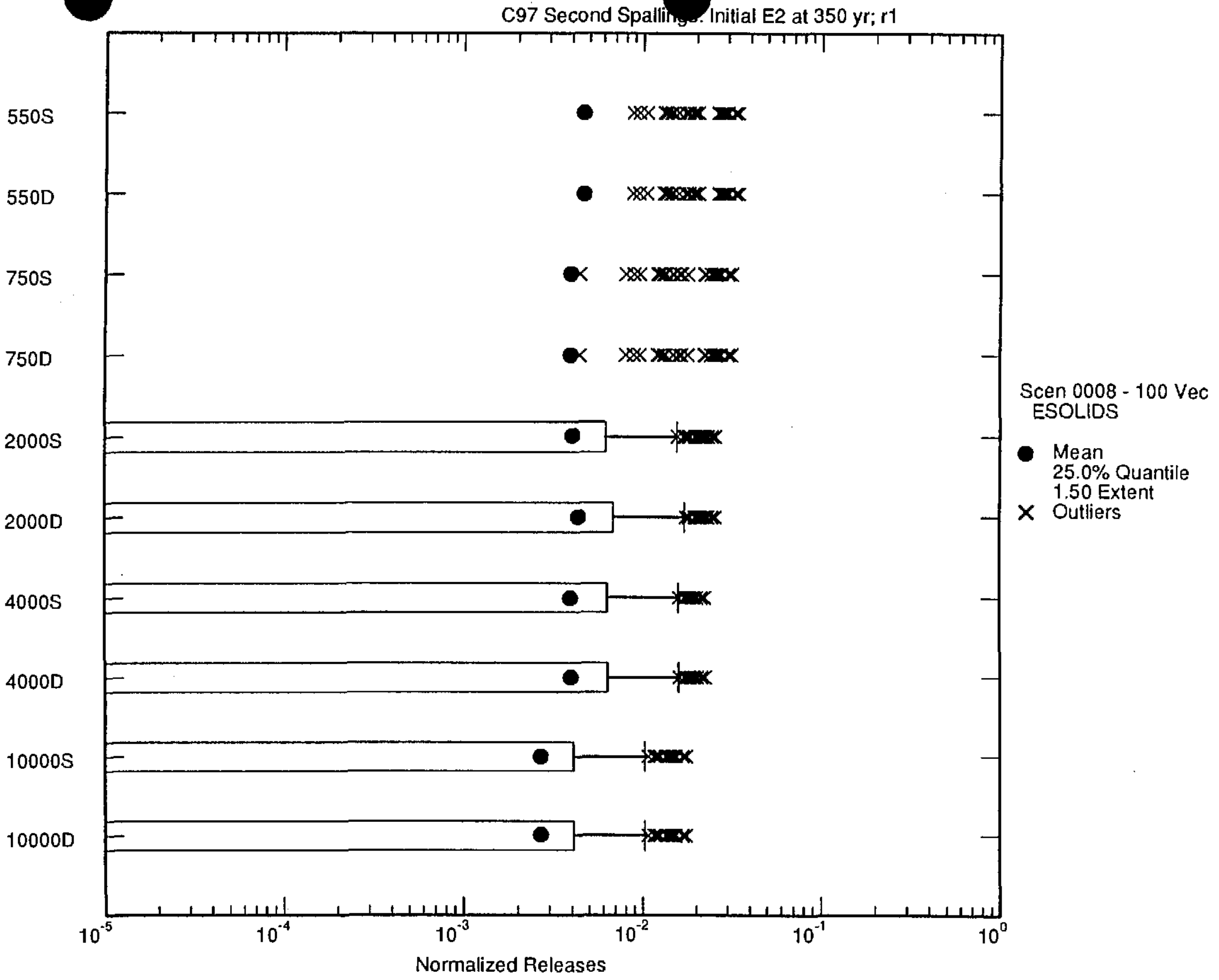
E.9 PAVT Spalling Results (S2) (EPA units)

NUCPLOT_PA96 1.19 07/16/97 09:49



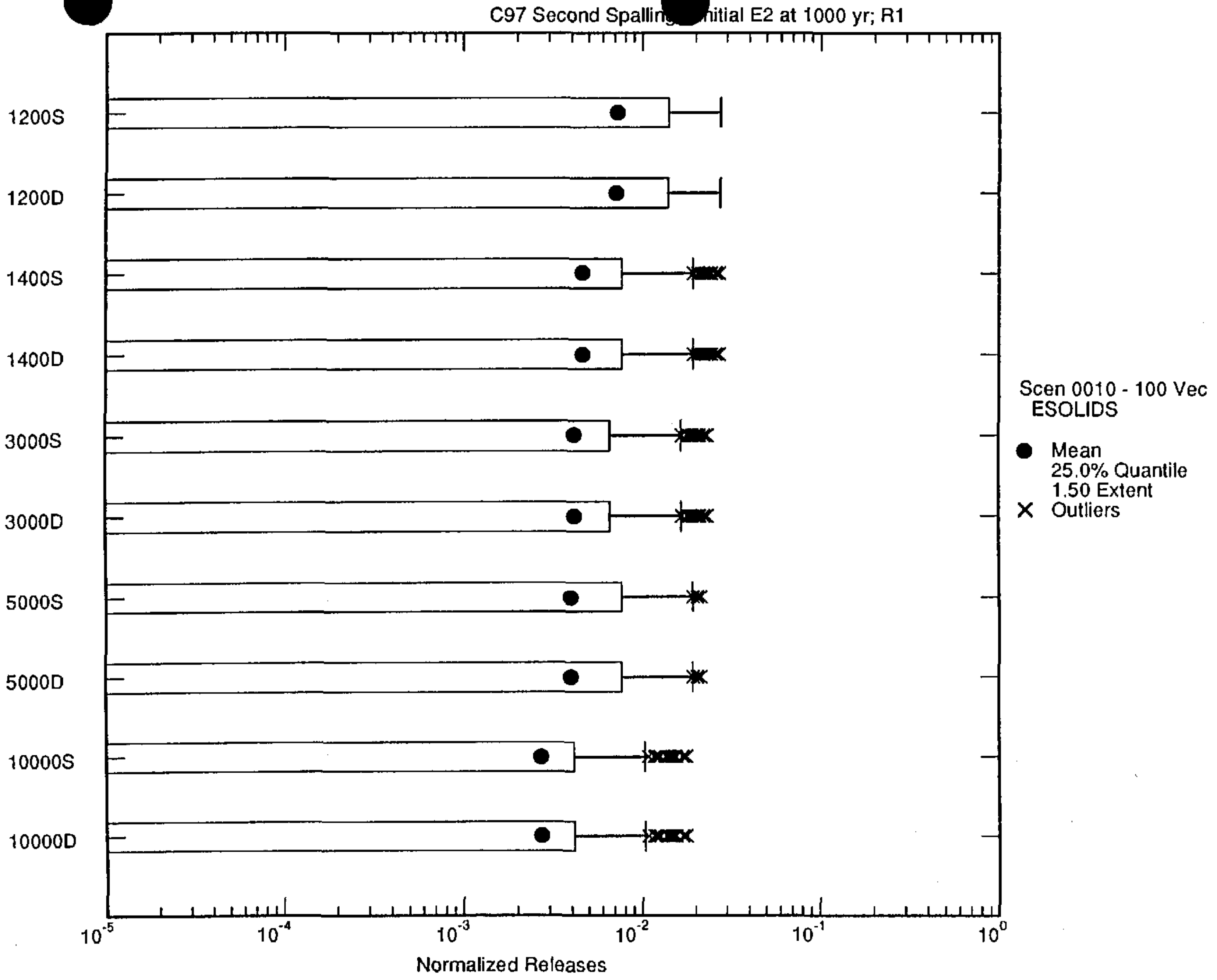
E.10 PAVT Spalling Results (S3) EPA units

NUCPLOT PA96 1.19 07/16/97 09:49



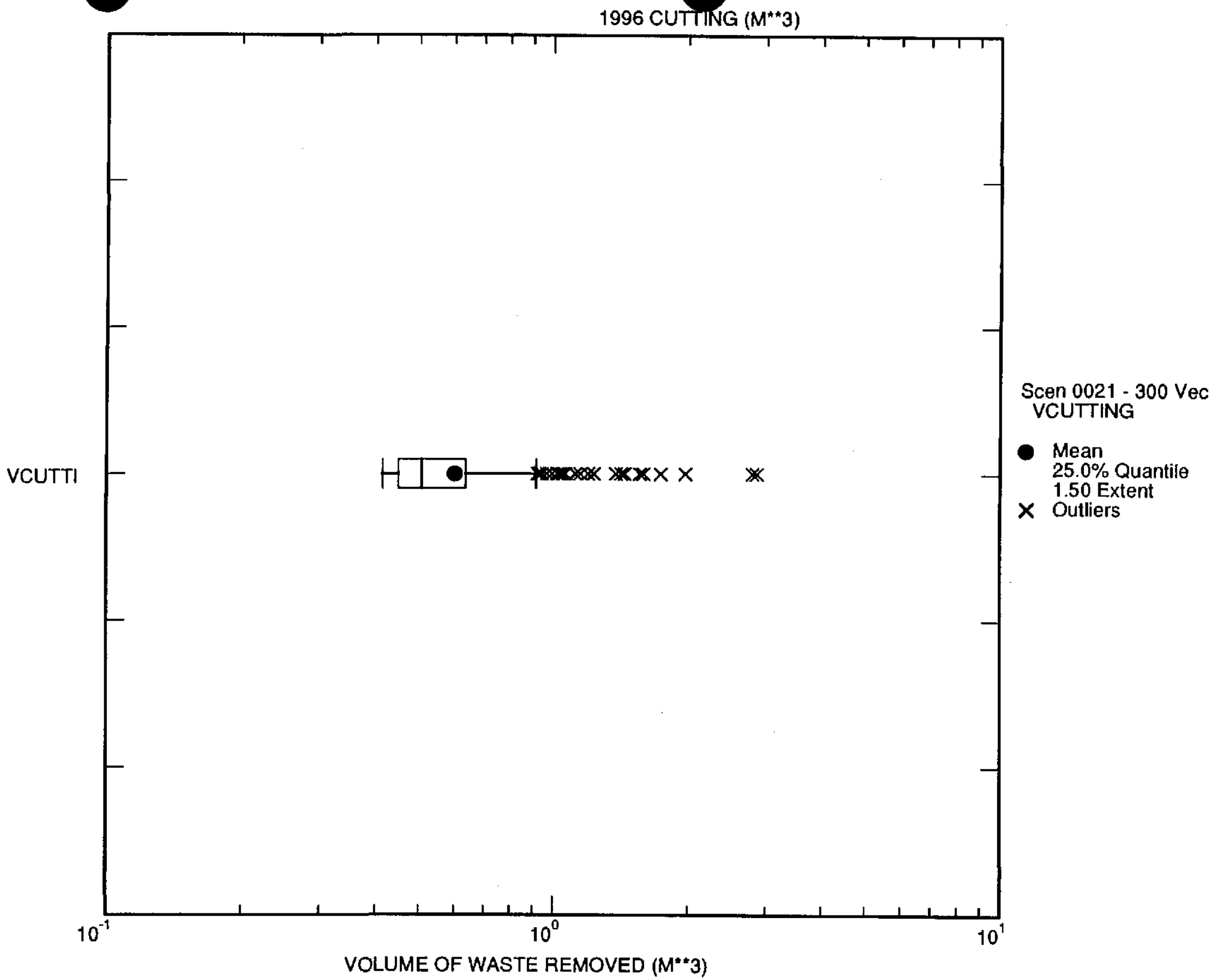
E.11 PAVT Spalling Results (54) (EPA units)

NUCPLOT_PA96 1.19 07/16/97 09:49



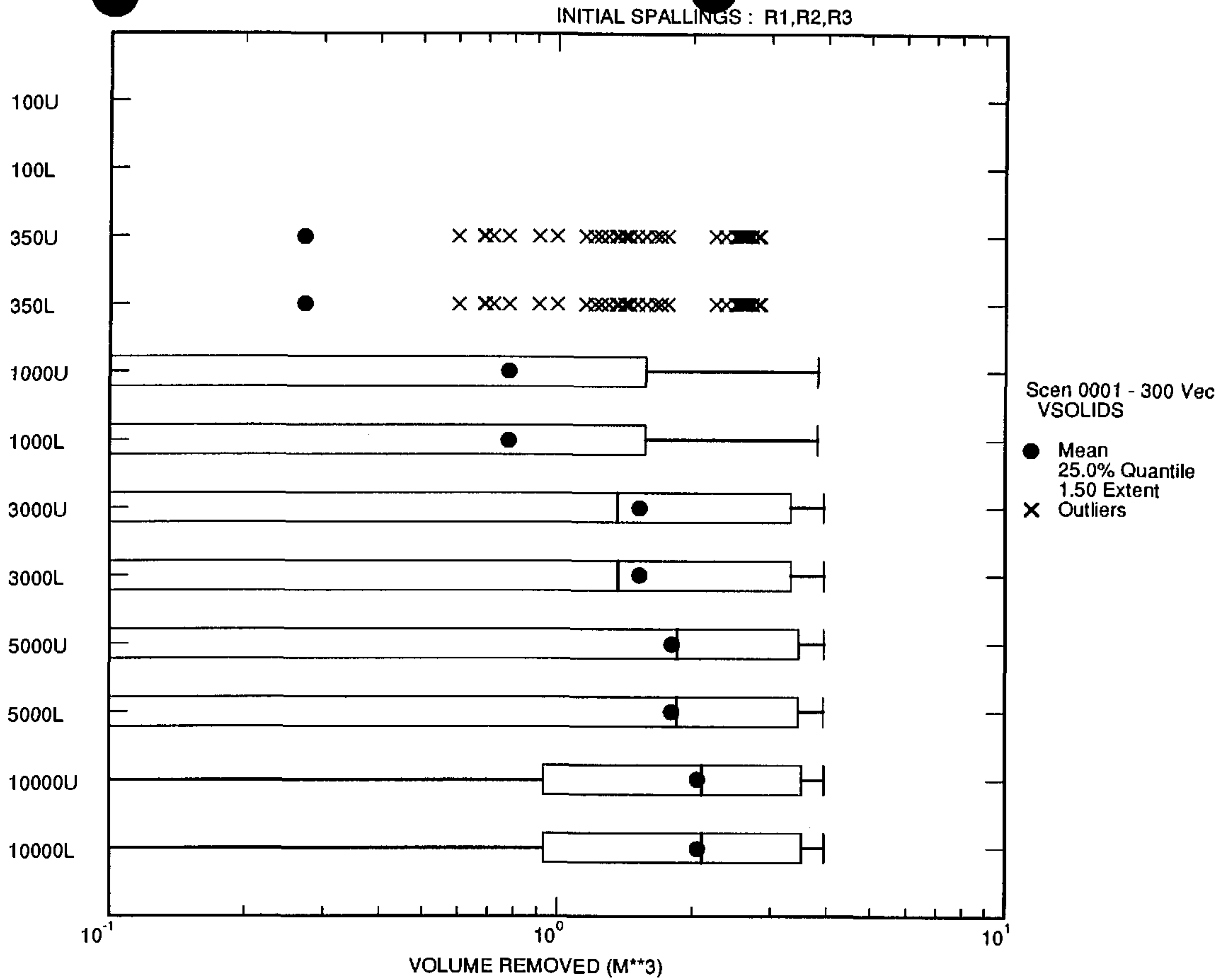
E.12 PAVT Spalling Results (55) (EPA units)

NUCPLOT_PA96 1.19 07/16/97 09:49



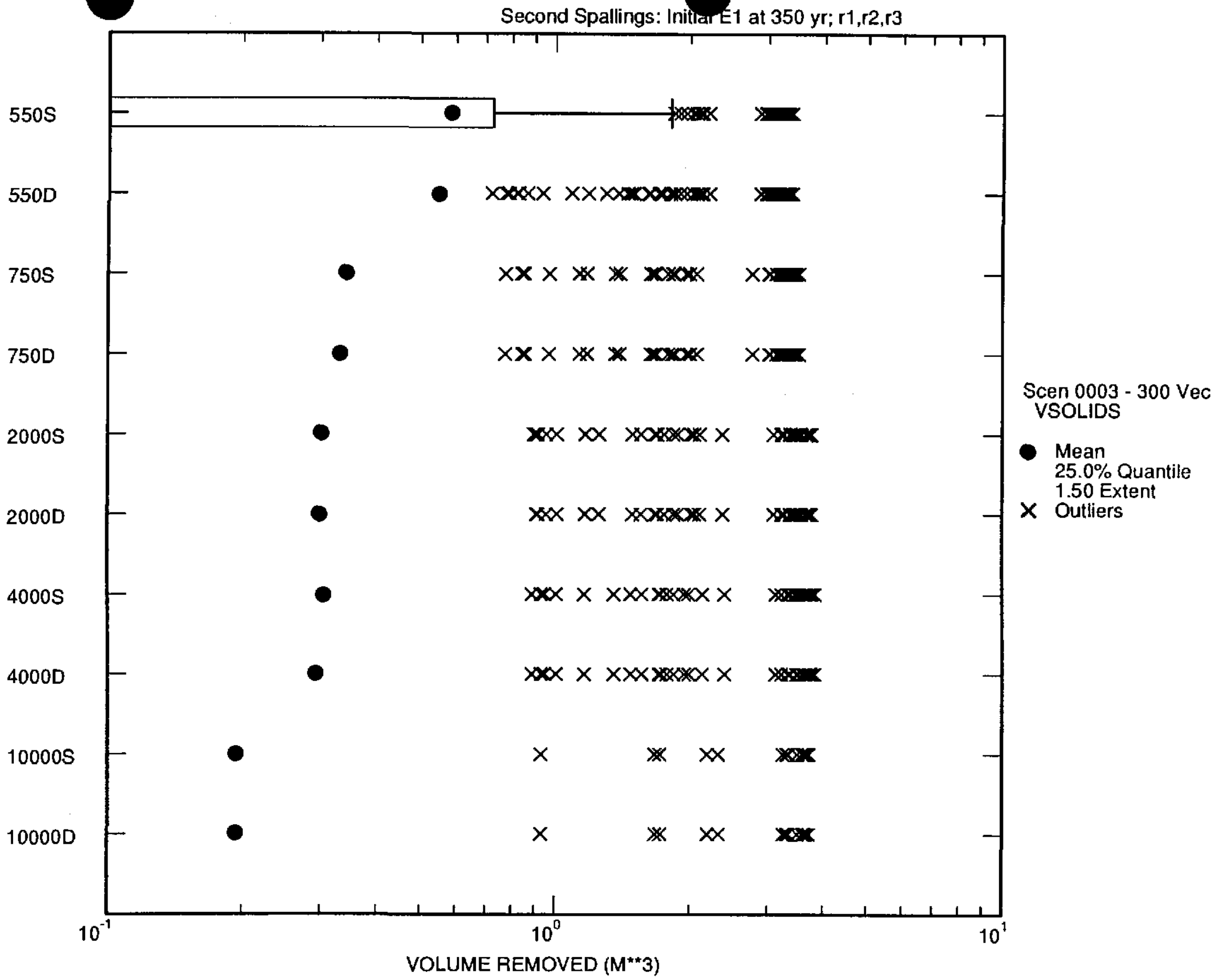
E.13 CCH Cuttings Results (volume)

NUCPLOT PA96 1.19 07/17/97 09:04



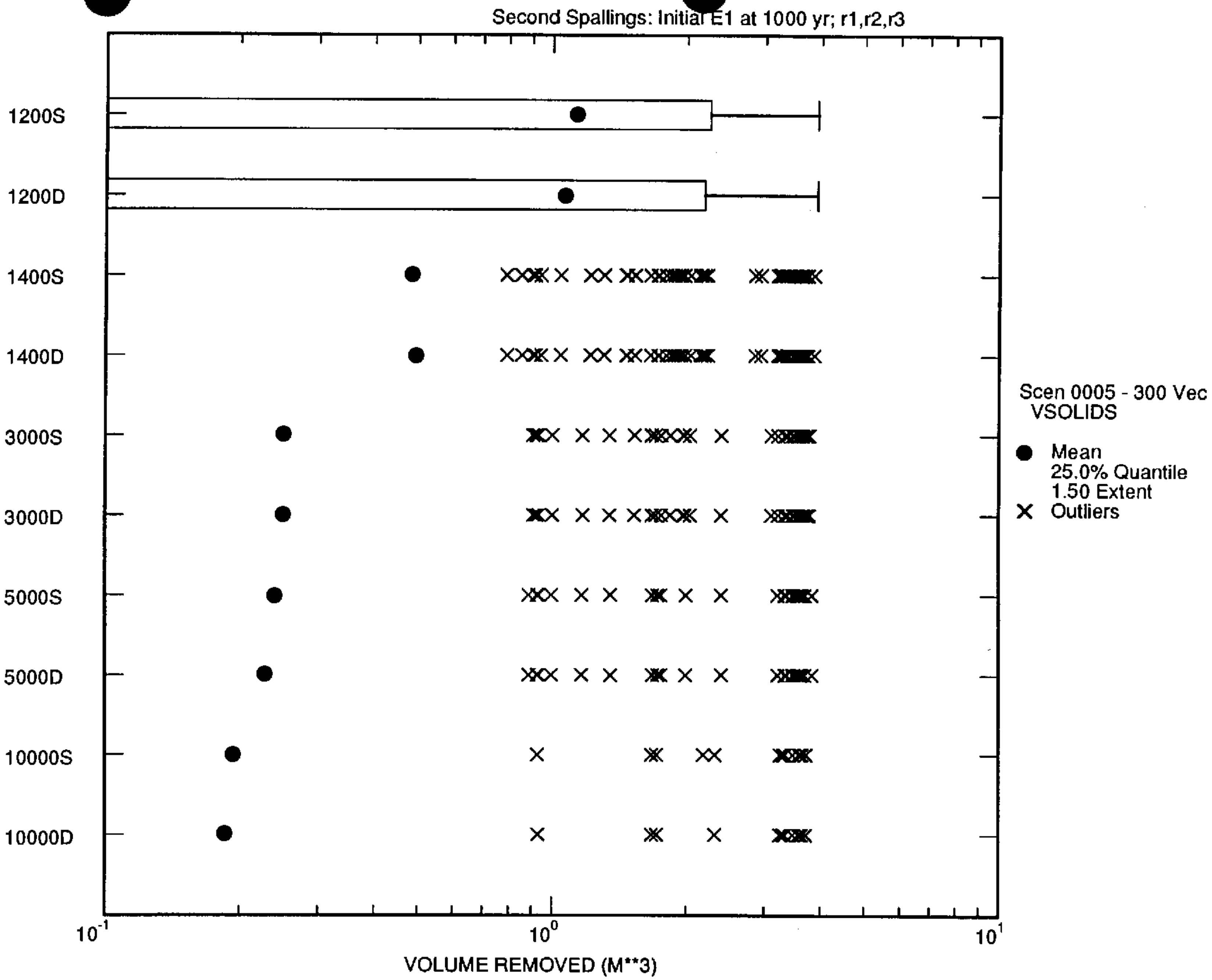
E. 14 CCA Spallings Results for S1 (Volume)

NUCPLOT PA96 1.19 07/17/97 09:09



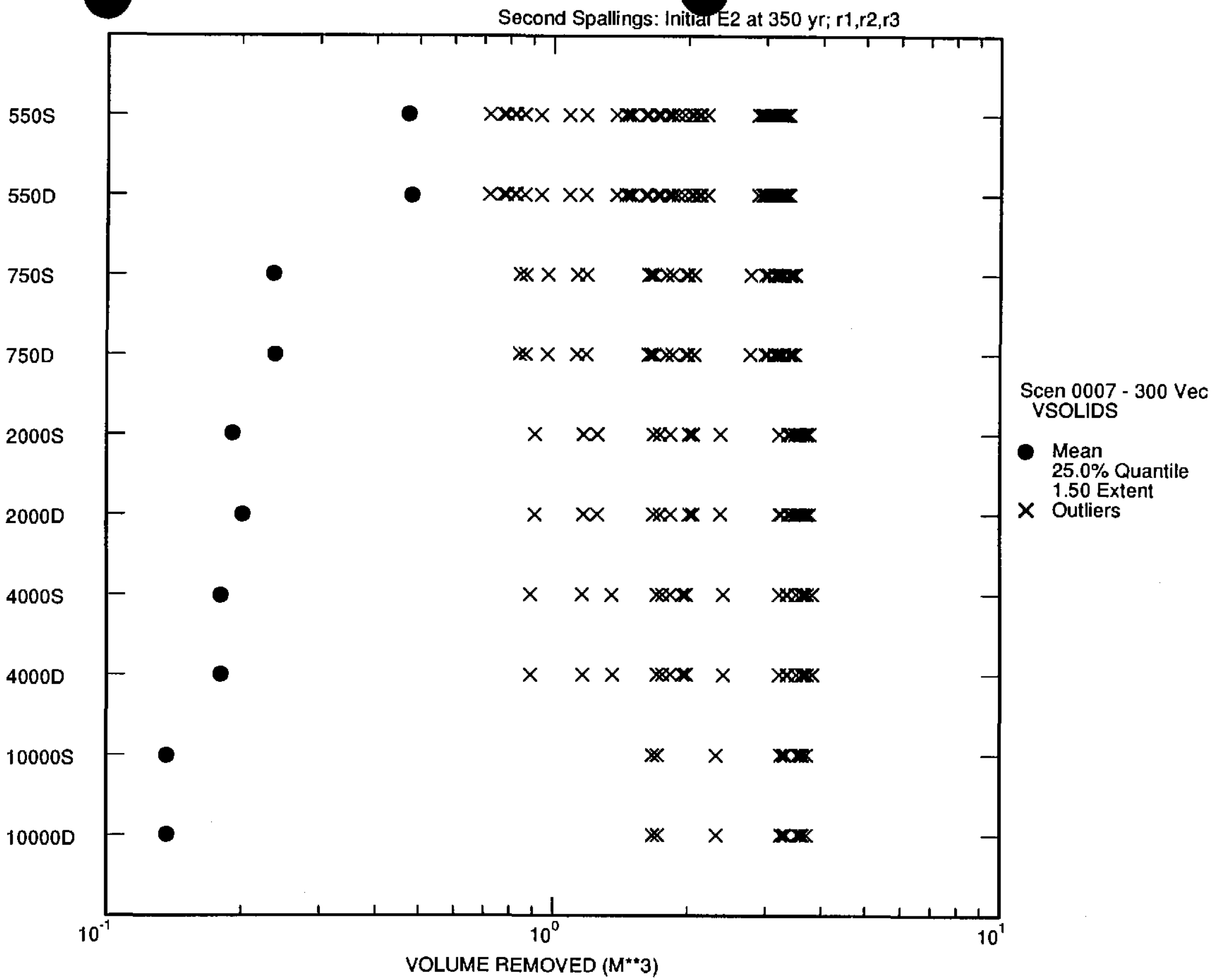
E.15 CCA Spallings Results for S2 (Volume)

NUCPLOT_PA96 1.19 07/17/97 09:09



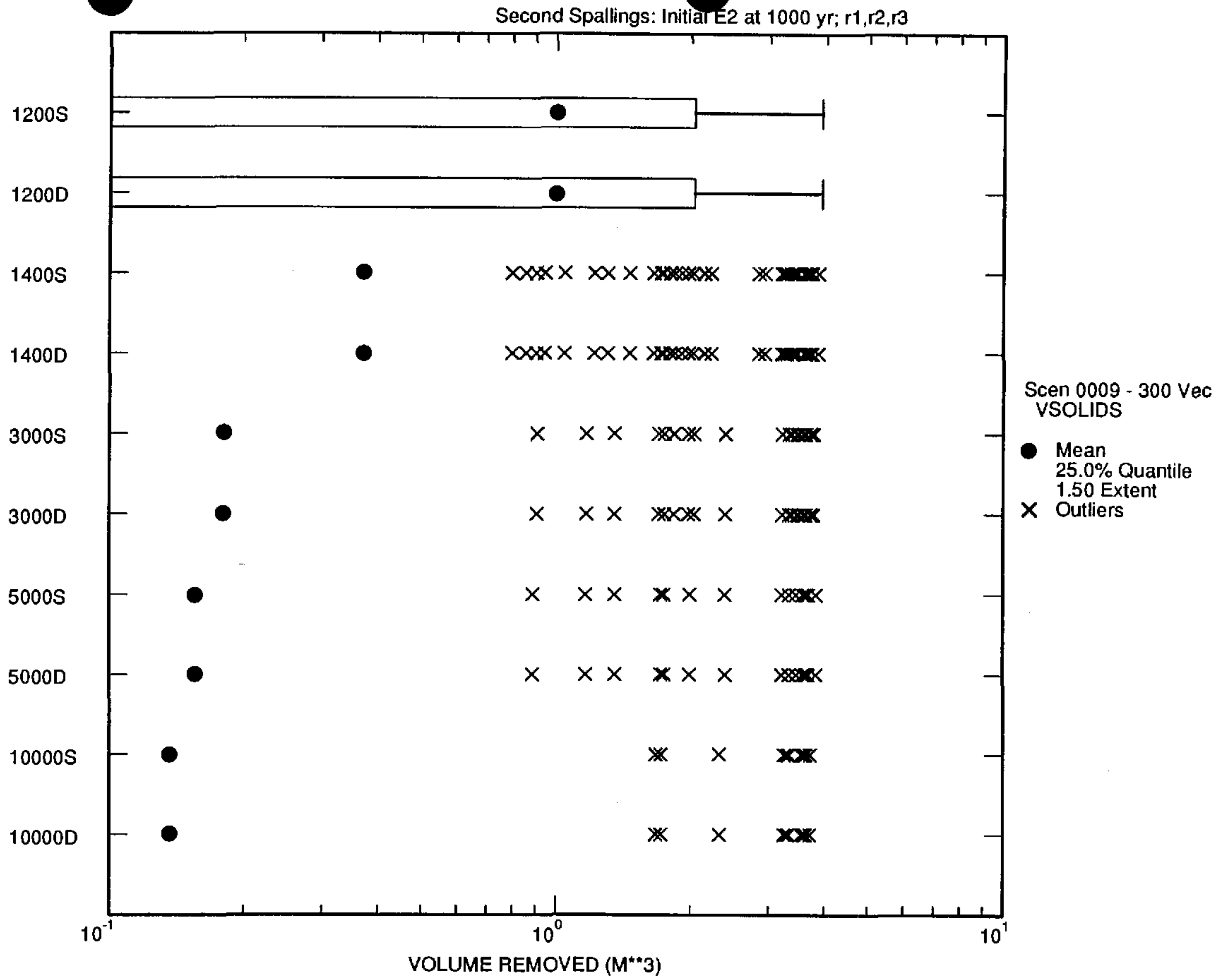
E.16 CCA Spallings Results for S3 (Volume)

NUCPLOT_PA96 1.19 07/17/97 09:09



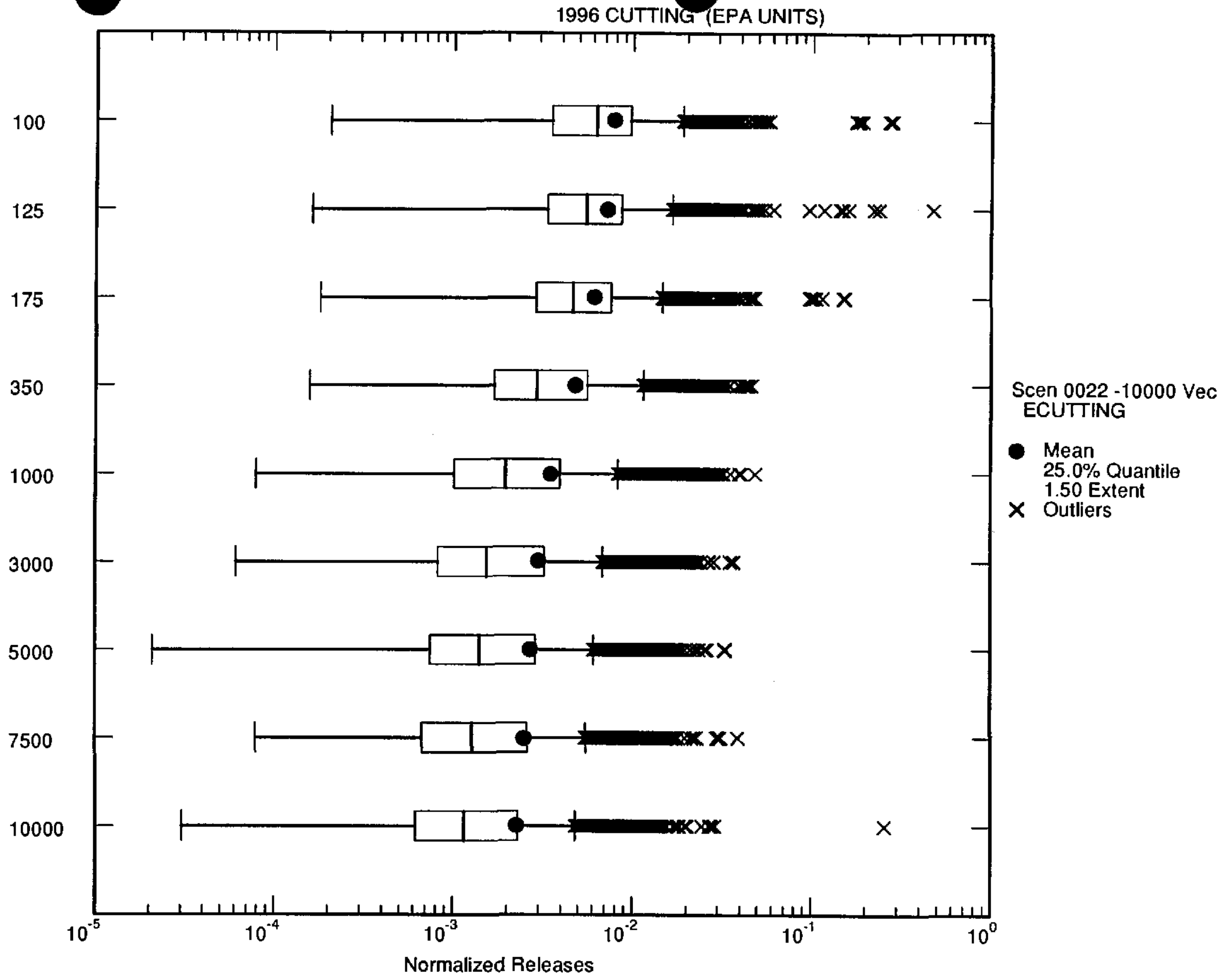
E.17 CCH Spallings Results for S4 (Volume)

NUCPLOT_PA96 1.19 07/17/97 09:09



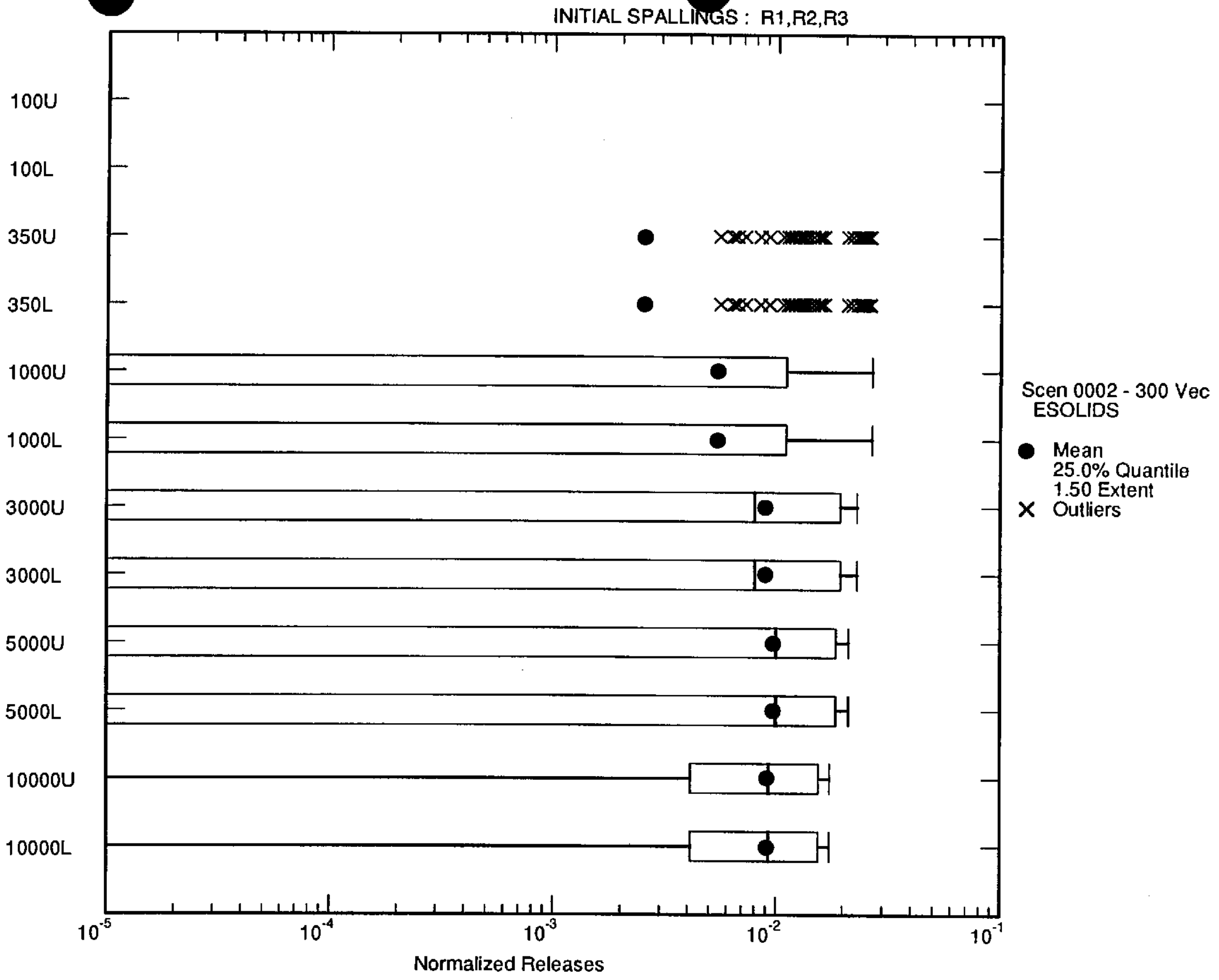
E.18 CCA Spallings Results for S5 (Volume)

NUCPLOT PA96 1.19 07/17/97 09:09



E.19 CCA Cuttings Results (EPA Units)

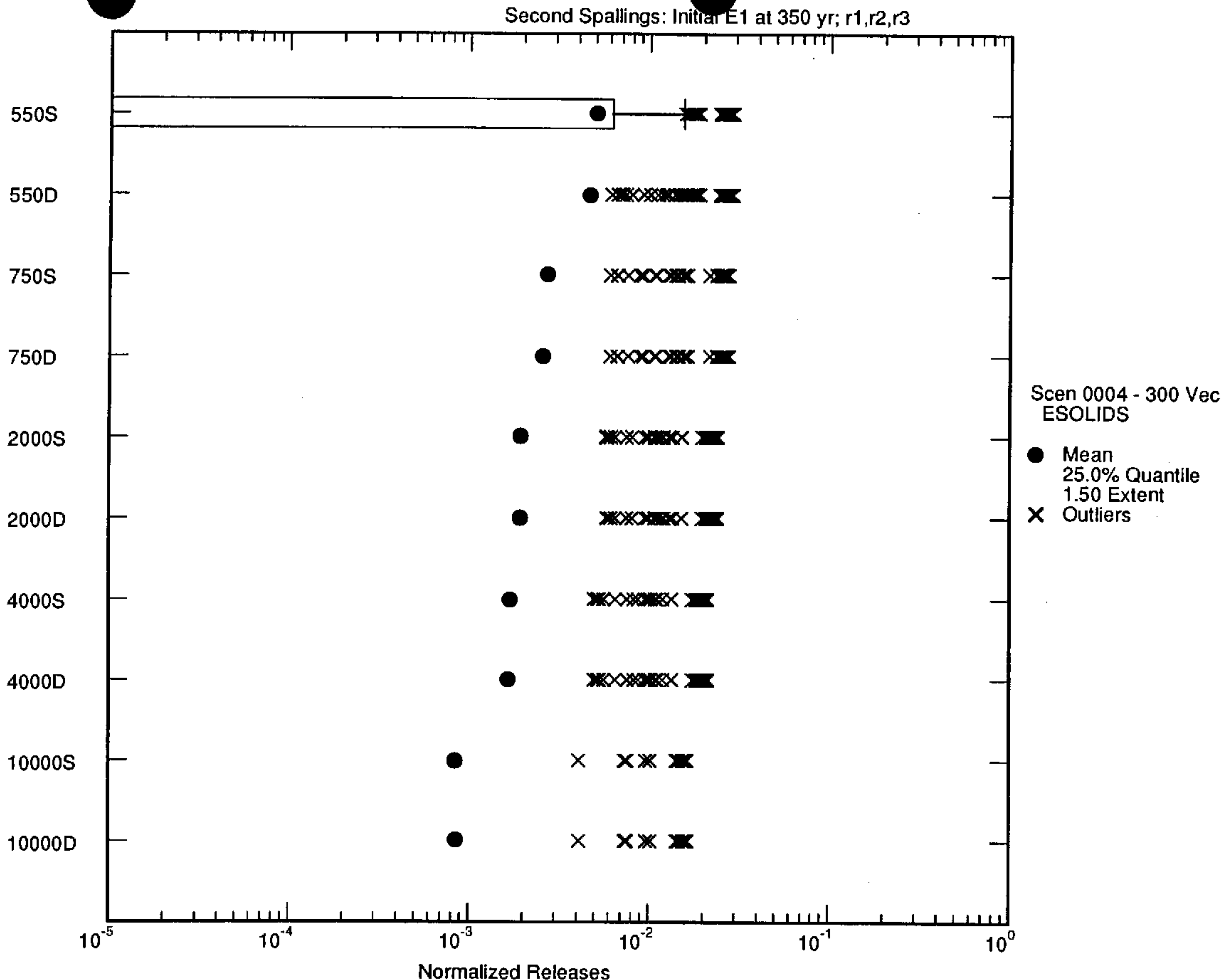
NUCPLOT_PA96 1.19 07/17/97 09:02



(51)

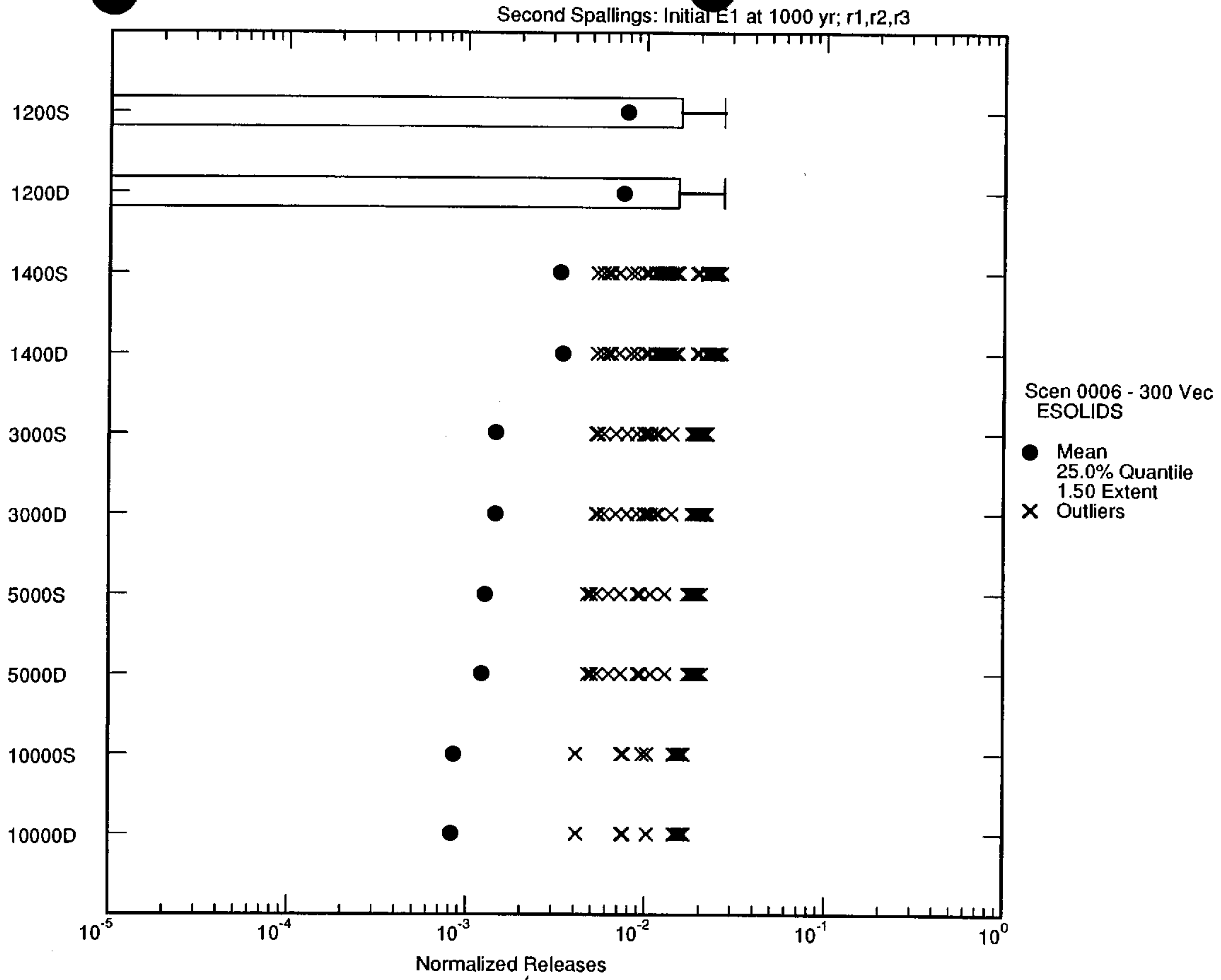
E20 CCA Spallings Releases (EPA units)

NUCPLOT PA96 1.19 07/17/97 09:07



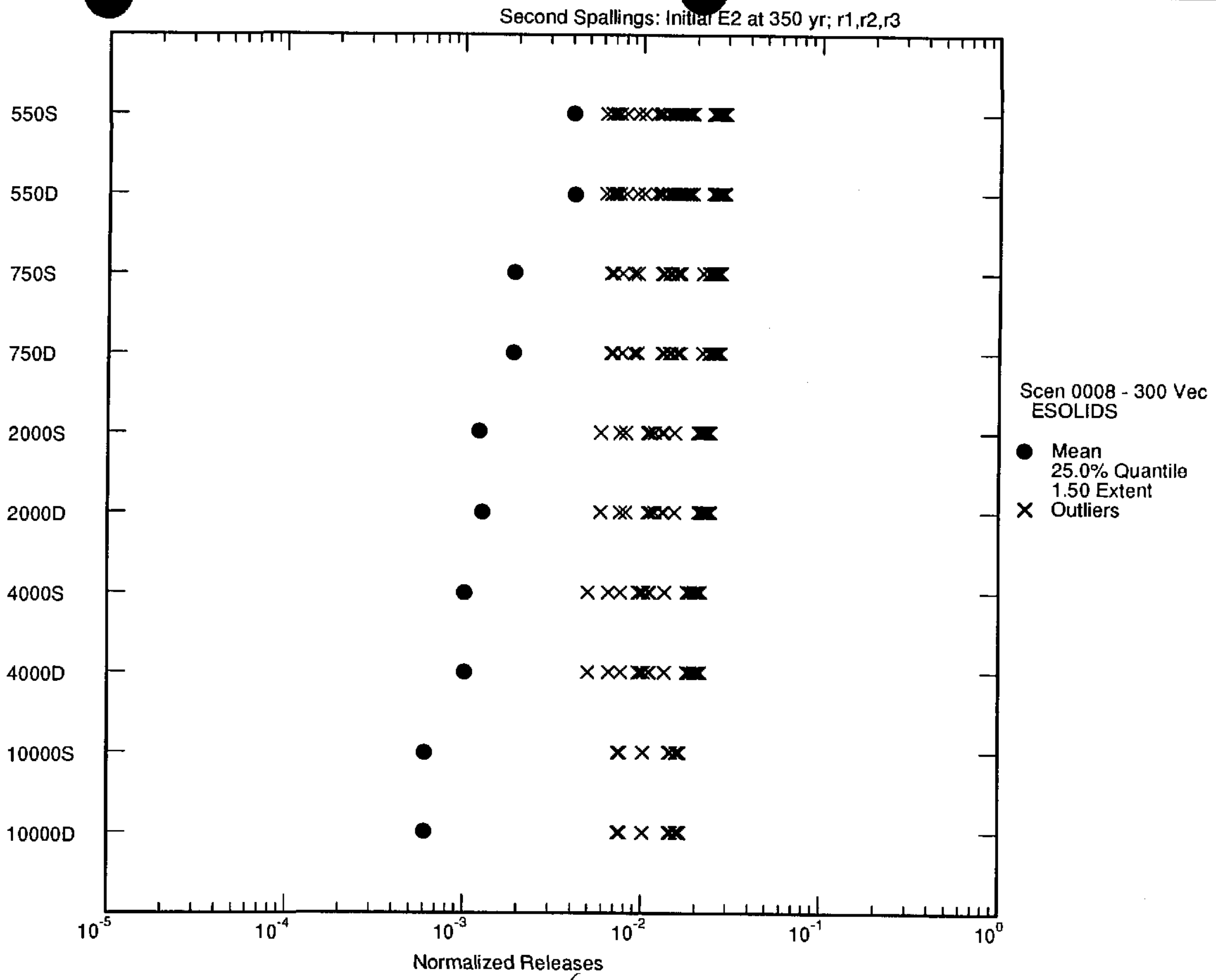
E21- CCA Spallings Releases (S2) (EPA units)

NUCPLOT PA96 1.19 07/17/97 09:08



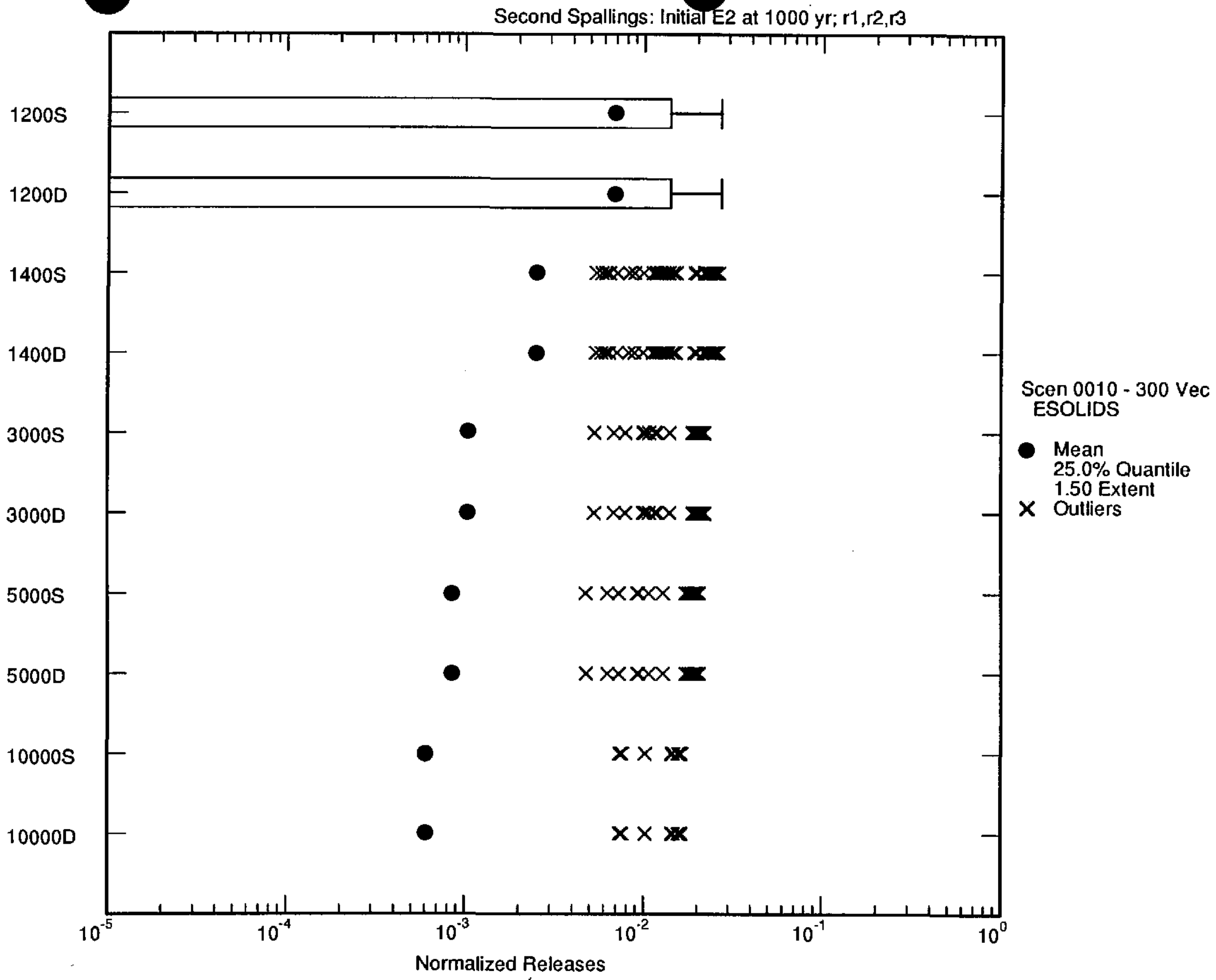
E22 CCA Spallings Releases (53) (EPA Units)

NUCPLOT PA96 1.19 07/17/97 09:08



E 23 CCA Spallings Released (SA) (EPA units)

NUCPLOT PA96 1.19 07/17/97 09:08

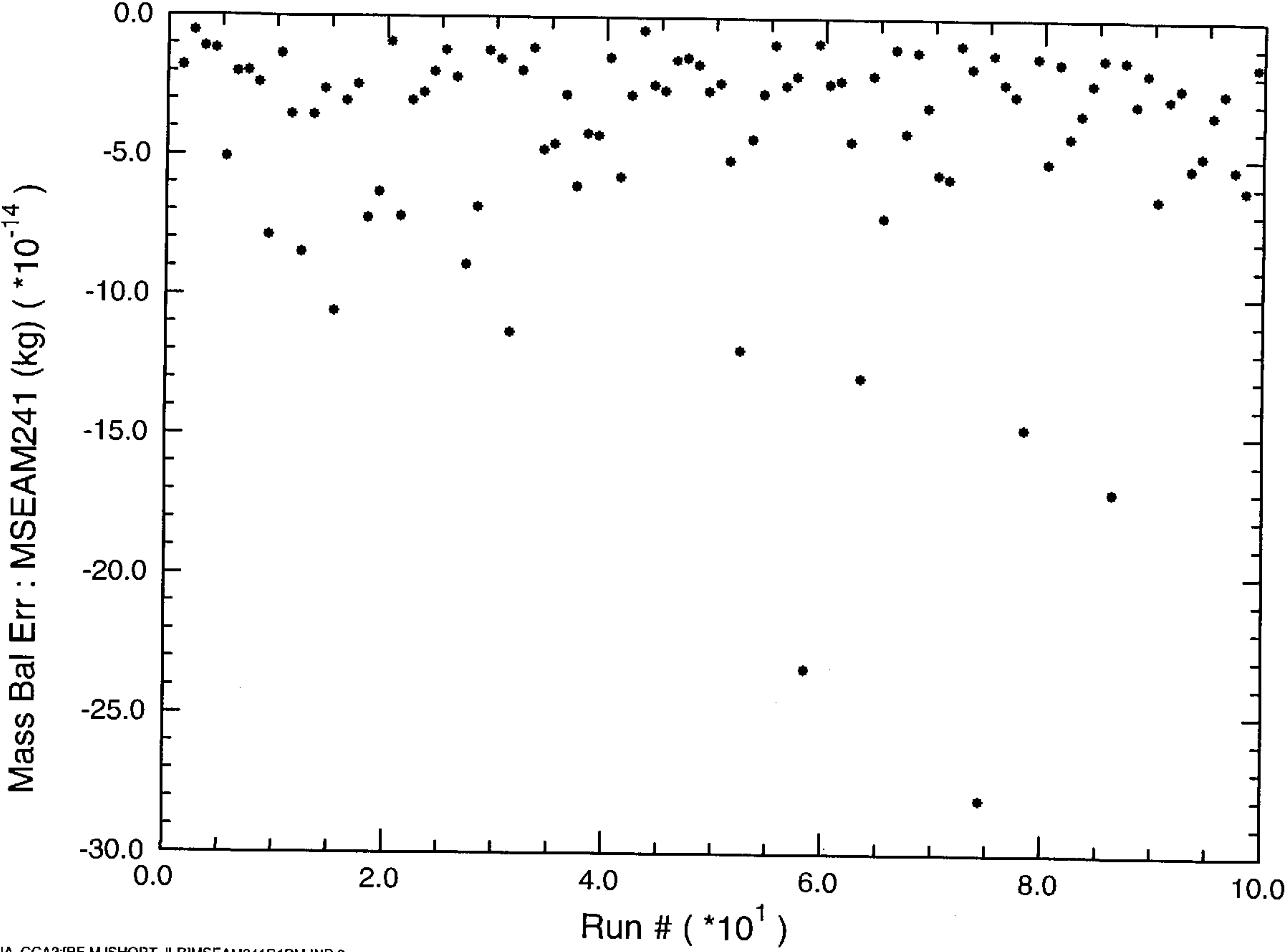


E24 CCA Spallings Releases (55) (EPA Units)

NUCPLOT PA96 1.19 07/17/97 09:08

SECOTP2D, AM-241, R1, PM

Run # vs Mass Balance Error (MSEAM241)



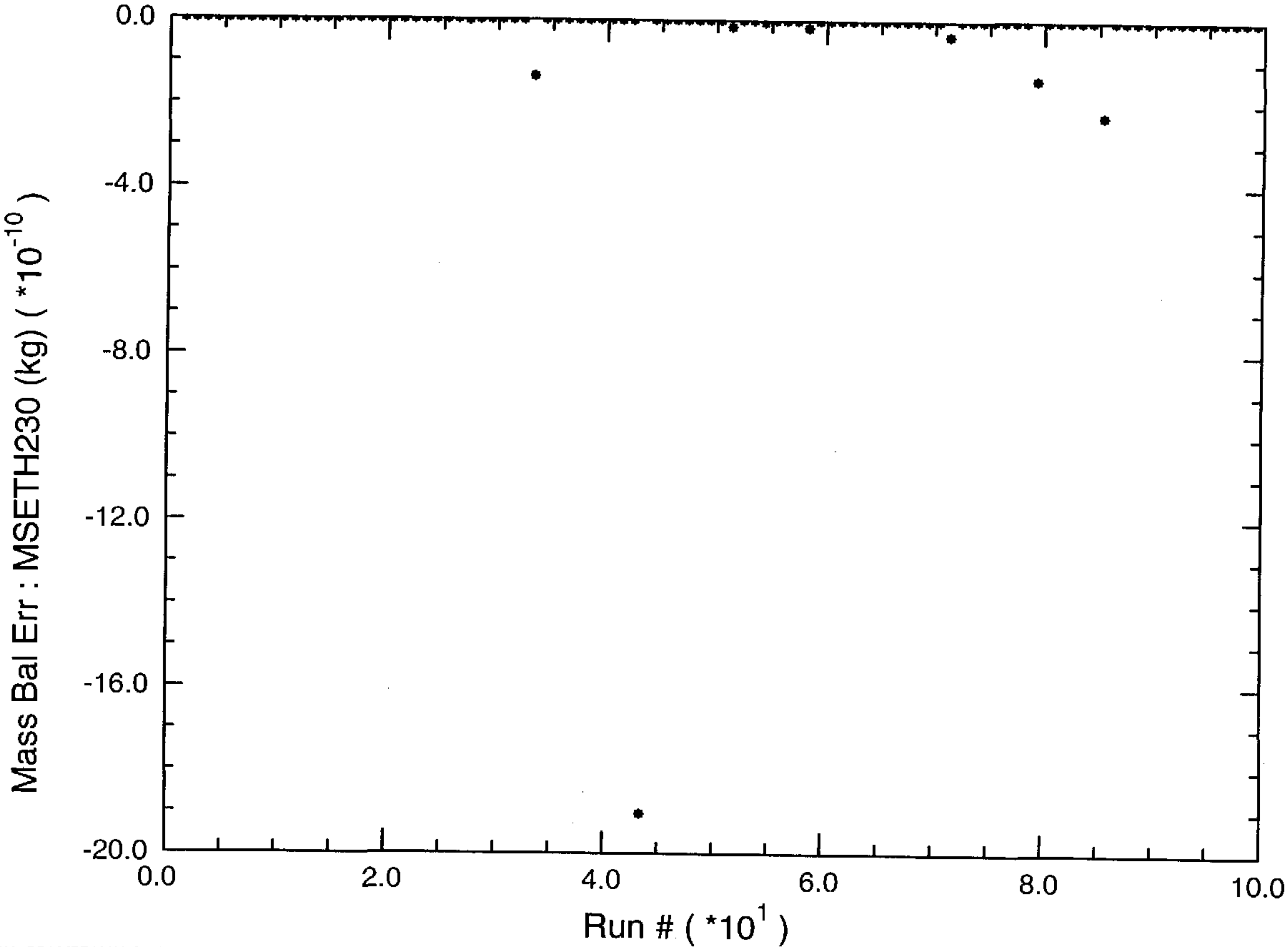
DISK$TINA_CCA3:[BF.MJSHORT.JLR]MSEAM241R1PM.INP;3

SPLAT_PA96_2 1.02 07/09/97 14:30:35

Figure D.3

SECOTP2D, TH-230, R1, PM

Run # vs Mass Balance Error (MSETH230)



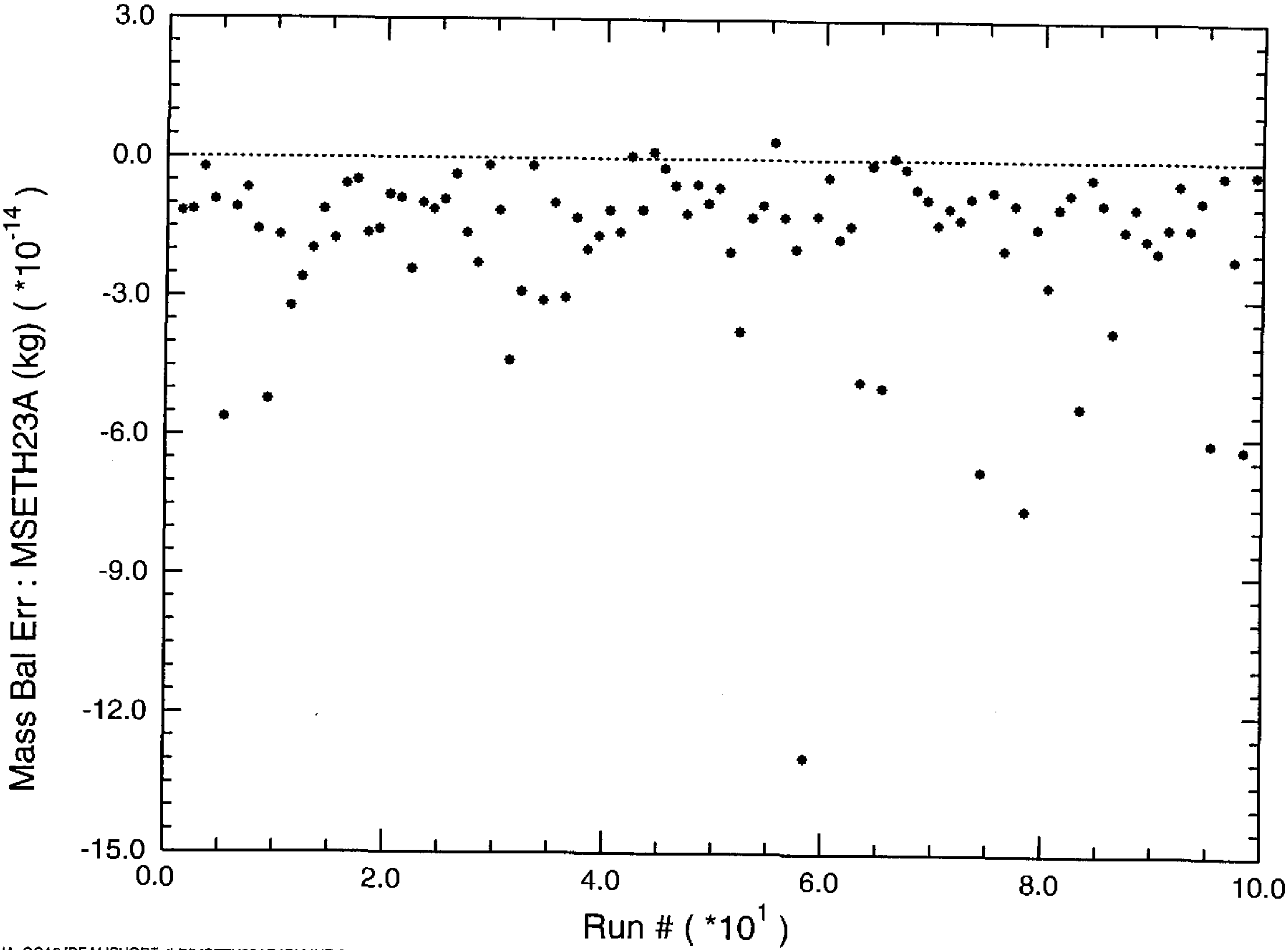
DISK$TINA_CCA3:[BF.MJSHORT.JLR]MSETH230R1PM.INP;3

SPLAT_PA96_2 1.02 07/09/97 14:30:41

Figure D.4

SECOTP2D, TH-23A, R1, PM

Run # vs Mass Balance Error (MSETH23A)



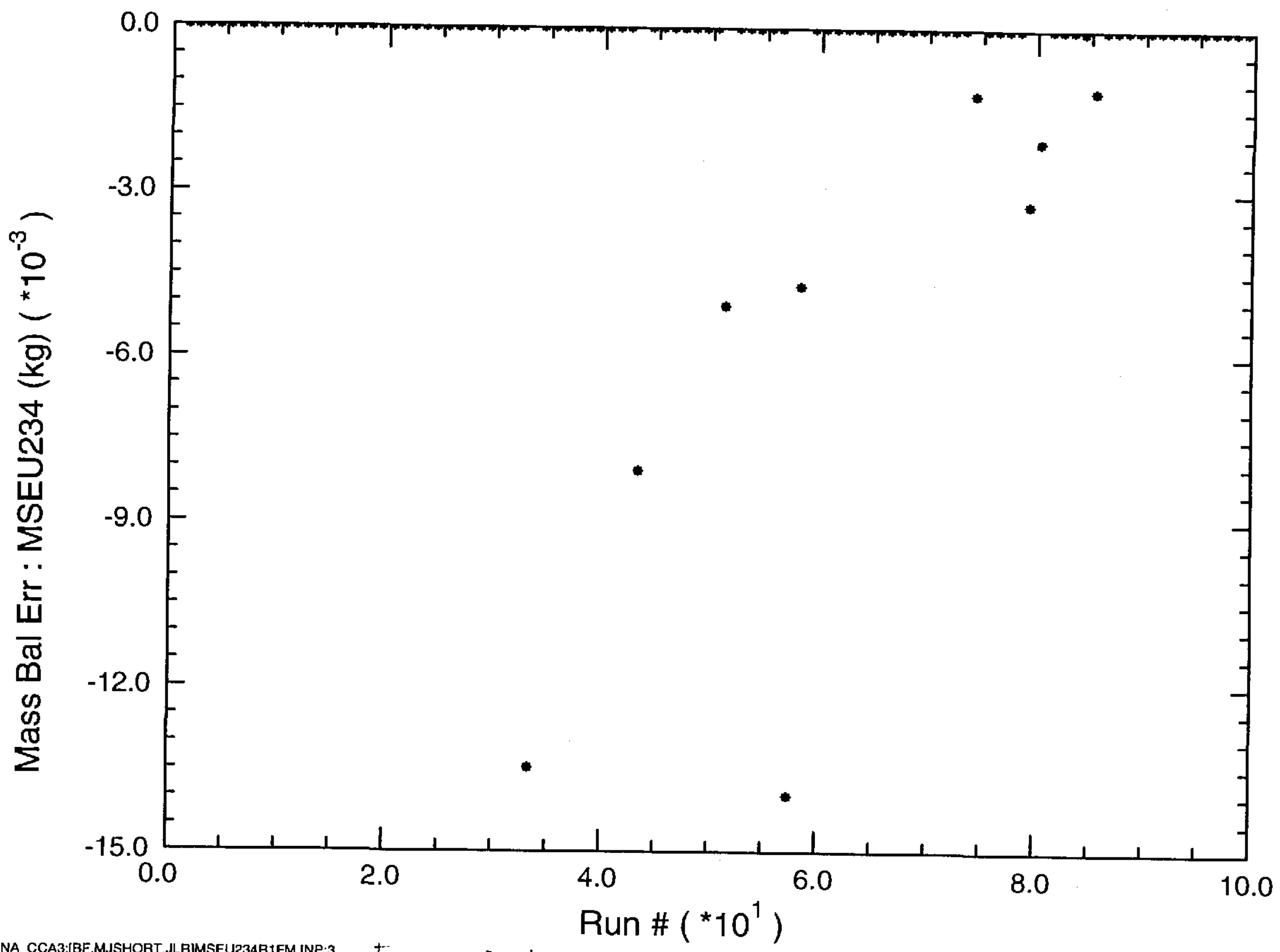
DISK$TINA_CCA3:[BF.MJSHORT.JLR]MSETH23AR1PM.INP;3

SPLAT_PA96_2 1.02 07/09/97 14:30:48

Figure D.5

SECOTP2D, U-234, R1, FM

Run # vs Mass Balance Error (MSEU234)



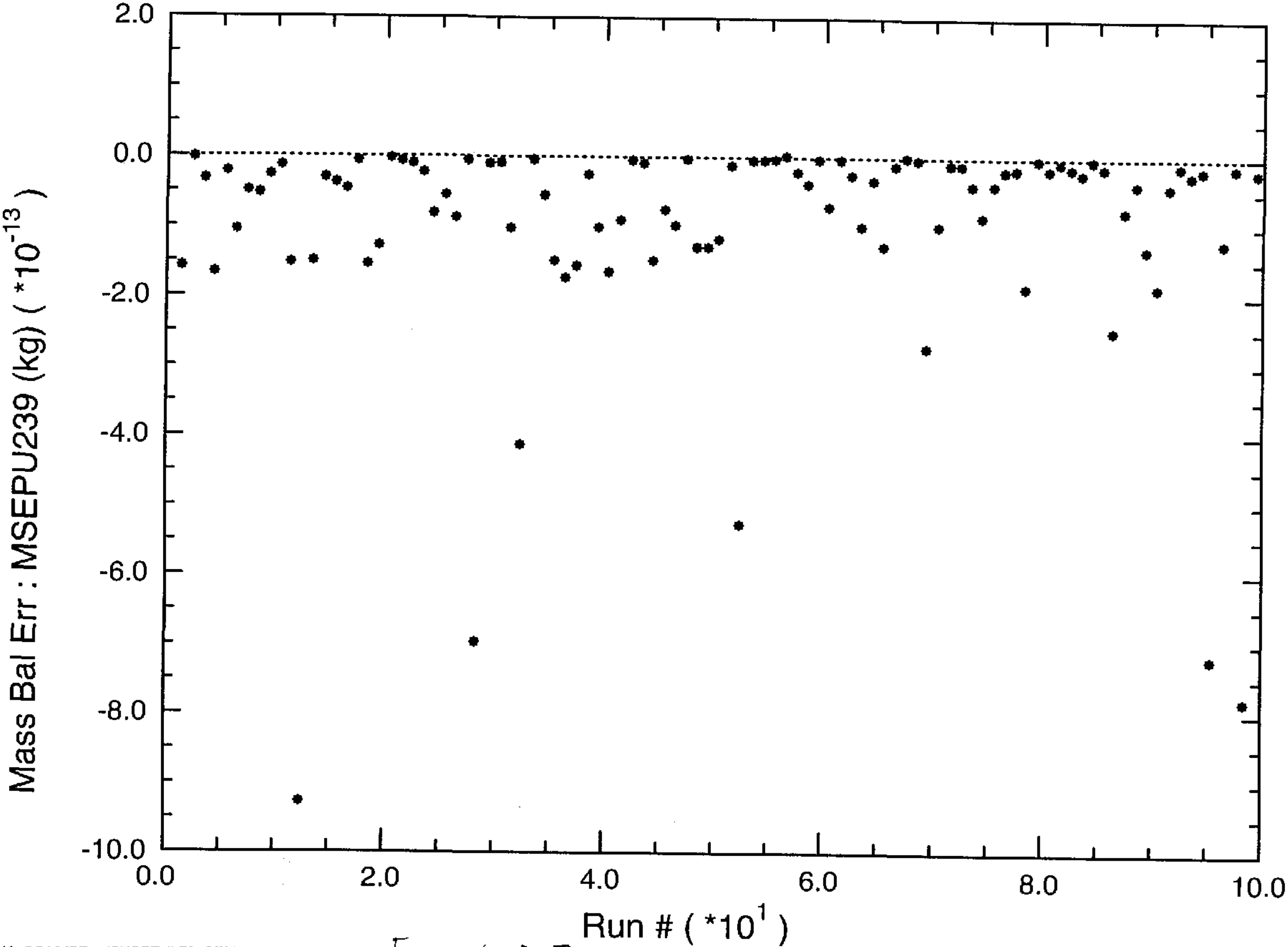
DISK$TINA_CCA3:[BF.MJSHORT.JLR]MSEU234R1FM.INP;3

Figure D.6

SPLAT_PA96_2 1.02 07/09/97 14:29:43

SECOTP2D, PU-239, R1, FM

Run # vs Mass Balance Error (MSEPU239)



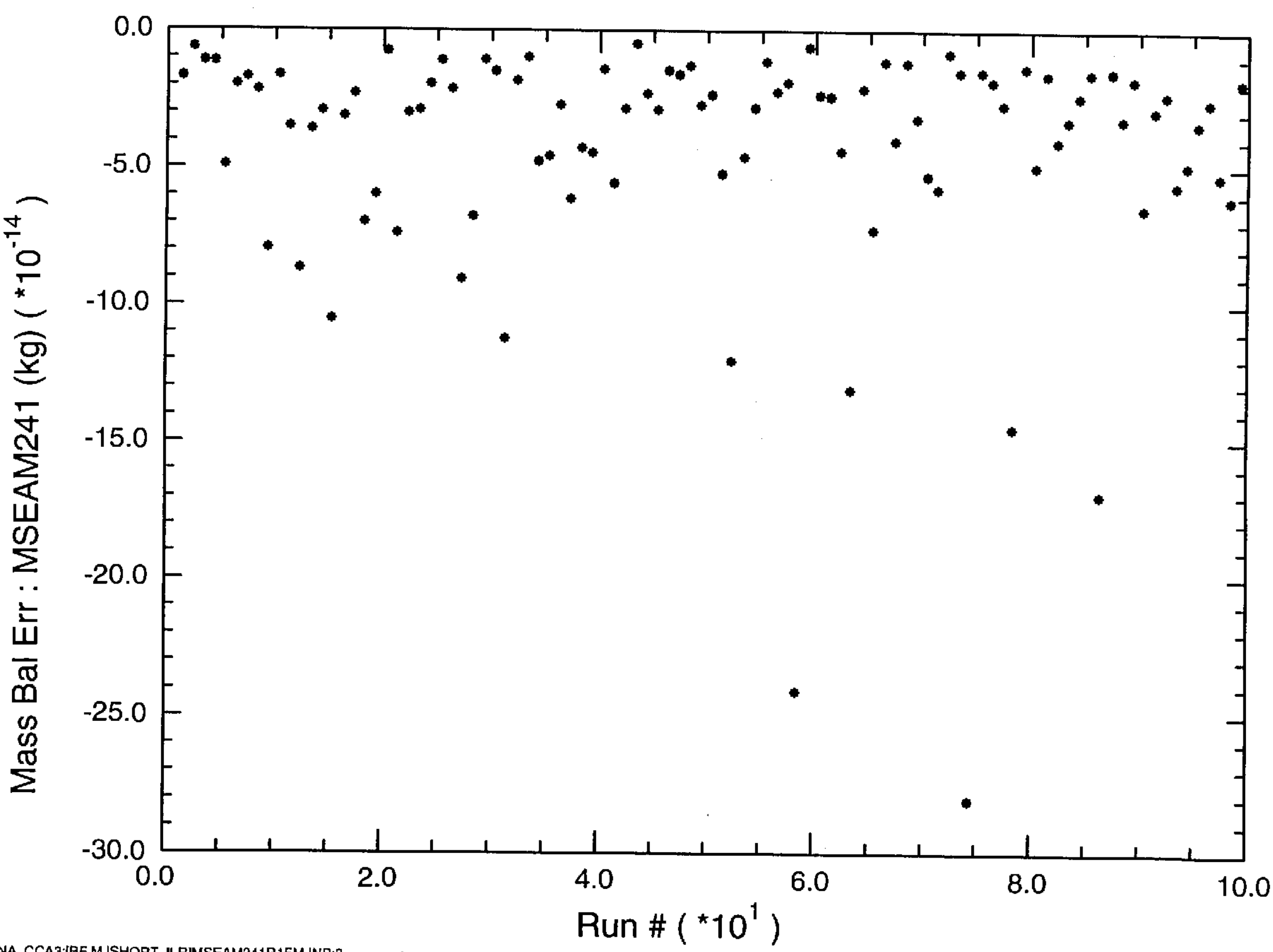
DISK$TINA_CCA3:[BF.MJSHORT.JLR]MSEPU239R1FM.INP;3

Figure D.7

SPLAT_PA96_2 1.02 07/09/97 14:29:49

SECOTP2D, AM-241, R1, FM

Run # vs Mass Balance Error (MSEAM241)



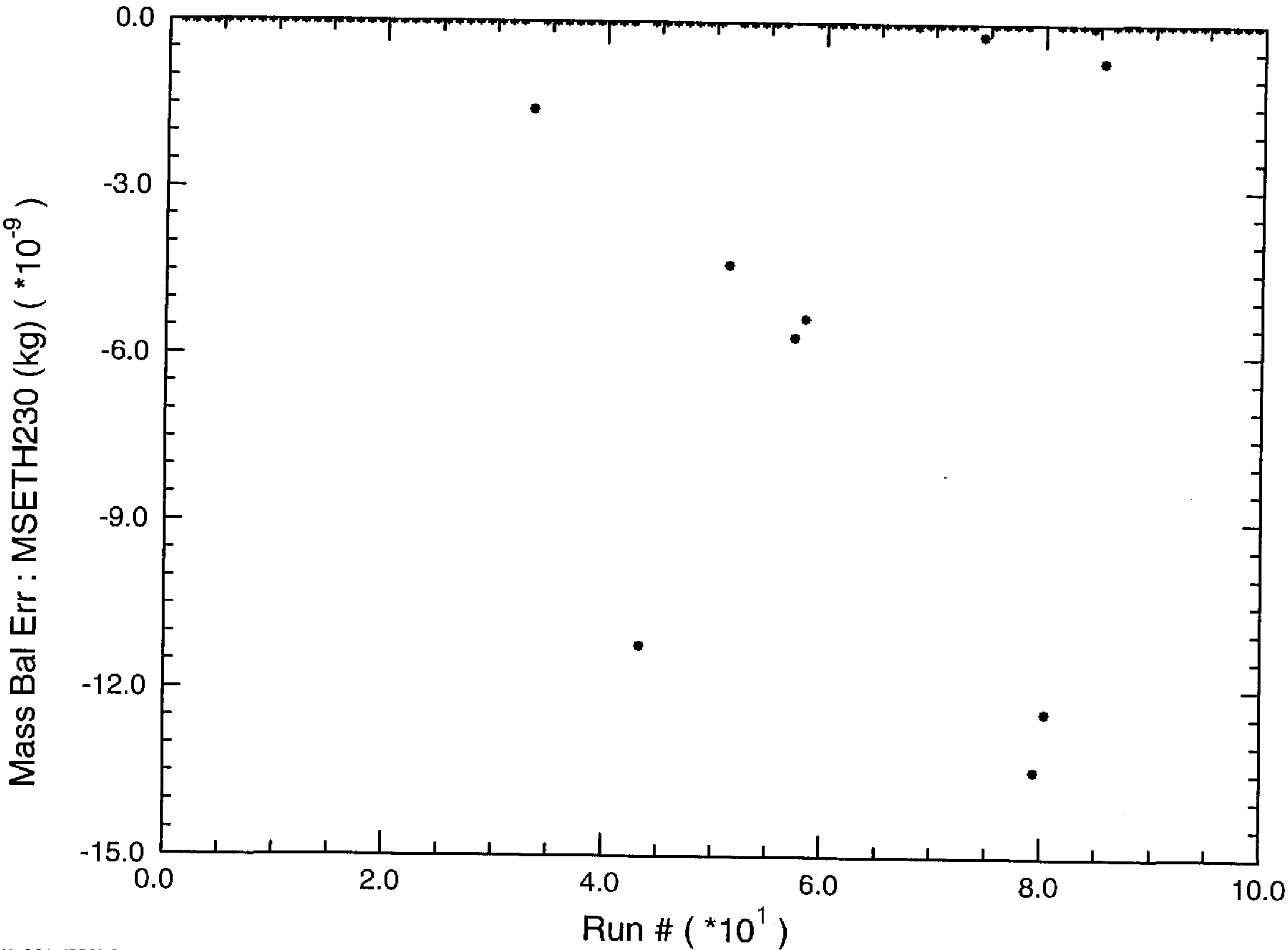
DISK$TINA_CCA3:[BF.MJSHORT.JLR]MSEAM241R1FM.INP;3

Figure D.8

SPLAT_PA96_2 1.02 07/09/97 14:29:54

SECOTP2D, TH-230, R1, FM

Run # vs Mass Balance Error (MSETH230)



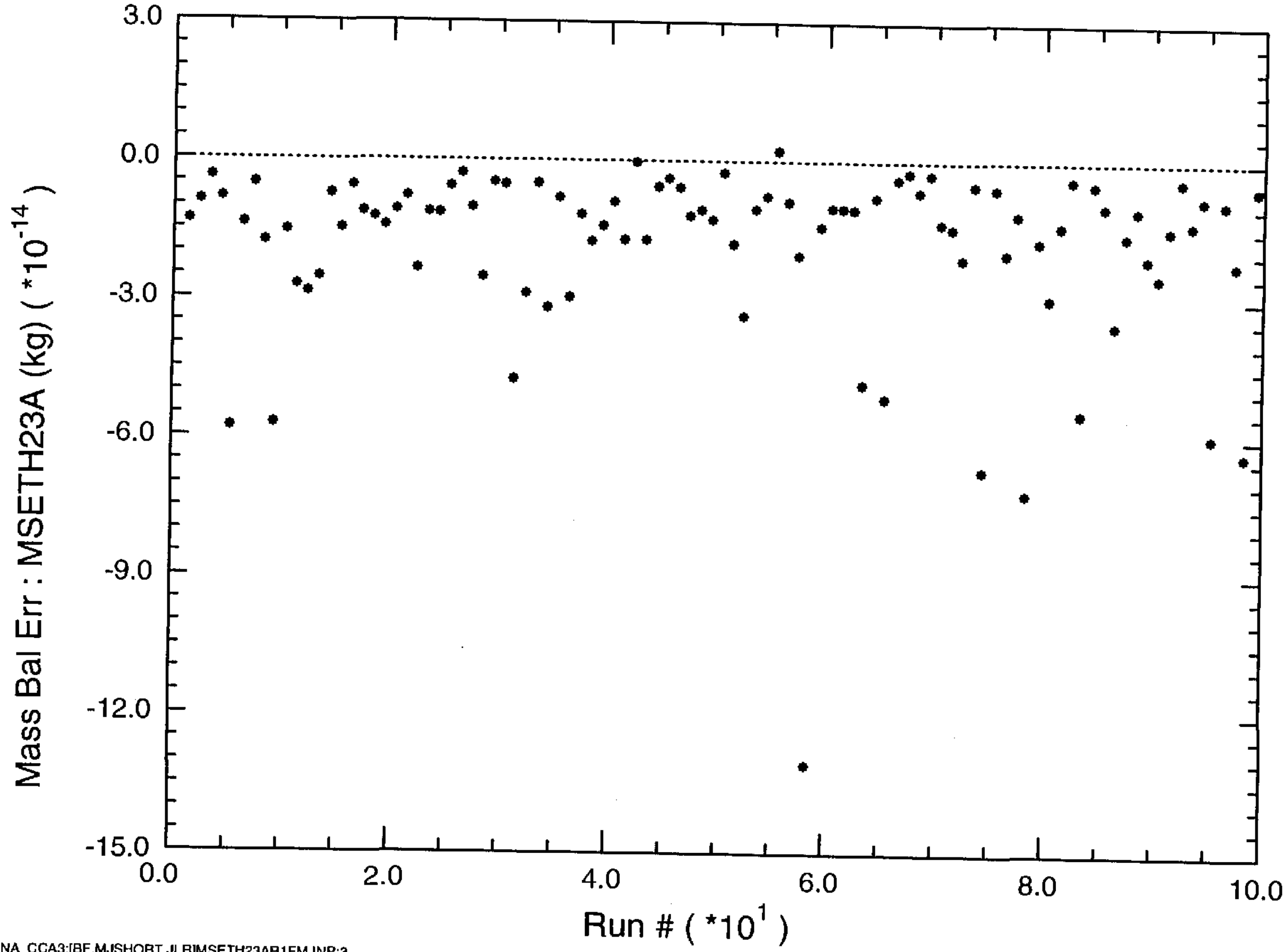
DISK$TINA_CCA3:[BF.MJSHORT.JLR]MSETH230R1FM.INP;3

Figure D.9

SPLAT_PA96_2 1.02 07/09/97 14:29:59

SECOTP2D, TH-23A, R1, FM

Run # vs Mass Balance Error (MSETH23A)



DISK$TINA_CCA3:[BF.MJSHORT.JLR]MSETH23AR1FM.INP;3

Figure D.10

SPLAT_PA96_2 1.02 07/09/97 14:30:05

APPENDIX F

BRAGFLO RESULTS FOR DIRECT BRINE RELEASE (DBR)

Appendix F includes Tables and Figures which contain results from direct brine release calculations performed using BRAGFLO.

This Table contains values for all down-dip and up-dip vectors with releases.

1997 EP fication Calculation: Replicate One Direct Brine Release Vectors

7/13/97

.	.	.	.	.	Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	BC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up-dip Brine Relative Permeability (fraction)	Up-dip Gas Relative Permeability (fraction)	Down-dip Brine Relative Permeability (fraction)	Down-dip Gas Relative Permeability (fraction)
No.	ID	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_RE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
1	*Down-dip*	*1*	*1*	*51*	*6.32E-01*	*1.34E-01*	*3.63E-01*	*1.63E+00*	*9.80E+06*	*2.27E-01*	*9.81E+06*	*8.32E-01*	*1.46E-01*	*6.17E-14*	*1.53E-01*	*6.17E-14*	*3.50E+02*	*-1.16E+00*	*1.55E-13*	0.00E+00	7.77E-01	1.68E+07	1.00E-12	0.00E+00	1.00E+00	4.15E-02	1.42E-01
2	Down-dip	1	1	58	6.36E-01	2.96E-02	1.14E-01	1.65E+00	1.01E+07	1.70E-01	1.01E+07	1.61E-01	1.64E-01	1.45E-16	1.75E-01	1.45E-16	3.50E+02	-1.18E+00	1.58E-13	0.00E+00	8.11E-01	1.26E+07	1.00E-12	3.76E-05	8.65E-01	7.53E-05	8.37E-01
3	Down-dip	1	1	28	6.30E-01	9.72E-02	1.79E-01	1.62E+00	9.64E+06	1.76E-01	9.66E+06	1.80E-01	1.66E-01	4.79E-17	1.81E-01	4.79E-17	3.50E+02	-1.08E+00	1.50E-13	0.00E+00	8.64E-01	1.48E+07	1.00E-12	0.00E+00	1.00E+00	9.44E-12	9.98E-01
4	Down-dip	1	1	26	5.28E-01	7.60E-02	4.97E-01	1.27E+00	9.71E+06	2.45E-01	9.72E+06	8.02E-01	1.80E-01	2.00E-14	2.00E-01	2.00E-14	1.00E+03	-1.33E+00	1.30E-13	0.00E+00	1.10E+00	1.19E+07	1.00E-12	0.00E+00	1.00E+00	1.57E-01	3.57E-02
5	Down-dip	1	1	40	5.46E-01	1.02E-01	3.54E-01	1.32E+00	1.10E+07	8.32E-02	1.10E+07	6.92E-01	1.36E-01	1.51E-13	1.39E-01	1.51E-13	1.00E+03	-1.32E+00	1.34E-13	0.00E+00	1.07E+00	1.47E+07	1.00E-12	0.00E+00	1.00E+00	9.13E-02	7.99E-02
6	Down-dip	1	1	51	5.70E-01	1.34E-01	3.63E-01	1.40E+00	1.31E+07	2.46E-01	1.31E+07	8.85E-01	2.01E-01	4.87E-13	1.78E-01	6.17E-14	1.00E+03	-1.16E+00	1.33E-13	0.00E+00	7.77E-01	1.68E+07	1.00E-12	0.00E+00	1.00E+00	4.15E-01	3.13E-08
7	Down-dip	1	1	94	5.44E-01	4.58E-03	1.85E-01	1.32E+00	1.09E+07	2.59E-01	1.09E+07	6.29E-01	2.03E-01	6.31E-15	2.11E-01	6.31E-15	1.00E+03	-1.29E+00	1.32E-13	0.00E+00	9.95E-01	1.43E+07	1.00E-12	1.42E-04	8.12E-01	1.06E-01	1.30E-01
8	Down-dip	1	1	79	5.40E-01	1.23E-01	3.88E-01	1.31E+00	1.06E+07	1.19E-01	1.06E+07	7.81E-01	1.76E-01	2.57E-13	1.90E-01	2.57E-13	1.00E+03	-1.10E+00	1.22E-13	0.00E+00	6.89E-01	1.31E+07	1.00E-12	0.00E+00	1.00E+00	1.95E-01	1.19E-02
9	Down-dip	1	1	22	5.23E-01	2.51E-02	8.22E-02	1.26E+00	9.31E+06	4.35E-02	9.36E+06	9.72E-01	1.33E-01	7.41E-14	1.48E-01	7.41E-14	1.00E+03	-1.37E+00	1.30E-13	0.00E+00	1.17E+00	1.39E+07	1.00E-12	0.00E+00	1.00E+00	8.91E-01	7.54E-08
10	Down-dip	1	1	19	5.02E-01	1.42E-01	2.97E-02	1.21E+00	8.04E+06	1.69E-01	8.05E+06	4.57E-01	2.02E-01	1.41E-15	2.26E-01	1.41E-15	1.00E+03	-1.23E+00	1.18E-13	0.00E+00	8.94E-01	1.27E+07	1.00E-12	7.78E-04	8.57E-01	4.84E-02	1.58E-01
11	Down-dip	1	1	30	5.55E-01	1.16E-01	4.16E-02	1.35E+00	1.18E+07	5.30E-02	1.18E+07	3.89E-01	3.52E-02	2.75E-14	4.11E-02	2.75E-14	1.00E+03	-8.49E-01	1.07E-13	0.00E+00	2.79E-01	1.47E+07	1.00E-12	7.74E-08	9.73E-01	2.62E-02	2.54E-01
12	Down-dip	1	1	31	5.34E-01	5.28E-02	5.93E-02	1.29E+00	1.02E+07	9.16E-03	1.02E+07	4.10E-01	7.42E-02	1.66E-15	9.05E-02	1.66E-15	1.00E+03	-1.27E+00	1.29E-13	0.00E+00	9.73E-01	1.49E+07	1.00E-12	0.00E+00	1.00E+00	2.60E-02	2.91E-01
13	Down-dip	1	1	73	5.20E-01	5.61E-02	3.03E-01	1.25E+00	9.12E+06	7.82E-02	9.13E+06	4.20E-01	9.01E-02	3.72E-16	1.13E-01	3.72E-18	1.00E+03	-8.01E-01	1.04E-13	0.00E+00	3.77E-01	1.39E+07	1.00E-12	0.00E+00	1.00E+00	1.37E-03	6.31E-01
14	Down-dip	1	1	49	5.83E-01	3.07E-02	7.64E-02	1.37E+00	1.25E+07	5.42E-02	1.25E+07	1.61E-01	3.92E-02	4.27E-15	4.18E-02	4.27E-15	1.00E+03	-1.28E+00	1.36E-13	0.00E+00	9.52E-01	1.31E+07	1.00E-12	0.00E+00	1.00E+00	1.47E-04	8.04E-01
15	Down-dip	1	1	5	5.08E-01	1.29E-01	1.21E-01	1.22E+00	8.38E+06	1.18E-02	8.42E+06	1.71E-01	1.32E-01	1.82E-17	1.55E-01	1.82E-17	1.00E+03	-1.37E+00	1.27E-13	0.00E+00	1.17E+00	1.57E+07	1.00E-12	0.00E+00	1.00E+00	2.59E-05	8.61E-01
16	Down-dip	1	1	58	5.80E-01	2.96E-02	1.14E-01	1.43E+00	1.40E+07	1.37E-01	1.40E+07	1.55E-01	2.14E-01	1.59E-15	2.02E-01	1.45E-16	1.00E+03	-1.18E+00	1.37E-13	0.00E+00	8.11E-01	1.26E+07	1.00E-12	1.49E-06	9.44E-01	1.18E-05	9.01E-01
17	Down-dip	1	1	28	5.70E-01	9.72E-02	1.79E-01	1.40E+00	1.31E+07	1.94E-01	1.31E+07	1.99E-01	2.08E-01	4.79E-17	2.11E-01	4.79E-17	1.00E+03	-1.08E+00	1.29E-13	0.00E+00	6.84E-01	1.48E+07	1.00E-12	3.92E-07	9.57E-01	1.21E-06	9.42E-01
18	Down-dip	1	1	58	5.99E-01	2.96E-02	1.14E-01	1.50E+00	1.60E+07	1.80E-02	1.60E+07	7.65E-01	2.62E-01	2.30E-11	1.93E-01	1.45E-16	3.00E+03	-1.18E+00	1.44E-13	0.00E+00	8.11E-01	1.26E+07	1.00E-12	0.00E+00	1.00E+00	3.20E-01	2.15E-02
19	Down-dip	1	1	51	5.85E-01	1.34E-01	3.63E-01	1.45E+00	1.47E+07	1.15E-01	1.47E+07	8.93E-01	2.58E-01	7.30E-11	1.72E-01	6.17E-14	3.00E+03	-1.16E+00	1.38E-13	0.00E+00	7.77E-01	1.68E+07	1.00E-12	0.00E+00	1.00E+00	8.82E-02	6.05E-02
20	Down-dip	1	1	22	5.56E-01	2.51E-02	8.22E-02	1.35E+00	1.21E+07	7.51E-06	1.21E+07	9.71E-01	1.37E-01	7.45E-14	1.38E-01	7.41E-14	3.00E+03	-1.37E+00	1.40E-13	0.00E+00	1.17E+00	1.39E+07	1.00E-12	0.00E+00	1.00E+00	8.88E-01	1.38E-07
21	Down-dip	1	1	94	5.52E-01	4.58E-03	1.85E-01	1.34E+00	1.18E+07	1.91E-01	1.18E+07	9.94E-01	2.03E-01	6.31E-15	2.08E-01	6.31E-15	3.00E+03	-1.29E+00	1.34E-13	0.00E+00	9.85E-01	1.43E+07	1.00E-12	8.81E-09	9.87E-01	9.71E-01	2.09E-08
22	Down-dip	1	1	7	5.32E-01	7.76E-03	3.12E-01	1.28E+00	1.02E+07	1.77E-01	1.02E+07	8.71E-01	1.43E-01	2.29E-13	1.59E-01	2.29E-13	3.00E+03	-6.15E-01	1.00E-13	0.00E+00	2.60E-01	1.36E+07	1.00E-12	0.00E+00	1.00E+00	4.63E-01	9.09E-03
23	Down-dip	1	1	55	5.26E-01	7.03E-02	2.38E-01	1.27E+00	9.77E+06	7.74E-02	9.78E+06	7.70E-01	9.42E-02	8.71E-15	1.07E-01	8.71E-15	3.00E+03	-8.88E-01	1.08E-13	0.00E+00	4.31E-01	1.28E+07	1.00E-12	0.00E+00	1.00E+00	2.65E-01	1.92E-02
24	Down-dip	1	1	44	5.24E-01	1.12E-01	1.61E-02	1.26E+00	9.67E+06	5.13E-06	9.70E+06	8.86E-01	1.28E-01	1.18E-13	1.38E-01	1.18E-13	3.00E+03	-1.17E+00	1.20E-13	0.00E+00	7.83E-01	1.45E+07	1.00E-12	0.00E+00	1.00E+00	6.41E-01	0.00E+00
25	Down-dip	1	1	30	5.53E-01	1.16E-01	4.16E-02	1.34E+00	1.19E+07	4.82E-02	1.19E+07	4.39E-01	3.58E-02	2.75E-14	4.13E-02	2.75E-14	3.00E+03	-6.49E-01	1.06E-13	0.00E+00	2.79E-01	1.47E+07	1.00E-12	1.04E-08	9.84E-01	3.86E-02	2.01E-01
26	Down-dip	1	1	19	5.47E-01	1.42E-01	2.97E-02	1.33E+00	1.14E+07	5.46E-02	1.14E+07	3.73E-01	1.99E-01	1.41E-15	2.05E-01	1.41E-15	3.00E+03	-1.23E+00	1.30E-13	0.00E+00	8.94E-01	1.27E+07	1.00E-12	1.34E-06	9.38E-01	2.15E-02	2.66E-01
27	Down-dip	1	1	24	5.01E-01	9.01E-02	1.37E-01	1.20E+00	8.47E+06	1.11E-01	8.53E+06	9.08E-01	1.99E-01	2.82E-13	2.24E-01	2.82E-13	3.00E+03	-1.29E+00	1.21E-13	0.00E+00	9.94E-01	1.27E+07	1.00E-12	0.00E+00	1.00E+00	6.59E-01	3.23E-08
28	Down-dip	1	1	31	5.46E-01	5.28E-02	5.93E-02	1.32E+00	1.13E+07	4.05E-08	1.13E+07	3.78E-01	7.73E-02	1.66E-15	8.83E-02	1.66E-15	3.00E+03	-1.27E+00	1.32E-13	0.00E+00	9.73E-01	1.49E+07	1.00E-12	0.00E+00	1.00E+00	1.84E-02	3.38E-01
29	Down-dip	1	1	17	5.89E-01	1.41E-02	2.26E-01	1.39E+00	1.32E+07	8.46E-06	1.32E+07	4.50E-01	1.69E-01	4.74E-14	1.48E-01	5.37E-15	3.00E+03	-1.03E+00	1.26E-13	0.00E+00	5.93E-01	1.51E+07	1.00E-12	0.00E+00	1.00E+00	1.03E-02	4.34E-01
30	Down-dip	1	1	79	5.76E-01	1.23E-01	3.88E-01	1.42E+00	1.39E+07	2.50E-06	1.39E+07	5.00E-01	1.79E-01	3.65E-13	1.75E-01	2.57E-13	3.00E+03	-1.10E+00	1.32E-13	0.00E+00	6.89E-01	1.31E+07	1.00E-12	0.00E+00	1.00E+00	1.88E-03	5.46E-01
31	Down-dip	1	1	26	5.78E-01	7.60E-02	4.97E-01	1.42E+00	1.40E+07	6.98E-02	1.40E+07	6.00E-01	1.81E-01	2.53E-14	1.79E-01	2.00E-14	3.00E+03	-1.33E+00	1.45E-13	0.00E+00	1.10E+00	1.19E+07	1.00E-12	0.00E+00	1.00E+00	2.85E-03	5.24E-01
32	Down-dip	1	1	63	5.09E-01	1.14E-01	1.70E-01	1.22E+00	8.67E+06	2.96E-02	8.68E+06	3.83E-01	5.36E-02	2.14E-14	6.98E-02	2.14E-14	3.00E+03	-1.01E+00	1.10E-13	0.00E+00	5.75E-01	1.13E+07	1.00E-12	0.00E+00	1.00E+00	8.83E-03	4.30E-01
33	Down-dip	1	1	2	5.81E-01	8.22E-02	4.02E-01	1.37E+00	1.25E+07	9.10E-03	1.25E+07	5.09E-01	1.69E-01	8.08E-14	1.66E-01	4.47E-14	3.00E+03	-1.29E+00	1.37E-13	0.00E+00	9.98E-01	1.41E+07	1.00E-12	0.00E+00	1.00E+00	1.75E-03	5.84E-01
34	Down-dip	1	1	60	5.21E-01	6.13E-02	4.70E-02	1.25E+00	9.44E+06	8.74E-02	9.48E+06	1.98E-01	1.93E-01	5.75E-18	2.05E-01	5.75E-18	3.00E+03	-1.17E+00	1.20E-13	0.00E+00	7.91E-01	1.35E+07	1.00E-12	6.77E-07	9.53E-01	1.10E-03	6.57E-01
35	Down-dip	1	1	78	5.12E-01	4.93E-02	1.51E-01	1.23E+00	8.99E+06	6.79E-03	8.99E+06	2.41E-01	1.08E-01	2.46E-15	1.22E-01	2.46E-15	3.00E+03	-1.06E+00	1.12E-13	0.00E+00	8.28E-01	1.61E+07	1.00E-12	0.00E+00	1.00E+00	2.50E-04	7.69E-01
36	Down-dip	1	1	49	5.73E-01	3.07E-02	7.64E-02	1.41E+00	1.36E+07	6.93E-03	1.36E+07	9.42E-02	4.44E-02	6.45E-15	4.08E-02	4.27E-15	3.00E+03	-1.26E+00	1.39E-13	0.00E+00	9.52E-01	1.31E+07	1.00E-12	0.00E+00	1.00E+00	4.63E-07	9.59E-01
37	Down-dip	1	1	5	5.21E-01	1.29E-01	1.21E-01	1.25E+00	9.41E+06	2.23E-05	9.41E+06	1.25E-01	1.33E-01	1.82E-17	1.51E-01	1.82E-17	3.00E+03	-1.37E+00	1.30E-13	0.00E+00	1.17E+00	1.57E+07	1.00E-12	0.00E+00	1.00E+00	2.61E-09	9.89E-01
38	Down-dip	1	1	91	5.69E-01	5.46E-02	3.06E-01	1.39E+00	1.32E+07	7.93E-06	1.32E+07	3.08E-01	1.90E-01	5.28E-15	1.91E-01	5.01E-15	3.00E+03	-7.73E-01	1.15E-13	0.00E+00	3.57E-01	1.25E+07	1.00E-12	0.00E+00	1.00E+00	4.82E-10	9.93E-01
39	Down-dip	1	1	28	6.09E-01	9.72E-02	1.79E-01	1.54E+00	1.66E+07	5.22E-02	1.66E+07	7.71E-01	2.53E-01	9.84E-12	1.91E-01	4.79E-17	5.00E+03	-1.08E+00	1.42E-13	0.00E+00	8.64E-01	1.48E+07	1.00E-12	0.00E+00	1.00E+00	3.00E-01	9.49E-03
40	Down-dip	1	1	7	5.53E-01	7.76E-03	3.12E-01	1.34E+00	1.19E+07	1.12E-01	1.19E+07	7.08E-01	1.44E-01	2.29E-13	1.52E-01	2.29E-13	5.00E+03	-8.15E-01	1.05E-13	0.00E+00	2.60E-01	1.36E+07	1.00E-12	0.00E+00	1.00E+00	1.30E-01	1.05E-01
41	Down-dip	1	1	22	5.64E-01	2.51E-02	8.22E-02	1.36E+00	1.28E+07	5.66E-06	1.28E+07	9.09E-01	1.40E-01	1.12E-13	1.35E-01	7.41E-14	5.00E+03	-1.37E+00	1.43E-13	0.00E+00	1.17E+00	1.39E+07	1.00E-12	0.00E+00	1.00E+00	6.79E-01	6.78E-04
42	Down-dip	1	1	69	5.03E-01	6.98E-02	4.08E-01	1.21E+00	8.65E+06	9.02E-02	8.66E+06	7.48E-01	7.48E-02	1.26E-14	9.53E-02	1.26E-14	5.00E+03	-1.29E+00	1.21E-13	0.00E+00	9.99E-01	1.62E+07	1.00E-12	0.00E+00	1.00E+00	1.29E-01	5.02E-02
43	Down-dip	1	1	58	6.03E-01	2.96E-02	1.14E-01	1.51E+00	1.62E+07	1.50E-05	1.62E+07	5.22E-01	2.87E-01	8.78E-11	1.91E-01	1.45E-16	5.00E+03	-1.18E+00	1.45E-13	0.00E+00	8.11E-01	1.26E+07	1.00E-12	0.00E+00	1.00E+00	5.70E-02	1.96E-01
44	Down-dip	1	1	94	5.56E-01	4.58E-03	1.85E-01	1.35E+00	1.21E+07	1.77E-01	1.22E+07	9.94E-01	2.03E-01	6.31E-15	2.06E-01	6.31E-15	5.00E+03	-1.29E+00	1.35E-13	0.00E+00	9.95E-01	1.43E+07	1.00E-12	0.00E+00	1.00E+00	9.72E-01	1.48E-08
45	Down-dip	1	1	66	4.95E-01	6.86E-02	3.61E-02	1.19E+00	8.37E+06	8.12E-03	8.40E+06	6.19E-01	1.57E-01	3.02E-17	1.79E-01	3.02E-17	5.00E+03	-1.26E+00	1.18E-13	0.00E+00	9.43E-01	1.22E+07	1.00E-12	0.00E+00	1.00E+00	1.56E-01	6.28E-02
46	Down-dip	1	1	24	5.34E-01	9.01E-02	1.37E-01	1.29E+00	1.04E+07	7.45E-02	1.04E+07	9.06E-01	1.94E-01	2.82E-13	2.10E-01	2.82E-13	5.00E+03	-1.29E+00	1.29E-13	0.00E+00	9.94E-01	1.27E+07	1.00E-12	0.00E+00	1.00E+00	6.59E-01	2.76E-08
47	Down-dip	1	1	55	5.46E-01	7.03E-02	2.38E-01	1.32E+00	1.14E+07	2.83E-02	1.14E+07	8.28E-01	9.72E-02	8.71E-15	1.03E-01	8.71E-15	5.00E+03	-8.68E-01	1.13E-13	0.00E+00	4.31E-01	1.28E+07	1.00E-12	0.00E+00	1.00E+00	8.44E-02	1.18E-01
48	Down-dip	1	1	44	5.25E-01	1.12E-01	1.81E-02	1.26E+00	9.70E+06	3.76E-06	9.73E+06	8.69E-01	1.28E-01	1.18E-13	1.38E-01	1.18E-13	5.00E+03	-1.17E+00	1.21E-13	0.00E+00	7.83E-01	1.45E+07	1.00E-12	0.00E+00	1.00E+00	6.42E-01	0.00E+00
49	Down-dip	1	1	31	5.50E-01	5.28E-02	5.93E-02	1.34E+00	1.17E+07	3.28E-08	1.17E+07	4.96E-01	7.80E-02	1.68E-15	8.75E-02	1.66E-15	5.00E+03	-1.27E+00	1.33E-13	0.00E+00	9.73E-01	1.49E+07	1.00E-12	0.00E+00	1.00E+00	5.86E-02	1.81E-01
50	Down-dip	1	1	30	5.54E-01	1.16E-01	4.16E-02	1.35E+00	1.20E+07	4.60E-02	1.20E+07	4.54E-01	3.60E-02	2.75E-14	4.13E-02	2.75E-14	5.00E+03	-6.49E-01	1.06E-13	0.00E+00	2.79E-01	1.47E+07	1.00E-12	2.17E-09	9.90E-01	4.45E-02	1.83E-01
51	Down-dip	1	1	19	5.61E-01	1.42E-01	2.97E-02	1.37E+00	1.26E+07	1.60E-02	1.26E+07	4.01E-01	1.98E-01	1.45E-15	1.99E-01	1.41E-15	5.00E+03	-1.23E+00	1.34E-13	0.00E+00	8.94E-01	1.27E+07	1.00E-12	0.00E+00	1.00E+00	2.89E-02	2.25E-01
52	Down-dip	1	1	17	5.69E-01	1.41E-02	2.26E-01	1.39E+00	1.32E+07	3.93E-06	1.32E+07	4.85E-01	1.69E-01	4.64E-14	1.48E-01	5.37E-15	5.00E+03	-1.03E+00	1.26E-13	0.00E+00	5.93E-01	1.51E+07	1.00E-12	0.00E+00	1.00E+00	1.75E-02	3.65E-01
53	Down-dip	1	1	79	5.76E-01	1.23E-01	3.88E-01	1.42E+00	1.39E+07	1.87E-06	1.39E+07	5.08E-01	1.79E-01	3.67E-13	1.75E-01	2.57E-13	5.00E+03	-1.10E+00	1.32E-13	0.00E+00	6.89E-01	1.31E+07	1.00E-12	0.00E+00	1.00E+00	2.42E-03	5.18E-01
54	Down-dip	1	1	83	5.24E-01	1.14E-01	1.70E-01	1.26E+00	9.67E+06	1.12E-04	9.68E+06	3.99E-01	5.52E-02	2.14E-14	6.76E-02	2.14E-14	5.00E+03	-1.01E+00	1.13E-13	0.00E+00	5.75E-01	1.13E+07	1.00E-12	0.00E+00	1.00E+00	8.58E-03	3.96E-01
55	Down-dip	1	1	91	5.71E-01	5.46E-02	3.06E-01	1.40E+00	1.34E+07	5.78E-06	1.34E+07	4.89E-01	1.90E-01	6.11E-15	1.90E-01	5.01E-15	5.00E+03	-7.73E-01	1.15E-13	0.00E+00	3.57E-01	1.25E+07	1.00E-12	0.00E+00	1.00E+00	7.33E-03	4.47E-01
56	Down-dip	1	1	26	5.86E-01	7.60E-02	4.97E-01	1.46E+00	1.49E+07	5.20E-03	1.50E+07	5.64E-01	1.89E-01	1.01E-13	1.75E-01	2.00E-14	5.00E+03	-1.33E+00	1.49E-13	0.00E+00	1.10E+00	1.19E+07	1.00E-12	0.00E+00	1.00E+00	5.97E-04	6.78E-01
57	Down-dip	1	1	78	5.24E-01	4.93E-02	1.51E-01	1.26E+00	9.65E+06	1.97E-05	9.66E+06	2.68E-01	1.08E-01	2.46E-15	1.19E-01	2.46E-15	5.00E+03	-1.06E+00	1.15E-13	0.00E+00	8.28E-01	1.61E+07	1.00E-12	0.00E+00	1.00E+00	1.13E-03	6.56E-01
58	Down-dip	1	1	53	4.99E-01	4.46E-02	2.52E-01	1.20E+00	8.51E+06	7.26E-02	8.56E+06	3.82E-01	1.57E-01	8.51E-18	1.84E-01	8.51E-18	5.00E+03	-1.23E+00	1.17E-13	0.00E+00	8.92E-01	1.42E+07	1.00E-12	0.00E+00	1.00E+00	1.57E-03	6.26E-01
59	Down-dip	1	1	41	5.05E-01	3.40E-02	8.64E-02	1.21E+00	8.71E+06	2.19E-02	8.80E+06	2.00E-01	1.46E-01	1.70E-19	1.61E-01	1.70E-19	5.00E+03	-1.22E+00	1.18E-13	0.00E+00	8.64E-01	1.51E+07	1.00E-12	0.00E+00	1.00E+00	4.49E-04	7.36E-01
60	Down-dip	1	1	2	5.67E-01	8.22E-02	4.02E-01	1.39E+00	1.30E+07	8.11E-06	1.30E+07	4.40E-01	1.74E-01	1.12E-13	1.64E-01	4.47E-14	5.00E+03	-1.29E+00	1.39E-13	0.00E+00	9.98E-01	1.41E+07	1.00E-12	0.00E+00	1.00E+00	3.89E-05	8.47E-01
61	Down-dip	1	1	60	5.39E-01	6.13E-02	4.70E-02	1.30E+00	1.08E+07	3.60E-02	1.08E+07	1.21E-01	1.92E-01	8.78E-18	1.98E-01	5.75E-18	5.00E+03	-1.17E+00	1.25E-13	0.00E+00	7.91E-01	1.35E+07	1.00E-12	0.00E+00	1.00E+00	7.91E-05	8.29E-01
62	Down-dip	1	1	12	5.38E-01	7.06E-02	1.02E-01	1.30E+00	1.07E+07	5.96E-08	1.07E+07	1.45E-01	3.23E-02	1.78E-13	4.46E-02	1.78E-13	5.00E+03	-1.36E+00	1.35E-13	0.00E+00	1.19E+00	1.44E+07	1.00E-12	0.00E+00	1.00E+00	1.33E-05	8.93E-01
63	Down-dip	1	1	5	5.27E-01	1.29E-01	1.21E-01	1.27E+00	9.84E+06	1.38E-05	9.85E+06	1.54E-01	1.34E-01	1.82E-17	1.49E-01	1.82E-17	5.00E+03	-1.37E+00	1.32E-13	0.00E+00	1.17E+00	1.57E+07	1.00E-12	0.00E+00	1.00E+00	5.52E-06	9.09E-01
64	Down-dip	1	1	40	5.66E-01	1.02E-01	3.54E-01	1.39E+00	1.30E+07	1.91E-06	1.30E+07	3.67E-01	1.55E-01	7.47E-13	1.32E-01	1.51E-13	5.00E+03	-1.32E+00	1.41E-13	0.00E+00	1.07E+00	1.47E+07	1.00E-12	0.00E+00	1.00E+00	6.04E-07	9.50E-01
65	Down-dip	1	1	47	4.93E-01	6.75E-02	1.61E-01	1.19E+00	8.30E+06	5.44E-02	8.34E+06	1.62E-01	1.50E-01	6.92E-18	1.66E-01	6.92E-18	5.00E+03	-1.09E+00	1.10E-13	0.00E+00	6.75E-01	1.24E+07	1.00E-12	0.00E+00	1.00E+00	8.47E-11	9.96E-01
66	Down-dip	1	1	31	5.58E-01	5.28E-02	5.93E-02	1.36E+00	1.22E+07	2.03E-06	1.22E+07	7.13E-01	7.92E-02	1.66E-15	8.60E-02	1.66E-15	1.00E+04	-1.27E+00	1.35E-13	0.00E+00	9.73E-01	1.49E+07	1.00E-12	0.00E+00	1.00E+00	2.60E-01	2.83E-02
67	Down-dip	1	1	58	6.04E-01	2.96E-02	1.14E-01	1.52E+00	1.59E+07	2.56E-06	1.59E+07	5.93E-01	2.55E-01	1.29E-11	1.90E-01	1.45E-16	1.00E+04	-1.18E+00	1.46E-13	0.00E+00	8.11E-01	1.26E+07	1.00E-12	0.00E+00	1.00E+00	1.03E-01	1.22E-01
68	Down-dip	1	1	69	5.26E-01	6.98E-02	4.08E-01	1.27E+00	9.77E+06	4.72E-02	9.78E+06	7.54E-01	7.61E-02	1.28E-14	9.08E-02	1.26E-14	1.00E+04	-1.29E+00	1.27E-13	0.00E+00	9.99E-01	1.62E+07	1.00E-12	0.00E+00	1.00E+00	1.37E-01	4.56E-02
69	Down-dip	1	1	22	5.83E-01	2.51E-02	8.22E-02	1.38E+00	1.27E+07	2.80E-06	1.27E+07	8.67E-01	1.39E-01	1.02E-13	1.35E-01	7.41E-14	1.00E+04	-1.37E+00	1.42E-13	0.00E+00	1.17E+00	1.39E+07	1.00E-12	0.00E+00	1.00E+00	5.60E-01	2.88E-03
70	*Down-dip*	*1*	*1*	*94*	*5.66E-01*	*4.58E-03*	*1.85E-01*	*1.38E+00*	*1.29E+07*	*1.48E-01*	*1.29E+07*	*9.94E-01*	*2.03E-01*	*6.93E-15*	*2.01E-01*	*6.31E-15*	*1.00E+04*	*-1.29E+00*	*1.38E-13*	*0.00E+00*	*9.85E-01*	*1.43E+07*	1.00E-12	0.00E+00	*1.00E+00*	*9.72E-01*	*1.26E-08*
71	Down-dip	1	1	24	5.52E-01	9.01E-02	1.37E-01	1.34E+00	1.17E+07	3.71E-02	1.18E+07	9.14E-01	1.93E-01	2.82E-13	2.02E-01	2.82E-13	1.00E+04	-1.29E+00	1.34E-13	0.00E+00	9.94E-01	1.27E+07	1.00E-12	0.00E+00	1.00E+00	6.79E-01	0.00E+00
72	Down-dip	1	1	19	5.69E-01	1.42E-01	2.97E-02	1.39E+00	1.32E+07	5.91E-05	1.32E+07	5.65E-01	1.99E-01	2.70E-15	1.95E-01	1.41E-15	1.00E+04	-1.23E+00	1.36E-13	0.00E+00	8.94E-01	1.27E+07	1.00E-12	0.00E+00	1.00E+00	1.11E-01	6.55E-02
73	Down-dip	1	1	28	6.39E-01	9.72E-02	1.79E-01	1.66E+00	1.88E+07	1.21E-05	1.88E+07	5.52E-01	2.45E-01	6.39E-11	1.77E-01	4.79E-17	1.00E+04	-1.08E+00	1.54E-13	0.00E+00	6.64E-01	1.48E+07	1.00E-12	0.00E+00	1.00E+00	5.46E-02	1.58E-01
74	Down-dip	1	1	7	5.73E-01	7.76E-03	3.12E-01	1.41E+00	1.35E+07	3.07E-02	1.35E+07	6.18E-01	1.44E-01	2.30E-13	1.45E-01	2.29E-13	1.00E+04	-8.15E-01	1.10E-13	0.00E+00	2.60E-01	1.36E+07	1.00E-12	0.00E+00	1.00E+00	4.88E-02	2.28E-01
75	Down-dip	1	1	84	5.16E-01	1.33E-01	1.78E-02	1.24E+00	9.15E+06	1.07E-06	9.17E+06	5.49E-01	5.82E-02	3.39E-16	7.41E-02	3.39E-16	1.00E+04	-1.53E+00	1.38E-13	0.00E+00	1.62E+00	1.28E+07	1.00E-12	0.00E+00	1.00E+00	1.04E-01	7.69E-02

No.	ID	Replic.	Scen.	Vector	Up-dip Flowing Bottom-hole Pressure (Pa) FBHP2	Down-dip Flowing Bottom-hole Pressure (Pa) FBHP4	BC well Injection Pressure (Pa) BHP_ABAN	Blowout Duration (Days) time	Brine Rate (m^3/s) BRINEFLW	Gas Rate (ref m^3/s) GASFLW	Max Brine Rate (m^3/s) MAX_BRN	Max Gas Rate (ref m^3/s) MAX_GAS	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s) LGR_MET	Cum Brine from Boundary Condition Well (m^3) BRINE_BC	Gas Rate (mscf/day) GAS_RATE	Cum Gas Produced (ref m^3) GASOUT	Cum Brine Produced (m^3) BRINEOUT	Cum Brine Releases (m^3) BRIN_REL	Avg Brine Pressure Panel 5 (Pa) after Blowout BRNPRESS	Avg Brine Saturation Panel 5 (fraction) after blowout SATBRN5	Avg Brine Pressure Panel 0 (Pa) after blowout BRNPRES0	Avg Brine Saturation Panel 0 (fraction) after blowout SATBRN0	Total Excavated Waste Pore Volume (fraction) WASTE_PV	Total Excavated Brine Volume (m^3) TOT_BRIN
1	Down-dip	1	1	51	0.00E+00	3.10E+05	0.00E+00	1.10E+01	1.73E-05	3.75E-01	2.92E-05	2.14E+00	3.51E+01	0.00E+00	1.14E+03	4.79E+05	1.68E+01	1.59E+01	6.22E+06	6.35E-01	9.64E+06	2.29E-01	1.16E+05	3.95E+04
2	Down-dip	1	1	58	3.00E+05	2.92E+05	0.00E+00	1.10E+01	8.88E-09	4.02E-01	5.56E-08	1.38E+01	1.39E-02	0.00E+00	1.23E+03	9.26E+05	1.29E-02	1.25E-02	3.68E+06	1.82E-01	1.01E+07	1.70E-01	1.18E+05	2.03E+04
3	Down-dip	1	1	28	0.00E+00	3.47E+05	0.00E+00	1.10E+01	4.19E-15	3.52E-01	8.48E-15	1.40E+01	6.31E-09	0.00E+00	1.07E+03	8.43E+05	5.32E-09	5.13E-09	3.22E+06	1.80E-01	9.63E+06	1.76E-01	1.15E+05	2.03E+04
4	Down-dip	1	1	28	0.00E+00	6.81E+05	0.00E+00	1.10E+01	6.14E-05	4.04E-02	8.83E-05	4.26E-01	1.18E+03	0.00E+00	1.23E+02	5.07E+04	6.00E+01	5.67E+01	7.95E+06	8.15E-01	9.70E+06	2.49E-01	7.55E+04	3.14E+04
5	Down-dip	1	1	40	0.00E+00	7.77E+05	0.00E+00	1.10E+01	4.57E-05	3.24E-01	6.01E-05	1.28E+00	1.38E+02	0.00E+00	9.87E+02	3.40E+05	4.69E+01	4.45E+01	8.18E+06	6.97E-01	1.08E+07	8.32E-02	8.09E+04	1.95E+04
6	Down-dip	1	1	61	0.00E+00	8.00E+06	0.00E+00	2.88E+00	9.13E-05	2.09E-04	1.35E-04	2.09E-04	8.06E+05	0.00E+00	6.38E-01	4.02E+01	2.43E+01	2.38E+01	1.30E+07	8.63E-01	1.31E+07	2.47E-01	8.93E+04	3.82E+04
7	Down-dip	1	1	94	3.03E+05	3.77E+05	0.00E+00	1.10E+01	1.78E-05	1.86E-01	7.05E-05	2.05E+00	7.91E+01	0.00E+00	5.68E+02	2.82E+05	2.23E+01	2.10E+01	6.36E+06	6.29E-01	1.09E+07	2.32E-01	8.03E+04	3.56E+04
8	Down-dip	1	1	79	0.00E+00	3.63E+06	0.00E+00	2.88E+00	8.75E-05	2.15E-02	8.85E-05	1.08E-01	3.02E+03	0.00E+00	6.56E+01	6.79E+03	2.08E+01	2.00E+01	1.04E+07	7.84E-01	1.06E+07	1.19E-01	7.92E+04	2.47E+04
9	Down-dip	1	1	22	0.00E+00	7.99E+06	0.00E+06	2.88E+00	4.57E-05	2.62E-07	7.58E-05	2.62E-07	2.04E+06	0.00E+00	7.99E-04	6.10E-02	1.24E+01	1.22E+01	9.19E+06	9.71E-01	9.31E+06	4.35E-02	7.39E+04	2.92E+04
10	Down-dip	1	1	19	2.24E+05	2.70E+05	0.00E+00	1.10E+01	6.04E-06	1.36E-01	2.12E-05	1.23E+00	3.73E+01	0.00E+00	4.15E+02	2.00E+05	7.44E+00	7.12E+00	5.37E+06	4.56E-01	8.04E+06	1.42E-01	6.78E+04	2.43E+04
11	Down-dip	1	1	30	3.99E+05	3.14E+05	0.00E+00	1.10E+01	4.93E-06	5.60E-01	1.53E-05	3.60E+00	7.53E+00	0.00E+00	1.77E+03	7.99E+05	6.01E+00	5.78E+00	5.86E+06	3.99E-01	1.13E+07	5.30E-02	8.40E+04	1.20E+04
12	Down-dip	1	1	31	0.00E+00	2.74E+05	0.00E+00	1.10E+01	3.17E-06	2.00E-01	1.58E-05	3.92E+00	1.13E+01	0.00E+00	6.10E+02	3.81E+05	4.31E+00	4.13E+00	4.64E+06	4.10E-01	1.01E+07	8.89E-03	7.74E+04	8.97E+03
13	Down-dip	1	1	73	0.00E+00	2.41E+05	0.00E+00	1.10E+01	9.12E-06	1.46E-01	6.03E-07	5.59E+00	3.67E-01	0.00E+00	4.45E+02	3.81E+05	1.40E-01	1.33E-01	2.97E+06	4.20E-01	9.11E+06	7.85E-02	7.31E+04	1.22E+04
14	Down-dip	1	1	49	0.00E+00	3.39E+05	0.00E+00	1.10E+01	1.90E-08	5.36E-01	1.16E-07	1.70E+01	2.37E-02	0.00E+00	1.63E+03	1.08E+06	2.56E-02	2.55E-02	3.90E+06	1.61E-01	1.21E+07	6.47E-02	8.67E+04	7.20E+03
15	Down-dip	1	1	5	0.00E+00	2.65E+05	0.00E+00	1.10E+01	1.73E-09	1.73E-01	1.27E-08	7.87E+00	6.11E-03	0.00E+00	5.28E+02	4.20E+05	2.57E-03	2.44E-03	2.76E+06	1.71E-01	8.38E+06	1.18E-02	6.96E+04	3.69E+03
16	Down-dip	1	1	58	4.39E+05	4.14E+05	0.00E+00	1.10E+01	1.63E-09	6.51E-01	1.06E-08	2.41E+01	1.61E-03	0.00E+00	1.99E+03	1.43E+06	2.30E-03	2.23E-03	4.62E+06	1.55E-01	1.40E+07	1.37E-01	9.31E+04	1.34E+04
17	Down-dip	1	1	28	4.24E+05	4.14E+05	0.00E+00	1.10E+01	1.28E-10	3.91E-01	9.40E-10	2.06E+01	1.91E-04	0.00E+00	1.19E+03	1.01E+06	1.93E-04	1.83E-04	3.75E+06	2.00E-01	1.31E+07	1.94E-01	8.92E+04	1.75E+04
18	Down-dip	1	1	58	0.00E+00	3.66E+06	0.00E+00	1.10E+01	1.03E-04	3.22E-01	2.72E-04	6.19E-01	4.14E+02	0.00E+00	9.82E+02	2.75E+05	1.14E+02	1.05E+02	1.53E+07	7.59E-01	1.58E+07	1.76E-02	1.01E+05	2.16E+04
19	Down-dip	1	1	51	0.00E+00	4.85E+05	0.00E+00	1.10E+01	6.73E-05	6.96E-01	8.25E-05	1.77E+00	1.01E+02	0.00E+00	2.12E+03	6.55E+05	6.60E+01	6.15E+01	1.39E+07	8.98E-01	1.42E+07	1.15E-01	9.50E+04	2.58E+04
20	Down-dip	1	1	22	0.00E+00	8.00E+06	0.00E+00	2.88E+00	1.45E-04	4.72E-06	2.45E-04	4.72E-06	3.92E+07	0.00E+00	1.44E-02	1.01E+00	3.96E+01	3.87E+01	1.16E+07	9.70E-01	1.21E+07	7.51E-06	8.43E+04	2.41E+04
21	Down-dip	1	1	94	4.08E+05	7.99E+06	0.00E+00	2.88E+00	8.66E-05	2.37E-07	2.39E-04	2.40E-07	4.27E+08	0.00E+00	7.22E-04	5.89E-02	2.51E+01	2.46E+01	1.11E+07	9.93E-01	1.18E+07	1.90E-01	8.30E+04	4.39E+04
22	Down-dip	1	1	7	0.00E+00	6.20E+06	0.00E+00	2.88E+00	9.37E-05	6.38E-03	9.37E-05	3.92E-02	7.43E+03	0.00E+00	1.95E+01	2.90E+03	2.16E+01	2.10E+01	1.00E+07	8.74E-01	1.02E+07	1.79E-01	7.65E+04	2.80E+04
23	Down-dip	1	1	55	0.00E+00	3.35E+06	0.00E+00	6.00E+00	4.02E-05	3.23E-02	8.78E-05	1.36E-01	1.05E+03	0.00E+00	9.86E+01	2.13E+04	2.24E+01	2.02E+01	8.86E+06	7.71E-01	9.77E+06	8.17E-02	7.47E+04	1.97E+04
24	Down-dip	1	1	44	0.00E+00	6.00E+06	0.00E+00	2.88E+00	4.58E-05	3.77E-07	6.26E-05	3.77E-07	1.88E+08	0.00E+00	1.15E-03	6.41E-02	1.20E+01	1.17E+01	9.64E+06	8.87E-01	9.67E+06	5.23E-06	7.43E+04	1.88E+04
25	Down-dip	1	1	30	4.11E+05	3.40E+05	0.00E+00	1.10E+01	7.31E-06	5.04E-01	2.27E-05	3.06E+00	1.31E+01	0.00E+00	1.54E+03	6.84E+05	8.98E+00	8.83E+00	6.21E+06	4.38E-01	1.15E+07	4.82E-02	8.35E+04	1.24E+04
26	Down-dip	1	1	19	3.66E+05	2.98E+05	0.00E+00	1.10E+01	3.41E-06	3.03E-01	1.48E-05	4.51E+00	8.41E+00	0.00E+00	9.26E+02	5.31E+05	4.47E+00	4.40E+00	5.93E+06	3.73E-01	1.14E+07	4.65E-02	8.13E+04	1.75E+04
27	Down-dip	1	1	24	0.00E+00	7.99E+06	0.00E+00	2.88E+00	1.67E-05	5.23E-08	2.06E-05	5.23E-08	3.74E+08	0.00E+00	1.60E-04	1.15E-02	4.30E+00	4.19E+00	8.51E+06	9.07E-01	8.47E+06	9.55E-02	6.78E+04	3.28E+04
28	Down-dip	1	1	31	0.00E+00	2.89E+05	0.00E+00	1.10E+01	2.38E-06	2.49E-01	1.28E-05	5.78E+00	6.55E+00	0.00E+00	7.61E+02	5.05E+05	3.31E+00	3.23E+00	4.71E+06	3.79E-01	1.13E+07	5.86E-06	8.11E+04	7.94E+03
29	Down-dip	1	1	17	0.00E+00	3.19E+05	0.00E+00	1.10E+01	2.43E-06	1.02E+00	8.00E-06	9.52E+00	2.09E+00	0.00E+00	3.11E+03	1.30E+06	2.71E+00	2.63E+00	7.02E+06	4.51E-01	1.26E+07	8.67E-06	8.88E+04	1.04E+04
30	*Down-dip*	*1*	*1*	*79*	*0.00E+00*	*3.37E+05*	*0.00E+00*	*1.10E+01*	*1.40E-06*	*2.95E+00*	*1.60E-06*	*1.36E+01*	*3.17E-01*	*0.00E+00*	*9.01E+03*	*3.70E+06*	*1.17E+00*	*1.16E+00*	*7.82E+06*	*5.03E-01*	*1.14E+07*	*2.58E-06*	*9.15E+04*	*1.19E+04*
31	Down-dip	1	1	26	0.00E+00	3.37E+05	0.00E+00	1.10E+01	1.40E-06	6.89E-01	2.71E-06	1.49E+01	1.08E+00	0.00E+00	2.10E+03	1.07E+06	1.18E+00	1.08E+00	5.40E+06	6.04E-01	1.37E+07	7.06E-02	9.21E+04	2.01E+04
32	Down-dip	1	1	63	0.00E+00	2.29E+05	0.00E+00	1.10E+01	8.63E-07	3.70E-01	3.01E-06	3.81E+00	1.87E+00	0.00E+00	1.13E+03	5.57E+05	1.04E+00	1.00E+00	3.89E+06	3.84E-01	9.59E+06	2.99E-02	8.88E+04	8.47E+03
33	Down-dip	1	1	2	0.00E+00	3.09E+05	0.00E+00	1.10E+01	5.86E-07	1.14E+00	1.40E-08	1.26E+01	3.65E-01	0.00E+00	3.49E+03	1.53E+06	5.61E-01	5.36E-01	5.45E+06	5.11E-01	1.18E+07	9.11E-03	8.60E+04	1.27E+04
34	Down-dip	1	1	60	3.21E+05	2.50E+05	0.00E+00	1.10E+01	8.36E-06	1.78E-01	5.80E-07	7.21E+00	2.85E-01	0.00E+00	5.44E+02	4.35E+05	1.24E-01	1.20E-01	3.19E+06	1.98E-01	9.43E+06	6.35E-02	7.34E+04	1.02E+04
35	Down-dip	1	1	78	0.00E+00	2.55E+05	0.00E+00	1.10E+01	2.09E-08	2.58E-01	1.17E-07	7.11E+00	5.26E-02	0.00E+00	7.88E+02	5.56E+05	2.93E-02	2.76E-02	3.24E+06	2.41E-01	8.93E+06	1.19E-02	7.06E+04	5.72E+03
36	Down-dip	1	1	49	0.00E+00	4.37E+05	0.00E+00	1.10E+01	7.24E-11	8.46E-01	4.05E-10	2.44E+01	6.04E-05	0.00E+00	2.58E+03	1.53E+06	9.27E-05	8.88E-05	4.38E+06	9.44E-02	1.30E+07	7.02E-03	9.03E+04	2.88E+03
37	Down-dip	1	1	5	0.00E+00	3.43E+05	0.00E+00	1.10E+01	2.23E-13	2.08E-01	1.47E-12	1.15E+01	6.16E-07	0.00E+00	6.35E+02	5.45E+05	3.36E-07	3.28E-07	2.80E+06	1.25E-01	9.40E+06	4.66E-05	7.32E+04	2.37E+03
38	Down-dip	1	1	81	0.00E+00	4.56E+05	0.00E+00	1.10E+01	2.40E-13	6.54E-01	4.41E-13	1.97E+01	2.10E-07	0.00E+00	2.00E+03	1.36E+06	2.86E-07	2.84E-07	4.02E+06	3.09E-01	1.30E+07	1.98E-05	8.88E+04	7.10E+03
39	Down-dip	1	1	28	0.00E+00	5.56E+06	0.00E+00	1.10E+01	8.57E-05	1.67E-01	2.24E-04	2.48E-01	6.60E+02	0.00E+00	5.70E+02	1.47E+05	9.68E+01	9.33E+01	1.60E+07	7.65E-01	1.65E+07	5.32E-02	1.05E+05	2.61E+04
40	Down-dip	1	1	7	0.00E+00	6.83E+05	0.00E+00	1.10E+01	6.34E-05	4.47E-01	7.52E-05	1.52E+00	1.47E+02	0.00E+00	1.36E+03	4.48E+05	6.57E+01	6.23E+01	9.01E+06	7.17E-01	1.16E+07	1.13E-01	8.33E+04	2.28E+04
41	Down-dip	1	1	22	0.00E+00	7.95E+06	0.00E+00	2.88E+00	1.47E-04	2.69E-03	2.25E-04	6.20E-03	4.19E+04	0.00E+00	8.20E+00	9.17E+02	3.84E+01	3.75E+01	1.25E+07	9.07E-01	1.28E+07	5.82E-06	8.71E+04	2.08E+04
42	Down-dip	1	1	69	0.00E+00	3.28E+05	0.00E+00	1.10E+01	2.80E-05	5.30E-02	8.22E-05	4.61E-01	4.21E+02	0.00E+00	1.62E+02	6.89E+04	2.91E+01	2.76E+01	6.27E+06	7.53E-01	8.64E+06	9.02E-02	6.81E+04	1.78E+04
43	Down-dip	1	1	58	0.00E+00	4.80E+05	0.00E+00	1.10E+01	2.71E-05	2.09E+00	6.22E-05	7.31E+00	1.38E+01	0.00E+00	6.37E+03	2.06E+06	2.85E+01	2.73E+01	1.45E+07	5.20E-01	1.49E+07	1.52E-05	1.02E+05	1.38E+04
44	Down-dip	1	1	94	0.00E+00	7.99E+06	0.00E+00	2.88E+00	9.56E-05	2.35E-07	2.64E-04	2.36E-07	4.61E+08	0.00E+00	7.17E-04	5.77E-02	2.77E+01	2.72E+01	1.14E+07	9.93E-01	1.21E+07	1.78E-01	8.44E+04	4.45E+04
45	Down-dip	1	1	86	0.00E+00	3.32E+05	0.00E+00	1.10E+01	1.77E-05	5.46E-02	7.08E-05	5.27E-01	2.84E+02	0.00E+00	1.67E+02	7.88E+04	2.24E+01	2.14E+01	5.60E+06	8.17E-01	8.37E+06	1.01E-02	6.61E+04	1.61E+04
46	Down-dip	1	1	24	0.00E+00	7.99E+06	0.00E+00	2.88E+00	7.81E-05	1.99E-06	9.82E-05	1.99E-06	5.30E+07	0.00E+00	6.07E-03	3.81E-01	2.02E+01	1.97E+01	1.03E+07	9.07E-01	1.04E+07	6.43E-02	7.72E+04	3.01E+04
47	Down-dip	1	1	55	0.00E+00	3.93E+05	0.00E+00	1.10E+01	1.48E-05	1.81E-01	4.98E-05	1.72E+00	6.59E+01	0.00E+00	5.51E+02	2.68E+05	1.77E+01	1.65E+01	6.52E+06	6.28E-01	1.13E+07	2.83E-02	8.11E+04	1.49E+04
48	Down-dip	1	1	44	0.00E+00	8.00E+06	0.00E+00	2.88E+00	4.66E-05	2.90E-07	6.39E-05	2.90E-07	2.59E+08	0.00E+00	8.84E-04	4.74E-02	1.22E+01	1.19E+01	9.86E+06	8.88E-01	9.70E+06	3.83E-06	7.44E+04	1.91E+04
49	Down-dip	1	1	31	0.00E+00	3.62E+05	0.00E+00	1.10E+01	8.67E-06	1.99E-01	4.21E-05	3.28E+00	3.30E+01	0.00E+00	6.07E+02	3.56E+05	1.18E+01	1.14E+01	5.80E+06	4.95E-01	1.16E+07	9.47E-06	8.24E+04	1.06E+04
50	Down-dip	1	1	30	4.16E+05	3.53E+05	0.00E+00	1.10E+01	8.50E-06	4.76E-01	2.63E-05	2.79E+00	1.63E+01	0.00E+00	1.45E+03	6.42E+05	1.04E+01	1.04E+01	6.37E+06	4.53E-01	1.16E+07	4.60E-02	8.38E+04	1.27E+04
51	Down-dip	1	1	19	0.00E+00	3.39E+05	0.00E+00	1.10E+01	5.19E-06	3.30E-01	2.26E-05	4.77E+00	1.20E+01	0.00E+00	1.01E+03	5.72E+05	6.83E+00	6.61E+00	6.60E+06	4.01E-01	1.26E+07	1.55E-02	8.61E+04	1.59E+04
52	Down-dip	1	1	17	0.00E+00	3.27E+05	0.00E+00	1.10E+01	4.13E-06	8.89E-01	1.36E-05	8.00E+00	4.11E+00	0.00E+00	2.71E+03	1.13E+06	4.62E+00	4.57E+00	7.21E+06	4.85E-01	1.27E+07	4.01E-06	8.88E+04	1.12E+04
53	Down-dip	1	1	79	0.00E+00	3.35E+05	0.00E+00	1.10E+01	1.88E-06	2.86E+00	2.06E-06	1.31E+01	4.38E-01	0.00E+00	8.72E+03	3.56E+06	1.56E+00	1.55E+00	7.97E+06	5.11E-01	1.15E+07	1.72E-06	9.16E+04	1.21E+04
54	Down-dip	1	1	63	0.00E+00	2.46E+05	0.00E+00	1.10E+01	1.25E-06	4.22E-01	4.36E-06	4.29E+00	2.40E+00	0.00E+00	1.29E+03	6.29E+05	1.51E+00	1.41E+00	4.26E+06	3.99E-01	9.37E+06	1.12E-04	7.43E+04	7.68E+03
55	Down-dip	1	1	91	0.00E+00	3.22E+05	0.00E+00	1.10E+01	1.12E-06	4.57E-01	5.31E-06	9.31E+00	1.71E+00	0.00E+00	1.39E+03	8.81E+05	1.47E+00	1.40E+00	6.14E+06	4.91E-01	1.33E+07	6.04E-06	8.97E+04	1.14E+04
56	Down-dip	1	1	26	0.00E+00	3.77E+05	0.00E+00	1.10E+01	4.84E-07	1.79E+00	6.19E-07	2.23E+01	1.58E-01	0.00E+00	5.46E+03	2.24E+06	3.52E-01	3.26E-01	7.17E+06	5.68E-01	1.37E+07	6.25E-03	9.62E+04	1.45E+04
57	Down-dip	1	1	78	0.00E+00	2.53E+05	0.00E+00	1.10E+01	1.08E-07	2.69E-01	5.85E-07	7.18E+00	2.57E-01	0.00E+00	8.21E+02	5.77E+05	1.48E-01	1.44E-01	3.51E+06	2.87E-01	9.59E+06	9.14E-05	7.42E+04	5.68E+03
58	Down-dip	1	1	53	0.00E+00	2.29E+05	0.00E+00	1.10E+01	9.59E-08	1.12E-01	7.31E-07	5.51E+00	5.02E-01	0.00E+00	3.42E+02	2.91E+05	1.46E-01	1.38E-01	2.65E+06	3.83E-01	8.51E+06	7.18E-02	6.71E+04	1.06E+04
59	Down-dip	1	1	41	0.00E+00	2.45E+05	0.00E+00	1.10E+01	2.54E-08	1.17E-01	2.16E-07	6.85E+00	1.17E-01	0.00E+00	3.57E+02	3.59E+05	4.21E-02	4.11E-02	2.51E+06	2.00E-01	8.71E+06	2.19E-02	6.87E+04	4.67E+03
60	Down-dip	1	1	2	0.00E+00	3.71E+05	0.00E+00	1.10E+01	1.42E-06	2.07E+00	3.27E-08	1.99E+01	5.21E-03	0.00E+00	6.31E+03	2.66E+06	1.39E-02	1.33E-02	5.85E+06	4.42E-01	1.15E+07	8.37E-06	8.81E+04	1.01E+04
61	Down-dip	1	1	60	0.00E+00	3.09E+05	0.00E+00	1.10E+01	6.12E-09	2.31E-01	4.95E-08	1.22E+01	1.53E-02	0.00E+00	7.04E+02	6.24E+05	9.53E-03	9.06E-03	3.18E+06	1.21E-01	1.08E+07	2.74E-02	7.90E+04	6.20E+03
62	Down-dip	1	1	12	0.00E+00	3.27E+05	0.00E+00	1.10E+01	3.27E-09	1.97E+00	8.91E-09	1.40E+01	1.33E-03	0.00E+00	6.02E+03	2.69E+06	3.63E-03	3.65E-03	4.60E+06	1.45E-01	7.79E+06	5.96E-08	7.86E+04	2.95E+03
63	Down-dip	1	1	5	0.00E+00	3.14E+05	0.00E+00	1.10E+01	4.12E-10	2.17E-01	3.30E-09	1.17E+01	1.12E-03	0.00E+00	6.63E+02	5.64E+05	6.31E-04	5.96E-04	2.96E+06	1.54E-01	9.83E+06	3.94E-05	7.49E+04	2.98E+03
64	Down-dip	1	1	40	0.00E+00	4.18E+05	0.00E+00	1.10E+01	2.82E-10	3.82E+00	5.11E-10	2.25E+01	6.50E-05	0.00E+00	1.17E+04	6.50E+06	3.02E-04	2.97E-04	6.40E+06	3.68E-01	8.77E+06	1.93E-06	8.81E+04	8.39E+03
65	Down-dip	1	1	47	0.00E+00	3.15E+05	0.00E+00	1.10E+01	8.83E-15	1.41E-01	3.56E-14	7.69E+00	3.31E-08	0.00E+00	4.29E+02	3.88E+05	1.29E-08	1.21E-08	2.40E+06	1.83E-01	8.30E+06	5.32E-02	6.56E+04	5.92E+03
66	Down-dip	1	1	31	0.00E+00	2.23E+06	0.00E+00	1.10E+01	4.29E-05	7.24E-02	1.68E-04	4.63E-01	5.58E+02	0.00E+00	2.21E+02	9.58E+04	5.34E+01	5.07E+01	9.16E+06	7.09E-01	1.22E+07	8.22E-06	8.50E+04	1.58E+04
67	Down-dip	1	1	58	0.00E+00	5.26E+05	0.00E+00	1.10E+01	4.60E-05	1.41E+00	1.11E-04	4.40E+00	3.73E+01	0.00E+00	4.31E+03	1.32E+06	4.93E+01	4.80E+01	1.45E+07	5.89E-01	1.51E+07	2.62E-06	1.03E+05	1.57E+04
68	Down-dip	1	1	69	0.00E+00	3.43E+05	0.00E+00	1.10E+01	3.47E-05	6.45E-02	7.83E-05	5.58E-01	4.41E+02	0.00E+00	1.97E+02	8.29E+04	3.65E+01	3.47E+01	7.06E+06	7.59E-01	9.76E+06	4.72E-02	7.47E+04	1.72E+04
69	Down-dip	1	1	22	0.00E+00	7.50E+06	0.00E+00	2.88E+00	1.36E-04	7.67E-03	1.99E-04	2.80E-02	1.18E+04	0.00E+00	2.34E+01	2.90E+03	3.42E+01	3.34E+01	1.24E+07	8.67E-01	1.27E+07	2.88E-06	8.70E+04	1.98E+04
70	Down-dip	1	1	94	0.00E+00	7.99E+06	0.00E+00	2.88E+00	1.16E-04	3.21E-07	3.18E-04	3.21E-07	4.32E+08	0.00E+00	9.80E-04	7.74E-02	3.34E+01	3.27E+01	1.20E+07	9.93E-01	1.29E+07	1.50E-01	8.78E+04	4.46E+04
71	Down-dip	1	1	24	0.00E+00	8.00E+06	0.00E+00	2.88E+00	1.28E-04	3.15E-08	1.64E-04	3.15E-08	1.41E+10	0.00E+00	9.60E-05	2.52E-03	3.32E+01	3.24E+01	1.16E+07	9.12E-01	1.17E+07	3.19E-02	8.29E+04	2.74E+04
72	Down-dip	1	1	19	0.00E+00	3.88E+05	0.00E+00	1.10E+01	2.51E-05	2.06E-01	9.23E-05	1.54E+00	1.11E+02	0.00E+00	6.34E+02	2.63E+05	3.14E+01	3.03E+01	9.23E+06	5.62E-01	1.32E+07	1.36E-04	8.89E+04	1.93E+04
73	Down-dip	1	1	28	0.00E+00	5.14E+05	0.00E+00	1.10E+01	2.93E-05	2.01E+00	6.54E-05	6.69E+00	1.56E+01	0.00E+00	6.14E+03	1.96E+06	3.06E+01	2.87E+01	1.52E+07	5.51E-01	1.56E+07	1.22E-05	1.19E+05	1.70E+04
74	Down-dip	1	1	7	0.00E+00	3.85E+05	0.00E+00	1.10E+01	2.77E-05	1.23E+00	3.36E-05	4.54E+00	1.67E+01	0.00E+00	3.75E+03	1.38E+06	2.59E+01	2.51E+01	8.99E+06	6.20E-01	1.25E+07	3.12E-02	9.03E+04	1.68E+04
75	Down-dip	1	1	64	0.00E+00	6.36E+05	0.00E+00	1.10E+01	1.39E-05	8.49E-02	5.82E-05	8.70E-01	1.42E+02	0.00E+00	2.59E+02	1.25E+05	1.78E+01	1.69E+01	6.18E+06	5.48E-01	9.15E+06	7.70E-05	7.18E+04	1.02E+04

.	.	.	.	.	Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	BC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up-dip Brine Relative Permeability (fraction)	Up-dip Gas Relative Permeability (fraction)	Down-dip Brine Relative Permeability (fraction)	Down-dip Gas Relative Permeability (fraction)
No.	ID	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_RE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
76	Down-dip	1	1	44	5.26E-01	1.12E-01	1.61E-02	1.27E+00	9.76E+06	2.21E-06	9.79E+06	8.80E-01	1.28E-01	1.18E-13	1.36E-01	1.18E-13	1.00E+04	-1.17E+00	1.21E-13	0.00E+00	7.83E-01	1.45E+07	1.00E-12	0.00E+00	1.00E+00	6.45E-01	0.00E+00
77	Down-dip	1	1	30	6.56E-01	1.16E-01	4.16E-02	1.35E+00	1.21E+07	4.18E-02	1.21E+07	4.87E-01	3.63E-02	2.75E-14	4.11E-02	2.75E-14	1.00E+04	-6.49E-01	1.07E-13	0.00E+00	2.79E-01	1.47E+07	1.00E-12	5.53E-15	1.00E+00	4.97E-02	1.68E-01
78	Down-dip	1	1	100	5.04E-01	1.14E-01	3.43E-01	1.21E+00	8.72E+06	4.23E-02	8.73E+06	8.62E-01	6.96E-02	9.12E-16	8.97E-02	9.12E-16	1.00E+04	-1.26E+00	1.20E-13	0.00E+00	9.43E-01	1.40E+07	1.00E-12	0.00E+00	1.00E+00	6.90E-02	1.02E-01
79	Down-dip	1	1	1	4.93E-01	9.61E-02	2.56E-01	1.18E+00	8.30E+06	1.19E-02	8.31E+06	7.57E-01	6.92E-02	7.24E-16	9.28E-02	7.24E-16	1.00E+04	-1.26E+00	1.18E-13	0.00E+00	9.73E-01	1.41E+07	1.00E-12	0.00E+00	1.00E+00	2.32E-01	1.77E-02
80	Down-dip	1	1	91	5.73E-01	5.46E-02	3.06E-01	1.41E+00	1.35E+07	2.98E-06	1.36E+07	5.69E-01	1.90E-01	6.86E-15	1.89E-01	5.01E-15	1.00E+04	-7.73E-01	1.16E-13	0.00E+00	3.57E-01	1.25E+07	1.00E-12	0.00E+00	1.00E+00	2.78E-02	2.70E-01
81	Down-dip	1	1	86	5.37E-01	6.86E-02	3.61E-02	1.30E+00	1.06E+07	3.12E-05	1.06E+07	4.16E-01	1.54E-01	3.02E-17	1.65E-01	3.02E-17	1.00E+04	-1.26E+00	1.28E-13	0.00E+00	9.43E-01	1.22E+07	1.00E-12	0.00E+00	1.00E+00	3.22E-02	2.54E-01
82	Down-dip	1	1	17	5.89E-01	1.41E-02	2.26E-01	1.39E+00	1.31E+07	1.43E-06	1.31E+07	4.86E-01	1.67E-01	3.90E-14	1.48E-01	5.37E-15	1.00E+04	-1.03E+00	1.26E-13	0.00E+00	5.83E-01	1.51E+07	1.00E-12	0.00E+00	1.00E+00	1.78E-02	3.63E-01
83	Down-dip	1	1	63	5.31E-01	1.14E-01	1.70E-01	1.28E+00	1.01E+07	1.07E-06	1.01E+07	4.50E-01	8.64E-02	2.14E-14	6.67E-02	2.14E-14	1.00E+04	-1.01E+00	1.15E-13	0.00E+00	5.75E-01	1.13E+07	1.00E-12	0.00E+00	1.00E+00	1.82E-02	2.95E-01
84	Down-dip	1	1	55	5.58E-01	7.03E-02	2.38E-01	1.36E+00	1.23E+07	6.80E-06	1.23E+07	4.84E-01	9.90E-02	8.71E-15	1.00E-01	8.71E-15	1.00E+04	-8.68E-01	1.16E-13	0.00E+00	4.31E-01	1.28E+07	1.00E-12	0.00E+00	1.00E+00	1.54E-02	3.43E-01
85	Down-dip	1	1	79	5.77E-01	1.23E-01	3.88E-01	1.42E+00	1.39E+07	8.94E-07	1.39E+07	5.13E-01	1.79E-01	3.69E-13	1.75E-01	2.57E-13	1.00E+04	-1.10E+00	1.32E-13	0.00E+00	6.89E-01	1.31E+07	1.00E-12	0.00E+00	1.00E+00	2.87E-03	4.98E-01
86	Down-dip	1	1	48	4.88E-01	1.02E-01	2.11E-01	1.17E+00	8.15E+06	3.48E-06	8.16E+06	4.32E-01	4.74E-02	7.78E-14	6.53E-02	7.76E-14	1.00E+04	-1.29E+00	1.16E-13	0.00E+00	1.01E+00	1.16E+07	1.00E-12	0.00E+00	1.00E+00	9.15E-03	3.92E-01
87	Down-dip	1	1	78	5.29E-01	4.93E-02	1.51E-01	1.28E+00	1.00E+07	1.04E-05	1.00E+07	3.75E-01	1.09E-01	2.46E-15	1.16E-01	2.46E-15	1.00E+04	-1.06E+00	1.17E-13	0.00E+00	6.28E-01	1.61E+07	1.00E-12	0.00E+00	1.00E+00	7.27E-03	4.59E-01
88	Down-dip	1	1	26	5.86E-01	7.60E-02	4.97E-01	1.45E+00	1.46E+07	7.81E-06	1.46E+07	5.74E-01	1.84E-01	6.40E-14	1.76E-01	2.00E-14	1.00E+04	-1.33E+00	1.48E-13	0.00E+00	1.10E+00	1.19E+07	1.00E-12	0.00E+00	1.00E+00	1.01E-03	6.32E-01
89	Down-dip	1	1	73	5.65E-01	5.61E-02	3.03E-01	1.38E+00	1.29E+07	3.22E-06	1.29E+07	4.47E-01	9.71E-02	3.72E-16	1.02E-01	3.72E-16	1.00E+04	-8.01E-01	1.15E-13	0.00E+00	3.77E-01	1.39E+07	1.00E-12	0.00E+00	1.00E+00	2.99E-03	5.52E-01
90	Down-dip	1	1	2	5.67E-01	8.22E-02	4.02E-01	1.39E+00	1.30E+07	4.11E-06	1.30E+07	4.77E-01	1.73E-01	1.15E-13	1.63E-01	4.47E-14	1.00E+04	-1.29E+00	1.39E-13	0.00E+00	9.98E-01	1.41E+07	1.00E-12	0.00E+00	1.00E+00	4.77E-04	7.01E-01
91	Down-dip	1	1	41	5.24E-01	3.40E-02	8.64E-02	1.26E+00	9.63E+06	8.44E-03	9.73E+06	2.41E-01	1.44E-01	1.70E-19	1.54E-01	1.70E-19	1.00E+04	-1.22E+00	1.23E-13	0.00E+00	8.64E-01	1.51E+07	1.00E-12	0.00E+00	1.00E+00	1.42E-03	6.43E-01
92	Down-dip	1	1	53	5.39E-01	4.46E-02	2.52E-01	1.30E+00	1.07E+07	1.21E-04	1.07E+07	3.30E-01	1.54E-01	8.51E-18	1.70E-01	8.51E-18	1.00E+04	-1.23E+00	1.27E-13	0.00E+00	8.92E-01	1.42E+07	1.00E-12	0.00E+00	1.00E+00	2.33E-04	7.73E-01
93	Down-dip	1	1	12	5.51E-01	7.06E-02	1.02E-01	1.34E+00	1.17E+07	2.36E-07	1.17E+07	1.64E-01	3.50E-02	1.78E-13	4.34E-02	1.78E-13	1.00E+04	-1.38E+00	1.39E-13	0.00E+00	1.19E+00	1.44E+07	1.00E-12	0.00E+00	1.00E+00	5.29E-05	8.44E-01
94	Down-dip	1	1	5	5.38E-01	1.29E-01	1.21E-01	1.30E+00	1.06E+07	6.68E-06	1.07E+07	1.79E-01	1.34E-01	1.82E-17	1.45E-01	1.82E-17	1.00E+04	-1.37E+00	1.35E-13	0.00E+00	1.17E+00	1.57E+07	1.00E-12	0.00E+00	1.00E+00	4.43E-05	8.40E-01
95	Down-dip	1	1	40	5.67E-01	1.02E-01	3.54E-01	1.39E+00	1.36E+07	8.35E-07	1.30E+07	3.81E-01	1.53E-01	6.91E-13	1.32E-01	1.51E-13	1.00E+04	-1.32E+00	1.41E-13	0.00E+00	1.07E+00	1.47E+07	1.00E-12	0.00E+00	1.00E+00	8.17E-06	8.98E-01
96	Down-dip	1	1	60	5.55E-01	6.13E-02	4.70E-02	1.35E+00	1.20E+07	1.86E-04	1.20E+07	6.73E-02	1.92E-01	7.83E-18	1.91E-01	5.75E-18	1.00E+04	-1.17E+00	1.29E-13	0.00E+00	7.91E-01	1.35E+07	1.00E-12	0.00E+00	1.00E+00	6.64E-07	9.54E-01
97	Down-dip	1	2	22	5.70E-01	2.51E-02	8.22E-02	1.40E+00	9.43E+06	9.12E-01	9.42E+06	6.34E-01	1.21E-01	7.41E-14	1.33E-01	7.41E-14	5.50E+02	-1.37E+00	1.45E-13	1.74E-13	1.17E+00	1.30E+07	1.59E-12	6.90E-01	5.75E-04	1.52E-01	8.15E-02
98	Down-dip	1	2	79	5.63E-01	1.23E-01	3.88E-01	1.37E+00	8.97E+06	6.30E-01	8.98E+06	6.96E-01	1.61E-01	2.57E-13	1.61E-01	2.57E-13	5.50E+02	-1.10E+00	1.28E-13	1.51E-16	6.89E-01	1.22E+07	4.37E-15	3.23E-02	1.78E-01	7.91E-02	7.45E-02
99	Down-dip	1	2	36	5.81E-01	3.71E-03	1.39E-01	1.43E+00	1.03E+07	1.18E-02	1.00E+07	8.96E-01	3.90E-02	7.03E-20	4.96E-02	8.81E-20	5.50E+02	-8.89E-01	1.23E-13	8.13E-15	4.50E-01	1.36E+07	1.45E-13	0.00E+00	1.00E+00	2.00E-01	6.35E-02
100	Down-dip	1	2	69	5.87E-01	8.98E-02	4.08E-01	1.45E+00	1.08E+07	9.22E-01	1.07E+07	7.13E-01	6.96E-02	1.26E-14	7.91E-02	1.26E-14	5.50E+02	-1.29E+00	1.46E-13	9.33E-15	9.99E-01	1.42E+07	4.07E-13	5.94E-01	0.00E+00	8.62E-02	8.81E-02
101	Down-dip	1	2	46	5.51E-01	2.03E-02	2.35E-01	1.34E+00	7.38E+06	4.65E-02	1.14E+07	9.66E-01	3.75E-02	1.59E-17	5.94E-02	1.59E-17	5.50E+02	-1.41E+00	1.42E-13	1.45E-14	1.26E+00	1.50E+07	1.15E-11	0.00E+00	1.00E+00	8.46E-01	1.02E-05
102	Down-dip	1	2	54	5.27E-01	1.25E-01	2.39E-02	1.28E+00	5.69E+06	8.46E-06	1.19E+07	8.46E-01	2.59E-02	5.01E-18	4.98E-02	2.57E-18	5.50E+02	-1.16E+00	1.22E-13	4.68E-12	7.76E-01	1.55E+07	1.66E-12	0.00E+00	1.00E+00	5.35E-01	5.50E-05
103	Down-dip	1	2	5	5.35E-01	1.29E-01	1.21E-01	1.30E+00	6.19E+06	8.90E-02	1.17E+07	8.53E-01	1.17E-01	1.91E-17	1.45E-01	1.82E-17	5.50E+02	-1.37E+00	1.35E-13	1.82E-12	1.17E+00	1.53E+07	3.31E-13	0.00E+00	1.00E+00	5.09E-01	2.16E-05
104	Down-dip	1	2	31	5.82E-01	5.28E-02	5.93E-02	1.44E+00	1.03E+07	1.31E-01	1.04E+07	9.39E-01	6.71E-02	1.66E-15	8.12E-02	1.66E-15	5.50E+02	-1.27E+00	1.43E-13	3.31E-14	9.73E-01	1.40E+07	6.31E-13	7.44E-05	8.33E-01	7.81E-01	1.29E-06
105	Down-dip	1	2	16	5.12E-01	5.75E-02	2.76E-01	1.25E+00	4.92E+06	1.62E-02	1.16E+07	9.19E-01	8.79E-02	2.24E-19	1.25E-01	2.14E-19	5.50E+02	-1.29E+00	1.25E-13	1.91E-14	1.01E+00	1.52E+07	1.86E-12	0.00E+00	1.00E+00	6.45E-01	7.46E-05
106	Down-dip	1	2	78	5.84E-01	4.93E-02	1.51E-01	1.44E+00	1.04E+07	9.44E-01	1.05E+07	9.44E-01	9.79E-02	2.48E-15	1.04E-01	2.46E-15	5.50E+02	-1.06E+00	1.32E-13	8.32E-17	6.28E-01	1.40E+07	1.07E-12	7.79E-01	7.96E-07	7.78E-01	8.42E-07
107	Down-dip	1	2	41	5.14E-01	3.40E-02	8.64E-02	1.25E+00	5.10E+06	8.43E-02	1.11E+07	9.41E-01	1.27E-01	1.70E-19	1.58E-01	1.70E-19	5.50E+02	-1.22E+00	1.21E-13	3.24E-16	8.84E-01	1.47E+07	3.47E-12	0.00E+00	1.00E+00	7.82E-01	3.80E-05
108	Down-dip	1	2	52	5.73E-01	3.68E-02	4.49E-01	1.41E+00	9.36E+06	9.80E-01	1.07E+07	9.60E-01	9.67E-02	1.70E-15	1.17E-01	1.70E-15	5.50E+02	-9.48E-01	1.24E-13	4.17E-14	5.07E-01	1.43E+07	2.63E-13	7.57E-01	4.27E-07	7.56E-01	4.64E-07
109	Down-dip	1	2	43	4.90E-01	5.68E-02	2.07E-01	1.20E+00	3.82E+06	5.43E-02	1.14E+07	9.17E-01	1.51E-01	2.87E-19	1.97E-01	9.77E-20	5.50E+02	-1.26E+00	1.19E-13	3.63E-13	9.52E-01	1.49E+07	9.55E-12	0.00E+00	1.00E+00	6.64E-01	6.24E-05
110	Down-dip	1	2	23	5.44E-01	7.29E-02	4.80E-01	1.32E+00	6.60E+06	6.39E-02	1.15E+07	9.23E-01	2.53E-02	1.18E-16	4.60E-02	1.16E-16	5.50E+02	-1.18E+00	1.27E-13	7.94E-17	8.09E-01	1.50E+07	6.03E-13	0.00E+00	1.00E+00	5.52E-01	1.61E-06
111	Down-dip	1	2	45	5.72E-01	5.05E-02	2.04E-01	1.40E+00	9.55E+06	9.85E-01	9.61E+06	9.84E-01	6.78E-02	5.13E-14	8.12E-02	5.13E-14	5.50E+02	-9.31E-01	1.22E-13	1.74E-15	4.89E-01	1.32E+07	4.57E-13	9.30E-01	0.00E+00	9.27E-01	0.00E+00
112	Down-dip	1	2	72	5.37E-01	2.36E-02	4.74E-03	1.30E+00	6.48E+06	1.81E-05	1.07E+07	9.38E-01	5.21E-02	4.82E-18	7.87E-02	1.82E-18	5.50E+02	-6.28E-01	1.02E-13	5.37E-12	2.66E-01	1.43E+07	5.75E-13	0.00E+00	1.00E+00	7.90E-01	9.93E-05
113	Down-dip	1	2	81	5.66E-01	1.05E-02	4.73E-01	1.38E+00	9.10E+06	6.46E-02	9.42E+06	8.69E-01	6.60E-02	2.31E-18	7.61E-02	1.00E-18	5.50E+02	-1.37E+00	1.44E-13	2.51E-12	1.19E+00	1.31E+07	8.91E-11	0.00E+00	1.00E+00	3.48E-01	1.97E-02
114	Down-dip	1	2	42	5.92E-01	1.04E-01	3.92E-01	1.47E+00	1.12E+07	7.95E-02	1.11E+07	8.20E-01	1.08E-01	7.76E-17	1.09E-01	7.76E-17	5.50E+02	-1.26E+00	1.46E-13	1.38E-15	9.46E-01	1.47E+07	3.63E-13	0.00E+00	1.00E+00	2.74E-01	5.41E-03
115	Down-dip	1	2	44	5.69E-01	1.12E-01	1.81E-02	1.39E+00	9.40E+06	8.84E-01	9.40E+06	6.84E-01	1.15E-01	1.18E-13	1.23E-01	1.18E-13	5.50E+02	-1.17E+00	1.33E-13	3.80E-15	7.83E-01	1.29E+07	1.12E-12	6.30E-01	1.08E-07	6.31E-01	1.05E-07
116	Down-dip	1	2	14	4.66E-01	1.07E-01	3.28E-01	1.15E+00	2.60E+06	2.73E-01	1.11E+07	8.96E-01	1.14E-01	8.31E-19	1.57E-01	6.31E-19	5.50E+02	-7.31E-01	9.35E-14	8.32E-16	3.28E-01	1.47E+07	2.63E-14	0.00E+00	1.00E+00	5.36E-01	0.00E+00
117	Down-dip	1	2	6	4.53E-01	6.58E-02	1.45E-01	1.12E+00	2.08E+06	2.74E-01	1.02E+07	9.23E-01	4.92E-02	5.76E-19	8.97E-02	5.75E-19	5.50E+02	-1.18E+00	1.07E-13	6.46E-17	8.02E-01	1.38E+07	3.09E-12	9.29E-04	6.67E-01	7.04E-01	5.45E-06
118	Down-dip	1	2	80	4.89E-01	8.43E-02	2.68E-01	1.19E+00	3.88E+06	6.02E-02	1.04E+07	9.16E-01	3.21E-02	1.59E-18	6.10E-02	5.01E-19	5.50E+02	-8.21E-01	9.97E-14	2.09E-12	3.93E-01	1.40E+07	2.04E-13	0.00E+00	1.00E+00	6.37E-01	4.34E-05
119	Down-dip	1	2	73	5.58E-01	5.61E-02	3.03E-01	1.36E+00	8.26E+06	8.51E-02	9.91E+06	9.37E-01	8.03E-02	3.72E-16	1.04E-01	3.72E-16	5.50E+02	-8.01E-01	1.13E-13	6.17E-15	3.77E-01	1.35E+07	9.77E-12	0.00E+00	1.00E+00	7.04E-01	2.31E-06
120	Down-dip	1	2	68	5.25E-01	6.78E-04	6.01E-01	1.27E+00	5.87E+06	6.56E-07	1.02E+07	9.91E-01	1.39E-02	9.12E-17	3.27E-02	9.12E-17	5.50E+02	-1.32E+00	1.29E-13	4.57E-16	1.06E+00	1.38E+07	3.02E-13	0.00E+00	1.00E+00	9.32E-01	9.26E-06
121	Down-dip	1	2	7	5.61E-01	7.76E-03	3.12E-01	1.37E+00	8.82E+06	9.90E-01	8.88E+06	9.90E-01	1.28E-01	2.29E-13	1.49E-01	2.29E-13	5.50E+02	-6.15E-01	1.07E-13	7.94E-14	2.60E-01	1.24E+07	1.35E-12	9.46E-01	9.52E-08	9.49E-01	4.16E-08
122	Down-dip	1	2	53	4.63E-01	4.46E-02	2.52E-01	1.14E+00	2.59E+06	6.36E-01	1.00E+07	9.43E-01	1.41E-01	9.23E-18	1.94E-01	8.51E-18	5.50E+02	-1.23E+00	1.11E-13	1.38E-12	8.92E-01	1.36E+07	4.57E-12	2.81E-02	2.79E-01	7.46E-01	9.67E-06
123	Down-dip	1	2	34	5.33E-01	2.76E-02	3.26E-01	1.29E+00	6.42E+06	4.16E-02	9.81E+06	9.56E-01	1.32E-02	2.30E-17	3.12E-02	2.29E-17	5.50E+02	-1.07E+00	1.19E-13	7.08E-14	6.47E-01	1.34E+07	4.68E-14	0.00E+00	1.00E+00	7.80E-01	2.65E-05
124	Down-dip	1	2	97	5.22E-01	8.37E-02	4.34E-01	1.26E+00	5.69E+06	9.12E-01	1.02E+07	9.12E-01	1.32E-01	6.63E-16	1.66E-01	5.62E-16	5.50E+02	-8.88E-01	1.09E-13	4.57E-13	4.49E-01	1.39E+07	3.02E-11	5.38E-01	1.18E-06	5.37E-01	9.86E-07
125	Down-dip	1	2	25	5.66E-01	8.68E-02	5.41E-01	1.39E+00	8.87E+06	1.07E-01	1.03E+07	9.06E-01	6.60E-02	3.39E-17	7.74E-02	3.39E-17	5.50E+02	-1.13E+00	1.30E-13	1.26E-16	7.23E-01	1.38E+07	3.89E-13	0.00E+00	1.00E+00	4.31E-01	1.03E-05
126	Down-dip	1	2	60	5.08E-01	6.13E-02	4.70E-02	1.23E+00	5.03E+06	1.91E-01	9.52E+06	9.09E-01	1.78E-01	8.10E-18	2.10E-01	6.75E-18	5.50E+02	-1.17E+00	1.17E-13	6.61E-13	7.91E-01	1.31E+07	2.34E-14	9.25E-04	6.72E-01	6.89E-01	6.52E-05
127	Down-dip	1	2	21	4.77E-01	7.93E-02	4.09E-01	1.17E+00	3.38E+06	5.71E-02	9.83E+06	9.06E-01	1.65E-01	1.58E-19	1.95E-01	6.32E-20	5.50E+02	-1.54E+00	1.30E-13	1.45E-13	1.65E+00	1.34E+07	4.90E-13	0.00E+00	1.00E+00	5.26E-01	4.28E-05
128	Down-dip	1	2	39	5.76E-01	1.50E-01	2.98E-01	1.42E+00	1.01E+07	8.47E-01	9.85E+06	8.19E-01	1.48E-02	3.02E-15	2.68E-02	3.02E-15	5.50E+02	-1.23E+00	1.39E-13	2.40E-13	8.82E-01	1.34E+07	1.78E-13	4.03E-01	3.76E-07	3.33E-01	2.92E-04
129	Down-dip	1	2	82	5.67E-01	8.52E-02	4.53E-01	1.39E+00	9.21E+06	1.38E-01	9.29E+06	9.11E-01	1.18E-01	2.14E-15	1.27E-01	2.14E-15	5.50E+02	-1.39E+00	1.45E-13	1.48E-12	1.22E+00	1.29E+07	8.13E-13	0.00E+00	1.00E+00	5.20E-01	8.22E-07
130	Down-dip	1	2	9	5.42E-01	1.35E-01	5.34E-01	1.32E+00	8.85E+06	3.93E-02	1.07E+07	8.63E-01	1.05E-02	2.36E-19	2.75E-02	2.34E-18	5.50E+02	-1.24E+00	1.29E-13	2.63E-15	9.00E-01	1.42E+07	4.90E-11	0.00E+00	1.00E+00	2.47E-01	7.93E-05
131	Down-dip	1	2	57	4.59E-01	7.43E-02	2.79E-01	1.13E+00	2.50E+06	1.36E-01	9.59E+06	9.07E-01	6.13E-02	6.52E-18	8.80E-02	1.29E-18	5.50E+02	-1.19E+00	1.09E-13	8.13E-12	8.25E-01	1.32E+07	7.94E-14	0.00E+00	1.00E+00	6.00E-01	4.25E-05
132	Down-dip	1	2	2	5.82E-01	8.22E-02	4.02E-01	1.37E+00	8.95E+06	9.16E-01	8.91E+06	9.16E-01	1.51E-01	4.47E-14	1.65E-01	4.47E-14	5.50E+02	-1.29E+00	1.37E-13	5.01E-14	9.98E-01	1.24E+07	7.24E-11	5.71E-01	1.19E-07	5.71E-01	1.25E-07
133	Down-dip	1	2	76	5.15E-01	1.38E-01	3.34E-01	1.24E+00	5.37E+06	2.25E-03	9.73E+06	8.47E-01	2.71E-02	3.16E-16	5.20E-02	3.16E-18	5.50E+02	-1.33E+00	1.27E-13	5.50E-16	1.09E+00	1.33E+07	2.09E-12	0.00E+00	1.00E+00	3.82E-01	4.10E-05
134	Down-dip	1	2	28	6.95E-01	9.72E-02	1.79E-01	1.48E+00	1.15E+07	1.96E-01	1.12E+07	4.94E-01	1.89E-01	6.28E-17	1.98E-01	4.79E-17	5.50E+02	-1.08E+00	1.37E-13	9.55E-12	6.64E-01	1.47E+07	9.55E-14	6.66E-07	9.51E-01	2.92E-02	2.41E-01
135	Down-dip	1	2	51	6.10E-01	1.34E-01	3.83E-01	1.54E+00	1.27E+07	4.24E-01	1.27E+07	5.63E-01	1.75E-01	2.36E-13	1.62E-01	6.17E-14	5.50E+02	-1.16E+00	1.47E-13	1.00E-12	7.77E-01	1.63E+07	6.92E-12	1.67E-04	7.53E-01	1.40E-02	2.86E-01
136	Down-dip	1	2	90	4.71E-01	1.28E-02	2.86E-01	1.15E+00	3.15E+06	8.51E-02	9.34E+06	9.73E-01	9.19E-03	1.20E-17	3.92E-02	1.20E-17	5.50E+02	-8.48E-01	9.74E-14	2.09E-14	4.15E-01	1.29E+07	3.02E-12	0.00E+00	1.00E+00	8.66E-01	1.52E-05
137	Down-dip	1	2	70	5.01E-01	4.63E-02	4.24E-01	1.21E+00	4.74E+06	1.77E-03	9.22E+06	9.37E-01	2.09E-01	6.17E-20	2.41E-01	6.17E-20	5.50E+02	-1.28E+00	1.21E-13	1.00E-16	9.91E-01	1.28E+07	5.50E-14	0.00E+00	1.00E+00	6.50E-01	5.60E-05
138	Down-dip	1	2	65	5.62E-01	1.27E-01	8.96E-02	1.37E+00	8.90E+06	0.00E+00	8.98E+06	8.65E-01	1.63E-02	8.71E-16	2.86E-02	8.71E-16	5.50E+02	-1.16E+00	1.30E-13	4.17E-15	7.73E-01	1.26E+07	3.72E-12	0.00E+00	1.00E+00	5.53E-01	1.95E-06
139	Down-dip	1	2	13	4.36E-01	1.83E-02	4.86E-01	1.08E+00	1.17E+06	4.58E-01	9.28E+06	9.81E-01	4.82E-02	1.69E-18	9.03E-02	1.62E-18	5.50E+02	-1.31E+00	1.09E-13	1.23E-13	1.03E+00	1.29E+07	2.69E-12	0.00E+00	1.00E+00	8.68E-01	1.72E-08
140	Down-dip	1	2	20	5.38E-01	1.23E-01	1.27E-01	1.30E+00	8.92E+06	4.17E-02	9.19E+06	8.57E-01	1.44E-02	1.35E-17	3.57E-02	1.35E-17	5.50E+02	-6.04E-01	1.01E-13	3.31E-15	2.55E-01	1.28E+07	1.20E-12	0.00E+00	1.00E+00	5.18E-01	3.11E-05
141	Down-dip	1	2	1	5.12E-01	9.81E-02	2.56E-01	1.23E+00	5.37E+06	9.43E-01	8.90E+06	9.58E-01	5.45E-02	7.24E-18	8.91E-02	7.24E-16	5.50E+02	-1.28E+00	1.23E-13	1.66E-14	9.73E-01	1.25E+07	7.08E-14	7.44E-01	0.00E+00	8.05E-01	0.00E+00
142	Down-dip	1	2	84	4.75E-01	1.44E-01	6.88E-03	1.16E+00	3.43E+06	4.63E-02	9.05E+06	8.34E-01	1.15E-02	4.91E-20	3.82E-02	4.90E-20	5.50E+02	-1.40E+00	1.22E-13	2.95E-16	1.25E+00	1.26E+07	3.55E-11	8.72E-06	9.04E-01	5.08E-01	3.20E-05
143	Down-dip	1	2	100	5.28E-01	1.14E-01	3.43E-01	1.27E+00	6.30E+06	9.30E-01	8.63E+06	9.44E-01	5.90E-02	9.12E-16	8.63E-02	9.12E-16	5.50E+02	-1.26E+00	1.26E-13	2.51E-14	9.43E-01	1.25E+07	1.29E-13	6.59E-01	0.00E+00	7.19E-01	0.00E+00
144	Down-dip	1	2	95	5.28E-01	1.46E-01	3.69E-01	1.28E+00	8.18E+06	2.14E-01	9.42E+06	8.43E-01	1.40E-01	6.03E-17	1.71E-01	6.03E-17	5.50E+02	-9.54E-01	1.12E-13	1.10E-16	5.13E-01	1.30E+07	1.70E-11	0.00E+00	1.00E+00	3.48E-01	1.84E-05
145	Down-dip	1	2	67	4.93E-01	1.21E-01	6.61E-02	1.19E+00	4.36E+06	1.71E-01	9.00E+06	8.49E-01	1.57E-01	3.55E-18	1.94E-01	3.55E-18	5.50E+02	-1.27E+00	1.19E-13	7.24E-15	9.65E-01	1.26E+07	1.15E-14	3.08E-04	7.36E-01	5.21E-01	8.85E-05
146	Down-dip	1	2	50	5.09E-01	1.09E-01	5.44E-01	1.23E+00	5.11E+06	1.03E-02	9.33E+06	8.77E-01	1.94E-01	8.73E-19	2.31E-01	2.88E-19	5.50E+02	-1.27E+00	1.22E-13	1.12E-12	9.68E-01	1.29E+07	2.75E-13	0.00E+00	1.00E+00	3.15E-01	9.83E-05
147	Down-dip	1	2	66	5.26E-01	9.43E-02	5.49E-01	1.27E+00	8.22E+06	2.83E-02	8.91E+06	8.94E-01	7.37E-02	6.23E-18	1.05E-01	5.37E-16	5.50E+02	-1.37E+00	1.32E-13	1.66E-12	1.18E+00	1.25E+07	1.48E-14	0.00E+00	1.00E+00	3.70E-01	6.50E-05
148	Down-dip	1	2	94	5.76E-01	4.58E-03	1.85E-01	1.42E+00	9.85E+06	9.91E-01	9.81E+06	4.50E-01	1.84E-01	6.31E-15	1.96E-01	6.31E-15	5.50E+02	-1.29E+00	1.42E-13	9.77E-16	9.95E-01	1.31E+07	1.78E-12	9.58E-01	3.81E-07	1.57E-02	3.85E-01
149	Down-dip	1	2	29	4.63E-01	7.66E-02	4.76E-01	1.13E+00	2.86E+06	6.62E-01	8.76E+06	9.18E-01	1.62E-01	3.85E-17	2.14E-01	3.72E-17	5.50E+02	-1.52E+00	1.25E-13	2.83E-12	1.58E+00	1.24E+07	7.94E-12	1.26E-03	6.13E-01	5.26E-01	6.47E-06
150	Down-dip	1	2	32	4.67E-01	1.00E-01	5.29E-01	1.14E+00	2.98E+06	3.79E-01	8.98E+06	8.96E-01	3.31E-02	1.10E-16	6.84E-02	1.10E-16	5.50E+02	-9.74E-01	1.01E-13	5.62E-13	5.33E-01	1.26E+07	2.00E-12	0.00E+00	1.00E+00	3.98E-01	1.74E-06

No.	ID	Replic.	Scen.	Vector	Up-dip Flowing Bottom-hole Pressure (Pa) FBHP2	Down-dip Flowing Bottom-hole Pressure (Pa) FBHP4	BC well Injection Pressure (Pa) BHP_ABAN	Blowout Duration (Days) time	Brine Rate (m^3/s) BRINEFLW	Gas Rate (ref m^3/s) GASFLW	Max Brine Rate (m^3/s) MAX_BRN	Max Gas Rate (ref m^3/s) MAX_GAS	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s) LGR_MET	Cum Brine from Boundary Condition Well (m^3) BRINE_BC	Gas Rate (mscf/day) GAS_RATE	Cum Gas Produced (ref m^3) GASOUT	Cum Brine Produced (m^3) BRINEOUT	Cum Brine Releases (m^3) BRIN_REL	Avg Brine Pressure Panel 5 (Pa) after Blowout BRNPRESS	Avg Brine Saturation Panel 5 (fraction) after blowout SATBRN5	Avg Brine Pressure Panel 0 (Pa) after blowout BRNPRES0	Avg Brine Saturation Panel 0 (fraction) after blowout SATBRN0	Total Excavated Waste Pore Volume (fraction) WASTE_PV	Total Excavated Brine Volume (m^3) TOT_BRIN
76	Down-dip	1	1	44	0.00E+00	8.00E+06	0.00E+00	2.88E+00	4.85E-05	1.44E-07	6.66E-05	1.44E-07	6.08E+08	0.00E+00	4.38E-04	2.11E-02	1.27E+01	1.24E+01	9.72E+06	8.89E-01	9.76E+06	2.23E-06	7.47E+04	1.98E+04
77	Down-dip	1	1	30	3.76E+05	3.67E+05	0.00E+00	1.10E+01	9.86E-06	4.59E-01	2.97E-05	2.62E+00	1.92E+01	0.00E+00	1.40E+03	6.16E+05	1.18E+01	1.10E+01	8.53E+06	4.65E-01	1.17E+07	4.18E-02	8.43E+04	1.28E+04
78	Down-dip	1	1	100	0.00E+00	3.20E+05	0.00E+00	1.10E+01	7.82E-08	7.07E-02	3.32E-05	9.39E-01	8.79E+01	0.00E+00	2.16E+02	1.14E+05	1.00E+01	9.57E+00	5.07E+06	6.62E-01	8.71E+06	4.28E-02	6.85E+04	1.40E+04
79	Down-dip	1	1	1	0.00E+00	3.19E+06	0.00E+00	2.88E+00	2.54E-05	2.62E-02	6.69E-05	9.36E-02	9.17E+02	0.00E+00	7.99E+01	8.26E+03	7.57E+00	7.42E+00	7.80E+06	7.56E-01	8.30E+06	4.07E-02	6.55E+04	1.58E+04
80	Down-dip	1	1	91	0.00E+00	3.54E+05	0.00E+00	1.10E+01	4.87E-06	3.68E-01	2.03E-05	6.72E+00	9.72E+00	0.00E+00	1.12E+03	6.36E+05	8.17E+00	6.04E+00	6.10E+06	5.70E-01	1.35E+07	3.06E-06	9.05E+04	1.33E+04
81	Down-dip	1	1	88	0.00E+00	2.93E+05	0.00E+00	1.10E+01	4.00E-06	1.81E-01	2.03E-05	3.69E+00	1.61E+01	0.00E+00	5.53E+02	3.31E+05	5.33E+00	5.19E+00	5.03E+06	4.16E-01	1.06E+07	5.40E-03	7.81E+04	1.15E+04
82	Down-dip	1	1	17	0.00E+00	3.26E+05	0.00E+00	1.10E+01	4.05E-08	8.26E-01	1.37E-05	7.87E+00	4.29E+00	0.00E+00	2.52E+03	1.07E+06	4.59E+00	4.49E+00	7.00E+06	4.86E-01	1.27E+07	1.46E-06	8.88E+04	1.12E+04
83	Down-dip	1	1	63	0.00E+00	2.86E+05	0.00E+00	1.10E+01	2.86E-06	3.85E-01	9.83E-06	3.53E+00	6.17E+00	0.00E+00	1.18E+03	5.63E+05	3.47E+00	3.25E+00	4.75E+06	4.51E-01	9.86E+06	1.07E-06	7.62E+04	8.88E+03
84	Down-dip	1	1	55	0.00E+00	3.06E+05	0.00E+00	1.10E+01	2.39E-06	3.86E-01	1.02E-05	6.02E+00	4.59E+00	0.00E+00	1.18E+03	6.60E+05	3.03E+00	3.00E+00	5.09E+06	4.85E-01	1.21E+07	6.87E-06	8.52E+04	1.07E+04
85	Down-dip	1	1	79	0.00E+00	3.34E+05	0.00E+00	1.10E+01	2.30E-06	2.79E+00	2.45E-06	1.26E+01	5.46E-01	0.00E+00	8.51E+03	3.46E+06	1.89E+00	1.70E+00	8.08E+06	5.17E-01	1.15E+07	8.94E-07	9.19E+04	1.23E+04
86	Down-dip	1	1	48	0.00E+00	2.17E+05	0.00E+00	1.10E+01	1.48E-06	5.09E-01	4.08E-08	3.15E+00	2.56E+00	0.00E+00	1.55E+03	8.59E+05	1.69E+00	1.58E+00	4.01E+06	4.33E-01	7.57E+06	3.43E-06	6.44E+04	7.21E+03
87	Down-dip	1	1	78	0.00E+00	2.52E+05	0.00E+00	1.10E+01	7.89E-07	2.42E-01	3.95E-06	5.46E+00	2.15E+00	0.00E+00	7.39E+02	4.91E+05	1.06E+00	1.04E+00	4.01E+06	3.75E-01	9.97E+06	1.05E-05	7.57E+04	7.35E+03
88	Down-dip	1	1	26	0.00E+00	3.62E+05	0.00E+00	1.10E+01	6.58E-07	1.26E+00	1.02E-06	1.96E+01	2.98E-01	0.00E+00	3.84E+03	1.68E+06	5.02E-01	4.73E-01	6.31E+06	5.79E-01	1.39E+07	8.02E-08	9.55E+04	1.43E+04
89	Down-dip	1	1	73	0.00E+00	3.12E+05	0.00E+00	1.10E+01	2.70E-07	2.10E-01	2.06E-06	1.05E+01	7.02E-01	0.00E+00	6.41E+02	6.22E+05	4.37E-01	4.23E-01	3.62E+06	4.48E-01	1.28E+07	1.88E-05	8.76E+04	1.02E+04
90	Down-dip	1	1	2	0.00E+00	3.35E+05	0.00E+00	1.10E+01	1.83E-07	1.85E+00	4.03E-07	1.66E+01	7.43E-02	0.00E+00	5.64E+03	2.33E+06	1.73E-01	1.71E-01	6.16E+06	4.79E-01	1.17E+07	4.22E-06	8.84E+04	1.10E+04
91	Down-dip	1	1	41	0.00E+00	2.53E+05	0.00E+00	1.10E+01	9.38E-08	1.32E-01	7.88E-07	7.60E+00	3.83E-01	0.00E+00	4.02E+02	4.03E+05	1.54E-01	1.51E-01	2.79E+06	2.42E-01	9.63E+06	8.44E-03	7.42E+04	5.10E+03
92	Down-dip	1	1	53	0.00E+00	2.93E+05	0.00E+00	1.10E+01	1.68E-08	1.75E-01	1.48E-07	1.15E+01	5.32E-02	0.00E+00	5.35E+02	5.02E+05	2.67E-02	2.60E-02	2.86E+06	3.30E-01	1.07E+07	2.64E-03	7.87E+04	6.87E+03
93	Down-dip	1	1	12	0.00E+00	3.34E+05	0.00E+00	1.10E+01	1.45E-08	2.26E+00	3.99E-06	1.61E+01	5.14E-03	0.00E+00	6.90E+03	3.32E+06	1.71E-02	1.68E-02	4.97E+06	1.65E-01	8.40E+06	2.38E-07	8.27E+04	3.52E+03
94	Down-dip	1	1	5	0.00E+00	3.11E+05	0.00E+00	1.10E+01	3.84E-09	2.38E-01	2.94E-06	1.28E+01	8.98E-03	0.00E+00	7.25E+02	8.20E+05	5.57E-03	5.48E-03	3.17E+06	1.79E-01	1.06E+07	2.85E-05	7.83E+04	3.63E+03
95	Down-dip	1	1	40	0.00E+00	3.90E+05	0.00E+00	1.10E+01	3.44E-09	3.89E+00	6.92E-09	2.12E+01	7.16E-04	0.00E+00	1.13E+04	5.21E+06	3.73E-03	3.65E-03	8.48E+06	3.82E-01	8.95E+06	8.35E-07	8.81E+04	8.71E+03
96	Down-dip	1	1	60	0.00E+00	3.89E+05	0.00E+00	1.10E+01	6.38E-11	2.81E-01	4.74E-10	1.70E+01	1.06E-04	0.00E+00	8.58E+02	8.12E+05	8.63E-05	8.19E-05	3.22E+06	6.74E-02	1.20E+07	1.52E-03	8.40E+04	2.93E+03
97	Down-dip	1	2	22	7.93E+06	3.90E+05	9.74E+06	1.10E+01	3.48E-05	2.12E-01	9.50E-05	1.05E+00	1.42E+02	1.21E-04	8.47E+02	2.92E+05	4.14E+01	3.98E+01	5.87E+06	6.44E-01	9.37E+06	5.50E-01	8.93E+04	5.84E+04
98	Down-dip	1	2	79	2.70E+05	8.77E+05	1.63E+06	1.10E+01	3.61E-05	1.69E-01	4.16E-05	7.28E-01	1.84E+02	0.00E+00	5.14E+02	2.01E+05	3.89E+01	3.49E+01	8.80E+06	7.08E-01	8.94E+06	5.05E-01	8.68E+04	5.53E+04
99	Down-dip	1	2	36	0.00E+00	3.60E+05	8.15E+06	1.10E+01	2.59E-05	6.92E-02	1.14E-04	7.93E-01	3.06E+02	4.65E-05	2.11E+02	1.13E+05	3.49E+01	3.46E+01	5.89E+06	7.00E-01	1.03E+07	1.18E-02	9.34E+04	1.86E+04
100	Down-dip	1	2	69	8.00E+06	3.29E+05	1.01E+07	1.10E+01	2.40E-05	1.23E-01	6.20E-05	1.47E+00	1.40E+02	9.15E-05	3.76E+02	1.85E+05	2.58E+01	2.45E+01	6.51E+06	7.29E-01	1.07E+07	9.16E-01	9.58E+04	8.34E+04
101	Down-dip	1	2	46	0.00E+00	8.04E+06	1.20E+07	2.88E+00	5.75E-05	5.64E-05	1.93E-04	6.92E-05	1.19E+06	1.44E-05	1.72E-01	1.52E+01	1.80E+01	1.77E+01	1.10E+07	9.66E-01	7.38E+06	4.66E-02	8.31E+04	2.82E+04
102	Down-dip	1	2	54	0.00E+00	8.04E+06	1.24E+07	2.88E+00	5.17E-05	7.81E-04	1.20E-04	8.12E-04	6.88E+04	9.17E-06	2.38E+00	1.85E+02	1.64E+01	1.61E+01	1.18E+07	8.50E-01	5.69E+06	8.62E-06	7.58E+04	2.34E+04
103	Down-dip	1	2	5	0.00E+00	8.04E+06	1.18E+07	2.88E+00	4.94E-05	5.89E-04	1.19E-04	5.99E-04	1.22E+05	2.77E-06	1.80E+00	1.31E+02	1.59E+01	1.56E+01	1.15E+07	8.55E-01	6.19E+06	8.92E-02	7.81E+04	2.92E+04
104	Down-dip	1	2	31	2.97E+05	8.01E+06	1.09E+07	2.88E+00	5.20E-05	1.61E-05	1.30E-04	1.61E-05	4.16E+06	9.29E-06	4.90E-02	3.72E+00	1.56E+01	1.52E+01	1.03E+07	9.40E-01	1.03E+07	9.53E-02	9.40E+04	4.86E+04
105	Down-dip	1	2	16	0.00E+00	8.04E+06	1.21E+07	2.88E+00	4.89E-05	4.93E-04	1.36E-04	5.85E-04	1.16E+05	9.36E-06	1.51E+00	1.33E+02	1.54E+01	1.51E+01	1.13E+07	9.19E-01	4.92E+06	1.62E-02	7.18E+04	2.55E+04
106	Down-dip	1	2	78	8.01E+06	8.01E+06	1.10E+07	2.88E+00	5.22E-05	1.27E-05	1.21E-04	1.27E-05	5.29E+08	1.11E-05	3.88E-02	2.88E+00	1.52E+01	1.49E+01	1.03E+07	9.45E-01	1.04E+07	9.44E-01	9.45E+04	8.92E+04
107	Down-dip	1	2	41	0.00E+00	8.04E+06	1.17E+07	2.88E+00	4.85E-05	1.45E-04	1.38E-04	1.78E-04	3.84E+05	1.10E-05	4.42E-01	3.93E+01	1.51E+01	1.48E+01	1.08E+07	9.41E-01	5.10E+06	8.43E-02	7.21E+04	2.95E+04
108	Down-dip	1	2	52	8.00E+06	8.01E+06	1.09E+07	2.88E+00	5.01E-05	1.48E-05	1.21E-04	1.48E-05	4.43E+06	4.31E-06	4.51E-02	3.28E+00	1.45E+01	1.42E+01	1.05E+07	9.60E-01	9.34E+06	9.60E-01	9.06E+04	8.69E+04
109	Down-dip	1	2	43	0.00E+00	8.04E+06	1.20E+07	2.88E+00	4.65E-05	3.60E-04	1.25E-04	4.16E-04	1.49E+05	1.02E-05	1.10E+00	9.58E+01	1.43E+01	1.40E+01	1.11E+07	9.17E-01	3.82E+06	5.44E-02	6.59E+04	2.78E+04
110	Down-dip	1	2	23	0.00E+00	8.02E+06	1.18E+07	2.88E+00	4.45E-05	1.92E-04	1.15E-04	1.92E-04	3.45E+05	6.36E-06	6.85E-01	4.05E+01	1.40E+01	1.37E+01	1.13E+07	9.24E-01	6.80E+06	6.40E-02	8.06E+04	3.15E+04
111	Down-dip	1	2	45	8.00E+06	8.00E+06	1.00E+07	2.88E+00	5.14E-05	0.00E+00	8.68E-05	0.00E+00	1.40E+22	1.51E-05	0.00E+00	0.00E+00	1.40E+01	1.37E+01	9.45E+06	9.84E-01	9.53E+06	9.84E-01	8.99E+04	8.85E+04
112	Down-dip	1	2	72	0.00E+00	8.04E+06	1.11E+07	2.88E+00	4.17E-05	2.01E-04	1.02E-04	2.96E-04	2.26E+05	8.12E-06	6.14E-01	5.60E+01	1.26E+01	1.24E+01	1.05E+07	9.39E-01	6.48E+06	1.61E-05	7.84E+04	2.20E+04
113	Down-dip	1	2	81	0.00E+00	4.01E+06	1.01E+07	2.88E+00	3.89E-05	3.34E-02	1.30E-04	1.51E-01	1.12E+03	3.01E-05	1.02E+02	1.08E+04	1.22E+01	1.19E+01	8.44E+06	6.72E-01	9.10E+06	6.48E-02	8.79E+04	2.53E+04
114	Down-dip	1	2	42	0.00E+00	6.22E+06	1.11E+07	2.88E+00	3.56E-05	1.70E-02	9.35E-05	4.46E-02	2.06E+03	8.88E-06	5.18E+01	5.33E+03	1.10E+01	1.08E+01	1.08E+07	8.24E-01	1.12E+07	7.96E-02	9.78E+04	2.78E+04
115	Down-dip	1	2	44	7.99E+06	7.99E+06	9.89E+06	2.88E+00	4.15E-05	1.50E-06	6.61E-05	1.50E-06	3.51E+07	1.70E-05	4.58E-03	3.10E-01	1.08E+01	1.06E+01	9.37E+06	8.87E-01	9.38E+06	8.11E-01	8.91E+04	7.52E+04
116	Down-dip	1	2	14	0.00E+00	8.00E+06	9.56E+06	2.88E+00	3.33E-05	3.26E-05	7.45E-05	3.26E-05	2.06E+06	0.00E+00	9.98E-02	5.00E+00	1.02E+01	1.00E+01	1.10E+07	8.97E-01	2.60E+06	2.08E-01	6.02E+04	3.28E+04
117	Down-dip	1	2	6	0.00E+00	8.03E+06	1.09E+07	2.88E+00	3.02E-05	3.33E-05	8.00E-05	3.36E-05	1.18E+08	9.22E-06	1.02E-01	7.95E+00	9.37E+00	9.19E+00	1.01E+07	9.24E-01	2.08E+06	2.12E-01	5.70E+04	3.21E+04
118	Down-dip	1	2	80	0.00E+00	8.04E+06	1.06E+07	2.88E+00	3.04E-05	1.53E-04	7.23E-05	1.62E-04	2.42E+05	2.78E-08	4.66E-01	3.87E+01	9.35E+00	9.17E+00	1.03E+07	9.17E-01	3.88E+06	5.02E-02	6.52E+04	2.62E+04
119	Down-dip	1	2	73	0.00E+00	8.02E+06	1.05E+07	2.88E+00	3.09E-05	1.57E-05	7.18E-05	1.57E-05	2.60E+08	1.17E-05	4.78E-02	3.58E+00	9.28E+00	9.09E+00	9.83E+06	9.38E-01	8.28E+06	9.57E-02	8.51E+04	3.39E+04
120	*Down-dip*	*1*	*2*	*68*	*0.00E+00*	*8.03E+06*	*1.05E+07*	*2.88E+00*	*2.97E-05*	*9.49E-06*	*1.23E-04*	*2.72E-05*	*9.27E+08*	*1.17E-05*	*2.89E-02*	*2.85E+00*	*9.32E+00*	*9.09E+00*	*9.63E+06*	*9.90E-01*	*5.87E+06*	*6.82E-07*	*7.49E+04*	*2.64E+04*
121	Down-dip	1	2	7	7.99E+06	7.99E+06	9.43E+06	2.88E+00	3.49E-05	3.84E-08	4.34E-05	3.84E-08	9.31E+08	2.05E-05	1.17E-04	9.54E-03	8.89E+00	8.67E+00	8.86E+06	9.91E-01	8.82E+06	7.20E-01	8.60E+04	7.23E+04
122	Down-dip	1	2	63	0.00E+00	8.03E+06	1.06E+07	2.88E+00	2.78E-05	2.92E-05	7.87E-05	3.18E-05	1.14E+06	9.72E-08	8.90E-02	7.51E+00	8.59E+00	8.42E+00	9.87E+06	9.44E-01	2.58E+06	4.27E-01	5.91E+04	4.00E+04
123	Down-dip	1	2	34	0.00E+00	8.04E+06	9.31E+06	2.88E+00	2.78E-05	4.23E-05	7.81E-05	5.77E-05	7.37E+05	0.00E+00	1.29E-01	1.17E+01	8.58E+00	8.41E+00	9.59E+06	9.56E-01	6.42E+06	4.15E-02	7.72E+04	2.60E+04
124	Down-dip	1	2	97	0.00E+00	8.01E+06	1.09E+07	2.88E+00	2.80E-05	4.52E-05	6.16E-05	4.52E-05	9.60E+05	1.11E-05	1.38E-01	8.88E+00	8.49E+00	8.33E+00	1.02E+07	9.14E-01	5.66E+06	8.19E-01	7.41E+04	6.38E+04
125	Down-dip	1	2	25	0.00E+00	8.04E+06	1.00E+07	2.88E+00	2.60E-05	1.93E-04	5.94E-05	1.94E-04	1.99E+05	5.60E-06	5.89E-01	4.12E+01	8.19E+00	8.04E+00	1.02E+07	9.08E-01	8.87E+06	1.07E-01	8.80E+04	3.00E+04
126	Down-dip	1	2	60	0.00E+00	8.04E+06	8.82E+06	2.88E+00	2.32E-05	8.73E-05	5.71E-05	1.14E-04	3.01E+05	0.00E+00	2.66E-01	2.40E+01	7.22E+00	7.08E+00	9.42E+06	9.10E-01	5.03E+06	1.77E-01	7.00E+04	3.39E+04
127	Down-dip	1	2	21	0.00E+00	8.04E+06	1.03E+07	2.88E+00	2.17E-05	1.56E-04	5.86E-05	1.72E-04	1.74E+05	6.78E-06	4.76E-01	4.02E+01	6.99E+00	6.86E+00	9.76E+06	9.08E-01	3.38E+06	5.71E-02	6.24E+04	2.48E+04
128	Down-dip	1	2	39	8.01E+06	7.93E+06	9.94E+06	2.88E+00	2.20E-05	9.15E-04	4.26E-05	1.02E-03	2.88E+04	1.86E-06	2.79E+00	2.39E+02	6.82E+00	6.69E+00	9.81E+06	8.24E-01	1.01E+07	8.47E-01	9.24E+04	7.76E+04
129	Down-dip	1	2	82	0.00E+00	8.01E+06	9.81E+06	2.88E+00	2.08E-05	1.37E-05	4.59E-05	1.37E-05	2.25E+06	1.05E-05	4.19E-02	2.81E+00	6.30E+00	6.17E+00	9.26E+06	9.13E-01	9.21E+06	1.39E-01	8.82E+04	4.39E+04
130	Down-dip	1	2	9	0.00E+00	8.01E+06	1.13E+07	2.88E+00	1.87E-05	9.06E-04	4.01E-05	9.81E-04	2.86E+04	9.47E-06	2.77E+00	2.13E+02	6.08E+00	5.97E+00	1.06E+07	8.57E-01	6.85E+06	3.93E-02	8.00E+04	2.29E+04
131	Down-dip	1	2	57	0.00E+00	8.04E+06	9.54E+06	2.88E+00	1.94E-05	8.16E-05	4.82E-05	9.01E-05	2.87E+05	0.00E+00	2.49E-01	2.12E+01	6.08E+00	5.96E+00	9.48E+06	9.08E-01	2.50E+06	1.36E-01	5.82E+04	2.93E+04
132	Down-dip	1	2	2	7.99E+06	7.99E+06	9.49E+06	2.88E+00	2.26E-05	1.14E-08	3.43E-05	1.14E-06	2.58E+07	1.69E-05	3.47E-03	2.35E-01	8.04E+00	5.91E+00	8.91E+06	9.18E-01	8.94E+06	9.16E-01	8.66E+04	7.93E+04
133	Down-dip	1	2	76	0.00E+00	8.04E+06	1.03E+07	2.88E+00	1.85E-05	2.20E-04	3.91E-05	2.21E-04	1.19E+05	9.38E-06	6.70E-01	4.94E+01	5.87E+00	5.76E+00	9.71E+00	8.51E-01	5.37E+06	2.27E-03	7.19E+04	1.95E+04
134	Down-dip	1	2	28	3.74E+05	3.06E+05	7.96E+06	1.10E+01	4.18E-08	2.09E-01	2.08E-05	4.17E+00	1.45E+01	2.84E-05	8.38E+02	3.87E+05	5.59E+00	5.51E+00	5.28E+06	5.09E-01	1.15E+07	1.86E-01	9.90E+04	2.74E+04
135	Down-dip	1	2	51	3.42E+05	3.16E+05	1.32E+07	1.10E+01	6.28E-06	6.89E-01	1.21E-06	6.79E+00	4.88E+00	2.66E-04	2.10E+03	1.19E+06	5.76E+00	5.40E+00	6.95E+06	5.87E-01	1.28E+07	3.43E-01	1.05E+05	5.50E+04
136	Down-dip	1	2	90	0.00E+00	8.03E+06	9.95E+06	2.88E+00	1.80E-05	9.76E-06	5.27E-05	1.90E-05	1.96E+06	1.00E-05	2.98E-02	2.79E+00	6.45E+00	5.32E+00	9.22E+06	9.73E-01	3.15E+06	8.50E-02	6.08E+04	2.80E+04
137	Down-dip	1	2	70	0.00E+00	8.03E+06	9.10E+06	2.88E+00	1.68E-05	5.81E-05	4.48E-05	7.94E-05	3.21E+05	0.00E+00	1.77E-01	1.62E+01	5.19E+00	6.09E+00	9.12E+06	9.38E-01	4.74E+06	1.77E-03	6.82E+04	2.11E+04
138	Down-dip	1	2	65	0.00E+00	8.02E+06	9.56E+06	2.88E+00	1.65E-05	7.19E-06	3.33E-05	7.19E-06	3.30E+06	1.20E-05	2.20E-02	1.63E+00	5.04E+00	4.94E+00	8.98E+06	8.69E-01	8.90E+06	0.00E+00	8.64E+04	2.32E+04
139	Down-dip	1	2	13	0.00E+00	7.99E+06	9.69E+06	2.75E+00	1.62E-05	1.46E-07	5.82E-05	1.48E-07	1.41E+08	9.81E-06	4.44E-04	3.40E-02	4.79E+00	4.72E+00	9.11E+06	9.81E-01	1.17E+06	3.40E-01	5.21E+04	3.40E+04
140	Down-dip	1	2	20	0.00E+00	8.04E+06	9.75E+06	2.88E+00	1.56E-05	4.88E-05	2.89E-05	4.88E-05	4.03E+05	1.01E-05	1.49E-01	1.17E+01	4.69E+00	4.60E+00	9.19E+06	8.81E-01	6.92E+06	4.17E-02	7.85E+04	2.22E+04
141	Down-dip	1	2	1	0.00E+00	8.00E+06	8.01E+06	2.88E+00	1.56E-05	0.00E+00	4.24E-05	0.00E+00	4.66E+21	2.34E-06	0.00E+00	0.00E+00	4.66E+00	4.56E+00	8.81E+06	9.58E-01	5.34E+06	9.42E-01	7.09E+04	6.71E+04
142	Down-dip	1	2	84	0.00E+00	8.04E+06	9.88E+06	2.88E+00	1.39E-05	4.76E-05	3.00E-05	4.91E-05	3.72E+05	1.01E-05	1.45E-01	1.18E+01	4.40E+00	4.31E+00	9.05E+06	8.38E-01	3.43E+06	4.54E-02	6.18E+04	2.24E+04
143	Down-dip	1	2	100	0.00E+00	8.00E+06	9.14E+06	2.88E+00	1.44E-05	0.00E+00	3.60E-05	0.00E+00	4.30E+21	5.55E-06	0.00E+00	0.00E+00	4.30E+00	4.22E+00	8.79E+06	9.45E-01	6.28E+06	9.20E-01	7.54E+04	7.01E+04
144	Down-dip	1	2	95	0.00E+00	8.04E+06	1.00E+07	2.88E+00	1.40E-05	9.27E-05	2.57E-05	9.27E-05	2.28E+05	1.03E-05	2.83E-01	1.88E+01	4.27E+00	4.19E+00	9.42E+06	8.47E-01	6.18E+06	2.14E-01	7.56E+04	3.29E+04
145	Down-dip	1	2	67	0.00E+00	8.02E+06	8.39E+06	2.88E+00	1.34E-05	8.64E-05	2.87E-05	1.00E-04	1.82E+05	0.00E+00	2.64E-01	2.31E+01	4.20E+00	4.12E+00	8.96E+06	8.52E-01	4.36E+06	1.64E-01	6.60E+04	2.87E+04
146	Down-dip	1	2	50	0.00E+00	8.00E+06	9.71E+06	2.88E+00	1.14E-05	2.38E-04	2.43E-05	2.53E-04	6.13E+04	5.60E-06	7.27E-01	6.90E+01	3.81E+00	3.55E+00	9.31E+06	8.81E-01	5.11E+06	1.03E-02	7.01E+04	1.96E+04
147	Down-dip	1	2	66	0.00E+00	8.02E+06	8.42E+06	2.88E+00	9.35E-06	8.74E-05	2.06E-05	9.31E-05	1.34E+05	0.00E+00	2.87E-01	2.22E+01	2.97E+00	2.91E+00	8.87E+06	8.86E-01	6.22E+06	2.64E-02	7.51E+04	2.07E+04
148	Down-dip	1	2	94	8.00E+06	2.53E+05	9.85E+06	1.10E+01	2.22E-08	3.10E-01	1.02E-05	6.35E+00	5.17E+00	1.59E-04	9.45E+02	5.73E+05	2.96E+00	2.88E+00	4.43E+06	4.74E-01	9.82E+06	8.10E-01	9.15E+04	6.89E+04
149	Down-dip	1	2	29	0.00E+00	8.03E+06	9.39E+06	2.88E+00	8.99E-06	8.40E-06	2.32E-05	8.75E-06	1.36E+08	8.87E-06	2.56E-02	2.09E+00	2.85E+00	2.79E+00	8.77E+06	9.19E-01	2.86E+06	4.75E-01	5.89E+04	4.07E+04
150	Down-dip	1	2	32	0.00E+00	8.02E+06	9.59E+06	2.88E+00	8.94E-06	1.09E-05	1.84E-05	1.09E-05	1.29E+06	8.35E-08	3.31E-02	2.14E+00	2.75E+00	2.69E+00	8.99E+06	8.99E-01	2.98E+06	2.67E-01	5.98E+04	3.44E+04

.	.	.	.	.	Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	BC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up-dip Brine Relative Permeability (fraction)	Up-dip Gas Relative Permeability (fraction)	Down-dip Brine Relative Permeability (fraction)	Down-dip Gas Relative Permeability (fraction)
No.	ID	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_RE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
151	Down-dip	1	2	77	5.10E-01	1.48E-01	6.84E-02	1.23E+00	5.34E+06	2.45E-02	8.70E+06	8.21E-01	1.87E-01	8.13E-19	2.24E-01	8.13E-19	5.50E+02	-7.13E-01	9.95E-14	2.75E-16	3.17E-01	1.23E+07	1.20E-11	0.00E+00	1.00E+00	4.55E-01	1.01E-04
152	Down-dip	1	2	99	5.41E-01	1.26E-01	5.15E-01	1.31E+00	7.26E+06	2.01E-01	8.92E+06	8.67E-01	1.56E-01	5.89E-17	1.83E-01	5.89E-17	5.50E+02	-7.63E-01	1.08E-13	6.17E-17	3.50E-01	1.25E+07	2.29E-11	0.00E+00	1.00E+00	3.05E-01	7.24E-06
153	Down-dip	1	2	88	5.21E-01	1.19E-01	2.88E-01	1.28E+00	5.96E+06	1.13E-06	8.54E+06	8.73E-01	1.66E-02	2.61E-16	3.93E-02	2.57E-18	5.50E+02	-1.19E+00	1.21E-13	7.59E-12	8.14E-01	1.22E+07	1.82E-14	0.00E+00	1.00E+00	4.85E-01	4.65E-06
154	Down-dip	1	2	71	5.17E-01	1.57E-02	1.06E-01	1.25E+00	5.61E+06	2.31E-05	8.34E+06	9.48E-01	3.41E-02	2.19E-18	6.48E-02	2.19E-18	5.50E+02	-1.37E+00	1.29E-13	5.25E-17	1.18E+00	1.19E+07	6.76E-13	0.00E+00	1.00E+00	8.00E-01	1.23E-04
155	Down-dip	1	2	47	4.59E-01	6.75E-02	1.61E-01	1.12E+00	2.69E+06	2.65E-01	8.40E+06	9.14E-01	1.34E-01	6.92E-18	1.75E-01	6.92E-18	5.50E+02	-1.09E+00	1.04E-13	2.19E-18	6.75E-01	1.20E+07	1.55E-12	4.52E-04	7.23E-01	6.72E-01	2.23E-05
156	Down-dip	1	2	17	5.93E-01	1.41E-02	2.26E-01	1.48E+00	1.12E+07	1.03E-01	1.12E+07	4.36E-01	1.37E-01	5.37E-15	1.40E-01	5.37E-15	5.50E+02	-1.03E+00	1.33E-13	7.41E-13	5.93E-01	1.44E+07	3.98E-12	0.00E+00	1.00E+00	8.16E-03	4.63E-01
157	Down-dip	1	2	55	5.54E-01	7.03E-02	2.36E-01	1.35E+00	8.42E+06	8.27E-01	8.36E+06	4.56E-01	8.29E-02	8.71E-15	1.01E-01	8.71E-15	5.50E+02	-8.68E-01	1.15E-13	6.03E-12	4.31E-01	1.18E+07	1.62E-11	6.88E-01	1.62E-07	9.84E-03	4.03E-01
158	Down-dip	1	2	19	5.47E-01	1.42E-01	2.97E-02	1.33E+00	7.87E+06	8.48E-01	8.26E+06	8.50E-01	1.83E-01	1.41E-15	2.05E-01	1.41E-15	5.50E+02	-1.23E+00	1.30E-13	2.00E-18	6.94E-01	1.18E+07	1.45E-12	5.28E-01	4.86E-06	5.37E-01	1.51E-06
159	Down-dip	1	2	27	5.25E-01	1.16E-01	4.62E-01	1.26E+00	6.24E+06	7.10E-02	8.34E+06	8.76E-01	2.09E-02	1.86E-18	4.22E-02	1.86E-16	5.50E+02	-1.24E+00	1.24E-13	2.40E-15	9.09E-01	1.19E+07	1.26E-12	0.00E+00	1.00E+00	3.86E-01	1.48E-06
160	Down-dip	1	2	64	4.87E-01	1.33E-01	1.78E-02	1.18E+00	4.22E+06	6.62E-01	8.25E+06	8.56E-01	4.25E-02	3.41E-16	7.79E-02	3.39E-16	5.50E+02	-1.53E+00	1.31E-13	3.63E-12	1.62E+00	1.19E+07	2.24E-12	2.11E-01	2.18E-02	5.63E-01	2.14E-06
161	Down-dip	1	2	37	5.27E-01	4.07E-02	2.28E-01	1.27E+00	6.41E+06	1.07E-01	8.22E+06	9.51E-01	9.98E-02	3.98E-16	1.22E-01	3.98E-16	5.50E+02	-1.19E+00	1.22E-13	1.35E-15	8.19E-01	1.18E+07	6.17E-12	0.00E+00	1.00E+00	7.83E-01	2.94E-06
162	Down-dip	1	2	49	5.74E-01	3.07E-02	7.84E-02	1.41E+00	9.73E+06	6.31E-02	9.72E+06	3.12E-01	2.79E-02	4.27E-15	4.07E-02	4.27E-15	5.50E+02	-1.26E+00	1.40E-13	8.91E-13	9.52E-01	1.25E+07	9.77E-13	0.00E+00	1.00E+00	6.42E-03	4.86E-01
163	Down-dip	1	2	91	5.50E-01	5.46E-02	3.06E-01	1.36E+00	8.76E+06	3.62E-01	8.76E+06	4.80E-01	1.74E-01	5.01E-15	1.95E-01	5.01E-15	5.50E+02	-7.73E-01	1.12E-13	2.82E-13	3.57E-01	1.18E+07	4.17E-14	9.00E-05	8.20E-01	6.01E-03	4.72E-01
164	Down-dip	1	2	59	5.38E-01	1.07E-02	1.94E-01	1.30E+00	7.26E+06	1.83E-01	8.15E+06	9.76E-01	1.74E-01	1.66E-16	2.00E-01	1.66E-16	5.50E+02	-1.20E+00	1.26E-13	1.35E-16	8.44E-01	1.17E+07	5.89E-14	0.00E+00	1.00E+00	8.96E-01	7.28E-06
165	Down-dip	1	2	33	5.67E-01	1.31E-01	1.22E-01	1.39E+00	9.26E+06	8.65E-01	9.22E+06	3.22E-01	2.74E-02	1.12E-14	3.63E-02	1.12E-14	5.50E+02	-1.24E+00	1.36E-13	8.32E-13	9.16E-01	1.15E+07	1.26E-13	5.39E-01	3.23E-07	4.22E-03	4.79E-01
166	Down-dip	1	2	61	5.87E-01	8.73E-02	4.26E-01	1.46E+00	1.07E+07	6.35E-02	1.06E+07	5.81E-01	7.16E-02	2.19E-16	7.64E-02	2.19E-16	5.50E+02	-9.65E-01	1.29E-13	5.25E-14	5.24E-01	1.33E+07	2.82E-14	0.00E+00	1.00E+00	4.76E-03	4.63E-01
167	Down-dip	1	2	88	5.13E-01	3.56E-02	5.00E-02	1.24E+00	5.83E+06	2.37E-05	8.10E+06	9.20E-01	5.01E-02	4.19E-19	8.36E-02	4.17E-19	5.50E+02	-1.23E+00	1.21E-13	4.79E-15	8.82E-01	1.17E+07	3.98E-14	0.00E+00	1.00E+00	7.21E-01	1.96E-04
168	Down-dip	1	2	85	5.89E-01	7.34E-03	2.60E-01	1.46E+00	1.09E+07	9.65E-02	1.09E+07	4.18E-01	5.87E-02	4.90E-16	8.52E-02	4.90E-16	5.50E+02	-1.23E+00	1.43E-13	7.08E-16	8.95E-01	1.19E+07	7.76E-15	0.00E+00	1.00E+00	3.36E-03	5.69E-01
169	Down-dip	1	2	62	5.95E-01	1.39E-01	5.05E-01	1.48E+00	1.14E+07	5.26E-02	1.14E+07	6.09E-01	4.05E-02	1.41E-18	5.06E-02	1.41E-18	5.50E+02	-1.37E+00	1.54E-13	1.70E-15	1.19E+00	1.38E+07	1.00E-14	0.00E+00	1.00E+00	3.19E-03	4.37E-01
170	Down-dip	1	2	74	5.77E-01	3.84E-02	3.53E-01	1.42E+00	9.94E+06	1.78E-02	9.89E+06	4.97E-01	5.27E-02	3.55E-18	5.89E-02	3.39E-19	5.50E+02	-8.29E-01	1.19E-13	8.17E-12	3.99E-01	1.22E+07	8.32E-12	0.00E+00	1.00E+00	3.91E-03	5.32E-01
171	Down-dip	1	2	86	4.58E-01	6.86E-02	3.61E-02	1.12E+00	2.62E+06	7.23E-01	8.09E+06	9.18E-01	1.42E-01	3.04E-17	1.91E-01	3.02E-17	5.50E+02	-1.28E+00	1.10E-13	4.07E-13	9.43E-01	1.17E+07	2.04E-11	2.86E-01	1.97E-02	7.21E-01	5.25E-06
172	Down-dip	1	2	30	5.96E-01	1.16E-01	4.18E-02	1.49E+00	1.15E+07	8.38E-01	1.15E+07	1.98E-01	3.08E-02	2.75E-14	3.73E-02	2.75E-14	5.50E+02	-6.49E-01	1.18E-13	2.19E-13	2.79E-01	1.34E+07	1.59E-13	5.06E-01	2.72E-04	1.25E-03	6.24E-01
173	Down-dip	1	2	87	5.90E-01	2.68E-02	1.60E-01	1.48E+00	1.13E+07	2.80E-02	1.13E+07	2.75E-01	1.10E-01	9.11E-20	1.13E-01	4.47E-20	5.50E+02	-9.15E-01	1.28E-13	8.91E-14	4.74E-01	1.37E+07	2.51E-12	0.00E+00	1.00E+00	6.47E-04	7.10E-01
174	Down-dip	1	2	15	5.65E-01	4.22E-02	5.21E-01	1.38E+00	9.15E+06	9.52E-01	9.13E+06	5.74E-01	4.81E-02	1.32E-14	6.37E-02	1.32E-14	5.50E+02	-9.48E-01	1.21E-13	1.32E-14	5.06E-01	1.06E+07	4.47E-13	6.75E-01	4.76E-06	3.08E-04	7.48E-01
175	Down-dip	1	2	4	6.04E-01	1.11E-01	1.90E-01	1.52E+00	1.21E+07	1.31E-06	1.22E+07	2.66E-01	8.30E-02	1.26E-19	8.48E-02	1.26E-19	5.50E+02	-9.63E-01	1.34E-13	4.17E-16	5.22E-01	1.47E+07	3.16E-14	0.00E+00	1.00E+00	1.60E-04	7.76E-01
176	Down-dip	1	2	58	6.01E-01	2.96E-02	1.14E-01	1.51E+00	1.19E+07	1.72E-01	1.19E+07	1.84E-01	1.87E-01	1.45E-16	1.92E-01	1.45E-16	5.50E+02	-1.18E+00	1.45E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	4.42E-05	8.59E-01	8.83E-05	8.29E-01
177	Down-dip	1	2	26	5.56E-01	7.60E-02	4.97E-01	1.35E+00	8.55E+06	4.80E-01	8.53E+06	5.20E-01	1.65E-01	2.00E-14	1.88E-01	2.00E-14	5.50E+02	-1.33E+00	1.38E-13	3.02E-12	1.10E+00	1.14E+07	6.76E-12	0.00E+00	1.00E+00	1.27E-05	8.85E-01
178	Down-dip	1	2	93	6.06E-01	4.00E-02	5.11E-01	1.52E+00	1.24E+07	6.67E-02	1.24E+07	5.29E-01	7.97E-02	1.70E-14	8.31E-02	1.70E-14	5.50E+02	-9.34E-01	1.33E-13	2.95E-14	4.92E-01	1.35E+07	8.91E-13	0.00E+00	1.00E+00	5.30E-06	9.17E-01
179	*Down-dip*	*1*	*2*	*11*	*6.06E-01*	*6.24E-02*	*4.15E-01*	*1.52E+00*	*1.24E+07*	*3.55E-01*	*1.24E+07*	*4.30E-01*	*5.37E-02*	*3.56E-13*	*4.32E-02*	*1.95E-13*	*5.50E+02*	*-1.39E+00*	*1.59E-13*	1.20E-14	1.22E+00	1.35E+07	5.37E-15	0.00E+00	1.00E+00	1.52E-06	9.39E-01
180	Down-dip	1	2	40	5.85E-01	1.02E-01	3.54E-01	1.45E+00	1.06E+07	4.83E-01	1.06E+07	3.71E-01	1.22E-01	1.51E-13	1.27E-01	1.51E-13	5.50E+02	-1.32E+00	1.47E-13	3.02E-13	1.07E+00	1.39E+07	2.57E-11	2.86E-03	5.30E-01	1.67E-06	9.34E-01
181	Down-dip	1	2	12	5.97E-01	7.06E-02	1.02E-01	1.49E+00	1.18E+07	3.39E-02	1.16E+07	1.06E-01	3.11E-02	1.78E-13	3.89E-02	1.78E-13	5.50E+02	-1.38E+00	1.55E-13	5.50E-15	1.19E+00	1.39E+07	1.86E-13	0.00E+00	1.00E+00	2.51E-09	9.90E-01
182	Down-dip	1	2	79	5.70E-01	1.23E-01	3.88E-01	1.40E+00	1.11E+07	4.12E-01	1.11E+07	7.76E-01	1.07E-01	2.57E-13	1.78E-01	2.57E-13	7.50E+02	-1.10E+00	1.30E-13	1.61E-10	6.89E-01	1.23E+07	4.37E-15	8.18E-06	9.00E-01	1.86E-01	1.38E-02
183	Down-dip	1	2	94	5.83E-01	4.58E-03	1.85E-01	1.44E+00	1.22E+07	9.91E-01	1.22E+07	6.96E-01	1.92E-01	7.82E-15	1.93E-01	6.31E-15	7.50E+02	-1.29E+00	1.44E-13	9.77E-16	9.95E-01	1.31E+07	1.78E-12	9.59E-01	2.93E-07	1.78E-01	7.44E-02
184	Down-dip	1	2	11	5.93E-01	6.24E-02	4.15E-01	1.47E+00	1.31E+07	3.53E-01	1.31E+07	9.36E-01	7.33E-02	1.36E-12	4.46E-02	1.35E-13	7.50E+02	-1.39E+00	1.54E-13	1.20E-14	1.22E+00	1.35E+07	5.37E-15	0.00E+00	1.00E+00	6.50E-01	9.85E-08
185	Down-dip	1	2	15	5.72E-01	4.22E-02	5.21E-01	1.40E+00	1.13E+07	7.53E-01	1.13E+07	7.95E-01	5.56E-02	1.32E-14	6.27E-02	1.32E-14	7.50E+02	-9.48E-01	1.23E-13	1.32E-14	5.06E-01	1.06E+07	4.47E-13	6.94E-02	1.44E-01	1.27E-01	7.61E-02
186	Down-dip	1	2	42	5.87E-01	1.04E-01	3.92E-01	1.46E+00	1.26E+07	7.05E-02	1.26E+07	7.88E-01	1.24E-01	5.16E-16	1.11E-01	7.76E-17	7.50E+02	-1.26E+00	1.44E-13	1.38E-15	9.46E-01	1.47E+07	3.63E-13	0.00E+00	1.00E+00	2.06E-01	1.52E-02
187	Down-dip	1	2	10	5.46E-01	3.17E-02	1.73E-01	1.32E+00	9.38E+06	9.65E-01	9.40E+06	6.55E-01	4.85E-02	3.72E-14	6.69E-02	3.72E-14	7.50E+02	-1.33E+00	1.35E-13	1.86E-16	1.06E+00	1.09E+07	1.35E-11	8.52E-01	1.31E-07	1.36E-01	8.91E-02
188	Down-dip	1	2	78	5.89E-01	4.93E-02	1.51E-01	1.46E+00	1.27E+07	9.46E-01	1.27E+07	9.46E-01	1.19E-01	4.24E-14	1.00E-01	2.46E-15	7.50E+02	-1.06E+00	1.33E-13	8.32E-17	6.26E-01	1.40E+07	1.07E-12	7.85E-01	3.35E-07	7.85E-01	3.39E-07
189	Down-dip	1	2	30	5.83E-01	3.71E-03	1.39E-01	1.44E+00	1.22E+07	2.97E-03	1.21E+07	8.52E-01	4.68E-02	7.14E-20	4.94E-02	6.61E-20	7.50E+02	-8.89E-01	1.24E-13	8.13E-15	4.50E-01	1.36E+07	1.45E-13	0.00E+00	1.00E+00	1.48E-01	9.34E-02
190	Down-dip	1	2	44	5.76E-01	1.12E-01	1.61E-02	1.42E+00	1.15E+07	8.85E-01	1.16E+07	8.65E-01	1.24E-01	1.52E-13	1.21E-01	1.18E-13	7.50E+02	-1.17E+00	1.35E-13	3.80E-15	7.83E-01	1.29E+07	1.12E-12	6.31E-01	7.78E-08	6.31E-01	7.72E-08
191	Down-dip	1	2	12	5.96E-01	7.06E-02	1.02E-01	1.49E+00	1.35E+07	1.63E-02	1.35E+07	5.19E-01	3.85E-02	1.79E-13	3.90E-02	1.78E-13	7.50E+02	-1.38E+00	1.55E-13	5.50E-15	1.19E+00	1.39E+07	1.86E-13	0.00E+00	1.00E+00	5.91E-02	1.68E-01
192	Down-dip	1	2	45	5.67E-01	5.05E-02	2.04E-01	1.39E+00	1.06E+07	9.76E-01	1.09E+07	9.75E-01	7.38E-02	5.13E-14	8.21E-02	5.13E-14	7.50E+02	-9.31E-01	1.21E-13	1.74E-15	4.89E-01	1.32E+07	4.57E-13	8.92E-01	0.00E+00	8.89E-01	0.00E+00
193	*Down-dip*	*1*	*2*	*31*	*5.77E-01*	*5.28E-02*	*5.93E-02*	*1.42E+00*	*1.17E+07*	*1.11E-01*	*1.17E+07*	*9.40E-01*	*7.33E-02*	*1.66E-15*	*8.22E-02*	*1.66E-15*	*7.50E+02*	*-1.27E+00*	*1.42E-13*	*3.31E-14*	*9.73E-01*	*1.40E+07*	*6.31E-13*	2.22E-05	*8.80E-01*	7.82E-01	1.13E-06
194	Down-dip	1	2	69	5.75E-01	8.98E-02	4.08E-01	1.41E+00	1.15E+07	9.10E-01	1.16E+07	9.13E-01	7.49E-02	1.26E-14	8.13E-02	1.26E-14	7.50E+02	-1.29E+00	1.42E-13	9.33E-15	9.99E-01	1.42E+07	4.07E-13	5.42E-01	4.53E-09	5.58E-01	0.00E+00
195	Down-dip	1	2	2	5.65E-01	8.22E-02	4.02E-01	1.38E+00	1.07E+07	9.16E-01	1.08E+07	9.16E-01	1.58E-01	4.47E-14	1.64E-01	4.47E-14	7.50E+02	-1.29E+00	1.38E-13	6.01E-14	9.98E-01	1.24E+07	7.24E-11	5.71E-01	9.13E-08	5.71E-01	9.05E-08
196	Down-dip	1	2	52	5.71E-01	3.68E-02	4.49E-01	1.40E+00	1.12E+07	9.60E-01	1.13E+07	9.60E-01	1.04E-01	1.70E-15	1.17E-01	1.70E-15	7.50E+02	-9.48E-01	1.23E-13	4.17E-14	5.07E-01	1.43E+07	2.63E-13	7.57E-01	4.04E-07	7.57E-01	4.00E-07
197	Down-dip	1	2	39	5.73E-01	1.50E-01	2.98E-01	1.41E+00	1.13E+07	6.47E-01	1.13E+07	8.47E-01	1.90E-02	3.02E-15	2.71E-02	3.02E-15	7.50E+02	-1.23E+00	1.37E-13	2.40E-13	8.82E-01	1.34E+07	1.78E-13	4.04E-01	3.35E-07	4.04E-01	3.28E-07
198	Down-dip	1	2	18	5.46E-01	1.06E-01	3.40E-01	1.32E+00	9.32E+06	8.92E-01	9.35E+06	7.80E-01	4.95E-02	3.31E-14	6.82E-02	3.31E-14	7.50E+02	-1.09E+00	1.22E-13	6.17E-16	6.69E-01	1.05E+07	5.25E-12	5.17E-01	1.10E-07	2.24E-01	1.38E-02
199	Down-dip	1	2	25	5.69E-01	8.68E-02	5.41E-01	1.39E+00	1.11E+07	1.00E-01	1.11E+07	9.07E-01	7.45E-02	3.40E-17	7.69E-02	3.39E-17	7.50E+02	-1.13E+00	1.31E-13	1.26E-16	7.23E-01	1.38E+07	3.89E-13	0.00E+00	1.00E+00	4.31E-01	9.82E-06
200	Down-dip	1	2	65	5.54E-01	1.27E-01	8.96E-02	1.35E+00	9.86E+06	0.00E+00	9.89E+06	8.56E-01	1.96E-02	8.71E-16	2.91E-02	8.71E-16	7.50E+02	-1.16E+00	1.28E-13	4.17E-15	7.73E-01	1.26E+07	3.72E-12	0.00E+00	1.00E+00	5.28E-01	1.98E-05
201	Down-dip	1	2	24	5.40E-01	9.01E-02	1.37E-01	1.30E+00	8.91E+06	9.08E-01	9.00E+06	9.08E-01	1.85E-01	2.82E-13	2.07E-01	2.82E-13	7.50E+02	-1.29E+00	1.31E-13	2.83E-14	9.94E-01	1.09E+07	7.41E-13	6.59E-01	2.82E-08	6.59E-01	2.79E-08
202	Down-dip	1	2	46	5.37E-01	2.00E-02	2.35E-01	1.30E+00	8.39E+06	3.21E-02	9.63E+06	9.83E-01	4.13E-02	1.59E-17	5.14E-02	1.59E-17	7.50E+02	-1.41E+00	1.37E-13	1.45E-14	1.26E+00	1.50E+07	1.15E-11	0.00E+00	1.00E+00	8.33E-01	1.83E-05
203	Down-dip	1	2	19	5.49E-01	1.42E-01	2.97E-02	1.33E+00	9.51E+06	7.93E-01	9.62E+06	8.51E-01	1.89E-01	1.41E-15	2.04E-01	1.41E-15	7.50E+02	-1.23E+00	1.30E-13	2.00E-16	8.94E-01	1.18E+07	1.45E-12	4.13E-01	7.78E-04	5.41E-01	7.43E-07
204	Down-dip	1	2	81	5.46E-01	1.05E-02	4.73E-01	1.32E+00	9.23E+06	6.47E-02	9.01E+06	8.99E-01	6.96E-02	2.31E-16	7.97E-02	1.00E-18	7.50E+02	-1.37E+00	1.37E-13	2.51E-12	1.19E+00	1.30E+07	8.91E-11	0.00E+00	1.00E+00	4.55E-01	8.63E-03
205	Down-dip	1	2	73	5.48E-01	5.61E-02	3.03E-01	1.33E+00	9.48E+06	8.18E-02	9.64E+06	9.37E-01	8.63E-02	3.72E-16	1.06E-01	3.72E-16	7.50E+02	-8.01E-01	1.11E-13	8.17E-15	3.77E-01	1.35E+07	9.77E-12	0.00E+00	1.00E+00	7.04E-01	2.27E-08
206	Down-dip	1	2	5	5.29E-01	1.29E-01	1.21E-01	1.26E+00	7.83E+06	5.22E-02	9.53E+06	8.50E-01	1.24E-01	1.91E-17	1.48E-01	1.82E-17	7.50E+02	-1.37E+00	1.32E-13	1.82E-12	1.17E+00	1.52E+07	3.31E-13	0.00E+00	1.00E+00	5.03E-01	3.26E-05
207	*Down-dip*	*1*	*2*	*28*	*5.49E-01*	*9.72E-02*	*1.79E-01*	*1.33E+00*	*9.52E+06*	*2.26E-01*	*9.45E+06*	*8.90E-01*	*2.02E-01*	*5.28E-17*	*2.21E-01*	*4.79E-17*	*7.50E+02*	*-1.08E+00*	*1.23E-13*	*9.55E-12*	*6.64E-01*	*1.45E+07*	*9.55E-14*	*2.55E-05*	*8.66E-01*	*5.88E-01*	*9.58E-06*
208	Down-dip	1	2	48	5.40E-01	1.02E-01	2.11E-01	1.30E+00	8.90E+06	8.42E-01	8.97E+06	8.95E-01	4.55E-02	7.76E-14	5.88E-02	7.76E-14	7.50E+02	-1.29E+00	1.31E-13	2.19E-15	1.01E+00	1.03E+07	3.80E-12	4.38E-01	8.82E-04	5.91E-01	8.41E-08
209	Down-dip	1	2	54	5.16E-01	1.25E-01	2.39E-02	1.24E+00	6.90E+06	2.44E-06	9.44E+06	8.45E-01	2.90E-02	5.01E-16	5.13E-02	2.57E-18	7.50E+02	-1.16E+00	1.18E-13	4.68E-12	7.76E-01	1.53E+07	1.66E-12	0.00E+00	1.00E+00	5.29E-01	7.16E-05
210	Down-dip	1	2	30	5.42E-01	1.16E-01	4.16E-02	1.31E+00	9.07E+06	8.80E-01	9.16E+06	8.80E-01	2.61E-02	2.75E-14	4.23E-02	2.75E-14	7.50E+02	-6.49E-01	1.04E-13	2.19E-13	2.79E-01	1.34E+07	1.59E-13	6.10E-01	2.22E-07	6.10E-01	2.20E-07
211	Down-dip	1	2	59	5.42E-01	1.07E-02	1.94E-01	1.31E+00	9.07E+06	1.08E-01	9.18E+06	9.77E-01	1.80E-01	1.66E-16	1.99E-01	1.66E-16	7.50E+02	-1.20E+00	1.27E-13	1.35E-16	8.44E-01	1.17E+07	5.89E-14	0.00E+00	1.00E+00	8.98E-01	6.56E-06
212	Down-dip	1	2	35	5.42E-01	9.57E-02	4.39E-01	1.31E+00	9.09E+06	9.03E-01	9.17E+06	9.03E-01	5.00E-02	7.24E-15	8.29E-02	7.24E-15	7.50E+02	-8.97E-01	1.13E-13	1.38E-13	4.57E-01	1.12E+07	3.98E-11	4.94E-01	1.05E-07	4.94E-01	1.04E-07
213	Down-dip	1	2	72	5.25E-01	2.36E-02	4.74E-03	1.26E+00	7.57E+06	1.03E-05	8.99E+06	9.12E-01	5.66E-02	4.62E-18	8.11E-02	1.82E-18	7.50E+02	-6.26E-01	9.92E-14	5.37E-12	2.66E-01	1.41E+07	5.75E-13	0.00E+00	1.00E+00	7.12E-01	4.71E-04
214	Down-dip	1	2	82	5.40E-01	8.52E-02	4.53E-01	1.31E+00	6.77E+06	1.46E-01	8.89E+06	9.11E-01	1.21E-01	2.14E-15	1.35E-01	2.14E-15	7.50E+02	-1.39E+00	1.36E-13	1.48E-12	1.22E+00	1.29E+07	8.13E-13	0.00E+00	1.00E+00	5.20E-01	7.40E-07
215	Down-dip	1	2	56	5.36E-01	4.66E-02	3.20E-01	1.30E+00	8.68E+06	3.37E-02	8.74E+06	9.47E-01	7.84E-02	1.05E-15	9.31E-02	1.05E-15	7.50E+02	-7.21E-01	1.05E-13	1.05E-14	3.22E-01	1.12E+07	2.82E-12	0.00E+00	1.00E+00	7.41E-01	1.89E-06
216	Down-dip	1	2	9	5.30E-01	1.35E-01	5.34E-01	1.28E+00	6.09E+06	2.74E-02	8.86E+06	8.41E-01	1.28E-02	2.36E-19	2.63E-02	2.34E-19	7.50E+02	-1.24E+00	1.25E-13	2.63E-15	9.00E-01	1.42E+07	4.90E-11	0.00E+00	1.00E+00	2.15E-01	6.00E-04
217	Down-dip	1	2	23	5.24E-01	7.29E-02	4.80E-01	1.26E+00	7.70E+06	5.46E-02	8.46E+06	9.22E-01	2.81E-02	1.18E-16	4.83E-02	1.18E-16	7.50E+02	-1.18E+00	1.21E-13	7.94E-17	8.09E-01	1.50E+07	6.03E-13	0.00E+00	1.00E+00	5.50E-01	2.23E-06
218	Down-dip	1	2	99	5.32E-01	1.28E-01	5.15E-01	1.28E+00	8.30E+06	1.67E-01	8.68E+06	8.67E-01	1.83E-01	5.89E-17	1.87E-01	5.89E-17	7.50E+02	-7.63E-01	1.06E-13	6.17E-17	3.50E-01	1.25E+07	2.29E-11	0.00E+00	1.00E+00	3.05E-01	7.72E-06
219	Down-dip	1	2	76	5.04E-01	1.38E-01	3.34E-01	1.21E+00	6.37E+06	2.24E-05	8.29E+06	6.26E-01	3.02E-02	3.16E-18	5.34E-02	3.16E-18	7.50E+02	-1.33E+00	1.24E-13	5.50E-16	1.09E+00	1.33E+07	2.09E-12	0.00E+00	1.00E+00	3.28E-01	5.31E-04
220	Down-dip	1	2	95	5.28E-01	1.46E-01	3.69E-01	1.27E+00	6.08E+06	1.67E-01	8.36E+06	8.44E-01	1.48E-01	6.03E-17	1.72E-01	6.03E-17	7.50E+02	-9.54E-01	1.12E-13	1.10E-16	5.13E-01	1.30E+07	1.70E-11	0.00E+00	1.00E+00	3.50E-01	1.44E-05
221	Down-dip	1	*2*	61	5.68E-01	8.73E-02	4.26E-01	1.39E+00	1.10E+07	5.25E-02	1.09E+07	5.80E-01	7.60E-02	2.19E-16	8.00E-02	*2.19E-16*	*7.50E+02*	-9.65E-01	1.23E-13	*5.25E-14*	*5.24E-01*	*1.33E+07*	*2.82E-14*	*0.00E+00*	*1.00E+00*	*7.89E-03*	*3.99E-01*
222	Down-dip	1	2	43	4.85E-01	5.88E-02	2.07E-01	1.17E+00	5.36E+06	3.65E-02	8.21E+06	9.03E-01	1.60E-01	2.87E-19	2.01E-01	9.77E-20	7.50E+02	-1.26E+00	1.16E-13	3.63E-13	9.52E-01	1.49E+07	9.55E-12	0.00E+00	1.00E+00	6.17E-01	2.41E-04
223	Down-dip	1	2	20	5.26E-01	1.23E-01	1.27E-01	1.27E+00	7.92E+06	2.92E-02	8.26E+06	8.50E-01	1.66E-02	1.35E-17	3.67E-02	1.35E-17	7.50E+02	-6.04E-01	9.87E-14	3.31E-15	2.55E-01	1.28E+07	1.20E-12	0.00E+00	1.00E+00	4.99E-01	7.81E-05
224	Down-dip	1	2	62	5.81E-01	1.39E-01	5.05E-01	1.43E+00	1.20E+07	5.11E-02	1.20E+07	6.31E-01	4.42E-02	1.41E-18	5.22E-02	1.41E-18	7.50E+02	-1.37E+00	1.49E-13	1.70E-15	1.19E+00	1.38E+07	1.00E-14	0.00E+00	1.00E+00	6.40E-03	3.45E-01
225	Down-dip	1	2	34	5.26E-01	2.76E-02	3.26E-01	1.27E+00	8.13E+06	2.71E-02	8.22E+06	9.54E-01	1.68E-02	2.30E-17	3.17E-02	2.29E-17	7.50E+02	-1.07E+00	1.17E-13	7.08E-14	6.47E-01	1.34E+07	4.68E-14	0.00E+00	1.00E+00	7.70E-01	3.98E-05

*	•	•	•	•	Up-dip Flowing Bottom-hole Pressure (Pa)	Down-dip Flowing Bottom-hole Pressure (Pa)	BC well Injection Pressure (Pa)	Blowout Duration (Days)	Brine Rate (m^3/s)	Gas Rate (ref m^3/s)	Max Brine Rate (m^3/s)	Max Gas Rate (ref m^3/s)	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s)	Cum Brine from Boundary Condition Well (m^3)	Gas Rate (mscf/day)	Cum Gas Produced (ref m^3)	Cum Brine Produced (m^3)	Cum Brine Releases (m^3)	Avg Brine Pressure Panel 5 (Pa) after Blowout	Avg Brine Saturation Panel 5 (fraction) after blowout	Avg Brine Pressure Panel 0 (Pa) after blowout	Avg Brine Saturation Panel 0 (fraction) after blowout	Total Excavated Waste Pore Volume (fraction)	Total Excavated Brine Volume (m^3)
No.	ID	Replic.	Scen.	Vector	FBHP2	FBHP4	BHP_ABAN	time	BRINEFLW	GASFLW	MAX_BRN	MAX_GAS	LGR_MET	BRINE_BC	GAS_RATE	GASOUT	BRINEOUT	BRIN_REL	BRNPRES5	SATBRN5	BRNPRES0	SATBRN0	WASTE_PV	TOT_BRIN
151	Down-dip	1	2	77	0.00E+00	8.01E+06	9.32E+06	2.88E+00	8.48E-06	5.77E-05	1.49E-05	6.40E-05	1.68E+05	1.08E-05	1.76E-01	1.51E+01	2.54E+00	2.49E+00	8.72E+06	8.26E-01	5.35E+06	2.45E-02	7.05E+04	1.92E+04
152	Down-dip	1	2	99	0.00E+00	8.03E+06	9.54E+06	2.88E+00	8.11E-06	2.40E-05	1.40E-05	2.40E-05	6.21E+05	1.00E-05	7.31E-02	4 68E+00	2.43E+00	2.38E+00	8.94E+06	8.70E-01	7.26E+06	2.01E-01	7.90E+04	3.15E+04
153	Down-dip	1	2	88	0.00E+00	8.02E+06	8.39E+06	2.88E+00	7.13E-06	3.88E-06	1.45E-05	3.89E-06	2.38E+06	0.00E+00	1.18E-02	9.27E-01	2.20E+00	2.16E+00	8.53E+06	8.76E-01	5.96E+06	1.18E-06	7.34E+04	2.39E+04
154	Down-dip	1	2	71	0.00E+00	8.02E+06	8.91E+06	2.88E+00	5.78E-06	1.77E-05	1.60E-05	4.53E-05	3.31E+05	9.58E-06	5.41E-02	5.30E+00	1.75E+00	1.72E+00	8.37E+06	9.49E-01	5.81E+06	2.34E-05	7.24E+04	1.98E+04
155	Down-dip	1	2	47	0.00E+00	8.03E+06	9.00E+06	2.88E+00	5.15E-06	4.29E-06	1.21E-05	7.46E-06	1.28E+06	9.12E-06	1.31E-02	1.23E+00	1.58E+00	1.54E+06	8.42E+06	9.17E-01	2.69E+06	2.56E-01	5.78E+04	3.36E+04
156	Down-dip	1	2	17	0.00E+00	2.75E+05	1.13E+07	1.10E+01	1.10E-06	3.44E-01	5.67E-06	7.82E+00	2.14E+00	2.19E-04	1.05E+03	7.14E+05	1.53E+00	1.48E+00	4.30E+06	4.64E-01	1.12E+07	1.04E-01	9.81E+04	3.96E+04
157	Down-dip	1	2	65	7.99E+06	2.21E+05	6.79E+06	1.10E+01	1.02E-06	2.07E-01	4.38E-06	3.31E+00	3.49E+00	1.52E-04	6.32E+02	3.90E+05	1.36E+00	1.36E+00	3.63E+06	4.80E-01	8.40E+06	6.06E-01	8.37E+04	5.26E+04
158	Down-dip	1	2	19	0.00E+00	8.01E+06	8.86E+06	2.88E+00	4.32E-06	4.45E-07	8.35E-06	4.70E-07	1.16E+07	1.22E-05	1.36E-03	1.13E-01	1.32E+00	1.29E+00	8.28E+06	8.54E-01	7.86E+06	5.33E-01	8.13E+04	5.48E+04
159	Down-dip	1	2	27	0.00E+00	8.02E+06	8.94E+06	2.88E+00	3.83E-06	1.01E-06	7.47E-06	1.01E-06	5.20E+06	9.73E-06	3.08E-03	2.28E-01	1.18E+00	1.16E+00	8.37E+06	8.81E-01	6.24E+06	7.11E-02	7.44E+04	2.54E+04
160	Down-dip	1	2	64	0.00E+00	8.01E+06	8.68E+06	2.88E+00	3.74E-06	4.64E-07	8.35E-06	5.89E-07	9.00E+06	1.07E-05	1.48E-03	1.31E-01	1.18E+00	1.16E+00	8.28E+06	8.62E-01	4.21E+06	4.06E-01	6.45E+04	3.99E+04
161	Down-dip	1	2	37	0.00E+00	8.01E+06	8.84E+06	2.88E+00	3.74E-06	3.17E-07	9.22E-06	6.28E-07	1.22E+07	1.09E-05	9.67E-04	8.93E-02	1.09E+00	1.07E+00	8.26E+06	9.52E-01	6.41E+06	1.07E-01	7.51E+04	3.35E+04
162	Down-dip	1	2	49	0.00E+00	2.45E+05	9.10E+06	1.10E+01	7.33E-07	2.53E-01	4.06E-06	6.54E+00	1.90E+00	1.60E-04	7.72E+02	5.46E+05	1.04E+00	1.02E+00	3.63E+06	3.40E-01	9.73E+06	6.34E-02	9.09E+04	3.14E+04
163	Down-dip	1	2	91	2.61E+05	2.27E+05	4.41E+06	1.10E+01	6.17E-07	2.31E-01	2.76E-06	4.17E+00	1.84E+00	4.63E-06	7.05E+02	4.48E+05	8.25E-01	8.17E-01	3.75E+06	4.94E-01	8.76E+06	2.86E-01	8.56E+04	4.22E+04
164	Down-dip	1	2	59	0.00E+00	8.02E+06	8.46E+06	2.88E+00	2.68E-06	4.10E-07	7.16E-06	1.05E-06	6.56E+06	5.22E-06	1.25E-03	1.13E-01	7.44E-01	7.27E-01	8.18E+06	9.77E-01	7.26E+06	1.63E-01	7.86E+04	3.27E+04
165	Down-dip	1	2	33	8.00E+06	2.36E+05	6.35E+06	1.10E+01	5.01E-07	2.73E-01	2.47E-06	5.67E+00	1.23E+00	7.90E-05	8.33E+02	5.66E+05	6.93E-01	6.92E-01	3.37E+06	3.43E-01	9.23E+06	7.34E-01	8.83E+04	5.77E+04
166	Down-dip	1	2	61	0.00E+00	2.66E+05	4.07E+06	1.10E+01	3.98E-07	1.33E-01	3.07E-06	6.98E+00	1.63E+00	0.00E+00	4.07E+02	3.92E+05	6.40E-01	6.13E-01	3.12E+06	5.74E-01	1.07E+07	6.39E-02	9.59E+04	1.94E+04
167	Down-dip	1	2	98	0.00E+00	8.00E+06	8.36E+06	2.88E+00	1.72E-06	8.63E-06	4.20E-06	2.04E-05	2.01E+05	4.50E-06	2.63E-02	2.63E+00	5.28E-01	5.18E-01	8.11E+06	9.22E-01	5.83E+06	2.37E-05	7.12E+04	1.85E+04
168	Down-dip	1	2	85	0.00E+00	2.70E+05	1.51E+06	1.10E+01	3.10E-07	1.89E-01	2.43E-06	9.71E+00	9.17E-01	0.00E+00	5.75E+02	5.41E+05	4.96E-01	4.79E-01	3.21E+06	4.35E-01	1.08E+07	9.68E-02	9.65E+04	1.75E+04
169	Down-dip	1	2	62	0.00E+00	2.79E+05	2.11E+06	1.10E+01	2.38E-07	8.62E-02	2.60E-06	8.75E+00	1.30E+00	0.00E+00	2.83E+02	3.36E+05	4.35E-01	4.31E-01	2.55E+06	6.21E-01	1.14E+07	5.26E-02	9.88E+04	1.97E+04
170	Down-dip	1	2	74	0.00E+00	2.49E+05	9.14E+06	1.10E+01	2.55E-07	1.06E-01	2.15E-06	6.31E+00	1.28E+00	1.85E-04	3.22E+02	3.42E+05	4.30E-01	4.10E-01	2.70E+06	5.24E-01	9.94E+06	1.78E-02	9.19E+04	1.36E+04
171	Down-dip	1	2	86	0.00E+00	8.02E+06	8.72E+06	2.88E+00	1.11E-06	1.58E-07	2.60E-06	3.38E-07	7.18E+08	9.55E-06	4.81E-04	4.56E-02	3.27E-01	3.20E-01	8.14E+06	9.21E-01	2.81E+06	4.75E-01	5.71E+04	3.89E+04
172	Down-dip	1	2	30	7.99E+06	2.90E+05	8.12E+06	1.10E+01	1.77E-07	5.71E-01	7.82E-07	9.75E+00	2.02E-01	1.37E-04	1.74E+03	1.23E+06	2.48E-01	2.42E-01	3.76E+06	2.24E-01	1.14E+07	5.36E-01	9.95E+04	5.15E+04
173	Down-dip	1	2	87	0.00E+00	2.93E+05	1.05E+07	1.10E+01	4.83E-06	1.77E-01	4.34E-07	1.16E+01	1.39E-01	2.30E-04	5.39E+02	5.98E+05	8.31E-02	8.31E-02	2.94E+06	3.09E-01	1.12E+07	2.80E-02	9.83E+04	9.44E+03
174	Down-dip	1	2	15	8.02E+06	2.56E+05	6.97E+06	1.10E+01	4.15E-06	1.67E-01	1.58E-07	7.70E+00	1.11E-01	1.14E-04	5.10E+02	4.22E+05	4.67E-02	4.65E-02	2.52E+06	5.94E-01	9.13E+06	8.25E-01	8.77E+04	6.90E+04
175	Down-dip	1	2	4	0.00E+00	3.31E+05	4.83E+06	1.10E+01	1.21E-06	1.89E-01	1.21E-07	1.55E+01	3.09E-02	5.35E-05	5.77E+02	7.04E+05	2.17E-02	2.13E-02	2.83E+06	2.88E-01	1.21E+07	1.31E-06	1.03E+05	7.30E+03
176	Down-dip	1	2	58	3.42E+05	3.33E+05	6.77E+06	1.10E+01	1.02E-08	4.17E-01	7.07E-06	1.71E+01	1.48E-02	2.68E-05	1.27E+03	1.03E+06	1.53E-02	1.49E-02	3.98E+06	2.08E-01	1.19E+07	1.71E-01	1.02E+05	1.81E+04
177	Down-dip	1	2	26	0.00E+00	2.75E+05	8.36E+06	1.10E+01	2.38E-09	2.69E-01	6.94E-09	9.06E+00	4.21E-03	1.70E-04	8.20E+02	5.96E+05	2.51E-03	2.47E-03	2.67E+08	5.43E-01	8.55E+06	3.92E-01	8.44E+04	4.66E+04
178	Down-dip	1	2	93	0.00E+00	3.78E+05	1.01E+07	1.10E+01	3.14E-09	6.35E-01	4.03E-09	1.85E+01	2.13E-03	1.94E-04	1.94E+03	1.07E+06	2.29E-03	2.26E-03	3.82E+06	5.53E-01	1.19E+07	6.72E-02	1.04E+05	2.12E+04
179	Down-dip	1	2	11	0.00E+00	3.92E+05	1.39E+06	1.10E+01	1.87E-09	1.89E+00	1.87E-09	2.28E+01	4.33E-04	0.00E+00	5.77E+03	2.93E+06	1.27E-03	1.12E-03	4.66E+06	4.47E-01	9.23E+06	2.26E-01	1.04E+05	3.83E+04
180	Down-dip	1	2	40	2.64E+05	3.43E+05	1.09E+07	1.10E+01	2.76E-10	5.93E-01	1.20E-09	1.54E+01	2.49E-04	2.94E-04	1.61E+03	1.62E+06	4.02E-04	3.87E-04	2.66E+06	3.98E-01	1.05E+07	3.25E-01	9.51E+04	4.42E+04
181	Down-dip	1	2	12	0.00E+00	4.05E+05	8.81E+06	1.10E+01	7.31E-13	1.86E+00	2.06E-12	2.06E+01	2.82E-07	1.66E-04	5.66E+03	3.13E+06	8.83E-07	8.22E-07	4.07E+06	1.34E-01	9.33E+06	1.90E-02	1.00E+05	1.65E+04
182	Down-dip	1	2	79	3.44E+05	3.29E+06	3.29E+06	1.10E+01	8.18E-05	5.55E-02	1.00E-04	1.83E-01	1.93E+03	0.00E+00	1.69E+02	4.49E+04	8.86E+01	8.22E+01	1.03E+07	7.88E-01	1.11E+07	3.53E-01	8.93E+04	5.24E+04
183	Down-dip	1	2	94	8.00E+06	2.59E+05	2.59E+05	1.10E+01	4.09E-05	1.87E-01	1.46E-04	1.60E+00	2.07E+02	0.00E+00	5.11E+02	2.36E+05	4.90E+01	4.62E+01	7.78E+06	7.04E-01	1.22E+07	7.61E-01	9.42E+04	7.42E+04
184	Down-dip	1	2	11	0.00E+00	8.00E+06	8.00E+08	2.88E+00	1.79E-04	4.33E-05	2.45E-04	4.33E-05	5.01E+06	0.00E+00	1.32E-01	9.19E+00	4.60E+01	4.49E+01	1.26E+07	9.35E-01	1.31E+07	2.23E-01	9.81E+04	4.42E+04
185	Down-dip	1	2	15	3.75E+05	4.30E+05	4.30E+05	1.10E+01	3.69E-05	8.22E-02	8.09E-05	1.19E+00	3.24E+02	0.00E+00	2.51E+02	1.26E+05	4.09E+01	4.07E+01	6.64E+06	8.14E-01	1.13E+07	6.48E-01	9.01E+04	6.82E+04
186	Down-dip	1	2	42	0.00E+00	3.32E+06	3.32E+06	1.10E+01	3.12E-05	4.46E-02	1.32E-04	2.66E-01	6.81E+02	0.00E+00	1.36E+02	5.80E+04	4.02E+01	3.82E+01	9.76E+06	7.91E-01	1.26E+07	7.06E-02	9.60E+04	2.55E+04
187	Down-dip	1	2	10	7.99E+06	5.26E+05	5.26E+05	1.10E+01	2.64E-05	1.35E-01	7.75E-05	1.05E+00	1.57E+02	0.00E+00	4.13E+02	1.98E+05	3.12E+01	2.98E+01	5.57E+06	6.63E-01	9.32E+06	7.31E-01	8.12E+04	6.13E+04
188	Down-dip	1	2	78	8.01E+06	8.01E+06	8.01E+06	2.88E+00	1.00E-04	5.05E-05	2.37E-04	5.05E-05	2.66E+06	0.00E+00	1.54E-01	1.09E+01	2.88E+01	2.82E+01	1.24E+07	9.46E-01	1.27E+07	8.33E-01	9.65E+04	8.52E+04
189	Down-dip	1	2	36	0.00E+00	4.53E+05	4.53E+05	1.10E+01	1.96E-05	1.00E-01	1.02E-04	1.69E+00	1.47E+02	0.00E+00	3.06E+02	1.92E+05	2.61E+01	2.76E+01	5.92E+06	6.60E-01	1.22E+07	2.97E-03	9.42E+04	1.69E+04
190	Down-dip	1	2	44	6.00E+06	6.00E+06	8.00E+06	2.88E+00	1.06E-04	1.89E-05	1.46E-04	1.89E-05	7.67E+06	0.00E+00	5.77E-02	3.53E+00	2.78E+01	2.71E+01	1.15E+07	8.86E-01	1.15E+07	6.82E-01	9.14E+04	7.06E+04
191	Down-dip	1	2	12	0.00E+00	4.16E+05	4.16E+05	1.10E+01	2.48E-05	1.25E+00	5.70E-05	4.68E+00	1.80E+01	0.00E+00	3.83E+03	1.50E+06	2.70E+01	2.52E+01	8.01E+06	5.30E-01	1.20E+07	9.13E-03	9.95E+04	2.10E+04
192	Down-dip	1	2	45	8.00E+06	8.00E+06	8.00E+06	2.88E+00	6.64E-05	0.00E+00	1.50E-04	0.00E+00	2.42E+22	0.00E+00	0.00E+00	0.00E+00	2.42E+01	2.37E+01	1.06E+07	9.75E-01	1.08E+07	9.75E-01	8.81E+04	8.59E+04
193	Down-dip	1	2	31	3.44E+05	8.02E+06	6.02E+06	2.88E+00	7.64E-05	4.34E-05	1.96E-04	4.34E-05	2.34E+06	0.00E+00	1.32E-01	9.74E+00	2.28E+01	2.23E+01	1.14E+07	9.39E-01	1.17E+07	7.47E-02	9.20E+04	4.62E+04
194	Down-dip	1	2	69	7.99E+06	8.00E+06	8.00E+06	2.88E+00	6.92E-05	3.21E-05	1.36E-04	3.21E-05	3.89E+06	0.00E+00	9.79E-02	5.10E+00	1.97E+01	1.93E+01	1.14E+07	9.14E-01	1.16E+07	9.09E-01	9.13E+04	8.34E+04
195	Down-dip	1	2	2	8.00E+06	8.00E+06	8.00E+06	2.88E+00	6.67E-05	2.53E-05	1.06E-04	2.53E-05	3.70E+06	0.00E+00	7.73E-02	4.87E+00	1.80E+01	1.76E+01	1.07E+07	9.17E-01	1.07E+07	8.57E-01	8.75E+04	7.73E+04
196	Down-dip	1	2	52	8.01E+06	8.01E+06	8.01E+06	2.88E+00	5.95E-05	2.34E-05	1.45E-04	2.34E-05	3.36E+06	0.00E+00	7.13E-02	5.14E+00	1.73E+01	1.69E+01	1.10E+07	9.60E-01	1.12E+07	9.60E-01	8.98E+04	8.62E+04
197	Down-dip	1	2	39	8.01E+06	8.01E+06	8.01E+06	2.88E+00	4.35E-05	2.90E-04	8.79E-05	2.90E-04	2.77E+05	0.00E+00	8.84E-01	4.86E+01	1.34E+01	1.31E+01	1.12E+07	8.50E-01	1.12E+07	8.47E-01	9.05E+04	7.67E+04
198	Down-dip	1	2	18	7.99E+06	3.77E+06	3.77E+06	2.88E+00	4.70E-05	2.52E-02	7.27E-05	9.23E-02	1.41E+03	0.00E+00	7.69E+01	8.18E+03	1.15E+01	1.12E+01	8.96E+06	7.87E-01	9.31E+06	7.43E-01	8.09E+04	6.32E+04
199	Down-dip	1	2	25	0.00E+00	8.04E+06	8.04E+06	2.88E+00	3.49E-05	4.04E-04	8.36E-05	4.13E-04	1.26E+05	0.00E+00	1.23E+00	8.82E+01	1.11E+01	1.09E+01	1.10E+07	9.08E-01	1.11E+07	1.00E-01	8.91E+04	3.00E+04
200	Down-dip	1	2	65	0.00E+00	8.04E+06	8.04E+06	2.88E+00	2.87E-05	1.13E-04	6.96E-05	1.13E-04	3.50E+05	0.00E+00	3.46E-01	2.54E+01	8.87E+00	8.70E+00	9.82E+06	8.58E-01	9.86E+06	0.00E+00	8.36E+04	2.13E+04
201	Down-dip	1	2	24	7.99E+06	7.99E+06	7.99E+06	2.88E+00	3.36E-05	2.05E-07	4.17E-05	2.05E-07	2.05E+06	0.00E+00	8.25E-04	4.23E-02	8.66E+00	8.45E+00	8.96E+06	9.10E-01	8.89E+06	9.07E-01	7.90E+04	7.17E+04
202	Down-dip	1	2	46	0.00E+00	8.04E+06	8.04E+06	2.88E+00	2.69E-05	2.29E-05	8.67E-05	4.02E-05	1.29E+08	0.00E+00	6.97E-02	6.56E+00	8.44E+00	8.28E+00	9.39E+06	9.63E-01	8.39E+06	3.22E-02	7.82E+04	2.70E+04
203	Down-dip	1	2	18	7.79E+06	8.01E+06	8.01E+06	2.88E+00	2.85E-05	1.86E-05	5.41E-05	1.88E-05	2.34E+06	0.00E+00	5.69E-02	3.48E+00	8.12E+00	7.96E+00	9.66E+06	8.55E-01	9.51E+06	5.01E-01	8.20E+04	5.41E+04
204	Down-dip	1	2	81	0.00E+00	6.22E+06	6.25E+06	2.88E+00	2.60E-05	9.01E-03	8.32E-05	3.13E-02	2.85E+03	0.00E+00	2.75E+01	2.85E+03	8.10E+00	7.95E+00	8.58E+06	9.01E-01	9.23E+06	6.47E-02	8.09E+04	2.40E+04
205	Down-dip	1	2	73	0.00E+00	8.02E+06	8.02E+06	2.88E+00	2.59E-05	1.06E-05	6.03E-05	1.06E-05	3.19E+06	0.00E+00	3.23E-02	2.45E+00	7.80E+00	7.64E+00	9.52E+06	9.38E-01	9.48E+06	8.21E-02	8.18E+04	3.28E+04
206	Down-dip	1	2	5	0.00E+00	8.04E+06	8.07E+06	2.88E+00	2.17E-05	1.11E-04	4.76E-05	1.11E-04	2.63E+05	0.00E+00	3.37E-01	2.62E+01	6.87E+00	6.74E+00	9.48E+06	8.54E-01	7.83E+06	5.23E-02	7.59E+04	2.73E+04
207	Down-dip	1	2	28	2.91E+05	8.03E+06	8.15E+06	2.88E+00	2.22E-05	3.33E-05	4.88E-05	3.33E-05	8.92E+05	0.00E+00	1.02E-01	7.72E+00	6.87E+00	6.74E+00	9.38E+06	8.92E-01	9.52E+06	2.27E-01	8.21E+04	3.29E+04
208	Down-dip	1	2	48	7.77E+06	7.99E+06	7.99E+06	2.88E+00	2.49E-05	8.54E-07	3.61E-05	8.54E-07	3.82E+07	0.00E+00	2.61E-03	1.74E-01	6.61E+00	6.46E+00	8.93E+06	8.97E-01	8.89E+06	5.78E-01	7.90E+04	5.70E+04
209	Down-dip	1	2	54	0.00E+00	8.03E+06	8.11E+06	2.88E+00	2.01E-05	1.38E-04	4.22E-05	1.45E-04	1.81E+05	0.00E+00	4.20E-01	3.48E+01	6.27E+00	6.16E+00	9.39E+06	8.49E-01	6.90E+06	2.44E-06	7.19E+04	2.35E+04
210	Down-dip	1	2	30	8.00E+06	8.00E+06	8.00E+06	2.88E+00	2.26E-05	1.73E-06	3.51E-05	1.73E-06	1.79E+07	0.00E+00	5.27E-03	3.46E-01	6.19E+00	6.05E+00	8.12E+06	8.83E-01	9.05E+06	6.39E-01	7.98E+04	5.95E+04
211	Down-dip	1	2	59	0.00E+00	8.02E+06	8.02E+06	2.88E+00	1.94E-05	4.18E-06	8.28E-05	9.24E-06	4.90E+06	0.00E+00	1.28E-02	1.22E+00	5.98E+00	5.86E+00	8.98E+06	9.77E-01	9.07E+06	1.09E-01	7.98E+04	3.03E+04
212	Down-dip	1	2	35	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.74E-05	4.07E-06	3.13E-05	4.07E-06	6.70E+06	0.00E+00	1.24E-02	7.49E-01	5.00E+00	4.89E+00	9.13E+06	9.05E-01	9.07E+06	9.01E-01	7.99E+04	7.20E+04
213	Down-dip	1	2	72	0.00E+00	7.95E+06	8.01E+06	2.88E+00	1.57E-05	2.40E-04	3.50E-05	4.58E-04	6.74E+04	0.00E+00	7.33E-01	7.06E+01	4.76E+00	4.66E+00	8.92E+06	9.14E-01	7.57E+06	1.03E-05	7.44E+04	2.03E+04
214	Down-dip	1	2	82	0.00E+00	8.01E+06	8.02E+06	2.88E+00	1.36E-05	4.58E-06	2.98E-05	4.58E-06	4.25E+08	0.00E+00	1.40E-02	9.71E-01	4.12E+00	4.03E+00	8.85E+06	9.13E-01	8.77E+06	1.45E-01	7.91E+04	4.11E+04
215	Down-dip	1	2	56	0.00E+00	8.01E+06	8.01E+06	2.88E+00	1.20E-05	1.45E-06	2.69E-05	1.55E-06	9.54E+06	0.00E+00	4.43E-03	3.70E-01	3.63E+00	3.46E+00	8.68E+06	9.48E-01	8.68E+06	3.41E-02	7.79E+04	3.10E+04
216	Down-dip	1	2	9	0.00E+00	7.67E+06	7.67E+06	2.88E+00	7.57E-06	6.74E-04	1.53E-05	8.53E-04	1.27E+04	0.00E+00	2.06E+00	1.90E+02	2.40E+00	2.36E+00	8.83E+06	8.45E-01	8.09E+06	2.74E-02	7.60E+04	2.15E+04
217	Down-dip	1	2	23	0.00E+00	8.02E+06	8.02E+06	2.88E+00	8.13E-06	1.42E-06	1.42E-05	1.47E-06	5.37E+06	0.00E+00	4.33E-03	3.54E-01	1.90E+00	1.86E+00	8.44E+06	9.24E-01	7.70E+06	5.50E-02	7.41E+04	3.08E+04
218	Down-dip	1	2	99	0.00E+00	8.03E+06	8.03E+05	2.88E+00	5.85E-06	1.22E-05	9.96E-06	1.22E-05	6.94E+05	0.00E+00	3.72E-02	2.52E+00	1.75E+00	1.71E+00	8.67E+06	8.70E-01	8.30E+06	1.88E-01	7.66E+04	3.00E+04
219	Down-dip	1	2	76	0.00E+00	7.81E+06	7.61E+06	2.88E+00	4.69E-06	1.77E-04	9.29E-06	2.76E-04	2.84E+04	0.00E+00	5.41E-01	5.17E+01	1.47E+00	1.44E+00	8.27E+06	8.31E-01	6.38E+06	2.38E-05	6.85E+04	1.83E+04
220	Down-dip	1	2	95	0.00E+00	8.03E+06	8.03E+06	2.88E+00	3.63E-06	5.27E-06	6.22E-06	5.33E-06	8.35E+05	0.00E+00	1.61E-02	1.30E+00	1.09E+00	1.07E+00	8.36E+06	8.48E-01	8.08E+06	1.87E-01	7.53E+04	3.18E+04
221	Down-dip	1	2	61	0.00E+00	2.69E+05	2.71E+05	1.10E+01	6.64E-07	1.23E-01	4.90E-06	5.85E+00	3.04E+00	0.00E+00	3.74E+02	3.45E+05	1.06E+00	1.01E+00	3.30E+06	6.93E-01	1.10E+07	5.27E-02	8.86E+04	1.76E+04
222	Down-dip	1	2	43	0.00E+00	7.98E+06	7.99E+06	2.88E+00	3.19E-06	2.49E-05	7.64E-06	5.42E-05	1.31E+05	0.00E+00	7.58E-02	7.60E+00	9.98E-01	9.79E-01	8.19E+06	9.05E-01	5.36E+06	3.65E-02	6.37E+04	2.69E+04
223	Down-dip	1	2	20	0.00E+00	8.02E+06	8.02E+06	2.88E+00	3.24E-06	1.11E-05	5.73E-06	1.64E-05	3.08E+05	0.00E+00	3.39E-02	3.14E+00	9.66E-01	9.47E-01	8.26E+06	8.54E-01	7.92E+06	2.92E-02	7.47E+04	2.09E+04
224	Down-dip	1	2	82	0.00E+00	2.92E+05	2.92E+05	1.10E+01	5.18E-07	8.40E-02	5.33E-06	7.45E+00	3.01E+00	0.00E+00	2.58E+02	3.09E+05	9.29E-01	9.21E-01	2.88E+06	6.43E-01	1.20E+07	5.11E-02	9.35E+04	1.91E+04
225	Down-dip	1	2	34	0.00E+00	8.03E+06	8.03E+06	2.88E+00	3.06E-06	3.14E-06	8.13E-06	7.63E-06	9.91E+05	0.00E+00	9.57E-03	9.47E-01	9.38E-01	9.20E-01	8.20E+06	9.56E-01	8.13E+06	2.71E-02	7.53E+04	2.51E+04

	.	.	.	.	Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	BC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up-dip Brine Relative Permeability (fraction)	Up-dip Gas Relative Permeability (fraction)	Down-dip Brine Relative Permeability (fraction)	Down-dip Gas Relative Permeability (fraction)
No.	ID	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_RE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
226	Down-dip	1	2	85	5.76E-01	7.34E-03	2.60E-01	1.41E+00	1.14E+07	1.00E-01	1.14E+07	4.39E-01	6.30E-02	4.90E-16	6.74E-02	4.90E-16	7.50E+02	-1.23E+00	1.38E-13	7.08E-16	8.95E-01	1.19E+07	7.76E-15	0.00E+00	1.00E+00	5.34E-03	5.16E-01
227	Down-dip	1	2	66	5.20E-01	8.43E-02	5.49E-01	1.25E+00	7.49E+06	8.24E-03	8.13E+06	8.85E-01	7.92E-02	8.23E-16	1.06E-01	5.37E-18	7.50E+02	-1.37E+00	1.30E-13	1.66E-12	1.18E+00	1.25E+07	1.48E-14	0.00E+00	1.00E+00	3.37E-01	3.29E-04
228	Down-dip	1	2	57	4.60E-01	7.43E-02	2.79E-01	1.12E+00	3.97E+06	2.69E-01	8.14E+06	9.06E-01	5.60E-02	5.52E-18	8.89E-02	1.29E-18	7.50E+02	-1.19E+00	1.08E-13	8.13E-12	8.25E-01	1.30E+07	7.94E-14	0.00E+00	1.00E+00	5.97E-01	4.87E-05
229	Down-dip	1	2	87	5.46E-01	2.68E-02	1.60E-01	1.32E+00	9.32E+06	2.07E-02	9.12E+06	3.28E-01	1.14E-01	9.11E-20	1.27E-01	4.47E-20	7.50E+02	-9.15E-01	1.15E-13	8.91E-14	4.74E-01	1.37E+07	2.51E-12	0.00E+00	1.00E+00	2.64E-03	5.85E-01
230	Down-dip	1	2	93	5.80E-01	4.00E-02	5.11E-01	1.43E+00	1.19E+07	6.34E-02	1.19E+07	5.77E-01	8.30E-02	1.70E-14	8.84E-02	1.70E-14	7.50E+02	-9.34E-01	1.25E-13	2.95E-14	4.82E-01	1.35E+07	8.91E-13	0.00E+00	1.00E+00	6.30E-04	6.97E-01
231	Down-dip	1	2	80	4.83E-01	6.43E-02	2.68E-01	1.17E+00	5.29E+06	2.83E-02	8.04E+06	9.13E-01	3.58E-02	1.59E-18	6.23E-02	5.01E-19	7.50E+02	-8.21E-01	9.77E-14	2.09E-12	3.93E-01	1.39E+07	2.04E-13	0.00E+00	1.00E+00	6.26E-01	6.75E-05
232	Down-dip	1	2	4	5.89E-01	1.11E-01	1.90E-01	1.46E+00	1.27E+07	1.43E-06	1.28E+07	2.50E-01	8.93E-02	2.09E-19	8.79E-02	1.26E-19	7.50E+02	-9.63E-01	1.29E-13	4.17E-16	5.22E-01	1.47E+07	3.16E-14	0.00E+00	1.00E+00	6.85E-05	8.22E-01
233	Down-dip	1	2	58	5.90E-01	2.96E-02	1.14E-01	1.47E+00	1.29E+07	1.58E-01	1.28E+07	1.71E-01	1.96E-01	1.67E-16	1.97E-01	1.45E-16	7.50E+02	-1.18E+00	1.41E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	1.53E-05	8.94E-01	4.09E-05	8.62E-01
234	Down-dip	1	2	11	5.65E-01	6.24E-02	4.15E-01	1.38E+00	1.29E+07	2.66E-01	1.29E+07	8.02E-01	7.20E-02	9.54E-13	4.77E-02	1.35E-13	2.00E+03	-1.39E+00	1.44E-13	1.20E-14	1.22E+00	1.35E+07	5.37E-15	0.00E+00	1.00E+00	2.18E-01	2.67E-02
235	Down-dip	1	2	10	5.86E-01	3.17E-02	1.73E-01	1.45E+00	1.48E+07	4.19E-01	1.49E+07	7.92E-01	7.28E-02	1.12E-13	6.10E-02	3.72E-14	2.00E+03	-1.33E+00	1.48E-13	1.86E-16	1.08E+00	1.09E+07	1.35E-11	1.13E-02	4.12E-01	3.42E-01	1.71E-02
236	Down-dip	1	2	12	5.83E-01	7.08E-02	1.02E-01	1.44E+00	1.46E+07	0.00E+00	1.46E+07	8.72E-01	4.93E-02	4.07E-13	4.03E-02	1.78E-13	2.00E+03	-1.38E+00	1.50E-13	5.50E-15	1.19E+00	1.39E+07	1.88E-13	0.00E+00	1.00E+00	1.87E-01	4.50E-02
237	Down-dip	1	2	24	5.78E-01	9.01E-02	1.37E-01	1.42E+00	1.40E+07	9.08E-01	1.41E+07	9.08E-01	1.94E-01	4.31E-13	1.90E-01	2.82E-13	2.00E+03	-1.29E+00	1.42E-13	2.63E-14	9.94E-01	1.09E+07	7.41E-13	8.60E-01	1.82E-08	6.60E-01	1.81E-08
238	Down-dip	1	2	94	5.84E-01	4.58E-03	1.85E-01	1.44E+00	1.46E+07	9.95E-01	1.47E+07	9.95E-01	2.24E-01	3.88E-13	1.93E-01	6.31E-15	2.00E+03	-1.29E+00	1.44E-13	9.77E-16	9.95E-01	1.31E+07	1.78E-12	9.75E-01	2.34E-09	9.75E-01	2.24E-09
239	Down-dip	1	2	73	5.84E-01	5.81E-02	3.03E-01	1.36E+00	1.28E+07	2.57E-02	1.26E+07	8.00E-01	9.73E-02	3.72E-16	1.03E-01	3.72E-16	2.00E+03	-8.01E-01	1.15E-13	6.17E-15	3.77E-01	1.35E+07	9.77E-12	0.00E+00	1.00E+00	2.88E-01	1.75E-02
240	Down-dip	1	2	44	5.73E-01	1.12E-01	1.81E-02	1.41E+00	1.36E+07	5.27E-01	1.37E+07	8.86E-01	1.80E-01	5.30E-12	1.22E-01	1.18E-13	2.00E+03	-1.17E+00	1.34E-13	3.80E-15	7.83E-01	1.29E+07	1.12E-12	8.92E-02	1.02E-01	8.34E-01	2.17E-08
241	Down-dip	1	2	48	6.73E-01	1.02E-01	2.11E-01	1.41E+00	1.38E+07	1.74E-01	1.36E+07	8.96E-01	8.13E-02	6.76E-13	6.45E-02	7.76E-14	2.00E+03	-1.29E+00	1.41E-13	2.19E-15	1.01E+00	1.03E+07	3.80E-12	0.00E+00	1.00E+00	5.93E-01	3.83E-08
242	Down-dip	1	2	18	5.87E-01	1.06E-01	3.40E-01	1.45E+00	1.49E+07	4.17E-01	1.49E+07	8.93E-01	7.53E-02	1.16E-13	6.20E-02	3.31E-14	2.00E+03	-1.09E+00	1.34E-13	6.17E-16	6.69E-01	1.05E+07	5.25E-12	3.55E-04	7.16E-01	5.19E-01	4.54E-08
243	Down-dip	1	2	45	5.85E-01	5.05E-02	2.04E-01	1.38E+00	1.29E+07	9.49E-01	1.30E+07	9.49E-01	8.38E-02	5.57E-14	8.25E-02	5.13E-14	2.00E+03	-9.31E-01	1.20E-13	1.74E-15	4.89E-01	1.32E+07	4.57E-13	7.81E-01	3.41E-09	7.81E-01	3.38E-09
244	Down-dip	1	2	78	5.95E-01	4.93E-02	1.51E-01	1.46E+00	1.57E+07	6.49E-01	1.57E+07	8.62E-01	2.78E-01	6.27E-10	1.02E-01	2.46E-15	2.00E+03	-1.06E+00	1.36E-13	8.32E-17	6.28E-01	1.40E+07	1.07E-12	1.39E-01	7.87E-02	5.18E-01	2.25E-03
245	Down-dip	1	2	59	5.73E-01	1.07E-02	1.94E-01	1.41E+00	1.36E+07	3.90E-05	1.36E+07	6.76E-01	1.91E-01	4.49E-16	1.88E-01	1.66E-16	2.00E+03	-1.20E+00	1.36E-13	1.35E-16	8.44E-01	1.17E+07	5.89E-14	0.00E+00	1.00E+00	1.49E-01	8.92E-02
246	Down-dip	1	2	37	5.53E-01	4.07E-02	2.28E-01	1.35E+00	1.19E+07	7.75E-06	1.19E+07	6.92E-01	1.22E-01	9.92E-16	1.15E-01	3.98E-16	2.00E+03	-1.19E+00	1.29E-13	1.35E-15	8.19E-01	1.18E+07	6.17E-12	0.00E+00	1.00E+00	1.53E-01	7.17E-02
247	Down-dip	1	2	15	5.77E-01	4.22E-02	5.21E-01	1.42E+00	1.40E+07	3.66E-01	1.40E+07	9.40E-01	7.41E-02	4.59E-14	6.19E-02	1.32E-14	2.00E+03	-9.48E-01	1.25E-13	1.32E-14	5.06E-01	1.06E+07	4.47E-13	0.00E+00	1.00E+00	6.10E-01	1.14E-04
248	Down-dip	1	2	19	5.75E-01	1.42E-01	2.97E-02	1.41E+00	1.37E+07	3.21E-01	1.38E+07	8.53E-01	2.05E-01	8.99E-15	1.93E-01	1.41E-15	2.00E+03	-1.23E+00	1.38E-13	2.00E-16	8.94E-01	1.18E+07	1.45E-12	1.17E-02	3.49E-01	5.44E-01	4.12E-07
249	Down-dip	1	2	89	5.70E-01	8.88E-02	4.08E-01	1.40E+00	1.33E+07	9.09E-01	1.34E+07	9.09E-01	8.52E-02	1.65E-14	8.23E-02	1.26E-14	2.00E+03	-1.29E+00	1.40E-13	9.33E-15	9.99E-01	1.42E+07	4.07E-13	5.41E-01	1.30E-08	5.41E-01	1.29E-08
250	Down-dip	1	2	52	5.63E-01	3.88E-02	4.49E-01	1.38E+00	1.28E+07	9.60E-01	1.28E+07	9.60E-01	1.13E-01	1.70E-15	1.19E-01	1.70E-15	2.00E+03	-9.48E-01	1.21E-13	4.17E-14	5.07E-01	1.43E+07	2.63E-13	7.57E-01	3.95E-07	7.58E-01	3.73E-07
251	Down-dip	1	2	31	5.55E-01	5.28E-02	5.93E-02	1.35E+00	1.20E+07	1.99E-02	1.20E+07	7.84E-01	7.94E-02	1.88E-15	8.66E-02	1.66E-15	2.00E+03	-1.27E+00	1.34E-13	3.31E-14	9.73E-01	1.40E+07	6.31E-13	0.00E+00	1.00E+00	3.82E-01	8.85E-03
252	Down-dip	1	2	41	5.19E-01	3.40E-02	8.64E-02	1.25E+00	9.29E+06	5.12E-02	9.51E+06	6.03E-01	1.44E-01	1.70E-19	1.56E-01	1.70E-19	2.00E+03	-1.22E+00	1.22E-13	3.24E-16	8.64E-01	1.47E+07	3.47E-12	0.00E+00	1.00E+00	1.22E-01	1.01E-01
253	Down-dip	1	2	2	5.36E-01	8.22E-02	4.02E-01	1.29E+00	1.05E+07	9.16E-01	1.06E+07	9.16E-01	1.67E-01	4.47E-14	1.75E-01	4.47E-14	2.00E+03	-1.29E+00	1.30E-13	5.01E-14	9.98E-01	1.25E+07	7.24E-11	5.71E-01	1.15E-07	5.71E-01	1.00E-07
254	*Down-dip*	*1*	*2*	*39*	*5.56E-01*	*1.50E-01*	*2.98E-01*	*1.35E+00*	*1.21E+07*	*8.47E-01*	*1.22E+07*	*8.47E-01*	*2.24E-02*	*3.02E-15*	*2.83E-02*	*3.02E-15*	*2.00E+03*	*-1.23E+00*	*1.32E-13*	*2.40E-13*	*8.82E-01*	*1.35E+07*	*1.78E-13*	*4.03E-01*	*3.55E-07*	*4.04E-01*	*3.51E-07*
255	Down-dip	1	2	90	4.98E-01	1.28E-02	2.86E-01	1.20E+00	8.16E+06	8.58E-03	8.16E+06	7.10E-01	1.67E-02	1.20E-17	3.77E-02	1.20E-17	2.00E+03	-8.48E-01	1.01E-13	2.09E-14	4.15E-01	1.29E+07	3.02E-12	0.00E+00	1.00E+00	1.47E-01	8.92E-02
256	Down-dip	1	2	65	5.53E-01	1.27E-01	8.96E-02	1.34E+00	1.19E+07	0.00E+00	1.19E+07	5.37E-01	2.77E-02	8.71E-16	2.91E-02	8.71E-16	2.00E+03	-1.16E+00	1.28E-13	4.17E-15	7.73E-01	1.26E+07	3.72E-12	0.00E+00	1.00E+00	7.24E-02	1.13E-01
257	Down-dip	1	2	67	5.35E-01	1.21E-01	6.61E-02	1.29E+00	1.05E+07	8.24E-02	1.03E+07	5.36E-01	1.70E-01	3.55E-18	1.80E-01	3.55E-18	2.00E+03	-1.27E+00	1.28E-13	7.24E-15	9.65E-01	1.26E+07	1.15E-14	0.00E+00	1.00E+00	7.93E-02	1.08E-01
258	Down-dip	1	2	46	5.35E-01	2.03E-02	2.35E-01	1.29E+00	1.05E+07	9.80E-06	1.04E+07	8.85E-01	4.89E-02	1.59E-17	8.17E-02	1.59E-17	2.00E+03	-1.41E+00	1.36E-13	1.45E-14	1.26E+00	1.50E+07	1.15E-11	0.00E+00	1.00E+00	5.48E-01	3.34E-03
259	Down-dip	1	2	100	5.34E-01	1.14E-01	3.43E-01	1.29E+00	1.04E+07	8.84E-01	1.05E+07	8.84E-01	7.15E-02	9.12E-16	8.43E-02	9.12E-16	2.00E+03	-1.26E+00	1.28E-13	2.51E-14	9.43E-01	1.25E+07	1.29E-13	4.86E-01	1.30E-07	4.86E-01	1.27E-07
260	Down-dip	1	2	35	5.34E-01	9.57E-02	4.39E-01	1.29E+00	1.04E+07	9.03E-01	1.05E+07	9.03E-01	5.85E-02	7.24E-15	6.40E-02	7.24E-15	2.00E+03	-8.97E-01	1.11E-13	1.38E-13	4.57E-01	1.12E+07	3.98E-11	4.94E-01	1.08E-07	4.94E-01	1.07E-07
261	Down-dip	1	2	20	5.32E-01	1.23E-01	1.27E-01	1.28E+00	1.02E+07	5.96E-08	1.03E+07	5.47E-01	2.27E-02	1.35E-17	3.62E-02	1.35E-17	2.00E+03	-6.04E-01	1.00E-13	3.31E-15	2.65E-01	1.28E+07	1.20E-12	0.00E+00	1.00E+00	6.70E-02	1.21E-01
262	Down-dip	1	2	30	5.26E-01	1.16E-01	4.16E-02	1.27E+00	9.77E+06	8.83E-01	9.86E+06	8.83E-01	2.94E-02	2.75E-14	4.38E-02	2.75E-14	2.00E+03	-6.49E-01	1.00E-13	2.19E-13	2.79E-01	1.34E+07	1.59E-13	6.19E-01	1.55E-09	6.19E-01	1.54E-09
263	Down-dip	1	2	38	5.50E-01	3.71E-03	1.39E-01	1.33E+00	1.17E+07	1.19E-07	1.16E+07	5.44E-01	4.76E-02	6.97E-20	5.33E-02	6.61E-20	2.00E+03	-8.89E-01	1.15E-13	8.13E-15	4.50E-01	1.36E+07	1.45E-13	0.00E+00	1.00E+00	6.16E-02	2.00E-01
264	Down-dip	1	2	25	5.69E-01	8.88E-02	5.41E-01	1.39E+00	1.33E+07	8.22E-02	1.33E+07	7.47E-01	1.06E-01	1.75E-15	7.69E-02	3.39E-17	2.00E+03	-1.13E+00	1.31E-13	1.26E-16	7.23E-01	1.38E+07	3.89E-13	0.00E+00	1.00E+00	5.22E-02	1.26E-01
265	Down-dip	1	2	95	5.56E-01	1.46E-01	3.69E-01	1.35E+00	1.21E+07	9.18E-02	1.22E+07	6.38E-01	1.57E-01	6.03E-17	1.82E-01	6.03E-17	2.00E+03	-9.54E-01	1.19E-13	1.10E-16	5.13E-01	1.30E+07	1.70E-11	0.00E+00	1.00E+00	4.30E-02	1.25E-01
266	Down-dip	1	2	60	5.18E-01	6.13E-02	4.70E-02	1.25E+00	9.41E+06	1.10E-01	9.12E+06	7.87E-01	1.94E-01	6.05E-18	2.06E-01	5.75E-16	2.00E+03	-1.17E+00	1.19E-13	6.61E-13	7.91E-01	1.30E+07	2.34E-14	4.47E-05	8.53E-01	3.92E-01	7.91E-03
267	Down-dip	1	2	47	4.98E-01	8.75E-02	1.61E-01	1.20E+00	8.13E+06	1.85E-01	8.26E+06	5.57E-01	1.48E-01	6.92E-18	1.64E-01	6.92E-18	2.00E+03	-1.09E+00	1.11E-13	2.19E-16	6.75E-01	1.20E+07	1.55E-12	3.78E-09	9.89E-01	8.24E-02	1.61E-01
268	Down-dip	1	2	99	5.48E-01	1.28E-01	5.15E-01	1.33E+00	1.15E+07	1.18E-01	1.15E+07	6.26E-01	1.72E-01	5.89E-17	1.81E-01	5.89E-17	2.00E+03	-7.63E-01	1.09E-13	6.17E-17	3.50E-01	1.25E+07	2.29E-11	0.00E+00	1.00E+00	1.95E-01	3.43E-03
269	Down-dip	1	2	23	5.29E-01	7.29E-02	4.80E-01	1.27E+00	9.98E+06	8.35E-03	1.00E+07	8.83E-01	3.54E-02	1.18E-16	4.78E-02	1.18E-16	2.00E+03	-1.18E+00	1.22E-13	7.94E-17	8.09E-01	1.50E+07	6.03E-13	0.00E+00	1.00E+00	3.92E-01	1.53E-03
270	Down-dip	1	2	79	8.03E-01	1.23E-01	3.88E-01	1.51E+00	1.64E+07	3.07E-02	1.64E+07	5.43E-01	2.41E-01	8.49E-11	1.64E-01	2.57E-13	2.00E+03	-1.10E+00	1.41E-13	1.51E-16	6.89E-01	1.24E+07	4.37E-15	0.00E+00	1.00E+00	6.27E-03	4.00E-01
271	Down-dip	1	2	5	5.01E-01	1.29E-01	1.21E-01	1.20E+00	6.40E+06	4.06E-05	8.16E+06	7.37E-01	1.34E-01	1.90E-17	1.57E-01	1.82E-17	2.00E+03	-1.37E+00	1.25E-13	1.82E-12	1.17E+00	1.50E+07	3.31E-13	0.00E+00	1.00E+00	2.69E-01	9.00E-03
272	Down-dip	1	2	27	6.13E-01	1.18E-01	4.62E-01	1.23E+00	8.96E+06	1.59E-02	8.97E+06	8.10E-01	2.93E-02	1.86E-16	4.33E-02	1.66E-18	2.00E+03	-1.24E+00	1.21E-13	2.40E-15	9.09E-01	1.19E+07	1.26E-12	0.00E+00	1.00E+00	2.00E-01	8.01E-03
273	Down-dip	1	2	71	5.23E-01	1.57E-02	1.06E-01	1.26E+00	9.54E+06	1.31E-06	9.71E+06	4.75E-01	4.51E-02	2.19E-18	6.42E-02	2.19E-18	2.00E+03	-1.37E+00	1.31E-13	5.25E-17	1.18E+00	1.19E+07	6.76E-13	0.00E+00	1.00E+00	3.81E-02	2.59E-01
274	Down-dip	1	2	97	5.15E-01	8.37E-02	4.34E-01	1.24E+00	9.06E+06	9.04E-01	9.13E+06	9.12E-01	1.48E-01	5.63E-18	1.70E-01	6.62E-18	2.00E+03	-8.88E-01	1.06E-13	4.57E-13	4.49E-01	1.38E+07	3.02E-11	5.03E-01	2.77E-05	5.37E-01	9.93E-07
275	Down-dip	1	2	98	5.13E-01	3.56E-02	5.00E-02	1.23E+00	8.91E+06	6.78E-06	9.08E+06	4.21E-01	6.12E-02	4.19E-19	8.38E-02	4.17E-19	2.00E+03	-1.23E+00	1.20E-13	4.79E-15	8.82E-01	1.17E+07	3.98E-14	0.00E+00	1.00E+00	3.09E-02	2.77E-01
276	Down-dip	1	2	56	5.57E-01	4.66E-02	3.20E-01	1.36E+00	1.22E+07	1.67E-06	1.22E+07	5.57E-01	9.18E-02	1.45E-15	8.89E-02	1.05E-15	2.00E+03	-7.21E-01	1.10E-13	1.05E-14	3.22E-01	1.12E+07	2.82E-12	0.00E+00	1.00E+00	2.04E-02	3.18E-01
277	Down-dip	1	2	42	5.78E-01	1.04E-01	3.92E-01	1.42E+00	1.41E+07	3.10E-02	1.41E+07	5.58E-01	1.83E-01	3.25E-13	1.13E-01	7.76E-17	2.00E+03	-1.26E+00	1.41E-13	1.38E-15	9.46E-01	1.47E+07	3.63E-13	0.00E+00	1.00E+00	8.20E-03	3.82E-01
278	Down-dip	1	2	77	5.31E-01	1.48E-01	6.84E-02	1.28E+00	1.01E+07	1.24E-04	1.03E+07	3.88E-01	2.00E-01	8.13E-19	2.16E-01	8.13E-19	2.00E+03	-7.13E-01	1.04E-13	2.75E-16	3.17E-01	1.23E+07	1.20E-11	0.00E+00	1.00E+00	1.93E-02	2.74E-01
279	Down-dip	1	2	93	5.12E-01	4.00E-02	6.11E-01	1.23E+00	8.92E+06	4.95E-03	8.92E+06	6.38E-01	8.25E-02	1.70E-14	1.03E-01	1.70E-14	2.00E+03	-9.34E-01	1.07E-13	2.95E-14	4.92E-01	1.35E+07	8.91E-13	0.00E+00	1.00E+00	6.88E-03	4.54E-01
280	Down-dip	1	2	85	5.56E-01	7.34E-03	2.60E-01	1.35E+00	1.22E+07	9.45E-02	1.22E+07	4.46E-01	6.94E-02	4.90E-16	7.03E-02	4.90E-16	2.00E+03	-1.23E+00	1.33E-13	7.08E-16	8.95E-01	1.19E+07	7.76E-15	0.00E+00	1.00E+00	6.12E-03	5.02E-01
281	Down-dip	1	2	18	5.19E-01	5.75E-02	2.76E-01	1.25E+00	9.35E+06	2.70E-05	9.25E+06	4.76E-01	1.03E-01	2.22E-19	1.24E-01	2.14E-19	2.00E+03	-1.29E+00	1.25E-13	1.91E-14	1.01E+00	1.52E+07	1.86E-12	0.00E+00	1.00E+00	8.65E-03	4.26E-01
282	Down-dip	1	2	70	5.05E-01	4.63E-02	4.24E-01	1.21E+00	8.48E+06	1.88E-05	8.63E+06	6.69E-01	2.25E-01	8.17E-20	2.41E-01	6.17E-20	2.00E+03	-1.28E+00	1.21E-13	1.00E-16	9.91E-01	1.28E+07	5.50E-14	0.00E+00	1.00E+00	6.16E-03	4.88E-01
283	Down-dip	1	2	76	5.21E-01	1.36E-01	3.34E-01	1.25E+00	9.43E+06	4.17E-07	9.58E+06	4.80E-01	3.91E-02	3.16E-18	5.16E-02	3.18E-18	2.00E+03	-1.33E+00	1.28E-13	5.50E-16	1.09E+00	1.33E+07	2.09E-12	0.00E+00	1.00E+00	3.66E-03	4.65E-01
284	Down-dip	1	2	82	5.88E-01	1.39E-01	5.05E-01	1.39E+00	1.32E+07	2.54E-02	1.32E+07	5.95E-01	5.08E-02	1.41E-18	5.38E-02	1.41E-18	2.00E+03	-1.37E+00	1.45E-13	1.70E-15	1.19E+00	1.38E+07	1.00E-14	0.00E+00	1.00E+00	1.83E-03	5.04E-01
285	Down-dip	1	2	68	5.45E-01	6.78E-04	5.01E-01	1.32E+00	1.12E+07	0.00E+00	1.13E+07	5.27E-01	2.95E-02	9.73E-17	3.14E-02	9.12E-17	2.00E+03	-1.32E+00	1.34E-13	4.57E-16	1.06E+00	1.38E+07	3.02E-13	0.00E+00	1.00E+00	1.95E-05	8.91E-01
286	Down-dip	1	2	58	5.86E-01	2.96E-02	1.14E-01	1.45E+00	1.48E+07	8.34E-02	1.48E+07	1.27E-01	2.27E-01	2.62E-14	1.99E-01	1.45E-16	2.00E+03	-1.18E+00	1.39E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	0.00E+00	1.00E+00	1.64E-07	9.69E-01
287	Down-dip	1	2	10	8.07E-01	3.17E-02	1.73E-01	1.53E+00	1.65E+07	3.38E-02	1.65E+07	7.54E-01	1.35E-01	8.89E-12	5.80E-02	3.72E-14	4.00E+03	-1.33E+00	1.56E-13	1.86E-16	1.08E+00	1.09E+07	1.35E-11	0.00E+00	1.00E+00	2.71E-01	3.00E-02
288	Down-dip	1	2	12	5.60E-01	7.06E-02	1.02E-01	1.38E+00	1.24E+07	0.00E+00	1.25E+07	7.17E-01	3.75E-02	1.78E-13	4.26E-02	1.78E-13	4.00E+03	-1.38E+00	1.42E-13	5.50E-15	1.19E+00	1.39E+07	1.86E-13	0.00E+00	1.00E+00	2.48E-01	2.60E-02
289	Down-dip	1	2	24	5.77E-01	9.01E-02	1.37E-01	1.42E+00	1.39E+07	9.08E-01	1.40E+07	9.08E-01	1.95E-01	4.73E-13	1.90E-01	2.82E-13	4.00E+03	-1.29E+00	1.42E-13	2.63E-14	9.94E-01	1.09E+07	7.41E-13	6.60E-01	1.99E-08	6.60E-01	1.97E-08
290	Down-dip	1	2	94	6.83E-01	4.58E-03	1.85E-01	1.44E+00	1.44E+07	9.95E-01	1.45E+07	9.95E-01	2.21E-01	2.51E-13	1.93E-01	6.31E-15	4.00E+03	-1.29E+00	1.44E-13	9.77E-16	9.95E-01	1.31E+07	1.78E-12	9.75E-01	2.65E-09	9.75E-01	2.53E-09
291	Down-dip	1	2	48	5.77E-01	1.02E-01	2.11E-01	1.42E+00	1.40E+07	6.20E-02	1.40E+07	8.97E-01	9.47E-02	1.67E-12	5.40E-02	7.76E-14	4.00E+03	-1.29E+00	1.43E-13	2.19E-15	1.01E+00	1.03E+07	3.80E-12	0.00E+00	1.00E+00	5.98E-01	8.52E-11
292	Down-dip	1	2	45	5.72E-01	5.05E-02	2.04E-01	1.40E+00	1.35E+07	9.49E-01	1.36E+07	9.49E-01	8.92E-02	1.01E-13	8.11E-02	5.13E-14	4.00E+03	-9.31E-01	1.22E-13	1.74E-15	4.89E-01	1.32E+07	4.57E-13	7.82E-01	2.64E-09	7.82E-01	2.63E-09
293	Down-dip	1	2	44	5.64E-01	1.12E-01	1.81E-02	1.38E+00	1.28E+07	4.04E-01	1.28E+07	6.87E-01	1.50E-01	7.98E-13	1.25E-01	1.18E-13	4.00E+03	-1.17E+00	1.31E-13	3.80E-15	7.83E-01	1.29E+07	1.12E-12	3.23E-02	2.29E-01	6.39E-01	2.57E-10
294	Down-dip	1	2	18	6.07E-01	1.06E-01	3.40E-01	1.53E+00	1.85E+07	1.96E-01	1.65E+07	8.41E-01	1.37E-01	8.85E-12	5.90E-02	3.31E-14	4.00E+03	-1.09E+00	1.41E-13	6.17E-16	6.69E-01	1.05E+07	5.25E-12	0.00E+00	1.00E+00	3.61E-01	1.46E-03
295	Down-dip	1	2	78	6.04E-01	4.93E-02	1.51E-01	1.52E+00	1.63E+07	3.71E-01	1.64E+07	5.73E-01	2.65E-01	1.00E-09	9.92E-02	2.46E-15	4.00E+03	-1.06E+00	1.39E-13	8.32E-17	6.28E-01	1.40E+07	1.07E-12	8.78E-03	4.67E-01	7.56E-02	1.48E-01
296	Down-dip	1	2	19	5.98E-01	1.42E-01	2.97E-02	1.49E+00	1.57E+07	9.68E-02	1.57E+07	8.34E-01	2.54E-01	2.28E-11	1.83E-01	1.41E-15	4.00E+03	-1.23E+00	1.46E-13	2.00E-16	6.94E-01	1.18E+07	1.45E-12	5.19E-05	8.33E-01	4.99E-01	4.15E-05
297	Down-dip	1	2	69	5.79E-01	8.98E-02	4.08E-01	1.43E+00	1.41E+07	9.09E-01	1.42E+07	9.09E-01	9.47E-02	4.77E-14	8.07E-02	1.26E-14	4.00E+03	-1.29E+00	1.43E-13	9.33E-16	9.99E-01	1.42E+07	4.07E-13	5.41E-01	7.74E-09	5.41E-01	7.70E-09
298	Down-dip	1	2	11	5.39E-01	6.24E-02	4.15E-01	1.30E+00	1.08E+07	1.39E-01	1.08E+07	6.95E-01	4.62E-02	1.35E-13	5.05E-02	1.35E-13	4.00E+03	-1.39E+00	1.36E-13	1.20E-14	1.22E+00	1.35E+07	5.37E-15	0.00E+00	1.00E+00	6.56E-02	1.41E-01
299	Down-dip	1	2	46	5.39E-01	2.03E-02	2.35E-01	1.30E+00	1.08E+07	2.15E-06	1.07E+07	6.98E-01	4.97E-02	1.59E-17	6.12E-02	1.59E-17	4.00E+03	-1.41E+00	1.37E-13	1.45E-14	1.26E+00	1.50E+07	1.15E-11	0.00E+00	1.00E+00	1.66E-01	7.93E-02
300	Down-dip	1	2	58	5.92E-01	2.96E-02	1.14E-01	1.47E+00	1.54E+07	7.73E-05	1.54E+07	5.35E-01	2.40E-01	4.04E-13	1.96E-01	1.45E-16	4.00E+03	-1.18E+00	1.41E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	0.00E+00	1.00E+00	6.44E-02	1.80E-01

	.	.	.	.	Up-dip Flowing Bottom-hole Pressure (Pa)	Down-dip Flowing Bottom-hole Pressure (Pa)	BC well Injection Pressure (Pa)	Blowout Duration (Days)	Brine Rate (m^3/s)	Gas Rate (ref m^3/s)	Max Brine Rate (m^3/s)	Max Gas Rate (ref m^3/s)	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s)	Cum Brine from Boundary Condition Well (m^3)	Gas Rate (mscf/day)	Cum Gas Produced (ref m^3)	Cum Brine Produced (m^3)	Cum Brine Releases (m^3)	Avg Brine Pressure Panel 5 (Pa) after Blowout	Avg Brine Saturation Panel 5 (fraction) after blowout	Avg Brine Pressure Panel 0 (Pa) after blowout	Avg Brine Saturation Panel 0 (fraction) after blowout	Total Excavated Waste Pore Volume (fraction)	Total Excavated Brine Volume (m^3)
No.	ID	Replic.	Scen.	Vector	FBHP2	FBHP4	BHP_ABAN	time	BRINEFLW	GASFLW	MAX_BRN	MAX_GAS	LGR_MET	BRINE_BC	GAS_RATE	GASOUT	BRINEOUT	BRIN_REL	BRNPRESS	SATBRN5	BRNPRESD	SATBRN0	WASTE_PV	TOT_BRIN
226	Down-dip	1	2	85	0.00E+00	2.78E+05	2.78E+05	1.10E+01	4.97E-07	1.81E-01	3.91E-06	9.35E+00	1.53E+00	0.00E+00	5.52E+02	5.20E+05	7.97E-01	7.72E-01	3.35E+06	4.56E-01	1.14E+07	1.01E-01	9.10E+04	1.73E+04
227	Down-dip	1	2	66	0.00E+00	7.89E+06	7.90E+06	2.88E+00	2.33E-06	4.88E-05	4.89E-06	6.59E-05	5.01E+04	0.00E+00	1.49E-01	1.46E+01	7.32E-01	7.18E-01	8.12E+06	8.89E-01	7.49E+06	8.25E-03	7.30E+04	1.88E+04
228	Down-dip	1	2	57	0.00E+00	8.03E+06	8.09E+06	2.88E+00	1.52E-06	2.47E-06	3.54E-06	5.19E-06	6.30E+05	0.00E+00	7.53E-03	7.49E-01	4.72E-01	4.63E-01	8.14E+06	9.08E-01	3.97E+06	2.04E-01	5.77E+04	3.16E+04
229	Down-dip	1	2	87	0.00E+00	2.36E+05	2.40E+05	1.10E+01	1.68E-07	1.17E-01	1.28E-06	5.70E+00	7.83E-01	0.00E+00	3.58E+02	3.49E+05	2.73E-01	2.64E-01	2.72E+06	3.47E-01	9.31E+06	2.07E-02	8.11E+04	8.32E+03
230	Down-dip	1	2	93	0.00E+00	3.07E+05	3.08E+05	1.10E+01	1.85E-07	4.59E-01	4.37E-07	1.25E+01	2.07E-01	0.00E+00	1.40E+03	7.82E+05	1.62E-01	1.61E-01	3.90E+06	5.92E-01	1.16E+07	6.38E-02	9.33E+04	1.98E+04
231	Down-dip	1	2	80	0.00E+00	8.02E+06	8.05E+06	2.88E+00	2.87E-07	5.19E-07	5.80E-07	1.11E-06	5.17E+05	6.01E-08	1.58E-03	1.58E-01	8.14E-02	7.98E-02	8.04E+06	9.15E-01	5.29E+06	2.84E-02	6.32E+04	2.66E+04
232	Down-dip	1	2	4	0.00E+00	3.56E+05	3.56E+05	1.10E+01	4.86E-09	1.84E-01	5.24E-08	1.72E+01	1.24E-02	0.00E+00	5.62E+02	7.23E+05	8.95E-03	8.61E-03	2.75E+06	2.71E-01	1.27E+07	1.46E-06	9.67E+04	6.48E+03
233	Down-dip	1	2	58	3.79E+05	3.65E+05	3.66E+05	1.10E+01	4.68E-09	4.38E-01	3.43E-08	1.99E+01	6.34E-03	0.00E+00	1.34E+03	1.13E+06	7.15E-03	6.78E-03	4.01E+06	1.84E-01	1.28E+07	1.56E-01	9.70E+04	1.60E+04
234	Down-dip	1	2	11	0.00E+00	1.91E+06	1.91E+06	1.10E+01	1.14E-04	2.38E-01	1.85E-04	5.61E-01	6.08E+02	0.00E+00	7.28E+02	2.00E+05	1.22E+02	1.16E+02	1.13E+07	8.14E-01	1.26E+07	1.61E-01	8.75E+04	3.17E+04
235	Down-dip	1	2	10	3.56E+05	4.44E+06	4.44E+06	1.10E+01	1.06E-04	1.04E-01	2.52E-04	3.99E-01	1.16E+03	0.00E+00	3.16E+02	1.06E+05	1.22E+02	1.14E+02	1.21E+07	7.99E-01	1.48E+07	2.83E-01	9.56E+04	5.38E+04
236	Down-dip	1	2	12	0.00E+00	5.14E+05	5.14E+05	1.10E+01	1.05E-04	7.00E-01	1.89E-04	1.41E+00	1.67E+02	0.00E+00	2.14E+03	6.74E+05	1.12E+02	1.07E+02	1.15E+07	6.76E-01	1.39E+07	1.05E-07	9.44E+04	1.85E+04
237	Down-dip	1	2	24	8.00E+06	8.00E+06	8.00E+06	2.88E+00	2.15E-04	2.69E-05	2.76E-04	2.69E-05	1.12E+07	0.00E+00	8.22E-02	4.98E+00	6.55E+01	5.41E+01	1.38E+07	9.08E-01	1.40E+07	8.92E-01	9.23E+04	8.30E+04
238	Down-dip	1	2	94	7.99E+06	8.00E+06	8.00E+06	2.88E+00	1.91E-04	2.75E-07	4.49E-04	2.75E-07	8.05E+08	0.00E+00	6.40E-04	6.39E-02	5.14E+01	5.02E+01	1.38E+07	9.94E-01	1.45E+07	7.60E-01	9.45E+04	8.17E+04
239	Down-dip	1	2	73	0.00E+00	3.87E+06	3.87E+06	1.10E+01	3.66E-05	3.96E-02	1.41E-04	2.38E-01	8.36E+02	0.00E+00	1.21E+02	5.44E+04	4.55E+01	4.29E+01	9.68E+06	8.03E-01	1.28E+07	2.63E-02	8.72E+04	2.53E+04
240	Down-dip	1	2	44	4.48E+05	8.00E+06	8.00E+06	2.88E+00	1.68E-04	4.46E-05	2.32E-04	4.46E-05	4.82E+06	0.00E+00	1.36E-01	9.04E+00	4.35E+01	4.24E+01	1.35E+07	8.86E-01	1.36E+07	2.95E-01	9.05E+04	5.23E+04
241	Down-dip	1	2	48	0.00E+00	8.00E+06	8.00E+06	2.88E+00	1.50E-04	1.08E-04	2.26E-04	1.08E-04	1.84E+06	0.00E+00	3.28E-01	2.15E+01	3.95E+01	3.86E+01	1.34E+07	8.96E-01	1.36E+07	1.45E-01	9.04E+04	4.61E+04
242	Down-dip	1	2	18	3.83E+05	8.00E+06	8.00E+06	2.86E+00	1.36E-04	4.31E-04	2.32E-04	4.32E-04	4.23E+05	0.00E+00	1.32E+00	8.81E+01	3.72E+01	3.63E+01	1.47E+07	8.93E-01	1.49E+07	3.38E-01	8.58E+04	5.87E+04
243	Down-dip	1	2	45	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.37E-04	1.13E-05	2.24E-04	1.13E-05	1.83E+07	0.00E+00	3.43E-02	2.04E+00	3.71E+01	3.63E+01	1.25E+07	9.48E-01	1.29E+07	9.49E-01	8.75E+04	8.30E+04
244	Down-dip	1	2	78	3.13E+05	7.64E+06	7.64E+06	2.88E+00	1.32E-04	2.08E-02	2.71E-04	3.89E-02	6.18E+03	0.00E+00	6.34E+01	5.74E+03	3.54E+01	3.46E+01	1.55E+07	8.64E-01	1.56E+07	4.16E-01	9.91E+04	8.42E+04
245	Down-dip	1	2	59	0.00E+00	3.89E+05	3.89E+05	1.10E+01	2.44E-05	1.40E-01	1.28E-04	2.23E+00	1.40E+02	0.00E+00	4.27E+02	2.41E+05	3.38E+01	3.19E+01	6.94E+06	6.83E-01	1.36E+07	8.92E-05	9.03E+04	1.70E+04
246	Down-dip	1	2	37	0.00E+00	2.89E+05	2.89E+05	1.10E+01	2.38E-05	1.05E-01	1.10E-04	1.33E+00	1.90E+02	0.00E+00	3.20E+02	1.66E+05	3.16E+01	3.07E+01	6.77E+06	6.99E-01	1.19E+07	1.45E-05	8.35E+04	2.12E+04
247	Down-dip	1	2	15	0.00E+00	8.04E+06	8.04E+06	2.88E+00	1.13E-04	1.26E-03	2.18E-04	1.97E-03	8.02E+04	0.00E+00	3.83E+00	3.87E+02	3.10E+01	3.04E+01	1.36E+07	9.40E-01	1.40E+07	3.43E-01	9.21E+04	5.19E+04
248	Down-dip	1	2	19	3.34E+05	8.02E+06	8.02E+06	2.86E+00	8.97E-05	8.65E-04	2.07E-04	6.65E-04	2.27E+05	0.00E+00	2.03E+00	1.24E+02	2.80E+01	2.75E+01	1.36E+07	8.54E-01	1.37E+07	2.12E-01	9.11E+04	4.81E+04
249	Down-dip	1	2	69	7.99E+06	7.99E+06	7.99E+06	2.88E+00	9.71E-05	3.13E-04	1.98E-04	3.14E-04	4.39E+05	0.00E+00	9.56E-01	8.32E+01	2.77E+01	2.71E+01	1.32E+07	9.10E-01	1.33E+07	9.06E-01	8.94E+04	8.11E+04
250	Down-dip	1	2	52	8.01E+06	8.01E+06	8.01E+06	2.88E+00	6.44E-05	6.72E-05	2.11E-04	6.72E-05	1.66E+06	0.00E+00	2.05E-01	1.48E+01	2.45E+01	2.40E+01	1.24E+07	9.60E-01	1.27E+07	8.37E-01	8.70E+04	7.76E+04
251	Down-dip	1	2	31	0.00E+00	5.81E+06	5.81E+06	2.88E+00	5.74E-05	3.18E-02	1.53E-04	1.03E-01	1.72E+03	0.00E+00	9.69E+01	9.97E+03	1.71E+01	1.88E+01	1.14E+07	7.88E-01	1.20E+07	1.11E-02	8.40E+04	3.02E+04
252	Down-dip	1	2	41	0.00E+00	7.42E+05	7.42E+05	1.10E+01	1.20E-05	6.89E-02	8.19E-05	1.07E+00	1.38E+02	0.00E+00	2.10E+02	1.23E+05	1.68E+01	1.58E+01	5.12E+06	6.12E-01	9.30E+06	5.13E-02	7.29E+04	2.22E+04
253	Down-dip	1	2	2	8.00E+06	8.00E+06	8.00E+06	2.86E+00	5.83E-05	1.96E-05	9.19E-05	1.96E-05	4.15E+06	0.00E+00	5.98E-02	3.79E+00	1.57E+01	1.53E+01	1.05E+07	9.17E-01	1.05E+07	7.42E-01	7.78E+04	8.37E+04
254	Down-dip	1	2	39	8.01E+06	8.01E+08	8.01E+06	2.88E+00	5.02E-05	5.21E-04	1.06E-04	5.21E-04	1.69E+05	0.00E+00	1.59E+00	9.21E+01	1.55E+01	1.52E+01	1.21E+07	8.50E-01	1.21E+07	7.62E-01	8.43E+04	6.74E+04
255	Down-dip	1	2	90	0.00E+00	4.89E+05	4.89E+05	1.10E+01	1.11E-05	4.10E-02	5.43E-05	5.96E-01	2.10E+02	0.00E+00	1.25E+02	7.39E+04	1.55E+01	1.49E+01	4.30E+06	7.17E-01	8.16E+06	6.51E-03	6.67E+04	2.11E+04
256	Down-dip	1	2	65	0.00E+00	4.07E+05	4.07E+05	1.10E+01	1.11E-05	1.41E-01	5.08E-05	2.04E+00	8.07E+01	0.00E+00	4.30E+02	2.45E+05	1.49E+01	1.47E+01	6.40E+06	5.49E-01	1.19E+07	0.00E+00	8.34E+04	1.17E+04
257	Down-dip	1	2	67	0.00E+00	3.64E+05	3.65E+05	1.10E+01	1.04E-05	9.89E-02	4.85E-05	1.49E+00	8.17E+01	0.00E+00	3.02E+02	1.69E+05	1.38E+01	1.36E+01	5.70E+06	5.48E-01	1.05E+07	5.89E-02	7.74E+04	1.92E+04
258	Down-dip	1	2	46	0.00E+00	7.36E+06	7.36E+06	2.88E+00	3.72E-05	5.46E-03	1.09E-04	1.51E-02	6.80E+03	0.00E+00	1.67E+01	1.71E+03	1.16E+01	1.14E+01	1.01E+07	8.87E-01	1.05E+07	1.02E-05	7.75E+04	2.18E+04
259	Down-dip	1	2	100	8.00E+06	8.00E+06	8.00E+06	2.86E+00	3.25E-05	6.87E-05	7.26E-05	6.87E-05	6.36E+05	0.00E+00	2.10E-01	1.21E+01	1.01E+01	9.91E+00	1.04E+07	8.86E-01	1.04E+07	8.55E-01	7.72E+04	6.70E+04
260	Down-dip	1	2	35	8.00E+06	8.00E+06	8.00E+06	2.88E+00	3.44E-05	4.00E-05	6.44E-05	4.00E-05	1.37E+06	0.00E+00	1.22E-01	7.26E+00	9.89E+00	9.68E+00	1.04E+07	9.04E-01	1.03E+07	8.17E-01	7.72E+04	6.60E+04
261	Down-dip	1	2	20	0.00E+00	3.54E+05	3.54E+05	1.10E+01	7.53E-06	9.70E-02	3.17E-05	1.26E+00	5.90E+01	0.00E+00	2.98E+02	1.70E+05	1.00E+01	9.61E+00	5.52E+06	5.59E-01	1.02E+07	5.96E-08	7.66E+04	1.23E+04
262	Down-dip	1	2	30	7.99E+06	7.99E+06	7.99E+06	2.88E+00	3.50E-05	2.08E-06	5.55E-05	2.08E-06	2.67E+07	0.00E+00	6.38E-03	3.60E-01	9.59E+00	9.37E+00	9.79E+06	8.86E-01	9.75E+06	6.76E-01	7.48E+04	5.74E+04
263	Down-dip	1	2	36	0.00E+00	3.57E+05	3.57E+05	1.10E+01	6.09E-06	1.09E-01	3.79E-05	3.09E+00	3.59E+01	0.00E+00	3.32E+02	2.59E+05	9.29E+00	9.18E+00	4.46E+06	5.56E-01	1.17E+07	1.19E-07	8.24E+04	1.17E+04
264	Down-dip	1	2	25	0.00E+00	4.22E+05	4.22E+05	1.10E+01	6.19E-06	8.98E-02	4.20E-05	2.86E+00	4.51E+01	0.00E+00	2.74E+02	2.12E+05	9.55E+00	9.14E+00	4.86E+06	7.56E-01	1.33E+07	8.25E-02	8.91E+04	2.49E+04
265	Down-dip	1	2	95	0.00E+00	3.79E+05	3.79E+05	1.10E+01	5.79E-06	1.19E-01	2.88E-05	2.19E+00	3.57E+01	0.00E+00	3.62E+02	2.23E+05	7.95E+00	7.88E+00	5.78E+06	6.49E-01	1.21E+07	9.24E-02	8.44E+04	2.34E+04
266	Down-dip	1	2	60	2.83E+05	6.13E+06	6.13E+06	2.88E+00	2.59E-05	9.98E-03	6.68E-05	2.70E-02	2.57E+03	0.00E+00	3.04E+01	3.11E+03	7.98E+00	7.83E+00	8.88E+06	7.91E-01	9.41E+06	1.00E-01	7.28E+04	2.83E+04
267	Down-dip	1	2	47	3.08E+05	2.86E+05	2.66E+05	1.10E+01	5.40E-06	6.97E-02	2.63E-05	1.24E+00	5.69E+01	0.00E+00	2.13E+02	1.29E+05	7.32E+00	7.03E+00	4.14E+06	5.68E-01	8.13E+06	1.50E-01	6.68E+04	2.48E+04
268	Down-dip	1	2	99	0.00E+00	6.40E+06	6.40E+06	2.88E+00	2.26E-05	1.11E-02	5.20E-05	2.28E-02	2.03E+03	0.00E+00	3.38E+01	3.40E+03	6.90E+00	6.76E+00	1.12E+07	8.30E-01	1.15E+07	1.18E-01	8.17E+04	2.57E+04
269	Down-dip	1	2	23	0.00E+00	7.57E+06	7.57E+06	2.88E+00	2.19E-05	2.46E-03	5.56E-05	4.76E-03	9.12E+03	0.00E+00	7.50E+00	7.53E+02	6.67E+00	6.73E+00	9.85E+06	8.86E-01	9.98E+06	8.40E-03	7.56E+04	2.78E+04
270	Down-dip	1	2	79	0.00E+00	3.89E+05	3.90E+05	1.10E+01	8.56E-06	4.18E+00	8.56E-06	1.49E+01	1.25E+00	0.00E+00	1.27E+04	5.75E+06	7.20E+00	6.70E+00	1.16E+07	5.59E-01	1.20E+07	1.73E-02	1.02E+05	2.71E+04
271	Down-dip	1	2	5	0.00E+00	5.21E+06	5.21E+06	2.88E+00	1.84E-05	1.03E-02	4.74E-05	2.86E-02	1.75E+03	0.00E+00	3.15E+01	3.28E+03	5.72E+00	5.61E+00	7.96E+06	7.43E-01	8.40E+06	9.05E-05	6.77E+04	1.69E+04
272	Down-dip	1	2	27	0.00E+00	4.83E+06	4.83E+06	2.88E+00	1.84E-05	1.32E-02	4.77E-05	3.78E-02	1.36E+03	0.00E+00	4.01E+01	4.14E+03	5.61E+00	5.50E+00	8.84E+06	8.14E-01	8.96E+06	1.61E-02	7.10E+04	2.12E+04
273	Down-dip	1	2	71	0.00E+00	2.78E+05	2.78E+05	1.10E+01	3.46E-06	1.01E-01	2.24E-05	3.23E+00	2.21E+01	0.00E+00	3.08E+02	2.33E+05	5.14E+00	5.10E+00	3.81E+06	4.90E-01	9.54E+06	1.31E-06	7.39E+04	9.21E+03
274	Down-dip	1	2	97	8.04E+06	8.01E+06	8.01E+00	2.88E+00	1.43E-05	6.89E-06	3.04E-05	6.69E-06	3.13E+06	0.00E+00	2.04E-02	1.39E+00	4.33E+00	4.24E+00	9.07E+06	9.14E-01	9.05E+06	7.04E-01	7.16E+04	5.71E+04
275	Down-dip	1	2	98	0.00E+00	2.57E+05	2.57E+05	1.10E+01	2.61E-08	9.81E-02	1.57E-05	2.80E+00	1.73E+01	0.00E+00	2.99E+02	2.21E+05	3.82E+00	3.71E+00	3.69E+06	4.36E-01	8.91E+06	5.81E-06	7.09E+04	7.84E+03
276	Down-dip	1	2	56	0.00E+00	3.11E+05	3.11E+05	1.10E+01	2.17E-06	1.80E-01	1.26E-05	5.25E+00	7.60E+00	0.00E+00	5.48E+02	4.18E+05	3.18E+00	3.17E+00	4.38E+06	5.70E-01	1.22E+07	5.83E-06	8.48E+04	1.60E+04
277	Down-dip	1	2	42	0.00E+00	3.36E+05	3.38E+05	1.10E+01	2.66E-06	1.45E+00	7.61E-06	1.07E+01	1.74E+00	0.00E+00	4.42E+03	1.59E+00	2.77E+00	2.76E+00	9.47E+06	5.72E-01	1.29E+07	3.14E-02	9.24E+04	1.60E+04
278	Down-dip	1	2	77	0.00E+00	2.71E+05	2.71E+05	1.10E+01	1.79E-08	1.29E-01	9.53E-06	3.04E+00	9.06E+00	0.00E+00	3.93E+02	2.83E+05	2.56E+00	2.51E+00	4.26E+06	4.05E-01	1.01E+07	1.24E-04	7.63E+04	8.68E+03
279	Down-dip	1	2	93	0.00E+00	2.30E+05	2.30E+05	1.10E+01	1.32E-06	1.83E-01	3.06E-05	3.97E+00	3.87E+00	0.00E+00	5.57E+02	3.15E+05	1.22E+00	1.11E+00	3.50E+06	6.52E-01	8.80E+06	5.40E-03	7.07E+04	1.29E+04
280	Down-dip	1	2	85	0.00E+00	2.95E+05	2.95E+05	1.10E+01	5.61E-07	1.79E-01	4.81E-06	9.94E+00	1.73E+00	0.00E+00	5.45E+02	5.28E+05	9.11E-01	8.89E-01	3.45E+06	4.62E-01	1.22E+07	9.50E-02	8.46E+04	1.59E+04
281	Down-dip	1	2	16	0.00E+00	2.37E+05	2.37E+05	1.10E+01	5.58E-07	8.22E-02	4.66E-06	4.66E+00	3.70E+00	0.00E+00	2.51E+02	2.49E+05	9.20E-01	8.77E-01	2.71E+06	4.91E-01	9.34E+06	2.70E-05	7.27E+04	1.24E+04
282	Down-dip	1	2	70	0.00E+00	2.25E+05	2.25E+05	1.10E+01	2.98E-07	5.32E-02	2.99E-06	4.33E+00	2.78E+00	0.00E+00	1.62E+02	1.91E+05	5.30E-01	5.11E-01	2.13E+06	5.82E-01	8.48E+06	1.88E-05	6.86E+04	1.27E+04
283	Down-dip	1	2	76	0.00E+00	2.43E+05	2.43E+05	1.10E+01	2.39E-07	6.81E-02	2.09E-06	5.56E+00	1.46E+00	0.00E+00	2.69E+02	2.72E+05	3.96E-01	3.87E-01	2.68E+06	4.95E-01	9.44E+06	4.17E-07	7.33E+04	9.78E+03
284	Down-dip	1	2	62	0.00E+00	3.21E+05	3.21E+05	1.10E+01	1.20E-07	8.24E-02	1.63E-06	1.26E+01	6.20E-01	0.00E+00	2.51E+02	3.82E+05	2.37E-01	2.37E-01	2.40E+06	6.08E-01	1.32E+07	2.55E-02	8.88E+04	1.56E+04
285	Down-dip	1	2	68	0.00E+00	3.36E+05	3.36E+05	1.10E+01	9.94E-10	7.77E-02	1.36E-08	1.52E+01	5.08E-03	0.00E+00	2.37E+02	3.97E+05	2.02E-03	1.99E-03	1.80E+06	5.42E-01	1.12E+07	0.00E+00	8.07E+04	1.27E+04
286	Down-dip	1	2	58	0.00E+00	4.83E+05	4.83E+05	1.10E+01	4.19E-11	1.94E+00	1.56E-10	2.90E+01	1.78E-05	0.00E+00	5.91E+03	2.66E+06	4.74E-05	4.66E-05	7.00E+06	1.50E-01	1.40E+07	6.40E-02	9.53E+04	9.56E+03
287	Down-dip	1	2	10	0.00E+00	2.20E+06	2.20E+06	1.10E+01	1.48E-04	5.10E-01	2.89E-04	1.11E+00	3.60E+02	0.00E+00	1.56E+03	4.38E+05	1.58E+02	1.50E+02	1.51E+07	7.58E-01	1.60E+07	1.89E-02	1.04E+05	3.98E+04
288	Down-dip	1	2	12	0.00E+00	2.34E+06	2.34E+06	1.10E+01	9.36E-05	2.26E-01	1.70E-04	4.77E-01	4.64E+02	0.00E+00	6.89E+02	2.18E+05	1.01E+02	9.60E+01	9.98E+06	7.21E-01	1.23E+07	2.10E-07	8.56E+04	1.59E+04
289	Down-dip	1	2	24	8.00E+06	8.00E+06	8.00E+06	2.88E+00	2.12E-04	2.59E-05	2.71E-04	2.59E-05	1.14E+07	0.00E+00	7.91E-02	4.82E+00	5.48E+01	5.33E+01	1.37E+07	9.08E-01	1.39E+07	6.84E-01	9.20E+04	7.21E+04
290	Down-dip	1	2	94	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.82E-04	2.80E-07	4.39E-04	2.80E-07	7.64E+08	0.00E+00	8.53E-04	6.48E-02	4.95E+01	4.84E+01	1.36E+07	9.94E-01	1.44E+07	7.58E-01	9.41E+04	8.12E+04
291	Down-dip	1	2	48	0.00E+00	8.01E+06	8.01E+06	2.88E+00	1.64E-04	6.38E-05	2.45E-04	6.38E-05	2.56E+06	0.00E+00	2.56E-01	1.87E+01	4.29E+01	4.19E+01	1.38E+07	8.97E-01	1.40E+07	4.31E-02	9.20E+04	3.35E+04
292	Down-dip	1	2	45	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.59E-04	1.55E-05	2.57E-04	1.55E-05	1.52E+07	0.00E+00	4.72E-02	2.83E+00	4.27E+01	4.18E+01	1.32E+07	9.48E-01	1.35E+07	9.49E-01	9.02E+04	8.56E+04
293	Down-dip	1	2	44	3.47E+05	8.00E+06	8.00E+06	2.88E+00	1.40E-04	1.97E-05	1.94E-04	1.97E-05	9.90E+06	0.00E+00	6.02E-02	3.68E+00	3.84E+01	3.55E+01	1.27E+07	8.88E-01	1.28E+07	2.26E-01	8.70E+04	4.77E+04
294	Down-dip	1	2	18	0.00E+00	7.69E+06	7.69E+00	2.86E+00	1.45E-04	1.23E-02	2.15E-04	3.12E-02	8.60E+03	0.00E+00	3.75E+01	4.20E+03	3.61E+01	3.52E+01	1.63E+07	8.44E-01	1.65E+07	1.67E-01	1.04E+05	4.51E+04
295	Down-dip	1	2	78	3.87E+05	5.32E+05	5.32E+05	1.10E+01	4.31E-05	6.63E-01	7.94E-05	5.34E+00	3.13E+01	0.00E+00	2.02E+03	1.16E+06	3.64E+01	3.51E+01	1.44E+07	6.20E-01	1.51E+07	2.25E-01	1.03E+05	5.05E+04
296	Down-dip	1	2	19	4.38E+05	8.04E+06	8.04E+06	2.88E+00	1.18E-04	3.13E-03	2.67E-04	3.83E-03	4.41E+04	0.00E+00	9.54E+00	8.11E+02	3.58E+01	3.50E+01	1.55E+07	8.35E-01	1.57E+07	6.60E-02	9.94E+04	4.53E+04
297	Down-dip	1	2	69	7.99E+08	7.99E+06	7.99E+06	2.88E+00	1.12E-04	4.30E-04	2.28E-04	4.37E-04	3.57E+05	0.00E+00	1.31E+00	6.97E+01	3.19E+01	3.12E+01	1.39E+07	9.10E-01	1.41E+07	8.28E-01	9.26E+04	8.00E+04
298	Down-dip	1	2	11	0.00E+00	3.59E+05	3.59E+05	1.10E+01	3.20E-05	4.01E-01	4.43E-05	2.23E+00	7.70E+01	0.00E+00	1.22E+03	4.33E+05	3.34E+01	3.09E+01	6.80E+06	7.11E-01	1.03E+07	7.81E-02	7.87E+04	2.05E+04
299	Down-dip	1	2	46	0.00E+00	3.42E+05	3.42E+05	1.10E+01	1.84E-05	6.81E-02	1.06E-04	1.26E+00	2.11E+02	0.00E+00	2.08E+02	1.26E+05	2.66E+01	2.63E+01	5.36E+06	7.04E-01	1.08E+07	2.15E-06	7.87E+04	1.52E+04
300	Down-dip	1	2	58	0.00E+00	4.71E+05	4.71E+05	1.10E+01	2.43E-05	1.22E+00	6.48E-05	5.89E+00	2.07E+01	0.00E+00	3.72E+03	1.24E+06	2.56E+01	2.53E+01	1.20E+07	5.46E-01	1.46E+07	7.36E-05	9.78E+04	1.45E+04

					Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	SC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up-dip Brine Relative Permeability (fraction)	Up dip Gas Relative Permeability (fraction)	Down dip Brine Relative Permeability (fraction)	Down-dip Gas Relative Permeability (fraction)
No.	ID	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_RE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
301	Down-dip	1	2	15	5.46E-01	4.22E-02	5.21E-01	1.32E+00	1.13E+07	1.97E-01	1.13E+07	9.57E-01	5.90E-02	1.32E-14	6.66E-02	1.32E-14	4.00E+03	-9.48E-01	1.16E-13	1.32E-14	5.06E-01	1.06E+07	4.47E-13	0.00E+00	1.00E+00	7.09E-01	1.34E-09
302	Down-dip	1	2	23	5.46E-01	7.29E-02	4.80E-01	1.32E+00	1.13E+07	2.98E-07	1.14E+07	7.61E-01	3.95E-02	1.18E-16	4.60E-02	1.18E-16	4.00E+03	-1.18E+00	1.27E-13	7.94E-17	8.09E-01	1.50E+07	6.03E-13	0.00E+00	1.00E+00	8.99E-02	8.69E-02
303	Down-dip	1	2	59	5.81E-01	1.07E-02	1.94E-01	1.43E+00	1.43E+07	3.63E-05	1.43E+07	5.59E-01	2.00E-01	3.58E-15	1.82E-01	1.66E-16	4.00E+03	-1.20E+00	1.39E-13	1.35E-16	8.44E-01	1.17E+07	5.89E-14	0.00E+00	1.00E+00	5.34E-02	2.15E-01
304	Down-dip	1	2	100	5.36E-01	1.14E-01	3.43E-01	1.30E+00	1.07E+07	8.83E-01	1.08E+07	8.84E-01	7.21E-02	9.12E-16	8.35E-02	9.12E-16	4.00E+03	-1.26E+00	1.29E-13	2.51E-14	9.43E-01	1.25E+07	1.29E-13	4.86E-01	1.39E-07	4.86E-01	1.36E-07
305	Down-dip	1	2	52	5.30E-01	3.68E-02	4.49E-01	1.28E+00	1.01E+07	9.58E-01	1.02E+07	9.60E-01	1.10E-01	1.70E-15	1.28E-01	1.70E-15	4.00E+03	-9.48E-01	1.12E-13	4.17E-14	5.07E-01	1.43E+07	2.63E-13	7.43E-01	2.31E-06	7.56E-01	4.65E-07
306	Down-dip	1	2	30	5.19E-01	1.16E-01	4.16E-02	1.25E+00	9.27E+06	8.83E-01	9.37E+06	8.83E-01	2.81E-02	2.75E-14	4.45E-02	2.75E-14	4.00E+03	-8.49E-01	9.87E-14	2.19E-13	2.79E-01	1.34E+07	1.59E-13	8.19E-01	1.39E-09	8.19E-01	1.33E-09
307	Down-dip	1	2	39	5.25E-01	1.50E-01	2.98E-01	1.27E+00	9.73E+06	8.48E-01	9.82E+06	8.48E-01	1.60E-02	3.02E-15	3.02E-02	3.02E-15	4.00E+03	-1.23E+00	1.24E-13	2.40E-13	8.82E-01	1.35E+07	1.78E-13	4.05E-01	2.05E-07	4.05E-01	2.02E-07
308	Down-dip	1	2	1	5.20E-01	9.61E-02	2.56E-01	1.25E+00	9.36E+06	6.99E-01	9.44E+06	8.99E-01	6.96E-02	7.24E-16	6.79E-02	7.24E-16	4.00E+03	-1.28E+00	1.25E-13	1.88E-14	9.73E-01	1.25E+07	7.08E-14	5.84E-01	1.29E-07	5.84E-01	1.26E-07
309	Down-dip	1	2	31	5.09E-01	5.26E-02	5.93E-02	1.22E+00	6.88E+06	8.52E-06	9.01E+06	9.46E-01	7.44E-02	1.66E-15	9.54E-02	1.66E-16	4.00E+03	-1.27E+00	1.22E-13	3.31E-14	9.73E-01	1.40E+07	6.31E-13	0.00E+00	1.00E+00	8.04E-01	5.37E-09
310	Down-dip	1	2	53	4.97E-01	4.46E-02	2.52E-01	1.19E+00	8.49E+06	2.63E-01	8.18E+06	8.36E-01	1.57E-01	9.13E-18	1.85E-01	8.51E-18	4.00E+03	-1.23E+00	1.17E-13	1.38E-12	8.92E-01	1.33E+07	4.57E-12	1.38E-11	9.98E-01	4.00E-01	7.88E-03
311	Down-dip	1	2	65	5.48E-01	1.27E-01	8.96E-02	1.33E+00	1.15E+07	0.00E+00	1.15E+07	4.33E-01	2.60E-02	8.71E-16	2.95E-02	8.71E-16	4.00E+03	-1.16E+00	1.26E-13	4.17E-15	7.73E-01	1.26E+07	3.72E-12	0.00E+00	1.00E+00	2.72E-02	2.38E-01
312	Down-dip	1	2	27	5.28E-01	1.16E-01	4.62E-01	1.27E+00	9.96E+06	3.57E-05	9.97E+06	6.76E-01	3.22E-02	1.86E-16	4.19E-02	1.86E-16	4.00E+03	-1.24E+00	1.25E-13	2.40E-15	9.09E-01	1.19E+07	1.26E-12	0.00E+00	1.00E+00	3.32E-02	1.04E-01
313	*Down-dip*	*1*	*2*	*37*	*5.62E-01*	*4.07E-02*	*2.28E-01*	*1.37E+00*	*1.27E+07*	*9.00E-08*	*1.27E+07*	*4.97E-01*	*1.34E-01*	*4.86E-15*	*1.13E-01*	*3.98E-16*	*4.00E+03*	*-1.19E+00*	*1.32E-13*	*1.35E-15*	*8.19E-01*	*1.18E+07*	*6.17E-12*	*0.00E+00*	*1.00E+00*	*2.04E-02*	*9.26E-01*
314	Down-dip	1	2	56	5.38E-01	4.66E-02	3.20E-01	1.30E+00	1.07E+07	1.79E-05	1.07E+07	5.77E-01	8.71E-02	1.05E-15	9.28E-02	1.05E-15	4.00E+03	-7.21E-01	1.05E-13	1.05E-14	3.22E-01	1.12E+07	2.82E-12	0.00E+00	1.00E+00	2.77E-02	2.76E-01
315	Down-dip	1	2	79	6.07E-01	1.23E-01	3.88E-01	1.53E+00	1.65E+07	4.35E-06	1.65E+07	5.20E-01	2.44E-01	1.06E-10	1.62E-01	2.57E-13	4.00E+03	-1.10E+00	1.42E-13	1.51E-16	6.89E-01	1.24E+07	4.37E-15	0.00E+00	1.00E+00	3.51E-03	4.74E-01
316	Down-dip	1	2	35	5.05E-01	9.57E-02	4.39E-01	1.21E+00	8.72E+06	9.02E-01	8.61E+06	9.02E-01	5.26E-02	7.24E-15	6.80E-02	7.24E-16	4.00E+03	-8.97E-01	1.05E-13	1.38E-13	4.57E-01	1.12E+07	3.98E-11	4.94E-01	1.28E-07	4.94E-01	1.27E-07
317	Down-dip	1	2	67	5.50E-01	1.21E-01	6.61E-02	1.33E+00	1.17E+07	9.53E-03	1.16E+07	3.63E-01	1.70E-01	3.55E-18	1.74E-01	3.55E-18	4.00E+03	-1.27E+00	1.33E-13	7.24E-15	9.65E-01	1.26E+07	1.15E-14	0.00E+00	1.00E+00	1.46E-02	3.30E-01
318	Down-dip	1	2	41	6.45E-01	3.40E-02	8.64E-02	1.32E+00	1.12E+07	2.36E-02	1.13E+07	3.79E-01	1.46E-01	1.70E-19	1.48E-01	1.70E-19	4.00E+03	-1.22E+00	1.28E-13	3.24E-16	8.64E-01	1.47E+07	3.47E-12	0.00E+00	1.00E+00	1.49E-02	3.77E-01
319	Down-dip	1	2	90	5.21E-01	1.28E-02	2.66E-01	1.25E+00	9.48E+06	1.31E-06	9.41E+06	5.19E-01	1.92E-02	1.20E-17	3.60E-02	1.20E-17	4.00E+03	-8.48E-01	1.06E-13	2.09E-14	4.15E-01	1.29E+07	3.02E-12	0.00E+00	1.00E+00	1.61E-02	3.76E-01
320	Down-dip	1	2	6	5.01E-01	6.58E-02	1.45E-01	1.20E+00	6.49E+06	1.09E-01	6.62E+06	4.18E-01	6.63E-02	5.76E-19	8.36E-02	5.75E-19	4.00E+03	-1.18E+00	1.15E-13	8.46E-17	8.02E-01	1.38E+07	3.09E-12	0.00E+00	1.00E+00	1.47E-02	3.58E-01
321	Down-dip	1	2	71	5.29E-01	1.57E-02	1.06E-01	1.27E+00	1.00E+07	1.01E-06	1.00E+07	3.73E-01	4.63E-02	2.19E-18	6.34E-02	2.19E-18	4.00E+03	-1.37E+00	1.32E-13	5.25E-17	1.18E+00	1.19E+07	8.76E-13	0.00E+00	1.00E+00	1.15E-02	4.20E-01
322	Down-dip	1	2	86	4.95E-01	6.86E-02	3.61E-02	1.19E+00	8.29E+06	1.80E-01	8.26E+06	9.18E-01	1.56E-01	3.04E-17	1.79E-01	3.02E-17	4.00E+03	-1.26E+00	1.18E-13	4.07E-13	9.43E-01	1.16E+07	2.04E-11	9.02E-04	6.72E-01	7.21E-01	5.50E-06
323	Down-dip	1	2	96	5.12E-01	3.56E-02	5.00E-02	1.23E+00	9.00E+06	4.71E-08	8.94E+06	3.25E-01	6.17E-02	4.19E-19	8.40E-02	4.17E-19	4.00E+03	-1.23E+00	1.20E-13	4.79E-15	8.82E-01	1.17E+07	3.98E-14	0.00E+00	1.00E+00	1.03E-02	4.25E-01
324	Down-dip	1	2	73	5.76E-01	5.61E-02	3.03E-01	1.42E+00	1.39E+07	5.42E-06	1.39E+07	4.64E-01	9.93E-02	3.75E-16	9.98E-02	3.72E-16	4.00E+03	-8.01E-01	1.18E-13	6.17E-15	3.77E-01	1.35E+07	9.77E-12	0.00E+00	1.00E+00	6.92E-03	4.54E-01
325	Down-dip	1	2	36	5.20E-01	3.71E-03	1.39E-01	1.25E+00	9.42E+06	2.98E-07	9.34E+06	3.87E-01	4.14E-02	6.97E-20	5.69E-02	6.61E-20	4.00E+03	-8.89E-01	1.07E-13	8.13E-15	4.50E-01	1.36E+07	1.45E-13	0.00E+00	1.00E+00	1.01E-02	4.43E-01
326	Down-dip	1	2	84	5.10E-01	1.44E-01	6.88E-03	1.22E+00	8.89E+06	5.96E-08	9.00E+06	2.66E-01	2.26E-02	4.91E-20	3.61E-02	4.90E-20	4.00E+03	-1.40E+00	1.29E-13	2.95E-16	1.25E+00	1.28E+07	3.55E-11	0.00E+00	1.00E+00	7.05E-03	4.18E-01
327	Down-dip	1	2	20	5.37E-01	1.23E-01	1.27E-01	1.30E+00	1.06E+07	5.96E-08	1.06E+07	3.50E-01	2.38E-02	1.35E-17	3.58E-02	1.35E-17	4.00E+03	-6.04E-01	1.01E-13	3.31E-15	2.55E-01	1.28E+07	1.20E-12	0.00E+00	1.00E+00	6.44E-03	4.31E-01
328	*Down-dip*	*1*	*2*	*85*	*5.60E-01*	*7.34E-03*	*2.60E-01*	*1.36E+00*	*1.24E+07*	*7.31E-02*	*1.24E+07*	*4.08E-01*	*7.02E-02*	*5.06E-16*	*6.98E-02*	*4.90E-16*	*4.00E+03*	*-1.23E+00*	*1.34E-13*	*7.08E-16*	*8.95E-01*	*1.19E+07*	*7.76E-15*	*0.00E+00*	*1.00E+00*	*2.60E-03*	*5.95E-01*
329	Down-dip	1	2	47	5.38E-01	6.75E-02	1.61E-01	1.30E+00	1.07E+07	9.04E-02	1.07E+07	3.26E-01	1.48E-01	6.92E-18	1.51E-01	6.92E-18	4.00E+03	-1.09E+00	1.20E-13	2.19E-16	6.75E-01	1.20E+07	1.55E-12	0.00E+00	1.00E+00	2.50E-03	5.71E-01
330	Down-dip	1	2	77	5.47E-01	1.48E-01	6.84E-02	1.33E+00	1.14E+07	5.94E-05	1.14E+07	2.29E-01	1.99E-01	8.13E-19	2.09E-01	8.13E-19	4.00E+03	-7.13E-01	1.07E-13	2.75E-16	3.17E-01	1.23E+07	1.20E-11	0.00E+00	1.00E+00	1.52E-03	5.89E-01
331	Down-dip	1	2	16	4.94E-01	5.75E-02	2.76E-01	1.19E+00	8.28E+06	3.52E-05	8.19E+06	3.86E-01	1.04E-01	2.22E-19	1.31E-01	2.14E-19	4.00E+03	-1.29E+00	1.19E-13	1.91E-14	1.01E+00	1.52E+07	1.86E-12	0.00E+00	1.00E+00	9.51E-04	6.64E-01
332	Down-dip	1	2	14	5.26E-01	1.07E-01	3.28E-01	1.27E+00	9.80E+06	1.28E-01	9.91E+06	3.94E-01	1.31E-01	6.31E-19	1.42E-01	6.31E-19	4.00E+03	-7.31E-01	1.03E-13	8.32E-16	3.28E-01	1.47E+07	2.63E-14	0.00E+00	1.00E+00	1.92E-04	7.59E-01
333	Down-dip	1	2	42	5.79E-01	1.04E-01	3.92E-01	1.43E+00	1.41E+07	1.23E-05	1.41E+07	4.15E-01	1.84E-01	2.97E-13	1.13E-01	7.76E-17	4.00E+03	-1.26E+00	1.41E-13	1.38E-15	9.46E-01	1.47E+07	3.63E-13	0.00E+00	1.00E+00	5.64E-06	9.06E-01
334	Down-dip	1	2	99	5.76E-01	1.26E-01	5.15E-01	1.42E+00	1.39E+07	4.00E-02	1.39E+07	5.21E-01	1.75E-01	1.74E-16	1.70E-01	5.89E-17	4.00E+03	-7.63E-01	1.16E-13	6.17E-17	3.50E-01	1.25E+07	2.29E-11	0.00E+00	1.00E+00	1.02E-07	9.65E-01
335	Down-dip	1	2	10	6.19E-01	3.17E-02	1.73E-01	1.58E+00	1.64E+07	1.37E-06	1.84E+07	8.34E-01	1.22E-01	5.48E-12	5.62E-02	3.72E-14	1.00E+04	-1.33E+00	1.60E-13	1.86E-16	1.08E+00	1.09E+07	1.35E-11	0.00E+00	1.00E+00	4.37E-01	7.69E-03
336	Down-dip	1	2	18	6.27E-01	1.08E-01	3.40E-01	1.61E+00	1.66E+07	1.66E-02	1.66E+07	6.07E-01	1.36E-01	1.18E-11	5.59E-02	3.31E-14	1.00E+04	-1.09E+00	1.49E-13	6.17E-16	6.69E-01	1.05E+07	5.25E-12	0.00E+00	1.00E+00	2.78E-01	6.30E-03
337	Down-dip	1	2	58	5.77E-01	2.96E-02	1.14E-01	1.42E+06	1.39E+07	1.79E-07	1.39E+07	7.76E-01	2.13E-01	1.07E-15	2.03E-01	1.45E-16	1.00E+04	-1.18E+00	1.36E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	0.00E+00	1.00E+00	3.41E-01	1.82E-02
338	Down-dip	1	2	45	5.65E-01	5.05E-02	2.04E-01	1.45E+00	1.45E+07	9.49E-01	1.46E+07	9.49E-01	1.11E-01	6.10E-13	7.87E-02	5.13E-14	1.00E+04	-9.31E-01	1.26E-13	1.74E-16	4.89E-01	1.32E+07	4.57E-13	7.82E-01	1.60E-09	7.82E-01	1.59E-09
339	Down-dip	1	2	94	5.80E-01	4.56E-03	1.65E-01	1.43E+00	1.41E+07	9.94E-01	1.42E+07	9.94E-01	2.15E-01	9.08E-14	1.95E-01	6.31E-15	1.00E+04	-1.29E+00	1.43E-13	9.77E-16	9.95E-01	1.31E+07	1.78E-12	9.75E-01	3.88E-09	9.75E-01	3.63E-09
340	Down-dip	1	2	19	6.02E-01	1.42E-01	2.97E-02	1.51E+00	1.57E+07	7.96E-03	1.58E+07	8.60E-01	2.52E-01	2.42E-11	1.80E-01	1.41E-15	1.00E+04	-1.23E+00	1.48E-13	2.00E-16	8.94E-01	1.18E+07	1.45E-12	0.00E+00	1.00E+00	5.62E-01	0.00E+00
341	Down-dip	1	2	73	5.53E-01	5.81E-02	3.03E-01	1.34E+00	1.18E+07	4.83E-06	1.19E+07	8.03E-01	9.53E-02	3.72E-16	1.05E-01	3.72E-16	1.00E+04	-8.01E-01	1.12E-13	6.17E-15	3.77E-01	1.35E+07	9.77E-12	0.00E+00	1.00E+00	2.93E-01	1.66E-02
342	Down-dip	1	2	59	5.83E-01	1.07E-02	1.94E-01	1.44E+00	1.44E+07	5.42E-06	1.44E+07	6.61E-01	2.00E-01	3.79E-15	1.61E-01	1.66E-16	1.00E+04	-1.20E+00	1.39E-13	1.35E-16	8.44E-01	1.17E+07	5.89E-14	0.00E+00	1.00E+00	1.33E-01	1.01E-01
343	*Down-dip*	*1*	*2*	*78*	*6.00E-01*	*4.93E-02*	*1.51E-01*	*1.60E+00*	*1.56E+07*	*3.47E-01*	*1.57E+07*	*5.59E-01*	*2.73E-01*	*5.83E-10*	*1.00E-01*	*2.46E-15*	*1.00E+04*	*-1.06E+00*	*1.37E-13*	*6.32E-17*	*6.28E-01*	*1.40E+07*	*1.07E-12*	*4.42E-03*	*5.18E-01*	*6.68E-02*	*1.63E-01*
344	Down-dip	1	2	46	5.55E-01	1.02E-01	2.11E-01	1.35E+00	1.20E+07	2.62E-06	1.20E+07	8.97E-01	5.75E-02	7.96E-14	5.68E-02	7.76E-14	1.00E+04	-1.29E+00	1.35E-13	2.19E-15	1.01E+00	1.03E+07	3.80E-12	0.00E+00	1.00E+00	5.98E-01	3.58E-10
345	Down-dip	1	2	69	5.68E-01	8.98E-02	4.08E-01	1.39E+00	1.30E+07	9.09E-01	1.31E+07	9.09E-01	8.35E-02	1.30E-14	8.28E-02	1.26E-14	1.00E+04	-1.29E+00	1.39E-13	9.33E-15	9.99E-01	1.42E+07	4.07E-13	5.41E-01	1.64E-08	5.41E-01	1.62E-08
346	Down-dip	1	2	37	5.50E-01	4.07E-02	2.28E-01	1.34E+00	1.16E+07	1.19E-06	1.16E+07	6.69E-01	1.18E-01	5.21E-16	1.16E-01	3.98E-16	1.00E+04	-1.19E+00	1.28E-13	1.35E-15	8.19E-01	1.18E+07	6.17E-12	0.00E+00	1.00E+00	1.26E-01	9.08E-02
347	Down-dip	1	2	12	5.31E-01	7.06E-02	1.02E-01	1.26E+00	1.02E+07	1.19E-07	1.02E+07	9.29E-01	3.07E-02	1.78E-13	4.53E-02	1.78E-13	1.00E+04	-1.38E+00	1.33E-13	5.50E-15	1.19E+00	1.39E+07	1.86E-13	0.00E+00	1.00E+00	7.39E-01	0.00E+00
348	Down-dip	1	2	44	5.32E-01	1.12E-01	1.61E-02	1.26E+00	1.02E+07	6.60E-01	1.03E+07	8.87E-01	1.29E-01	1.18E-13	1.34E-01	1.18E-13	1.00E+04	-1.17E+00	1.22E-13	3.80E-15	7.83E-01	1.29E+07	1.12E-12	1.98E-01	3.09E-02	6.38E-01	3.57E-10
349	Down-dip	1	2	1	5.36E-01	9.81E-02	2.56E-01	1.30E+00	1.05E+07	8.99E-01	1.00E+07	8.99E-01	7.21E-02	7.24E-16	6.49E-02	7.24E-16	1.00E+04	-1.28E+00	1.29E-13	1.66E-14	9.73E-01	1.25E+07	7.08E-14	5.84E-01	1.20E-07	5.85E-01	1.17E-07
350	Down-dip	1	2	46	6.03E-01	2.03E-02	2.35E-01	1.21E+00	8.69E+06	6.80E-06	8.64E+06	8.06E-01	4.51E-02	1.59E-17	6.60E-02	1.59E-17	1.00E+04	-1.41E+00	1.27E-13	1.45E-14	1.26E+00	1.50E+07	1.15E-11	0.00E+00	1.00E+00	3.40E-01	1.96E-02
351	Down-dip	1	2	24	5.13E-01	9.01E-02	1.37E-01	1.23E+00	9.02E+06	9.10E-01	9.11E+06	9.10E-01	1.96E-01	2.82E-13	2.19E-01	2.82E-13	1.00E+04	-1.29E+00	1.23E-13	2.63E-14	9.94E-01	1.09E+07	7.41E-13	6.66E-01	2.14E-13	6.66E-01	2.09E-13
352	Down-dip	1	2	71	5.31E-01	1.57E-02	1.06E-01	1.28E+00	1.01E+07	6.94E-07	1.02E+07	5.07E-01	4.68E-02	2.19E-16	6.31E-02	2.19E-16	1.00E+04	-1.37E+00	1.33E-13	5.25E-17	1.18E+00	1.19E+07	6.76E-13	0.00E+00	1.00E+00	5.15E-02	2.18E-01
353	Down-dip	1	2	65	5.33E-01	1.27E-01	8.96E-02	1.29E+00	1.03E+07	0.00E+00	1.03E+07	4.83E-01	2.21E-02	8.71E-16	3.04E-02	8.71E-16	1.00E+04	-1.16E+00	1.22E-13	4.17E-15	7.73E-01	1.26E+07	3.72E-12	0.00E+00	1.00E+00	4.50E-02	1.71E-01
354	Down-dip	1	2	67	5.10E-01	1.21E-01	6.61E-02	1.23E+00	8.97E+06	1.03E-04	8.87E+06	4.63E-01	1.72E-01	3.55E-18	1.89E-01	3.55E-18	1.00E+04	-1.27E+00	1.22E-13	7.24E-15	9.65E-01	1.26E+07	1.15E-14	0.00E+00	1.00E+00	4.25E-02	1.84E-01
355	Down-dip	1	2	100	5.16E-01	1.14E-01	3.43E-01	1.25E+00	9.22E+06	8.83E-01	9.32E+06	6.83E-01	6.96E-02	9.12E-16	8.72E-02	9.12E-16	1.00E+04	-1.26E+00	1.23E-13	2.51E-14	9.43E-01	1.25E+07	1.29E-13	4.85E-01	1.83E-07	4.86E-01	1.59E-07
356	Down-dip	1	2	30	5.04E-01	1.16E-01	4.16E-02	1.21E+00	8.69E+06	8.83E-01	8.76E+06	8.83E-01	2.70E-02	2.75E-14	4.59E-02	2.76E-14	1.00E+04	-8.49E-01	9.57E-14	2.19E-13	2.79E-01	1.34E+07	1.59E-13	6.19E-01	1.25E-09	6.19E-01	1.23E-09
357	Down-dip	1	2	56	6.08E-01	4.66E-02	3.20E-01	1.22E+00	8.85E+06	1.43E-06	8.87E+06	9.06E-01	8.40E-02	1.05E-15	9.88E-02	1.05E-15	1.00E+04	-7.21E-01	9.88E-14	1.05E-14	3.22E-01	1.12E+07	2.82E-12	0.00E+00	1.00E+00	5.79E-01	6.75E-04
358	Down-dip	1	2	79	6.08E-01	1.23E-01	3.88E-01	1.53E+00	1.61E+07	6.94E-07	1.61E+07	5.23E-01	2.24E-01	3.26E-11	1.62E-01	2.57E-13	1.00E+04	-1.10E+00	1.43E-13	1.51E-16	6.89E-01	1.24E+07	4.37E-15	0.00E+00	1.00E+00	3.75E-03	4.65E-01
359	Down-dip	1	2	11	5.00E-01	6.24E-02	4.15E-01	1.20E+00	8.55E+06	2.21E-05	8.57E+06	9.18E-01	4.16E-02	1.35E-13	5.48E-02	1.35E-13	1.00E+04	-1.39E+00	1.25E-13	1.20E-14	1.22E+00	1.35E+07	5.37E-15	0.00E+00	1.00E+00	5.71E-01	9.34E-05
360	Down-dip	1	2	98	4.95E-01	3.56E-02	5.00E-02	1.19E+00	8.41E+06	3.70E-06	8.35E+06	3.96E-01	6.14E-02	4.19E-19	8.68E-02	4.17E-19	1.00E+04	-1.23E+00	1.18E-13	4.79E-15	8.82E-01	1.17E+07	3.98E-14	0.00E+00	1.00E+00	2.39E-02	3.12E-01
361	Down-dip	1	2	20	5.17E-01	1.23E-01	1.27E-01	1.24E+00	9.20E+06	1.19E-07	9.17E+06	4.10E-01	2.03E-02	1.35E-17	3.74E-02	1.35E-17	1.00E+04	-6.04E-01	9.68E-14	3.31E-15	2.56E-01	1.28E+07	1.20E-12	0.00E+00	1.00E+00	1.57E-02	3.13E-01
362	Down-dip	1	2	42	5.66E-01	1.04E-01	3.92E-01	1.39E+00	1.31E+07	4.17E-07	1.31E+07	5.30E-01	1.42E-01	2.38E-15	1.16E-01	7.76E-17	1.00E+04	-1.26E+00	1.38E-13	1.38E-15	9.46E-01	1.47E+07	3.63E-13	0.00E+00	1.00E+00	4.15E-03	4.69E-01
363	Down-dip	1	2	41	5.62E-01	3.40E-02	8.64E-02	1.37E+00	1.26E+07	1.49E-02	1.25E+07	2.50E-01	1.53E-01	1.34E-16	1.42E-01	1.70E-19	1.00E+04	-1.22E+00	1.33E-13	3.24E-16	8.64E-01	1.47E+07	3.47E-12	0.00E+00	1.00E+00	1.76E-03	6.23E-01
364	Down-dip	1	2	77	5.56E-01	1.48E-01	6.84E-02	1.35E+00	1.21E+07	2.29E-05	1.20E+07	2.37E-01	1.99E-01	8.13E-19	2.05E-01	8.13E-19	1.00E+04	-7.13E-01	1.09E-13	2.75E-16	3.17E-01	1.23E+07	1.20E-11	0.00E+00	1.00E+00	1.80E-03	5.71E-01
365	Down-dip	1	2	84	5.30E-01	1.44E-01	6.66E-03	1.28E+00	1.01E+07	0.00E+00	1.00E+07	1.27E-01	2.59E-02	4.91E-20	3.46E-02	4.90E-20	1.00E+04	-1.40E+00	1.34E-13	2.95E-16	1.25E+00	1.26E+07	3.55E-11	0.00E+00	1.00E+00	4.04E-04	7.12E-01
366	Down-dip	1	2	65	5.63E-01	7.34E-03	2.60E-01	1.38E+00	1.27E+07	3.10E-02	1.27E+07	3.13E-01	7.12E-02	6.03E-16	6.92E-02	4.90E-16	1.00E+04	-1.23E+00	1.35E-13	7.08E-16	8.95E-01	1.19E+07	7.76E-15	0.00E+00	1.00E+00	6.01E-05	8.50E-01
367	Down-dip	1	2	6	5.49E-01	6.58E-02	1.45E-01	1.33E+00	1.15E+07	1.55E-02	1.16E+07	1.64E-01	7.31E-02	5.76E-19	7.56E-02	5.75E-19	1.00E+04	-1.18E+00	1.28E-13	6.46E-17	8.02E-01	1.38E+07	3.09E-12	0.00E+00	1.00E+00	1.09E-05	8.99E-01
368	Down-dip	1	2	47	5.60E-01	6.75E-02	1.61E-01	1.36E+00	1.24E+07	1.98E-02	1.24E+07	1.74E-01	1.59E-01	8.13E-17	1.44E-01	6.92E-16	1.00E+04	-1.09E+00	1.26E-13	2.19E-16	6.75E-01	1.20E+07	1.55E-12	0.00E+00	1.00E+00	2.41E-07	9.64E-01
369	Down-dip	1	3	22	5.32E-01	2.51E-02	6.22E-02	1.28E+00	1.02E+07	2.25E-02	1.03E+07	7.66E-01	1.35E-01	7.41E-14	1.45E-01	7.41E-14	1.20E+03	-1.37E+00	1.33E-13	1.74E-13	1.17E+00	1.38E+07	1.59E-12	0.00E+00	1.00E+00	3.37E-01	2.00E-02
370	Down-dip	1	3	51	5.68E-01	1.34E-01	3.63E-01	1.39E+00	1.33E+07	2.36E-01	1.33E+07	6.66E-01	2.06E-01	7.45E-13	1.79E-01	6.17E-14	1.20E+03	-1.16E+00	1.32E-13	1.00E-12	7.77E-01	1.68E+07	6.92E-12	0.00E+00	1.00E+00	8.44E-02	9.12E-02
371	Down-dip	1	3	46	5.26E-01	2.03E-02	2.35E-01	1.27E+00	9.32E+06	1.21E-02	1.15E+07	9.66E-01	4.59E-02	1.59E-17	6.28E-02	1.69E-17	1.20E+03	-1.41E+00	1.34E-13	1.45E-14	1.26E+00	1.51E+07	1.15E-11	0.00E+00	1.00E+00	8.46E-01	1.04E-05
372	Down-dip	1	3	78	5.41E-01	4.93E-02	1.51E-01	1.31E+00	1.09E+07	9.44E-01	1.12E+07	9.45E-01	1.10E-01	2.46E-15	1.15E-01	2.46E-15	1.20E+03	-1.06E+00	1.20E-13	8.32E-17	8.28E-01	1.48E+07	1.07E-12	7.79E-01	8.41E-07	7.79E-01	7.82E-07
373	Down-dip	1	3	69	5.42E-01	8.98E-02	4.08E-01	1.31E+00	1.10E+07	9.13E-01	1.11E+07	9.30E-01	7.88E-02	1.26E-14	8.77E-02	1.26E-14	1.20E+03	-1.29E+00	1.31E-13	9.33E-15	9.99E-01	1.47E+07	4.07E-13	5.54E-01	0.00E+00	6.28E-01	0.00E+00
374	Down-dip	1	3	52	5.37E-01	3.68E-02	4.49E-01	1.30E+00	1.04E+07	9.60E-01	1.15E+07	9.60E-01	1.09E-01	1.70E-15	1.27E-01	1.70E-15	1.20E+03	-9.48E-01	1.14E-13	4.17E-14	5.07E-01	1.51E+07	2.63E-13	7.57E-01	4.18E-07	7.57E-01	4.13E-07
375	Down-dip	1	3	5	5.30E-01	1.29E-01	1.21E-01	1.28E+00	9.58E+06	4.29E-04	1.18E+07	6.53E-01	1.32E-01	1.91E-17	1.48E-01	1.82E-17	1.20E+03	-1.37E+00	1.33E-13	1.82E-12	1.17E+00	1.54E+07	3.31E-13	0.00E+00	1.00E+00	5.08E-01	2.31E-05

	.	.	.	.	Up-dip Flowing Bottom-hole Pressure (Pa)	Down-dip Flowing Bottom-hole Pressure (Pa)	BC well Injection Pressure (Pa)	Blowout Duration (Days)	Brine Rate (m^3/s)	Gas Rate (ref m^3/s)	Max Brine Rate (m^3/s)	Max Gas Rate (ref m^3/s)	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s)	Cum Brine from Boundary Condition Well (m^3)	Gas Rate (mscf/day)	Cum Gas Produced (ref m^3)	Cum Brine Produced (m^3)	Cum Brine Releases (m^3)	Avg Brine Pressure Panel 5 (Pa) after Blowout	Avg Brine Saturation Panel 5 (fraction) after blowout	Avg Brine Pressure Panel 0 (Pa) after blowout	Avg Brine Saturation Panel 0 (fraction) after blowout	Total Excavated Waste Pore Volume (fraction)	Total Excavated Brine Volume (m^3)
No.	ID	Replic.	Scen.	Vector	FBHP2	FBHP4	BHP_ABAN	time	BRINEFLW	GASFLW	MAX_BRN	MAX_GAS	LGR_MET	BRINE_BC	GAS_RATE	GASOUT	BRINEOUT	BRIN_REL	BRNPRESS	SATBRN5	BRNPRES0	SATBRN0	WASTE_PV	TOT_BRIN
301	Down-dip	1	2	15	0.00E+00	7.99E+06	7.99E+06	2.88E+00	6.84E-05	1.24E-05	1.31E-04	1.24E-05	7.97E+06	0.00E+00	3.78E-02	2.34E+00	1.86E+01	1.82E+01	1.11E+07	9.58E-01	1.13E+07	1.83E-01	8.09E+04	3.88E+04
302	Down-dip	1	2	23	0.00E+00	9.10E+05	9.10E+05	1.10E+01	8.87E-08	6.02E-02	5.70E-05	1.39E+00	1.06E+02	0.00E+00	1.84E+02	1.28E+05	1.38E+01	1.33E+01	5.06E+06	7.59E-01	1.13E+07	2.98E-07	8.11E+04	2.38E+04
303	Down-dip	1	2	59	0.00E+00	4.17E+05	4.17E+05	1.10E+01	9.80E-06	3.32E-01	4.94E-05	6.07E+00	2.30E+01	0.00E+00	1.01E+03	5.57E+05	1.28E+01	1.25E+01	6.69E+06	5.71E-01	1.43E+07	4.99E-05	9.35E+04	1.40E+04
304	Down-dip	1	2	100	8.00E+06	8.00E+06	8.00E+06	2.88E+00	3.89E-05	1.04E-04	8.33E-05	1.04E-04	6.23E+05	0.00E+00	3.19E-01	1.85E+01	1.15E+01	1.13E+01	1.07E+07	8.65E-01	1.07E+07	7.67E-01	7.86E+04	8.43E+04
305	Down-dip	1	2	52	8.02E+06	8.00E+06	8.00E+06	2.88E+00	3.67E-05	7.58E-06	8.85E-05	7.58E-06	6.21E+08	0.00E+00	2.31E-02	1.71E+00	1.06E+01	1.04E+01	9.98E+06	9.60E-01	1.01E+07	7.26E-01	7.61E+04	6.32E+04
306	Down-dip	1	2	30	7.99E+06	7.99E+06	7.99E+06	2.88E+00	2.56E-05	7.01E-07	4.02E-05	7.01E-07	5.76E+07	0.00E+00	2.14E-03	1.22E-01	7.00E+00	6.84E+00	9.32E+06	8.86E-01	9.25E+06	6.79E-01	7.26E+04	5.59E+04
307	Down-dip	1	2	39	8.00E+06	8.00E+06	8.00E+06	2.88E+00	2.25E-05	3.99E-05	4.34E-05	3.99E-05	1.05E+06	0.00E+00	1.22E-01	6.54E+00	6.84E+00	6.70E+00	9.77E+06	8.51E-01	9.71E+06	6.86E-01	7.46E+04	5.66E+04
308	Down-dip	1	2	1	8.00E+06	8.00E+06	8.00E+06	2.88E+00	2.19E-05	6.74E-06	5.04E-05	6.74E-06	5.27E+06	0.00E+00	2.06E-02	1.29E+00	6.76E+00	6.63E+00	9.37E+06	9.01E-01	9.33E+06	8.07E-01	7.30E+04	6.19E+04
309	Down-dip	1	2	31	0.00E+00	7.99E+06	7.99E+06	2.88E+00	1.90E-05	1.36E-07	4.79E-05	1.36E-07	1.92E+08	0.00E+00	4.16E-04	2.94E-02	5.62E+00	5.51E+00	8.92E+06	9.47E-01	8.88E+06	3.67E-05	6.99E+04	2.99E+04
310	Down-dip	1	2	53	3.16E+05	6.14E+06	6.15E+06	2.88E+00	1.67E-05	5.74E-03	4.55E-05	1.62E-02	2.89E+03	0.00E+00	1.75E+01	1.79E+03	5.17E+00	5.07E+00	7.98E+06	8.39E-01	6.49E+06	2.01E-01	6.67E+04	3.21E+04
311	Down-dip	1	2	65	0.00E+00	3.09E+05	3.09E+05	1.10E+01	3.38E-06	1.73E-01	1.83E-05	3.98E+00	1.33E+01	0.00E+00	5.27E+02	3 59E+05	4.78E+00	4.68E+00	4.90E+06	4.48E-01	1.14E+07	0.00E+00	8.16E+04	9 27E+03
312	Down-dip	1	2	27	0.00E+00	2.97E+05	2.97E+05	1.10E+01	3.15E-06	6.94E-02	1.92E-05	2.06E+00	2.93E+01	0.00E+00	2.12E+02	1.58E+05	4.62E+00	4.40E+00	3.99E+06	6.86E-01	9.96E+06	3.91E-05	7.55E+04	1.73E+04
313	Down-dip	1	2	37	0.00E+00	3.20E+05	3.20E+05	1.10E+01	3.08E-06	3.19E-01	1.59E-05	6.92E+00	7.03E+00	0.00E+00	9.74E+02	5.76E+05	4.05E+00	3.84E+00	5.36E+06	5.11E-01	1.26E+07	1.53E-05	8.65E+04	1.49E+04
314	Down-dip	1	2	56	0.00E+00	2.88E+05	2.88E+05	1.10E+01	2.66E-06	1.35E-01	1.45E-05	3.35E+00	1.28E+01	0.00E+00	4.12E+02	2.98E+05	3.82E+00	3.76E+00	4.22E+06	5.80E-01	1.07E+07	5.31E-06	7.84E+04	1.46E+04
315	*Down-dip*	*1*	*2*	*79*	*0.00E+00*	*3.92E+05*	*3.92E+05*	*1.10E+01*	*4.58E-06*	*4.84E+00*	*4.56E-06*	*1.80E+01*	*5.58E-01*	*0.00E+00*	*1.48E+04*	*6.89E+06*	*3.64E+00*	*3.50E+00*	*1.11E+07*	*5.37E-01*	*1.14E+07*	*4.38E-06*	*1.04E+05*	*2.44E+04*
316	Down-dip	1	2	35	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.12E-05	1.36E-06	2.00E-05	1.36E-06	1.23E+07	0.00E+00	4.14E-03	2.61E-01	3.21E+00	3.14E+00	8.78E+06	9.05E-01	8.70E+06	7.40E-01	6.88E+04	5.59E+04
317	Down-dip	1	2	67	0.00E+00	2.91E+05	2.91E+05	1.10E+01	1.63E-06	1.77E-01	1.04E-05	5.91E+00	5.83E+00	0.00E+00	5.40E+02	4.08E+05	2.38E+00	2.28E+00	4.35E+06	3.81E-01	1.17E+07	8.22E-03	8.24E+04	1.13E+04
318	Down-dip	1	2	41	0.00E+00	2.84E+05	2.84E+05	1.10E+01	1.33E-06	1.36E-01	1.01E-05	6.25E+00	5.56E+00	0.00E+00	4.16E+02	3.81E+05	2.12E+00	2.10E+00	3.62E+06	3.96E-01	1.12E+07	2.36E-02	8.07E+04	1.57E+04
319	Down-dip	1	2	90	0.00E+00	2.46E+05	2.46E+05	1.10E+01	1.05E-06	8.84E-02	7.47E-06	3.61E+00	6.98E+00	0.00E+00	2.64E+02	2.37E+05	1.66E+00	1.64E+00	3.00E+06	5.33E-01	9.47E+06	1.31E-06	7.34E+04	1.49E+04
320	Down-dip	1	2	6	0.00E+00	2.30E+05	2.30E+05	1.10E+01	1.03E-06	8.79E-02	6.76E-06	3.14E+00	7.12E+00	0.00E+00	2.68E+02	2.19E+05	1.56E+00	1.51E+00	3.12E+06	4.34E-01	8.49E+06	6.76E-02	6.78E+04	2.08E+04
321	Down-dip	1	2	71	0.00E+00	2.54E+05	2.54E+05	1.10E+01	9.47E-07	1.25E-01	7.11E-06	5.68E+00	4.46E+00	0.00E+00	3.80E+02	3.31E+05	1.47E+00	1.45E+00	3.30E+06	3.91E-01	1.00E+07	1.01E-06	7.57E+04	7.45E+03
322	Down-dip	1	2	86	2.28E+05	8.02E+00	8.02E+06	2.88E+00	3.92E-06	7.24E-07	9.76E-06	1.36E-06	6.74E+08	0.00E+00	2.21E-03	2.12E-01	1.22E+00	1.20E+00	8.24E+06	9.20E-01	8.29E+06	1.22E-01	6.80E+04	3.42E+04
323	Down-dip	1	2	98	0.00E+00	2.32E+05	2.32E+05	1.10E+01	7.66E-07	1.10E-01	5.14E-06	4.17E+00	4.14E+00	0.00E+00	3.34E+02	2.79E+05	1.15E+00	1.10E+00	3.16E+06	3.44E-01	9.00E+06	4.74E-06	7.06E+04	6.08E+03
324	Down-dip	1	2	73	0.00E+00	3.32E+05	3.32E+05	1.10E+01	7.03E-07	2.15E-01	5.30E-06	1.03E+01	1.81E+00	0.00E+00	6.56E+02	6.28E+05	1.14E+00	1.09E+00	4.00E+06	4.99E-01	1.39E+07	3.14E-05	9.17E+04	1.33E+04
325	Down-dip	1	2	36	0.00E+00	2.40E+05	2.40E+05	1.10E+01	6.63E-07	1.01E-01	4.72E-06	4.24E+00	3.72E+00	0.00E+00	3.09E+02	2.83E+05	1.05E+00	1.02E+00	2.99E+06	4.04E-01	9.42E+06	2.98E-07	7.29E+04	7.45E+03
326	Down-dip	1	2	84	0.00E+00	2.32E+05	2.32E+05	1.10E+01	6.61E-07	1.18E-01	3.80E-06	4.45E+00	2.89E+00	0.00E+00	3.59E+02	2.93E+05	8.48E-01	8.09E-01	3.28E+06	2.67E-01	8.89E+06	5.96E-08	7.00E+04	9.78E+03
327	Down-dip	1	2	20	0.00E+00	2.63E+05	2.63E+05	1.10E+01	5.15E-07	1.50E-01	3.21E-06	4.95E+00	2.05E+00	0.00E+00	4.58E+02	3.62E+05	7.62E-01	7.48E-01	3.67E+06	3.68E-01	1.06E+07	5.96E-08	7.81E+04	7.30E+03
328	Down-dip	1	2	85	0.00E+00	3.04E+05	3.04E+05	1.10E+01	2.30E-07	1.94E-01	2.01E-06	1.23E+01	6.29E-01	0.00E+00	5.92E+02	6.04E+05	3.80E-01	3.71E-01	3.27E+06	4.25E-01	1.24E+07	7.40E-02	8.56E+04	1.39E+04
329	Down-dip	1	2	47	0.00E+00	2.69E+05	2.69E+05	1.10E+01	2.02E-07	1.73E-01	1.50E-06	8.03E+00	6.84E-01	0.00E+00	5.28E+02	4.51E+05	3.08E-01	3.00E-01	3.34E+06	3.45E-01	1.07E+07	8.19E-02	7.85E+04	1.69E+04
330	Down-dip	1	2	77	0.00E+00	2.86E+05	2.86E+05	1.10E+01	1.15E-07	1.76E-01	8.84E-07	8.29E+00	3.58E-01	0.00E+00	5.38E+02	5.17E+05	1.85E-01	1.80E-01	3.35E+06	2.50E-01	1.14E+07	5.94E-05	8.13E+04	5.01E+03
331	Down-dip	1	2	16	0.00E+00	2.26E+05	2.26E+05	1.10E+01	4.53E-08	7.39E-02	4.30E-07	5.44E+00	3.13E-01	0.00E+00	2.26E+02	2.49E+05	7.81E-02	7.74E-02	2.12E+06	4.03E-01	8.27E+06	3.52E-05	8.59E+04	8.17E+03
332	Down-dip	1	2	14	0.00E+00	2.77E+05	2.77E+05	1.10E+01	9.21E-09	9.45E-02	9.08E-08	7.79E+00	4.66E-02	0.00E+00	2.88E+02	3.56E+05	1.66E-02	1.81E-02	2.22E+06	4.11E-01	9.80E+06	8.43E-02	7.49E+04	2.00E+04
333	Down-dip	1	2	42	0.00E+00	4.26E+05	4.26E+05	1.10E+01	1.92E-09	2.61E+00	5.21E-09	2.52E+01	6.50E-04	0.00E+00	7.96E+03	3.11E+06	2.02E-03	1.86E-03	6.26E+06	4.32E-01	1.19E+07	1.30E-05	9.26E+04	1.01E+04
334	Down-dip	1	2	99	0.00E+00	4.58E+05	4.58E+05	1.10E+01	1.68E-11	1.64E-01	7.79E-11	2.13E+01	3.97E-05	0.00E+00	5.61E+02	6.64E+05	2.64E-05	2.83E-05	2.63E+06	5.36E-01	1.39E+07	4.18E-02	9.15E+04	1.55E+04
335	Down-dip	1	2	10	0.00E+00	6.54E+06	6.54E+06	1.10E+01	1.77E-04	1.15E-01	3.30E-04	2.00E-01	2.17E+03	0.00E+00	3.52E+02	8.54E+04	1.86E+02	1.76E+02	1.57E+07	8.35E-01	1.62E+07	1.32E-06	1.09E+05	3.82E+04
336	Down-dip	1	2	18	0.00E+00	6.17E+06	6.17E+06	1.10E+01	1.21E-04	1.12E-01	2.00E-04	1.63E-01	1.59E+03	0.00E+00	3.42E+02	8.00E+04	1.27E+02	1.21E+02	1.61E+07	8.09E-01	1.65E+07	9.28E-03	1.13E+05	3.44E+04
337	Down-dip	1	2	58	0.00E+00	4.25E+06	4.25E+06	1.10E+01	4.93E-05	5.55E-02	2.15E-04	3.41E-01	8.64E+02	0.00E+00	1.69E+02	7.37E+04	6.37E+01	5.97E+01	1.06E+07	7.77E-01	1.39E+07	5.46E-07	9.20E+04	1.87E+04
338	Down-dip	1	2	45	8.00E+06	8.00E+06	8.00E+06	2.88E+00	1.98E-04	2.03E-05	3.10E-04	2.03E-05	1.33E+07	0.00E+00	6.19E-02	3.94E+00	5.23E+01	5.10E+01	1.41E+07	9.48E-01	1.45E+07	9.49E-01	9.48E+04	9.00E+04
339	Down-dip	1	2	94	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.63E-04	2.94E-07	4.13E-04	2.94E-07	6.63E+08	0.00E+00	8.98E-04	6.83E-02	4.52E+01	4.42E+01	1.32E+07	9.94E-01	1.41E+07	7.51E-01	9.30E+04	7.99E+04
340	Down-dip	1	2	19	0.00E+00	8.00E+06	8.00E+06	2.88E+00	1.36E-04	7.96E-04	3.09E-04	8.00E-04	2.61E+05	0.00E+00	2.43E+00	1.46E+02	4.10E+01	4.01E+01	1.55E+07	8.60E-01	1.57E+07	4.46E-03	1.02E+05	4.43E+04
341	Down-dip	1	2	73	0.00E+00	4.05E+06	4.05E+06	1.00E+01	3.29E-05	3.31E-02	1.22E-04	1.77E-01	9.34E+02	0.00E+00	1.01E+02	3.99E+04	3.73E+01	3.55E+01	9.40E+06	8.06E-01	1.18E+07	2.10E-05	6.33E+04	1.92E+04
342	Down-dip	1	2	59	0.00E+00	5.91E+05	5.91E+05	1.10E+01	2.50E-05	2.06E-01	1.22E-04	2.85E+00	1.00E+02	0.00E+00	6.29E+02	3.22E+05	3.30E+01	3.26E+01	7.62E+06	6.69E-01	1.43E+07	5.53E-06	9.41E+04	1.96E+04
343	Down-dip	1	2	78	3.71E+05	4.91E+05	4.91E+05	1.10E+01	3.50E-05	1.05E+00	8.64E-05	5.37E+00	2.39E+01	0.00E+00	3.21E+03	1.26E+06	3.01E+01	2.95E+01	1.37E+07	5.97E-01	1.43E+07	1.84E-01	1.01E+05	4.76E+04
344	Down-dip	1	2	48	0.00E+00	8.00E+06	8.00E+06	2.88E+00	1.03E-04	3.02E-05	1.56E-04	3.02E-05	5.12E+06	0.00E+00	9.21E-02	5.38E+00	2.74E+01	2.66E+01	1.18E+07	8.98E-01	1.20E+07	3.17E-06	8.41E+04	3.08E+04
345	Down-dip	1	2	69	7.99E+06	7.99E+06	7.99E+06	2.88E+00	9.15E-05	2.71E-04	1.84E-04	2.71E-04	4.84E+05	0.00E+00	8.27E-01	5.41E+01	2.61E+01	2.56E+01	1.29E+07	9.10E-01	1.30E+07	7.44E-01	8.85E+04	7.23E+04
346	Down-dip	1	2	37	0.00E+00	5.72E+05	5.72E+05	1.10E+01	1.77E-05	1.10E-01	8.57E-05	1.55E+00	1.31E+02	0.00E+00	3.35E+02	1.82E+05	2.38E+01	2.33E+01	6.37E+06	6.77E-01	1.16E+07	1.32E-06	8.24E+04	1.84E+04
347	Down-dip	1	2	12	0.00E+00	8.00E+06	8.00E+06	2.88E+00	7.36E-05	4.24E-07	1.03E-04	4.24E-07	2.76E+08	0.00E+00	1.29E-03	7.07E-02	1.94E+01	1.89E+01	1.00E+07	9.30E-01	1.02E+07	1.19E-07	7.63E+04	1.84E+04
348	Down-dip	1	2	44	1.34E+06	7.99E+06	7.99E+06	2.88E+00	6.16E-05	1.71E-06	8.49E-05	1.71E-06	5.31E+07	0.00E+00	5.23E-03	3.05E-01	1.61E+01	1.58E+01	1.02E+07	8.89E-01	1.02E+07	3.84E-01	7.65E+04	4.67E+04
349	Down-dip	1	2	1	8.00E+06	8.00E+06	8.00E+06	2.88E+00	3.98E-05	4.44E-05	9.45E-05	4.44E-05	1.50E+06	0.00E+00	1.35E-01	8.27E+00	1.23E+01	1.21E+01	1.05E+07	9.01E-01	1.05E+07	7.22E-01	7.80E+04	6.24E+04
350	Down-dip	1	2	48	0.00E+00	3.95E+06	3.95E+06	2.88E+00	3.16E-05	2.62E-02	9.70E-05	1.06E-01	1.16E+03	0.00E+00	7.99E+01	8.38E+03	9.72E+00	8.53E+00	7.94E+06	6.10E-01	8.69E+06	6.74E-06	6.82E+04	1.43E+04
351	Down-dip	1	2	24	8.04E+06	8.04E+06	8.04E+06	2.88E+00	3.36E-05	2.73E-08	4.19E-05	2.73E-06	1.89E+09	0.00E+00	8.34E-05	4.63E-03	8.69E+00	8.48E+00	9.07E+06	9.12E-01	9.00E+06	8.69E-01	7.09E+04	6.50E+04
352	Down-dip	1	2	71	0.00E+00	3.08E+05	3.08E+05	1.10E+01	5.09E-06	1.02E-01	3.22E-05	3.02E+00	3.29E+01	0.00E+00	3.12E+02	2.29E+05	7.52E+00	7.35E+00	4.14E+06	5.20E-01	1.01E+07	8.94E-07	7.63E+04	1.01E+04
353	Down-dip	1	2	65	0.00E+00	3.17E+05	3.17E+05	1.10E+01	5.52E-06	1.31E-01	2.63E-05	2.26E+00	3.08E+01	0.00E+00	4.00E+02	2.43E+05	7.48E+00	7.28E+00	5.13E+06	4.96E-01	1.03E+07	0.00E+00	7.70E+04	9.73E+03
354	Down-dip	1	2	67	0.00E+00	2.77E+05	2.77E+05	1.10E+01	4.29E-06	9.47E-02	2.13E-05	1.80E+00	3.29E+01	0.00E+00	2.89E+02	1.76E+05	5.79E+00	5.49E+00	4.42E+06	4.77E-01	8.98E+06	1.71E-04	7.02E+04	1.14E+04
355	Down-dip	1	2	100	8.00E+06	8.00E+06	8.00E+06	2.88E+00	1.76E-05	9.86E-08	3.77E-05	9.86E-08	3.08E+06	0.00E+00	3.01E-02	1.77E+00	5.43E+00	5.33E+00	9.27E+06	8.86E-01	9.20E+06	7.05E-01	7.24E+04	5.68E+04
356	*Down-dip*	*1*	*2*	*30*	*7.99E+06*	*7.99E+06*	*7.99E+06*	*2.88E+00*	*1.44E-05*	*1.01E-07*	*2.24E-05*	*1.01E-07*	*2.20E+08*	*0.00E+00*	*3.07E-04*	*1.79E-02*	*3.93E+00*	*3.84E+00*	*8.75E+06*	*8.86E-01*	*8.67E+06*	*6.59E-01*	*6.85E+04*	*5.20E+04*
357	Down-dip	1	2	58	0.00E+00	7.88E+06	7.88E+06	2.88E+00	1.26E-05	3.46E-04	2.71E-05	6.17E-04	3.76E+04	0.00E+00	1.06E+00	1.01E+02	3.78E+00	3.70E+00	8.81E+06	9.09E-01	8.85E+06	4.08E-06	6.95E+04	1.96E+04
358	Down-dip	1	2	79	0.00E+00	3.83E+05	3.83E+05	1.10E+01	4.74E-06	4.59E+00	4.74E-06	1.70E+01	6.20E-01	0.00E+00	1.40E+04	6.44E+06	3.99E+00	3.88E+00	1.08E+07	5.39E-01	1.14E+07	8.94E-07	1.05E+05	2.41E+04
359	Down-dip	1	2	11	0.00E+00	8.02E+06	8.02E+06	2.88E+00	1.38E-05	4.70E-05	1.88E-05	5.80E-05	2.92E+05	0.00E+00	1.43E-01	1.24E+01	3.63E+00	3.54E+00	8.54E+06	9.20E-01	8.55E+06	2.22E-05	8.73E+04	1.60E+04
360	Down-dip	1	2	98	0.00E+00	2.33E+05	2.33E+05	1.10E+01	1.79E-06	6.83E-02	1.08E-05	2.59E+00	1.30E+01	0.00E+00	2.70E+02	2.01E+05	2.61E+00	2.61E+00	3.36E+06	4.12E-01	8.41E+06	3.70E-06	6.61E+04	6.89E+03
361	Down-dip	1	2	20	0.00E+00	2.43E+05	2.43E+05	1.10E+01	1.24E-06	1.13E-01	6.46E-06	2.60E+00	7.17E+00	0.00E+00	3.45E+02	2.46E+05	1.76E+00	1.75E+00	3.81E+06	4.27E-01	9.20E+06	1.19E-07	7.20E+04	7.77E+03
362	Down-dip	1	2	42	0.00E+00	3.15E+05	3.15E+05	1.10E+01	4.99E-07	2.57E-01	3.49E-06	1.11E+01	1.23E+00	0.00E+00	7.84E+02	5.78E+05	7.09E-01	6.69E-01	4.08E+06	5.44E-01	1.31E+07	6.01E-07	6.87E+04	1.23E+04
363	Down-dip	1	2	41	0.00E+00	3.08E+05	3.08E+05	1.10E+01	1.46E-07	1.86E-01	1.37E-06	1.30E+01	4.06E-01	0.00E+00	5.67E+02	6.11E+05	2.48E-01	2.40E-01	3.22E+06	2.71E-01	1.26E+07	1.57E-02	6.64E+04	1.09E+04
364	Down-dip	1	2	77	0.00E+00	2.97E+05	2.97E+05	1.10E+01	1.45E-07	1.89E-01	1.10E-06	9.05E+00	4.19E-01	0.00E+00	5.77E+02	5.59E+05	2.34E-01	2.28E-01	3.49E+06	2.58E-01	1.21E+07	2.29E-05	8.42E+04	5.35E+03
365	Down-dip	1	2	84	0.00E+00	2.72E+05	2.72E+05	1.10E+01	2.61E-08	1.52E-01	2.53E-07	9.79E+00	9.81E-02	0.00E+00	4.66E+02	4.80E+05	4.71E-02	4.71E-02	2.81E+06	1.50E-01	1.01E+07	0.00E+00	7.60E+04	5.29E+03
366	Down-dip	1	2	65	0.00E+00	3.57E+05	3.57E+05	1.10E+01	4.99E-09	2.35E-01	4.77E-08	1.84E+01	1.09E-02	0.00E+00	7.15E+02	7.75E+05	8.45E-03	8.13E-03	2.96E+06	3.33E-01	1.27E+07	3.12E-02	8.69E+04	9.24E+03
367	Down-dip	1	2	6	0.00E+00	3.61E+05	3.61E+05	1.10E+01	6.85E-10	1.64E-01	7.46E-09	1.55E+01	2.01E-03	0.00E+00	5.00E+02	6.18E+05	1.24E-03	1.21E-03	2.58E+06	2.06E-01	1.15E+07	8.70E-03	6.21E+04	1.11E+04
368	Down-dip	1	2	47	0.00E+00	4.09E+05	4.09E+05	1.10E+01	2.07E-11	2.65E-01	1.75E-10	1.87E+01	4.16E-05	0.00E+00	6.07E+02	6.12E+05	3.38E-05	3.28E-05	3.10E+06	1.97E-01	1.24E+07	2.97E-02	8.57E+04	1.00E+04
369	Down-dip	1	3	22	0.00E+00	3.90E+06	1.07E+07	1.10E+01	7.58E-05	6.43E-02	1.36E-04	1.80E-01	1.52E+03	4.02E-05	1.66E+02	5.25E+04	7.98E+01	7.58E+01	9.07E+06	7.77E-01	1.02E+07	2.25E-02	7.65E+04	2.84E+04
370	Down-dip	1	3	51	0.00E+00	4.50E+05	1.38E+07	1.10E+01	4.11E-05	6.43E-01	5.22E-05	2.10E+00	5.92E+01	9.71E-05	1.96E+03	6.59E+05	3.91E+01	3.69E+01	1.11E+07	6.82E-01	1.27E+07	2.36E-01	8.87E+04	3.33E+04
371	Down-dip	1	3	46	0.00E+00	8.04E+06	1.21E+07	2.88E+00	5.53E-05	5.72E-05	1.88E-04	7.03E-05	1.12E+06	1.39E-05	1.74E-01	1.54E+01	1.74E+01	1.70E+01	1.10E+07	9.65E-01	9.32E+06	1.21E-02	7.50E+04	2.13E+04
372	Down-dip	1	3	78	8.01E+06	8.01E+06	1.17E+07	2.88E+00	6.00E-05	2.13E-05	1.42E-04	2.13E-05	3.88E+06	1.04E-05	8.50E-02	4.76E+00	1.74E+01	1.70E+01	1.10E+07	9.45E-01	1.09E+07	6.03E-01	7.96E+04	6.00E+04
373	Down-dip	1	3	69	8.00E+06	8.00E+06	1.14E+07	2.88E+00	6.15E-05	0.00E+00	1.23E-04	0.00E+00	1.74E+22	6.54E-06	0.00E+00	0.00E+00	1.74E+01	1.70E+01	1.10E+07	9.31E-01	1.10E+07	7.99E-01	7.98E+04	6.84E+04
374	Down-dip	1	3	52	8.00E+06	8.01E+06	1.16E+07	2.88E+00	5.64E-05	2.66E-05	1.44E-04	2.66E-05	2.89E+06	3.09E-06	6.10E-02	5.87E+00	1.69E+01	1.66E+01	1.12E+07	9.60E-01	1.03E+07	8.00E-01	7.82E+04	5.94E+04
375	Down-dip	1	3	5	0.00E+00	8.04E+06	1.20E+07	2.88E+00	5.02E-05	6.53E-04	1.22E-04	6.68E-04	1.11E+06	2.47E-06	1.99E+00	1.47E+02	1.62E+01	1.59E+01	1.17E+07	8.55E-01	9.56E+06	4.32E-04	7.60E+04	1.84E+04

					Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	BC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up dip Brine Relative Permeability (fraction)	Up-dip Gas Relative Permeability (fraction)	Down-dip Brine Relative Permeability (fraction)	Down-dip Gas Relative Permeability (fraction)
No.	ID	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_RE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
376	Down-dip	1	3	44	5.31E-01	1.12E-01	1.61E-02	1.28E+00	1.02E+07	5.79E-01	1.02E+07	8.85E-01	1.29E-01	1.18E-13	1.34E-01	1.18E-13	1.20E+03	-1.17E+00	1.22E-13	3.80E-15	7.83E-01	1.38E+07	1.12E-12	1.27E-01	6.57E-02	8.31E-01	9.69E-08
377	Down-dip	1	3	45	5.27E-01	5.05E-02	2.04E-01	1.27E+00	9.88E+06	9.82E-01	9.97E+06	9.84E-01	7.63E-02	5.13E-14	8.96E-02	5.13E-14	1.20E+03	-9.31E-01	1.11E-13	1.74E-16	4.89E-01	1.36E+07	4.57E-13	9.18E-01	0.00E+00	9.26E-01	0.00E+00
378	Down-dip	1	3	54	4.92E-01	1.25E-01	2.39E-02	1.19E+00	8.76E+06	2.33E-06	1.20E+07	8.47E-01	3.07E-02	5.01E-18	5.37E-02	2.57E-18	1.20E+03	-1.16E+00	1.13E-13	4.68E-12	7.76E-01	1.56E+07	1.86E-12	0.00E+00	1.00E+00	5.34E-01	5.68E-05
379	Down-dip	1	3	41	4.94E-01	3.40E-02	8.64E-02	1.19E+00	7.00E+06	7.55E-02	1.12E+07	9.40E-01	1.42E-01	1.70E-19	1.64E-01	1.70E-19	1.20E+03	-1.22E+00	1.16E-13	3.24E-16	8.64E-01	1.48E+07	3.47E-12	0.00E+00	1.00E+00	7.76E-01	4.60E-05
380	Down-dip	1	3	31	5.43E-01	5.28E-02	5.93E-02	1.32E+00	1.12E+07	8.27E-04	1.12E+07	8.59E-01	7.70E-02	1.66E-15	8.88E-02	1.66E-15	1.20E+03	-1.27E+00	1.31E-13	3.31E-14	9.73E-01	1.48E+07	6.31E-13	0.00E+00	1.00E+00	5.48E-01	1.62E-03
381	Down-dip	1	3	16	4.84E-01	5.75E-02	2.76E-01	1.17E+00	6.33E+06	5.91E-05	1.17E+07	9.17E-01	9.87E-02	2.24E-19	1.33E-01	2.14E-19	1.20E+03	-1.29E+00	1.18E-13	1.91E-14	1.01E+00	1.53E+07	1.86E-12	0.00E+00	1.00E+00	6.40E-01	8.87E-05
382	Down-dip	1	3	43	4.73E-01	5.88E-02	2.07E-01	1.15E+00	5.67E+06	8.08E-03	1.15E+07	9.15E-01	1.65E-01	2.87E-19	2.05E-01	9.77E-20	1.20E+03	-1.26E+00	1.14E-13	3.63E-13	9.52E-01	1.51E+07	9.55E-12	0.00E+00	1.00E+00	6.58E-01	7.70E-05
383	Down-dip	1	3	23	5.16E-01	7.29E-02	4.80E-01	1.24E+00	8.50E+06	3.37E-02	1.16E+07	9.23E-01	3.18E-02	1.18E-16	4.90E-02	1.18E-16	1.20E+03	-1.18E+00	1.19E-13	7.94E-17	8.09E-01	1.52E+07	6.03E-13	0.00E+00	1.00E+00	5.54E-01	1.28E-06
384	Down-dip	1	3	7	5.20E-01	7.76E-03	3.12E-01	1.25E+00	9.39E+06	6.14E-01	9.44E+06	9.90E-01	1.42E-01	2.29E-13	1.63E-01	2.29E-13	1.20E+03	-6.15E-01	9.80E-14	7.94E-14	2.60E-01	1.30E+07	1.35E-12	1.08E-02	4.31E-01	9.49E-01	3.90E-08
385	Down-dip	1	3	72	4.97E-01	2.36E-02	4.74E-03	1.20E+00	7.34E+06	7.21E-06	1.07E+07	9.37E-01	5.86E-02	4.62E-18	8.58E-02	1.82E-18	1.20E+03	-8.26E-01	9.39E-14	5.37E-12	2.66E-01	1.43E+07	5.75E-13	0.00E+00	1.00E+00	7.85E-01	1.11E-04
386	Down-dip	1	3	39	5.40E-01	1.50E-01	2.98E-01	1.31E+00	1.09E+07	3.38E-01	1.09E+07	8.47E-01	1.89E-02	3.02E-15	2.93E-02	3.02E-15	1.20E+03	-1.23E+00	1.27E-13	2.40E-13	8.82E-01	1.45E+07	1.78E-13	2.07E-05	8.59E-01	4.02E-01	5.28E-07
387	Down-dip	1	3	73	6.30E-01	5.61E-02	3.03E-01	1.28E+00	1.01E+07	6.53E-02	1.02E+07	9.37E-01	9.23E-02	3.72E-16	1.11E-01	3.72E-16	1.20E+03	-8.01E-01	1.06E-13	6.17E-15	3.77E-01	1.37E+07	9.77E-12	0.00E+00	1.00E+00	7.05E-01	2.17E-06
388	Down-dip	1	3	97	5.04E-01	8.37E-02	4.34E-01	1.21E+00	7.60E+06	4.86E-01	1.07E+07	9.13E-01	1.46E-01	5.63E-16	1.73E-01	5.62E-16	1.20E+03	-8.88E-01	1.04E-13	4.57E-13	4.49E-01	1.43E+07	3.02E-11	1.48E-04	7.78E-01	5.38E-01	8.46E-07
389	Down-dip	1	3	14	4.47E-01	1.07E-01	3.28E-01	1.10E+00	4.31E+06	1.15E-01	1.13E+07	8.83E-01	1.27E-01	6.31E-19	1.64E-01	6.31E-19	1.20E+03	-7.31E-01	8.93E-14	8.32E-16	3.28E-01	1.49E+07	2.63E-14	0.00E+00	1.00E+00	4.93E-01	1.03E-05
390	Down-dip	1	3	80	4.74E-01	6.43E-02	2.66E-01	1.15E+00	5.90E+06	2.64E-03	1.06E+07	9.15E-01	3.92E-02	1.59E-18	6.33E-02	5.01E-19	1.20E+03	-8.21E-01	9.82E-14	2.09E-12	3.93E-01	1.42E+07	2.04E-13	0.00E+00	1.00E+00	6.34E-01	5.03E-05
391	Down-dip	1	3	8	4.27E-01	6.58E-02	1.45E-01	1.06E+00	3.49E+06	1.23E-01	1.04E+07	9.20E-01	5.65E-02	5.76E-19	9.47E-02	5.75E-19	1.20E+03	-1.18E+00	1.02E-13	6.46E-17	8.02E-01	1.40E+07	3.09E-12	0.00E+00	1.00E+00	6.96E-01	9.78E-06
392	Down-dip	1	3	34	5.17E-01	2.76E-02	3.26E-01	1.24E+00	8.94E+06	2.38E-03	9.95E+06	9.56E-01	1.98E-02	2.30E-17	3.24E-02	2.29E-17	1.20E+03	-1.07E+00	1.14E-13	7.08E-14	6.47E-01	1.35E+07	4.68E-14	0.00E+00	1.00E+00	7.79E-01	2.82E-05
393	Down-dip	1	3	68	4.86E-01	6.78E-04	5.01E-01	1.17E+00	6.68E+06	5.98E-06	1.03E+07	9.91E-01	1.69E-02	9.12E-17	3.55E-02	9.12E-17	1.20E+03	-1.32E+00	1.19E-13	4.57E-16	1.06E+00	1.39E+07	3.02E-13	0.00E+00	1.00E+00	9.32E-01	9.27E-06
394	Down-dip	1	3	53	4.48E-01	4.46E-02	2.52E-01	1.10E+00	4.52E+06	2.97E-01	1.02E+07	9.43E-01	1.54E-01	9.23E-18	2.01E-01	8.51E-18	1.20E+03	-1.23E+00	1.07E-13	1.38E-12	8.82E-01	1.38E+07	4.57E-12	3.07E-05	8.68E-01	7.47E-01	9.14E-06
395	Down-dip	1	3	60	5.01E-01	8.13E-02	4.70E-02	1.20E+00	7.82E+06	1.34E-01	9.67E+06	9.17E-01	1.94E-01	6.10E-18	2.14E-01	5.75E-18	1.20E+03	-1.17E+00	1.15E-13	6.61E-13	7.91E-01	1.33E+07	2.34E-14	1.44E-04	7.99E-01	7.13E-01	2.56E-05
396	Down-dip	1	3	21	4.62E-01	7.93E-02	4.09E-01	1.12E+00	5.35E+06	7.35E-03	9.96E+06	9.05E-01	1.70E-01	1.68E-19	2.02E-01	8.32E-20	1.20E+03	-1.64E+00	1.26E-13	1.45E-13	1.65E+00	1.35E+07	4.90E-13	0.00E+00	1.00E+00	5.22E-01	5.22E-05
397	Down-dip	1	3	57	4.36E-01	7.43E-02	2.79E-01	1.07E+00	4.01E+06	1.14E-01	9.71E+06	9.07E-01	6.90E-02	5.52E-18	9.25E-02	1.29E-18	1.20E+03	-1.19E+00	1.04E-13	8.13E-12	8.25E-01	1.33E+07	7.94E-14	0.00E+00	1.00E+00	5.99E-01	4.34E-05
398	Down-dip	1	3	90	4.57E-01	1.28E-02	2.86E-01	1.11E+00	5.16E+06	4.33E-02	8.48E+06	9.72E-01	1.23E-02	1.20E-17	4.05E-02	1.20E-17	1.20E+03	-8.48E-01	9.41E-14	2.00E-14	4.15E-01	1.31E+07	3.02E-12	0.00E+00	1.00E+00	8.64E-01	1.63E-05
399	Down-dip	1	3	9	5.17E-01	1.35E-01	5.34E-01	1.24E+00	8.75E+06	3.32E-03	1.07E+07	8.51E-01	1.51E-02	2.36E-19	2.91E-02	2.34E-19	1.20E+03	-1.24E+00	1.22E-13	2.63E-15	9.00E-01	1.43E+07	4.90E-11	0.00E+00	1.00E+00	2.42E-01	1.18E-04
400	Down-dip	1	3	76	4.80E-01	1.38E-01	3.34E-01	1.16E+00	6.43E+06	2.27E-06	9.79E+06	8.47E-01	3.21E-02	3.16E-18	5.59E-02	3.16E-18	1.20E+03	-1.33E+00	1.18E-13	5.50E-16	1.09E+00	1.34E+07	2.08E-12	0.00E+00	1.00E+00	3.82E-01	3.98E-05
401	Down-dip	1	3	100	4.90E-01	1.14E-01	3.43E-01	1.18E+00	7.22E+06	9.09E-01	9.20E+06	9.38E-01	6.67E-02	9.12E-16	9.21E-02	9.12E-16	1.20E+03	-1.26E+00	1.17E-13	2.51E-14	9.43E-01	1.28E+07	1.29E-13	5.77E-01	0.00E+00	6.84E-01	0.00E+00
402	Down-dip	1	3	1	4.74E-01	9.81E-02	2.56E-01	1.14E+00	6.18E+06	9.29E-01	9.16E+06	9.53E-01	8.25E-02	7.24E-16	9.61E-02	7.24E-16	1.20E+03	-1.28E+00	1.14E-13	1.66E-14	9.73E-01	1.28E+07	7.08E-14	6.92E-01	0.00E+00	7.87E-01	0.00E+00
403	Down-dip	1	3	65	5.16E-01	1.27E-01	8.96E-02	1.24E+00	9.14E+06	0.00E+00	9.16E+06	8.01E-01	1.88E-02	8.71E-16	3.15E-02	8.71E-16	1.20E+03	-1.16E+00	1.18E-13	4.17E-15	7.73E-01	1.27E+07	3.72E-12	0.00E+00	1.00E+00	4.02E-01	1.30E-03
404	Down-dip	1	3	70	4.67E-01	4.63E-02	4.24E-01	1.13E+00	5.74E+06	2.77E-05	9.30E+06	9.36E-01	2.29E-01	6.17E-20	2.58E-01	6.17E-20	1.20E+03	-1.28E+00	1.13E-13	1.00E-16	9.91E-01	1.29E+07	5.50E-14	0.00E+00	1.00E+00	6.47E-01	6.42E-05
405	Down-dip	1	3	2	5.28E-01	8.22E-02	4.02E-01	1.27E+00	9.94E+06	5.29E-01	9.95E+06	6.07E-01	1.67E-01	4.47E-14	1.78E-01	4.47E-14	1.20E+03	-1.29E+00	1.27E-13	5.01E-14	9.98E-01	1.36E+07	7.24E-11	3.29E-03	5.15E-01	1.92E-02	2.87E-01
406	Down-dip	1	3	87	4.91E-01	1.21E-01	6.61E-02	1.18E+00	7.30E+06	1.10E-01	9.16E+06	8.46E-01	1.71E-01	3.55E-18	1.86E-01	3.55E-18	1.20E+03	-1.27E+00	1.17E-13	7.24E-15	9.65E-01	1.27E+07	1.15E-14	1.27E-05	8.88E-01	5.14E-01	1.17E-04
407	Down-dip	1	3	95	5.21E-01	1.48E-01	3.69E-01	1.25E+00	9.38E+06	1.53E-01	9.59E+06	8.45E-01	1.58E-01	6.00E-17	1.74E-01	6.03E-17	1.20E+03	-9.54E-01	1.10E-13	1.10E-16	5.13E-01	1.32E+07	1.70E-11	0.00E+00	1.00E+00	3.62E-01	1.18E-05
408	Down-dip	1	3	20	5.13E-01	1.23E-01	1.27E-01	1.23E+00	8.83E+06	3.20E-03	9.28E+06	8.57E-01	1.95E-02	1.35E-17	3.77E-02	1.35E-17	1.20E+03	-6.04E-01	9.81E-14	3.31E-15	2.55E-01	1.29E+07	1.20E-12	0.00E+00	1.00E+00	5.16E-01	3.35E-05
409	Down-dip	1	3	13	3.88E-01	1.63E-02	4.86E-01	9.99E-01	1.72E+06	6.84E-01	9.33E+06	9.80E-01	5.38E-02	1.69E-18	9.75E-02	1.62E-18	1.20E+03	-1.31E+00	1.01E-13	1.23E-13	1.00E+00	1.29E+07	2.69E-12	2.95E-02	2.84E-01	8.65E-01	4.63E-08
410	Down-dip	1	3	84	4.50E-01	1.44E-01	6.88E-03	1.10E+00	4.83E+06	2.06E-02	9.16E+06	8.34E-01	1.46E-02	4.91E-20	4.02E-02	4.90E-20	1.20E+03	-1.40E+00	1.16E-13	2.95E-16	1.25E+00	1.27E+07	3.55E-11	1.36E-07	8.67E-01	5.08E-01	3.28E-05
411	Down-dip	1	3	19	5.13E-01	1.42E-01	2.97E-02	1.23E+00	8.91E+06	1.49E-01	8.95E+06	8.51E-01	2.01E-01	1.41E-15	2.21E-01	1.41E-15	1.20E+03	-1.23E+00	1.21E-13	2.00E-16	8.94E-01	1.25E+07	1.45E-12	4.30E-04	7.06E-01	5.40E-01	1.03E-06
412	Down-dip	1	3	10	5.00E-01	3.17E-02	1.73E-01	1.20E+00	8.20E+06	2.89E-01	8.20E+06	4.84E-01	4.89E-02	3.72E-14	7.38E-02	3.72E-14	1.20E+03	-1.33E+00	1.22E-13	1.86E-16	1.08E+00	1.18E+07	1.35E-11	7.08E-04	7.02E-01	2.70E-02	2.95E-01
413	Down-dip	1	3	55	5.10E-01	7.03E-02	2.38E-01	1.23E+00	8.75E+06	1.55E-01	8.74E+06	9.26E-01	9.27E-02	6.71E-15	1.11E-01	8.71E-15	1.20E+03	-8.68E-01	1.04E-13	6.03E-12	4.31E-01	1.24E+07	1.62E-11	0.00E+00	1.00E+00	6.85E-01	3.26E-07
414	Down-dip	1	3	50	4.81E-01	1.09E-01	5.44E-01	1.16E+00	6.60E+06	1.23E-04	9.40E+06	8.78E-01	2.12E-01	8.73E-19	2.44E-01	2.88E-19	1.20E+03	-1.27E+00	1.16E-13	1.12E-12	9.68E-01	1.30E+07	2.75E-13	0.00E+00	1.00E+00	3.11E-01	1.26E-04
415	Down-dip	1	3	29	4.52E-01	7.66E-02	4.76E-01	1.10E+00	4.99E+06	3.27E-01	8.92E+06	9.17E-01	1.76E-01	3.85E-17	2.20E-01	3.72E-17	1.20E+03	-1.52E+00	1.22E-13	2.63E-12	1.58E+00	1.25E+07	7.94E-12	0.00E+00	1.00E+00	5.27E-01	5.94E-06
416	Down-dip	1	3	32	4.51E-01	1.00E-01	5.29E-01	1.10E+00	4.86E+06	7.78E-02	9.19E+06	8.96E-01	3.96E-02	1.10E-16	7.10E-02	1.10E-16	1.20E+03	-9.74E-01	9.74E-14	5.62E-13	5.33E-01	1.28E+07	2.00E-12	0.00E+00	1.00E+00	3.97E-01	1.87E-06
417	Down-dip	1	3	66	5.00E-01	9.43E-02	5.49E-01	1.20E+00	7.96E+06	1.79E-05	8.99E+06	8.91E-01	8.45E-02	6.23E-18	1.11E-01	6.37E-18	1.20E+03	-1.37E+00	1.25E-13	1.66E-12	1.18E+00	1.26E+07	1.48E-14	0.00E+00	1.00E+00	3.61E-01	1.10E-04
418	Down-dip	1	3	77	4.91E-01	1.48E-01	8.84E-02	1.18E+00	7.43E+06	8.28E-03	8.79E+06	8.14E-01	2.04E-01	8.13E-19	2.34E-01	8.13E-19	1.20E+03	-7.13E-01	8.54E-14	2.75E-16	3.17E-01	1.24E+07	1.20E-11	0.00E+00	1.00E+00	4.38E-01	1.93E-04
419	Down-dip	1	3	88	4.82E-01	1.19E-01	2.88E-01	1.16E+00	8.85E+06	1.79E-07	8.66E+06	8.73E-01	2.00E-02	2.61E-16	4.25E-02	2.57E-16	1.20E+03	-1.19E+00	1.12E-13	7.59E-12	8.14E-01	1.23E+07	1.82E-14	0.00E+00	1.00E+00	4.85E-01	4.40E-06
420	Down-dip	1	3	64	4.66E-01	1.33E-01	1.78E-02	1.13E+00	5.87E+06	8.63E-02	8.53E+06	8.59E-01	4.96E-02	3.41E-16	8.15E-02	3.39E-16	1.20E+03	-1.53E+00	1.26E-13	3.63E-12	1.62E+00	1.21E+07	2.24E-12	5.35E-05	8.34E-01	5.64E-01	1.85E-06
421	Down-dip	1	3	47	4.45E-01	6.75E-02	1.61E-01	1.09E+00	4.70E+06	2.02E-01	8.53E+06	9.14E-01	1.47E-01	6.92E-18	1.81E-01	6.92E-18	1.20E+03	-1.09E+00	1.01E-13	2.19E-16	6.75E-01	1.21E+07	1.55E-12	1.44E-05	8.91E-01	6.71E-01	2.33E-05
422	Down-dip	1	3	71	4.80E-01	1.57E-02	1.06E-01	1.16E+00	6.80E+06	4.65E-06	8.41E+06	9.43E-01	3.97E-02	2.19E-18	6.99E-02	2.19E-18	1.20E+03	-1.37E+00	1.20E-13	5.25E-17	1.18E+00	1.20E+07	6.76E-13	0.00E+00	1.00E+00	7.84E-01	1.73E-04
423	Down-dip	1	3	96	4.99E-01	2.90E-03	2.47E-01	1.20E+00	8.16E+06	5.36E-07	8.28E+06	9.92E-01	3.74E-02	3.55E-15	5.66E-02	3.55E-15	1.20E+03	-1.16E+00	1.14E-13	1.07E-13	7.79E-01	1.19E+07	4.79E-12	0.00E+00	1.00E+00	9.63E-01	4.56E-07
424	Down-dip	1	3	27	4.93E-01	1.18E-01	4.62E-01	1.18E+00	7.62E+06	5.05E-02	8.46E+06	8.78E-01	2.61E-02	1.86E-16	4.51E-02	1.86E-16	1.20E+03	-1.24E+00	1.16E-13	2.40E-15	9.09E-01	1.20E+07	1.26E-12	0.00E+00	1.00E+00	3.87E-01	1.12E-06
425	Down-dip	1	3	35	5.03E-01	9.57E-02	4.39E-01	1.21E+00	8.35E+06	8.95E-01	8.37E+06	9.02E-01	5.14E-02	7.24E-15	6.83E-02	7.24E-15	1.20E+03	-8.97E-01	1.04E-13	1.38E-13	4.57E-01	1.19E+07	3.98E-11	4.65E-01	1.38E-05	4.93E-01	1.97E-07
426	Down-dip	1	3	24	4.97E-01	9.01E-02	1.37E-01	1.19E+00	8.04E+06	9.08E-01	8.12E+06	9.08E-01	1.98E-01	2.82E-13	2.26E-01	2.82E-13	1.20E+03	-1.29E+00	1.20E-13	2.63E-14	9.94E-01	1.17E+07	7.41E-13	6.59E-01	3.43E-08	6.59E-01	3.36E-08
427	Down-dip	1	3	86	4.40E-01	6.86E-02	3.61E-02	1.08E+00	4.49E+06	4.70E-01	8.24E+06	9.19E-01	1.55E-01	3.04E-17	1.98E-01	3.02E-17	1.20E+03	-1.26E+00	1.07E-13	4.07E-13	9.43E-01	1.18E+07	2.04E-11	5.23E-02	1.88E-01	7.23E-01	4.61E-06
428	Down-dip	1	3	98	4.74E-01	3.56E-02	5.00E-02	1.14E+00	6.45E+06	1.40E-05	8.16E+06	9.15E-01	5.69E-02	4.19E-19	9.04E-02	4.17E-19	1.20E+03	-1.23E+00	1.12E-13	4.79E-15	8.82E-01	1.17E+07	3.98E-14	0.00E+00	1.00E+00	7.06E-01	2.70E-04
429	Down-dip	1	3	37	5.09E-01	4.07E-02	2.28E-01	1.22E+00	8.74E+06	1.80E-02	8.74E+06	4.08E-01	1.14E-01	3.98E-16	1.27E-01	3.98E-16	1.20E+03	-1.19E+00	1.18E-13	1.35E-15	8.19E-01	1.22E+07	6.17E-12	0.00E+00	1.00E+00	4.64E-03	5.15E-01
430	Down-dip	1	3	82	6.27E-01	8.52E-02	4.53E-01	1.27E+00	9.89E+06	1.16E-01	9.87E+06	5.74E-01	1.30E-01	2.14E-15	1.39E-01	2.14E-15	1.20E+03	-1.39E+00	1.33E-13	1.46E-12	1.22E+00	1.34E+07	8.13E-13	0.00E+00	1.00E+00	3.74E-03	4.90E-01
431	Down-dip	1	3	33	5.12E-01	1.31E-01	1.22E-01	1.23E+00	8.88E+06	4.11E-01	8.87E+06	2.94E-01	2.95E-02	1.12E-14	4.09E-02	1.12E-14	1.20E+03	-1.24E+00	1.21E-13	8.32E-13	9.16E-01	1.23E+07	1.26E-13	1.64E-02	3.01E-01	2.42E-03	5.44E-01
432	Down-dip	1	3	94	5.45E-01	4.58E-03	1.85E-01	1.32E+00	1.13E+07	2.44E-01	1.13E+07	2.71E-01	2.04E-01	8.31E-15	2.11E-01	8.31E-15	1.20E+03	-1.29E+00	1.32E-13	9.77E-16	9.95E-01	1.44E+07	1.78E-12	6.13E-05	8.50E-01	2.47E-04	7.81E-01
433	Down-dip	1	3	99	5.19E-01	1.28E-01	5.15E-01	1.25E+00	9.32E+06	1.64E-01	9.33E+06	5.52E-01	1.72E-01	5.89E-17	1.92E-01	5.89E-17	1.20E+03	-7.63E-01	1.03E-13	6.17E-17	3.50E-01	1.27E+07	2.29E-11	0.00E+00	1.00E+00	7.48E-05	7.86E-01
434	Down-dip	1	3	56	6.02E-01	4.66E-02	3.20E-01	1.21E+00	8.33E+06	4.59E-06	8.33E+06	3.50E-01	8.25E-02	1.05E-15	9.99E-02	1.05E-15	1.20E+03	-7.21E-01	9.77E-14	1.05E-14	3.22E-01	1.17E+07	2.82E-12	0.00E+00	1.00E+00	1.04E-05	9.01E-01
435	Down-dip	1	3	58	5.68E-01	2.96E-02	1.14E-01	1.39E+00	1.32E+07	1.25E-01	1.32E+07	1.46E-01	2.10E-01	2.52E-16	2.07E-01	1.45E-16	1.20E+03	-1.18E+00	1.33E-13	3.09E-15	8.11E-01	1.32E+07	1.07E-13	1.14E-07	9.72E-01	4.67E-08	9.23E-01
436	Down-dip	1	3	49	5.61E-01	3.07E-02	7.84E-02	1.37E+00	1.26E+07	4.94E-02	1.26E+07	1.06E-01	4.01E-02	4.27E-15	4.19E-02	4.27E-15	1.20E+03	-1.26E+00	1.36E-13	8.91E-13	9.52E-01	1.31E+07	9.77E-13	0.00E+00	1.00E+00	3.18E-06	9.31E-01
437	Down-dip	1	3	30	5.50E-01	1.16E-01	4.16E-02	1.33E+00	1.17E+07	5.30E-02	1.17E+07	5.85E-02	3.51E-02	2.75E-14	4.16E-02	2.75E-14	1.20E+03	-6.49E-01	1.05E-13	2.19E-13	2.79E-01	1.48E+07	1.59E-13	7.83E-08	9.73E-01	3.35E-07	9.59E-01
438	Down-dip	1	3	28	5.70E-01	9.72E-02	1.79E-01	1.40E+00	1.35E+07	1.81E-01	1.33E+07	1.88E-01	2.10E-01	5.59E-17	2.11E-01	4.79E-17	1.20E+03	-1.08E+00	1.29E-13	9.55E-12	6.64E-01	1.48E+07	9.55E-14	2.65E-10	9.94E-01	5.94E-08	9.75E-01
439	Down-dip	1	3	10	5.12E-01	3.17E-02	1.73E-01	1.23E+00	8.89E+06	1.57E-01	8.91E+06	7.24E-01	5.02E-02	3.72E-14	7.19E-02	3.72E-14	1.40E+03	-1.33E+00	1.25E-13	1.86E-16	1.08E+00	1.18E+07	1.35E-11	0.00E+00	1.00E+00	2.24E-01	4.34E-02
440	Down-dip	1	3	78	5.58E-01	4.93E-02	1.51E-01	1.36E+00	1.23E+07	7.80E-01	1.24E+07	9.45E-01	1.14E-01	3.55E-15	1.11E-01	2.46E-15	1.40E+03	-1.06E+00	1.24E-13	8.32E-17	6.28E-01	1.48E+07	1.07E-12	3.30E-01	1.53E-02	7.81E-01	6.07E-07
441	Down-dip	1	3	44	5.42E-01	1.12E-01	1.61E-02	1.31E+00	1.10E+07	4.17E-01	1.11E+07	8.85E-01	1.30E-01	1.30E-13	1.31E-01	1.18E-13	1.40E+03	-1.17E+00	1.25E-13	3.80E-15	7.83E-01	1.38E+07	1.12E-12	3.65E-02	2.13E-01	6.31E-01	8.69E-08
442	Down-dip	1	3	18	5.08E-01	1.06E-01	3.40E-01	1.22E+00	8.66E+06	4.95E-01	8.68E+06	6.81E-01	5.11E-02	3.31E-14	7.38E-02	3.31E-14	1.40E+03	-1.09E+00	1.13E-13	6.17E-16	6.69E-01	1.12E+07	5.25E-12	4.87E-03	4.61E-01	8.72E-02	8.31E-02
443	Down-dip	1	3	69	5.44E-01	8.98E-02	4.08E-01	1.32E+00	1.11E+07	9.09E-01	1.12E+07	9.17E-01	7.90E-02	1.26E-14	8.74E-02	1.26E-14	1.40E+03	-1.29E+00	1.32E-13	9.33E-15	9.99E-01	1.47E+07	4.07E-13	5.40E-01	1.72E-08	5.72E-01	0.00E+00
444	Down-dip	1	3	45	5.29E-01	5.05E-02	2.04E-01	1.28E+00	1.00E+07	9.69E-01	1.01E+07	9.71E-01	7.65E-02	5.13E-14	8.93E-02	5.13E-14	1.40E+03	-9.31E-01	1.11E-13	1.74E-15	4.89E-01	1.36E+07	4.57E-13	8.64E-01	0.00E+00	8.72E-01	0.00E+00
445	Down-dip	1	3	52	5.39E-01	3.68E-02	4.49E-01	1.30E+00	1.08E+07	9.58E-01	1.09E+07	9.60E-01	1.10E-01	1.70E-15	1.26E-01	1.70E-15	1.40E+03	-9.48E-01	1.14E-13	4.17E-14	5.07E-01	1.51E+07	2.63E-13	7.44E-01	2.19E-06	7.57E-01	4.33E-07
446	Down-dip	1	3	31	5.35E-01	5.28E-02	5.93E-02	1.29E+00	1.05E+07	6.60E-08	1.05E+07	8.58E-01	7.60E-02	1.66E-15	9.04E-02	1.66E-15	1.40E+03	-1.27E+00	1.29E-13	3.31E-14	9.73E-01	1.48E+07	6.31E-13	0.00E+00	1.00E+00	5.41E-01	1.79E-03
447	Down-dip	1	3	73	5.34E-01	5.61E-02	3.03E-01	1.29E+00	1.04E+07	5.49E-02	1.05E+07	9.37E-01	9.28E-02	3.72E-16	1.10E-01	3.72E-16	1.40E+03	-8.01E-01	1.07E-13	6.17E-15	3.77E-01	1.37E+07	9.77E-12	0.00E+00	1.00E+00	7.05E-01	2.11E-06
448	Down-dip	1	3	5	5.29E-01	1.29E-01	1.21E-01	1.27E+00	9.84E+06	6.40E-05	1.06E+07	8.49E-01	1.33E-01	1.91E-17	1.48E-01	1.82E-17	1.40E+03	-1.37E+00	1.32E-13	1.82E-12	1.17E+00	1.54E+07	3.31E-13	0.00E+00	1.00E+00	4.99E-01	3.95E-05
449	Down-dip	1	3	46	5.25E-01	2.03E-02	2.35E-01	1.27E+00	9.68E+06	6.72E-03	1.00E+07	9.64E-01	4.68E-02	1.59E-17	6.30E-02	1.59E-17	1.40E+03	-1.41E+00	1.33E-13	1.45E-14	1.26E+00	1.51E+07	1.15E-11	0.00E+00	1.00E+00	8.36E-01	1.60E-05
450	Down-dip	1	3	65	5.18E-01	1.27E-01	8.96E-02	1.25E+00	9.21E+06	0.00E+00	9.23E+06	7.38E-01	1.89E-02	8.71E-16	3.14E-02	8.71E-16	1.40E+03	-1.16E+00	1.18E-13	4.17E-15	7.73E-01	1.27E+07	3.72E-12	0.00E+00	1.00E+00	2.85E-01	8.21E-03

	.	.	.	.	Up-dip Flowing Bottom-hole Pressure (Pa)	Down-dip Flowing Bottom-hole Pressure (Pa)	BC well Injection Pressure (Pa)	Blowout Duration (Days)	Brine Rate (m^3/s)	Gas Rate (ref m^3/s)	Max Brine Rate (m^3/s)	Max Gas Rate (ref m^3/s)	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s)	Cum Brine from Boundary Condition Well (m^3)	Gas Rate (mscf/day)	Cum Gas Produced (ref m^3)	Cum Brine Produced (m^3)	Cum Brine Releases (m^3)	Avg Brine Pressure Panel 5 (Pa) after Blowout	Avg Brine Saturation Panel 5 (fraction) after blowout	Avg Brine Pressure Panel 0 (Pa) after blowout	Avg Brine Saturation Panel 0 (fraction) after blowout	Total Excavated Waste Pore Volume (fraction)	Total Excavated Brine Volume (m^3)
No.	ID	Replic.	Scen.	Vector	FBHP2	FBHP4	BHP_ABAN	time	BRINEFLW	GASFLW	MAX_BRN	MAX_GAS	LGR_MET	BRINE_BC	GAS_RATE	GASOUT	BRINEOUT	BRIN_REL	BRNPRES5	SATBRN5	BRNPRES0	SATBRN0	WASTE_PV	TOT_BRIN
376	Down-dip	1	3	44	3.60E+05	7.99E+06	1.07E+07	2.88E+00	5.93E-05	4.52E-06	8.12E-05	4.52E-06	1.73E+07	1.61E-05	1.38E-02	9.01E-01	1.55E+01	1.51E+01	1.02E+07	8.87E-01	1.02E+07	3.32E-01	7.63E+04	4.54E+04
377	Down-dip	1	3	45	8.00E+06	8.00E+06	1.04E+07	2.88E+00	5.87E-05	0.00E+00	9.65E-05	0.00E+00	1.64E+22	1.48E-05	0.00E+00	0.00E+00	1.54E+01	1.51E+01	9.78E+06	9.84E-01	9.80E+06	9.81E-01	7.52E+04	7.38E+04
378	Down-dip	1	3	54	0.00E+00	8.04E+06	1.25E+07	2.88E+00	4.81E-05	7.63E-04	1.14E-04	8.05E-04	8.33E+04	8.51E-06	2.33E+00	1.84E+02	1.53E+01	1.60E+01	1.19E+07	8.50E-01	8.76E+06	2.33E-08	6.56E+04	1.84E+04
379	Down-dip	1	3	41	0.00E+00	8.04E+06	1.18E+07	2.88E+00	4.78E-05	1.74E-04	1.37E-04	2.18E-04	3.13E+05	1.05E-05	6.31E-01	4.74E+01	1.48E+01	1.46E+01	1.10E+07	9.40E-01	7.00E+06	7.56E-02	6.59E+04	2.35E+04
380	Down-dip	1	3	31	0.00E+00	7.70E+06	1.15E+07	2.88E+00	4.80E-05	4.11E-03	1.20E-04	8.55E-03	1.18E+04	7.91E-06	1.25E+01	1.27E+03	1.47E+01	1.44E+01	1.10E+07	8.61E-01	1.12E+07	6.38E-04	8.02E+04	1.89E+04
381	Down-dip	1	3	16	0.00E+00	8.04E+06	1.22E+07	2.88E+00	4.65E-05	5.40E-04	1.31E-04	6.81E-04	9.92E+04	8.86E-06	1.65E+00	1.48E+02	1.47E+01	1.44E+01	1.14E+07	9.18E-01	8.33E+06	5.91E-05	6.37E+04	1.94E+04
382	Down-dip	1	3	43	0.00E+00	8.04E+06	1.21E+07	2.88E+00	4.47E-05	4.25E-04	1.24E-04	5.05E-04	1.23E+05	9.76E-06	1.30E+00	1.15E+02	1.41E+01	1.38E+01	1.13E+07	9.16E-01	5.67E+06	8.08E-03	6.09E+04	2.00E+04
383	Down-dip	1	3	23	0.00E+00	8.02E+06	1.20E+07	2.88E+00	4.29E-05	1.89E-04	1.13E-04	1.90E-04	3.35E+05	6.07E-06	5.77E-01	4.02E+01	1.35E+01	1.32E+01	1.14E+07	9.24E-01	8.50E+06	3.39E-02	7.20E+04	2.37E+04
384	Down-dip	1	3	7	2.41E+05	7.99E+06	9.99E+06	2.88E+00	5.03E-05	6.56E-08	6.45E-05	6.56E-08	8.13E+08	2.12E-05	2.00E-04	1.60E-02	1.30E+01	1.27E+01	9.34E+06	9.91E-01	9.39E+06	4.04E-01	7.32E+04	5.07E+04
385	Down-dip	1	3	72	0.00E+00	8.04E+06	1.12E+07	2.88E+00	3.86E-05	2.11E-04	9.51E-05	3.15E-04	1.99E+05	7.78E-06	8.43E-01	5.88E+01	1.17E+01	1.14E+01	1.05E+07	9.37E-01	7.34E+06	7.24E-06	6.67E+04	1.81E+04
386	Down-dip	1	3	39	3.25E+05	8.01E+06	1.08E+07	2.88E+00	3.50E-05	1.93E-04	7.03E-05	1.93E-04	3.28E+05	0.00E+00	5.89E-01	3.28E+01	1.07E+01	1.05E+01	1.08E+07	8.50E-01	1.09E+07	2.09E-01	7.90E+04	4.12E+04
387	Down-dip	1	3	73	0.00E+00	8.02E+06	1.08E+07	2.88E+00	3.26E-05	1.94E-05	7.69E-05	1.94E-05	2.23E+06	1.08E-05	5.92E-02	4.39E+00	9.77E+00	9.56E+00	1.01E+07	9.38E-01	1.01E+07	6.67E-02	7.59E+04	2.24E+04
388	Down-dip	1	3	97	0.00E+00	8.01E+06	1.14E+07	2.88E+00	3.20E-05	7.26E-05	7.24E-05	7.26E-05	6.84E+05	1.03E-05	2.22E-01	1.43E+01	9.74E+00	9.56E+00	1.06E+07	9.14E-01	7.80E+06	3.69E-01	6.86E+04	4.36E+04
389	Down-dip	1	3	14	0.00E+00	8.04E+06	9.70E+06	2.88E+00	3.06E-05	2.43E-04	6.84E-05	2.43E-04	1.84E+05	0.00E+00	7.41E-01	5.17E+01	9.48E+00	9.30E+00	1.11E+07	8.85E-01	4.31E+06	1.15E-01	5.52E+04	2.49E+04
390	Down-dip	1	3	80	0.00E+00	8.04E+06	1.07E+07	2.88E+00	3.05E-05	1.80E-04	7.33E-05	1.93E-04	2.05E+05	2.58E-06	5.50E-01	4.60E+01	9.40E+00	9.22E+00	1.04E+07	9.16E-01	5.90E+06	2.85E-03	6.10E+04	1.86E+04
391	Down-dip	1	3	6	0.00E+00	8.04E+06	1.10E+07	2.88E+00	2.96E-05	5.00E-05	7.90E-05	5.13E-05	7.51E+05	8.71E-06	1.53E-01	1.22E+01	9.18E+00	9.00E+00	1.02E+07	9.21E-01	3.49E+06	1.23E-01	5.10E+04	2.59E+04
392	Down-dip	1	3	34	0.00E+00	8.04E+06	9.40E+06	2.88E+00	2.86E-05	4.85E-05	8.09E-05	8.52E-05	6.61E+05	0.00E+00	1.48E-01	1.33E+01	8.81E+00	8.64E+00	9.71E+06	9.56E-01	8.94E+06	2.39E-03	7.21E+04	1.89E+04
393	Down-dip	1	3	68	0.00E+00	8.03E+06	1.06E+07	2.88E+00	2.80E-05	9.14E-06	1.18E-04	2.63E-05	3.20E+06	1.15E-05	2.79E-02	2.74E+00	8.76E+00	8.60E+00	9.67E+06	9.90E-01	6.68E+06	5.96E-08	6.38E+04	2.14E+04
394	Down-dip	1	3	53	0.00E+00	8.03E+06	1.08E+07	2.88E+00	2.83E-05	3.08E-05	8.11E-05	3.33E-05	1.11E+06	9.43E-06	9.41E-02	7.90E+00	8.75E+00	8.58E+00	9.99E+06	9.44E-01	4.52E+06	2.80E-01	5.51E+04	3.36E+04
395	Down-dip	1	3	60	0.00E+00	8.04E+06	8.89E+06	2.88E+00	2.53E-05	4.73E-05	6.40E-05	5.44E-05	6.30E+05	0.00E+00	1.44E-01	1.25E+01	7.87E+00	7.72E+00	9.65E+06	9.18E-01	7.82E+06	1.24E-01	0.76E+04	2.77E+04
396	Down-dip	1	3	21	0.00E+00	8.04E+06	1.04E+07	2.88E+00	2.20E-05	1.91E-04	8.01E-05	2.18E-04	1.42E+05	6.44E-06	6.83E-01	5.00E+01	7.08E+00	6.95E+00	9.87E+06	9.06E-01	5.35E+06	7.36E-03	5.83E+04	1.78E+04
397	Down-dip	1	3	57	0.00E+00	8.04E+06	9.85E+06	2.88E+00	1.96E-05	9.01E-05	4.95E-05	9.85E-05	2.63E+05	0.00E+00	2.75E-01	2.34E+01	6.15E+00	6.03E+00	9.60E+06	9.08E-01	4.01E+06	1.15E-01	5.20E+04	2.30E+04
398	Down-dip	1	3	90	0.00E+00	8.03E+06	1.01E+07	2.88E+00	1.90E-05	1.18E-05	5.63E-05	2.21E-05	1.74E+06	9.84E-06	3.54E-02	3.31E+00	5.77E+00	5.66E+00	9.33E+06	9.73E-01	5.16E+06	4.31E-02	5.71E+04	2.08E+04
399	Down-dip	1	3	9	0.00E+00	7.99E+06	1.14E+07	2.88E+00	1.75E-05	1.02E-03	3.85E-05	1.17E-03	2.23E+04	8.83E-06	3.12E+00	2.56E+02	5.71E+00	5.61E+00	1.07E+07	8.55E-01	8.75E+06	3.33E-03	7.21E+04	1.72E+04
400	Down-dip	1	3	76	0.00E+00	8.04E+06	1.04E+07	2.68E+00	1.75E-05	2.16E-04	3.78E-05	2.18E-04	1.14E+05	8.59E-06	6.59E-01	4.89E+01	5.56E+00	5.46E+00	9.77E+06	8.51E-01	6.43E+06	2.27E-06	6.24E+04	1.56E+04
401	Down-dip	1	3	100	0.00E+00	8.00E+06	9.44E+06	2.88E+00	1.84E-05	0.00E+00	4.58E-05	0.00E+00	5.53E+21	4.02E-06	0.00E+00	0.00E+00	5.53E+00	5.42E+00	9.13E+06	9.37E-01	7.19E+06	8.52E-01	6.49E+04	5.75E+04
402	Down-dip	1	3	1	0.00E+00	8.00E+06	9.21E+06	2.88E+00	1.82E-05	0.00E+00	4.97E-05	0.00E+00	5.46E+21	1.22E-06	0.00E+00	0.00E+00	5.48E+00	5.35E+00	9.04E+06	9.54E-01	6.15E+06	9.28E-01	6.08E+04	5.69E+04
403	Down-dip	1	3	65	0.00E+00	7.63E+06	9.76E+06	2.88E+00	1.63E-05	1.35E-03	3.47E-05	2.25E-03	1.27E+04	1.17E-05	4.13E+00	4.02E+02	5.09E+00	4.99E+00	9.13E+06	8.06E-01	9.14E+06	0.00E+00	7.20E+04	1.50E+04
404	Down-dip	1	3	70	0.00E+00	8.03E+06	9.17E+06	2.88E+00	1.61E-05	6.59E-05	4.41E-05	9.08E-05	2.74E+05	0.00E+00	2.01E-01	1.84E+01	5.03E+00	4.93E+00	9.18E+06	9.37E-01	5.74E+06	2.77E-05	5.93E+04	1.69E+04
405	Down-dip	1	3	2	2.51E+05	2.63E+05	1.05E+07	1.10E+01	4.94E-06	2.62E-01	1.13E-05	3.68E+00	1.11E+01	1.80E-04	8.00E+02	4.80E+05	5.08E+00	4.84E+00	4.54E+06	6.30E-01	9.94E+06	3.75E-01	7.53E+04	4.22E+04
406	Down-dip	1	3	67	0.00E+00	8.02E+06	8.42E+06	2.88E+00	1.51E-05	1.35E-04	3.27E-06	1.57E-04	1.32E+05	0.00E+00	4.13E-01	3.82E+01	4.75E+00	4.66E+00	9.11E+06	9.50E-01	7.30E+06	1.06E-01	6.51E+04	2.21E+04
407	Down-dip	1	3	95	0.00E+00	8.04E+06	1.02E+07	2.88E+00	1.54E-05	9.47E-05	2.87E-05	9.47E-05	2.57E+05	9.91E-06	2.89E-01	1.84E+01	4.71E+00	4.62E+00	9.58E+06	8.49E-01	9.38E+06	1.54E-01	7.33E+04	2.47E+04
408	Down-dip	1	3	20	0.00E+00	8.04E+06	9.64E+06	2.88E+00	1.56E-05	5.54E-05	2.94E-05	5.55E-05	3.57E+05	9.50E-06	1.69E-01	1.32E+01	4.71E+00	4.61E+00	9.27E+06	8.61E-01	8.83E+06	3.22E-03	7.10E+04	1.64E+04
409	Down-dip	1	3	13	0.00E+00	7.99E+06	9.95E+06	2.75E+00	1.51E-05	2.24E-07	5.67E-05	2.34E-07	8.36E+07	9.29E-06	6.84E-04	5.38E-02	4.49E+00	4.47E+00	9.14E+06	9.80E-01	1.72E+06	4.85E-01	4.35E+04	3.14E+04
410	Down-dip	1	3	84	0.00E+00	8.04E+06	9.78E+06	2.88E+00	1.43E-05	5.49E-05	3.14E-05	5.64E-05	3.34E+05	9.41E-06	1.68E-01	1.35E+01	4.52E+00	4.44E+00	9.15E+06	8.38E-01	4.83E+06	1.94E-02	5.54E+04	1.65E+04
411	Down-dip	1	3	19	2.47E+05	8.01E+06	9.52E+06	2.88E+00	1.44E-05	4.76E-06	2.92E-05	4.76E-06	4.54E+06	1.07E-05	1.45E-02	9.75E-01	4.42E+00	4.33E+00	8.95E+06	8.55E-01	8.91E+06	1.24E-01	7.09E+04	3.19E+04
412	Down-dip	1	3	10	2.29E+05	2.34E+05	8.77E+06	1.10E+01	3.02E-06	1.94E-01	1.25E-05	2.49E+00	1.14E+01	1.51E-04	5.93E+02	3.61E+05	4.13E+00	4.10E+00	3.41E+06	5.07E-01	8.19E+08	1.71E-01	6.73E+04	2.95E+04
413	Down-dip	1	3	55	0.00E+00	8.00E+06	9.40E+06	2.88E+00	1.36E-05	5.98E-07	2.52E-05	5.98E-07	2.79E+07	1.40E-05	1.62E-03	1.37E-01	3.81E+00	3.72E+00	8.74E+06	9.28E-01	8.75E+06	1.59E-01	7.01E+04	3.79E+04
414	Down-dip	1	3	50	0.00E+00	7.99E+06	9.78E+06	2.88E+00	1.09E-05	2.81E-04	2.41E-05	3.09E-04	4.88E+04	5.26E-06	8.56E-01	7.18E+01	3.50E+00	3.44E+00	9.37E+06	8.79E-01	6.60E+06	1.23E-04	6.27E+04	1.56E+04
415	Down-dip	1	3	29	0.00E+00	8.03E+06	9.55E+06	2.88E+00	1.04E-05	1.16E-05	2.73E-05	1.19E-05	1.18E+06	8.55E-06	3.53E-02	2.82E+00	3.31E+00	3.24E+00	8.92E+06	9.19E-01	4.99E+06	3.27E-01	5.58E+04	3.28E+04
416	Down-dip	1	3	32	0.00E+00	8.02E+06	9.79E+06	2.88E+00	1.03E-05	1.84E-05	2.16E-05	1.84E-05	8.88E+05	7.87E-06	5.60E-02	3.58E+00	3.17E+00	3.11E+00	9.19E+06	8.99E-01	4.86E+06	7.84E-02	5.56E+04	2.38E+04
417	Down-dip	1	3	66	0.00E+00	8.00E+06	8.45E+06	2.88E+00	9.34E-06	1.39E-04	2.11E-05	1.56E-04	8.17E+04	0.00E+00	4.24E-01	3.66E+01	2.98E+00	2.93E+00	8.95E+06	8.94E-01	7.96E+06	1.79E-05	6.74E+04	1.56E+04
418	Down-dip	1	3	77	0.00E+00	7.98E+06	9.40E+06	2.88E+00	9.04E-06	1.18E-04	1.81E-05	1.37E-04	8.64E+04	1.04E-05	3.61E-01	3.15E+01	2.72E+00	2.67E+00	8.79E+06	8.19E-01	7.43E+06	8.27E-03	6.51E+04	1.48E+04
419	Down-dip	1	3	88	0.00E+00	8.02E+06	8.44E+06	2.88E+00	7.88E-06	5.16E-06	1.64E-05	5.16E-06	2.04E+06	0.00E+00	1.57E-02	1.20E+00	2.44E+00	2.39E+00	8.64E+06	8.76E-01	6.85E+06	1.79E-07	6.28E+04	1.83E+04
420	Down-dip	1	3	64	0.00E+00	8.01E+06	9.15E+06	2.88E+00	7.61E-06	1.66E-06	1.74E-05	1.68E-06	6.00E+06	9.91E-06	5.05E-03	4.01E-01	2.40E+00	2.36E+00	8.54E+06	8.63E-01	5.87E+06	6.06E-02	5.90E+04	2.72E+04
421	Down-dip	1	3	47	0.00E+00	8.03E+06	9.14E+06	2.88E+00	6.74E-06	6.59E-06	1.61E-05	1.05E-05	1.11E+08	8.72E-06	2.01E-02	1.86E+00	2.07E+00	2.03E+00	8.55E+06	9.16E-01	4.70E+06	1.97E-01	5.42E+04	2.71E+04
422	Down-dip	1	3	71	0.00E+00	8.01E+06	8.98E+06	2.88E+00	6.45E-06	2.89E-05	1.80E-05	7.36E-05	2.26E+05	8.90E-06	8.82E-02	8.68E+00	1.97E+00	1.93E+00	8.43E+06	9.45E-01	6.80E+06	4.65E-06	6.23E+04	1.59E+04
423	Down-dip	1	3	96	0.00E+00	8.00E+06	8.89E+06	2.88E+00	6.17E-06	5.73E-08	1.47E-05	1.27E-07	1.08E+08	1.07E-05	1.76E-04	1.51E-02	1.63E+00	1.59E+00	8.33E+06	9.93E-01	8.16E+06	7.16E-07	6.73E+04	3.27E+04
424	Down-dip	1	3	27	0.00E+00	8.01E+06	9.06E+06	2.88E+00	4.86E-06	1.63E-06	9.69E-08	1.63E-08	4.39E+06	8.89E-06	4.97E-03	3.43E-01	1.60E+00	1.47E+00	8.49E+06	8.81E-01	7.62E+06	5.07E-02	6.55E+04	1.87E+04
425	Down-dip	1	3	35	8.03E+06	8.00E+06	8.98E+06	2.88E+00	5.19E-06	2.18E-07	9.11E-06	2.16E-07	3.19E+07	1.20E-05	6.58E-04	4.65E-02	1.48E+00	1.45E+00	8.39E+06	9.05E-01	8.35E+06	5.48E-01	6.81E+04	4.81E+04
426	Down-dip	1	3	24	7.99E+06	7.99E+06	8.89E+06	2.88E+00	4.47E-06	5.29E-09	5.12E-06	5.35E-09	8.41E+08	1.78E-05	1.61E-05	1.32E-03	1.11E+00	1.08E+00	8.14E+06	9.10E-01	8.02E+06	9.07E-01	6.66E+04	6.05E+04
427	Down-dip	1	3	86	0.00E+00	8.02E+06	8.87E+06	2.88E+00	3.28E-06	5.02E-07	8.15E-06	9.46E-07	8.89E+06	9.13E-06	1.63E-03	1.45E-01	9.98E-01	9.78E-01	8.28E+06	9.21E-01	4.49E+06	3.02E-01	5.31E+04	3.19E+04
428	Down-dip	1	3	98	0.00E+00	7.98E+06	8.40E+06	2.88E+00	2.66E-06	1.92E-05	6.59E-06	4.54E-05	1.40E+05	3.83E-06	5.87E-02	5.87E+00	8.20E-01	8.04E-01	8.16E+06	9.17E-01	8.45E+06	1.40E-05	6.07E+04	1.50E+04
429	Down-dip	1	3	37	0.00E+00	2.27E+05	9.22E+06	1.10E+01	3.65E-07	1.49E-01	2.22E-06	4.75E+00	1.55E+00	1.32E-04	4.53E+02	3.43E+05	5.30E-01	5.01E-01	3.34E+06	4.36E-01	8.74E+06	1.60E-02	7.00E+04	8.44E+03
430	Down-dip	1	3	82	0.00E+00	2.49E+05	9.98E+06	1.10E+01	3.40E-07	1.44E-01	2.28E-06	6.45E+00	1.38E+00	1.50E-04	4.41E+02	3.59E+05	4.95E-01	4.73E-01	3.22E+06	5.99E-01	9.86E+00	1.17E-01	7.51E+04	1.78E+04
431	Down-dip	1	3	33	2.39E+05	2.32E+05	7.15E+06	1.10E+01	2.34E-07	2.32E-01	1.21E-06	5.30E+00	8.63E-01	1.04E-04	7.08E+02	4.94E+05	3.27E-01	3.27E-01	3.08E+06	3.19E-01	8.88E+06	2.30E-01	7.07E+04	2.78E+04
432	Down-dip	1	3	94	3.22E+05	3.04E+05	1.12E+07	1.10E+01	3.14E-08	4.99E-01	1.70E-07	1.32E+01	4.13E-02	2.04E-04	1.52E+03	1.04E+06	4.32E-02	4.26E-02	3.94E+06	3.05E-01	1.12E+07	2.23E-01	8.06E+04	2.84E+04
433	Down-dip	1	3	99	0.00E+00	2.75E+05	9.71E+06	1.10E+01	3.94E-09	9.84E-02	3.32E-08	7.14E+00	2.10E-02	7.23E-05	3.00E+02	3.01E+05	8.32E-03	6.18E-03	2.33E+06	6.76E-01	9.31E+06	1.84E-01	7.28E+04	1.95E+04
434	Down-dip	1	3	56	0.00E+00	2.72E+05	8.64E+06	1.10E+01	5.80E-10	1.45E-01	3.89E-09	6.22E+00	2.28E-03	1.50E-04	4.43E+02	3.94E+05	8.97E-04	8.85E-04	2.51E+06	3.82E-01	8.30E+06	7.90E-06	6.79E+04	6.40E+03
435	Down-dip	1	3	58	4.39E+05	4.03E+05	7.37E+06	1.10E+01	5.17E-10	4.62E-01	3.82E-09	2.14E+01	8.79E-04	2.83E-05	1.38E+03	1.16E+06	7.89E-04	7.48E-04	4.06E+06	1.70E-01	1.32E+07	1.27E-01	8.86E+04	1.21E+04
436	Down-dip	1	3	49	0.00E+00	3.91E+05	9.71E+06	1.10E+01	4.03E-10	5.89E-01	2.52E-08	2.01E+01	4.57E-04	1.62E-04	1.80E+03	1.19E+06	5.43E-04	5.19E-04	3.87E+06	1.41E-01	1.23E+07	4.98E-02	8.61E+04	5.94E+03
437	Down-dip	1	3	30	3.95E+05	3.85E+05	9.39E+06	1.10E+01	5.45E-11	1.21E+00	1.90E-10	1.37E+01	3.56E-05	1.48E-04	3.69E+03	1.79E+06	6.38E-05	6.30E-05	4.81E+06	9.02E-02	1.05E+07	5.31E-02	8.22E+04	4.76E+03
438	Down-dip	1	3	28	4.64E+05	4.44E+06	8.22E+06	1.10E+01	7.11E-12	4.01E-01	4.70E-11	2.20E+01	1.02E-05	2.87E-05	1.22E+03	1.04E+06	1.07E-05	1.02E-05	3.79E+06	2.12E-01	1.35E+07	1.81E-01	8.93E+04	1.66E+04
439	Down-dip	1	3	10	0.00E+00	9.36E+05	9.36E+05	1.10E+01	4.35E-05	7.19E-02	1.07E-04	4.06E-01	5.57E+02	0.00E+00	2.19E+02	8.81E+04	4.91E+01	4.68E+01	6.40E+06	7.33E-01	8.89E+06	9.35E-02	7.08E+04	3.11E+04
440	Down-dip	1	3	78	4.58E+06	8.01E+06	8.01E+06	2.88E+00	8.35E-05	4.56E-05	2.01E-04	4.56E-05	2.44E+06	0.00E+00	1.39E-01	9.97E+00	2.43E+01	2.38E+01	1.20E+07	9.45E-01	1.23E+07	4.99E-01	8.49E+04	6.00E+04
441	Down-dip	1	3	44	3.13E+05	8.00E+06	8.00E+06	2.88E+00	8.30E-05	1.13E-05	1.15E-04	1.13E-05	9.99E+06	0.00E+00	3.44E-02	2.19E+00	2.18E+01	2.13E+01	1.09E+07	8.86E-01	1.10E+07	2.37E-01	7.97E+04	4.40E+04
442	Down-dip	1	3	18	2.25E+05	8.94E+05	8.94E+05	1.10E+01	1.66E-05	9.01E-02	3.66E-05	6.67E-01	1.41E+02	0.00E+00	2.75E+02	1.27E+05	1.79E+01	1.70E+01	5.63E+06	6.92E-01	8.66E+06	4.11E-01	6.96E+04	4.13E+04
443	Down-dip	1	3	69	7.99E+06	8.00E+06	8.00E+06	2.88E+00	5.93E-05	3.41E-06	1.16E-04	3.41E-06	4.11E+07	0.00E+00	1.04E-02	4.16E-01	1.68E+01	1.65E+01	1.11E+07	9.18E-01	1.11E+07	7.94E-01	8.03E+04	6.81E+04
444	Down-dip	1	3	45	8.00E+06	8.00E+06	8.00E+06	2.88E+00	5.81E-05	0.00E+00	9.70E-05	0.00E+00	1.69E+22	0.00E+00	0.00E+00	0.00E+00	1.59E+01	1.55E+01	9.86E+06	9.71E-01	9.99E+06	9.68E-01	7.57E+04	7.34E+04
445	Down-dip	1	3	52	8.02E+06	8.01E+06	8.01E+06	2.88E+00	4.83E-05	1.54E-05	1.18E-04	1.54E-05	4.10E+06	0.00E+00	4.69E-02	3.42E+00	1.40E+01	1.37E+01	1.06E+07	9.60E-01	1.08E+07	6.05E-01	7.88E+04	6.01E+04
446	Down-dip	1	3	31	0.00E+00	7.65E+06	7.65E+06	2.88E+00	3.86E-05	3.40E-03	9.53E-05	7.21E-03	1.13E+04	0.00E+00	1.04E+01	1.05E+03	1.19E+01	1.16E+01	1.03E+07	8.58E-01	1.05E+07	1.15E-05	7.76E+04	1.80E+04
447	Down-dip	1	3	73	0.00E+00	6.02E+06	8.02E+06	2.88E+00	3.88E-05	2.81E-05	8.78E-05	2.61E-05	1.90E+06	0.00E+00	7.96E-02	5.83E+00	1.11E+01	1.09E+01	1.03E+07	9.38E-01	1.04E+07	5.54E-02	7.72E+04	2.21E+04
448	Down-dip	1	3	5	0.00E+00	8.04E+06	8.07E+06	2.88E+00	3.44E-05	3.50E-04	7.90E-05	3.55E-04	1.36E+05	0.00E+00	1.07E+00	8.09E+01	1.10E+01	1.08E+01	1.05E+07	8.52E-01	9.84E+06	6.44E-05	7.56E+04	1.77E+04
449	Down-dip	1	3	46	0.00E+00	8.04E+06	8.04E+06	2.88E+00	3.18E-05	2.77E-05	1.04E-04	4.39E-05	1.27E+06	0.00E+00	8.46E-02	7.86E+00	9.99E+00	9.81E+00	9.68E+06	9.64E-01	9.68E+06	5.76E-03	7.46E+04	2.10E+04
450	Down-dip	1	3	65	0.00E+00	5.53E+06	5.53E+06	2.88E+00	2.47E-05	1.35E-02	6.96E-05	3.47E-02	1.80E+03	0.00E+00	4.10E+01	4.19E+03	7.52E+00	7.37E+00	8.98E+06	7.44E-01	9.21E+06	0.00E+00	7.24E+04	1.39E+04

.	.	.	.	.	Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	BC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up-dip Brine Relative Permeability (fraction)	Up-dip Gas Relative Permeability (fraction)	Down-dip Brine Relative Permeability (fraction)	Down-dip Gas Relative Permeability (fraction)
No.	IO	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_RE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
451	Down-dip	1	3	24	5.10E-01	9.01E-02	1.37E-01	1.23E+00	8.77E+06	9.08E-01	8.87E+06	9.08E-01	1.96E-01	2.82E-13	2.20E-01	2.82E-13	1.40E+03	-1.29E+00	1.23E-13	2.63E-14	9.94E-01	1.17E+07	7.41E-13	6.59E-01	3.00E-08	6.59E-01	2.97E-08
452	Down-dip	1	3	2	5.16E-01	8.22E-02	4.02E-01	1.24E+00	9.09E+06	4.01E-01	9.14E+06	9.16E-01	1.68E-01	4.47E-14	1.83E-01	4.47E-14	1.40E+03	-1.29E+00	1.24E-13	5.01E-14	9.98E-01	1.35E+07	7.24E-11	0.00E+00	1.00E+00	5.71E-01	1.17E-07
453	Down-dip	1	3	19	6.20E-01	1.42E-01	2.97E-02	1.25E+00	9.37E+06	1.36E-01	9.40E+06	8.48E-01	2.01E-01	1.41E-15	2.17E-01	1.41E-15	1.40E+03	-1.23E+00	1.22E-13	2.00E-16	8.94E-01	1.25E+07	1.45E-12	2.85E-04	7.36E-01	5.33E-01	2.71E-06
454	Down-dip	1	3	54	4.95E-01	1.25E-01	2.39E-02	1.19E+00	7.48E+06	1.55E-06	9.54E+06	8.35E-01	3.20E-02	5.01E-18	5.38E-02	2.57E-18	1.40E+03	-1.16E+00	1.13E-13	4.68E-12	7.76E-01	1.54E+07	1.66E-12	0.00E+00	1.00E+00	5.05E-01	1.71E-04
455	Down-dip	1	3	39	5.21E-01	1.50E-01	2.98E-01	1.26E+00	9.46E+06	4.17E-01	9.57E+06	8.47E-01	1.54E-02	3.02E-15	3.04E-02	3.02E-15	1.40E+03	-1.23E+00	1.23E-13	2.40E-13	8.82E-01	1.45E+07	1.78E-13	1.45E-03	5.68E-01	4.03E-01	4.66E-07
456	Down-dip	1	3	9	5.18E-01	1.35E-01	5.34E-01	1.25E+00	9.17E+06	1.55E-05	9.42E+06	7.97E-01	1.58E-02	2.36E-19	2.91E-02	2.34E-19	1.40E+03	-1.24E+00	1.22E-13	2.63E-15	9.00E-01	1.43E+07	4.90E-11	0.00E+00	1.00E+00	1.22E-01	1.33E-02
457	Down-dip	1	3	95	6.27E-01	1.46E-01	3.69E-01	1.27E+00	9.87E+06	1.36E-01	9.99E+06	8.43E-01	1.56E-01	6.03E-17	1.72E-01	6.03E-17	1.40E+03	-9.54E-01	1.12E-13	1.10E-16	5.13E-01	1.32E+07	1.70E-11	0.00E+00	1.00E+00	3.46E-01	2.07E-05
458	Down-dip	1	3	28	5.15E-01	9.72E-02	1.79E-01	1.24E+00	8.98E+06	2.12E-01	9.21E+06	8.92E-01	2.15E-01	5.26E-17	2.38E-01	4.79E-17	1.40E+03	-1.08E+00	1.14E-13	9.55E-12	6.64E-01	1.45E+07	9.55E-14	7.22E-06	9.05E-01	5.94E-01	5.83E-06
459	Down-dip	1	3	23	5.14E-01	7.29E-02	4.80E-01	1.24E+00	8.91E+06	2.28E-02	9.20E+06	9.23E-01	3.26E-02	1.18E-16	4.93E-02	1.18E-16	1.40E+03	-1.18E+00	1.19E-13	7.94E-17	8.09E-01	1.52E+07	6.03E-13	0.00E+00	1.00E+00	5.51E-01	1.85E-06
460	Down-dip	1	3	34	5.13E-01	2.76E-02	3.26E-01	1.23E+00	8.98E+06	3.87E-04	8.98E+06	9.34E-01	1.98E-02	2.30E-17	3.26E-02	2.29E-17	1.40E+03	-1.07E+00	1.13E-13	7.08E-14	6.47E-01	1.35E+07	4.68E-14	0.00E+00	1.00E+00	6.84E-01	3.48E-04
461	Down-dip	1	3	77	4.99E-01	1.48E-01	6.84E-02	1.20E+00	8.09E+06	2.66E-03	8.51E+06	7.33E-01	2.04E-01	6.13E-19	2.30E-01	6.13E-19	1.40E+03	-7.13E-01	9.69E-14	2.75E-16	3.17E-01	1.24E+07	1.20E-11	0.00E+00	1.00E+00	2.88E-01	5.56E-03
462	Down-dip	1	3	72	5.02E-01	2.36E-02	4.74E-03	1.21E+00	8.14E+06	5.07E-06	8.99E+06	9.22E-01	6.13E-02	4.62E-18	8.49E-02	1.82E-18	1.40E+03	-6.26E-01	9.47E-14	5.37E-12	2.66E-01	1.42E+07	5.75E-13	0.00E+00	1.00E+00	7.39E-01	2.98E-04
463	Down-dip	1	3	43	4.76E-01	5.88E-02	2.07E-01	1.15E+00	8.43E+06	3.82E-03	8.99E+06	8.96E-01	1.67E-01	2.87E-19	2.05E-01	9.77E-20	1.40E+03	-1.26E+00	1.14E-13	3.63E-13	9.52E-01	1.51E+07	9.55E-12	0.00E+00	1.00E+00	5.96E-01	3.81E-04
464	Down-dip	1	3	20	5.15E-01	1.23E-01	1.27E-01	1.24E+00	9.01E+06	1.14E-03	9.09E+06	8.13E-01	1.98E-02	1.35E-17	3.76E-02	1.35E-17	1.40E+03	-6.04E-01	9.64E-14	3.31E-15	2.55E-01	1.29E+07	1.20E-12	0.00E+00	1.00E+00	4.11E-01	1.03E-03
465	Down-dip	1	3	48	5.01E-01	1.02E-01	2.11E-01	1.20E+00	8.26E+06	2.02E-01	8.29E+06	8.19E-01	4.68E-02	7.76E-14	8.37E-02	7.76E-14	1.40E+03	-1.29E+00	1.21E-13	2.19E-15	1.01E+00	1.10E+07	3.80E-12	0.00E+00	1.00E+00	3.83E-01	2.42E-03
466	Down-dip	1	3	16	4.85E-01	5.75E-02	2.76E-01	1.17E+00	7.16E+06	4.78E-05	8.31E+06	8.51E-01	1.01E-01	2.24E-19	1.33E-01	2.14E-19	1.40E+03	-1.29E+00	1.17E-13	1.91E-14	1.01E+00	1.53E+07	1.86E-12	0.00E+00	1.00E+00	4.28E-01	4.14E-03
467	Down-dip	1	3	87	4.97E-01	1.21E-01	6.61E-02	1.20E+00	7.99E+06	9.42E-02	8.42E+06	7.84E-01	1.71E-01	3.55E-18	1.94E-01	3.55E-18	1.40E+03	-1.27E+00	1.19E-13	7.24E-15	9.65E-01	1.27E+07	1.15E-14	2.41E-06	9.29E-01	3.78E-01	2.65E-03
468	Down-dip	1	3	41	4.90E-01	3.40E-02	6.64E-02	1.18E+00	7.44E+06	6.95E-02	8.60E+06	9.01E-01	1.44E-01	1.70E-19	1.65E-01	1.70E-19	1.40E+03	-1.22E+00	1.15E-13	3.24E-16	8.64E-01	1.48E+07	3.47E-12	0.00E+00	1.00E+00	6.53E-01	6.82E-04
469	Down-dip	1	3	97	5.07E-01	8.37E-02	4.34E-01	1.22E+00	8.54E+06	5.30E-01	8.70E+06	9.12E-01	1.48E-01	5.63E-16	1.73E-01	5.62E-16	1.40E+03	-8.88E-01	1.05E-13	4.57E-13	4.49E-01	1.43E+07	3.02E-11	1.40E-03	8.02E-01	5.37E-01	1.00E-06
470	Down-dip	1	3	76	4.83E-01	1.38E-01	3.34E-01	1.16E+00	7.09E+06	1.55E-06	8.13E+06	8.01E-01	3.35E-02	3.16E-18	5.57E-02	3.16E-18	1.40E+03	-1.33E+00	1.19E-13	5.50E-16	1.09E+00	1.34E+07	2.09E-12	0.00E+00	1.00E+00	2.70E-01	2.56E-03
471	Down-dip	1	3	60	5.00E-01	6.13E-02	4.70E-02	1.20E+00	8.16E+06	1.24E-01	8.51E+06	9.10E-01	1.95E-01	6.10E-18	2.14E-01	5.75E-18	1.40E+03	-1.17E+00	1.15E-13	6.61E-13	7.91E-01	1.33E+07	2.34E-14	9.07E-05	8.23E-01	6.94E-01	5.51E-05
472	Down-dip	1	3	66	4.97E-01	9.43E-02	5.49E-01	1.19E+00	8.05E+06	1.64E-05	8.18E+06	8.73E-01	8.51E-02	8.23E-18	1.11E-01	5.37E-18	1.40E+03	-1.37E+00	1.24E-13	1.66E-12	1.18E+00	1.26E+07	1.48E-14	0.00E+00	1.00E+00	2.96E-01	1.22E-03
473	Down-dip	1	3	80	4.75E-01	6.43E-02	2.68E-01	1.14E+00	6.49E+06	1.96E-04	8.40E+06	9.11E-01	4.04E-02	1.69E-18	6.35E-02	5.01E-19	1.40E+03	-8.21E-01	9.59E-14	2.09E-12	3.93E-01	1.41E+07	2.04E-13	0.00E+00	1.00E+00	8.20E-01	8.46E-05
474	Down-dip	1	3	50	4.84E-01	1.09E-01	5.44E-01	1.17E+00	7.22E+06	1.15E-04	8.05E+06	8.69E-01	2.14E-01	8.73E-19	2.43E-01	2.88E-19	1.40E+03	-1.27E+00	1.16E-13	1.12E-12	9.68E-01	1.30E+07	2.75E-13	0.00E+00	1.00E+00	2.87E-01	4.07E-04
475	Down-dip	1	3	94	5.45E-01	4.58E-03	1.85E-01	1.32E+00	1.12E+07	2.32E-01	1.12E+07	3.34E-01	2.04E-01	8.31E-15	2.11E-01	6.31E-16	1.40E+03	-1.29E+00	1.32E-13	9.77E-16	9.95E-01	1.44E+07	1.78E-12	2.56E-05	8.81E-01	1.85E-03	6.30E-01
476	Down-dip	1	3	15	5.20E-01	4.22E-02	5.21E-01	1.25E+00	9.39E+06	4.85E-01	9.39E+06	6.09E-01	5.41E-02	1.32E-14	7.03E-02	1.32E-14	1.40E+03	-9.48E-01	1.10E-13	1.32E-14	5.06E-01	1.15E+07	4.47E-13	0.00E+00	1.00E+00	1.89E-03	5.97E-01
477	Down-dip	1	3	37	5.13E-01	4.07E-02	2.28E-01	1.23E+00	8.97E+06	8.98E-03	8.97E+06	3.60E-01	1.14E-01	3.98E-16	1.25E-01	3.98E-16	1.40E+03	-1.19E+00	1.19E-13	1.35E-15	8.19E-01	1.22E+07	6.17E-12	0.00E+00	1.00E+00	1.47E-03	6.35E-01
478	Down-dip	1	3	99	5.24E-01	1.28E-01	5.15E-01	1.26E+00	9.67E+06	1.51E-01	9.68E+06	5.19E-01	1.72E-01	5.89E-17	1.90E-01	5.89E-17	1.40E+03	-7.63E-01	1.04E-13	6.17E-17	3.50E-01	1.27E+07	2.29E-11	0.00E+00	1.00E+00	2.97E-08	9.75E-01
479	Down-dip	1	3	58	5.72E-01	2.96E-02	1.14E-01	1.40E+00	1.36E+07	1.01E-01	1.35E+07	1.20E-01	2.11E-01	4.83E-16	2.06E-01	1.45E-16	1.40E+03	-1.18E+00	1.35E-13	3.09E-15	8.11E-01	1.32E+07	1.07E-13	0.00E+00	1.00E+00	1.33E-08	9.85E-01
480	Down-dip	1	3	78	5.89E-01	4.93E-02	1.51E-01	1.46E+00	1.51E+07	1.13E-01	1.51E+07	7.92E-01	2.22E-01	*3.45E-11*	*1.03E-01*	*2.46E-15*	*3.00E+03*	*-1.06E+00*	*1.34E-13*	*8.32E-17*	*6.28E-01*	*1.48E+07*	*1.07E-12*	*0.00E+00*	*1.00E+00*	*3.55E-01*	*1.23E-02*
481	Down-dip	1	3	18	6.66E-01	1.06E-01	3.40E-01	1.39E+00	1.30E+07	1.82E-01	1.30E+07	7.52E-01	6.20E-02	3.31E-14	6.51E-02	3.31E-14	3.00E+03	-1.09E+00	1.28E-13	6.17E-16	6.69E-01	1.12E+07	5.25E-12	0.00E+00	1.00E+00	1.76E-01	2.60E-02
482	Down-dip	1	3	94	5.45E-01	4.58E-03	1.85E-01	1.32E+00	1.12E+07	1.92E-01	1.12E+07	7.51E-01	2.04E-01	6.31E-15	2.11E-01	6.31E-15	3.00E+03	-1.29E+00	1.32E-13	9.77E-16	9.95E-01	1.44E+07	1.78E-12	1.55E-08	9.84E-01	2.61E-01	4.13E-02
483	Down-dip	1	3	10	5.60E-01	3.17E-02	1.73E-01	1.36E+00	1.25E+07	4.31E-03	1.25E+07	6.67E-01	5.91E-02	3.72E-14	8.49E-02	3.72E-14	3.00E+03	-1.33E+00	1.39E-13	1.86E-16	1.08E+00	1.18E+07	1.35E-11	0.00E+00	1.00E+00	1.73E-01	6.55E-02
484	Down-dip	1	3	19	5.55E-01	1.42E-01	2.97E-02	1.35E+00	1.21E+07	5.54E-02	1.21E+07	6.10E-01	1.98E-01	1.41E-15	2.01E-01	1.41E-15	3.00E+03	-1.23E+00	1.32E-13	2.00E-16	8.94E-01	1.25E+07	1.45E-12	1.51E-06	9.36E-01	1.50E-01	4.05E-02
485	Down-dip	1	3	44	5.81E-01	1.12E-01	1.61E-02	1.37E+00	1.26E+07	2.55E-05	1.26E+07	8.87E-01	1.45E-01	4.82E-13	1.25E-01	1.18E-13	3.00E+03	-1.17E+00	1.31E-13	3.80E-15	7.83E-01	1.38E+07	1.12E-12	0.00E+00	1.00E+00	6.39E-01	2.45E-10
486	Down-dip	1	3	73	5.57E-01	5.61E-02	3.03E-01	1.36E+00	1.23E+07	8.40E-06	1.23E+07	7.26E-01	9.62E-02	3.72E-16	1.04E-01	3.72E-16	3.00E+03	-8.01E-01	1.13E-13	6.17E-15	3.77E-01	1.37E+07	9.77E-12	0.00E+00	1.00E+00	1.59E-01	5.81E-02
487	Down-dip	1	3	48	5.52E-01	1.02E-01	2.11E-01	1.34E+00	1.18E+07	6.44E-02	1.18E+07	8.88E-01	5.68E-02	7.77E-14	5.72E-02	7.76E-14	3.00E+03	-1.29E+00	1.35E-13	2.19E-15	1.01E+00	1.10E+07	3.80E-12	0.00E+00	1.00E+00	5.67E-01	5.58E-06
488	Down-dip	1	3	45	5.41E-01	5.05E-02	2.04E-01	1.31E+00	1.09E+07	9.49E-01	1.10E+07	9.49E-01	7.86E-02	5.13E-14	8.70E-02	5.13E-14	3.00E+03	-9.31E-01	1.14E-13	1.74E-15	4.89E-01	1.36E+07	4.57E-13	7.81E-01	4.05E-09	7.81E-01	4.02E-09
489	Down-dip	1	3	69	5.44E-01	8.98E-02	4.08E-01	1.32E+00	1.12E+07	9.09E-01	1.13E+07	9.09E-01	7.90E-02	1.26E-14	8.73E-02	1.26E-14	3.00E+03	-1.29E+00	1.32E-13	9.33E-15	9.99E-01	1.47E+07	4.07E-13	5.40E-01	1.85E-08	5.40E-01	1.83E-08
490	Down-dip	1	3	27	5.12E-01	1.18E-01	4.62E-01	1.23E+00	9.01E+06	1.12E-03	9.02E+06	7.78E-01	2.96E-02	1.88E-16	4.33E-02	1.86E-16	3.00E+03	-1.24E+00	1.21E-13	2.40E-15	9.09E-01	1.20E+07	1.26E-12	0.00E+00	1.00E+00	1.40E-01	2.33E-02
491	*Down-dip*	*1*	*3*	*24*	*5.28E-01*	*9.01E-02*	*1.37E-01*	*1.27E+00*	*9.74E+06*	*9.08E-01*	*9.83E+06*	*9.08E-01*	*1.85E-01*	*2.82E-13*	*2.13E-01*	*2.82E-13*	*3.00E+03*	*-1.29E+00*	*1.27E-13*	*2.63E-14*	*9.94E-01*	*1.17E+07*	*7.41E-13*	8.59E-01	3.36E-08	6.59E-01	2.89E-08
492	Down-dip	1	3	46	5.33E-01	2.03E-02	2.35E-01	1.29E+00	1.03E+07	2.68E-06	1.03E+07	8.46E-01	4.85E-02	1.59E-17	6.20E-02	1.59E-17	3.00E+03	-1.41E+00	1.36E-13	1.45E-14	1.26E+00	1.51E+07	1.15E-11	0.00E+00	1.00E+00	4.35E-01	9.26E-03
493	Down-dip	1	3	90	4.97E-01	1.26E-02	2.88E-01	1.20E+00	8.29E+06	2.68E-06	8.29E+06	6.64E-01	1.69E-02	1.20E-17	3.77E-02	1.20E-17	3.00E+03	-8.48E-01	1.01E-13	2.09E-14	4.15E-01	1.31E+07	3.02E-12	0.00E+00	1.00E+00	9.59E-02	1.37E-01
494	Down-dip	1	3	23	5.33E-01	7.29E-02	4.80E-01	1.29E+00	1.03E+07	5.36E-07	1.04E+07	8.49E-01	3.64E-02	1.18E-16	4.73E-02	1.18E-16	3.00E+03	-1.18E+00	1.24E-13	7.94E-17	8.09E-01	1.52E+07	6.03E-13	0.00E+00	1.00E+00	2.82E-01	8.46E-03
495	Down-dip	1	3	41	5.19E-01	3.40E-02	8.64E-02	1.25E+00	9.26E+06	3.89E-02	9.43E+06	5.17E-01	1.44E-01	1.70E-19	1.56E-01	1.70E-19	3.00E+03	-1.22E+00	1.21E-13	3.24E-16	8.64E-01	1.48E+07	3.47E-12	0.00E+00	1.00E+00	6.22E-02	1.83E-01
496	Down-dip	1	3	31	5.18E-01	5.28E-02	5.93E-02	1.24E+00	9.16E+06	8.35E-06	9.18E+06	9.14E-01	7.37E-02	1.66E-15	9.41E-02	1.66E-15	3.00E+03	-1.27E+00	1.24E-13	3.31E-14	9.73E-01	1.48E+07	6.31E-13	0.00E+00	1.00E+00	7.02E-01	8.80E-05
497	Down-dip	1	3	60	5.02E-01	6.13E-02	4.70E-02	1.21E+00	6.60E+06	7.72E-02	8.35E+06	7.84E-01	1.97E-01	6.05E-18	2.13E-01	5.75E-18	3.00E+03	-1.17E+00	1.15E-13	6.61E-13	7.91E-01	1.32E+07	2.34E-14	2.90E-06	9.31E-01	3.88E-01	8.24E-03
498	Down-dip	1	3	67	5.32E-01	1.21E-01	6.61E-02	1.28E+00	1.02E+07	2.66E-02	1.02E+07	4.40E-01	1.70E-01	3.55E-18	1.81E-01	3.55E-18	3.00E+03	-1.27E+00	1.28E-13	7.24E-15	9.65E-01	1.27E+07	1.15E-14	0.00E+00	1.00E+00	3.42E-02	2.13E-01
499	Down-dip	1	3	52	5.07E-01	3.68E-02	4.49E-01	1.22E+00	8.77E+06	8.01E-01	8.86E+06	9.60E-01	1.09E-01	1.70E-15	1.35E-01	1.70E-15	3.00E+03	-9.48E-01	1.07E-13	4.17E-14	5.07E-01	1.51E+07	2.63E-13	1.90E-01	4.75E-02	7.56E-01	5.28E-07
500	Down-dip	1	3	20	5.20E-01	1.23E-01	1.27E-01	1.25E+00	9.39E+06	1.19E-07	9.41E+06	4.67E-01	2.07E-02	1.35E-17	3.71E-02	1.35E-17	3.00E+03	-6.04E-01	9.76E-14	3.31E-15	2.55E-01	1.29E+07	1.20E-12	0.00E+00	1.00E+00	3.08E-02	2.21E-01
501	Down-dip	1	3	47	5.04E-01	6.75E-02	1.61E-01	1.21E+00	8.57E+06	9.84E-02	8.69E+06	4.79E-01	1.48E-01	6.92E-18	1.62E-01	6.92E-18	3.00E+03	-1.09E+00	1.12E-13	2.19E-16	6.75E-01	1.21E+07	1.55E-12	0.00E+00	1.00E+00	2.80E-02	2.67E-01
502	Down-dip	1	3	63	*5.01E-01*	*4.46E-02*	*2.62E-01*	*1.20E+00*	*8.55E+06*	*2.28E-01*	*8.31E+06*	*8.71E-01*	*1.56E-01*	9.13E-18	1.83E-01	8.51E-18	3.00E+03	-1.23E+00	1.18E-13	1.38E-12	8.92E-01	1.34E+07	4.57E-12	0.00E+00	1.00E+00	4.98E-01	2.77E-03
503	Down-dip	1	3	100	5.06E-01	1.14E-01	3.43E-01	1.22E+00	8.70E+06	8.83E-01	8.79E+06	8.83E-01	6.93E-02	9.12E-16	8.94E-02	9.12E-16	3.00E+03	-1.26E+00	1.20E-13	2.51E-14	9.43E-01	1.28E+07	1.29E-13	4.88E-01	1.66E-07	4.86E-01	1.61E-07
504	Down-dip	1	3	2	4.98E-01	8.22E-02	4.02E-01	1.20E+00	6.28E+06	1.51E-01	8.32E+06	9.16E-01	1.70E-01	4.47E-14	1.90E-01	4.47E-14	3.00E+03	-1.29E+00	1.20E-13	5.01E-14	9.98E-01	1.35E+07	7.24E-11	0.00E+00	1.00E+00	5.70E-01	1.37E-07
505	Down-dip	1	3	66	5.30E-01	1.27E-01	8.98E-02	1.28E+00	1.01E+07	5.96E-08	1.01E+07	3.47E-01	2.14E-02	8.71E-16	3.07E-02	8.71E-16	3.00E+03	-1.16E+00	1.21E-13	4.17E-15	7.73E-01	1.27E+07	3.72E-12	0.00E+00	1.00E+00	9.36E-03	3.83E-01
506	Down-dip	1	3	71	5.14E-01	1.57E-02	1.00E-01	1.23E+00	9.03E+06	1.37E-06	9.15E+06	3.66E-01	4.42E-02	2.19E-18	6.64E-02	2.19E-18	3.00E+03	-1.37E+00	1.28E-13	5.25E-17	1.18E+00	1.20E+07	6.76E-13	0.00E+00	1.00E+00	1.04E-02	4.33E-01
507	Down-dip	1	3	95	5.59E-01	1.46E-01	3.89E-01	1.36E+00	1.24E+07	4.87E-02	1.24E+07	6.23E-01	1.57E-01	8.03E-17	1.60E-01	8.03E-17	3.00E+03	-9.54E-01	1.20E-13	1.10E-16	5.13E-01	1.32E+07	1.70E-11	0.00E+00	1.00E+00	5.39E-03	4.01E-01
508	Down-dip	1	3	98	5.01E-01	3.56E-02	5.00E-02	1.20E+00	8.48E+06	5.13E-06	8.58E+06	2.96E-01	6.09E-02	4.19E-19	8.57E-02	4.17E-19	3.00E+03	-1.23E+00	1.18E-13	4.79E-15	8.82E-01	1.17E+07	3.98E-14	0.00E+00	1.00E+00	6.82E-03	4.78E-01
509	Down-dip	1	3	97	4.94E-01	8.37E-02	4.34E-01	1.19E+00	8.10E+06	3.35E-01	8.19E+06	9.12E-01	1.50E-01	5.63E-16	1.77E-01	5.62E-16	3.00E+03	-8.88E-01	1.02E-13	4.57E-13	4.49E-01	1.43E+07	3.02E-11	0.00E+00	1.00E+00	5.36E-01	1.11E-06
510	Down-dip	1	3	77	5.30E-01	1.48E-01	6.64E-02	1.28E+00	1.00E+07	8.08E-05	1.02E+07	2.90E-01	2.01E-01	8.13E-19	2.18E-01	8.13E-19	3.00E+03	-7.13E-01	1.03E-13	2.75E-16	3.17E-01	1.24E+07	1.20E-11	0.00E+00	1.00E+00	4.95E-03	4.54E-01
511	Down-dip	1	3	15	5.46E-01	4.22E-02	5.21E-01	1.32E+00	1.13E+07	2.22E-01	1.13E+07	6.00E-01	6.91E-02	1.32E-14	6.66E-02	1.32E-14	3.00E+03	-9.48E-01	1.16E-13	1.32E-14	5.06E-01	1.15E+07	4.47E-13	0.00E+00	1.00E+00	1.32E-03	6.32E-01
512	Down-dip	1	3	1	4.91E-01	9.81E-02	2.66E-01	1.18E+00	7.92E+06	8.99E-01	8.01E+06	8.99E-01	6.77E-02	7.24E-16	9.32E-02	7.24E-16	3.00E+03	-1.28E+00	1.17E-13	1.66E-14	9.73E-01	1.28E+07	7.08E-14	5.84E-01	1.42E-07	5.84E-01	1.38E-07
513	Down-dip	1	3	18	5.10E-01	5.75E-02	2.78E-01	1.23E+00	8.93E+06	2.89E-05	8.86E+06	3.61E-01	1.03E-01	2.22E-19	1.27E-01	2.14E-19	3.00E+03	-1.29E+00	1.23E-13	1.91E-14	1.01E+00	1.53E+07	1.86E-12	0.00E+00	1.00E+00	3.71E-04	7.37E-01
514	Down-dip	1	3	70	5.07E-01	4.63E-02	4.24E-01	1.22E+00	8.77E+06	1.89E-05	8.89E+06	4.45E-01	2.26E-01	6.17E-20	2.39E-01	6.17E-20	3.00E+03	-1.28E+00	1.22E-13	1.00E-16	9.91E-01	1.29E+07	5.50E-14	0.00E+00	1.00E+00	4.43E-06	9.21E-01
515	Down-dip	1	3	76	5.15E-01	1.38E-01	3.34E-01	1.24E+00	9.08E+06	4.17E-07	9.20E+06	3.46E-01	3.82E-02	3.16E-18	5.23E-02	3.16E-18	3.00E+03	-1.33E+00	1.26E-13	5.50E-16	1.09E+00	1.34E+07	2.09E-12	0.00E+00	1.00E+00	2.84E-07	9.57E-01
516	Down-dip	1	3	78	5.91E-01	4.93E-02	1.51E-01	1.47E+00	1.52E+07	3.42E-02	1.53E+07	6.87E-01	2.38E-01	7.83E-11	1.00E-01	2.46E-15	5.00E+03	-1.06E+00	1.34E-13	8.32E-17	6.28E-01	1.48E+07	1.07E-12	0.00E+00	1.00E+00	1.59E-01	6.61E-02
517	Down-dip	1	3	10	5.78E-01	3.17E-02	1.73E-01	1.42E+00	1.41E+07	2.38E-07	1.41E+07	6.55E-01	6.43E-02	4.36E-14	6.22E-02	3.72E-14	5.00E+03	-1.33E+00	1.45E-13	1.86E-16	1.08E+00	1.18E+07	1.35E-11	0.00E+00	1.00E+00	1.36E-01	8.86E-02
518	Down-dip	1	3	18	5.89E-01	1.06E-01	3.40E-01	1.46E+00	1.50E+07	8.62E-02	1.50E+07	6.60E-01	7.80E-02	1.49E-13	6.17E-02	3.31E-14	5.00E+03	-1.09E+00	1.35E-13	6.17E-16	6.69E-01	1.12E+07	5.25E-12	0.00E+00	1.00E+00	7.11E-02	1.05E-01
519	Down-dip	1	3	45	5.53E-01	5.05E-02	2.04E-01	1.34E+00	1.19E+07	9.49E-01	1.20E+07	9.49E-01	8.09E-02	5.13E-14	8.47E-02	5.13E-14	5.00E+03	-9.31E-01	1.17E-13	1.74E-15	4.89E-01	1.36E+07	4.57E-13	7.81E-01	3.78E-09	7.81E-01	3.75E-09
520	Down-dip	1	3	19	5.70E-01	1.42E-01	2.97E-02	1.40E+00	1.33E+07	1.61E-02	1.33E+07	5.52E-01	2.00E-01	3.47E-15	1.95E-01	1.41E-15	5.00E+03	-1.23E+00	1.37E-13	2.00E-16	8.94E-01	1.25E+07	1.45E-12	0.00E+00	1.00E+00	1.02E-01	7.37E-02
521	Down-dip	1	3	48	5.62E-01	1.02E-01	2.11E-01	1.37E+00	1.26E+07	4.05E-06	1.27E+07	8.58E-01	6.22E-02	1.30E-13	5.59E-02	7.76E-14	5.00E+03	-1.29E+00	1.38E-13	2.19E-15	1.01E+00	1.10E+07	3.80E-12	0.00E+00	1.00E+00	4.81E-01	3.13E-04
522	Down-dip	1	3	46	5.26E-01	2.03E-02	2.35E-01	1.27E+00	9.82E+06	3.52E-06	9.79E+06	8.98E-01	4.72E-02	1.59E-17	6.29E-02	1.59E-17	5.00E+03	-1.41E+00	1.34E-13	1.45E-14	1.26E+00	1.51E+07	1.15E-11	0.00E+00	1.00E+00	1.57E-01	7.89E-02
523	Down-dip	1	3	44	5.45E-01	1.12E-01	1.61E-02	1.32E+00	1.12E+07	7.51E-06	1.13E+07	8.87E-01	1.30E-01	1.19E-13	1.30E-01	1.16E-13	5.00E+03	-1.17E+00	1.28E-13	3.80E-15	7.83E-01	1.38E+07	1.12E-12	0.00E+00	1.00E+00	6.38E-01	6.27E-10
524	Down-dip	1	3	94	5.46E-01	4.58E-03	1.85E-01	1.32E+00	1.13E+07	1.61E-01	1.13E+07	9.94E-01	2.04E-01	8.31E-15	2.10E-01	6.31E-15	5.00E+03	-1.29E+00	1.32E-13	9.77E-16	9.95E-01	1.44E+07	1.78E-12	0.00E+00	1.00E+00	9.71E-01	1.87E-08
525	Down-dip	1	3	69	5.40E-01	8.98E-02	4.08E-01	1.31E+00	1.00E+07	9.09E-01	1.10E+07	9.09E-01	7.83E-02	1.26E-14	8.80E-02	1.26E-14	5.00E+03	-1.29E+00	1.31E-13	9.33E-15	9.99E-01	1.47E+07	4.07E-13	5.40E-01	2.01E-08	5.40E-01	1.86E-08

No.	ID	Replic.	Scen.	Vector	Up-dip Flowing Bottom-hole Pressure (Pa) FBHP2	Down-dip Flowing Bottom-hole Pressure (Pa) FBHP4	BC well Injection Pressure (Pa) BHP_ABAN	Blowout Duration (Days) time	Brine Rate (m^3/s) BRINEFLW	Gas Rate (ref m^3/s) GASFLW	Max Brine Rate (m^3/s) MAX_BRN	Max Gas Rate (ref m^3/s) MAX_GAS	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s) LGR_MET	Cum Brine from Boundary Condition Well (m^3) BRINE_BC	Gas Rate (mscf/day) GAS_RATE	Cum Gas Produced (ref m^3) GASOUT	Cum Brine Produced (m^3) BRINEOUT	Cum Brine Releases (m^3) BRIN_REL	Avg Brine Pressure Panel 5 (Pa) after Blowout BRNPRESS	Avg Brine Saturation Panel 5 (fraction) after blowout SATBRN5	Avg Brine Pressure Panel 0 (Pa) after blowout BRNPRES0	Avg Brine Saturation Panel 0 (fraction) after blowout SATBRN0	Total Excavated Waste Pore Volume (fraction) WASTE_PV	Total Excavated Brine Volume (m^3) TOT_BRIN
451	Down-dip	1	3	24	7.99E+06	7.99E+06	7.99E+06	2.88E+00	2.74E-05	1.42E-07	3.39E-05	1.42E-07	2.37E+08	0.00E+00	4.32E-04	2.98E-02	7.06E+00	6.89E+00	8.83E+06	9.10E-01	8.75E+06	8.45E-01	7.03E+04	6.14E+04
452	Down-dip	1	3	2	0.00E+00	7.99E+06	7.99E+06	2.88E+00	2.53E-05	1.84E-06	3.87E-05	1.84E-06	1.82E+07	0.00E+00	5.61E-03	3.72E-01	6.78E+00	6.62E+00	9.09E+06	9.18E-01	9.09E+06	2.96E-01	7.18E+04	4.32E+04
453	Down-dip	1	3	19	2.61E+05	8.02E+06	8.02E+06	2.88E+00	2.11E-05	2.03E-05	4.30E-05	2.03E-05	1.56E+06	0.00E+00	6.20E-02	4.15E+00	6.46E+00	6.34E+00	9.36E+06	8.51E-01	9.37E+06	1.12E-01	7.30E+04	3.16E+04
454	Down-dip	1	3	54	0.00E+00	8.00E+06	8.08E+06	2.88E+00	1.98E-05	2.85E-04	4.20E-05	3.22E-04	8.20E+04	0.00E+00	8.68E-01	7.55E+01	6.19E+00	6.07E+00	9.48E+06	8.39E-01	7.48E+06	1.55E-06	6.61E+04	1.87E+04
455	Down-dip	1	3	39	2.46E+05	8.01E+06	8.01E+06	2.88E+00	1.94E-05	3.01E-05	3.69E-05	3.01E-05	1.18E+08	0.00E+00	9.17E-02	5.10E+00	5.87E+00	5.75E+00	9.53E+06	8.50E-01	9.45E+06	2.54E-01	7.35E+04	3.99E+04
456	Down-dip	1	3	9	0.00E+00	2.22E+06	2.22E+06	2.88E+00	1.84E-05	3.12E-02	5.11E-05	1.16E-01	5.92E+02	0.00E+00	9.51E+01	9.91E+03	5.86E+00	5.75E+00	8.70E+06	8.02E-01	9.17E+06	1.55E-05	7.24E+04	1.62E+04
457	Down-dip	1	3	95	0.00E+00	8.04E+06	8.04E+06	2.88E+00	1.89E-05	2.08E-04	3.60E-05	2.08E-04	1.41E+05	0.00E+00	6.35E-01	4.15E+01	6.83E+00	5.71E+00	9.94E+06	6.46E-01	9.87E+06	1.36E-01	7.52E+04	2.43E+04
458	Down-dip	1	3	28	2.90E+05	8.03E+06	8.15E+06	2.88E+00	1.72E-05	1.55E-05	3.83E-05	1.55E-05	1.48E+06	0.00E+00	4.74E-02	3.60E+00	5.34E+00	5.23E+00	9.15E+06	8.94E-01	8.96E+06	2.16E-01	7.15E+04	2.81E+04
459	Down-dip	1	3	23	0.00E+00	8.02E+06	8.02E+06	2.88E+00	1.54E-05	1.11E-05	3.69E-05	1.11E-05	1.97E+08	0.00E+00	3.38E-02	2.43E+00	4.78E+00	4.69E+00	9.13E+06	9.24E-01	6.91E+06	2.29E-02	7.12E+04	2.39E+04
460	Down-dip	1	3	34	0.00E+00	7.97E+06	7.97E+06	2.88E+00	1.46E-05	1.84E-04	3.74E-05	3.76E-04	8.24E+04	0.00E+00	5.61E-01	5.45E+01	4.49E+00	4.40E+00	8.89E+06	9.35E-01	8.96E+06	3.94E-04	7.11E+04	1.81E+04
461	Down-dip	1	3	77	0.00E+00	6.18E+06	6.18E+06	2.88E+00	1.46E-05	5.44E-03	3.10E-05	1.12E-02	2.89E+03	0.00E+00	1.66E+01	1.88E+03	4.46E+00	4.37E+00	8.39E+06	7.40E-01	8.09E+06	2.65E-03	6.72E+04	1.34E+04
462	Down-dip	1	3	72	0.00E+00	7.99E+06	8.05E+06	2.88E+00	1.46E-05	1.39E-04	3.34E-05	2.66E-04	1.09E+05	0.00E+00	4.25E-01	4.07E+01	4.43E+00	4.34E+00	8.91E+06	9.23E-01	8.14E+06	5.09E-06	6.80E+04	1.77E+04
463	Down-dip	1	3	43	0.00E+00	7.95E+06	7.96E+06	2.88E+00	1.35E-05	2.32E-04	3.36E-05	4.24E-04	8.19E+04	0.00E+00	7.09E-01	8.88E+01	4.25E+00	4.17E+00	8.92E+06	8.98E-01	6.43E+06	3.82E-03	6.12E+04	1.99E+04
464	Down-dip	1	3	20	0.00E+00	7.71E+06	7.71E+06	2.88E+00	1.37E-05	8.87E-04	2.61E-05	1.30E-03	1.64E+04	0.00E+00	2.71E+00	2.54E+02	4.16E+00	4.08E+00	9.05E+06	8.18E-01	9.01E+06	1.15E-03	7.14E+04	1.55E+04
465	Down-dip	1	3	46	0.00E+00	7.29E+06	7.29E+06	2.88E+00	1.46E-05	1.26E-03	2.21E-05	2.56E-03	9.75E+03	0.00E+00	3.85E+00	3.92E+02	3.83E+00	3.74E+00	8.25E+06	8.24E-01	8.26E+06	1.30E-01	6.76E+04	3.18E+04
466	Down-dip	1	3	16	0.00E+00	6.97E+06	6.97E+06	2.88E+00	1.21E-05	2.24E-03	3.19E-05	5.66E-03	5.42E+03	0.00E+00	6.84E+00	6.99E+02	3.79E+00	3.71E+06	8.20E+06	8.55E-01	7.16E+06	4.78E-05	6.34E+04	1.83E+04
467	*Down-dip*	*1*	*3*	*67*	*0.00E+00*	*7.22E+06*	*7.22E+06*	*2.88E+00*	*1.13E-05*	*1.64E-03*	*2.58E-05*	*3.36E-03*	*7.03E+03*	*0.00E+00*	*5.02E+00*	*5.08E+02*	*3.57E+00*	*3.50E+00*	*8.37E+06*	*7.89E-01*	7.98E+06	9.07E-02	6.67E+04	2.09E+04
468	Down-dip	1	3	41	0.00E+00	7.89E+06	7.89E+06	2.88E+00	1.01E-05	2.28E-04	2.52E-05	4.99E-04	4.57E+04	0.00E+00	6.94E-01	6.92E+01	3.16E+00	3.10E+00	8.55E+06	9.03E-01	7.44E+06	8.95E-02	6.48E+04	2.29E+04
469	Down-dip	1	3	97	2.29E+05	8.01E+06	8.02E+06	2.88E+00	8.77E-06	1.98E-06	1.64E-05	1.98E-06	6.06E+06	0.00E+00	8.05E-03	4.37E-01	2.65E+00	2.60E+00	8.66E+06	9.14E-01	8.54E+06	3.83E-01	8.92E+04	4.44E+04
470	Down-dip	1	3	76	0.00E+00	6.98E+06	6.98E+06	2.88E+00	7.60E-06	1.48E-03	1.75E-05	2.99E-03	5.29E+03	0.00E+00	4.50E+00	4.57E+02	2.42E+00	2.37E+00	8.08E+06	8.06E-01	7.09E+06	1.55E-08	6.29E+04	1.48E+04
471	Down-dip	1	3	60	2.48E+05	8.03E+06	8.04E+06	2.88E+00	7.67E-08	1.49E-05	1.84E-05	2.75E-05	5.47E+05	0.00E+00	4.63E-02	4.36E+00	2.38E+00	2.34E+00	8.48E+06	9.12E-01	8.18E+06	1.16E-01	6.75E+04	2.72E+04
472	Down-dip	1	3	66	0.00E+00	7.51E+06	7.53E+06	2.88E+00	4.98E-08	4.48E-04	1.17E-05	8.87E-04	1.16E+04	0.00E+00	1.37E+00	1.37E+02	1.59E+00	1.58E+00	8.15E+06	8.77E-01	8.05E+06	1.84E-05	6.66E+04	1.51E+04
473	Down-dip	1	3	80	0.00E+00	8.02E+06	8.05E+06	2.86E+00	4.84E-06	1.52E-05	1.00E-05	2.69E-05	3.34E+05	0.00E+00	4.85E-02	4.43E+00	1.48E+00	1.46E+00	8.38E+06	9.13E-01	6.49E+06	1.87E-04	6.09E+04	1.94E+04
474	Down-dip	1	3	50	0.00E+00	7.83E+06	7.84E+06	2.88E+00	1.73E-08	5.12E-05	3.44E-06	8.68E-05	3.55E+04	0.00E+00	1.56E-01	1.52E+01	5.39E-01	5.29E-01	8.04E+06	8.73E-01	7.22E+06	1.15E-04	6.33E+04	1.55E+04
475	Down-dip	1	3	94	3.32E+05	2.82E+05	2.82E+05	1.10E+01	2.43E-07	4.41E-01	1.28E-06	1.06E+01	3.69E-01	0.00E+00	1.35E+03	9.05E+05	3.34E-01	3.15E-01	4.06E+06	3.52E-01	1.12E+07	2.16E-01	8.06E+04	2.96E+04
476	Down-dip	1	3	15	0.00E+00	2.44E+05	2.44E+05	1.10E+01	2.60E-07	1.46E-01	9.06E-07	5.89E+00	8.20E-01	0.00E+00	4.46E+02	3.41E+05	2.79E-01	2.77E-01	2.76E+06	6.22E-01	9.36E+06	2.96E-01	7.31E+04	3.64E+04
477	Down-dip	1	3	37	0.00E+00	2.38E+05	2.38E+05	1.10E+01	1.09E-07	1.62E-01	7.26E-07	6.19E+00	4.05E-01	0.00E+00	4.94E+02	4.05E+05	1.64E-01	1.59E-01	3.07E+06	3.77E-01	8.96E+06	8.99E-03	7.11E+04	7.23E+03
478	Down-dip	1	3	99	0.00E+00	3.44E+05	3.44E+05	1.10E+01	3.52E-12	1.14E-01	1.40E-11	9.54E+00	1.45E-05	0.00E+00	3.48E+02	3.59E+05	5.21E-06	5.05E-08	2.19E+06	5.33E-01	9.66E+06	1.51E-01	7.42E+04	1.84E+04
479	Down-dip	1	3	58	0.00E+00	4.59E+05	4.59E+05	1.10E+01	1.78E-12	5.00E-01	1.12E-11	2.40E+01	2.08E-06	0.00E+00	1.53E+03	1.28E+06	2.66E-06	2.56E-06	4.06E+06	1.44E-01	1.35E+07	1.04E-01	8.99E+04	1.01E+04
480	Down-dip	1	3	78	0.00E+00	5.33E+06	5.33E+06	1.10E+01	9.53E-05	9.67E-02	2.22E-04	2.45E-01	9.70E+02	0.00E+00	2.92E+02	1.02E+05	9.92E+01	9.34E+01	1.43E+07	7.97E-01	1.50E+07	7.97E-02	9.67E+04	4.47E+04
481	Down-dip	1	3	18	0.00E+00	1.44E+06	1.44E+06	1.10E+01	8.20E-05	1.12E-01	1.25E-04	5.17E-01	5.71E+02	0.00E+00	3.42E+02	1.20E+05	6.83E+01	8.40E+01	1.01E+07	7.62E-01	1.30E+07	1.67E-01	8.81E+04	3.43E+04
482	Down-dip	1	3	94	3.90E+05	1.30E+06	1.30E+06	1.10E+01	5.28E-05	8.07E-02	1.63E-04	6.31E-01	5.64E+02	0.00E+00	2.46E+02	1.05E+05	6.90E+01	5.82E+01	6.19E+06	7.62E-01	1.12E+07	1.93E-01	8.07E+04	3.78E+04
483	Down-dip	1	3	10	0.00E+00	2.53E+05	2.53E+05	1.10E+01	5.36E-05	2.20E-01	1.40E-04	1.43E+00	2.18E+02	0.00E+00	8.89E+02	2.78E+05	6.00E+01	5.81E+01	7.84E+06	8.90E-01	1.23E+07	2.41E-03	8.67E+04	2.39E+04
484	Down-dip	1	3	19	3.83E+05	4.35E+05	4.35E+05	1.10E+01	3.11E-05	1.29E-01	1.10E-04	7.76E-01	2.33E+02	0.00E+00	3.92E+02	1.66E+05	3.87E+01	3.80E+01	9.16E+06	6.17E-01	1.21E+07	4.67E-02	8.41E+04	2.42E+04
495	Down-dip	1	3	44	0.00E+00	8.00E+06	8.00E+06	2.88E+00	1.32E-04	1.77E-05	1.85E-04	1.77E-05	1.07E+07	0.00E+00	5.39E-02	3.25E+00	3.46E+01	3.38E+01	1.25E+07	8.88E-01	1.26E+07	1.71E-05	8.63E+04	3.52E+04
486	Down-dip	1	3	73	0.00E+00	2.63E+05	2.63E+05	1.10E+01	2.37E-05	6.46E-02	1.03E-04	9.95E-01	2.27E+02	0.00E+00	2.58E+02	1.38E+05	3.14E+01	2.94E+01	6.90E+06	7.33E-01	1.23E+07	8.49E-05	8.49E+04	1.61E+04
487	Down-dip	1	3	48	0.00E+00	9.04E+06	8.04E+06	2.88E+00	9.07E-05	1.82E-04	1.37E-04	1.62E-04	6.65E+05	0.00E+00	4.96E-01	3.65E+01	2.42E+01	2.37E+01	1.16E+07	8.89E-01	1.18E+07	3.84E-02	8.29E+04	2.57E+04
488	Down-dip	1	3	45	7.99E+06	7.99E+06	7.99E+06	2.88E+00	8.02E-05	2.27E-06	1.29E-04	2.27E-06	5.20E+07	0.00E+00	8.92E-03	4.19E-01	2.17E+01	2.12E+01	1.08E+07	8.48E-01	1.09E+07	9.49E-01	7.95E+04	7.54E+04
489	Down-dip	1	3	69	7.99E+06	7.99E+06	7.99E+06	2.88E+00	5.73E-05	7.01E-05	1.11E-04	7.01E-05	1.24E+06	0.00E+00	2.14E-01	1.32E+01	1.63E+01	1.60E+01	1.11E+07	9.10E-01	1.12E+07	7.58E-01	8.05E+04	6.64E+04
490	Down-dip	1	3	27	0.00E+00	1.22E+06	1.22E+06	6.00E+00	1.76E-05	3.25E-02	6.31E-05	2.08E-01	5.02E+02	0.00E+00	9.91E+01	3.13E+04	1.57E+01	1.48E+01	7.01E+06	7.83E-01	9.01E+06	1.18E-03	7.08E+04	1.56E+04
491	Down-dip	1	3	24	7.99E+06	7.99E+06	7.99E+06	2.88E+00	5.88E-05	9.35E-07	7.35E-05	9.35E-07	8.28E+07	0.00E+00	2.85E-03	1.83E-01	1.52E+01	1.48E+01	9.75E+06	9.09E-01	9.72E+06	6.78E-01	7.47E+04	6.83E+04
492	*Down-dip*	*1*	*3*	*46*	*0.00E+00*	*6.06E+06*	*6.06E+06*	*2.88E+00*	*3.88E-05*	*1.66E-02*	*1.18E-04*	*5.65E-02*	*2.30E+03*	*0.00E+00*	*5.08E+01*	*5.23E+03*	*1.20E+01*	*1.18E+01*	9.74E+06	*8.46E-01*	1.03E+07	2.68E-06	7.69E+04	1.69E+04
493	Down-dip	1	3	90	0.00E+00	3.09E+05	3.09E+05	1.10E+01	7.00E-06	4.98E-02	3.69E-05	9.69E-01	1.00E+02	0.00E+00	1.52E+02	1.00E+05	1.00E+01	9.57E+00	3.83E+06	6.73E-01	8.29E+06	2.66E-06	6.67E+04	1.51E+04
494	Down-dip	1	3	23	0.00E+00	5.48E+06	5.48E+06	2.88E+00	2.91E-05	1.77E-02	8.09E-05	5.49E-02	1.61E+03	0.00E+00	5.39E+01	5.50E+03	8.86E+00	8.68E+00	9.81E+06	8.52E-01	1.03E+07	5.36E-07	7.70E+04	2.15E+04
495	Down-dip	1	3	41	0.00E+00	3.08E+05	3.08E+05	1.10E+01	5.86E-06	8.65E-02	3.29E-05	2.00E+00	4.68E+01	0.00E+00	2.84E+02	1.80E+05	8.42E+00	8.22E+00	4.23E+06	5.30E-01	9.26E+06	3.89E-02	7.28E+04	1.63E+04
496	Down-dip	1	3	31	0.00E+00	8.03E+06	8.03E+06	2.88E+00	2.03E-05	7.86E-05	4.76E-05	1.21E-04	2.78E+06	0.00E+00	2.40E-01	2.20E+01	6.11E+00	5.99E+00	9.11E+06	9.16E-01	9.16E+06	5.92E-05	7.19E+04	1.70E+04
497	Down-dip	1	3	60	2.89E+05	6.03E+06	6.04E+06	2.88E+00	1.93E-05	7.22E-03	4.93E-05	1.93E-02	2.64E+03	0.00E+00	2.20E+01	2.25E+03	5.95E+00	5.84E+00	8.16E+06	7.90E-01	8.60E+06	7.85E-02	6.80E+04	2.15E+04
498	Down-dip	1	3	67	0.00E+00	2.92E+05	2.92E+05	1.10E+01	3.82E-06	1.25E-01	2.05E-05	2.85E+00	2.12E+01	0.00E+00	3.83E+02	2.49E+05	5.29E+00	5.01E+00	4.63E+06	4.56E-01	1.02E+07	2.41E-02	7.65E+04	1.19E+04
499	Down-dip	1	3	52	5.81E+05	8.00E+06	8.00E+06	2.88E+00	1.40E-05	8.00E-07	3.30E-05	8.05E-07	2.07E+07	0.00E+00	2.44E-03	1.96E-01	4.04E+00	3.98E+00	8.78E+06	9.60E-01	8.76E+06	4.70E-01	6.94E+04	4.84E+04
500	Down-dip	1	3	20	0.00E+00	2.70E+05	2.70E+05	1.10E+01	2.78E-06	1.06E-01	1.31E-05	1.94E+00	1.82E+01	0.00E+00	3.22E+02	2.10E+05	3.82E+00	3.63E+00	4.35E+06	4.82E-01	9.39E+06	1.19E-07	7.32E+04	8.96E+03
501	Down-dip	1	3	47	0.00E+00	2.47E+05	2.47E+05	1.10E+01	2.28E-06	9.27E-02	1.27E-05	2.31E+00	1.66E+01	0.00E+00	2.83E+02	1.94E+05	3.21E+00	3.19E+00	3.69E+06	4.94E-01	8.58E+06	9.42E-02	6.84E+04	1.87E+04
502	Down-dip	1	3	53	0.00E+00	7.36E+06	7.37E+06	2.88E+00	1.04E-05	1.13E-03	2.65E-05	2.70E-03	9.31E+03	0.00E+00	3.45E+00	3.49E+02	3.25E+00	3.19E+00	8.24E+06	8.74E-01	8.55E+06	1.84E-01	6.78E+04	3.45E+04
503	Down-dip	1	3	100	8.00E+06	8.00E+06	8.00E+06	2.88E+00	1.05E-05	2.03E-06	2.21E-05	2.03E-06	6.44E+06	0.00E+00	6.20E-03	3.64E-01	3.23E+00	3.17E+00	8.76E+06	8.86E-01	8.68E+06	7.24E-01	6.90E+04	5.49E+04
504	Down-dip	1	3	2	0.00E+00	7.99E+06	7.99E+06	2.88E+00	7.05E-06	9.83E-08	1.06E-05	9.83E-08	8.38E+07	0.00E+00	3.00E-04	2.25E-02	1.89E+00	1.84E+00	8.31E+06	9.16E-01	8.28E+06	8.90E-02	6.67E+04	2.85E+04
505	Down-dip	1	3	65	0.00E+00	2.54E+05	2.54E+05	1.10E+01	9.03E-07	1.65E-01	5.33E-06	4.80E+00	3.49E+00	0.00E+00	5.03E+02	3.74E+05	1.31E+00	1.26E+00	3.82E+06	3.65E-01	1.00E+07	5.96E-08	7.59E+04	6.96E+03
506	Down-dip	1	3	71	0.00E+00	2.36E+05	2.36E+05	1.10E+01	7.77E-07	1.10E-01	5.66E-06	4.75E+00	4.20E+00	0.00E+00	3.34E+02	2.65E+05	1.20E+00	1.18E+00	3.10E+06	3.83E-01	8.03E+06	1.37E-06	7.11E+04	6.87E+03
507	Down-dip	1	3	85	0.00E+00	3.00E+05	3.00E+05	1.10E+01	5.41E-07	1.79E-01	3.74E-06	7.46E+00	1.82E+00	0.00E+00	5.46E+02	4.47E+05	6.11E-01	7.93E-01	4.00E+06	5.37E-01	1.24E+07	5.14E-02	8.56E+04	1.51E+04
509	Down-dip	1	3	98	0.00E+00	2.24E+05	2.24E+05	1.10E+01	4.58E-07	1.05E-01	3.20E-06	4.22E+00	2.56E+00	0.00E+00	3.19E+02	2.73E+05	7.05E-01	6.78E-01	2.94E+06	3.15E-01	8.48E+06	5.13E-06	6.78E+04	5.34E+03
509	Down-dip	1	3	97	0.00E+00	8.01E+06	8.01E+06	2.88E+00	2.26E-06	1.55E-07	4.67E-06	1.79E-07	1.67E+07	0.00E+00	4.73E-04	4.09E-02	6.63E-01	6.69E-01	8.18E+06	9.14E-01	8.10E+06	2.34E-01	6.59E+04	3.75E+04
510	Down-dip	1	3	77	0.00E+00	2.54E+05	2.54E+05	1.10E+01	3.79E-07	1.43E-01	2.42E-06	4.92E+00	1.57E+00	0.00E+00	4.37E+02	3.67E+05	5.77E-01	5.72E-01	3.50E+06	3.09E-01	1.00E+07	8.09E-05	7.59E+04	5.86E+03
511	Down-dip	1	3	15	0.00E+00	2.86E+05	2.86E+05	1.10E+01	2.99E-07	2.85E-01	8.03E-07	9.44E+00	6.14E-01	0.00E+00	8.71E+02	5.31E+05	2.73E-01	2.60E-01	3.51E+06	6.15E-01	1.11E+07	1.31E-01	8.09E+04	2.41E+04
512	Down-dip	1	3	1	0.00E+00	7.99E+06	7.99E+06	2.88E+00	2.19E-07	1.02E-09	4.84E-07	2.03E-09	2.21E+06	0.00E+00	3.10E-06	3.05E-04	6.73E-02	6.60E-02	8.01E+06	9.02E-01	7.90E+06	8.56E-01	6.49E+04	5.68E+04
513	Down-dip	1	3	16	0.00E+00	2.46E+05	2.46E+05	1.10E+01	1.82E-08	6.49E-02	1.87E-07	7.23E+00	1.06E-01	0.00E+00	2.59E+02	3.05E+05	3.23E-02	3.22E-02	2.12E+06	3.79E-01	8.93E+06	2.89E-05	7.01E+04	7.01E+03
514	Down-dip	1	3	70	0.00E+00	2.93E+05	2.93E+05	1.10E+01	1.79E-10	6.07E-02	2.22E-09	9.01E+00	1.26E-03	0.00E+00	1.85E+02	2.82E+05	3.55E-04	3.42E-04	1.63E+06	4.61E-01	8.77E+06	1.89E-05	6.94E+04	8.11E+03
515	Down-dip	1	3	76	0.00E+00	3.20E+05	3.20E+05	1.10E+01	1.56E-11	9.47E-02	1.52E-10	1.03E+01	7.85E-05	0.00E+00	2.89E+02	3.61E+05	2.83E-05	2.80E-05	1.98E+06	3.64E-01	9.08E+06	4.17E-07	7.15E+04	6.54E+03
516	Down-dip	1	3	78	0.00E+00	2.00E+05	2.00E+06	1.10E+01	8.21E-05	5.61E-01	1.53E-04	2.07E+00	1.06E+02	0.00E+00	1.71E+03	6.20E+05	6.71E+01	6.38E+01	1.36E+07	6.80E-01	1.47E+07	2.18E-02	9.74E+04	3.63E+04
517	*Down-dip*	*1*	*3*	*10*	0.00E+00	4.46E+05	4.46E+05	*1.10E+01*	*4.87E-05*	*3.90E-01*	*1.29E-04*	2.52E+00	1.13E+02	0.00E+00	1.19E+03	4.75E+05	5.38E+01	5.29E+01	8.44E+06	6.65E-01	1.38E+07	1.60E-07	9.25E+04	1.68E+04
518	Down-dip	1	3	18	0.00E+00	5.04E+05	5.04E+05	1.10E+01	3.73E-05	6.54E-01	6.67E-05	3.14E+00	5.33E+01	0.00E+00	2.00E+03	7.02E+05	3.74E+01	3.43E+01	1.05E+07	8.75E-01	1.44E+07	7.60E-02	9.65E+04	2.52E+04
519	Down-dip	1	3	45	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.07E-04	5.53E-06	1.74E-04	6.83E-06	2.90E+07	0.00E+00	1.69E-02	1.01E+00	2.91E+01	2.84E+01	1.16E+07	9.46E-01	1.19E+07	9.49E-01	8.34E+04	7.91E+04
520	Down-dip	1	3	19	0.00E+00	5.67E+05	6.67E+05	1.10E+01	2.28E-05	2.29E-01	8.48E-05	1.75E+00	9.11E+01	0.00E+00	6.99E+02	3.14E+05	2.66E+01	2.75E+01	9.17E+06	5.62E-01	1.33E+07	1.53E-02	8.93E+04	2.11E+04
521	Down-dip	1	3	46	0.00E+00	7.99E+06	7.99E+06	2.88E+00	9.99E-05	1.84E-03	1.47E-04	3.20E-03	4.31E+04	0.00E+00	5.60E+00	8.08E+02	2.61E+01	2.55E+01	1.25E+07	8.60E-01	1.26E+07	2.40E-06	8.64E+04	2.06E+04
522	Down-dip	1	3	46	0.00E+00	3.55E+05	3.55E+05	1.10E+01	1.70E-05	5.87E-02	9.43E-05	1.02E+00	2.28E+02	0.00E+00	1.79E+02	1.06E+05	2.41E+01	2.38E+01	5.07E+06	7.05E-01	9.82E+06	3.52E-06	7.48E+04	1.36E+04
523	Down-dip	1	3	44	0.00E+00	7.99E+06	7.99E+06	2.88E+00	9.06E-05	8.43E-08	1.26E-04	6.43E-06	2.09E+07	0.00E+00	1.98E-02	1.15E+00	2.36E+01	2.32E+01	1.12E+07	6.69E-01	1.12E+07	6.27E-06	8.07E+04	3.46E+04
524	Down-dip	1	3	94	0.00E+00	7.99E+06	7.89E+06	2.88E+00	7.46E-05	1.59E-07	2.05E-04	1.62E-07	5.44E+08	0.00E+00	4.64E-04	3.98E-02	2.16E+01	2.12E+01	1.07E+07	9.93E-01	1.13E+07	1.83E-01	8.10E+04	4.25E+04
525	Down-dip	1	3	69	7.99E+06	7.99E+06	7.99E+06	2.88E+00	5.19E-05	5.14E-05	1.00E-04	5.14E-05	1.54E+06	0.00E+00	1.57E-01	9.59E+00	1.46E+01	1.44E+01	1.08E+07	9.10E-01	1.08E+07	7.48E-01	7.92E+04	6.49E+04

.	.	.	.	.	Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	BC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up-dip Brine Relative Permeability (fraction)	Up-dip Gas Relative Permeability (fraction)	Down-dip Brine Relative Permeability (fraction)	Down-dip Gas Relative Permeability (fraction)
No.	ID	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_RE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
526	*Down-dip*	*1*	*3*	*73*	*5.58E-01*	*5.61E-02*	*3.03E-01*	*1.36E+00*	*1.23E+07*	*6.38E-06*	*1.23E+07*	*6.42E-01*	*9.62E-02*	*3.72E-16*	*1.04E-01*	*3.72E-16*	*5.00E+03*	*-8.01E-01*	*1.13E-13*	*6.17E-15*	*3.77E-01*	*1.37E+07*	*9.77E-12*	*0.00E+00*	*1.00E+00*	*7.01E-02*	*1.46E-01*
527	Down-dip	1	3	24	5.17E-01	9.01E-02	1.37E-01	1.24E+00	9.17E+06	7.49E-01	9.27E+06	9.08E-01	1.96E-01	2.82E-13	2.17E-01	2.82E-13	5.00E+03	-1.29E+00	1.24E-13	2.63E-14	9.94E-01	1.17E+07	7.41E-13	2.82E-01	1.41E-02	6.59E-01	3.07E-08
528	Down-dip	1	3	23	5.48E-01	7.29E-02	4.80E-01	1.33E+00	1.15E+07	2.38E-07	1.15E+07	7.19E-01	3.98E-02	1.18E-16	4.59E-02	1.18E-16	5.00E+03	-1.18E+00	1.27E-13	7.94E-17	8.09E-01	1.52E+07	6.03E-13	0.00E+00	1.00E+00	5.67E-02	1.42E-01
529	Down-dip	1	3	1	5.09E-01	9.81E-02	2.56E-01	1.22E+00	8.87E+06	8.99E-01	6.96E+06	8.99E-01	6.91E-02	7.24E-16	8.99E-02	7.24E-16	5.00E+03	-1.28E+00	1.22E-13	1.66E-14	9.73E-01	1.28E+07	7.08E-14	5.84E-01	1.38E-07	5.84E-01	1.34E-07
530	Down-dip	1	3	27	5.19E-01	1.18E-01	4.62E-01	1.25E+00	9.28E+06	4.17E-07	9.29E+06	6.74E-01	3.02E-02	1.86E-16	4.28E-02	1.86E-16	5.00E+03	-1.24E+00	1.23E-13	2.40E-15	9.09E-01	1.20E+07	1.26E-12	0.00E+00	1.00E+00	3.22E-02	1.68E-01
531	Down-dip	1	3	31	4.97E-01	5.28E-02	5.93E-02	1.19E+00	8.43E+06	1.05E-05	8.53E+06	9.47E-01	7.36E-02	1.66E-15	9.76E-02	1.66E-15	5.00E+03	-1.27E+00	1.19E-13	3.31E-14	9.73E-01	1.48E+07	6.31E-13	0.00E+00	1.00E+00	8.06E-01	6.14E-10
532	Down-dip	1	3	100	5.00E-01	1.14E-01	3.43E-01	1.20E+00	8.52E+06	8.83E-01	8.61E+06	8.83E-01	6.96E-02	9.12E-16	9.05E-02	9.12E-16	5.00E+03	-1.26E+00	1.19E-13	2.51E-14	9.43E-01	1.28E+07	1.29E-13	4.85E-01	1.95E-07	4.86E-01	1.70E-07
533	Down-dip	1	3	71	5.17E-01	1.57E-02	1.06E-01	1.24E+00	9.18E+06	1.19E-06	9.21E+06	3.87E-01	4.44E-02	2.19E-18	6.50E-02	2.19E-18	5.00E+03	-1.37E+00	1.29E-13	5.25E-17	1.18E+00	1.20E+07	6.76E-13	0.00E+00	1.00E+00	1.40E-02	3.95E-01
534	Down-dip	1	3	67	5.30E-01	1.21E-01	6.61E-02	1.28E+00	1.02E+07	1.51E-04	1.01E+07	3.48E-01	1.70E-01	3.55E-18	1.81E-01	3.55E-18	5.00E+03	-1.27E+00	1.27E-13	7.24E-15	9.65E-01	1.27E+07	1.15E-14	0.00E+00	1.00E+00	1.20E-02	3.56E-01
535	Down-dip	1	3	41	5.38E-01	3.40E-02	8.64E-02	1.30E+00	1.07E+07	1.65E-02	1.08E+07	3.50E-01	1.45E-01	1.70E-19	1.50E-01	1.70E-19	5.00E+03	-1.22E+00	1.27E-13	3.24E-16	8.64E-01	1.48E+07	3.47E-12	0.00E+00	1.00E+00	1.02E-02	4.28E-01
536	Down-dip	1	3	6	5.01E-01	6.58E-02	1.45E-01	1.20E+00	8.57E+06	1.85E-02	8.69E+06	4.00E-01	6.67E-02	5.76E-19	8.36E-02	5.75E-19	5.00E+03	-1.18E+00	1.15E-13	6.46E-17	8.02E-01	1.40E+07	3.09E-12	0.00E+00	1.00E+00	1.14E-02	3.91E-01
537	Down-dip	1	3	65	5.27E-01	1.27E-01	8.96E-02	1.27E+00	9.91E+06	2.38E-07	8.91E+06	3.39E-01	2.09E-02	8.71E-16	3.08E-02	8.71E-16	5.00E+03	-1.16E+00	1.21E-13	4.17E-15	7.73E-01	1.27E+07	3.72E-12	0.00E+00	1.00E+00	8.42E-03	3.87E-01
538	Down-dip	1	3	20	5.15E-01	1.23E-01	1.27E-01	1.24E+00	9.13E+06	1.19E-07	9.10E+06	3.69E-01	2.01E-02	1.35E-17	3.75E-02	1.35E-17	5.00E+03	-6.04E-01	9.65E-14	3.31E-15	2.55E-01	1.29E+07	1.20E-12	0.00E+00	1.00E+00	8.80E-03	3.91E-01
539	Down-dip	1	3	98	4.96E-01	3.56E-02	5.00E-02	1.19E+00	8.41E+06	4.36E-06	8.35E+06	2.98E-01	6.13E-02	4.19E-19	8.67E-02	4.17E-19	5.00E+03	-1.23E+00	1.16E-13	4.79E-15	8.82E-01	1.17E+07	3.98E-14	0.00E+00	1.00E+00	7.04E-03	4.72E-01
540	Down-dip	1	3	90	5.12E-01	1.28E-02	2.86E-01	1.23E+00	9.02E+06	1.49E-06	8.97E+06	4.70E-01	1.83E-02	1.20E-17	3.66E-02	1.20E-17	5.00E+03	-8.48E-01	1.04E-13	2.09E-14	4.15E-01	1.31E+07	3.02E-12	0.00E+00	1.00E+00	6.77E-03	4.86E-01
541	Down-dip	1	3	84	4.95E-01	1.44E-01	6.88E-03	1.18E+00	8.34E+06	5.96E-08	8.45E+06	2.44E-01	2.14E-02	4.91E-20	3.72E-02	4.90E-20	5.00E+03	-1.40E+00	1.25E-13	2.95E-16	1.25E+00	1.27E+07	3.55E-11	0.00E+00	1.00E+00	5.04E-03	4.60E-01
542	Down-dip	1	3	77	5.37E-01	1.48E-01	6.84E-02	1.30E+00	1.06E+07	4.73E-05	1.07E+07	2.38E-01	2.00E-01	8.13E-19	2.13E-01	8.13E-19	5.00E+03	-7.13E-01	1.05E-13	2.75E-16	3.17E-01	1.24E+07	1.20E-11	0.00E+00	1.00E+00	1.84E-03	5.69E-01
543	Down-dip	1	3	15	5.31E-01	4.22E-02	5.21E-01	1.28E+00	1.02E+07	9.56E-02	1.02E+07	5.93E-01	5.60E-02	1.32E-14	6.88E-02	1.32E-14	5.00E+03	-9.46E-01	1.12E-13	1.32E-14	5.06E-01	1.15E+07	4.47E-13	0.00E+00	1.00E+00	9.20E-04	6.64E-01
544	Down-dip	1	3	47	5.34E-01	6.75E-02	1.61E-01	1.29E+00	1.04E+07	5.07E-02	1.04E+07	3.01E-01	1.48E-01	6.92E-18	1.53E-01	6.92E-18	5.00E+03	-1.09E+00	1.19E-13	2.19E-16	6.75E-01	1.21E+07	1.55E-12	0.00E+00	1.00E+00	1.36E-03	6.31E-01
545	Down-dip	1	3	14	5.18E-01	1.07E-01	3.28E-01	1.25E+00	9.21E+06	2.13E-02	9.31E+06	3.79E-01	1.31E-01	6.31E-19	1.45E-01	6.31E-19	5.00E+03	-7.31E-01	1.01E-13	8.32E-16	3.28E-01	1.49E+07	2.83E-14	0.00E+00	1.00E+00	7.34E-05	8.14E-01
546	Down-dip	1	3	10	5.77E-01	3.17E-02	1.73E-01	1.42E+00	1.39E+07	1.79E-07	1.39E+07	7.78E-01	8.33E-02	3.93E-14	6.23E-02	3.72E-14	1.00E+04	-1.33E+00	1.45E-13	1.86E-16	1.08E+00	1.18E+07	1.35E-11	0.00E+00	1.00E+00	3.15E-01	2.12E-02
547	Down-dip	1	3	78	6.93E-01	4.93E-02	1.51E-01	1.48E+00	1.51E+07	9.90E-03	1.51E+07	7.38E-01	2.20E-01	3.53E-11	1.02E-01	2.48E-15	1.00E+04	-1.06E+00	1.35E-13	8.32E-17	6.28E-01	1.48E+07	1.07E-12	0.00E+00	1.00E+00	2.53E-01	2.96E-02
548	Down-dip	1	3	45	5.73E-01	5.05E-02	2.04E-01	1.41E+00	1.35E+07	9.49E-01	1.36E+07	9.49E-01	8.92E-02	1.01E-13	8.09E-02	5.13E-14	1.00E+04	-9.31E-01	1.23E-13	1.74E-15	4.89E-01	1.36E+07	4.57E-13	7.82E-01	2.68E-09	7.82E-01	2.66E-09
549	*Down-dip*	*1*	*3*	*18*	*5.98E-01*	*1.06E-01*	*3.40E-01*	*1.49E+00*	*1.54E+07*	*3.28E-06*	*1.54E+07*	*8.61E-01*	*8.72E-02*	*3.62E-13*	*6.04E-02*	*3.31E-14*	*1.00E+04*	*-1.09E+00*	*1.38E-13*	*6.17E-16*	*6.69E-01*	*1.12E+07*	*5.25E-12*	*0.00E+00*	*1.00E+00*	*6.97E-02*	*1.07E-01*
550	Down-dip	1	3	94	5.50E-01	4.58E-03	1.85E-01	1.33E+00	1.16E+07	1.55E-01	1.16E+07	9.94E-01	2.03E-01	6.31E-15	2.09E-01	6.31E-15	1.00E+04	-1.29E+00	1.34E-13	9.77E-16	9.95E-01	1.44E+07	1.78E-12	0.00E+00	1.00E+00	9.72E-01	1.66E-08
551	Down-dip	1	3	46	5.44E-01	1.02E-01	2.11E-01	1.32E+00	1.11E+07	2.68E-06	1.12E+07	8.97E-01	5.47E-02	7.76E-14	5.82E-02	7.76E-14	1.00E+04	-1.29E+00	1.32E-13	2.19E-15	1.01E+00	1.10E+07	3.80E-12	0.00E+00	1.00E+00	5.98E-01	3.67E-10
552	Down-dip	1	3	19	5.76E-01	1.42E-01	2.97E-02	1.42E+00	1.38E+07	8.30E-05	1.38E+07	7.57E-01	2.05E-01	9.48E-15	1.92E-01	1.41E-15	1.00E+04	-1.23E+00	1.39E-13	2.00E-16	8.94E-01	1.25E+07	1.45E-12	0.00E+00	1.00E+00	3.46E-01	2.88E-03
553	Down-dip	1	3	73	5.51E-01	5.61E-02	3.03E-01	1.34E+00	1.17E+07	4.29E-06	1.17E+07	9.43E-01	9.50E-02	3.72E-16	1.06E-01	3.72E-16	1.00E+04	-8.01E-01	1.11E-13	6.17E-15	3.77E-01	1.38E+07	9.77E-12	0.00E+00	1.00E+00	7.31E-01	1.23E-09
554	Down-dip	1	3	69	5.37E-01	8.98E-02	4.08E-01	1.30E+00	1.06E+07	9.09E-01	1.06E+07	9.09E-01	7.76E-02	1.26E-14	8.87E-02	1.26E-14	1.00E+04	-1.29E+00	1.30E-13	9.33E-15	9.99E-01	1.47E+07	4.07E-13	5.40E-01	2.84E-08	5.40E-01	1.90E-08
555	Down-dip	1	3	44	6.19E-01	1.12E-01	1.61E-02	1.25E+00	9.28E+06	3.27E-04	9.36E+06	8.88E-01	1.28E-01	1.18E-13	1.36E-01	1.18E-13	1.00E+04	-1.17E+00	1.19E-13	3.80E-15	7.83E-01	1.38E+07	1.12E-12	0.00E+00	1.00E+00	6.39E-01	1.16E-10
556	Down-dip	1	3	71	5.19E-01	1.57E-02	1.06E-01	1.25E+00	9.32E+06	1.19E-06	9.35E+06	5.24E-01	4.46E-02	2.19E-18	6.47E-02	2.19E-18	1.00E+04	-1.37E+00	1.30E-13	5.25E-17	1.18E+00	1.20E+07	6.76E-13	0.00E+00	1.00E+00	6.03E-02	1.97E-01
557	Down-dip	1	3	48	4.96E-01	2.03E-02	2.35E-01	1.19E+00	8.43E+06	8.05E-06	8.41E+06	6.54E-01	4.47E-02	1.59E-17	6.69E-02	1.59E-17	1.00E+04	-1.41E+00	1.26E-13	1.45E-14	1.26E+00	1.51E+07	1.15E-11	0.00E+00	1.00E+00	4.58E-01	7.60E-03
558	Down-dip	1	3	1	5.15E-01	9.81E-02	2.56E-01	1.24E+00	9.09E+06	8.99E-01	9.18E+06	6.99E-01	6.93E-02	7.24E-16	8.89E-02	7.24E-16	1.00E+04	-1.26E+00	1.23E-13	1.66E-14	9.73E-01	1.28E+07	7.08E-14	5.84E-01	1.57E-07	5.84E-01	1.36E-07
559	Down-dip	1	3	67	4.98E-01	1.21E-01	6.61E-02	1.20E+00	8.52E+06	9.23E-05	8.45E+06	4.21E-01	1.74E-01	3.55E-18	1.94E-01	3.55E-18	1.00E+04	-1.27E+00	1.19E-13	7.24E-15	9.65E-01	1.27E+07	1.15E-14	0.00E+00	1.00E+00	2.80E-02	2.40E-01
560	Down-dip	1	3	20	4.95E-01	1.23E-01	1.27E-01	1.19E+00	8.37E+06	1.79E-07	8.35E+06	4.39E-01	1.88E-02	1.35E-17	3.91E-02	1.35E-17	1.00E+04	-6.04E-01	9.28E-14	3.31E-15	2.55E-01	1.29E+07	1.20E-12	0.00E+00	1.00E+00	2.24E-02	2.64E-01
561	Down-dip	1	3	65	5.21E-01	1.27E-01	8.96E-02	1.25E+00	9.45E+06	1.31E-06	9.46E+06	3.85E-01	1.96E-02	8.71E-16	3.12E-02	8.71E-16	1.00E+04	-1.16E+00	1.19E-13	4.17E-15	7.73E-01	1.27E+07	3.72E-12	0.00E+00	1.00E+00	1.57E-02	3.14E-01
562	Down-dip	1	3	56	4.88E-01	4.66E-02	3.20E-01	1.17E+00	8.13E+06	1.37E-06	8.14E+06	5.39E-01	8.40E-02	1.05E-15	1.03E-01	1.05E-15	1.00E+04	-7.21E-01	9.50E-14	1.05E-14	3.22E-01	1.17E+07	2.82E-12	0.00E+00	1.00E+00	1.54E-02	3.56E-01
563	Down-dip	1	3	77	5.45E-01	1.48E-01	6.64E-02	1.32E+00	1.12E+07	2.25E-05	1.12E+07	2.63E-01	1.99E-01	8.13E-19	2.10E-01	8.13E-19	1.00E+04	-7.13E-01	1.07E-13	2.75E-16	3.17E-01	1.24E+07	1.20E-11	0.00E+00	1.00E+00	3.06E-03	5.12E-01
564	Down-dip	1	3	41	5.56E-01	3.40E-02	8.64E-02	1.35E+00	1.21E+07	4.66E-03	1.20E+07	2.38E-01	1.48E-01	3.35E-19	1.44E-01	1.70E-19	1.00E+04	-1.22E+00	1.31E-13	3.24E-16	8.64E-01	1.48E+07	3.47E-12	0.00E+00	1.00E+00	1.25E-03	6.55E-01
565	Down-dip	1	3	64	5.15E-01	1.44E-01	6.88E-03	1.24E+00	9.13E+06	0.00E+00	9.12E+06	1.34E-01	2.31E-02	4.91E-20	3.57E-02	4.90E-20	1.00E+04	-1.40E+00	1.30E-13	2.95E-16	1.25E+00	1.27E+07	3.55E-11	0.00E+00	1.00E+00	5.07E-04	6.94E-01
566	Down-dip	1	3	58	5.54E-01	2.96E-02	1.14E-01	1.35E+00	1.19E+07	1.73E-06	1.19E+07	2.11E-01	2.09E-01	1.45E-16	2.14E-01	1.45E-16	1.00E+04	-1.16E+00	1.29E-13	3.09E-15	8.11E-01	1.32E+07	1.07E-13	0.00E+00	1.00E+00	2.81E-04	7.67E-01
567	Down-dip	1	3	12	5.27E-01	7.06E-02	1.02E-01	1.27E+00	9.89E+06	8.35E-07	9.89E+06	1.82E-01	3.00E-02	1.78E-13	4.57E-02	1.78E-13	1.00E+04	-1.38E+00	1.32E-13	5.50E-15	1.19E+00	1.44E+07	1.86E-13	0.00E+00	1.00E+00	1.32E-04	8.01E-01
568	Down-dip	1	3	6	5.35E-01	6.58E-02	1.45E-01	1.29E+00	1.04E+07	1.09E-05	1.05E+07	2.12E-01	7.01E-02	5.76E-19	7.80E-02	5.75E-19	1.00E+04	-1.18E+00	1.24E-13	6.46E-17	8.02E-01	1.40E+07	3.09E-12	0.00E+00	1.00E+00	7.99E-05	8.26E-01
569	Down-dip	1	3	47	5.50E-01	6.75E-02	1.61E-01	1.34E+00	1.16E+07	5.20E-03	1.16E+07	1.96E-01	1.50E-01	1.06E-17	1.47E-01	6.92E-18	1.00E+04	-1.09E+00	1.24E-13	2.19E-16	6.75E-01	1.21E+07	1.55E-12	0.00E+00	1.00E+00	8.04E-06	9.07E-01
570	Down-dip	1	3	27	5.19E-01	1.18E-01	4.62E-01	1.25E+00	9.32E+06	3.58E-07	9.32E+06	4.74E-01	3.03E-02	1.86E-16	4.27E-02	1.86E-16	1.00E+04	-1.24E+00	1.23E-13	2.40E-15	9.09E-01	1.20E+07	1.26E-12	0.00E+00	1.00E+00	7.53E-07	9.42E-01
571	Down-dip	1	4	40	5.58E-01	1.02E-01	3.54E-01	1.36E+00	8.68E+06	1.36E-01	8.69E+06	7.37E-01	1.22E-01	1.51E-13	1.35E-01	1.51E-13	5.50E+02	-1.32E+00	1.38E-13	3.02E-13	1.07E+00	1.47E+07	2.57E-11	0.00E+00	1.00E+00	1.45E-01	3.97E-02
572	Down-dip	1	4	51	5.96E-01	1.34E-01	3.63E-01	1.49E+00	1.15E+07	2.47E-01	1.15E+07	6.26E-01	1.67E-01	6.31E-14	1.67E-01	6.17E-14	5.50E+02	-1.16E+00	1.42E-13	1.00E-12	7.77E-01	1.68E+07	6.92E-12	0.00E+00	1.00E+00	3.12E-01	7.42E-04
573	Down-dip	1	4	49	5.50E-01	3.07E-02	7.64E-02	1.33E+00	8.15E+06	6.98E-02	8.14E+06	1.89E-01	2.45E-02	4.27E-16	4.30E-02	4.27E-15	5.50E+02	-1.26E+00	1.32E-13	8.91E-13	9.52E-01	1.31E+07	9.77E-13	0.00E+00	1.00E+00	4.22E-04	7.41E-01
574	Down-dip	1	4	58	6.01E-01	2.96E-02	1.14E-01	1.51E+00	1.19E+07	1.72E-01	1.18E+07	1.90E-01	1.87E-01	1.45E-16	1.91E-01	1.45E-16	5.50E+02	-1.16E+00	1.45E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	4.41E-05	8.59E-01	1.16E-04	8.16E-01
575	Down-dip	1	4	28	5.93E-01	9.72E-02	1.79E-01	1.48E+00	1.12E+07	1.99E-01	1.11E+07	2.06E-01	1.69E-01	5.21E-17	1.99E-01	4.79E-17	5.50E+02	-1.08E+00	1.36E-13	9.55E-12	6.64E-01	1.48E+07	9.55E-14	1.05E-06	9.44E-01	3.31E-06	9.24E-01
576	Down-dip	1	4	94	5.35E-01	4.58E-03	1.85E-01	1.29E+00	8.60E+06	2.90E-01	8.61E+06	5.97E-01	1.96E-01	6.31E-15	2.15E-01	6.31E-15	7.50E+02	-1.29E+00	1.29E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	5.19E-04	7.34E-01	8.03E-02	1.65E-01
577	Down-dip	1	4	79	5.36E-01	1.23E-01	3.88E-01	1.29E+00	8.68E+06	1.78E-01	8.70E+06	8.25E-01	1.69E-01	2.67E-13	1.92E-01	2.57E-13	7.50E+02	-1.10E+00	1.20E-13	1.51E-16	6.89E-01	1.31E+07	4.37E-15	0.00E+00	1.00E+00	2.89E-01	1.94E-03
578	Down-dip	1	4	31	5.34E-01	5.28E-02	5.93E-02	1.29E+00	8.55E+06	3.33E-02	8.55E+06	4.37E-01	6.78E-02	1.66E-15	9.05E-02	1.66E-15	7.50E+02	-1.27E+00	1.29E-13	3.31E-14	9.73E-01	1.49E+07	6.31E-13	0.00E+00	1.00E+00	3.46E-02	2.52E-01
579	Down-dip	1	4	73	5.29E-01	5.61E-02	3.03E-01	1.28E+00	8.21E+06	8.84E-02	8.22E+06	4.05E-01	8.48E-02	3.72E-16	1.11E-01	3.72E-16	7.50E+02	-8.01E-01	1.06E-13	6.17E-15	3.77E-01	1.39E+07	9.77E-12	0.00E+00	1.00E+00	8.35E-04	6.75E-01
580	Down-dip	1	4	58	5.90E-01	2.96E-02	1.14E-01	1.47E+00	1.28E+07	1.58E-01	1.26E+07	1.77E-01	1.97E-01	3.58E-16	1.97E-01	1.45E-16	7.50E+02	-1.18E+00	1.41E-13	3.09E-15	6.11E-01	1.26E+07	1.07E-13	1.51E-05	6.95E-01	5.78E-05	8.48E-01
581	Down-dip	1	4	94	5.47E-01	4.58E-03	1.85E-01	1.33E+00	1.14E+07	2.21E-01	1.14E+07	8.45E-01	2.04E-01	6.31E-15	2.10E-01	6.31E-15	2.00E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	9.97E-06	9.08E-01	4.59E-01	1.01E-02
582	Down-dip	1	4	31	5.14E-01	5.28E-02	5.93E-02	1.24E+00	9.02E+06	8.88E-06	9.03E+06	5.09E-01	7.28E-02	1.66E-15	9.45E-02	1.66E-15	2.00E+03	-1.27E+00	1.23E-13	3.31E-14	9.73E-01	1.49E+07	6.31E-13	0.00E+00	1.00E+00	6.57E-02	1.66E-01
583	Down-dip	1	4	19	6.29E-01	1.42E-01	2.97E-02	1.28E+00	1.00E+07	9.67E-02	1.00E+07	3.99E-01	2.00E-01	1.41E-15	2.13E-01	1.41E-15	2.00E+03	-1.23E+00	1.25E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	5.16E-05	8.33E-01	2.82E-02	2.29E-01
584	Down-dip	1	4	44	5.07E-01	1.12E-01	1.61E-02	1.22E+00	8.65E+06	7.93E-08	8.68E+06	8.84E-01	1.28E-01	1.18E-13	1.41E-01	1.18E-13	2.00E+03	-1.17E+00	1.16E-13	3.80E-15	7.83E-01	1.45E+07	1.12E-12	0.00E+00	1.00E+00	6.29E-01	1.65E-07
585	Down-dip	1	4	79	5.74E-01	1.23E-01	3.88E-01	1.41E+00	1.37E+07	2.98E-06	1.37E+07	5.28E-01	1.78E-01	3.22E-13	1.76E-01	2.57E-13	2.00E+03	-1.10E+00	1.31E-13	1.51E-16	6.89E-01	1.31E+07	4.37E-15	0.00E+00	1.00E+00	4.27E-03	4.49E-01
586	Down-dip	1	4	73	5.37E-01	5.61E-02	3.03E-01	1.30E+00	1.06E+07	3.02E-02	1.06E+07	3.71E-01	9.32E-02	3.72E-16	1.09E-01	3.72E-16	2.00E+03	-8.01E-01	1.08E-13	6.17E-15	3.77E-01	1.39E+07	9.77E-12	0.00E+00	1.00E+00	1.84E-04	7.82E-01
587	Down-dip	1	4	58	5.66E-01	2.96E-02	1.14E-01	1.45E+00	1.48E+07	6.33E-02	1.48E+07	1.40E-01	2.27E-01	2.70E-14	1.99E-01	1.45E-16	2.00E+03	-1.18E+00	1.39E-13	3.09E-15	6.11E-01	1.26E+07	1.07E-13	0.00E+00	1.00E+00	2.18E-06	9.38E-01
588	Down-dip	1	4	58	5.92E-01	2.96E-02	1.14E-01	1.47E+00	1.54E+07	1.12E-04	1.54E+07	6.42E-01	2.41E-01	4.30E-13	1.96E-01	1.45E-16	4.00E+03	-1.18E+00	1.41E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	0.00E+00	1.00E+00	1.48E-01	8.24E-02
589	Down-dip	1	4	94	5.47E-01	4.58E-03	1.85E-01	1.33E+00	1.14E+07	1.90E-01	1.15E+07	9.94E-01	2.04E-01	6.31E-15	2.10E-01	6.31E-15	4.00E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	7.41E-09	9.87E-01	9.72E-01	1.57E-08
590	Down-dip	1	4	44	5.10E-01	1.12E-01	1.61E-02	1.23E+00	8.92E+06	4.95E-06	8.95E+06	8.87E-01	1.28E-01	1.18E-13	1.40E-01	1.18E-13	4.00E+03	-1.17E+00	1.17E-13	3.80E-15	7.83E-01	1.45E+07	1.12E-12	0.00E+00	1.00E+00	6.39E-01	2.73E-10
591	Down-dip	1	4	19	5.57E-01	1.42E-01	2.97E-02	1.36E+00	1.23E+07	2.83E-02	1.23E+07	3.34E-01	1.96E-01	1.41E-15	2.00E-01	1.41E-15	4.00E+03	-1.23E+00	1.33E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	0.00E+00	1.00E+00	1.38E-02	3.27E-01
592	Down-dip	1	4	31	4.96E-01	5.28E-02	5.93E-02	1.19E+00	8.37E+06	1.10E-05	8.40E+06	8.75E-01	7.28E-02	1.66E-15	9.79E-02	1.66E-15	4.00E+03	-1.27E+00	1.19E-13	3.31E-14	9.73E-01	1.49E+07	6.31E-13	0.00E+00	1.00E+00	5.91E-01	8.76E-04
593	Down-dip	1	4	79	5.75E-01	1.23E-01	3.88E-01	1.41E+00	1.38E+07	1.97E-06	1.38E+07	5.07E-01	1.79E-01	3.46E-13	1.76E-01	2.57E-13	4.00E+03	-1.10E+00	1.32E-13	1.51E-16	6.89E-01	1.31E+07	4.37E-15	0.00E+00	1.00E+00	2.38E-03	5.20E-01
594	Down-dip	1	4	78	5.21E-01	4.93E-02	1.51E-01	1.25E+00	9.41E+06	3.13E-05	9.42E+06	2.59E-01	1.08E-01	2.46E-15	1.20E-01	2.46E-15	4.00E+03	-1.06E+00	1.14E-13	8.32E-17	6.28E-01	1.61E+07	1.07E-12	0.00E+00	1.00E+00	4.87E-04	7.24E-01
595	Down-dip	1	4	41	4.95E-01	3.40E-02	8.64E-02	1.19E+00	8.30E+06	3.26E-02	8.36E+06	2.09E-01	1.46E-01	1.70E-19	1.64E-01	1.70E-19	4.00E+03	-1.22E+00	1.16E-13	3.24E-16	8.64E-01	1.51E+07	3.47E-12	0.00E+00	1.00E+00	5.99E-04	7.15E-01
596	Down-dip	1	4	12	5.26E-01	7.06E-02	1.02E-01	1.27E+00	9.77E+06	1.19E-07	9.77E+06	1.58E-01	2.97E-02	1.78E-13	4.69E-02	1.78E-13	4.00E+03	-1.38E+00	1.32E-13	5.50E-15	1.19E+00	1.44E+07	1.86E-13	0.00E+00	1.00E+00	3.55E-05	8.60E-01
597	Down-dip	1	4	58	5.77E-01	2.96E-02	1.14E-01	1.42E+00	1.39E+07	1.79E-07	1.39E+07	8.19E-01	2.13E-01	1.05E-15	2.03E-01	1.45E-16	1.00E+04	-1.16E+00	1.36E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	0.00E+00	1.00E+00	4.30E-01	8.79E-03
598	Down-dip	1	4	19	5.68E-01	1.42E-01	2.97E-02	1.39E+00	1.31E+07	6.66E-05	1.31E+07	5.42E-01	1.99E-01	2.54E-15	1.95E-01	1.41E-15	1.00E+04	-1.23E+00	1.36E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	0.00E+00	1.00E+00	9.44E-02	8.11E-02
599	Down-dip	1	4	94	5.51E-01	4.58E-03	1.85E-01	1.34E+00	1.17E+07	1.57E-01	1.17E+07	9.94E-01	2.03E-01	6.31E-16	2.08E-01	6.31E-15	1.00E+04	-1.29E+00	1.34E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	0.00E+00	1.00E+00	9.72E-01	1.54E-08
600	Down-dip	1	4	73	5.49E-01	5.81E-02	3.03E-01	1.33E+00	1.15E+07	4.17E-06	1.15E+07	6.62E-01	9.47E-02	3.72E-16	1.06E-01	3.72E-16	1.00E+04	-8.01E-01	1.11E-13	6.17E-15	3.77E-01	1.39E+07	9.77E-12	0.00E+00	1.00E+00	8.64E-02	1.21E-01

.	.	.	.	.	Up-dip Flowing Bottom-hole Pressure (Pa)	Down-dip Flowing Bottom-hole Pressure (Pa)	BC well Injection Pressure (Pa)	Blowout Duration (Days)	Brine Rate (m^3/s)	Gas Rate (ref m^3/s)	Max Brine Rate (m^3/s)	Max Gas Rate (ref m^3/s)	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s)	Cum Brine from Boundary Condition Well (m^3)	Gas Rate (mscf/day)	Cum Gas Produced (ref m^3)	Cum Brine Produced (m^3)	Cum Brine Releases (m^3)	Avg Brine Pressure Panel 5 (Pa) after Blowout	Avg Brine Saturation Panel 5 (fraction) after blowout	Avg Brine Pressure Panel 0 (Pa) after blowout	Avg Brine Saturation Panel 0 (fraction) after blowout	Total Excavated Waste Pore Volume (fraction)	Total Excavated Brine Volume (m^3)
No.	ID	Replic.	Scen.	Vector	FBHP2	FBHP4	BHP_ABAN	time	BRINEFLW	GASFLW	MAX_BRN	MAX_GAS	LGR_MET	BRINE_BC	GAS_RATE	GASOUT	BRINEOUT	BRIN_REL	BRNPRESS	SATBRN5	BRNPRES0	SATBRN0	WASTE_PV	TOT_BRIN
526	Down-dip	1	3	73	0.00E+00	4.03E+05	4.03E+05	1.10E+01	8.85E-06	1.32E-01	4.50E-05	2.48E+00	4.85E+01	0.00E+00	4.01E+02	2.55E+05	1.24E+01	1.22E+01	5.64E+06	6.52E-01	1.23E+07	6.25E-05	8.50E+04	1.42E+04
527	Down-dip	1	3	24	4.31E+06	7.99E+06	7.99E+06	2.88E+00	4.03E-05	3.62E-07	5.00E-05	3.62E-07	1.42E+08	0.00E+00	1.10E-03	7.34E-02	1.04E+01	1.01E+01	9.21E+06	9.10E-01	9.18E+06	4.70E-01	7.22E+04	4.86E+04
528	Down-dip	1	3	23	0.00E+00	3.69E+05	3.69E+05	1.10E+01	6.64E-06	6.90E-02	3.83E-05	2.37E+00	5.05E+01	0.00E+00	2.10E+02	1.71E+05	8.62E+00	8.54E+00	4.20E+06	7.28E-01	1.15E+07	2.38E-07	8.16E+04	1.79E+04
529	Down-dip	1	3	1	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.45E-05	1.97E-06	3.29E-05	1.97E-06	1.14E+07	0.00E+00	6.01E-03	3.92E-01	4.46E+00	4.37E+00	8.91E+06	9.01E-01	8.85E+06	7.62E-01	6.99E+04	5.75E+04
530	Down-dip	1	3	27	0.00E+00	2.79E+05	2.79E+05	1.10E+01	2.88E-06	6.33E-02	1.70E-05	1.80E+00	2.95E+01	0.00E+00	1.93E+02	1.41E+05	4.15E+00	4.13E+00	3.80E+06	6.84E-01	9.28E+06	4.17E-07	7.27E+04	1.32E+04
531	Down-dip	1	3	31	0.00E+00	7.99E+06	7.99E+06	2.88E+00	9.80E-06	1.04E-08	2.45E-05	1.04E-08	1.30E+09	0.00E+00	3.18E-05	2.24E-03	2.89E+00	2.83E+00	8.48E+06	9.48E-01	8.43E+06	7.01E-05	6.66E+04	1.75E+04
532	Down-dip	1	3	100	8.00E+06	8.00E+06	8.00E+06	2.88E+00	8.14E-06	1.00E-06	1.70E-05	1.00E-06	1.28E+07	0.00E+00	3.06E-03	1.96E-01	2.50E+00	2.45E+00	8.59E+06	8.86E-01	8.50E+06	7.13E-01	6.73E+04	5.31E+04
533	Down-dip	1	3	71	0.00E+00	2.40E+05	2.40E+05	1.10E+01	1.09E-06	1.08E-01	7.71E-06	4.41E+00	6.05E+00	0.00E+00	3.31E+02	2.74E+05	1.66E+00	1.64E+00	3.22E+06	4.04E-01	9.18E+06	1.19E-06	7.21E+04	7.38E+03
534	Down-dip	1	3	87	0.00E+00	2.57E+05	2.57E+05	1.10E+01	1.15E-06	1.47E-01	7.13E-06	4.67E+00	5.01E+00	0.00E+00	4.50E+02	3.32E+05	1.66E+00	1.61E+00	3.90E+06	3.66E-01	1.02E+07	6.95E-04	7.61E+04	7.88E+03
535	Down-dip	1	3	41	0.00E+00	2.69E+05	2.69E+05	1.10E+01	8.40E-07	1.32E-01	6.50E-06	6.40E+00	3.57E+00	0.00E+00	4.03E+02	3.78E+06	1.35E+00	1.31E+00	3.37E+06	3.68E-01	1.07E+07	1.65E-02	7.86E+04	1.15E+04
536	Down-dip	1	3	6	0.00E+00	2.28E+05	2.28E+05	1.10E+01	7.77E-07	9.05E-02	5.31E-06	3.49E+00	5.12E+00	0.00E+00	2.76E+02	2.33E+05	1.19E+00	1.14E+00	3.03E+06	4.16E-01	8.57E+06	1.12E-02	6.77E+04	1.59E+04
537	Down-dip	1	3	65	0.00E+00	2.50E+05	2.50E+05	1.10E+01	7.92E-07	1.63E-01	4.69E-06	4.80E+00	3.09E+00	0.00E+00	4.97E+02	3.71E+05	1.15E+00	1.11E+00	3.73E+06	3.58E-01	9.87E+06	2.12E-07	7.52E+04	6.75E+03
538	Down-dip	1	3	20	0.00E+00	2.35E+05	2.35E+05	1.10E+01	6.42E-07	1.19E-01	3.60E-06	3.19E+00	3.40E+00	0.00E+00	3.62E+02	2.75E+05	9.36E-01	9.11E-01	3.50E+06	3.87E-01	9.13E+06	1.19E-07	7.16E+04	6.98E+03
539	Down-dip	1	3	98	0.00E+00	2.19E+05	2.20E+05	1.10E+01	4.61E-07	9.99E-02	3.18E-06	3.93E+00	2.74E+00	0.00E+00	3.05E+02	2.57E+05	7.06E-01	6.89E-01	2.90E+06	3.18E-01	8.41E+06	4.35E-06	6.62E+04	5.25E+03
540	Down-dip	1	3	90	0.00E+00	2.31E+05	2.31E+05	1.10E+01	3.88E-07	8.67E-02	2.94E-06	4.17E+00	2.48E+00	0.00E+00	2.65E+02	2.52E+05	6.25E-01	6.18E-01	2.67E+06	4.86E-01	9.02E+06	1.46E-06	7.07E+04	1.01E+04
541	Down-dip	1	3	84	0.00E+00	2.21E+05	2.21E+05	1.10E+01	3.59E-07	1.07E-01	2.47E-06	4.20E+00	2.01E+00	0.00E+00	3.27E+02	2.71E+05	5.48E-01	5.33E-01	3.03E+06	2.65E-01	8.34E+06	5.96E-08	6.60E+04	6.51E+03
542	Down-dip	1	3	77	0.00E+00	2.70E+05	2.70E+05	1.10E+01	1.34E-07	1.61E-01	9.61E-07	6.90E+00	4.68E-01	0.00E+00	4.90E+02	4.54E+05	2.12E-01	2.08E-01	3.28E+06	2.59E-01	1.06E+07	4.73E-05	7.82E+04	4.99E+03
543	Down-dip	1	3	15	0.00E+00	2.66E+05	2.66E+05	1.10E+01	1.71E-07	2.45E-01	4.88E-07	7.81E+00	3.54E-01	0.00E+00	7.47E+02	4.55E+05	1.61E-01	1.61E-01	3.19E+06	6.07E-01	9.95E+06	5.46E-02	7.62E+04	1.76E+04
544	Down-dip	1	3	47	0.00E+00	2.66E+05	2.66E+05	1.10E+01	1.04E-07	1.72E-01	7.85E-07	8.22E+00	3.53E-01	0.00E+00	5.23E+02	4.51E+05	1.59E-01	1.58E-01	3.18E+06	3.21E-01	1.04E+07	4.94E-02	7.71E+04	1.27E+04
545	Down-dip	1	3	14	0.00E+00	2.75E+05	2.75E+05	1.10E+01	3.26E-09	6.66E-02	3.21E-08	7.26E+00	1.77E-02	0.00E+00	2.70E+02	3.32E+05	5.88E-03	5.65E-03	2.10E+06	3.97E-01	9.21E+06	2.13E-02	7.24E+04	1.46E+04
546	Down-dip	1	3	10	0.00E+00	3.62E+06	3.62E+06	1.10E+01	9.33E-05	1.05E-01	2.25E-04	4.49E-01	9.71E+02	0.00E+00	3.21E+02	1.09E+05	1.06E+02	9.97E+01	1.10E+07	7.86E-01	1.39E+07	1.53E-07	9.20E+04	2.06E+04
547	Down-dip	1	3	78	0.00E+00	2.04E+06	2.04E+06	1.10E+01	8.74E-05	3.17E-01	2.13E-04	7.99E-01	3.12E+02	0.00E+00	9.66E+02	3.04E+05	9.50E+01	8.80E+01	1.41E+07	7.41E-01	1.48E+07	5.55E-03	9.82E+04	3.83E+04
548	Down-dip	1	3	45	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.59E-04	1.54E-05	2.57E-04	1.54E-05	1.52E+07	0.00E+00	4.70E-02	2.82E+00	4.27E+01	4.17E+01	1.31E+07	9.48E-01	1.35E+07	9.49E-01	9.05E+04	8.58E+04
549	Down-dip	1	3	18	0.00E+00	5.16E+05	5.16E+05	1.10E+01	4.09E-05	8.83E-01	6.86E-05	3.45E+00	4.61E+01	0.00E+00	2.69E+03	9.03E+05	4.07E+01	3.87E+01	1.17E+07	6.73E-01	1.46E+07	2.73E-06	1.00E+05	1.94E+04
550	Down-dip	1	3	94	0.00E+00	7.99E+06	7.99E+06	2.88E+00	8.14E-05	1.77E-07	2.24E-04	1.79E-07	5.36E+08	0.00E+00	5.40E-04	4.41E-02	2.36E+01	2.31E+01	1.09E+07	9.94E-01	1.16E+07	1.57E-01	8.23E+04	4.13E+04
551	Down-dip	1	3	48	0.00E+00	8.00E+06	8.00E+06	2.88E+00	7.94E-05	1.33E-05	1.20E-04	1.33E-05	9.04E+06	0.00E+00	4.06E-02	2.36E+00	2.12E+01	2.07E+01	1.10E+07	8.98E-01	1.11E+07	1.95E-06	8.04E+04	1.98E+04
552	Down-dip	1	3	19	0.00E+00	7.23E+06	7.23E+06	2.88E+00	6.28E-05	1.62E-02	1.51E-04	3.70E-02	3.43E+03	0.00E+00	5.55E+01	5.62E+03	1.92E+01	1.89E+01	1.35E+07	7.62E-01	1.38E+07	8.54E-05	9.15E+04	2.63E+04
553	Down-dip	1	3	73	0.00E+00	7.99E+06	7.99E+06	2.88E+00	5.87E-05	2.04E-05	1.45E-04	2.04E-05	4.68E+06	0.00E+00	6.21E-02	3.88E+00	1.76E+01	1.73E+01	1.14E+07	9.43E-01	1.17E+07	3.98E-05	8.27E+04	2.02E+04
554	Down-dip	1	3	69	7.99E+06	7.99E+06	7.99E+06	2.88E+00	4.53E-05	3.57E-05	8.86E-05	3.57E-05	1.89E+06	0.00E+00	1.09E-01	8.62E+00	1.31E+01	1.29E+01	1.05E+07	9.11E-01	1.05E+07	6.53E-01	7.80E+04	5.98E+04
555	Down-dip	1	3	44	0.00E+00	8.00E+06	8.00E+06	2.88E+00	3.62E-05	2.50E-07	4.93E-05	2.50E-07	2.14E+08	0.00E+00	7.62E-04	4.45E-02	9.48E+00	9.26E+00	9.31E+06	8.90E-01	9.28E+06	1.84E-04	7.27E+04	3.25E+04
556	Down-dip	1	3	71	0.00E+00	3.01E+05	3.01E+05	1.10E+01	5.88E-06	8.72E-02	3.38E-05	2.26E+00	4.44E+01	0.00E+00	2.66E+02	1.84E+05	8.19E+00	7.98E+00	4.06E+06	5.37E-01	9.32E+06	1.19E-06	7.28E+04	9.97E+03
557	Down-dip	1	3	46	0.00E+00	6.39E+06	6.39E+06	2.88E+00	1.88E-05	5.56E-03	5.54E-05	1.70E-02	3.36E+03	0.00E+00	1.70E+01	1.74E+03	5.85E+00	5.74E+00	8.18E+06	8.58E-01	8.43E+06	7.97E-06	6.64E+04	1.47E+04
558	Down-dip	1	3	1	8.00E+06	8.00E+06	8.00E+06	2.88E+00	1.79E-05	3.71E-06	4.08E-05	3.71E-06	7.06E+06	0.00E+00	1.13E-02	7.22E-01	5.51E+00	5.40E+00	8.12E+06	9.01E-01	9.07E+06	6.98E-01	7.14E+04	5.63E+04
559	Down-dip	1	3	67	0.00E+00	2.45E+05	2.45E+05	1.10E+01	2.50E-06	9.53E-02	1.30E-05	2.09E+00	1.84E+01	0.00E+00	2.91E+02	1.86E+05	3.42E+00	3.26E+00	3.94E+06	4.36E-01	8.52E+06	1.64E-04	6.69E+04	7.49E+03
560	Down-dip	1	3	20	0.00E+00	2.36E+05	2.36E+05	1.10E+01	1.68E-06	9.04E-02	8.05E-06	1.75E+00	1.27E+01	0.00E+00	2.76E+02	1.82E+05	2.32E+00	2.28E+00	3.78E+06	4.55E-01	8.37E+06	1.79E-07	6.59E+04	7.60E+03
561	Down-dip	1	3	65	0.00E+00	2.49E+05	2.49E+05	1.10E+01	1.52E-06	1.41E-01	8.22E-06	3.41E+00	7.19E+00	0.00E+00	4.30E+02	2.98E+05	2.14E+00	2.06E+00	3.96E+06	4.02E-01	9.43E+06	1.29E-06	7.33E+04	7.44E+03
562	Down-dip	1	3	56	0.00E+00	2.21E+05	2.21E+05	1.10E+01	1.08E-06	9.78E-02	5.52E-06	2.30E+00	7.12E+00	0.00E+00	2.98E+02	2.10E+05	1.49E+00	1.48E+00	3.32E+06	5.53E-01	8.12E+06	5.91E-06	6.42E+04	9.05E+03
563	Down-dip	1	3	77	0.00E+00	2.75E+05	2.75E+05	1.10E+01	2.43E-07	1.68E-01	1.70E-06	6.86E+00	8.22E-01	0.00E+00	5.12E+02	4.64E+05	3.81E-01	3.65E-01	3.51E+06	2.83E-01	1.12E+07	2.25E-05	8.06E+04	5.66E+03
564	Down-dip	1	3	41	0.00E+00	3.02E+05	3.02E+05	1.10E+01	9.54E-08	1.70E-01	9.19E-07	1.25E+01	2.84E-01	0.00E+00	5.19E+02	5.81E+05	1.65E-01	1.58E-01	3.03E+06	2.57E-01	1.21E+07	5.00E-03	8.43E+04	6.91E+03
565	Down-dip	1	3	84	0.00E+00	2.50E+05	2.50E+05	1.10E+01	3.30E-08	1.33E-01	2.79E-07	7.67E+00	1.35E-01	0.00E+00	4.07E+02	4.00E+05	5.41E-02	5.22E-02	2.70E+06	1.58E-01	9.13E+06	0.00E+00	7.16E+04	3.41E+03
566	Down-dip	1	3	58	0.00E+00	3.18E+05	3.18E+05	1.10E+01	2.98E-08	3.62E-01	2.02E-07	1.42E+01	5.06E-02	0.00E+00	1.11E+03	8.72E+05	4.41E-02	4.33E-02	4.03E+06	2.32E-01	1.19E+07	4.41E-06	8.38E+04	6.53E+03
567	Down-dip	1	3	12	0.00E+00	2.81E+05	2.61E+05	1.10E+01	3.06E-08	1.63E+00	7.99E-08	1.05E+01	1.53E-02	0.00E+00	4.99E+03	2.31E+06	3.53E-02	3.48E-02	4.42E+06	2.03E-01	7.44E+06	8.35E-07	7.52E+04	3.71E+03
568	*Down-dip*	*1*	*3*	*6*	*0.00E+00*	*3.01E+05*	*3.01E+05*	*1.10E+01*	*4.79E-09*	*1.42E-01*	*4.82E-08*	*1.14E+01*	*1.69E-02*	*0.00E+00*	*4.32E+02*	*4.99E+05*	*8.42E-03*	*8.32E-03*	*2.53E+06*	*2.33E-01*	*1.04E+07*	*1.09E-05*	*7.75E+04*	*9.56E+03*
569	Down-dip	1	3	47	0.00E+00	3.54E+05	3.54E+05	1.10E+01	5.99E-10	2.24E-01	5.34E-09	1.51E+01	1.45E-03	0.00E+00	6.84E+02	8.73E+05	9.73E-04	9.35E-04	2.99E+06	2.18E-01	1.16E+07	1.10E-02	8.24E+04	8.10E+03
570	Down-dip	1	3	27	0.00E+00	3.17E+05	3.17E+05	1.10E+01	4.17E-11	7.87E-02	3.97E-10	1.01E+01	2.30E-04	0.00E+00	2.40E+02	3.36E+05	7.74E-05	7.46E-05	1.82E+06	4.89E-01	9.31E+06	6.42E-06	7.28E+04	9.04E+03
571	Down-dip	1	4	40	0.00E+00	4.88E+05	0.00E+00	1.10E+01	6.07E-05	1.22E-01	7.82E-05	4.10E-01	5.47E+02	0.00E+00	3.71E+02	1.16E+05	6.35E+01	6.02E+01	7.18E+06	7.49E-01	8.81E+06	1.37E-01	8.51E+04	2.50E+04
572	Down-dip	1	4	51	0.00E+00	7.77E+06	0.00E+00	2.88E+00	5.75E-05	2.48E-03	7.94E-05	5.12E-03	1.88E+04	0.00E+00	7.66E+00	8.91E+02	1.48E+01	1.44E+01	1.14E+07	8.32E-01	1.15E+07	2.50E-01	9.96E+04	4.13E+04
573	Down-dip	1	4	49	0.00E+00	2.32E+05	0.00E+00	1.10E+01	3.95E-08	2.69E-01	2.10E-07	6.65E+00	9.98E-02	0.00E+00	8.21E+02	5.32E+05	5.31E-02	5.16E-02	3.01E+06	2.11E-01	8.01E+06	7.02E-02	8.22E+04	8.57E+03
574	Down-dip	1	4	58	3.42E+05	3.30E+05	0.00E+00	1.10E+01	1.34E-08	4.13E-01	9.30E-08	1.69E+01	1.97E-02	0.00E+00	1.26E+03	1.02E+06	2.02E-02	1.97E-02	3.95E+06	2.12E-01	1.19E+07	1.71E-01	1.02E+05	1.83E+04
575	Down-dip	1	4	26	3.65E+05	3.51E+05	0.00E+00	1.10E+01	3.32E-10	3.47E-01	2.32E-09	1.56E+01	5.76E-04	0.00E+00	1.06E+03	8.58E+05	4.94E-04	4.85E-04	3.49E+06	2.28E-01	1.12E+07	1.99E-01	9.82E+04	1.99E+04
576	Down-dip	1	4	94	2.40E+05	3.05E+05	0.00E+00	1.10E+01	1.07E-05	1.51E-01	4.11E-05	1.60E+00	5.85E+01	0.00E+00	4.61E+02	2.30E+05	1.34E+01	1.29E+01	5.10E+06	6.07E-01	8.59E+06	2.59E-01	7.75E+04	3.46E+04
577	Down-dip	1	4	79	0.00E+00	7.26E+06	0.00E+00	2.88E+00	2.18E-05	1.18E-03	2.40E-05	3.08E-03	1.20E+04	0.00E+00	3.61E+00	4.38E+02	5.27E+00	5.13E+00	8.67E+06	8.30E-01	8.68E+06	1.78E-01	7.78E+04	2.92E+04
578	Down-dip	1	4	31	0.00E+00	2.51E+05	0.00E+00	1.10E+01	3.88E-06	1.50E-01	1.78E-05	2.42E+00	1.92E+01	0.00E+00	4.58E+02	2.67E+05	5.13E+00	4.92E+00	4.35E+06	4.52E-01	8.53E+06	3.30E-02	7.73E+04	1.11E+04
579	Down-dip	1	4	73	0.00E+00	2.27E+05	0.00E+00	1.10E+01	5.28E-08	1.36E-01	3.38E-07	4.95E+00	2.29E-01	0.00E+00	4.16E+02	3.49E+05	7.98E-02	7.59E-02	2.76E+06	4.22E-01	8.21E+06	8.87E-02	7.57E+04	1.30E+04
580	Down-dip	1	4	58	3.77E+05	3.59E+05	0.00E+00	1.10E+01	8.62E-09	4.55E-01	4.82E-08	1.94E+01	9.04E-03	0.00E+00	1.39E+03	1.13E+06	1.02E-02	1.01E-02	4.09E+06	1.99E-01	1.28E+07	1.57E-01	9.72E+04	1.61E+04
581	Down-dip	1	4	94	3.46E+05	6.07E+06	0.00E+00	2.88E+00	6.47E-05	2.35E-02	1.55E-04	8.42E-02	2.38E+03	0.00E+00	7.18E+01	7.50E+03	1.79E+01	1.75E+01	1.09E+07	8.49E-01	1.14E+07	2.09E-01	8.13E+04	4.07E+04
582	Down-dip	1	4	31	0.00E+00	3.06E+05	0.00E+00	1.10E+01	7.69E-06	1.25E-01	3.37E-05	1.69E+00	4.84E+01	0.00E+00	3.81E+02	2.09E+05	1.01E+01	9.68E+00	4.99E+06	5.22E-01	9.01E+06	5.42E-05	7.13E+04	9.50E+03
583	Down-dip	1	4	19	2.95E+05	2.80E+05	0.00E+00	1.10E+01	4.07E-06	2.31E-01	1.64E-05	2.91E+00	1.37E+01	0.00E+00	7.04E+02	3.81E+05	5.22E+00	5.19E+00	5.68E+06	4.15E-01	1.00E+07	8.04E-02	7.57E+04	2.06E+04
584	Down-dip	1	4	44	0.00E+00	7.99E+06	0.00E+00	2.88E+00	1.76E-05	3.27E-07	2.38E-05	3.27E-07	6.38E+07	0.00E+00	9.96E-04	7.24E-02	4.61E+00	4.60E+00	8.65E+06	8.87E-01	8.65E+06	7.93E-06	6.94E+04	1.98E+04
585	Down-dip	1	4	79	0.00E+00	3.26E+05	0.00E+00	1.10E+01	3.50E-06	2.44E+00	3.58E-06	1.10E+01	9.52E-01	0.00E+00	7.44E+03	2.99E+06	2.84E+00	2.82E+00	8.11E+06	5.42E-01	1.17E+07	3.03E-06	9.08E+04	1.27E+04
586	Down-dip	1	4	73	0.00E+00	2.93E+05	0.00E+00	1.10E+01	1.25E-08	1.78E-01	9.76E-08	9.57E+00	3.78E-02	0.00E+00	5.42E+02	6.39E+05	2.04E-02	1.96E-02	2.89E+06	3.89E-01	1.06E+07	3.10E-02	7.80E+04	9.42E+03
587	Down-dip	1	4	58	0.00E+00	4.57E+05	0.00E+00	1.10E+01	5.36E-10	1.92E+00	2.08E-09	2.61E+01	2.32E-04	0.00E+00	5.85E+03	2.62E+06	6.06E-04	6.02E-04	7.07E+06	1.63E-01	1.40E+07	6.45E-02	9.53E+04	9.95E+03
588	Down-dip	1	4	58	0.00E+00	3.09E+05	0.00E+00	1.10E+01	6.31E-05	6.79E-01	1.50E-04	2.73E+00	8.90E+01	0.00E+00	2.07E+03	8.53E+05	5.81E+01	5.73E+01	1.24E+07	6.47E-01	1.50E+07	1.02E-04	9.79E+04	1.68E+04
589	Down-dip	1	4	94	3.98E+05	7.99E+06	0.00E+00	2.88E+00	7.82E-05	1.56E-07	2.15E-04	1.58E-07	5.84E+08	0.00E+00	4.75E-04	3.89E-02	2.27E+01	2.22E+01	1.08E+07	9.94E-01	1.14E+07	1.90E-01	8.15E+04	4.41E+04
590	Down-dip	1	4	44	0.00E+00	7.99E+06	0.00E+00	2.88E+00	2.52E-05	7.99E-08	3.42E-05	7.99E-08	4.57E+08	0.00E+00	2.44E-04	1.45E-02	6.60E+00	6.45E+00	8.92E+06	8.90E-01	8.93E+06	5.13E-08	7.02E+04	1.85E+04
591	Down-dip	1	4	19	0.00E+00	3.04E+05	0.00E+00	1.10E+01	2.22E-06	3.84E-01	1.04E-05	6.56E+00	4.35E+00	0.00E+00	1.11E+03	8.65E+05	2.98E+00	2.98E+00	5.77E+06	3.52E-01	1.22E+07	2.55E-02	8.49E+04	1.53E+04
592	Down-dip	1	4	31	0.00E+00	7.83E+06	0.00E+00	2.88E+00	8.35E-06	2.53E-04	1.91E-05	5.23E-04	3.36E+04	0.00E+00	7.72E-01	7.62E+01	2.56E+00	2.61E+00	8.37E+06	8.78E-01	8.37E+06	1.25E-04	6.64E+04	1.51E+04
593	Down-dip	1	4	79	0.00E+00	3.33E+05	0.00E+00	1.10E+01	1.81E-06	2.80E+00	2.01E-06	1.30E+01	4.31E-01	0.00E+00	8.54E+03	3.48E+06	1.50E+00	1.47E+00	7.87E+06	5.22E-01	1.14E+07	2.05E-06	9.13E+04	1.22E+04
594	Down-dip	1	4	78	0.00E+00	2.57E+05	0.00E+00	1.10E+01	4.31E-08	2.67E-01	2.44E-07	7.48E+00	1.04E-01	0.00E+00	8.14E+02	5.80E+06	8.05E-02	5.92E-02	3.35E+06	2.79E-01	9.35E+06	2.11E-03	7.32E+04	5.61E+03
595	Down-dip	1	4	41	0.00E+00	2.33E+05	0.00E+00	1.10E+01	3.21E-08	1.04E-01	2.69E-07	5.92E+00	1.67E-01	0.00E+00	3.17E+02	3.16E+05	5.29E-02	5.29E-02	2.42E+06	2.31E-01	8.30E+06	3.26E-02	6.82E+04	5.34E+03
596	Down-dip	1	4	12	0.00E+00	2.93E+05	0.00E+00	1.10E+01	7.97E-09	1.64E+00	2.11E-08	1.09E+01	3.94E-03	0.00E+00	6.01E+03	2.34E+06	9.23E-03	9.14E-03	4.31E+06	1.80E-01	7.29E+06	1.19E-07	7.47E+04	3.23E+03
597	Down-dip	1	4	58	0.00E+00	6.25E+06	0.00E+00	7.00E+00	6.22E-05	3.31E-02	2.15E-04	1.31E-01	1.87E+03	0.00E+00	1.01E+02	2.52E+04	4.71E+01	4.39E+01	1.23E+07	8.20E-01	1.39E+07	5.20E-07	9.20E+04	1.95E+04
598	Down-dip	1	4	19	0.00E+00	7.32E+05	0.00E+00	1.10E+01	2.00E-05	2.27E-01	7.62E-05	1.84E+00	7.93E+01	0.00E+00	6.92E+02	3.20E+05	2.53E+01	2.46E+01	8.87E+06	5.52E-01	1.31E+07	1.36E-04	8.87E+04	1.88E+04
599	Down-dip	1	4	94	0.00E+00	7.99E+06	0.00E+00	2.88E+00	8.47E-05	1.83E-07	2.34E-04	1.65E-07	5.42E+08	0.00E+00	5.59E-04	4.54E-02	2.48E+01	2.41E+01	1.11E+07	9.94E-01	1.17E+07	1.57E-01	8.28E+04	4.26E+04
600	Down-dip	1	4	73	0.00E+00	3.98E+05	0.00E+00	1.10E+01	1.07E-05	1.10E-01	5.08E-05	1.77E+00	7.27E+01	0.00E+00	3.36E+02	2.00E+05	1.45E+01	1.38E+01	5.70E+06	6.71E-01	1.15E+07	5.45E-05	8.20E+04	1.41E+04

	.	.	.	.	Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	BC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up-dip Brine Relative Permeability (fraction)	Up-dip Gas Relative Permeability (fraction)	Down-dip Brine Relative Permeability (fraction)	Down-dip Gas Relative Permeability (fraction)
No.	ID	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_RE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
601	Down-dip	1	4	79	5.75E-01	1.23E-01	3.88E-01	1.41E+00	1.37E+07	8.35E-07	1.37E+07	6.13E-01	1.78E-01	3.18E-13	1.78E-01	2.57E-13	1.00E+04	-1.10E+00	1.31E-13	1.51E-16	6.89E-01	1.31E+07	4.37E-15	0.00E+00	1.00E+00	2.87E-03	4.98E-01
602	Down-dip	1	4	69	4.94E-01	8.98E-02	4.08E-01	1.19E+00	8.33E+06	5.40E-02	8.36E+06	9.09E-01	7.48E-02	1.26E-14	9.70E-02	1.26E-14	1.00E+04	-1.29E+00	1.19E-13	9.33E-15	9.99E-01	1.62E+07	4.07E-13	0.00E+00	1.00E+00	5.39E-01	4.31E-08
603	Down-dip	1	4	44	4.91E-01	1.12E-01	1.81E-02	1.18E+00	8.23E+06	2.80E-08	8.26E+06	8.86E-01	1.30E-01	1.18E-13	1.46E-01	1.18E-13	1.00E+04	-1.17E+00	1.12E-13	3.80E-15	7.83E-01	1.45E+07	1.12E-12	0.00E+00	1.00E+00	6.39E-01	1.68E-10
604	Down-dip	1	4	12	5.23E-01	7.06E-02	1.02E-01	1.26E+00	9.56E+06	8.94E-07	9.56E+06	3.04E-01	2.92E-02	1.78E-13	4.61E-02	1.78E-13	1.00E+04	-1.38E+00	1.31E-13	5.50E-15	1.19E+00	1.44E+07	1.86E-13	0.00E+00	1.00E+00	4.05E-03	5.19E-01
605	Down-dip	1	4	78	5.29E-01	4.93E-02	1.51E-01	1.28E+00	1.00E+07	1.04E-05	1.00E+07	3.69E-01	1.09E-01	2.46E-15	1.18E-01	2.46E-15	1.00E+04	-1.06E+00	1.16E-13	8.32E-17	6.28E-01	1.61E+07	1.07E-12	0.00E+00	1.00E+00	6.61E-03	4.70E-01
606	Down-dip	1	4	41	5.24E-01	3.40E-02	8.64E-02	1.26E+00	9.63E+06	8.45E-03	9.72E+06	2.46E-01	1.44E-01	1.70E-19	1.54E-01	1.70E-19	1.00E+04	-1.22E+00	1.23E-13	3.24E-16	8.64E-01	1.51E+07	3.47E-12	0.00E+00	1.00E+00	1.61E-03	6.32E-01
607	Down-dip	1	4	56	4.85E-01	4.66E-02	3.20E-01	1.17E+00	8.04E+06	1.43E-06	8.04E+06	3.75E-01	8.40E-02	1.05E-15	1.03E-01	1.05E-15	1.00E+04	-7.21E-01	9.45E-14	1.05E-14	3.22E-01	1.18E+07	2.82E-12	0.00E+00	1.00E+00	9.49E-05	8.20E-01
608	Down-dip	1	5	79	5.51E-01	1.23E-01	3.88E-01	1.34E+00	1.18E+07	7.07E-02	1.18E+07	7.49E-01	1.78E-01	2.57E-13	1.85E-01	2.57E-13	1.20E+03	-1.10E+00	1.24E-13	1.51E-16	6.89E-01	1.31E+07	4.37E-15	0.00E+00	1.00E+00	1.42E-01	2.78E-02
609	Down-dip	1	5	26	5.34E-01	7.60E-02	4.97E-01	1.29E+00	1.04E+07	2.18E-01	1.04E+07	8.05E-01	1.81E-01	2.00E-14	1.98E-01	2.00E-14	1.20E+03	-1.33E+00	1.32E-13	3.02E-12	1.10E+00	1.19E+07	6.76E-12	0.00E+00	1.00E+00	1.63E-01	3.33E-02
610	Down-dip	1	5	94	5.47E-01	4.58E-03	1.85E-01	1.33E+00	1.15E+07	2.41E-01	1.15E+07	6.63E-01	2.04E-01	8.31E-15	2.10E-01	8.31E-15	1.20E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	4.90E-05	8.59E-01	1.39E-01	9.98E-02
611	Down-dip	1	5	51	5.69E-01	1.34E-01	3.63E-01	1.39E+00	1.34E+07	2.35E-01	1.34E+07	8.60E-01	2.09E-01	9.34E-13	1.79E-01	6.17E-14	1.20E+03	-1.16E+00	1.33E-13	1.00E-12	7.77E-01	1.68E+07	6.92E-12	0.00E+00	1.00E+00	4.00E-01	3.44E-06
612	Down-dip	1	5	40	5.49E-01	1.02E-01	3.54E-01	1.33E+00	1.18E+07	6.42E-02	1.18E+07	6.35E-01	1.36E-01	1.54E-13	1.38E-01	1.51E-13	1.20E+03	-1.32E+00	1.35E-13	3.02E-13	1.07E+00	1.47E+07	2.57E-11	0.00E+00	1.00E+00	4.64E-02	1.57E-01
613	Down-dip	1	5	22	5.28E-01	2.51E-02	8.22E-02	1.27E+00	9.99E+06	2.28E-02	1.00E+07	9.72E-01	1.35E-01	7.41E-14	1.46E-01	7.41E-14	1.20E+03	-1.37E+00	1.32E-13	1.74E-13	1.17E+00	1.39E+07	1.59E-12	0.00E+00	1.00E+00	8.91E-01	7.38E-08
614	Down-dip	1	5	2	5.03E-01	8.22E-02	4.02E-01	1.21E+00	8.38E+06	1.90E-01	8.40E+06	8.25E-01	1.69E-01	4.47E-14	1.88E-01	4.47E-14	1.20E+03	-1.29E+00	1.21E-13	5.01E-14	9.98E-01	1.41E+07	7.24E-11	0.00E+00	1.00E+00	2.77E-01	9.37E-03
615	Down-dip	1	5	19	5.06E-01	1.42E-01	2.97E-02	1.22E+00	8.56E+06	1.62E-01	8.57E+06	4.62E-01	2.02E-01	1.41E-15	2.23E-01	1.41E-15	1.20E+03	-1.23E+00	1.19E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	4.77E-04	6.98E-01	4.64E-02	1.63E-01
616	Down-dip	1	5	30	5.52E-01	1.16E-01	4.16E-02	1.34E+00	1.19E+07	5.26E-02	1.19E+07	4.08E-01	3.58E-02	2.75E-14	4.14E-02	2.75E-14	1.20E+03	-6.49E-01	1.06E-13	2.19E-13	2.79E-01	1.47E+07	1.59E-13	6.69E-08	9.74E-01	2.88E-02	2.41E-01
617	Down-dip	1	5	31	5.36E-01	5.26E-02	5.93E-02	1.29E+00	1.05E+07	9.12E-04	1.06E+07	3.96E-01	7.57E-02	1.66E-15	9.03E-02	1.66E-15	1.20E+03	-1.27E+00	1.29E-13	3.31E-14	9.73E-01	1.49E+07	8.31E-13	0.00E+00	1.00E+00	2.26E-02	3.11E-01
618	Down-dip	1	5	73	5.23E-01	5.61E-02	3.03E-01	1.26E+00	9.56E+06	6.72E-02	9.56E+06	4.16E-01	9.15E-02	3.72E-18	1.13E-01	3.72E-16	1.20E+03	-8.01E-01	1.05E-13	6.17E-15	3.77E-01	1.39E+07	9.77E-12	0.00E+00	1.00E+00	1.21E-03	6.42E-01
619	Down-dip	1	5	49	5.61E-01	3.07E-02	7.64E-02	1.37E+00	1.27E+07	4.93E-02	1.27E+07	1.55E-01	4.03E-02	4.27E-15	4.19E-02	4.27E-15	1.20E+03	-1.26E+00	1.36E-13	8.91E-13	9.52E-01	1.31E+07	9.77E-13	0.00E+00	1.00E+00	1.13E-04	8.18E-01
620	Down-dip	1	5	58	5.81E-01	2.96E-02	1.14E-01	1.43E+00	1.45E+07	1.24E-01	1.45E+07	1.45E-01	2.22E-01	6.89E-15	2.01E-01	1.45E-16	1.20E+03	-1.18E+00	1.38E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	7.79E-08	9.75E-01	4.55E-06	9.24E-01
621	Down-dip	1	5	5	5.10E-01	1.29E-01	1.21E-01	1.23E+00	8.79E+06	4.65E-04	8.80E+06	1.53E-01	1.33E-01	1.90E-17	1.54E-01	1.82E-17	1.20E+03	-1.37E+00	1.27E-13	1.82E-12	1.17E+00	1.57E+07	3.31E-13	0.00E+00	1.00E+00	4.97E-06	9.12E-01
622	Down-dip	1	5	28	6.70E-01	9.72E-02	1.79E-01	1.40E+00	1.35E+07	1.81E-01	1.33E+07	1.89E-01	2.10E-01	5.51E-17	2.11E-01	4.79E-17	1.20E+03	-1.08E+00	1.29E-13	9.55E-12	6.64E-01	1.48E+07	9.55E-14	2.81E-10	9.94E-01	8.50E-08	9.72E-01
623	Down-dip	1	5	94	5.48E-01	4.58E-03	1.85E-01	1.33E+00	1.15E+07	2.28E-01	1.15E+07	7.05E-01	2.04E-01	6.31E-15	2.10E-01	6.31E-15	1.40E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	1.92E-05	8.91E-01	1.90E-01	6.79E-02
624	Down-dip	1	5	79	5.63E-01	1.23E-01	3.88E-01	1.37E+00	1.28E+07	2.90E-02	1.28E+07	6.69E-01	1.78E-01	2.61E-13	1.61E-01	2.57E-13	1.40E+03	-1.10E+00	1.28E-13	1.51E-16	6.89E-01	1.31E+07	4.37E-15	0.00E+00	1.00E+00	5.63E-02	1.10E-01
625	Down-dip	1	5	19	5.13E-01	1.42E-01	2.97E-02	1.23E+00	8.96E+06	1.37E-01	8.97E+06	4.41E-01	2.01E-01	1.41E-15	2.20E-01	1.41E-15	1.40E+03	-1.23E+00	1.21E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	2.96E-04	7.33E-01	4.21E-02	1.76E-01
626	Down-dip	1	5	31	5.26E-01	5.28E-02	5.93E-02	1.27E+00	9.84E+06	6.86E-06	9.84E+06	4.15E-01	7.44E-02	1.66E-15	9.21E-02	1.66E-15	1.40E+03	-1.27E+00	1.26E-13	3.31E-14	9.73E-01	1.49E+07	8.31E-13	0.00E+00	1.00E+00	2.77E-02	2.82E-01
627	Down-dip	1	5	73	5.26E-01	5.61E-02	3.03E-01	1.27E+00	9.81E+06	5.69E-02	9.81E+06	4.08E-01	9.19E-02	3.72E-16	1.12E-01	3.72E-16	1.40E+03	-8.01E-01	1.06E-13	6.17E-15	3.77E-01	1.39E+07	9.77E-12	0.00E+00	1.00E+00	9.18E-04	6.67E-01
628	Down-dip	1	5	58	5.83E-01	2.96E-02	1.14E-01	1.44E+00	1.46E+07	1.10E-01	1.48E+07	1.50E-01	2.25E-01	1.82E-14	2.00E-01	1.45E-16	1.40E+03	-1.18E+00	1.38E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	0.00E+00	1.00E+00	7.34E-08	9.13E-01
629	Down-dip	1	5	58	5.93E-01	2.96E-02	1.14E-01	1.48E+00	1.55E+07	1.83E-02	1.55E+07	7.72E-01	2.44E-01	8.33E-13	1.95E-01	1.45E-16	3.00E+03	-1.18E+00	1.42E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	0.00E+00	1.00E+00	3.34E-01	1.93E-02
630	Down-dip	1	5	31	5.06E-01	5.28E-02	5.93E-02	1.22E+00	8.71E+06	9.95E-06	8.72E+06	6.64E-01	7.29E-02	1.66E-15	9.61E-02	1.66E-15	3.00E+03	-1.27E+00	1.21E-13	3.31E-14	9.73E-01	1.49E+07	6.31E-13	0.00E+00	1.00E+00	1.95E-01	4.87E-02
631	Down-dip	1	5	94	5.48E-01	4.58E-03	1.85E-01	1.33E+00	1.15E+07	2.03E-01	1.15E+07	9.94E-01	2.04E-01	8.31E-15	2.09E-01	6.31E-15	3.00E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	8.88E-07	9.56E-01	9.72E-01	1.81E-08
632	Down-dip	1	5	44	5.14E-01	1.12E-01	1.61E-02	1.23E+00	9.06E+06	5.72E-06	9.08E+06	8.87E-01	1.28E-01	1.18E-13	1.39E-01	1.18E-13	3.00E+03	-1.17E+00	1.18E-13	3.80E-15	7.83E-01	1.45E+07	1.12E-12	0.00E+00	1.00E+00	8.38E-01	4.44E-10
633	Down-dip	1	5	19	5.46E-01	1.42E-01	2.97E-02	1.32E+00	1.14E+07	5.48E-02	1.14E+07	3.58E-01	1.99E-01	1.41E-15	2.05E-01	1.41E-15	3.00E+03	-1.23E+00	1.30E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	1.37E-06	9.38E-01	1.83E-02	2.88E-01
634	Down-dip	1	5	79	5.75E-01	1.23E-01	3.88E-01	1.41E+00	1.38E+07	2.44E-06	1.38E+07	5.02E-01	1.79E-01	3.49E-13	1.76E-01	2.57E-13	3.00E+03	-1.10E+00	1.32E-13	1.51E-16	6.89E-01	1.31E+07	4.37E-15	0.00E+00	1.00E+00	2.02E-03	5.38E-01
635	Down-dip	1	5	78	5.12E-01	4.93E-02	1.51E-01	1.23E+00	9.00E+06	8.60E-03	9.00E+06	2.37E-01	1.06E-01	2.46E-15	1.22E-01	2.46E-15	3.00E+03	-1.06E+00	1.12E-13	8.32E-17	6.28E-01	1.61E+07	1.07E-12	0.00E+00	1.00E+00	2.11E-04	7.79E-01
636	Down-dip	1	5	73	5.49E-01	5.61E-02	3.03E-01	1.33E+00	1.15E+07	9.72E-08	1.15E+07	3.06E-01	9.48E-02	3.72E-16	1.06E-01	3.72E-16	3.00E+03	-8.01E-01	1.11E-13	6.17E-15	3.77E-01	1.39E+07	9.77E-12	0.00E+00	1.00E+00	1.88E-08	9.82E-01
637	Down-dip	1	5	12	5.25E-01	7.06E-02	1.02E-01	1.26E+00	9.71E+06	5.96E-08	9.72E+06	1.07E-01	2.96E-02	1.78E-13	4.59E-02	1.78E-13	3.00E+03	-1.38E+00	1.31E-13	5.50E-15	1.19E+00	1.44E+07	1.86E-13	0.00E+00	1.00E+00	3.94E-09	9.88E-01
638	Down-dip	1	5	58	5.93E-01	2.96E-02	1.14E-01	1.48E+00	1.55E+07	1.34E-05	1.55E+07	7.47E-01	2.43E-01	7.30E-13	1.95E-01	1.45E-16	5.00E+03	-1.18E+00	1.42E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	0.00E+00	1.00E+00	2.88E-01	2.74E-02
639	Down-dip	1	5	94	5.48E-01	4.58E-03	1.85E-01	1.33E+00	1.15E+07	1.82E-01	1.16E+07	9.94E-01	2.04E-01	8.31E-15	2.09E-01	6.31E-15	5.00E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	0.00E+00	1.00E+00	9.72E-01	1.56E-08
840	Down-dip	1	5	69	4.88E-01	8.98E-02	4.06E-01	1.17E+00	8.06E+06	9.61E-02	6.10E+06	6.15E-01	7.46E-02	1.26E-14	9.81E-02	1.26E-14	5.00E+03	-1.29E+00	1.17E-13	9.33E-15	9.99E-01	1.62E+07	4.07E-13	0.00E+00	1.00E+00	2.50E-01	1.09E-02
641	Down-dip	1	5	19	5.60E-01	1.42E-01	2.97E-02	1.37E+00	1.25E+07	1.61E-02	1.25E+07	3.74E-01	1.98E-01	1.44E-15	1.89E-01	1.41E-15	5.00E+03	-1.23E+00	1.34E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	0.00E+00	1.00E+00	2.19E-02	2.64E-01
642	Down-dip	1	5	44	5.03E-01	1.12E-01	1.61E-02	1.21E+00	6.67E+06	4.47E-06	8.70E+08	8.87E-01	1.29E-01	1.18E-13	1.42E-01	1.18E-13	6.00E+03	-1.17E+00	1.15E-13	3.80E-15	7.83E-01	1.45E+07	1.12E-12	0.00E+00	1.00E+00	6.39E-01	2.39E-10
643	Down-dip	1	5	31	4.92E-01	5.28E-02	5.93E-02	1.18E+00	6.27E+06	1.09E-05	8.34E+08	9.45E-01	7.31E-02	1.66E-15	8.87E-02	1.66E-15	5.00E+03	-1.27E+00	1.18E-13	3.31E-14	9.73E-01	1.49E+07	6.31E-13	0.00E+00	1.00E+00	7.99E-01	4.57E-08
644	Down-dip	1	5	79	5.75E-01	1.23E-01	3.88E-01	1.41E+00	1.38E+07	1.67E-06	1.38E+07	5.10E-01	1.78E-01	3.37E-13	1.76E-01	2.57E-13	5.00E+03	-1.10E+00	1.31E-13	1.51E-16	6.89E-01	1.31E+07	4.37E-15	0.00E+00	1.00E+00	2.59E-03	5.10E-01
645	Down-dip	1	5	78	5.24E-01	4.93E-02	1.51E-01	1.26E+00	9.66E+06	1.97E-05	9.66E+06	2.87E-01	1.08E-01	2.46E-15	1.19E-01	2.46E-15	5.00E+03	-1.06E+00	1.15E-13	8.32E-17	6.28E-01	1.61E+07	1.07E-12	0.00E+00	1.00E+00	1.16E-03	6.54E-01
646	Down-dip	1	5	41	5.05E-01	3.40E-02	8.64E-02	1.21E+00	8.72E+06	2.19E-02	8.80E+06	2.01E-01	1.46E-01	1.70E-19	1.61E-01	1.70E-19	5.00E+03	-1.22E+00	1.18E-13	3.24E-16	8.64E-01	1.51E+07	3.47E-12	0.00E+00	1.00E+00	4.76E-04	7.31E-01
647	Down-dip	1	5	12	5.32E-01	7.06E-02	1.02E-01	1.28E+00	1.03E+07	1.79E-07	1.03E+07	1.64E-01	3.10E-02	1.78E-13	4.52E-02	1.78E-13	5.00E+03	-1.38E+00	1.34E-13	5.50E-15	1.19E+00	1.44E+07	1.86E-13	0.00E+00	1.00E+00	5.12E-05	8.46E-01
648	Down-dip	1	5	73	5.50E-01	5.61E-02	3.03E-01	1.34E+00	1.17E+07	7.03E-06	1.17E+07	3.32E-01	9.51E-02	3.72E-16	1.06E-01	3.72E-16	5.00E+03	-8.01E-01	1.11E-13	8.17E-15	3.77E-01	1.39E+07	9.77E-12	0.00E+00	1.00E+00	7.64E-08	9.08E-01
649	Down-dip	1	5	47	4.93E-01	6.75E-02	1.61E-01	1.19E+00	6.31E+06	5.43E-02	8.34E+06	1.62E-01	1.50E-01	8.92E-18	1.66E-01	8.92E-18	5.00E+03	-1.09E+00	1.10E-13	2.19E-16	6.75E-01	1.24E+07	1.55E-12	0.00E+00	1.00E+00	1.82E-11	9.97E-01
650	Down-dip	1	5	58	5.79E-01	2.96E-02	1.14E-01	1.43E+00	1.41E+07	1.19E-07	1.41E+07	8.29E-01	2.16E-01	1.84E-15	2.02E-01	1.45E-16	1.00E+04	-1.18E+00	1.37E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	0.00E+00	1.00E+00	4.52E-01	7.21E-03
651	Down-dip	1	5	19	5.88E-01	1.42E-01	2.97E-02	1.39E+00	1.31E+07	5.45E-05	1.31E+07	5.43E-01	1.99E-01	2.36E-15	1.96E-01	1.41E-15	1.00E+04	-1.23E+00	1.36E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	0.00E+00	1.00E+00	9.53E-02	8.01E-02
652	Down-dip	1	5	94	5.52E-01	4.58E-03	1.85E-01	1.34E+00	1.17E+07	1.57E-01	1.18E+07	9.94E-01	2.03E-01	8.31E-15	2.08E-01	8.31E-15	1.00E+04	-1.29E+00	1.34E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	0.00E+00	1.00E+00	9.72E-01	1.53E-08
653	Down-dip	1	5	73	5.49E-01	5.61E-02	3.03E-01	1.33E+00	1.15E+07	4.17E-06	1.16E+07	8.54E-01	9.48E-02	3.72E-16	1.06E-01	3.72E-16	1.00E+04	-8.01E-01	1.11E-13	6.17E-15	3.77E-01	1.39E+07	9.77E-12	0.00E+00	1.00E+00	7.97E-02	1.30E-01
654	Down-dip	1	5	79	5.74E-01	1.23E-01	3.88E-01	1.41E+00	1.37E+07	8.35E-07	1.37E+07	5.14E-01	1.78E-01	3.08E-13	1.76E-01	2.57E-13	1.00E+04	-1.10E+00	1.31E-13	1.51E-16	6.89E-01	1.31E+07	4.37E-15	0.00E+00	1.00E+00	2.95E-03	4.94E-01
855	Down-dip	1	5	69	4.94E-01	8.98E-02	4.08E-01	1.19E+00	8.33E+06	5.52E-02	6.36E+06	9.09E-01	7.48E-02	1.26E-14	9.70E-02	1.26E-14	1.00E+04	-1.29E+00	1.19E-13	9.33E-15	9.99E-01	1.62E+07	4.07E-13	0.00E+00	1.00E+00	5.39E-01	4.31E-08
856	Down-dip	1	5	44	4.88E-01	1.12E-01	1.61E-02	1.17E+00	6.14E+06	2.86E-08	6.17E+06	8.88E-01	1.30E-01	1.18E-13	1.46E-01	1.18E-13	1.00E+04	-1.17E+00	1.12E-13	3.80E-15	7.83E-01	1.45E+07	1.12E-12	0.00E+00	1.00E+00	6.39E-01	1.59E-10
657	Down-dip	1	5	78	5.29E-01	4.93E-02	1.51E-01	1.28E+00	1.00E+07	1.04E-05	1.00E+07	3.89E-01	1.09E-01	2.46E-15	1.18E-01	2.46E-15	1.00E+04	-1.06E+00	1.16E-13	8.32E-17	6.28E-01	1.61E+07	1.07E-12	0.00E+00	1.00E+00	6.57E-03	4.71E-01
658	Down-dip	1	5	12	5.22E-01	7.06E-02	1.02E-01	1.26E+00	9.55E+06	9.54E-07	9.55E+06	2.85E-01	2.92E-02	1.78E-13	4.82E-02	1.78E-13	1.00E+04	-1.38E+00	1.31E-13	5.50E-15	1.19E+00	1.44E+07	1.86E-13	0.00E+00	1.00E+00	2.83E-03	5.59E-01
659	Down-dip	1	5	41	5.24E-01	3.40E-02	8.64E-02	1.26E+00	9.62E+06	8.45E-03	9.72E+06	2.48E-01	1.44E-01	1.70E-19	1.54E-01	1.70E-19	1.00E+04	-1.22E+00	1.23E-13	3.24E-16	8.64E-01	1.51E+07	3.47E-12	0.00E+00	1.00E+00	1.59E-03	8.33E-01
680	Down-dip	1	5	56	4.85E-01	4.86E-02	3.20E-01	1.17E+00	8.05E+06	1.37E-06	8.05E+06	3.75E-01	8.40E-02	1.05E-15	1.03E-01	1.05E-15	1.00E+04	-7.21E-01	9.48E-14	1.05E-14	3.22E-01	1.18E+07	2.82E-12	0.00E+00	1.00E+00	9.34E-05	8.20E-01
661	Up-dip	1	1	58	6.36E-01	2.96E-02	1.14E-01	1.65E+00	1.01E+07	1.70E-01	1.01E+07	1.81E-01	1.64E-01	1.45E-16	1.75E-01	1.45E-16	3.50E+02	-1.18E+00	1.58E-13	0.00E+00	8.11E-01	1.26E+07	1.00E-12	3.76E-05	8.65E-01	7.53E-05	8.37E-01
662	Up-dip	1	1	19	5.02E-01	1.42E-01	2.97E-02	1.21E+00	8.04E+06	1.69E-01	8.05E+06	4.57E-01	2.02E-01	1.41E-15	2.26E-01	1.41E-15	1.00E+03	-1.23E+00	1.18E-13	0.00E+00	8.94E-01	1.27E+07	1.00E-12	7.78E-04	6.57E-01	4.84E-02	1.58E-01
663	Up-dip	1	1	94	5.44E-01	4.58E-03	1.85E-01	1.32E+00	1.09E+07	2.69E-01	1.09E+07	6.29E-01	2.03E-01	6.31E-15	2.11E-01	6.31E-15	1.00E+03	-1.29E+00	1.32E-13	0.00E+00	9.95E-01	1.43E+07	1.00E-12	1.42E-04	8.12E-01	1.06E-01	1.30E-01
664	Up-dip	1	1	58	6.80E-01	2.96E-02	1.14E-01	1.43E+00	1.40E+07	1.37E-01	1.40E+07	1.55E-01	2.14E-01	1.59E-15	2.02E-01	1.45E-16	1.00E+03	-1.18E+00	1.37E-13	0.00E+00	8.11E-01	1.26E+07	1.00E-12	1.49E-06	9.44E-01	1.18E-05	9.01E-01
665	Up-dip	1	1	28	5.70E-01	9.72E-02	1.79E-01	1.40E+00	1.31E+07	1.94E-01	1.31E+07	1.99E-01	2.08E-01	4.79E-17	2.11E-01	4.79E-17	1.00E+03	-1.08E+00	1.29E-13	0.00E+00	6.64E-01	1.48E+07	1.00E-12	3.92E-07	9.57E-01	1.21E-08	9.42E-01
666	Up-dip	1	1	30	5.55E-01	1.16E-01	4.16E-02	1.35E+00	1.16E+07	5.30E-02	1.18E+07	3.99E-01	3.52E-02	2.75E-14	4.11E-02	2.75E-14	1.00E+03	-6.49E-01	1.07E-13	0.00E+00	2.79E-01	1.47E+07	1.00E-12	7.74E-08	9.73E-01	2.62E-02	2.54E-01
667	Up-dip	1	1	19	5.47E-01	1.42E-01	2.97E-02	1.33E+00	1.14E+07	5.46E-02	1.14E+07	3.73E-01	1.99E-01	1.41E-15	2.05E-01	1.41E-15	3.00E+03	-1.23E+00	1.30E-13	0.00E+00	8.94E-01	1.27E+07	1.00E-12	1.34E-06	9.38E-01	2.15E-02	2.68E-01
668	Up-dip	1	1	60	5.21E-01	6.13E-02	4.70E-02	1.25E+00	9.44E+06	6.74E-02	9.48E+06	1.98E-01	1.93E-01	5.75E-18	2.05E-01	5.75E-18	3.00E+03	-1.17E+00	1.20E-13	0.00E+00	7.91E-01	1.35E+07	1.00E-12	6.77E-07	9.53E-01	1.10E-03	6.57E-01
669	Up-dip	1	1	30	5.53E-01	1.16E-01	4.16E-02	1.34E+00	1.19E+07	4.62E-02	1.19E+07	4.39E-01	3.58E-02	2.75E-14	4.13E-02	2.75E-14	3.00E+03	-6.49E-01	1.06E-13	0.00E+00	2.79E-01	1.47E+07	1.00E-12	1.04E-08	9.84E-01	3.86E-02	2.01E-01
570	Up-dip	1	1	94	5.52E-01	4.68E-03	1.85E-01	1.34E+00	1.18E+07	1.91E-01	1.18E+07	9.94E-01	2.03E-01	6.31E-15	2.08E-01	6.31E-15	3.00E+03	-1.29E+00	1.34E-13	0.00E+00	9.95E-01	1.43E+07	1.00E-12	8.61E-09	9.87E-01	9.71E-01	2.09E-08
671	Up-dip	1	1	30	5.54E-01	1.16E-01	4.16E-02	1.35E+00	1.20E+07	4.60E-02	1.20E+07	4.54E-01	3.60E-02	2.75E-14	4.13E-02	2.75E-14	6.00E+03	-6.49E-01	1.06E-13	0.00E+00	2.79E-01	1.47E+07	1.00E-12	2.17E-09	9.90E-01	4.45E-02	1.83E-01
672	Up-dip	1	1	30	5.56E-01	1.16E-01	4.16E-02	1.35E+00	1.21E+07	4.18E-02	1.21E+07	4.67E-01	3.63E-02	2.75E-14	4.11E-02	2.75E-14	1.00E+04	-6.49E-01	1.07E-13	0.00E+00	2.79E-01	1.47E+07	1.00E-12	5.53E-15	1.00E+00	4.97E-02	1.68E-01
673	Up-dip	1	2	30	5.96E-01	1.16E-01	4.16E-02	1.49E+00	1.15E+07	8.36E-01	1.15E+07	1.98E-01	3.08E-02	2.75E-14	3.73E-02	2.75E-14	5.50E+02	-6.49E-01	1.18E-13	2.19E-13	2.79E-01	1.34E+07	1.59E-13	5.05E-01	2.72E-04	1.25E-03	6.24E-01
674	Up-dip	1	2	69	5.87E-01	6.98E-02	4.08E-01	1.45E+00	1.08E+07	9.22E-01	1.07E+07	7.13E-01	6.98E-02	1.26E-14	7.91E-02	1.26E-14	6.50E+02	-1.29E+00	1.46E-13	9.33E-15	9.99E-01	1.42E+07	4.07E-13	5.94E-01	0.00E+00	8.62E-02	8.81E-02
675	Up-dip	1	2	94	5.76E-01	4.58E-03	1.85E-01	1.42E+00	9.85E+06	9.91E-01	9.81E+06	4.50E-01	1.84E-01	8.31E-15	1.96E-01	6.31E-15	5.60E+02	-1.29E+00	1.42E-13	9.77E-16	9.95E-01	1.31E+07	1.78E-12	9.58E-01	3.81E-07	1.57E-02	3.85E-01

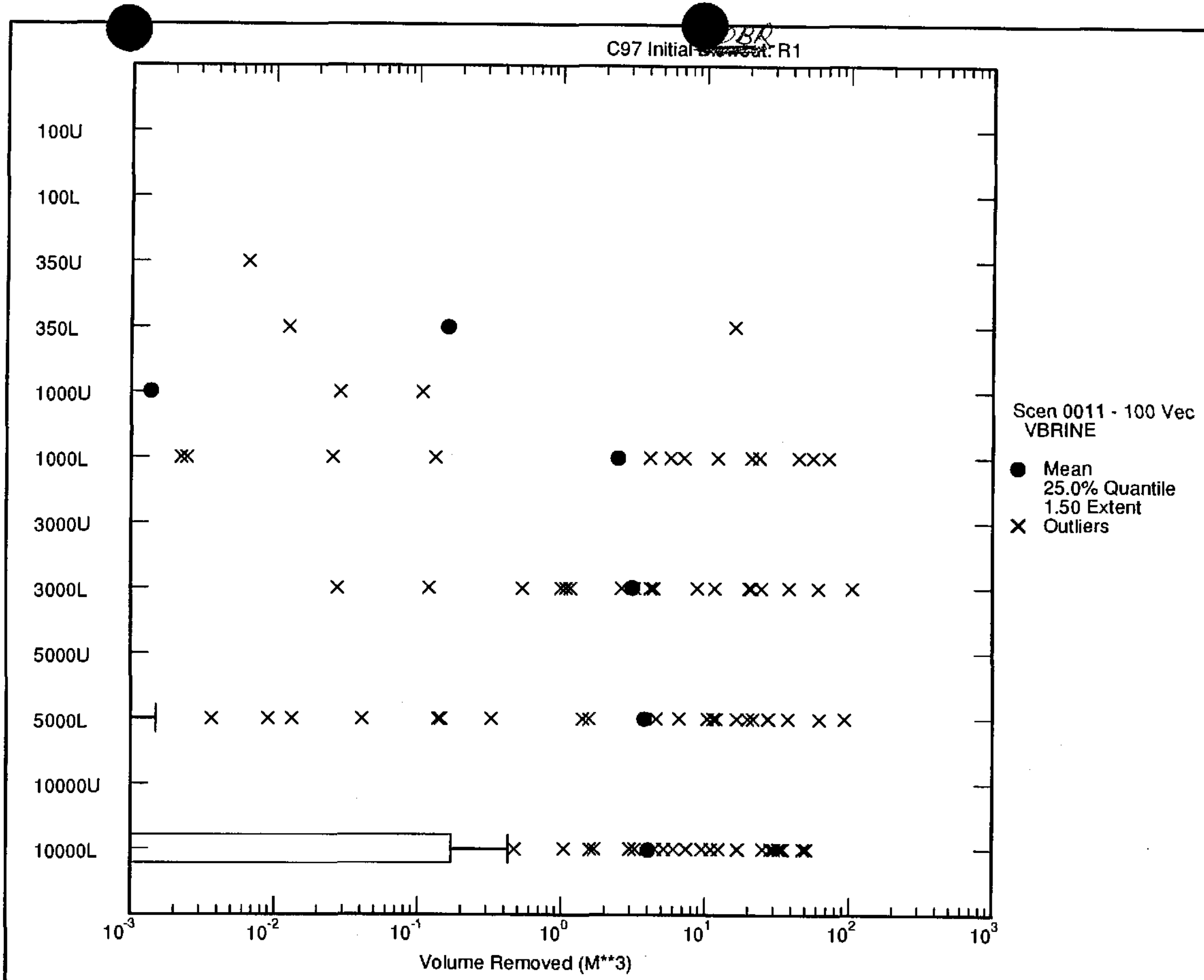
No.	. ID	. Replic.	. Scen.	. Vector	Up-dip Flowing Bottom-hole Pressure (Pa) FBHP2	Down-dip Flowing Bottom-hole Pressure (Pa) FBHP4	BC well Injection Pressure (Pa) BHP_ABAN	Blowout Duration (Days) time	Brine Rate (m^3/s) BRINEFLW	Gas Rate (ref m^3/s) GASFLW	Max Brine Rate (m^3/s) MAX_BRN	Max Gas Rate (ref m^3/s) MAX_GAS	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s) LGR_MET	Cum Brine from Boundary Condition Well (m^3) BRINE_BC	Gas Rate (mscf/day) GAS_RATE	Cum Gas Produced (ref m^3) GASOUT	Cum Brine Produced (m^3) BRINEOUT	Cum Brine Releases (m^3) BRIN_REL	Avg Brine Pressure Panel 5 (Pa) after Blowout BRNPRESS	Avg Brine Saturation Panel 5 (fraction) after blowout SATBRN5	Avg Brine Pressure Panel 0 (Pa) after blowout BRNPRES0	Avg Brine Saturation Panel 0 (fraction) after blowout SATBRN0	Total Excavated Waste Pore Volume (fraction) WASTE_PV	Total Excavated Brine Volume (m^3) TO1_BRIN
601	Down-dip	1	4	79	0.00E+00	3.30E+05	0.00E+00	1.10E+01	2.20E-06	2.63E+00	2.41E-06	1.22E+01	5.58E-01	0.00E+00	8.01E+03	3.25E+06	1.81E+00	1.76E+00	7.85E+06	5.28E-01	1.15E+07	8.61E-07	9.12E+04	1.23E+04
602	Down-dip	1	4	69	0.00E+00	7.99E+06	0.00E+00	2.88E+00	6.23E-06	9.14E-08	1.12E-05	9.14E-08	9.11E+07	0.00E+00	2.79E-04	1.93E-02	1.76E+00	1.72E+00	8.34E+06	9.11E-01	8.33E+06	5.40E-02	6.57E+04	1.81E+04
603	Down-dip	1	4	44	0.00E+00	8.00E+06	0.00E+00	2.88E+00	8.65E-06	9.79E-10	8.93E-06	9.79E-10	9.22E+09	0.00E+00	2.99E-06	1.89E-04	1.74E+00	1.70E+00	8.25E+06	8.90E-01	8.23E+06	2.91E-06	6.50E+04	1.93E+04
604	Down-dip	1	4	12	0.00E+00	2.43E+05	0.00E+00	1.10E+01	9.48E-07	1.28E+00	2.35E-06	6.33E+00	6.55E-01	0.00E+00	3.90E+03	1.68E+06	1.10E+00	1.00E+00	4.72E+06	3.22E-01	7.72E+06	9.47E-07	7.38E+04	5.94E+03
605	Down-dip	1	4	78	0.00E+00	2.51E+05	0.00E+00	1.10E+01	6.89E-07	2.41E-01	3.59E-06	5.59E+00	1.92E+00	0.00E+00	7.34E+02	4.94E+05	9.50E-01	9.31E-01	3.94E+06	3.87E-01	9.96E+06	1.06E-05	7.57E+04	7.38E+03
606	Down-dip	1	4	41	0.00E+00	2.52E+05	0.00E+00	1.10E+01	1.04E-07	1.26E-01	8.90E-07	7.46E+00	4.42E-01	0.00E+00	3.85E+02	3.92E+05	1.73E-01	1.69E-01	2.75E+06	2.67E-01	9.62E+06	8.44E-03	7.42E+04	5.36E+03
607	Down-dip	1	4	56	0.00E+00	2.45E+05	0.00E+00	1.10E+01	5.00E-09	1.28E-01	3.34E-08	5.12E+00	2.27E-02	0.00E+00	3.89E+02	3.39E+05	7.69E-03	7.31E-03	2.46E+06	3.93E-01	8.02E+06	6.50E-06	6.35E+04	6.29E+03
608	Down-dip	1	5	79	0.00E+00	8.75E+05	0.00E+00	1.10E+01	8.45E-05	1.67E-01	1.07E-04	4.61E-01	6.41E+02	0.00E+00	5.09E+02	1.40E+05	8.95E+01	8.50E+01	1.04E+07	7.61E-01	1.17E+07	7.09E-02	8.28E+04	2.18E+04
609	Down-dip	1	5	26	0.00E+00	6.25E+05	0.00E+00	1.10E+01	6.69E-05	4.39E-02	9.84E-05	4.57E-01	1.22E+03	0.00E+00	1.34E+02	6.43E+04	8.62E+01	8.27E+01	8.52E+06	8.23E-01	1.04E+07	2.22E-01	7.73E+04	3.08E+04
610	Down-dip	1	5	94	3.30E+05	5.73E+05	0.00E+00	1.10E+01	2.61E-05	1.68E-01	9.64E-05	1.72E+00	1.25E+02	0.00E+00	5.13E+02	2.47E+05	3.10E+01	3.08E+01	7.03E+06	6.71E-01	1.15E+07	2.21E-01	8.15E+04	3.67E+04
611	Down-dip	1	5	51	0.00E+00	8.04E+06	0.00E+00	2.88E+00	9.22E-06	4.67E-04	1.35E-04	6.03E-04	2.27E+05	0.00E+00	1.42E+00	1.08E+02	2.45E+01	2.39E+01	1.33E+07	8.62E-01	1.34E+07	2.35E-01	8.90E+04	3.72E+04
612	Down-dip	1	5	40	0.00E+00	3.55E+05	0.00E+00	1.10E+01	2.58E-05	8.24E-01	3.37E-05	2.88E+00	3.44E+01	0.00E+00	1.91E+03	7.13E+05	2.46E+01	2.25E+01	7.61E+06	6.48E-01	1.11E+07	6.42E-02	8.19E+04	1.75E+04
613	Down-dip	1	5	22	0.00E+00	7.99E+06	0.00E+00	2.88E+00	6.84E-05	8.07E-07	1.14E-04	8.07E-07	1.38E+08	0.00E+00	1.85E-03	1.38E-01	1.87E+01	1.82E+01	9.78E+06	9.72E-01	9.99E+06	2.28E-02	7.55E+04	2.81E+04
614	Down-dip	1	5	2	0.00E+00	5.19E+06	0.00E+00	2.88E+00	3.74E-05	8.97E-03	5.13E-05	3.21E-02	3.18E+03	0.00E+00	2.13E+01	2.74E+03	8.73E+00	8.49E+00	8.23E+06	8.31E-01	8.38E+06	1.93E-01	6.82E+04	2.63E+04
615	Down-dip	1	5	19	2.39E+05	2.79E+05	0.00E+00	1.10E+01	6.05E-06	1.51E-01	2.19E-05	1.45E+00	3.31E+01	0.00E+00	4.62E+02	2.27E+05	7.53E+00	7.21E+00	5.56E+06	4.66E-01	8.56E+06	1.27E-01	6.92E+04	2.36E+04
616	Down-dip	1	5	30	4.02E+05	3.20E+05	0.00E+00	1.10E+01	5.40E-06	5.62E-01	1.69E-05	3.63E+00	8.57E+00	0.00E+00	1.71E+03	7.69E+05	6.59E+00	6.30E+00	6.95E+06	4.23E-01	1.14E+07	5.26E-02	8.31E+04	1.22E+04
617	Down-dip	1	5	31	0.00E+00	2.78E+05	0.00E+00	1.10E+01	2.75E-06	2.11E-01	1.43E-05	4.51E+00	9.09E+00	0.00E+00	6.45E+02	4.17E+05	3.79E+00	3.72E+00	4.59E+06	4.13E-01	1.05E+07	7.43E-04	7.77E+04	8.39E+03
618	Down-dip	1	5	73	0.00E+00	2.51E+05	0.00E+00	1.10E+01	6.16E-08	1.49E-01	5.65E-07	6.26E+00	3.13E-01	0.00E+00	4.55E+02	4.06E+05	1.27E-01	1.23E-01	2.97E+06	4.33E-01	9.55E+06	6.76E-02	7.38E+04	1.18E+04
619	Down-dip	1	5	49	0.00E+00	3.47E+05	0.00E+00	1.10E+01	1.46E-08	5.45E-01	9.03E-08	1.78E+01	1.79E-02	0.00E+00	1.68E+03	1.10E+06	1.97E-02	1.89E-02	3.90E+06	1.78E-01	1.23E+07	4.97E-02	8.63E+04	6.93E+03
620	Down-dip	1	5	58	4.78E+05	4.38E+05	0.00E+00	1.10E+01	8.32E-10	1.11E+00	4.20E-09	2.62E+01	5.58E-04	0.00E+00	3.39E+03	1.88E+06	1.04E-03	9.71E-04	5.84E+06	1.69E-01	1.42E+07	1.24E-01	9.35E+04	1.28E+04
621	Down-dip	1	5	5	0.00E+00	2.89E+05	0.00E+00	1.10E+01	3.31E-10	1.80E-01	2.57E-09	9.12E+00	1.10E-03	0.00E+00	5.48E+02	4.57E+05	5.01E-04	4.86E-04	2.76E+06	1.76E-01	8.79E+06	4.59E-04	7.03E+04	2.98E+03
622	Down-dip	1	5	28	4.84E+05	4.42E+05	0.00E+00	1.10E+01	9.96E-12	3.95E-01	8.78E-11	2.19E+01	1.45E-05	0.00E+00	1.21E+03	1.04E+06	1.51E-05	1.45E-05	3.73E+06	2.11E-01	1.35E+07	1.81E-01	8.94E+04	1.66E+04
623	Down-dip	1	5	94	3.41E+05	2.85E+05	0.00E+00	1.10E+01	3.89E-05	1.31E-01	1.35E-04	1.20E+00	2.55E+02	0.00E+00	3.98E+02	1.81E+05	4.61E+01	4.52E+01	7.55E+06	7.13E-01	1.15E+07	2.14E-01	8.16E+04	3.77E+04
624	Down-dip	1	5	79	0.00E+00	4.21E+05	0.00E+00	1.10E+01	4.33E-05	6.42E-01	4.70E-05	2.28E+00	6.28E+01	0.00E+00	1.96E+03	6.74E+05	4.23E+01	4.00E+01	9.80E+06	6.82E-01	1.23E+07	2.91E-02	8.68E+04	1.79E+04
625	Down-dip	1	5	19	2.52E+05	2.80E+05	0.00E+00	1.10E+01	5.70E-06	1.70E-01	2.11E-05	1.73E+00	2.75E+01	0.00E+00	5.17E+02	2.60E+05	7.14E+00	6.83E+00	5.64E+06	4.56E-01	8.96E+06	1.14E-01	7.11E+04	2.29E+04
626	Down-dip	1	5	31	0.00E+00	2.70E+05	0.00E+00	1.10E+01	3.23E-06	1.83E-01	1.60E-06	3.51E+00	1.27E+01	0.00E+00	5.57E+02	3.47E+05	4.40E+00	4.28E+00	4.54E+06	4.31E-01	9.81E+06	2.77E-05	7.49E+04	8.29E+03
627	Down-dip	1	5	73	0.00E+00	2.58E+05	0.00E+00	1.10E+01	6.21E-08	1.58E-01	4.41E-07	6.86E+00	2.26E-01	0.00E+00	4.75E+02	4.33E+05	9.77E-02	9.72E-02	2.97E+06	4.25E-01	9.80E+06	5.75E-02	7.48E+04	1.12E+04
628	Down-dip	1	5	58	0.00E+00	4.37E+05	0.00E+00	1.10E+01	1.64E-09	1.60E+00	6.89E-09	2.87E+01	8.25E-04	0.00E+00	4.89E+03	2.30E+06	1.90E-03	1.85E-03	6.52E+06	1.73E-01	1.40E+07	1.11E-01	9.44E+04	1.26E+04
629	Down-dip	1	5	58	0.00E+00	4.08E+06	0.00E+00	1.10E+01	9.12E-05	1.97E-01	2.68E-04	4.89E-01	5.64E+02	0.00E+00	6.01E+02	1.77E+05	1.00E+02	9.58E+01	1.37E+07	7.72E-01	1.54E+07	1.79E-02	9.84E+04	2.17E+04
630	Down-dip	1	5	31	0.00E+00	5.83E+05	0.00E+00	1.10E+01	2.45E-05	5.81E-02	9.19E-05	4.40E-01	3.86E+02	0.00E+00	1.77E+02	7.91E+04	3.05E+01	2.92E+01	8.26E+06	6.70E-01	8.71E+06	8.01E-05	6.90E+04	1.19E+04
631	Down-dip	1	5	94	3.74E+05	7.99E+06	0.00E+00	2.88E+00	7.63E-05	1.72E-07	2.16E-04	1.75E-07	5.29E+08	0.00E+00	5.25E-04	4.30E-02	2.27E+01	2.23E+01	1.08E+07	9.93E-01	1.15E+07	1.98E-01	8.16E+04	4.37E+04
632	Down-dip	1	5	44	0.00E+00	7.99E+06	0.00E+00	2.88E+00	2.89E-05	1.35E-07	3.92E-05	1.35E-07	3.10E+08	0.00E+00	4.10E-04	2.45E-02	7.55E+00	7.38E+00	9.04E+06	8.90E-01	9.06E+06	5.96E-06	7.11E+04	1.84E+04
633	Down-dip	1	5	19	3.65E+05	2.92E+05	0.00E+00	1.10E+01	2.83E-06	3.09E-01	1.25E-05	4.86E+00	6.76E+00	0.00E+00	9.41E+02	5.53E+05	3.74E+00	3.65E+00	5.75E+06	3.75E-01	1.14E+07	4.86E-02	8.12E+04	1.75E+04
634	Down-dip	1	5	79	0.00E+00	3.35E+05	0.00E+00	1.10E+01	1.50E-06	2.87E+00	1.71E-06	1.35E+01	3.50E-01	0.00E+00	8.77E+03	3.59E+06	1.25E+00	1.23E+00	7.80E+06	5.17E-01	1.14E+07	2.52E-06	9.13E+04	1.20E+04
635	Down-dip	1	5	78	0.00E+00	2.57E+05	0.00E+00	1.10E+01	1.75E-08	2.57E-01	9.90E-08	7.23E+00	4.40E-02	0.00E+00	7.83E+02	5.57E+05	2.45E-02	2.30E-02	3.20E+06	2.58E-01	8.94E+06	1.17E-02	7.07E+04	5.81E+03
636	Down-dip	1	5	73	0.00E+00	3.98E+05	0.00E+00	1.10E+01	2.03E-12	2.11E-01	1.11E-11	1.45E+01	4.64E-08	0.00E+00	6.43E+02	7.06E+05	3.27E-06	3.10E-06	2.78E+06	3.28E-01	1.15E+07	7.17E-05	8.19E+04	6.72E+03
637	Down-dip	1	5	12	0.00E+00	3.51E+05	0.00E+00	1.10E+01	9.52E-13	1.71E+00	2.31E-12	1.23E+01	4.38E-07	0.00E+00	6.21E+03	2.50E+06	1.09E-06	1.08E-06	4.18E+06	1.30E-01	7.10E+06	5.98E-08	7.45E+04	2.24E+03
638	Down-dip	1	5	58	0.00E+00	2.63E+06	0.00E+00	1.10E+01	8.70E-05	2.82E-01	2.51E-04	7.81E-01	3.77E+02	0.00E+00	8.60E+02	2.56E+05	9.64E+01	9.51E+01	1.34E+07	7.47E-01	1.53E+07	1.37E-05	9.84E+04	1.90E+04
639	Down-dip	1	5	94	0.00E+00	7.99E+06	0.00E+00	2.88E+00	8.00E-05	1.63E-07	2.20E-04	1.65E-07	5.71E+08	0.00E+00	4.99E-04	4.07E-02	2.32E+01	2.27E+01	1.09E+07	9.94E-01	1.15E+07	1.83E-01	8.18E+04	4.42E+04
640	Down-dip	1	5	69	0.00E+00	4.62E+06	0.00E+00	2.88E+00	2.45E-05	1.04E-02	4.88E-05	3.62E-02	1.81E+03	0.00E+00	3.18E+01	3.55E+03	6.44E+00	6.29E+00	7.84E+06	8.20E-01	8.08E+06	9.61E-02	6.42E+04	1.81E+04
641	Down-dip	1	5	19	0.00E+00	3.24E+05	0.00E+00	1.10E+01	3.77E-06	3.46E-01	1.70E-05	5.54E+00	6.05E+00	0.00E+00	1.05E+03	6.23E+05	5.01E+00	4.73E+00	6.25E+06	3.91E-01	1.25E+07	1.55E-02	8.59E+04	1.57E+04
642	Down-dip	1	5	44	0.00E+00	8.00E+06	0.00E+00	2.88E+00	1.84E-05	2.71E-08	2.46E-05	2.71E-08	9.71E+08	0.00E+00	8.26E-05	4.97E-03	4.81E+00	4.70E+00	6.68E+06	8.90E-01	8.67E+06	4.63E-06	6.83E+04	1.85E+04
643	Down-dip	1	5	31	0.00E+00	7.99E+06	0.00E+00	2.88E+00	6.41E-06	2.30E-08	1.59E-05	2.41E-08	3.27E+08	0.00E+00	7.00E-05	5.79E-03	1.89E+00	1.85E+00	8.31E+06	9.46E-01	8.27E+06	1.07E-04	6.54E+04	1.63E+04
644	Down-dip	1	5	79	0.00E+00	3.32E+05	0.00E+00	1.10E+01	1.99E-06	2.73E+00	2.19E-06	1.27E+01	4.84E-01	0.00E+00	8.33E+03	3.39E+06	1.64E+00	1.61E+00	7.88E+06	5.25E-01	1.15E+07	1.70E-06	9.12E+04	1.22E+04
645	Down-dip	1	5	78	0.00E+00	2.53E+05	0.00E+00	1.10E+01	1.08E-07	2.65E-01	5.99E-07	7.17E+00	2.64E-01	0.00E+00	6.07E+02	5.71E+05	1.51E-01	1.46E-01	3.49E+06	3.07E-01	9.60E+06	9.13E-05	7.42E+04	5.85E+03
646	Down-dip	1	5	41	0.00E+00	2.44E+05	0.00E+00	1.10E+01	2.65E-08	1.12E-01	2.29E-07	6.82E+00	1.25E-01	0.00E+00	3.43E+02	3.53E+05	4.42E-02	4.30E-02	2.46E+06	2.23E-01	8.72E+06	2.19E-02	6.87E+04	4.86E+03
647	Down-dip	1	5	12	0.00E+00	3.01E+05	0.00E+00	1.10E+01	1.22E-08	1.79E+00	3.25E-08	1.21E+01	5.52E-03	0.00E+00	5.45E+03	2.56E+06	1.42E-02	1.37E-02	4.50E+06	1.85E-01	7.60E+06	1.79E-07	7.67E+04	3.43E+03
648	Down-dip	1	5	73	0.00E+00	3.57E+05	0.00E+00	1.10E+01	5.58E-10	2.08E-01	4.59E-09	1.38E+01	1.37E-03	0.00E+00	6.35E+02	6.88E+05	9.40E-04	9.33E-04	2.86E+06	3.50E-01	1.17E+07	6.44E-05	8.25E+04	7.25E+03
649	Down-dip	1	5	47	0.00E+00	3.12E+05	0.00E+00	1.10E+01	2.62E-15	1.37E-01	8.09E-15	7.72E+00	9.70E-09	0.00E+00	4.17E+02	3.83E+05	3.71E-09	3.70E-09	2.36E+06	1.85E-01	8.30E+06	5.31E-02	6.56E+04	6.08E+03
650	Down-dip	1	5	58	0.00E+00	6.60E+06	0.00E+00	4.00E+00	7.56E-05	3.28E-02	2.23E-04	1.07E-01	2.27E+03	0.00E+00	1.00E+02	1.39E+04	3.16E+01	2.84E+01	1.31E+07	8.31E-01	1.41E+07	4.60E-07	9.28E+04	1.99E+04
651	Down-dip	1	5	19	0.00E+00	7.11E+05	0.00E+00	1.10E+01	2.01E-05	2.23E-01	7.66E-05	1.81E+00	8.12E+01	0.00E+00	6.79E+02	3.14E+05	2.55E+01	2.48E+01	8.84E+06	5.53E-01	1.31E+07	1.45E-04	8.85E+04	1.88E+04
652	Down-dip	1	5	94	0.00E+00	7.99E+06	0.00E+00	2.88E+00	8.53E-05	1.86E-07	2.35E-04	1.87E-07	5.38E+08	0.00E+00	5.67E-04	4.60E-02	2.47E+01	2.42E+01	1.11E+07	9.94E-01	1.17E+07	1.58E-01	8.29E+04	4.26E+04
653	Down-dip	1	5	73	0.00E+00	3.95E+05	0.00E+00	1.10E+01	9.74E-06	1.15E-01	4.71E-05	1.93E+00	6.31E+01	0.00E+00	3.49E+02	2.11E+05	1.33E+01	1.26E+01	5.60E+06	6.64E-01	1.15E+07	5.81E-05	8.21E+04	1.40E+04
654	Down-dip	1	5	79	0.00E+00	3.28E+05	0.00E+00	1.10E+01	2.25E-06	2.57E+00	2.47E-06	1.21E+01	5.82E-01	0.00E+00	7.85E+03	3.18E+06	1.85E+00	1.80E+00	7.81E+06	5.29E-01	1.15E+07	8.61E-07	9.10E+04	1.23E+04
655	Down-dip	1	5	69	0.00E+00	7.99E+06	0.00E+00	2.88E+00	6.21E-06	9.06E-08	1.12E-05	9.08E-08	9.14E+07	0.00E+00	2.77E-04	1.92E-02	1.75E+00	1.71E+00	8.34E+06	9.11E-01	8.33E+06	5.52E-02	6.57E+04	1.82E+04
656	Down-dip	1	5	44	0.00E+00	8.00E+06	0.00E+00	2.88E+00	4.43E-06	3.02E-10	6.95E-06	3.02E-10	1.94E+10	0.00E+00	9.20E-07	6.00E-05	1.16E+00	1.13E+00	8.16E+06	8.90E-01	8.14E+06	2.97E-06	6.43E+04	1.93E+04
657	Down-dip	1	5	78	0.00E+00	2.51E+05	0.00E+00	1.10E+01	8.64E-07	2.41E-01	3.56E-06	6.59E+00	1.91E+00	0.00E+00	7.34E+02	4.95E+05	9.43E-01	9.24E-01	3.94E+06	3.86E-01	9.96E+06	1.06E-05	7.57E+04	7.37E+03
658	Down-dip	1	5	12	0.00E+00	2.44E+05	0.00E+00	1.10E+01	8.63E-07	1.32E+00	1.84E-06	6.79E+00	4.36E-01	0.00E+00	4.00E+03	1.75E+06	7.64E-01	7.15E-01	4.64E+06	3.04E-01	7.63E+06	9.80E-07	7.37E+04	5.59E+03
659	Down-dip	1	5	41	0.00E+00	2.52E+05	0.00E+00	1.10E+01	1.03E-07	1.26E-01	8.79E-07	7.47E+00	4.36E-01	0.00E+00	3.85E+02	3.93E+05	1.71E-01	1.66E-01	2.75E+06	2.67E-01	9.62E+06	8.44E-03	7.42E+04	5.35E+03
660	Down-dip	1	5	56	0.00E+00	2.45E+05	0.00E+00	1.10E+01	4.93E-09	1.28E-01	3.29E-08	5.14E+00	2.23E-02	0.00E+00	3.90E+02	3.40E+05	7.58E-03	7.21E-03	2.47E+06	3.93E-01	8.03E+06	6.46E-06	6.36E+04	6.29E+03
661	Up-dip	1	1	58	3.00E+05	2.92E+05	0.00E+00	1.10E+01	5.21E-09	5.60E-01	2.76E-08	1.39E+01	6.50E-03	0.00E+00	1.71E+03	1.05E+06	6.85E-03	6.51E-03	1.01E+07	1.81E-01	3.73E+06	1.70E-01	1.18E+05	2.03E+04
662	Up-dip	1	1	19	2.24E+05	2.70E+05	0.00E+00	1.10E+01	8.23E-08	4.27E-01	3.41E-07	5.11E+00	1.69E-01	0.00E+00	1.30E+03	6.65E+05	1.13E-01	1.07E-01	8.05E+06	4.57E-01	4.22E+06	1.42E-01	6.78E+04	2.43E+04
663	Up-dip	1	1	94	3.00E+05	3.77E+05	0.00E+00	1.00E+01	2.74E-08	1.18E+00	9.38E-08	1.26E+01	1.93E-02	0.00E+00	3.54E+03	1.49E+06	2.88E-02	2.86E-02	1.09E+07	6.29E-01	5.83E+06	2.33E-01	8.03E+04	3.56E+04
664	Up-dip	1	1	58	4.39E+05	4.14E+05	0.00E+00	1.10E+01	3.16E-10	1.46E+00	1.32E-09	2.49E+01	1.63E-04	0.00E+00	4.51E+03	2.36E+06	3.84E-04	3.83E-04	1.39E+07	1.55E-01	6.18E+06	1.37E-01	9.31E+04	1.34E+04
665	Up-dip	1	1	28	4.24E+05	4.14E+05	0.00E+00	1.10E+01	5.28E-11	5.82E-01	3.03E-10	2.06E+01	6.24E-05	0.00E+00	1.77E+03	1.09E+06	6.79E-05	6.62E-05	1.31E+07	1.99E-01	3.98E+06	1.95E-01	8.82E+04	1.75E+04
666	Up-dip	1	1	30	3.99E+05	3.14E+05	0.00E+00	1.10E+01	1.65E-11	1.99E+00	4.48E-11	1.43E+01	6.73E-06	0.00E+00	6.07E+03	2.84E+06	1.91E-05	1.79E-05	1.02E+07	3.99E-01	6.46E+06	5.31E-02	8.40E+04	1.20E+04
667	Up-dip	1	1	19	3.66E+05	2.98E+05	0.00E+00	1.10E+01	2.13E-10	9.65E-01	9.06E-10	1.56E+01	1.66E-04	0.00E+00	2.94E+03	1.58E+06	2.63E-04	2.59E-04	1.14E+07	3.73E-01	5.18E+06	4.66E-02	8.13E+04	1.75E+04
668	Up-dip	1	1	60	3.21E+05	2.50E+05	0.00E+00	1.10E+01	4.46E-11	2.02E-01	3.51E-10	1.02E+01	1.31E-04	0.00E+00	6.15E+02	5.07E+05	6.63E-05	6.58E-05	9.48E+06	1.98E-01	2.48E+06	6.36E-02	7.34E+04	1.02E+04
669	Up-dip	1	1	30	4.11E+05	3.40E+05	0.00E+00	1.10E+01	2.25E-12	2.01E+00	8.03E-12	1.47E+01	9.03E-07	0.00E+00	6.12E+03	2.89E+06	2.61E-06	2.44E-06	1.04E+07	4.39E-01	6.46E+06	4.83E-02	8.35E+04	1.25E+04
670	Up-dip	1	1	94	4.08E+05	7.99E+06	0.00E+00	1.10E+01	2.23E-12	1.38E+00	6.26E-12	1.81E+01	1.25E-06	0.00E+00	4.20E+03	2.04E+06	2.55E-06	2.40E-06	1.18E+07	9.94E-01	5.79E+06	1.91E-01	8.30E+04	4.39E+04
671	Up-dip	1	1	30	4.16E+05	3.53E+05	0.00E+00	1.10E+01	4.85E-13	2.02E+00	1.27E-12	1.49E+01	1.92E-07	0.00E+00	6.17E+03	2.92E+06	5.62E-07	5.23E-07	1.04E+07	4.54E-01	6.47E+06	4.60E-02	8.36E+04	1.27E+04
672	Up-dip	1	1	30	3.78E+05	3.67E+05	0.00E+00	1.10E+01	9.01E-18	2.07E+00	9.11E-18	1.54E+01	2.83E-12	0.00E+00	6.30E+03	3.00E+06	8.50E-12	7.74E-12	1.05E+07	4.67E-01	6.48E+06	4.18E-02	8.43E+04	1.28E+04
673	Up-dip	1	2	30	7.99E+06	2.90E+05	8.12E+06	2.88E+00	6.36E-05	3.41E-03	9.91E-05	3.41E-03	2.65E+04	0.00E+00	1.04E+01	6.04E+02	1.71E+01	1.67E+01	1.15E+07	2.20E-01	1.14E+07	5.35E-01	9.95E+04	5.15E+04
674	Up-dip	1	2	69	8.00E+06	3.29E+05	1.01E+07	2.88E+00	5.97E-05	0.00E+00	1.14E-04	0.00E+00	1.63E+22	0.00E+00	0.00E+00	0.00E+00	1.63E+01	1.59E+01	1.07E+07	7.21E-01	1.06E+07	9.15E-01	9.58E+04	8.33E+04
675	Up-dip	1	2	94	8.00E+06	2.53E+05	9.85E+06	2.88E+00	6.05E-05	7.89E-07	1.20E-04	1.03E-06	7.84E+07	1.21E-06	2.41E-03	2.02E-01	1.58E+01	1.54E+01	9.81E+06	4.65E-01	9.70E+06	8.08E-01	9.16E+04	6.88E+04

·	·	·	·	·	Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	BC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up dip Brine Relative Permeability (fraction)	Up dip Gas Relative Permeability (fraction)	Down dip Brine Relative Permeability (fraction)	Down dip Gas Relative Permeability (fraction)
No.	ID	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_RE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
676	Up-dip	1	2	78	5.84E-01	4.93E-02	1.51E-01	1.44E+00	1.04E+07	9.44E-01	1.05E+07	9.44E-01	9.70E-02	2.46E-15	1.04E-01	2.46E-15	5.50E+02	-1.06E+00	1.32E-13	8.32E-17	6.28E-01	1.40E+07	1.07E-12	7.79E-01	7.96E-07	7.78E-01	8.42E-07
677	Up-dip	1	2	45	5.72E-01	5.05E-02	2.04E-01	1.40E+00	9.55E+06	9.85E-01	9.61E+06	9.84E-01	6.78E-02	5.13E-14	8.12E-02	5.13E-14	5.50E+02	-9.31E-01	1.22E-13	1.74E-15	4.89E-01	1.32E+07	4.57E-13	9.30E-01	0.00E+00	9.27E-01	0.00E+00
678	Up-dip	1	2	22	5.70E-01	2.51E-02	8.22E-02	1.40E+00	9.43E+06	9.12E-01	9.42E+06	6.34E-01	1.21E-01	7.41E-14	1.33E-01	7.41E-14	5.50E+02	-1.37E+00	1.45E-13	1.74E-13	1.17E+00	1.30E+07	1.59E-12	6.90E-01	5.75E-04	1.52E-01	8.15E-02
679	Up-dip	1	2	79	5.63E-01	1.23E-01	3.88E-01	1.37E+00	8.97E+06	6.30E-01	8.98E+06	6.96E-01	1.61E-01	2.57E-13	1.81E-01	2.57E-13	5.50E+02	-1.10E+00	1.28E-13	1.51E-16	6.89E-01	1.22E+07	4.37E-15	3.23E-02	1.78E-01	7.91E-02	7.45E-02
680	Up-dip	1	2	44	6.69E-01	1.12E-01	1.61E-02	1.39E+00	9.40E+06	6.84E-01	9.40E+06	8.84E-01	1.15E-01	1.18E-13	1.23E-01	1.18E-13	5.50E+02	-1.17E+00	1.33E-13	3.80E-15	7.83E-01	1.29E+07	1.12E-12	6.30E-01	1.08E-07	6.31E-01	1.05E-07
681	Up-dip	1	2	39	5.78E-01	1.50E-01	2.98E-01	1.42E+00	1.01E+07	8.47E-01	9.85E+06	8.19E-01	1.49E-02	3.02E-15	2.68E-02	3.02E-15	5.60E+02	-1.23E+00	1.39E-13	2.40E-13	8.82E-01	1.34E+07	1.78E-13	4.03E-01	3.76E-07	3.33E-01	2.92E-04
682	Up-dip	1	2	52	5.73E-01	3.68E-02	4.49E-01	1.41E+00	9.36E+06	9.60E-01	1.07E+07	9.60E-01	9.67E-02	1.70E-15	1.17E-01	1.70E-15	5.50E+02	-9.48E-01	1.24E-13	4.17E-14	5.07E-01	1.43E+07	2.63E-13	7.57E-01	4.27E-07	7.56E-01	4.64E-07
683	Up-dip	1	2	7	5.81E-01	7.76E-03	3.12E-01	1.37E+00	8.82E+06	9.90E-01	8.88E+06	9.90E-01	1.26E-01	2.29E-13	1.49E-01	2.29E-13	5.50E+02	-8.15E-01	1.07E-13	7.94E-14	2.60E-01	1.24E+07	1.35E-12	9.46E-01	9.52E-08	9.49E-01	4.16E-08
684	Up-dip	1	2	33	5.87E-01	1.31E-01	1.22E-01	1.39E+00	9.26E+06	8.85E-01	9.22E+06	3.22E-01	2.74E-02	1.12E-14	3.63E-02	1.12E-14	5.60E+02	-1.24E+00	1.36E-13	6.32E-13	9.16E-01	1.15E+07	1.26E-13	5.39E-01	3.23E-07	4.22E-03	4.79E-01
685	Up-dip	1	2	15	5.65E-01	4.22E-02	5.21E-01	1.38E+00	9.15E+06	9.52E-01	9.13E+06	5.74E-01	4.81E-02	1.32E-14	6.37E-02	1.32E-14	5.50E+02	-9.48E-01	1.21E-13	1.32E-14	5.06E-01	1.06E+07	4.47E-13	6.75E-01	4.76E-06	3.08E-04	7.48E-01
686	Up-dip	1	2	2	5.62E-01	6.22E-02	4.02E-01	1.37E+00	8.95E+06	9.16E-01	8.91E+06	9.16E-01	1.51E-01	4.47E-14	1.65E-01	4.47E-14	5.50E+02	-1.29E+00	1.37E-13	5.01E-14	9.98E-01	1.24E+07	7.24E-11	5.71E-01	1.19E-07	5.71E-01	1.25E-07
687	Up-dip	1	2	55	5.54E-01	7.03E-02	2.38E-01	1.35E+00	8.42E+06	9.27E-01	8.36E+06	4.58E-01	6.29E-02	6.71E-15	1.01E-01	8.71E-15	5.50E+02	-8.88E-01	1.15E-13	6.03E-12	4.31E-01	1.18E+07	1.82E-11	6.88E-01	1.62E-07	9.84E-03	4.03E-01
688	Up-dip	1	2	40	5.85E-01	1.02E-01	3.54E-01	1.45E+00	1.06E+07	4.83E-01	1.06E+07	3.71E-01	1.22E-01	1.51E-13	1.27E-01	1.51E-13	5.50E+02	-1.32E+00	1.47E-13	3.02E-13	1.07E+00	1.39E+07	2.57E-11	2.66E-03	5.30E-01	1.67E-06	9.34E-01
689	Up-dip	1	2	51	6.10E-01	1.34E-01	3.63E-01	1.54E+00	1.27E+07	4.24E-01	1.27E+07	5.63E-01	1.75E-01	2.36E-13	1.62E-01	6.17E-14	5.50E+02	-1.16E+00	1.47E-13	1.00E-12	7.77E-01	1.63E+07	6.92E-12	1.67E-04	7.53E-01	1.40E-02	2.86E-01
690	Up-dip	1	2	91	5.60E-01	5.46E-02	3.06E-01	1.38E+00	8.76E+06	3.62E-01	8.76E+06	4.80E-01	1.74E-01	5.01E-15	1.95E-01	5.01E-15	5.50E+02	-7.73E-01	1.12E-13	2.82E-13	3.57E-01	1.18E+07	4.17E-14	9.00E-05	6.20E-01	8.01E-03	4.72E-01
691	Up-dip	1	2	31	5.82E-01	5.28E-02	6.93E-02	1.44E+00	1.03E+07	1.31E-01	1.04E+07	9.39E-01	6.71E-02	1.66E-15	8.12E-02	1.66E-15	5.50E+02	-1.27E+00	1.43E-13	3.31E-14	9.73E-01	1.40E+07	6.31E-13	7.44E-05	8.33E-01	7.81E-01	1.29E-06
692	Up-dip	1	2	58	6.01E-01	2.98E-02	1.14E-01	1.51E+00	1.19E+07	1.72E-01	1.19E+07	1.84E-01	1.87E-01	1.45E-16	1.92E-01	1.45E-16	5.50E+02	-1.18E+00	1.45E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	4.42E-05	8.59E-01	8.83E-05	8.29E-01
693	Up-dip	1	2	28	5.95E-01	9.72E-02	1.79E-01	1.48E+00	1.15E+07	1.96E-01	1.12E+07	4.94E-01	1.89E-01	5.28E-17	1.98E-01	4.79E-17	5.50E+02	-1.08E+00	1.37E-13	9.55E-12	6.64E-01	1.47E+07	9.55E-14	6.66E-07	9.51E-01	2.92E-02	2.41E-01
694	Up-dip	1	2	94	5.63E-01	4.58E-03	1.85E-01	1.44E+00	1.22E+07	9.91E-01	1.22E+07	6.96E-01	1.92E-01	7.82E-15	1.93E-01	6.31E-15	7.50E+02	-1.29E+00	1.44E-13	9.77E-16	9.95E-01	1.31E+07	1.78E-12	9.59E-01	2.93E-07	1.78E-01	7.44E-02
695	Up-dip	1	2	78	5.89E-01	4.93E-02	1.61E-01	1.46E+00	1.27E+07	9.46E-01	1.27E+07	9.46E-01	1.19E-01	4.24E-14	1.03E-01	2.46E-15	7.60E+02	-1.06E+00	1.33E-13	8.32E-17	6.28E-01	1.40E+07	1.07E-12	7.85E-01	3.35E-07	7.85E-01	3.39E-07
696	*Up-dip*	*1*	*2*	*44*	*5.76E-01*	*1.12E-01*	*1.81E-02*	1.42E+00	1.16E+07	8.85E-01	1.16E+07	8.85E-01	1.24E-01	1.52E-13	1.21E-01	1.18E-13	7.50E+02	-1.17E+00	1.35E-13	3.80E-15	7.83E-01	1.29E+07	1.12E-12	6.31E-01	7.78E-08	6.31E-01	7.72E-08
697	Up-dip	1	2	45	5.67E-01	5.05E-02	2.04E-01	1.39E+00	1.08E+07	9.76E-01	1.09E+07	9.75E-01	7.38E-02	5.13E-14	8.21E-02	5.13E-14	7.50E+02	-9.31E-01	1.21E-13	1.74E-15	4.89E-01	1.32E+07	4.57E-13	8.92E-01	0.00E+00	8.69E-01	0.00E+00
698	Up dip	1	2	15	5.72E-01	4.22E-02	5.21E-01	1.40E+00	1.13E+07	7.53E-01	1.13E+07	7.95E-01	5.56E-02	1.32E-14	6.27E-02	1.32E-14	7.50E+02	-9.48E-01	1.23E-13	1.32E-14	5.06E-01	1.06E+07	4.47E-13	6.94E-02	1.44E-01	1.27E-01	7.61E-02
699	Up-dip	1	2	69	5.75E-01	6.98E-02	4.08E-01	1.41E+00	1.15E+07	9.10E-01	1.16E+07	9.13E-01	7.49E-02	1.26E-14	8.13E-02	1.26E-14	7.50E+02	-1.29E+00	1.42E-13	9.33E-15	9.99E-01	1.42E+07	4.07E-13	6.42E-01	4.53E-09	5.58E-01	0.00E+00
700	Up-dip	1	2	52	5.71E-01	3.68E-02	4.49E-01	1.40E+00	1.12E+07	9.60E-01	1.13E+07	9.60E-01	1.04E-01	1.70E-15	1.17E-01	1.70E-15	7.50E+02	-9.48E-01	1.23E-13	4.17E-14	5.07E-01	1.43E+07	2.63E-13	7.57E-01	4.04E-07	7.57E-01	4.00E-07
701	Up-dip	1	2	2	5.65E-01	8.22E-02	4.02E-01	1.38E+00	1.07E+07	9.16E-01	1.06E+07	9.16E-01	1.58E-01	4.47E-14	1.64E-01	4.47E-14	7.50E+02	-1.29E+00	1.38E-13	5.01E-14	9.98E-01	1.24E+07	7.24E-11	5.71E-01	9.13E-08	5.71E-01	9.05E-08
702	Up-dip	1	2	39	5.73E-01	1.50E-01	2.98E-01	1.41E+00	1.13E+07	8.47E-01	1.13E+07	8.47E-01	1.90E-02	3.02E-15	2.71E-02	3.02E-15	7.50E+02	-1.23E+00	1.37E-13	2.40E-13	8.82E-01	1.34E+07	1.78E-13	4.04E-01	3.35E-07	4.04E-01	3.26E-07
703	Up-dip	1	2	10	5.46E-01	3.17E-02	1.73E-01	1.32E+00	9.38E+06	9.85E-01	9.40E+06	9.55E-01	4.85E-02	3.72E-14	6.69E-02	3.72E-14	7.50E+02	-1.33E+00	1.35E-13	1.86E-16	1.08E+00	1.09E+07	1.35E-11	8.52E-01	1.31E-07	1.36E-01	8.91E-02
704	Up-dip	1	2	19	5.49E-01	1.42E-01	2.97E-02	1.33E+00	9.51E+06	7.93E-01	9.62E+06	8.51E-01	1.89E-01	1.41E-15	2.04E-01	1.41E-15	7.50E+02	-1.23E+00	1.30E-13	2.00E-16	8.94E-01	1.18E+07	1.45E-12	4.13E-01	7.78E-04	5.41E-01	7.43E-07
705	Up-dip	1	2	24	5.40E-01	9.01E-02	1.37E-01	1.30E+00	8.91E+06	9.08E-01	9.00E+06	9.08E-01	1.85E-01	2.82E-13	2.07E-01	2.82E-13	7.50E+02	-1.29E+00	1.31E-13	2.63E-14	9.94E-01	1.09E+07	7.41E-13	6.59E-01	2.82E-08	6.59E-01	2.79E-08
706	Up-dip	1	2	18	5.46E-01	1.06E-01	3.40E-01	1.32E+00	9.32E+06	8.92E-01	9.35E+06	7.80E-01	4.95E-02	3.31E-14	6.62E-02	3.31E-14	7.50E+02	-1.09E+00	1.22E-13	6.17E-16	8.69E-01	1.05E+07	5.25E-12	5.17E-01	1.10E-07	2.24E-01	1.38E-02
707	Up-dip	1	2	30	5.42E-01	1.16E-01	4.16E-02	1.31E+00	9.07E+06	8.80E-01	9.16E+06	8.80E-01	2.61E-02	2.75E-14	4.23E-02	2.75E-14	7.50E+02	-6.49E-01	1.04E-13	2.19E-13	2.79E-01	1.34E+07	1.59E-13	6.10E-01	2.22E-07	6.10E-01	2.20E-07
708	Up-dip	1	2	48	5.40E-01	1.02E-01	2.11E-01	1.30E+00	8.90E+06	8.42E-01	8.97E+06	8.95E-01	4.55E-02	7.76E-14	5.88E-02	7.76E-14	7.50E+02	-1.29E+00	1.31E-13	2.19E-15	1.01E+00	1.03E+07	3.80E-12	4.38E-01	8.82E-04	5.91E-01	8.41E-08
709	Up-dip	1	2	35	5.42E-01	9.57E-02	4.39E-01	1.31E+00	9.09E+06	9.03E-01	9.17E+06	9.03E-01	5.00E-02	7.24E-15	6.29E-02	7.24E-15	7.50E+02	-8.97E-01	1.13E-13	1.38E-13	4.57E-01	1.12E+07	3.98E-11	4.94E-01	1.05E-07	4.94E-01	1.04E-07
710	Up-dip	1	2	31	5.77E-01	5.28E-02	5.93E-02	1.42E+00	1.17E+07	1.11E-01	1.17E+07	9.40E-01	7.33E-02	1.66E-15	8.22E-02	1.66E-15	7.50E+02	-1.27E+00	1.42E-13	3.31E-14	9.73E-01	1.40E+07	6.31E-13	2.22E-05	8.80E-01	7.82E-01	1.13E-06
711	Up-dip	1	2	28	5.49E-01	9.72E-02	1.79E-01	1.33E+00	9.52E+06	2.28E-01	9.45E+06	8.90E-01	2.02E-01	5.28E-17	2.21E-01	4.79E-17	7.50E+02	-1.08E+00	1.23E-13	9.55E-12	6.64E-01	1.45E+07	9.55E-14	2.55E-05	8.66E-01	5.88E-01	9.58E-06
712	Up-dip	1	2	58	5.90E-01	2.96E-02	1.14E-01	1.47E+00	1.29E+07	1.58E-01	1.28E+07	1.71E-01	1.96E-01	1.67E-16	1.97E-01	1.45E-16	7.50E+02	-1.18E+00	1.41E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	1.53E-05	8.94E-01	4.09E-05	8.62E-01
713	Up-dip	1	2	79	5.70E-01	1.23E-01	3.88E-01	1.40E+00	1.11E+07	4.12E-01	1.11E+07	7.76E-01	1.67E-01	2.57E-13	1.76E-01	2.57E-13	7.50E+02	-1.10E+00	1.30E-13	1.51E-16	6.89E-01	1.23E+07	4.37E-15	6.18E-06	9.00E-01	1.86E-01	1.38E-02
714	Up-dip	1	2	78	5.95E-01	4.93E-02	1.51E-01	1.48E+00	1.57E+07	6.49E-01	1.57E+07	8.62E-01	2.76E-01	6.27E-10	1.02E-01	2.46E-15	2.00E+03	-1.06E+00	1.36E-13	8.32E-17	6.28E-01	1.40E+07	1.07E-12	1.39E-01	7.87E-02	5.18E-01	2.25E-03
715	Up-dip	1	2	94	5.84E-01	4.58E-03	1.85E-01	1.44E+00	1.46E+07	9.95E-01	1.47E+07	9.95E-01	2.24E-01	3.88E-13	1.93E-01	6.31E-15	2.00E+03	-1.29E+00	1.44E-13	9.77E-16	9.95E-01	1.31E+07	1.78E-12	9.75E-01	2.34E-09	9.75E-01	2.24E-09
716	Up-dip	1	2	24	5.78E-01	9.01E-02	1.37E-01	1.42E+00	1.40E+07	9.08E-01	1.41E+07	9.08E-01	1.94E-01	4.31E-13	1.90E-01	2.82E-13	2.00E+03	-1.29E+00	1.42E-13	2.63E-14	9.94E-01	1.09E+07	7.41E-13	6.60E-01	1.82E-08	6.60E-01	1.81E-08
717	Up-dip	1	2	45	5.65E-01	5.05E-02	2.04E-01	1.38E+00	1.29E+07	9.49E-01	1.30E+07	9.49E-01	8.36E-02	5.57E-14	8.25E-02	5.13E-14	2.00E+03	-9.31E-01	1.20E-13	1.74E-15	4.89E-01	1.32E+07	4.57E-13	7.81E-01	3.41E-09	7.81E-01	3.38E-09
718	Up-dip	1	2	44	5.73E-01	1.12E-01	1.61E-02	1.41E+00	1.38E+07	5.27E-01	1.37E+07	8.86E-01	1.60E-01	5.30E-12	1.22E-01	1.18E-13	2.00E+03	-1.17E+00	1.34E-13	3.80E-15	7.83E-01	1.29E+07	1.12E-12	8.92E-02	1.02E-01	6.34E-01	2.17E-08
719	Up-dip	1	2	52	5.63E-01	3.68E-02	4.49E-01	1.38E+00	1.28E+07	9.60E-01	1.28E+07	9.60E-01	1.13E-01	1.70E-15	1.19E-01	1.70E-15	2.00E+03	-9.48E-01	1.21E-13	4.17E-14	5.07E-01	1.43E+07	2.63E-13	7.57E-01	3.95E-07	7.58E-01	3.73E-07
720	Up-dip	1	2	69	5.70E-01	6.96E-02	4.08E-01	1.40E+00	1.33E+07	9.09E-01	1.34E+07	9.09E-01	6.52E-02	1.65E-14	8.23E-02	1.26E-14	2.00E+03	-1.29E+00	1.40E-13	9.33E-15	9.99E-01	1.42E+07	4.07E-13	5.41E-01	1.30E-08	5.41E-01	1.29E-08
721	Up-dip	1	2	39	5.56E-01	1.50E-01	2.98E-01	1.35E+00	1.21E+07	8.47E-01	1.22E+07	8.47E-01	2.24E-02	3.02E-15	2.83E-02	3.02E-15	2.00E+03	-1.23E+00	1.32E-13	2.40E-13	8.82E-01	1.35E+07	1.78E-13	4.03E-01	3.55E-07	4.04E-01	3.51E-07
722	Up-dip	1	2	2	5.36E-01	8.22E-02	4.02E-01	1.29E+00	1.05E+07	9.16E-01	1.06E+07	9.16E-01	1.67E-01	4.47E-14	1.75E-01	4.47E-14	2.00E+03	-1.29E+00	1.30E-13	5.01E-14	9.98E-01	1.25E+07	7.24E-11	5.71E-01	1.15E-07	5.71E-01	1.00E-07
723	Up-dip	1	2	100	5.34E-01	1.14E-01	3.43E-01	1.29E+00	1.04E+07	8.84E-01	1.05E+07	8.84E-01	7.15E-02	9.12E-16	8.43E-02	9.12E-16	2.00E+03	-1.26E+00	1.28E-13	2.51E-14	9.43E-01	1.25E+07	1.29E-13	4.86E-01	1.30E-07	4.86E-01	1.27E-07
724	Up-dip	1	2	35	5.34E-01	9.57E-02	4.39E-01	1.29E+00	1.04E+07	9.03E-01	1.05E+07	9.03E-01	5.65E-02	7.24E-15	8.40E-02	7.24E-15	2.00E+03	-8.97E-01	1.11E-13	1.38E-13	4.57E-01	1.12E+07	3.98E-11	4.94E-01	1.08E-07	4.94E-01	1.07E-07
725	Up-dip	1	2	30	5.26E-01	1.16E-01	4.16E-02	1.27E+00	9.77E+06	8.83E-01	9.86E+06	8.83E-01	2.94E-02	2.75E-14	4.38E-02	2.75E-14	2.00E+03	-6.49E-01	*1.00E-13*	*2.19E-13*	*2.79E-01*	*1.34E+07*	*1.59E-13*	*6.19E-01*	*1.55E-09*	*6.19E-01*	*1.54E-09*
726	Up-dip	1	2	10	5.86E-01	3.17E-02	1.73E-01	1.45E+00	1.48E+07	4.19E-01	1.49E+07	7.92E-01	7.28E-02	1.12E-13	6.10E-02	3.72E-14	2.00E+03	-1.33E+00	1.48E-13	1.86E-16	1.08E+00	1.09E+07	1.35E-11	1.13E-02	4.12E-01	3.42E-01	1.71E-02
727	Up-dip	1	2	97	5.15E-01	8.37E-02	4.34E-01	1.24E+00	9.06E+06	9.04E-01	9.13E+06	9.12E-01	1.48E-01	5.63E-16	1.70E-01	5.62E-16	2.00E+03	-8.88E-01	1.06E-13	4.57E-13	4.49E-01	1.38E+07	3.02E-11	5.03E-01	2.77E-05	5.37E-01	9.93E-07
728	Up-dip	1	2	19	5.75E-01	1.42E-01	2.97E-02	1.41E+00	1.37E+07	3.21E-01	1.38E+07	6.53E-01	2.05E-01	6.99E-15	1.93E-01	1.41E-15	2.00E+03	-1.23E+00	1.38E-13	2.00E-16	8.94E-01	1.18E+07	1.45E-12	1.17E-02	3.49E-01	5.44E-01	4.12E-07
729	Up-dip	1	2	53	4.96E-01	4.46E-02	2.52E-01	1.19E+00	8.11E+06	5.26E-01	7.96E+06	9.33E-01	1.56E-01	9.13E-18	1.85E-01	8.51E-18	2.00E+03	-5.58E-01	9.15E-14	1.38E-12	2.32E-01	1.33E+07	4.57E-12	2.52E-02	2.94E-01	7.05E-01	5.75E-05
730	Up-dip	1	2	18	5.87E-01	1.06E-01	3.40E-01	1.45E+00	1.49E+07	4.17E-01	1.49E+07	6.93E-01	7.53E-02	1.16E-13	6.20E-02	3.31E-14	2.00E+03	-1.09E+00	1.34E-13	6.17E-16	6.69E-01	1.05E+07	5.25E-12	3.55E-04	7.16E-01	5.19E-01	4.54E-08
731	Up-dip	1	2	60	5.19E-01	6.13E-02	4.70E-02	1.25E+00	9.41E+06	1.10E-01	9.12E+06	7.67E-01	1.94E-01	6.05E-18	2.06E-01	5.75E-18	2.00E+03	-1.17E+00	1.18E-13	8.61E-13	7.91E-01	1.30E+07	2.34E-14	4.47E-05	8.53E-01	3.92E-01	7.91E-03
732	Up-dip	1	2	47	4.98E-01	6.75E-02	1.81E-01	1.20E+00	6.13E+06	1.65E-01	6.26E+06	5.57E-01	1.48E-01	6.92E-18	1.64E-01	6.92E-18	2.00E+03	-1.09E+00	1.11E-13	2.19E-16	6.75E-01	1.20E+07	1.55E-12	3.78E-09	9.89E-01	6.24E-02	1.61E-01
733	Up-dip	1	2	94	5.83E-01	4.58E-03	1.85E-01	1.44E+00	1.44E+07	9.95E-01	1.45E+07	9.95E-01	2.21E-01	2.51E-13	1.93E-01	6.31E-15	4.00E+03	-1.29E+00	1.44E-13	9.77E-16	9.95E-01	1.31E+07	1.78E-12	9.75E-01	2.65E-09	9.75E-01	2.53E-09
734	Up-dip	1	2	24	5.77E-01	9.01E-02	1.37E-01	1.42E+00	1.39E+07	9.08E-01	1.40E+07	9.08E-01	1.95E-01	4.73E-13	1.90E-01	2.82E-13	4.00E+03	-1.29E+00	1.42E-13	2.63E-14	9.94E-01	1.09E+07	7.41E-13	6.60E-01	1.99E-08	6.60E-01	1.97E-08
735	Up-dip	1	2	45	6.72E-01	5.05E-02	2.04E-01	1.40E+00	1.35E+07	9.49E-01	1.36E+07	9.49E-01	8.92E-02	1.01E-13	8.11E-02	5.13E-14	4.00E+03	-9.31E-01	1.22E-13	1.74E-15	4.89E-01	1.32E+07	4.57E-13	7.82E-01	2.64E-09	7.82E-01	2.63E-09
736	Up-dip	1	2	69	5.79E-01	6.98E-02	4.08E-01	1.43E+00	1.41E+07	9.09E-01	1.42E+07	9.09E-01	9.47E-02	4.77E-14	6.07E-02	1.26E-14	4.00E+03	-1.29E+00	1.43E-13	9.33E-15	9.99E-01	1.42E+07	4.07E-13	5.41E-01	7.74E-09	5.41E-01	7.70E-09
737	Up-dip	1	2	44	5.64E-01	1.12E-01	1.61E-02	1.38E+00	1.28E+07	4.04E-01	1.28E+07	8.87E-01	1.50E-01	7.96E-13	1.25E-01	1.18E-13	4.00E+03	-1.17E+00	1.31E-13	3.80E-15	7.83E-01	1.29E+07	1.12E-12	3.23E-02	2.29E-01	6.39E-01	2.57E-10
738	Up-dip	1	2	100	5.38E-01	1.14E-01	3.43E-01	1.30E+00	1.07E+07	8.83E-01	1.08E+07	6.84E-01	7.21E-02	9.12E-16	6.35E-02	9.12E-16	4.00E+03	-1.26E+00	1.29E-13	2.51E-14	9.43E-01	1.25E+07	1.29E-13	4.86E-01	1.39E-07	4.86E-01	1.36E-07
739	Up-dip	1	2	52	5.30E-01	3.68E-02	4.49E-01	1.28E+00	1.01E+07	9.58E-01	1.02E+07	9.60E-01	1.10E-01	1.70E-15	1.28E-01	1.70E-15	4.00E+03	-9.48E-01	1.12E-13	4.17E-14	5.07E-01	1.43E+07	2.63E-13	7.43E-01	2.31E-06	7.56E-01	4.65E-07
740	Up-dip	1	2	1	5.20E-01	9.81E-02	2.56E-01	1.25E+00	9.36E+06	6.99E-01	9.44E+06	8.99E-01	6.96E-02	7.24E-16	8.79E-02	7.24E-16	4.00E+03	-1.28E+00	1.25E-13	1.66E-14	9.73E-01	1.25E+07	7.08E-14	5.84E-01	1.29E-07	5.84E-01	1.26E-07
741	Up-dip	1	2	30	5.19E-01	1.16E-01	4.16E-02	1.25E+00	9.27E+06	8.83E-01	9.37E+06	8.83E-01	2.81E-02	2.75E-14	4.45E-02	2.75E-14	4.00E+03	-6.49E-01	9.87E-14	2.19E-13	2.79E-01	1.34E+07	1.59E-13	6.19E-01	1.39E-09	6.19E-01	1.33E-09
742	Up-dip	1	2	39	5.25E-01	1.50E-01	2.98E-01	1.27E+00	9.73E+06	6.48E-01	9.82E+06	8.46E-01	1.60E-02	3.02E-15	3.02E-02	3.02E-15	4.00E+03	-1.23E+00	1.24E-13	2.40E-13	8.82E-01	1.35E+07	1.78E-13	4.05E-01	2.05E-07	4.05E-01	2.02E-07
743	Up-dip	1	2	78	6.04E-01	4.93E-02	1.51E-01	1.52E+00	1.63E+07	3.71E-01	1.64E+07	5.73E-01	2.85E-01	1.00E-09	9.92E-02	2.46E-15	4.00E+03	-1.06E+00	1.39E-13	8.32E-17	6.28E-01	1.40E+07	1.07E-12	6.78E-03	4.67E-01	7.56E-02	1.48E-01
744	Up-dip	1	2	35	5.05E-01	9.57E-02	4.39E-01	1.21E+00	8.72E+06	9.02E-01	8.81E+06	9.02E-01	5.26E-02	7.24E-15	6.80E-02	7.24E-15	4.00E+03	-8.97E-01	1.05E-13	1.38E-13	4.57E-01	1.12E+07	3.98E-11	4.94E-01	1.28E-07	4.94E-01	1.27E-07
745	Up-dip	1	2	86	4.95E-01	6.86E-02	3.81E-02	1.19E+00	8.29E+06	1.80E-01	8.26E+06	9.18E-01	1.66E-01	3.04E-17	1.79E-01	3.02E-17	4.00E+03	-1.26E+00	1.18E-13	4.07E-13	9.43E-01	1.16E+07	2.04E-11	9.02E-04	6.72E-01	7.21E-01	5.50E-06
746	Up-dip	1	2	19	5.96E-01	1.42E-01	2.97E-02	1.49E+00	1.57E+07	9.68E-02	1.57E+07	8.34E-01	2.54E-01	2.28E-11	1.83E-01	1.41E-15	4.00E+03	-1.23E+00	1.46E-13	2.00E-16	8.94E-01	1.18E+07	1.45E-12	5.19E-05	8.33E-01	4.99E-01	4.15E-05
747	Up-dip	1	2	60	4.91E-01	6.13E-02	4.70E-02	1.18E+00	8.15E+06	7.96E-02	7.88E+06	7.84E-01	1.99E-01	8.05E-18	2.16E-01	5.75E-18	4.00E+03	-3.73E-01	8.55E-14	6.61E-13	1.60E-01	1.30E+07	2.34E-14	3.84E-06	9.25E-01	3.88E-01	8.24E-03
748	Up-dip	1	2	53	4.97E-01	4.46E-02	2.52E-01	1.19E+00	8.49E+06	2.53E-01	8.18E+06	8.36E-01	1.57E-01	9.13E-18	1.85E-01	8.51E-18	4.00E+03	-1.23E+00	1.17E-13	1.38E-12	8.92E-01	1.33E+07	4.57E-12	1.38E-11	9.98E-01	4.00E-01	7.88E-03
749	Up-dip	1	2	94	5.80E-01	4.58E-03	1.85E-01	1.43E+00	1.41E+07	9.94E-01	1.42E+07	9.94E-01	2.15E-01	9.08E-14	1.95E-01	6.31E-15	1.00E+04	-1.29E+00	1.43E-13	9.77E-16	9.95E-01	1.31E+07	1.78E-12	9.75E-01	3.88E-09	9.75E-01	3.63E-09
750	Up-dip	1	2	45	5.85E-01	5.05E-02	2.04E-01	1.45E+00	1.45E+07	9.49E-01	1.46E+07	9.49E-01	1.11E-01	6.10E-13	7.87E-02	5.13E-14	1.00E+04	-9.31E-01	1.26E-13	1.74E-15	4.89E-01	1.32E+07	4.57E-13	7.82E-01	1.60E-09	7.82E-01	1.59E-09

					Up-dip Flowing Bottom-hole Pressure (Pa)	Down-dip Flowing Bottom-hole Pressure (Pa)	BC well Injection Pressure (Pa)	Blowout Duration (Days)	Brine Rate (m^3/s)	Gas Rate (ref m^3/s)	Max Brine Rate (m^3/s)	Max Gas Rate (ref m^3/s)	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s)	Cum Brine from Boundary Condition Well (m^3)	Gas Rate (mscf/day)	Cum Gas Produced (ref m^3)	Cum Brine Produced (m^3)	Cum Brine Releases (m^3)	Avg Brine Pressure Panel 5 (Pa) after Blowout	Avg Brine Saturation Panel 5 (fraction) after blowout	Avg Brine Pressure Panel 0 (Pa) after blowout	Avg Brine Saturation Panel 0 (fraction) after blowout	Total Excavated Waste Pore Volume (fraction)	Total Excavated Brine Volume (m^3)
No	ID	Replic.	Scen.	Vector	FBHP2	FBHP4	BHP_ABAN	time	BRINEFLW	GASFLW	MAX_BRN	MAX_GAS	LGR_MET	BRINE_BC	GAS_RATE	GASOUT	BRINEOUT	BRIN_REL	BRNPRESS	SATBRN5	BRNPRES0	SATBRN0	WASTE_PV	TOT_BRIN
676	Up-dip	1	2	78	8.01E+06	8.01E+06	1.10E+07	2.88E+00	5.54E-05	1.09E-05	1.19E-04	1.09E-05	6.17E+06	1.04E-05	3.31E-02	2.53E+00	1.56E+01	1.52E+01	1.05E+07	9.46E-01	1.02E+07	9.43E-01	9.45E+04	8.92E+04
677	Up-dip	1	2	45	8.00E+06	8.00E+06	1.00E+07	2.88E+00	4.87E-05	0.00E+00	8.39E-05	0.00E+00	1.28E+22	1.08E-05	0.00E+00	0.00E+00	1.28E+01	1.25E+01	9.67E+06	9.84E-01	9.39E+06	9.83E-01	8.99E+04	8.85E+04
678	Up-dip	1	2	22	7.93E+06	3.90E+05	9.74E+06	2.88E+00	4.54E-05	1.10E-03	7.14E-05	1.23E-03	4.67E+04	1.17E-05	3.37E+00	2.51E+02	1.17E+01	1.14E+01	9.43E+06	8.44E-01	9.39E+06	5.50E-01	8.93E+04	5.85E+04
679	Up-dip	1	2	79	2.70E+05	8.77E+05	1.83E+06	1.10E+01	1.27E-05	5.56E-01	1.71E-05	1.86E+00	1.72E+01	0.00E+00	1.70E+03	6.95E+05	1.20E+01	1.13E+01	8.90E+06	7.04E-01	6.98E+06	5.09E-01	8.68E+04	5.53E+04
680	Up-dip	1	2	44	7.99E+06	7.99E+06	9.89E+06	2.88E+00	3.89E-05	1.48E-05	5.61E-05	1.48E-05	8.20E+06	1.65E-05	4.53E-02	1.35E+00	1.01E+01	9.83E+00	9.42E+06	8.88E-01	9.35E+06	8.10E-01	8.91E+04	7.52E+04
681	Up-dip	1	2	39	8.01E+06	7.93E+06	9.94E+06	2.88E+00	3.13E-05	5.62E-05	5.54E-05	5.62E-05	8.02E+05	1.86E-06	1.72E-01	1.08E+01	8.60E+00	8.41E+00	9.86E+06	8.24E-01	1.00E+07	8.46E-01	9.24E+04	7.76E+04
682	Up-dip	1	2	52	8.00E+06	8.01E+06	1.09E+07	2.88E+00	2.77E-05	2.28E-06	6.08E-05	2.28E-06	1.46E+07	3.17E-06	6.94E-03	5.37E-01	7.80E+00	7.64E+00	1.07E+07	9.61E-01	9.20E+06	9.59E-01	9.06E+04	8.69E+04
683	Up-dip	1	2	7	7.99E+05	7.99E+06	9.43E+06	2.88E+00	3.02E-05	7.51E-08	4.02E-05	7.88E-08	4.05E+08	1.66E-05	2.29E-04	1.87E-02	7.58E+00	7.37E+00	8.98E+06	9.91E-01	8.80E+06	7.19E-01	8.60E+04	7.23E+04
684	Up-dip	1	2	33	8.00E+06	2.36E+05	6.35E+06	2.88E+00	2.67E-05	8.22E-06	4.41E-05	6.22E-06	5.75E+06	0.00E+00	1.90E-02	1.24E+00	7.10E+00	6.93E+00	9.22E+06	3.40E-01	9.21E+06	7.33E-01	8.83E+04	5.77E+04
685	Up-dip	1	2	15	8.02E+06	2.56E+05	6.97E+06	2.88E+00	2.57E-05	8.95E-06	4.40E-05	8.98E-06	3.05E+06	0.00E+00	2.73E-02	2.22E+00	6.75E+00	6.59E+00	9.13E+06	5.86E-01	9.09E+06	8.24E-01	8.77E+04	6.89E+04
686	Up-dip	1	2	2	7.99E+06	7.99E+06	9.49E+06	2.88E+00	2.23E-05	1.77E-06	3.59E-05	1.77E-06	1.72E+07	1.68E-05	5.41E-03	3.42E-01	5.85E+00	5.71E+00	8.94E+06	9.18E-01	8.91E+06	9.15E-01	8.66E+04	7.93E+04
687	Up-dip	1	2	55	7.99E+06	2.21E+05	8.79E+06	2.88E+00	9.48E-08	1.28E-07	1.62E-05	1.26E-07	8.39E+07	1.31E-05	3.83E-04	3.01E-02	2.52E+00	2.48E+00	8.37E+06	4.71E-01	8.39E+06	6.05E-01	8.37E+04	5.25E+04
688	Up-dip	1	2	40	2.64E+05	3.43E+05	1.09E+07	1.10E+01	7.91E-07	1.31E+00	1.91E-08	8.71E+00	4.37E-01	1.85E-05	4.00E+03	2.06E+06	8.99E-01	8.50E-01	1.05E+07	3.89E-01	5.88E+06	3.34E-01	9.51E+04	4.42E+04
689	Up-dip	1	2	51	3.42E+05	3.16E+05	1.32E+07	1.10E+01	5.05E-08	2.00E+00	1.44E-07	1.76E+01	1.75E-02	3.68E-05	6.09E+03	3.67E+06	6.41E-02	6.28E-02	1.23E+07	5.76E-01	5.88E+06	3.61E-01	1.05E+05	5.49E+04
690	Up-dip	1	2	91	2.61E+05	2.27E+05	4.41E+06	1.10E+01	1.22E-08	6.60E-01	4.09E-08	7.15E+00	1.48E-02	0.00E+00	2.01E+03	9.63E+05	1.43E-02	1.36E-02	8.76E+06	4.94E-01	4.52E+06	2.87E-01	8.56E+04	4.22E+04
691	Up-dip	1	2	31	2.97E+05	8.01E+06	1.09E+07	1.10E+01	1.08E-08	6.53E-01	5.06E-08	1.27E+01	1.22E-02	6.87E-06	1.99E+03	1.10E+06	1.34E-02	1.28E-02	1.05E+07	9.41E-01	4.29E+06	9.57E-02	9.40E+04	4.87E+04
692	Up-dip	1	2	58	3.42E+05	3.33E+05	6.77E+06	1.10E+01	8.42E-09	6.60E-01	3.52E-08	1.75E+01	8.81E-03	0.00E+00	2.01E+03	1.23E+06	8.41E-03	8.27E-03	1.19E+07	2.06E-01	4.26E+06	1.71E-01	1.02E+05	1.81E+04
693	Up-dip	1	2	28	3.74E+05	3.06E+05	7.98E+06	1.10E+01	8.38E-11	5.08E-01	4.80E-10	1.69E+01	1.12E-04	0.00E+00	1.55E+03	9.73E+05	1.09E-04	1.07E-04	1.12E+07	5.08E-01	3.62E+06	1.97E-01	9.90E+04	2.74E+04
694	Up-dip	1	2	94	8.00E+06	2.69E+05	2.59E+05	2.88E+00	1.42E-04	2.49E-08	2.77E-04	2.55E-08	5.95E+07	0.00E+00	7.58E-03	8.20E-01	3.69E+01	3.60E+01	1.22E+07	7.04E-01	1.19E+07	7.58E-01	9.42E+04	7.42E+04
695	Up-dip	1	2	78	8.01E+06	8.01E+06	8.01E+06	2.88E+00	1.42E-04	4.10E-05	2.34E-04	4.10E-05	5.02E+06	0.00E+00	1.25E-01	7.37E+00	3.68E+01	3.59E+01	1.27E+07	9.47E-01	1.25E+07	8.31E-01	9.65E+04	8.52E+04
696	Up-dip	1	2	44	8.00E+06	8.00E+06	8.00E+06	2.88E+00	8.61E-05	2.01E-03	1.44E-04	2.01E-03	1.31E+06	0.00E+00	8.14E+00	1.90E+02	2.41E+01	2.36E+01	1.16E+07	8.88E-01	1.15E+07	8.79E-01	9.14E+04	7.06E+04
697	Up-dip	1	2	45	8.00E+06	8.00E+06	8.00E+06	2.88E+00	8.52E-05	0.00E+00	1.46E-04	0.00E+00	2.24E+22	0.00E+00	0.00E+00	0.00E+00	2.24E+01	2.19E+01	1.09E+07	9.76E-01	1.08E+07	9.74E-01	8.81E+04	8.59E+04
698	Up-dip	1	2	15	3.75E+05	4.30E+05	4.30E+05	1.10E+01	1.98E-05	3.33E-01	4.43E-05	2.24E+00	4.62E+01	0.00E+00	1.02E+03	4.32E+05	1.99E+01	1.89E+01	1.13E+07	8.00E-01	7.14E+06	6.60E-01	9.01E+04	6.82E+04
699	Up-dip	1	2	69	7.99E+06	8.00E+06	8.00E+06	2.88E+00	6.75E-05	1.36E-04	1.29E-04	1.36E-04	9.64E+05	0.00E+00	4.16E-01	1.95E+01	1.85E+01	1.81E+01	1.16E+07	9.18E-01	1.13E+07	9.07E-01	9.13E+04	8.34E+04
700	Up-dip	1	2	52	8.01E+06	8.01E+06	6.01E+06	2.88E+00	6.30E-05	1.81E-05	1.42E-04	1.81E-05	4.25E+08	0.00E+00	5.51E-02	4.19E+00	1.78E+01	1.74E+01	1.13E+07	9.61E-01	1.08E+07	9.59E-01	8.98E+04	8.62E+04
701	Up-dip	1	2	2	8.00E+06	8.00E+06	8.00E+06	2.88E+00	6.05E-05	1.43E-04	1.02E-04	1.43E-04	1.10E+06	0.00E+00	4.36E-01	1.52E+01	1.81E+01	1.58E+01	1.08E+07	9.18E-01	1.06E+07	8.55E-01	8.75E+04	7.73E+04
702	Up-dip	1	2	39	8.01E+06	8.01E+06	8.01E+06	2.88E+00	4.68E-05	2.14E-04	8.62E-05	2.14E-04	3.48E+05	0.00E+00	6.52E-01	3.75E+01	1.30E+01	1.27E+01	1.13E+07	8.51E-01	1.12E+07	8.45E-01	9.05E+04	7.67E+04
703	Up-dip	1	2	10	7.99E+06	5.26E+05	5.26E+05	2.88E+00	4.44E-05	5.73E-07	7.59E-05	5.73E-07	8.24E+07	0.00E+00	1.75E-03	1.39E-01	1.14E+01	1.12E+01	9.40E+06	6.64E-01	9.31E+06	7.30E-01	8.12E+04	6.13E+04
704	Up-dip	1	2	19	7.79E+06	8.01E+06	8.01E+06	2.88E+00	2.62E-05	1.44E-03	4.42E-05	1.74E-03	1.97E+04	0.00E+00	4.39E+00	3.56E+02	7.02E+00	6.86E+00	9.62E+06	8.55E-01	9.47E+06	5.00E-01	8.20E+04	5.41E+04
705	Up-dip	1	2	24	7.99E+06	7.99E+06	7.99E+06	2.88E+00	2.70E-05	1.22E-06	3.79E-05	1.22E-06	5.61E+07	0.00E+00	3.72E-03	1.31E-01	6.92E+00	6.75E+00	9.00E+06	9.10E-01	8.87E+06	9.07E-01	7.90E+04	7.17E+04
706	Up-dip	1	2	18	7.99E+06	3.77E+06	3.77E+06	2.88E+00	2.60E-05	7.72E-06	4.01E-05	7.72E-06	6.13E+06	0.00E+00	2.36E-02	1.12E+00	6.77E+00	6.61E+00	9.35E+06	7.86E-01	9.28E+06	7.42E-01	8.09E+04	6.32E+04
707	Up-dip	1	2	30	8.00E+06	8.00E+06	8.00E+06	2.88E+00	2.19E-05	1.43E-06	3.23E-05	1.43E-06	1.91E+07	0.00E+00	4.36E-03	2.97E-01	5.67E+00	5.53E+00	9.16E+06	8.83E-01	9.03E+06	6.38E-01	7.98E+04	5.95E+04
708	Up-dip	1	2	48	7.77E+06	7.99E+06	7.99E+06	2.88E+00	2.07E-05	1.66E-03	3.09E-05	1.66E-03	1.64E+04	0.00E+00	5.05E+00	3.32E+02	5.45E+00	5.32E+00	8.97E+06	8.98E-01	8.87E+06	5.77E-01	7.90E+04	5.70E+04
709	Up-dip	1	2	35	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.71E-05	2.98E-06	2.81E-05	2.96E-06	7.76E+06	0.00E+00	9.04E-03	5.97E-01	4.62E+00	4.51E+00	9.17E+06	9.05E-01	9.03E+06	9.00E-01	7.99E+04	7.20E+04
710	Up-dip	1	2	31	3.44E+05	8.02E+06	8.02E+06	1.10E+01	3.49E-09	8.12E-01	1.69E-08	1.68E+01	3.18E-03	0.00E+00	2.48E+03	1.36E+06	4.34E-03	4.24E-03	1.17E+07	9.41E-01	4.72E+06	7.51E-02	9.20E+04	4.62E+04
711	Up-dip	1	2	28	2.91E+05	8.03E+06	8.15E+06	1.10E+01	2.40E-09	3.31E-01	1.37E-08	9.70E+00	5.06E-03	0.00E+00	1.01E+03	6.15E+05	3.11E-03	3.02E-03	9.45E+06	8.93E-01	3.21E+06	2.27E-01	8.21E+04	3.29E+04
712	Up-dip	1	2	58	3.79E+05	3.65E+05	3.66E+05	1.10E+01	2.30E-09	7.45E-01	1.27E-08	2.04E+01	2.15E-03	0.00E+00	2.27E+03	1.41E+06	3.02E-03	2.85E-03	1.28E+07	1.93E-01	4.50E+06	1.57E-01	9.70E+04	1.60E+04
713	Up-dip	1	2	78	3.44E+05	3.29E+06	3.29E+06	1.10E+01	1.47E-09	1.51E+00	4.09E-09	1.42E+01	6.56E-04	0.00E+00	4.61E+03	2.90E+06	1.90E-03	1.82E-03	1.08E+07	7.86E-01	4.97E+06	3.70E-01	8.93E+04	5.23E+04
714	Up-dip	1	2	78	3.13E+05	7.64E+06	7.64E+06	1.10E+01	1.23E-04	1.21E+00	1.83E-04	2.58E+00	1.50E+02	0.00E+00	3.69E+03	9.89E+05	1.49E+02	1.44E+02	1.41E+07	8.60E-01	1.39E+07	4.38E-01	9.91E+04	6.39E+04
715	Up-dip	1	2	94	7.99E+06	8.00E+06	8.00E+06	2.88E+00	3.24E-04	1.16E-07	4.42E-04	1.16E-07	2.86E+09	0.00E+00	3.54E-04	2.83E-02	8.11E+01	7.91E+01	1.47E+07	9.95E-01	1.44E+07	7.59E-01	9.45E+04	8.17E+04
716	Up-dip	1	2	24	8.00E+06	8.00E+06	8.00E+06	2.88E+00	1.57E-04	5.28E-03	2.71E-04	5.28E-03	5.71E+04	0.00E+00	1.61E+01	7.60E+02	4.31E+01	4.21E+01	1.41E+07	9.11E-01	1.39E+07	8.85E-01	9.23E+04	8.29E+04
717	Up-dip	1	2	45	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.31E-04	1.99E-05	2.19E-04	1.99E-05	1.15E+07	0.00E+00	8.07E-02	3.02E+00	3.45E+01	3.37E+01	1.30E+07	9.60E-01	1.26E+07	9.47E-01	8.75E+04	8.30E+04
718	Up-dip	1	2	44	4.48E+05	8.00E+06	8.00E+06	1.10E+01	2.52E-05	1.67E+00	7.51E-05	2.49E+00	1.79E+01	0.00E+00	5.09E+03	1.86E+06	3.32E+01	3.19E+01	1.24E+07	6.77E-01	1.02E+07	3.21E-01	9.05E+04	5.15E+04
719	Up-dip	1	2	52	8.01E+06	8.01E+06	8.01E+06	2.88E+00	1.05E-04	9.77E-05	2.07E-04	9.77E-05	2.38E+06	0.00E+00	2.98E-01	1.30E+01	2.81E+01	2.74E+01	1.28E+07	9.61E-01	1.24E+07	8.34E-01	8.70E+04	7.75E+04
720	Up-dip	1	2	69	7.99E+06	7.99E+06	7.99E+06	2.88E+00	9.76E-05	7.48E-04	1.93E-04	7.46E-04	2.77E+05	0.00E+00	2.28E+00	9.91E+01	2.71E+01	2.65E+01	1.34E+07	9.12E-01	1.31E+07	9.03E-01	8.94E+04	8.11E+04
721	Up-dip	1	2	39	8.01E+06	8.01E+06	8.01E+06	2.88E+00	5.62E-05	3.98E-04	1.04E-04	3.98E-04	2.31E+05	0.00E+00	1.21E+00	6.73E+01	1.54E+01	1.51E+01	1.22E+07	8.51E-01	1.20E+07	7.60E-01	8.43E+04	6.74E+04
722	Up-dip	1	2	2	8.00E+06	8.00E+06	8.00E+06	2.88E+00	5.33E-05	1.13E-04	8.86E-05	1.13E-04	1.24E+06	0.00E+00	3.44E-01	1.19E+01	1.41E+01	1.38E+01	1.06E+07	9.18E-01	1.04E+07	7.40E-01	7.78E+04	6.37E+04
723	Up-dip	1	2	100	8.00E+06	6.00E+06	8.00E+06	2.88E+00	3.56E-05	4.00E-05	7.04E-05	4.00E-05	1.20E+06	0.00E+00	1.22E-01	8.35E+00	8.97E+00	9.75E+00	1.05E+07	8.87E-01	1.03E+07	8.53E-01	7.72E+04	6.70E+04
724	Up-dip	1	2	35	8.00E+06	8.00E+06	8.00E+06	2.88E+00	3.83E-05	3.16E-05	6.20E-05	3.16E-05	1.69E+06	0.00E+00	9.65E-02	5.77E+00	9.71E+00	9.46E+00	1.05E+07	9.05E-01	1.03E+07	8.16E-01	7.72E+04	6.60E+04
725	Up-dip	1	2	30	7.99E+06	7.99E+06	7.99E+06	2.88E+00	3.52E-05	2.32E-06	5.28E-05	2.32E-06	2.61E+07	0.00E+00	7.08E-03	3.55E-01	9.14E+00	8.92E+00	9.88E+06	8.88E-01	9.71E+06	6.74E-01	7.48E+04	5.74E+04
726	Up-dip	1	2	10	3.56E+05	4.44E+06	4.44E+06	1.10E+01	3.48E-06	1.70E+00	1.15E-05	1.32E+01	1.58E+00	0.00E+00	5.19E+03	2.91E+06	4.59E+00	4.37E+00	1.46E+07	7.98E-01	7.38E+06	3.00E-01	9.56E+04	5.39E+04
727	Up-dip	1	2	97	8.04E+06	8.01E+06	8.01E+06	2.88E+00	1.48E-05	3.52E-05	2.62E-05	3.70E-05	4.52E+05	0.00E+00	1.07E-01	8.90E+00	4.02E+00	3.93E+00	9.13E+06	9.15E-01	9.01E+06	7.03E-01	7.16E+04	5.71E+04
728	Up-dip	1	2	19	3.34E+05	8.02E+06	8.02E+06	1.10E+01	3.48E-06	1.45E+00	1.03E-05	9.03E+00	2.18E+00	0.00E+00	4.41E+03	1.84E+06	4.00E+00	3.77E+00	1.38E+07	8.57E-01	8.77E+06	2.11E-01	9.11E+04	4.81E+04
729	Up-dip	1	2	53	2.31E+05	0.00E+00	5.65E+03	1.10E+01	1.73E-08	9.95E-02	8.84E-06	1.80E+00	1.20E+01	0.00E+00	3.04E+02	2.05E+05	2.46E+00	2.43E+00	7.96E+06	9.34E-01	3.03E+06	3.72E-01	6.64E+04	4.29E+04
730	Up-dip	1	2	18	3.83E+05	8.00E+06	8.00E+06	1.10E+01	9.01E-08	1.52E+00	3.29E-07	2.08E+01	3.80E-02	0.00E+00	4.65E+03	3.28E+06	1.24E-01	1.22E-01	1.48E+07	8.94E-01	5.80E+06	3.75E-01	9.58E+04	5.87E+04
731	Up-dip	1	2	60	2.83E+05	6.13E+06	6.13E+06	1.10E+01	2.94E-09	1.81E-01	2.31E-08	9.08E+00	9.45E-03	0.00E+00	5.53E+02	4.67E+05	4.41E-03	4.40E-03	9.12E+06	7.92E-01	2.48E+06	1.00E-01	7.28E+04	2.83E+04
732	Up-dip	1	2	47	3.08E+05	2.86E+05	2.68E+05	1.10E+01	2.40E-13	1.31E-01	1.66E-12	7.26E+00	1.02E-06	0.00E+00	4.00E+02	3.52E+05	3.57E-07	3.43E-07	8.26E+06	5.68E-01	2.05E+06	1.51E-01	6.68E+04	2.48E+04
733	Up-dip	1	2	94	7.99E+06	7.99E+06	7.99E+06	2.88E+00	3.06E-04	1.30E-07	4.32E-04	1.30E-07	2.42E+09	0.00E+00	3.97E-04	3.17E-02	7.68E+01	7.49E+01	1.45E+07	9.95E-01	1.43E+07	7.57E-01	9.41E+04	8.12E+04
734	Up-dip	1	2	24	8.00E+06	8.00E+06	8.00E+06	2.88E+00	1.55E-04	6.87E-03	2.87E-04	6.87E-03	4.62E+04	0.00E+00	2.10E+01	9.32E+02	4.26E+01	4.17E+01	1.40E+07	9.11E-01	1.39E+07	6.80E-01	9.20E+04	7.21E+04
735	Up-dip	1	2	45	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.58E-04	6.44E-05	2.53E-04	5.44E-05	7.21E+06	0.00E+00	1.66E-01	5.97E+00	4.14E+01	4.06E+01	1.36E+07	9.50E-01	1.32E+07	9.48E-01	9.02E+04	8.56E+04
736	Up-dip	1	2	69	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.21E-04	2.36E-03	2.25E-04	2.36E-03	1.09E+05	0.00E+00	7.20E+00	3.08E+02	3.31E+01	3.24E+01	1.42E+07	9.12E-01	1.39E+07	8.25E-01	9.26E+04	8.00E+04
737	Up-dip	1	2	44	3.47E+05	8.00E+06	8.00E+06	1.10E+01	8.72E-06	1.74E+00	2.51E-05	4.87E+00	5.26E+00	0.00E+00	5.32E+03	2.27E+06	1.19E+01	1.15E+01	1.23E+07	8.85E-01	8.36E+06	2.53E-01	8.70E+04	4.72E+04
738	Up-dip	1	2	100	8.00E+06	8.00E+06	8.00E+06	2.88E+00	4.23E-05	5.33E-05	6.07E-05	5.33E-05	1.02E+06	0.00E+00	1.63E-01	1.14E+01	1.16E+01	1.13E+01	1.08E+07	8.87E-01	1.06E+07	7.65E-01	7.86E+04	6.43E+04
739	Up-dip	1	2	52	8.02E+06	8.00E+06	8.00E+06	2.88E+00	4.35E-05	1.29E-05	6.27E-05	1.31E-05	3.64E+06	0.00E+00	3.94E-02	3.18E+00	1.16E+01	1.13E+01	1.02E+07	9.61E-01	9.96E+06	7.25E-01	7.61E+04	6.32E+04
740	Up-dip	1	2	1	8.00E+06	8.00E+06	8.00E+06	2.88E+00	2.43E-05	4.38E-08	4.73E-05	4.38E-08	7.17E+06	0.00E+00	1.34E-02	9.37E-01	6.70E+00	6.55E+06	9.44E+06	9.02E-01	9.27E+06	8.06E-01	7.30E+04	6.19E+04
741	Up-dip	1	2	30	7.99E+06	7.99E+06	7.99E+06	2.88E+00	2.52E-05	5.60E-07	3.75E-05	5.60E-07	6.49E+07	0.00E+00	1.71E-03	1.01E-01	6.53E+00	6.37E+00	9.37E+06	8.88E-01	9.22E+06	6.78E-01	7.26E+04	5.59E+04
742	Up-dip	1	2	39	8.00E+06	8.00E+06	8.00E+06	2.88E+00	2.39E-05	2.56E-05	4.12E-05	2.56E-05	1.31E+06	0.00E+00	7.82E-02	4.96E+00	6.47E+00	6.33E+00	9.82E+06	8.52E-01	9.67E+06	6.85E-01	7.46E+04	5.66E+04
743	Up-dip	1	2	78	3.87E+05	5.32E+05	5.32E+05	1.10E+01	3.67E-08	3.65E+00	7.13E-08	1.68E+01	8.39E-01	0.00E+00	1.11E+04	6.30E+06	4.03E+00	3.93E+00	9.40E+06	5.85E-01	9.13E+06	2.48E-01	1.03E+05	4.91E+04
744	Up-dip	1	2	35	7.99E+06	7.89E+06	7.99E+06	2.88E+00	1.07E-05	8.50E-07	1.77E-05	8.50E-07	1.57E+07	0.00E+00	2.59E-03	1.83E-01	2.88E+00	2.80E+00	8.81E+06	9.05E-01	8.68E+06	7.40E-01	6.88E+04	5.59E+04
745	Up-dip	1	2	86	2.28E+05	8.02E+06	8.02E+06	1.10E+01	7.12E-08	2.02E-01	4.07E-07	5.52E+00	2.40E-01	0.00E+00	6.17E+02	3.98E+05	9.57E-02	9.02E-02	8.26E+06	9.20E-01	2.89E+06	1.22E-01	6.60E+04	3.42E+04
746	Up-dip	1	2	19	4.36E+05	8.04E+06	8.04E+06	1.10E+01	1.90E-08	3.83E+00	5.47E-08	2.89E+01	3.31E-03	0.00E+00	1.17E+04	8.04E+06	2.66E-02	2.59E-02	1.03E+07	7.85E-01	6.78E+06	1.49E-01	9.94E+04	4.29E+04
747	Up-dip	1	2	60	2.76E+05	0.00E+00	2.66E+03	1.10E+01	1.86E-10	1.46E-01	1.23E-09	5.32E+00	7.66E-04	0.00E+00	4.44E+02	3.58E+05	2.74E-04	2.72E-04	7.88E+08	7.90E-01	2.32E+06	9.28E-02	6.49E+04	2.18E+04
748	Up-dip	1	2	53	3.16E+05	6.14E+06	6.15E+06	1.10E+01	4.51E-15	1.37E-01	1.02E-14	8.42E+00	1.61E-08	0.00E+00	4.17E+02	3.61E+05	5.82E-09	5.61E-09	6.18E+06	8.40E-01	2.07E+06	2.02E-01	6.67E+04	3.21E+04
749	Up-dip	1	2	94	7.99E+06	7.99E+06	7.99E+06	2.88E+00	2.61E-04	1.77E-07	4.06E-04	1.77E-07	1.54E+09	0.00E+00	5.41E-04	4.29E-02	6.61E+01	6.45E+01	1.42E+07	9.95E-01	1.39E+07	7.49E-01	9.30E+04	7.99E+04
750	Up-dip	1	2	45	8.00E+06	8.00E+06	8.00E+06	2.88E+00	2.08E-04	5.63E-04	3.05E-04	5.63E-04	1.14E+06	0.00E+00	1.72E+00	5.02E+01	5.50E+01	5.37E+01	1.48E+07	9.50E-01	1.42E+07	9.46E-01	9.48E+04	9.00E+04

	.	.	.	.	Excavated Waste Porosity (fraction)	Residual Gas Sat. (fraction)	Residual Brine Sat. (fraction)	Crushed Panel Height (m)	Up-dip Avg Pressure (Pa)	Up-dip Avg Sat. (fraction)	Down-dip Avg Pressure (Pa)	Down-dip Avg Sat. (fraction)	DRZ Porosity (Fraction)	DRZ Permeability (m^2)	Salt Pillar Porosity (Fraction)	Salt Pillar Permeability (m^2)	Intrusion Time (Years)	Skin factor	Well Productivity Index (1/Pa)	BC well Sand Permeability (m^2)	Total Area solids released (m^2)	Castile Reservoir Pressure (Pa)	Castile Reservoir Permeability (m^2)	Up-dip Brine Relative Permeability (fraction)	Up-dip Gas Relative Permeability (fraction)	Down-dip Brine Relative Permeability (fraction)	Down-dip Gas Relative Permeability (fraction)
No	ID	Replic.	Scen.	Vector	POROSITY	SAT_RGAS	SAT_RBRN	HEIGHT	PRESPAN2	BSATPAN2	PRESPAN4	BSATPAN4	POROSITY	PERM_X	POROSITY	PERM_X	INTR_TME	SKIN	WELLPI	PRM_SAND	AREA_TOT	CAST_OE	PRM_CAST	KRW2	KRG2	KRW4	KRG4
751	Up-dip	1	2	44	5.32E-01	1.12E-01	1.61E-02	1.28E+00	1.02E+07	6.50E-01	1.03E+07	8.87E-01	1.29E-01	1.18E-13	1.34E-01	1.18E-13	1.00E+04	-1.17E+00	1.22E-13	3.80E-15	7.83E-01	1.29E+07	1.12E-12	1.98E-01	3.09E-02	6.38E-01	3.57E-10
752	Up-dip	1	2	69	5.68E-01	8.98E-02	4.08E-01	1.39E+00	1.30E+07	9.09E-01	1.31E+07	9.09E-01	8.35E-02	1.30E-14	8.28E-02	1.26E-14	1.00E+04	-1.29E+00	1.39E-13	9.33E-15	9.99E-01	1.42E+07	4.07E-13	5.41E-01	1.84E-08	5.41E-01	1.62E-08
753	Up-dip	1	2	1	5.36E-01	9.81E-02	2.56E-01	1.30E+00	1.05E+07	8.99E-01	1.06E+07	8.99E-01	7.21E-02	7.24E-16	8.49E-02	7.24E-16	1.00E+04	-1.28E+00	1.29E-13	1.66E-14	9.73E-01	1.25E+07	7.08E-14	5.64E-01	1.20E-07	5.85E-01	1.17E-07
754	Up-dip	1	2	24	5.13E-01	9.01E-02	1.37E-01	1.23E+00	9.02E+06	9.10E-01	9.11E+06	9.10E-01	1.96E-01	2.82E-13	2.19E-01	2.82E-13	1.00E+04	-1.29E+00	1.23E-13	2.63E-14	9.94E-01	1.09E+07	7.41E-13	6.68E-01	2.14E-13	6.66E-01	2.09E-13
755	Up-dip	1	2	100	5.16E-01	1.14E-01	3.43E-01	1.25E+00	9.22E+06	8.83E-01	9.32E+06	8.83E-01	6.96E-02	9.12E-16	8.72E-02	9.12E-16	1.00E+04	-1.26E+00	1.23E-13	2.51E-14	9.43E-01	1.25E+07	1.29E-13	4.85E-01	1.83E-07	4.86E-01	1.59E-07
756	Up-dip	1	2	30	5.04E-01	1.16E-01	4.16E-02	1.21E+00	8.69E+06	8.83E-01	8.78E+06	8.83E-01	2.70E-02	2.75E-14	4.59E-02	2.75E-14	1.00E+04	-6.49E-01	9.57E-14	2.19E-13	2.79E-01	1.34E+07	1.59E-13	6.19E-01	1.25E-09	6.19E-01	1.23E-09
757	Up-dip	1	2	78	6.00E-01	4.93E-02	1.51E-01	1.50E+00	1.56E+07	3.47E-01	1.57E+07	5.59E-01	2.73E-01	5.83E-10	1.00E-01	2.46E-16	1.00E+04	-1.06E+00	1.37E-13	8.32E-17	6.28E-01	1.40E+07	1.07E-12	4.42E-03	5.18E-01	6.68E-02	1.63E-01
758	Up-dip	1	3	44	6.31E-01	1.12E-01	1.61E-02	1.28E+00	1.02E+07	6.79E-01	1.02E+07	8.85E-01	1.29E-01	1.18E-13	1.34E-01	1.18E-13	1.20E+03	-1.17E+00	1.22E-13	3.80E-15	7.83E-01	1.38E+07	1.12E-12	1.27E-01	6.57E-02	6.31E-01	9.69E-08
759	Up-dip	1	3	78	5.41E-01	4.93E-02	1.51E-01	1.31E+00	1.09E+07	9.44E-01	1.12E+07	9.45E-01	1.10E-01	2.46E-15	1.15E-01	2.46E-15	1.20E+03	-1.06E+00	1.20E-13	8.32E-17	6.28E-01	1.48E+07	1.07E-12	7.79E-01	8.41E-07	7.79E-01	7.82E-07
760	Up-dip	1	3	69	5.42E-01	8.98E-02	4.08E-01	1.31E+00	1.10E+07	9.13E-01	1.11E+07	9.30E-01	7.88E-02	1.26E-14	8.77E-02	1.26E-14	1.20E+03	-1.29E+00	1.31E-13	9.33E-15	9.99E-01	1.47E+07	4.07E-13	5.54E-01	0.00E+00	6.28E-01	0.00E+00
761	Up-dip	1	3	45	5.27E-01	5.05E-02	2.04E-01	1.27E+00	9.88E+06	9.82E-01	9.97E+06	9.84E-01	7.83E-02	5.13E-14	8.96E-02	5.13E-14	1.20E+03	-9.31E-01	1.11E-13	1.74E-15	4.89E-01	1.36E+07	4.57E-13	9.18E-01	0.00E+00	9.26E-01	0.00E+00
762	Up-dip	1	3	52	5.37E-01	3.68E-02	4.49E-01	1.30E+00	1.04E+07	9.60E-01	1.15E+07	9.60E-01	1.09E-01	1.70E-15	1.27E-01	1.70E-15	1.20E+03	-9.48E-01	1.14E-13	4.17E-14	5.07E-01	1.51E+07	2.63E-13	7.57E-01	4.18E-07	7.57E-01	4.13E-07
763	Up-dip	1	3	33	5.12E-01	1.31E-01	1.22E-01	1.23E+00	8.88E+06	4.11E-01	8.87E+06	2.94E-01	2.95E-02	1.12E-14	4.09E-02	1.12E-14	1.20E+03	-1.24E+00	1.21E-13	8.32E-13	9.16E-01	1.23E+07	1.26E-13	1.64E-02	3.01E-01	2.42E-03	5.44E-01
764	Up-dip	1	3	7	5.20E-01	7.76E-03	3.12E-01	1.25E+00	9.39E+06	5.14E-01	9.44E+06	9.90E-01	1.42E-01	2.29E-13	1.63E-01	2.29E-13	1.20E+03	-6.15E-01	9.80E-14	7.94E-14	2.60E-01	1.30E+07	1.35E-12	1.08E-02	4.31E-01	9.49E-01	3.90E-08
765	Up-dip	1	3	35	5.03E-01	9.57E-02	4.39E-01	1.21E+00	8.35E+06	8.95E-01	8.37E+06	9.02E-01	5.14E-02	7.24E-15	6.83E-02	7.24E-15	1.20E+03	-8.97E-01	1.04E-13	1.38E-13	4.57E-01	1.19E+07	3.98E-11	4.65E-01	1.38E-05	4.93E-01	1.97E-07
766	Up-dip	1	3	2	5.28E-01	8.22E-02	4.02E-01	1.27E+00	9.94E+06	5.29E-01	9.95E+06	6.07E-01	1.67E-01	4.47E-14	1.78E-01	4.47E-14	1.20E+03	-1.29E+00	1.27E-13	5.01E-14	9.98E-01	1.35E+07	7.24E-11	3.29E-03	5.15E-01	1.92E-02	2.87E-01
767	Up-dip	1	3	15	5.06E-01	4.22E-02	5.21E-01	1.22E+00	8.54E+06	6.33E-01	8.54E+06	5.14E-01	5.22E-02	1.32E-14	7.24E-02	1.32E-14	1.20E+03	-9.48E-01	1.07E-13	1.32E-14	6.06E-01	1.15E+07	4.47E-13	4.69E-03	4.97E-01	0.00E+00	1.00E+00
768	Up-dip	1	3	24	4.97E-01	9.01E-02	1.37E-01	1.19E+00	8.04E+06	9.08E-01	8.12E+06	9.08E-01	1.98E-01	2.82E-13	2.26E-01	2.82E-13	1.20E+03	-1.29E+00	1.20E-13	2.63E-14	9.94E-01	1.17E+07	7.41E-13	6.69E-01	3.43E-08	6.59E-01	3.36E-08
769	Up-dip	1	3	10	5.00E-01	3.17E-02	1.73E-01	1.20E+00	8.20E+06	2.89E-01	8.20E+06	4.84E-01	4.89E-02	3.72E-14	7.38E-02	3.72E-14	1.20E+03	-1.33E+00	1.22E-13	1.86E-16	1.08E+00	1.18E+07	1.35E-11	7.08E-04	7.02E-01	2.70E-02	2.95E-01
770	Up-dip	1	3	19	5.13E-01	1.42E-01	2.97E-02	1.23E+00	8.91E+06	1.49E-01	8.95E+06	8.51E-01	2.01E-01	1.41E-15	2.21E-01	1.41E-15	1.20E+03	-1.23E+00	1.21E-13	2.00E-16	8.94E-01	1.25E+07	1.45E-12	4.30E-04	7.06E-01	5.40E-01	1.03E-06
771	Up-dip	1	3	94	5.45E-01	4.58E-03	1.85E-01	1.32E+00	1.13E+07	2.44E-01	1.13E+07	2.71E-01	2.04E-01	6.31E-15	2.11E-01	6.31E-15	1.20E+03	-1.29E+00	1.32E-13	9.77E-16	9.95E-01	1.44E+07	1.78E-12	6.13E-05	8.50E-01	2.47E-04	7.81E-01
772	Up-dip	1	3	39	5.40E-01	1.50E-01	2.98E-01	1.31E+00	1.09E+07	3.36E-01	1.09E+07	8.47E-01	1.89E-02	3.02E-15	2.93E-02	3.02E-15	1.20E+03	-1.23E+00	1.27E-13	2.40E-13	8.82E-01	1.45E+07	1.78E-13	2.07E-05	8.59E-01	4.02E-01	5.26E-07
773	Up-dip	1	3	58	5.68E-01	2.96E-02	1.14E-01	1.39E+00	1.32E+07	1.25E-01	1.32E+07	1.46E-01	2.10E-01	2.52E-16	2.07E-01	1.45E-16	1.20E+03	-1.18E+00	1.33E-13	3.09E-15	8.11E-01	1.32E+07	1.07E-13	1.14E-07	9.72E-01	4.67E-06	9.23E-01
774	Up-dip	1	3	30	5.50E-01	1.16E-01	4.16E-02	1.33E+00	1.17E+07	5.30E-02	1.17E+07	5.85E-02	3.51E-02	2.75E-14	4.16E-02	2.75E-14	1.20E+03	-6.49E-01	1.05E-13	2.19E-13	2.79E-01	1.48E+07	1.59E-13	7.83E-08	9.73E-01	3.35E-07	9.59E-01
775	Up-dip	1	3	28	5.70E-01	9.72E-02	1.79E-01	1.40E+00	1.35E+07	1.81E-01	1.33E+07	1.88E-01	2.10E-01	5.59E-17	2.11E-01	4.79E-17	1.20E+03	-1.08E+00	1.29E-13	9.55E-12	6.64E-01	1.48E+07	9.55E-14	2.65E-10	9.94E-01	5.94E-08	9.75E-01
776	Up-dip	1	3	78	5.58E-01	4.93E-02	1.51E-01	1.36E+06	1.23E+07	7.80E-01	1.24E+07	9.45E-01	1.14E-01	3.55E-15	1.11E-01	2.46E-15	1.40E+03	-1.06E+00	1.24E-13	8.32E-17	6.28E-01	1.48E+07	1.07E-12	3.30E-01	1.53E-02	7.81E-01	6.07E-07
777	Up-dip	1	3	69	5.44E-01	8.98E-02	4.08E-01	1.32E+00	1.11E+07	9.09E-01	1.12E+07	9.17E-01	7.90E-02	1.26E-14	8.74E-02	1.26E-14	1.40E+03	-1.29E+00	1.32E-13	9.33E-15	9.99E-01	1.47E+07	4.07E-13	5.40E-01	1.72E-08	5.72E-01	0.00E+00
778	Up-dip	1	3	52	5.39E-01	3.68E-02	4.49E-01	1.30E+00	1.08E+07	9.58E-01	1.09E+07	9.60E-01	1.10E-01	1.70E-15	1.26E-01	1.70E-15	1.40E+03	-9.48E-01	1.14E-13	4.17E-14	5.07E-01	1.51E+07	2.63E-13	7.44E-01	2.19E-06	7.57E-01	4.33E-07
779	Up-dip	1	3	45	5.29E-01	5.05E-02	2.04E-01	1.28E+00	1.00E+07	9.69E-01	1.01E+07	9.71E-01	7.65E-02	5.13E-14	8.93E-02	5.13E-14	1.40E+03	-9.31E-01	1.11E-13	1.74E-15	4.89E-01	1.36E+07	4.57E-13	8.64E-01	0.00E+00	8.72E-01	0.00E+00
780	Up-dip	1	3	44	5.42E-01	1.12E-01	1.61E-02	1.31E+00	1.10E+07	4.17E-01	1.11E+07	8.85E-01	1.30E-01	1.30E-13	1.31E-01	1.18E-13	1.40E+03	-1.17E+00	1.25E-13	3.80E-15	7.83E-01	1.38E+07	1.12E-12	3.65E-02	2.13E-01	6.31E-01	8.69E-08
781	Up-dip	1	3	24	5.10E-01	9.01E-02	1.37E-01	1.23E+00	8.77E+06	9.08E-01	8.87E+06	9.08E-01	1.96E-01	2.82E-13	2.20E-01	2.82E-13	1.40E+03	-1.29E+00	1.23E-13	2.63E-14	9.94E-01	1.17E+07	7.41E-13	6.59E-01	3.00E-06	6.59E-01	2.97E-08
782	Up-dip	1	3	18	5.08E-01	1.06E-01	3.40E-01	1.22E+00	8.66E+06	4.95E-01	8.68E+06	6.81E-01	5.11E-02	3.31E-14	7.38E-02	3.31E-14	1.40E+03	-1.09E+00	1.13E-13	6.17E-16	6.69E-01	1.12E+07	5.25E-12	4.67E-03	4.61E-01	8.72E-02	8.31E-02
783	Up-dip	1	3	39	5.21E-01	1.50E-01	2.98E-01	1.26E+00	9.46E+06	4.17E-01	9.57E+06	8.47E-01	1.54E-02	3.02E-15	3.04E-02	3.02E-15	1.40E+03	-1.23E+00	1.23E-13	2.40E-13	8.82E-01	1.45E+07	1.78E-13	1.45E-03	5.68E-01	4.03E-01	4.66E-07
784	Up-dip	1	3	97	5.07E-01	8.37E-02	4.34E-01	1.22E+00	8.54E+06	5.30E-01	8.70E+06	9.12E-01	1.48E-01	5.63E-16	1.73E-01	5.62E-16	1.40E+03	-8.88E-01	1.05E-13	4.57E-13	4.49E-01	1.43E+07	3.02E-11	1.40E-03	6.02E-01	5.37E-01	1.00E-06
785	Up-dip	1	3	19	5.20E-01	1.42E-01	2.97E-02	1.25E+00	9.37E+06	1.36E-01	9.40E+06	8.48E-01	2.01E-01	1.41E-15	2.17E-01	1.41E-15	1.40E+03	-1.23E+00	1.22E-13	2.00E-16	8.94E-01	1.25E+07	1.45E-12	2.85E-04	7.36E-01	5.33E-01	2.71E-06
786	Up-dip	1	3	60	5.00E-01	6.13E-02	4.70E-02	1.20E+00	8.16E+06	1.24E-01	8.51E+06	9.10E-01	1.95E-01	6.10E-18	2.14E-01	5.75E-18	1.40E+03	-1.17E+00	1.15E-13	6.61E-13	7.91E-01	1.33E+07	2.34E-14	9.07E-05	8.23E-01	6.94E-01	5.51E-05
787	Up-dip	1	3	94	5.45E-01	4.58E-03	1.85E-01	1.32E+00	1.12E+07	2.32E-01	1.12E+07	3.34E-01	2.04E-01	8.31E-15	2.11E-01	6.31E-15	1.40E+03	-1.29E+00	1.32E-13	9.77E-16	9.95E-01	1.44E+07	1.78E-12	2.56E-05	8.81E-01	1.85E-03	6.30E-01
788	Up-dip	1	3	28	5.15E-01	9.72E-02	1.79E-01	1.24E+00	8.98E+06	2.12E-01	9.21E+06	8.92E-01	2.15E-01	5.28E-17	2.38E-01	4.79E-17	1.40E+03	-1.08E+00	1.14E-13	9.55E-12	6.64E-01	1.45E+07	9.55E-14	7.22E-06	9.05E-01	5.84E-01	5.83E-06
789	Up-dip	1	3	52	5.07E-01	3.68E-02	4.49E-01	1.22E+00	8.77E+06	8.01E-01	8.86E+06	9.60E-01	1.09E-01	1.70E-15	1.35E-01	1.70E-15	3.00E+03	-9.48E-01	1.07E-13	4.17E-14	5.07E-01	1.51E+07	2.63E-13	1.90E-01	4.75E-02	7.56E-01	5.28E-07
790	Up-dip	1	3	45	5.41E-01	5.05E-02	2.04E-01	1.31E+00	1.09E+07	9.49E-01	1.10E+07	9.49E-01	7.86E-02	5.13E-14	8.70E-02	5.13E-14	3.00E+03	-9.31E-01	1.14E-13	1.74E-15	4.89E-01	1.36E+07	4.57E-13	7.81E-01	4.05E-09	7.81E-01	4.02E-09
791	Up-dip	1	3	69	5.44E-01	8.98E-02	4.08E-01	1.32E+00	1.12E+07	9.09E-01	1.13E+07	9.09E-01	7.90E-02	1.26E-14	8.73E-02	1.26E-14	3.00E+03	-1.29E+00	1.32E-13	9.33E-15	9.99E-01	1.47E+07	4.07E-13	5.40E-01	1.85E-08	5.40E-01	1.83E-08
792	Up-dip	1	3	24	5.26E-01	9.01E-02	1.37E-01	1.27E+00	9.74E+06	9.08E-01	9.83E+06	9.08E-01	1.95E-01	2.82E-13	2.13E-01	2.82E-13	3.00E+03	-1.29E+00	1.27E-13	2.63E-14	9.94E-01	1.17E+07	7.41E-13	6.59E-01	3.36E-08	6.59E-01	2.89E-08
793	Up-dip	1	3	100	5.06E-01	1.14E-01	3.43E-01	1.22E+00	8.70E+06	8.83E-01	8.79E+06	8.83E-01	6.93E-02	9.12E-16	8.94E-02	9.12E-16	3.00E+03	-1.26E+00	1.20E-13	2.51E-14	9.43E-01	1.28E+07	1.29E-13	4.86E-01	1.66E-07	4.86E-01	1.61E-07
794	Up-dip	1	3	19	5.55E-01	1.42E-01	2.97E-02	1.35E+00	1.21E+07	5.54E-02	1.21E+07	6.10E-01	1.98E-01	1.41E-15	2.01E-01	1.41E-15	3.00E+03	-1.23E+00	1.32E-13	2.00E-16	8.94E-01	1.25E+07	1.45E-12	1.51E-06	9.36E-01	1.50E-01	4.05E-02
795	Up-dip	1	3	60	5.02E-01	6.13E-02	4.70E-02	1.21E+00	8.60E+06	7.72E-02	8.35E+06	7.84E-01	1.97E-01	8.05E-18	2.13E-01	5.75E-18	3.00E+03	-1.17E+00	1.15E-13	6.61E-13	7.91E-01	1.32E+07	2.34E-14	2.90E-06	9.31E-01	3.88E-01	8.24E-03
796	Up-dip	1	3	94	5.45E-01	4.58E-03	1.85E-01	1.32E+00	1.12E+07	1.92E-01	1.12E+07	7.51E-01	2.04E-01	6.31E-15	2.11E-01	6.31E-15	3.00E+03	-1.29E+00	1.32E-13	9.77E-16	9.95E-01	1.44E+07	1.78E-12	1.55E-08	9.84E-01	2.61E-01	4.13E-02
797	Up-dip	1	3	24	5.17E-01	9.01E-02	1.37E-01	1.24E+00	9.17E+06	7.49E-01	9.27E+06	9.08E-01	1.96E-01	2.82E-13	2.17E-01	2.82E-13	5.00E+03	-1.29E+00	1.24E-13	2.63E-14	9.94E-01	1.17E+07	7.41E-13	2.82E-01	1.41E-02	6.59E-01	3.07E-08
798	Up-dip	1	3	45	5.53E-01	5.05E-02	2.04E-01	1.34E+00	1.19E+07	9.49E-01	1.20E+07	9.49E-01	8.09E-02	5.13E-14	8.47E-02	5.13E-14	5.00E+03	-9.31E-01	1.17E-13	1.74E-15	4.89E-01	1.36E+07	4.57E-13	7.81E-01	3.78E-09	7.81E-01	3.75E-09
799	Up-dip	1	3	69	5.40E-01	8.98E-02	4.08E-01	1.31E+00	1.09E+07	9.09E-01	1.10E+07	9.09E-01	7.83E-02	1.26E-14	8.80E-02	1.26E-14	5.00E+03	-1.29E+00	1.31E-13	9.33E-15	9.99E-01	1.47E+07	4.07E-13	5.40E-01	2.01E-08	5.40E-01	1.86E-08
800	Up-dip	1	3	1	5.09E-01	9.81E-02	2.56E-01	1.22E+00	8.87E+06	*8.99E-01*	*8.96E+06*	*8.99E-01*	*6.91E-02*	*7.24E-16*	*8.89E-02*	*7.24E-16*	*5.00E+03*	*-1.28E+00*	*1.22E-13*	*1.86E-14*	*9.73E-01*	*1.28E+07*	*7.08E-14*	*5.84E-01*	*1.38E-07*	*5.84E-01*	*1.34E-07*
801	Up-dip	1	3	100	5.00E-01	1.14E-01	3.43E-01	1.20E+00	8.52E+06	8.83E-01	8.61E+06	8.83E-01	6.96E-02	9.12E-16	9.05E-02	9.12E-16	5.00E+03	-1.26E+00	1.19E-13	2.51E-14	9.43E-01	1.28E+07	1.29E-13	4.85E-01	1.95E-07	4.86E-01	1.70E-07
802	Up-dip	1	3	86	4.86E-01	6.86E-02	3.61E-02	1.17E+00	8.02E+06	6.61E-02	8.00E+06	9.18E-01	1.58E-01	3.04E-17	1.82E-01	3.02E-17	5.00E+03	-1.26E+00	1.16E-13	4.07E-13	9.43E-01	1.18E+07	2.04E-11	2.73E-06	9.31E-01	7.20E-01	5.73E-06
803	Up-dip	1	3	45	5.73E-01	5.05E-02	2.04E-01	1.41E+00	1.35E+07	9.49E-01	1.36E+07	9.49E-01	8.92E-02	1.01E-13	8.09E-02	5.13E-14	1.00E+04	-9.31E-01	1.23E-13	1.74E-15	4.89E-01	1.36E+07	4.57E-13	7.82E-01	2.68E-09	7.82E-01	2.66E-09
804	Up-dip	1	3	69	5.37E-01	8.98E-02	4.08E-01	1.30E+00	1.05E+07	9.09E-01	1.06E+07	9.09E-01	7.76E-02	1.26E-14	8.87E-02	1.26E-14	1.00E+04	-1.29E+00	1.30E-13	9.33E-15	9.99E-01	1.47E+07	4.07E-13	5.40E-01	2.84E-08	5.40E-01	1.90E-08
805	Up-dip	1	3	1	5.15E-01	9.81E-02	2.58E-01	1.24E+00	9.09E+06	8.99E-01	9.18E+06	8.99E-01	6.93E-02	7.24E-16	8.89E-02	7.24E-16	1.00E+04	-1.28E+00	1.23E-13	1.66E-14	9.73E-01	1.28E+07	7.08E-14	5.84E-01	1.57E-07	5.84E-01	1.36E-07
806	Up-dip	1	4	58	6.01E-01	2.96E-02	1.14E-01	1.51E+00	1.19E+07	1.72E-01	1.19E+07	1.90E-01	1.87E-01	1.45E-16	1.91E-01	1.45E-16	5.50E+02	-1.18E+00	1.45E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	4.41E-05	8.59E-01	1.16E-04	8.16E-01
807	Up-dip	1	4	28	5.93E-01	9.72E-02	1.79E-01	1.48E+00	1.12E+07	1.99E-01	1.11E+07	2.06E-01	1.89E-01	5.21E-17	1.99E-01	4.79E-17	5.50E+02	-1.08E+00	1.36E-13	9.55E-12	6.84E-01	1.48E+07	9.55E-14	1.05E-06	9.44E-01	3.31E-06	9.24E-01
808	Up-dip	1	4	94	5.35E-01	4.58E-03	1.85E-01	1.29E+00	8.60E+06	2.90E-01	8.61E+06	5.97E-01	1.96E-01	6.31E-15	2.15E-01	6.31E-15	7.50E+02	-1.29E+00	1.29E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	5.19E-04	7.34E-01	8.00E-02	1.65E-01
809	Up-dip	1	4	58	5.90E-01	2.96E-02	1.14E-01	1.47E+00	1.28E+07	1.58E-01	1.28E+07	1.77E-01	1.97E-01	3.58E-16	1.97E-01	1.45E-16	7.50E+02	-1.18E+00	1.41E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	1.51E-05	8.95E-01	5.78E-05	8.48E-01
810	Up-dip	1	4	19	5.29E-01	1.42E-01	2.97E-02	1.28E+00	1.00E+07	9.67E-02	1.00E+07	3.99E-01	2.00E-01	1.41E-15	2.13E-01	1.41E-15	2.00E+03	-1.23E+00	1.25E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	5.16E-05	8.33E-01	2.82E-02	2.29E-01
811	Up-dip	1	4	94	5.47E-01	4.58E-03	1.85E-01	1.33E+00	1.14E+07	2.21E-01	1.14E+07	8.45E-01	2.04E-01	6.31E-15	2.10E-01	6.31E-15	2.00E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	8.97E-06	9.08E-01	4.59E-01	1.01E-02
812	Up-dip	1	4	94	5.47E-01	4.58E-03	1.85E-01	1.33E+00	1.14E+07	1.90E-01	1.15E+07	9.94E-01	2.04E-01	6.31E-15	2.10E-01	6.31E-15	4.00E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	7.41E-09	9.87E-01	9.72E-01	1.57E-08
813	Up-dip	1	5	19	5.06E-01	1.42E-01	2.97E-02	1.22E+00	8.56E+06	1.52E-01	8.57E+06	4.52E-01	2.02E-01	1.41E-15	2.23E-01	1.41E-15	1.20E+03	-1.23E+00	1.19E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	4.77E-04	6.98E-01	4.64E-02	1.63E-01
814	Up-dip	1	5	94	5.47E-01	4.58E-03	1.85E-01	1.33E+00	1.15E+07	2.41E-01	1.15E+07	6.63E-01	2.04E-01	6.31E-15	2.10E-01	8.31E-15	1.20E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	4.90E-05	8.59E-01	1.39E-01	9.98E-02
815	Up-dip	1	5	58	5.61E-01	2.96E-02	1.14E-01	1.43E+00	1.45E+07	1.24E-01	1.45E+07	1.45E-01	2.22E-01	6.89E-15	2.01E-01	1.45E-16	1.20E+03	-1.18E+00	1.38E-13	3.09E-15	8.11E-01	1.26E+07	1.07E-13	7.79E-08	9.75E-01	4.55E-06	9.24E-01
816	Up-dip	1	5	30	5.52E-01	1.16E-01	4.16E-02	1.34E+00	1.19E+07	5.26E-02	1.19E+07	4.08E-01	3.58E-02	2.75E-14	4.14E-02	2.75E-14	1.20E+03	-6.49E-01	1.08E-13	2.19E-13	2.79E-01	1.47E+07	1.59E-13	6.69E-08	9.74E-01	2.88E-02	2.41E-01
817	Up-dip	1	5	28	5.70E-01	9.72E-02	1.79E-01	1.40E+00	1.35E+07	1.81E-01	1.33E+07	1.89E-01	2.10E-01	5.51E-17	2.11E-01	4.79E-17	1.20E+03	-1.08E+00	1.29E-13	9.55E-12	6.64E-01	1.48E+07	9.55E-14	2.61E-10	9.94E-01	8.58E-08	9.72E-01
818	Up-dip	1	5	19	5.13E-01	1.42E-01	2.97E-02	1.23E+00	8.96E+06	1.37E-01	8.97E+06	4.41E-01	2.01E-01	1.41E-15	2.20E-01	1.41E-15	1.40E+03	-1.23E+00	1.21E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	2.96E-04	7.33E-01	4.21E-02	1.76E-01
819	Up-dip	1	5	94	5.48E-01	4.58E-03	1.85E-01	1.33E+00	1.15E+07	2.28E-01	1.15E+07	7.05E-01	2.04E-01	6.31E-15	2.10E-01	6.31E-15	1.40E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	1.92E-05	8.91E-01	1.90E-01	6.79E-02
820	Up-dip	1	5	19	5.46E-01	1.42E-01	2.97E-02	1.32E+00	1.14E+07	5.48E-02	1.14E+07	3.58E-01	1.99E-01	1.41E-15	2.05E-01	1.41E-15	3.00E+03	-1.23E+00	1.30E-13	2.00E-16	8.94E-01	1.27E+07	1.45E-12	1.37E-06	9.38E-01	1.83E-02	2.88E-01
821	Up-dip	1	5	94	5.48E-01	4.58E-03	1.85E-01	1.33E+00	1.15E+07	2.03E-01	1.15E+07	9.94E-01	2.04E-01	6.31E-15	2.09E-01	6.31E-15	3.00E+03	-1.29E+00	1.33E-13	9.77E-16	9.95E-01	1.43E+07	1.78E-12	6.88E-07	9.56E-01	9.72E-01	1.81E-08

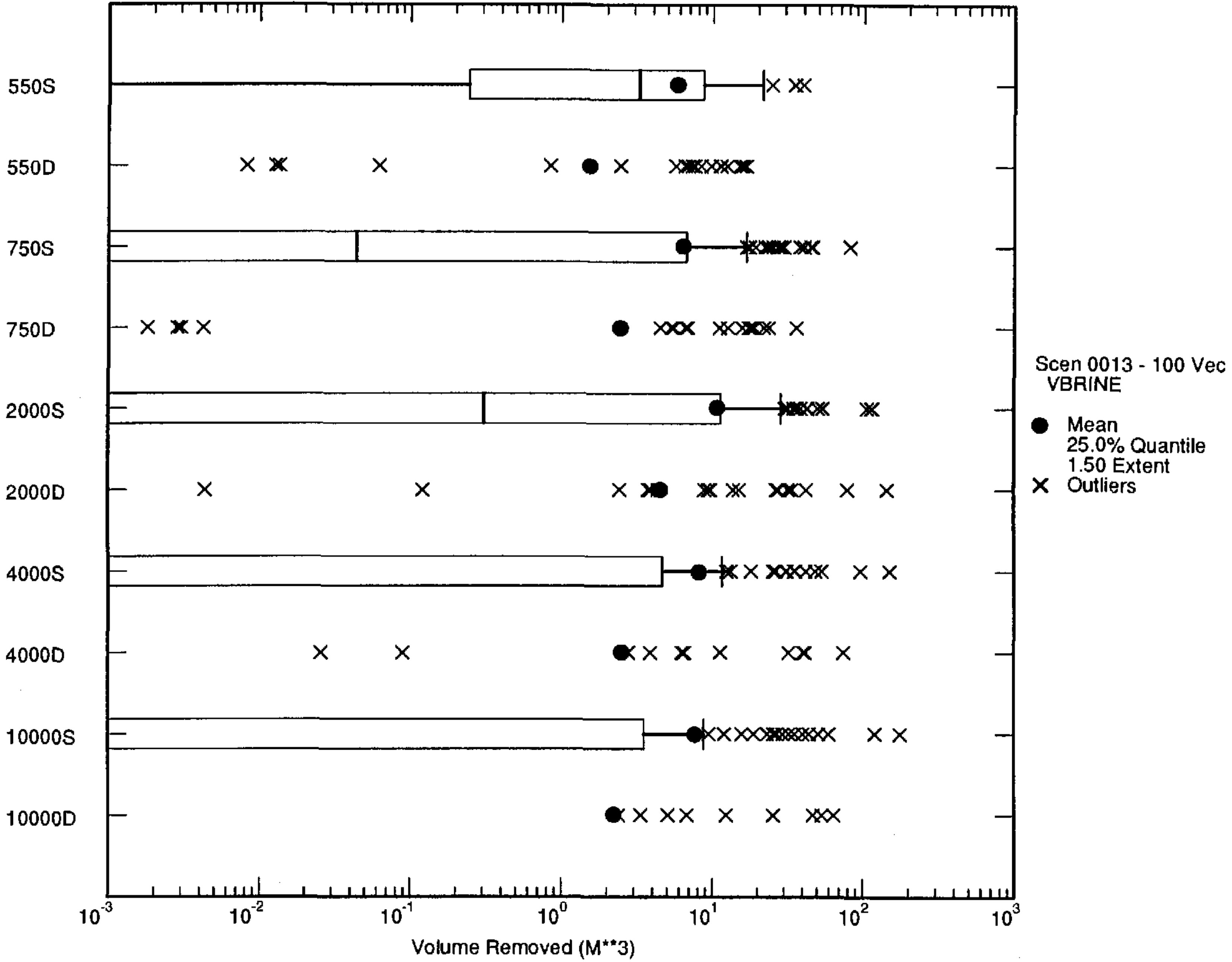
.	.	.	.	.	Up-dip Flowing Bottom-hole Pressure (Pa)	Down-dip Flowing Bottom-hole Pressure (Pa)	BC well Injection Pressure (Pa)	Blowout Duration (Days)	Brine Rate (m^3/s)	Gas Rate (ref m^3/s)	Max Brine Rate (m^3/s)	Max Gas Rate (ref m^3/s)	Produced Liquid/Gas Ratio (m^3/s / ref m^3/s)	Cum Brine from Boundary Condition Well (m^3)	Gas Rate (mscf/day)	Cum Gas Produced (ref m^3)	Cum Brine Produced (m^3)	Cum Brine Releases (m^3)	Avg Brine Pressure Panel 5 (Pa) after Blowout	Avg Brine Saturation Panel 5 (fraction) after blowout	Avg Brine Pressure Panel 0 (Pa) after blowout	Avg Brine Saturation Panel 0 (fraction) after blowout	Total Excavated Waste Pore Volume (fraction)	Total Excavated Brine Volume (m^3)
No.	ID	Replic.	Scen.	Vector	FBHP2	FBHP4	BHP_ABAN	time	BRINEFLW	GASFLW	MAX_BRN	MAX_GAS	LGR_MET	BRINE_BC	GAS_RATE	GASOUT	BRINEOUT	BRIN_REL	BRNPRESS	SATBRN5	BRNPRES0	SATBRN0	WASTE_PV	TOT_BRIN
751	Up-dip	1	2	44	1.34E+06	7.99E+06	7.99E+06	1.10E+01	4.25E-05	3.41E-01	1.02E-04	3.54E-01	1.62E+02	0.00E+00	1.04E+03	3.04E+05	4.93E+01	4.71E+01	1.03E+07	8.90E-01	9.16E+06	3.53E-01	7.65E+04	4.65E+04
752	Up-dip	1	2	69	7.99E+06	7.99E+06	7.99E+06	2.88E+00	9.58E-05	5.29E-04	1.61E-04	5.29E-04	3.79E+05	0.00E+00	1.62E+00	6.98E+01	2.80E+01	2.54E+01	1.31E+07	9.12E-01	1.29E+07	7.41E-01	8.85E+04	7.23E+04
753	Up-dip	1	2	1	8.00E+06	8.00E+06	8.00E+06	2.88E+00	4.64E-05	2.54E-05	9.13E-05	2.54E-05	2.32E+06	0.00E+00	7.75E-02	6.51E+00	1.28E+01	1.25E+01	1.06E+07	9.02E-01	1.04E+07	7.20E-01	7.80E+04	6.24E+04
754	Up-dip	1	2	24	8.04E+06	8.04E+06	8.04E+06	2.88E+00	2.74E-05	6.45E-07	3.83E-05	6.45E-07	1.60E+08	0.00E+00	1.97E-03	5.17E-02	6.98E+00	6.81E+00	9.11E+06	9.12E-01	8.99E+06	6.68E-01	7.09E+04	5.50E+04
755	Up-dip	1	2	100	8.00E+06	8.00E+06	8.00E+06	2.88E+00	1.90E-05	5.96E-06	3.49E-05	5.96E-06	4.10E+06	0.00E+00	1.82E-02	1.27E+00	5.19E+00	5.07E+00	9.32E+06	8.87E-01	9.16E+06	7.04E-01	7.24E+04	5.68E+04
756	Up-dip	1	2	30	7.99E+06	7.99E+06	7.99E+06	2.66E+00	1.32E-05	6.04E-06	1.98E-05	6.04E-08	2.80E+08	0.00E+00	1.84E-04	1.23E-02	3.44E+00	3.35E+00	8.78E+06	8.87E-01	8.65E+06	6.59E-01	6.85E+04	5.20E+04
757	Up-dip	1	2	78	3.71E+05	4.91E+05	4.91E+05	1.10E+01	1.86E-06	3.71E+00	4.39E-06	1.69E+01	3.81E-01	0.00E+00	1.13E+04	6.27E+06	2.39E+00	2.39E+00	8.89E+06	5.72E-01	8.53E+06	2.39E-01	1.01E+05	4.65E+04
758	Up-dip	1	3	44	3.60E+05	7.99E+00	1.07E+07	1.10E+01	2.92E-05	5.45E-01	7.26E-05	8.32E-01	6.52E+01	1.31E-05	1.66E+03	5.33E+05	3.48E+01	3.32E+01	1.03E+07	8.88E-01	8.58E+06	3.24E-01	7.63E+04	4.52E+04
759	Up-dip	1	3	78	8.01E+06	8.01E+06	1.17E+07	2.88E+00	8.79E-05	1.43E-05	1.30E-04	1.43E-05	5.36E+06	9.46E-06	4.36E-02	3.39E+00	1.81E+01	1.77E+01	1.12E+07	9.46E-01	1.08E+07	8.00E-01	7.96E+04	6.00E+04
760	Up-dip	1	3	69	8.00E+06	8.00E+06	1.14E+07	2.88E+00	5.82E-05	2.49E-05	1.06E-04	2.49E-05	4.63E+06	6.11E-06	7.61E-02	3.42E+00	1.56E+01	1.52E+01	1.11E+07	9.32E-01	1.09E+07	7.97E-01	7.98E+04	6.84E+04
761	Up-dip	1	3	45	8.00E+08	8.00E+00	1.04E+07	2.88E+00	5.32E-05	0.00E+00	9.12E-05	0.00E+00	1.40E+22	9.97E-06	0.00E+00	0.00E+00	1.40E+01	1.37E+01	1.00E+07	9.84E-01	9.70E+06	9.81E-01	7.52E+04	7.38E+04
762	Up-dip	1	3	52	8.00E+06	6.01E+06	1.16E+07	2.88E+00	5.06E-05	7.02E-06	9.71E-05	7.02E-06	8.07E+06	1.50E-06	2.14E-02	1.67E+00	1.35E+01	1.31E+01	1.15E+07	9.61E-01	1.02E+07	5.98E-01	7.82E+04	5.94E+04
763	Up-dip	1	3	33	2.39E+05	2.32E+05	7.15E+06	1.10E+01	2.81E-06	4.83E-01	8.20E-06	2.93E+00	5.33E+00	0.00E+00	1.47E+03	6.03E+05	3.21E+00	3.06E+00	8.87E+06	3.13E-01	5.72E+06	2.30E-01	7.07E+04	2.77E+04
764	Up-dip	1	3	7	2.41E+05	7.99E+06	9.99E+06	1.10E+01	2.37E-06	8.40E-01	4.00E-06	3.77E+00	2.09E+00	2.64E-05	2.56E+03	1.22E+06	2.58E+00	2.43E+00	9.13E+06	9.90E-01	5.83E+06	4.18E-01	7.32E+04	5.07E+04
765	Up-dip	1	3	35	8.03E+06	8.00E+06	8.98E+06	2.88E+00	4.66E-06	3.87E-06	7.49E-06	4.13E-06	1.27E+06	1.20E-05	1.18E-02	9.77E-01	1.24E+00	1.21E+00	8.40E+06	9.05E-01	6.34E+06	5.48E-01	6.81E+04	4.81E+04
766	Up-dip	1	3	2	2.51E+05	2.63E+05	1.05E+07	1.10E+01	7.67E-07	9.32E-01	1.93E-06	8.52E+00	6.40E-01	1.88E-05	2.84E+03	1.30E+06	8.29E-01	7.88E-01	9.96E+06	6.18E-01	5.96E+06	3.78E-01	7.53E+04	4.21E+04
767	Up-dip	1	3	15	2.23E+05	0.00E+00	7.81E+06	1.10E+01	7.74E-07	4.41E-01	1.98E-06	3.92E+00	1.31E+00	0.00E+00	1.35E+03	5.94E+05	7.78E-01	7.37E-01	8.54E+06	5.27E-01	4.86E+06	3.90E-01	6.90E+04	3.75E+04
768	Up-dip	1	3	24	7.99E+06	7.99E+06	8.69E+06	2.88E+00	1.18E-06	1.46E-09	1.92E-06	1.77E-09	8.26E+08	1.77E-05	4.44E-06	3.70E-04	3.06E-01	2.98E-01	8.15E+06	9.11E-01	8.02E+06	9.07E-01	6.66E+04	6.05E+04
769	Up-dip	1	3	10	2.29E+05	2.34E+05	8.77E+06	1.10E+01	1.08E-07	7.10E-01	3.28E-07	5.85E+00	1.22E-01	1.72E-05	2.17E+03	1.06E+06	1.30E-01	1.24E-01	8.21E+06	4.99E-01	4.47E+06	1.72E-01	6.73E+04	2.94E+04
770	Up-dip	1	3	19	2.47E+05	8.01E+06	9.52E+06	1.10E+01	5.55E-08	5.25E-01	2.14E-07	6.86E+00	8.16E-02	6.95E-06	1.60E+03	8.36E+05	8.82E-02	6.36E-02	9.01E+06	8.56E-01	4.48E+06	1.24E-01	7.09E+04	3.19E+04
771	Up-dip	1	3	94	3.22E+05	3.04E+05	1.12E+07	1.10E+01	1.19E-08	1.19E+00	4.20E-08	1.41E+01	8.03E-03	0.00E+00	3.64E+03	1.72E+06	1.38E-02	1.35E-02	1.12E+07	2.91E-01	5.78E+06	2.24E-01	8.06E+04	2.83E+04
772	Up-dip	1	3	39	3.25E+05	8.01E+06	1.06E+07	1.10E+01	2.87E-09	6.09E-01	1.32E-08	1.28E+01	3.61E-03	0.00E+00	1.86E+03	9.52E+05	3.43E-03	3.26E-03	1.09E+07	8.51E-01	4.36E+06	2.09E-01	7.90E+04	4.12E+04
773	Up-dip	1	3	58	4.39E+05	4.03E+05	7.37E+06	1.10E+01	1.82E-11	8.26E-01	9.22E-11	2.22E+01	1.52E-05	0.00E+00	2.52E+03	1.57E+06	2.38E-05	2.24E-05	1.32E+07	1.69E-01	4.69E+06	1.27E-01	8.86E+04	1.21E+04
774	Up-dip	1	3	30	3.95E+05	3.85E+05	9.39E+06	1.10E+01	1.67E-11	2.01E+00	4.43E-11	1.38E+01	6.82E-06	0.00E+00	6.14E+03	2.80E+06	1.91E-05	1.80E-05	9.85E+06	8.38E-02	6.52E+06	5.31E-02	8.22E+04	4.71E+03
775	Up-dip	1	3	28	4.64E+05	4.44E+05	8.22E+06	1.10E+01	8.22E-14	6.44E-01	2.18E-13	2.27E+01	8.28E-08	0.00E+00	1.98E+03	1.20E+06	9.92E-08	9.71E-08	1.33E+07	2.10E-01	4.12E+06	1.82E-01	8.93E+04	1.66E+04
776	Up-dip	1	3	78	4.58E+06	8.01E+06	8.01E+06	1.10E+01	5.48E-05	1.40E-01	1.51E-04	1.84E-01	5.76E+02	0.00E+00	4.29E+02	1.13E+05	6.48E+01	6.19E+01	1.24E+07	9.47E-01	1.10E+07	4.91E-01	8.49E+04	6.00E+04
777	Up-dip	1	3	69	7.99E+06	8.00E+06	8.00E+06	2.88E+00	5.90E-05	9.12E-05	1.07E-04	9.12E-05	1.20E+06	0.00E+00	2.78E-01	1.33E+01	1.58E+01	1.55E+01	1.12E+07	9.19E-01	1.10E+07	7.92E-01	8.03E+04	6.81E+04
778	Up-dip	1	3	52	8.02E+06	8.01E+06	8.01E+06	2.88E+00	5.84E-05	2.29E-05	1.11E-04	2.31E-05	2.79E+06	0.00E+00	7.00E-02	5.56E+00	1.55E+01	1.51E+01	1.09E+07	9.61E-01	1.06E+07	6.03E-01	7.88E+04	6.01E+04
779	Up-dip	1	3	45	8.00E+06	8.00E+06	6.00E+06	2.88E+00	5.42E-05	0.00E+00	9.18E-05	0.00E+00	1.43E+22	0.00E+00	0.00E+00	0.00E+00	1.43E+01	1.39E+01	1.01E+07	9.72E-01	9.84E+06	9.68E-01	7.57E+04	7.34E+04
780	Up-dip	1	3	44	3.13E+05	8.00E+06	8.00E+06	1.10E+01	9.09E-06	1.10E+00	2.32E-05	3.22E+00	8.48E+00	0.00E+00	3.36E+03	1.33E+06	1.13E+01	1.08E+01	1.10E+07	8.87E-01	7.86E+06	2.35E-01	7.97E+04	4.38E+04
781	Up-dip	1	3	24	7.99E+06	7.99E+06	7.99E+06	2.88E+00	2.17E-05	5.66E-07	3.03E-05	5.66E-07	8.28E+07	0.00E+00	1.73E-03	6.95E-02	5.53E+00	5.40E+00	8.86E+06	9.10E-01	8.74E+06	8.45E-01	7.03E+04	6.14E+04
782	Up-dip	1	3	18	2.25E+05	8.94E+05	8.94E+05	1.10E+01	7.30E-07	5.22E-01	2.12E-06	3.96E+00	1.13E+00	0.00E+00	1.59E+03	7.47E+05	8.47E-01	8.08E-01	8.67E+06	6.90E-01	4.89E+06	4.13E-01	6.96E+04	4.13E+04
783	Up-dip	1	3	39	2.46E+05	8.01E+06	8.01E+06	1.10E+01	1.67E-07	4.12E-01	7.79E-07	6.26E+00	3.63E-01	0.00E+00	1.26E+03	6.11E+05	2.22E-01	2.06E-01	9.57E+06	8.51E-01	4.32E+06	2.55E-01	7.35E+04	3.99E+04
784	Up-dip	1	3	87	2.29E+05	8.01E+06	8.02E+06	1.10E+01	1.23E-07	2.37E-01	5.75E-07	4.65E+00	3.68E-01	0.00E+00	7.24E+02	4.43E+05	1.63E-01	1.57E-01	8.70E+06	9.15E-01	3.35E+06	3.84E-01	6.92E+04	4.44E+04
785	Up-dip	1	3	19	2.81E+05	8.02E+06	8.02E+06	1.10E+01	3.65E-08	5.86E-01	1.51E-07	7.98E+00	5.03E-02	0.00E+00	1.79E+03	9.43E+05	4.74E-02	4.68E-02	9.40E+06	8.52E-01	4.62E+06	1.12E-01	7.30E+04	3.16E+04
786	Up-dip	1	3	60	2.48E+05	8.03E+06	8.04E+06	1.10E+01	5.30E-09	1.43E-01	3.91E-08	6.38E+00	2.20E-02	0.00E+00	4.36E+02	3.59E+05	7.69E-03	7.82E-03	8.51E+06	9.13E-01	2.28E+06	1.15E-01	6.75E+04	2.72E+04
787	Up-dip	1	3	94	3.32E+05	2.82E+05	2.82E+05	1.10E+01	4.93E-09	1.21E+00	1.75E-08	1.46E+01	3.29E-03	0.00E+00	3.68E+03	1.75E+06	5.74E-03	5.62E-03	1.12E+07	3.51E-01	5.72E+06	2.17E-01	8.06E+04	2.96E+04
788	Up-dip	1	3	28	2.90E+05	8.03E+06	8.15E+06	1.10E+01	6.06E-10	2.91E-01	3.40E-09	8.39E+00	1.47E-03	0.00E+00	8.87E+02	5.29E+05	7.76E-04	7.33E-04	9.21E+06	8.95E-01	3.06E+06	2.17E-01	7.15E+04	2.81E+04
789	Up-dip	1	3	52	5.81E+05	8.00E+06	8.00E+06	1.10E+01	2.57E-05	1.45E-01	7.96E-05	3.83E-01	2.21E+02	0.00E+00	4.43E+02	1.41E+05	3.12E+01	2.98E+01	8.86E+06	9.61E-01	6.71E+06	4.68E-01	6.94E+04	4.84E+04
790	Up-dip	1	3	45	7.99E+06	7.99E+06	7.99E+06	2.86E+00	7.48E-05	2.68E-06	1.25E-04	2.68E-06	3.87E+07	0.00E+00	8.18E-03	5.10E-01	1.97E+01	1.92E+01	1.10E+07	9.50E-01	1.07E+07	9.47E-01	7.95E+04	7.54E+04
791	Up-dip	1	3	69	7.99E+06	7.99E+06	7.99E+06	2.88E+00	5.97E-05	9.44E-05	1.08E-04	9.44E-05	1.18E+06	0.00E+00	2.88E-01	1.38E+01	1.60E+01	1.57E+01	1.13E+07	9.12E-01	1.11E+07	7.56E-01	8.05E+04	6.64E+04
792	Up-dip	1	3	24	7.99E+00	7.99E+06	7.99E+06	2.88E+00	4.72E-05	1.19E-04	6.97E-05	1.19E-04	1.63E+06	0.00E+00	3.63E-01	8.59E+00	1.25E+01	1.22E+01	9.83E+06	9.10E-01	9.70E+06	6.77E-01	7.47E+04	5.83E+04
793	Up-dip	1	3	100	8.00E+06	8.00E+06	6.00E+06	2.86E+00	1.07E-05	1.21E-06	1.95E-05	1.21E-06	1.12E+07	0.00E+00	3.69E-03	2.61E-01	2.93E+00	2.86E+00	8.79E+06	8.87E-01	8.65E+06	7.24E-01	6.90E+04	5.49E+04
794	Up-dip	1	3	19	3.83E+05	4.35E+05	4.35E+05	1.10E+01	2.55E-10	1.06E+00	1.11E-09	1.77E+01	1.81E-04	0.00E+00	3.23E+03	1.75E+06	3.16E-04	3.15E-04	1.21E+07	6.20E-01	5.38E+06	4.68E-02	8.41E+04	2.43E+04
795	Up-dip	1	3	60	2.89E+05	6.03E+06	6.04E+06	1.10E+01	1.70E-10	1.65E-01	1.32E-09	7.99E+00	6.13E-04	0.00E+00	5.02E+02	4.14E+05	2.54E-04	2.41E-04	8.35E+06	7.90E-01	2.32E+06	7.87E-02	6.80E+04	2.16E+04
796	Up-dip	1	3	94	3.90E+05	1.30E+06	1.30E+06	1.10E+01	3.58E-12	1.26E+00	1.06E-11	1.62E+01	2.22E-06	0.00E+00	3.83E+03	1.85E+06	4.11E-06	3.99E-06	1.12E+07	7.58E-01	5.58E+06	1.93E-01	8.07E+04	3.78E+04
797	Up-dip	1	3	24	4.31E+06	7.99E+08	7.99E+06	1.10E+01	4.14E-05	1.10E-01	8.13E-05	1.10E-01	4.79E+02	0.00E+00	3.35E+02	9.31E+04	4.46E+01	4.24E+01	9.25E+06	9.10E-01	6.84E+06	4.62E-01	7.22E+04	4.85E+04
798	Up-dip	1	3	45	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.01E-04	7.70E-06	1.70E-04	7.70E-06	2.01E+07	0.00E+00	2.35E-02	1.34E+00	2.67E+01	2.80E+01	1.20E+07	9.50E-01	1.16E+07	9.47E-01	8.34E+04	7.91E+04
799	Up-dip	1	3	69	7.99E+00	7.99E+06	7.99E+06	2.88E+00	5.40E-05	6.39E-05	9.69E-05	8.39E-05	1.51E+06	0.00E+00	1.95E-01	9.68E+00	1.44E+01	1.41E+01	1.10E+07	9.12E-01	1.08E+07	7.46E-01	7.92E+04	6.49E+04
800	Up-dip	1	3	1	7.99E+06	7.99E+06	7.99E+06	2.88E+00	1.55E-05	1.27E-06	2.98E-05	1.27E-06	1.54E+07	0.00E+00	3.88E-03	2.78E-01	4.27E+00	4.18E+00	8.96E+06	9.02E-01	8.81E+06	7.61E-01	6.99E+04	5.75E+04
801	Up-dip	1	3	100	8.00E+06	8.00E+06	8.00E+06	2.88E+00	7.84E-06	5.87E-07	1.43E-05	5.87E-07	1.66E+07	0.00E+00	1.79E-03	1.30E-01	2.15E+00	2.10E+00	8.61E+06	8.86E-01	8.48E+06	7.13E-01	6.73E+04	5.31E+04
802	Up-dip	1	3	86	2.75E+05	8.02E+06	8.02E+06	1.10E+01	1.85E-10	2.11E-01	1.18E-09	7.00E+00	5.83E-04	2.12E-07	6.44E+02	4.29E+05	2.50E-04	2.50E-04	8.01E+06	9.20E-01	2.61E+06	4.61E-02	6.38E+04	2.81E+04
803	Up-dip	1	3	45	7.99E+00	7.99E+06	7.99E+06	2.86E+00	1.58E-04	5.40E-05	2.53E-04	5.40E-05	7.26E+06	0.00E+00	1.65E-01	5.92E+00	4.14E+01	4.05E+01	1.36E+07	9.50E-01	1.32E+07	9.46E-01	9.05E+04	8.58E+04
804	Up-dip	1	3	69	7.99E+06	7.99E+08	7.99E+06	2.88E+00	4.81E-05	4.15E-05	8.54E-05	4.15E-05	1.96E+06	0.00E+00	1.27E-01	6.60E+00	1.28E+01	1.25E+01	1.06E+07	9.12E-01	1.05E+07	6.51E-01	7.80E+04	5.98E+04
805	Up-dip	1	3	1	8.00E+06	8.00E+06	8.00E+06	2.88E+00	1.98E-05	2.43E-06	3.75E-05	2.43E-08	1.02E+07	0.00E+00	7.42E-03	5.29E-01	5.38E+00	5.26E+00	9.18E+06	9.02E-01	9.02E+06	6.98E-01	7.14E+04	5.63E+04
806	Up-dip	1	4	58	3.42E+05	3.30E+05	0.00E+00	1.10E+01	6.40E-09	6.60E-01	3.51E-08	1.75E+01	6.80E-03	0.00E+00	2.02E+03	1.23E+06	8.39E-03	8.25E-03	1.19E+07	2.12E-01	4.26E+06	1.71E-01	1.02E+05	1.83E+04
807	Up-dip	1	4	28	3.65E+05	3.51E+05	0.00E+00	1.10E+01	1.28E-10	4.89E-01	7.40E-10	1.61E+01	1.79E-04	0.00E+00	1.49E+03	9.34E+05	1.67E-04	1.67E-04	1.11E+07	2.27E-01	3.57E+06	1.99E-01	9.82E+04	1.99E+04
808	Up-dip	1	4	94	2.40E+05	3.05E+05	0.00E+00	1.10E+01	8.01E-08	7.10E-01	2.67E-07	7.10E+00	9.37E-02	0.00E+00	2.17E+03	9.85E+05	9.22E-02	8.80E-02	8.59E+06	6.08E-01	4.80E+06	2.59E-01	7.75E+04	3.46E+04
809	Up-dip	1	4	58	3.77E+05	3.59E+05	0.00E+00	1.10E+01	2.40E-09	8.26E-01	1.25E-08	2.03E+01	2.02E-03	0.00E+00	2.52E+03	1.56E+06	3.16E-03	2.96E-03	1.26E+07	1.99E-01	4.74E+06	1.57E-01	9.72E+04	1.61E+04
810	Up-dip	1	4	19	2.95E+05	2.80E+05	0.00E+00	1.10E+01	7.32E-09	7.10E-01	2.98E-08	1.05E+01	7.81E-03	0.00E+00	2.17E+03	1.16E+06	9.03E-03	8.56E-03	1.00E+07	4.15E-01	4.76E+06	8.06E-02	7.57E+04	2.06E+04
811	Up-dip	1	4	94	3.48E+05	8.07E+06	0.00E+00	1.10E+01	1.95E-09	1.25E+00	6.93E-09	1.55E+01	1.25E-03	0.00E+00	3.80E+03	1.82E+06	2.27E-03	2.20E-03	1.14E+07	8.49E-01	5.73E+06	2.10E-01	8.13E+04	4.07E+04
812	Up-dip	1	4	94	3.98E+05	7.99E+06	0.00E+00	1.10E+01	1.85E-12	1.29E+00	5.16E-12	1.69E+01	1.11E-06	0.00E+00	3.93E+03	1.91E+06	2.11E-06	2.03E-06	1.15E+07	9.94E-01	5.63E+06	1.90E-01	8.15E+04	4.41E+04
813	Up-dip	1	5	19	2.39E+05	2.79E+05	0.00E+00	1.10E+01	5.93E-08	4.88E-01	2.25E-07	6.19E+00	9.42E-02	0.00E+00	1.49E+03	7.71E+05	7.26E-02	6.86E-02	8.57E+06	4.67E-01	4.37E+06	1.27E-01	6.92E+04	2.36E+04
814	Up-dip	1	5	94	3.30E+05	5.73E+05	0.00E+00	1.10E+01	9.69E-09	1.25E+00	3.45E-08	1.49E+01	6.27E-03	0.00E+00	3.80E+03	1.80E+06	1.13E-02	1.10E-02	1.15E+07	6.72E-01	5.86E+06	2.21E-01	8.15E+04	3.67E+04
815	Up-dip	1	5	56	4.78E+05	4.38E+05	0.00E+00	1.10E+01	2.38E-11	2.68E+00	7.12E-11	2.72E+01	7.33E-06	0.00E+00	8.18E+03	3.62E+06	2.66E-05	2.53E-05	1.39E+07	1.68E-01	7.78E+06	1.25E-01	9.35E+04	1.28E+04
816	Up-dip	1	5	30	4.02E+05	3.20E+05	0.00E+00	1.10E+01	1.42E-11	1.99E+00	3.88E-11	1.44E+01	5.78E-06	0.00E+00	6.09E+03	2.86E+06	1.85E-05	1.55E-05	1.03E+07	4.24E-01	6.48E+06	5.26E-02	8.31E+04	1.22E+04
817	Up-dip	1	5	28	4.64E+05	4.42E+05	0.00E+00	1.10E+01	8.10E-14	6.42E-01	2.15E-13	2.27E+01	8.16E-08	0.00E+00	1.96E+03	1.20E+06	9.77E-08	9.55E-08	1.33E+07	2.11E-01	4.12E+06	1.82E-01	8.94E+04	1.66E+04
818	Up-dip	1	5	19	2.52E+05	2.80E+05	0.00E+00	1.10E+01	3.83E-08	5.44E-01	1.48E-07	7.20E+00	5.42E-02	0.00E+00	1.66E+03	8.67E+05	4.70E-02	4.37E-02	8.97E+06	4.56E-01	4.48E+06	1.14E-01	7.11E+04	2.29E+04
819	Up-dip	1	5	94	3.41E+05	2.85E+05	0.00E+00	1.10E+01	3.77E-09	1.26E+00	1.35E-08	1.54E+01	2.41E-03	0.00E+00	3.83E+03	1.83E+06	4.40E-03	4.26E-03	1.15E+07	7.13E-01	5.80E+06	2.14E-01	8.16E+04	3.77E+04
820	Up-dip	1	5	19	3.65E+05	2.92E+05	0.00E+00	1.10E+01	2.18E-10	9.59E-01	9.27E-10	1.55E+01	1.71E-04	0.00E+00	2.93E+03	1.58E+06	2.69E-04	2.65E-04	1.14E+07	3.75E-01	5.16E+06	4.67E-02	8.12E+04	1.75E+04
821	Up-dip	1	5	94	3.74E+05	7.99E+06	0.00E+00	1.10E+01	1.39E-10	1.28E+00	4.81E-10	1.64E+01	8.59E-05	0.00E+00	3.92E+03	1.89E+06	1.62E-04	1.56E-04	1.15E+07	9.94E-01	5.69E+06	1.99E-01	8.16E+04	4.37E+04



F1 PAVT- DBR (volume) 51

NUCPLOT_PA96 1.19 07/22/97 14:49

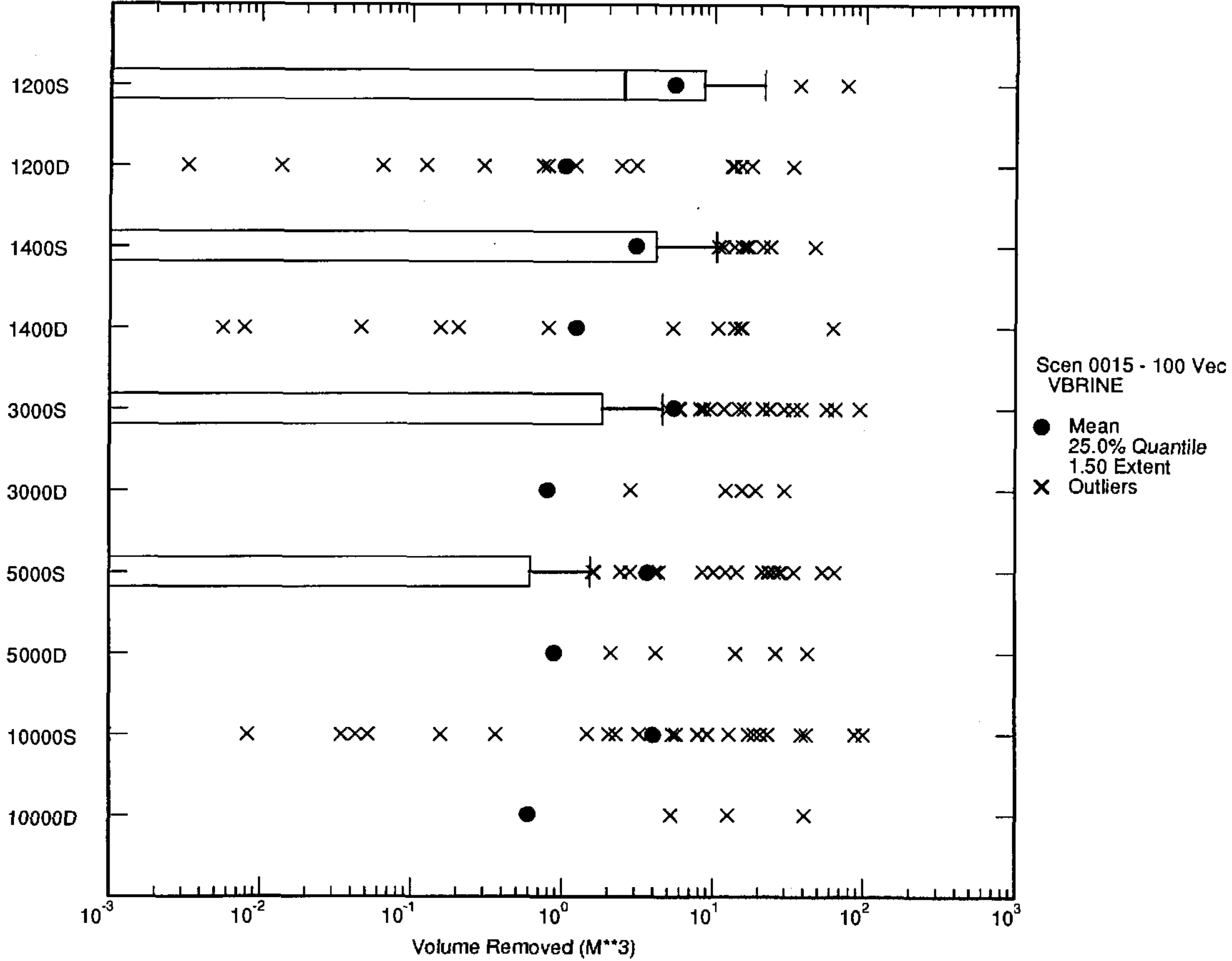
C97 Second ~~Blowout~~ DBR: Initial E1 at 350 yr; R1



F2 PAVT - DBR (Volume) S2

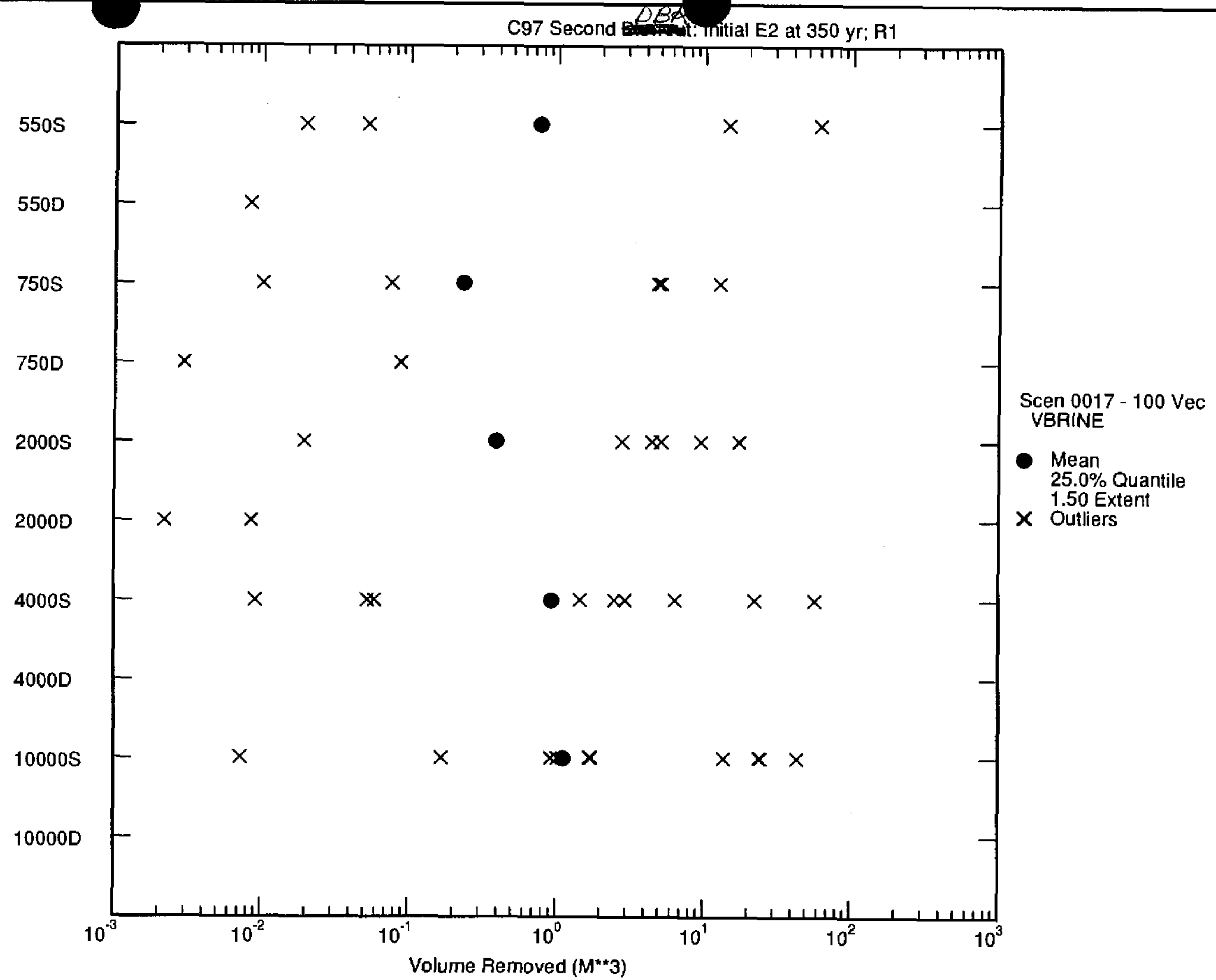
NUCPLOT_PA96 1.19 07/22/97 14:49

C97 Second DBR Initial E1 at 1000 yr; R1



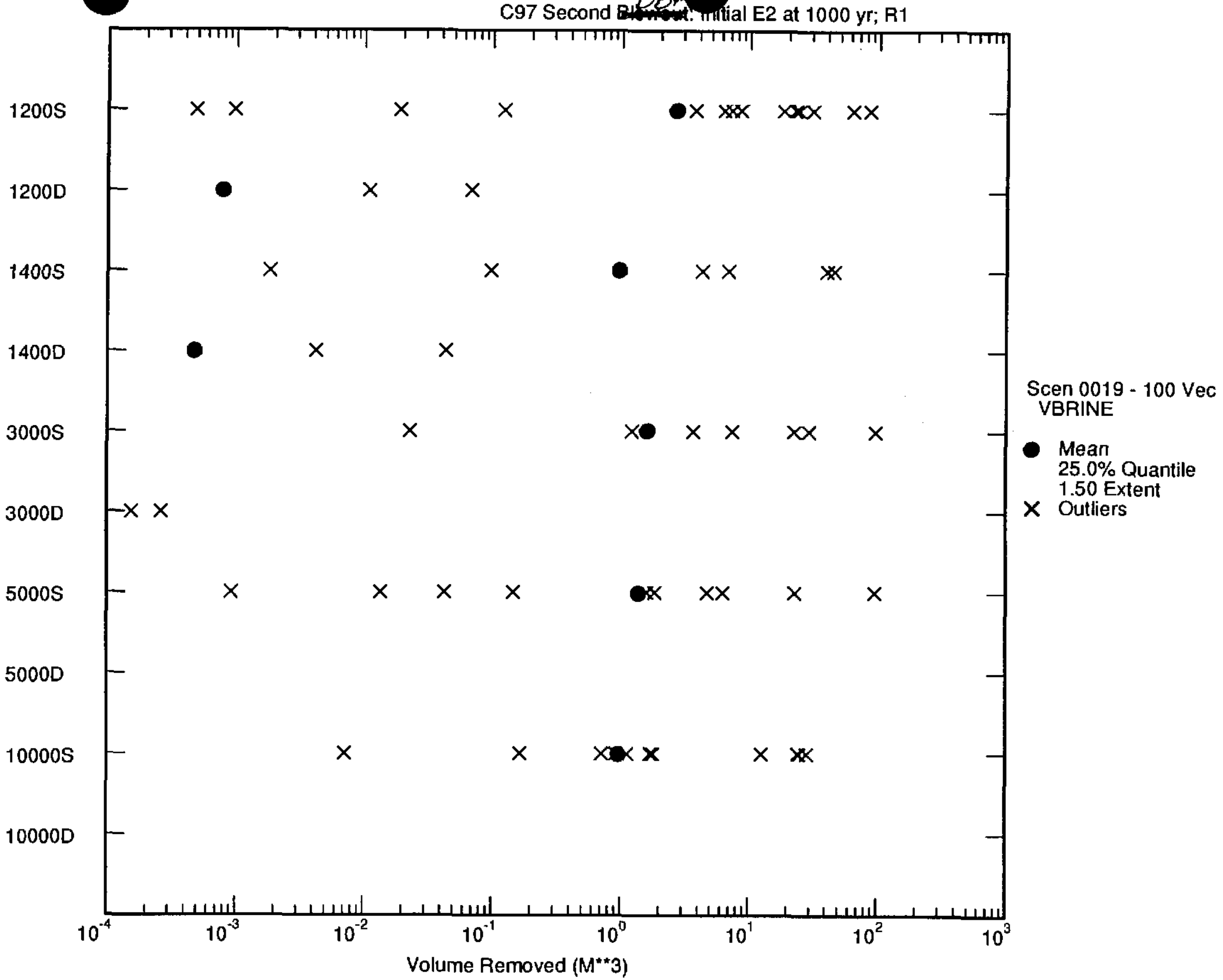
F3 PAVT DBR (volume) 53

NUCPLOT_PA96 1.19 07/22/97 14:49



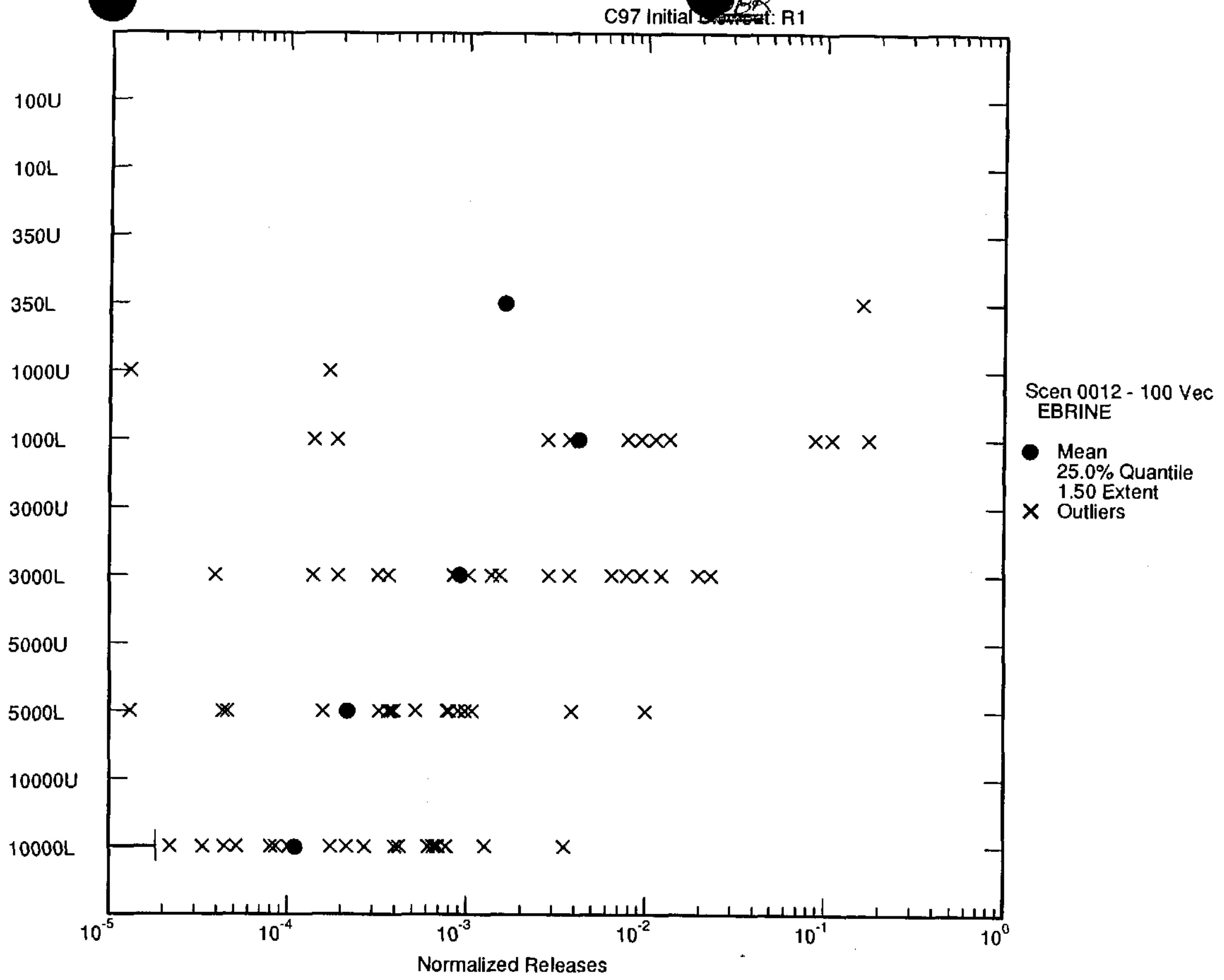
F. 4 PAVT DBR (Volume) S4

NUCPLOT PA96 1.19 07/22/97 14:49



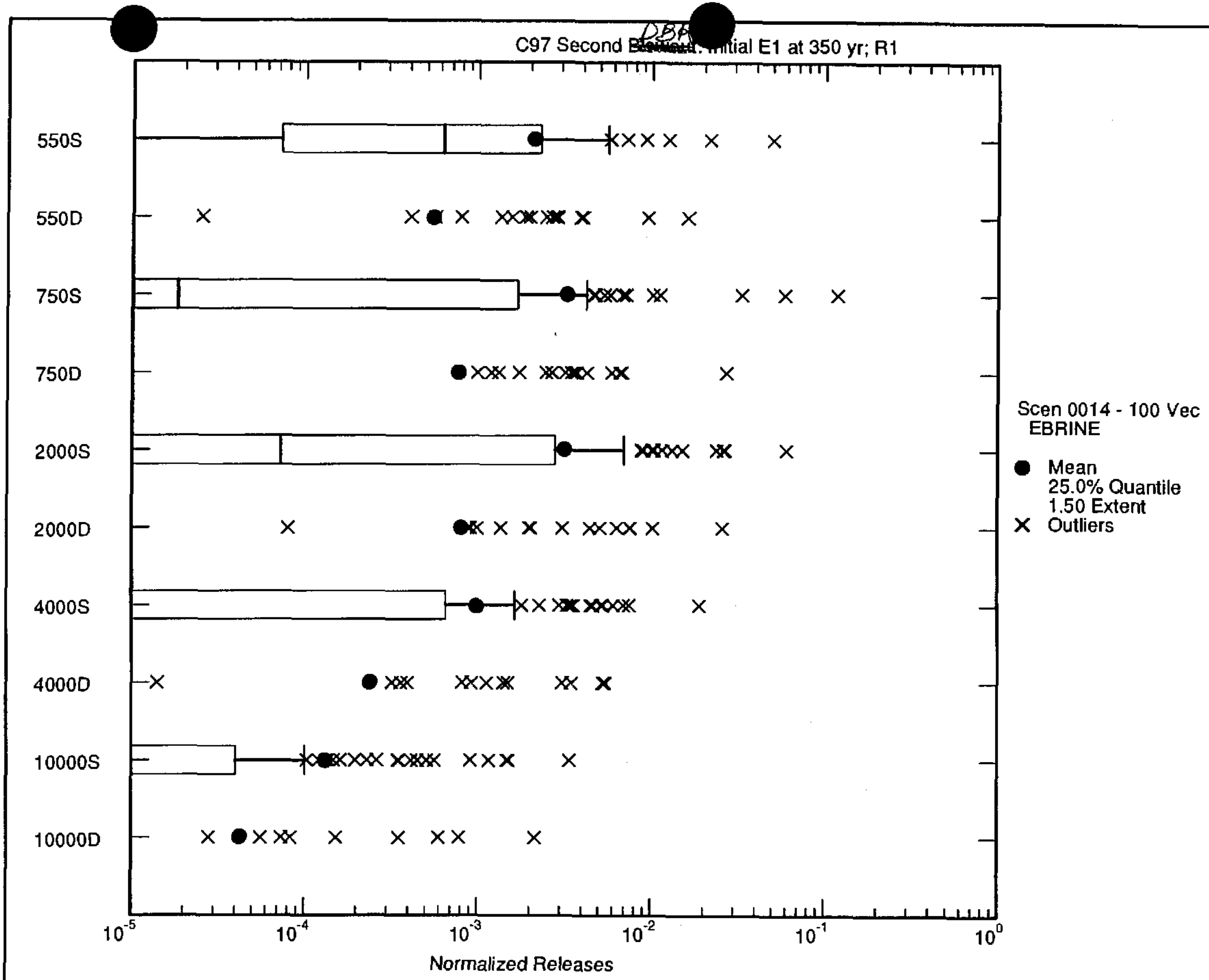
F.5 PAVT DBR (volume) 55

NUCPLOT_PA96 1.19 07/22/97 14:49



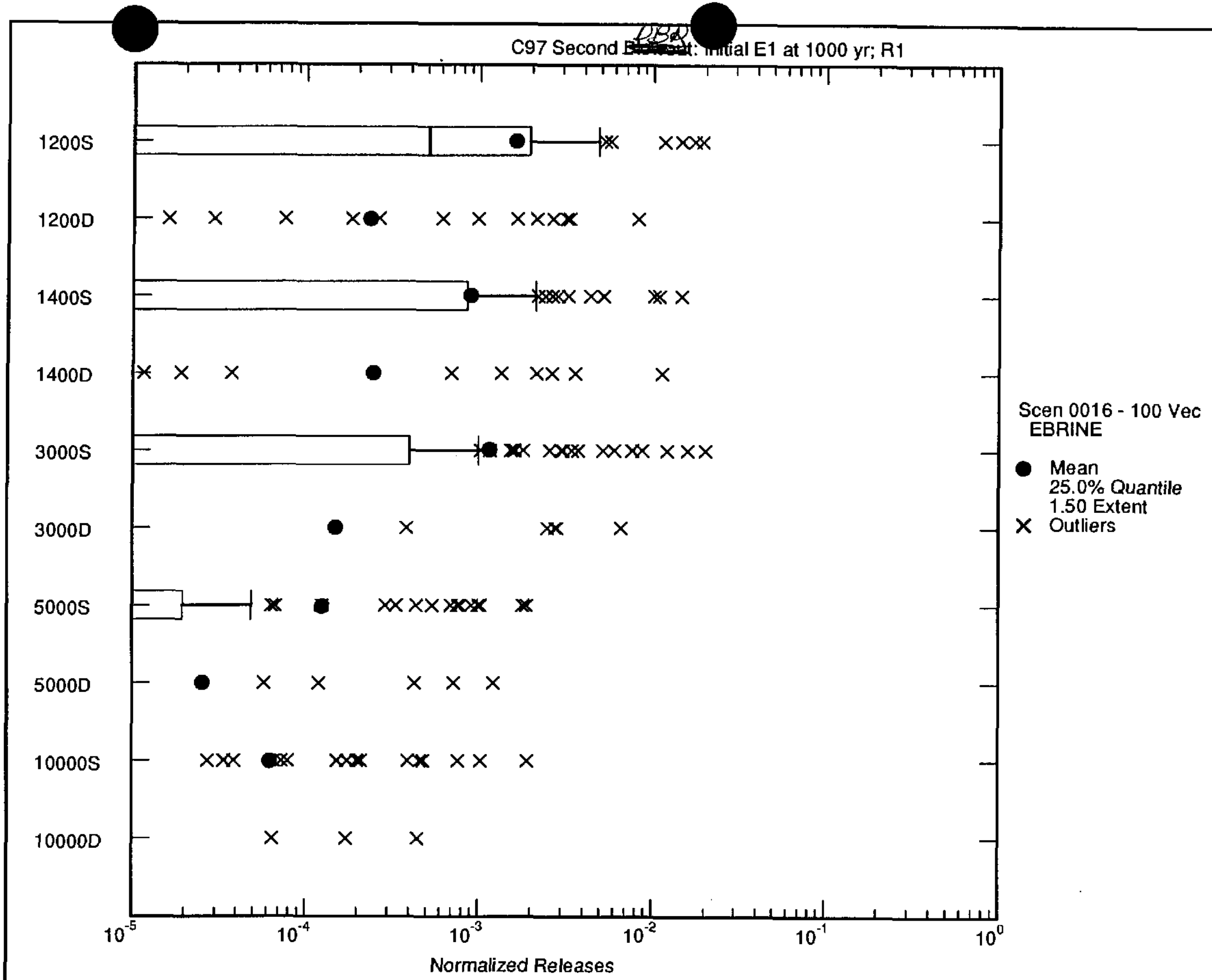
F6 PAVT DBR (EPA Units) S1

NUCPLOT_PA96 1.19 07/22/97 14:48



F7 PAVT DBR (EPA Units) 52

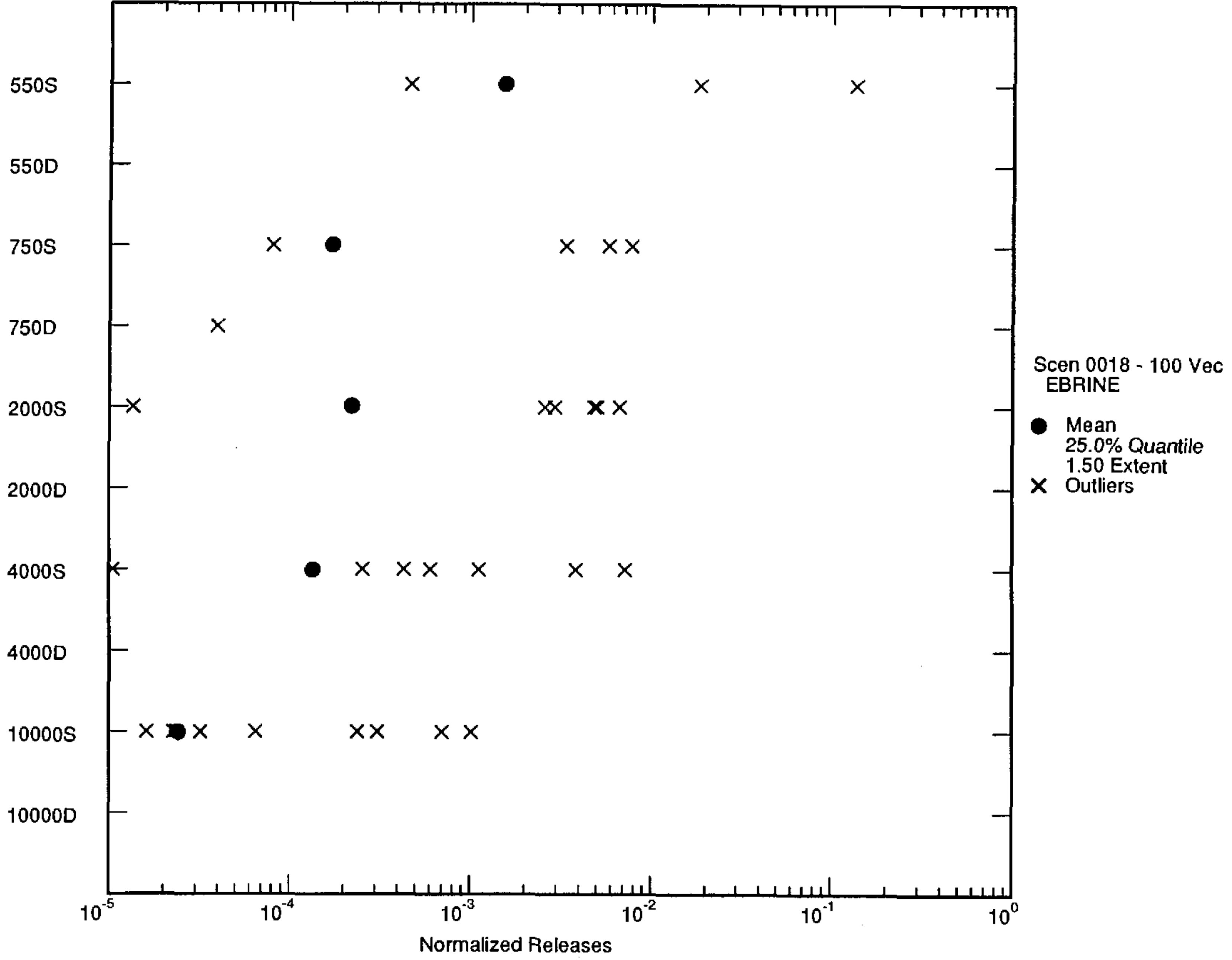
NUCPLOT PA96 1.19 07/22/97 14:48



F8 PAVT DBR (EPA Units) S3

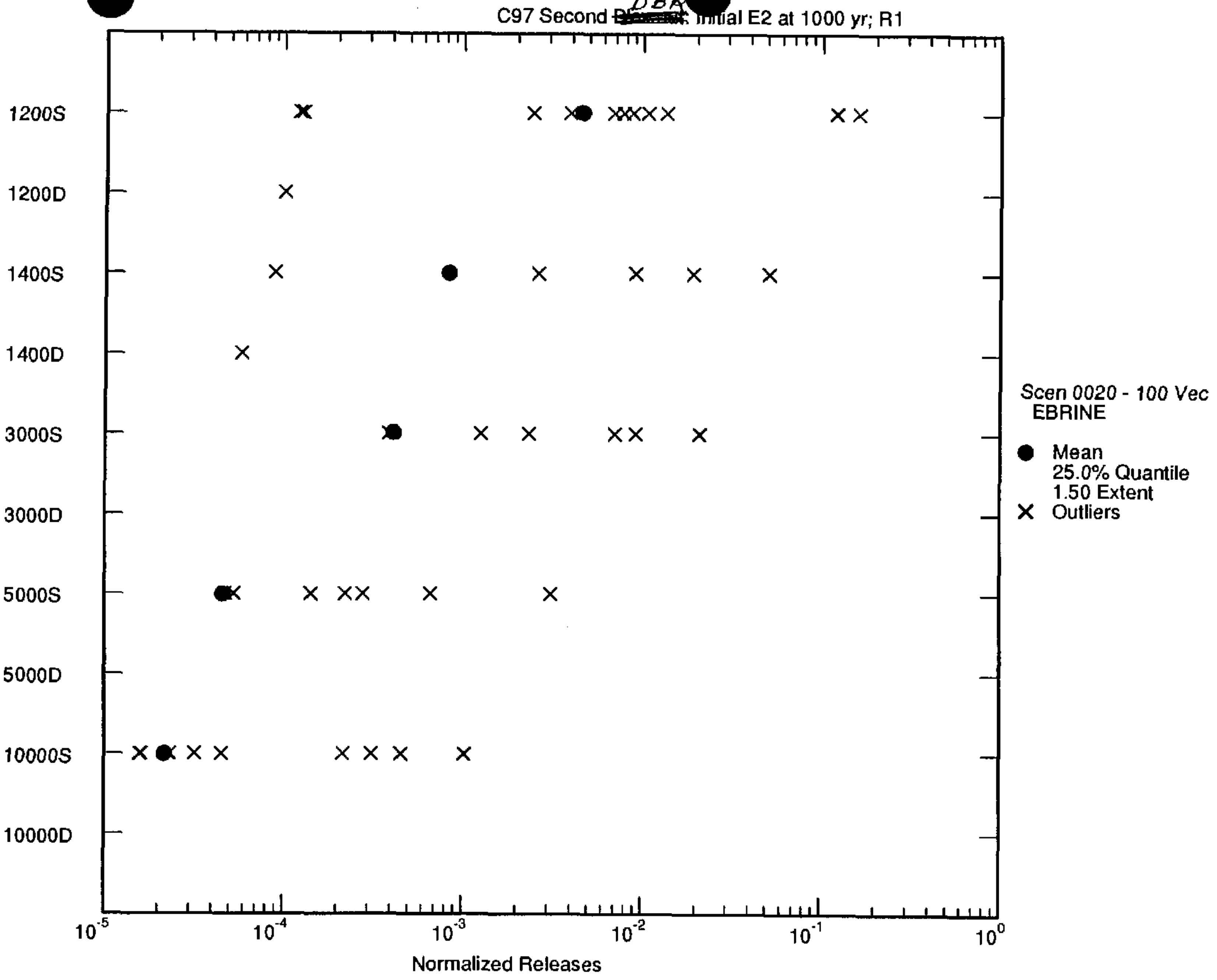
NUCPLOT_PA96 1.19 07/22/97 14:48

C97 Second ~~Blowout~~ DBR: Initial E2 at 350 yr; R1



F9 PAVT DBR (EPA Units) S4

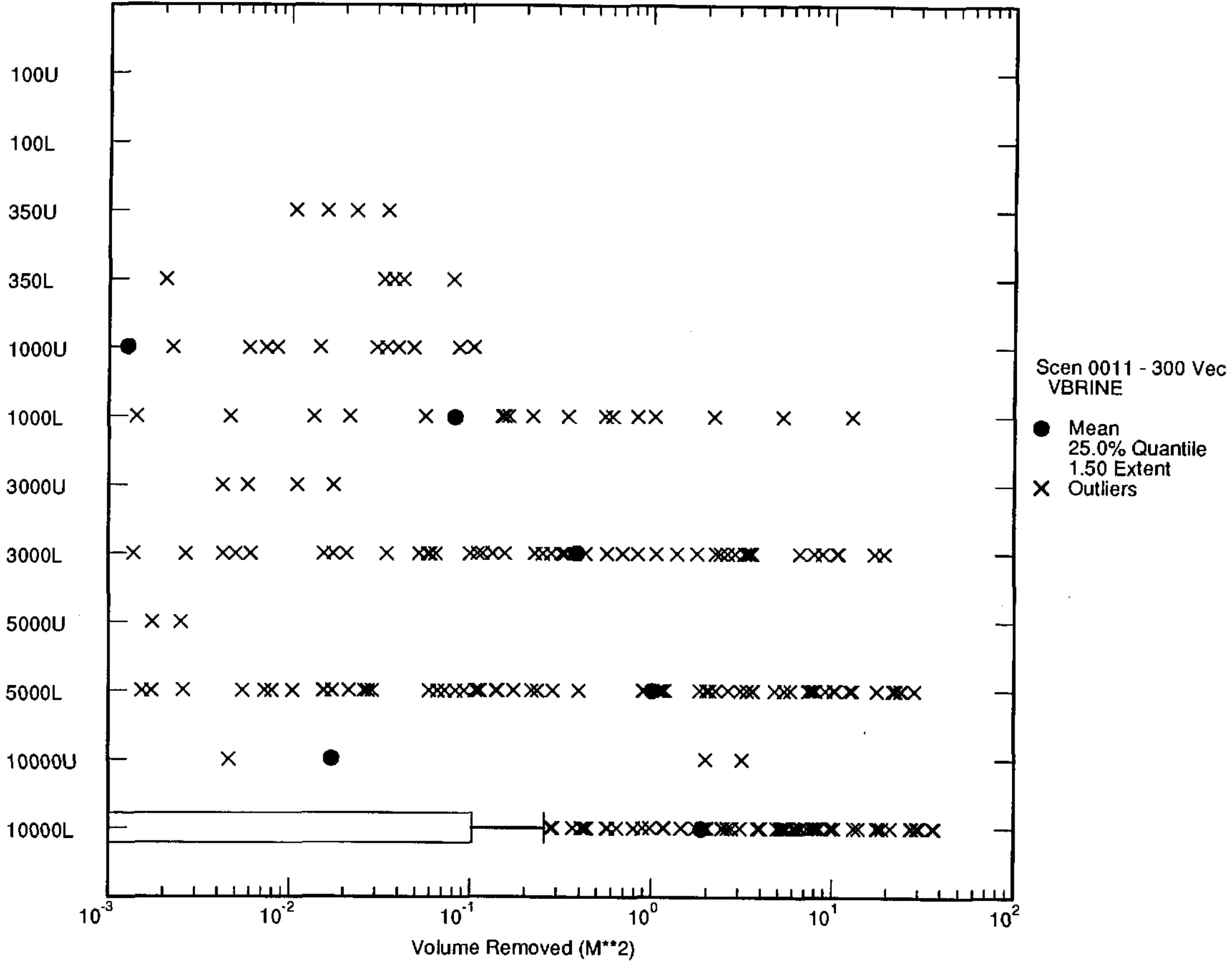
NUCPLOT PA96 1.19 07/22/97 14:48



F.10 PAVT DBR (EPA Units) S5

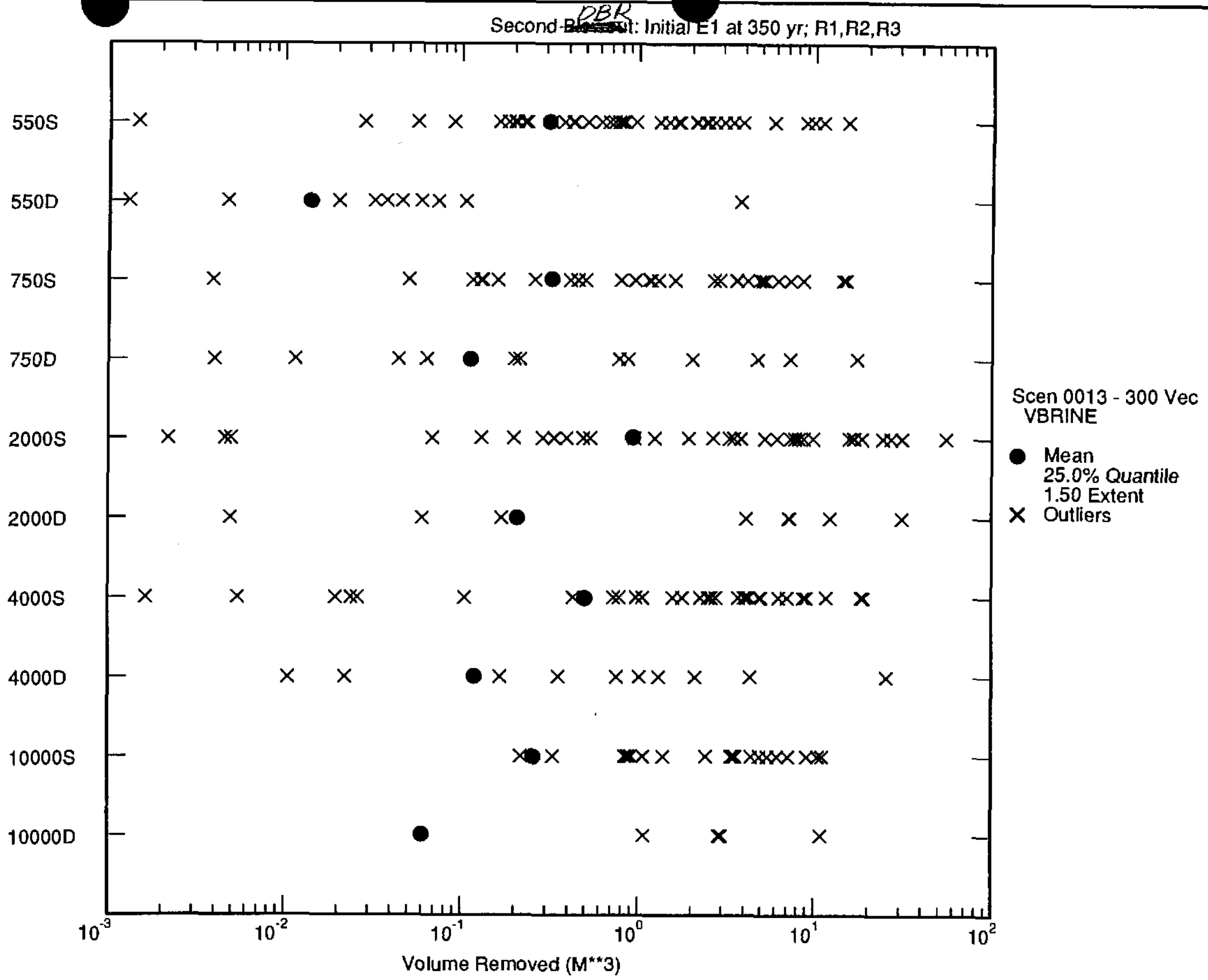
NUCPLOT_PA96 1.19 07/22/97 14:49

DBR
Initial ~~Blowout~~: R1,R2,R3



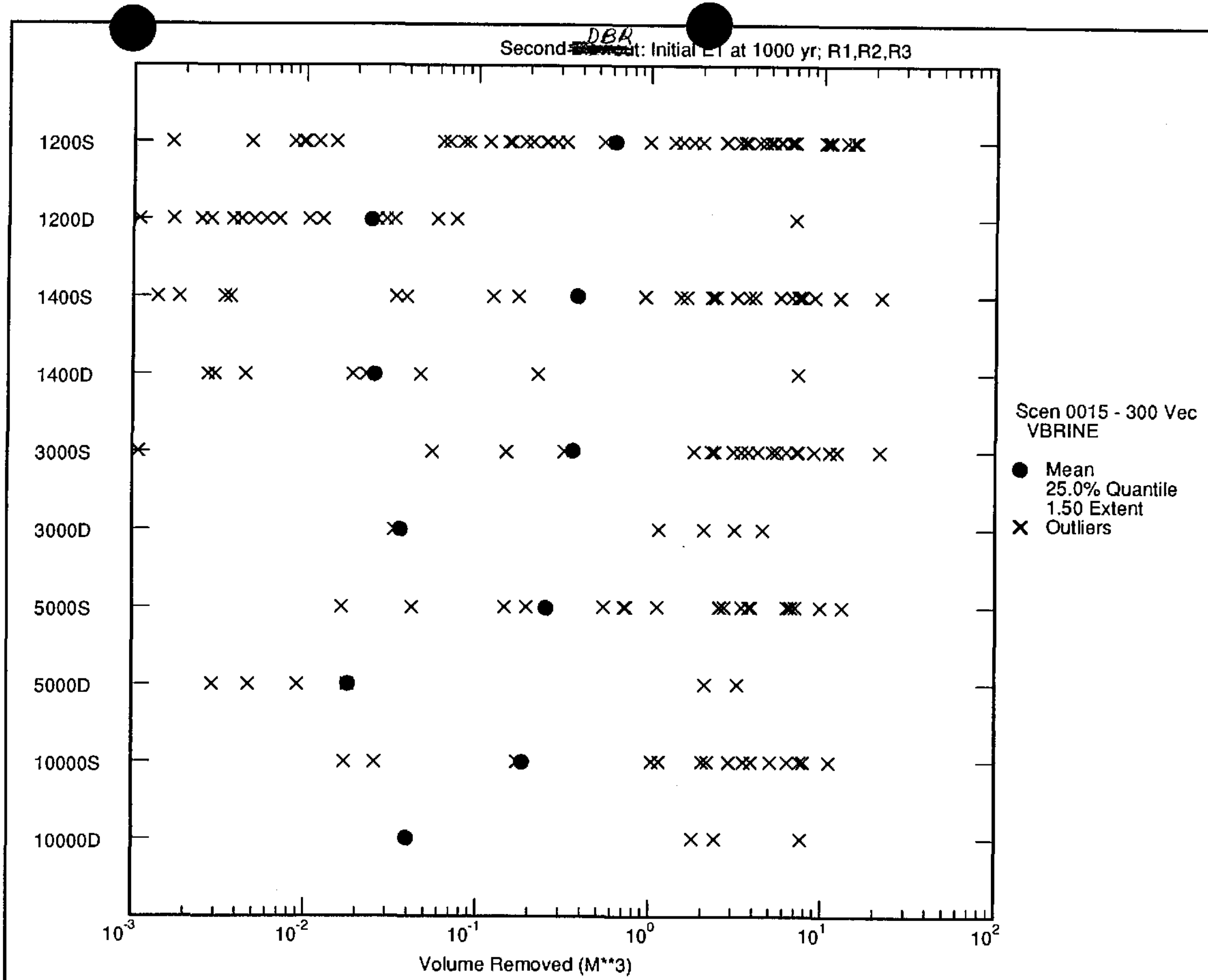
F11 CCA DBR (Volume) S1

NUCPLOT PA96 1.19 07/17/97 08:56



F12 CCA DBR (Volume) 52

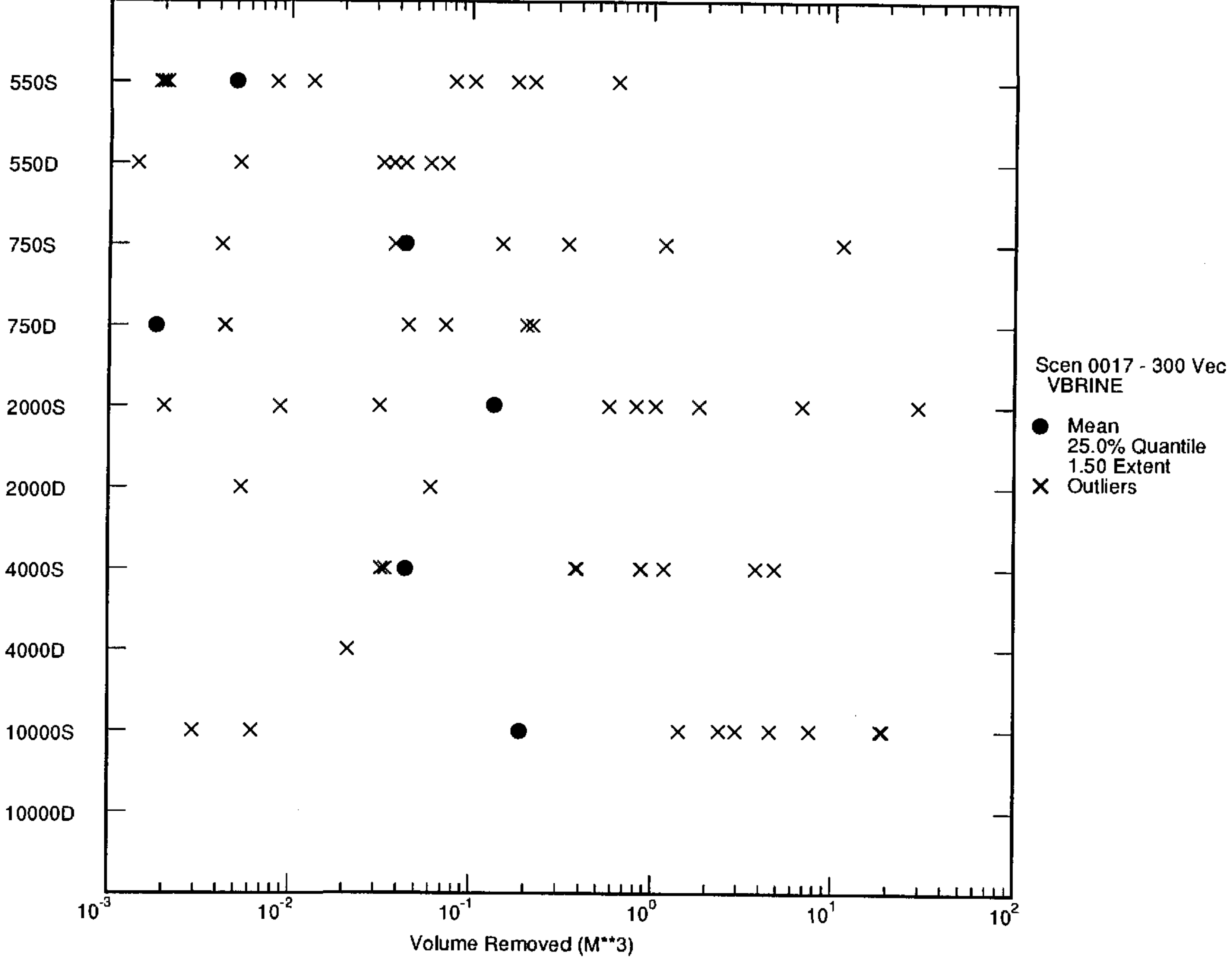
NUCPLOT PA96 1.19 07/17/97 08:56



F13 CCA DBR(Volume) S3

NUCPLOT_PA96 1.19 07/17/97 08:56

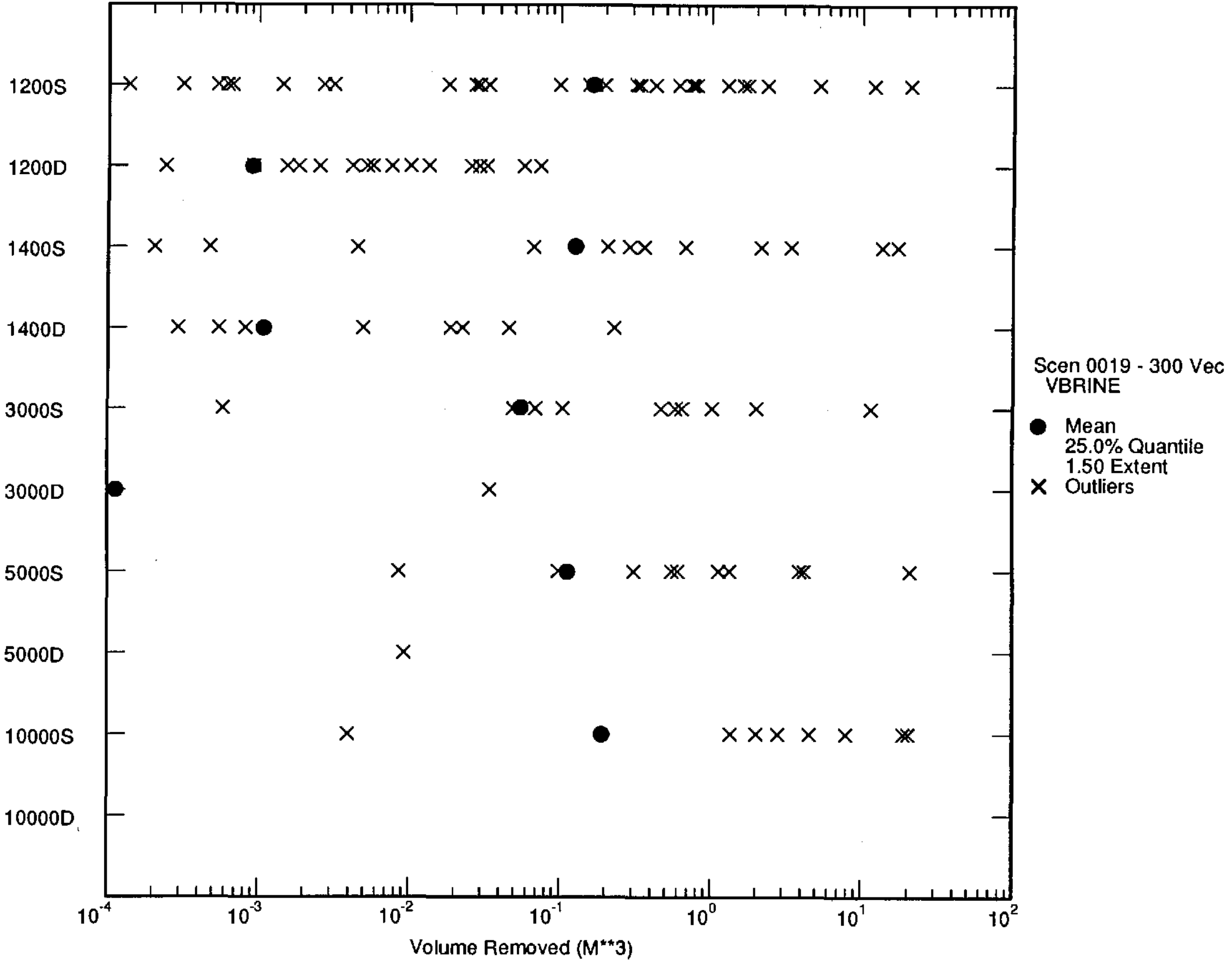
Second ~~Blowout~~ DBR: Initial E2 at 350 yr; R1,R2,R3



F14 CCA DBR (Volume) S4

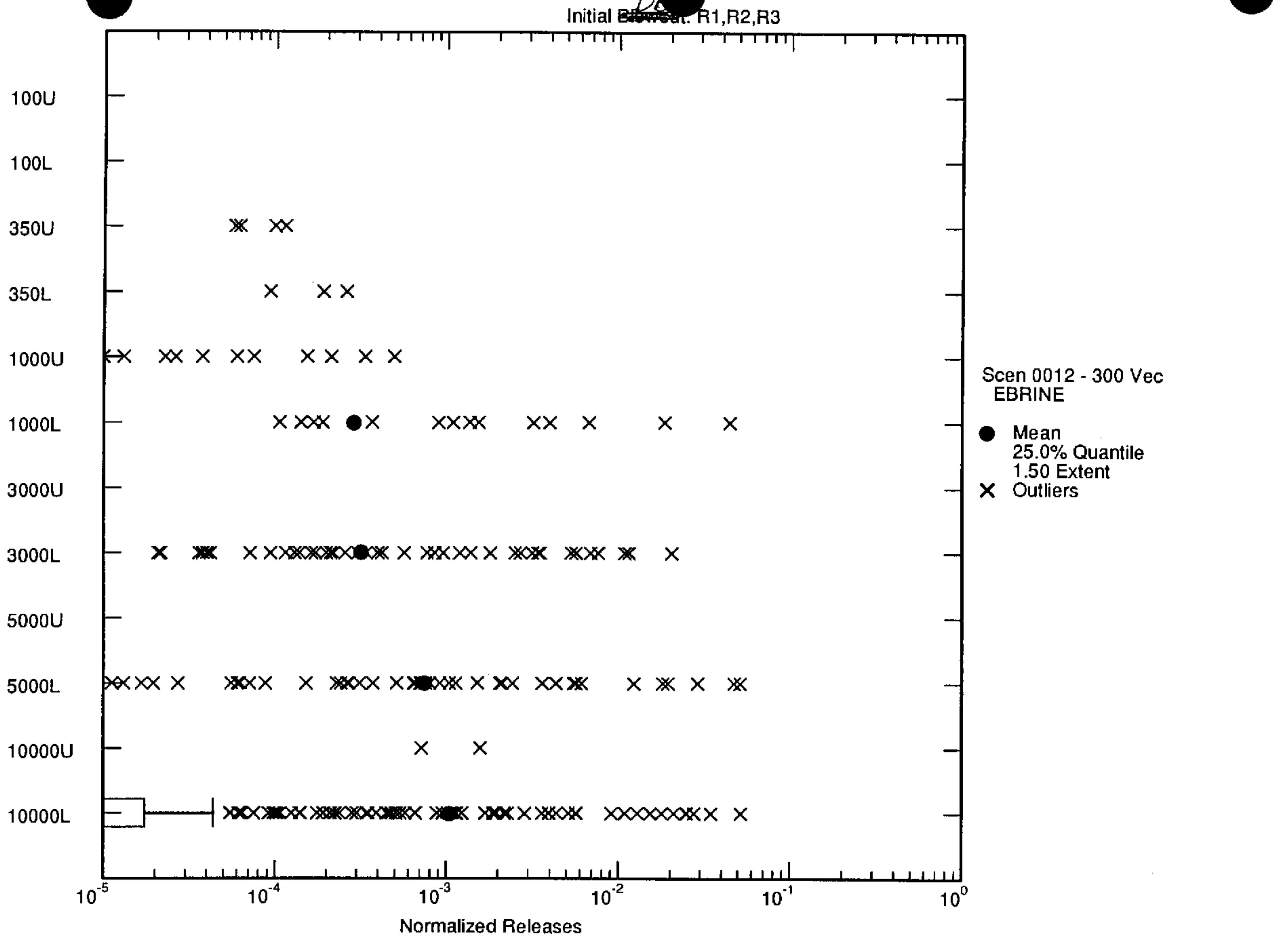
NUCPLOT_PA96 1.19 07/17/97 08:57

Second ~~Blowout~~ DBR: Initial E2 at 1000 yr; R1,R2,R3



F15 CCA DBR (Volume) 55

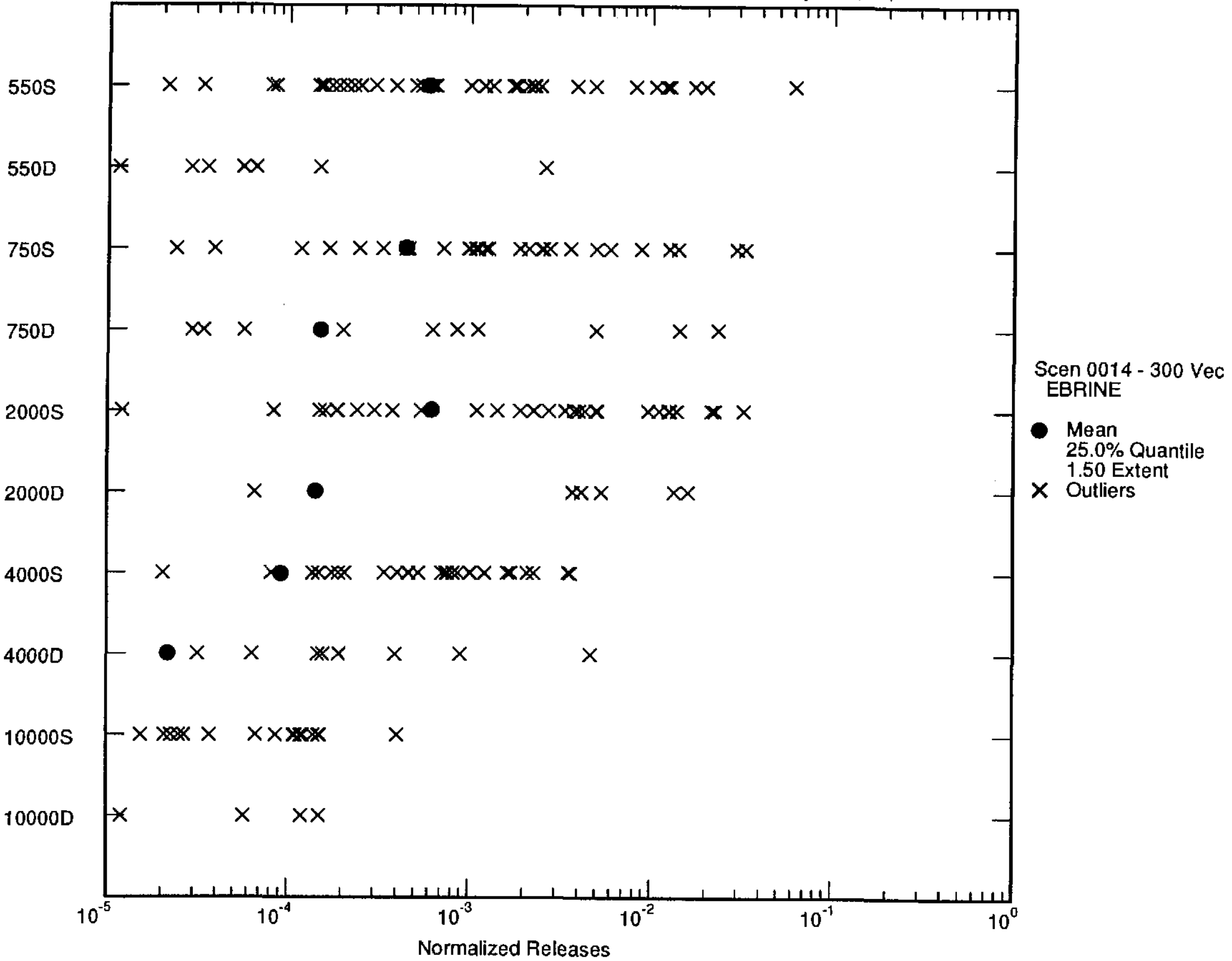
NUCPLOT PA96 1.19 07/17/97 08:57



F16 LCA DBR (ERA units) S1

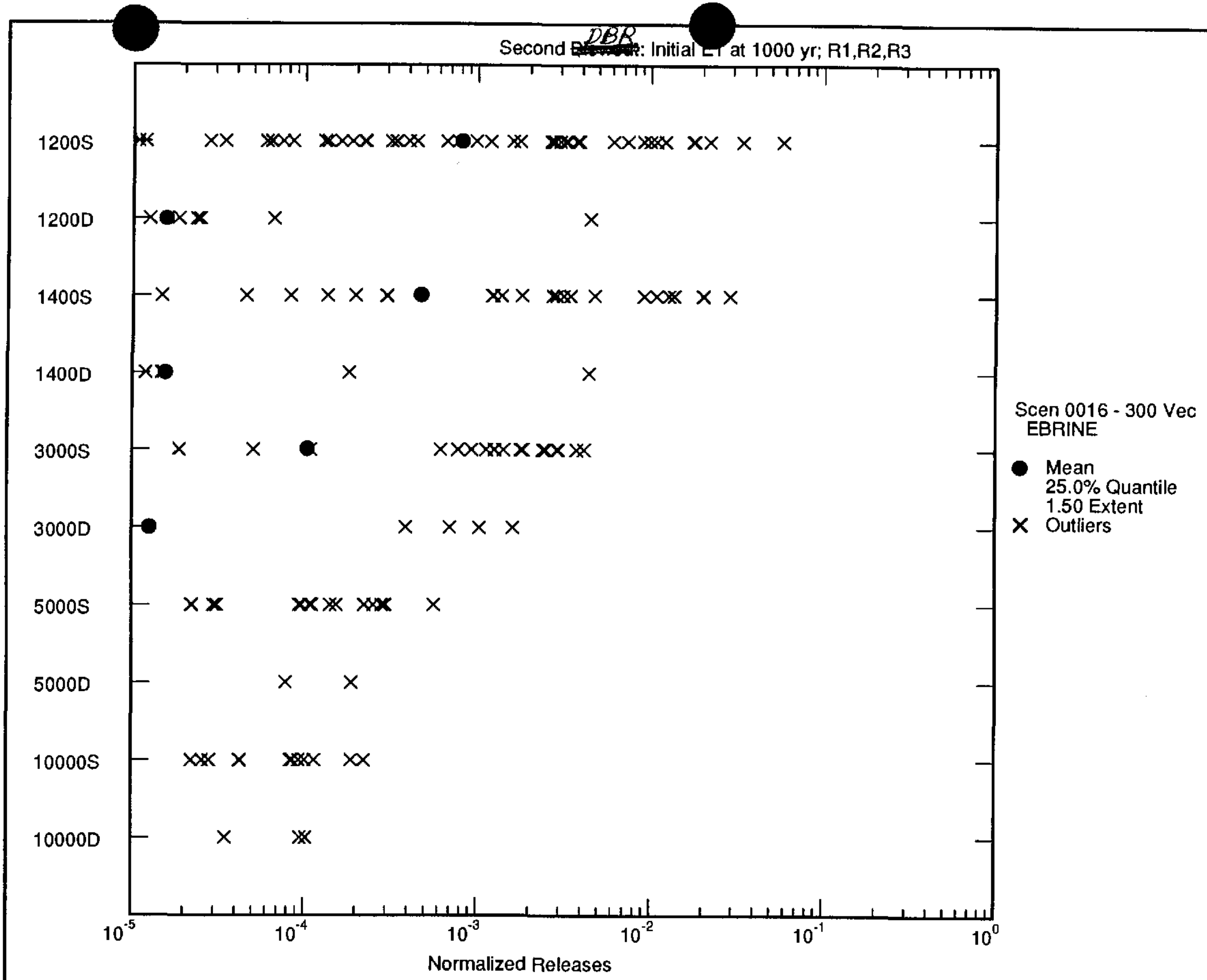
NUCPLOT_PA96 1.19 07/17/97 08:55

Second ~~Blowout~~ DBR: Initial E1 at 350 yr; R1,R2,R3



F17 CCA DBR (EPA Units) S2

NUCPLOT PA96 1.19 07/17/97 08:55



F18 CCA DBR (EPA units) S3

Second ~~Blowout~~ DBR: Initial E2 at 350 yr; R1,R2,R3

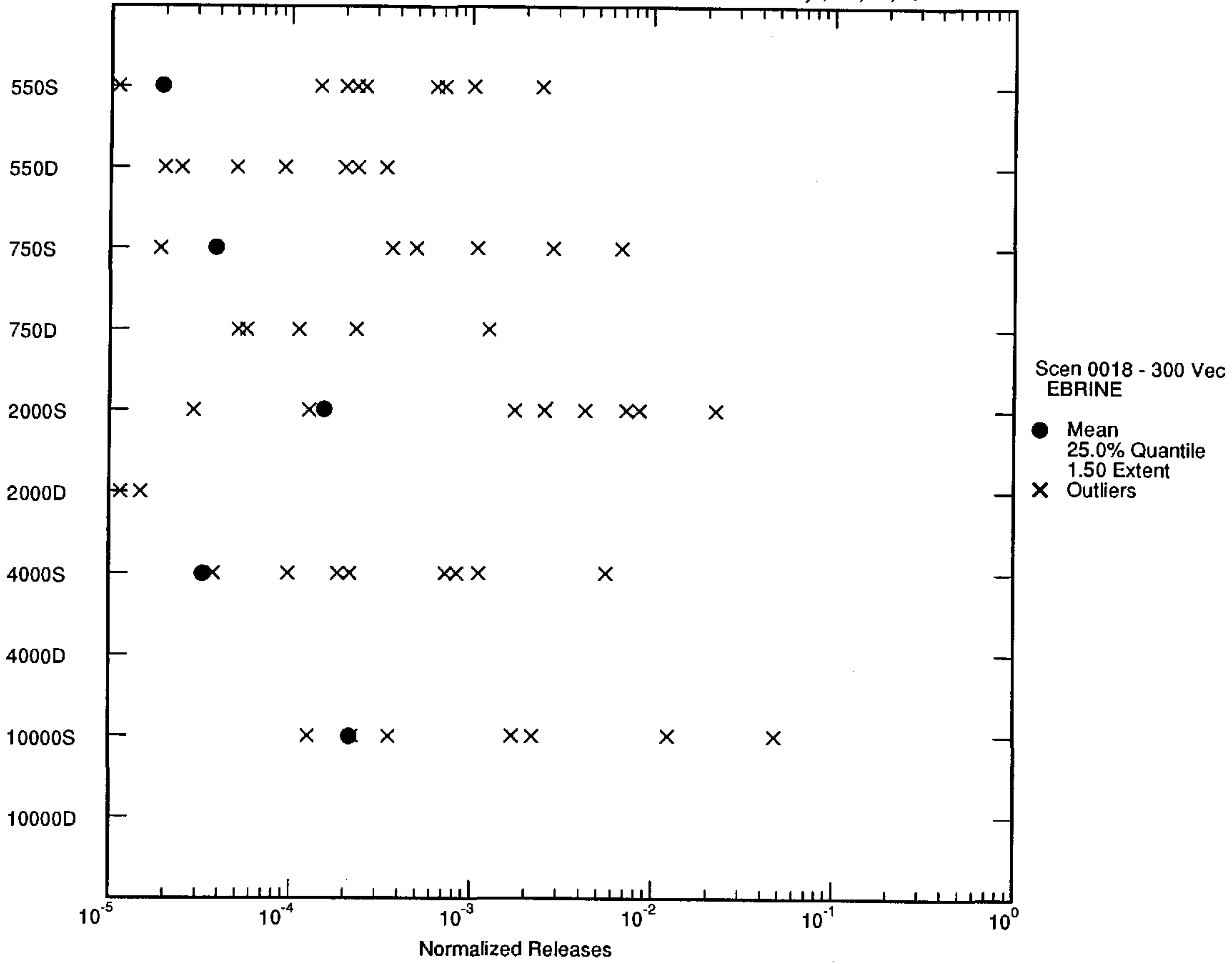
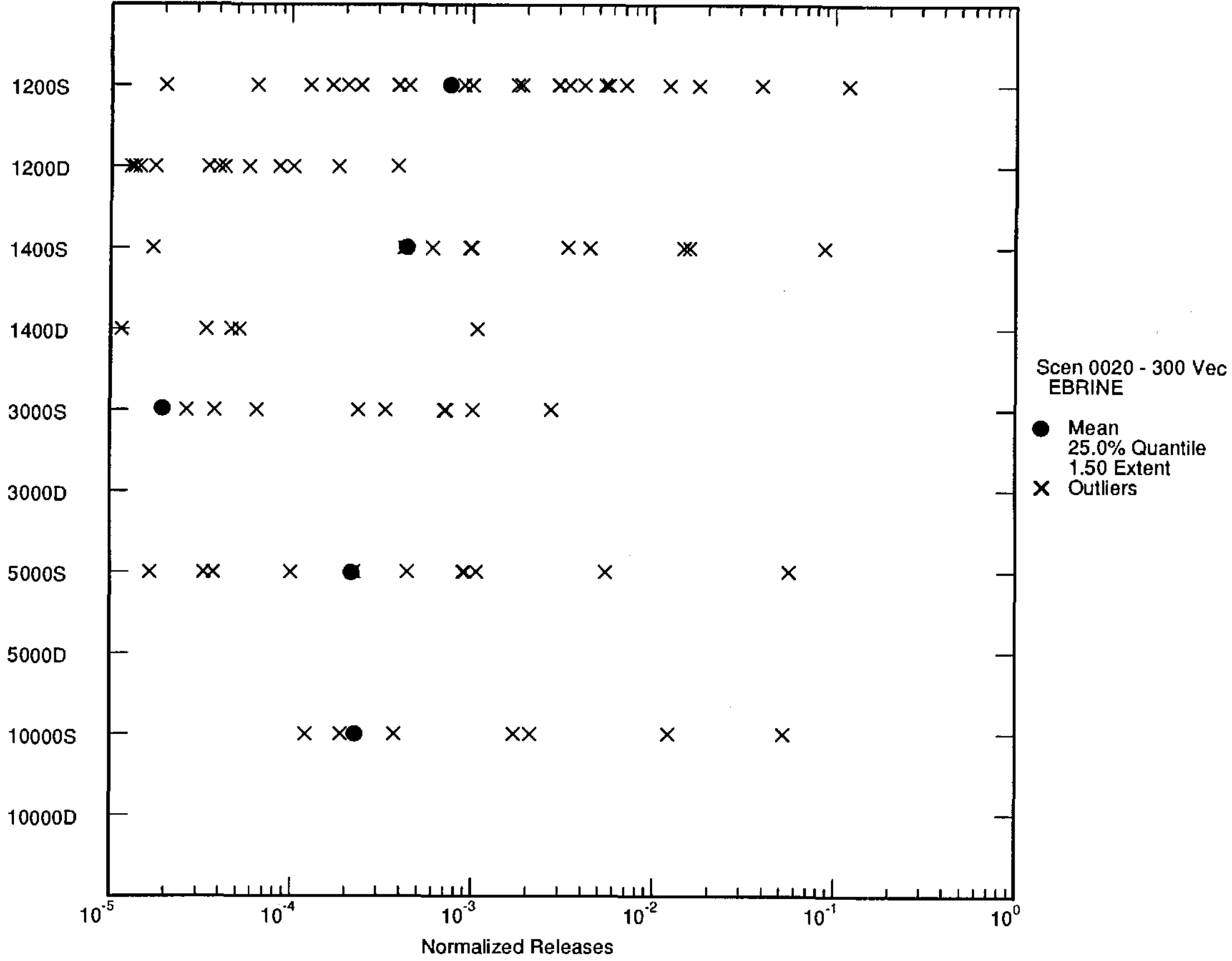


FIG CCA DBR (EPA Units) 54

NUCPLOT_PA96 1.19 07/17/97 08:56

Second ~~Blowout~~ DBR: Initial E2 at 1000 yr; R1,R2,R3



F20 CCA DBR (EPA limits) S5

NUCPLOT_PA96 1.19 07/17/97 08:56

APPENDIX G

CCDF_GF RESULTS

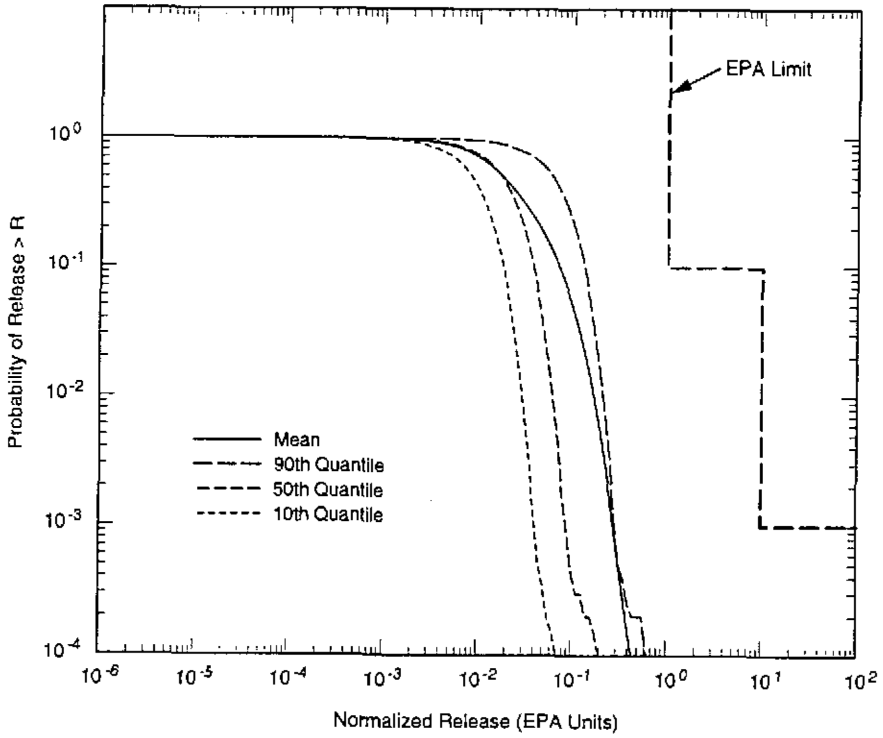
Appendix G includes Figures which contain CCDF results from CCDF_GF.

<u>Figures</u>

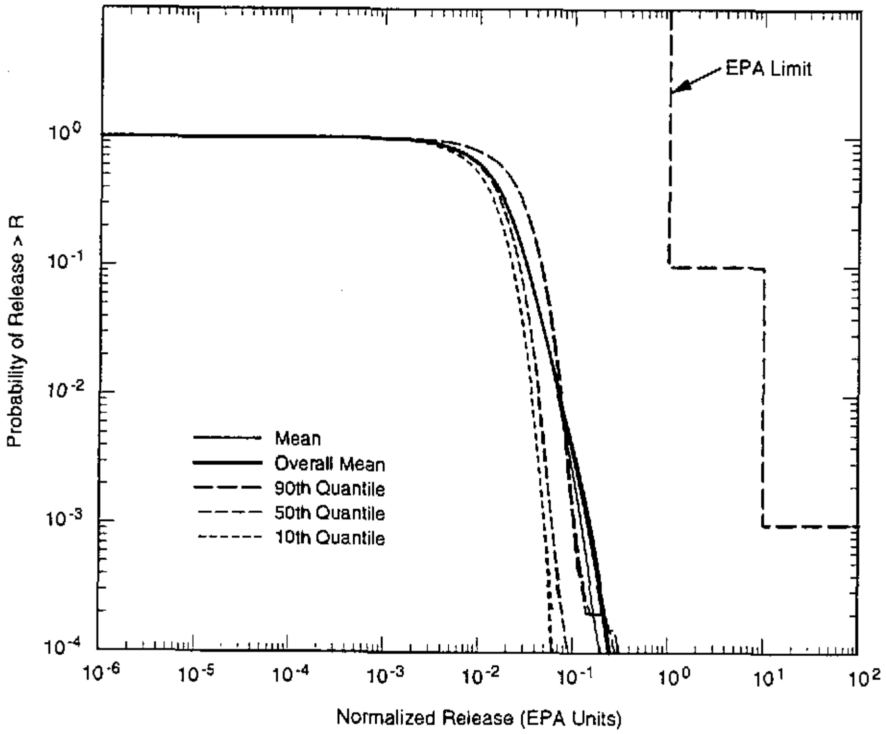
G.1	- G.3	Summary PAVT and CCA CCDFs for cuttings/cavings, spallings, and direct brine release (blowout)
G.4	- G.18	PAVT replicate 1 CCDFs
G.19	- G.77	CCA replicates 1,2, and 3 CCDFs

Note: Some of these figure titles use the term blowout instead of direct brine release. They are equivalent.

Cuttings Normalized Releases: PAVT-R1
100 Observations, 10000 Futures/Observation

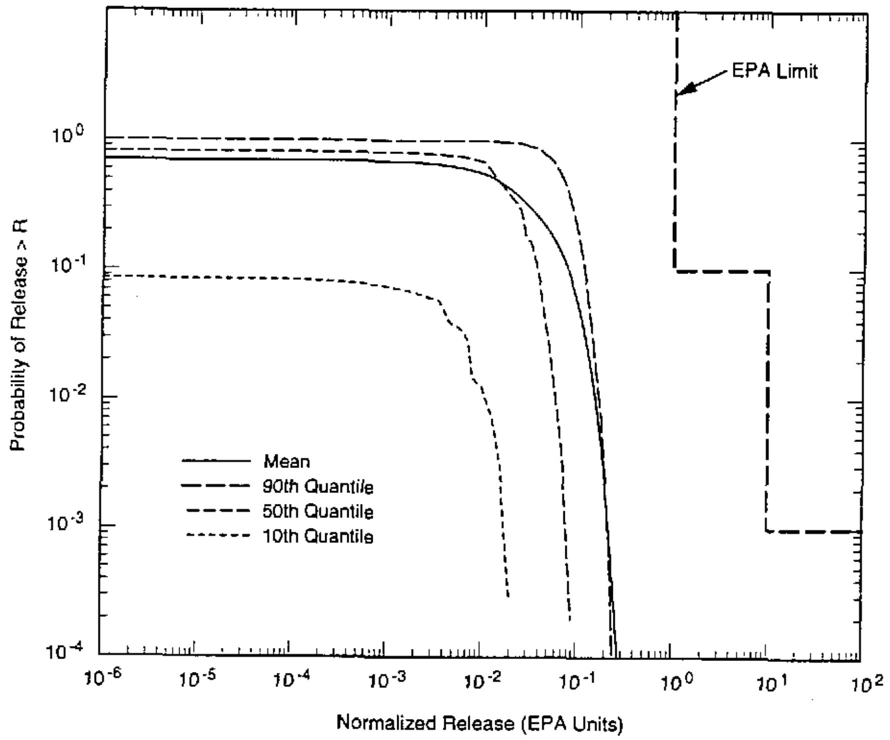


Cuttings Normalized Releases: CCA, R1, R2, R3
300 Observations, 10000 Futures/Observation

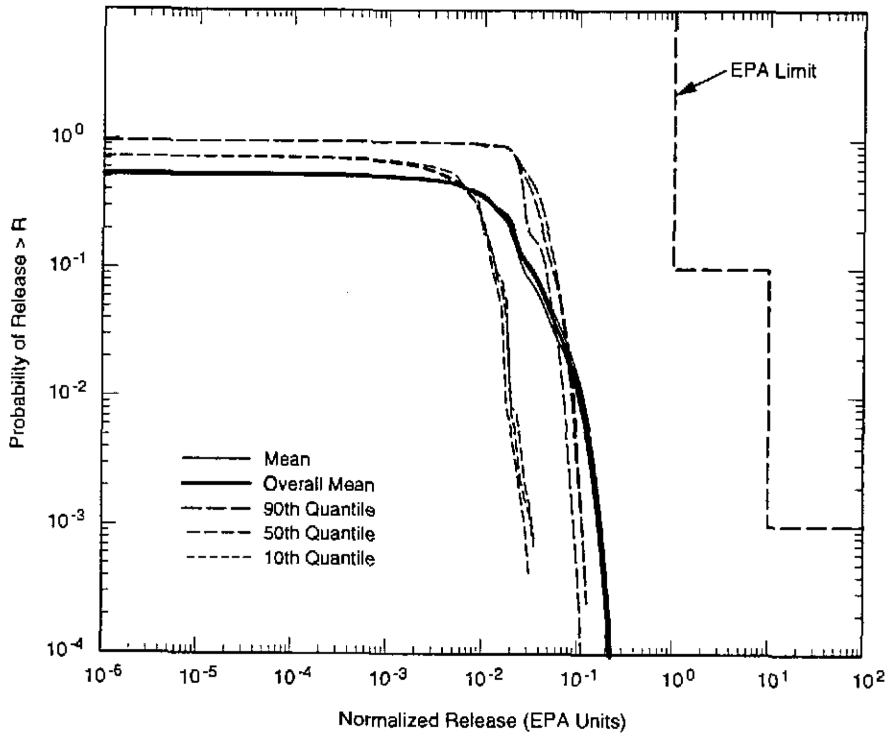


TRI-6342-5531-0

G.1



Spallings Normalized Releases: PAVT-R1
100 Observations, 10000 Futures/Observation

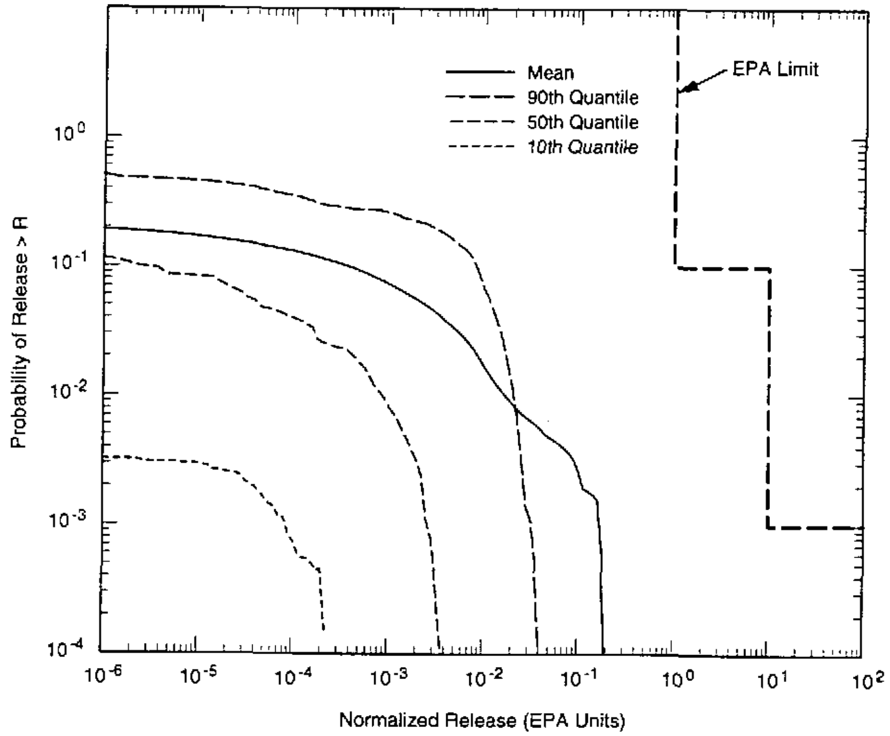


Spallings Normalized Releases: CCA, R1, R2, R3
300 Observations, 10000 Futures/Observation

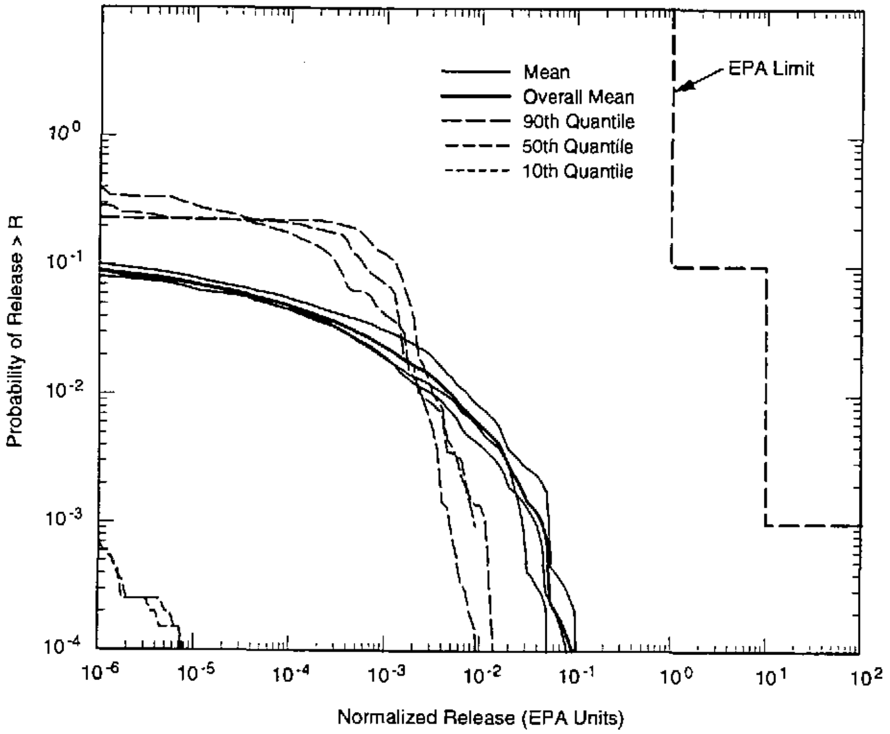
TRI-6342-5532-0

G.2

DBR
~~Blowout~~ Normalized Releases: PAVT-R1
100 Observations, 10000 Futures/Observation



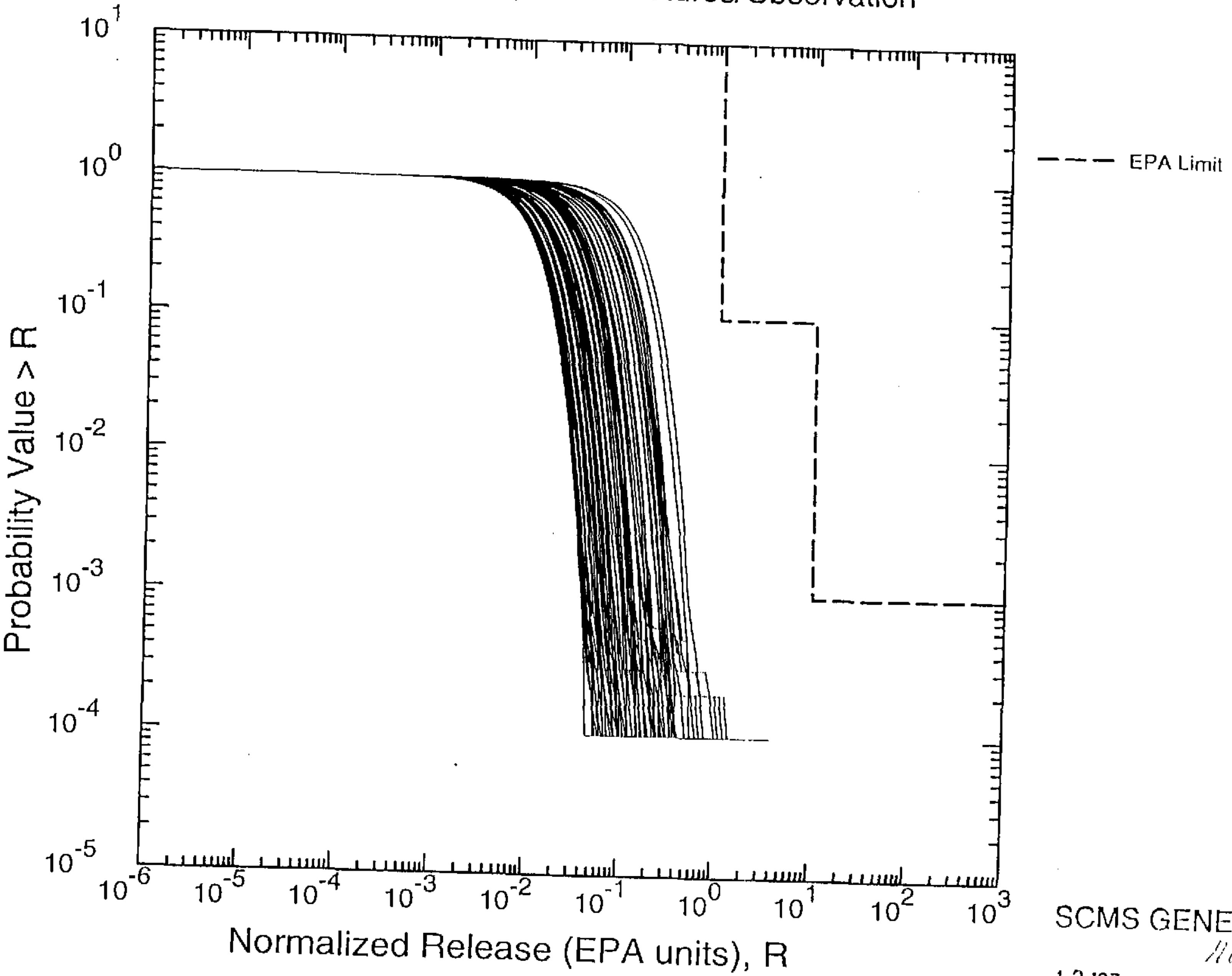
DBR
~~Blowout~~ Normalized Releases: CCA, R1, R2, R3
300 Observations, 10000 Futures/Observation



TRI-6342-5533-0

G.3

Cuttings Normalized Releases
100 Observations, 10000 Futures/Observation

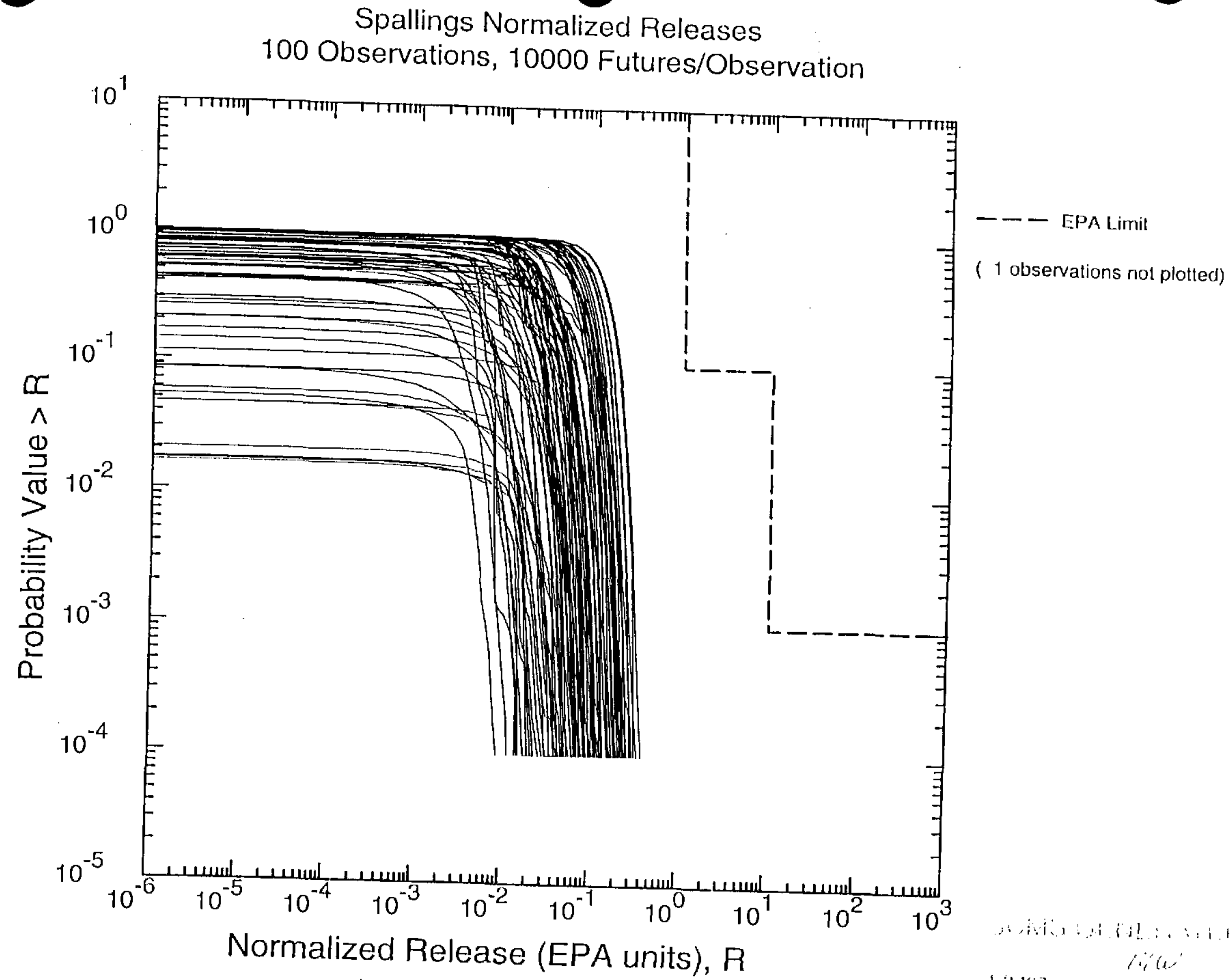


SCMS GENERATED
MC

JUL 13 '97 LOG # 0020

07/13/97 11:09:12

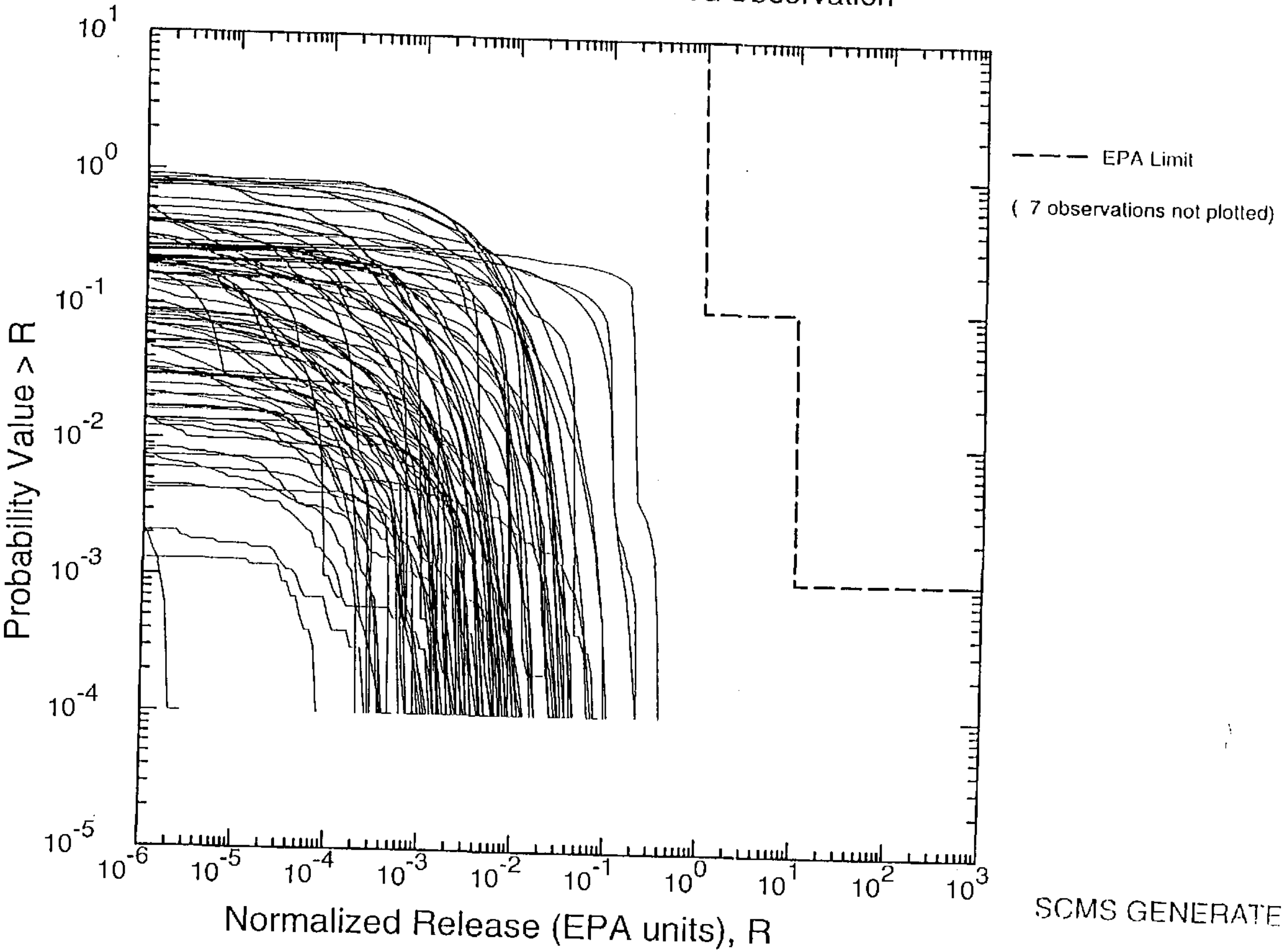
G.4



07/13/97 11:09:12

G.5

DBR
~~Blowout~~ Normalized Releases
100 Observations, 10000 Futures/Observation

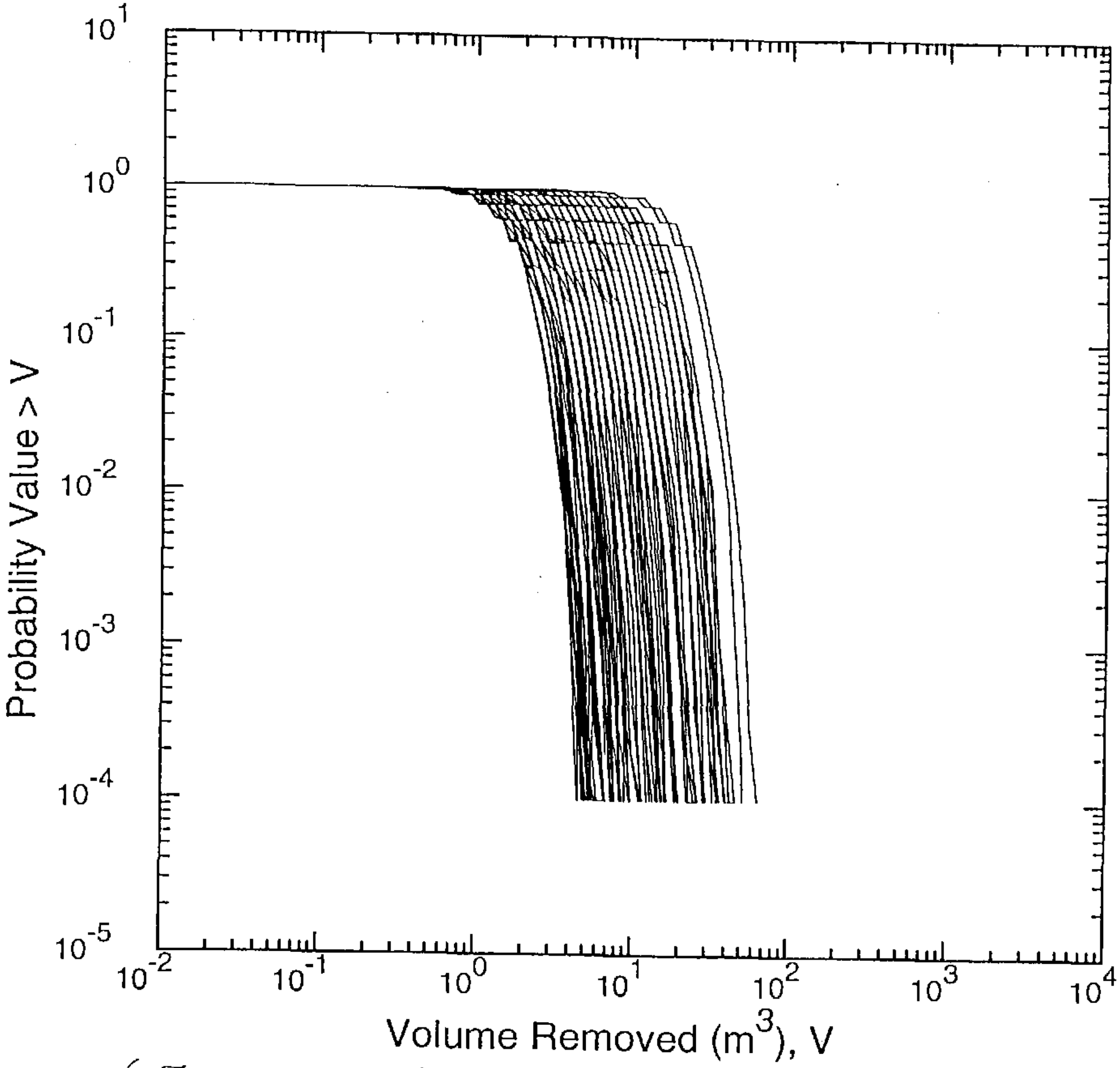


SCMS GENERATED

07/13/97 11:09:12

6.6

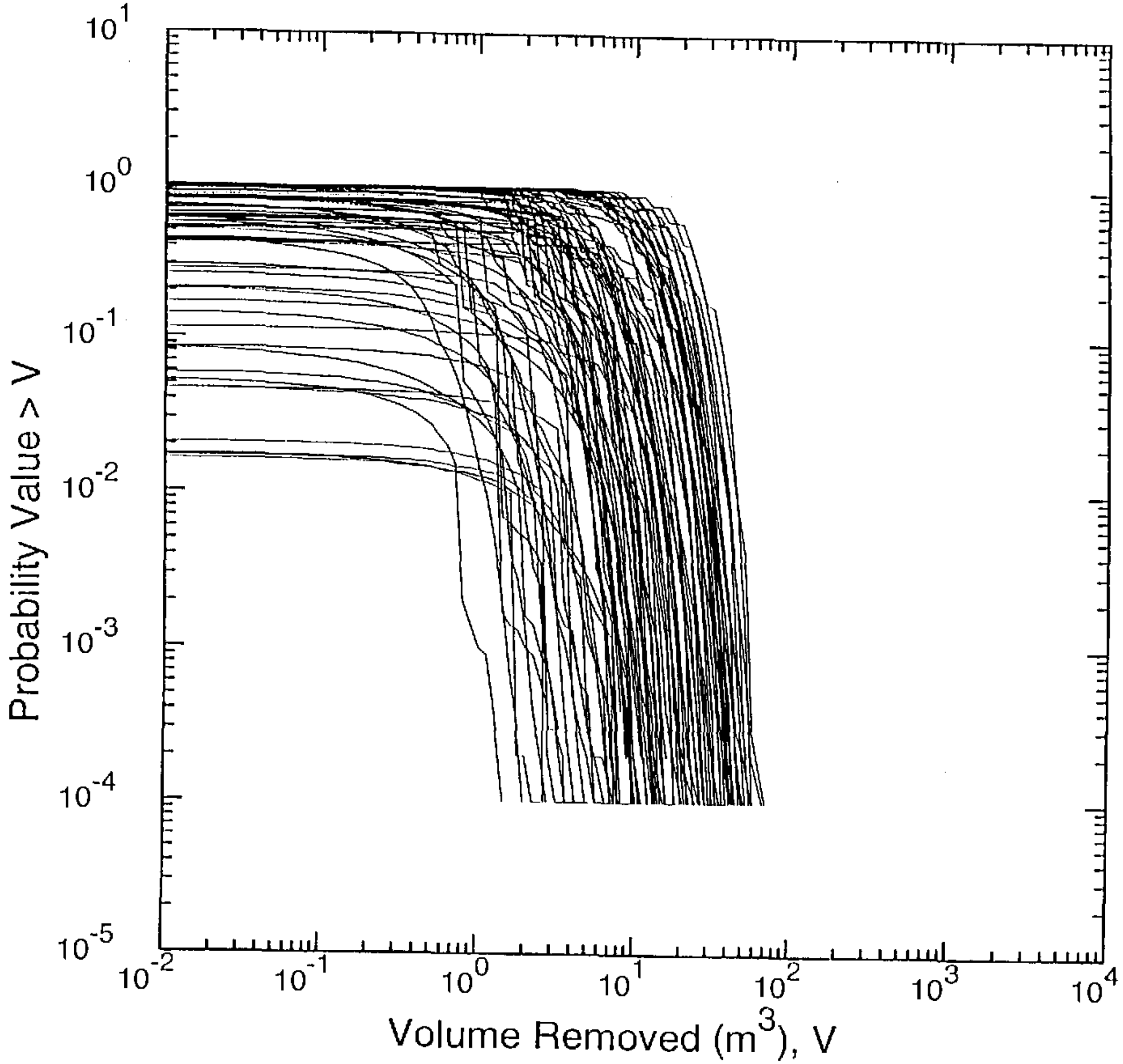
JUL 13 '97 LOG # 0020



07/13/97 11:09:12

6.7

Spallings Volume Releases
100 Observations, 10000 Futures/Observation



(1 observations not plotted)

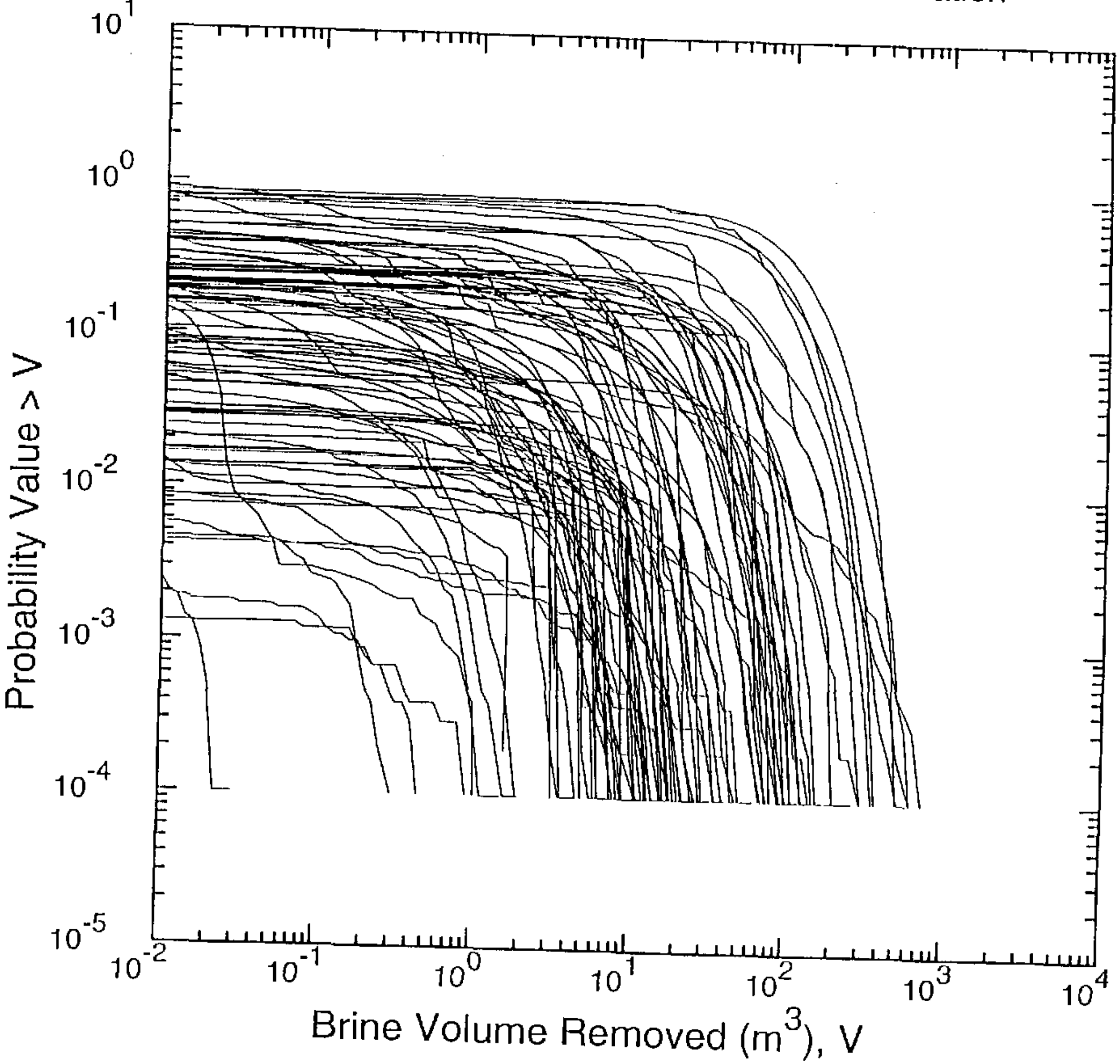
SCMS GENERATED

JUL 13 '97 LOG # 0020

07/13/97 11:09:12

6.8

~~Blowout~~ DBR Volume Releases
100 Observations, 10000 Futures/Observation



(7 observations not plotted)

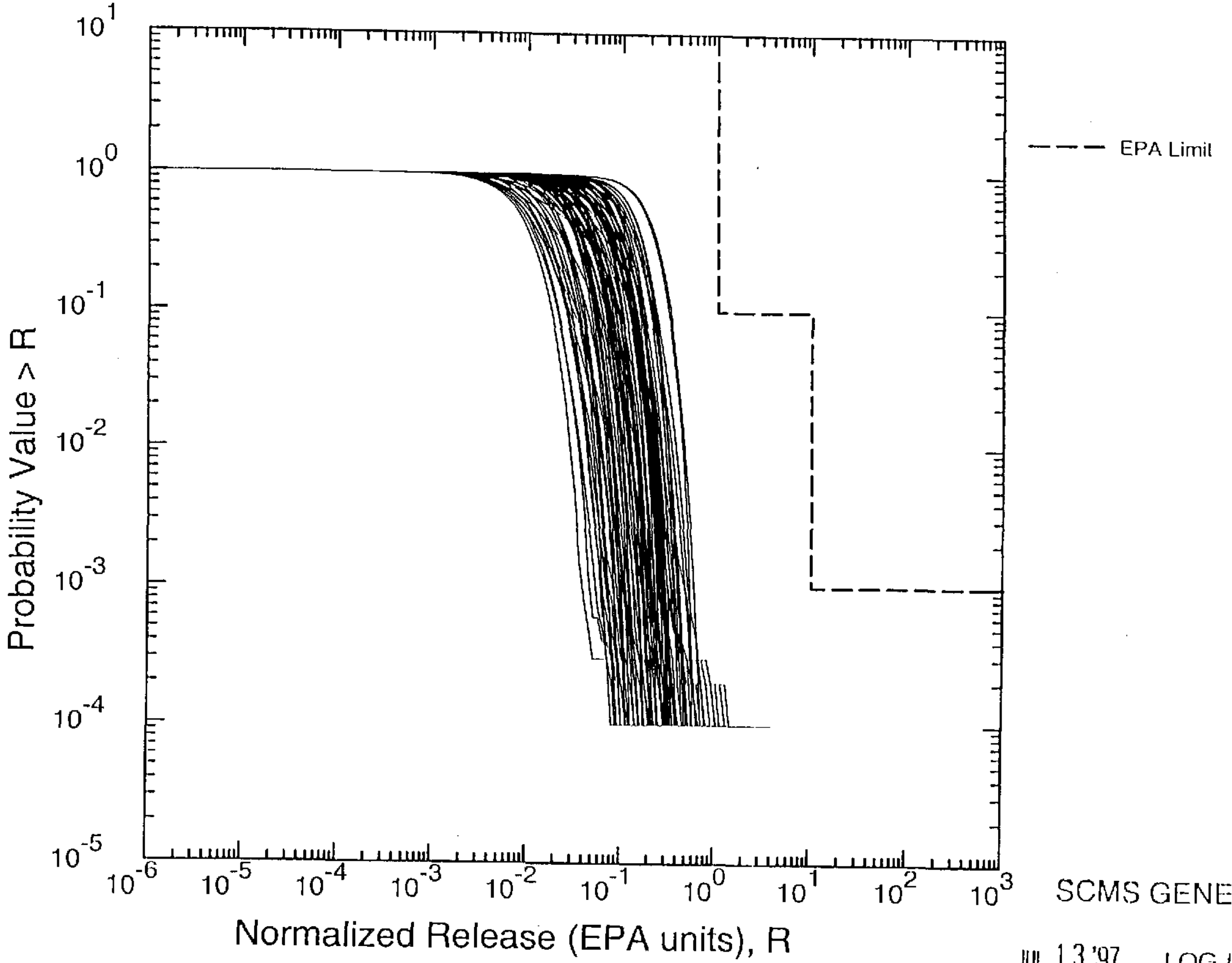
SCMS GENERATED

07/13/97 11:09:12

G.9

JUL 13 '97 LOG # 0020

Cutting+Spalling+~~Blowout~~ DBR Normalized Releases
100 Observations, 10000 Futures/Observation

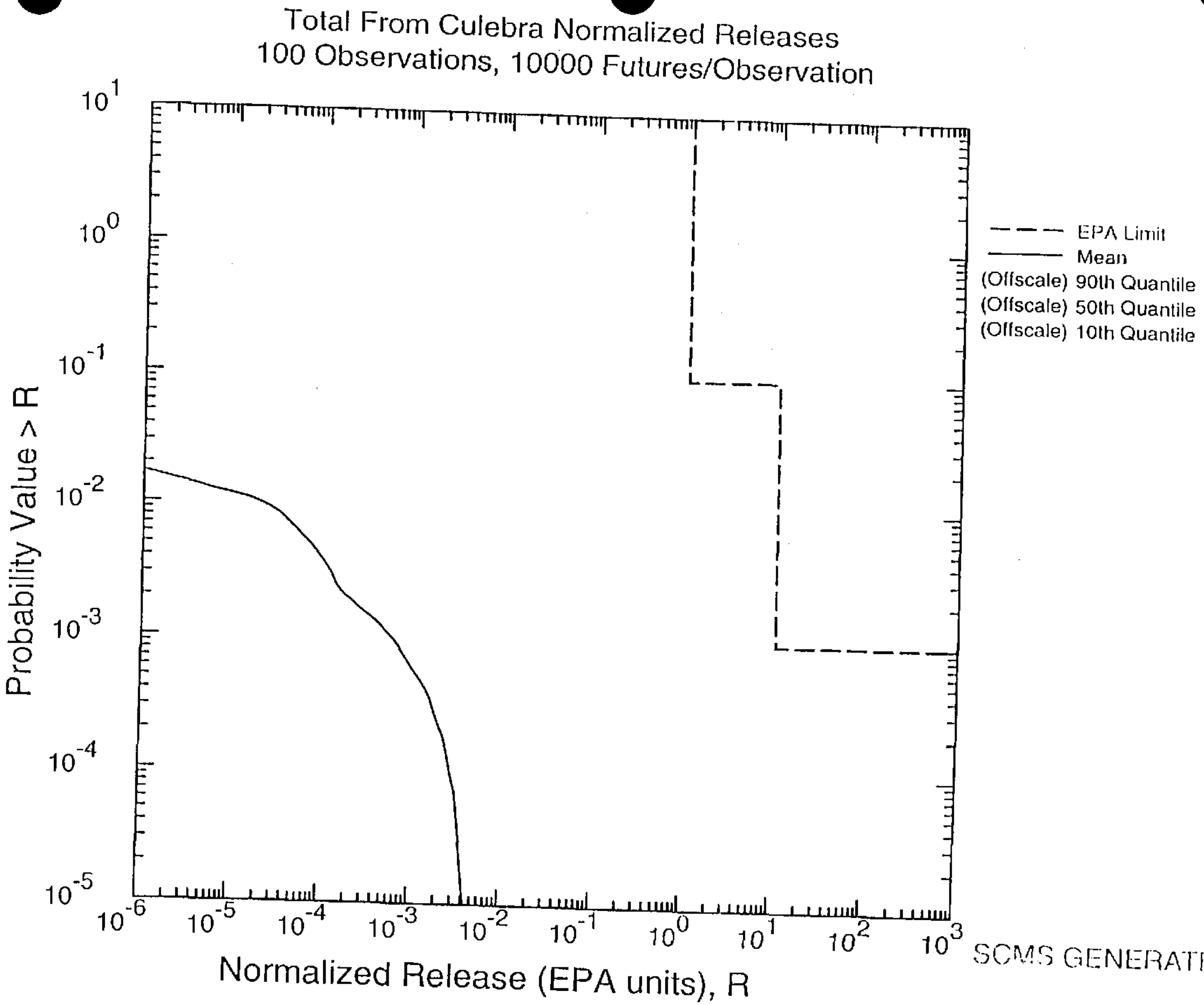


SCMS GENERATED

JUL 13 '97 LOG # 0020

07/13/97 11:09:12

G.10



Total From Culebra Normalized Releases
100 Observations, 10000 Futures/Observation

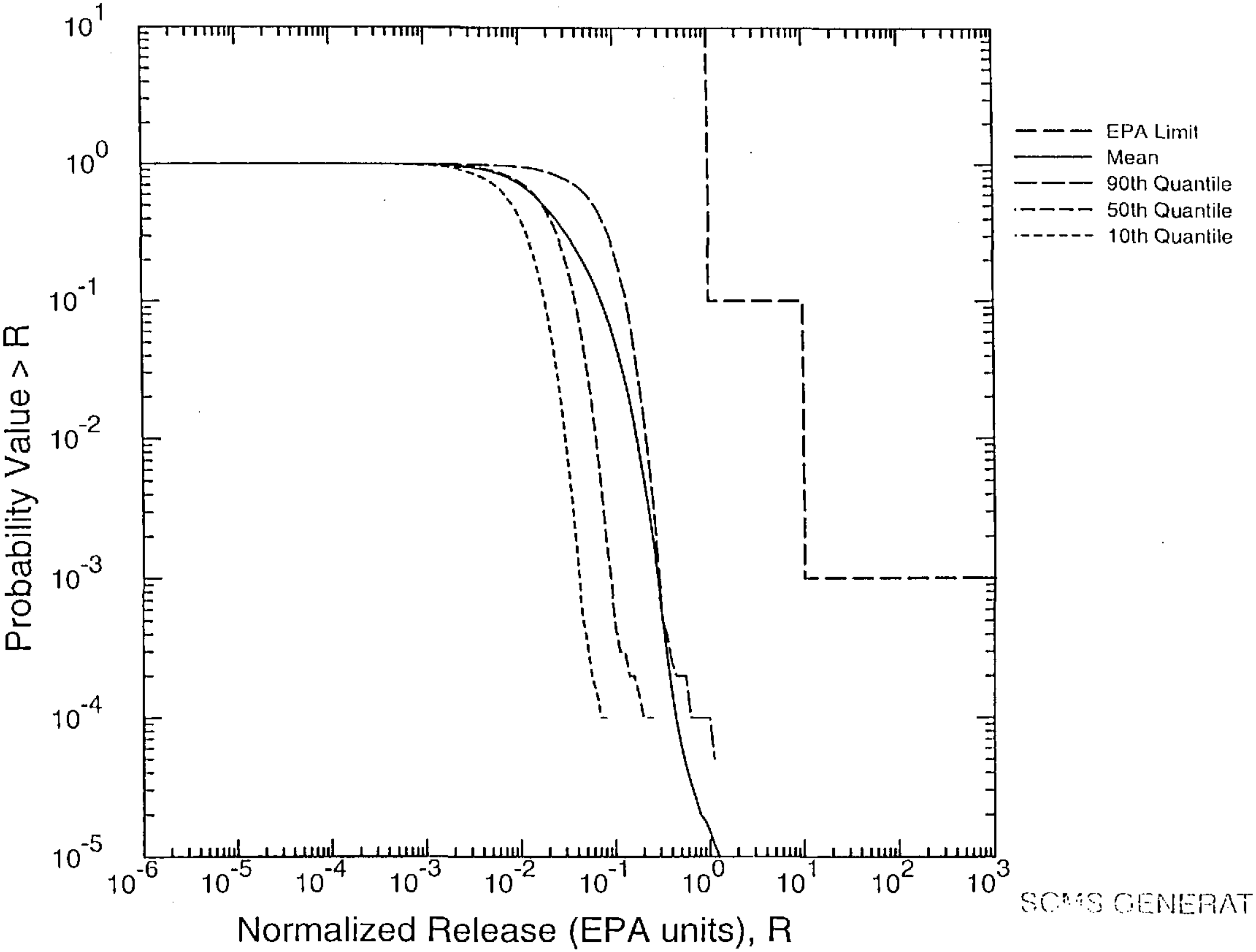
SCMS GENERATED

07/13/97 11:09:12

G.11

JUL 13 '97 LOG # 0020

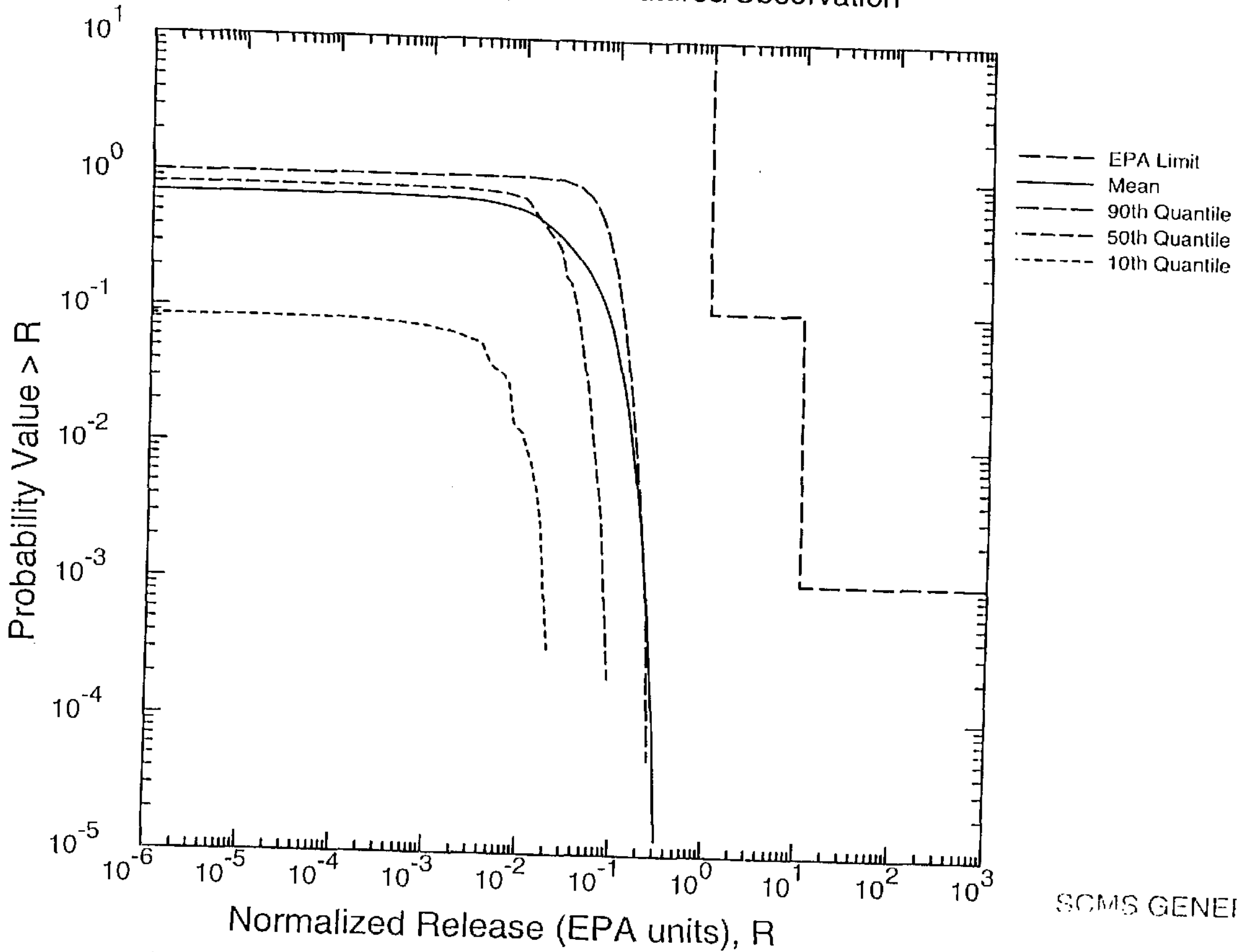
Cuttings Normalized Releases
100 Observations, 10000 Futures/Observation



07/13/97 11:09:12

G.12

Spallings Normalized Releases
100 Observations, 10000 Futures/Observation

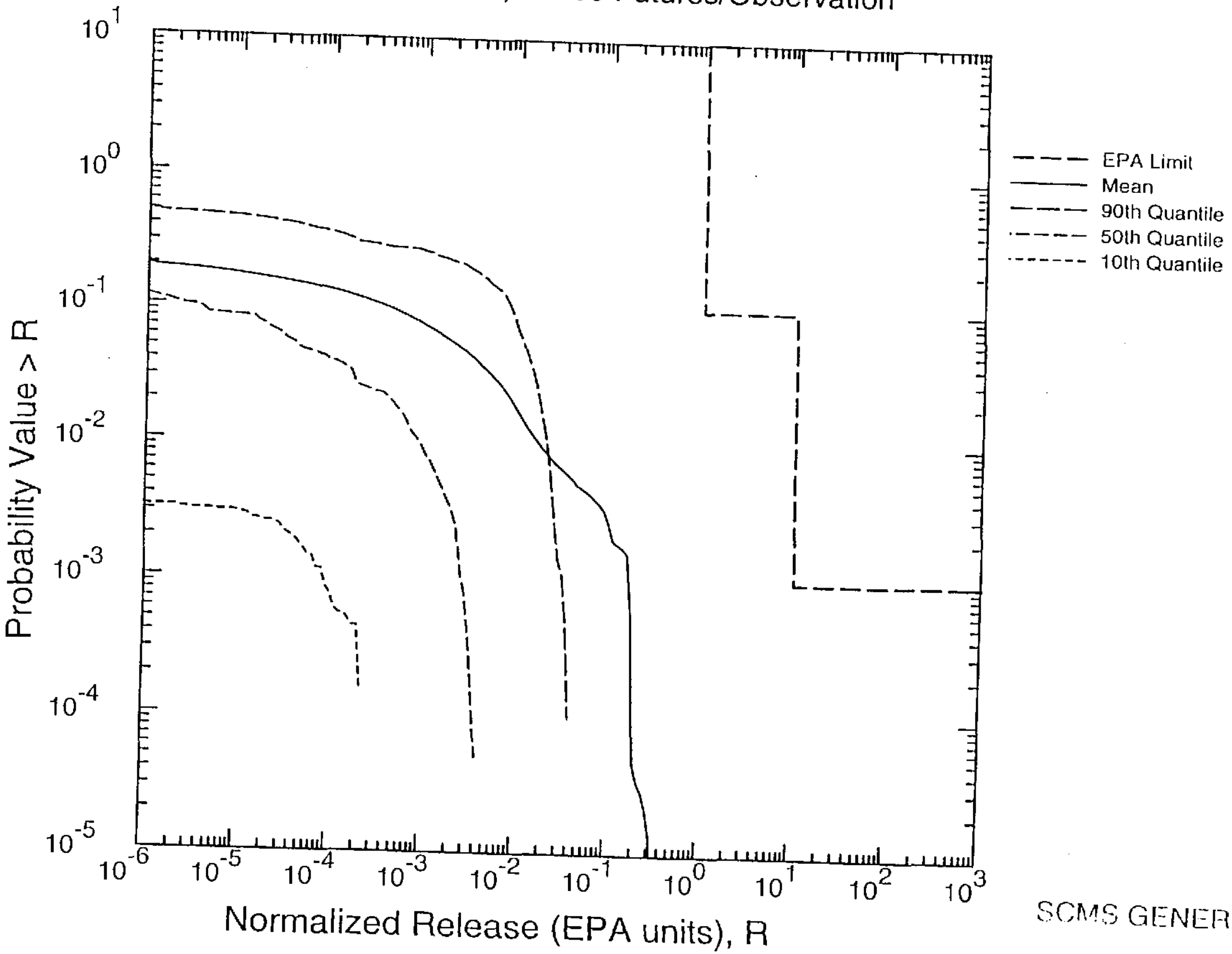


07/13/97 11:09:12

G.13

DBR

[redacted]t Normalized Releases
100 Observations, 10000 Futures/Observation



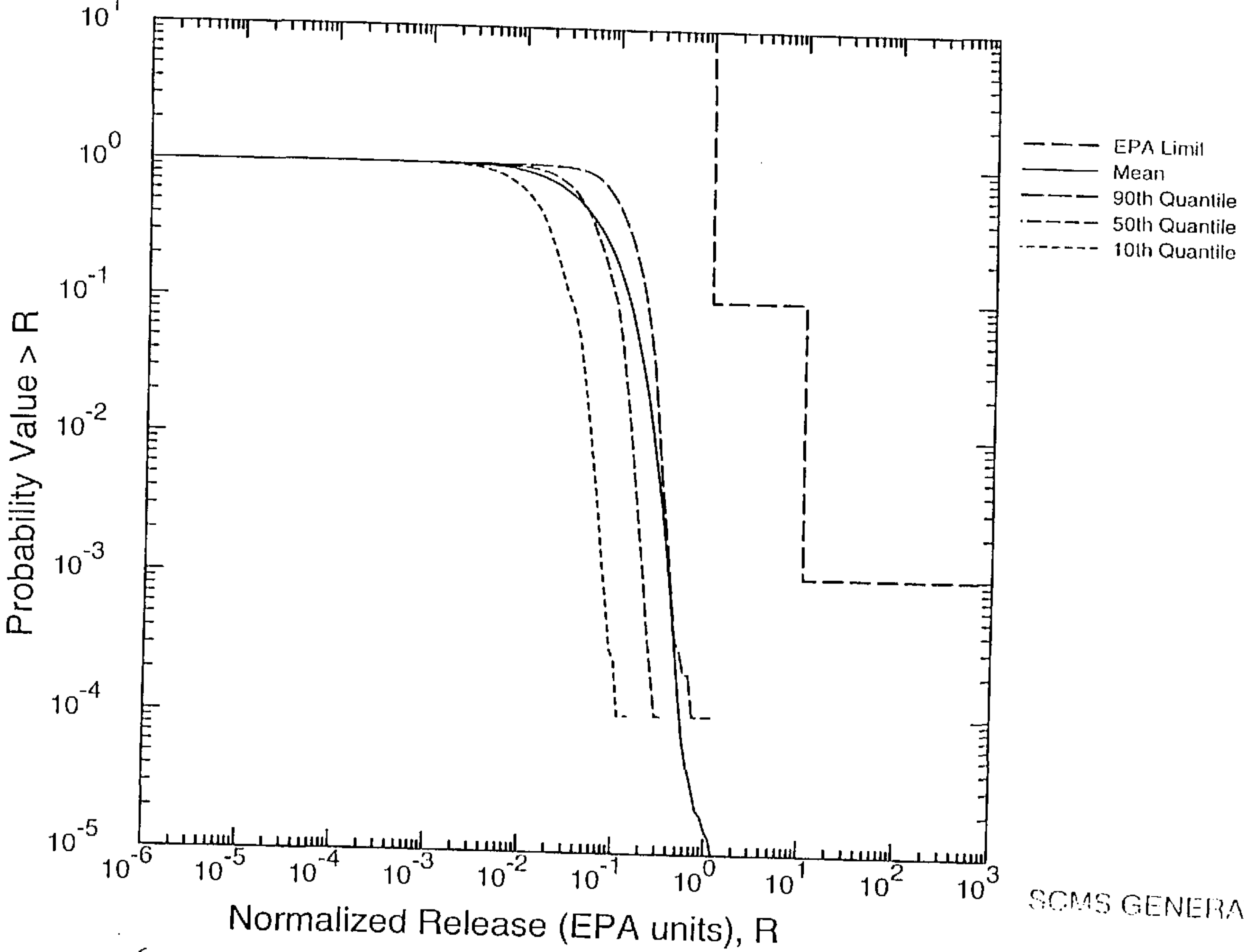
SCMS GENERATED

07/13/97 11:09:12

G. 14

JUL 13 '97 LOG # 0020

Cutting+Spalling+~~Blowout~~ DBR Normalized Releases
100 Observations, 10000 Futures/Observation

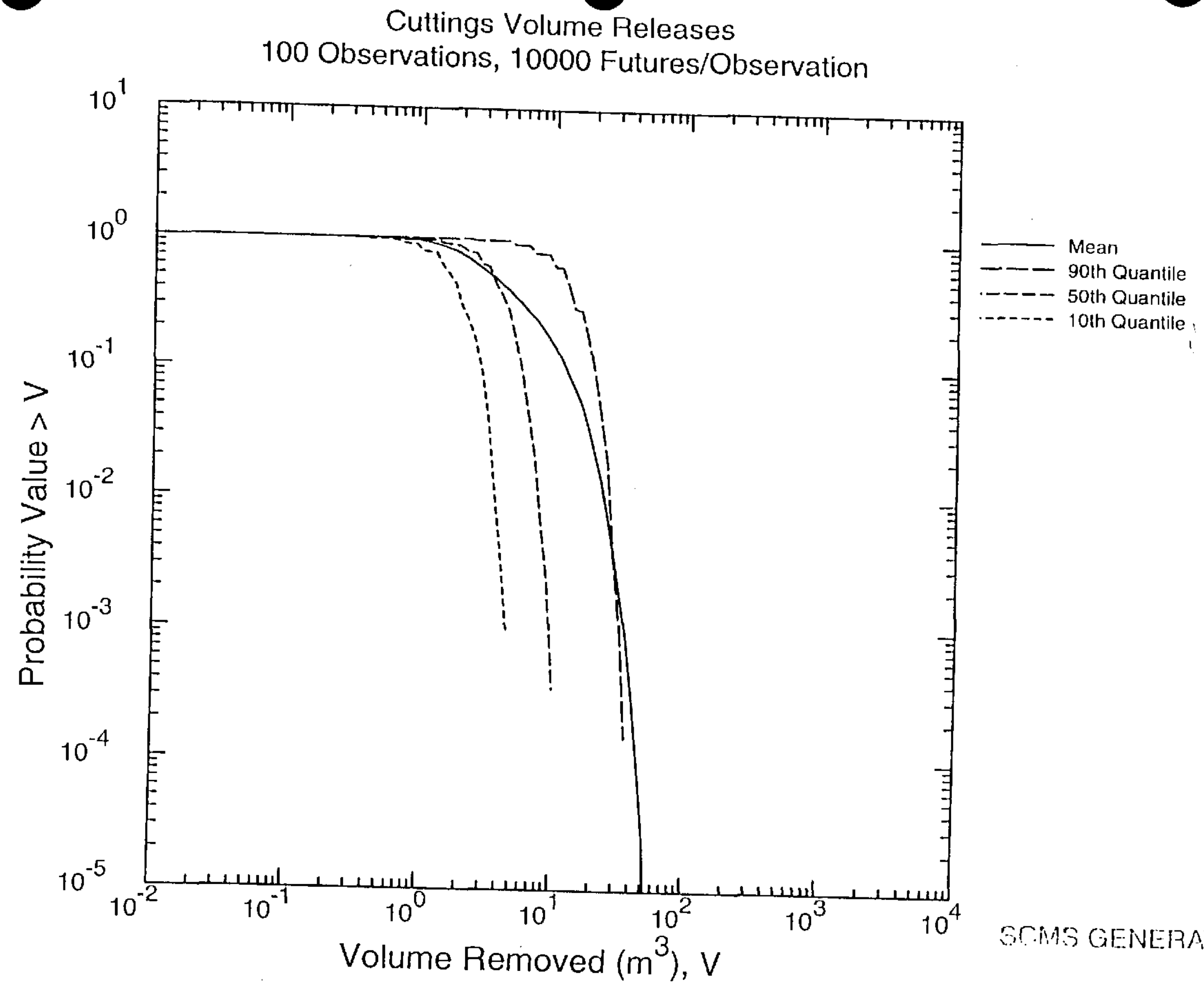


SCMS GENERATED

07/13/97 11:09:12

G.15

JUL 13 '97 LOG # 0020

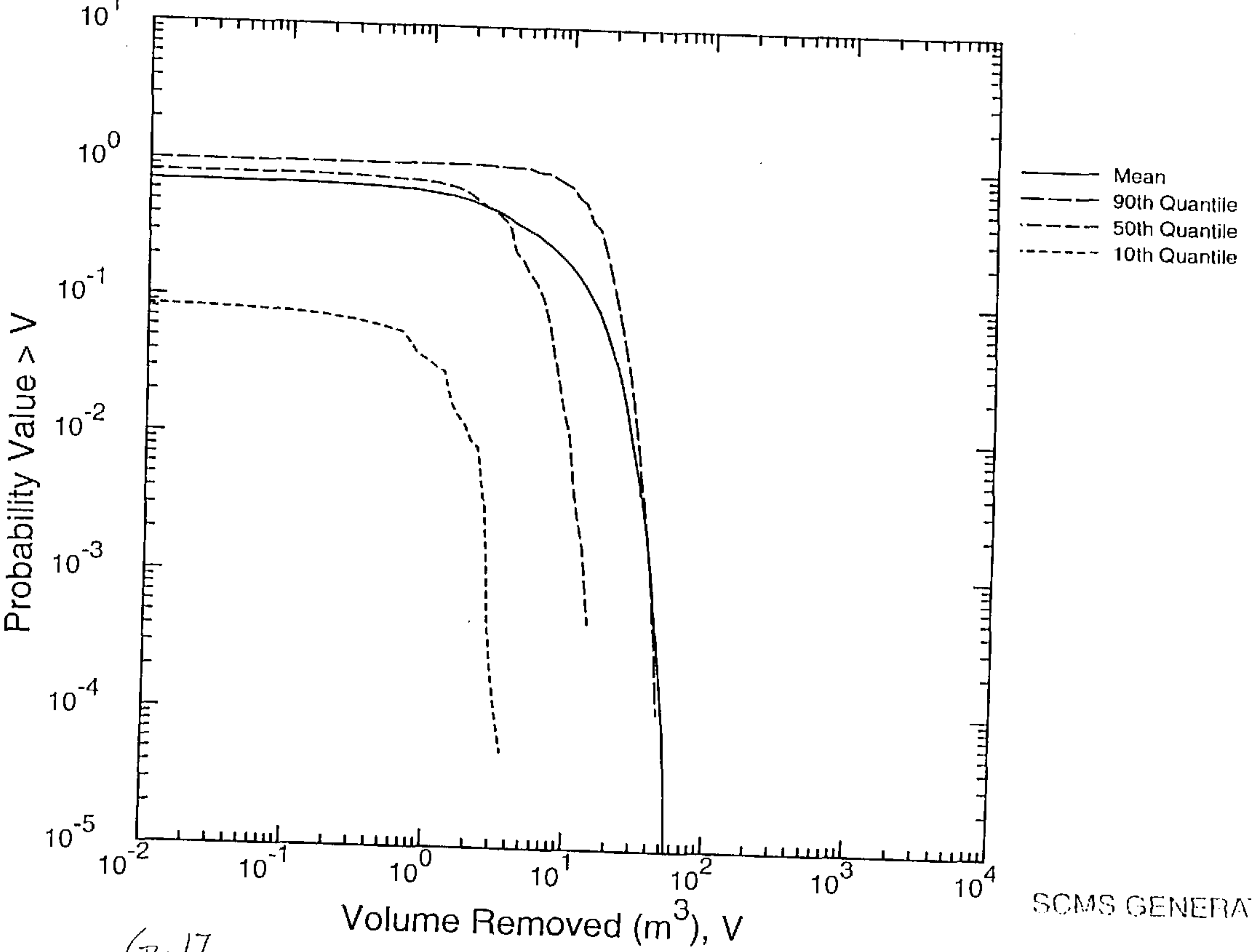


SCMS GENERATED

07/13/97 11:09:12

G.16

JUL 13 '97 LOG # 0020



Spallings Volume Releases
100 Observations, 10000 Futures/Observation

G.17

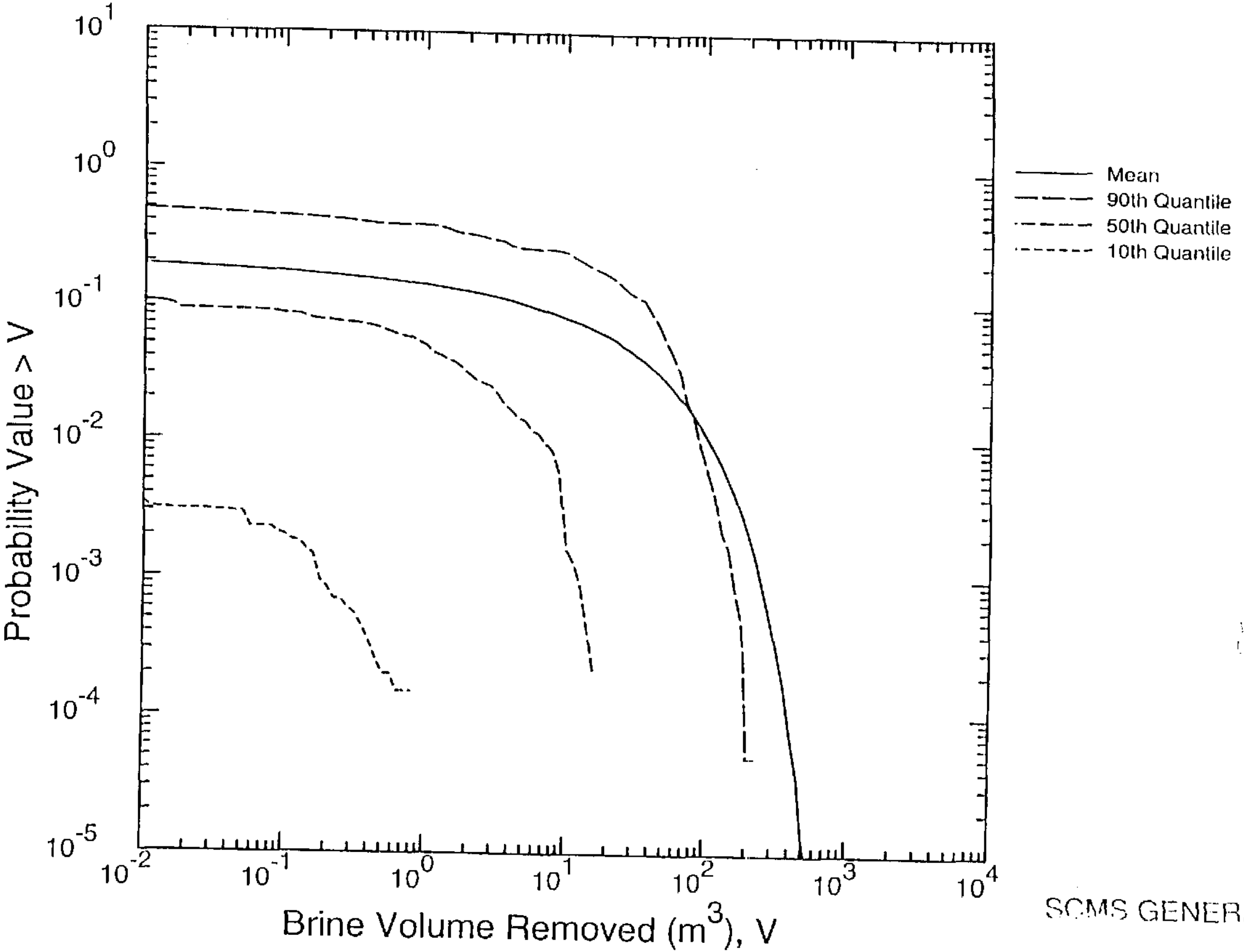
07/13/97 11:09:12

SCMS GENERATED

JUL 13 '97 LOG # 0020

DBR

[redacted]t Volume Releases
100 Observations, 10000 Futures/Observation

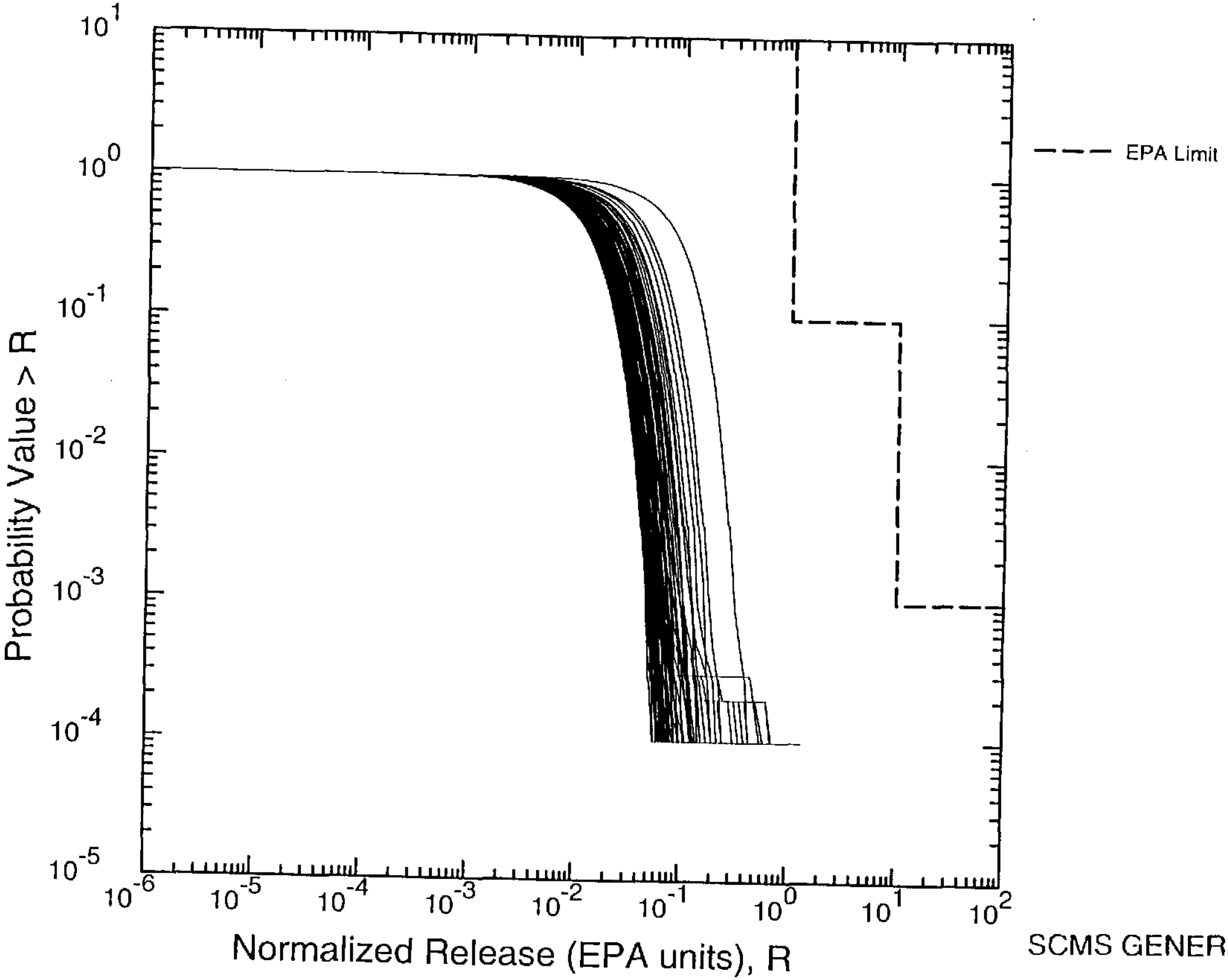


SCMS GENERATED

07/13/97 11:09:12

G.18

JUL 13 '97 LOG # 0020



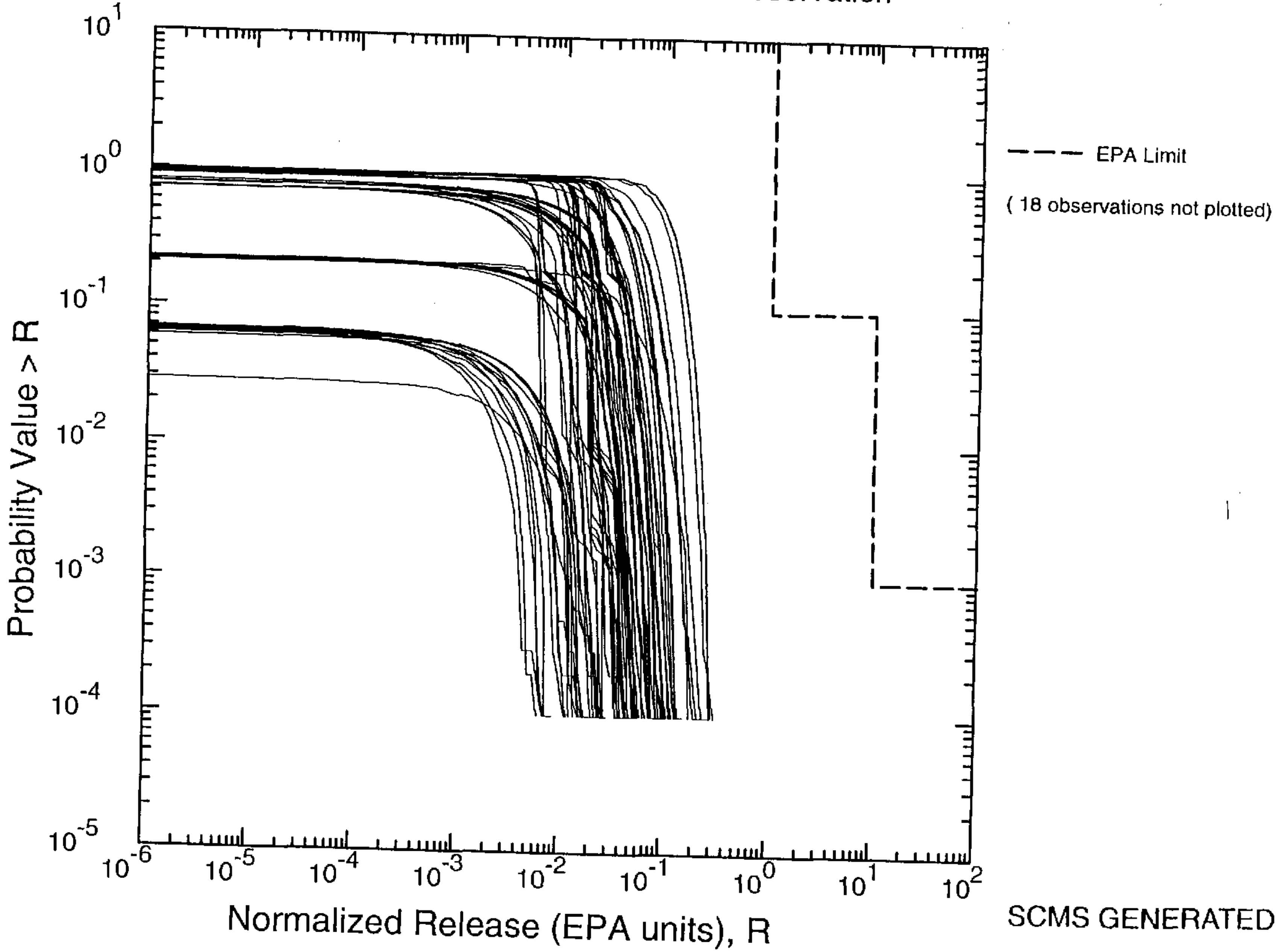
Cuttings Normalized Releases: R1
100 Observations, 10000 Futures/Observation

SCMS GENERATED

10/07/96 11:20:11

G.19

OCT 07 '96 LOG # 0006



Spallings Normalized Releases: R1
100 Observations, 10000 Futures/Observation

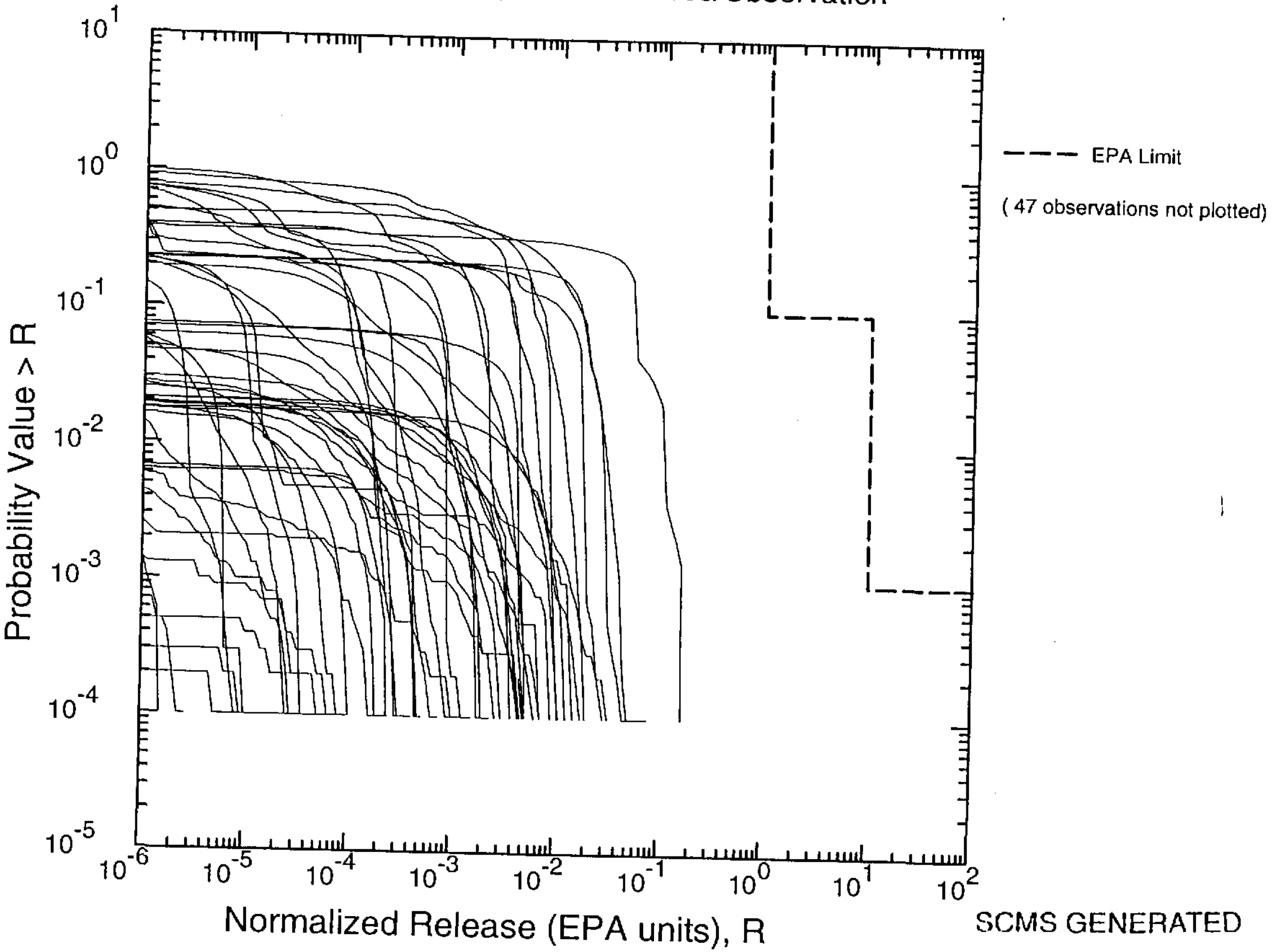
SCMS GENERATED

10/07/96 11:20:11

G.20

OCT 07 '96 LOG # 0006

DBR
~~Blowout~~ Normalized Releases: R1
100 Observations, 10000 Futures/Observation



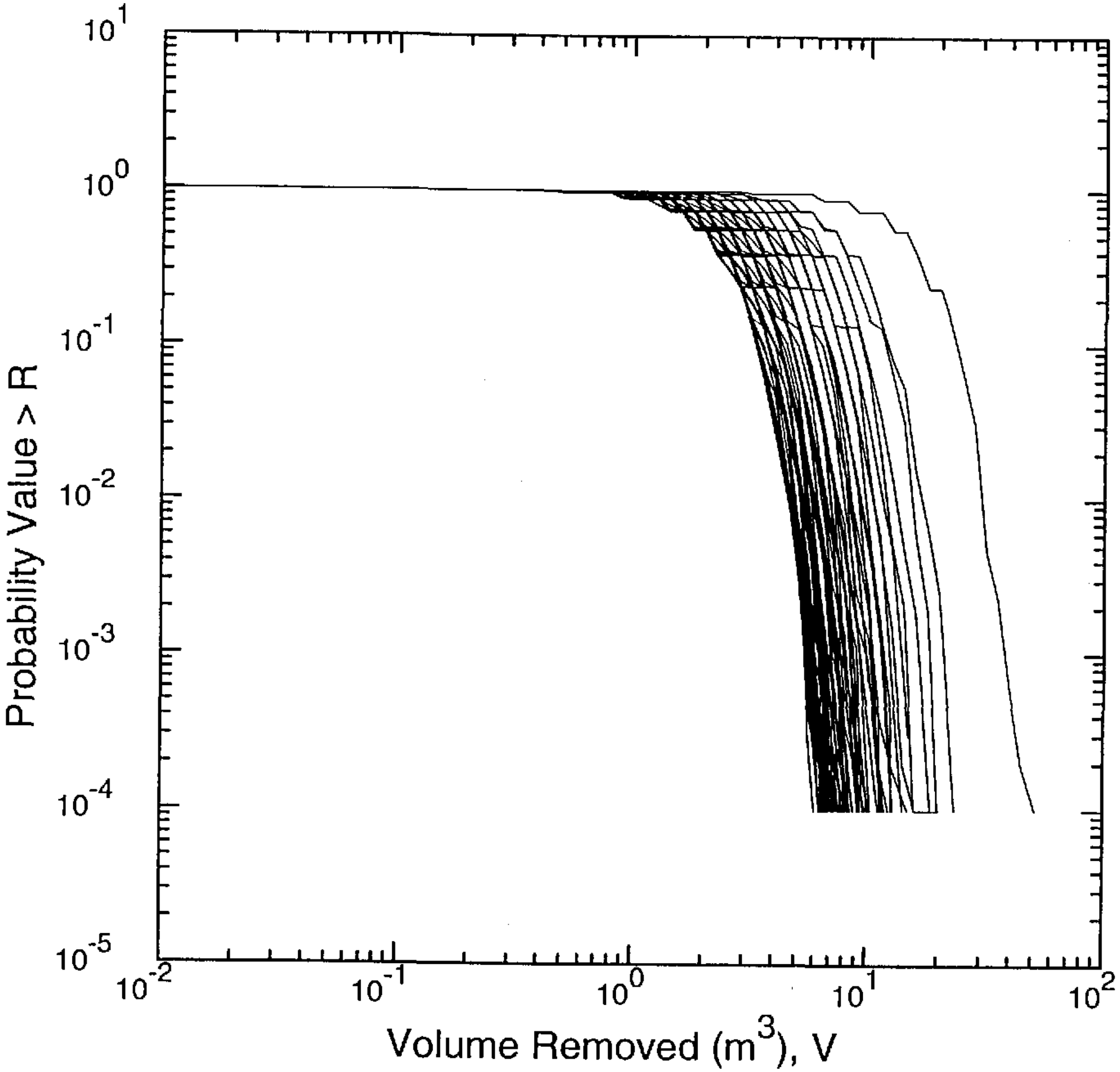
SCMS GENERATED

10/07/96 11:20:11

G.21

OCT 07 '96 LOG # 0006

Cuttings Volume Releases: R1
100 Observations, 10000 Futures/Observation

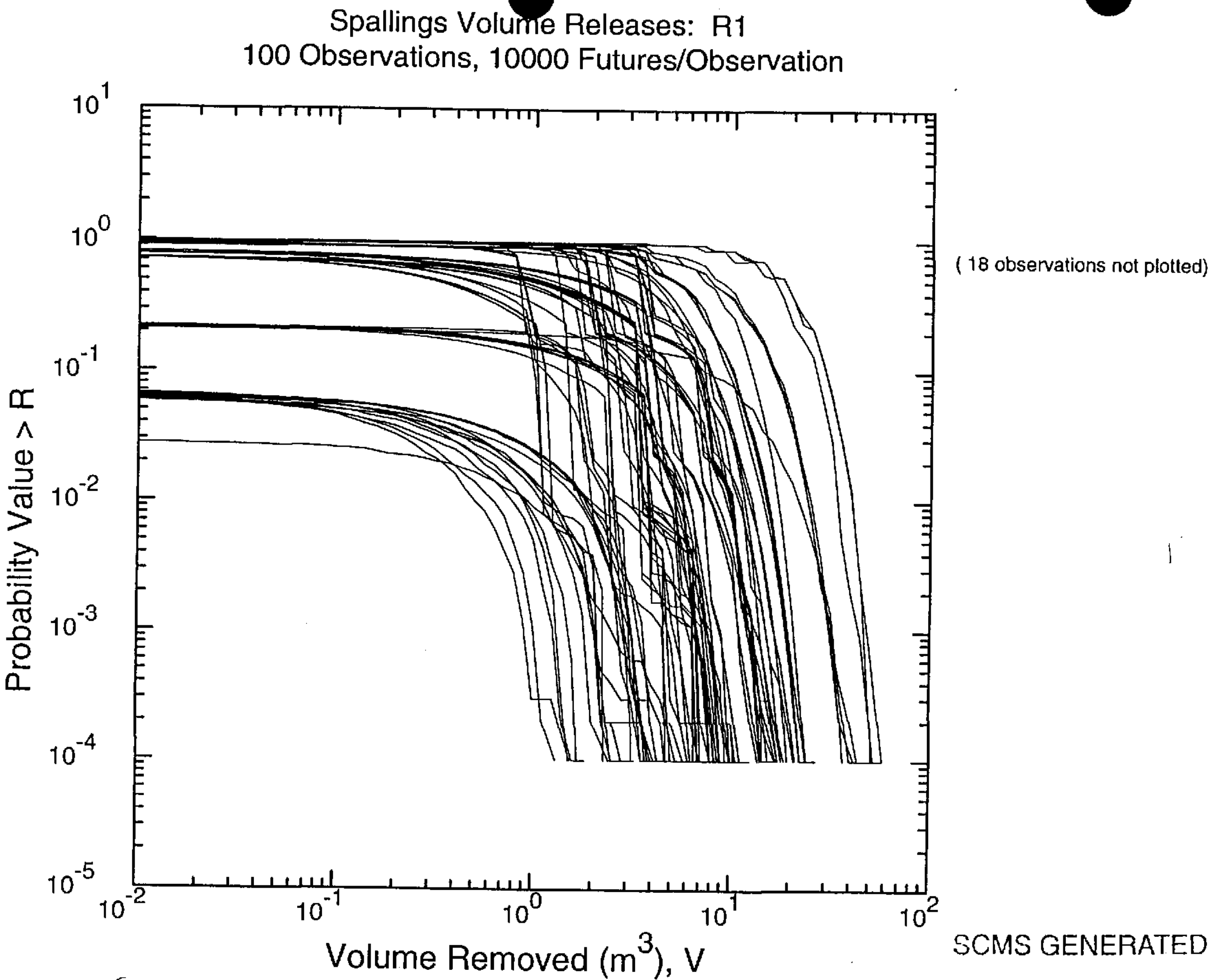


SCMS GENERATED

10/07/96 11:20:11

G.22

OCT 07 '96 LOG # 0006



SCMS GENERATED

G.23

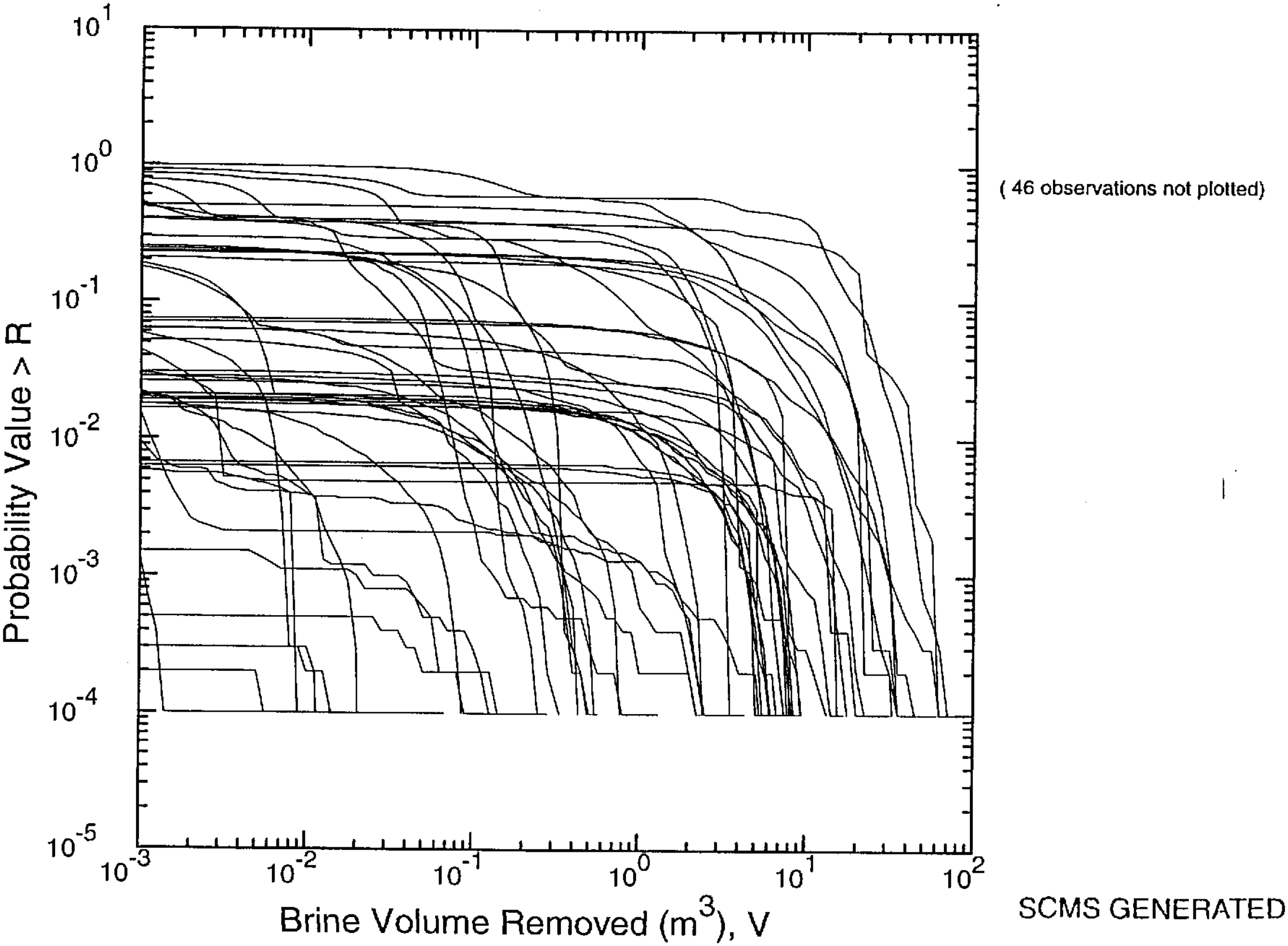
10/07/96 11:20:11

OCT 07 '96 LOG # 0006

DBR

~~Blowout~~ Volume Releases: R1

100 Observations, 10000 Futures/Observation

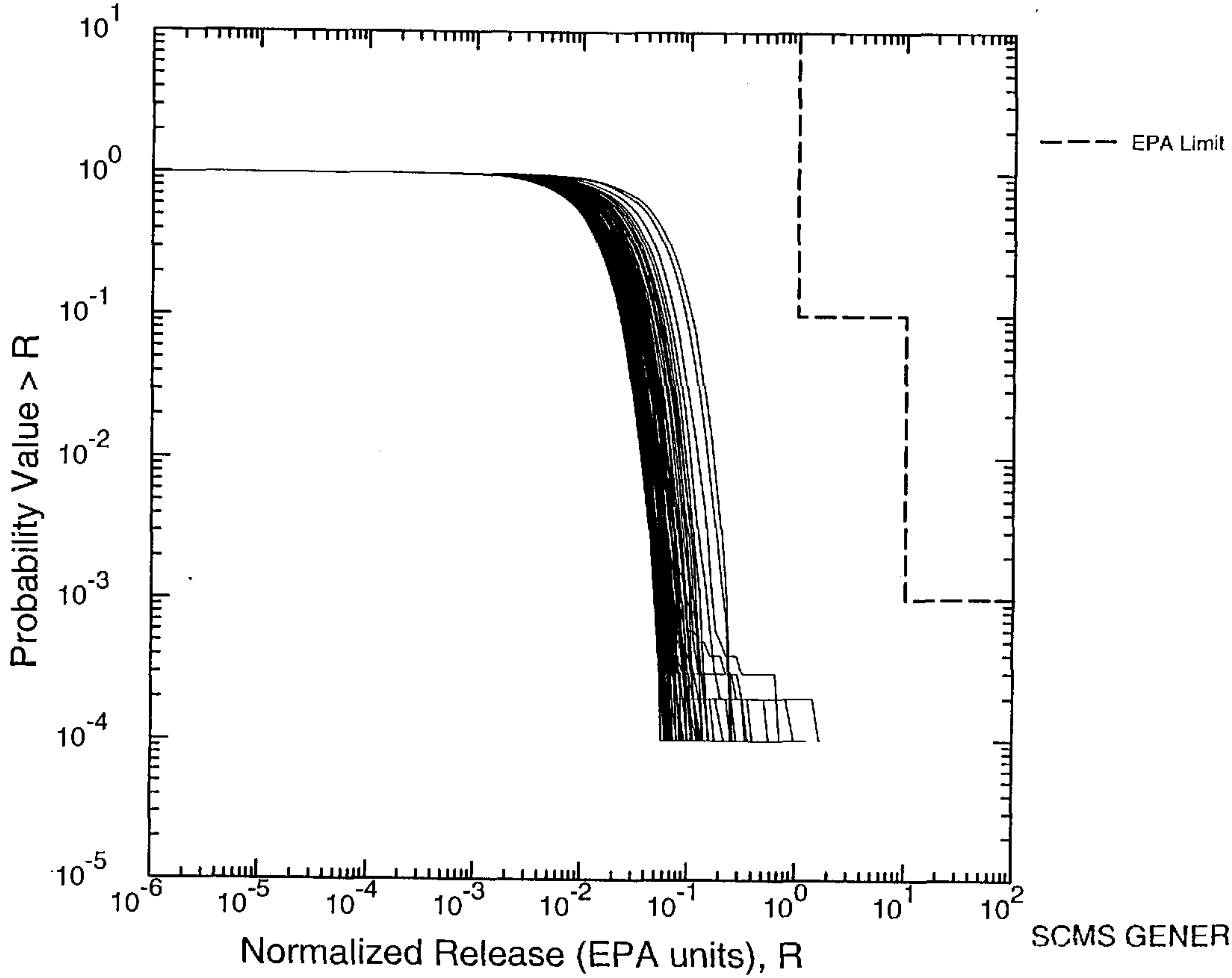


SCMS GENERATED

10/07/96 11:20:11

6.24

OCT 07 '96 LOG # 0006

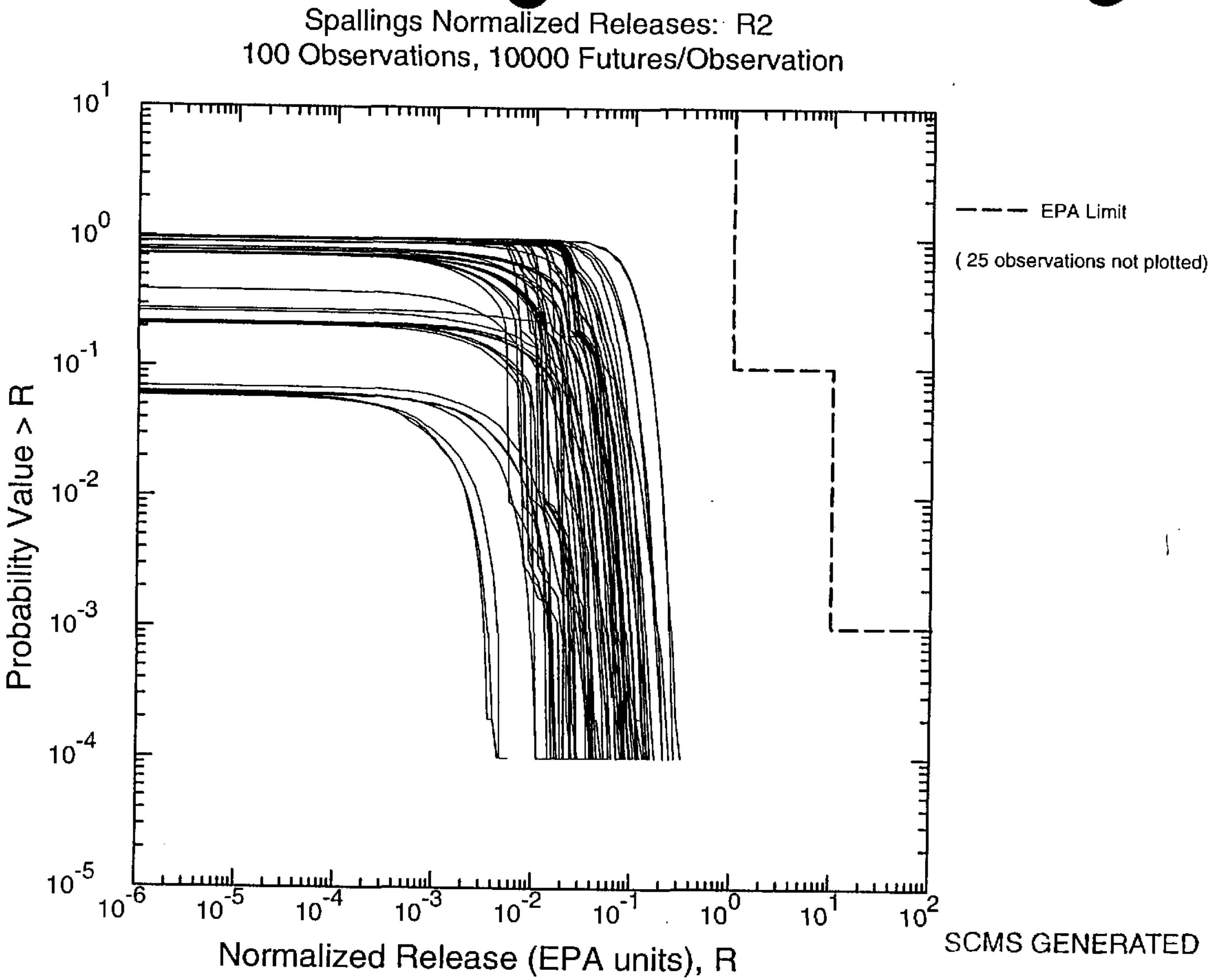


Cuttings Normalized Releases: R2
100 Observations, 10000 Futures/Observation

SCMS GENERATED

OCT 07 '96 LOG # 0006

10/07/96 11:20:11 6.25



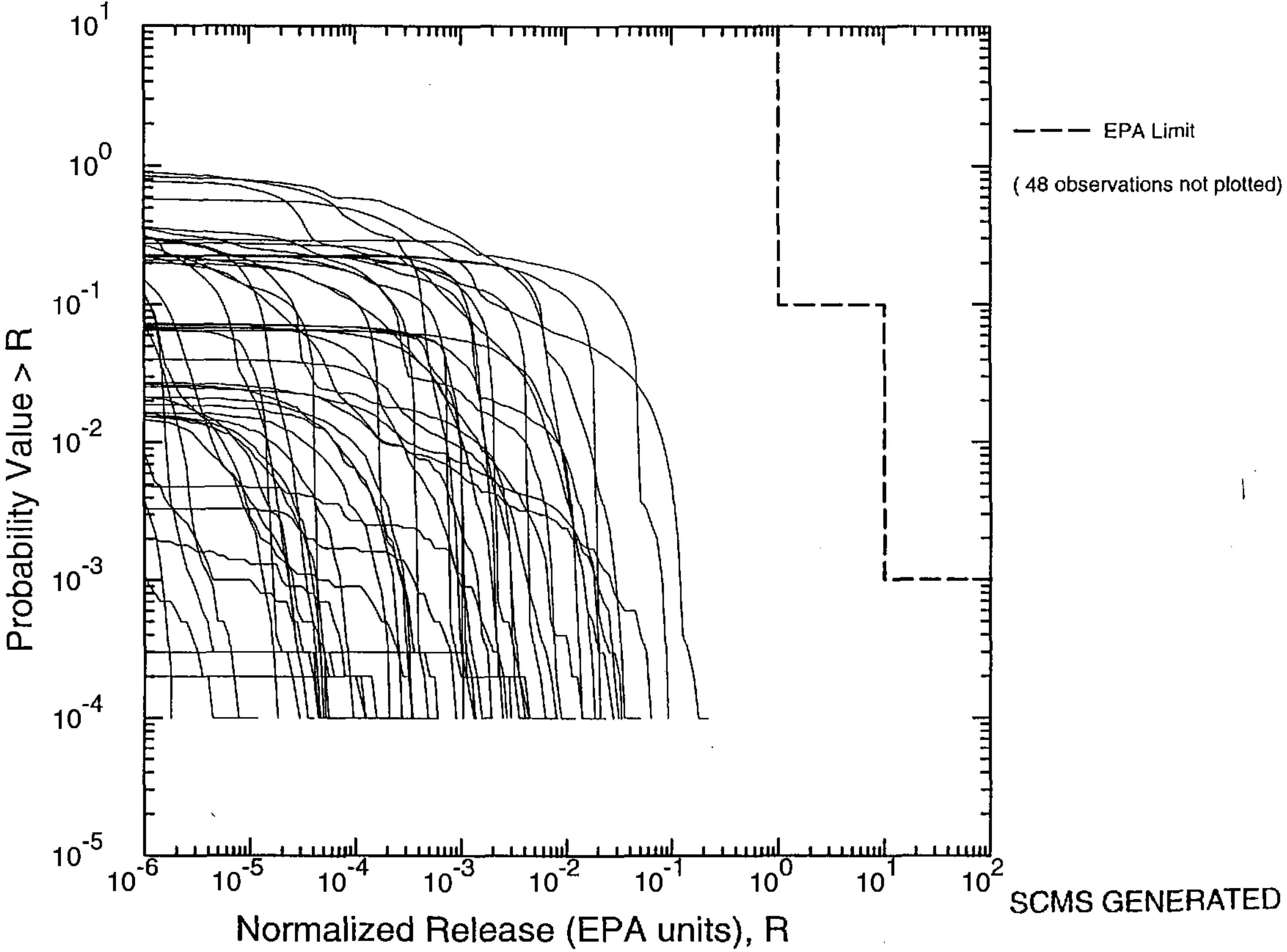
SCMS GENERATED

10/07/96 11:20:11

G.26

OCT 07 '96 LOG # 0006

DBR
~~Blowout~~ Normalized Releases: R2
100 Observations, 10000 Futures/Observation



SCMS GENERATED

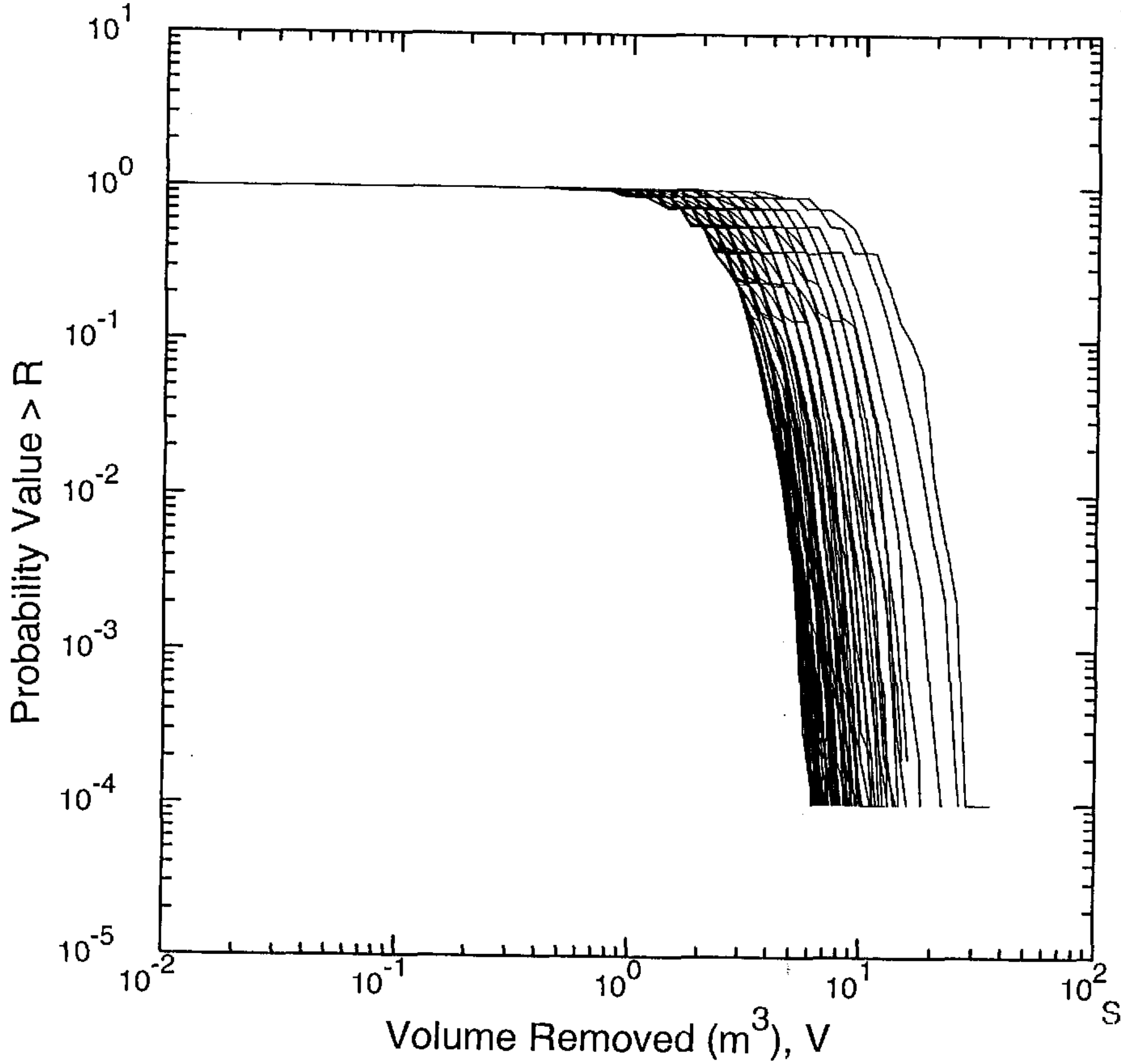
OCT 07 '96 LOG # 0006

10/07/96 11:20:11

G.27

Cuttings Volume Releases: R2

100 Observations, 10000 Futures/Observation



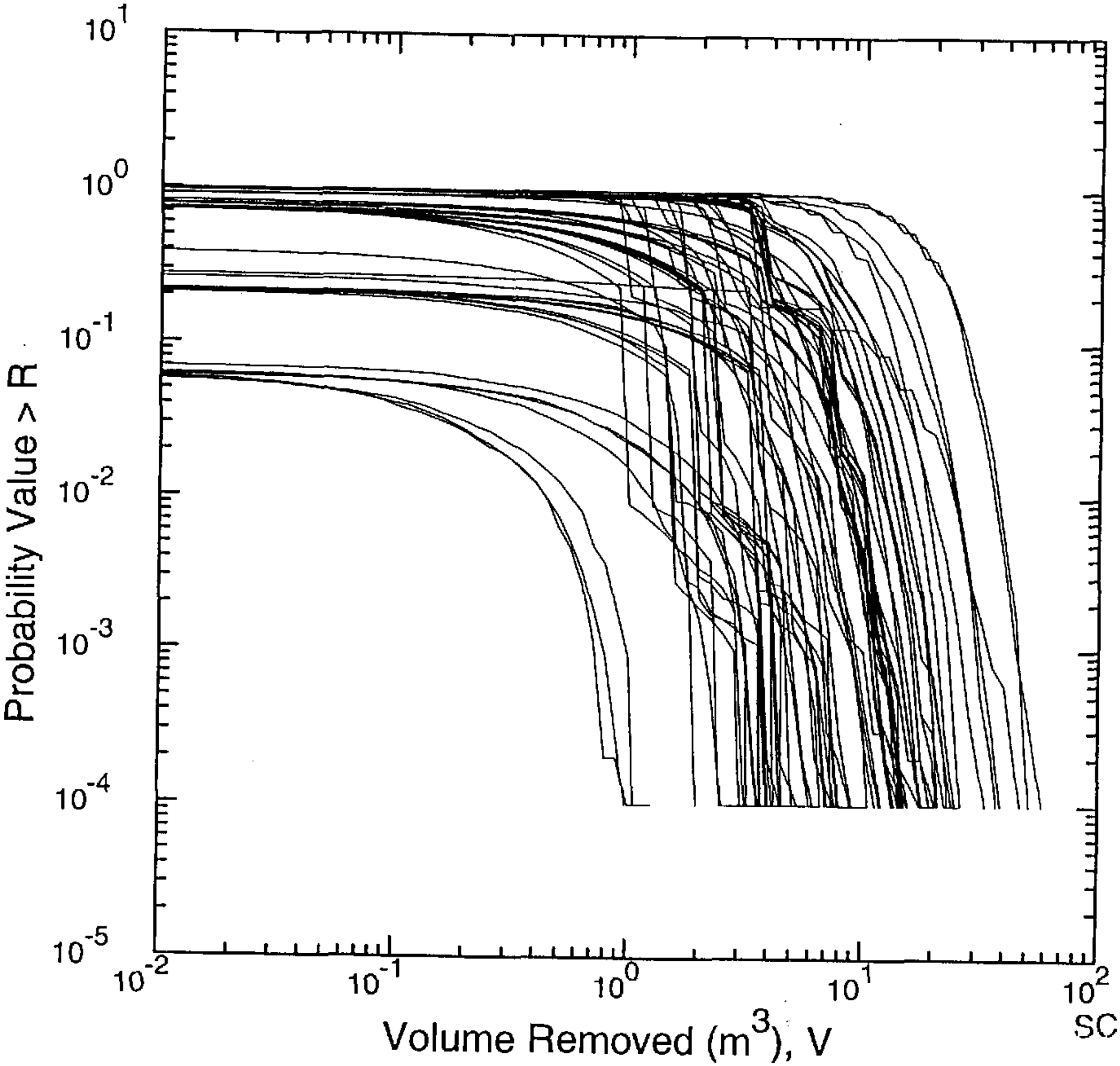
SCMS GENERATED

10/07/96 11:20:11

G.28

OCT 07 '96 LOG # 0006

Spallings Volume Releases: R2
100 Observations, 10000 Futures/Observation



(25 observations not plotted)

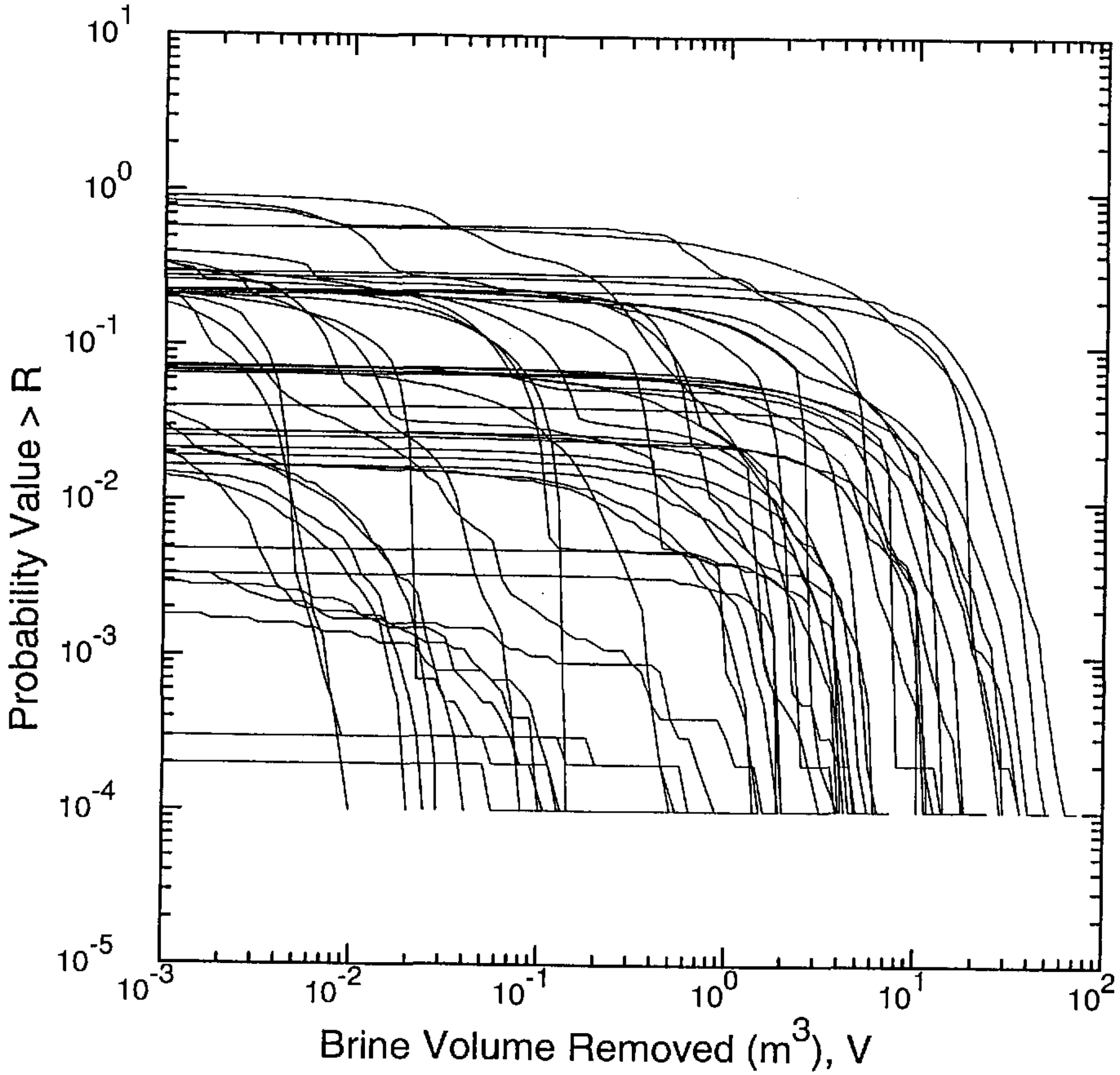
SCMS GENERATED

10/07/96 11:20:11

6.29

OCT 07 '96 LOG # 0006

DBR ~~Blowout~~ Volume Releases: R2
100 Observations, 10000 Futures/Observation



(49 observations not plotted)

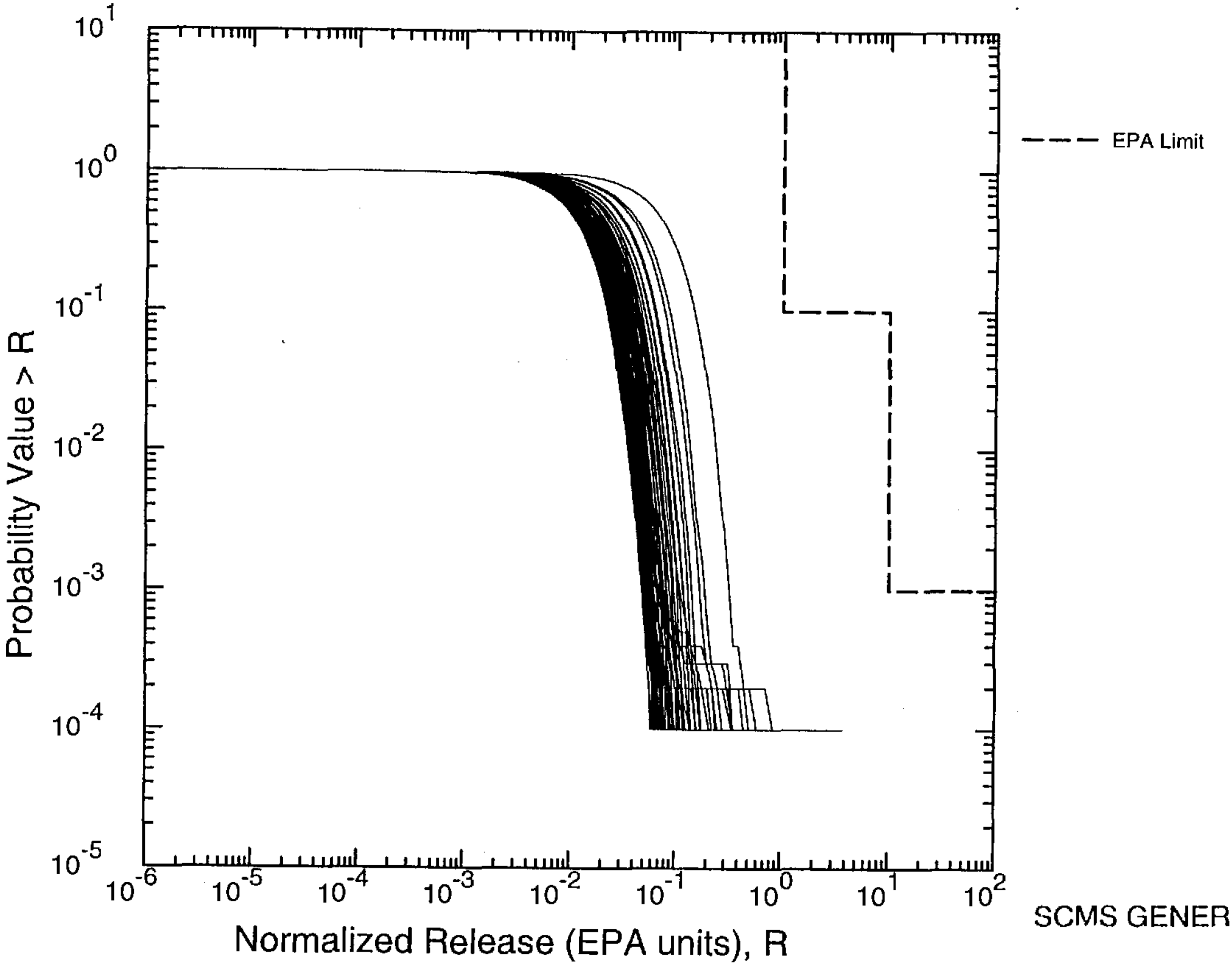
SCMS GENERATED

10/07/96 11:20:11

G.30

OCT 07 '96 LOG # 0006

Cuttings Normalized Releases: R3
100 Observations, 10000 Futures/Observation



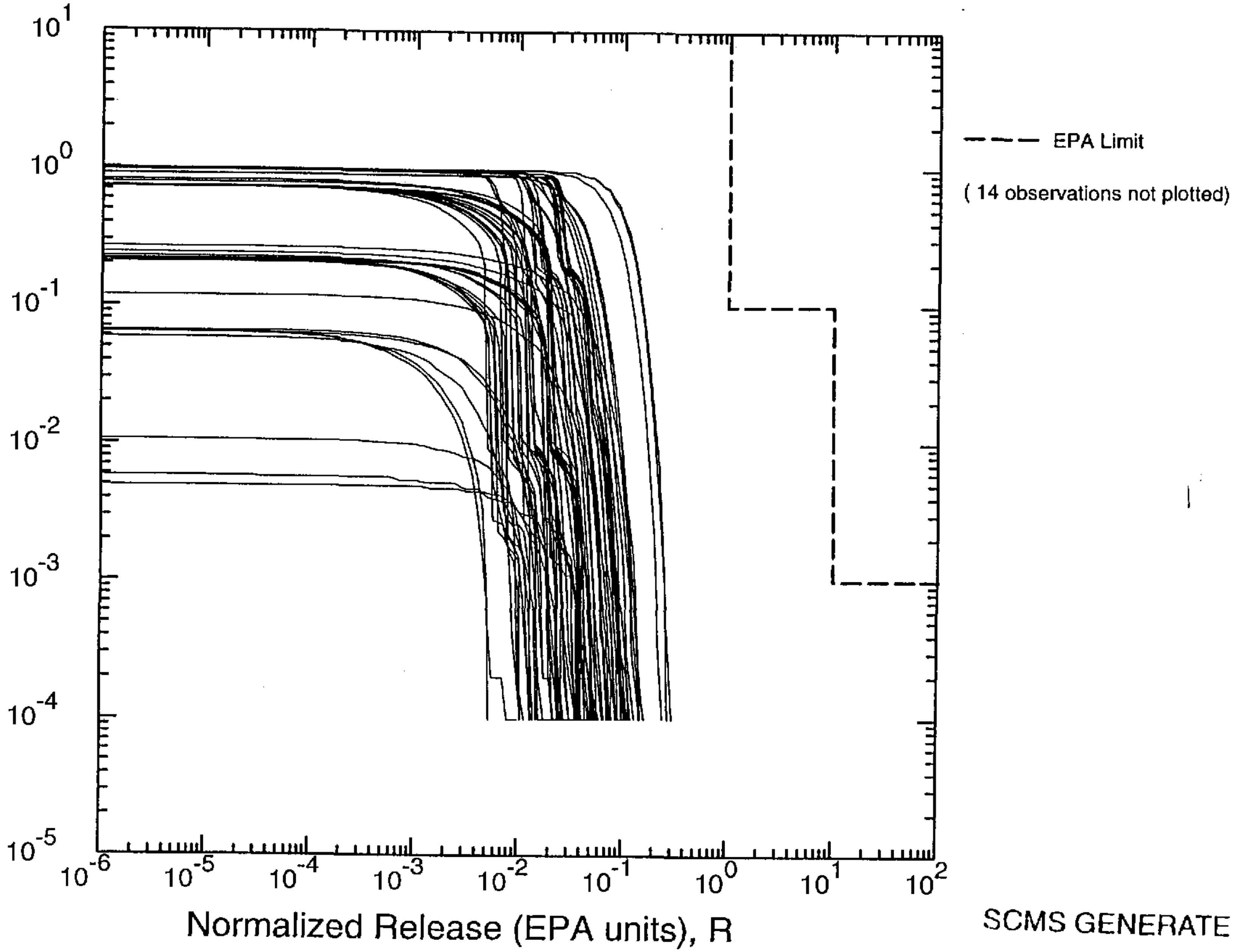
SCMS GENERATED

10/07/96 11:20:11

G.31

OCT 07 '96 LOG # 0006

Spallings Normalized Releases: R3
100 Observations, 10000 Futures/Observation



SCMS GENERATED

10/07/96 11:20:11

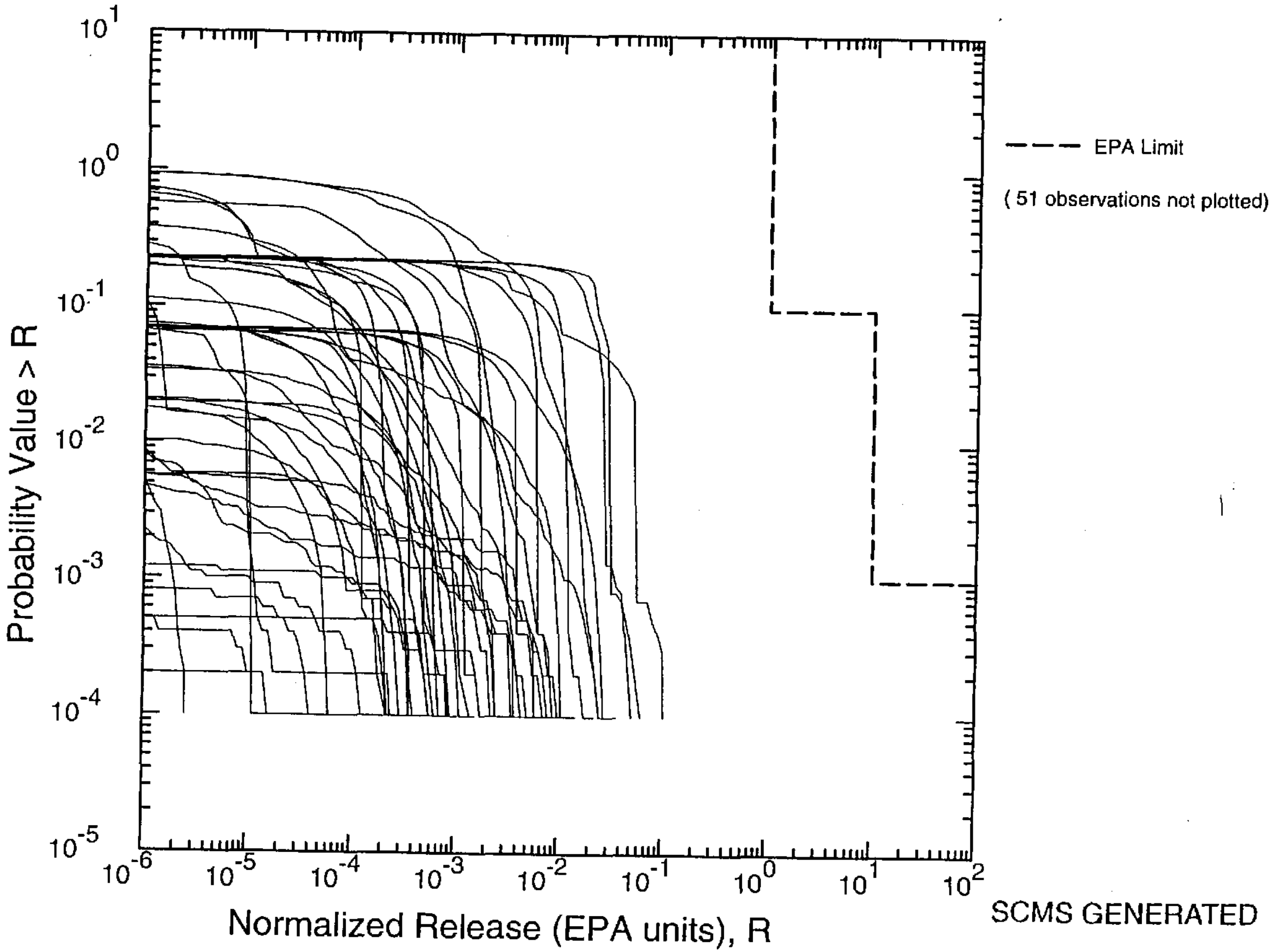
G.32

OCT 07 '96 LOG # 0006

DBR

~~Blowout~~ Normalized Releases: R3

100 Observations, 10000 Futures/Observation



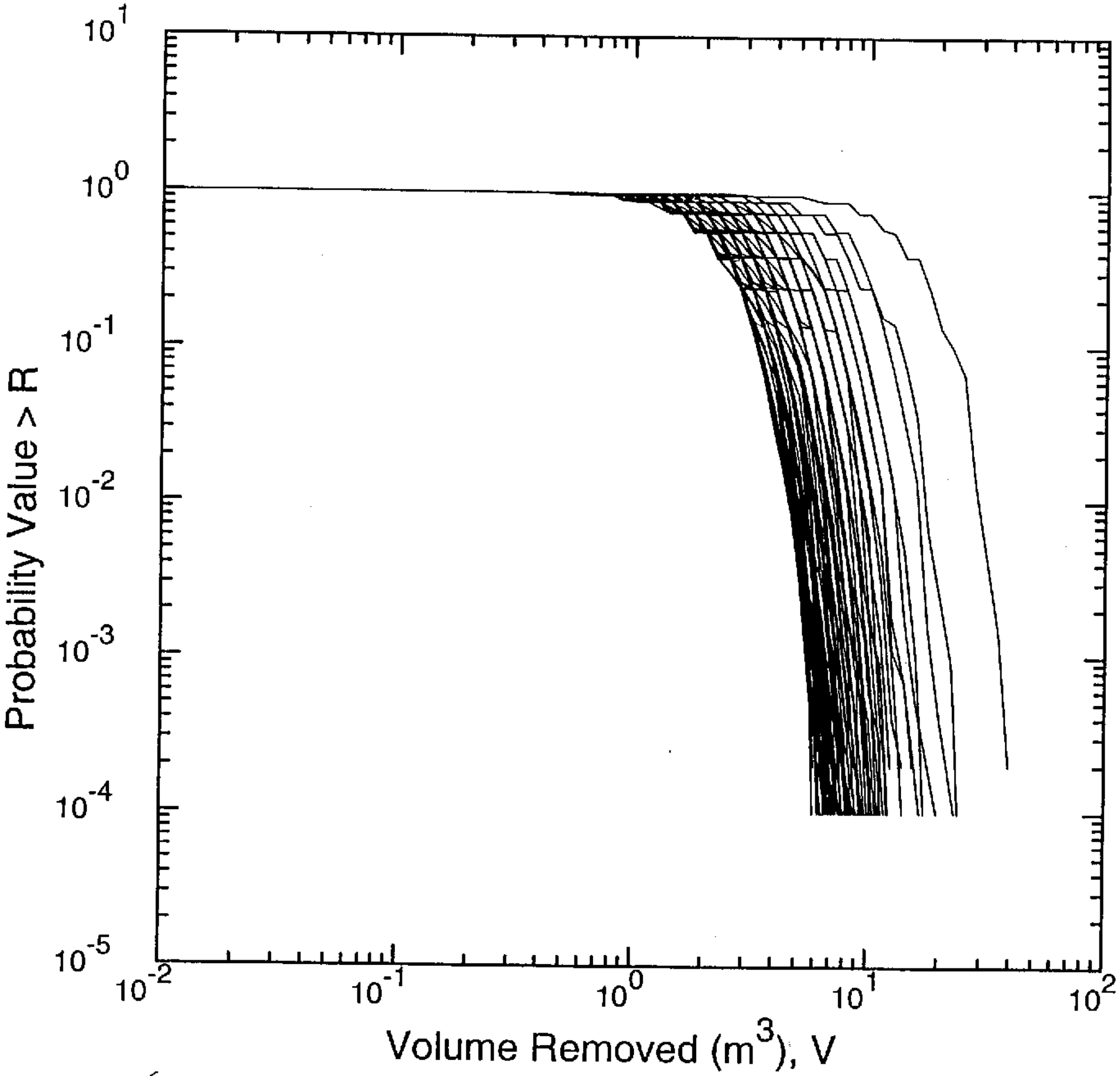
SCMS GENERATED

10/07/96 11:20:11

6.33

OCT 07 '96 LOG # 0006

Cuttings Volume Releases: R3
100 Observations, 10000 Futures/Observation



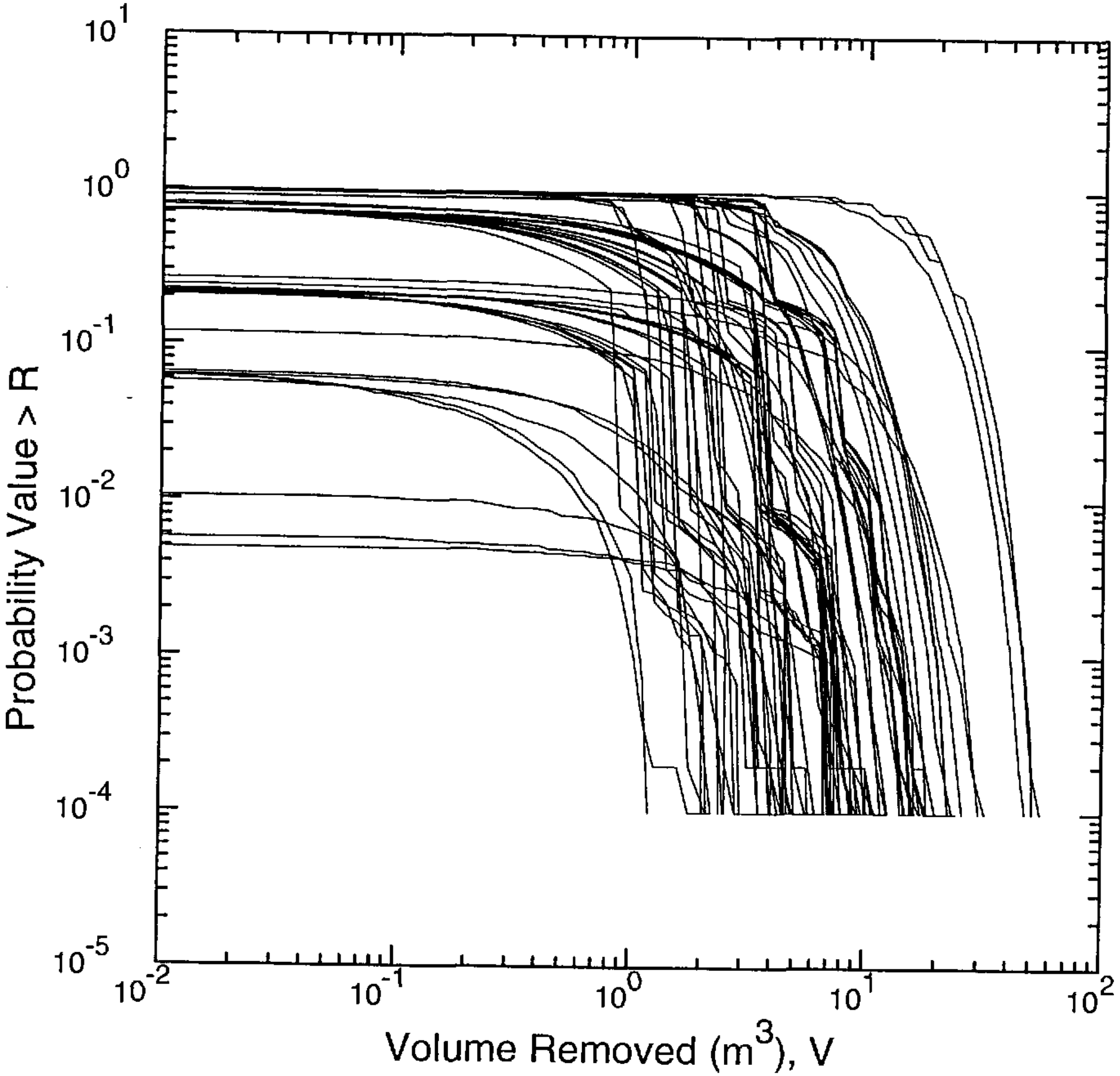
SCMS GENERATED

G.34

10/07/96 11:20:11

OCT 07 '96 LOG # 0006

Spallings Volume Releases: R3
100 Observations, 10000 Futures/Observation



(14 observations not plotted)

SCMS GENERATED

10/07/96 11:20:11

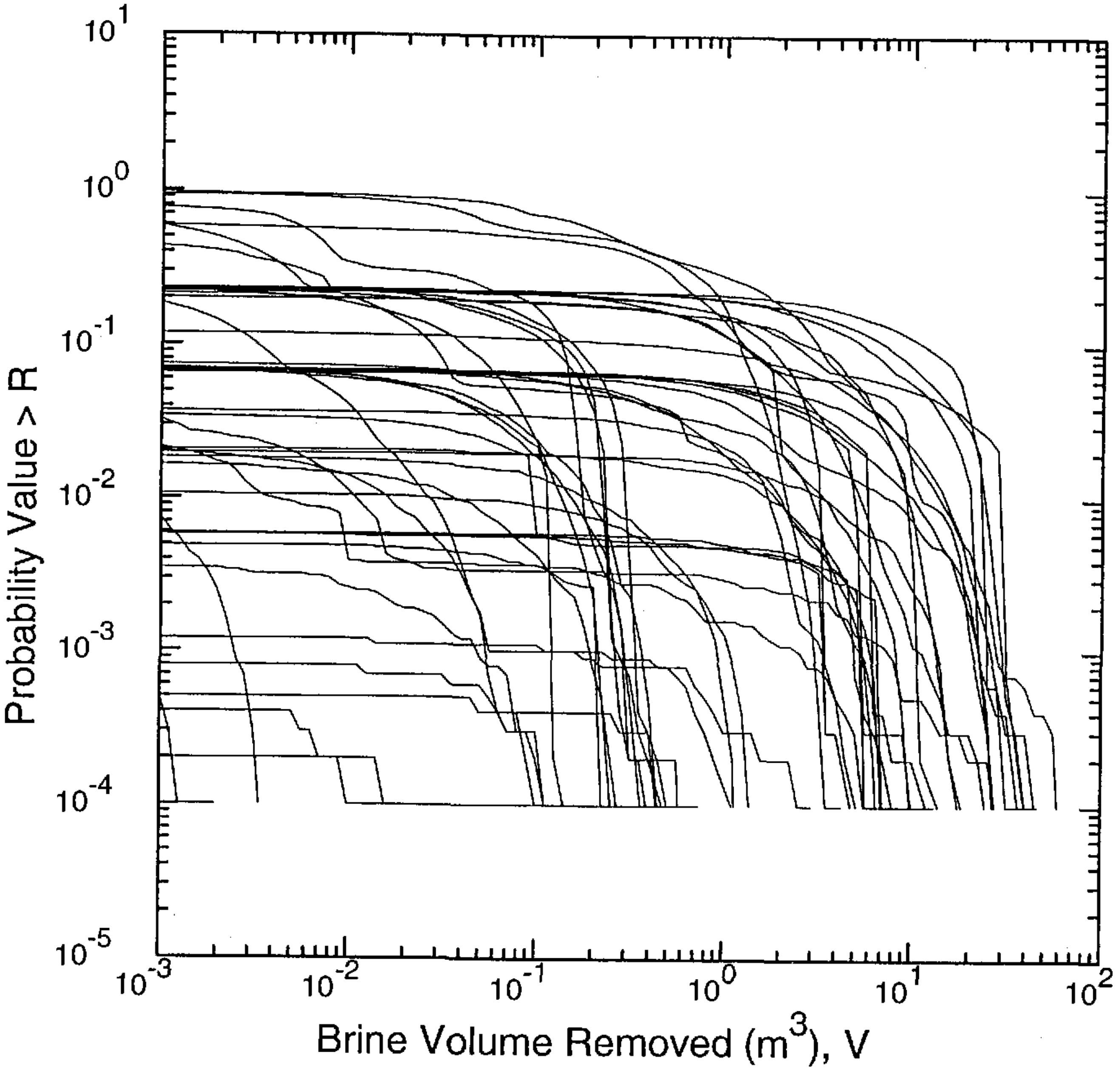
G.35

OCT 07 '96 LOG # 0006

DBR

~~Blowout~~ Volume Releases: R3

100 Observations, 10000 Futures/Observation



(50 observations not plotted)

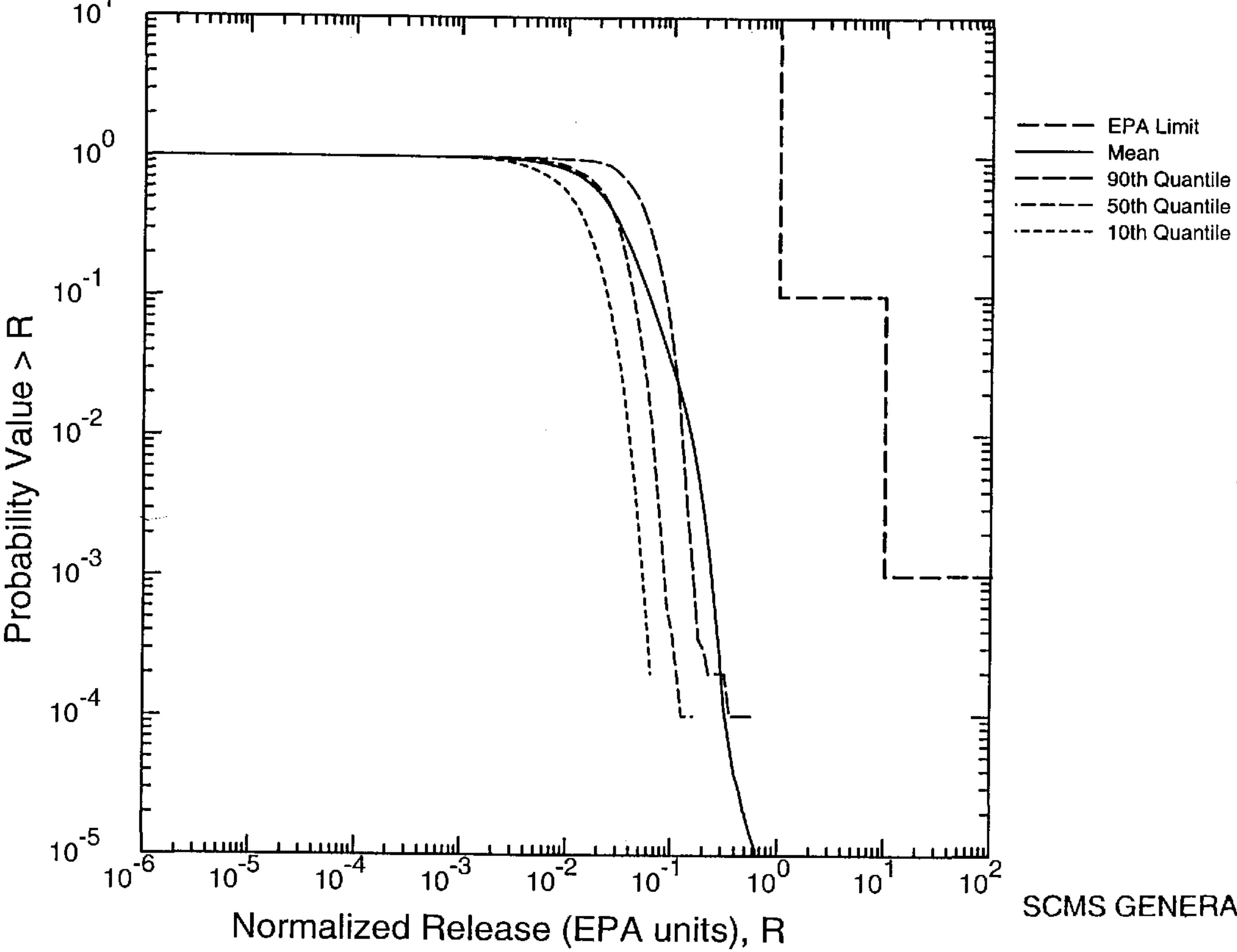
SCMS GENERATED

10/07/96 11:20:11

6.36

OCT 07 '96 LOG # 0006

Total Normalized Releases: R1
100 Observations, 10000 Futures/Observation

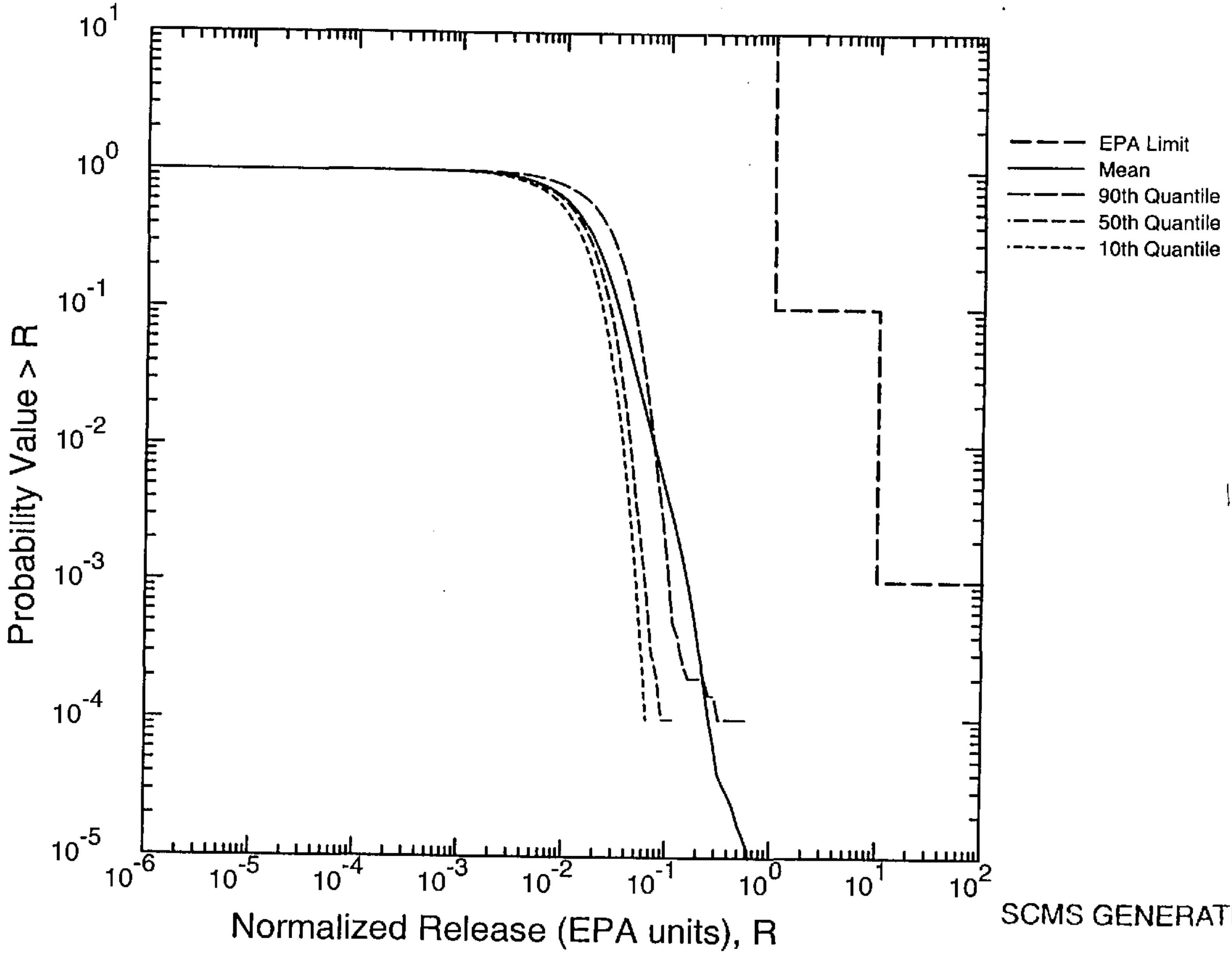


SCMS GENERATED

10/07/96 11:20:11

G.37

OCT 07 '96 LOG # 0006



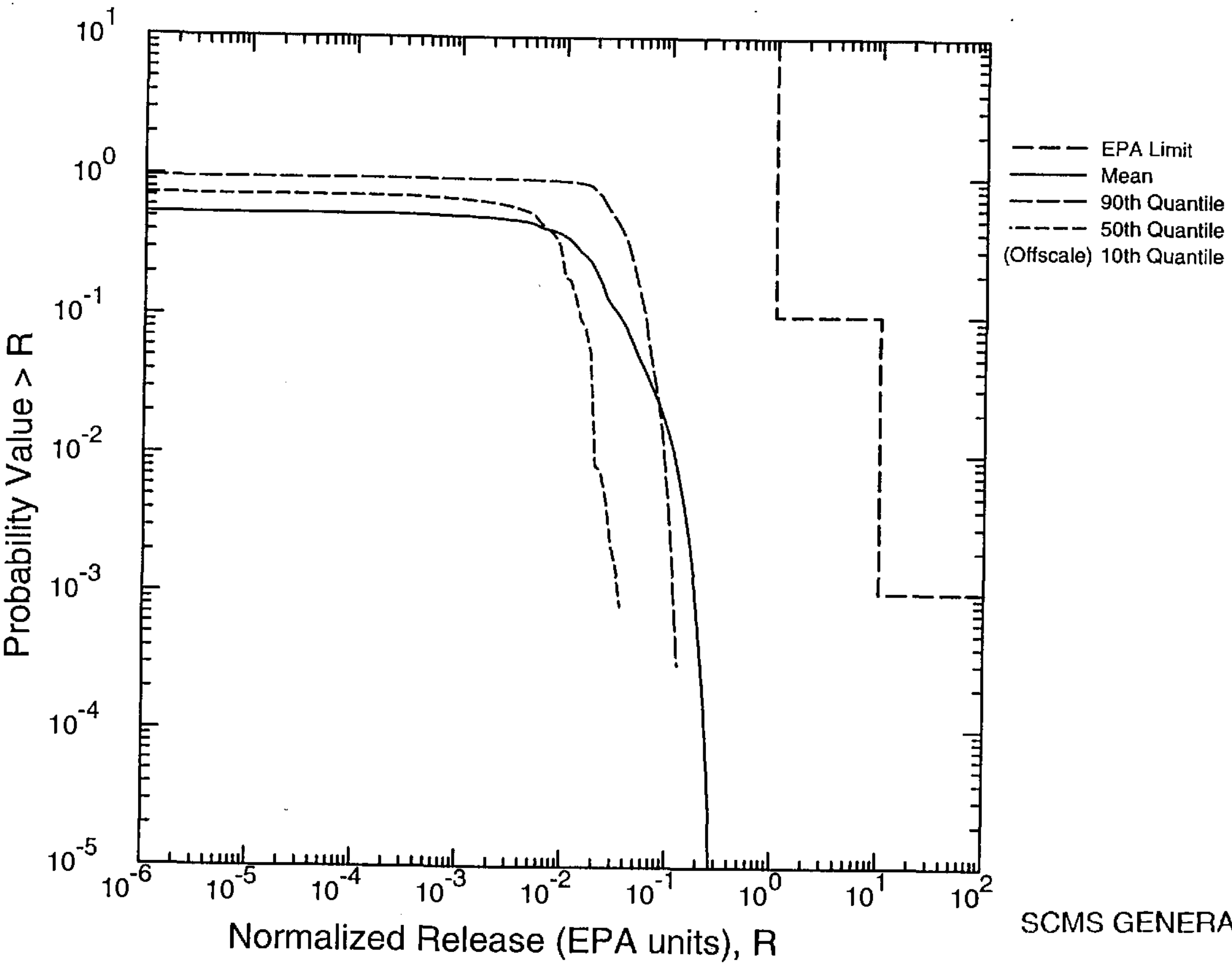
Cuttings Normalized Releases: R1
100 Observations, 10000 Futures/Observation

SCMS GENERATED

10/07/96 11:20:11

G.38

OCT 07 '96 LOG # 0006



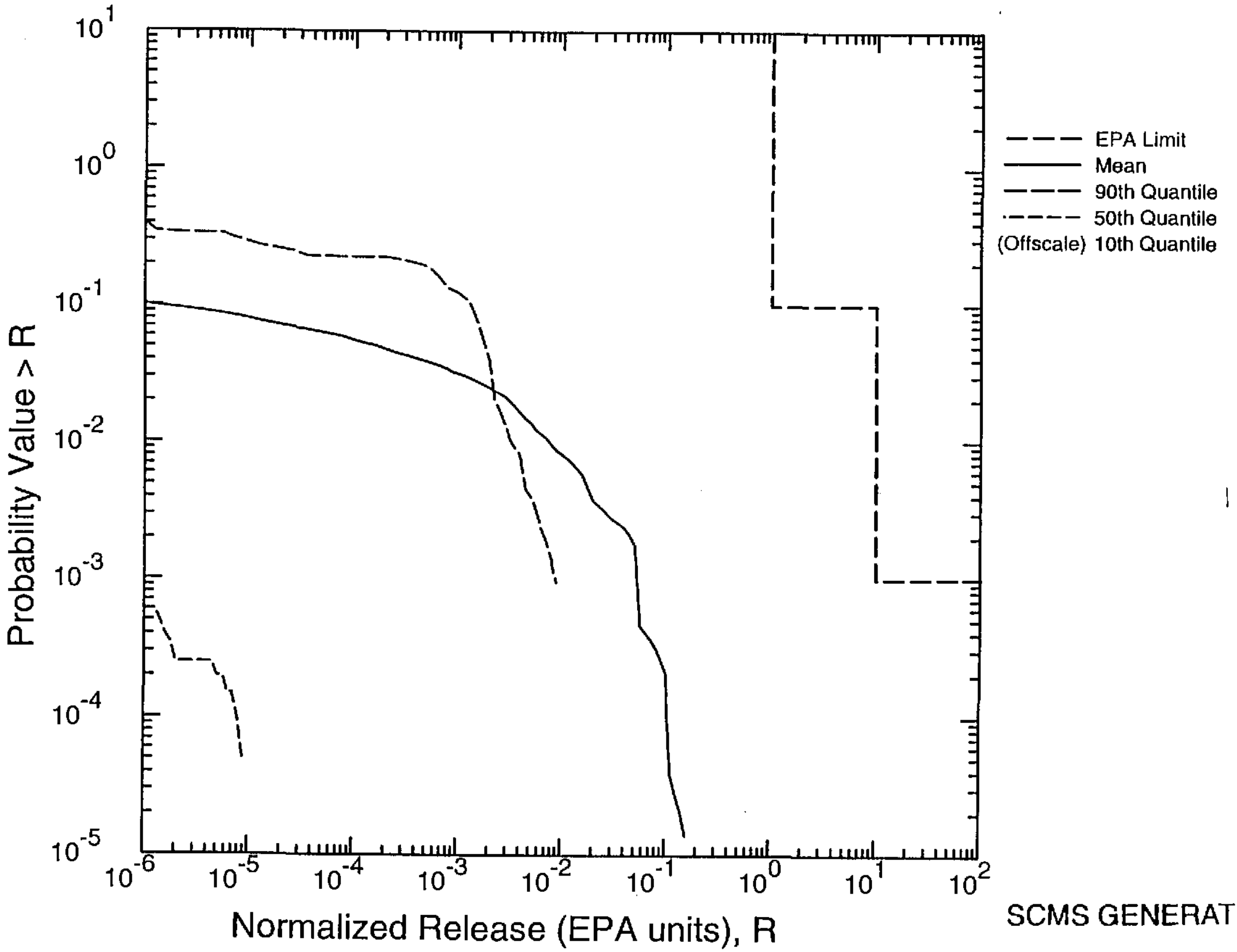
Spallings Normalized Releases: R1
100 Observations, 10000 Futures/Observation

SCMS GENERATED

10/07/96 11:20:11 G.39

OCT 07 '96 LOG # 0006

DBR
~~Blowou~~t Normalized Releases: R1
100 Observations, 10000 Futures/Observation

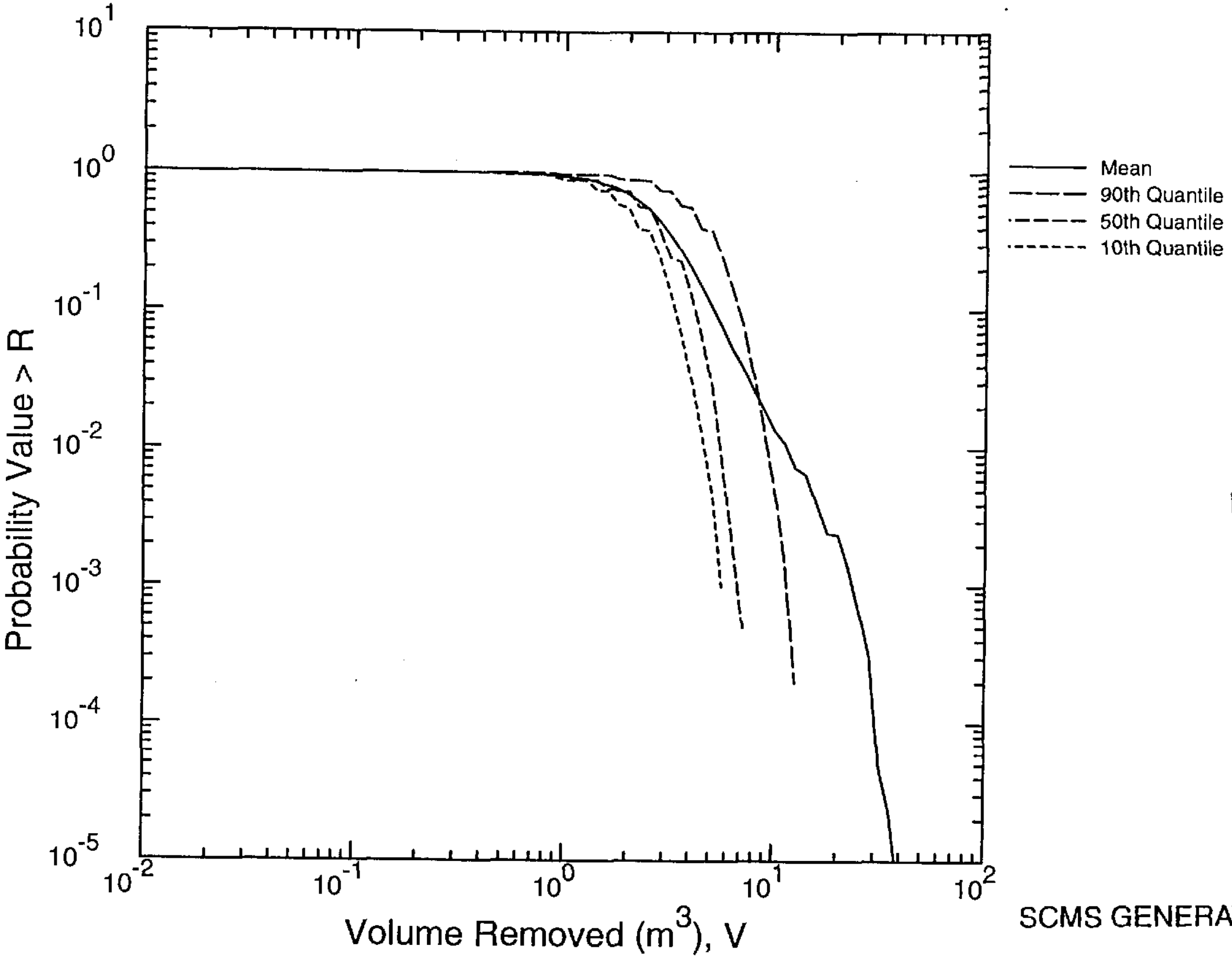


SCMS GENERATED

10/07/96 11:20:11 G.40

OCT 07 '96 LOG # 0006

Cuttings Volume Releases: R1
100 Observations, 10000 Futures/Observation



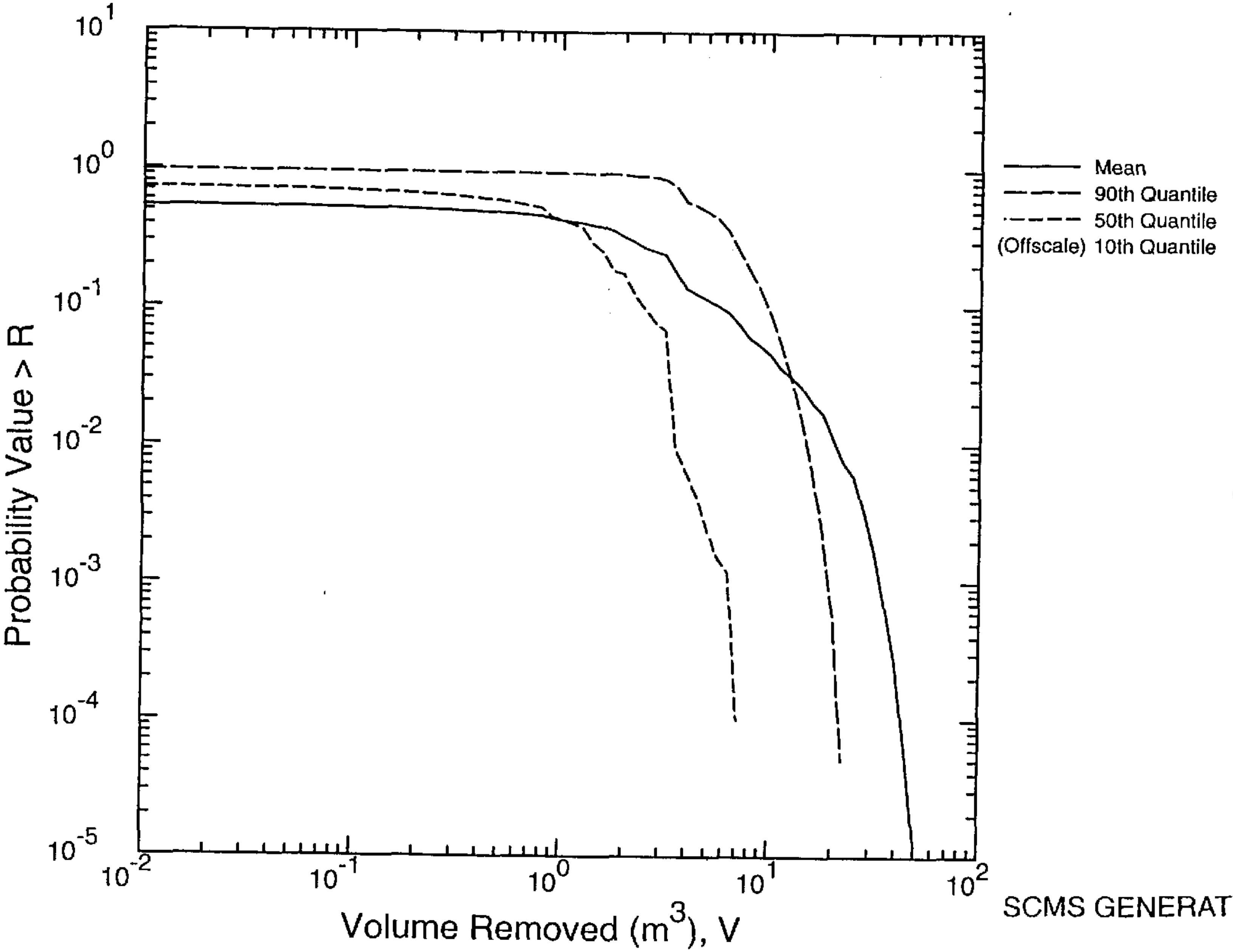
SCMS GENERATED

10/07/96 11:20:11

G.41

OCT 07 '96 LOG # 0006

Spallings Volume Releases: R1
100 Observations, 10000 Futures/Observation



SCMS GENERATED

10/07/96 11:20:11

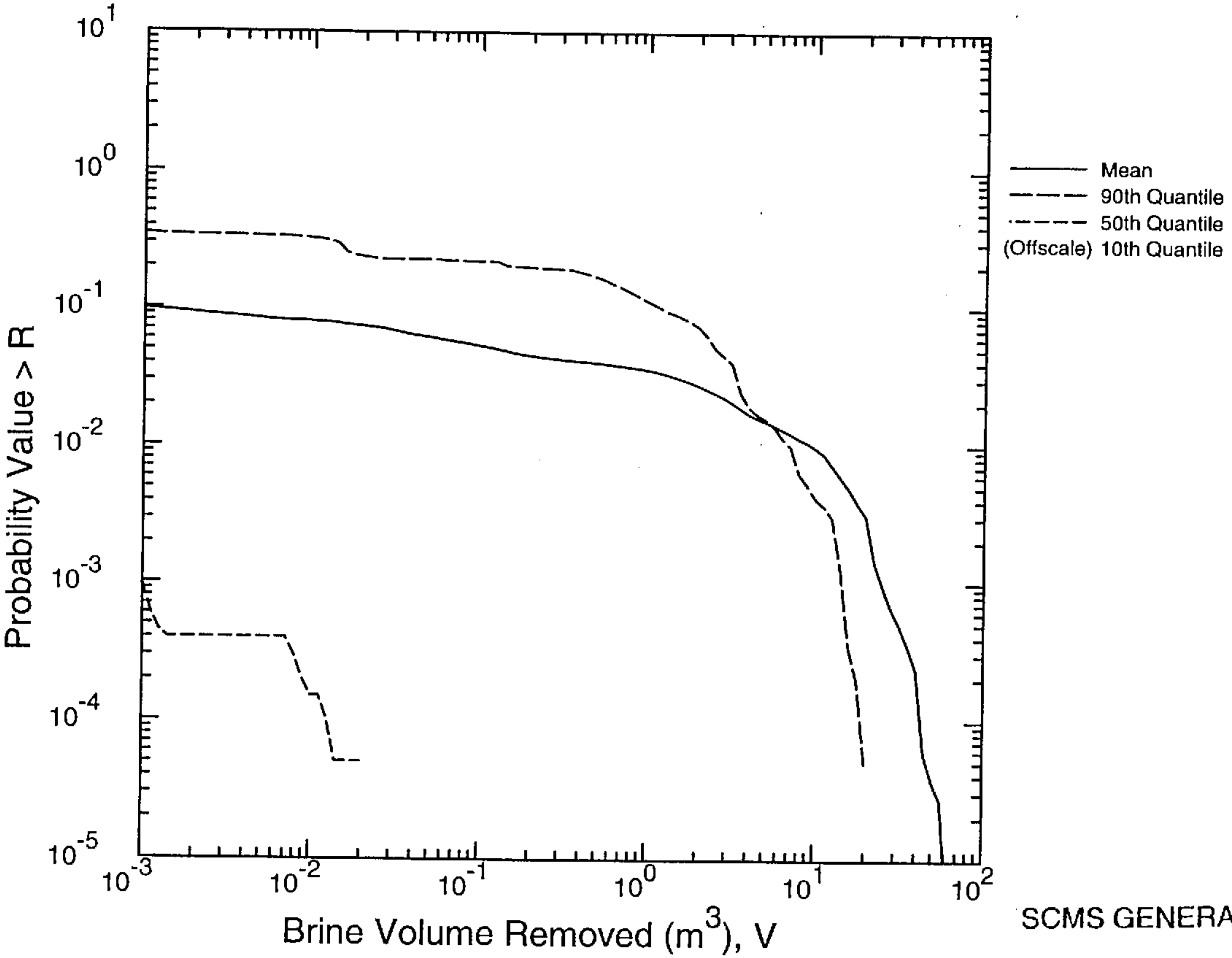
G.42

OCT 07 '96 LOG # 0006

DBR

~~Blowout~~ Volume Releases: R1

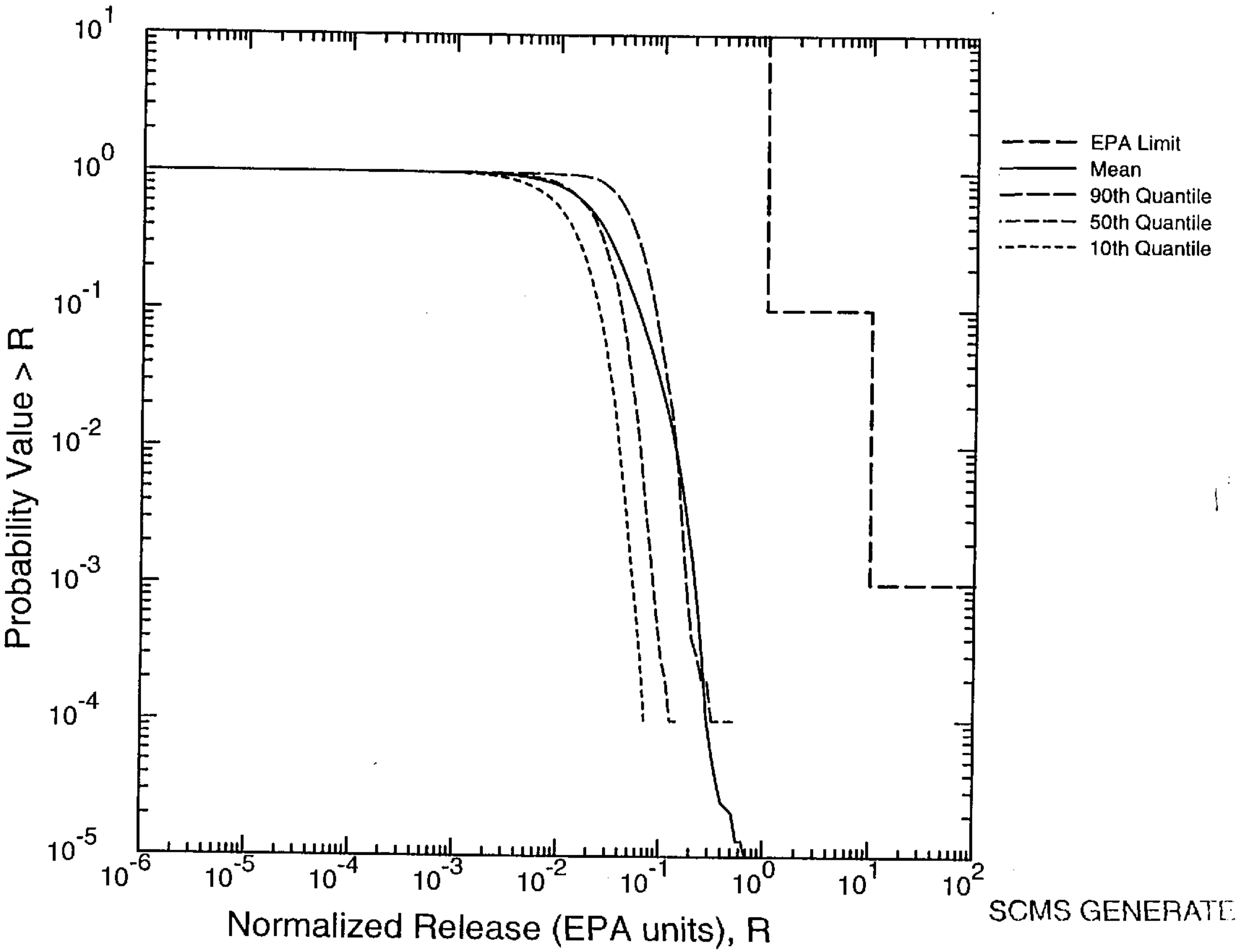
100 Observations, 10000 Futures/Observation



SCMS GENERATED

10/07/96 11:20:11 G.43

OCT 07 '96 LOG # 0006



Total Normalized Releases: R2
100 Observations, 10000 Futures/Observation

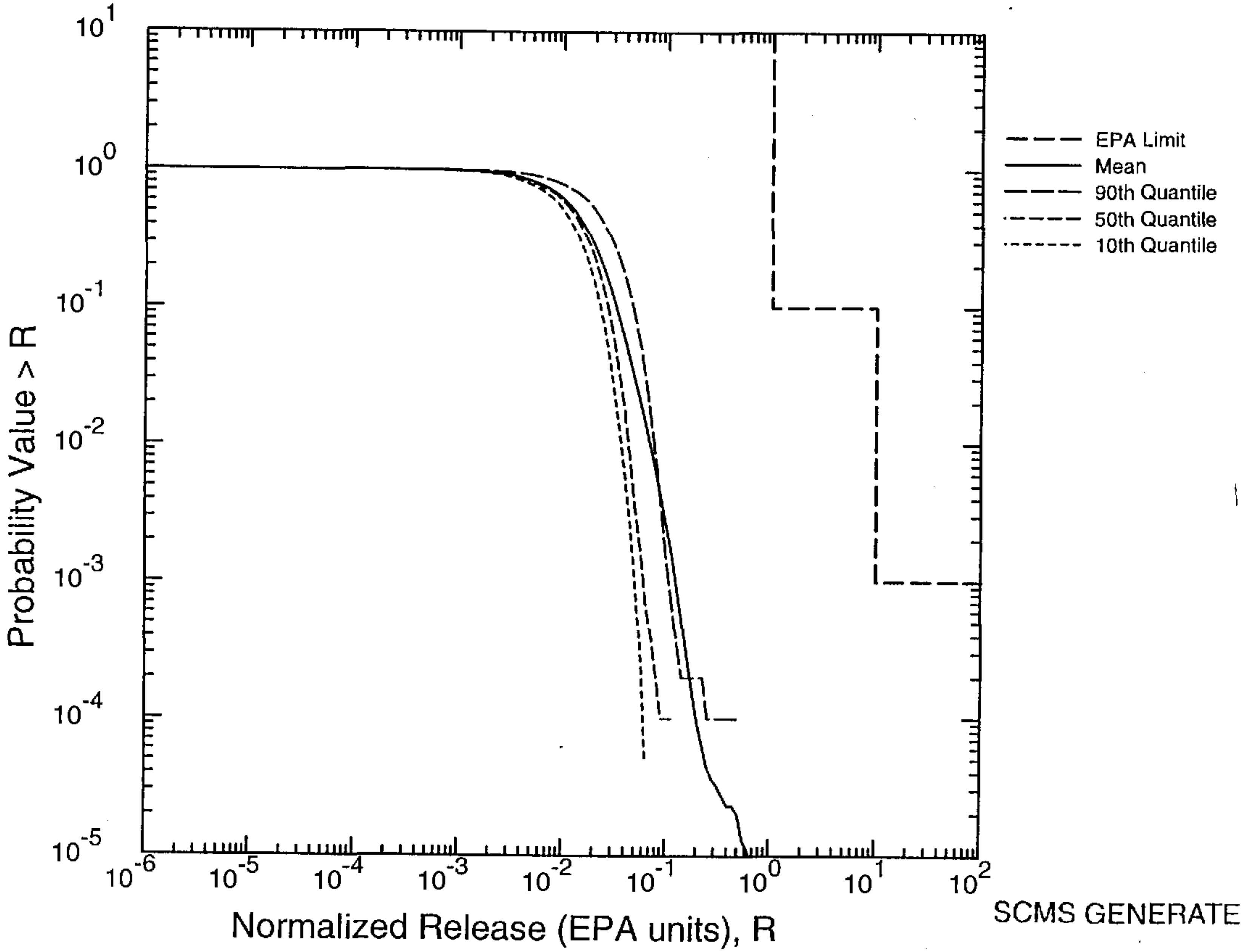
SCMS GENERATED

10/07/96 11:20:11

G.44

OCT 07 '96 LOG # 0006

Cuttings Normalized Releases: R2
100 Observations, 10000 Futures/Observation



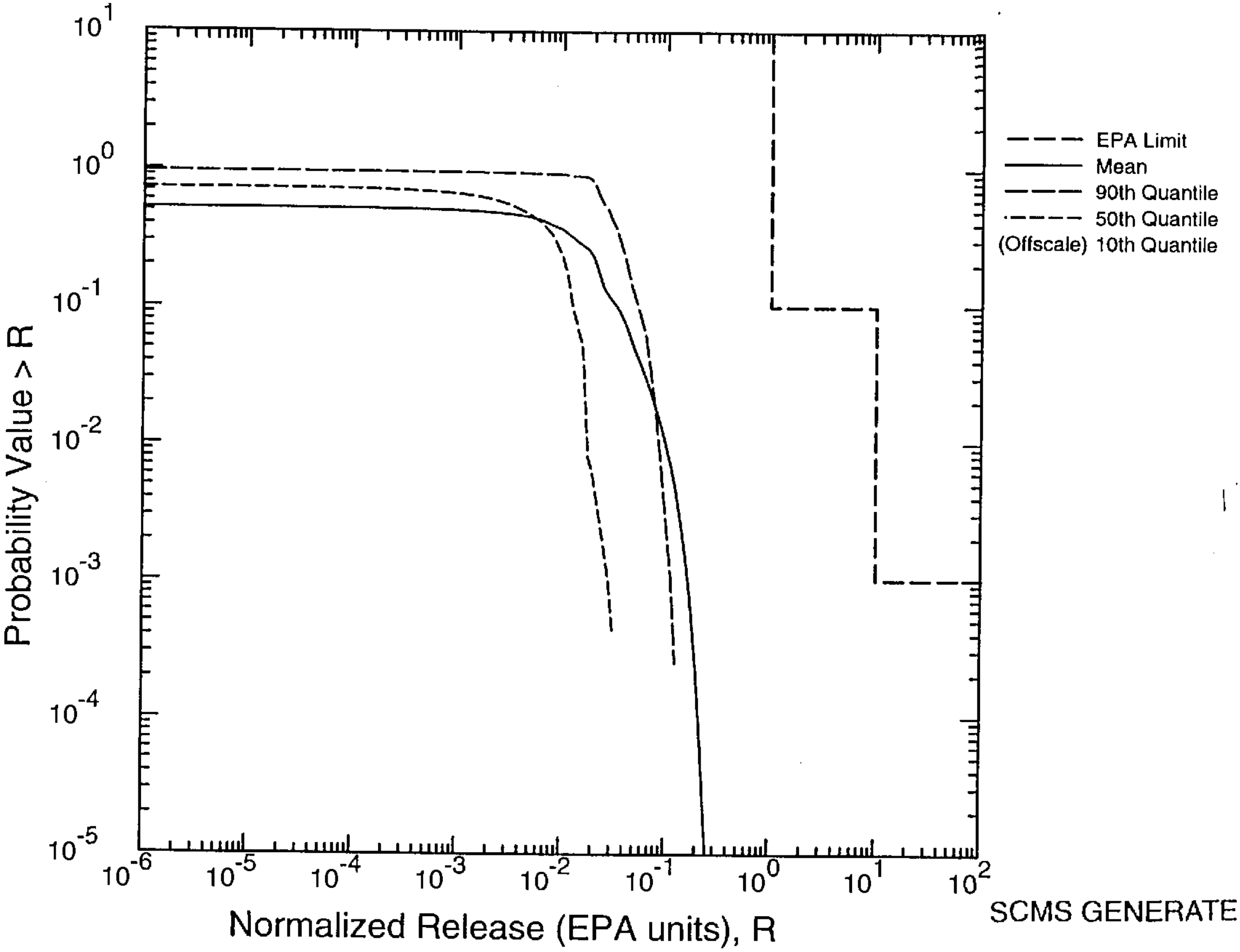
SCMS GENERATED

10/07/96 11:20:11

G.15

OCT 07 '96 LOG # 0006

Spallings Normalized Releases: R2
100 Observations, 10000 Futures/Observation



SCMS GENERATED

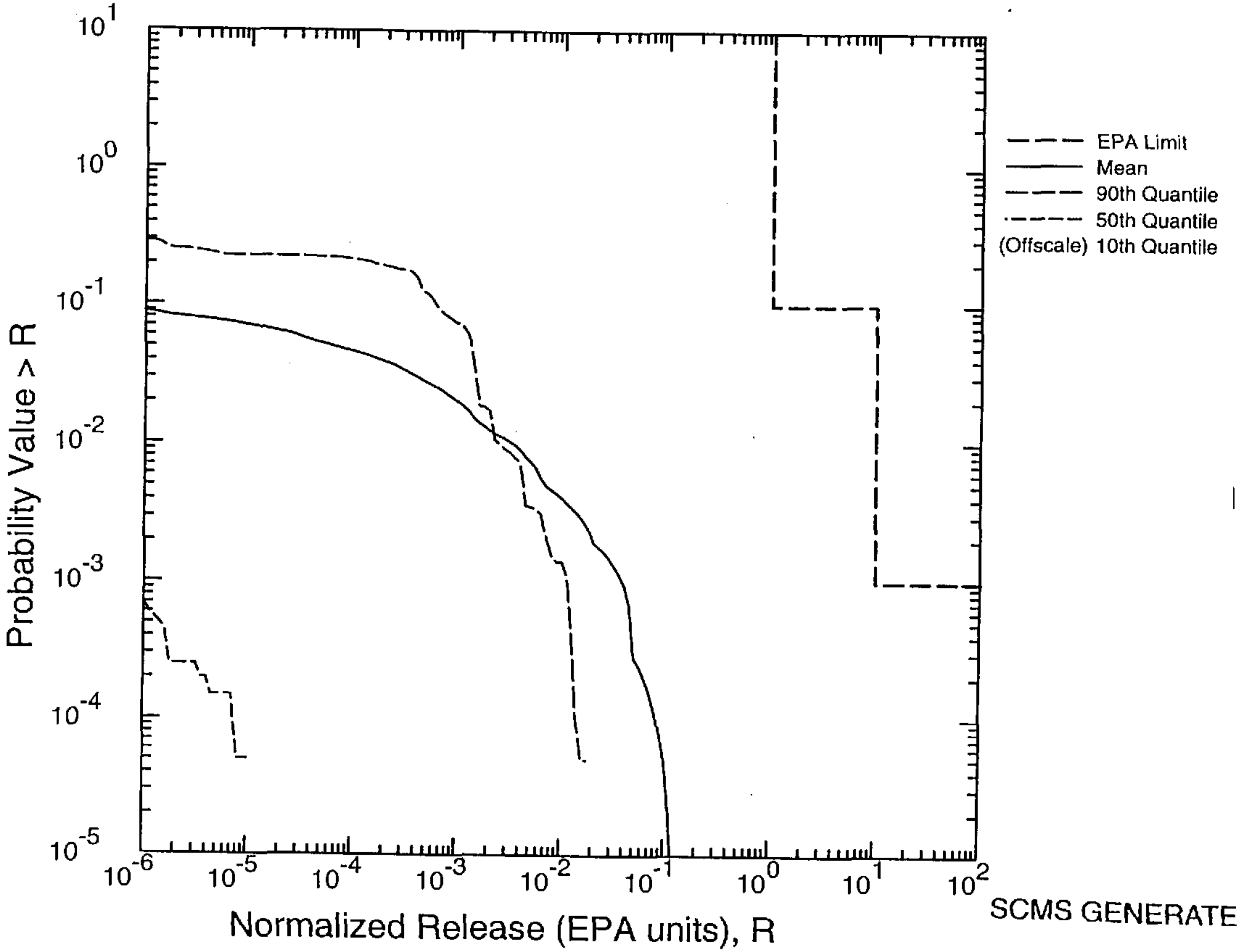
10/07/96 11:20:11

6.46

OCT 07 '96 LOG # 0006

DBR

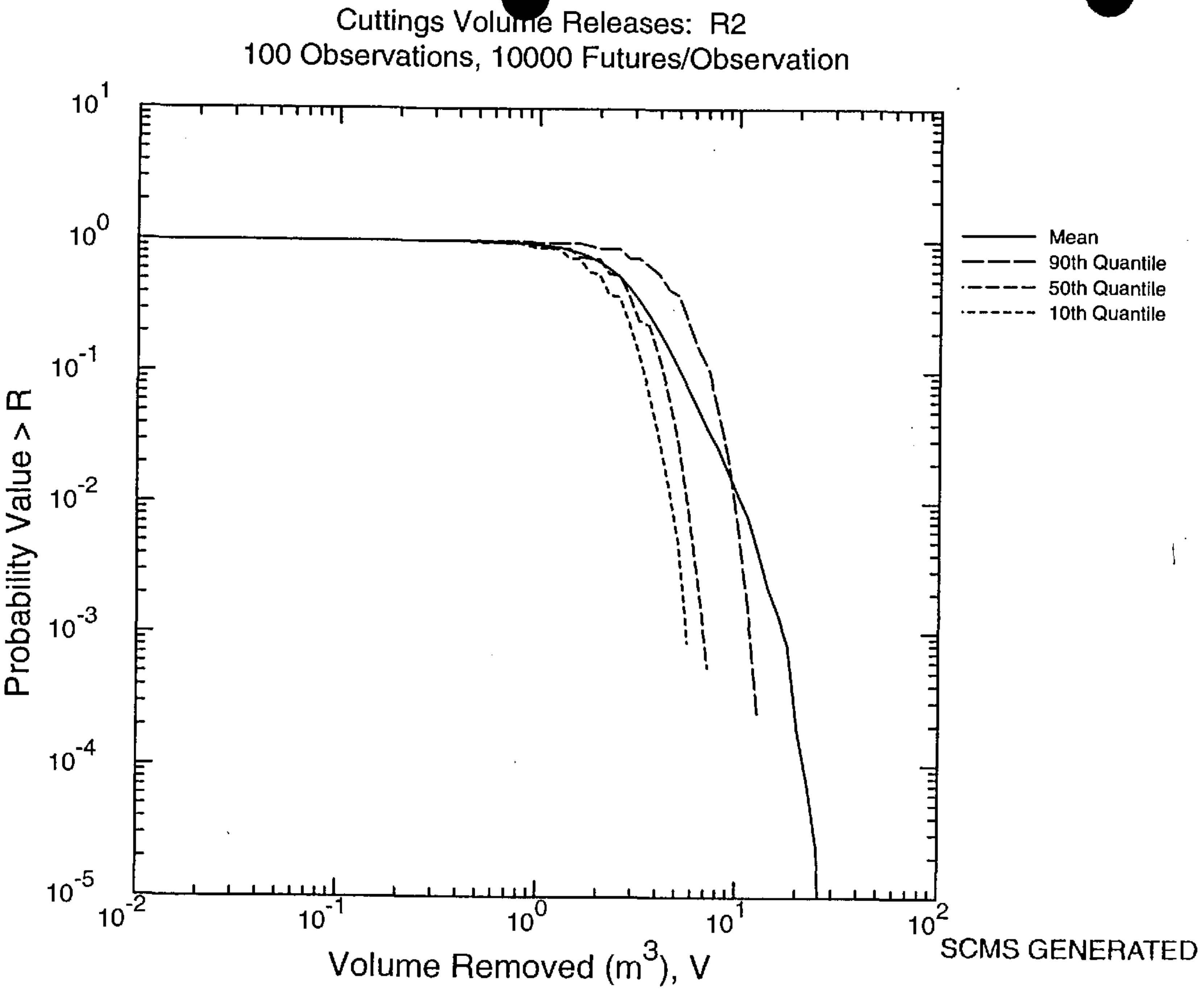
~~Blowou~~t Normalized Releases: R2
100 Observations, 10000 Futures/Observation



SCMS GENERATED

10/07/96 11:20:11 G.17

OCT 07 '96 LOG # 0006



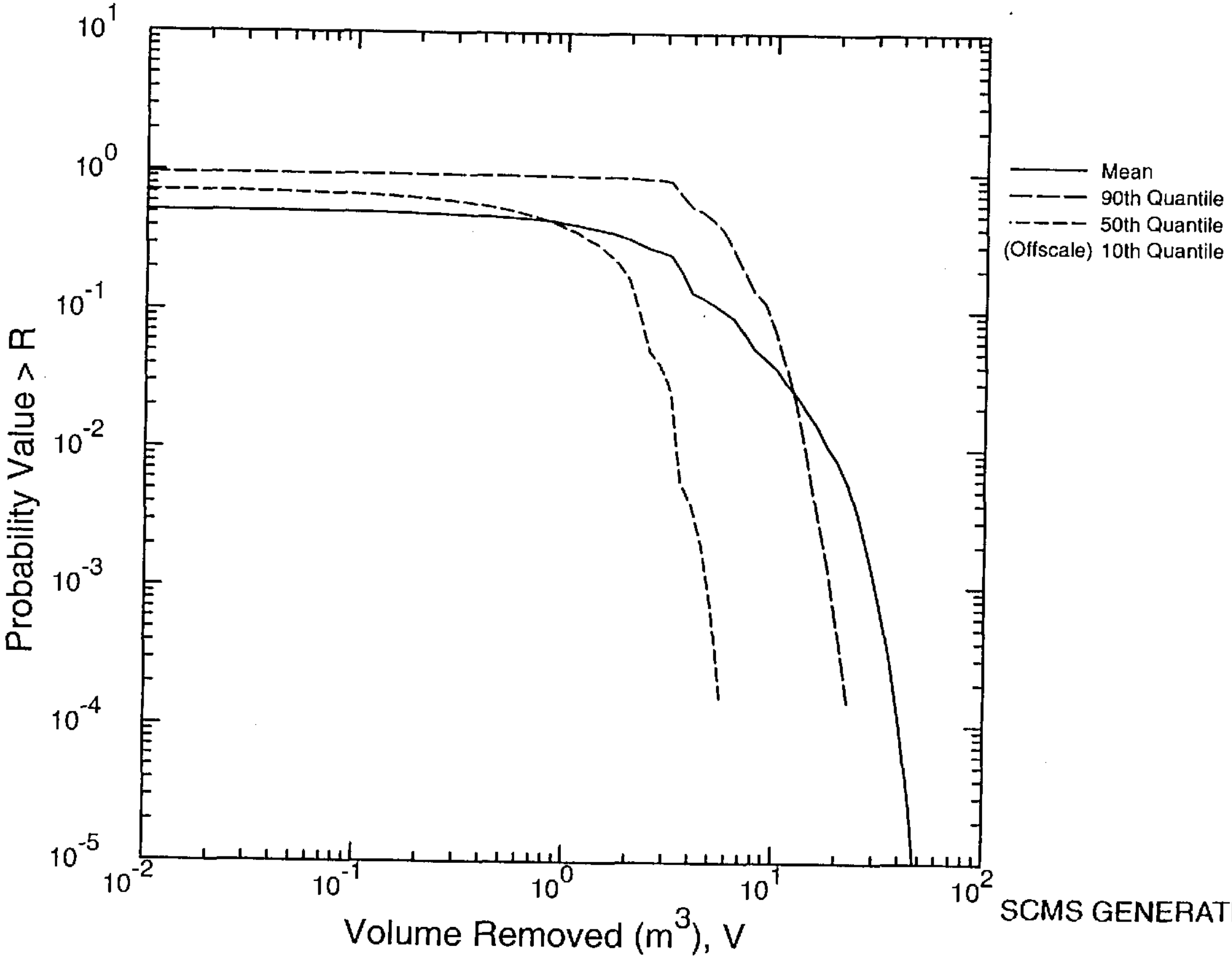
SCMS GENERATED

10/07/96 11:20:11

G.98

OCT 07 '96 LOG # 0006

Spallings Volume Releases: R2
100 Observations, 10000 Futures/Observation



SCMS GENERATED

10/07/96 11:20:11

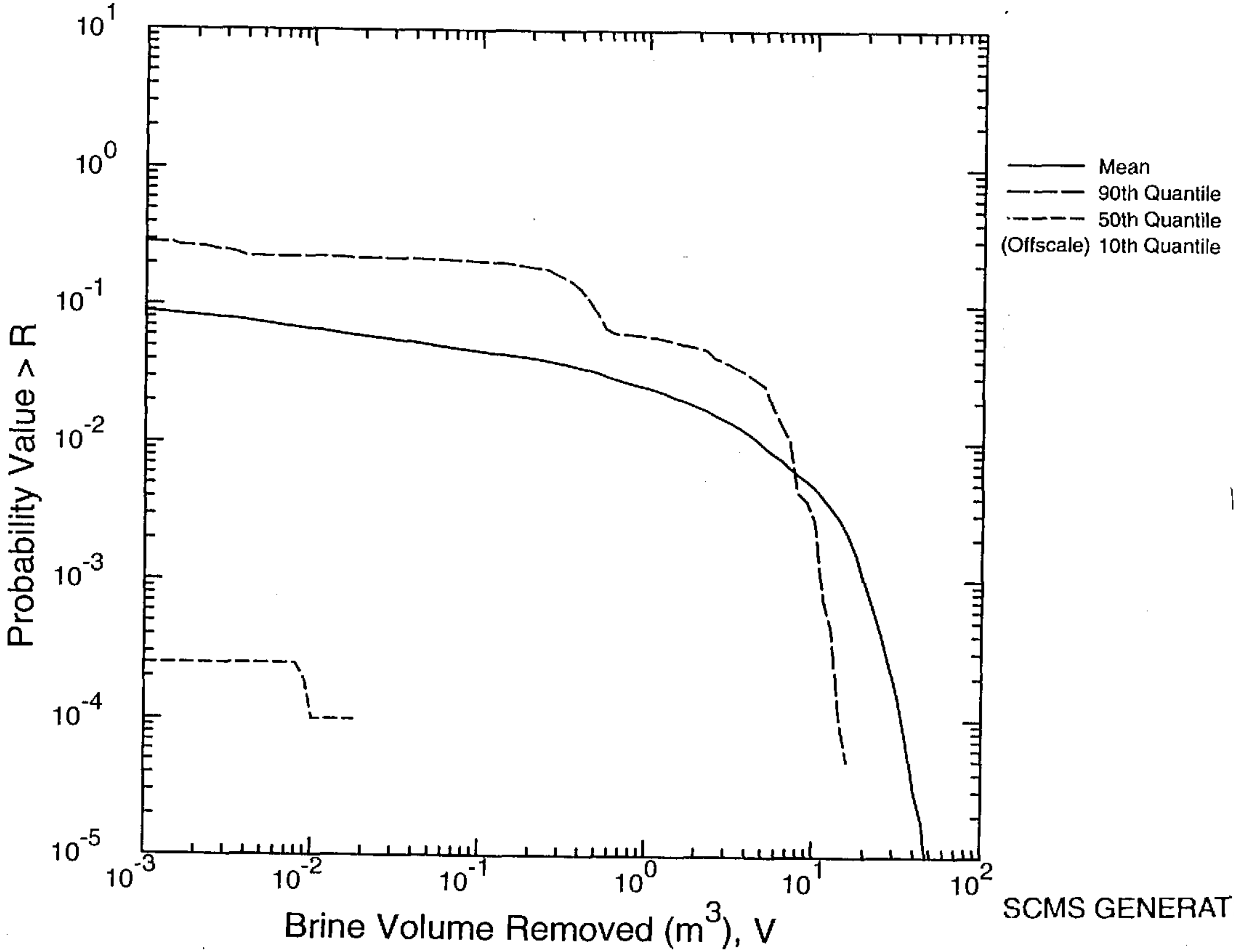
G.49

OCT 07 '96 LOG # 0006

DBR

~~Blowout~~ Volume Releases: R2

100 Observations, 10000 Futures/Observation

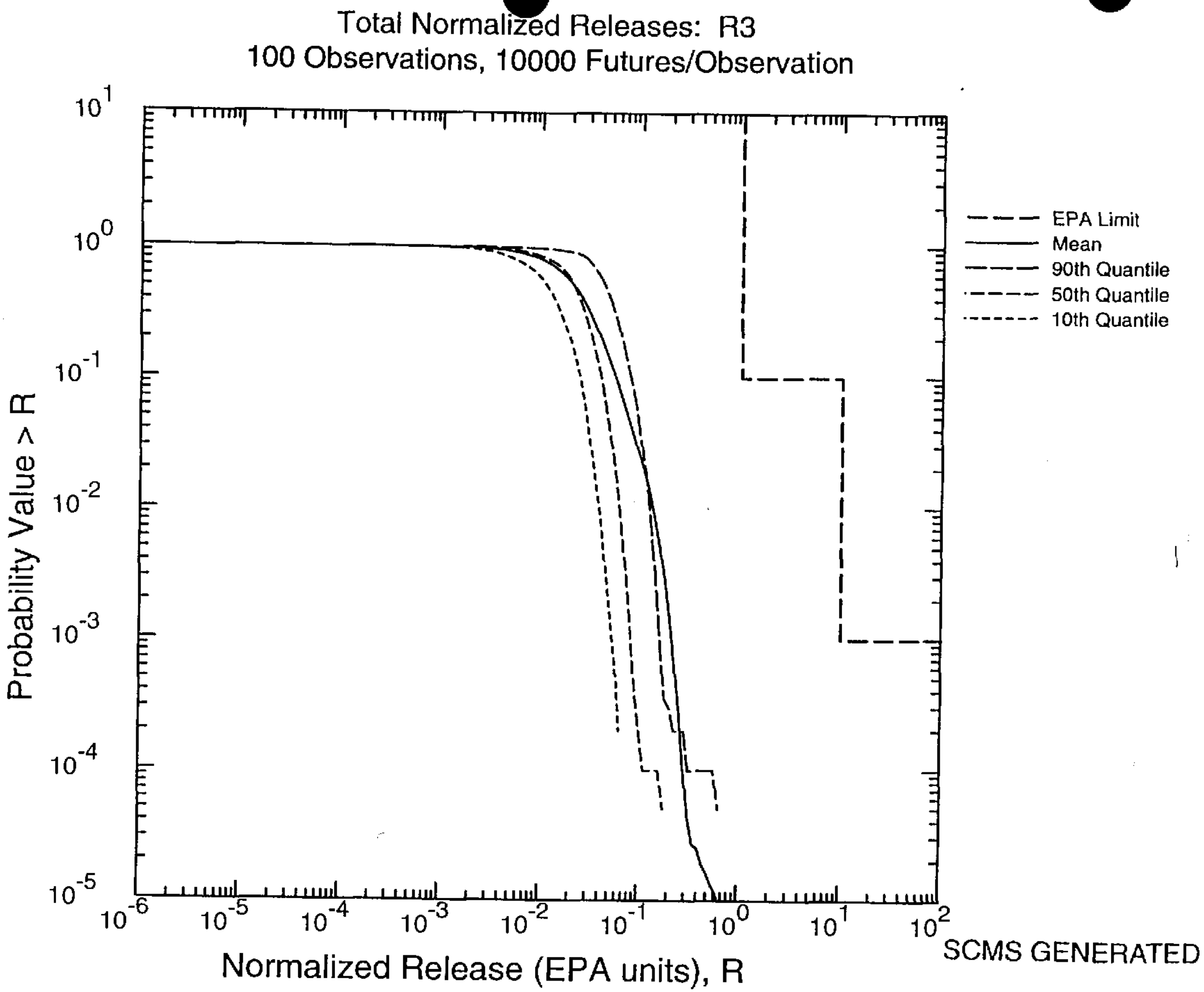


SCMS GENERATED

10/07/96 11:20:11

6.50

OCT 07 '96 LOG # 0006



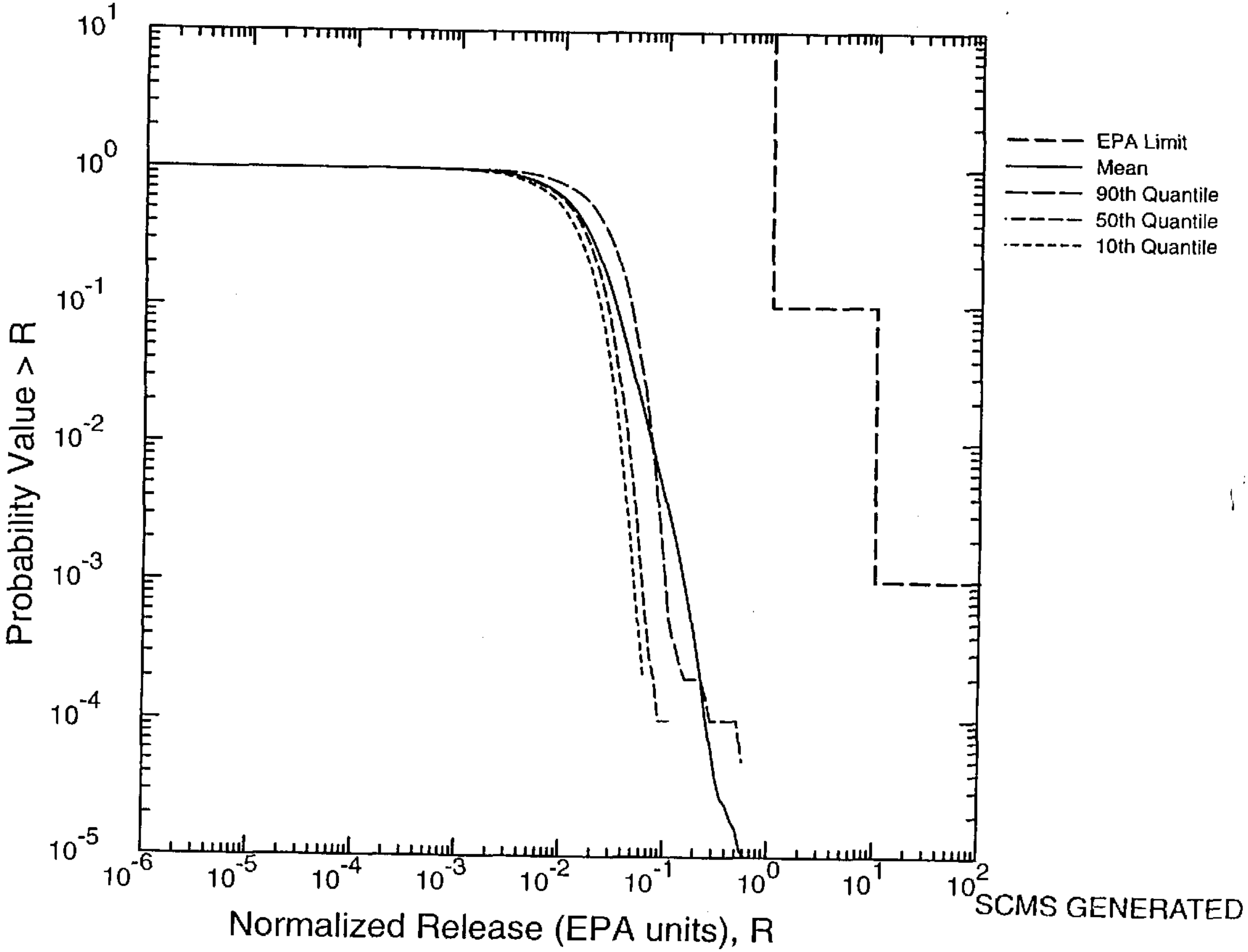
SCMS GENERATED

10/07/96 11:20:11

G.51

OCT 07 '96 LOG # 0006

Cuttings Normalized Releases: R3
100 Observations, 10000 Futures/Observation

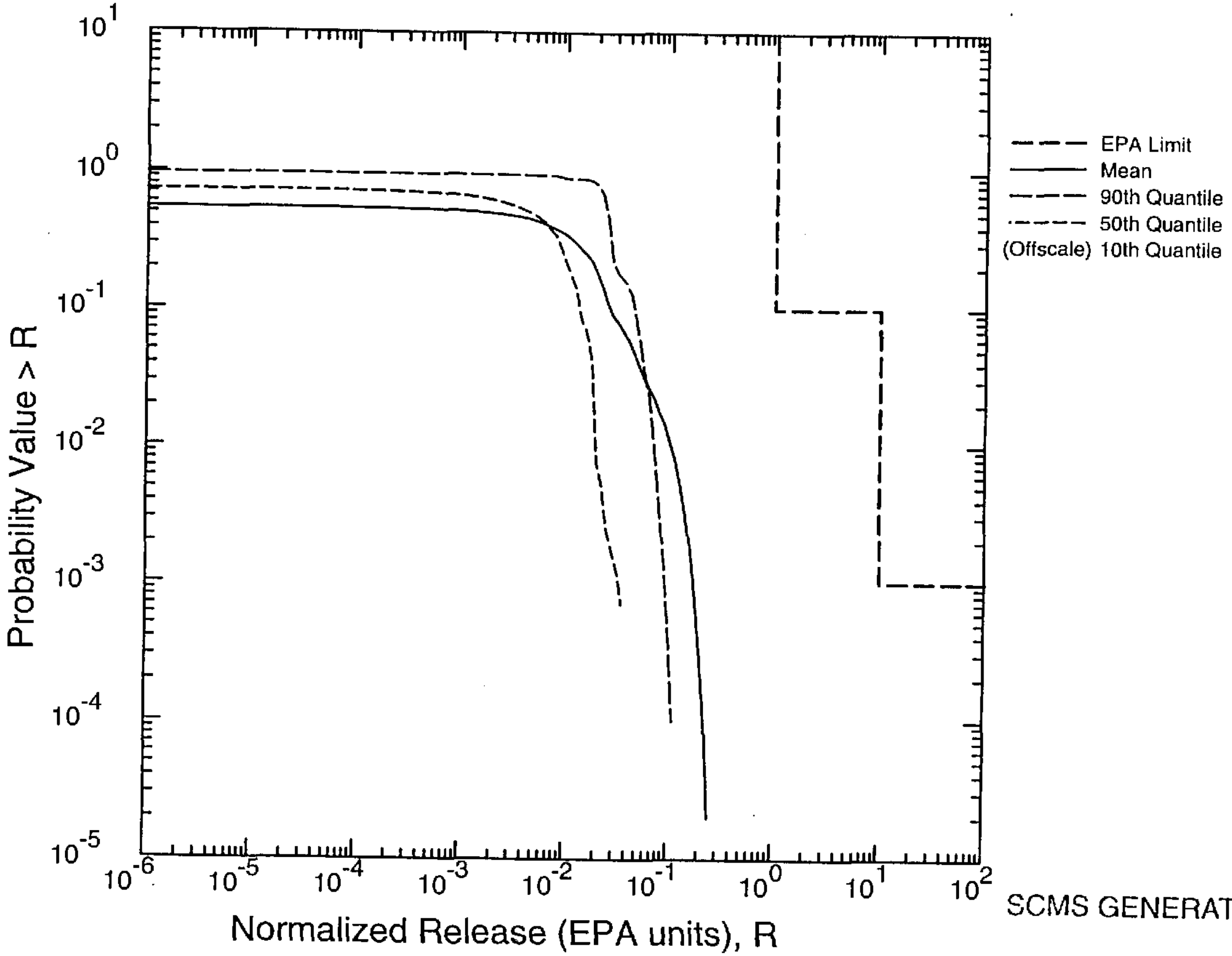


SCMS GENERATED

OCT 07 '96 LOG # 0006

10/07/96 11:20:11

G.52



Spallings Normalized Releases: R3
100 Observations, 10000 Futures/Observation

SCMS GENERATED

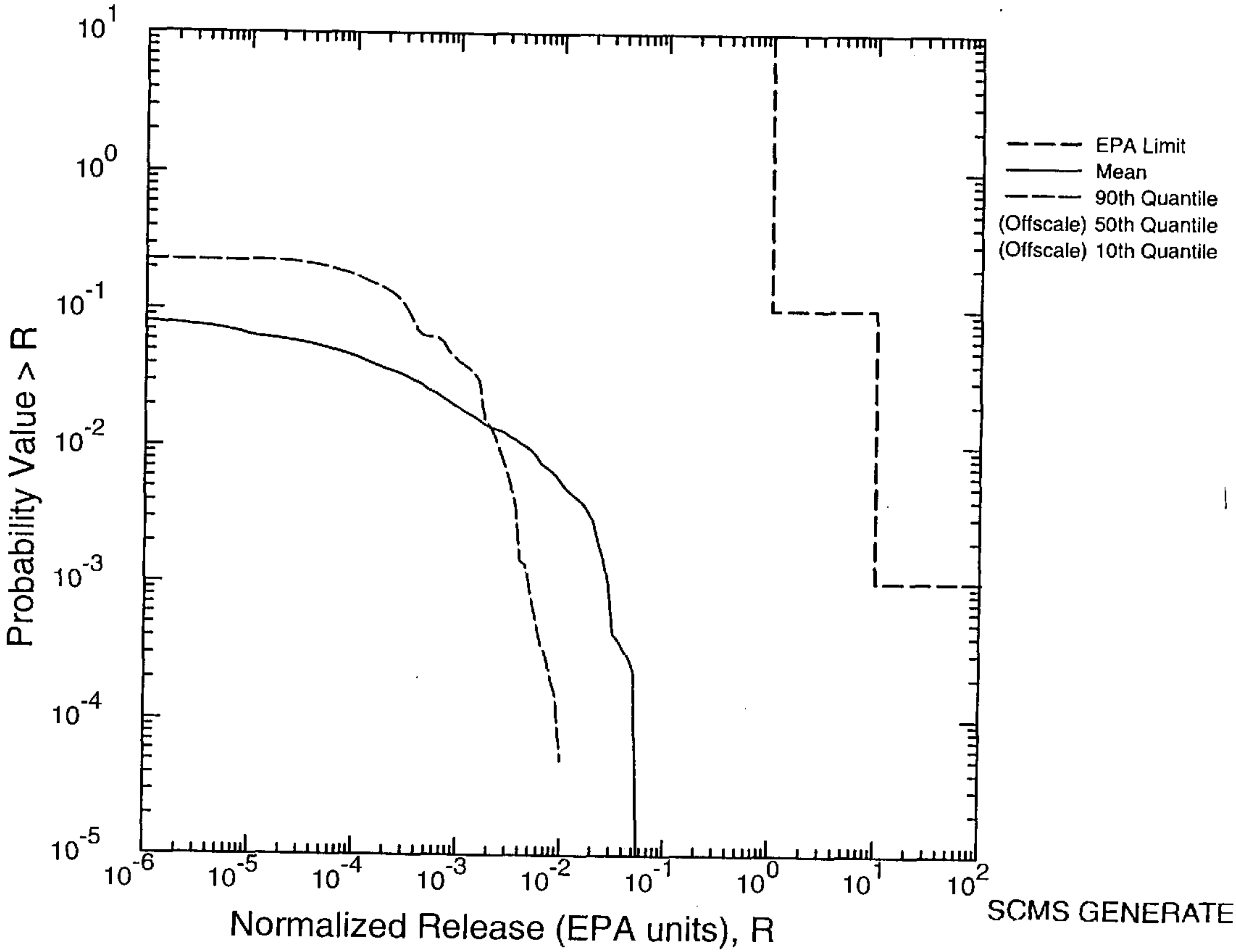
OCT 07 '96 LOG # 0006

10/07/96 11:20:11

6.53

DBR

~~Blowout~~ Normalized Releases: R3
100 Observations, 10000 Futures/Observation



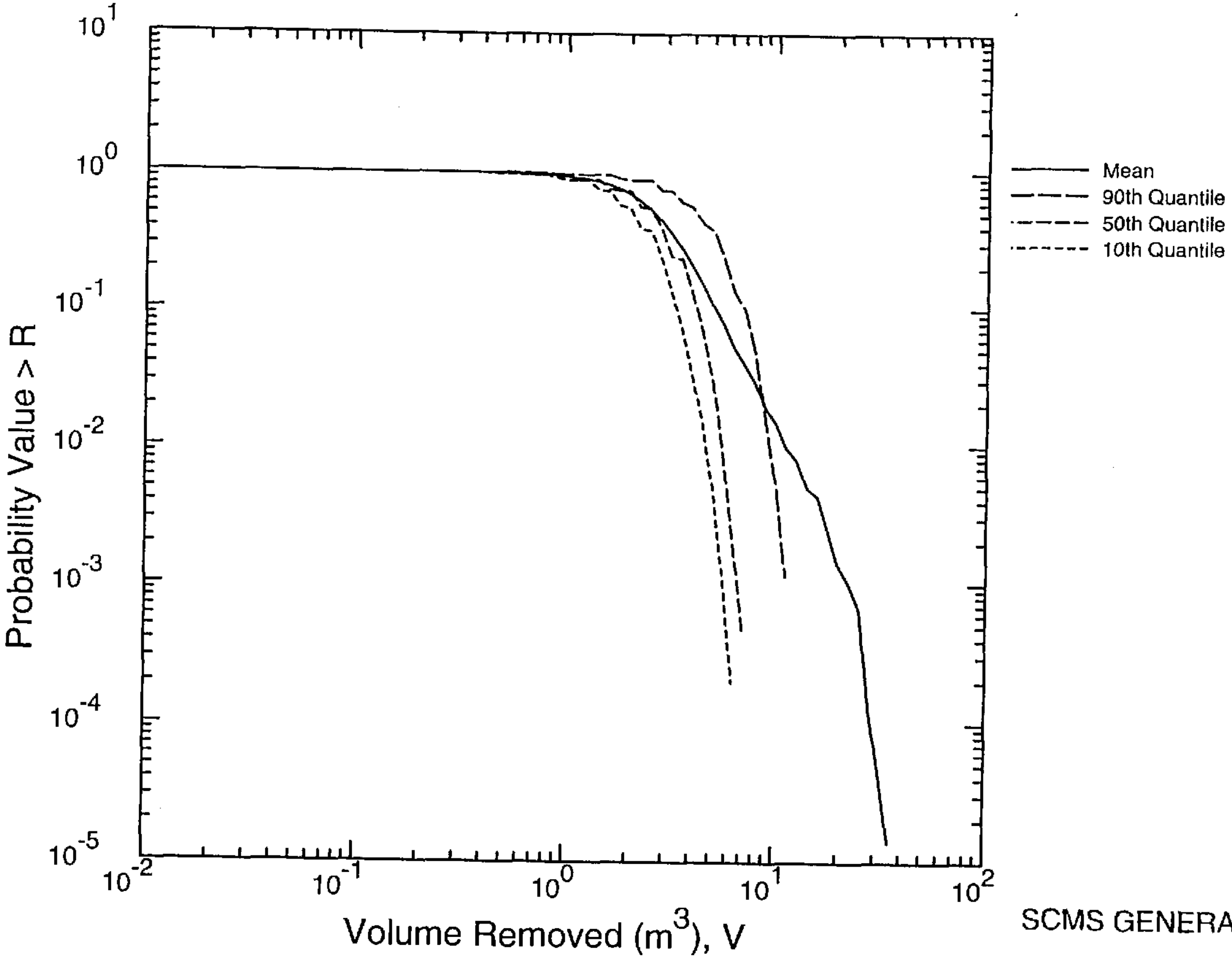
SCMS GENERATED

10/07/96 11:20:11

G.54

OCT 07 '96 LOG # 0006

Cuttings Volume Releases: R3
100 Observations, 10000 Futures/Observation

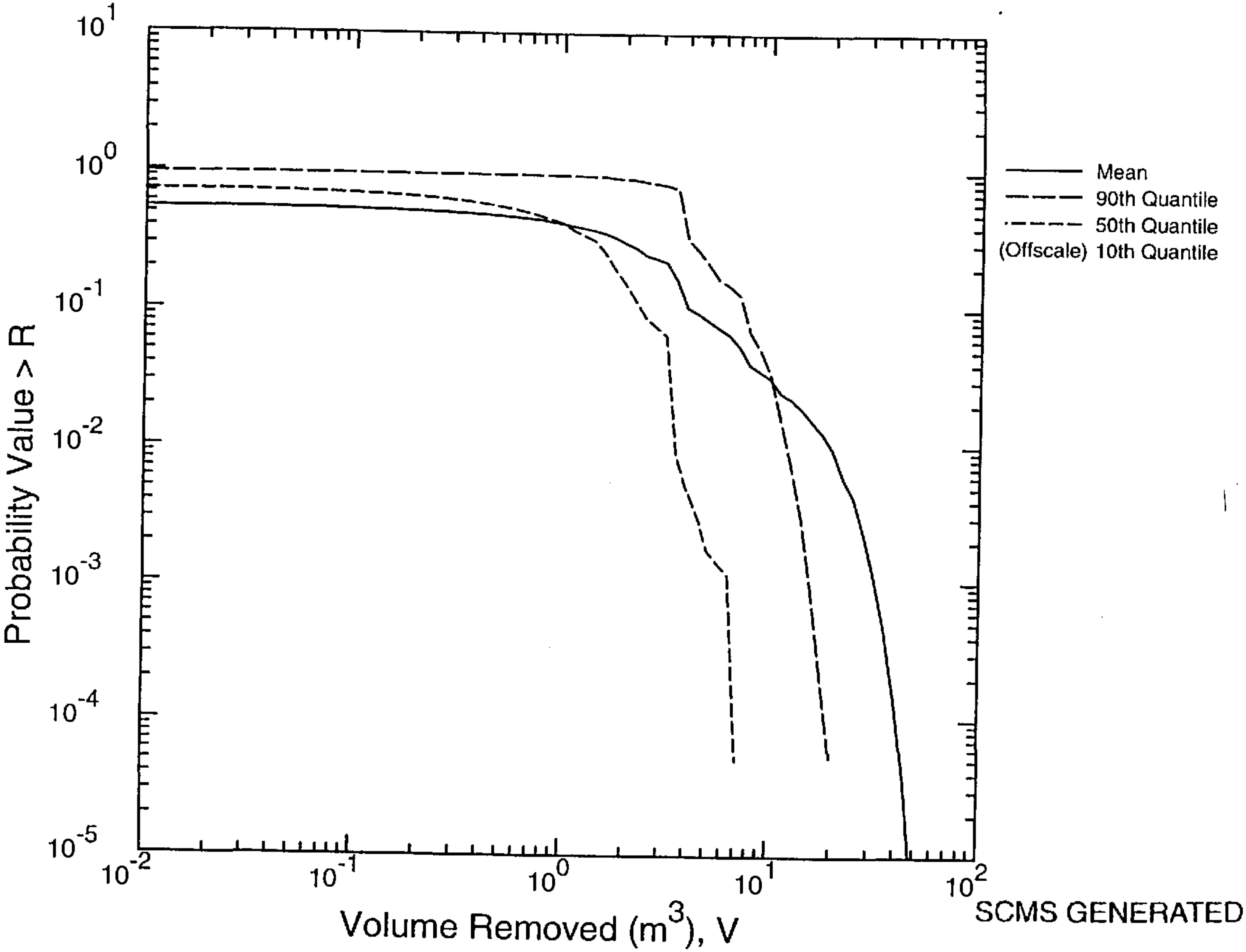


SCMS GENERATED

10/07/96 11:20:11 G.55

OCT 07 '96 LOG # 0006

Spallings Volume Releases: R3
100 Observations, 10000 Futures/Observation



SCMS GENERATED

10/07/96 11:20:11

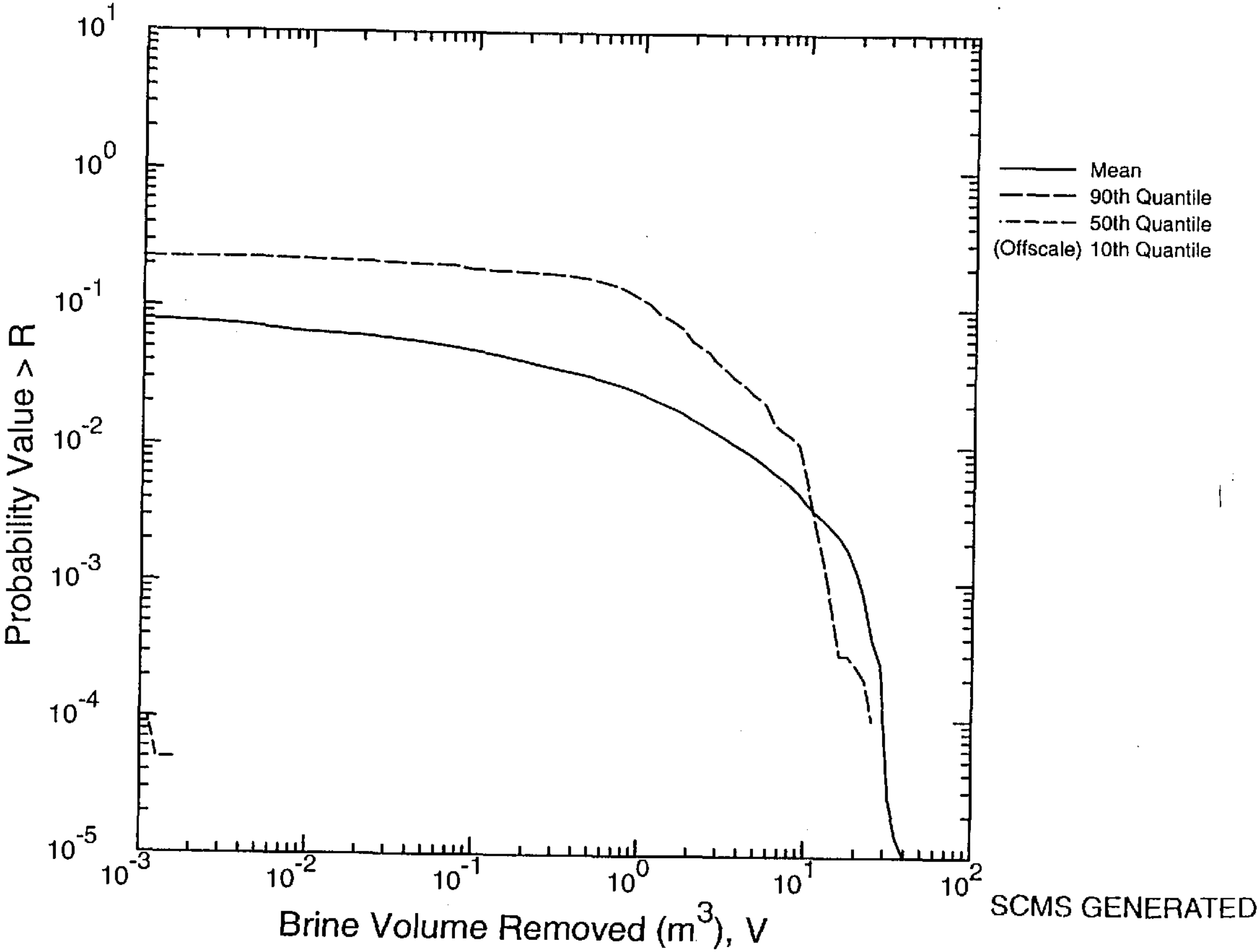
6.56

OCT 07 '96 LOG # 0008

OBR

~~Blowo~~ut Volume Releases: R3

100 Observations, 10000 Futures/Observation



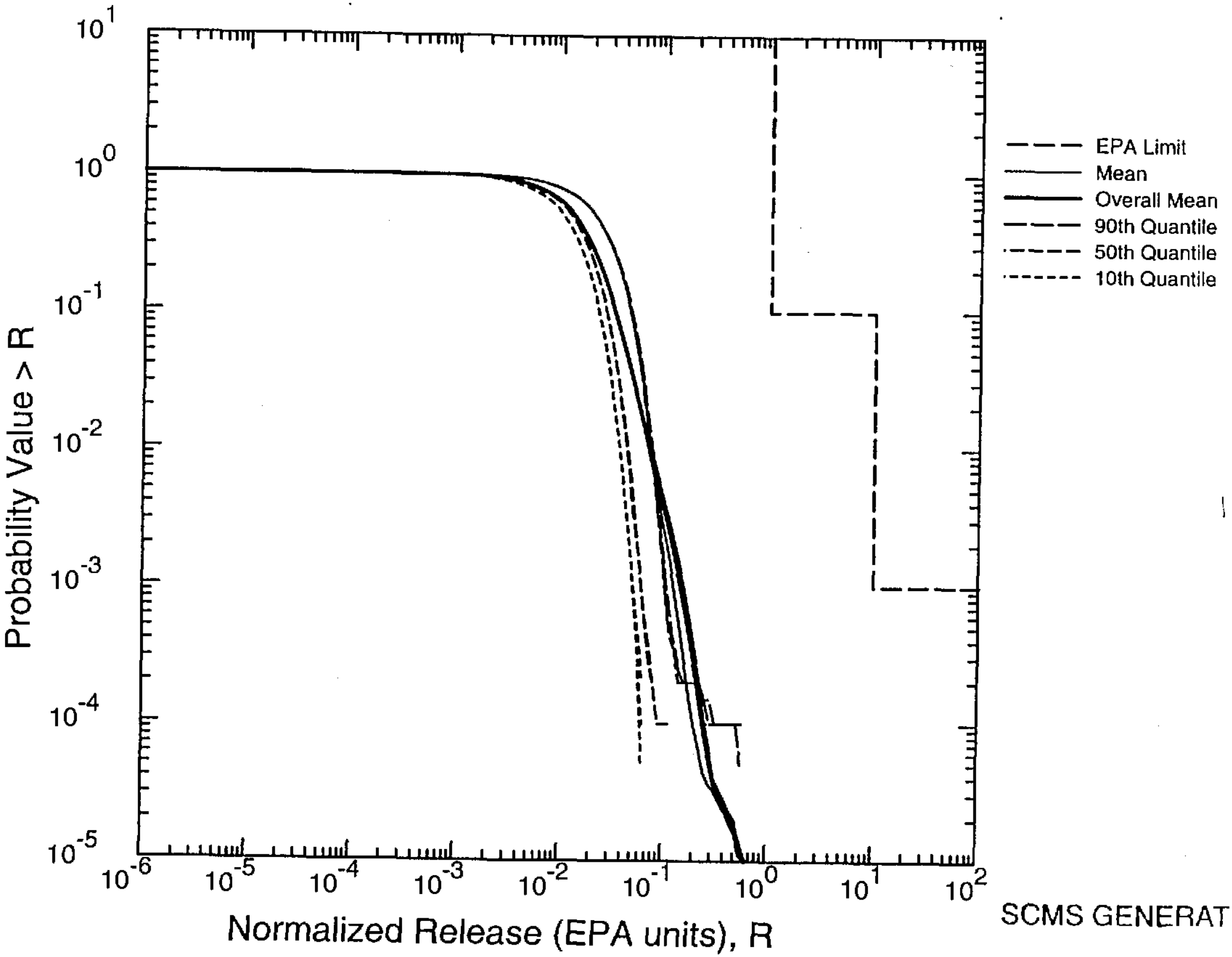
SCMS GENERATED

OCT 07 '96 LOG # 0006

10/07/96 11:20:11

G.57

Cuttings Normalized Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



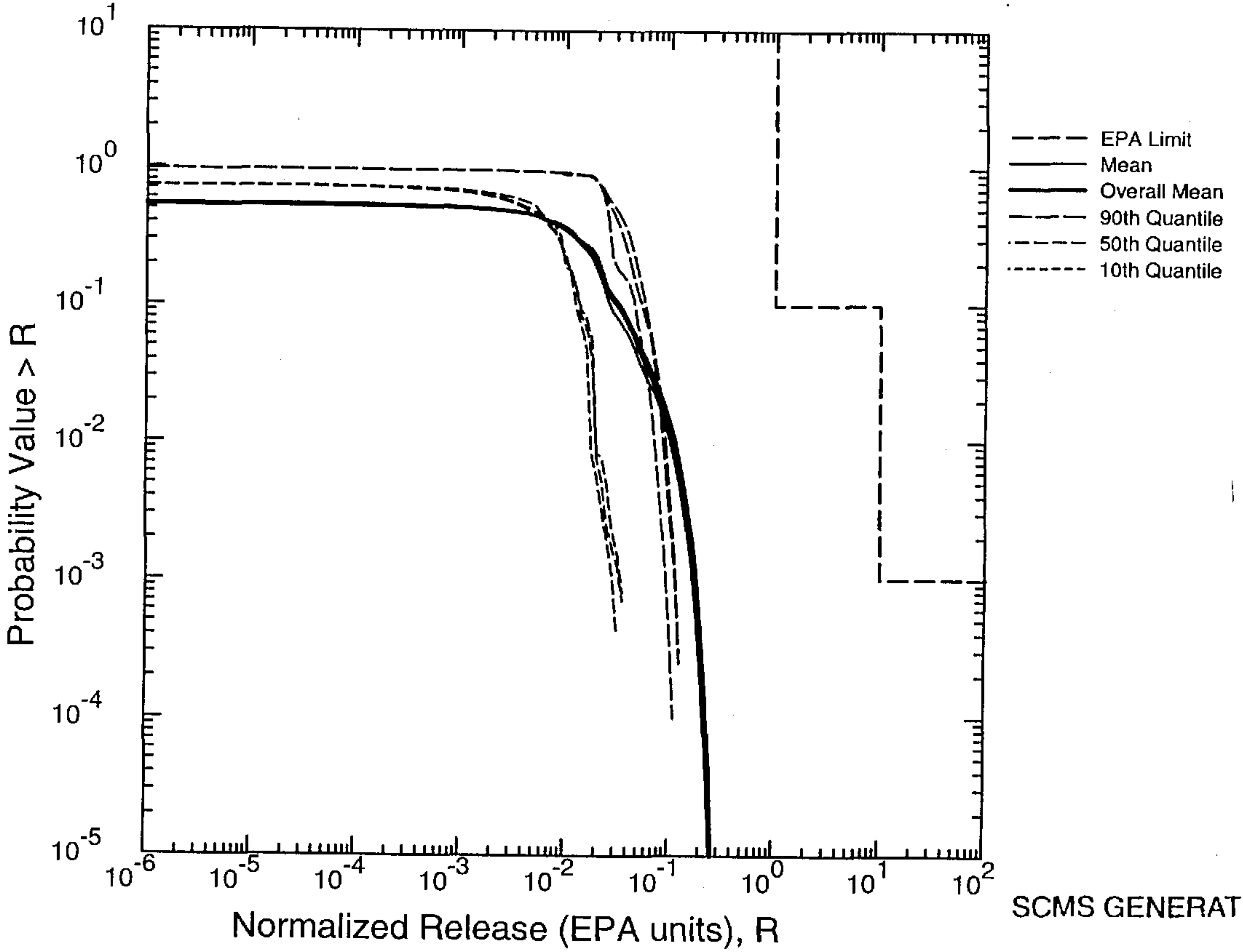
SCMS GENERATED

10/07/96 11:20:11

G.58

OCT 07 '96 LOG # 0006

Spallings Normalized Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



SCMS GENERATED

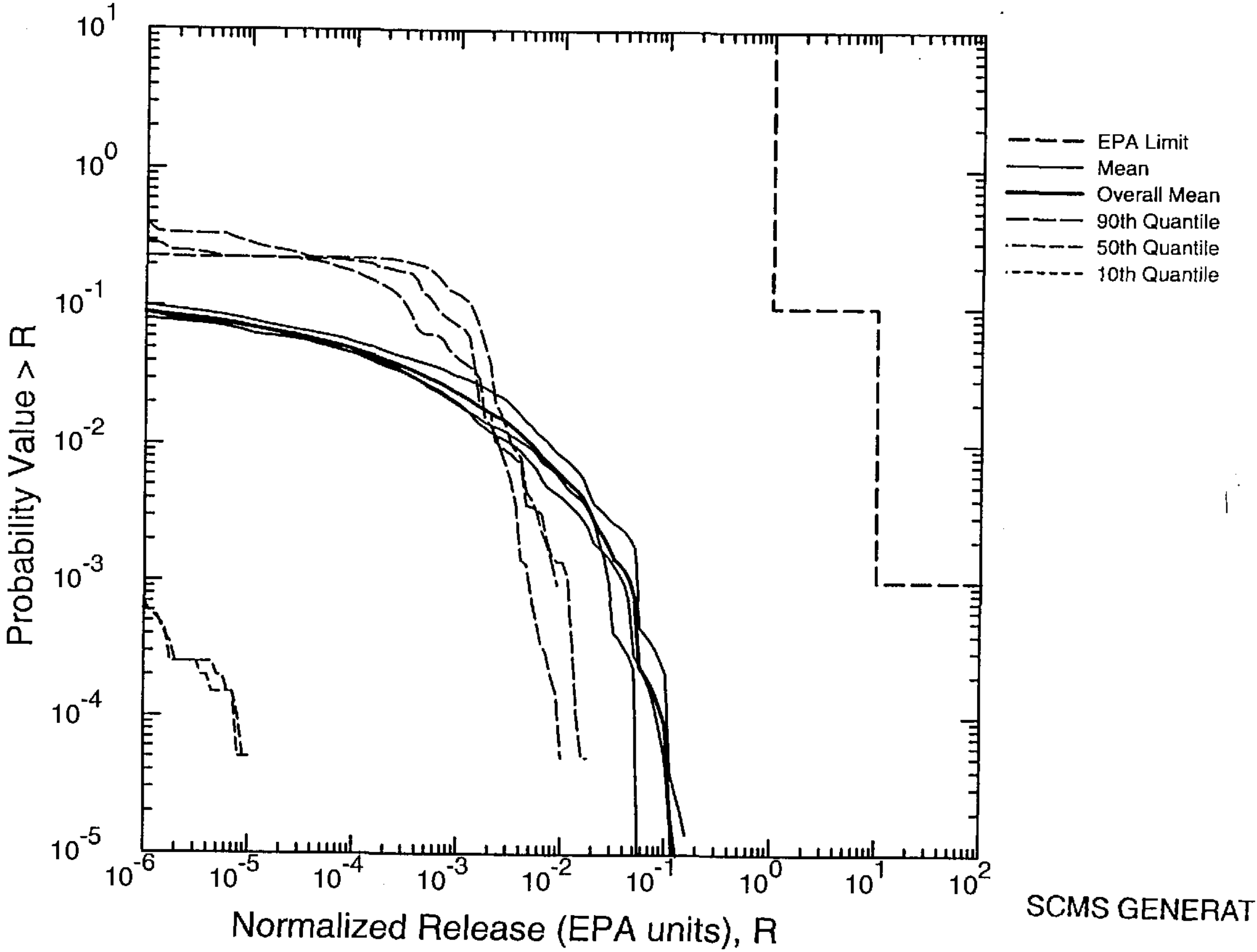
10/07/96 11:20:11

G.59

OCT 07 '96 LOG # 0006

DBR

~~Blowout~~ Normalized Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



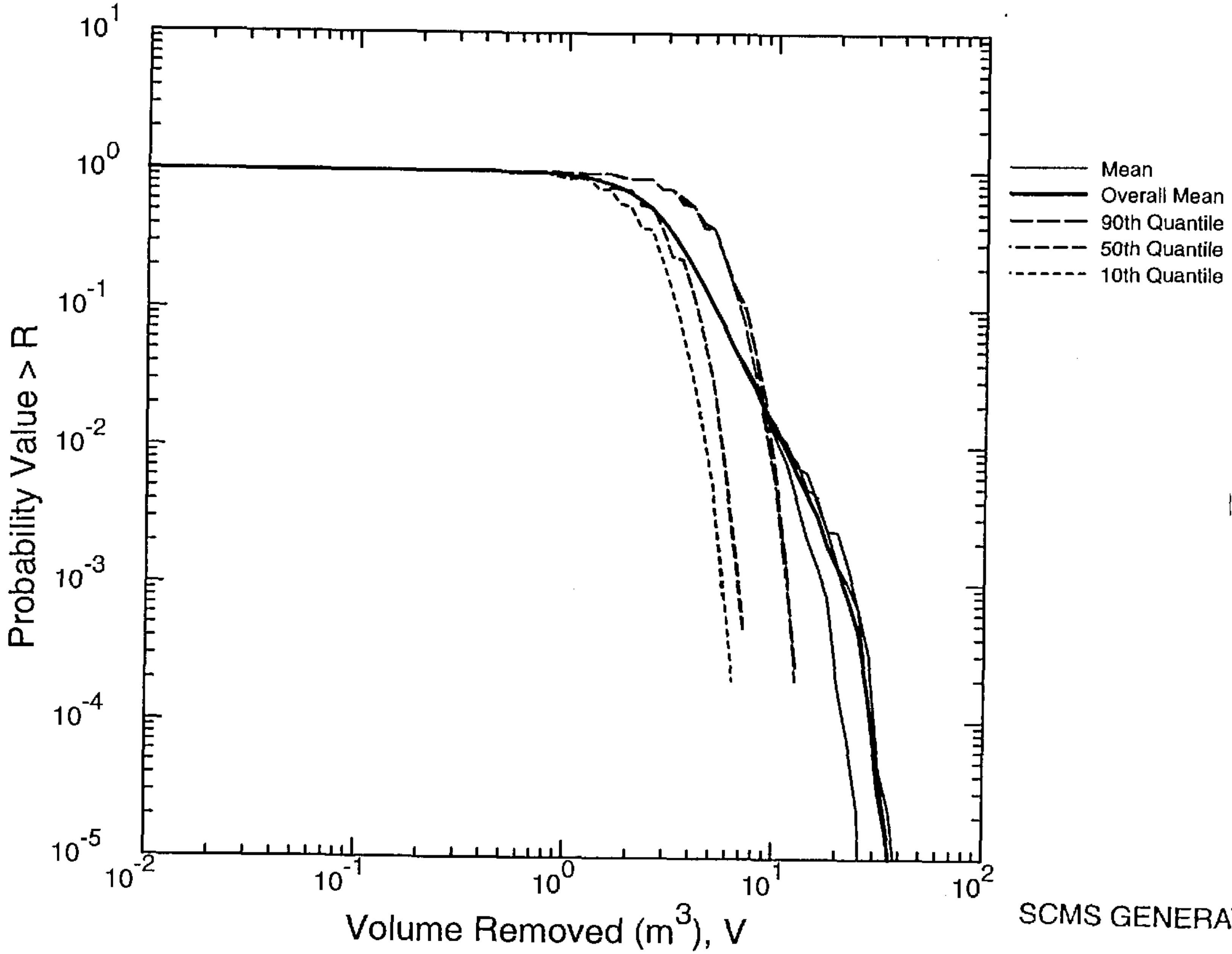
SCMS GENERATED

10/07/96 11:20:11

G.60

OCT 07 '96 LOG # 0006

Cuttings Volume Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



SCMS GENERATED

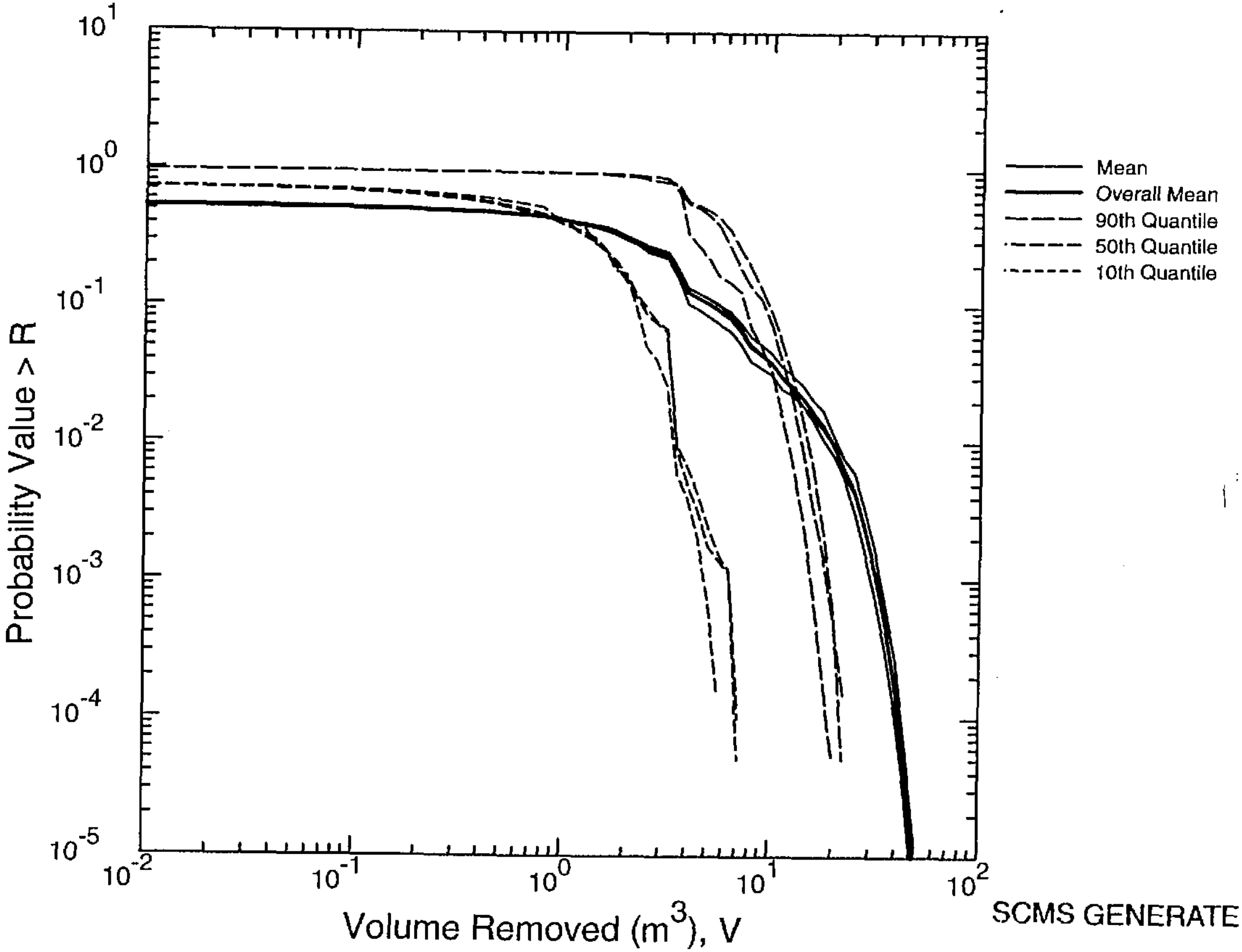
10/07/96 11:20:11

G.61

OCT 07 '96

LOG # 0006

Spallings Volume Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



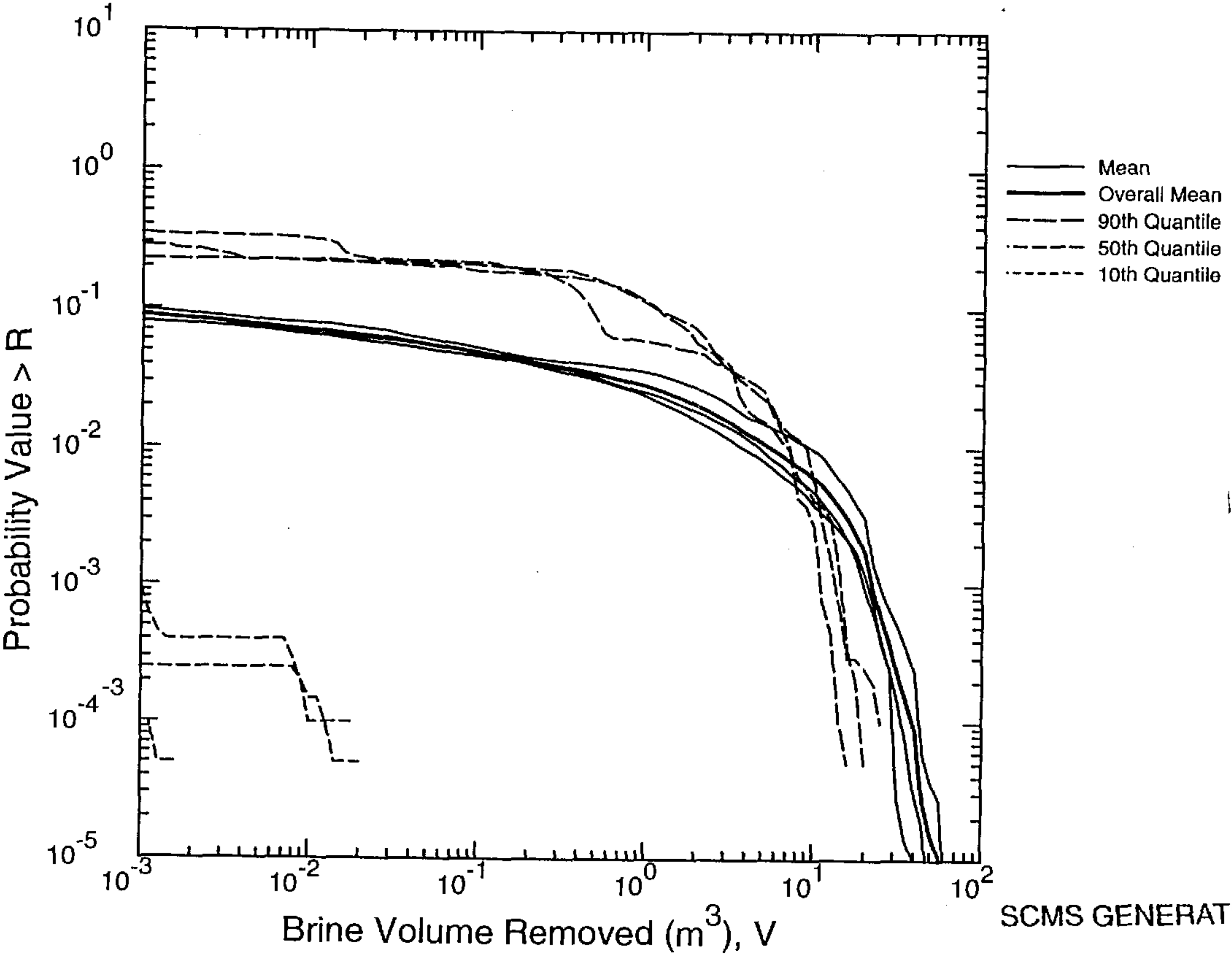
SCMS GENERATED

10/07/96 11:20:11

G.62

OCT 07 '96 LOG # 0006

DBR
~~Blowout~~ Volume Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



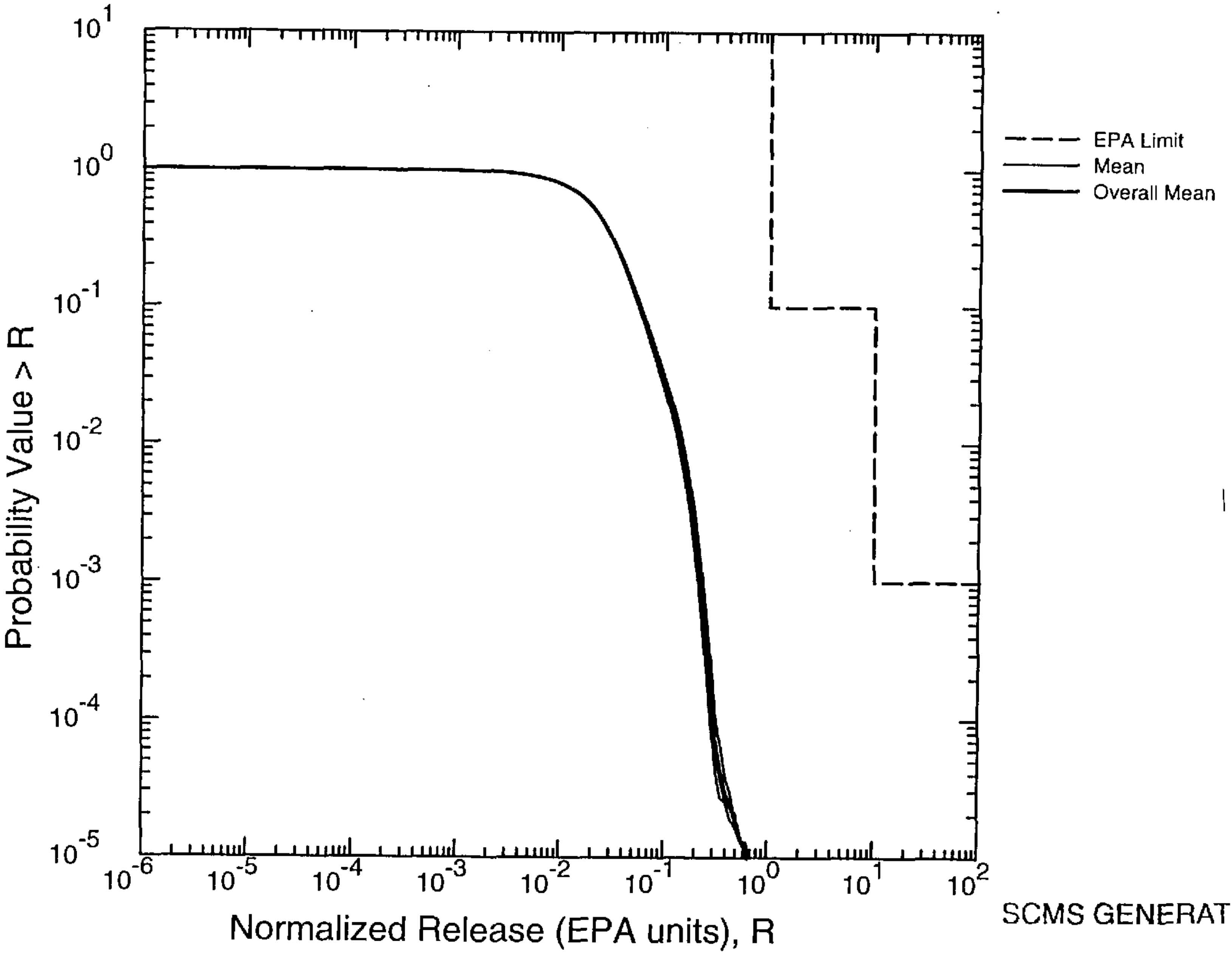
SCMS GENERATED

10/07/96 11:20:11

G.63

OCT 07 '96 LOG # 0006

Total Normalized Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



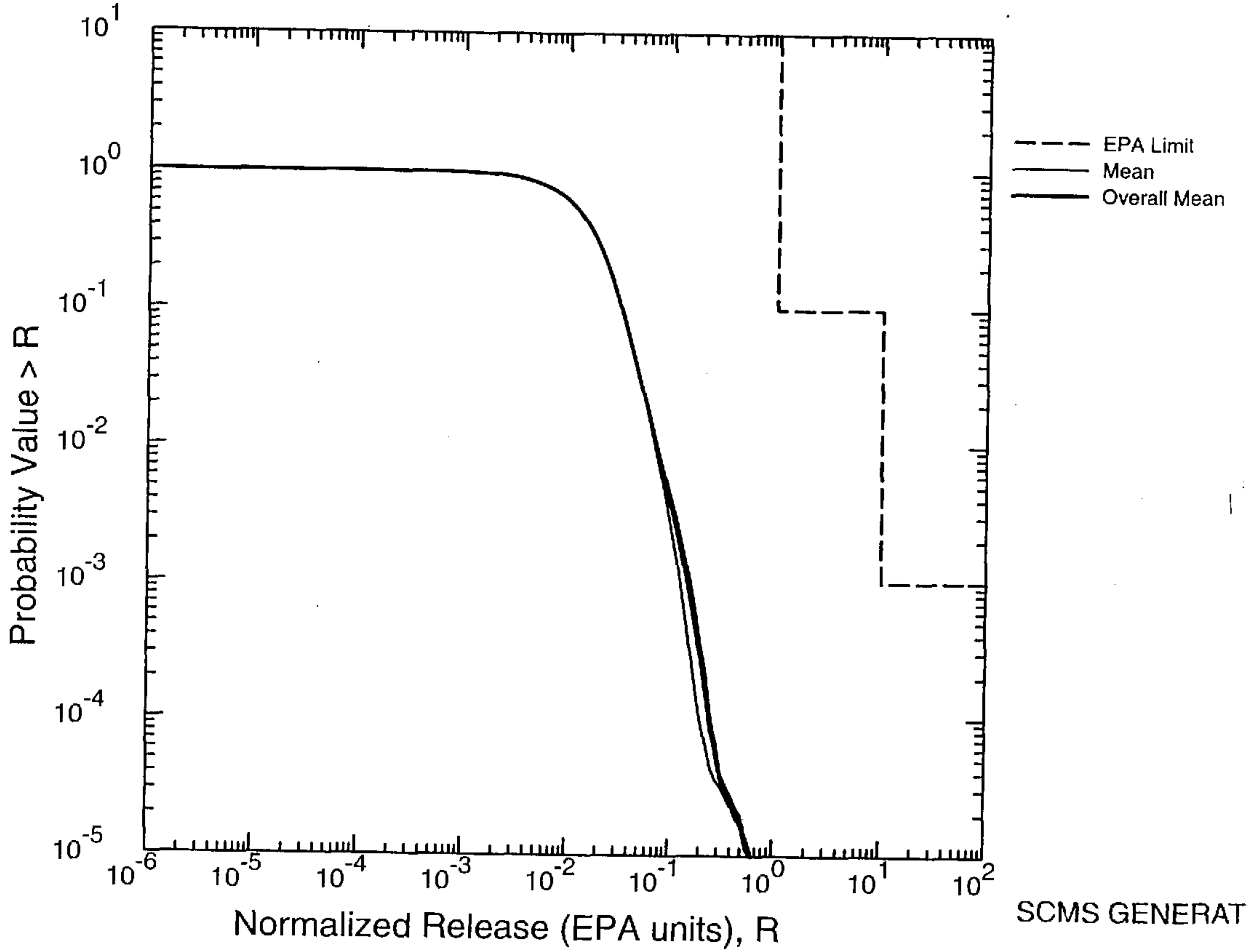
SCMS GENERATED

10/07/96 11:20:11

6.64

OCT 07 '96 LOG # 0006

Cuttings Normalized Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



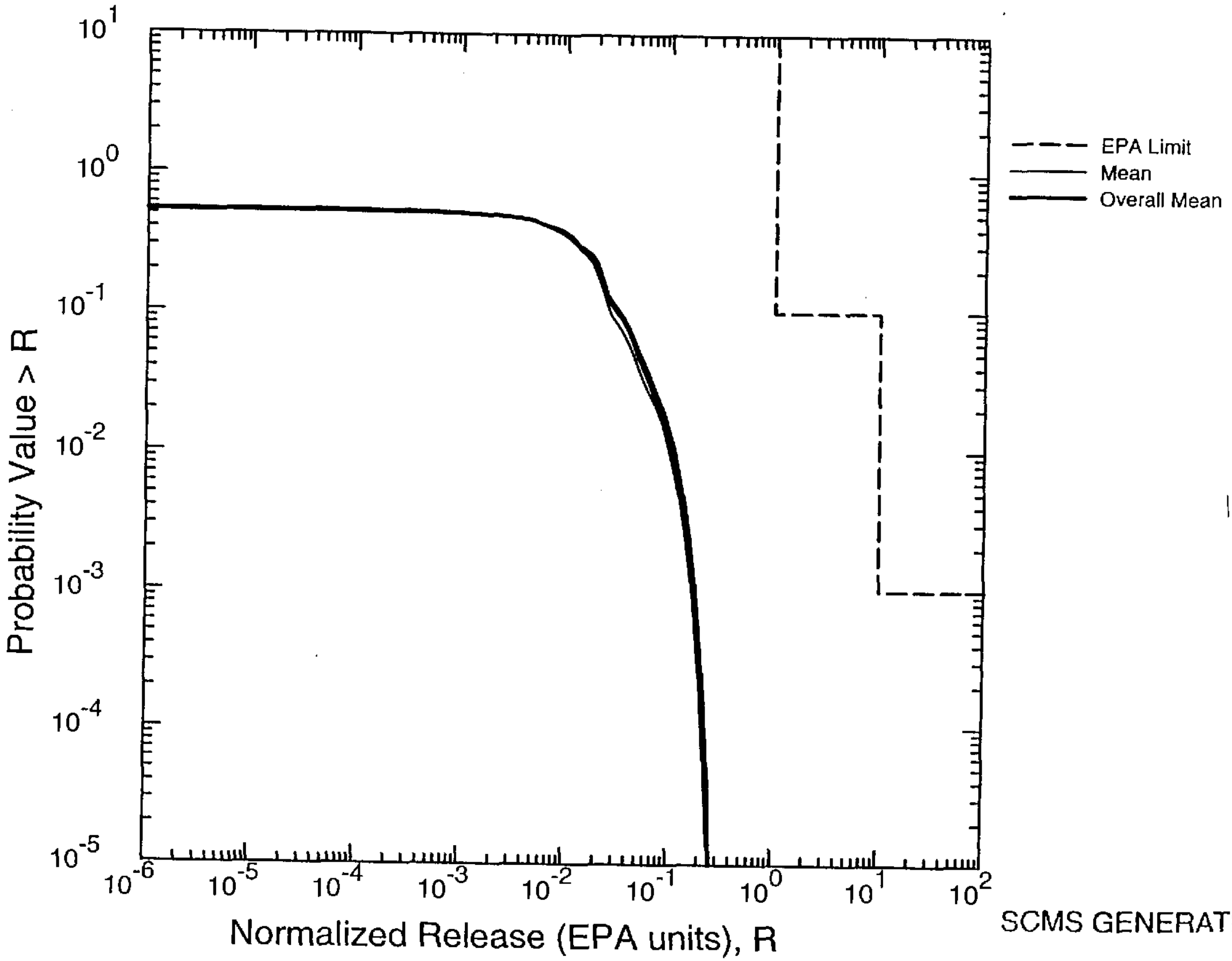
SCMS GENERATED

10/07/96 11:20:11

G.65

OCT 07 '96 LOG # 0006

Spallings Normalized Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



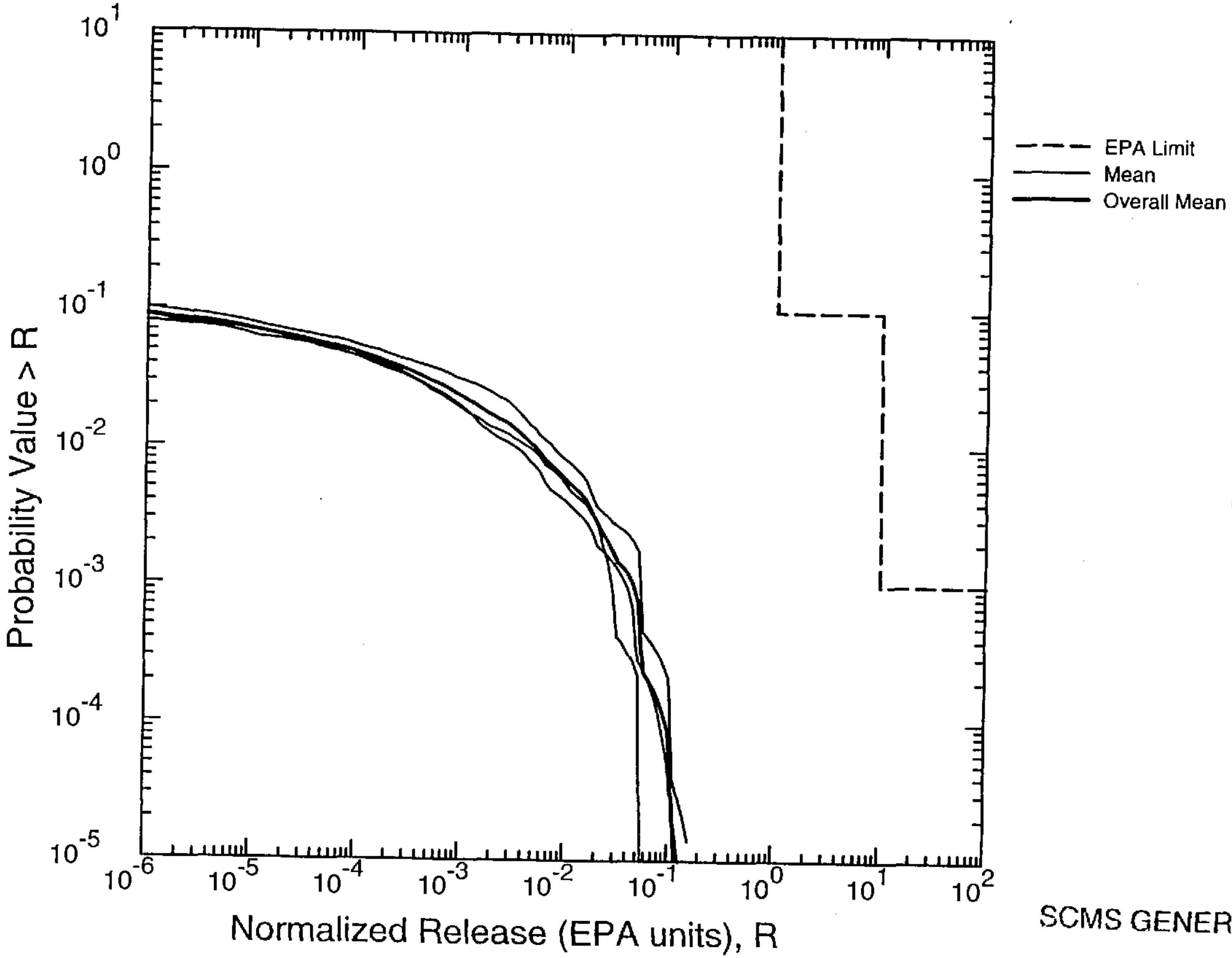
SCMS GENERATED

10/07/96 11:20:11

G.66

OCT 07 '96 LOG # 0006

DBR
~~Blowout~~ Normalized Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation

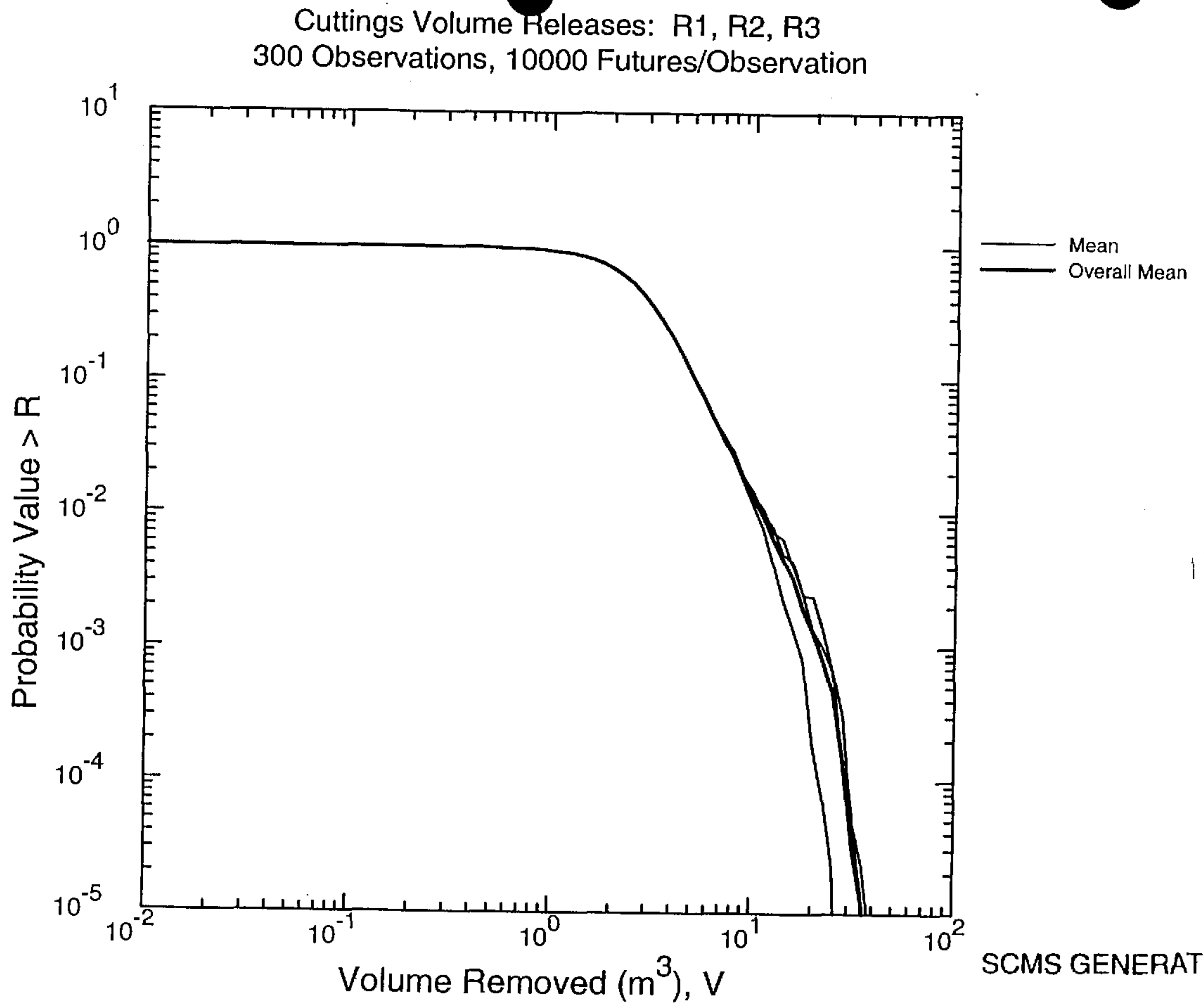


SCMS GENERATED

10/07/96 11:20:11

G7.67

OCT 07 '96 LOG # 0006



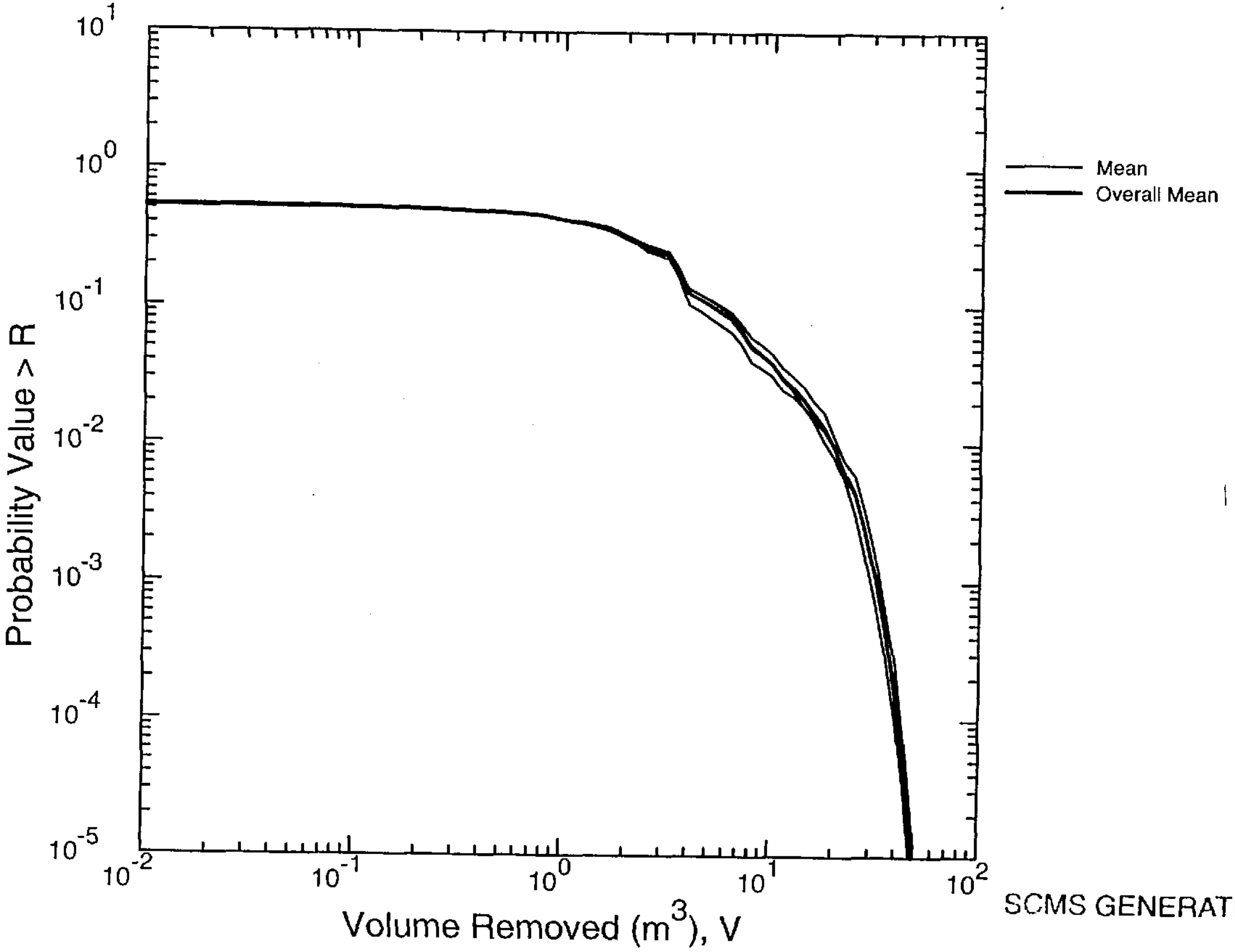
SCMS GENERATED

10/07/96 11:20:11

G.68

OCT 07 '96 LOG # 0006

Spallings Volume Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



SCMS GENERATED

10/07/96 11:20:11

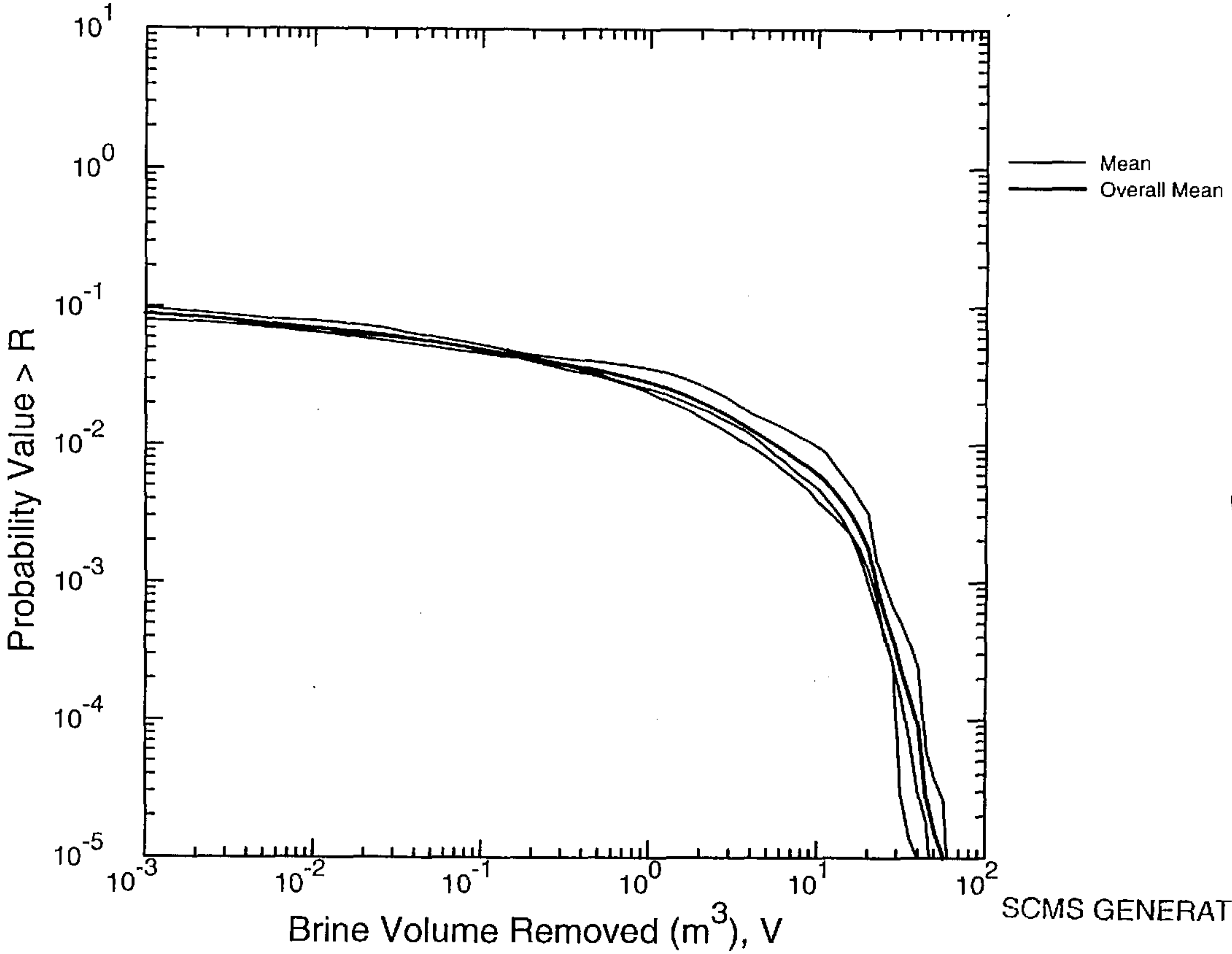
6.69

OCT 07 '96 LOG # 0006

DBR

~~Blowout~~ Volume Releases: R1, R2, R3

300 Observations, 10000 Futures/Observation



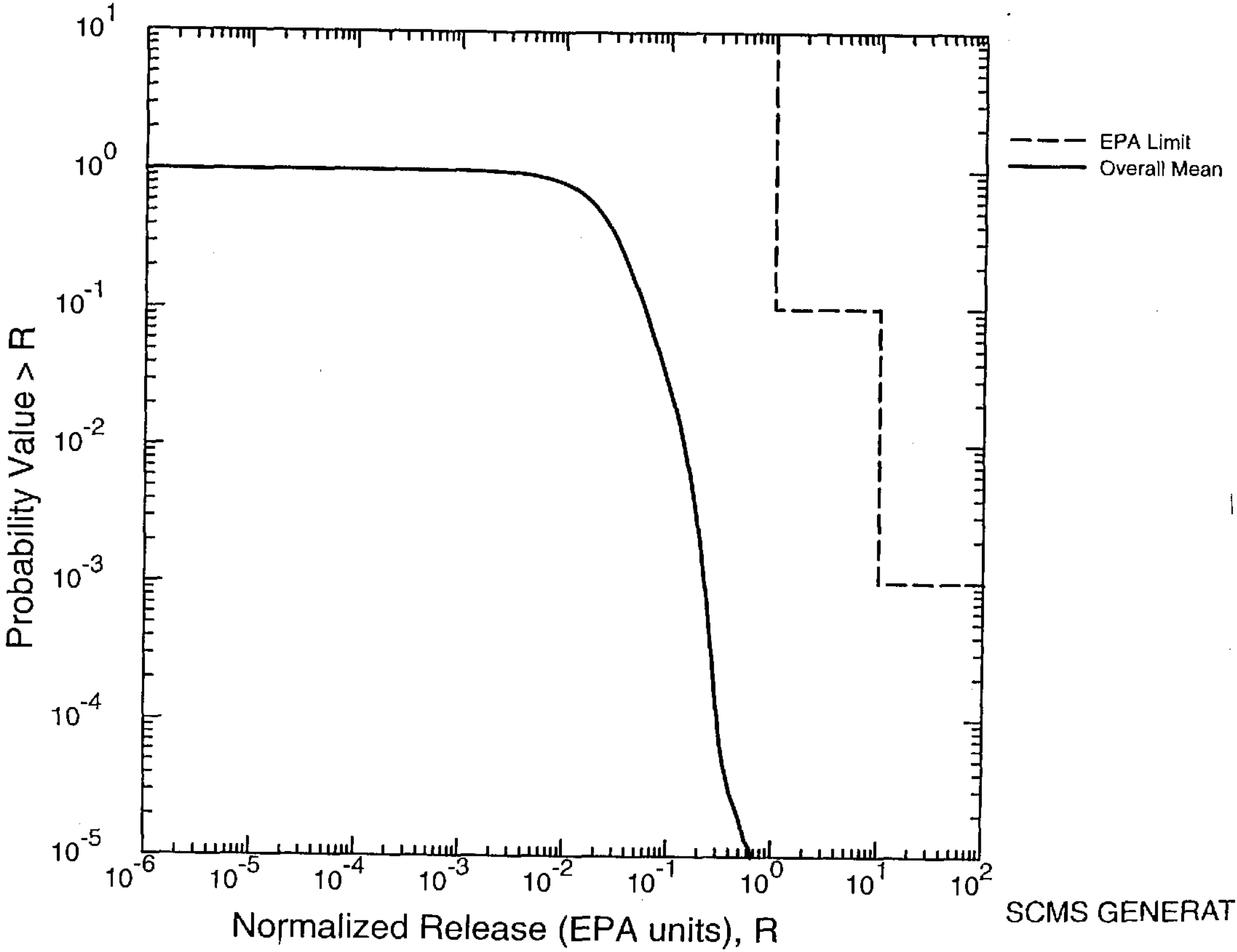
SCMS GENERATED

OCT 07 '96 LOG # 0006

10/07/96 11:20:11

G.70

Total Normalized Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation

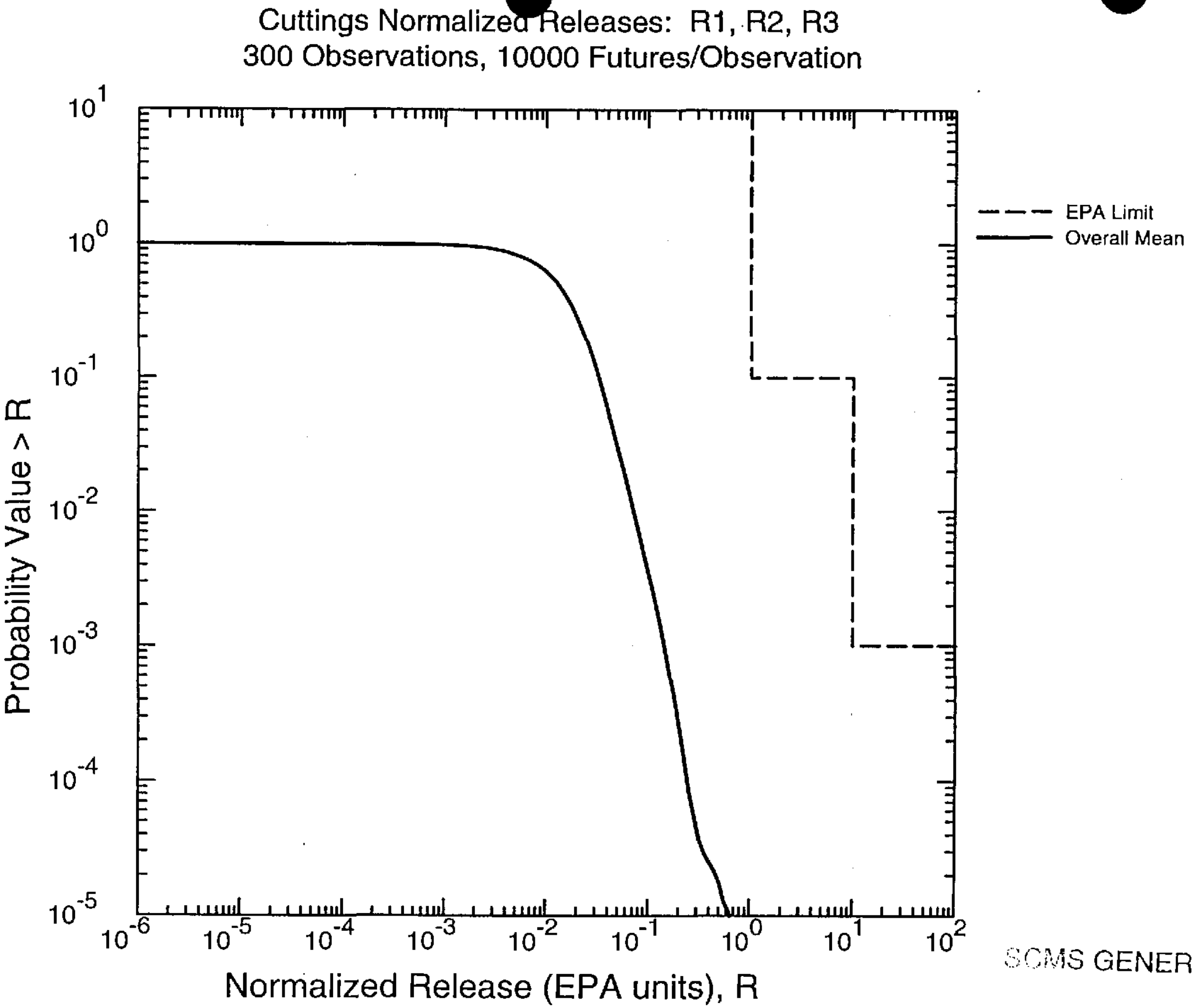


SCMS GENERATED

10/07/96 11:20:11

6.71

OCT 07 '96 LOG # 0006



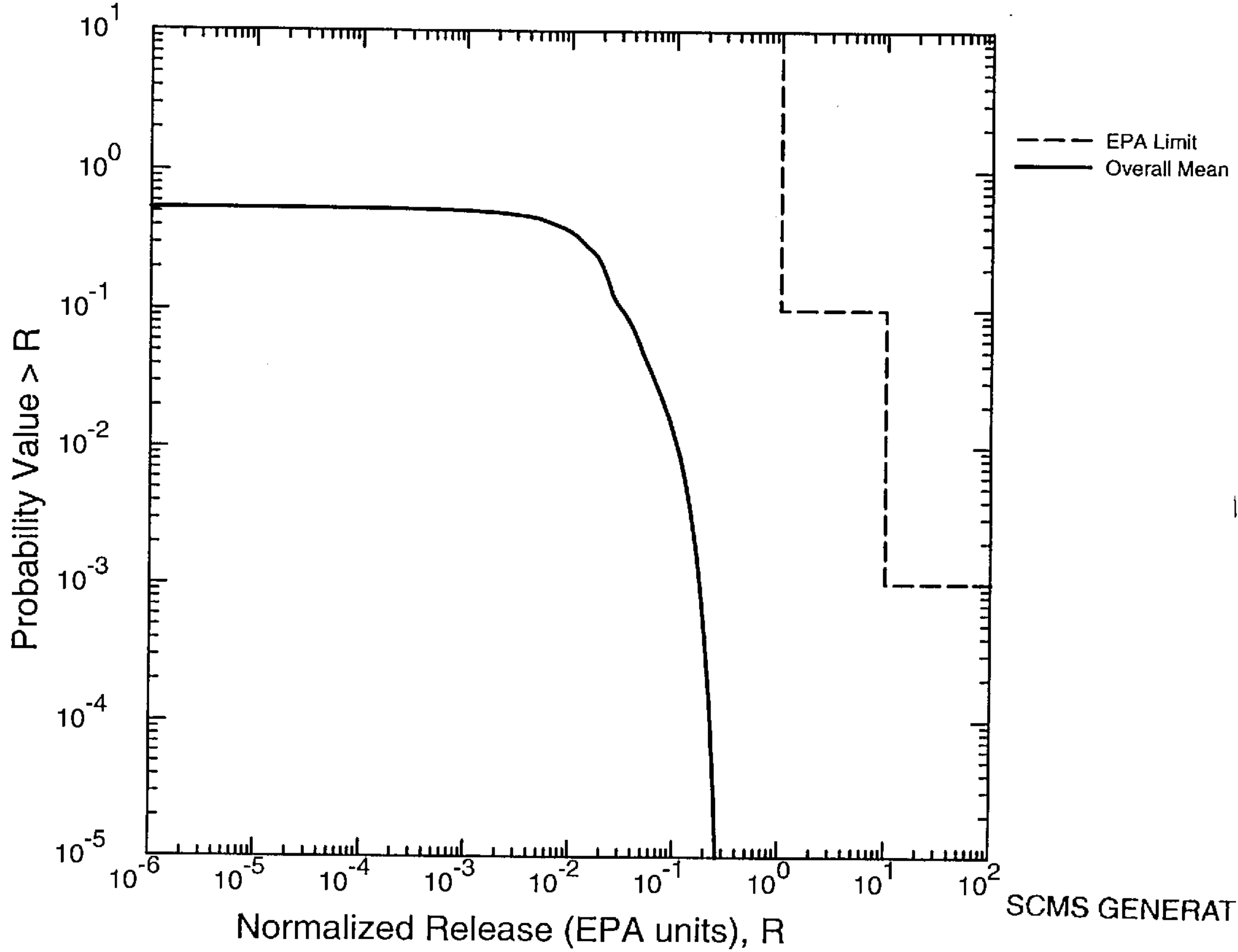
SCMS GENERATED

OCT 07 '96 LOG # 0006

10/07/96 11:20:11

G.72

Spallings Normalized Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



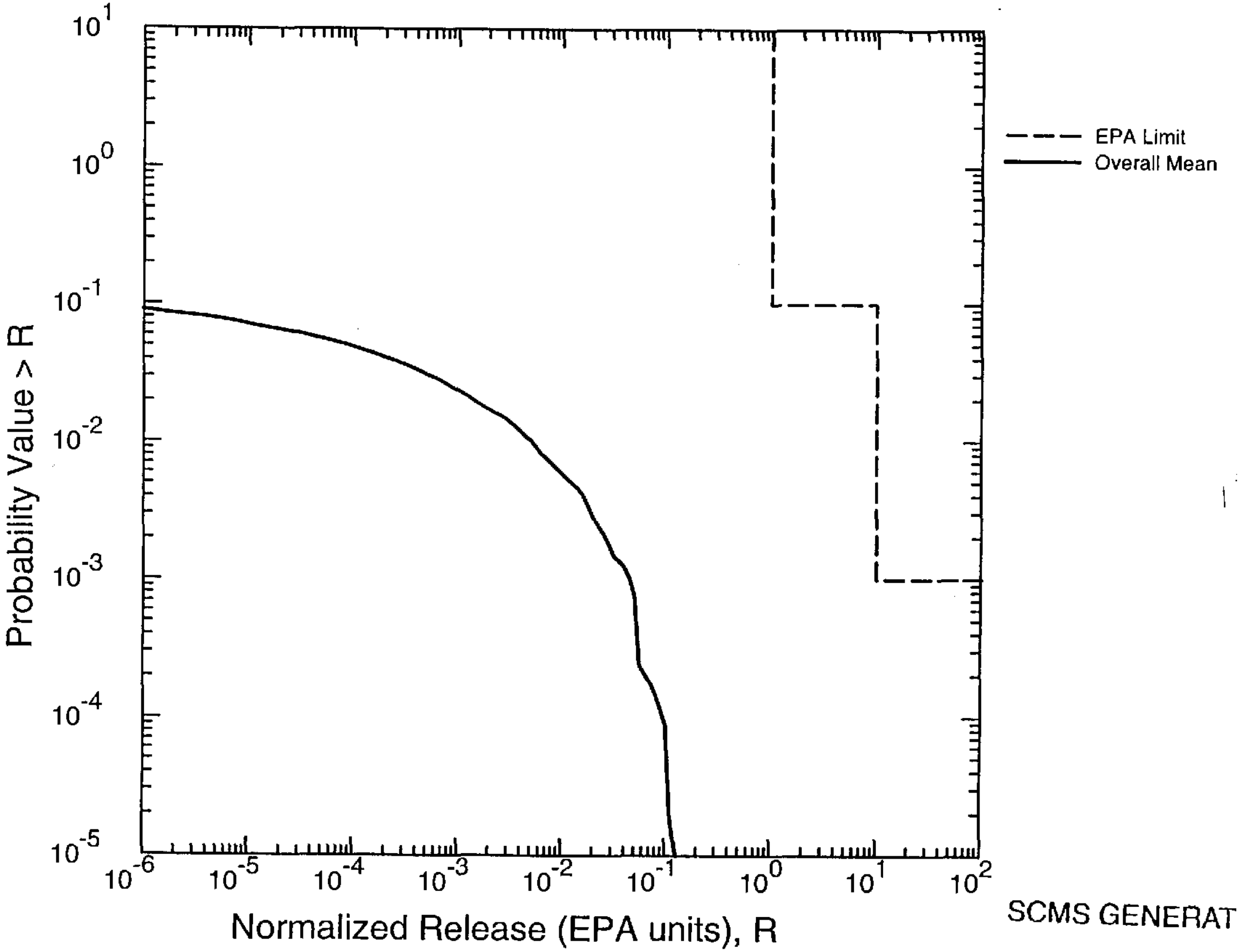
SCMS GENERATED

OCT 07 '96 LOG # 0006

10/07/96 11:20:11

G.73

~~Blowout~~ DBR Normalized Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation

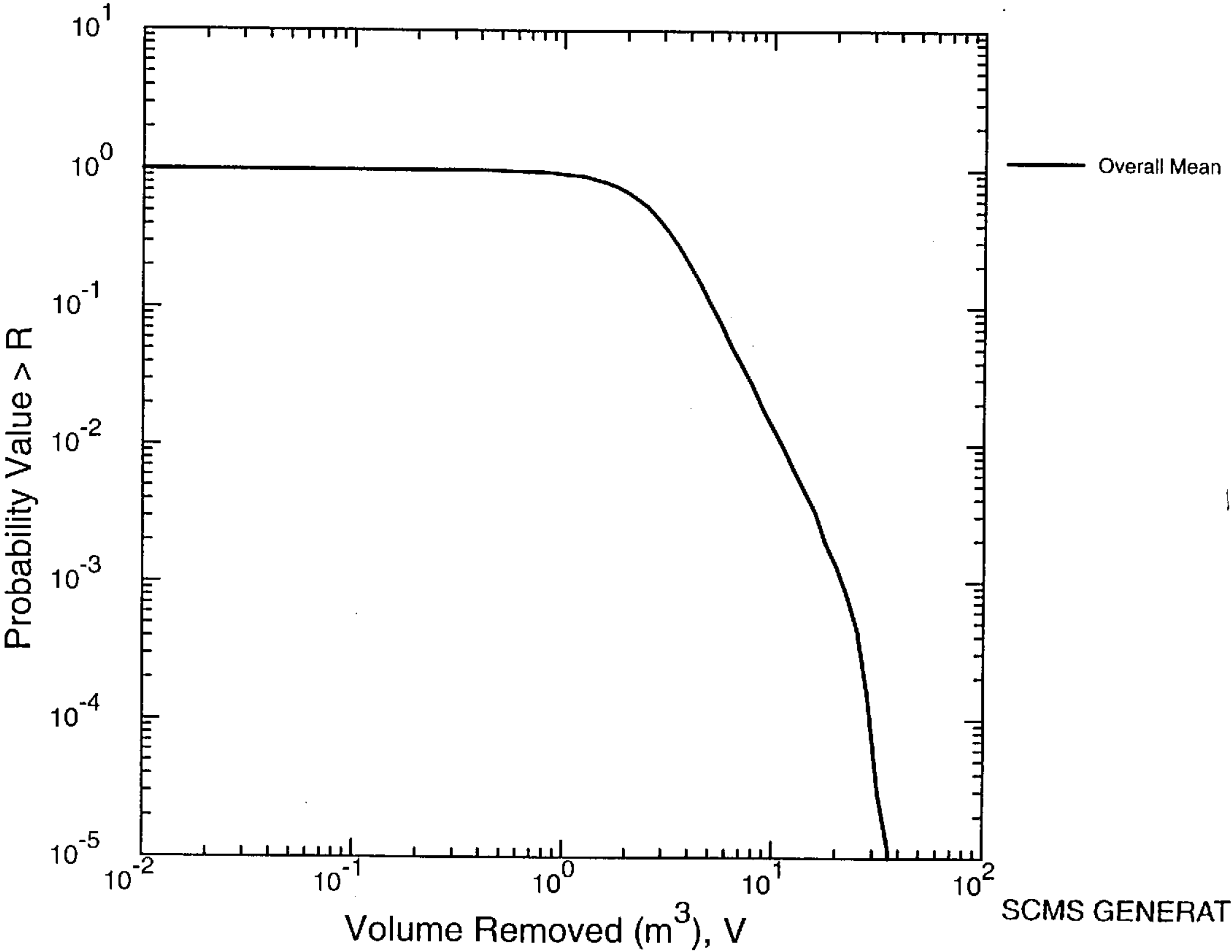


SCMS GENERATED

10/07/96 11:20:11 G.74

OCT 0 7 '96 # 0006

Cuttings Volume Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation

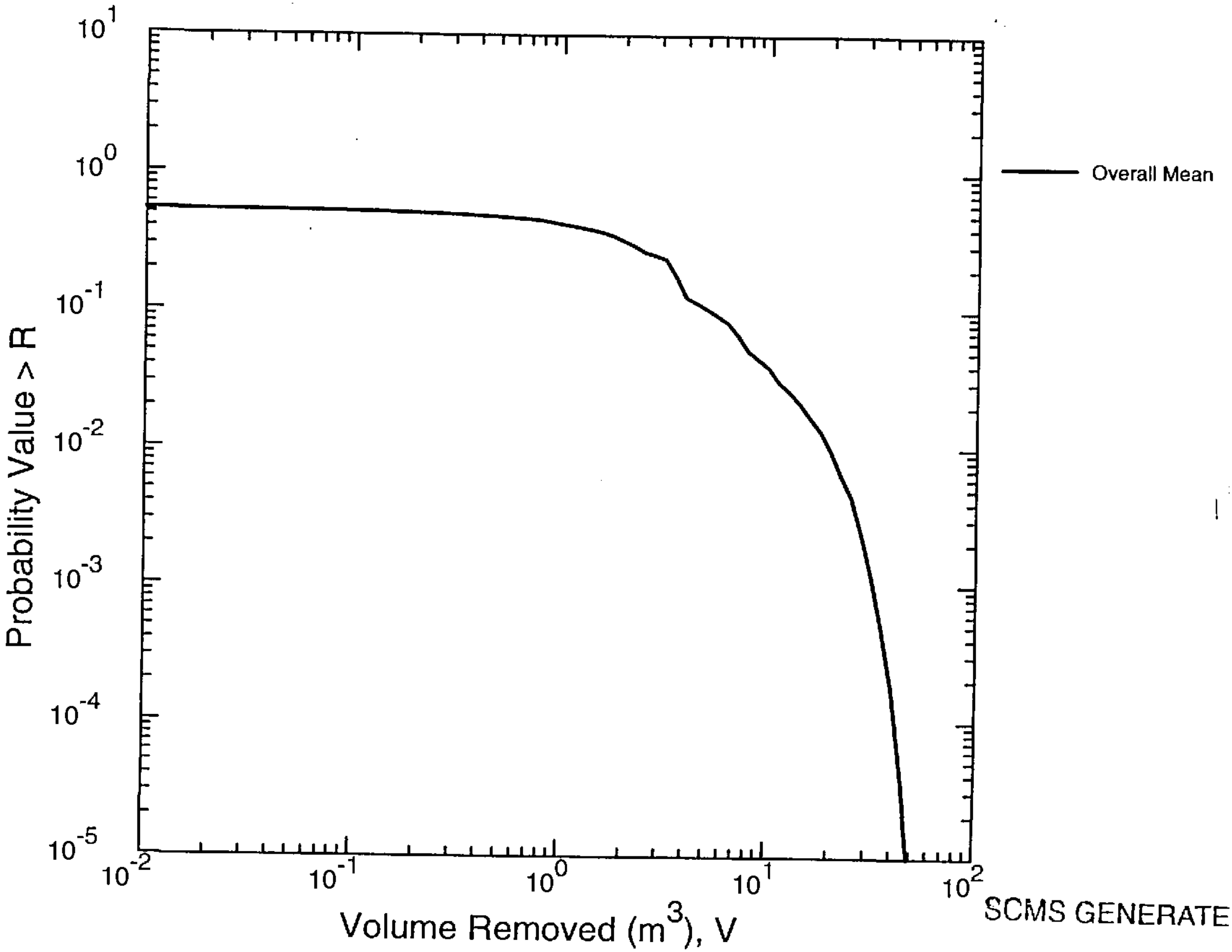


SCMS GENERATED

G.75

10/07/96 11:20:11

OCT 07 '96 LOG # 0006



Spallings Volume Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation

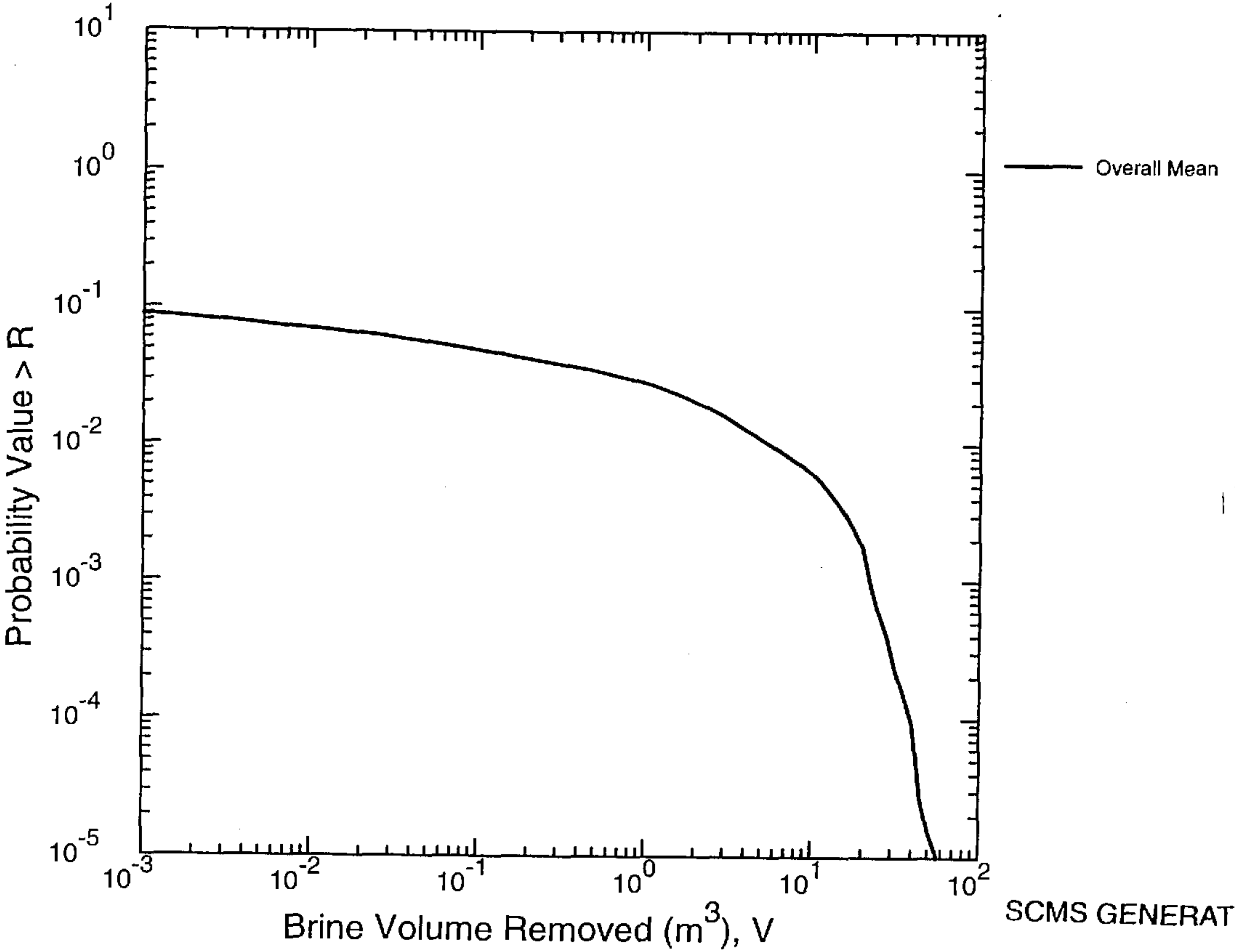
SCMS GENERATED

10/07/96 11:20:11

G.76

OCT 07 '96 LOG # 0006

~~Blowout~~ DBR Volume Releases: R1, R2, R3
300 Observations, 10000 Futures/Observation



SCMS GENERATED

10/07/96 11:20:11

6.77

OCT 07 '96 LOG # 0006

APPENDIX H

CODE VERSIONS AND SOFTWARE PROBLEM REPORT (SPR) NUMBERS

PA Verification Runs		Associated SPR's and Change Controls		
Code Name	Version	SPR No.	Code Version	Change Control
BRAGFLO	4.10	97-002	4.00, 4.01	5/12/97 (All SPR's addressed by one Change Control Form)
		97-003	4.00, 4.01	
		97-007	4.00, 4.01	
		97-008	4.00, 4.01	
		97-009	4.00, 4.01	
		97-010	4.00, 4.01	
NUTS	2.05	97-004	2.03	3/26/97 (2.03 to 2.04) 6/18/97 (2.04 to 2.05)
PANEL	3.60			
SECOFL2D	3.03			
SECOTP2D	1.41	97-006	1.30, 1.31	6/9/97 (All SPR's addressed by one Change Control Form)
		97-012	1.30, 1.31	
		97-013	1.30, 1.31	
CUTTINGS_S	5.04			
SUMMARIZE	2.15	96-007	2.10	7/18/96
CCDGGF	3.00	97-005	2.01	5/20/97
CCDGSUM	2.00			